TECHNICAL MANUAL

AVIATION UNIT MAINTENANCE(AVUM) AND
AVIATION INTERMEDIATE MAINTENANCE (AVIM)
MANUAL

NONDESTRUCTIVE INSPECTION PROCEDURES
FOR
UH-1 HELICOPTER SERIES

HEADQUARTERS, DEPARTMENT OF THE ARMY
30 NOVEMBER 1996

WARNING SUMMARY

Personnel performing inspections involving operations, procedures, and practices, which are included or implied in this technical manual, shall observe the following instructions.

WARNING

Highlights an operation, procedure, practice, condition, statement, etc., if not strictly observed, could result in injury to, or death of, personnel.

CAUTION

Highlights an operation, procedure, practice, condition, statement;, etc., if not strictly observed, could result in damage to or destruction of equipment or loss of mission effectiveness.

NOTE

Highlights an essential operation, procedure, condition, or statement.

The following are general safety precautions that are not related to any specific procedures and, therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of nondestructive inspections.

GENERAL

Assure compliance with safety requirements in Technical Manual, Nondestructive Inspection Methods, TM 55-1500-335-23.

Assure compliance with the safety and precautionary measures addressed in the applicable technical manuals listed in Table 1-1. Refer to these manuals for detailed information relating to safety considerations for the specific area or system on which the nondestructive inspection procedure is to be performed.

WARNING

Aircraft Grounding

All aircraft shall be grounded in accordance with FM 55-41 at all times.

WARNING

Electrical Hazard

Assure that all safety precautions for using electrical equipment near aircraft fuel cells, oxygen systems, and stores have been met.

WARNING

Solvents

Most solvents are flammable. Keep away from heat and open flame. Vapors may be harmful. Use with adequate ventilation. Avoid prolonged or repeated breathing of vapor. Avoid contact with skin and eyes. Do not take internally. Comply with pollution control rules concerning photochemically reactive solvents.

WARNING

Keep Away From Live Circuits

Inspection personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside equipment with a high voltage supply turned on. Under certain conditions, dangerous potentials may exist even when the power control is in the off position, due to charges retained by capacitors. To avoid injuries, always remove power. Discharge and ground a circuit before touching it. Make sure that equipment is grounded to same earth ground as aircraft.

WARNING

Electrical and Electronic Equipment

Do not wear rings, watches, or metal jewelry when working around electrical equipment.

RESUSCITATION

Personnel working with or near high voltages should be familiar with modern methods of resuscitation. Such information may be obtained from the Office of Bioenvironment Health or is listed in FM 21-11.

WARNING

Cleaning Solvents

- **Those areas where skin and clothing come in contact with cleaning solvents should be washed thoroughly and immediately after contact.**
- **Saturated clothing should be removed immediately.**
- **Areas where cleaning solvents are used should be adequately ventilated to keep vapors to a minimum.**
- **In case of contact with eyes, nose, or ears, flush them with generous quantities of water and then seek medical attention immediately.**

WARNING

Foreign Object Damage

- **Make sure area is clear of foreign objects before closing access doors, panels, and fairings.**
- **If area is not clear, damage to components or systems could result in personal injury or death.**

WARNING

Lifting Components with Hoist

- **Lifting or hoisting of components shall be done only by designated personnel.**
- **Before lifting, alert personnel in immediate areas.**
- **Before lifting, balance the load.**
- **Do not stand under load while it is being moved from one area to another on a hoist.**
- **Do not stand under load to do inspection work.**

WARNING

Compressed Air

- **Do not use more than 30 PSIG compressed air for cleaning purposes.**
- **Use eye protection to prevent injury to personnel.**

The following are warnings and cautions related to specific procedures that appear elsewhere in this publication. These are precautions that personnel must understand and apply during nondestructive inspections.

WARNING

To prevent injury to personnel and damage to helicopter, stand only on designated surfaces. These areas are reinforced to withstand frequent use and are treaded to prevent slipping. All other surfaces are NO STEP areas.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

WARNING

Cleaning solvents P-D-680, Type II and MIL-C-38736 are flammable. Avoid eye and skin contact or breathing vapors. Protective equipment consisting of goggles, gloves, and respiratory protection is required.

WARNING

Electrical equipment shall not be operated in areas where combustible gases or vapors may be present, unless the equipment is explosion proof.

WARNING

- **Black lights generate considerable heat during use. Extreme care must be exercised to prevent contacting the housing with any part of the body.**
- **To prevent injury to eyes, do not look directly into black light.**
- **Prolonged direct exposure of hands to the filtered black light's main beam may be harmful. Suitable gloves shall be worn when exposing hands to the main beam.**

WARNING

Prolonged or repeated inhalation of vapors or powders may result in irritation of mucous membrane areas of the nose.

WARNING

Continual exposure to penetrant inspection material may cause skin irritation.

WARNING

Temperatures in excess of 49°C (120°F) may cause bursting of pressurized cans and injury to personnel.

WARNING

Volatile fumes may occur, creating both a fire and health hazard.

WARNING

Prolonged breathing of vapor from organic solvents, degreasers, or paint thinners is dangerous. Use respirators in confined areas per Occupational and Environmental Health Respiratory Protection Program (TB MED 502 (DLAM 1000.2)). Have adequate ventilation. Avoid prolonged skin contact. Wear rubber gloves and goggles.

WARNING

Radiation Hazard

Assure compliance with all applicable safety precautions set forth in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) listed in Table 1-1. A hazard associated with exposure to ionizing radiation is that serious injury can be inflicted without pain, burning, or other sense of discomfort during the exposure period. Radiation protection shall be utilized in accordance with AR40-14/DLAR 1000.28.

CAUTION

Do not use cleaning solvent MIL-C-38736 on acrylic lacquer, as it may soften finish.

CAUTION

Penetrant-Emulsifier/Remover Combinations (lipophillic/hydrophilic) from one manufacturer may not be mixed or used in conjunction with materials from a different manufacturer.

CAUTION

Do not operate magnetic particle equipment within 36 inches of aircraft instruments.

CAUTION

Misinterpretation of indications can result in rejectable parts being accepted and acceptable parts being rejected. Only NDI personnel trained and qualified in accordance with applicable military standards and technical manuals shall perform and interpret nondestructive inspections.

TECHNICAL MANUAL

No. 1-1520-256-23

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C. 30 November 1996

Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for UH-1 Helicopter Series

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished to you.

DISTRIBUTION STATEMENT A Approved for Public Release; Distribution Unlimited

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

Section/Paragraph | Page

TABLE OF CONTENTS - Continued

Section/Paragraph Page

TABLE OF CONTENTS - Continued

Section/Paragraph Page

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS - Continued

LIST OF ILLUSTRATIONS - Continued

LIST OF ILLUSTRATIONS - Continued

LIST OF ILLUSTRATIONS - Continued

LIST OF ILLUSTRATIONS - Continued

LIST OF TABLES

SECTION I

INTRODUCTION

1. INTRODUCTION.

a. This manual contains instructions for accomplishing Nondestructive Inspection (NDI) of the UH-1 helicopter series at the AVUM and AVIM levels. The procedures described in this manual are intended to provide instructions for the NDI of locations where service defects would prevent items from performing their designated functions, and of components for serviceability. These procedures were developed through review of UH-1 Technical Manual inspection requirements. The goal is to upgrade these requirements wherever possible using NDI methodology to improve inspection quality, decrease inspection time, and increase systems operational readiness. Other factors involved were maintenance engineering analysis, experience, and comparison with similar installations. Procedures shall be reviewed and changes and additions made during the service life of the equipment by continually evaluating the following: performance of the equipment, results of scheduled inspections, and thorough study of failure data. Local conditions, such as special utilization of climatic environment, may dictate more detailed inspections. Commanders and their maintenance officers are expected to exercise their prerogative to increase the frequency and scope of any inspection as required.

b. This manual may pertain to part, or all types and series, of a model, and may, therefore, contain requirements applicable to specific equipment that is not installed on an individual model. When this situation is encountered, those requirements that are not applicable should be disregarded.

c. This manual does not contain inspection level or frequency, acceptance and rejection limitations, nor instructions for correcting defective conditions. Inspection levels and frequency are provided in the inspection requirements manuals. Detailed acceptance and rejection criteria and instructions for correcting defective conditions are provided in applicable maintenance manuals and are, therefore, not contained in this manual. Decisions regarding the serviceability of components properly belong with maintenance technicians trained, skilled, and experienced in their particular specialty, such as airframe, hydraulic, or propulsion. Also, it would duplicate existing information and make the task of incorporating the numerous changes to inspection frequency and repair instructions impractical.

d. The inspection requirements are stated in such a manner as to address the following: (1) What part or area is to be inspected? (2) What conditions are to be sought? (3) What NDI method is to be used? (4) How is the method to be performed? In scope, the inspection procedures are designed to direct attention of maintenance personnel to components and areas where service defects can occur. The procedures also provide detailed instructions on the application of NDI in an effort to ensure the serviceability of these areas.

e. Nondestructive inspection methods require application by trained, experienced, and proficient technicians. This manual provides detailed procedures for the application of nondestructive methods to inspect specific areas or locations. However, it must be emphasized that the reliability of the inspection depends upon the proper evaluation of the results obtained from the inspection equipment.

f. While using this manual, such adjectives as left and right, upper and lower, front and rear, forward and aft, and clockwise and counterclockwise refer to the helicopter as viewed from the rear (aft), looking forward.

g. Changes and supplements to this manual will be published when necessary to add, delete, or change the scope of requirements. Such changes will be based on factual data accumulated as a result of maintenance experience with the equipment. Suggested new or revised field developed inspection procedures or changes to this manual are encouraged and should be made by submitting -L a DA Form 2028. Mail to: U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798.

h. These NDI procedures are directive in nature, and deviation without prior approval is limited to compensation for differences in equipment output. Equipment settings, when given, are reference points only, due to the widely varying outputs from different inspection equipment. The condition that must be satisfied for accurate inspection is that the inspection equipment be adjusted to obtain the specified response from the set-up or defect standard, or the specified density reading on radiographic film. Trained NDI technicians are qualified to make these adjustments.

1.1 GENERAL INFORMATION.

CAUTION

Misinterpretation of indications can result in rejectable parts being accepted and acceptable parts being rejected. Only NDI personnel trained and qualified in accordance with applicable military standards and technical manuals shall perform and interpret nondestructive inspections.

a. This manual provides necessary information to enable qualified personnel to perform NDI on UH-1 helicopter series. The selection of components in this manual is based on a review of applicable technical manuals listed in Table 1-1. All existing NDI callouts were updated. New NDI procedures were developed for those parts that required check, inspect, or any other NDI related actions. Section I of this manual contains a list of special terms, abbreviations, acronyms, information on how to use the manual, use of NDI symbols, and a list of publications. Section I also contains general information on the UH-1 helicopter series, including descriptive data, access panels, major assemblies, stops, handholds, walkways, various NDI method descriptions, and rules of safety to be observed during nondestructive inspections.

b. Additional information on inspection methods can be found in the Technical Manual, Nondestructive Inspection Methods, TM 55-1500-335-23. Detailed inspection instructions for each main aircraft group are given in Sections II through VI of this manual.

Table 1-1. Supporting Technical Documentation

Document	Description
AR40-14/DLAR 1000.28	Medical Services, Control and Recording Procedures for Exposure to Ionizing Radiation and Radioactive Materials
ASTM-E1444	Standard Practice for Magnetic Particle Inspection
DA PAM 738-751	Functional Users Manual for the Army Maintenance Management System - Aviation (TAMMS-A)
DOD 6050.5 (HMIS)	Hazardous Materials Information System (HMIS)
FM 21-11	First Aid for Soldiers
MIL-STD-410	Nondestructive Testing, Personnel Qualification and Certification
MIL-STD-453	Inspection, Radiographic
MIL-STD-2154	Inspection, Ultrasonic, Wrought Metals, Process for
MIL-STD-6866	Inspection, Liquid Penetrant
TB MED 502 (DLAM 1000.2)	Occupational and Environmental Health Respiratory Protection Program
TB MED 251	Surgeon General's Hearing Conservation Criteria
TM 55-1500-335-23	Nondestructive Inspection Methods
TM 1-1500-344-23	Aircraft Weapons Systems Cleaning and Corrosion Control
TM 55-1520-210-23 (Series)	Aviation Unit and Intermediate Maintenance Instructions Army Model UH-1 HN/EH-1 H/X Helicopters
Chapter 1	Aircraft General
Chapter 2	Airframe
Chapter 3	Alighting Gear
Chapter 4	Power Plant
Chapter 5	Rotors
Chapter 6	Drivetrain System

Table 1-1. Supporting Technical Documentation - Continued

Document	Description
Chapter 7	Hydraulic and Pneumatic Systems
Chapter 11	Flight Controls
TM 55-2840-229-23 (Series)	Aviation Unit and Aviation Intermediate Maintenance Manual Engine, Assembly, Model T53-L-13

1.1.1 Special Terms, Abbreviations, and Acronyms.

AC	Alternating Current
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
BES	Boom Extension Station
BL	Buttock Line
BS	Boom Station
BT	Bond Testing Method
C	Celsius
CCW	Counterclockwise
CL	Center Line
CRT	Cathode Ray Tube
CW	Clockwise
DAC	Distance Amplitude Correction
DC	Direct Current
EDM	Electrically Discharged Machined Notches
ET	Eddy Current Method
F	Fahrenheit
FS	Fuselage Station
FSH	Full Screen Height
FWD	Forward
HdB	Horizontal Decibels (Gain)
H Pos	Horizontal Position
HPF	High Pass Filter
ID	Inside Diameter
IFR	Instrument Flight Rules
INBD	Inboard
IPS	Improved Particle Separator
IR	Infrared

KHz	Kilohertz
LCD	Liquid Crystal Display
LE	Leading Edge
LH	Left-hand (left side of aircraft aft looking forward)
LPF	Low Pass Filter
MAX	Maximum
MHz	Megahertz
MIN	Minimum
MT	Magnetic Particle Method
NDI	Nondestructive Inspection
OUTBD	Outboard
P/N	Part Number
PSI	Pounds per Square Inch
PSIG	Pounds per Square Inch Gauged
PT	Fluorescent Penetrant Method
RH	Right-hand (right side of aircraft aft looking forward)
ROT	Rotation
RT	Radiographic Method
STA	Station
TM	Technical Manual
UT	Ultrasonic Method
VdB	Vertical Decibels (Gain)
V Pos	Vertical Position
WL	Water Line

1.1.2 How to Use This Manual. This manual is divided into six sections as follows:

I Introduction
II Rotor Group
III Transmission/Drivetrain Group
IV Airframe and Landing Gear Group
V Engine Group
VI Flight Control Group

Section I contains the introduction and general information pertaining to the UH-1 helicopter series and Nondestructive Inspections. Sections II through VI contain detailed inspection procedures for specific items located within each group. In general, inspection items are grouped with respect to part location and function. To use the manual, it is necessary to know the group and name of the inspection item.

When the group and part name are known:

a. Turn to the applicable section of the manual covering that group. Refer to the group inspection index table at the beginning of the section. If the item is listed, the corresponding paragraph and figure number will be referenced in the table.

b. Turn to referenced inspection paragraph and figure for detailed inspection information.

1.1.3 Inspection Item Code. When inspection items, due to their proximity, are grouped in one illustration, the figure will be indexed using the inspection item code. This code consists of digits separated by dashes. In the text, the inspection item is identified as follows:

a. The first digit refers to the section of the manual in which the item appears. Example: Paragraph 2.5 is found in Section II.

b. The second digit refers to the item number or order that the part procedure occurs in the manual section. Example: Paragraph 2.5 refers to item number 5.

1.1.4 Use of NDI Symbols. Nondestructive Inspection symbols and their application to detail inspection figures are shown in Figure 1-1. In the main figures of each section, NDI symbols representing the type of inspection associated with a part will appear next to the item number on the figure.

1.1.5 Use of Reference Publications. This manual is applicable to the UH-1 helicopter series. The technician shall be responsible for using the applicable referenced TM for the helicopter being inspected.

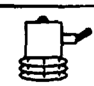
1.1.6 Related Publications. Supporting TMs and reference materials are listed in Table 1-1.

1.1.7 Description. Army helicopter models UH-1V, UH-1H, EH-1H, and EH-1X are single engine, utility type helicopters. The fuselage is all metal construction consisting of the forward section and aft section (tailboom). The forward section provides support for the cabin, landing gear, power plant, fuel cells, transmission, and tailboom. The rotor system consists of a two-bladed, semi-rigid main rotor and a two-bladed, delta-hinged tail rotor. The EH-1H and EH-1X are especially configured for electronic countermeasures missions.

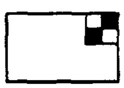
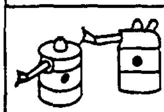
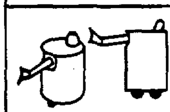
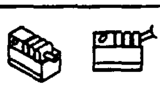
METHOD OF INSPECTION

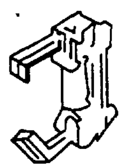
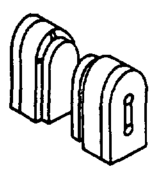
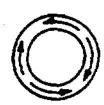
USED IN ILLUSTRATIONS TO IDENTIFY THE TYPE OF INSPECTION METHODS BEING ILLUSTRATED

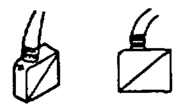
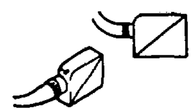
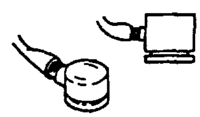
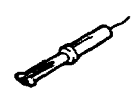
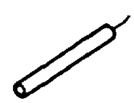
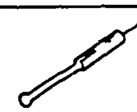
	PENETRANT
	MAGNETIC PARTICLE
	EDDY CURRENT

	ULTRASONIC
	RADIOGRAPHIC
	BOND TEST

SUPPLEMENTAL SYMBOLS

	RADIOGRAPHIC FILM PLACEMENT
	RADIOGRAPHIC FILM IDENTIFICATION MARKER
	RADIOGRAPHIC AIMING POINT
	RADIOGRAPHIC TUBEHEAD LOCATION
	BOND TEST STANDARD PROBE
	BOND TEST NONMETALLIC PROBE
	BOND TEST MINI–PROBE

	MAGNETIC CONTOUR PROBE
	MAGNETIC STATIONARY UNIT
	MAGNETIC PARTICLE COIL
	DIRECTION OF EDDY CURRENT SCAN

	ULTRASONIC SHEAR OR SURFACE WAVE TRANSDUCER TOP MOUNTED
	ULTRASONIC SHEAR OR SURFACE WAVE TRANSDUCER END MOUNTED
	ULTRASONIC LONGITUDINAL WAVE TRANSDUCER
	EDDY CURRENT BOLT HOLE PROBE
	EDDY CURRENT GENERAL PURPOSE PROBE
	EDDY CURRENT RADIUS PROBE

NDI_UH-1_F1_1

Figure 1-1. Nondestructive Inspection Symbols

1.1.8 Configuration. The general configuration of the UH-1 helicopter series is shown in Figure 1-2.

1.1.9 Station, Water, Buttock, and Fin Station Lines. Stations, water lines, buttock lines, and fin station lines provide an accurate method of locating or installing parts and/or equipment in the airframe (Figure 1-3). Definitions of the reference lines follows:

a. Fuselage Station Lines. Fuselage station lines (FS) are vertical reference lines against the helicopter which are used to locate major assemblies and parts of the structure. FS numbers indicate the distance in inches from a line of origin, located approximately 7.60 inches aft of the most forward nose contour and designated as Station O.

b. Boom Station Lines. Boom station lines (BS) are reference lines perpendicular to the centerline of the tailboom. Boom Stations indicate the distance in inches from a line of origin, located approximately 59.5 inches forward of boom station 59.5.

c. Boom Extension Station Lines. Boom extension station lines (BES) are reference lines, the same as boom station lines, except BES lines indicate the distance in inches from a line of origin approximately 17.37 inches forward of the most forward surface of the boom structure. BES lines terminate at BES 59.5.

d. Water Lines. Water lines (WL) are horizontal reference lines (viewed from the side or front of helicopter) used to locate major assemblies and parts of the structure by a number indicating the distance in inches from a line of origin located below the lower skin contour and designated as Water Line O.

e. Buttock Lines. Buttock lines (BL) are vertical reference lines used to locate major assemblies and parts of the structure by a number indicating the distance in inches on each side of the helicopter centerline, which is designated at Buttock Line O.

f. Fin Station Lines. Fin station lines (FS) are reference lines perpendicular to the centerline of the fin. Fin stations indicate the distance in inches from a line of origin approximately 5.0 inches above the tail rotor gearbox fitting.

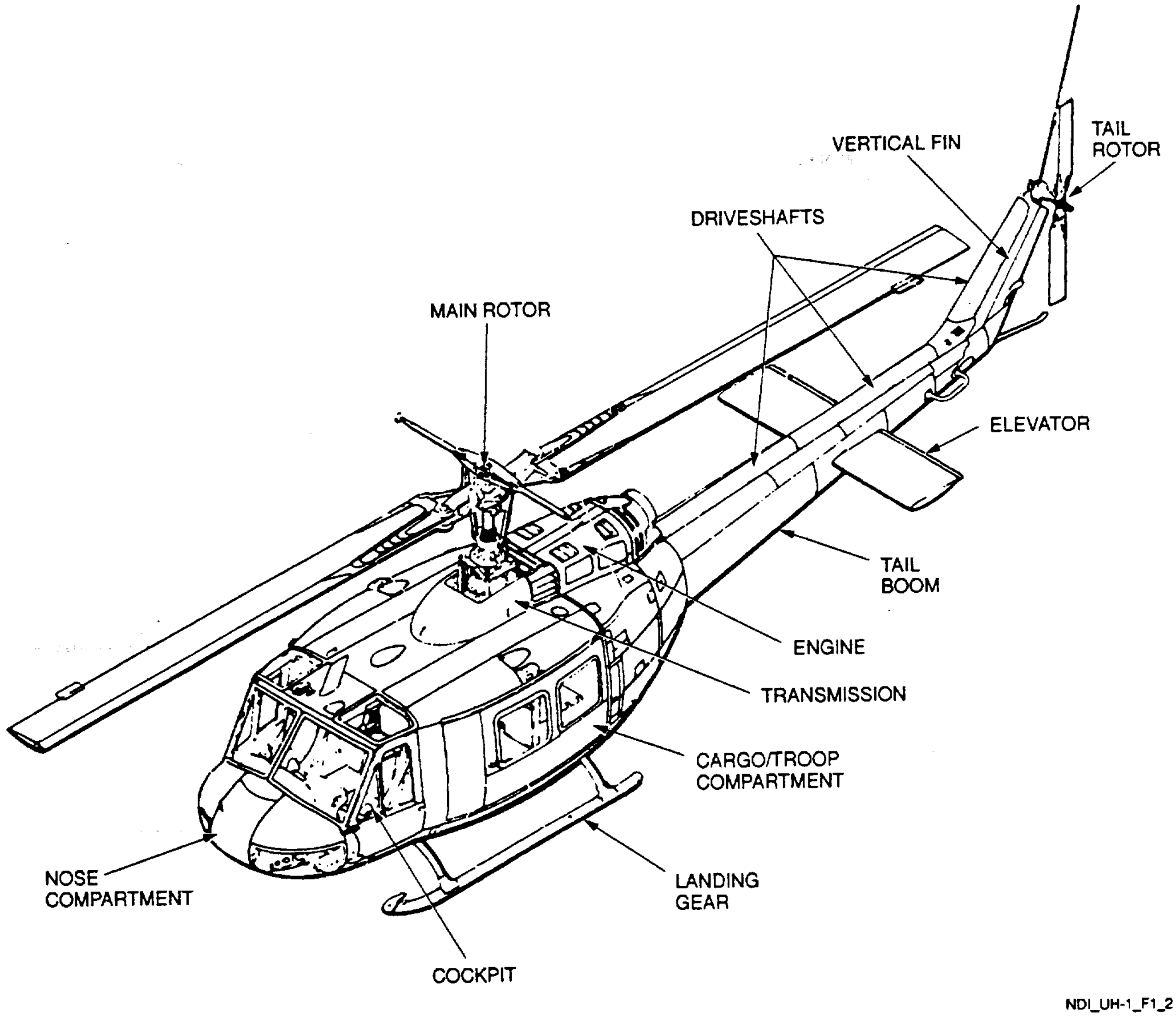


Figure 1-2. General Configuration of UH-1 Helicopter

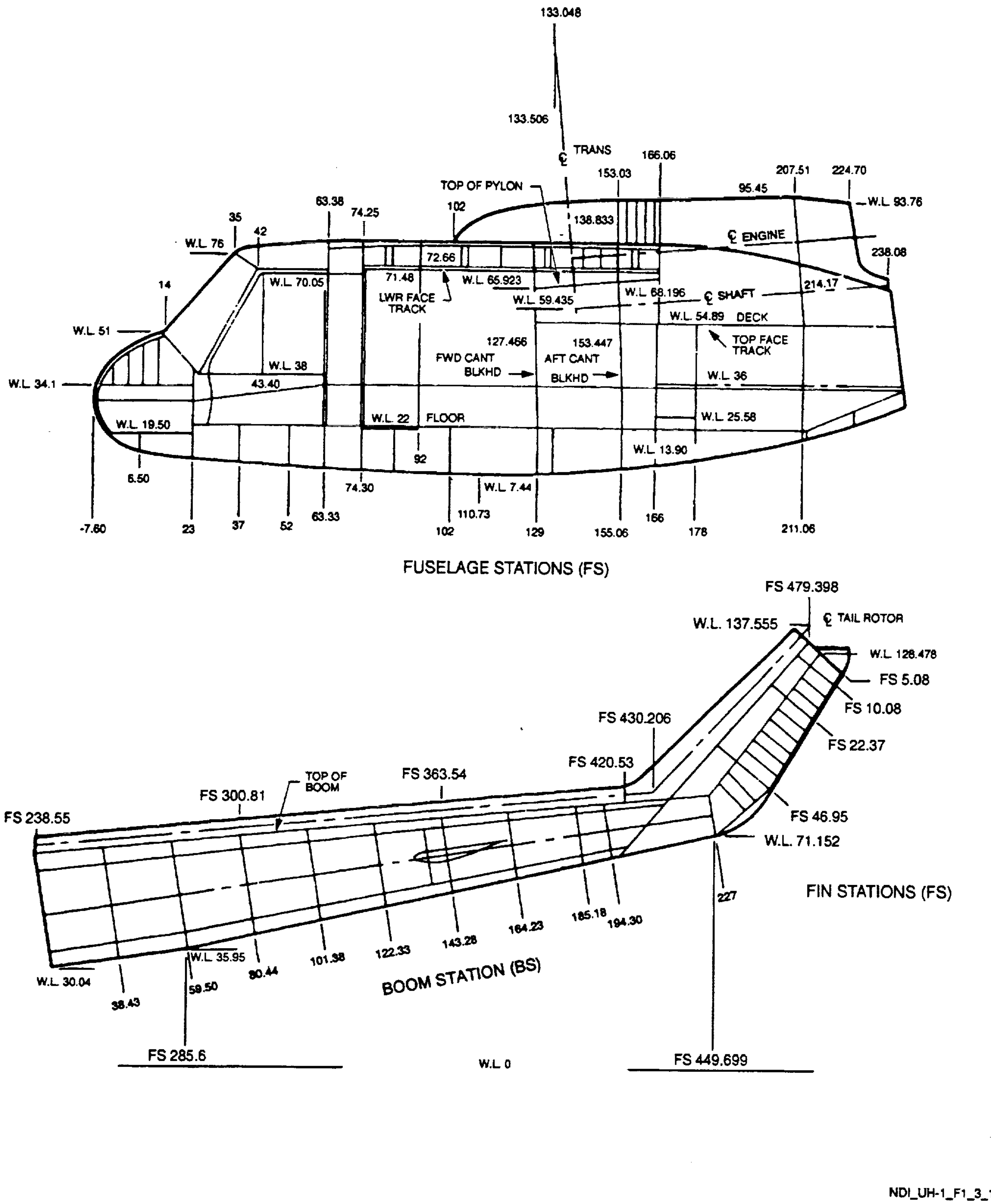


Figure 1-3. Station, Water, Buttock, and Fin Station Lines (Sheet 1 of 2)

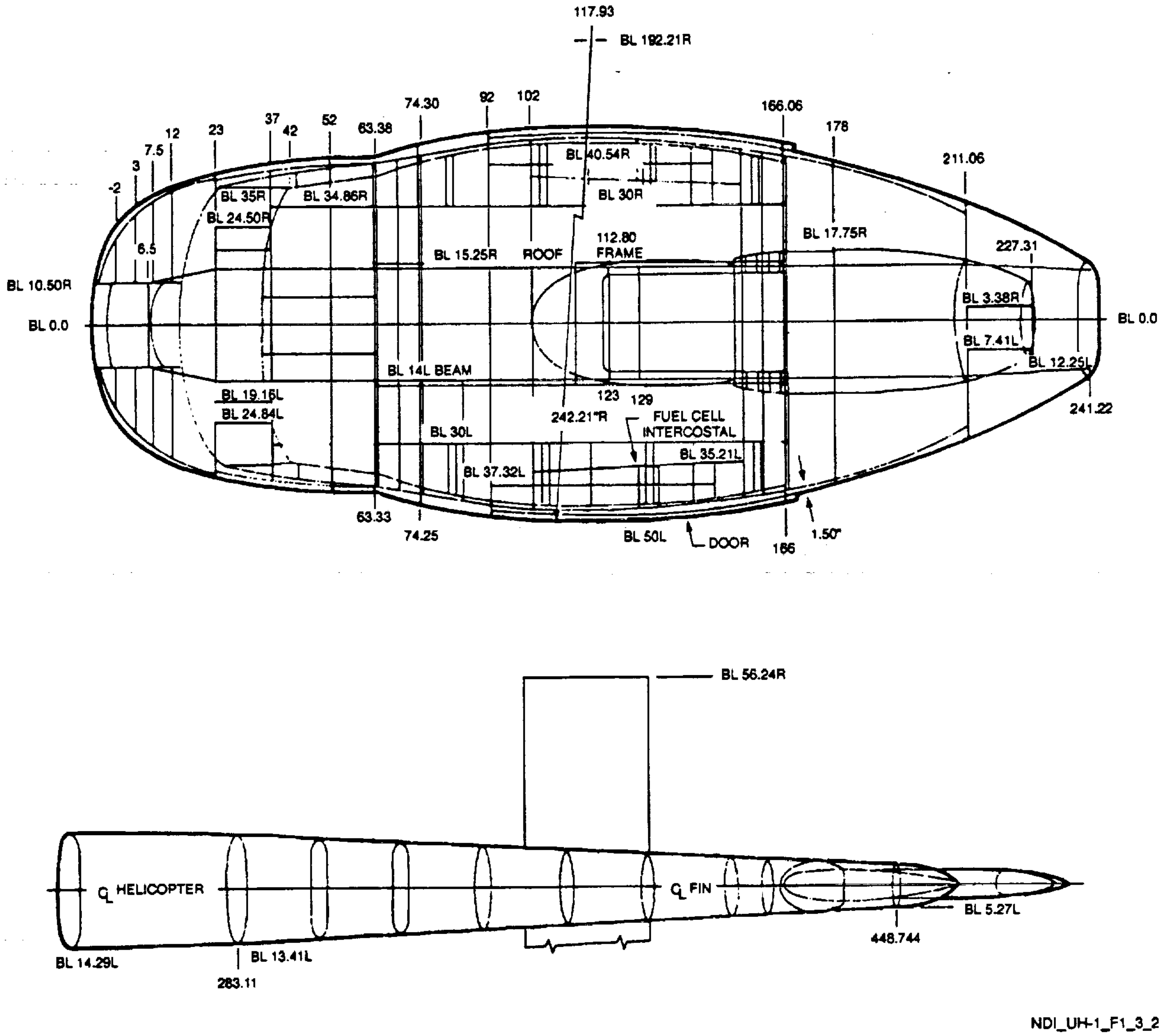


Figure 1-3. Station, Water, Buttock, and Fin Station Lines (Sheet 2 of 2)

1.2 TYPE OF CONSTRUCTION.

NOTE

The following paragraphs describe the type of construction and materials used in the manufacture of the major UH-1 helicopter series components.

1.2.1 Rotor Group. The rotor systems utilized are the main rotor and controls system and the tail rotor and controls system.

The main rotor system includes a two-blade, semirigid rotor; a stabilizer bar with dampers; a swashplate and support; a scissors and collective sleeve; and interconnecting linkage. The rotor is mounted through two pillow blocks which provide a flapping axis. Main rotor blades are attached to grips which rotate on yoke spindles to change blade pitch. The main rotor blades are either fiberglass composite material or all-metal bonded assemblies. Each blade is formed of four major sections: main spar, honeycomb core, trailing edge extrusion, and nose block extrusion. Reinforcing doublers, grip plates, and drag plates are attached on the blade buttock end. Metal blades and composite blades have stainless strips covering the leading edges for resistance to abrasion.

The tail rotor system consists of the tail rotor hub and blade assembly and the pitch change mechanism. The hub and blade assembly is mounted on the left side of the tail rotor gearbox and is driven through the gearbox. The pitch change mechanism controls pitch angle of the tail rotor blades by a pitch change rod mounted through the gearbox, a crosshead, and pitch change links. The pitch change mechanism is actuated by control pedals through a series of control tubes, a hydraulic cylinder, a quadrant, and cables extending through the tailboom from the quadrant to the pitch change mechanism. The tail rotor blades consist of an all metal shell bonded to a honeycomb core. Reinforcing doublers are bonded to the blade in the area of the retention bolt holes. The blade leading edge is covered with an abrasive strip to reduce erosion.

1.2.2 Transmission/Drivetrain Group. A universal transmission is used. The transmission is located directly ahead of the engine and is suspended by pylon-isolating mounts on structural supports. The transmission is coupled to the engine by the main driveshaft and provides drive angle change and speed reduction through a train of spiral bevel gears and two-stage planetary gears to drive the main rotor mast. A free wheel clutch in the input drive quill coupling disengages to allow the main rotor and gear train to turn freely when the engine is stopped or is idling below rotor driving speed, as in auto-rotational descent. Secondary gear trains drive the tail rotor shaft, DC generator, rotor tachometer generator, hydraulic pump, and transmission oil pump.

Six driveshaft sections are incorporated in the power train aft of the transmission tail rotor drive quill; these driveshafts serve as a line between four bearing hanger assemblies on the intermediate gearbox on the tailboom and a tail rotor gearbox on the vertical fin. The tail rotor gearbox provides a 90° change in direction of drive and 2.6:1 speed reduction between the input driveshaft and its output shaft on which the tail rotor is mounted.

1.2.3 Airframe and Landing Gear Group. The fuselage consists of two main sections: the forward section and aft section (tailboom). The forward section includes the landing gear.

The forward section construction is made up of a primary structure of two main beams with transverse bulkheads. The primary structure provides support for the cabin section, fuel cells, transmission, landing gear, engine, and tailboom. The forward section employs aluminum alloy and fiberglass skins, aluminum alloy honeycomb panels, and titanium work decks and firewalls.

The aft section (tailboom) is a semimonologue structure, employing aluminum and magnesium alloy skins, longerons, bulkheads, and stringers. The vertical fin consists of aluminum alloy forward and aft spars, aluminum alloy trailing edge extrusion, and aluminum alloy ribs and skins.

The landing gear assembly consists of two skid tubes attached on the ends of two arched crosstubes which are secured to the fuselage structure by font padded caps. Each skid tube assembly is fitted with a forward end step, tow ring fitting, two saddles with sockets for forward and aft crosstubes, a two piece replaceable shoe along the bottom of the skid tube, a rear end cap, and two eyebolt fittings for mounting ground handling wheels. Crosstubes are fitted with bearing straps at fuselage attachment locations.

1.2.4 Engine Group. The power plant installation consists of a shaft turbine engine, T 53-L-13B, a two-stage gas productor turbine that is capable of 1400 horsepower developed at takeoff (military) power rating at sea level and standard day condition.-The engine is mounted longitudinally on the helicopter. It is supported by a horizontal titanium deck on the upper aft area of the forward fuselage section. The engine is broken down into eight areas of maintenance: accessory gearbox assembly, compressor assembly, combustor assembly, turbine section, electrical section, fuel section, lubrication system; and drive system. All areas are accessible through left and right side access doors and panels.

1.2.5 Flight Control Group. The flight control system consists of the collective pitch control system, cyclic control system (pitch and roll), elevator control system, and tail rotor (directional) control system. The flight control systems are mechanical linkages, actuated by conventional controls, and are used to control flight attitude and direction.

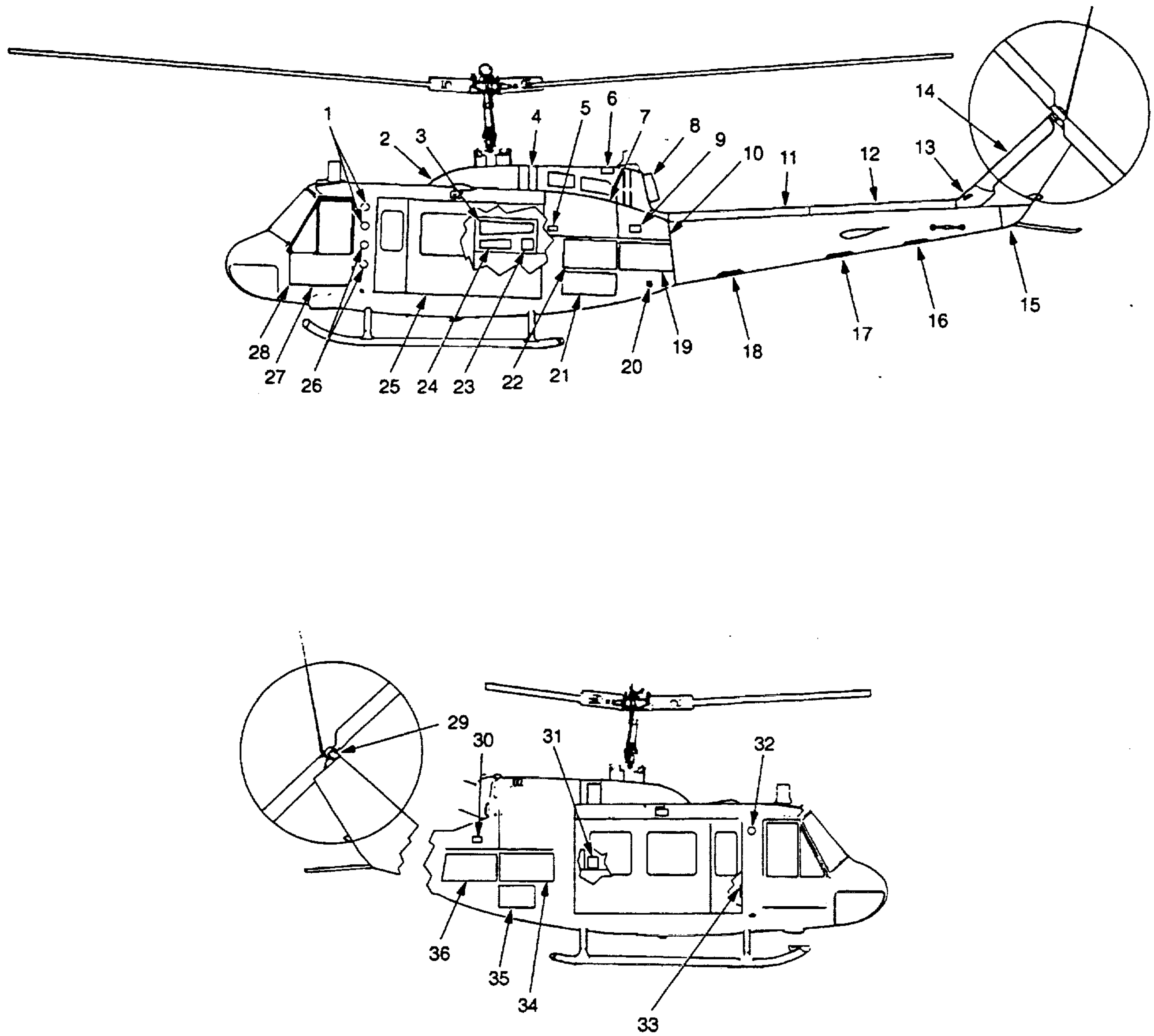
The flight control systems are a straight through system with hydraulic boost. A synchronized elevator is linked into the fore and aft control system at the swashplate. Electrically operated force trims, connected to cyclic and tail rotor controls, induce artificial feel and stabilize the control stick and tail rotor control pedals.

1.2.6 Access Panels, Doors, and Fairings. Access panels and fairings consist of the access doors, covers, screens, platforms, and openings. Inspection of the helicopter and its components can be done through principal access panels. Principal access and inspection openings are shown in Figure 1-4 and listed in Table 1-2.

WARNING

To prevent injury to personnel and damage to helicopter, stand only on designated surfaces. These areas are reinforced to withstand frequent use and are treaded to prevent slipping. All other surfaces are NO STEP areas.

1.2.7 Steps, Handholds, and Walkways. Steps, handholds, and walkways aid in doing maintenance, inspections, and servicing on the helicopter.



NDI_UH-1_F1_4_1

Figure 14. Access Panels, Doors, and Fairings (Sheet 1 of 2)

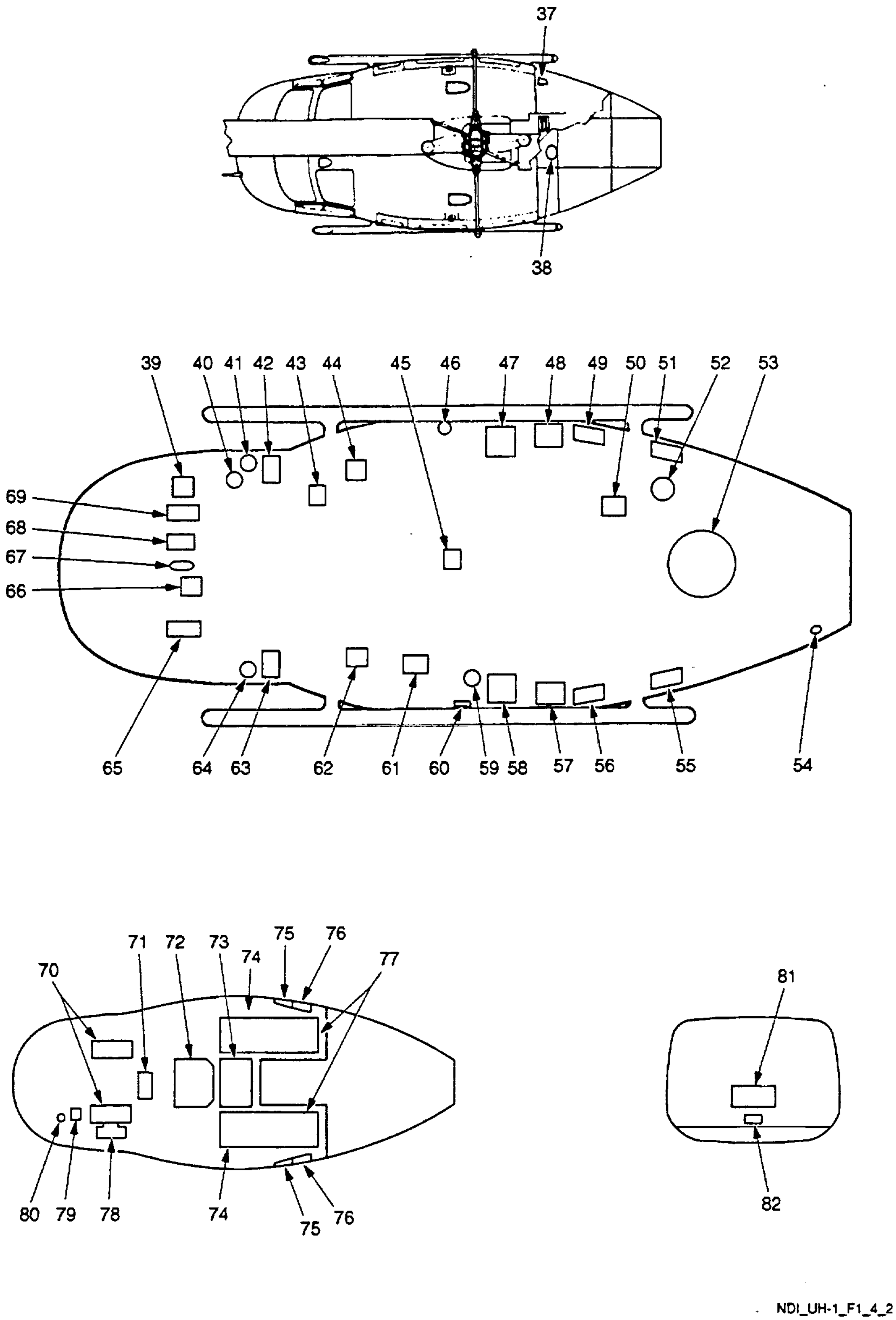


Figure 1-4. Access Panels, Doors, and Fairings (Sheet 2 of 2)

Table 1-2. Access Panels, Doors, and Fairings

Item No.	Item	Access To
1	Door	Stowage
2	Fairing	Transmission
3	Door	Pylon
4	Cowl	Engine
5	Door	Fire extinguishing
6	Cowl	Upper engine
7	Cowl	Lower engine
8	Fairing (Upper)	Tailpipe
9	Door	Driveshaft and electrical disconnect
10	Fairing (Lower)	Tailpipe
11	Cover	Forward tail rotor shaft
12	Cover	Aft tail rotor shaft
13	Cover	Intermediate gearbox
14	Cover	Vertical fin driveshaft
15	Fairing	Ventral fin
16	Door	General
17	Door	Flight controls
18	Door	Flight controls
19	Door	Electrical controls
20	Door	External power
21	Door	Electronic equipment
22	Door	General
23	Door	Fuel control
24	Door	Lower pylon
25	Door	Cargo
26	Cover Plate	Emergency door release
27	Door	Lower window
28	Door	Crew
29	Cover	Tail rotor chain
30	Door	Driveshaft
31	Door	General
32	Door	General stowage
33	Cover Plate	General
34	Door	Cargo hook mirror
35	Door	General
36	Door	General
37	Door	Engine oil tank
38	Door	Fuel cell
39	Door	Flight controls
40	Door	Flight controls
41	Door	Flight controls
42	Door	Flight controls
43	Door	Flight controls
44	Door	General
45	Door	Fuel lines
46	Door	External stores jettison cable

Table 1-2. Access Panels, Doors, and Fairings - Continued

Item No.	Item	Access To
47	Door	External stores disconnect
48	Door	Fuel lines
49	Door	Ammunition chute
50	Door	Fuel lines
51	Door	Cabin heater duct
52	Door	Fuel lines
53	Door	General
54	Door	General
55	Door	Cabin heater duct
56	Door	Ammunition chute
57	Door	Fuel lines
58	Door	External stores disconnect
59	Door	Fuel lines
60	Door	External stores jettison cable
61	Door	General
62	Door	Cabin heater duct
63	Door	Cabin heater duct
64	Door	Flight controls
65	Door	Flight controls
66	Door	Flight controls
67	Cover	Antenna
68	Door	General
69	Door	Flight controls
70	Door	Controls
71	Door	Controls
72	Door	General
73	Door	General
74	Door	Fuel cell
75	Cover Plate	Auxiliary fuel tank fittings
76	Cover Plate	Gun chute tunnel
77	Doors	Fuel fitting
78	Cover	Dual collective stick
79	Cover	Dual cyclic stick
80	Cover	Cyclic stick electrical
81	Cover	Hydraulic controls
82	Cover	Armament

1.3 MARKING AND/OR RECORDING OF INSPECTION RESULTS.

NOTE

Only approved marking pencils listed in Table 1-8 are to be used for temporary marking of indications found during an NDI inspection. The color of the markings shall contrast with the color of the part.

a. Wipe the area to be marked with low-lint cleaning cloth, MIL-C-85043.

b. Mark surface with appropriate color aircraft marking pencil, MIL-P-83953, using a light touch.

c. Remove markings as soon as there is no further need for them with a low-lint cloth, MIL-C-85043, dampened with tap water. It is allowable for a shadow of the marking to remain on the surfaces after removal.

WARNING

Cleaning solvents P-D-680,.Type II and MIL-C-38736 are flammable. Avoid eye and skin contact or breathing of vapors. Protective equipment consisting of goggles, gloves, and respiratory protection is required.

CAUTION

Do not use cleaning solvent MIL-C-38736 on acrylic lacquer, as it may soften finish.

d. Dry-cleaning solvent, P-D-680, Type II shall be used for removal of markings on acrylic lacquer surfaces.

e. Record inspection results as required by the applicable technical manuals listed in Table 1-1.

1.4 NONDESTRUCTIVE INSPECTION METHODS.

1.4.1 Purpose of Nondestructive Inspection (NDI). Methods used in NDI are those that may be applied to inspect a structure or component to determine its ability to perform its intended function without damaging or causing any change in the characteristics of the structure or component. During manufacture, aircraft components are given in-process and final inspections. The most commonly used methods are magnetic particle and liquid penetrant because these two methods are bulk processes that provide 100 percent inspection coverage and they are highly effective. It is unusual, but possible, for NDI personnel to locate defects that are inherent (associated with the production of the material) or related to the manufacturing operations. It follows that nearly all maintenance nondestructive inspection requirements are to locate defects that have developed during service (i.e., corrosion and corrosion induced cracking; fatigue cracks; and defects resulting from mechanical damage, improper maintenance, or inappropriate use). It is important that NDI personnel shall be able " to distinguish between inherent or in-service defects. A general knowledge of typical sites for in-service defect occurrence and specific knowledge of the mode and location of previous cracking problems for a particular part are relevant. This knowledge will assure that the crack prone areas are identified for inspection and time will not be wasted inspecting areas not subject to in-service cracking.

This manual summarizes the steps necessary to perform satisfactory inspections. It includes the preparation of the helicopter, the inspection area for NDI, safety rules to be observed, highlights of each inspection method, and specific safety precautions for each of these methods. For a detailed description of each method and its application, refer to the Technical -Manual, Nondestructive Inspection Methods, TM 55-1500-335-23. Specific instructions peculiar to each part being inspected will be included in the discussion of that inspection item as it is covered in this manual.

1.4.2 Selecting the NDI Method. Factors governing the selection of an inspection method are: accessibility, portability of equipment, type of suspected damage, material composition of part to be inspected, surface condition, and degree of sensitivity required for the inspection. In many cases the method selected will depend primarily on accessibility and practicality. For example, a threaded item that may qualify for eddy current inspection may instead require the substitution of an ultrasonic inspection due to accessibility constraints. However, the ultrasonic inspection must be capable of providing equivalent sensitivity. Also, the type of inspection desired may adversely affect adjacent parts. Inspection methods in this manual were selected in order to provide maximum detection sensitivity while requiring a minimum of removal or disassembly, and at the same time, protect adjacent areas from damage. Radiographic inspection is used only to examine areas partly or totally hidden, or where the suspected damage is internal to the part. Where one method of inspection (primary) reveals an indication of a crack, another method (backup) should be used to verify if a crack is actually present. Quite often backup procedures are limited to disassembly and a good visual inspection. Certain cases may arise when another NDI method could be used to prevent needless or complicated disassembly. For example, a crack in a spar cap may not appear clearly on radiographic film due to cloudiness caused by sealant or substructure clutter. A backup eddy current or ultrasonic method could be used for verification and if no indications were observed, disassembly would not be necessary. Whenever a backup method is used, it shall be specified in every case where the initial damage indication may not be positive proof that a reject condition exists.

1.4.3 Preparation of Helicopter for NDI. Prior to NDI, the helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1.

1.4.4 Preparation of Part or Area for NDI.

WARNING

Prolonged breathing of vapor from organic solvents, degreasers, or paint thinners is dangerous. Use respirators in confined areas per Occupational and Environmental Health Respiratory Protection Program (TB MED 502 (DLAM 1000.2)). Have adequate ventilation. Avoid prolonged skin contact. Wear rubber gloves and goggles.

All NDI methods require proper cleanliness of the part or area being inspected. Refer to Table 1-1 for the applicable cleaning and corrosion control manual. The cleaning technique to be used will be determined by the type of foreign matter present, NDI method to be performed, and if the part is plated, painted, or has a protective coating. Scale and corrosion shall be removed completely before inspection. If removal of protective coatings, such as paint, phosphate coatings, black oxide, etc., is required, do not use removal methods that mechanically abrade the surface of the part to be inspected since this may cause damage or mask over potential surface cracks on the part. Some inspection methods, by their particular nature, will require that small openings and/or oil holes leading to obscure passages or cavities be plugged, such as in the case of engine parts. A suitable nonabrasive material should be used that is soluble in oil and can be readily removed.

Effective masking shall be used to protect those components, such as bearings and certain nonmetallics, that may be damaged by contact with the inspection solution or medium.

1.4.5 NDI General Safety Precautions.

WARNING

Electrical equipment shall not be operated in areas where combustible gases or vapors may be present, unless the equipment is explosion proof.

Prior to conducting an NDI inspection, survey the general area in advance. Eliminate possible hazards created by loose structures, protruding work stands, and support equipment. Secure loose electric cords and remove toxic fluids or fumes. If AC power is supplied to equipment, be sure that equipment is well grounded to prevent electrical hazards. Specific safety instructions for each NDI method used in this manual are contained in the paragraph immediately following the discussion of that method.

1.4.6 Bond Testing (BT) Method.

NOTE

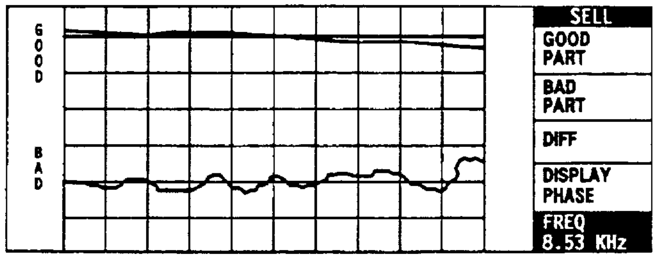
Inspection of bonded structures shall be performed in accordance with the general applications and techniques in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) and the specific requirements of this technical manual.

A number of different methods of NDI can be applied to the many configurations and types of bonded structures that are in use. Variables such as skin material and thickness, adhesive type and thickness, underlying structure, and accessibility are all factors in the development of specific inspection procedures. Because of the many inspection methods and structural configurations, each application must be considered and reference standards representative of the structure must be evaluated to verify proposed techniques.

1.4.6.1 Bond Testing Equipment. The bond testing equipment, Bondmaster, used in the procedures in this manual, operates by generating a mechanical vibration into the material being tested. This equipment is designed to detect flaws in bonded metallic and composite structures. The instrument is capable of determining bad bonds, delaminations, unbonds, and crushed honeycomb core defects.

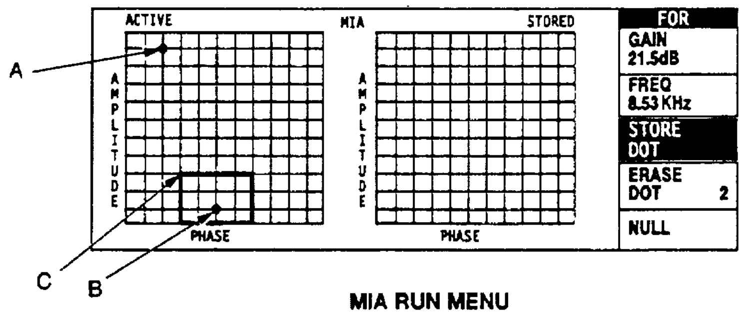
The Bondmaster has the following features:

a. Resonance. Detects unbonds and delaminations by changes in phase and amplitude at probe resonance. Couplant is required.
b. Pitch Catch Swept. Measures amplitude and phase changes using a swept frequency method to detect unbonds and deeper defects. Requires no couplant.
c. Pitch Catch Impulse. Measures amplitude and phase changes using a short burst of energy to detect unbonds. Requires no couplant.
d. Mechanical Impedance Analysis. Measures the effect of generated sound waves and the effect of loading as drive frequency is swept in the range of 2.5 KHz to 10 KHz. This method can be used on unbonds, crushed core, and defects on the inside of composites. Requires no couplant. Refer to Figure 1-5, Bond Testing Reference Block Displays.



MIA SET MENU

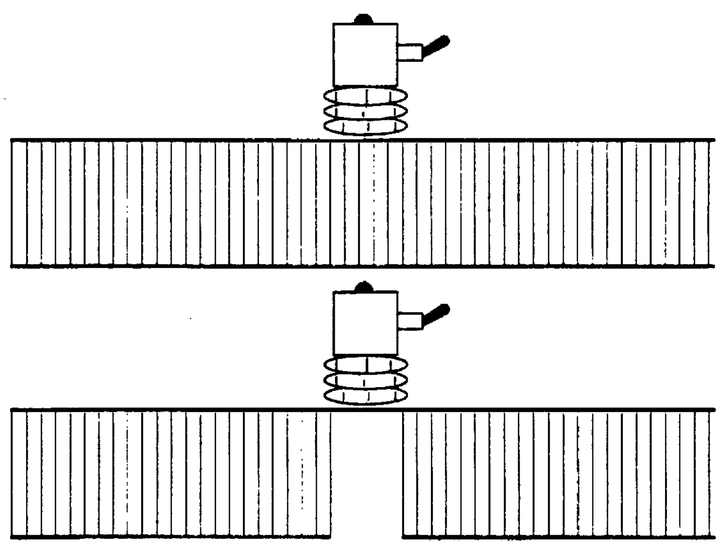
(DISPLAYS DIFFERENCE BETWEEN GOOD AND BAD AREAS AT A PARTICULAR OPERATING FREQUENCY)



MIA RUN MENU

(A) RESPONSE OF FLYING SPOT ON GOOD AREA
(B) RESPONSE OF FLYING SPOT ON BAD AREA
(C) ALARM GATE

A–PROBE ON GOOD AREA



B–PROBE ON CUT OUT AREA

NDI_UH-1_F1_5

Figure 1-5. Bond Testing Reference Block Displays

Mechanical vibration energy generated by resonance test equipment can be measured, analyzed by the tester, then displayed on a screen. There are several ways this energy can be applied to material A and then be analyzed. Because bonded metallic and composite material properties differ substantially, no one test method will detect flaws in all types of material. For this reason, current bond testing equipment incorporates at least one or more of the aforementioned features.

1.4.6.2 **Safety Precautions During Bond Testing**. Follow safety precautions and instructions contained in this manual and the Nondestructive Inspection Methods manual listed in Table 1-1.

WARNING

Electrical equipment shall not be operated in areas where combustible gases or vapors may be present, unless the equipment is explosion proof.

a. If instrument is operated using AC power, use a grounded power cord.
b. Turn power OFF before connecting or disconnecting probe cable or power cable.

1.4.7 Fluorescent Penetrant (PT) Method.

NOTE

Fluorescent penetrant inspections shall be performed in accordance with the general applications and techniques in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) and the specific requirements of this technical manual.

The basic purpose of fluorescent penetrant inspection is to increase the visible contrast between a discontinuity and its background. This method is performed by applying a fluorescent penetrant solution to the inspection area which enters the surface opening of the discontinuity. The area is then wiped or rinsed and a developer is added to draw the fluorescent material from the discontinuity. A flaw or crack in the part will then become visible under the influence of ultraviolet light (black light). This method is effective for detecting surface flaws in forgings, castings, extrusions, formed sections, webs, and skins of materials. The penetrant method of inspection requires that the surface of the inspection area be thoroughly cleaned. Paint on the part must be removed before inspection.

CAUTION

Penetrant-Emulsifier/Remover Combinations (lipophilic/hydrophilic) from one manufacturer may not be mixed or used in conjunction with materials from a different manufacturer.

Four penetrant procedures are given in Tables 1-3, 1-4, 1-5, and 1-6. All four inspections shall be conducted using fluorescent penetrant, MIL-I-25135, Type I, Method A, B, C, or D, Sensitivity Level 3 or 4. Refer to the Nondestructive Inspection Methods manual listed in Table 1-1 for more detailed instructions. Table 1-5 describes the procedure for using Type I, Method C, Level 3 or 4 on a removed part or parts attached either to a component or to the helicopter. This procedure supports the accomplishment of fluorescent penetrant inspection at the AVUM and AVIM levels regardless of geographic location. Therefore, the procedure in Table 1-5 will be the one most frequently referred to in this manual. Table 1-7 lists the equipment and Table 1-8 lists the fluorescent penetrant materials to be used.

Table 1-3. Penetrant Procedure (Type I, Method A)

Task	Description
a. Preparation of Part:	Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.
b. Precleaning Procedure:	Refer to TM 1-1500-344-23.
c. Penetrant Application:	The penetrant may be applied by brushing, spraying, or dipping.
d. Penetrant Dwell:	Allow a minimum of 30 minutes dwell time to a maximum of 240 minutes. Extended dwell time may require rewetting of parts.
e. Penetrant Removal/Rinse:	Rinse the part by waterwash using a low-pressure spray (pressure not to exceed 20 PSI) and a temperature of 16°C to 38° C (60°F to 100°F). DO NOT OVERRINSE.
f. Drying Operation:	The parts should be dried in a circulating air dryer with a temperature range from 38°C to 60°C (100°F to 140°F). The time in the dryer should not exceed the time necessary to completely dry the surface of the parts.
g. Developer Application:	The dry developer is sprayed or dusted lightly over the part to be inspected. Shake or blow off with low, oil-free air to remove excess developer.
h. Inspect:	Perform inspection under black light.
i. Materials:	Type I, Method A, Level 3 or 4 (water-washable) Penetrant.

Table 1-4. Penetrant Procedure (Type I, Method B)

Task	Description
a. Preparation of Part:	Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.
b. Precleaning Procedure:	Refer to TM 1-1500-344-23.
c. Penetrant Application:	The penetrant may be applied by brushing, spraying, or dipping.
d. Penetrant Dwell:	Allow a minimum of 30 minutes dwell time to a maximum of 240 minutes. Extended dwell time may require rewetting of parts.
e. Emulsifier Application:	The emulsifier may be applied by dipping or spraying. The preferred method of application is by dipping the part in the emulsifier. Do not permit emulsifier to remain on the part over 3 minutes.
f. Rinse:	Rinse the part by waterwash using a low-pressure spray (pressure not to exceed 40 PSIG) and a temperature of 16°C to 38°C (60°F to 100°F).
g. Drying/Developer Operation:	If a dry nonaqueous developer is to be used, first dry the part in a drying oven at a temperature not to exceed 60°C (140°F) until dry. Then apply the developer. If an aqueous developer is to be used, then submerge the part in the developer solution immediately after washing. Follow by drying the part in a drying oven as mentioned above. In either case, parts shall be removed from the drying oven as soon as they are dry.
h. Inspect:	Perform inspection under black light.
i. Materials:	Type I, Method B, Level 3 or 4 (post emulsifiable-lypophilic) Penetrant (Refer to Table 1-8.)

Table 1-5. Penetrant Procedure-Portable or Field Application (Type I, Method C)

Task	Description
a. Preparation of Part:	Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.
b. Precleaning Procedure:	Refer to TM 1-1500-344-23.
c. Penetrant Application:	Apply penetrant either by brushing or spraying. In a confined area, apply with brush to prevent overspray.
d. Penetrant Dwell:	Allow a minimum of 30 minutes penetrant dwell time. In temperature below 16°C (60°F), refer to Nondestructive Inspection Methods manual listed in Table 1-1 for dwell time compensations.
e. Penetrant Removal:	Wipe dry with a dry, lint-free cloth. Wipe down with a solvent-moistening cloth. Check area to be inspected with black light to be sure oil surface penetrant has been removed before applying developer. Do not spray cleaner directly onto part.
f. Developer Application:	Spray a light film of developer over area to be inspected.
g. Inspect:	Perform inspection under black light. Observe any obvious bleed-out as developer dries. Complete inspection after developer dwell time is complete.
h. Materials:	Type I, Method C, Level 3 or 4, Solvent - Removable Fluorescent Dye Penetrant (Refer to Table 1-8).

Table 1-6. Penetrant Procedure (Type I, Method D)

Task	Description
a. Preparation of Part:	Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.
b. Precleaning Procedure:	Refer to TM 1-1500-344-23.
c. Penetrant Application:	The penetrant may be applied by brushing, spraying, or dipping.
d. Penetrant Dwell:	Allow a minimum of 30 minutes dwell time to a maximum of 240 minutes. Extended dwell times may require rewetting of parts.
e. Penetrant Prerinse:	Prerinse part with a water spray at a temperature of 160°C to 380°C (60°F to 100°F) and a spray pressure of 40 PSIG maximum. DO NOT OVERRINSE.
f. Remover Application:	Apply a solution as recommended by manufacturer of the specific hydrophilic remover in water to surface of the part. Dwell time shall be kept to an absolute minimum consistent with complete removal of excess penetrant.
g. Postrinse Operation:	Postrinse part with a water spray at a temperature of 16°C to 38°C (60°F to 100°F) and a spray pressure of 40 PSIG maximum. DO NOT OVERRINSE. Rinse effectiveness should be checked with a black light to ensure complete removal of penetrant remover.
h. Drying/Developer Operation:	If a dry nonaqueous developer is to be used, first dry the part in a drying oven at a temperature not to exceed 60°C (140°F) until dry. Then apply the developer. If an aqueous developer is to be used, then submerge the part in the developer solution immediately after washing. Follow by drying the part in a drying oven as mentioned above. In either case, parts shall be removed from the drying oven as soon as they are dry.
i. Inspect:	Perform inspection under black light.
j. Materials:	Type I, Method D, Level 3 or 4 (hydrophilic remover) Penetrant (Refer to Table 1-8).

1.4.7.1 Safety Precautions During Fluorescent Penetrant Inspection. Follow safety precautions and instructions contained in this manual and the Nondestructive Inspection Methods manual listed in Table 1-1.

WARNING

- **Black lights generate considerable heat during use. Extreme care must be exercised to prevent contacting the housing with any part of the body.**
- **To prevent injury to eyes, do not look directly into black light.**
- **Prolonged direct exposure of hands to the filtered black light's main beam may be harmful. Suitable gloves should be worn when exposing hands to the main beam.**

a. Follow manufacturer's instructions when using black lights and filter.

b. Do not wear sunglasses or glasses with light-sensitive lenses during fluorescent penetrant inspections. They can contribute to improper interpretation of defects.

WARNING

Prolonged or repeated inhalation of vapors or powders may result in irritation of mucous membrane areas of the body.

c. Provide adequate ventilation when handling cleaner, emulsifier, penetrants, or developers.

WARNING

Continual exposure to penetrant inspection material may cause skin irritation.

d. Observe the following when handling cleaners, emulsifiers, penetrants, or developers.

(1) Avoid contact with penetrant inspection materials by wearing neoprene gloves.

(2) Wash inside and outside of gloves.

(3) Wash exposed areas of body with soap and water.

(4) Check for traces of fluorescent penetrant materials on skin, clothing, and gloves using a black light source.

WARNING

Temperatures in excess of 49°C (120°F) may cause bursting of pressurized cans and injury to personnel.

e. Store all pressurized spray cans in a cool, dry area protected from direct sunlight. Avoid exposure of pressurized spray cans to open flames.

WARNING

Volatile fumes may occur, creating both a fire and health hazard.

f. Exercise extreme caution when handling penetrants that have been heated to a point where some lighter constituents are driven off.

1.4.7.2 Controlling Excess Fluorescent Penetrant. After fluorescent penetrant inspection, the part shall be thoroughly cleaned to ensure all excess penetrant is removed from the part. This shall include removing the penetrant from cracks as much as possible before disposition of the part. This can be easily accomplished by performing cleaning operations under a black light.

1.4.8 Magnetic Particle (MT) Method.

NOTE

Magnetic particle inspection shall be performed in accordance with the general application and techniques in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) and the specific requirements of this technical manual.

Magnetic particle is a method of detecting cracks or other flaws on the surface or near the surface of materials that are ferromagnetic. This method will produce good indications of discontinuities, provided the part is free from grease, oil, loose scale, or other surface contaminants. The inspection is accomplished on either assembled or disassembled parts. As specified in the procedure, the inspection is accomplished by inducing a magnetic field in the part and applying a liquid suspension of iron oxide particles to the surface to be inspected. By controlling the direction of the magnetic flux, the lines of magnetic force shall be positioned perpendicular to the crack or flaw. All magnetic particle inspections in this manual shall be of the wet continuous method using fluorescent magnetic particles.

1.4.8.1 Magnetic Particle Inspection Equipment. Considerations involved in the selection of magnetic particle inspection equipment include the type of magnetizing current and the location and nature of the inspection. The purpose of this manual is to support the accomplishment of NDI at the AVUM and AVIM levels. This dictates equipment that can be used on or off the helicopter at remote sites. Therefore, magnetic particle procedures in this manual use the electromagnetic yokes or probes and hand-held coils as shown in Figure 1-6. This equipment is common and readily available to AVUM and AVIM levels. Stationary magnetic particle equipment can be used if facilities, required shop equipment, and qualified NDI technicians are available. Refer to TM 55-1500-335-23 (Nondestructive Inspection Methods manual) for stationary magnetic particle inspection techniques.

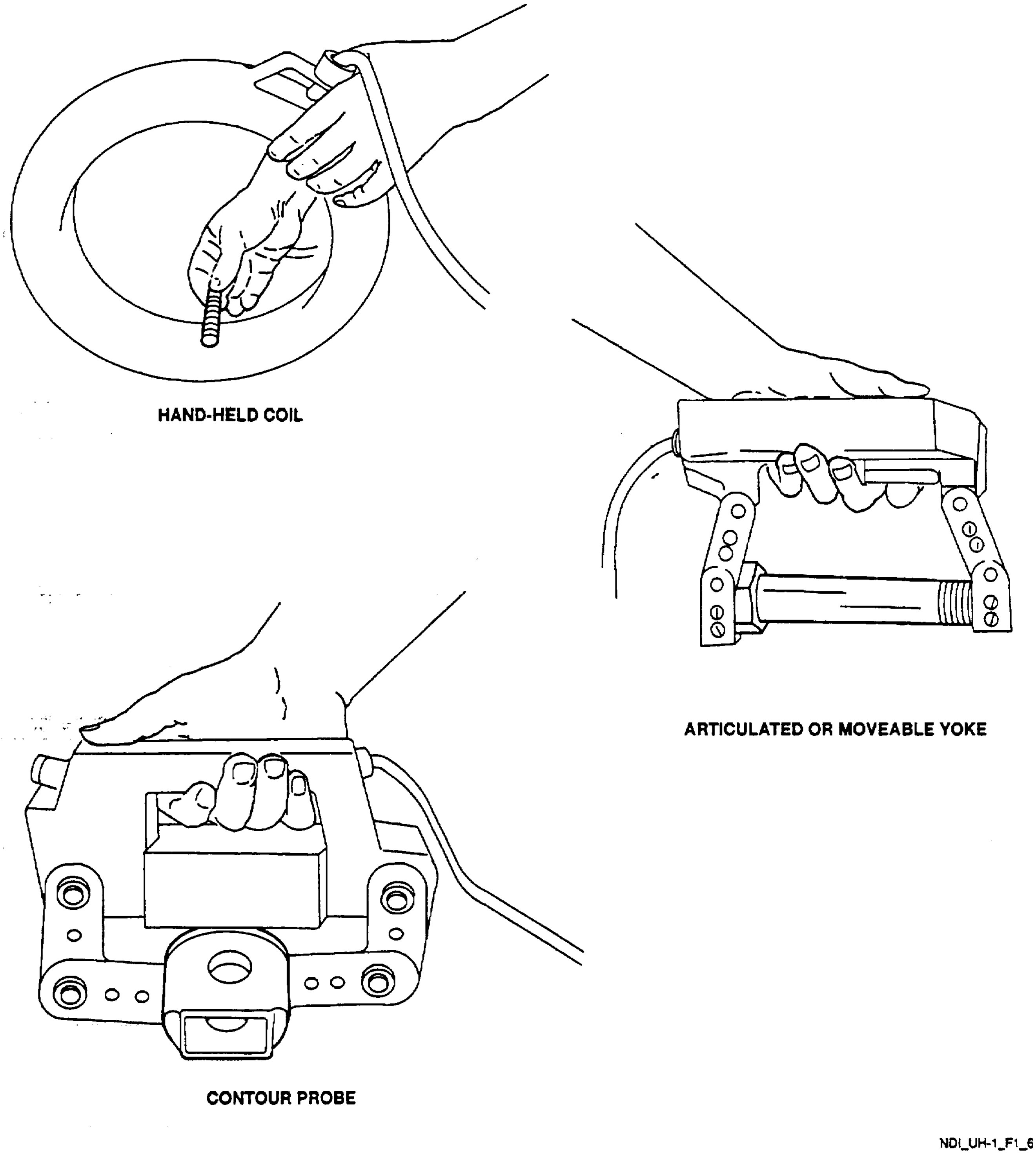


Figure 1-6. Portable Magnetic Particles Inspection Equipment

1.4.8.1.1 Magnetic Yokes and Probes. Portable induced field inspection equipment is generally referred to as either a probe or a yoke. These terms are synonymous and differ due to manufacturer's nomenclature. They are small, portable, easy to use, and can be used on or off the helicopter. They induce a strong magnetic field into that portion of a part that lies between the poles or legs. This limits the magnetization to longitudinal; however, by turning the probe 90 degrees on the part for the second position, cracks, either perpendicular or parallel to the axis of the part, can be detected. Some yokes and probes have both AC and DC capabilities while others have AC only. All procedures in this manual use AC. AC provides a very desirable and useful field. The vibratory action of AC adds significantly to the magnetic particle mobility enhancing the formation and build-up of larger and sharper indications at discontinuities. An AC magnetic field is also used when it is necessary to reveal only surface cracks, common to in-service parts due to fatigue and stress cracking. Yokes and probes utilizing AC for magnetization also have the additional advantage that they can be used for demagnetization.

1.4.8.1.2 Hand-held Coil. For longitudinal magnetization of bolts, shafts, spindles, axles, and similar small parts, the hand-held coil offers a simple, convenient method of inspecting for transverse cracks. It allows for equipment maintenance inspections wherever a coil can be applied around the part. Parts are magnetized and demagnetized with the same coil.

1.4.8.2 Safety Precautions During Magnetic Particle Inspections. Follow safety precautions and instructions contained in this manual and the Nondestructive Inspection Methods manual listed in Table 1-1.

WARNING

- **Black lights generate considerable heat during use. Extreme care must be exercised to prevent contacting the housing with any part of the body.**
- **To prevent injury to eyes, do not look directly into black light.**
- **Prolonged direct exposure of hands to the filtered black light's main beam may be harmful. Suitable gloves should be worn when exposing hands to the main beam.**

a. Follow manufacturer's instructions when using black lights and filter.
b. Do not wear sunglasses or glasses with light-sensitive lenses during fluorescent magnetic particle inspections. They can contribute to improper interpretation of defects.

CAUTION

Do not operate magnetic particle equipment within 36 inches of aircraft instruments.

1.4.9 Demagnetization of Inspection Parts. Following magnetic particle inspection of a part, the residual magnetic field in the part shall be reduced to the lowest possible level. This must be done prior to returning the part to service or rejecting it as a defective part. Unless this is done properly, the residual magnetism may cause adverse influence on instruments, unnecessary wear on parts, or attract ferrous metal chips and dust into bearing surfaces. After demagnetization a magnetic field strength meter shall be used to measure residual fields. Readings in excess of 3 units are not acceptable.

1.4.9.1 Demagnetization Using AC. If AC demagnetization is selected, hold the part about 12 inches in front of the coil. Move it slowly and steadily through the coil to at least 36 inches beyond the end of the coil while current is still flowing. Repeat process as necessary. Rotate and tumble parts of complex configuration while passing through the coil field. All parts can be demagnetized using a contour probe in the AC mode. Place the probe against the magnetized part with the switch in AC position. Turn probe on and withdraw it from the part, or the part from the probe, about 24 inches before turning the probe off.

1.4.9.2 Demagnetization Using DC. If DC demagnetization is selected, the initial demagnetizing field shall be higher than, and in nearly the same direction as, the field reached during inspection. The field shall then be reversed and decreased in magnitude, and the process repeated (cycled) until an acceptable low value of residual field is reached. Whenever possible, parts that have been circularly magnetized shall be magnetized in the longitudinal direction before being demagnetized. This procedure is limited to stationary equipment.

1.4.10 Radiographic (RT) Method.

NOTE

Radiographic inspection shall be performed in accordance with the general application and techniques in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) and the specific requirements of this technical manual.

Radiographic inspection is used to detect internal and external structural details of all types of parts and materials. This method is used for the inspection of airframe structure for damage, detection of moisture entrapment, structure alignment, and foreign object intrusion. It can sometimes be used in areas otherwise inaccessible to other nondestructive inspections and to verify indications observed by other methods.

Radiographic inspections are accomplished by passing the X-ray beam through the part or assembly to expose a radiographic film emulsion or other sensitized medium. The processed film shows the structural details of the part by variations in film density. Requirements for film density, image quality indicator, identification, and other factors are specified in MIL-STD-453.

Film processing is a series of operations such as developing, fixing, and washing, associated with the conversion of the latent image into a stable visible image and will be provided by manual or automatic film processing.

1.4.10.1 Safety Precautions During Radiographic Inspections. Follow safety precautions and instructions contained in this manual and the Nondestructive Inspection Methods manual listed in Table 1-1.

WARNING

Radiation Hazard

Assure compliance with all applicable precautions set forth in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) listed in Table 1-1. A hazard associated with exposure to ionizing radiation is that serious injury can be inflicted without pain, burning, or other sense of discomfort during the exposure period. Radiation protection shall be utilized in accordance with AR40-14/DLAR 1000.28.

1.4.10.2 Mixing of Radiographic Film Processing Chemicals. Exercise extreme care when working with film processing chemicals. Fixer solution is highly acidic and developer is highly caustic. Avoid contact with the skin. Flush any skin contact with water.

1.4.11 <u>Eddy Current (ET) Method</u>

NOTE

Eddy current inspections shall be performed in accordance with the general application and techniques in TM 55-2500-335-23 (Nondestructive Inspection Methods manual) and the specific requirements of this technical manual.

The eddy current method is used for the detection of discontinuities in electrically conductive materials. The method is effective when inspecting for discontinuities originating: (1) at the radii of mounting lugs, flanges, or crevices; (2) at pressed-in (interference fit) grease fittings, guide pins, etc.; and (3) from fastener holes and bushing/bearing bores. Eddy current method will locate surface cracking on any conductive material, but probes and techniques for inspection of magnetic materials may differ considerably from those used on nonferromagnetic materials.

Eddy current has great value for inspecting areas where paint stripping is not desirable and/or impossible. The method also has wide application in confirming surface indications found by other methods.

The capability and reliability of the eddy current method has been greatly enhanced by the use of modern phase analysis (impedance plane display) instruments used in conjunction with shielded probes. These instruments display a representation of the impedance plane which illustrates both the magnitude and direction of impedance changes. impedance variables (conductivity, probe lift-off, permeability variations, etc.) can be separated by their characteristic video response and are readily recognized by the trained operator. The interaction of the probe coils and the part is represented by a "flying spot" (or dot) in the video display.

Equipment is standardized on a test block (reference standard) which is constructed of a known material that contains known good areas, and either simulated or actual defects of known size. The response of the equipment (eddy current machine and probe) to the good material is set as the starting point by nulling the equipment on the sound area of the block. By this action, all subsequent readings represent deviations from the null point and have both magnitude and direction. Careful manipulation of the controls allows the operator to separate the response (deviation from the null point) for lift-off and flaw (geometric) effects.

Shielded probes have a cylinder of material which encircles the coil of the probe. This serves to constrict the probes field and, therefore, limits the spread of eddy currents from much beyond the probe's diameter. This concentrated electrical field is most useful for scanning around fasteners, near edges, and into specific small areas. Other types of probes are used for wide area scans, alloy sorting, conductivity comparisons, coating thickness comparisons, skin thickness comparisons, etc.

1.4.11.1 <u>Safety Precautions During Eddy Current Inspection</u>. Follow safety precautions and instructions contained in this manual and the Nondestructive Inspection Methods manual listed in Table 1-1.

WARNING

Electrical equipment shall not be operated in areas where combustible gases or vapors may be present, unless the equipment is explosion proof.

1.4.11.2 Eddy Current Scanning Techniques. Eddy current inspection is performed by moving the probe over and as close as possible to the surface of the area of interest. If the coil(s) pass over a defect like a crack, the impedance of the coil will change and be represented as a movement of the "flying spot." Before beginning the inspection, the operator will have separated the response from lift-off and from a flaw by using the test block and manipulating the controls. Therefore, the crack response will be essentially similar to the response from the known defect and different from the response from lift-off. Microprocessor controlled instruments have the ability to store responses in memory. Such stored responses are an invaluable teaching aid.

1.4.11.2.1 Scanning Around Fasteners, Inserts, and Edges of Parts. Shielded probes are recommended any time that the pattern the eddy current field is likely to extend out such that it comes in contact with a feature which would mask the response from a defect. Such features may include edges, fasteners, dissimilar materials attached to the test piece, etc. An unshielded probe can be used around such features, but the effect of those features must be made constant by keeping the distance between the probe and the feature constant. Non-conductive mechanical guides (straight edges, plugs, spacers, etc.) can be used to maintain a constant distance. In fact, the use of non-conductive mechanical guides is useful for shielded and unshielded probes alike. As operators gain experience, they become quite innovative in making guides that maintain constant lift-off, angles, and distance from features which may mask flaw indication. Common materials for mechanical guides are plastic (polyethylene, acrylic, and polycarbonate), wood, phenolic impregnated materials, and resins for casting into shapes (epoxy, polyester, or hot glue). Careful selection of probes and construction of suitable mechanical guides will make possible inspection of problem areas such as sharp edges, tight radii, small openings, and areas near potentially masking features.

1.4.11.2.2 Bolthole Inspection. Manual bolthole inspection probes usually consist of a split 90 degree probe with the exposed shaft inserted in an adjustable collar. The shaft is marked in increments and the collar secured at the desired increment by means of a set screw through the collar. The probe is then rotated 360 degrees around the hole at each setting until the entire surface of the bore has been inspected. These probes are available in federal or commercial catalogs.

1.4.11.2.3 Scanning Fillets and Radii. Using appropriate radius probe, scan fillets and radii several times in each direction.

1.4.11.3 Eddy Current Instrument Standardization. Eddy current inspection equipment and standards required by the procedures in this manual are listed in Table 1-7. Reference blocks, instrument settings, and standardization instructions for the eddy current instrument, are included in each eddy current procedure. Instrument settings, as they are given in this manual, should be considered typical and present a test block display shown in Figure 1-7. Additional nulling will be required to reestablish the position of the 'flying spot" with the probe on the part/area to be inspected. (Use Teflon tape (listed in Table 1-8) on the probe to save wear. Instrument settings shall be made with Teflon tape on the probe, if used.)

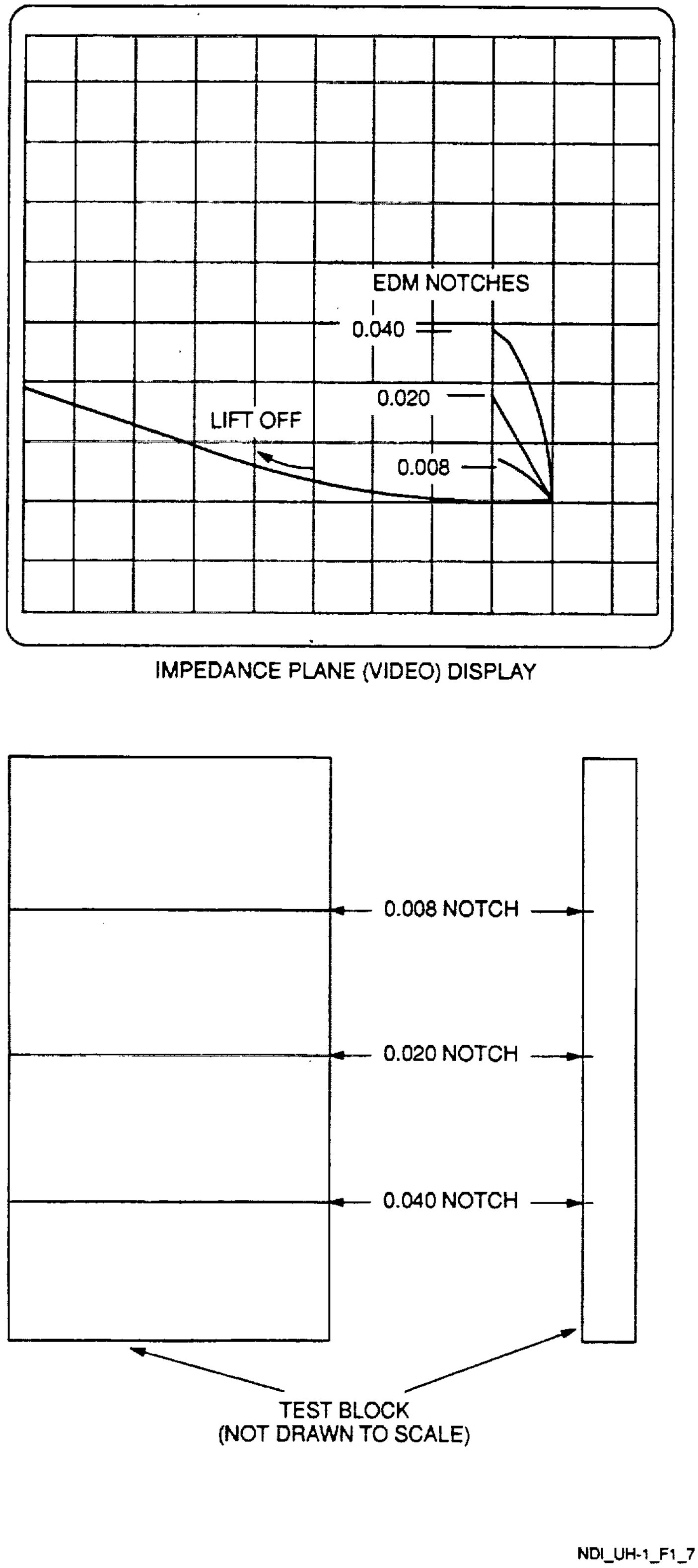


Figure 1-7. Signatures of EDM Notches in Test Block

1.4.11.4 Sorting Metal Using Eddy Current. In addition to the more common usage for crack detection, eddy current equipment may be used for metal sorting. Electrical conductivity and magnetic permeability are the material characteristics evaluated during this type inspection. The sorting technique cannot directly identify alloy or even the type of metal. But when there are limited possibilities, conductivity and/or permability information may permit proper classification (refer to Figure 1-8). Typically, the need for alloy sorting occurs when changes to parts are made to improve performance. For example, a magnesium part that is experiencing severe corrosion is replaced by one made from aluminum. Another example is the replacement of one aluminum part with another, also of aluminum, but made from an alloy having improved strength or corrosion resistance. In both these examples, there may be a need to verify that replacement has been made, and the electrical conductivity of the alloys involved may be sufficiently different to permit verification by a sorting inspection. Another situation is the requirement to NDI a part to confirm a visual indication where the material is not known and cannot be easily determined. Eddy current sorting will quickly determine if the part is ferromagnetic and should be inspected using the magnetic particle method. Also, if the part is nonferromagnetic, which test block (standard) most closely matches the conductivity of the part and, therefore, should be used to adjust the eddy current equipment for crack inspection/ verification.

1.4.12 Ultrasonic (UT) Method.

NOTE

Ultrasonic inspection shall be performed in accordance with the general application and techniques in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) and the specific requirements of this technical manual.

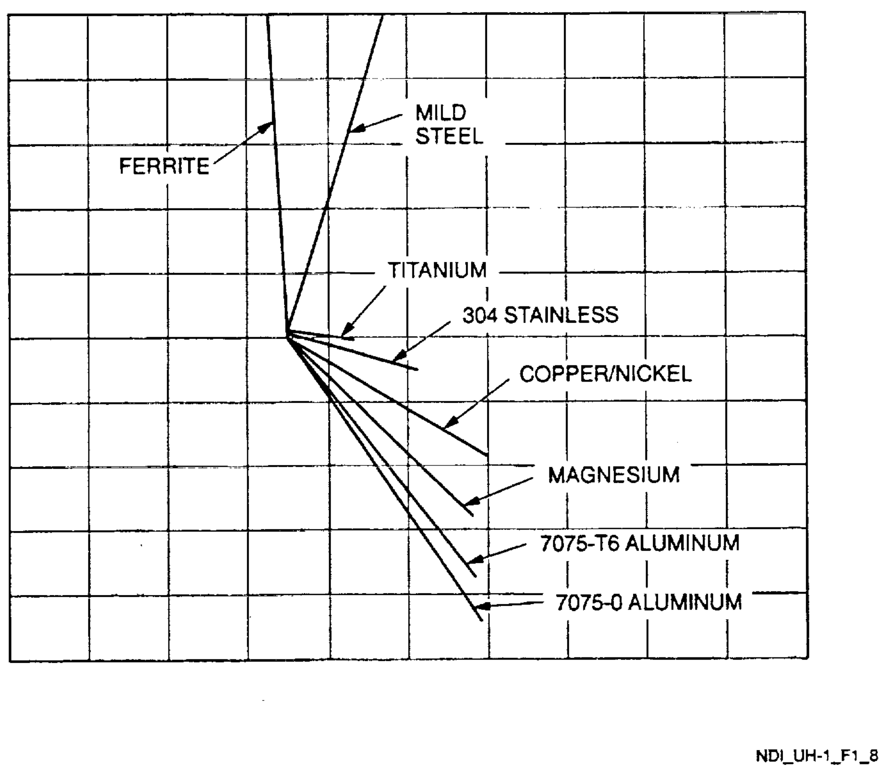


Figure 1-8. Typical Metal Sorting Display

Ultrasonic inspection uses high-frequency sound waves as a probing medium to provide information as to the state of various materials. This method is effective for the inspection of most metals for surface and subsurface damage. The method requires that at least one surface of the part be accessible for transducer contact in the vicinity of the area to be examined. The inspection is accomplished by inducing the ultrasound into the part by coupling the transducer to the part and picking up reflections of this sound from within the part. Any marked changes in acoustic properties: defect, interface, or back surface will reflect sound back to the transducer. The detected ultrasonic reflections are electronically displayed on a Cathode Ray Tube (CRT) and interpreted for indications of defects. Accessory wedges can be used to provide adequate transducer mating to curved surfaces or to change the angle of the sound beam.

1.4.12.1 Safety Precautions During Ultrasonic Inspection. Follow safety precautions and instructions contained in this manual and the Nondestructive Inspection Methods manual listed in Table 1-1.

WARNING

Electrical equipment shall not be operated in areas where combustible gases or vapors may be present, unless the equipment is explosion proof.

a. If instrument is operated using AC power, use a grounded power cord.
b. Turn power OFF before connecting or disconnecting transducer cable or power cable.

1.4.12.2 Ultrasonic Instrument Standardization. The ultrasonic instrument used in ultrasonic inspection procedures described throughout this manual is listed in Table 1-7. Reference blocks, instrument settings, and standardization instructions for the ultrasonic instrument are included in the individual ultrasonic inspection procedures. Because of varied circumstances under which the inspections may be performed, instrument settings, as they are given in this manual, should be considered typical. Slight adjustment to the settings may be necessary to achieve the desired CRT presentation. Illustrations representing typical CRT presentation will, in most cases, include reference signals representing initial pulse, transducer, and/or wedge echoes that have been moved off the scope to make room for relevant indications. An effective ultrasonic inspection will depend largely upon the proper handling of the transducer; therefore, the following steps are recommended:

a. Clean ultrasonic transducer with a low-lint cloth, MIL-C-85043 or equivalent. Clean all contact surfaces when using a wedge or delay block. Apply couplant to these contact surfaces and carefully tighten the assembly prior to test.

NOTE

Scratches or similar surface blemishes remaining on the transducer or wedge may give false indications.

b. Use prescribed or equivalent couplant and in sufficient quantity to achieve proper coupling. The use of lubricants containing graphite, silicones, and glycerines is prohibited.
c. Apply adequate pressure to keep transducer in contact with part.
d. Use moderate speed for transducer search pattern. If transducer movement is too fast, a flaw could be passed over without a proper indication.

1.4.13 Acceptance/Rejection Criteria.

CAUTION

Misinterpretation of indications can result in rejectable parts being accepted and acceptable parts being rejected. Only NDI personnel trained and qualified in accordance with applicable military standards and technical manuals shall perform and interpret nondestructive inspections.

Nondestructive inspection procedures in this manual have been selected to enhance the safety of the aircraft and personnel. Inspection procedures (including primary and backup) have been outlined to enable NDI personnel to perform a reliable inspection of parts with respect to their design, composition, and accessibility. In the event that a final interpretation of an indication cannot be made, assistance from the next higher maintenance level shall be requested.

1.4.14 Equipment Used for NDI. Refer to Table 1-7 for a summary of equipment used for NDI in this manual. Equivalent equipment may be used unless specified otherwise in the inspection procedures.

1.4.15 Materials Used for NDI. Refer to Table 1-8 for a summary of materials used for NDI in this manual. Common commercial grade materials (cheesecloth, paper, etc.) are not listed. Equivalent materials may be used unless specified otherwise in inspection procedures.

Table 1-7. Equipment Used for NDI

Fluorescent Penetrant Method	Fluorescent Penetrant Inspection Kit Black Light UV Kit Black Light Meter Black Light Bulbs Filter UV
Magnetic Particle Method	Yoke and Coil Kit Black Light Magnetic Particle Inspection Probe Magnetometer
Eddy Current Method	Eddy Current Inspection Unit Cable Assembly, Coaxial 6-feet long (1 required) Reference Block Aluminum (0.008, 0.020, and 0.040 EDM notches) Reference Block Titanium (0.008, 0.020, and 0.040 EDM notches) Reference Block Magnesium (0.008, 0.020, and 0.040 EDM notches) Reference Block - Block of Six Conductivity Samples Probe, right angle, shielded surface 100 KHz-500 KHz 90° 1/2 inch drop Probe, straight, shielded surface 100 KHz-500 KHz
Ultrasonic Method	Ultrasonic Inspection Unit Cable, assembly, BNC to microdot Transducer, 5.0 MHz 60° shear wave, 1/4 x 1/4 inch element
Bond Testing Method	Bond Test Inspection Unit Cable Assembly Probe, Mechanical Impedance Analysis Probe Holder, spring loaded Test Block, Composite Defect Standard #1 Test Block, Composite Defect Standard #3 Test Block, Aluminum Honeycomb with 0.020 inch thick aluminum/fiberglass skin (refer to Appendix C) Test Block, Aluminum Honeycomb with 0.040 inch thick aluminum skin (refer to Appendix C) Test Block, Aluminum Honeycomb with 0.063 inch thick aluminum skin (refer to Appendix C)
Radiographic Method	Tripod X-Ray Tubehead Stand Signal Appliance Lamp Assembly X-Ray Unit (LPX-160 Water Cooled Digital) Film Processor

Note: Refer to Appendix B for Equipment Part Number, National Stock Number, and Manufacturer.

Table 1-8. Materials Used for NDI

Nomenclature	P/N or Specification	Manufacturer	National Stock Number
Fluorescent Penetrant Method			
Type I, Method C	MIL-I-25135	General Service Administration (GSA)	6850-01-703-7406
Magnetic Particle Method			
Fluorescent Magnetic Inspection Compound	14AM	Magnaflux Div. of Illinois Tool Works Inc. 1301 W. Ainsle St. Chicago, IL 60656	6850-00-841-1347
Eddy Current Method			
Teflon Tape	MIL-I-23594	General Service Administration (GSA)	5970-00-812-7387
Ultrasonic Method			
Couplant, Ultrasonic	Ultragel II	Sonotech, Inc. 1413 Frasier St. Suite 2, Bldg. H P.O. Box 2189 Bellingham, WA 98226	6850-01-157-4348
Bond Test Method			
Teflon Tape	MIL-I-23594	General Service Administration (GSA)	5970-00-812-7387
Radiographic Method			
M-2 Film, Ready Pack 8 inch x 10 inch	145 7837	Eastman Kodak Co. 343 State St. Rochester, NY 14650	6635-00-412-2071

Table 1-8. Materials Used for NDI - Continued

Nomenclature	P/N or Specification	Manufacturer	National Stock Number
M-2 Film, Ready Pack 14 inch x 17 inch	145 8926	Eastman Kodak Co. 343 State St. Rochester, NY 14650	6635-00-838-9116
<u>Miscellaneous Materials</u>			
Gloves, Protective	ZZ-G-381	General Service Administration (GSA)	8415-00-823-7456
Gloves, Surgeon	E-008	Defense Service Administration (DSA)	1615-01-149-8843
Apron, General Purpose	A-A-55063	General Service Administration (GSA)	8415-00-082-6108
Face Shield	A-A-1770	General Service Administration (GSA)	4240-00-542-2048
Cloth, Low-Lint Cleaning	MIL-C-85043	General Service Administration (GSA)	7920-00-044-9281
Dry-Cleaning Solvent	P-D-680, Type II	General Service Administration (GSA)	6850-00-274-5421
Cleaning Solvent	MIL-C-38736	General Service Administration (GSA)	6850-00-538-0929
Scotch-Brite, Type A	L-P-0050	General Service Administration (GSA)	7920-00-659-9175
<u>Temporary Marking Materials</u>			
Aircraft Marking Pencils (China Marker)	MIL-P-83953 Yellow	General Service Administration (GSA)	7510-00-537-6930

1.4.16 <u>Post Cleaning and Restoration of Part or Area After NDI</u>. Upon completion ofthe NDI test and prior to restoration of protective finishes, it is necessary to clean off residual inspection materials from the part. This cleaning will vary based upon test method, contaminant, and subsequent processing of the part. In many instances, methods used for precleaning are acceptable for post cleaning. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

WARNING

Prolonged breathing of vapor from organic solvents, degreasers, or paint thinners is dangerous. Use respirators in confined areas per Occupational and Environmental Health Respiratory Protection Program (TB MED 502 (DLAM 1000.2)). Have adequate ventilation. Avoid prolonged skin contact. Wear rubber gloves and goggles.

a. Following all magnetic particle inspections, clean part by dipping or spraying with dry-cleaning solvent, P-D-680, Type II. Wipe dry with a clean, low-lint cloth, MIL-C-85043, or equivalent.

b. After post cleaning has been performed, the original protective finish or approved alternate must be restored to the part or area by appropriate personnel. Refer to applicable technical manuals listed in Table 1-1.

SECTION II

ROTOR GROUP

2. GENERAL.

2.1 CONTENTS. The rotor group inspection items covered in this section are those critical items of the UH-1 helicopter rotor blades, rotor head, and components listed in the Rotor Group Inspection Index (Table 2-1). Corresponding inspection figures and applicable text paragraphs are listed opposite each inspection item. The index number for each item may be used to locate it in Figure 2-1.

Table 2-1. Rotor Group Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*2	Main Rotor Hub Grip	ET	2.2	2-2
*3	Main Rotor Hub Pillow Block	ET	2.3	2-3
*4	Main Rotor Pitch Horn	ET	2.4	2-4
*5	Main Rotor Drag Brace Assembly	MT	2.5	2-5
*6	Main Rotor Blade Bolt	MT	2.6	2-6
*7	Main Rotor Hub Plate Assembly	ET	2.7	2-7
*8	Grip Retention Nut	MT	2.8	2-8
9	Main Rotor Hub Shield Assembly	MT	2.9	2-9
*10	Yoke	MT	2.10	2-10
*11	Trunnion	MT	2.11	2-11
*12	Strap Fitting	MT	2.12	2-12
*13	Main Rotor Blade (Metal)	ET	2.13	2-13
*14	Main Rotor Blade (Metal)	BT	2.14	2-14
*15	Main Rotor Blade (Metal)	RT	2.15	2-15
*16	Composite Main Rotor Blade	BT	2.16	2-16
*17	Stabilizer Bar Center Frame	ET	2.17	2-17
*18	Stabilizer Bar Support	ET	2.18	2-18
*19	Stabilizer Bar Lever	ET	2.19	2-19
*20	Stabilizer Bar Tube Assembly	MT	2.20	2-20
21	Damper Lever Arms	ET	2.21	2-21
*22	Rotor Mast Adapter Set	ET	2.22	2-22
23	Damper Wingshaft Splines	MT	2.23	2-23
*24	Swashplate Inner Ring	ET	2.24	2-24

Table 2-1. Rotor Group Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*25	Swashplate Outer Ring	ET	2.25	2-25
*26	Support Assembly	ET	2.26	2-26
*27	Collective Levers	ET	2.27	2-27
*28	Scissors Assembly	ET	2.28	2-28
*29	Drive Link	ET	2.29	2-29
*30	Collective Sleeve Assembly	MT	2.30	2-30
*31	Nut, Retainer	MT	2.31	2-31
*32	Nut, Collective Sleeve Bearing Retention	MT	2.32	2-32
*33	Scissors and Sleeve Hub	MT	2.33	2-33
*34	Tail Rotor Hub Grip Assembly	ET	2.34	2-34
*35	Tail Rotor Hub Retainer Nut	MT	2.35	2-35
*36	Tail Rotor Hub Retainer Ring	PT	2.36	2-36
*37	Adapter Nut	MT	2.37	2-37
*38	Tail Rotor Hub Yoke	MT	2.38	2-38
*39	Tail Rotor Hub Trunnion	MT	2.39	2-39
*40	Tail Rotor Crosshead	ET	2.40	2-40
*41	Tail Rotor Blade	ET	2.41	2-41
*42	Tail Rotor Blade	BT	2.42	2-42
*43	Tail Rotor Blade	RT	2.43	2-43

NOTE: *Indicates Flight Safety Part.

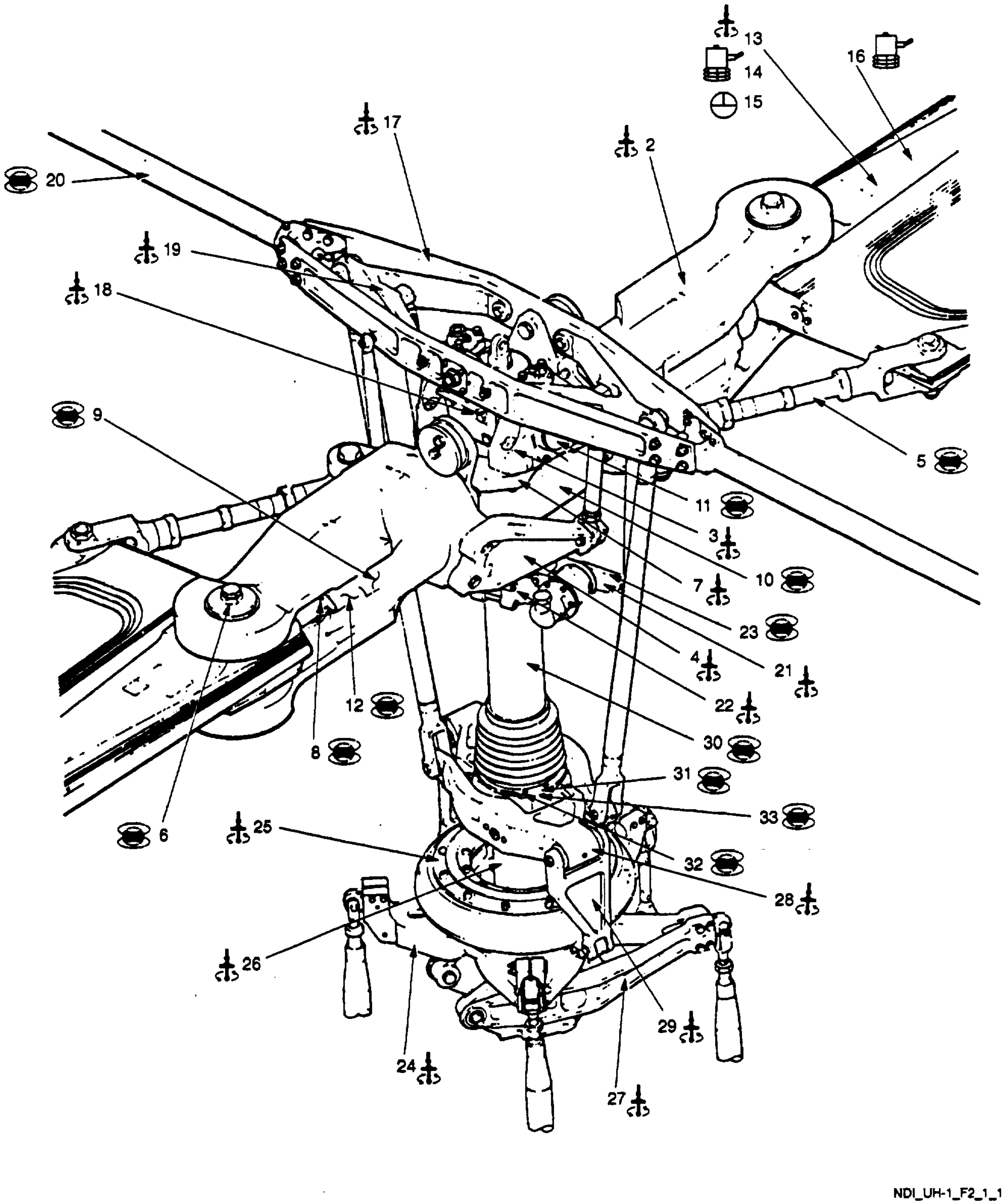


Figure 2-1. Rotor Group (Sheet 1 of 2)

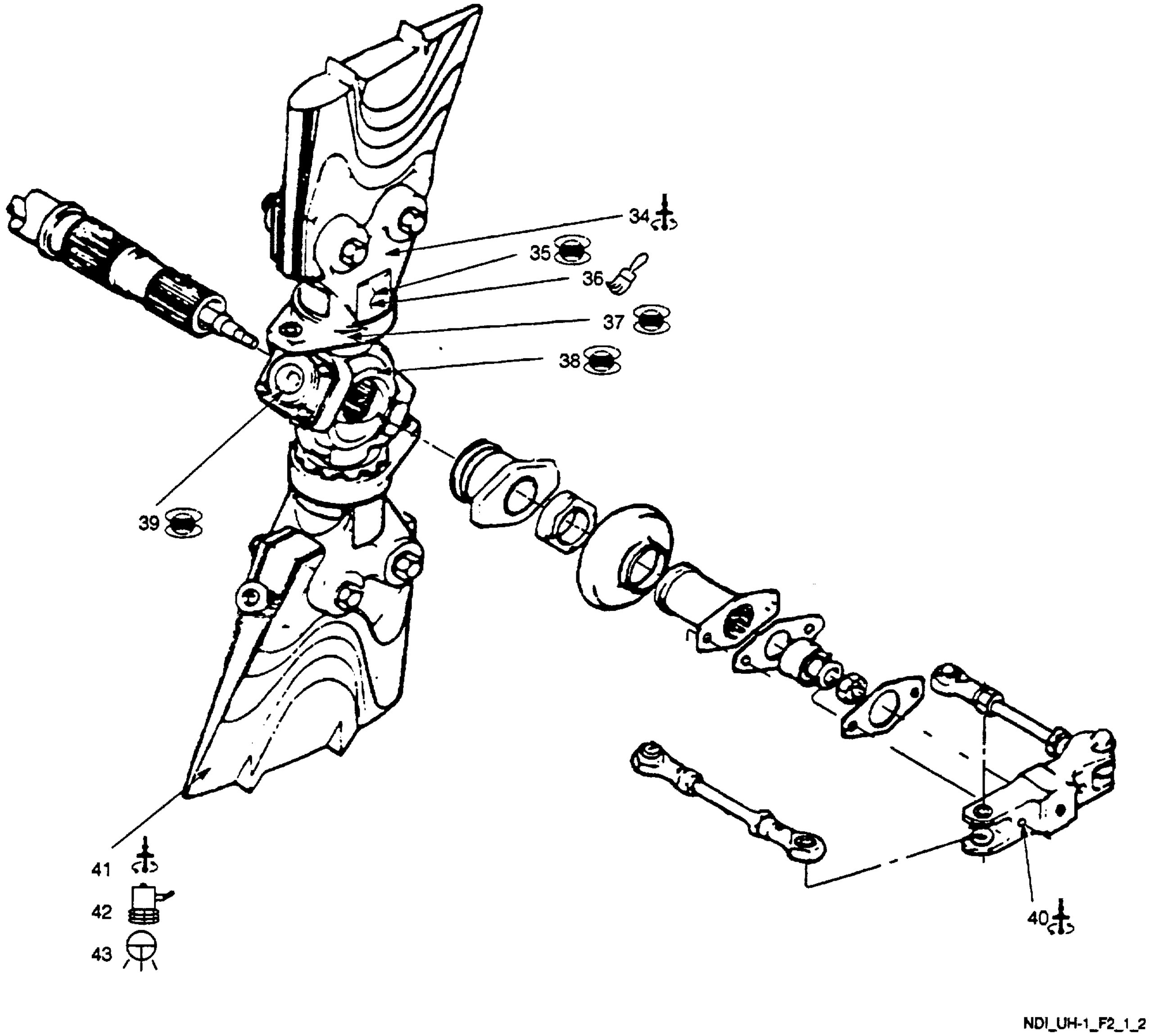


Figure 2-1. Rotor Group (Sheet 2 of 2)

2.2 MAIN ROTOR HUB GRIP (ET).

2.2.1 Description (Figure 2-1. Index No.2). The main rotor hub grip is a component of the main rotor blade retention system. This system transmits the flight control motion to the rotor blades.

2.2.2 Defects. This inspection is to verify crack indications found visually in the main rotor hub grip. No cracks are allowed.

2.2.3 Primary Method. Eddy Current.

2.2.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.2.3.2 Preparation of Helicopter. The helicopter shall be prepared for ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the main rotor hub grip shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.2.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.2.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.2.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		

LPF	-100
HPF	- 0
H Pos	- 80%
V Pos	-20%

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.2.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-2.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

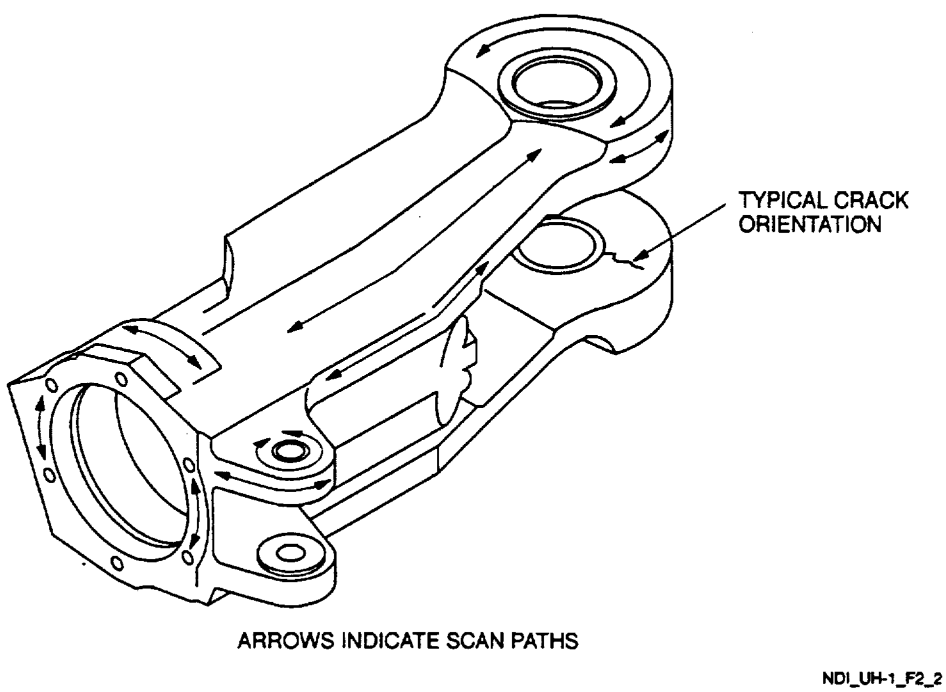


Figure 2-2. Main Rotor Hub Grip

NOTE

Either probe identified in paragraph 2.2.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.2.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.2.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.2.4 Backup Method. None required.

2.2.5 System Securing. The main rotor hub grip, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.3 MAIN ROTOR HUB PILLOW BLOCK (ET).

2.3.1 Description (Figure 2-1, Index No.3). The main rotor hub pillow blocks combine with the yoke and a trunnion mounted through them to form a flapping axis.

2.3.2 Defects. This inspection is to verify crack indications found visually in the main rotor hub pillow block. No cracks are allowed.

2.3.3 Primary Method. Eddy Current.

2.3.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.3.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the pillow blocks shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.3.3.3 Access. Not applicable.

2.3.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.3.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.3.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-3.

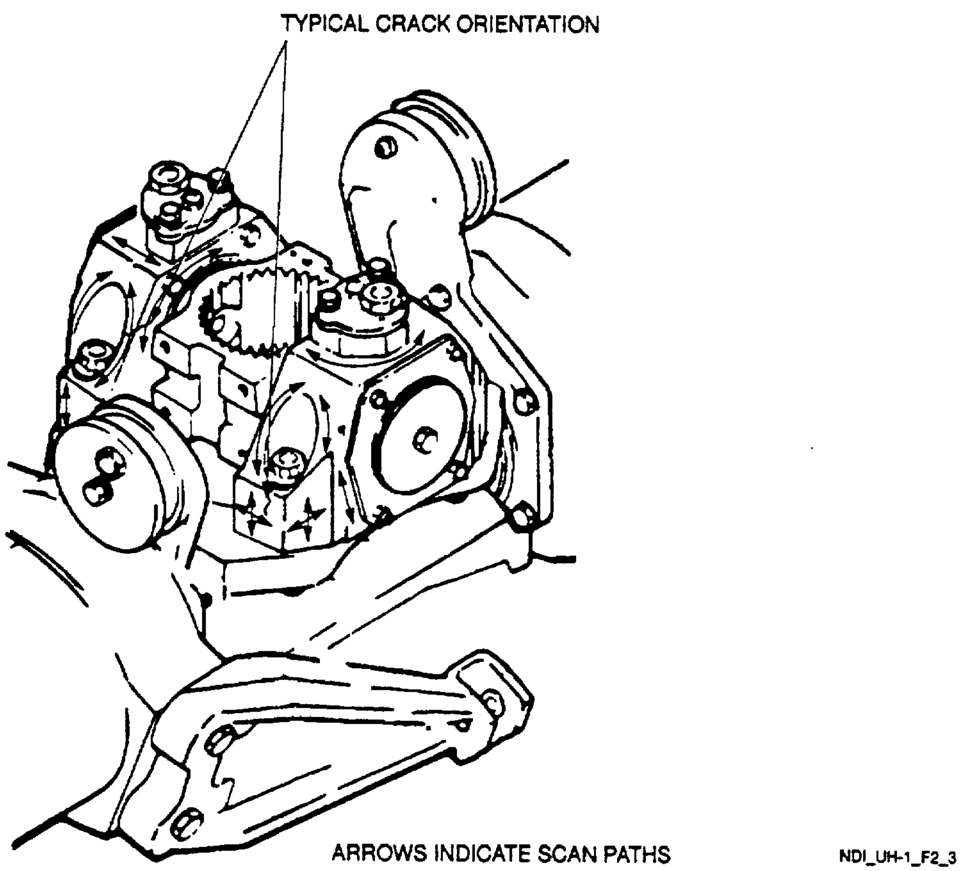


Figure 2-3. Main Rotor Hub Pillow Block

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.3.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.3.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.3.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.3.4 Backup Method. None required.

2.3.5 System Securing. The pillow block, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.4 MAIN ROTOR PITCH HORN (ET).

2.4.1 Description (Figure 2-1. Index No. 4). The main rotor pitch horn is machined from an aluminum alloy forging. Forward and aft cyclic input and lateral cyclic inputs are received through pitch horns mounted between the yoke and the trailing edge of the grips. The grips, in turn, are permitted to rotate about the yoke extension, resulting in the desired blade path.

2.4.2 Defects. This inspection is to verify crack indications found visually in the main rotor pitch horn. No cracks are allowed.

2.4.3 Primary Method. Eddy Current.

2.4.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.4.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the main rotor pitch horn shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.4.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.4.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.4.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	-80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.4.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-4.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.4.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.4.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

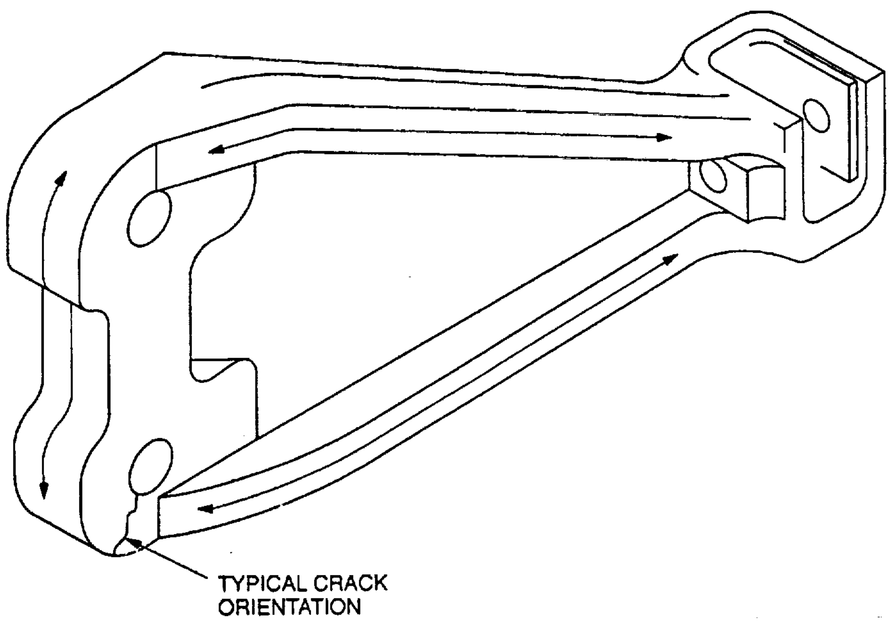


Figure 2-4. Main Motor Pitch Horn

2.4.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.4.4 <u>Backup Method</u>. None required.

2.4.5 <u>System Securing</u>. The main rotor pitch horn, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.5 MAIN ROTOR DRAG BRACE ASSEMBLY (MT).

2.5.1 <u>Description (Figure 2-1. Index No.5).</u> The main rotor drag brace assembly is a steel rod with a threaded steel clevis at each end. The assembly links the rotor blade drag plate to the main rotor grip.

2.5.2 <u>Defects.</u> This inspection is to verify crack indications found visually in the main rotor drag brace assembly. No cracks are allowed.

2.5.3 <u>Primary Method.</u> Magnetic Particle.

2.5.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

2.5.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the drag brace assembly removed in accordance with the applicable technical manuals listed in Table 1-1.

2.5.3.3 Access. Not applicable.

2.5.3.4 Preparation of Part. The drag brace assembly shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.5.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.5.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-5.

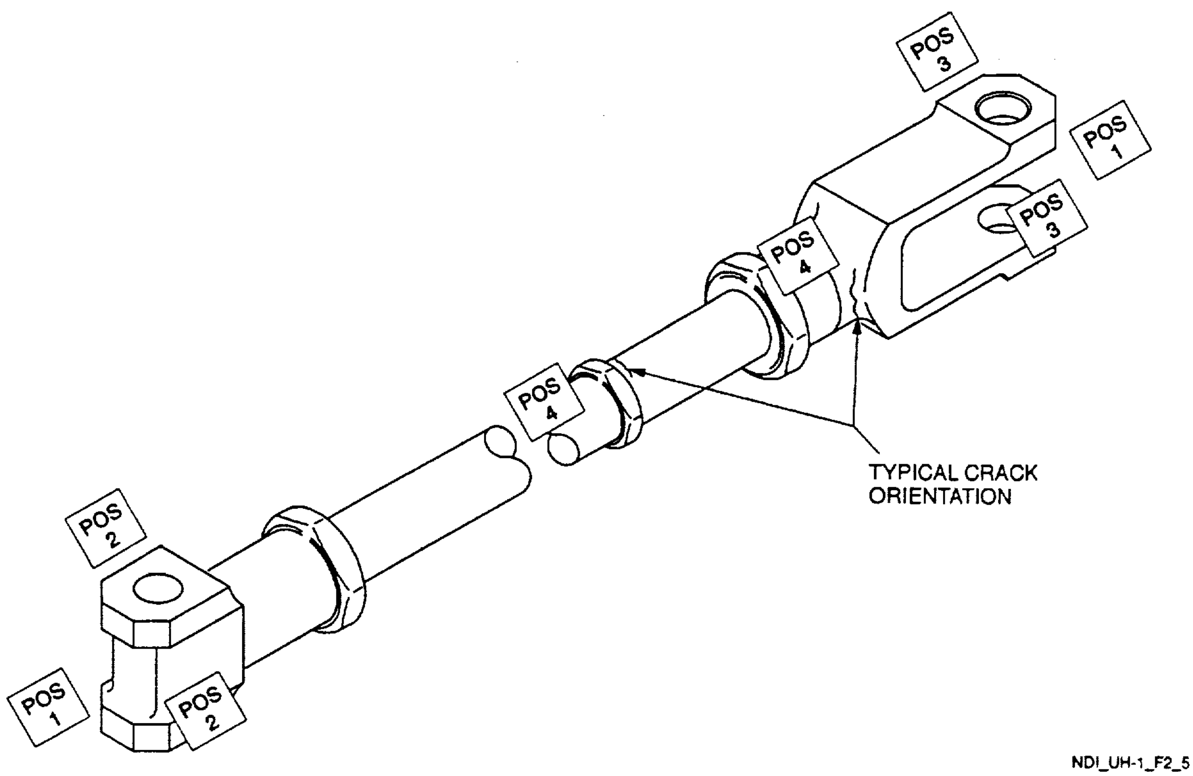


Figure 2-5. Main Rotor Drag Brace Assembly

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.5.3.8.
f. Repeat steps a. through e. for positions 2; 3, and 4.

2.5.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.5.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.5.4 Backup Method. None required.

2.5.5 System Securing. Clean the main rotor drag brace assembly thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The main rotor drag brace requires installation in accordance with applicable technical manuals listed in Table 1-1.

2.6 MAIN ROTOR BLADE BOLT (MT).

2.6.1 Description (Figure 2-1, Index No.6). The main rotor blade bolt attaches the rotor blades to the grip assembly.

2.6.2 Defects. This inspection is to verify crack indications found visually in the main rotor blade bolt. No cracks are allowed.

2.6.3 Primary Method. Magnetic Particle.

2.6.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.6.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main rotor bolt removed in accordance with the applicable technical manuals listed in Table 1-1.

2.6.3.3 Access. Not applicable.

2.6.3.4 Preparation of Part. The main rotor blade bolt shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1 4.4.

2.6.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.6.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 2-6.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.

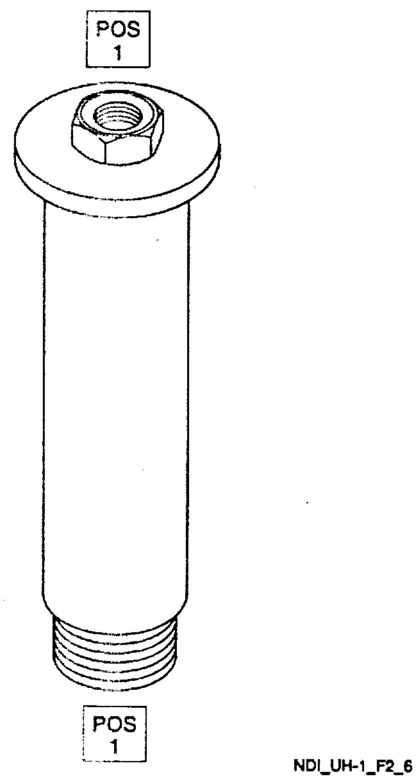


Figure 2-6. Main Rotor Blade Bolt

2.6.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.6.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.6.4 Backup Method. None required.

2.6.5 System Securing. Clean the main rotor blade bolt thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16.

The main rotor bolt requires installation in accordance with applicable technical manuals listed in Table 1-1.

2.7 MAIN ROTOR HUB PLATE ASSEMBLY (ET).

2.7.1 Description (Figure 2-1. Index No. 7). The plate assembly is attached under the yoke. It provides for the attachment of, and acts as the body for, the main rotor hub grip reservoirs.

2.7.2 Defects. This inspection is to verify crack indications found visually in the main rotor hub plate assembly. No cracks are allowed.

2.7.3 Primary Method. Eddy Current;

2.7.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle,. shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.7.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the main rotor hub plate assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.7.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.7.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.7.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.7.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-7.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.7.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.7.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

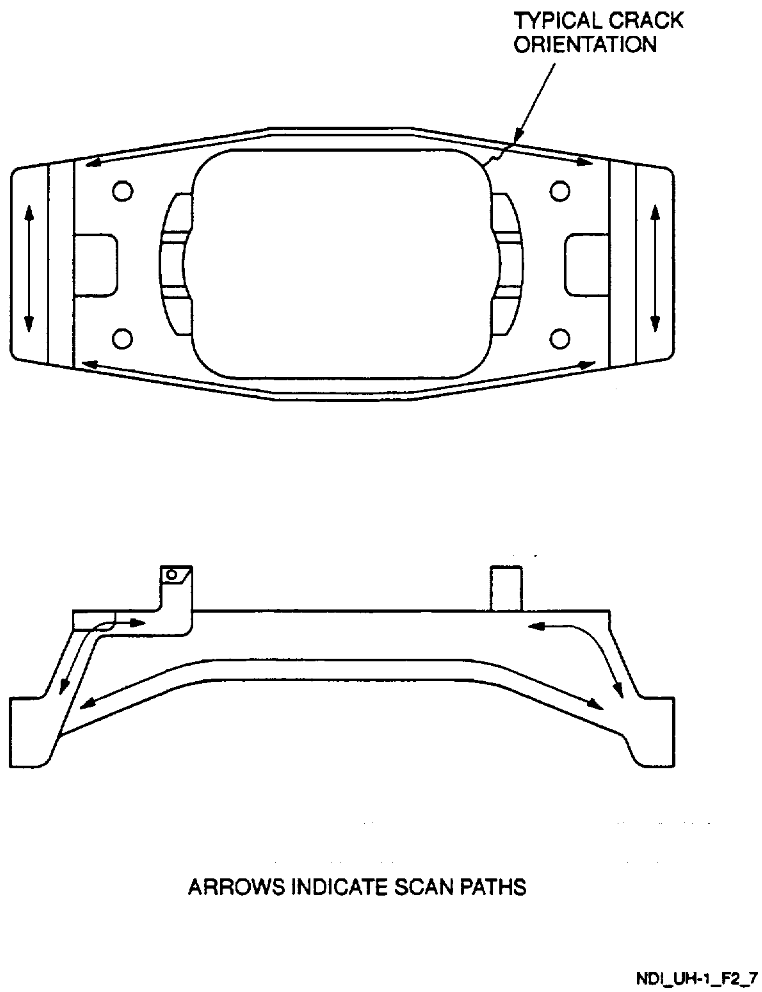


Figure 2-7. Main Rotor Hub Plate Assembly

2.7.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.7.4 Backup Method. None required.

2.7.5 System Securing. The main rotor hub plate assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.8 GRIP RETENTION NUT (MT).

2.8.1 Description (Figure 2-1. Index No. 8). The grip retention nut retains the main rotor hub grip to the strap assembly contained within the yoke assembly.

2.8.2 Defects. This inspection is to verify crack indications found visually in the grip retention nut. No cracks are allowed.

2.8.3 Primary Method. Magnetic Particle.

2.8.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a Magnetic Particle Inspection Probe/Yoke

b Magnetometer. Black Light

d Fluorescent Magnetic Particles

e Consumable Material, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.8.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the grip retention nut shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.8.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.8.3.4 Preparation of Part. The grip retention nut shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.8.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.8.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 2-8.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

2.8.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2:8.3.8 Demagnetization. With the switch remaining the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.8.4 Backup Method. None required.

2.8.5 System Securing. Clean the grip retention nut thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The grip retention nut, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.9 MAIN ROTOR HUB SHIELD ASSEMBLY (MT).

2.9.1 Description (Figure 2-1, Index No. 9). The main rotor hub shield assembly is located just outboard of the yoke. It provides a dust cover for its internal components.

2.9.2 Defects. This inspection is to verify crack indications found visually in the main rotor hub shield assembly. No cracks are allowed.

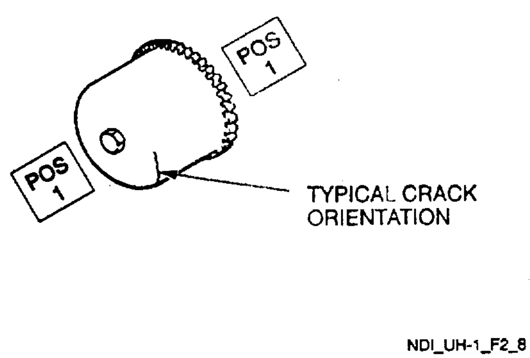


Figure 2-8. Grip Retention Nut

2.9.3 Primary Method. Magnetic Particle.

2.9.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the shield assembly removed in accordance with the applicable technical manuals listed in Table 1-1.

2.9.3.3 Access. Not applicable.

2.9.3.4 Preparation of Part. The shield assembly shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.9.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.9.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 2-9.

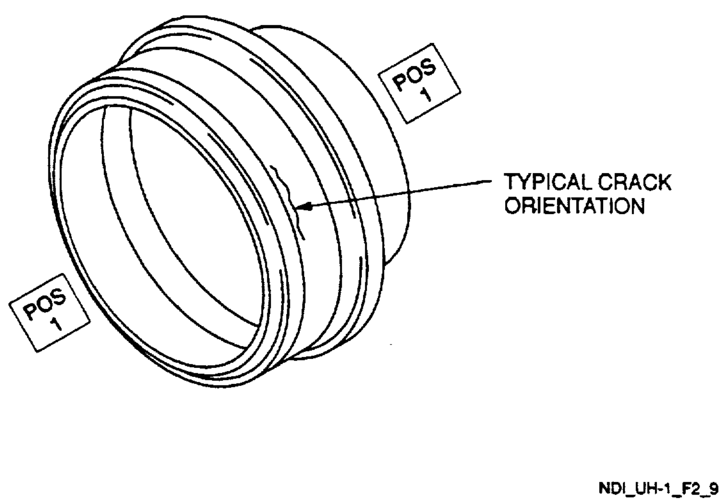


Figure 2-9. Main Rotor Hub Shield Assembly

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

2.9.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.9.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.9.4 Backup Method. None required.

2.9.5 System Securing. Clean the main rotor hub shield assembly thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The shield assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.10 YOKE (MT).

2.10.1 Description (Figure 2-1,. Index No.10). The yoke has a machined spindle on each end. Grips are mounted on each spindle for pitch change of the blades.

2.10.2 Defects. This inspection is to verify crack indications found visually in the yoke. No cracks are allowed.

2.10.3 Primary Method. Magnetic Particle.

2.10.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

2.10.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the yoke removed in accordance with the applicable technical manuals listed in Table 1-1.

2.10.3.3 Access. Not applicable.

2.10.3.4 Preparation of Part. The yoke shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.10.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.10.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-10.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 2.10.3.8.

f. Repeat steps a. through e. for position 2.

2.10.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

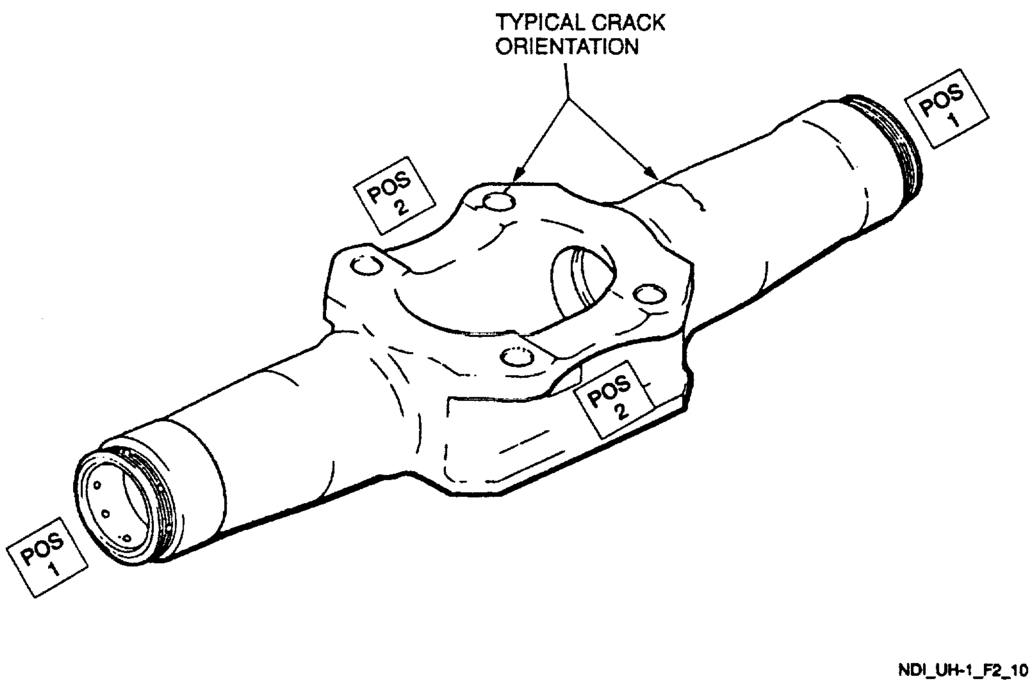


Figure 2-10. Yoke

2.10.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.10.4 Backup Method. None required.

2.10.5 System Securing. Clean the yoke thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The yoke requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.11 TRUNNION (MT).

2.11.1 Description (Figure 2-1. Index No.11). The trunnion engages splines at the top of the mast and is supported by a cone set and secured by a retaining nut which also serves as mast cap and lifting eye.

2.11.2 Defects. This inspection is to verify crack indications found visually in the trunnion. No cracks are allowed.

2.11.3 Primary Method. Magnetic Particle.

2.11.3.1 NDI Equipment and Materials. (Refer to Appendix B.).

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

2.11.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the trunnion removed in accordance with the applicable technical manuals listed in Table 1-1.

2.11.3.3 Access. Not applicable.

2.11.3.4 Preparation of Part. The trunnion shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.11.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.11.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-11.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

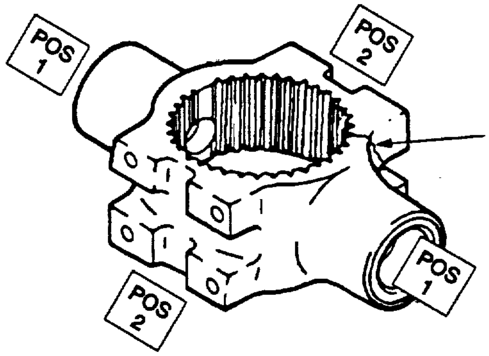


Figure 2-11. Trunnion

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 2.11.3.8.

f. Repeat steps a. through e. for position 2.

2.11.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.11.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.11.4 Backup Method. None required.

2.11.5 System Securing. Clean the trunnion thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The trunnion requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.12 STRAP FITTING (MT).

2.12.1 Description (Figure 2-1. Index No.12). The strap fitting (retention strap fitting) is a machined, cylindrical part located in the outboard end of the grip assembly. It positions the pin which attaches the retention strap.

2.12.2 Defects. This inspection is to verify crack indications found visually in the strap fitting. No cracks are allowed.

2.12.3 Primary Method. Magnetic Particle.

2.12.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE
Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the strap fitting removed in accordance with the applicable technical manuals listed in Table 1-1.

2.12.3.3 Access. Not applicable.

2.12.3.4 Preparation of Part. The strap fitting shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.12.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.12.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-12.

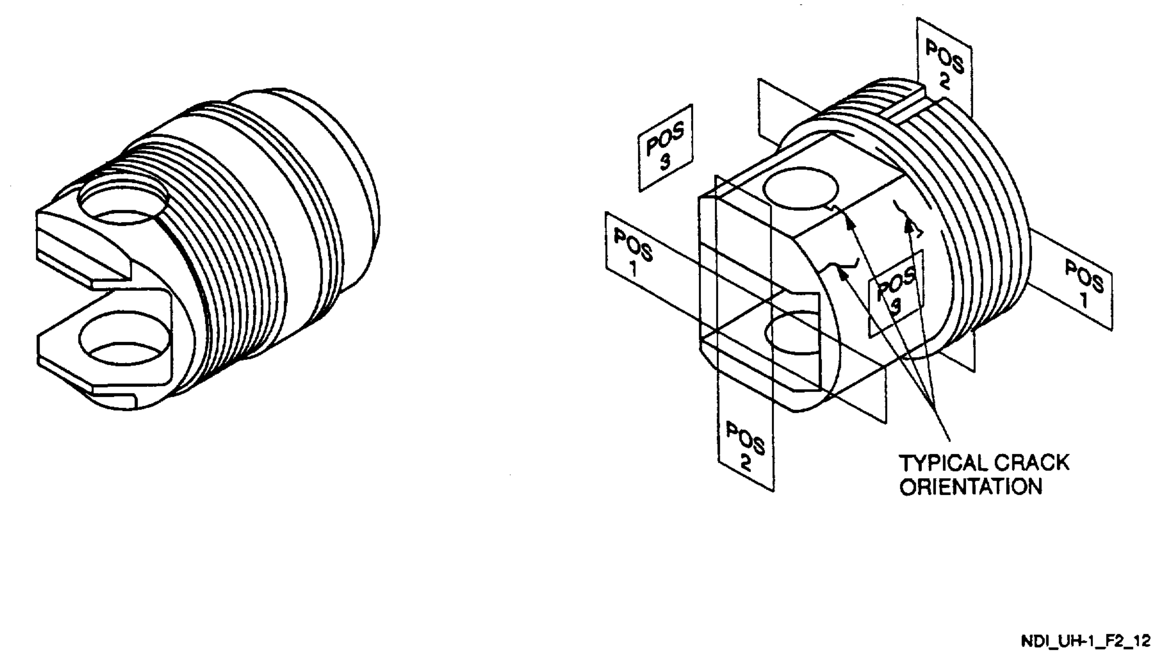


Figure 2-12. Strap Fitting

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 2.12.3.8.

f. Repeat steps a. through e. for positions 2, 3, and 4.

2.12.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.12.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.12.4 Backup Method. None required.

2.12.5 System Securing. Clean the strap fitting thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The strap fitting requires installation as required in accordance with the applicable technical manuals listed in Table 1-1.

2.13 MAIN ROTOR BLADE (METAL) (ET).

2.13.1 Description (Figure 2-1. Index No. 13). Each main rotor blade is an all-metal, bonded-assembly attached to the blade grip with a retaining bolt and held in alignment with an adjustable drag brace. An inertia weight is installed in the outboard end of the blade inside the D spar and held in place by screws through the aft side of the spar. Stainless steel strips cover leading edges for resistance to abrasion. The outboard four feet is covered with a cobalt abrasive strip. A trim tab is provided on the trailing edge for tracking adjustments. A fitting on the blade tip, which is used in the flag tracking procedure, has a hole for attachment of rotor tie-down.

2.13.2 Defects. This inspection is to verify crack indications found visually in the main rotor blades. No cracks are allowed.

2.13.3 Primary Method. Eddy Current.

2.13.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.13.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the main rotor blades installed on the helicopter.

2.13.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.13.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.13.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.13.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-13.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

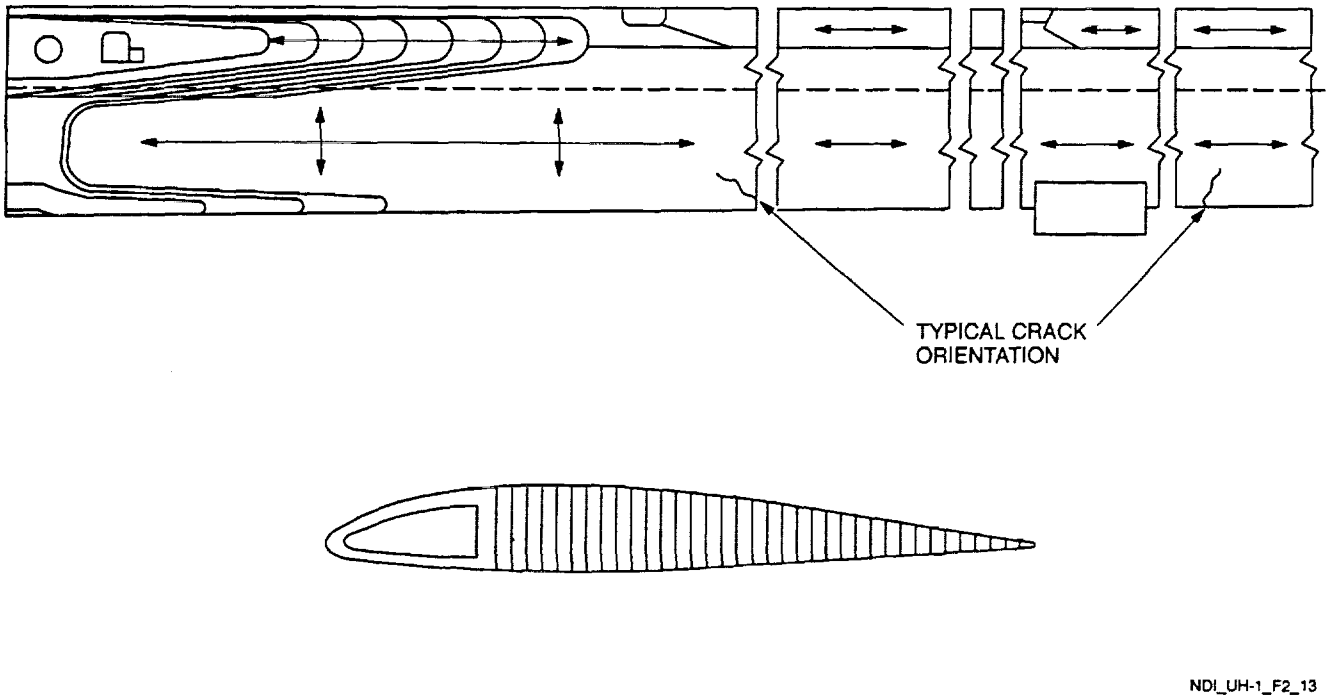


Figure 2-13. Main Rotor Blade (Metal)

NOTE

Either probe identified in paragraph 2.13.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.13.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.13.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.13.4 Backup Method. None required.

2.13.5 System Securing. None required.

2.14 MAIN ROTOR BLADE (METAL) (BT).

2.14.1 Description (Figure 2-1. Index No. 14). Each main rotor blade is an all-metal bonded assembly attached to the blade grip with a retaining bolt and held in alignment with an adjustable drag brace. An inertia weight is installed in the outboard end of the blade inside the D spar and held in place by screws through the aft side of the spar. Stainless steel strips cover leading edges for resistance to abrasion. The outboard four feet is covered with a cobalt abrasive strip. A trim tab is provided on the trailing edge for tracking adjustments. A fitting on the blade tip, which is used in the flag tracking procedure, has a hole for attachment of rotor tie-down.

2.14.2 Defects. This inspection is to verify void indications identified by visual inspection.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions of voids are given such as lack of adhesive, gas pocket, misfit, etc. However, this manual makes no distinction among these, grouping them all under one general term ("void").

2.14.3 Primary Method. Bond Testing.

2.14.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Bond Test Unit

b. Probe, Mechanical Impedance Analysis

c. Probe Holder

d. Cable Assembly

e. Test Block, metal honeycomb with skin thickness closest to that of the area to be inspected

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the main rotor blades installed on the helicopter.

2.14.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.14.3.4 Preparation of Part. The components shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4. Do not remove paint.

2.14.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1.

a. Attach cable and probe to Bondmaster. Protect probe with Teflon tape and install in probe holder.

b. Turn on Bondmaster, press SPCL, and make the following adjustments:

H Pos	- 40%
V Pos	-80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY PHASE.

d. Place probe on the good area of test block and press GOOD PART. Do this several times while moving the probe to different spots in the good area of the test block. Note the video signature for each. Select and enter a representative good area by pressing GOOD PART one last time.

e. Place probe on void area of test block and press BAD PART. Do this several times while / moving the probe slightly to different positions within the void area. Select and enter a position that gives a strong difference between good and void areas. (See Figure 1-5.) Use DIFF soft key to observe difference between good and bad areas of test block.

NOTE

If, during setup, the flying spot deflects upward or to the side when the probe passes over the bad part, instead of the desired down deflection toward the alarm box, press SPCL and toggle to a different phase setting (90, 180, or 270), and repeat steps d. and e. Continue to try phase settings until the flying spot moves in the desired down direction.

f. Place probe on good area of test block and press RUN. Flying spot should be near the top-center of the ACTIVE screen. If not, press NULL. Slide probe from good to void area and note response from flying spot. This response should provide both amplitude (vertical) and phase (horizontal) movement. The default gate/alarm setting may be incorrect for this setup. Turn off or reset gate/alarm as desired.

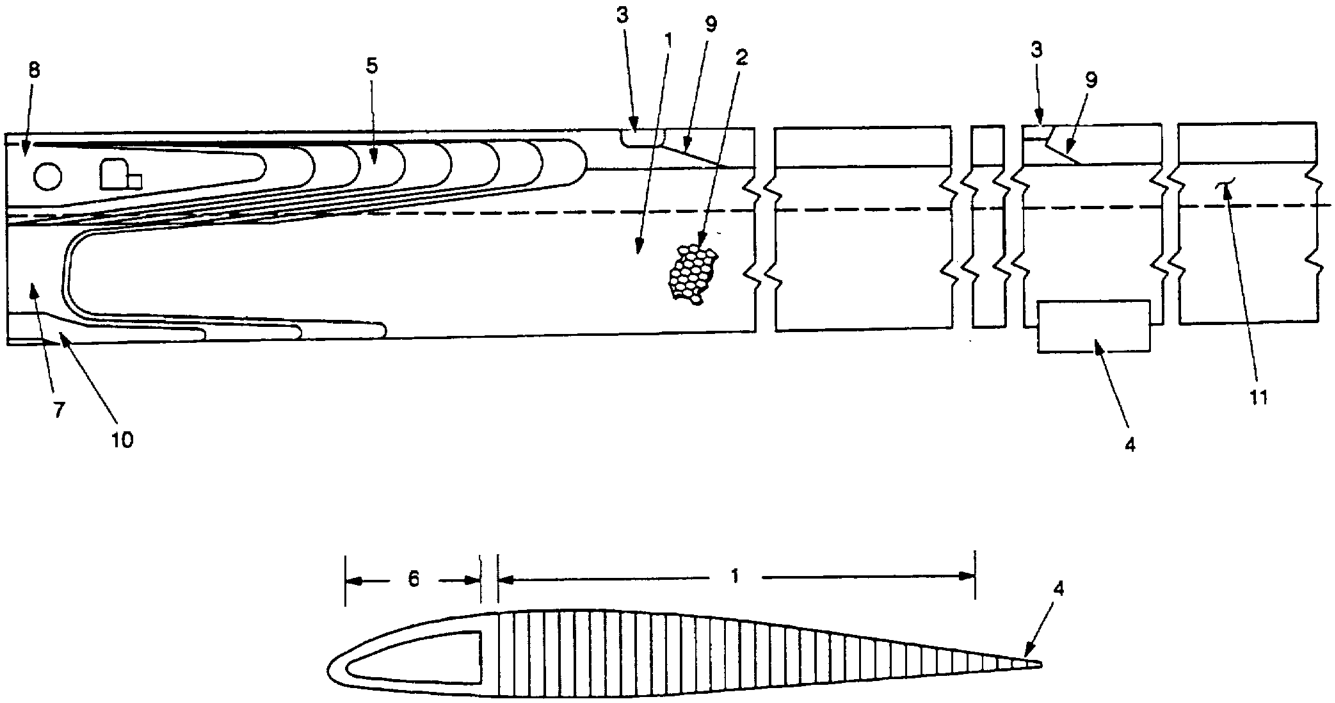
g. The Bondmaster is programmed to automatically set test parameters to a start-up or initial bond test. By following the steps outlined above, adjustments to the FREQ, GAIN, and ALARM can help to refine the selectivity in locating defects among differing materials.

2.14.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6 and inspection areas as shown in Figure 2-14.

NOTE

Scarf joints may have taco shell shaped caps, polyurethane tape bonded over the joints, or no covers at all. Only those joints which have caps require testing.

a. Skin-to-Honeycomb Voids. Place probe on the main rotor blade in location where test for skin-to-honeycomb bond separation is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. This setup is very sensitive to thin skin-to-core bonding. Move probe slowly over the skin and note the slight amplitude change (bounce) as the probe senses alternately the honeycomb cell nodes and cell walls.



1. SKIN
2. HONEYCOMB
3. SCARF JOINT CAP
4. TRIM TAB
5. DOUBLERS
6. NOSE BLOCK AND BOX BEAM
7. DRAG PLATE
8. GRIP PLATE
9. SCARF JOINT
10. SKIN AROUND ALIGNMENT PIN ON TOP SURFACE
11. SKIN TO SPAR (PARTICULARLY OUTER 12 INCHES)

NDI_UH-1_F2_14

Figure 2-14. Main Rotor Blade (Metal)

NOTE

The basic setup provided above also selects a frequency that provides a satisfactory inspection for voids associated with skin-to-spar, skin-to-trailing edge, doubler-to-doubler and doubler-to-skin, and trim tab bonding.

b. Use the NULL and GAIN adjustments to reset the ACTIVE screen for the areas to be inspected (do not go back to SET mode). Also, compare similar areas. For example, to check for spar to skin voids, check front and back of the blade in the same area, or check another blade in the same area. Observe that when moving the probe chordwise from the spar to the trailing edge, the transitions at the spar-to-honeycomb and the honeycomb-to-trailing edge strip are easily detected. When inspecting these areas, adjust the NULL and GAIN and move the probe carefully along the transition using a straight edge or other guide. A localized phase and amplitude shift similar to the test block indicates a void.

2.14.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

NOTE

Attention shall be directed to accurately mark the boundaries of all voids. These markings will be needed to determine acceptance or rejection criteria in accordance with applicable technical manuals.

2.14.4 Backup Method. None required.

2.14.5 System Securing. None required.

2.15 MAIN ROTOR BLADE (METAL) (RT).

2.15.1 Description (Figure 9-1. Index No. 15). Each main rotor blade is an all-metal, bonded assembly attached to the blade grip with a retaining bolt and held in alignment with an adjustable drag brace. An inertia weight is installed in the outboard end of the blade inside the D spar and held in place by screws through the aft side of the spar. Stainless steel strips cover leading edges for resistance to abrasion. The outboard four feet is covered with a cobalt abrasive strip. A trim tab is provided on the trailing edge for tracking adjustments. A fitting on the blade tip, which is used in the flag tracking procedure, has a hole for attachment of rotor tie-down.

2.15.2 Defects. Water in honeycomb cores.

2.15.3 Primary Method. Radiography.

WARNING

Radiation Hazard

Assure compliance with all applicable safety precautions set forth in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) listed in Table 1.1. A hazard associated with exposure to ionizing radiation is that serious injury can be inflicted without pain, burning, or other sense of discomfort during the exposure period. Radiation protection shall be utilized in accordance with AR40-14/DLAR 1000.28.

2.15.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. X-ray unit

b. Tripod, X-ray tubehead stand

c. Film Processor

d. Film, Ready Pack 8 inch x 10 inch

e. Marking Material, refer to Table 1-8

2.15.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main rotor blade removed, if necessary, in accordance with applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the main rotor blades installed on the helicopter.

2.15.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.15.3.4 Preparation of Part. The main rotor blade (metal) shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.15.3.5 NDI Equipment Settings.

a. Refer to Radiographic Method, paragraph 1.4.10.

b. Equipment settings, inspection data, and arrangement for each exposure are given in Figure 2-15.

2.15.3.6 Inspection Procedure. Inspect designated areas of the main rotor blade.

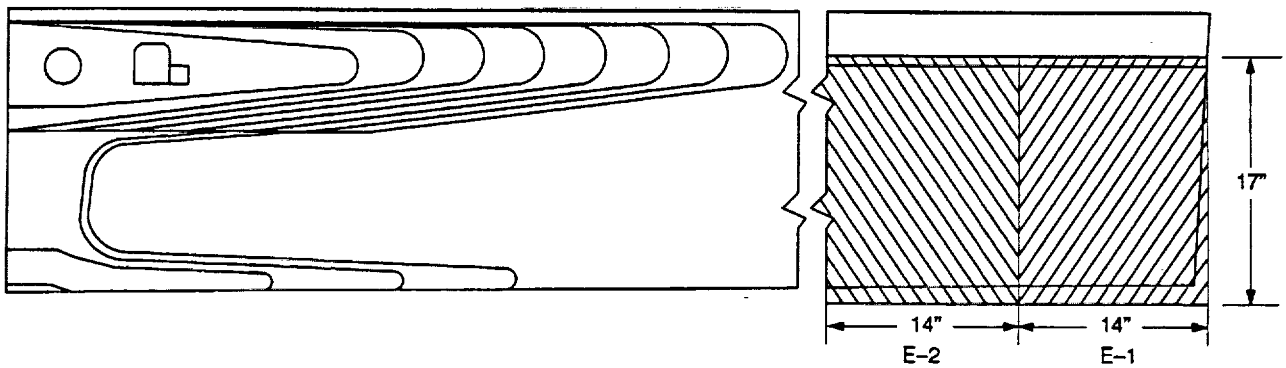
a. Position film and desired nameplate data for exposure number 1.

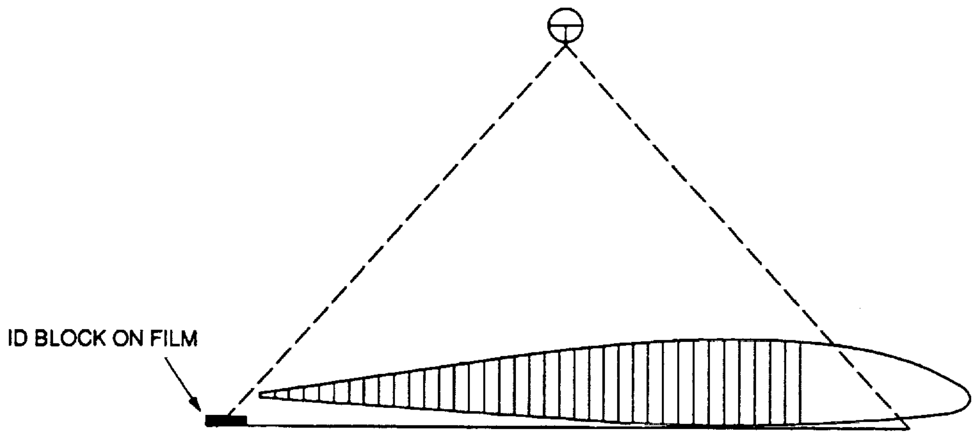
b. Position X-ray tubehead for exposure number 1.

c. Set X-ray unit to the values given in the Radiographic Inspection Data chart for exposure number 1.

d. Make exposure number 1.

e. Remove exposed film.





RADIOGRAPHIC INSPECTION DATA						
EXPOSURE NUMBER	KV	MA	FFD (INCHES)	TIME (SEC)	FILM	
					TYPE	SIZE
E1 E2	70 70	3.5 3.5	60 60	46 46	M-2 M-2	14 x 17 14 x 17

REMARKS

1. FILM NUMBER SAME AS EXPOSURE NUMBER.
2. FILM DENSITY FOR EACH EXPOSURE SHALL BE 1.8 TO 2.5 H&D UNITS IN AREAS OF INTEREST.
3. INSPECTION DATA SHALL BE ADJUSTED AS REQUIRED.
4. EXPOSE OUTBOARD TO INBOARD UNTIL WATER DISAPPEARS.

NDI_UH-1_F2_15_1

Figure 2-15. Main Rotor Blade (Metal) (Sheet 1 of 2)

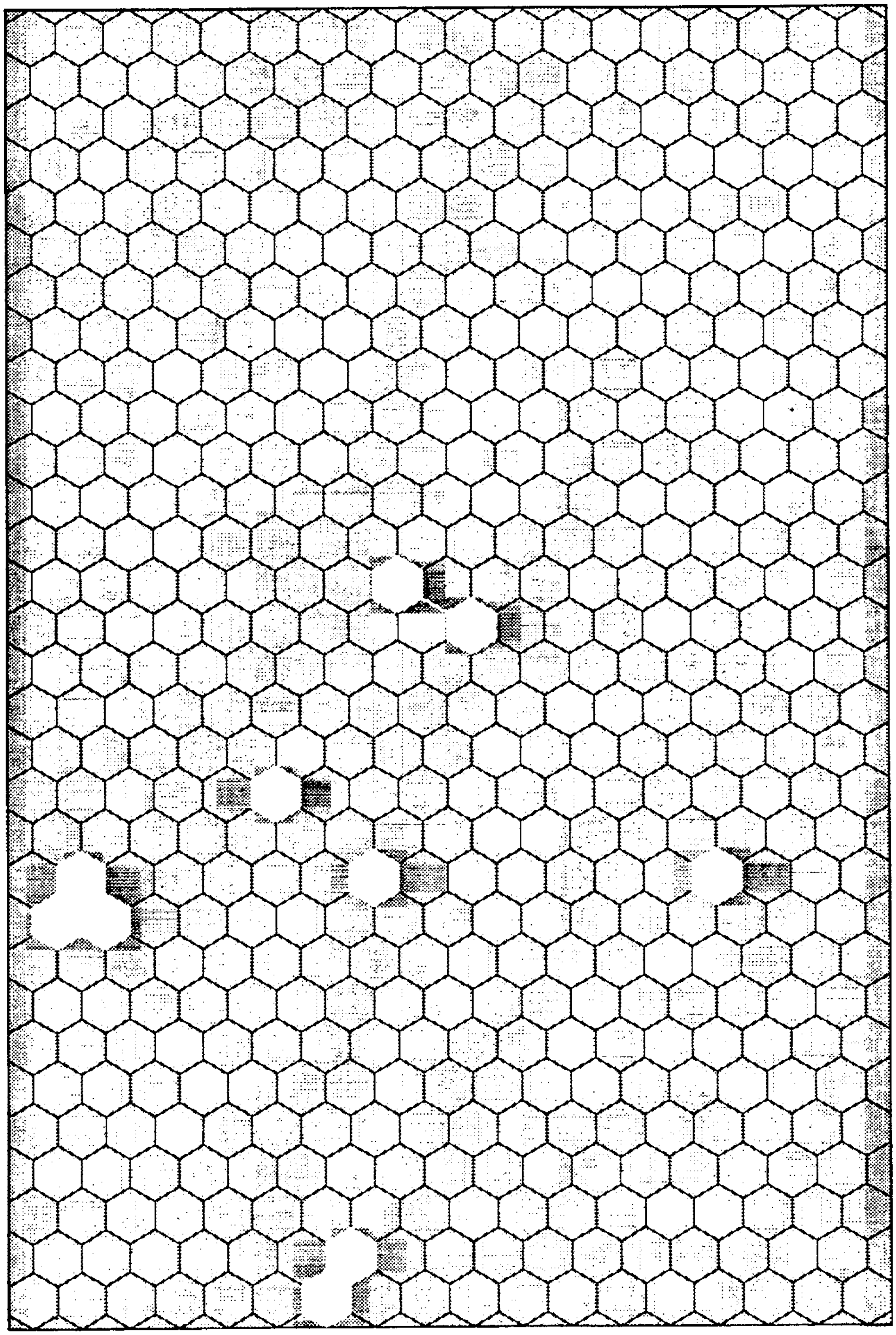


Figure 2-15. Main Rotor Blade (Metal) (Sheet 2 of 2)

f. Repeat inspection procedure (steps a. through e. above) for each exposure.

g. Process and interpret film for defects as noted in paragraph 2.15.2 and as shown in Figure 2-15.

2.15.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as necessary per paragraph 1.3.

2.15.4 Backup Method. None required.

2.15.5 System Securing. The main rotor blade shall be cleaned as necessary. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16.1. The main rotor blade, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1 -1.

2.16 COMPOSITE MAIN ROTOR BLADE (BT).

2.16.1 Description (Figure 2-1. Index No. 16). Each complete main rotor blade is comprised of composite materials and consists of a front spar and after-body skins supported by a nonmetallic honeycomb core and a trailing edge strip. The spar is a filament-wound, D-shaped structure, constructed of S-2 fiberglass in an epoxy matrix. The fibers are unidirectional, oriented spanwise, and are encased in an outer torque wrap of unidirectional fiber that is +/-45 degrees to the span. The afterbody skins consist of E-TYPE fiberglass material in an epoxy matrix. The leading edge of the blade is protected from erosion with three nonmetallic abrasion strips. The leading edge of the outboard abrasion strip is covered with a nickel rain guard strip. The blade is protected from lightning-strike damage by a copper-filled, polyurethane, conductive paint coating. Internal weights are used for static balance for interchangeability.

2.16.2 Defects. This inspection is to verify void indications identified by visual inspection.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions of voids are given such as lack of adhesive, gas pocket, misfit, etc. However, this manual makes no distinction among these, grouping them all under one general term ("void").

2.16.3 Primary Method. Bond Testing.

2.16.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Bond Test Unit

b. Probe, Mechanical Impedance Analysis

c. Probe Holder

d. Cable Assembly

e. Test Block, Composite Defect Standard #1

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.16.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the rotor blades on the helicopter.

2.16.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.16.3.4 Preparation of Part. The components shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.16.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1.

a. Attach cable and probe to Bondmaster. Protect probe with Teflon tape and install in probe holder.

b. Turn on Bondmaster, press SPCL, and make the following adjustments:

H Pos	- 40%
V Pos	- 80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY - PHASE.

d. Place probe on the good area of test block and press GOOD PART. Do this several times while moving the probe to different spots in the good area of the test block. Note the video signature for each. Select and enter a representative good area by pressing GOOD PART one last time.

e. Place probe on void area of test block and press BAD PART. Do this several times while moving the probe slightly to different positions within the void area. Select and enter a position that gives a strong difference between good and void areas. (See Figure 1-5.) Use DIFF soft key to observe difference between good and bad areas of test block.

NOTE

If, during setup, the flying spot deflects upward or to the side when the probe passes over the bad part, instead of the desired down deflection toward the alarm box, press SPCL and toggle to a different phase setting (90,180, or 270), and repeat steps d. and

e. Continue to try phase settings until the flying spot moves in the desired down direction.

f. Place probe on good area of test block and press RUN. Flying spot should be near the top-center of the ACTIVE screen. If not, press NULL. Slide probe from good to void area and note response from flying spot. This response should provide both amplitude (vertical) and phase (horizontal) movement. The default gate/alarm setting may be incorrect for this setup. Turn off or reset gate/alarm as desired.

g. The Bondmaster is programmed to automatically set test parameters to a start-up or initial bond test. By following the steps outlined above, adjustments to the FREQ, GAIN, and +-¼3 ALARM can help to refine the selectivity in locating defects among differing composite materials.

2.16.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6 and inspection areas as shown in Figure 2-16.

a. Skin-to-Honeycomb Voids. Place probe on the main rotor blade in location where test for skin-to-honeycomb bond separation is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. This setup is very sensitive to thin skin-to-core bonding. Move probe slowly over the blade and note the slight amplitude change (bounce) as the probe senses alternately the honeycomb cell nodes and cell walls.

NOTE

The basic setup provided above also selects a frequency that provide a satisfactory inspection for voids associated with skin-to-spar, skin-to-trailing edge, doubler-to-doubler and doubler-to-skin, and trim tab bonding.

b. Use the NULL and GAIN adjustments to reset the ACTIVE screen for the areas to be inspected (do not go back to SET mode). Also, compare similar areas. For example, to check for spar to skin voids, check front and back of the blade in the same area, or check another blade in the same area. Observe that when moving the probe chordwise from the spar to the trailing edge, the transitions at the spar-to-honeycomb and the honeycomb-to-trailing edge strip are easily detected. When inspecting these areas, adjust the NULL and GAIN and move the probe carefully along the transition using a straight edge or other guide. A localized phase and amplitude shift similar to the test block indicates a void.

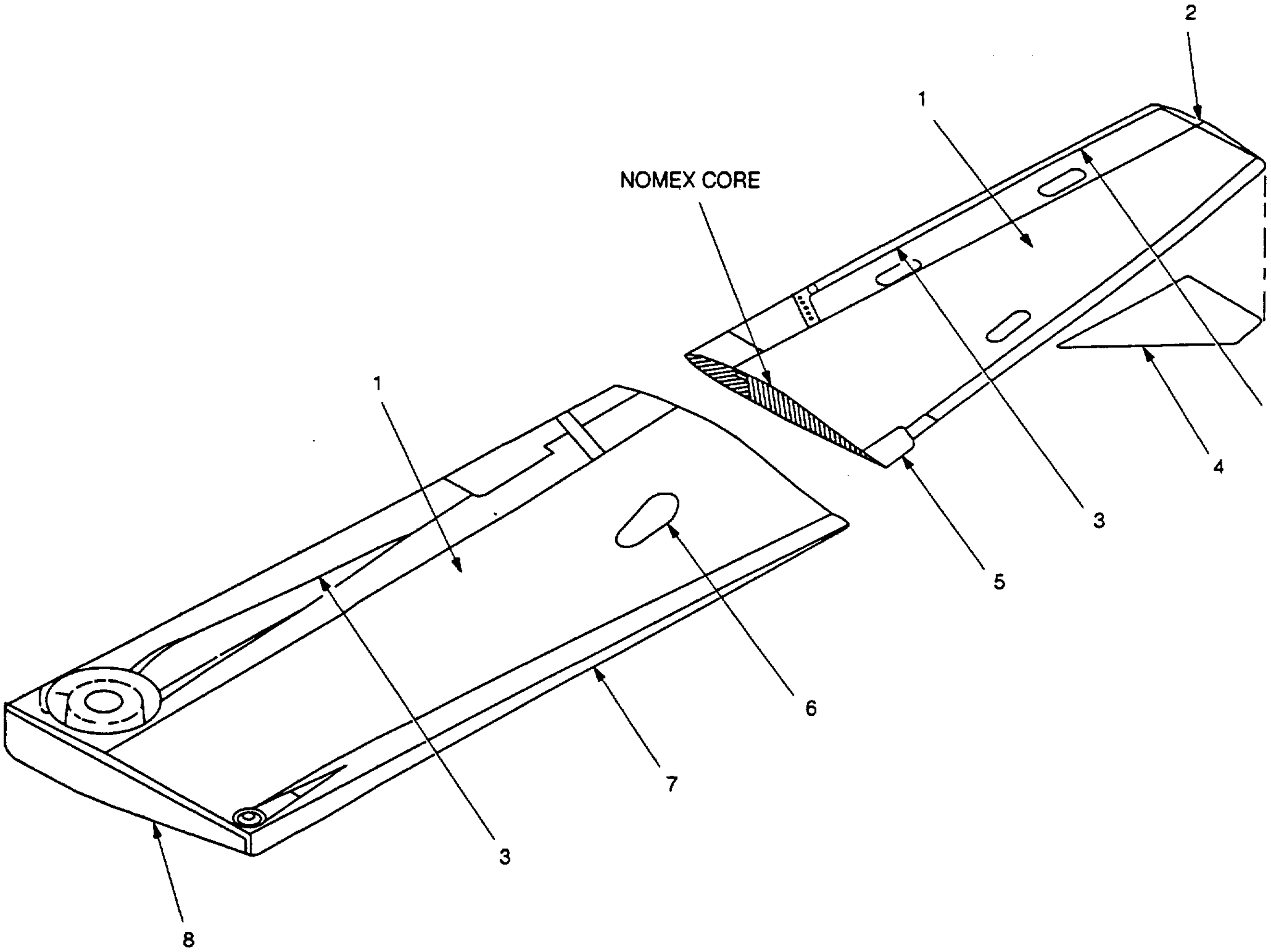
2.16.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

NOTE

Attention shall be directed to accurately mark the boundaries of all voids. These markings will be needed to determine acceptance or rejection criteria in accordance with applicable technical manuals.

2.16.4 Backup Method. None required.

2.16.5 System Securing. None required.



1. VOIDS BETWEEN SKIN AND CORE
2. VOIDS BETWEEN SKIN AND TIP BLOCK
3. VOIDS BETWEEN INBOARD/MIDDLE/OUTBOARD ABRASION STRIPS AND SPAR
4. VOIDS BETWEEN SKIN AND EROSION SHIELD
5. VOIDS BETWEEN THE TRIM TAB AND THE SKIN
6. ALL PATCH REPAIRS FOR VOIDS
7. VOIDS BETWEEN THE SKIN AND TRAILING EDGE
8. VOIDS BETWEEN THE SKIN AND ROOT AND COVER

NDI_UH-1_F2_16

Figure 2-16. Composite Main Rotor Blade

2.17 STABILIZER BAR CENTER FRAME (ET).

2.17.1 Description (Figure 2-1. Index No.17). The stabilizer bar assembly is a weighted rotating unit mounted above and across the main rotor on supports bolted to the rotor hub trunnion. Each side of the bar frame, which constitutes the stabilizer bar center frame, is connected through a control tube to a damper on the mast. Mixing levers of the bar are connected to the main rotor control linkage by control tubes from scissors levers and by pitch links to pitch horns of the rotor hub. The stabilizer bar center frame constitutes the major framing mechanism which attaches the weights to the trunnion, pitch horn, and scissors lever.

2.17.2 Defects. Defects can occur anywhere the stabilizer bar center frames. No cracks are allowed.

2.17.3 Primary Method. Eddy Current.

2.17.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90" 1/2 inch drop

d. Cable Assembly

e. Reference Block, three notched aluminum (0.008, 0.020, 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.17.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the stabilizer bar center frame shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.17.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.17.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.17.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	-200 KHz	F2	- off
HdB	- 57.0		
VdB	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	- 0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040 inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.17.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-17.

a. Place probe on part in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.17.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.17.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.17.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.17.4 <u>Backup Method</u>. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.17.5 <u>System Securing</u>. The stabilizer bar center frame, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

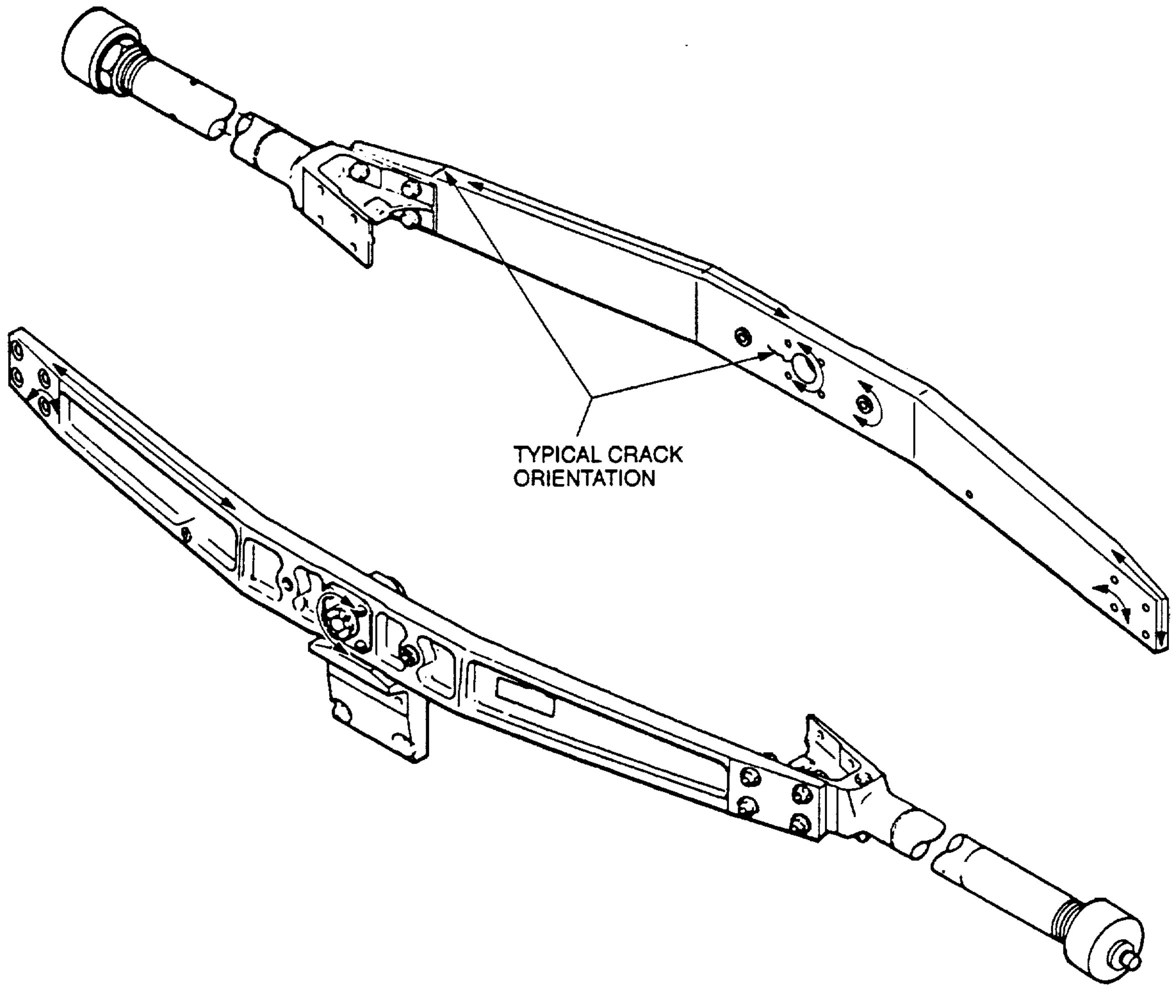


Figure 2-17. Stabilizer Bar Center Frame

2.18 STABILIZER BAR SUPPORT (ET).

2.18.1 Description (Figure 2-1. Index No.18). The stabilizer bar support is used to locate and hold the stabilizer bar. The stabilizer bar supports are mounted to the sides of the trunnion.

2.18.2 Defects. Defects can occur anywhere on the surface of the support. No cracks are allowed.

2.18.3 Primary Method. Eddy Current.

2.18.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, sheilded surface, 100 KHz-500 KHz, 900 1/2 inch drop-

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.18.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the stabilizer bar support shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.18.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.18.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.18.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56"		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.18.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-18.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.18.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.18.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

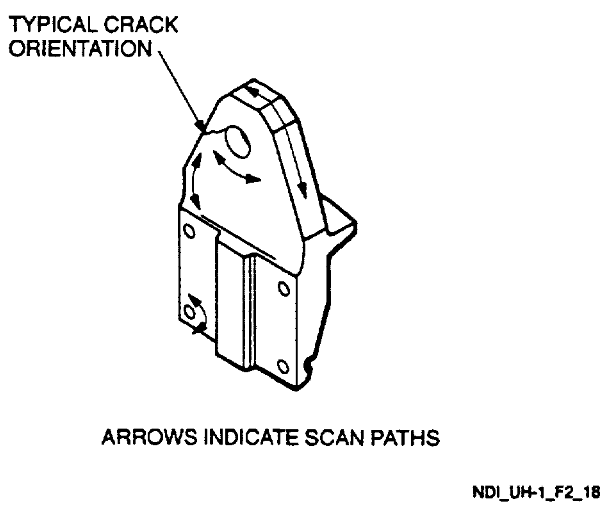


Figure 2-18. Stabilizer Bar Support

2.18.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.18.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.18.5 System Securing. The stabilizer bar support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.19 STABILIZER BAR LEVER (ET).

2.19.1 Description (Figure 2-1. Index No.19). The stabilizer bar lever is used to attach the stabilizer bar center frames to the pitch links and to the stabilizer bar control tubes.

2.19.2 Defects. Defects can occur anywhere on the surface of the lever. No cracks are allowed.

2.19.3 Primary Method. Eddy Current.

2.19.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.19.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the stabilizer bar lever shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.19.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.19.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.19.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56"		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.19.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-19.

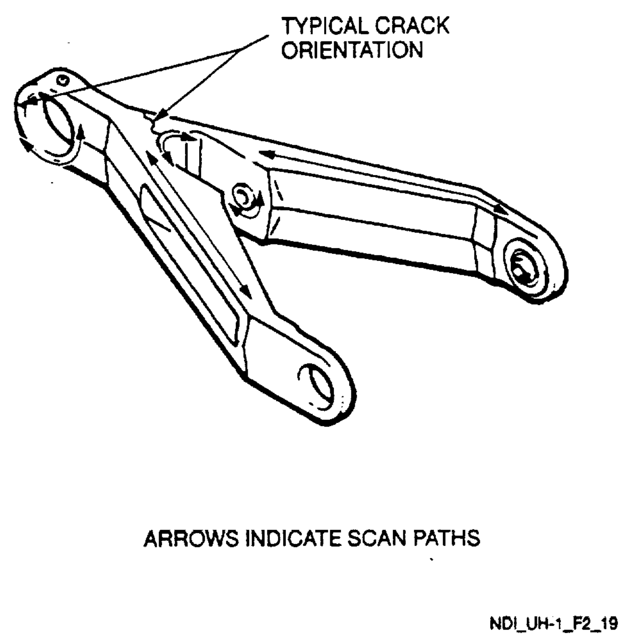


Figure 2-19. Stabilizer Bar Lever

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.19.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.19.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.19.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.19.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.19.5 System Securing. The stabilizer bar lever, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.20 STABILIZER-BAR TUBE ASSEMBLY (MT).

2.20.1 Description Figure 2-1. Index No.20). The stabilizer bar tubes have weights on the end that can adjust to balance the entire stabilizer bar assembly.

2.20.2 Defects. Defects can occur anywhere on the surface of the stabilizer bar tube assembly. No cracks are allowed.

2.20.3 Primary Method. Magnetic Particle.

2.20.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

2.20.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the stabilizer bar tube shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.20.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.20.3.4 Preparation of Part. The stabilizer bar tubes shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.20.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.20.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-20.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 2.20.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

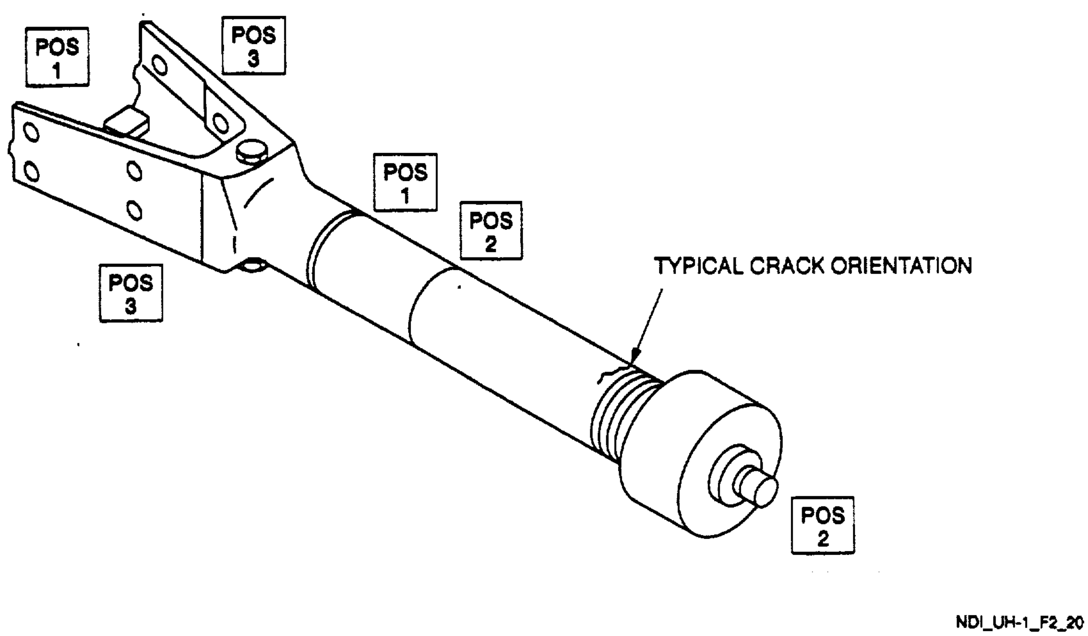


Figure 2-20. Stabilizer Bar Tube Assembly

2.20.3.7 Marking and Recording of Inspection Results. Mark and record inspection results as required by paragraph 1.3.

2.20.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.20.4 Backup Method. None required.

2.20.5 System Securing. Clean the stabilizer bar tube thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The stabilizer bar tube, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.21 DAMPER LEVER ARMS (ET).

2.21.1 Description (Figure 2-1. Index No. 21). Two rotary viscous-type dampers are mounted on adapters which are attached on mast splines below the main rotor. Levers on damper wingshafts are connected by control tubes to each side of the stabilizer bar frame. Dampers are nonadjustable, being present for required stiffness of action.

2.21.2 Defects. This inspection is to verify crack indications found visually in the damper lever arms. No cracks are allowed.

2.21.3 Primary Method. Eddy Current.

2.21.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.21.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the damper lever arms shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.21.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.21.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.21.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.21.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-21.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.21.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.21.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

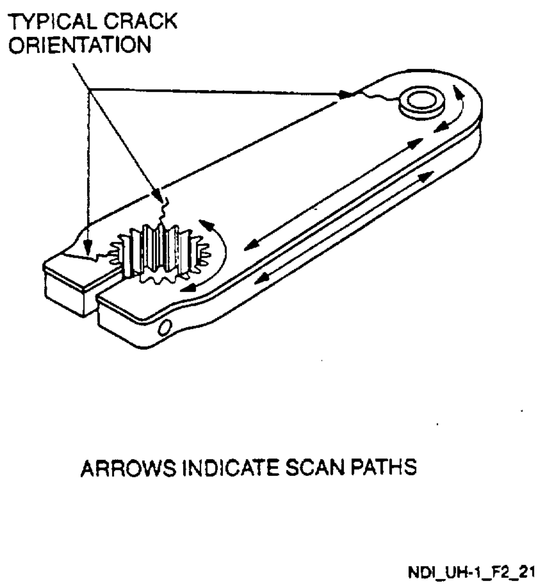


Figure 2-21. Damper Lever Arms

2.21.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.21.4 Backup Method. None required.

2.21.5 System Securing. The damper levers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

2.22 ROTOR MAST ADAPTER SET (ET).

2.22.1 Description (Figure 2-1. Index No. 22). The rotor mast adapter set mounts the damper assemblies to the rotor mast.

2.22.2 Defects. This inspection is to verify crack indications found visually in the rotor mast adapter set. No cracks are allowed.

2.22.3 Primary Method. Eddy Current.

2.22.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.22.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the rotor mast adapter set shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.22.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands .and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.22.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.22.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive - mid			
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.22.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-22.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

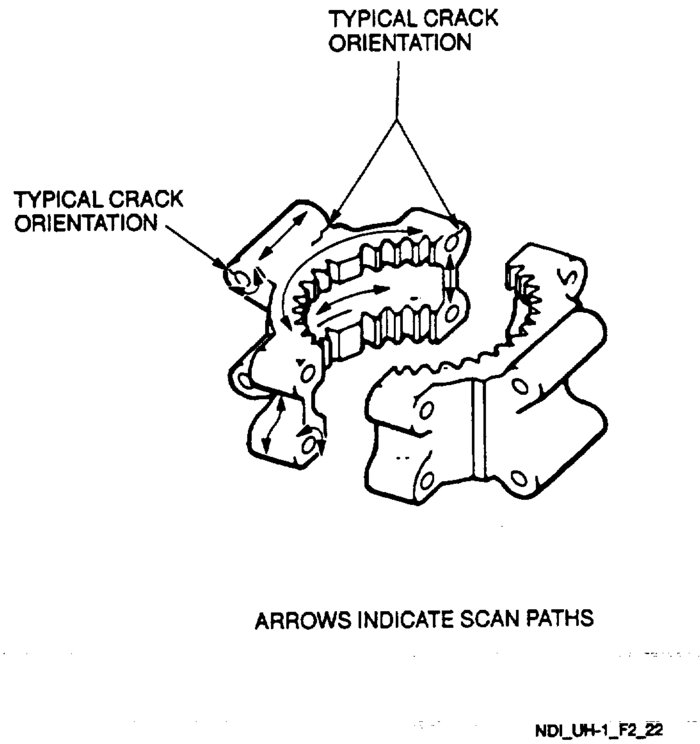


Figure 2-22. Rotor Mast Adapter Set

NOTE

Either probe identified in paragraph 2.22.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.22.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.22.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.22.4 Backup Method. None required.

2.22.5 System Securing. The rotor mast adapter set, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.23 DAMPER WINGSHAFT SPLINES (MT).

2.23.1 Description (Figure 2-1. Index No.23). The damper wingshaft splines connect to and rotate the damper lever arms. They are splined shafts emanating from the dampers themselves.

2.23.2 Defects. This inspection is to verify crack indications found visually in the damper wingshaft splines. No cracks are allowed.

2.23.3 Primary Method. Magnetic Particle.

2.23.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

2.23.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the damper assemblies removed in accordance with the applicable technical manuals listed in Table 1-1.

2.23.3.3 Access. Not applicable.

2.23.3.4 Preparation of Part. The damper assembly wingshaft splines shall be thoroughly cleaned.

Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.23.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.23.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 2-23.

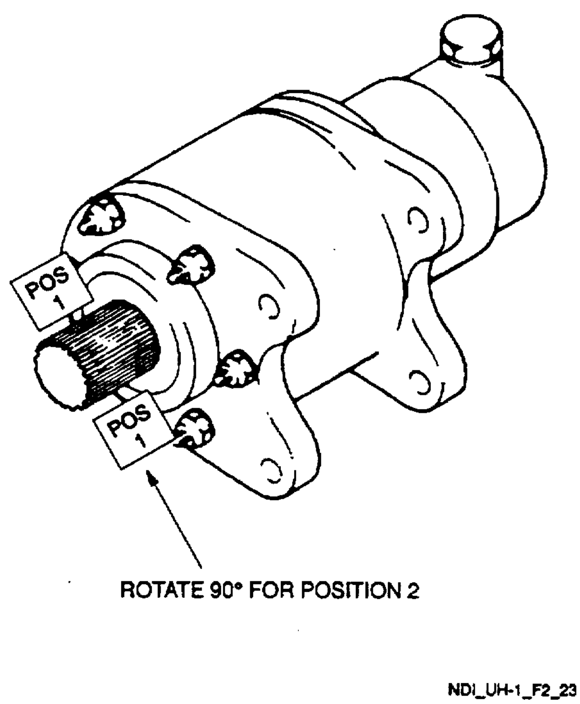


Figure 2-23. Damper Wingshaft Splines

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 2.23.3.8.

f. Rotate 90 degrees and repeat steps a. through e. for position 2.

2.23.3.7 Marking and Recording of Inspection Results. Mark and record inspection results as required by paragraph 1.3.

2.23.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.23.4 Backup Method. None required.

2.23.5 System Securing. Clean the damper wingshaft splines thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The damper assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.24 SWASHPLATE INNER RING (ET).

2.24.1 Description (Figure 2-1. Index No.24). The swashplate and support assembly and a scissors and sleeve assembly are installed together, mounted around the mast at the top of the transmission. The control unit transmits movements from the cyclic and collective control systems mounted in the cabin and fuselage to linkages which rotate with the main rotor. The swashplate is mounted on a universal support, and provides tilt related to the position of cyclic control stick. The collective sleeve moves vertically within the swashplate support, as actuated by the collective control stick. The combined effect on the scissor levers and upper linkage determine the main rotor lift and directional control.

2.24.2 Defects. This inspection is to verify crack indications found visually in the swashplate inner ring. No cracks are allowed.

2.24.3 Primary Method. Eddy Current.

2.24.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

2.24.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the inner ring shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.24.3.3 Access. Not applicable.

WARNING

Maintenance Platforms / Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.24.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.24.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	-56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.24.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.3.11 and Figure 2-24.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

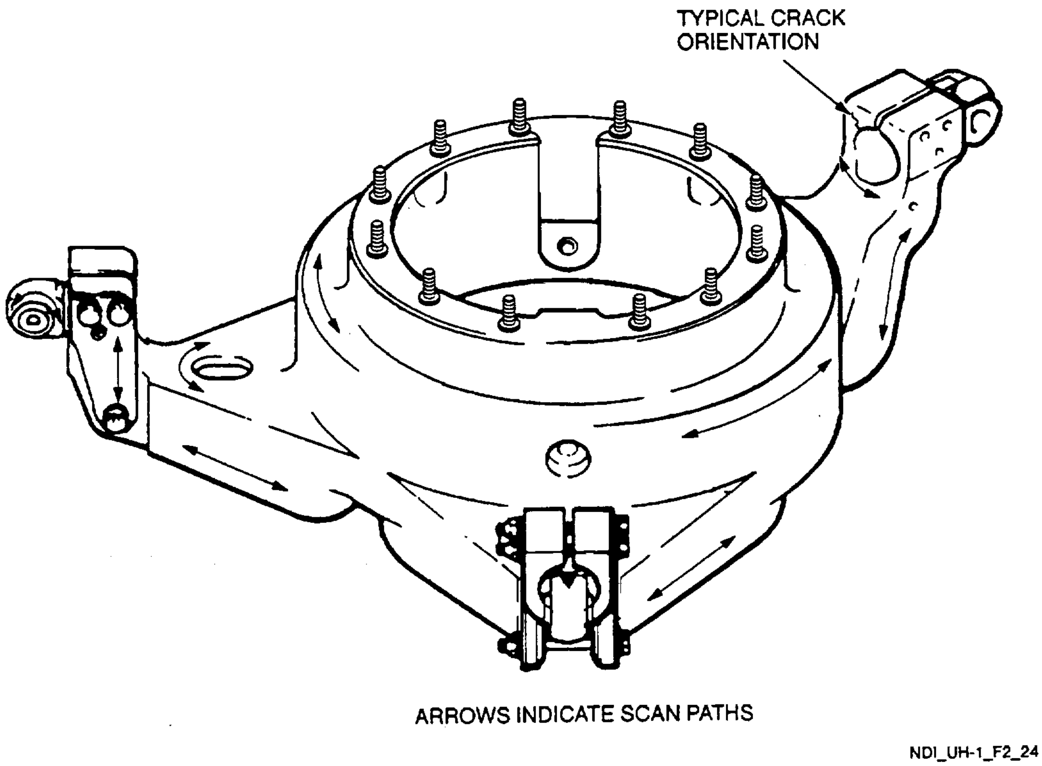


Figure 2-24. Swashplate Inner Ring

NOTE

Either probe identified in paragraph 2.24.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.24.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.24.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.24.4 Backup Method. None required.

2.24.5 System Securing. The swashplate inner ring, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.25 SWASHPLATE OUTER RING (ET).

2.25.1 Description (Figure 2-1. Index No. 25). The swashplate outer ring is attached to the swashplate. The outer ring, through linkage, transmits pitch control to the main rotor blades.

2.25.2 Defects. This inspection is to verify crack indications found visually in the swashplate outer ring. No cracks are allowed.

2.25.3 Primary Method. Eddy Current.
2.25.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.25.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the outer ring shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.25.3.3 Access. Not applicable.

WARNING

Maintenance Platform/Workstands Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.25.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.25.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-1 9e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.25.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-25.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.25.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.25.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

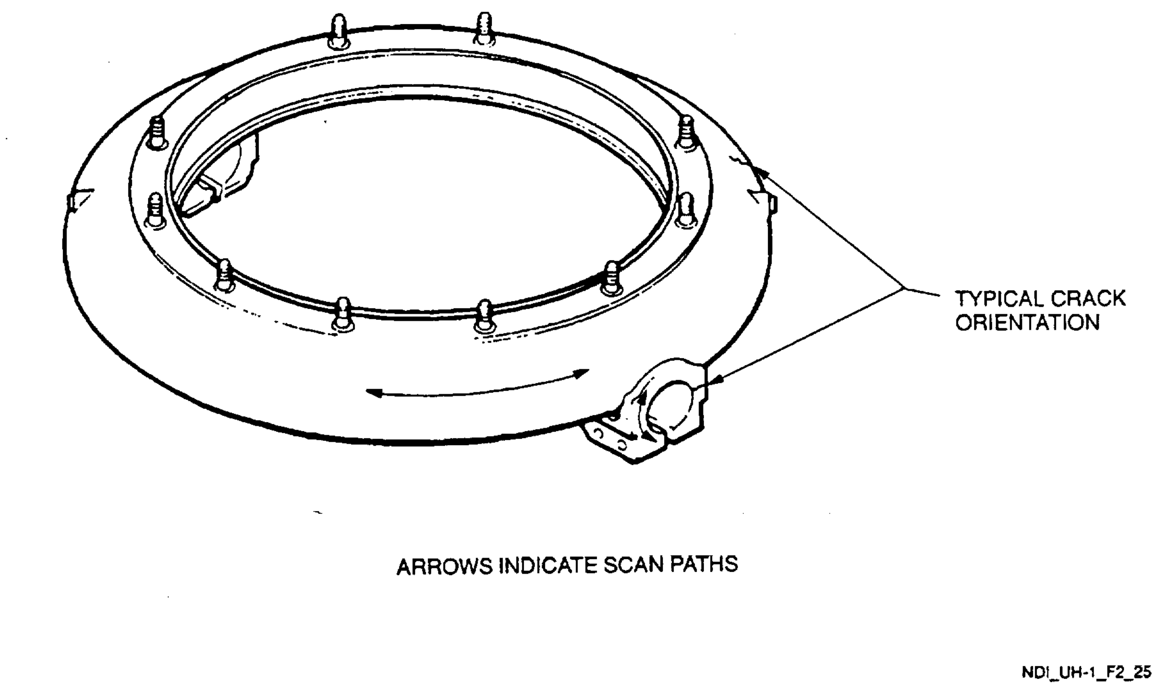


Figure 2-25. Swashplate Outer Ring

2.25.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.25.4 Backup Method. None required.

2.25.5 System Securing. The swashplate outer ring, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.26 SUPPORT ASSEMBLY (ET).

2.26.1 Description (Figure 2-1. Index No. 26). The support assembly supports the swashplate and is the attach point for the inner ring.

2.26.2 Defects. This inspection is to verify crack indications found visually in the support assembly. No cracks are allowed.

2.26.3 Primary Method. Eddy Current.

2.26.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.26.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the support assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.26.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.26.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.26.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-1 9e1.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.26.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-26.

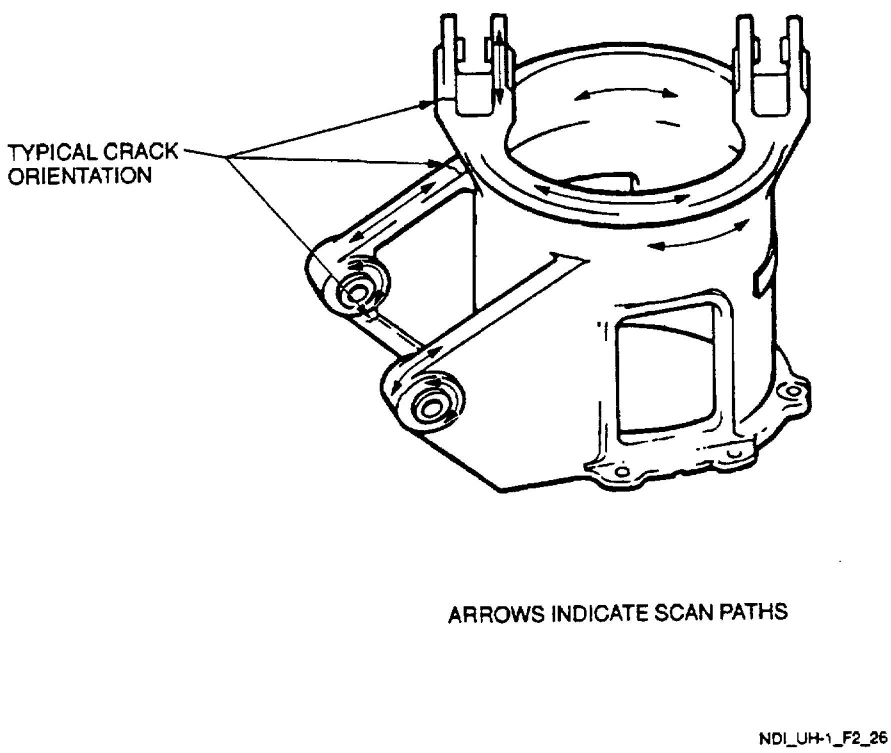


Figure 2-26. Support Assembly

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.26.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.26.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.26.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.26.4 Backup Method. None required.

2.26.5 System Securing. The swashplate support assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.27 COLLECTIVE LEVERS (ET).

2.27.1 Description (Figure 2-1. Index No. 27). The collective levers consist of two lever halves mounted to the swashplate at one end and attached to the hydraulic cylinder of the collective system at the opposite end. The levers also connect to the collective sleeve at an intermediate location.

2.27.2 Defects. Defects may occur anywhere on the surface of the collective levers. No cracks are allowed.

2.27.3 Primary Method. Eddy Current.

2.27.3.1 NDI Equipment and Materials. (Refer to Appendix B.)
a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.27.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the collective levers shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.27.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.27.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.27.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-1 9e".

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	-56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.27.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-27.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.27.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.27.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

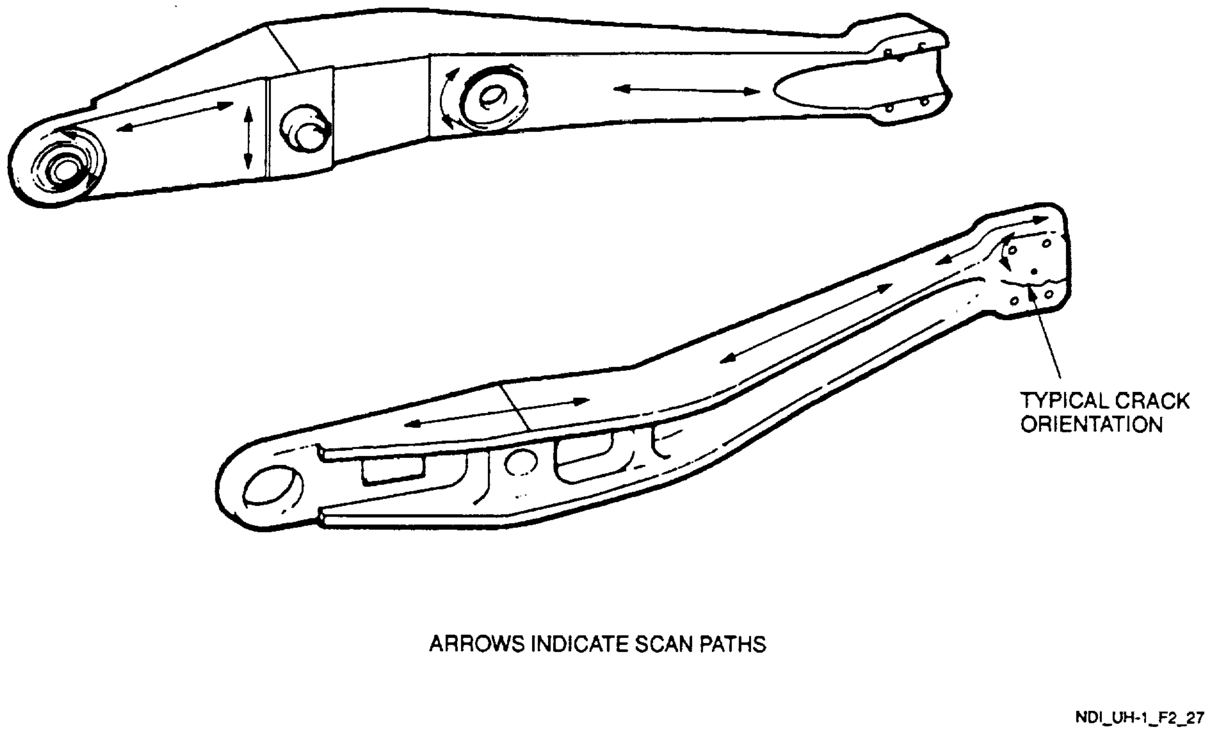


Figure 2-27. Collective Levers

2.27.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.27.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.27.5 System Securing. The collective levers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

2.28 SCISSORS ASSEMBLY (ET).

2.28.1 Description (Figure 2-1. Index No. 28). The scissors are mounted on the mast and are connected to the swashplate outer ring with two drive links. The drive links are connected to a hub which is mounted through a bearing set on the collective sleeve.

2.28.2 Defects. Defects may occur anywhere on the surface of the scissors assembly. No cracks are allowed.

2.28.3 Primary Method. Eddy Current.

2.28.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.28.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the scissors assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.28.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.28.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.28.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	-69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.28.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-28.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.28.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.28.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.28.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.28.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.28.5 System Securing. The scissors assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

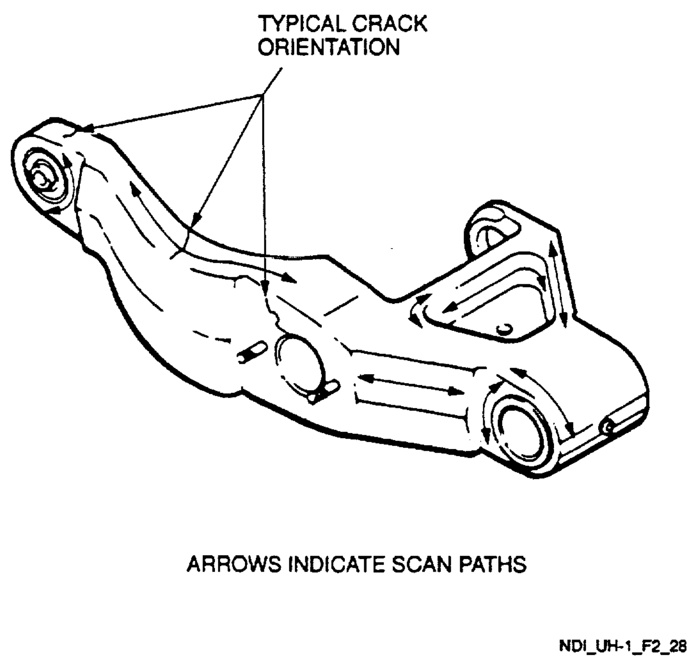


Figure 2-28. Scissors Assembly

2.29 DRIVE LINK (ET).

2.29.1 Description (Figure 2-1. Index No.29). Two drive links connect the scissors and sleeve to the swashplate outer ring. The drive links are connected to a hub which is mounted through a bearing set on the collective sleeve.

2.29.2 Defects. Defects may occur anywhere on the surface of the drive link. No cracks are allowed.

2.29.3 Primary Method. Eddy Current.

2.29.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.29.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the drive links shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.29.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.29.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.29.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	-100		
HPF	-0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.29.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-29.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.29.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.29.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

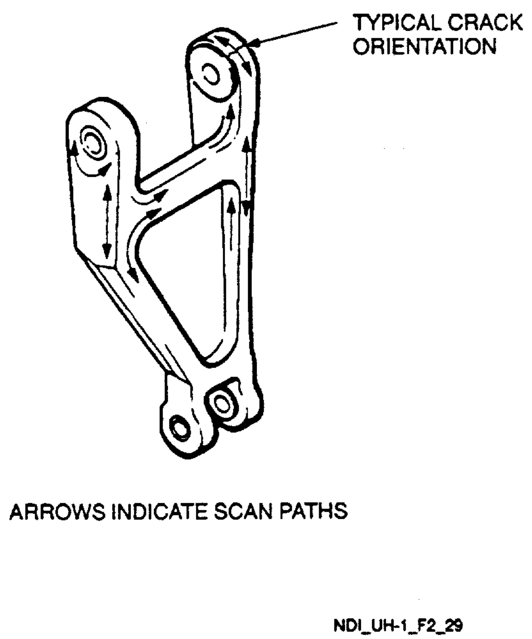


Figure 2-29. Drive Link

2.29.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.29.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.29.5 System Securing. The drive link, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.30 COLLECTIVE SLEEVE ASSEMBLY (MT).

2.30.1 Description (Figure 2-1. Index No. 30). The collective sleeve is a shaft to which the hub assembly is attached and through which the other collective control assemblies are attached, allowing collective pitch control of the main rotor. The collective sleeve contains a bearing set at its upper end through which the drive links connect. Bearings installed on the lower end of the collective sleeve provide for connection of the collective levers.

2.30.2 Defects. Defects may occur anywhere on the surface of the collective sleeve assembly. No cracks are allowed.

2.30.3 Primary Method. Magnetic Particle.

2.30.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

2.30.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the collective sleeve assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.30.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.30.3.4 Preparation of Part. The sleeve assembly shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.30.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.30.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-30.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.30.3.8.
f. Repeat steps a. through e. for positions 2, 3, and 4.

2.30.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.30.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.30.4 Backup Method. None required.

2.30.5 System Securing. Clean the sleeve assembly thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The collective sleeve assembly requires installation, if removed, in accordance with the applicable technical manuals listed in Table 1-1.

2.31 NUT, RETAINER (MT).

2.31.1 Description (Figure 2-1. Index No. 31). The retainer nut is an externally threaded, serrated nut which screws into the internal threads located inside the bottom of the hub assembly. The retainer nut acts as the lower retainer for the internal components located inside the collective sleeve. The retainer nut, when combined with its associated seal, seals the bottom of the hub assembly against the collective sleeve.

2.31.2 Defects. Defects may occur anywhere on the surface of the retainer nut. No cracks are allowed.

2.31.3 Primary Method. Magnetic Particle.

2.31.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

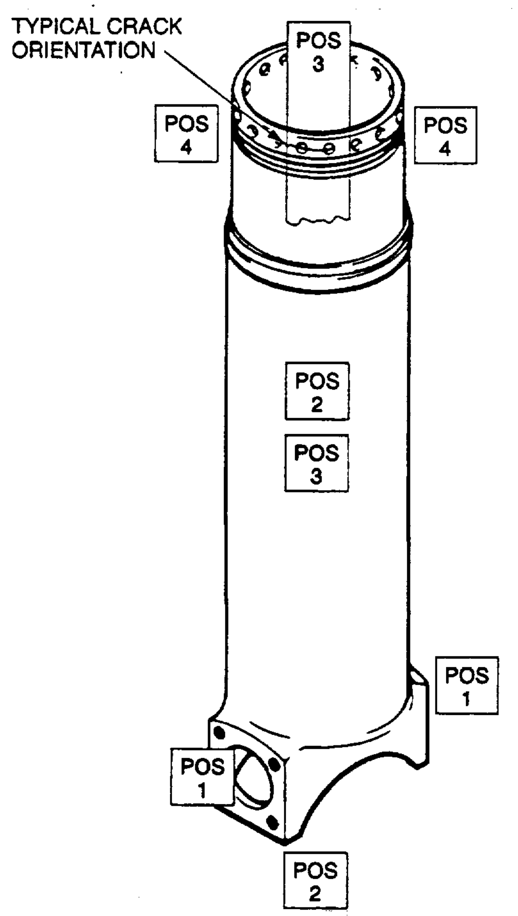


Figure 2-30. Collective Sleeve Assembly

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.31.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the nut retainer removed in accordance with the applicable technical manuals listed in Table 1-1.

2.31.3.3 Access. Not applicable.

2.31.3.4 Preparation of Part. The retainer nut shall be thoroughly cleaned. Refer to Preparation of . Part or Area for NDI, paragraph 1.4.4.

2.31.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.31.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-31.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph'2.31.3.8.
f. Repeat steps a. through e. for position 2.

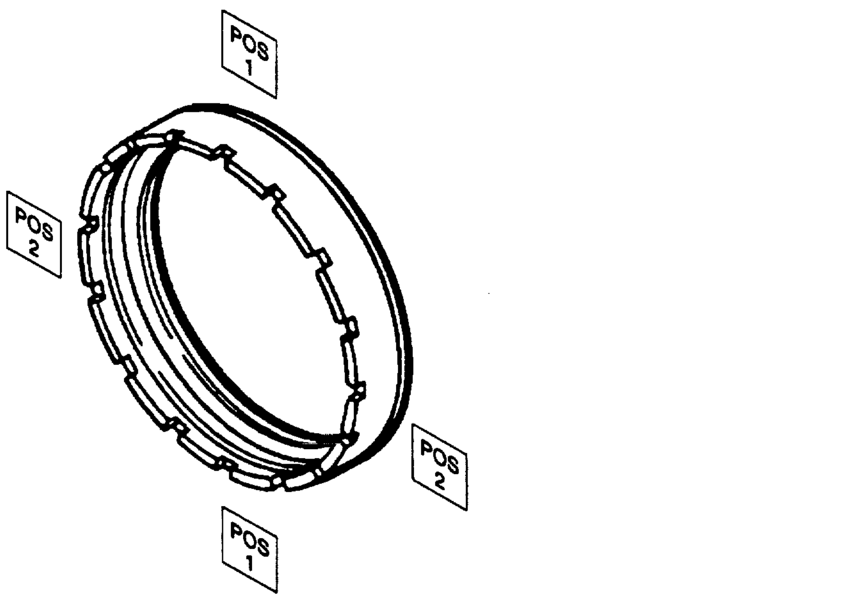


Figure 2-31. Nut, Retainer

2.31.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.31.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.31.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.31.5 System Securing. Clean the retainer nut thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The nut retainer requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.32 NUT, COLLECTIVE SLEEVE BEARING RETENTION (MT).

2.32.1 Description (Figure 2-1. Index No. 32). The collective sleeve bearing retention nut is located at the top of the collective sleeve and inside the hub assembly. A pin is inserted through the top of this nut and through the collective sleeve and lockwired. This nut is partially internally threaded, with left-hand threading, and this threading screws onto the external threads at the top of the collective sleeve. The collective sleeve bearing retention nut acts as the upper bearing retainer for the internal bearing set located inside the hub assembly.

2.32.2 Defects. Defects may occur anywhere on surface of the collective sleeve bearing retention nut. No cracks are allowed.

2.32.3 Primary Method. Magnetic Particle.

2.32.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.32.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the collective sleeve bearing retention nut removed in accordance with the applicable technical manuals listed in Table 1-1.

2.32.3.3 Access. Not applicable.

2.32.3.4 Preparation of Part. The collective sleeve bearing retention nut shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.32.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.32.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-32.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.32.3.8.
f. Repeat steps a. through e. for position 2.

2.32.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.32.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

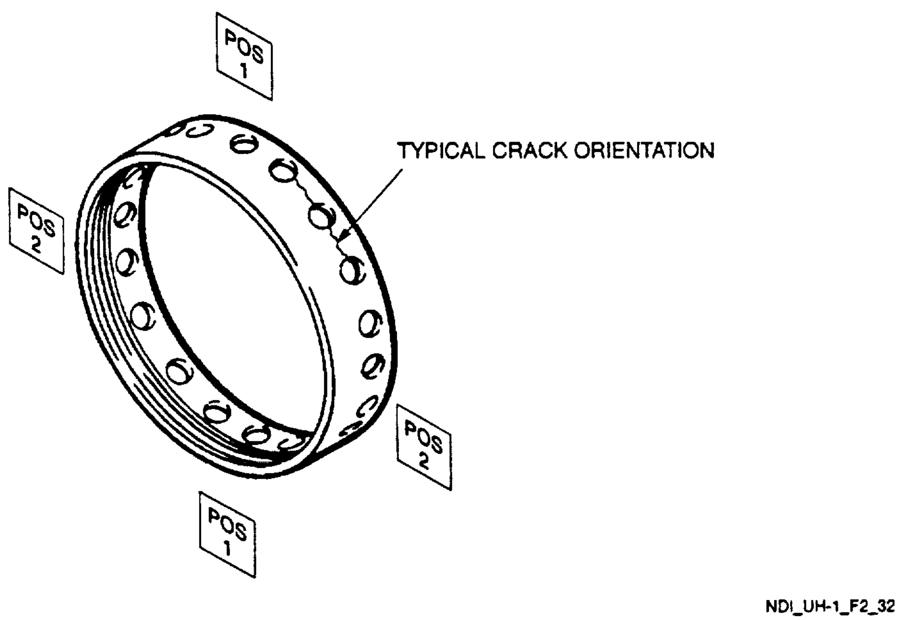


Figure 2-32. Nut, Collective Sleeve Bearing Retention

2.32.4 Backup Method. None required.

2.32.5 System Securing. Clean the collective sleeve bearing retention nut thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The collective sleeve bearing retention nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.33 SCISSORS AND SLEEVE HUB (MT).

2.33.1 Description (Figure 2-1. Index No. 33). The scissors and sleeve hub is mounted through a bearing set onto the collective sleeve. The mast is inserted into the top of the scissors and sleeve hub and the drive links are connected to the external portion of the hub.

2.33.2 Defects. Defects may occur anywhere on the surface of the scissors and sleeve hub assembly. No cracks are allowed.

2.33.3 Primary Method. Magnetic Particle.

2.33.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.33.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the scissors and sleeve hub shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.33.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.33.3.4 Preparation of Part. The scissors and sleeve hub assembly shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.33.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.33.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-33.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.33.3.8.
f. Repeat steps a. through e. for positions 2, 3, and 4.

2.33.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.33.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

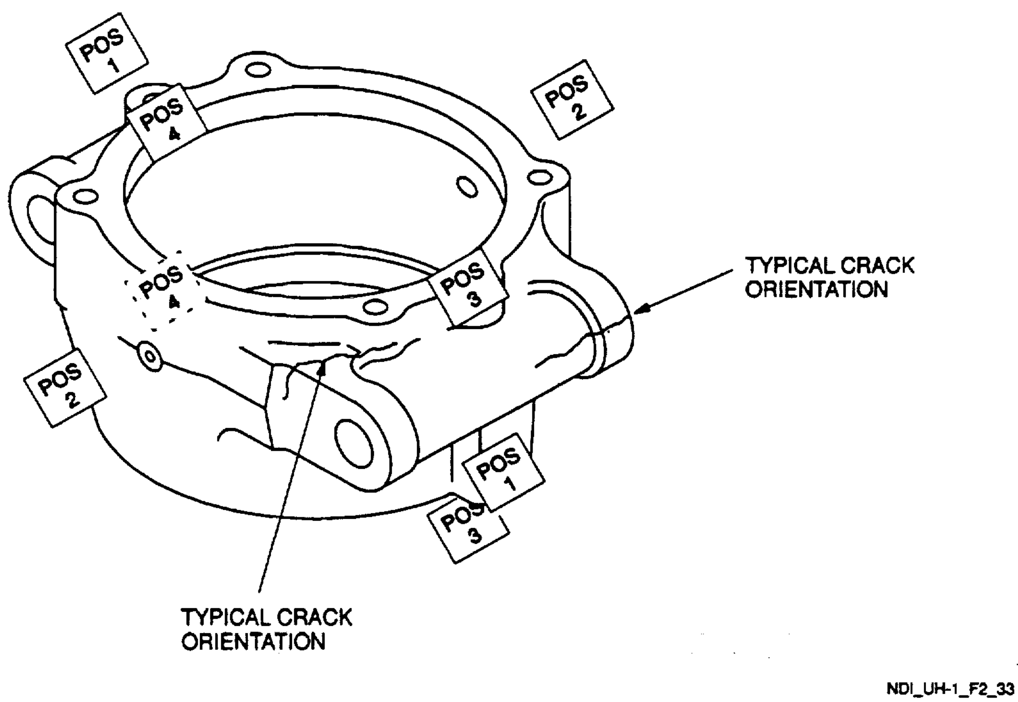


Figure 2-33. Scissors and Sleeve Hub

2.33.4 Backup Method. None required.

2.33.5 System Securing. Clean the scissors and sleeve hub thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The scissors and sleeve hub, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

2.34 TAIL ROTOR HUB GRIP ASSEMBLY (ET).

2.34.1 Description (Figure 2-1. Index No. 34). The tail rotor blades are attached by bolts to the tail rotor hub grip assemblies which, in turn, are mounted to the hub yoke.

2.34.2 Defects. Defects may occur anywhere on the surface of the tail rotor hub grip assembly. No cracks are allowed.

2.34.3 Primary Method. Eddy Current.

2.34.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.34.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tail rotor hub grip assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.34.3.3 Access. Not applicable.

2.34.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.34.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.34.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-34.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.34.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.34.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

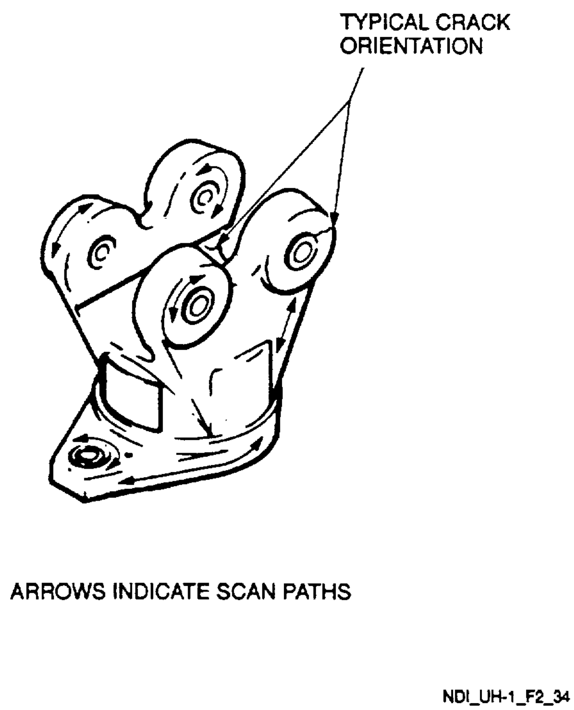


Figure 2-34. Tail Rotor Hub Grip Assembly

2.34.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.34.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.34.5 System Securing. The tail rotor hub grip assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.35 TAIL ROTOR HUB RETAINER NUT (MT).

2.35.1 Description (Figure 2-1. Index No. 35). The tail rotor hub retainer nuts hold the pitch change bearings in place and route the centrifugal and oscillatory loads into the yoke at the groove rather than at the retainer nut threads.

2.35.2 Defects. Defects may occur anywhere on the surface of the tail rotor hub retainer nut. No cracks are allowed.

2.35.3 Primary Method. Magnetic Particle.

2.35.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6. 2.35.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor hub retainer nut removed in accordance with the applicable technical manuals listed in Table 1-1.

2.35.3.3 Access. Not applicable.

2.35.3.4 Preparation of Part. The tail rotor hub retainer nuts shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.35.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.35.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-35.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.35.3.8.
f. Repeat steps a. through e. for position 2.

2.35.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.35.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.35.4 Backup Method. None required.

2.35.5 System Securing. Clean the tail rotor hub retainer nut thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph

1.4.16. The tail rotor hub retainer nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

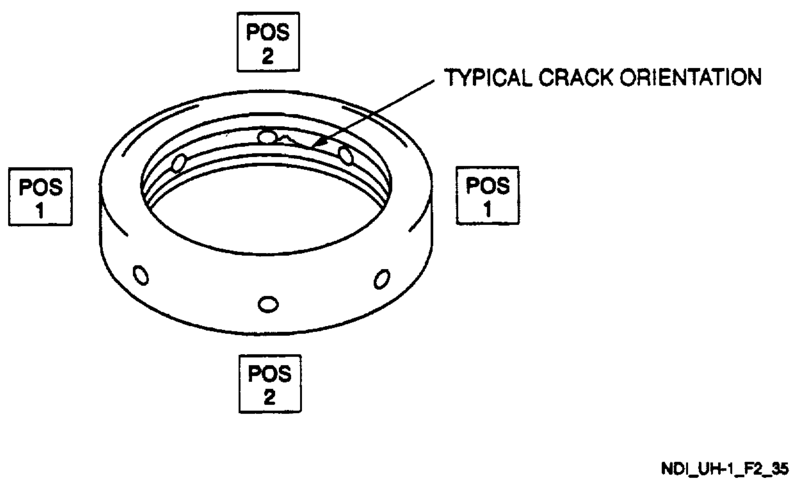


Figure 2-35. Tail Rotor Hub Retainer Nut

2.36 TAIL ROTOR HUB RETAINER RING (PT).

2.36.1 Description (Figure 2-1. Index No.36). The tail rotor hub retainer ring is located in the portion of the internal assemblage of the tail rotor hub which is found inside the tail rotor grip assembly. The tail rotor hub retainer ring fits between the tail rotor hub retainer nut and the cone set.

2.36.2 Defects. Defects may occur anywhere on the surface of the rotor hub retainer ring. No cracks -_ are allowed.

2.36.3 Primary Method. Fluorescent Penetrant.

2.36.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in .Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

2.36.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor hub retainer ring removed in accordance with the applicable technical manuals listed in Table 1-1.

2.36.3.3 Access. Not applicable.

2.36.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.36.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-4. Inspect area of concern. See Figure 2-36.

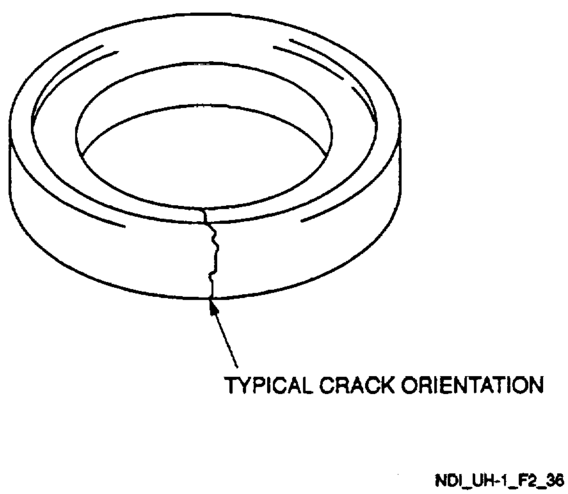


Figure 2-36. Tail Rotor Hub Retainer Ring

2.36.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.36.4 Backup Method. None required.

2.36.5 System Securing. Clean the tail rotor hub retainer ring to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor hub retainer ring requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.37 ADAPTER NUT (MT).

2.37.1 Description (Figure 2-1. Index No. 37). The adapter nut is located in the portion of the internal assemblage of the tail rotor hub which is found inside the tail rotor grip assembly. The adapter nut is the castellated nut which is the closest piece to the center of the tail rotor yoke.

2.37.2 Defects. Defects may occur anywhere on the surface of the adapter nut. No cracks are allowed.

2.37.3 Primary Method. Magnetic Particle.

2.37.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.37.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the adapter nut removed in accordance with the applicable technical manuals listed in Table 1-1.

2.37.3.3 Access. Not applicable.

2.37.3.4 Preparation of Part. The adapter nut shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.37.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.37.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-37.

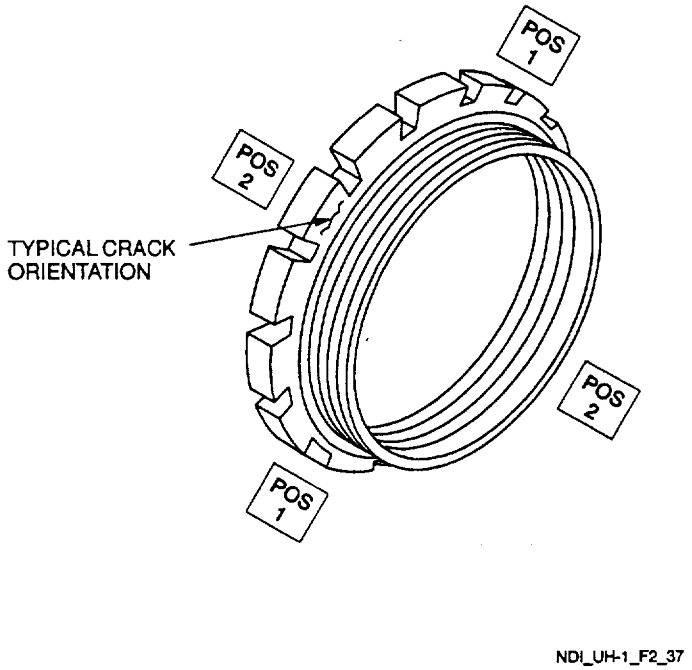


Figure 2-37. Adapter Nut

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.37.3.8.
f. Repeat steps a. through e. for position 2.

2.37.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.37.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.37.4 <u>Backup Method</u>. None required.

2.37.5 <u>System Securing</u>. Clean the adapter nut thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The adapter nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.38 TAIL ROTOR HUB YOKE (MT).

2.38.1 Description (Figure 2-1. Index No.38). The tail rotor hub yoke is that part of the hub and blade assembly which connects the blades, via the blade grips, to the tail rotor gearbox shaft.

2.38.2 Defects. Defects can occur anywhere on the surface of the tail rotor hub yoke. No cracks are allowed.

2.38.3 Primary Method. Magnetic Particle.

2.38.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

2.38.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tail rotor hub yoke shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.38.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.38.3.4 Preparation of Part. The tail rotor hub yoke shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.38.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.38.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-38.

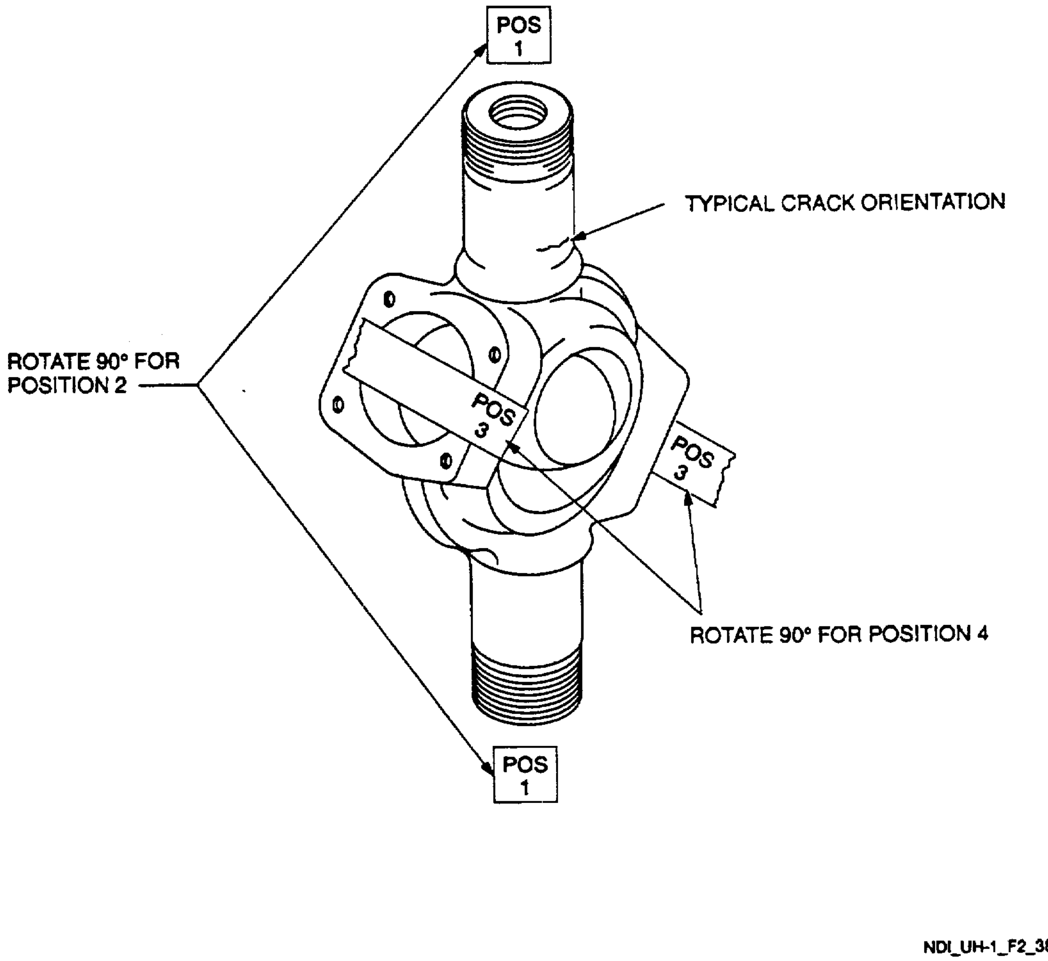


Figure 2-38. Tail Rotor Hub Yoke

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.38.3.8.
f. Repeat steps a. through e. for positions 2 and 3.

2.38.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.38.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.38.4 Backup Method. Refer to paragraphs 1.4.8 and 1.4.8.1. Perform longitudinal and circular magnetization in accordance with the applicable technical manuals listed in Table 1-1.

2.38.5 System Securing. Clean the tail rotor hub yoke thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor hub yoke, if removed, requires installation in accordance with applicable technical manuals listed in Table 1-1.

2.39 TAIL ROTOR HUB TRUNNION (MT).

2.39.1 Description (Figure 2-1. Index No.39). The tail rotor hub is D-hinge mounted on the tail rotor hub trunnion which is splined for mounting the assembly on the gearbox output shaft.

2.39.2 Defects. Defects can occur anywhere on the surface of the tail rotor hub trunnion. No cracks are allowed.

2.39.3 Primary Method. Magnetic Particle.

2.39.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil can be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

2.39.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor hub trunnion removed in accordance with the applicable technical manuals listed in Table 1-1.

2.39.3.3 Access. Not applicable.

2.39.3.4 Preparation of Part. The tail rotor hub trunnion shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.39.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.39.3.6 Inspection Procedure. A magnetic field shall be applied perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 2-39.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 2.39.3.8.
f. Repeat steps a. through e. for position 2.

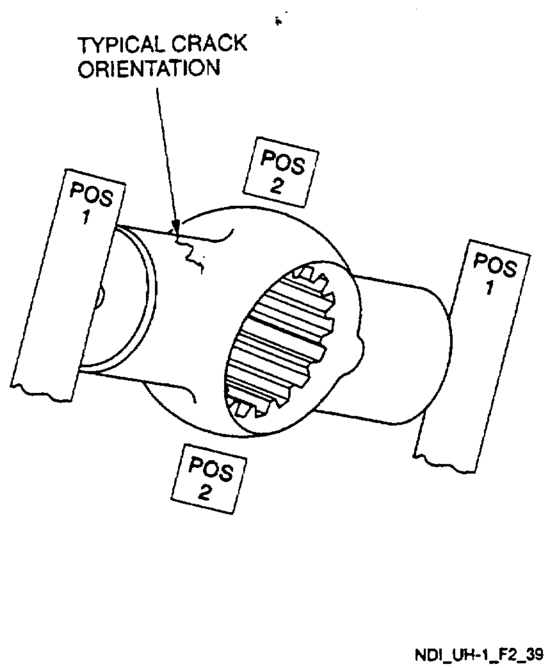


Figure 2-39. Tail Rotor Hub Trunnion

2.39.3.7 Marking and Recording of Inspection Results. Mark and the record inspection results as required by paragraph 1.3.

2.39.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

2.39.4 Backup Method. None required.

2.39.5 System Securing. Clean the tail rotor hub trunnion thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor hub trunnion requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.40 TAIL ROTOR CROSSHEAD (ET).

2.40.1 Description (Figure 2-1. Index No. 40). The crosshead controls consist of the tail rotor crosshead and the pitch change links. Movement of the crosshead and pitch links is controlled by a pitch change rod, extending from the crosshead through the tail rotor gearbox to the pitch change mechanism.

2.40.2 Defects. Defects can occur anywhere on the surface of the tail rotor crosshead. No cracks are allowed.

2.40.3 Primary Method. Eddy Current.

2.40.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.40.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tail rotor crosshead shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.40.3.3 Access. Not applicable.

2.40.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.40.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e1.

Frequency Fl	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive -	mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.40.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-40.

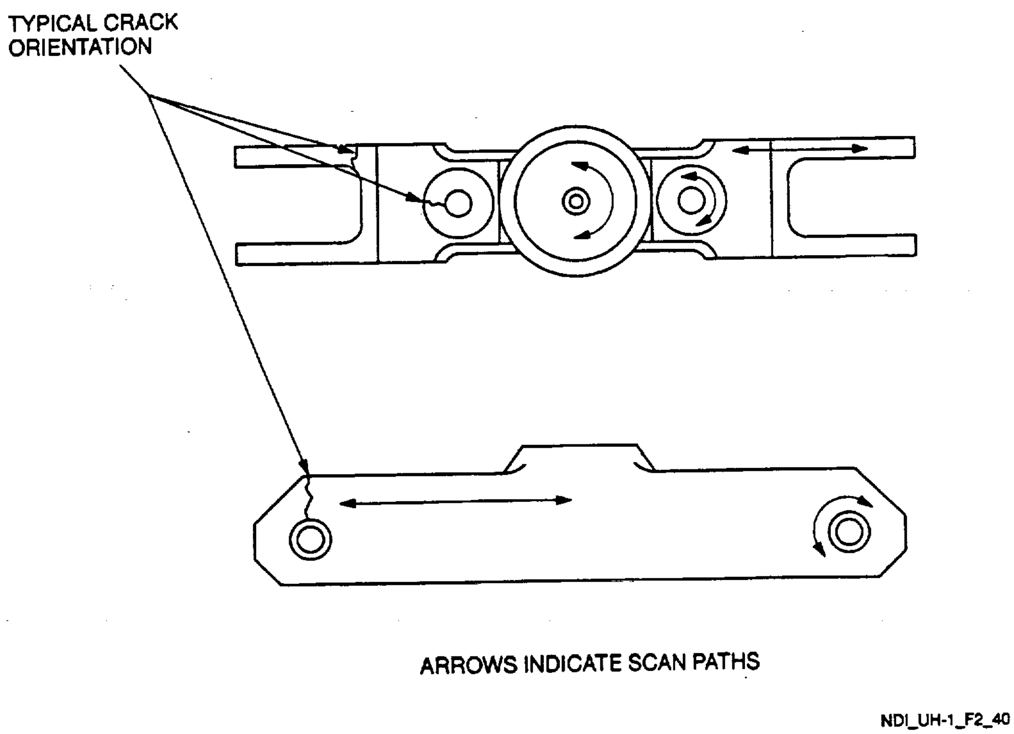


Figure 2-40. Tail Rotor Crosshead

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.40.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.40.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

2.40.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.40.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

2.40.5 System Securing. The tail rotor crosshead, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.41 TAIL ROTOR BLADE (ET).

2.41.1 Description (Figure 2-1. Index No. 2-41). The tail rotor blades consist of an all-metal shell bonded to a honeycomb core. Reinforcing doublers are bonded to the blade in the area of the retention bolt holes. The blade leading edge is covered with an abrasive strip to reduce erosion.

2.41.2 Defects. This inspection is to verify crack indications found visually in the tail rotor blade. No , cracks are allowed.

2.41.3 Primary Method. Eddy Current.

2.41.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.41.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the tail rotor blades installed on the helicopter.

2.41.3.3 Access. Not applicable.

WARNING
Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.41.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.41.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
.VdB	- 69.0		
Rot	- 56°		
Probe drive -	mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

2.41.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-41.

a. Place probe on a good area in the inspection locations and null. Adjust phase as required to obtain horizontal rift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 2.41.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.41.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

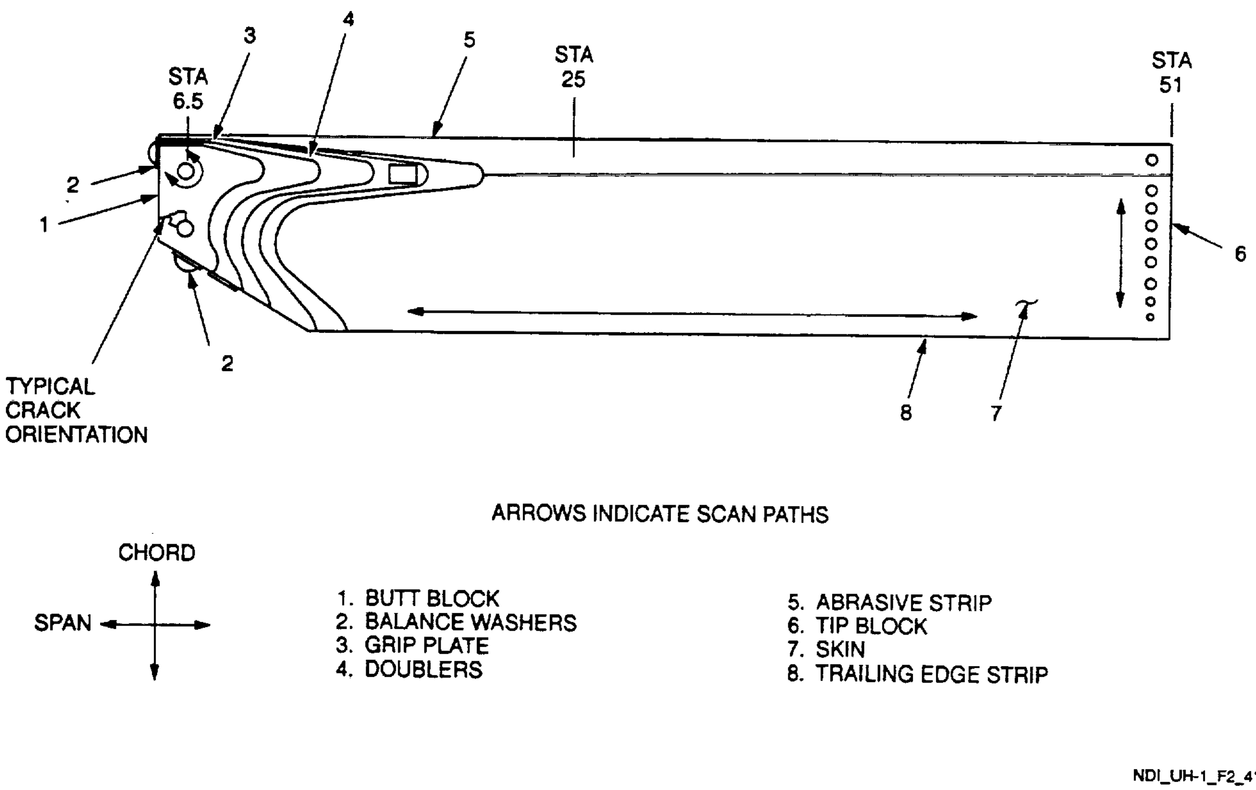


Figure 2-41. Tail Rotor Blade (Cracks)

2.41.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

2.41.4 Backup Method. None required.

2.41.5 System Securing. None required.

2.42 TAIL ROTOR BLADE (BT).

2.42.1 Description (Figure 2-1. Index No. 2-42). The tail rotor blades consist of an all-metal shell bonded to a honeycomb core. Reinforcing doublers are bonded to the blade in the area of the retention bolt holes. The blade leading edge is covered with an abrasive strip to reduce erosion.

2.42.2 Defects. Perform the NDI method contained herein on the tail rotor blades for the primary purpose of verification of void indications identified by visual inspection.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many sub-definitions of voids are given such as lack of adhesive, gas pocket, misfit, etc. However, this manual makes no distinction among these, grouping them all under one general term ("void").

2.42.3 Primary Method. Bond Testing.

2.42.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Bond Test Unit
b. Probe, Mechanical Impedance Analysis
c. Probe Holder
d. Cable Assembly
e. Test Block, metal honeycomb with skin thickness closest to that of the skin to be inspected
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

2.42.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the tail rotor blades on the helicopter.

2.42.3.3 Access. Not Applicable

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.42.3.4 Preparation of Part. The components shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4. Do not remove paint.

2.42.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1.

a. Attach cable and probe to Bondmaster. Protect probe with Teflon tape and install in probe holder.
b. Turn on Bondmaster, press SPCL, and make the following adjustments:

H Pos	- 40%
V Pos	- 80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY - PHASE.
d. Place probe on the good area of test block and press GOOD PART. Do this several times while moving the probe to different spots in the good area of the test block. Note the video signature for each. Select and enter a representative good area by pressing GOOD PART one last time.
e. Place probe on void area of test block and press BAD PART. Do this several times while moving the probe slightly to different positions within the void area. Select and enter a position that gives a strong difference between good and void areas. (See Figure 1-5.) Use DIFF soft key to observe difference between good and bad areas of test block.

NOTE

If, during setup, the flying spot deflects upward or to the side when the probe passes over the bad part, instead of the desired down deflection toward the alarm box, press SPCL and toggle to a different phase setting (90, 180, or 270), and repeat steps d. And e. Continue to try phase settings until the flying spot moves in the desired down direction.

f. Place probe on good area of test block and press RUN. Flying spot should be near the top-center of the ACTIVE screen. If not, press NULL. Slide probe from good to void area and note response from flying spot. This response should provide both amplitude (vertical) and phase (horizontal) movement. The default gate/alarm setting may be incorrect for this setup. Turn off or reset gate/alarm as desired.

2.42.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6 and inspection areas as shown in Figure 2-42.

a. Skin-to-Honeycomb Voids. Place probe on the tail rotor blade in location where test for skin-to-honeycomb bond separation is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. This setup is very sensitive to thin skin-to-core bonding. Move probe slowly over the blade and note the slight amplitude change (bounce) as the probe senses alternately the honeycomb cell nodes and cell walls.

NOTE

The basic setup provided above also selects a frequency that provide a satisfactory inspection for voids associated with skin-to-spar, skin-to-trailing edge, doubler-to-doubler and doubler-to-skin, and trim tab bonding.

b. Use the NULL and GAIN adjustments to reset the ACTIVE screen for the areas to be inspected (do not go back to SET mode). Also, compare similar areas. For example, to check for spar to skin voids, check front and back of the blade in the same area, or check another blade in the same area. Observe that when moving the probe chordwise from the spar to the trailing edge, the transitions at the spar-to-honeycomb and the honeycomb-to-trailing edge strip are easily detected. When inspecting these areas, adjust the NULL and GAIN and move the probe carefully along the transition using a straight edge or other guide. A localized phase and amplitude shift similar to the test block indicates a void.

2.42.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

NOTE

Attention shall be directed to accurately mark the boundaries of all voids. These markings will be needed to determine acceptance or rejection criteria in accordance with applicable technical manuals.

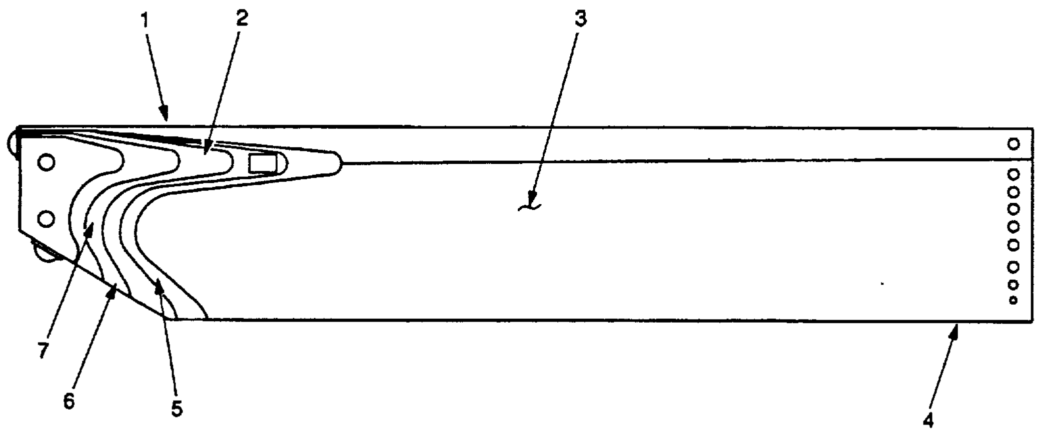
2.42.4 <u>Backup Method</u>. None required.

2.42.5 <u>System Securing</u>. None required.

2.43 TAIL ROTOR BLADE (RT).

2.43.1 <u>Description (Figure 2-1. Index No.43).</u> The tail rotor blades consist of an all-metal shell bonded to a honeycomb core. Reinforcing doublers are bonded to the blade in the area of the retention bolt holes. The blade leading edge is covered with an abrasive strip to reduce erosion.

2.43.2 <u>Defects</u>. Water in honeycomb core.



1. BETWEEN THE ABRASIVE STRIP AND THE INNER DOUBLER
2. IN THE BLADE BODY BETWEEN THE ENDS OF THE BLADE, BETWEEN THE SKIN AND THE INNER DOUBLER
3. IN THE BLADE BODY BETWEEN THE ENDS OF THE BLADE, BETWEEN THE SKIN AND THE CORE
4. AT THE BLADE TIP, BETWEEN SKINS AND TRAILING EDGE
5. IN THE BLADE BODY, BETWEEN THE ENDS OF THE BLADE, BETWEEN THE CORE AND THE INNER DOUBLER
6. AT THE BUTT END, VOIDS BETWEEN SKIN AND TRAILING EDGE
7. AT THE BUTT END, VOIDS BETWEEN SKIN AND INNER DOUBLER

NDI_UH-1_F2_42

Figure 2-42. Tail Rotor Blade

2.43.3 Primary Method. Radiography.

WARNING

Radiation Hazard

Assure compliance with all applicable safety precautions set forth in TM 55-1500-335-23 (Nondestructive Inspection Methods manual) listed in Table 1.1. A hazard associated with exposure to ionizing radiation is that serious injury can be inflicted without pain, burning, or other sense of discomfort during the exposure period. Radiation protection shall be utilized in accordance with AR40-14/DLAR 1000.28.

2.43.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. X-ray unit

b. Tripod, X-ray tubehead stand

c. Film Processor

d. Film, Ready Pack 8 inch x 10 inch

e. Marking Material, refer to Table 1-8

2.43.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1. Inspection areas are accessible with tail rotor blades on the helicopter.

2.43.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

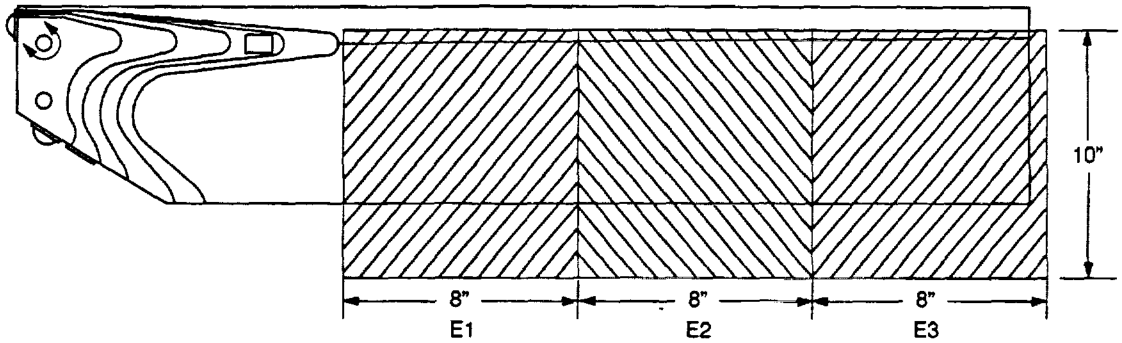
Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

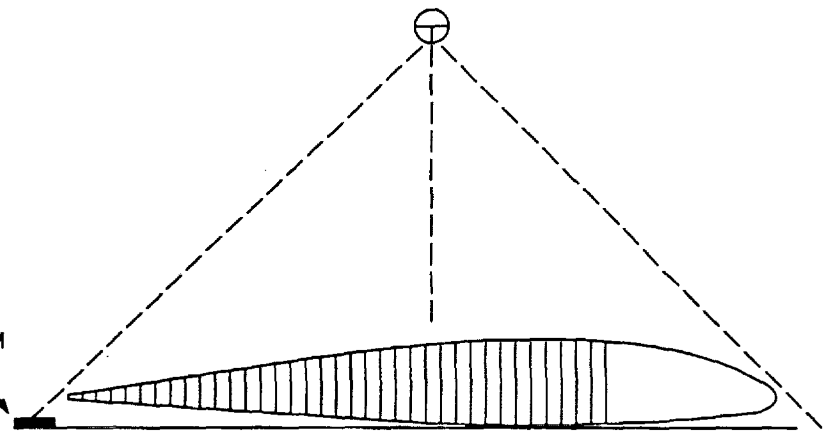
2.43.3.4 Preparation of Part. The tail rotor blade shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.43.3.5 NDI Equipment Settings.

a. Refer to Radiographic Method, paragraph 1.4.10.

b. Equipment settings, inspection data, and arrangement for each exposure are given in Figure 2-43.





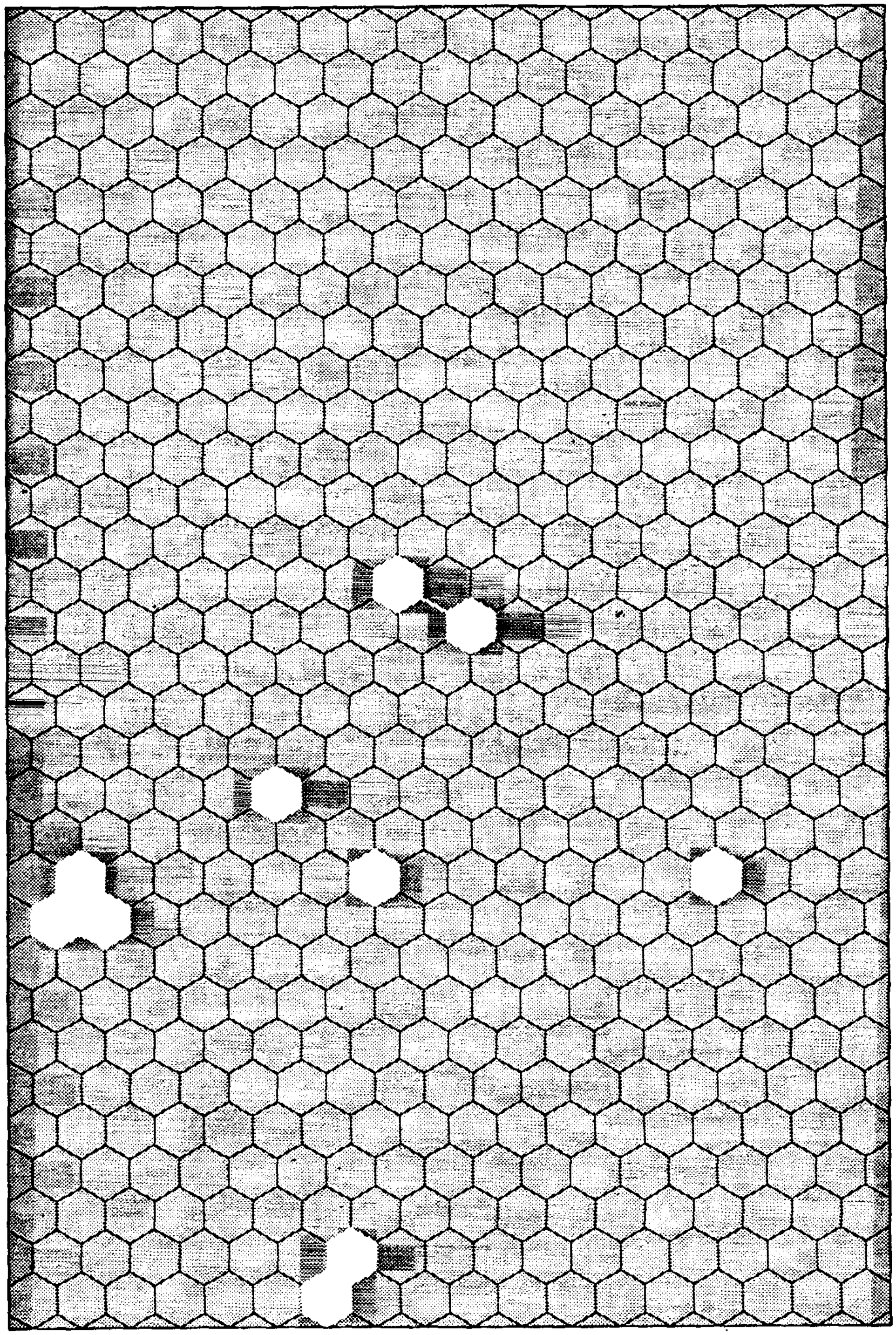
RADIOGRAPHIC INSPECTION DATA						
EXPOSURE NUMBER	KV	MA	FFD (INCHES)	TIME (SEC)	FILM	
					TYPE	SIZE
E1	50	3.5	60	46	M-2	8 x 10
E2	50	3.5	60	46	M-2	8 x 10
E3	50	3.5	60	46	M-2	8 x 10

REMARKS

1. FILM NUMBER SAME AS EXPOSURE NUMBER.
2. FILM DENSITY FOR EACH EXPOSURE SHALL BE 1.8 TO 2.5 H&D UNITS IN AREAS OF INTEREST.
3. INSPECTION DATA SHALL BE ADJUSTED AS REQUIRED.

NDI_UH-1_F2_43_1

Figure 2-43. Tail Rotor Blade (Sheet 1 of 2)



LIGHT AREAS – WATER IN HONEYCOMB.

NDI_UH-1_F2_43_2

Figure 2-43. Tail Rotor Blade (Sheet 2 of 2)

2.43.3.6 Inspection Procedure. Inspect designated areas of the tail rotor blade.

a. Position film and desired nameplate data for exposure number 1.

b. Position X-ray tubehead for exposure number 1.

c. Set X-ray unit to the values given in the Radiographic Inspection Data chart for exposure number 1.

d. Make exposure number 1.

e. Remove exposed film.

f. Repeat inspection procedure (steps a. through e. above) for each exposure.

g. Process and interpret film for defects as noted in paragraph 2.43.2 and as shown in Figure 2-43.

2.43.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as necessary per paragraph 1.3.

2.43.4 Backup Method. None required.

2.43.5 System Securing. None required.

SECTION III
TRANSMISSION/DRIVETRAIN GROUP

3. GENERAL.

3.1 CONTENTS. The transmission/drivetrain group inspection items covered in this section are those items of the UH-1 helicopter series transmission, gear boxes, driveshafts, and components listed in the Transmission/Drivetrain Group Inspection Index (Table 3-1). Corresponding inspection figures and applicable text paragraphs are listed opposite each inspection item. The index number for each item may be used to locate it in Figure 3-1.

Table 3-1. Transmission/Drivetrain Group Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*2	Main Driveshaft Inner Couplings	MT	3.2	3-2
*3	Main Driveshaft Outer Couplings	MT	3.3	3-3
*4	Main Driveshaft Splined Nuts	MT	3.4	3-4
*5	Main Driveshaft Clamp Sets	MT	3.5	3-5
6	Main Driveshaft Grease Retainers	PT	3.6	3-6
*7	Main Driveshaft	MT	3.7	3-7
*8	Adapter Bolt	MT	3.8	3-8
*9	Main Driveshaft Engine Adapter	MT	3.9	3-9
*10	Transmission Case (Top)	ET	3.10	3-10
11	Ring Gear Case	MT	3.11	3-11
*12	Main Transmission Case	ET	3.12	3-12
*13	Transmission Support Case	ET	3.13	3-13
*14	Lift Link Bushing Hole	PT	3.14	3-14
15	Threaded Fittings	PT	3.15	3-15
*16	Input Drive Quill Wear Sleeve	PT	3.16	3-16
*17	Generator Drive Quill Case	ET	3.17	3-17
*18	Hydraulic Pump and Tachometer Quill Case	ET	3.18	3-18
*19	Hydraulic Pump and Tachometer Gear Teeth	PT	3.19	3-19
*20	Tail Rotor Drive Quill Sleeve Assembly	ET	3.20	3-20
*21	Tail Rotor Drive Quill Bevel Gear Teeth	MT	3.21	3-21
*22	Tail Rotor Drive Quill Sleeve Spacer	MT	3.22	3-22
*23	Pylon Mount Bolts	MT	3.23	3-23
*24	Fifth Mount Support Fitting	PT	3.24	3-24

Table 3-1. Transmission/Drivetrain Group Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
25	Friction Damper	MT	3.25	3-25
*26	Main Rotor Mast Nut	MT	3.26	3-26
27	Oil Pump Driveshaft	MT	3.27	3-27
28	Oil Jets	PT	3.28	3-28
*29	Tail Rotor Driveshaft	ET	3.29	3-29
*30	Tail Rotor Driveshaft Clamps	MT	3.30	3-30
*31	Tail Rotor Driveshaft Hangers	MT	3.31	3-31
*32	Tail Rotor Driveshaft Inner (Spherical) Coupling	MT	3.32	3-32
*33	Tail Rotor Driveshaft Forward Coupling	MT	3.33	3-33
*34	Tail Rotor Driveshaft Rear Coupling	MT	3.34	3-34
*35	Tail Rotor Driveshaft Coupling Shaft	MT	3.35	3-35
*36	Tail Rotor Driveshaft Hanger Support Fittings	ET	3.36	3-36
*37	Intermediate Gearbox Case	ET	3.37	3-37
*38	Intermediate Gearbox Inner Coupling	MT	3.38	3-38
*39	Intermediate Gearbox Outer Coupling	MT	3.39	3-39
40	Intermediate Gearbox Sleeve	MT	3.40	3-40
41	Intermediate Gearbox Pinion Shaft	MT	3.41	3-41
*42	Tail Rotor Gearbox Case	ET	3.42	3-42
*43	Tail Rotor Gearbox Inner Coupling	MT	3.43	3-43
*44	Tail Rotor Gearbox Outer Coupling	MT	3.44	3-44
45	Tail Rotor Gearbox Sleeve	MT	3.45	3-45
46	Transmission Lift Link	MT	3.46	3-46

NOTE: *Indicates Flight Safety Part.

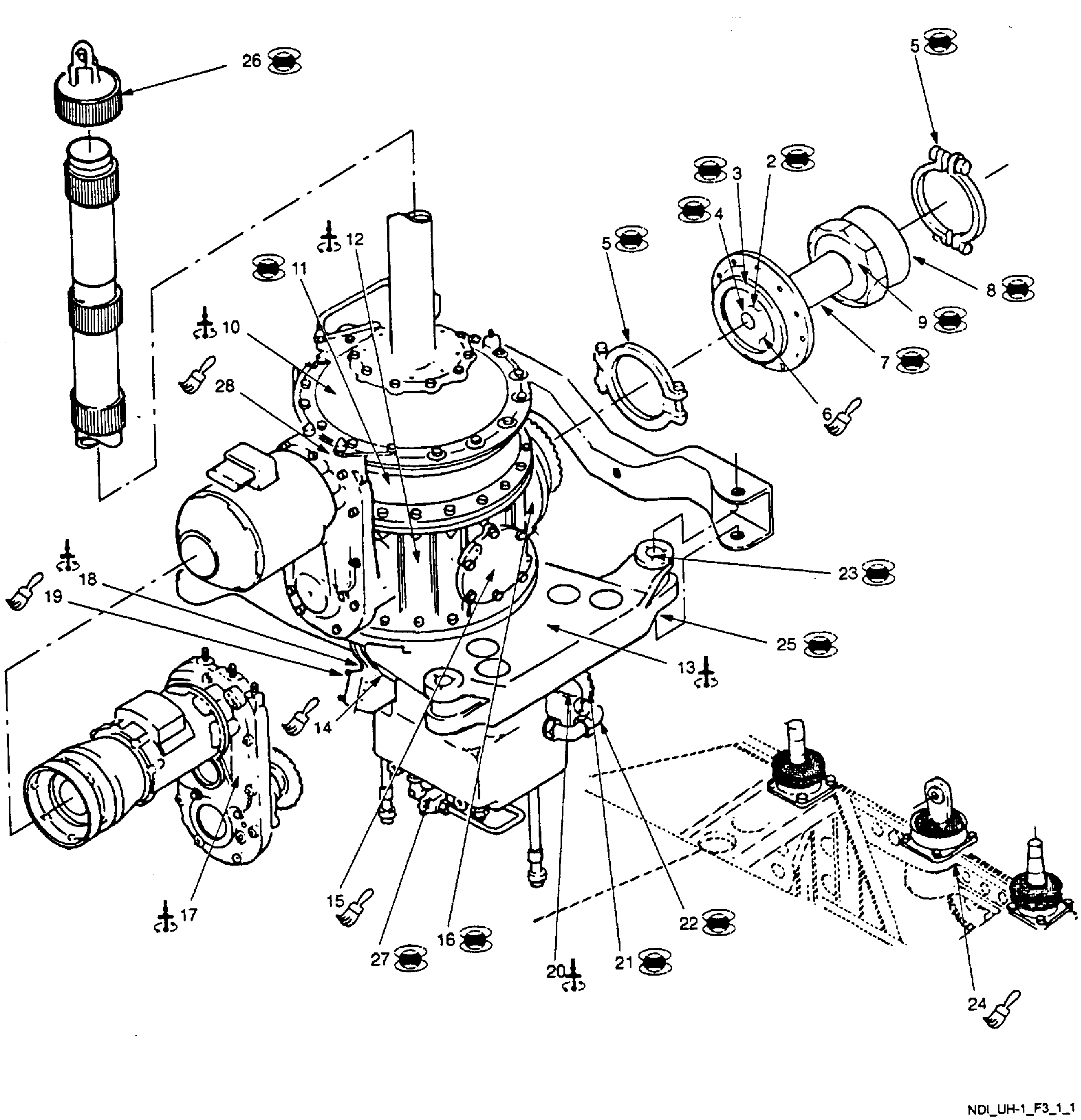


Figure 3-1. Transmission/Drivetrain Group (Sheet 1 of 2)

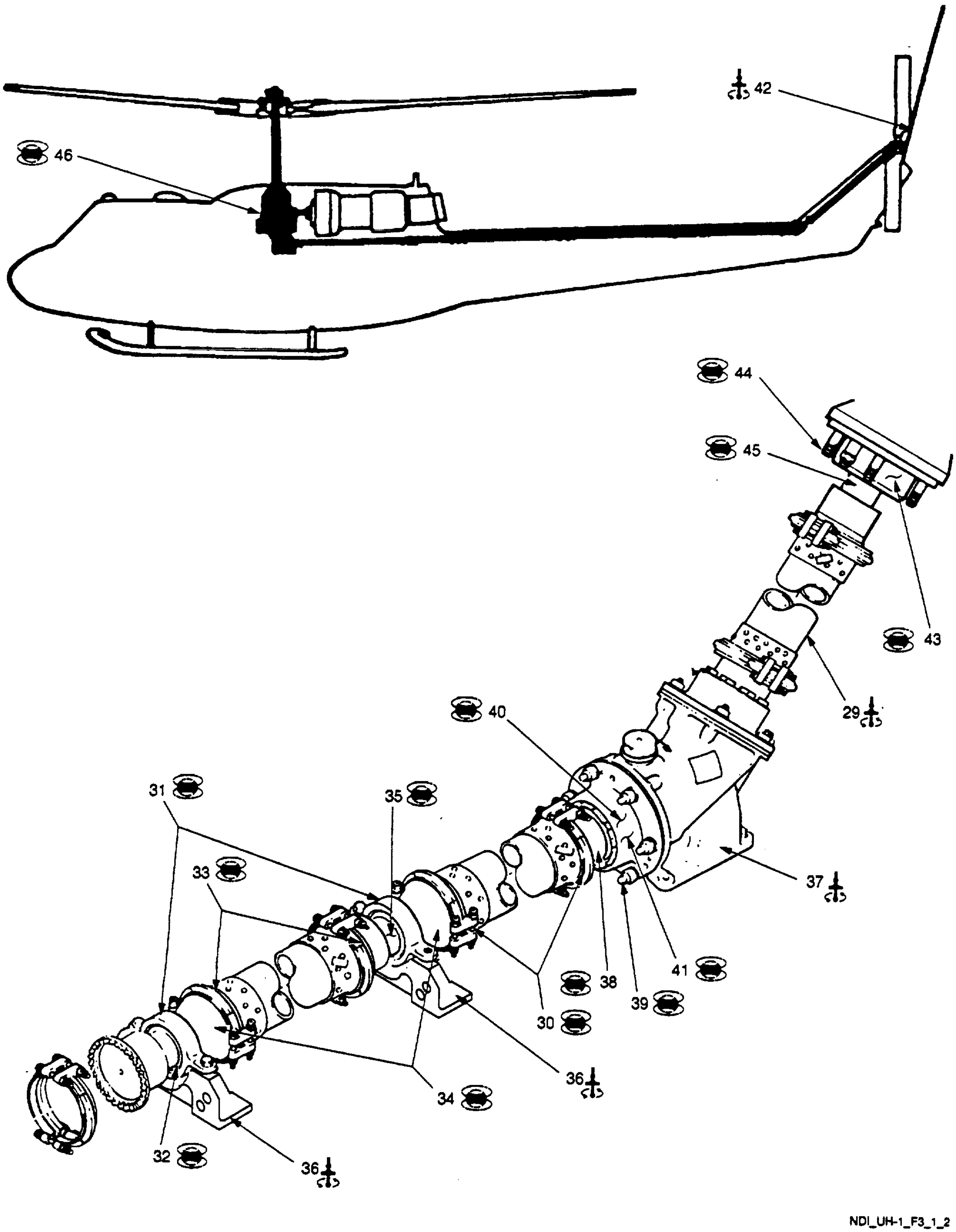


Figure 3-1. Transmission/Drivetrain Group (Sheet 2 of 2)

3.2 MAIN DRIVESHAFT INNER COUPLINGS (MT).

3.2.1 Description (Figure 3-1. Index No. 2). The inner couplings are located at each end of the main driveshaft assembly. The inner couplings mate with the outer couplings and are held in place by a clamp set (coupling) which keeps the curvic-spline faces of the couplings in secure contact.

3.2.2 Defects. Defects can occur anywhere on the surface of the inner coupling. No cracks are allowed.

3.2.3 Primary Method. Magnetic Particle.

3.2.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.2.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the inner couplings removed in accordance with the applicable technical manuals listed in Table 1-1.

3.2.3.3 Access. Not applicable.

3.2.3.4 Preparation of Part. The inner couplings shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.2.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.2.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-2.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown in Figure 3-2.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.2.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

3.2.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

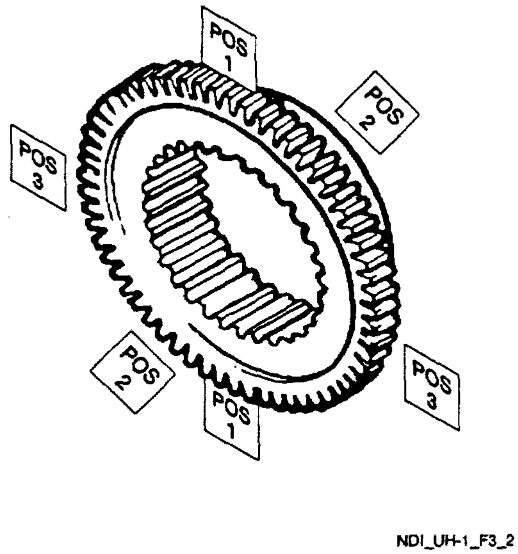


Figure 3-2. Main Driveshaft Inner Couplings

3.2.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.2.4 Backup Method. None required.

3.2.5 System Securing. Clean the inner couplings thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The inner couplings require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.3 MAIN DRIVESHAFT OUTER COUPLINGS (MT).

3.3.1 Description (Figure 3-1. Index No. 3). The outer couplings are located at each end of the main driveshaft assembly. The outer couplings mate with the inner couplings and are held against the inner couplings by a clamp set (coupling) which keeps the curvic-spline faces of the couplings in secure contact.

3.3.2 Defects. Defects can occur anywhere on the surface of the outer couplings. No cracks are allowed.

3.3.3 Primary Method. Magnetic Particle.

3.3.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.3.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the outer couplings removed in accordance with the applicable technical manuals listed in Table 1-1.

3.3.3.3 Access. Not applicable.

3.3.3.4 Preparation of Part. The outer couplings shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.3.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.3.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-3.

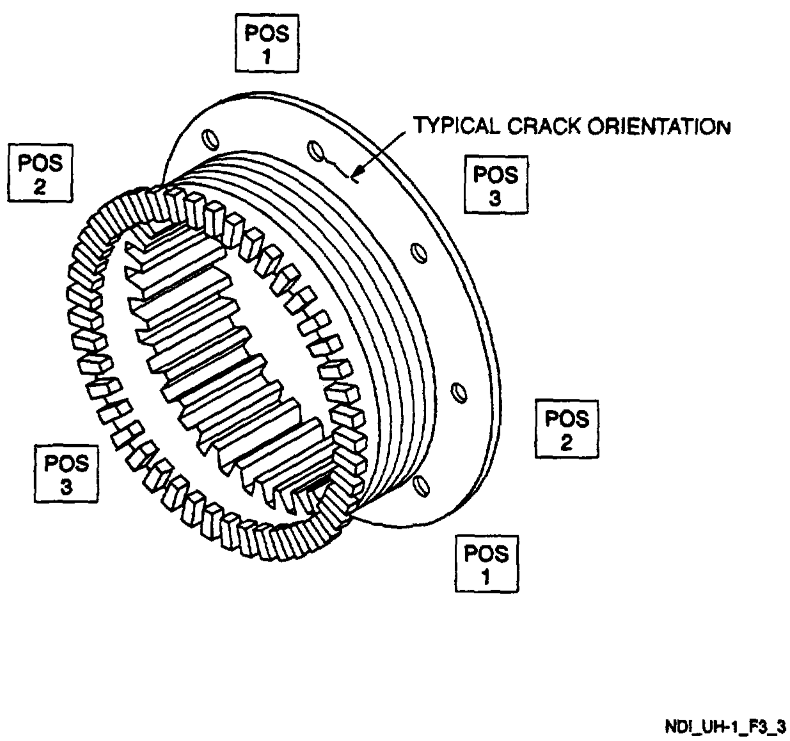


Figure 3-3. Main Driveshaft Outer Couplings

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.3.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

3.3.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.3.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.3.4 Backup Method. None required.

3.3.5 System Securing. Clean the outer couplings thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The outer couplings require installation in accordance with the applicable technical manuals listed in
Table 1-1.

3.4 MAIN DRIVESHAFT SPLINED NUTS (MT).

3.4.1 Description (Figure 3-1. Index No. 4). The splined nuts are located inside the inner/outer coupling assemblies and are screwed directly into each end of the main driveshaft.

3.4.2 Defects. Defects can occur anywhere on the surface of the splined nuts. No cracks are allowed.

3.4.3 Primary Method. Magnetic Particle.

3.4.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.4.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the spline nuts removed in accordance with the applicable technical manuals listed in Table 1-1.

3.4.3.3 Access. Not applicable.

3.4.3.4 Preparation of Part. The splined nuts shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.4.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.4.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-4.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.4.3.8.

f. Repeat steps a. through e. for position 2.

3.4.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.4.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.4.4 Backup Method. None required.

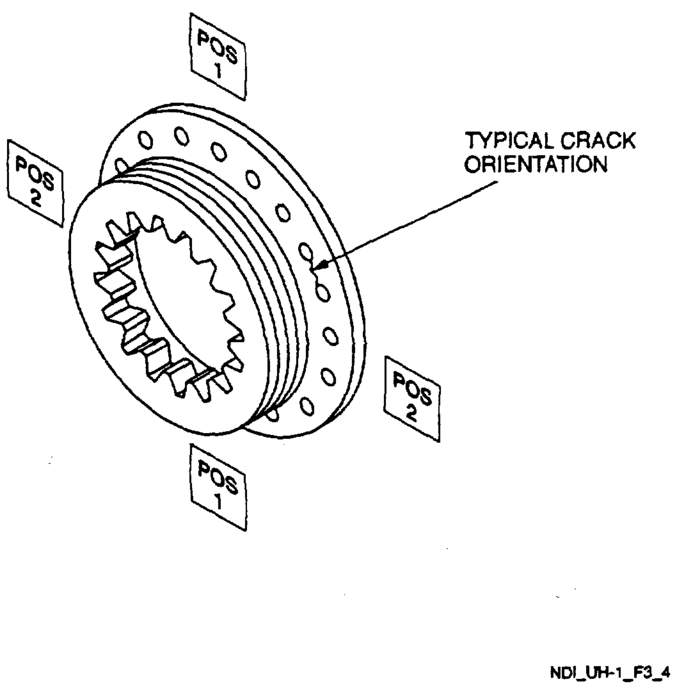


Figure 3-4. Main Driveshaft Splined Nuts

3.4.5 System Securing. Clean the splined nuts thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The splined nuts require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.5 MAIN DRIVESHAFT CLAMP SETS (MT).

3.5.1 Description (Figure 3-1. Index No. 5). The clamp sets are of the split V-band type. They hold A mating curvic-spline faces of the couplings in secure contact.

3.5.2 Defects. Defects can occur anywhere on the surface of the clamp sets. No cracks are allowed.

3.5.3 Primary Method. Magnetic Particle.

3.5.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.5.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the clamp sets removed in accordance with the applicable technical manuals listed in Table 1-1.

3.5.3.3 Access. Not applicable.

3.5.3.4 Preparation of Part. The clamp sets shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.5.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.5.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-5.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.5.3.8.

f. Repeat steps a. through e. for positions 2, 3, and 4.

3.5.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

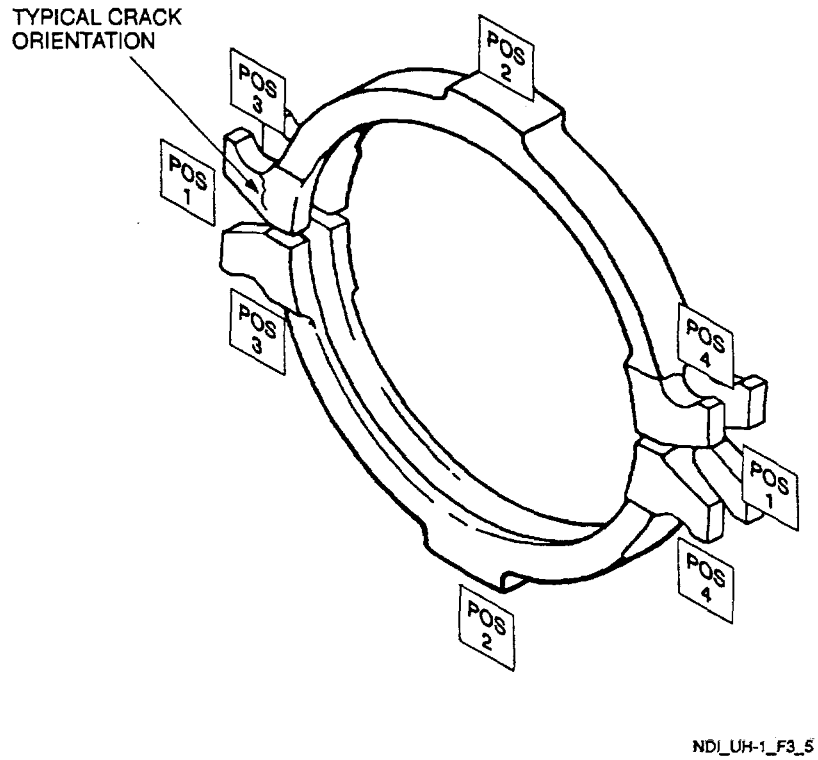


Figure 3-5. Main Driveshaft Clamp Sets

3.5.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.5.4 Backup Method. None required.

3.5.5 System Securing. Clean the clamp sets thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.1 6. The clamp sets require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.6 MAIN DRIVESHAFT GREASE RETAINERS (PT).

3.6.1 Description (Figure 3-1. Index No. 6). The grease retainers are located at each end of the driveshaft as the outermost items, except for their retainer rings, in the assembly. The centering spring exerts pressure on the grease retainers from inside the assembly.

3.6.2 Defects. Defects can occur anywhere on the surface of the grease retainers. No cracks are allowed.

3.6.3 Primary Method. Fluorescent Penetrant.

3.6.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.6.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the grease retainers removed in accordance with the applicable technical manuals listed in Table 1-1.

3.6.3.3 Access. Not applicable.

3.6.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.6.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-6.

3.6.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.6.4 Backup Method. None required.

3.6.5 System Securing. Clean the grease retainers to-remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The grease retainers require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.7 MAIN DRIVESHAFT (MT).

3.7.1 Description (Figure 3-1. Index No. 7). The main driveshaft is installed between an engine adapter on the engine output shaft and the freewheel coupling on the transmission input quill. The main driveshaft has a flexible splined coupling on each end. A spring in each coupling assists centering of the shaft during operations and tends to hold the shaft assembly in place if clamp sets are removed during maintenance.

3.7.2 Defects. Defects can occur anywhere on the surface of the driveshaft. No cracks are allowed.

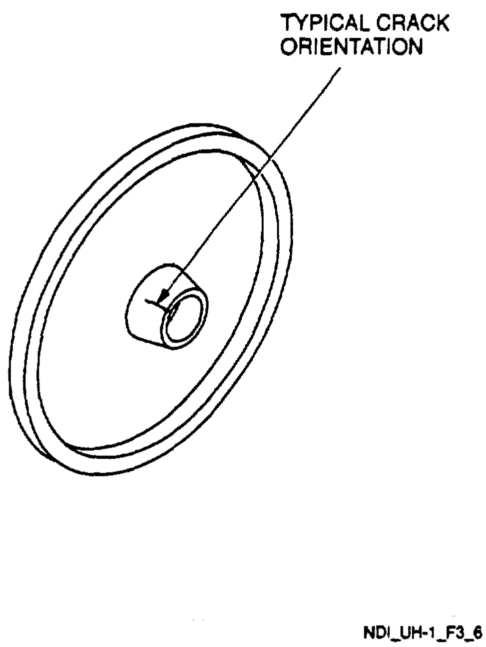


Figure 3-6. Main Driveshaft Grease Retainers

3.7.3 Primary Method. Magnetic Particle.

3.7.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.7.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the driveshaft removed in accordance with the applicable technical manuals listed in Table 1-1.

3.7.3.3 Access. Not applicable.

3.7.3.4 Preparation of Part. The driveshaft shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.7.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.7.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 3-7.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

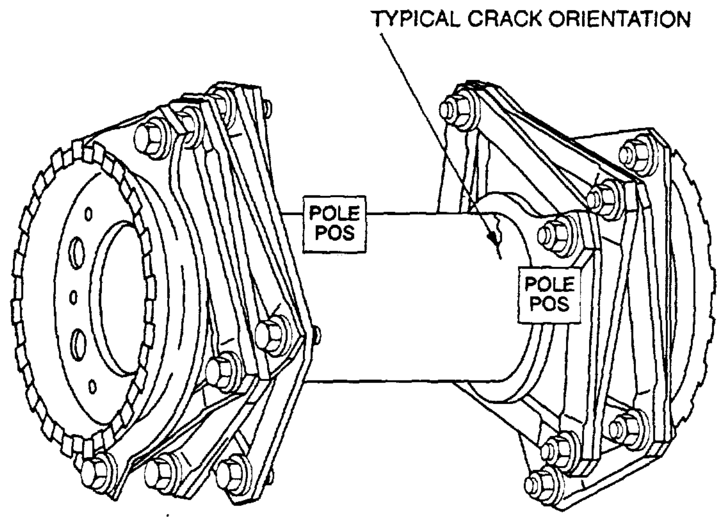
d. Inspect for cracks using the black light.

3.7.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

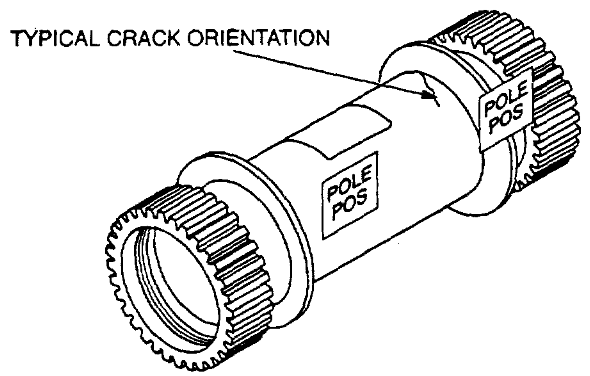
3.7.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.7.4 <u>Backup Method.</u> None required.

3.7.5 <u>System Securing.</u> Clean the driveshaft thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The driveshaft requires installation in accordance with the applicable technical manuals listed in Table 1-1.



P/N SKCP2281



P/N 205–040–004

NDI_UH-1_F3_7

Figure 3-7. Main Driveshaft

3.8 ADAPTER BOLT (MT).

3.8.1 Description (Figure 3-1, Index No. 8). The bolt to be inspected is found at the aft end of the driveshaft assembly. It passes through a locking washer and the engine adapter and is therefore referred to as the engine adapter bolt.

3.8.2 Defects. Defects can occur anywhere on the surface of the engine adapter bolt. No cracks are allowed.

3.8.3 Primary Method. Magnetic Particle.

3.8.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.8.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the engine adapter bolt removed in accordance with the applicable technical manuals listed in Table 1-1.

3.8.3.3 Access. Not applicable.

3.8.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.8.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.8.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 3-8.

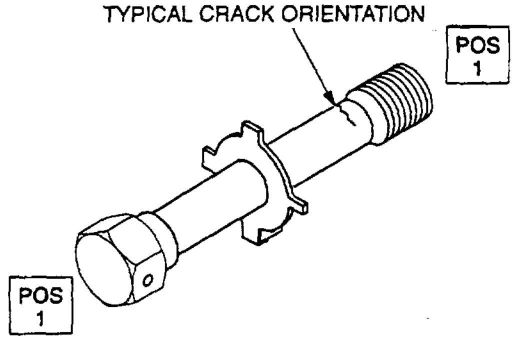


Figure 3-8. Adapter Bolt

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

3.8.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.8.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.8.4 Backup Method. None required.

3.8.5 System Securing. Clean the engine adapter bolt thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine adapter bolt requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.9 MAIN DRIVESHAFT ENGINE ADAPTER (MT).

3.9.1 Description (Figure 3-1. Index No. 9). The engine adapter provides the means whereby the engine is connected to the driveshaft assembly.

3.9.2 Defects. Defects can occur anywhere on the surface of the engine adapter. No cracks are allowed.

3.9.3 Primary Method. Magnetic Particle.

3.9.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the engine adapter removed in accordance with the applicable technical manuals listed in Table 1-1.

3.9.3.3 Access. Not applicable.

3.9.3.4 Preparation of Part. The engine adapter shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.9.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.9.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-9.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.9.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

3.9.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.9.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

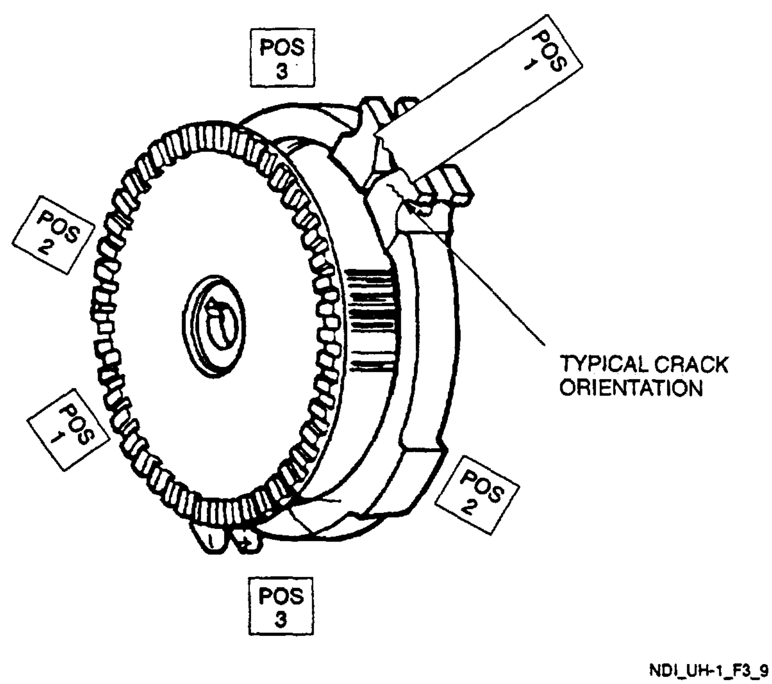


Figure 3-9. Main Driveshaft Engine Adapter

3.9.4 Backup Method. None required.

3.9.5 System Securing. Clean the engine adapter thoroughly to remove all residual magnetic - particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine adapter requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.10 TRANSMISSION CASE (TOP) (ET).

3.10.1 Description (Figure 3-1. Index No. 10). The transmission case surrounds and contains the transmission components. The transmission case top is that portion found at the top of the transmission immediately below the mast.

3.10.2 Defects. This inspection is to verify crack indications found visually in the transmission case (top). No cracks are allowed.

3.10.3 Primary Method. Eddy Current.

3.10.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. .Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.10.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1.

3.10.3.3 Access. Access is through the transmission fairing. (Figure 1-4, Item 2)

3.10.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.10.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.10.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-10.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.10.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probe drives are changed, steps 3.10.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.10.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.10.4 <u>Backup Method.</u> None required.

3.10.5 <u>System Securing.</u> Secure the transmission fairing as required.

3.11 RING GEAR CASE (MT).

3.11.1 <u>Description (Figure 3-1. Index No. 11).</u> The ring gear case surrounds and contains the ring gear components. The ring gear case is that part of the transmission case found immediately below the transmission case top.

3.11.2 <u>Defects.</u> This inspection is to verify crack indications found visually in the ring gear case. No cracks are allowed.

3.11.3 <u>Primary Method.</u> Magnetic Particle.

3.11.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

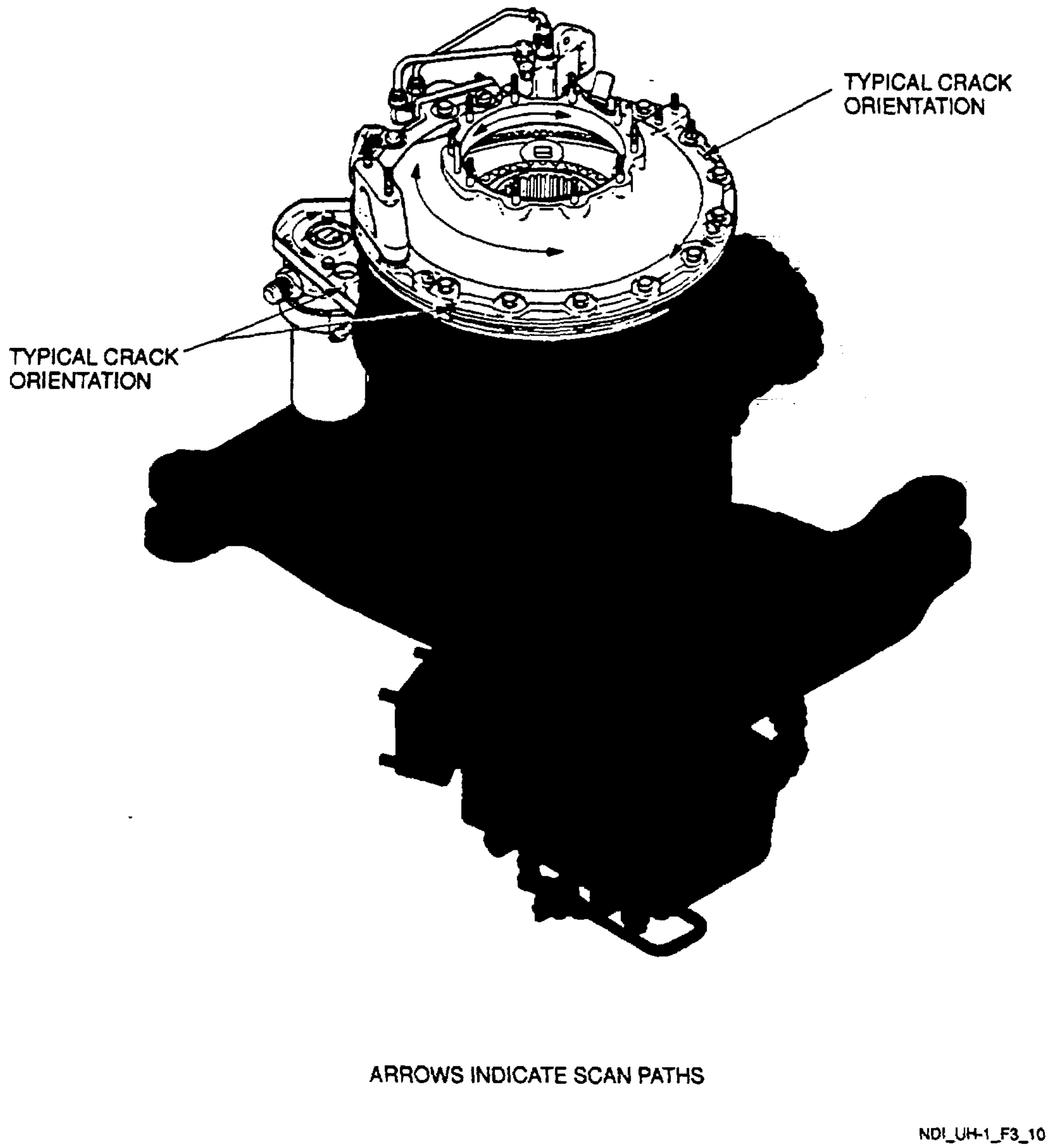


Figure 3-10. Transmission Case (Top)

3.11.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1.

3.11.3.3 Access. Access is through the transmission fairing. (Figure 1-4, Item 2)

3.11.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.11.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.11.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-11.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.11.3.8.

f. Repeat steps a. through e. for positions 2 through 8. Legs shall be positioned the same as positions 1 and 2, four times around the case.

3.11.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.11.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.11.4 <u>Backup Method.</u> None required.

3.11.5 <u>System Securing.</u> Clean the ring gear case thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. Secure the transmission fairing as required.

3.12 MAIN TRANSMISSION CASE (ET).

3.12.1 <u>Description (Figure 3-1. Index No. 12).</u> The main transmission case surrounds and contains the major transmission components. The main transmission case is that part of the transmission case found immediately below ring gear case.

3.12.2 <u>Defects.</u> This inspection is to verify crack indications found visually in the main transmission case.

3.12.3 <u>Primary Method.</u> Eddy Current.

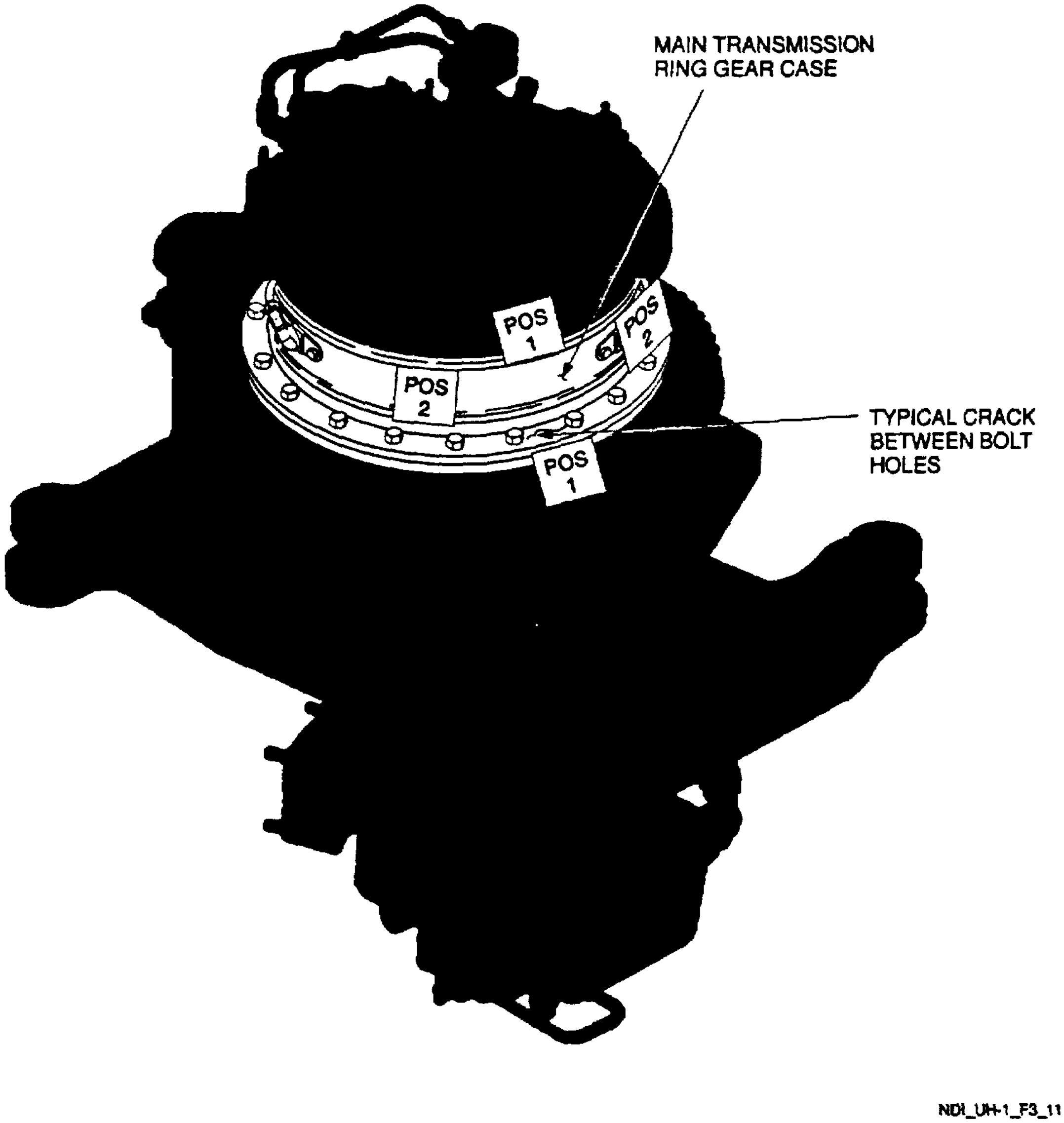


Figure 3-11. Ring Gear Case

3.12.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1.

3.12.3.3 Access. Access is through the transmission fairing. Figure 14, Item 2.)

3.12.3.4 Preparation of Part. The part shall be thoroughly cleaned. "Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.12.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

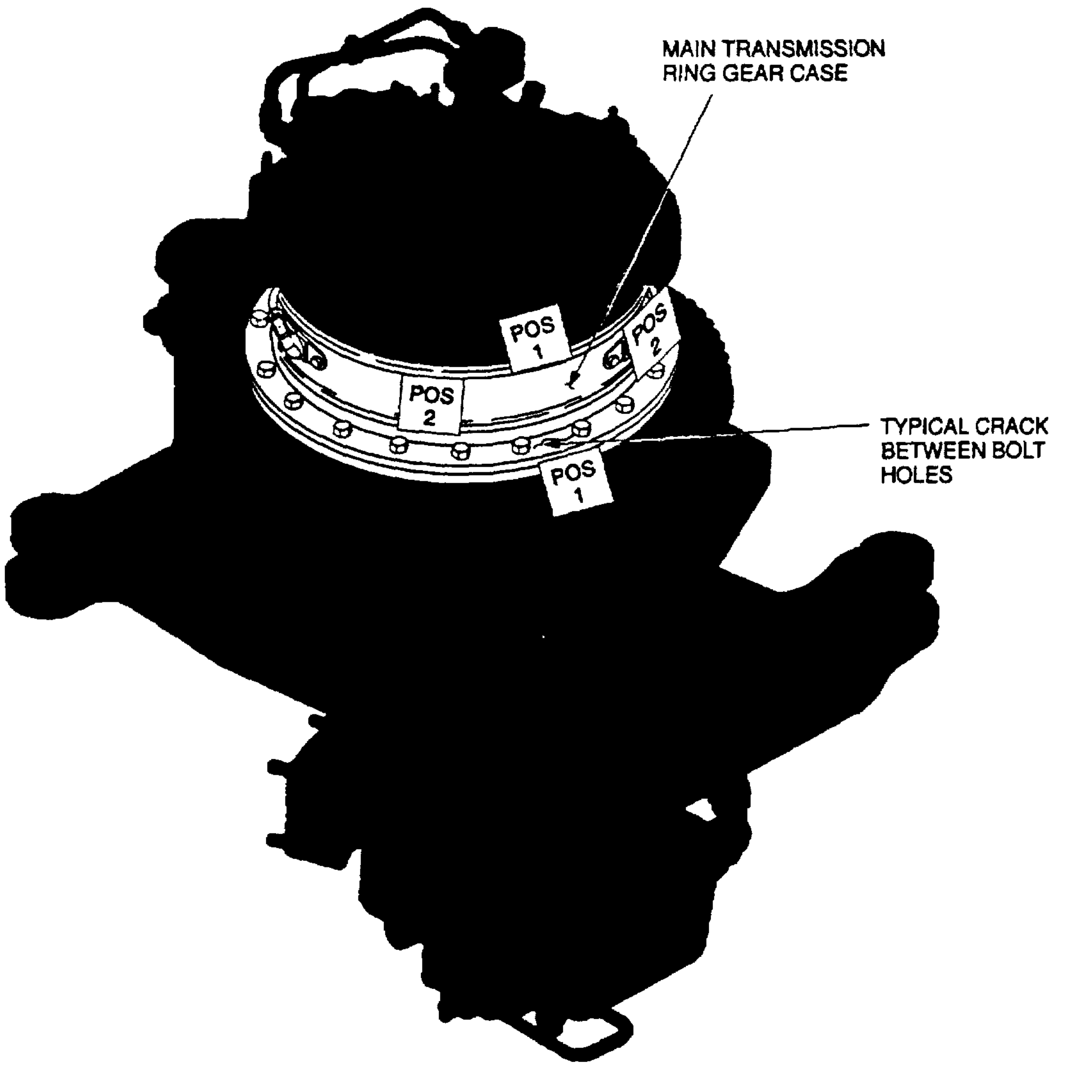
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.12.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-12.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.



ARROWS INDICATE SCAN PATHS

Figure 3-12. Main Transmission Case

NOTE

Either probe identified in paragraph 3.12.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probe drives are changed, steps 3.12.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.12.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.12.4 Backup Method. None required.

3.12.5 System Securing. Secure the transmission fairing as required.

3.13 TRANSMISSION SUPPORT CASE (ET).

3.13.1 Description (Figure 3-1. Index No. 13). The transmission support case provides a mounting structure to allow mounting the transmission to the airframe. The transmission support case is that part of the transmission case found immediately below the transmission main case. Mounting points found on the case allow the unit to be mounted via main mounts. The transmission support case also provides for mounting the hydraulic pump quill, and beneath it, the tail rotor drive quill.

3.13.2 Defects. This inspection is to verify crack indications found visually in the transmission support case.

3.13.3 Primary Method. Eddy Current.

3.13.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.13.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1.

3.13.3.3 Access. Access is through the transmission fairing. (Figure 1-4, Item 2)

3.13.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.13.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.13.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-13.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.13.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probe drives are changed, steps 3.13.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.13.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.13.4 Backup Method. None required.

3.13.5 System Securing. Secure the transmission fairing as required.

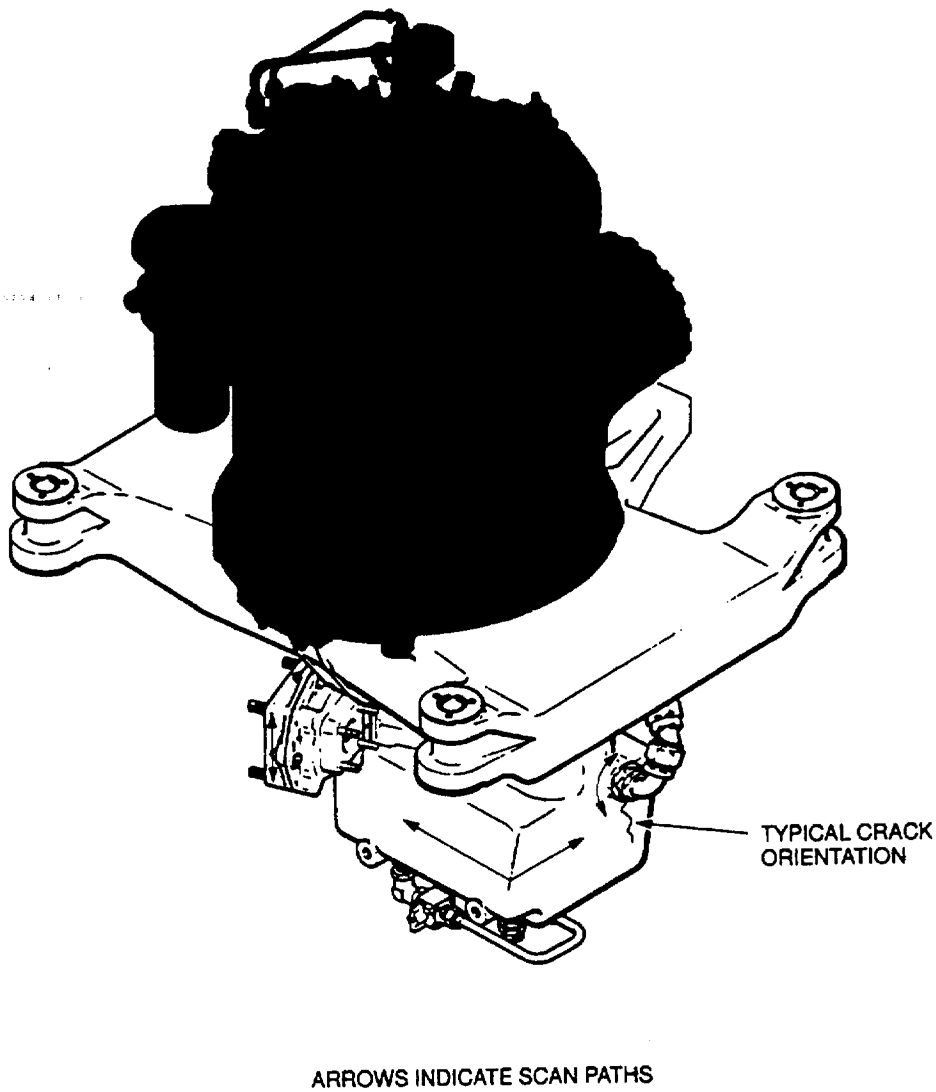


Figure 3-13. Transmission Support Case

3.14 LIFT LINK BUSHING HOLE (PT).

3.14.1 Description (Figure 3-1. Index No. 14). The lift link bushing holes hold the bushings which mount the lift link clevis.

3.14.2 Defects. Defects can occur anywhere on the surface of the lift link bushing hole. No cracks are allowed.

3.14.3 Primary Method. Fluorescent Penetrant.

3.14.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the transmission removed in accordance with the applicable technical manuals listed in Table 1-1.

3.14.3.3 Access. The lift link bushing holes are accessed with the transmission assembly removed from the helicopter and the lift link bushings removed.

3.14.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.14.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-14.

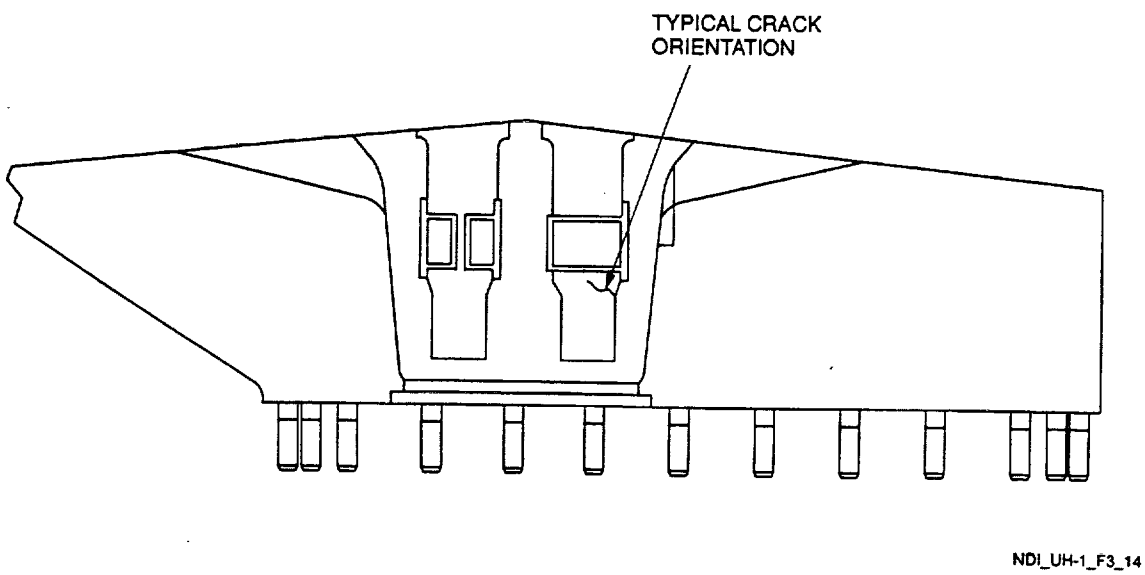


Figure 3-14. Lift Link Bushing Hole

3.14.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.14.4 Backup Method. None required.

3.14.5 System Securing. Clean the lift link bushing holes to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The lift link bushings require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.15 THREADED FITTINGS (PT).

3.15.1 Description (Figure 3-1. Index No. 15). Threaded fittings are found throughout the transmission assembly and should be inspected for cracks and thread damage.

3.15.2 Defects. This inspection is to verify crack indications found visually in the threaded fittings.

3.15.3 Primary Method. Fluorescent Penetrant.

3.15.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.15.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe-ground maintenance a and the threaded fittings removed in accordance with the applicable technical manuals listed in Table 1-1.

3.15.3.3 Access. Not applicable.

3.15.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.15.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-15.

3.15.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.15.4 Backup Method. None required.

3.15.5 System Securing. Clean the threaded fittings to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The threaded fittings require installation in accordance with the applicable technical manuals listed in Table 1-1.

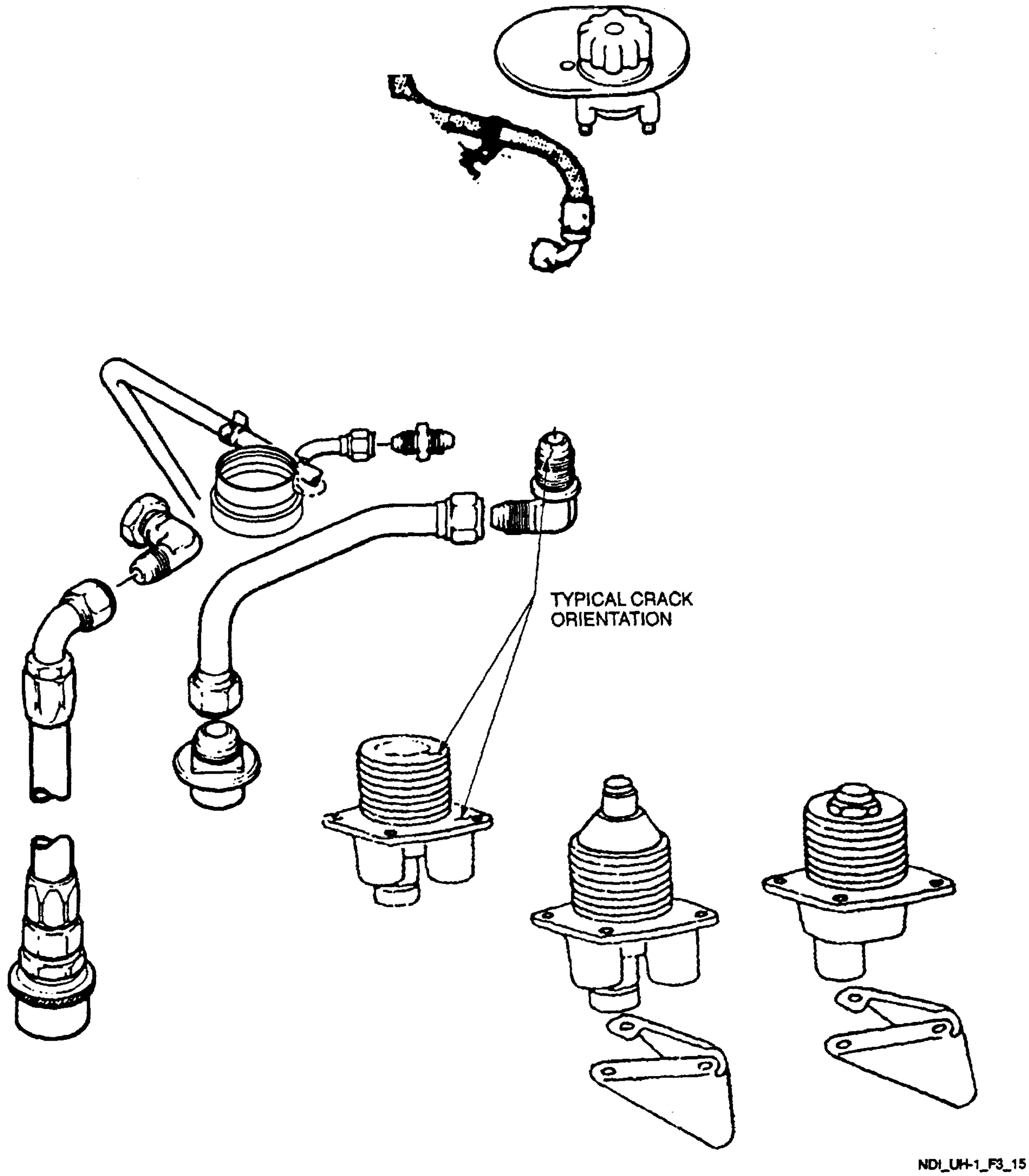


Figure 3-15. Threaded Fittings

3.16 INPUT DRIVE QUILL WEAR SLEEVE (PT).

3.16.1 Description (Figure 3-1. Index No. 16). The input drive quill is located on the transmission opposite the generator. The main driveshaft connects to it. The drive quill wear sleeve is an internal part located within the clutch assembly.

3.16.2 Defects. This inspection is to verify crack indications found visually in the input drive quill wear sleeve.

3.16.3 Primary Method. Fluorescent Penetrant.

3.16.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.16.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the input drive quill removed in accordance with the applicable technical manuals listed in Table 1-1.

3.16.3.3 Access. Not applicable.

3.16.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.16.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-16.

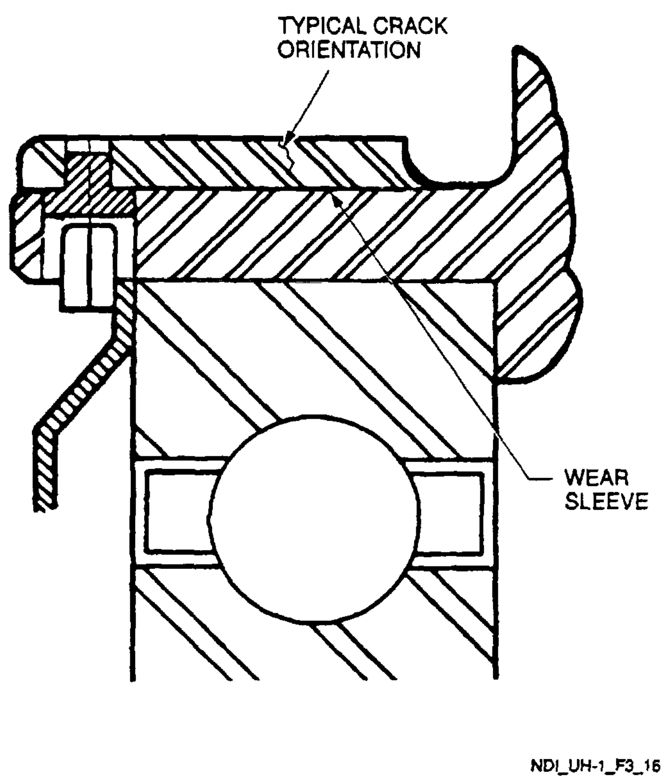


Figure 3-16. Input Drive Quill Wear Sleeve

3.16.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.16.4 Backup Method. None required.

3.16.5 System Securing. Clean the input drive quill wear sleeve to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The input drive quill wear sleeve requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.17 GENERATOR DRIVE QUILL CASE (ET).

3.17.1 Description (Figure 3-1. Index No. 17). The generator drive quill assembly is mounted on front of the transmission with a generator drive pad above the cabin roof level. The quill is driven through a gear train from a spiral bevel drive gear mounted in the transmission main case.

3.17.2 Defects. This inspection is to verify crack indications found visually in the generator drive quill case.

3.17.3 Primary Method. Eddy Current.

3.17.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.17.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the drive quill case shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.17.3.3 Access. Access is through the transmission fairing. (Figure 1-4, Item 2)

3.17.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.17.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040 inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.17.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-17.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.17.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probe drives are changed, steps 3.17.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.17.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.17.4 <u>Backup Method.</u> None required.

3.17.5 <u>System Securing.</u> The generator drive quill case, if removed, requires installation and assembly in accordance with the applicable technical manuals listed in Table 1-1. Secure the transmission fairing as required.

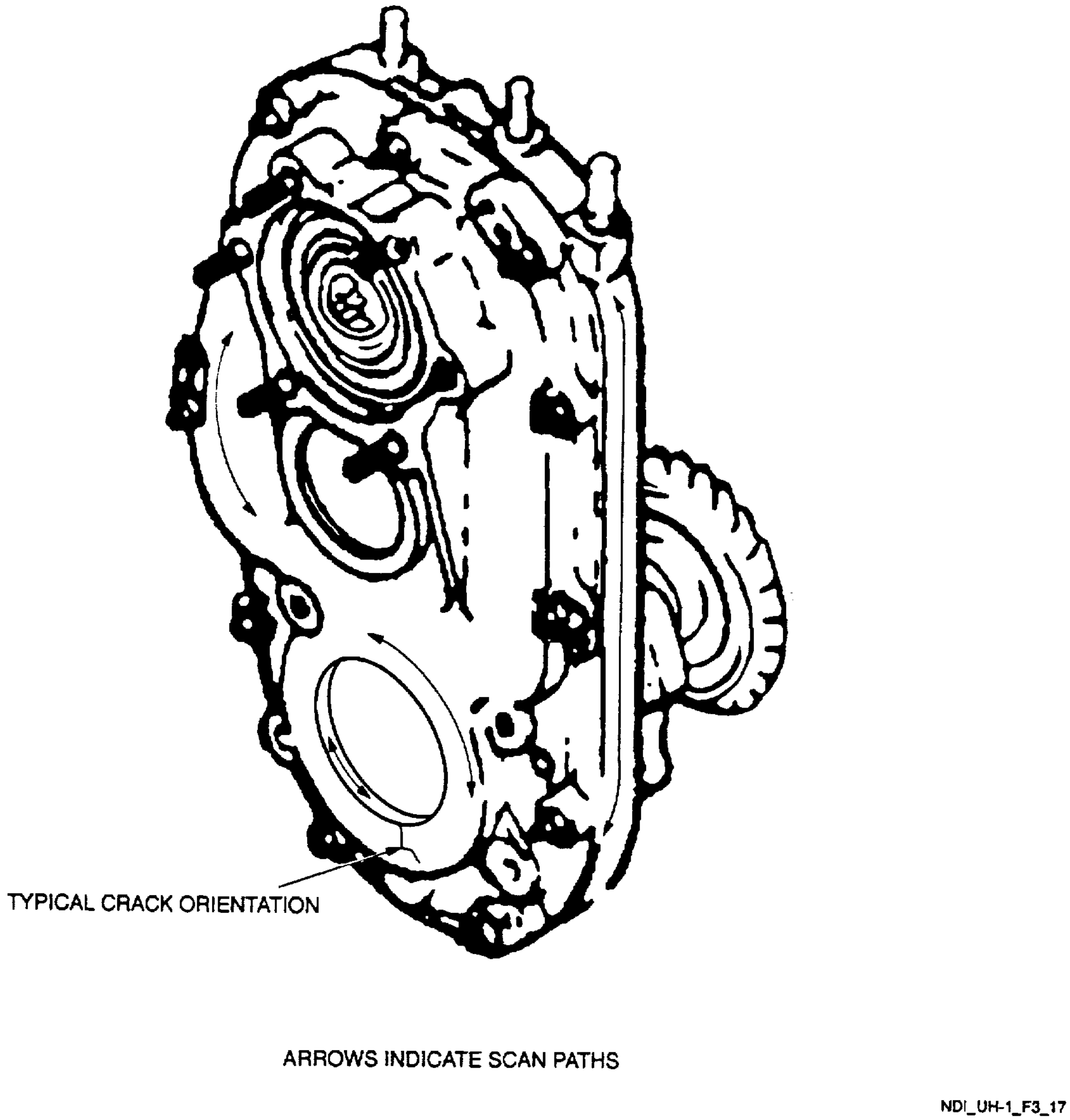


Figure 3-17. Generator Drive Quill Case

3.18 HYDRAULIC PUMP AND TACHOMETER QUILL CASE (ET).

3.18.1 Description (Figure 3-1. Index No. 18). The hydraulic pump and tachometer accessory drive quill are located on the right side of the transmission sump case and are driven by an accessory gear train. The gear shaft of this quill directly drives the hydraulic system pump, and also drives the rotor tachometer generator by means of a chain and sprocket offset drive.

3.18.2 Defects. This inspection is to verify crack indications found visually in the hydraulic pump and tachometer quill case.

3.18.3 Primary Method. Eddy Current.

3.18.3.1 NDI Equipment and Materials. (Refer to appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.04r' EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.18.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the hydraulic pump and tachometer quill case shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.18.3.3 Access. Access is through the transmission fairing. (Figure 1-4, Item 2)

3.18.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.18.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e^{II}

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.18.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-18.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.18.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probe drives are changed, steps 3.18.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.18.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.18.4 <u>Backup Method.</u> None required.

3.18.5 <u>System Securing.</u> The hydraulic pump and tachometer quill case, if removed, require assembly and installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the transmission fairing as required.

3.19 HYDRAULIC PUMP AND TACHOMETER GEAR TEETH (PT).

3.19.1 <u>Description (Figure 3-1. Index No. 19).</u> The hydraulic pump and tachometer gear teeth are observable upon removal of the hydraulic pump and tachometer drive quill from the transmission sump case.

3.19.2 Defects. This inspection is to verify crack indications found visually in the hydraulic pump and tachometer gear teeth.

3.19.3 <u>Primary Method</u>. Fluorescent Penetrant.

3.19.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.19.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the hydraulic pump and tachometer drive quill removed in accordance with the applicable technical manuals listed in Table 1-1.

3.19.3.3 Access. Not applicable.

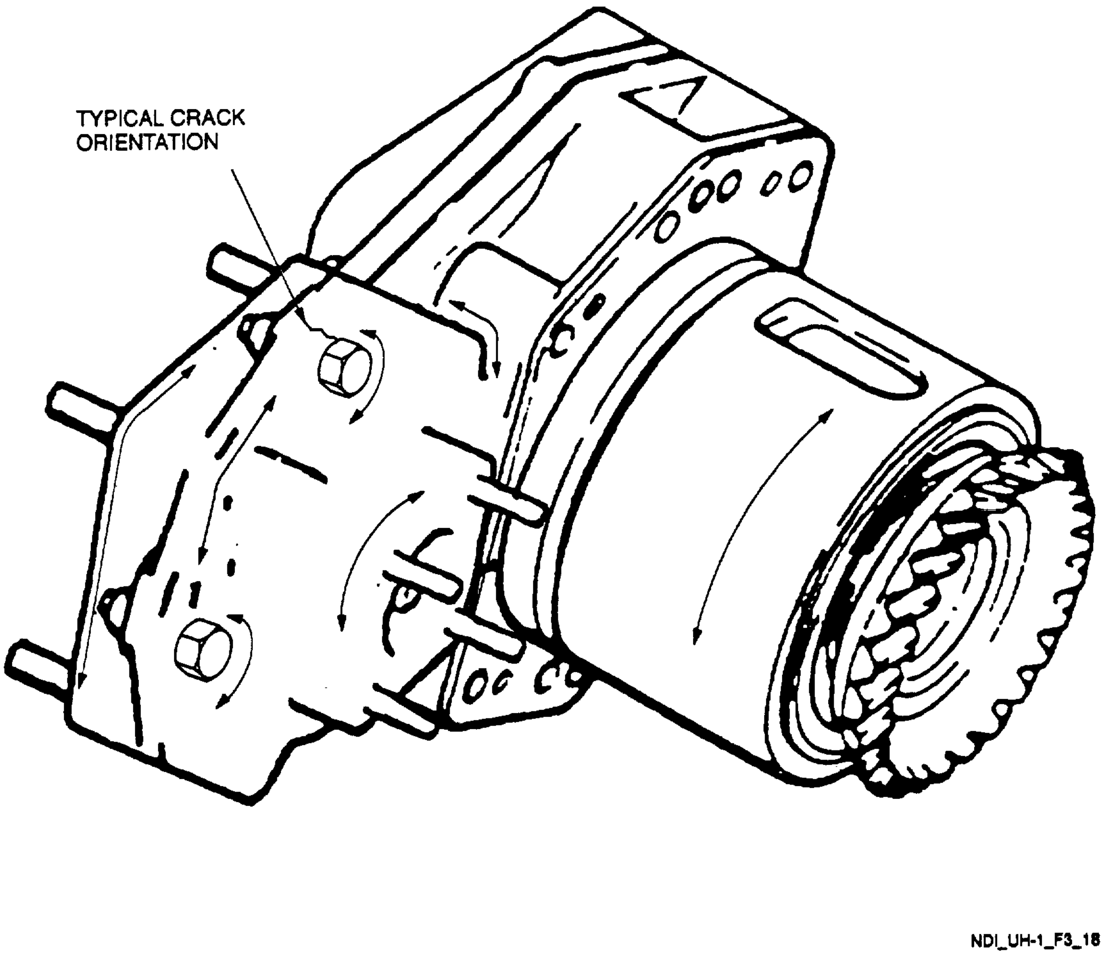


Figure 3-18. Hydraulic Pump and Tachometer Quill Case

3.19.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.19.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-19.

3.19.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.19.4 Backup Method. None required.

3.19.5 System Securing. Clean the hydraulic pump and tachometer drive quill gear teeth to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The hydraulic pump and tachometer drive quill require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.20 TAIL ROTOR DRIVE QUILL SLEEVE ASSEMBLY (ET).

3.20.1 Description (Figure 3-1, Index No.20). The tail rotor drive quill is mounted into the aft side of the transmission sump case and is driven by an accessory gear train. A flexible splined coupling on the quill provides a means of attaching the tail rotor driveshaft. The tail rotor drive quill sleeve assembly is located on that portion of the tail rotor drive quill assembly which is inserted into the transmission itself.

3.20.2 Defects. This inspection is to verify crack indications found visually in the tail rotor drive quill sleeve assembly.

3.20.3 Primary Method. Eddy Current.

3.20.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.20.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor drive quill assembly removed in accordance with the applicable technical manuals listed in Table 1-1.

3.20.3.3 Access. Not applicable.

3.20.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

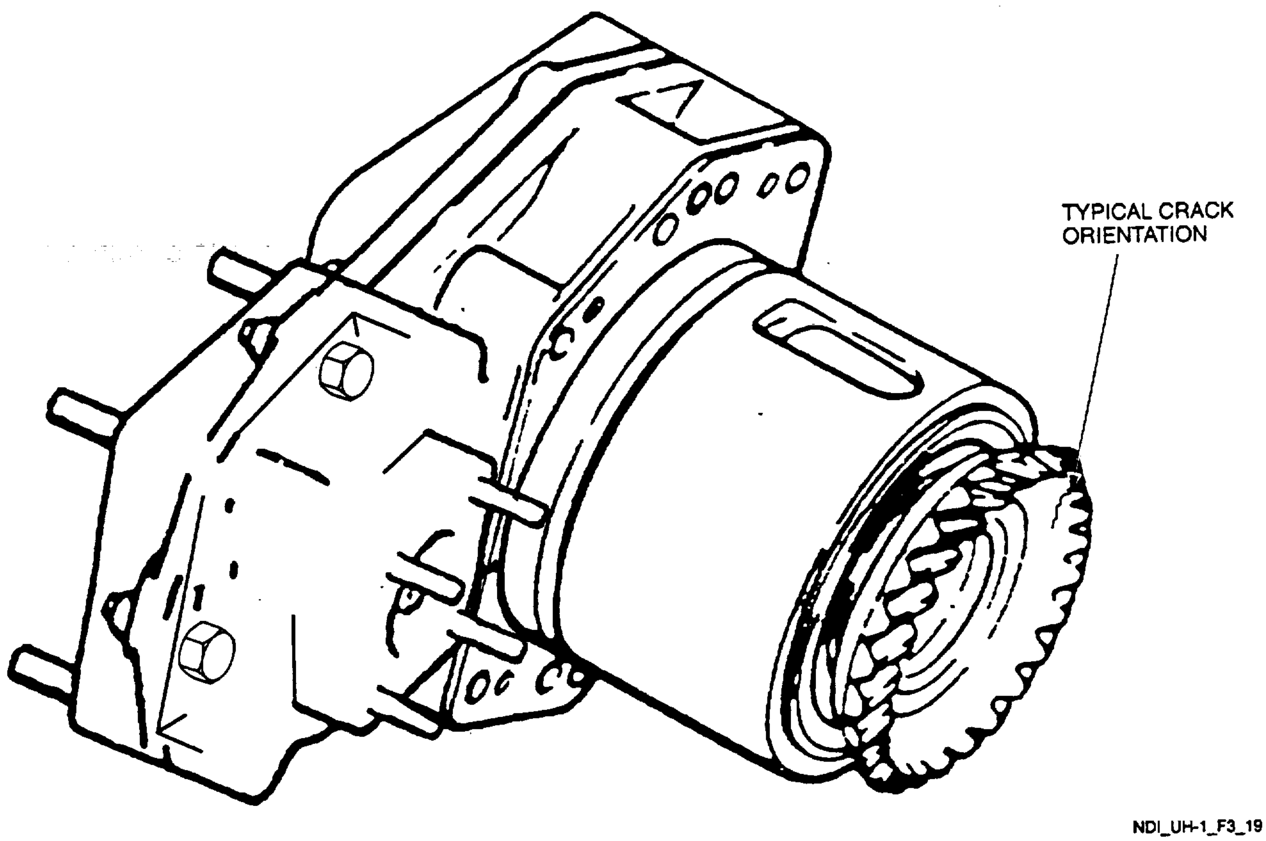


Figure 3-19. Hydraulic Pump and Tachometer Gear Teeth

3.20.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e1i.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.20.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-20.

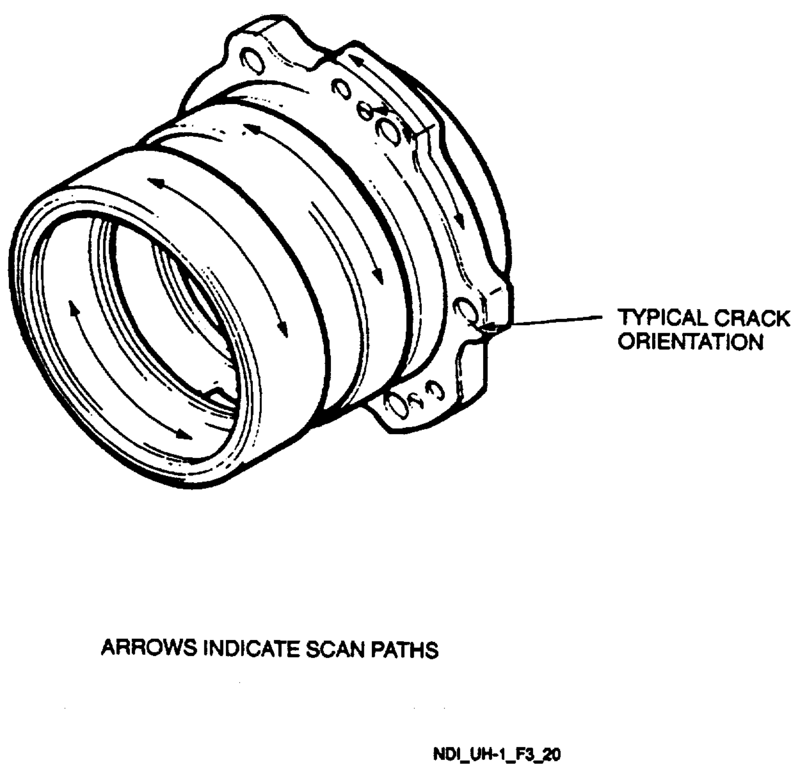


Figure 3-20. Tail Rotor Drive Quill Sleeve Assembly

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.20.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probe drives are changed, steps 3.20.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.20.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.20.4 Backup Method. None required.

3.20.5 System Securing. The tail rotor drive quill assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.21 TAIL ROTOR DRIVE QUILL BEVEL GEAR TEETH (MT).

3.21.1 Description (Figure 3-1. Index No.21). The tail rotor drive quill provides the means whereby the transmission is connected to the tail rotor drive assembly. The bevel gear performs the actual transmission of power.

3.21.2 Defects. This inspection is to verify crack indications found visually in the tail rotor drive quill bevel gear teeth.

3.21.3 Primary Method. Magnetic Particle.

3.21.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.21.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor drive quill removed in accordance with the applicable technical manuals listed in Table 1-1.

3.21.3.3 Access. Not applicable.

3.21.3.4 Preparation of Part. The tail rotor drive quill bevel gear teeth shall be thoroughly cleaned.

Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.21.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.21.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-21.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.21.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

3.21.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.21.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.21.4 Backup Method. None required.

3.21.5 System Securing. Clean the tail rotor drive quill bevel gear teeth thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor drive quill requires installation in accordance with the applicable technical manuals listed in Table 1-1.

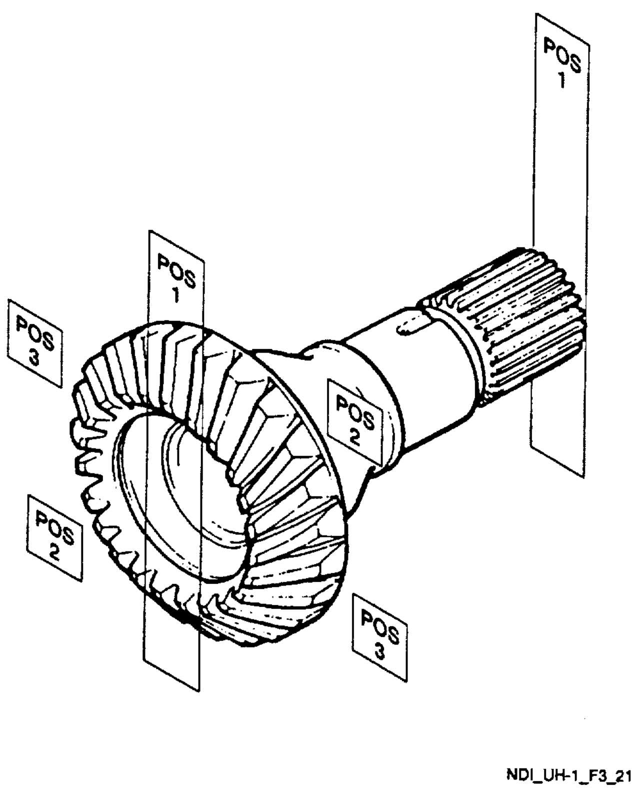


Figure 3-21. Tail Rotor Drive Quill Bevel Gear Teeth

3.22 TAIL ROTOR DRIVE QUILL SLEEVE SPACER (MT).

3.22.1 Description (Figure 3-1. Index No. 22). The tail rotor drive quill provides the means whereby the transmission is connected to the tail rotor drive assembly. The drive quill sleeve spacer is an internal part to the tail rotor drive quill.

3.22.2 Defects. This inspection is to verify crack indications found visually in the tail rotor drive quill sleeve spacer.

3.22.3 Primary Method. Magnetic Particle.

3.22.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.22.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor drive quill removed in accordance with the applicable technical manuals listed in Table 1-1.

3.22.3.3 Access. Not applicable.

3.22.3.4 Preparation of Part. The tail rotor drive quill sleeve spacer shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.22.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.22.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-22.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.22.3.8.

f. Repeat steps a. through e. for position 2.

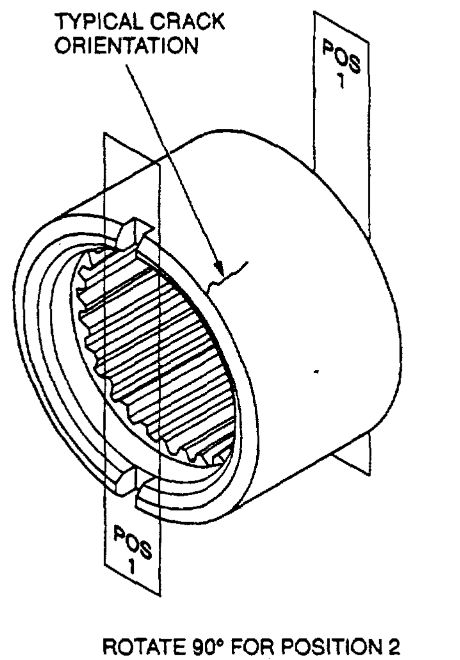


Figure 3-22. Tail Rotor Drive Quill Sleeve Spacer

3.22.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.22.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.22.4 Backup Method. None required.

3.22.5 System Securing. Clean the tail rotor drive quill sleeve spacer thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor drive quill requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.23 PYLON MOUNT BOLTS (MT).

3.23.1 Description (Figure 3-1. Index No. P3). The pylon mount bolts are used in attaching the transmission to the helicopter fuselage. Four main isolation mounts are located on pylon supports under the corners of the transmission support case. Each mount consists of a cylindrical molded rubber core bonded between steel inner and outer sleeves, with an outer sleeve flange secured onto the pylon support by four bolts. A large mount bolt, herein referred to as the pylon mount bolt, extends up through the mount inner sleeve to seat in a tapered bushing in the transmission support case leg. It is secured by a retaining bolt, installed from the top through a flat washer and a broad special washer and threaded into the tapped upper end of the pylon mount bolt itself. A fifth isolation mount, similar to the four main mounts, is located at the center aft of the pylon on a support fitting bridged across the rear side of the pylon support. The fifth mount bolt has a self-aligning bearing at the upper end, which is attached by a bolt to the middle of a welded beam extending between the aft legs of the transmission support case.

3.23.2 Defects. Defects can occur anywhere on the surface of the pylon mount bolts. No cracks are allowed.

3.23.3 Primary Method. Magnetic Particle.

3.23.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.23.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pylon mount bolts removed in accordance with the applicable technical manuals listed in Table 1-1.

3.23.3.3 Access. Not applicable.

3.23.3.4 Preparation of Part. The pylon mount bolts shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.23.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.23.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 3-23.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

3.23.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.23.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

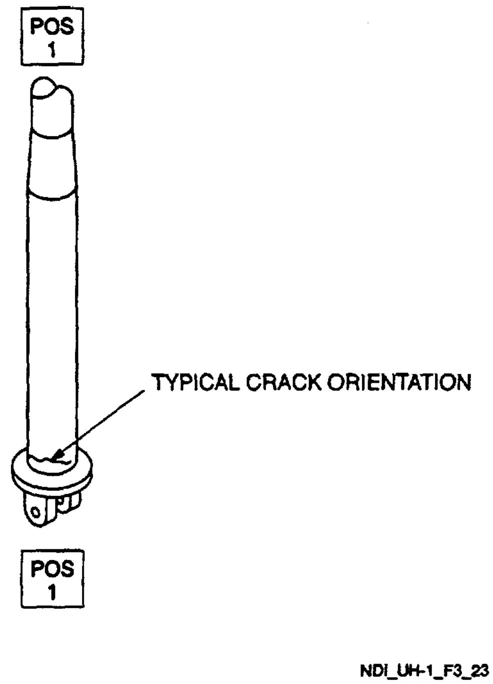


Figure 3-23. Pylon Mount Bolts

3.23.4 Backup Method. None required.

3.23.5 System Securing. Clean the pylon mount bolts thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The pylon mount bolts require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.24 FIFTH MOUNT SUPPORT FITTING (PT).

3.24.1 Description (Figure 3-1. Index No. 24). Four main isolation mounts are located on pylon supports under the corners of the transmission support case. A fifth mount, similar to the four main mounts, is located at the center aft of the pylon on a support fitting. This fifth mount support fitting is bridged across the rear side of the pylon support. The fifth mount bolt has a self-aligning bearing at the upper end, which is attached by a bolt to the middle of a welded beam extending between the aft legs of the transmission support case.

3.24.2 Defects. Defects can occur anywhere on the surface of the fifth pylon isolation mount support fitting. No cracks are allowed.

3.24.3 Primary Method. Fluorescent Penetrant.

3.24.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.24.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, remove the ,,-, transmission in accordance with the applicable technical manuals listed in Table 1-1.

3.24.3.3 Access. Access is through the pylon door. (Figure 1-4, Item 3)

3.24.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.24.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-24.

3.24.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.24.4 Backup Method. None required.

3.24.5 System Securing. Clean the fifth mount support fitting to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The transmission, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the pylon door as required.

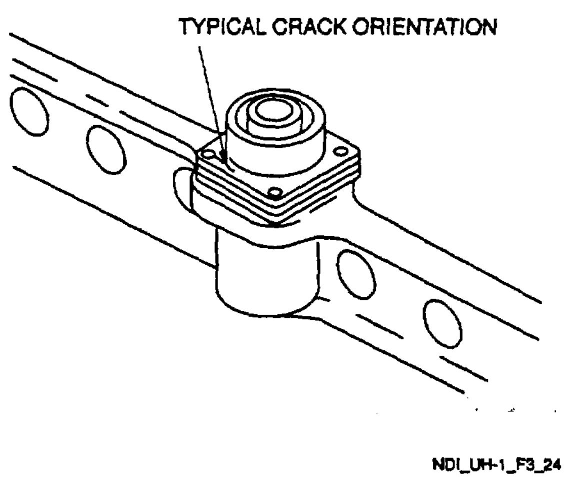


Figure 3-24. Fifth Mount Support Fitting

3.25 FRICTION DAMPER (MT).

3.25.1 Description (Figure 3-1. Index No. 25). Four main isolation mounts are located on pylon supports under the comers of the transmission support case. Both rear main pylon isolation mounts are restrained by friction dampers, which are cylindrical units connected between lower ends of the mount bolts and fittings in the pylon support structure.

3.25.2 Defects. This inspection is to verify crack indications found visually in the friction damper.

3.25.3 Primary Method. Magnetic Particle.

3.25.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.25.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the friction dampers removed in accordance with the applicable technical manuals listed in Table , 1-1.

3.25.3.3 Access. Not applicable.

3.25.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.25.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.25.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-25.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.25.3.8.

f. Repeat steps a. through e. for position 2.

3.25.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

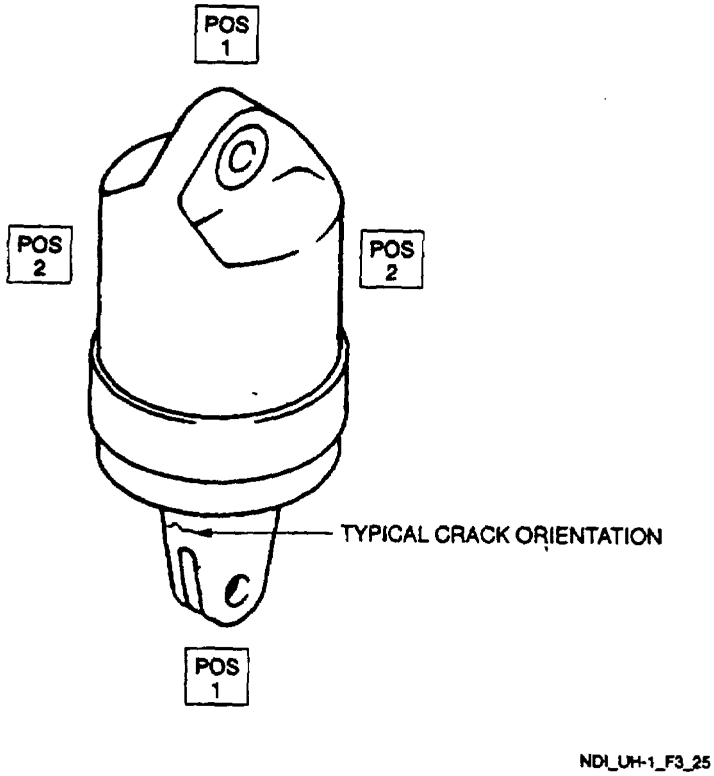


Figure 3-25. Friction Damper

3.25.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.25.4 Backup Method. None required.

3.25.5 System Securing. Clean the friction dampers thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The friction dampers require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.26 MAIN ROTOR MAST NUT (MT).

3.26.1 Description (Figure 3-1, Index No. 6). The main rotor mast nut is installed on the mast during the mast removal process, providing a hoisting eye for lifting the mast assembly from the aircraft.

3.26.2 Defects. Defects can occur anywhere on the surface of the main rotor mast nut. No cracks are allowed.

3.26.3 Primary Method. Magnetic Particle.

3.26.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

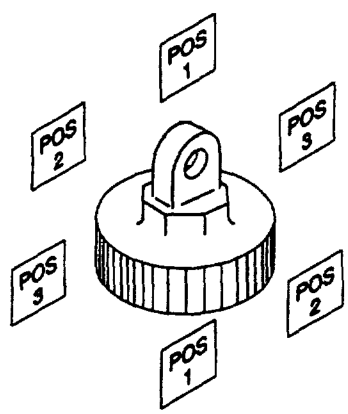
3.26.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main rotor mast nut removed in accordance with the applicable technical manuals listed in Table 1-1.

3.26.3.3 Access. Not applicable.

3.26.3.4 Preparation of Part. The main rotor mast nut shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.26.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.26.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-26.



NDI_UH-1_F3_26

Figure 3-26. Main Rotor Mast Nut

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.26.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

3.26.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.26.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.26.4 Backup Method. None required.

3.26.5 System Securing. Clean the main rotor mast nut thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The main rotor mast nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.27 OIL PUMP DRIVESHAFT (MT).

3.27.1 Description (Figure 3-1, Index No. 27). The transmission oil pump is a direct-drive, single element gerotor pump designed for internal installation with flange mounting in the bottom of the transmission sump. The pump is driven by a splined oil pump driveshaft from an accessory drive gear train, and turns clockwise as viewed from the drive end.

3.27.2 Defects. This inspection is to verify crack indications found visually in the oil pump driveshaft.

3.27.3 Primary Method. Magnetic Particle.

3.27.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.27.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the oil pump removed in accordance with the applicable technical manuals listed in Table 1-1.

3.27.3.3 Access. Not applicable.

3.27.3.4 Preparation of Part. The oil pump driveshaft shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.27.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.27.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-27.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.27.3.8.

f. Repeat steps a. through e. for position 2.

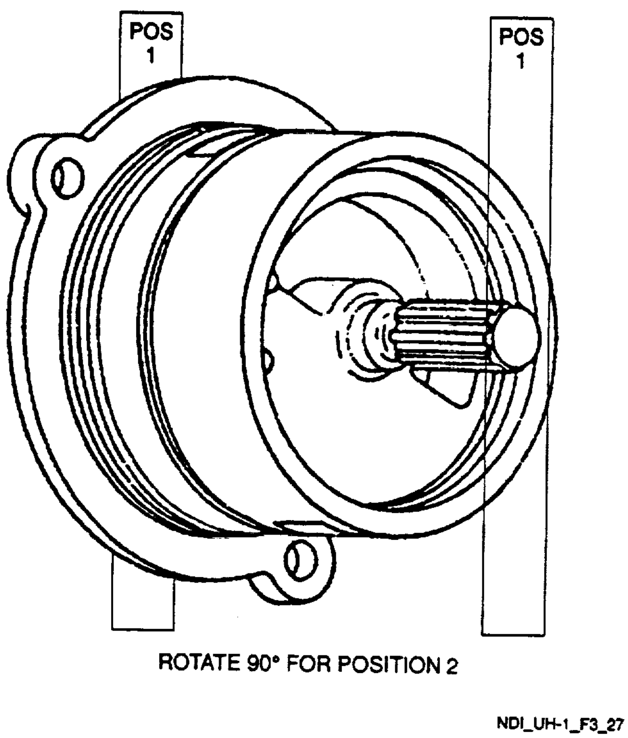


Figure 3-27. Oil Pump Driveshaft

3.27.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.27.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the -art for a distance of two feet before releasing the switch.

3.27.4 Backup Method. None required.

3.27.5 System Securing. Clean the oil pump driveshaft thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The oil pump requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.28 OIL JETS (PT). **8**

3.28.1 Description (Figure 3-1, Index No.28). The oil jet assemblies are installed from exterior of the transmission at various points, passing through walls of internal passages which carry oil under pressure, and extend inside the transmission case to deliver aimed sprays of oil on gears and bearings. Each jet is identified to its mounting port by matching stamped numerals. The attaching screw hole indexes the direction of the jet nozzle spray.

3.28.2 Defects. This inspection is to verify crack indications found visually in the oil jets.

3.28.3 Primary Method. Fluorescent Penetrant.

3.28.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

3.28.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the oil jets removed in accordance with the applicable technical manuals listed in Table 1-1.

3.28.3.3 Access. Not applicable.

3.28.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.28.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 3-28.

3.28.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.28.4 Backup Method. None required.

3.28.5 System Securing. Clean the oil jets to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The oil jets require installation in accordance with the applicable technical manuals listed in Table 1-1.

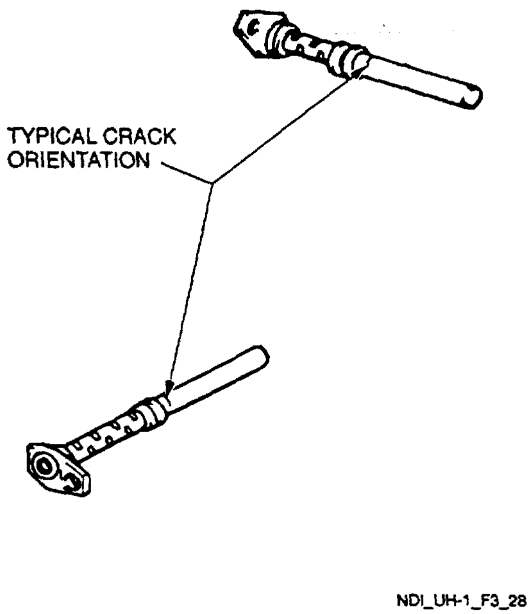


Figure 3-28. Oil Jets

3.29 TAIL ROTOR DRIVESHAFT (ET).

3.29.1 Description (Figure 3-1, Index No.29). Six driveshaft sections are incorporated in the power train aft of the transmission tail rotor drive quill. These driveshafts serve as a line between four bearing hanger assemblies, an intermediate gearbox on the tailboom, and a tail rotor gearbox on the vertical fin. Each shaft section is an anodized aluminum alloy tube with a curvic-splined coupling riveted to each end and is statically or dynamically balanced by metal strips bonded near the middle on the tube surface, with an identification plate showing part and serial numbers. The forward shaft section extends through a tunnel between the engine firewalls, with ends connected by V-band clamps to mating splined couplings on the transmission tail rotor drive quill and on the forward bearing hanger.

Other shaft sections are mounted in a similar manner along the tailboom and vertical fin between hangers and gearboxes.

3.29.2 Defects. Defects can occur anywhere on the surface of the tail rotor driveshaft. No cracks are allowed.

3.29.3 Primary Method. Eddy Current.

3.29.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.29.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, remove the tail rotor driveshaft in accordance with the applicable technical manuals listed in Table 1-1.

3.29.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable covers, doors, and fairings.

3.29.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.29.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19e".

Frequency F1	- 200 KHz	F2	off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.) 3.29.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-29 for inspection areas.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

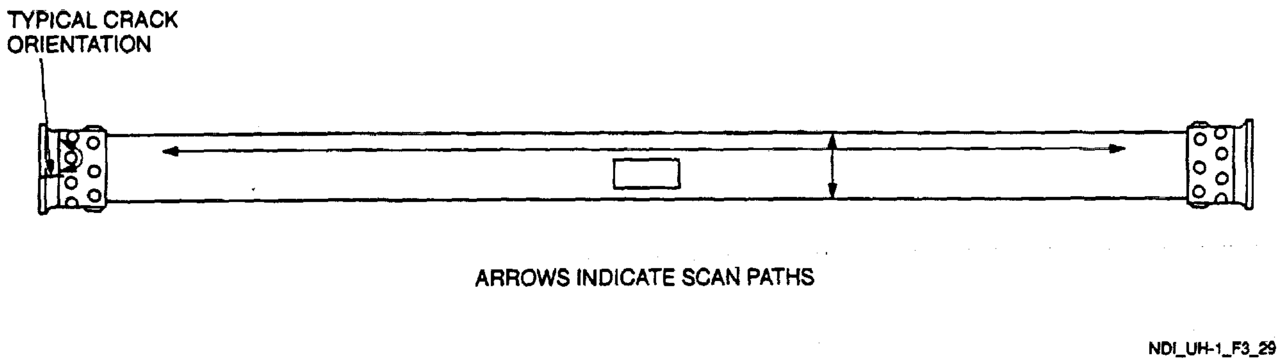


Figure 3-29. Tail Rotor Driveshaft

NOTE

Either probe identified in paragraph 3.29.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.29.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.29.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.29.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

3.29.5 System Securing. The tail rotor driveshaft, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all doors, panels, and fairings as required.

3.30 TAIL ROTOR DRIVESHAFT CLAMPS (MT).

3.30.1 Description (Figure 3-1, Index No. 30). Six driveshaft sections are incorporated in the power train aft of the transmission tail rotor drive quill. These driveshafts serve as a line between four bearing hanger assemblies, an intermediate gearbox on the tailboom, and a tail rotor gearbox on the vertical fin. The forward shaft section extends through a tunnel between the engine firewalls, with ends connected by V-band clamps (referred to herein as the tail rotor driveshaft clamps), to mating splined couplings on the transmission tail rotor drive quill and on the forward bearing hanger. Other shaft sections are mounted in a similar manner along the tailboom and vertical fin between hangers and gearboxes. This provides a total of 12 V-band tail rotor driveshaft clamps.

3.30.2 Defects. This inspection is to verify crack indications found visually in the tail rotor driveshaft clamps.

3.30.3 Primary Method. Magnetic Particle.

3.30.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.30.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor driveshaft clamps removed in accordance with the applicable technical manuals listed in Table 1-1.

3.30.3.3 Access. Not applicable.

3.30.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.30.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.30.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-30.

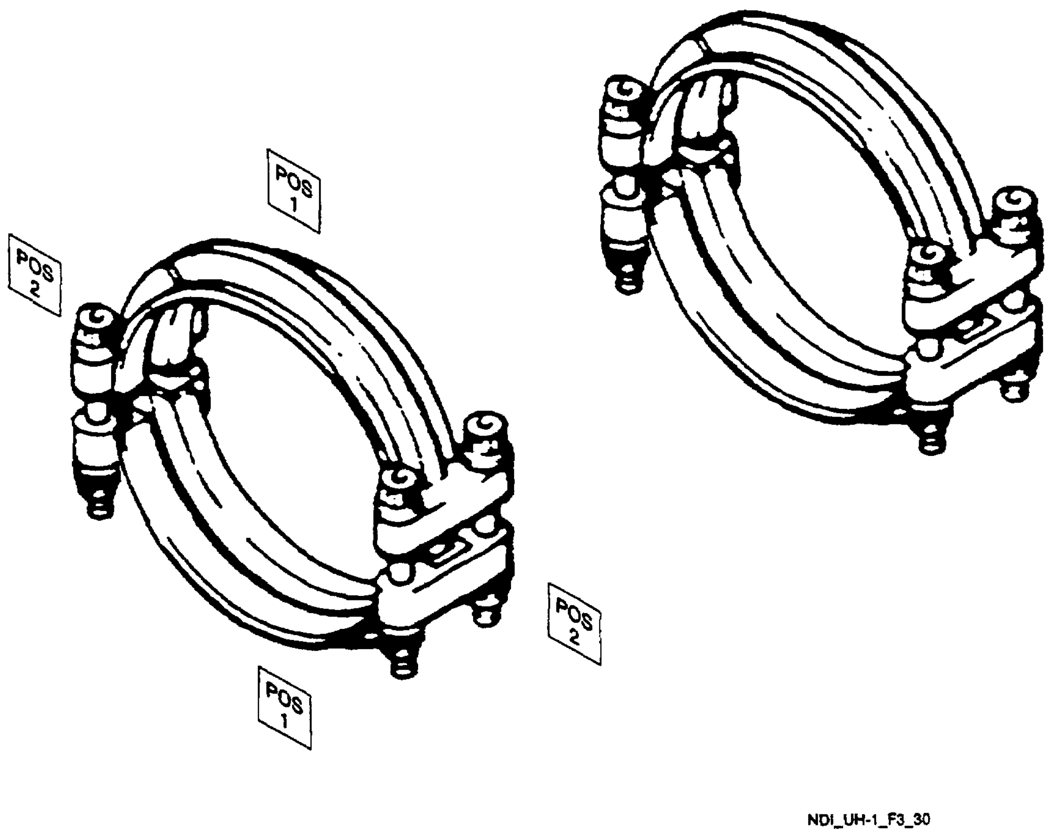


Figure 3-30. Tail Rotor Driveshaft Clamps

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.30.3.8.

f. Repeat steps a. through e. for position 2.

3.30.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.30.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.30.4 Backup Method. None required.

3.30.5 System Securing. Clean the tail rotor driveshaft clamps thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor driveshaft clamps require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.31 TAIL ROTOR DRIVESHAFT HANGERS (MT).

3.31.1 Description (Figure 3-1, Index No. 31). Four hanger assemblies are utilized for the total driveshaft. Each assembly consists of couplings on a short splined shaft and is mounted through a single-row sealed ball bearing in a ring-shaped hanger equipped with two mounting lugs for attachment on a support fitting.

3.31.2 Defects. This inspection is to verify crack indications found visually in the driveshaft hangers (installed).

3.31.3 Primary Method. Magnetic Particle.

3.31.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.31.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A t partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the hanger assemblies shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.31.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable covers, doors, and fairings.

3.31.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.31.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.31.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-31.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.31.3.8.

f. Repeat steps a. through e. for position 2.

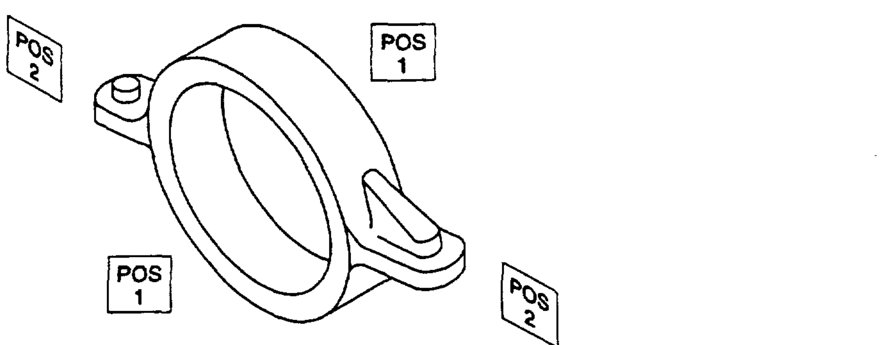


Figure 3-31. Tail Rotor Driveshaft Hangers

3.31.3.7 Marking and Recording of Inspection Results. Mark and record inspection results as required by paragraph 1.3.

3.31.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.31.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

3.31.5 System Securing. Clean the tail rotor driveshaft hangers thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor driveshaft hangers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all doors, covers, and fairings as required.

3.32 TAIL ROTOR DRIVESHAFT INNER (SPHERICAL) COUPLING (MT).

3.32.1 Description (Figure 3-1. Index No. 32). Four hanger assemblies are utilized for the total driveshaft. Each assembly consists of inner (spherical) couplings on a short splined shaft, mounted through a single-row sealed ball bearing in a ring-shaped hanger, equipped with two mounting lugs for attachment on a support fitting.

3.32.2 Defects. This inspection is to verify crack indications found visually in the inner (spherical) coupling.

3.32.3 Primary Method. Magnetic Particle.

3.32.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.32.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the inner (spherical) coupling removed in accordance with the applicable technical manuals listed in Table 1-1.

3.32.3.3 Access. Not applicable.

3.32.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.32.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.32.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-32.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.32.3.8.

f. Repeat steps a. through e. for position 2.

3.32.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.32.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.32.4 Backup Method. None required.

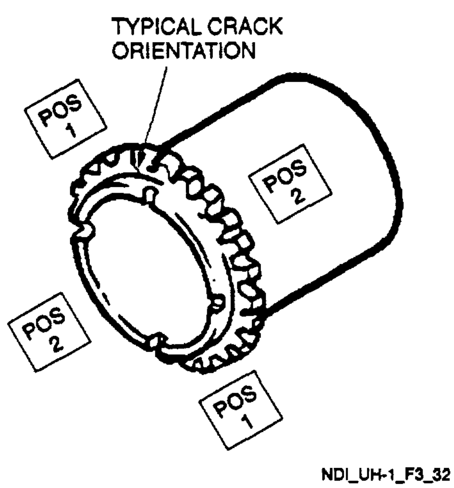


Figure 3-32. Tail Rotor Driveshaft Inner (Spherical) Coupling

3.32.5 System Securing. Clean the inner (spherical) coupling thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The inner (spherical) coupling and tail rotor driveshaft require assembly and installation in accordance with the applicable technical manuals listed in Table 1-1.

3.33 TAIL ROTOR DRIVESHAFT FORWARD COUPLING (MT).

3.33.1 Description (Figure 3-1, Index No. 33). Four hanger assemblies are utilized for the total driveshaft. Each assembly includes forward couplings which provide a connection point for the driveshaft which is forward of the forward coupling.

3.33.2 Defects. This inspection is to verify crack indications found visually in the forward coupling.

3.33.3 Primary Method. Magnetic Particle.

3.33.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

3.33.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the forward coupling shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.33.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable covers, doors, and fairings.

3.33.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.33.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.33.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3.33.

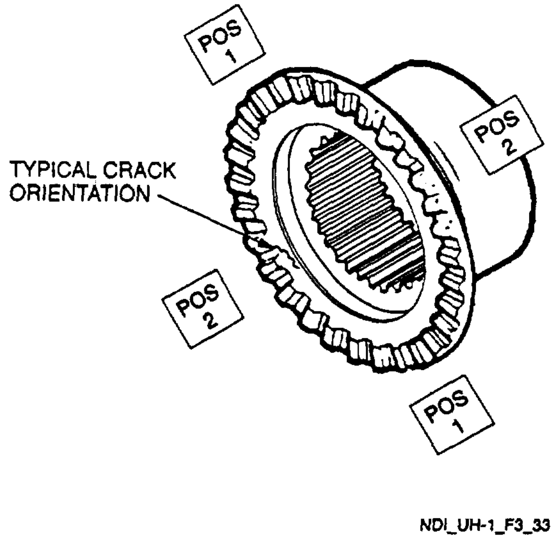


Figure 3-33. Tail Rotor Driveshaft Forward Coupling

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.33.3.8.

f. Repeat steps a. through e. for position 2.

3.33.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.33.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.33.4 Backup Method. None required.

3.33.5 System Securing. Clean the forward coupling thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The forward coupling, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all covers, doors, and fairings as required.

3.34 TAIL ROTOR DRIVESHAFT REAR COUPLING (MT).

3.34.1 Description (Figure 3-1. Index No. 34). Four hanger assemblies are utilized for the total driveshaft. Each hanger assembly includes rear couplings which, in turn, provide a connection point for the driveshaft which is aft of the rear coupling.

3.34.2 Defects. This inspection is to verify crack indications found visually in the rear coupling.

3.34.3 Primary Method. Magnetic Particle.

3.34.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.34.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the rear couplings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.34.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable covers, doors, and fairings.

3.34.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.34.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.34.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-34.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.34.3.8.

f. Repeat steps a. through e. for position 2.

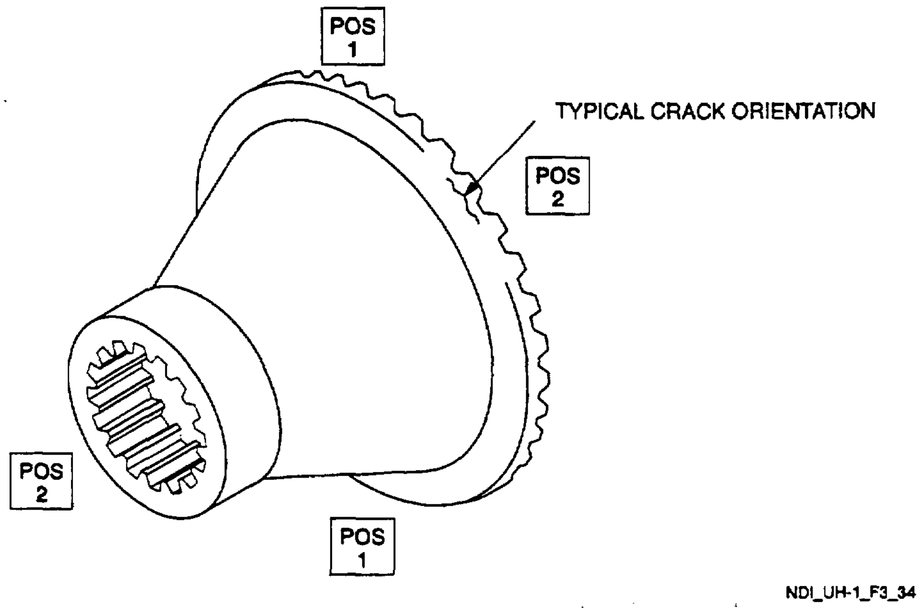


Figure 3-34. Tail Rotor Driveshaft Rear Coupling

3.34.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.34.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.34.4 Backup Method. None required.

3.34.5 System Securing. Clean the rear couplings thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The rear couplings require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all covers, doors, and fairings as required.

3.35 TAIL ROTOR DRIVESHAFT COUPLING SHAFT (MT).

3.35.1 Description (Figure 3-1, Index No. 35). Four hanger assemblies are utilized for the total driveshaft. Each assembly consists of couplings on a short splined shaft (the coupling shaft), mounted through a single-row sealed ball bearing in a ring-shaped hanger, equipped with two mounting lugs for attachment on a support fitting.

3.35.2 Defects. This inspection is to verify crack indications found visually in the coupling shaft.

3.35.3 Primary Method. Magnetic Particle.

3.35.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

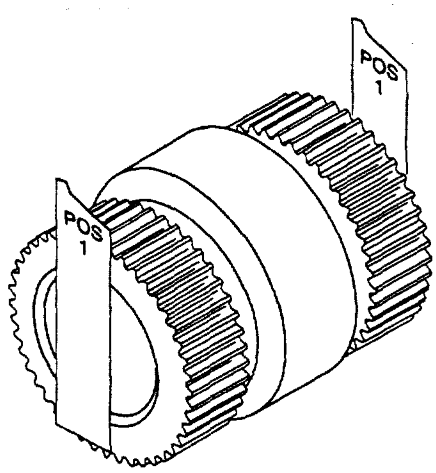
3.35.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the coupling shafts removed in accordance with the applicable technical manuals listed in Table 1-1.

3.35.3.3 Access. Not applicable.

3.35.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.35.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.35.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 3-35.



NDI_UH-1_F3_35

Figure 3-35. Tail Rotor Driveshaft Coupling Shaft

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.35.3.8.

f. Repeat steps a. through e. for position 2.

3.35.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.35.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs .i in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.35.4 Backup Method. None required.

3.35.5 System Securing. Clean the coupling shafts thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The coupling shafts require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.36 TAIL ROTOR DRIVESHAFT HANGER SUPPORT FITTINGS (ET).

3.36.1 Description (Figure 3-1, Index No. 36). Four hanger assemblies are utilized for the driveshaft. Each assembly consists of couplings on a short splined shaft, mounted through a single-row sealed ball bearing in a ring-shaped hanger, equipped with two mount-in lugs for attachment on a support fitting. The support fittings are affixed to the aircraft fuselage.

3.36.2 Defects. This inspection is to verify crack indications found visually in the hanger support fittings.

3.36.3 Primary Method. Eddy Current.

3.36.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.36.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, remove the hanger support fittings in accordance with the applicable technical manuals listed in Table 1-1.

3.36.3.3 Access. Not applicable.

3.36.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part c Area for NDI, paragraph 1.4.4.

3.36.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-1 9e .

Frequency F1	- 200 KHz	F2	off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.36.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-36.

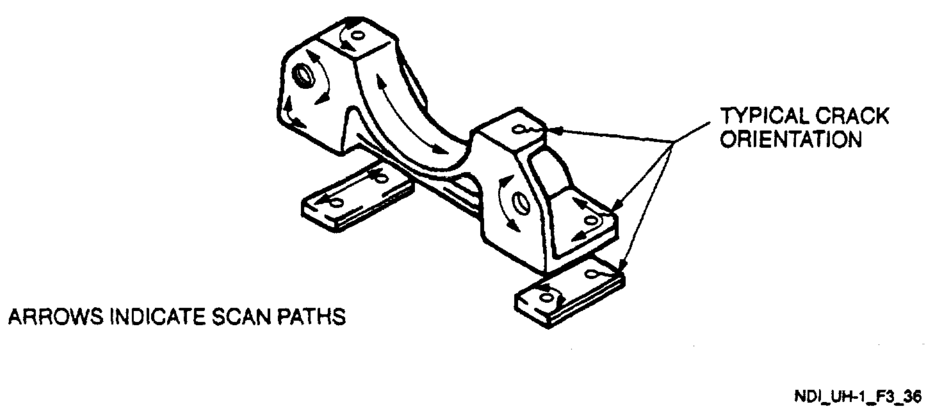


Figure 3-36. Tail Rotor Driveshaft Hanger Support Fittings

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.36.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.36.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.36.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.36.4 Backup Method. None required.

3.36.5 System Securing. The hanger support fittings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.37 INTERMEDIATE GEARBOX CASE (ET).

3.37.1 Description (Figure 3-1. Index No.37). An intermediate gearbox is located on the tailboom, at the base of the vertical fin. This gearbox provides a 42 degree change in direction of the tail rotor driveshaft, with no speed change. The gearbox assembly consists of a case with a gear quill in each end. The case is fitted with an oil filler cap, a vent breather, an oil level sight gage, and a magnetic chip detector. The input and output quills have flexible couplings for attachment of the driveshafts.

3.37.2 Defects. Defects can occur anywhere on the surface of the intermediate gearbox. No cracks are allowed.

3.37.3 Primary Method. Eddy Current.

3.37.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

3.37.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, remove the intermediate gearbox in accordance with the applicable technical manuals listed in Table 1-1.

3.37.3.3 Access. Access is through the intermediate gearbox cover. (Figure 1-4, Item 13) 3.37.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.37.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19ell.

Frequency F1	- 200 KHz	F2	off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.) 3.37.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-37.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.37.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.37.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.37.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.37.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

3.37.5 System Securing. The intermediate gearbox, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the intermediate gearbox cover as required.

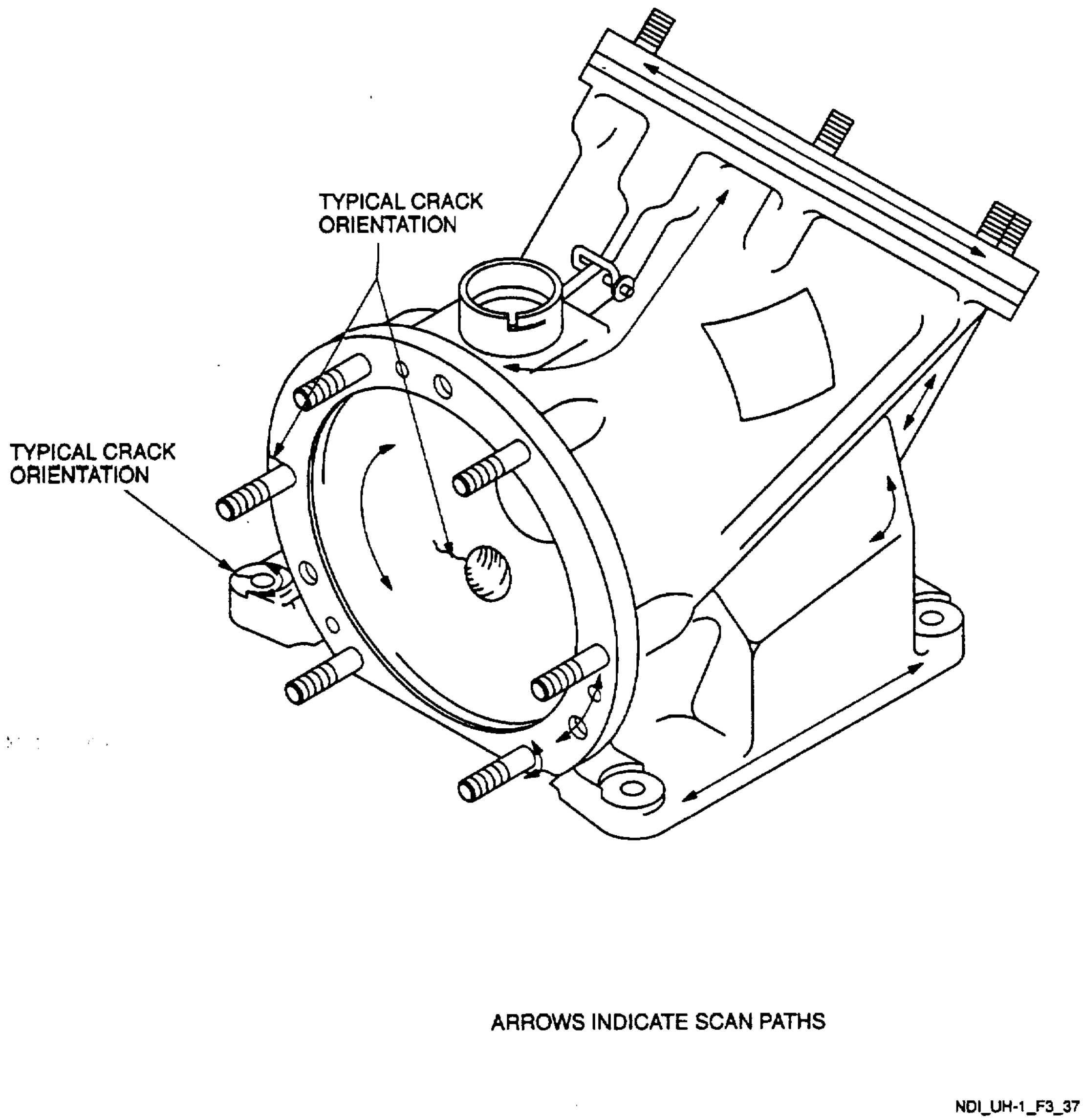


Figure 3-37. Intermediate Gearbox Case

3.38 INTERMEDIATE GEARBOX INNER COUPLING (MT).

3.38.1 Description (Figure 3-1. Index No.38). An intermediate gearbox is located on the tailboom, at the base of the vertical fin. This gearbox provides a 42 degree change in direction of the tail rotor driveshaft, with no speed change. The gearbox assembly consists of a case with a gear quill in each end. The input and output quills have flexible coupling assemblies for attachment of the driveshafts. The coupling assemblies consist of an inner coupling which mates with an outer coupling.

3.38.2 Defects. This inspection is to verify crack indications found visually in the intermediate J gearbox inner coupling.

3.38.3 Primary Method. Magnetic Particle.

3.38.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.38.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the intermediate gearbox inner coupling removed in accordance with the applicable technical manuals listed in Table 1-1.

3.38.3.3 Access. Not applicable.

3.38.3.4 Preparation of Part. The intermediate gearbox inner coupling shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.38.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.38.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-38.

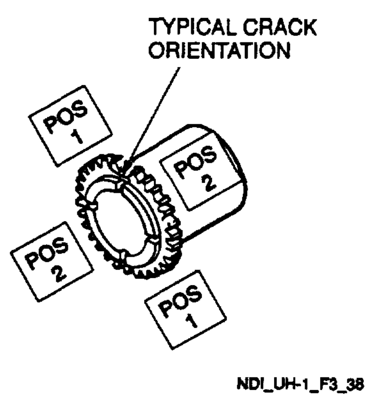


Figure 3-38. Intermediate Gearbox Inner Coupling

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.38.3.8.

f. Repeat steps a. through e. for position 2.

3.38.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.38.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.38.4 Backup Method. None required.

3.38.5 System Securing. Clean the intermediate gearbox inner coupling thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The intermediate gearbox inner coupling requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.39 INTERMEDIATE GEARBOX OUTER COUPLING (MT).

3.39.1 Description (Figure 3-1, Index No.39). An intermediate gearbox is located on the tailboom, at the base of the vertical fin. The gearbox provides a 42 degree change in direction of the tail rotor driveshaft, with no speed change. The gearbox assembly consists of a case with a gear quill in each end. The input and output quills have flexible coupling assemblies for attachment of the driveshafts. The coupling assemblies consist of an inner coupling which mates with an outer coupling.

3.39.2 Defects. This inspection is to verify crack indications found visually in the intermediate gearbox outer coupling.

3.39.3 Primary Method. Magnetic Particle.

3.39.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.39.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the intermediate gearbox outer coupling removed in accordance with the applicable technical manuals listed in Table 1-1.

3.39.3.3 Access. Not applicable.

3.39.3.4 Preparation of Part. The intermediate gearbox outer coupling shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.39.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.39.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-39.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.39.3.8.

f. Repeat steps a. through e. for position 2.

3.39.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.39.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.39.4 Backup Method. None required.

3.39.5 System Securing. Clean the intermediate gearbox outer coupling thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The intermediate gearbox outer coupling requires installation in accordance with the applicable technical manuals listed in Table 1-1.

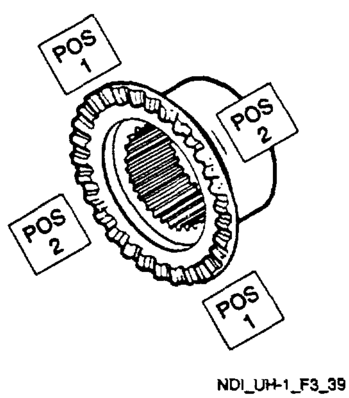


Figure 3-39. Intermediate Gearbox Outer Coupling

3.40 INTERMEDIATE GEARBOX SLEEVE (MT).

3.40.1 Description (Figure 3-1, Index No. 40). An intermediate gearbox is located on the tailboom, at the base of the vertical fin. This gearbox provides a 42 degree change in direction of the tail rotor driveshaft, with no speed change. The gearbox assembly consists of a case with a gear quill in each end. The input and output quills have flexible coupling assemblies for attachment of the driveshafts. The intermediate gearbox sleeve, an item internal to each of the quill assemblies, is located on the I r: pinion shaft, immediately behind the boot.

3.40.2 Defects. This inspection is to verify crack indications found visually in the intermediate gearbox sleeve.

3.40.3 Primary Method. Magnetic Particle.

3.40.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

3.40.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the intermediate gearbox sleeve removed in accordance with the applicable technical manuals listed in Table 1-1.

3.40.3.3 Access. Not applicable.

3.40.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.40.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.40.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 3-40.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

3.40.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

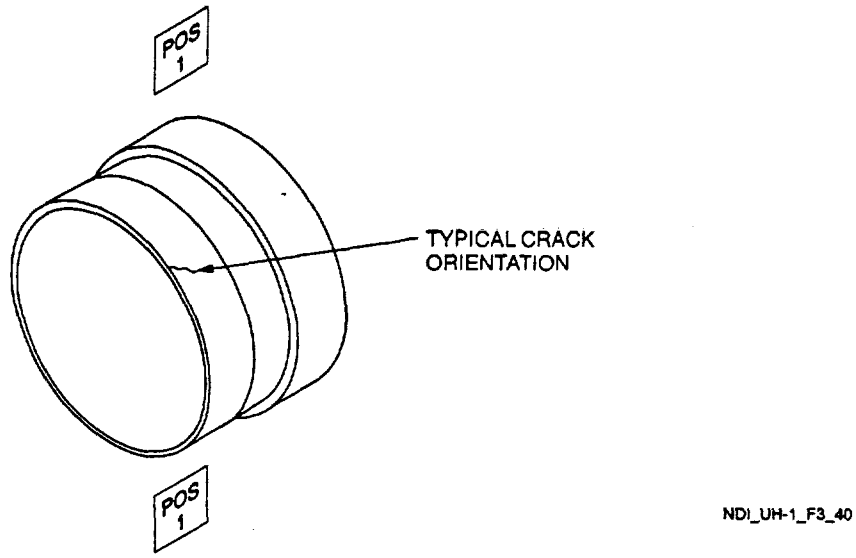


Figure 3-40. Intermediate Gearbox Sleeve

3.40.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.40.4 Backup Method. None required.

3.40.5 System Securing. Clean the intermediate gearbox sleeve thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The intermediate gearbox sleeve requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.41 INTERMEDIATE GEARBOX PINION SHAFT (MT).

3.41.1 Description (Figure 3-1, Index No.41). An intermediate gearbox is located on the tailboom, at the base of the vertical fin. This gearbox provides a 42 degree change in direction of the tail rotor driveshaft, with no speed change. The gearbox assembly consists of a case with a gear quill in each end. The input and output quills have flexible coupling assemblies for attachment of the driveshafts. The intermediate gearbox pinion shafts provide the central shaft upon which the other components are placed.

3.41.2 Defects. This inspection is to verify crack indications found visually in the intermediate -; gearbox pinion shaft.

3.41.3 Primary Method. Magnetic Particle.

3.41.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

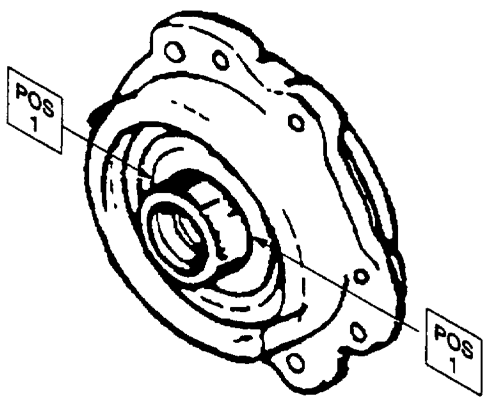
3.41.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the intermediate gearbox pinion shaft removed in accordance with the applicable technical manuals listed in Table 1-1.

3.41.3.3 Access. Not applicable.

3.41.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.41.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.41.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-41.



ROTATE 90° FOR POSITION 2

NDI_UH-1_F3_41

Figure 3-41. Intermediate Gearbox Pinion Shaft

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.41.3.8.

f. Repeat steps a. through e. for position 2.

3.41.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.41.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.41.4 Backup Method. None required.

3.41.5 System Securing. Clean the intermediate gearbox. pinion shaft thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The intermediate gearbox pinion shaft requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.42 TAIL ROTOR GEARBOX CASE (ET).

3.42.1 Description (Figure 3-1. Index No. 42). A gearbox at the top of the tailboom vertical fin provides a 90 degree change in the direction of drive and a 2.6: 1 speed reduction between input driveshaft and output shaft. The tail rotor is mounted on the output shaft. The gearbox consists of mating input and output gear quill assemblies set into a gear case provided with a vented oil filter cap, an oil level sight gage, and a magnetic chip detector. The input quill has a flexible coupling for attachment of the driveshaft.

3.42.2 Defects. This inspection is to verify crack indications found visually in the tail rotor gearbox case. No cracks are allowed.

3.42.3 Primary Method. Eddy Current.

3.42.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8 g. Aircraft Marking Pencil, refer to Table 1-8

3.42.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, remove the tail rotor gearbox case in accordance with the applicable technical manuals listed in Table 1-1.

3.42.3.3 Access. Not applicable.

3.42.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.42.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit NORTEC-19eII.

Frequency F1	-200 KHz	F2	off
HdB	-57.0		
VdB	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	- 0		
Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

3.42.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-42.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.42.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.42.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

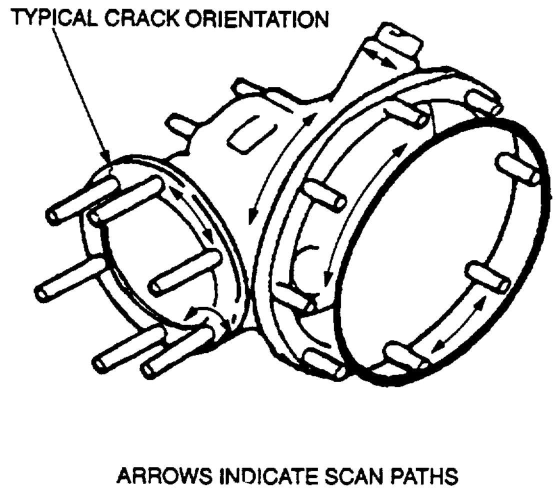


Figure 3-42. Tail Rotor Gearbox Case

3.42.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.42.4 Backup Method. None required.

3.42.5 System Securing. The tail rotor gearbox case, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.43 TAIL ROTOR GEARBOX INNER COUPLING (MT).

3.43.1 Description (Figure 3-1. Index No. 43). A gearbox at the top of the tailboom vertical fin provides a 90 degree change in the direction of drive and a 2.6:1 speed reduction between input driveshaft and output shaft. The tail rotor is mounted on the output shaft. The gearbox consists of mating input and output gear quill assemblies set into a gear case provided with a vented oil filter cap, an oil level sight gage, and a magnetic chip detector. The input quill has a flexible coupling for attachment of the driveshaft. The flexible coupling consists of an inner and outer coupling assembly.

3.43.2 Defects. This inspection is to verify crack indications found visually in the tail rotor gearbox inner coupling.

3.43.3 Primary Method. Magnetic Particle.

3.43.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

3.43.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor inner coupling removed in accordance with the applicable technical manuals listed in Table 1-1.

3.43.3.3 Access. Not applicable.

3.43.3.4 Preparation of Part. The tail rotor inner coupling shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.43.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.43.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-43.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 3.43.3.8.
f. Repeat steps a. through e. for position 2.

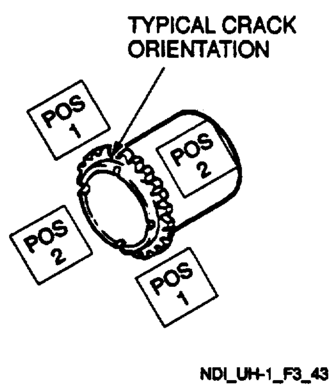


Figure 3-43. Tail Rotor Gearbox Inner Coupling

3.43.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.43.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.43.4 Backup Method. None required.

3.43.5 System Securing. Clean the tail rotor inner coupling thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor inner coupling requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.44 TAIL ROTOR GEARBOX OUTER COUPLING (MT).

3.44.1 Description (Figure 3-1. Index No. 44). A gearbox at the top of the tailboom vertical fin provides a 90 degree change in the direction of drive and a 2.6: 1 speed reduction between input driveshaft and output shaft. The tail rotor is mounted on the output shaft. The gearbox consists of mating input and output gear quill assemblies set into a gear case provided with a vented oil filter cap, an oil level sight gage, and a magnetic chip detector. The input quill has a flexible coupling for attachment of the driveshaft. The flexible coupling consists of an inner and outer coupling assembly.

3.44.2 Defects. This inspection is to verify crack indications found visually in the tail rotor gearbox outer coupling.

3.44.3 Primary Method. Magnetic Particle.

3.44.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

3.44.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor gearbox outer coupling removed in accordance with the applicable technical manuals listed in Table 1-1.

3.44.3.3 Access. Not applicable.

3.44.3.4 Preparation of Part. The tail rotor outer coupling shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.44.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.44.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-44.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.44.3.8.

f. Repeat steps a. through e. for position 2.

3.44.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.44.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.44.4 Backup Method. None required.

3.44.5 System Securing. Clean the tail rotor outer coupling thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor outer coupling requires installation in accordance with the applicable technical manuals listed in Table 1-1.

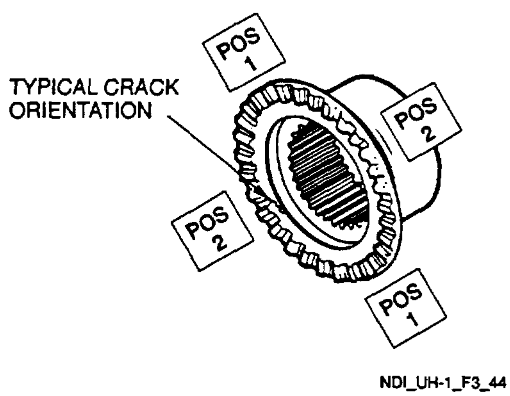


Figure 3-44. Tail Rotor Gearbox Outer Coupling

3.45 TAIL ROTOR GEARBOX SLEEVE (MT).

3.45.1 Description (Figure 3-1. Index No. 45). A gearbox at the top of the tailboom vertical fin provides a 90 degree change in the direction of drive and a 2.6: 1 speed reduction between input driveshaft and output shaft. The tail rotor is mounted on the output shaft. The gearbox consists of mating input and output gear quill assemblies set into a gear case provided with a vented oil filter cap, an oil level sight gage, and a magnetic chip detector. The input quill has a flexible coupling for attachment of the driveshaft. The flexible coupling consists of an inner and outer coupling assembly, a tail rotor gearbox sleeve, and other components.

3.45.2 Defects. This inspection is to verify crack indications found visually in the tail rotor gearbox sleeve.

3.45.3 Primary Method. Magnetic Particle.

3.45.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

3.45.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tail rotor gearbox sleeve removed in accordance with the applicable technical manuals listed in Table 1-1.

3.45.3.3 Access. Not applicable.

3.45.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.45.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.45.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-45.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 3.45.3.8.
f. Repeat steps a. through e. for position 2.

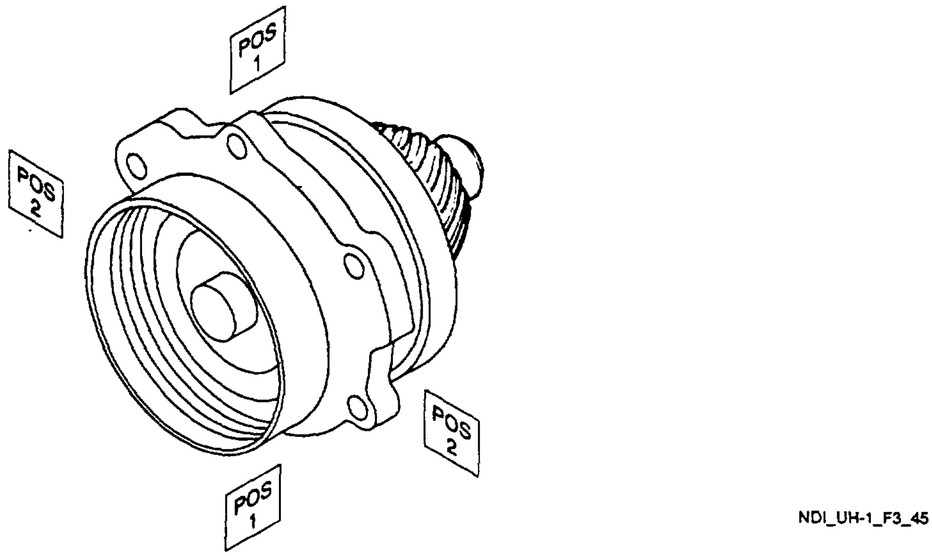


Figure 3-45. Tail Rotor Gearbox Sleeve

3.45.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.45.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.45.4 Backup Method. None required.

3.45.5 System Securing. Clean the tail rotor gearbox sleeve thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor gearbox sleeve requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.46 TRANSMISSION LIFT LINK (MT).

3.46.1 Description (Figure 3-1, Index No. 46). A lift link and five pylon isolation mounts are used to attach the transmission to the helicopter fuselage. The forged steel lift link is connected between the transmission support case and a fuselage beam.

3.46.2 Defects. Defects can occur anywhere on the surface of the lift link. No cracks are allowed.

3.46.3 Primary Method. Magnetic Particle.

3.46.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

3.46.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the lift link shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.46.3.3 Access. Access is through the pylon door. (Figure 1-4, Item 3) 3.46.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

3.46.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.46.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 3-46.

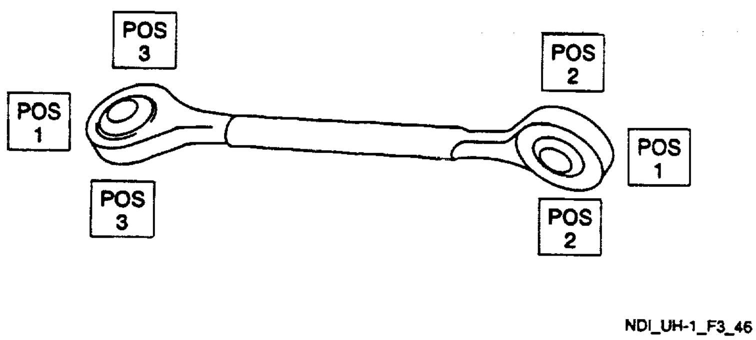


Figure 3-46. Transmission Lift Link

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 3.46.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

3.46.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

3.46.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

3.46.4 Backup Method. None required.

3.46.5 System Securing. Clean the lift link thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The lift link, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the pylon door as required.

SECTION IV
AIRFRAME AND LANDING GEAR GROUP

4. GENERAL.

4.1 CONTENTS. The airframe and landing gear group inspection items covered in this section are those critical items of the UH-1 helicopter series listed in the Airframe and Landing Gear Group Inspection Index (Table 4-1). Corresponding inspection figures and applicable text paragraphs are listed opposite each inspection item. The index number for each item may be used to locate it in Figure 4-1 .

Table 4-1. Airframe and Landing Gear Group Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Honeycombed Structures with Metallic Covering	BT	4.2	4-2
3	Honeycomb Structures with Non-Metallic Covering	BT	4.3	4-3
4	Forward Fuselage Metal Structures	ET	4.4	4-4
5	Center Service Deck Panel	BT	4.5	4-5
6	Center Service Deck, Hanger Bearing Brace Assembly, and Main Beam Caps	ET	4.6	4-6
7	Aft Fuselage Structural Tube	ET	4.7	4-7
8	Reinforced Floor Mounting Plates and Base Assembly	ET	4.8	4-8
9	Transmission and Engine Cowling	ET	4.9	4-9
10	Anti-Collision Light Mount	ET	4.10	4-10
11	Lift Beam Cap and Adjacent Structure	ET	4.11	4-11
12	Friction Damper Support, Clip, Retaining Clip, and Mount Assembly	ET	4.12	4-12
13	Friction Damper Mount Assembly	ET	4.13	4-13
14	Aft Landing Gear Attachments	ET	4.14	4-14
15	Crew Door Hinges	ET	4.15	4-15
16	Hinged Panel and Hinges	ET	4.16	4-16
17	Hinged Panel Assembly Hardware	PT	4.17	4-17
18	Cargo Door	ET	4.18	4-18
19	Cargo Door Retainers and Retainer Strap	ET	4.19	4-19

Table 4-1. Airframe and Landing Gear Group Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
20	Passenger Step	PT	4.20	4-20
21	Paratroop Static Line Fitting and Compression Tube	ET	4.21	4-21
22	Jack and Mooring Fittings	MT	4.22	4-22
23	Standard Crew Seat	ET	4.23	4-23
24	Mission Operator Seats	ET	4.24	4-24
*25	Engine Mounts	MT	4.25	4-25
*26	Engine Mount Fittings	MT	4.26	4-26
27	Engine Deck Fittings	MT	4.27	4-27
*28	Pillow Blocks	MT	4.28	4-28
29	Exhaust Tailpipe and Duct Assemblies	PT	4.29	4-29
*30	Bolts, Rod Ends, Turnbuckles, Rods, and Pins	MT	4.30	4-30
*31	Tailboom and Fuselage Attach Fittings	ET	4.31	4-31
*32	Elevator Assembly Support Fittings	ET	4.32	4-32
*33	Elevator Horn Assembly	ET	4.33	4-33
*34	Intermediate Gearbox Support Installation	ET	4.34	4-34
35	Tailboom Structure	ET	4.35	4-35
*36	Ninety Degree Gearbox Support Fitting	ET	4.36	4-36
37	Vertical Fin	PT	4.37	4-37
*38	Landing Gear Cross Tubes	UT	4.38	4-38
39	Skid Tube Saddles	ET	4.39	4-39

NOTE: *indicates Flight Safety Part.

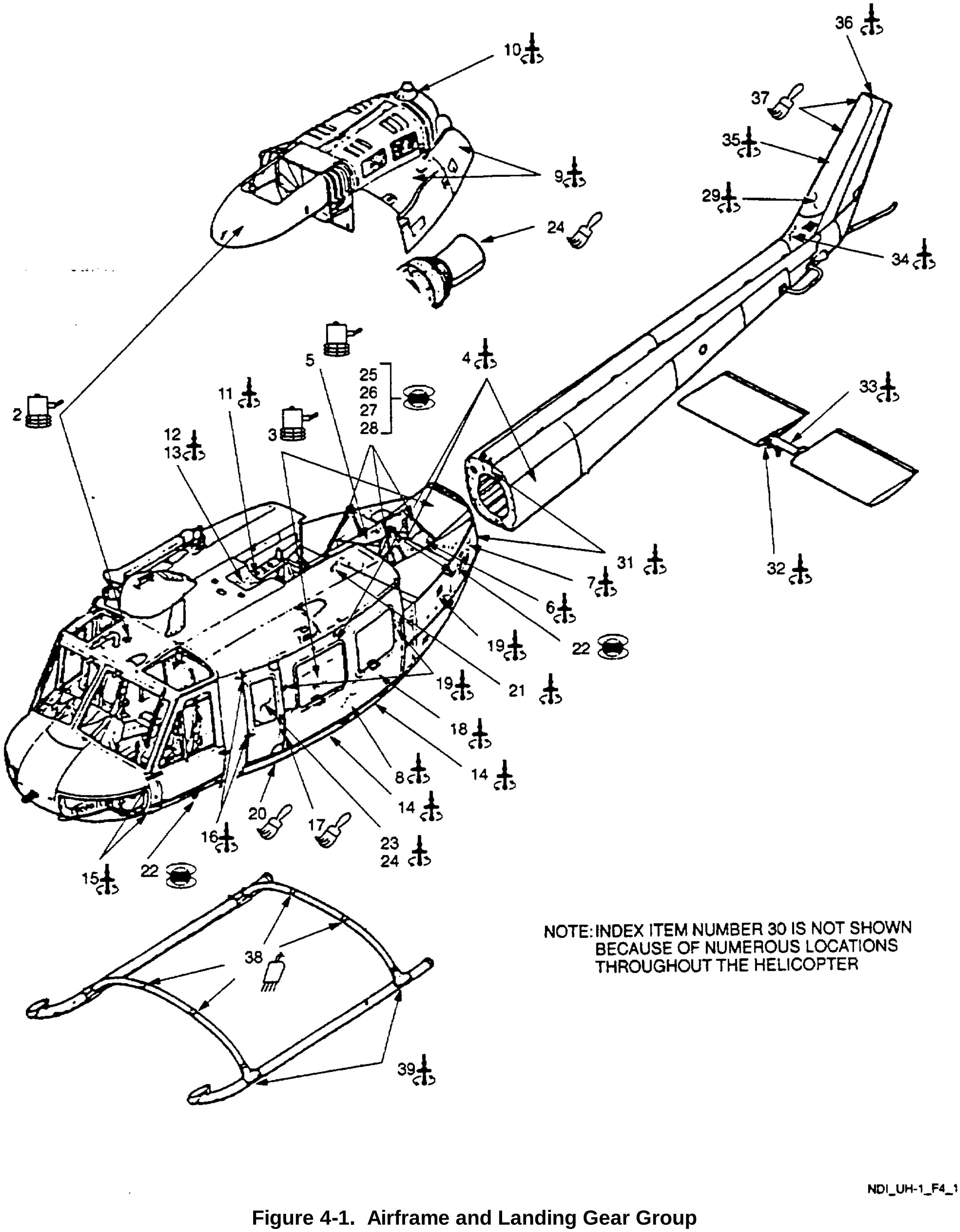


Figure 4-1. Airframe and Landing Gear Group

4.2 HONEYCOMB STRUCTURES WITH METALLIC COVE RING (BT).

4.2.1 Description (Figure 4-1. Index No. 2). This inspection is applicable to honeycomb structures with metallic covering. The structural assembly components identified for inspection are fuselage skins, cabin floor panels, engine, and transmission cowling.

4.2.2 Defects. Perform the NDI method contained herein on the assembly components listed above for the primary purpose of verification of void indications identified by visual inspection.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions of voids are given, such as lack of adhesive, gas pocket, misfit, etc. However, this manual makes no distinction among these, instead grouping them all under one general term ("void").

4.2.3 Primary Method. Bond Testing.

4.2.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Bond Test Unit
b. Probe, Mechanical Impedance Analysis
c. Probe Holder
d. Cable Assembly
e. Test Block, metal honeycomb with skin thickness closest to that of the panel to be inspected ,
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.2.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1.

4.2.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.2.3.4 Preparation of Part. The components shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4. Do not remove paint.

4.2.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1.

a. Attach cable and probe to Bondmaster. Protect probe with Teflon tape and install in probe holder.

b. Turn on Bondmaster, press SPCL, and make the following adjustments:

H Pos	- 40%
V Pos	- 80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY PHASE.

d. Place probe on the good area of test blocks and press GOOD PART. Do this several times while moving the probe to different spots in the good area of the standard. Note the video signature for each. Select and enter a representative good area by pressing GOOD PART one last time.

e. Place probe on void area of test block and press BAD PART. Do this several times while moving the probe slightly to different positions within the void area. Select and enter a position that gives a strong difference between good and void areas. Use DIFF soft key to observe difference between good and bad areas of test block.

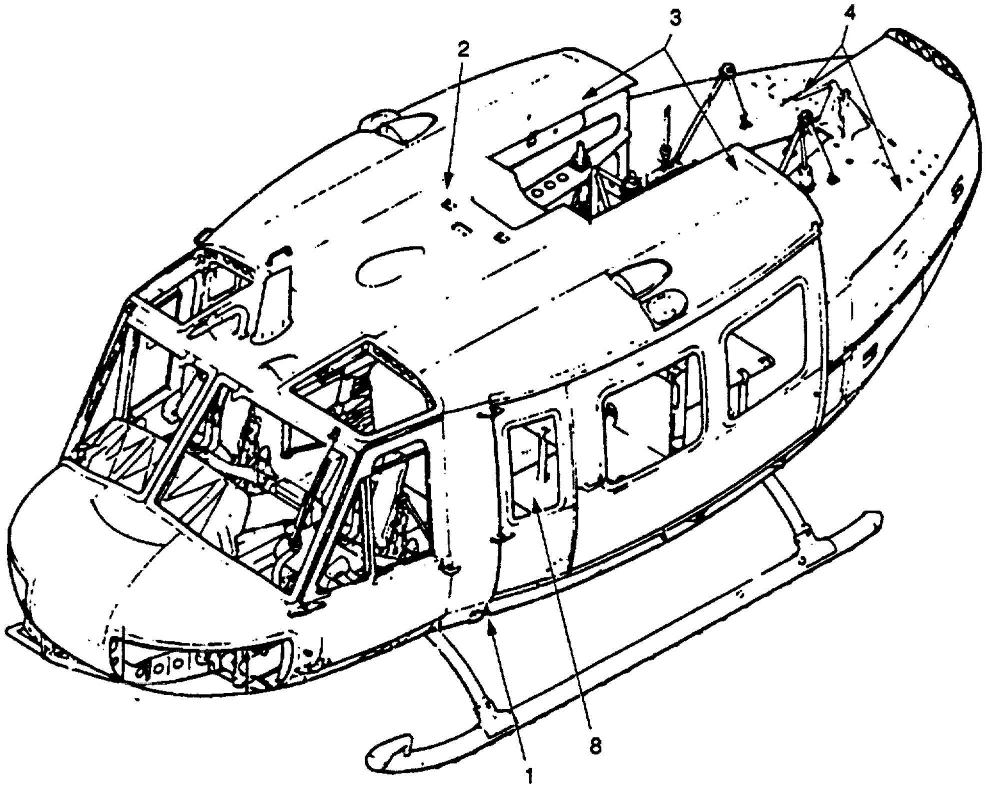
NOTE

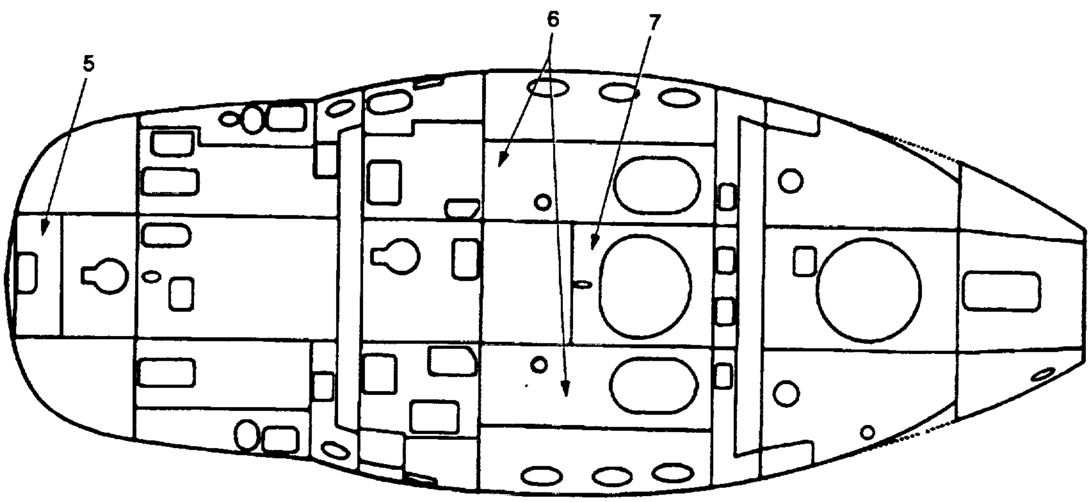
If, during setup, the flying spot deflects upward or to the side when the probe passes over the bad part instead of the desired down deflection toward the alarm box, press SPCL and toggle to a different phase setting (90,180, or 270), and repeat steps d. and e. Continue to try phase setting until the flying spot moves in the desired down direction.

f. Place probe on good area of test block and press RUN. Flying spot should be near the top-center of the ACTIVE screen. If not, press NULL. Slide probe from good to void area and note response from flying spot. This response should provide both amplitude (vertical) and phase (horizontal) movement. The default gate/alarm setting may be incorrect for this setup. Turn off or reset gate/alarm as desired.

g. The Bondmaster is programmed to automatically set test parameters to a start-up or initial bond test. By following the steps outlined above, adjustments to the FREQ, GAIN, and ALARM can help to refine the selectivity in locating defects among differing composite materials.

4.2.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6. Place probe on panel in location where test for void is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. Inspect for voids in the inspection areas shown in Figures 4-2.





BOTTOMS SKINS FORWARD FUSELAGE

1. POST, CENTER RH
2. ROOF, CENTER
3. ROOF, CENTER LH AND RH
* 4. SERVICE DECK OUTER SKIN
5. DOOR
6. PANEL (OUTER SKIN)
7. PANEL
8. CABIN

* TITANIUM. ALL OTHERS ARE ALUMINUM.

NDI_UH-1_F4_2

Figure 4-2. Honeycomb Structures with Metallic Covering

NOTE

This setup is very sensitive to thin skin-to-core bonding. If the panel skin is 0.020 inch thick or less, move the probe slowly over the skin and note the slight amplitude change (bounce) as the probe senses alternately the honeycomb cell nodes and cell walls. Be sure of panel configuration. Panel edges and attachment points may not be bonded structure and do not normally contain honeycomb. These areas will respond similarly to voids with the Bondmaster. Panels having rigidized skins are more easily scanned using wide Teflon tape on the probe holder.

Refer to Bond Test Method, paragraph 1.4.6.

Place probe on blade in location where test for void is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. Inspect the areas as shown in Figure 4-2.

4.2.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

NOTE

Attention shall be directed to accurately mark the boundaries of all voids. These markings will be needed to determine acceptance or rejection criteria in accordance with applicable technical manuals.

4.2.4 Backup Method. None required.

4.2.5 System Securing. Secure all access panels in accordance with the applicable technical manual listed in Table 1-1.

4.3 HONEYCOMB STRUCTURES WITH NON-METALLIC COVERING (BT).

4.3.1 Description (Figure 4-1. Index No. 3). This inspection is applicable to honeycomb structure with non-metallic covering. The structural assembly components identified for inspection are fairings, panels, doors, and service decks.

4.3.2 Defects. Perform the NDI method contained herein on the assembly components listed above for the primary purpose of verification of void indications identified by visual inspection.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions of voids are given, such as lack of adhesive, gas pocket, misfit, etc. However, this manual makes no distinction among these, instead grouping them all under one general term ("void").

4.3.3 Primary Method. Bond Testing.

4.3.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Bond Test Unit
b. Probe, Mechanical Impedance Analysis
c. Probe Holder
d. Cable Assembly
e. Test Block, Composite Defect Standard #1
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.3.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1.

4.3.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstalnds, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.3.3.4 Preparation of Part. The components shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4. Do not remove paint.

4.3.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1.

a. Attach cable and probe to Bondmaster. Protect probe with Teflon tape and install in probe holder.
b. Turn on Bondmaster, press SPCL, and make the following adjustments:

H Pos	- 40%
V Pos	-80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY - PHASE.
d. Place probe on the good area of test blocks and press GOOD PART. Do this several times while moving the probe to different spots in the good area of the standard. Note the video signature for each. Select and enter a representative good area by pressing GOOD PART one last time.

e. Place probe on void area of test block and press BAD PART. Do this several times while moving the probe slightly to different positions within the void area. Select and enter a position that gives a strong difference between good and void areas. Use DIFF soft key to observe difference between good and bad areas of test block.

NOTE

If, during setup, the flying spot deflects upward or to the side when the probe passes over the bad part instead of the desired down deflection toward the alarm box, press SPCL and toggle to a different phase setting (90, 180, or 270), and repeat steps d. and e. Continue to try phase setting until the flying spot moves in the desired down direction.

f. Place probe on good area of test block and press RUN. Flying spot should be near the top-center of the ACTIVE screen. If not, press NULL. Slide probe from good to void area and note response from flying spot. This response should provide both amplitude (vertical) and phase (horizontal) movement. The default gate/alarm setting may be incorrect for this setup. Turn off or reset gate/alarm as desired.

g. The Bondmaster is programmed to automatically set test parameters to a start-up or initial bond test. By following the steps outlined above, adjustments to the FREQ, GAIN, and ALARM can help to refine the selectivity in locating defects among differing composite materials.

4.3.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6.

Place probe on blade in location where test for void is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. Inspect the areas as shown in Figure 4-3.

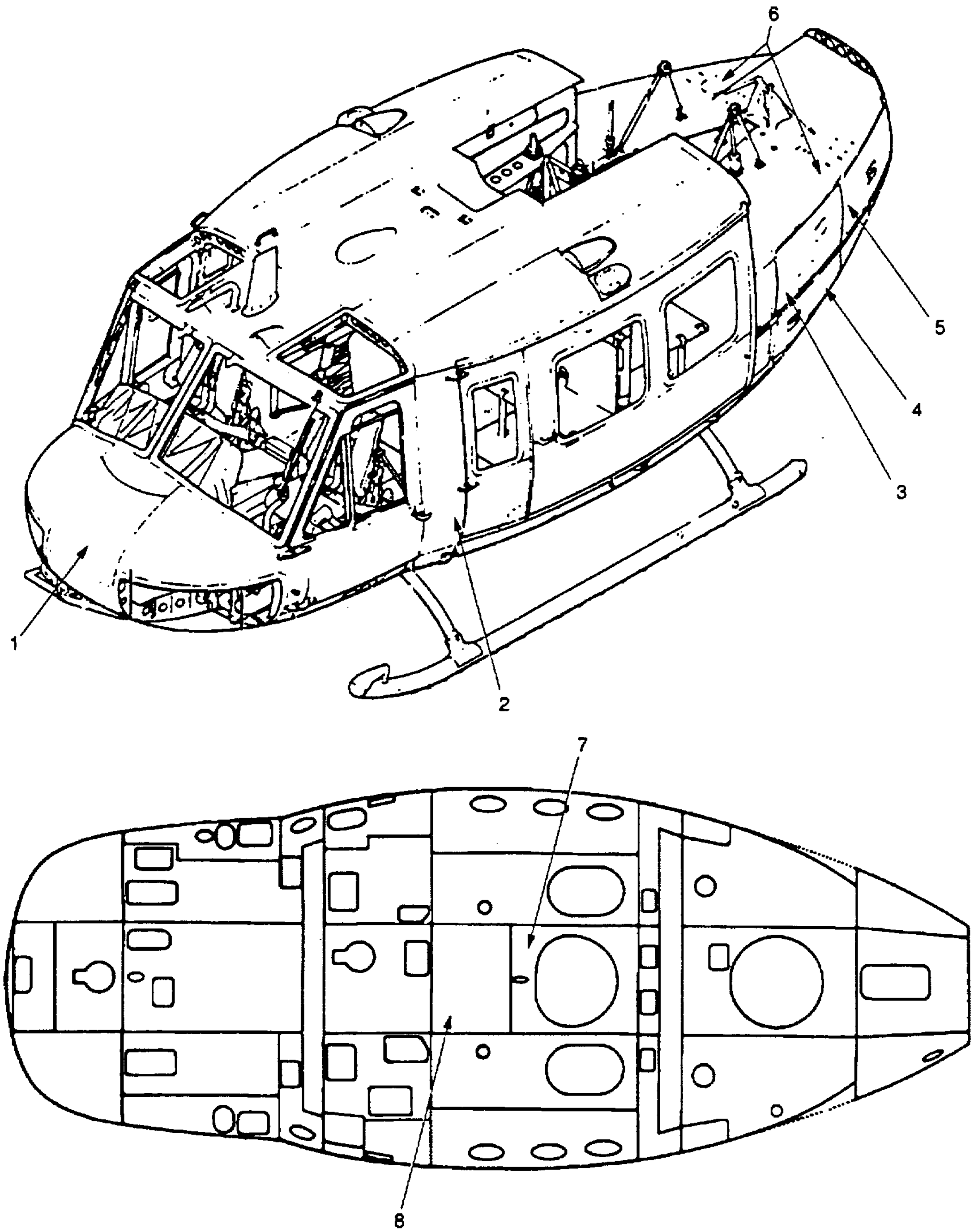
4.3.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

NOTE

Attention shall be directed to accurately mark the boundaries of all voids. These markings will be needed to determine acceptance or rejection criteria in accordance with applicable technical manuals.

4.3.4 Backup Method. None required.

4.3.5 System Securing. Secure all access panels in accordance with the applicable technical manual listed in Table 1-1.



BOTTOMS SKINS FORWARD FUSELAGE

1. NOSE DOOR
2. POST, INNER LH AND RH
3. DOOR, LH AND RH
4. DOOR, LH AND RH
5. DOOR, LH AND RH
6. SERVICE DECK INNER SKIN
7. PANEL, INNER SKIN
8. PANEL

NDI_UH-1_F4_3

Figure 4-3. Honeycomb Structures with Non-Metallic Covering

4.4 FORWARD FUSELAGE METAL STRUCTURES (ET).

4.4.1 Description (Figure 4-1. Index No.4). This inspection is applicable to all forward fuselage metallic skins, longerons, bulkheads, stringers, spars, and main beams.

4.4.2 Defects. Perform the NDI method contained herein on the forward fuselage components listed above for the purpose of (1) confirmation of crack indications identified by visual inspection; (2) verification that dents, scratches, or gouges do not conceal cracks; and (3) locating the ends of confirmed cracks so that stop drilling may be performed.

4.4.3 Primary Method. Eddy Current.

4.4.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Reference Block, three-notched titanium (0.008, 0.020, and 0.040 EDM notches)
g. Reference Block; three-notched magnesium (0.008, 0.020, and 0.040 EDM notches)
h. Teflon Tape, refer to Table 1-8
i. Aircraft Marking Pencil, refer to Table 1-8

4.4.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the metal structures shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.4.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate all applicable access panels, doors, and fairings.

WARNING
Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.4.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.4.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9ell.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	-(56° aluminum and magnesium) (30° titanium)		
Probe drive	- mid		
LPF	-100		
HPF	-0		
Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.4.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-4.

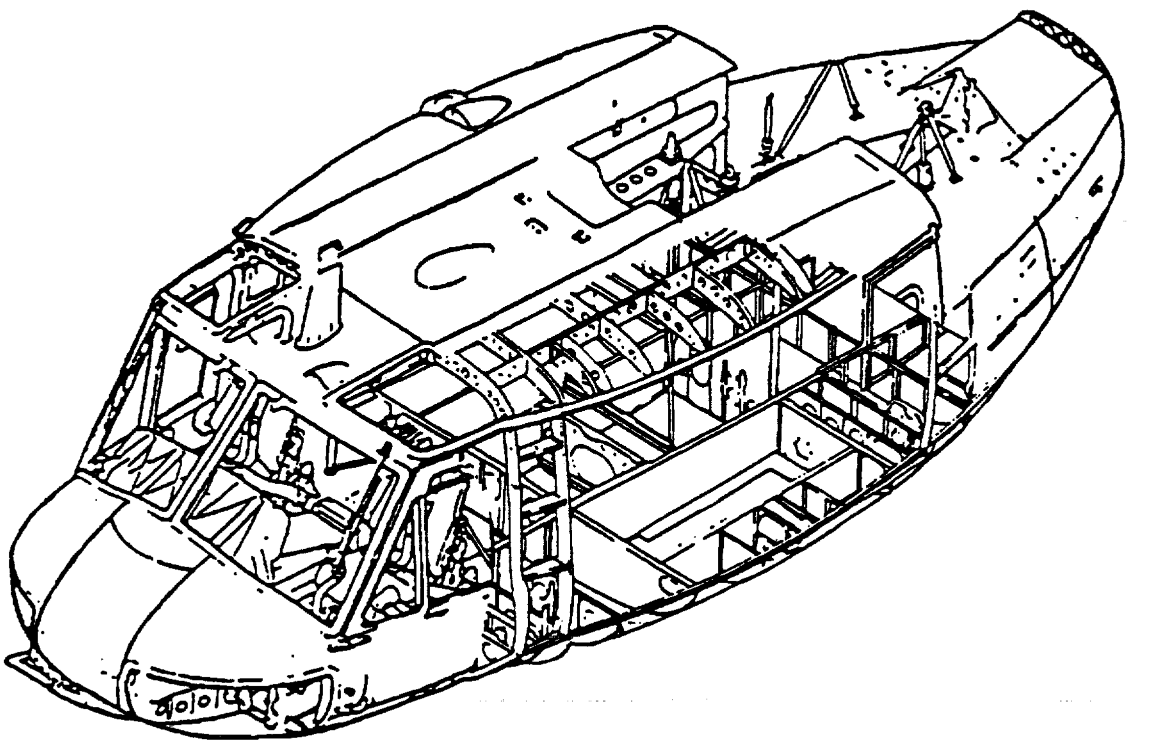


Figure 4-4. Forward Fuselage Metal Structures

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.4.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.4.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.4.3.7 Marking and Recording of inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.4.4 Backup Method. None required.

4.4.5 System Securing. Metal structures, if removed, require installation in accordance with technical manuals listed in Table 1-1. Secure access panels, doors, and fairings as required.

4.5 CENTER SERVICE DECK PANEL (BT).

4.5.1 Description (Figure 4-1. Index No. 5). The center service deck panel is the structural component to which the engine and transmission attach. The structure is comprised of aluminum honeycomb sandwiched between titanium outer skin and fiberglass inner skin.

4.5.2 Defects. Inspect the entire deck paying particular attention to void damage around the edges of the large hole in canted portion of the center service deck, edges at center fuel access door, and in the area of the aft engine mount fittings at station 200.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions of voids are given, such as lack of adhesive, gas pocket, misfit, etc. However, this manual makes no distinction among these, instead grouping them all under one general term ("void").

4.5.3 Primary Method. Bond Testing.

4.5.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Bond Test Unit

b. Probe, Mechanical Impedance Analysis

c. Probe Holder

d. Cable Assembly

e. Test Block, metal honeycomb with skin thickness closest to that of the panel to be inspected

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.5.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1.

4.5.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.5.3.4 Preparation of Part. The components shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4. Do not remove paint.

4.5.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1.

a. Attach cable and probe to Bondmaster. Protect probe with Teflon tape and install in probe holder.

b. Turn on Bondmaster, press SPCL, and make the following adjustments:

H Pos	- 40%
V Pos	- 80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY PHASE.

d. Place probe on the good area of test blocks and press GOOD PART. Do this several times while moving the probe to different spots in the good area of the standard. Note the video signature for each. Select and enter a representative good area by pressing GOOD PART one last time.

e. Place probe on void area of test block and press BAD PART. Do this several times while moving the probe slightly to different positions within the void area. Select and enter a position that gives a strong difference between good and void areas. Use DIFF soft key to observe difference between good and bad areas of test block.

NOTE

If, during setup, the flying spot deflects upward or to the side when the probe passes over the bad part instead of the desired down deflection toward the alarm box, press SPCL and toggle to a different phase setting (90, 180, or 270), and repeat steps d. and e. Continue to try phase setting until the flying spot moves in the desired down direction.

f. Place probe on good area of test block and press RUN. Flying spot should be near the top-center of the ACTIVE screen. If not, press NULL. Slide probe from good to void area and note response from flying spot. This response should provide both amplitude (vertical) and phase (horizontal) movement. The default gate/alarm setting may be incorrect for this setup. Turn off or reset gate/alarm as desired.

g. The Bondmaster is programmed to automatically set test parameters to a start-up or initial bond test. By following the steps outlined above, adjustments to the FREQ, GAIN, and ALARM can help to refine the selectivity in locating defects among differing composite materials.

4.5.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6.

Place probe on blade in location where test for void is desired and press NULL. Move probe from good to suspect area and note response. A strong amplitude change and phase shift similar to the standard is indicative of a void. Inspect the areas as shown in Figure 4-5.

4.5.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

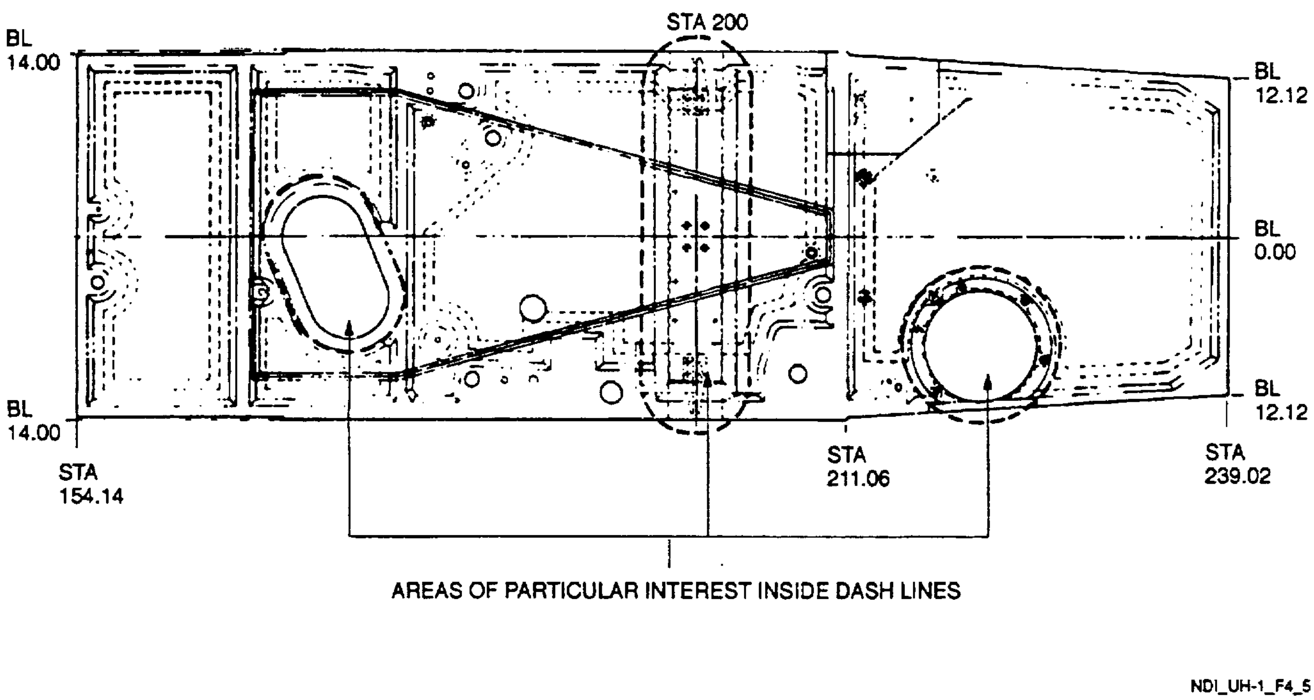


Figure 4-5. Center Service Deck Panel

NOTE

Attention shall be directed to accurately mark the boundaries of all voids. These markings will be needed to determine acceptance or rejection criteria in accordance with applicable technical manuals.

4.5.4 Backup Method. None required.

4.5.5 System Securing. Secure all access panels in accordance with the applicable technical manual listed in Table 1-1.

4.6 CENTER SERVICE DECK, HANGER BEARING BRACE ASSEMBLY, AND MAIN BEAM CAPS (ET).

4.6.1 Description (Figure 4-1. Index No.6). This inspection is applicable to the center service deck, hanger bearing brace assembly, and main beam caps at engine mount locations after the center service deck has been removed.

4.6.2 Defects. This inspection is to verify crack indications found visually in the center service deck, hanger bearing brace assembly, engine mount main beam caps, and surrounding areas.

4.6.3 Primary Method. Eddy Current.

4.6.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.6.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the hanger bearing brace assembly and main beam caps removed in accordance with the applicable technical manuals listed in Table 1-1.

4.6.3.3 Access. Not applicable.

4.6.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.6.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		

Probe drive	- mid
LPF	- 100
HPF	- 0
H Pos	- 80%
V Pos	-20%

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.6.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-6.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar t6 the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.6.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.6.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.6.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.6.4 Backup Method. None required.

4.6.5 System Securing. The hanger brace assembly and main beam caps require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.7 AFT FUSELAGE STRUCTURAL TUBE (ET).

4.7.1 Description (Figure 4-1. Index No. 7). The aft fuselage structural tube is used as a structural support for the aft fuselage.

4.7.2 Defects. This inspection is to verify crack indications found visually in the aft fuselage structural tube and surrounding areas. No cracks are allowed.

4.7.3 Primary Method. Eddy Current.

4.7.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

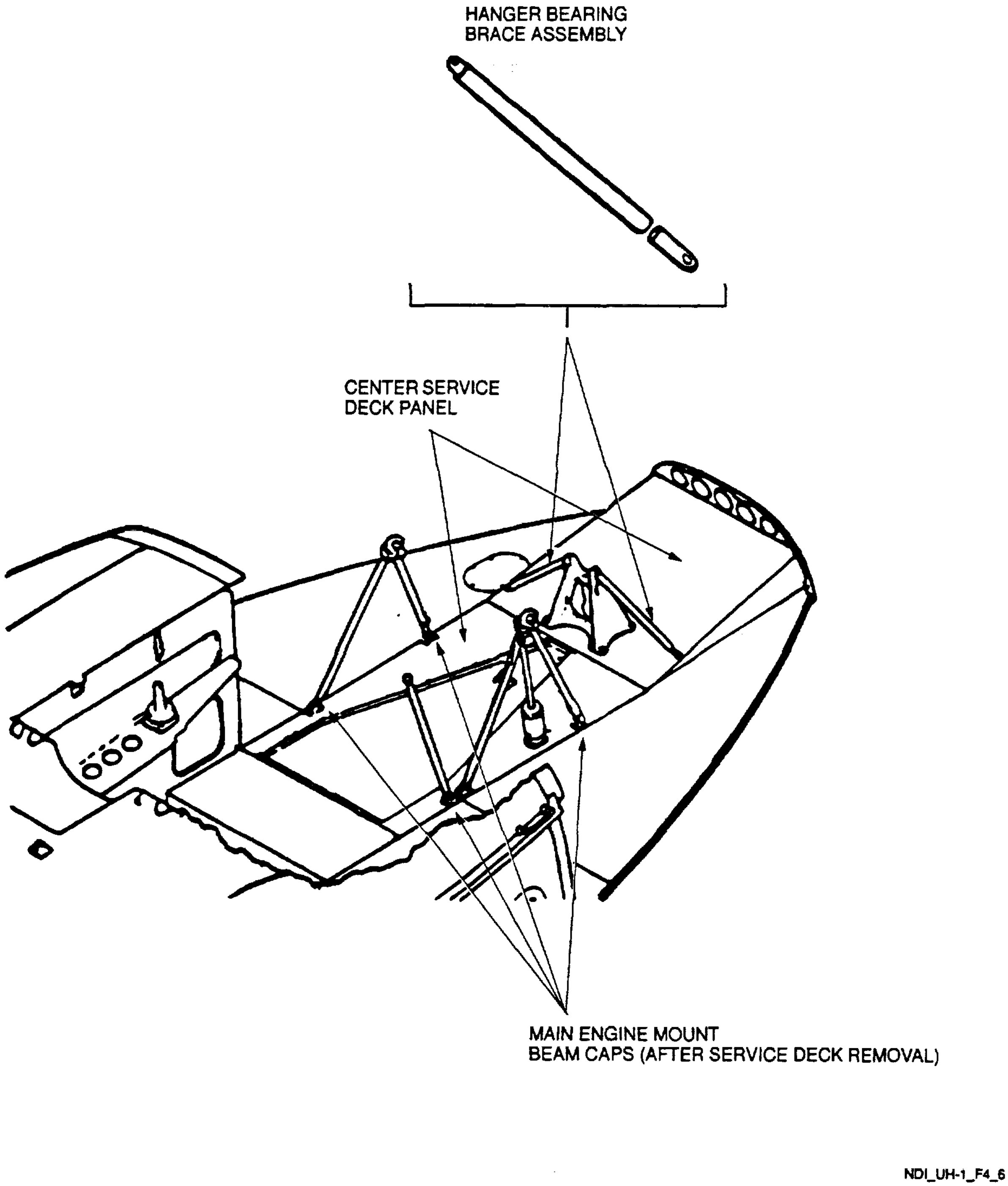


Figure 4-6. Center Service Deck, Hanger Bearing Brace Assembly, and Main Beam Cap

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.7.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the structural tube shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.7.3.3 Access. Access is through the engine oil tank door. (Figure 1-4, Item 37) 4.7.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.7.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e[11].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.7.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-7.

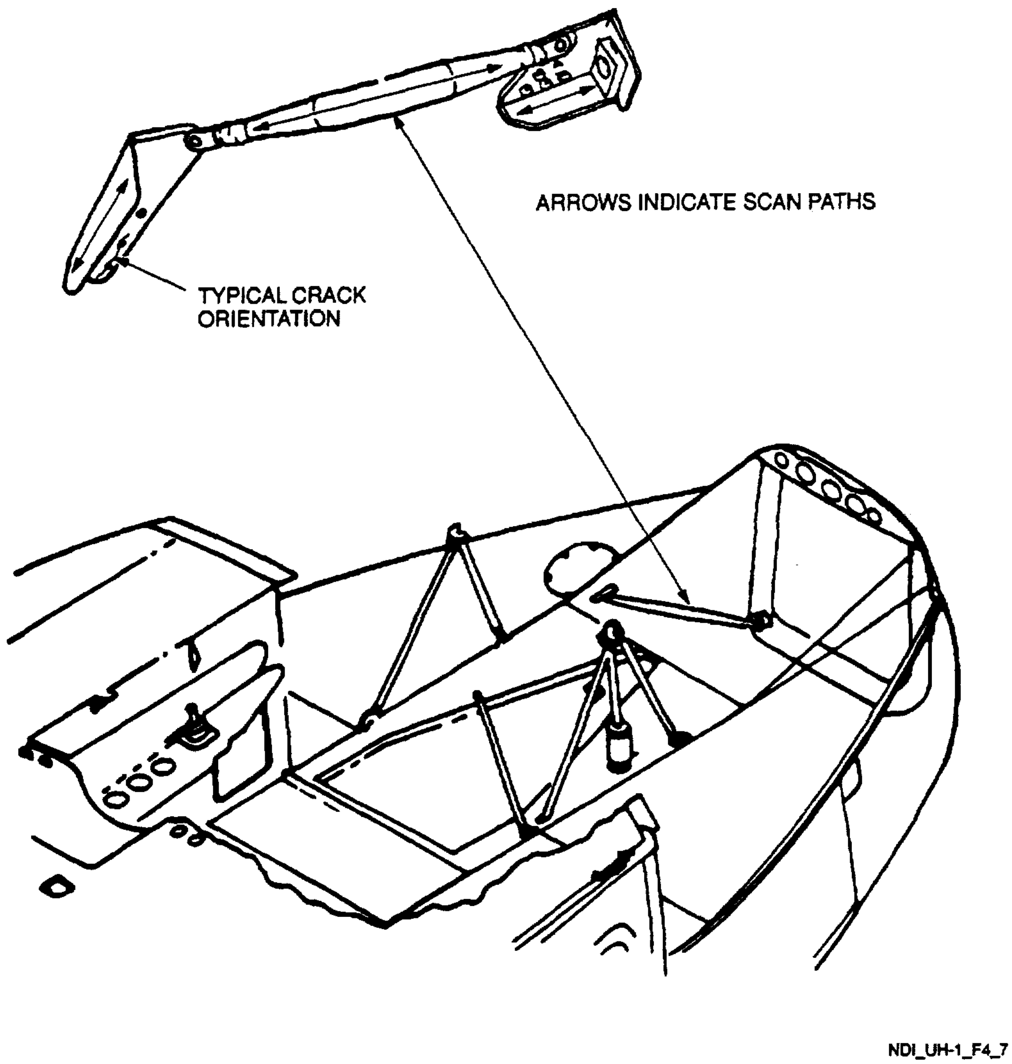


Figure 4-7. Aft Fuselage Structural Tube

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.7.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.7.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.7.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.7.4 Backup Method. None required.

4.7.5 System Securing. The aft fuselage structural tube, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the engine oil tank door as required.

4.8 REINFORCED FLOOR MOUNTING PLATES AND BASE ASSEMBLY (ET).

4.8.1 Description (Figure 4-1. Index No.8). The reinforced floor mounting plates are used to support the mission equipment and operator's seat for Position 1 and 2 for the Radio Countermeasures System.

4.8.2 Defects. This inspection is to verify crack indications found visually in the reinforced floor mounting plates, base assembly, and surrounding areas.

4.8.3 Primary Method. Eddy Current.

4.8.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.8.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the floor mounting plates and base assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.8.3.3 Access. Remove mission operator seat assemblies.

4.8.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.8.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows: (1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.8.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-8.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.8.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.8.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.8.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.8.4 Backup Method. None required.

4.8.5 System Securing. The reinforced floor mounting plates and base assembly, if removed, re quire installation in accordance with the applicable technical manuals listed in Table 1-1.

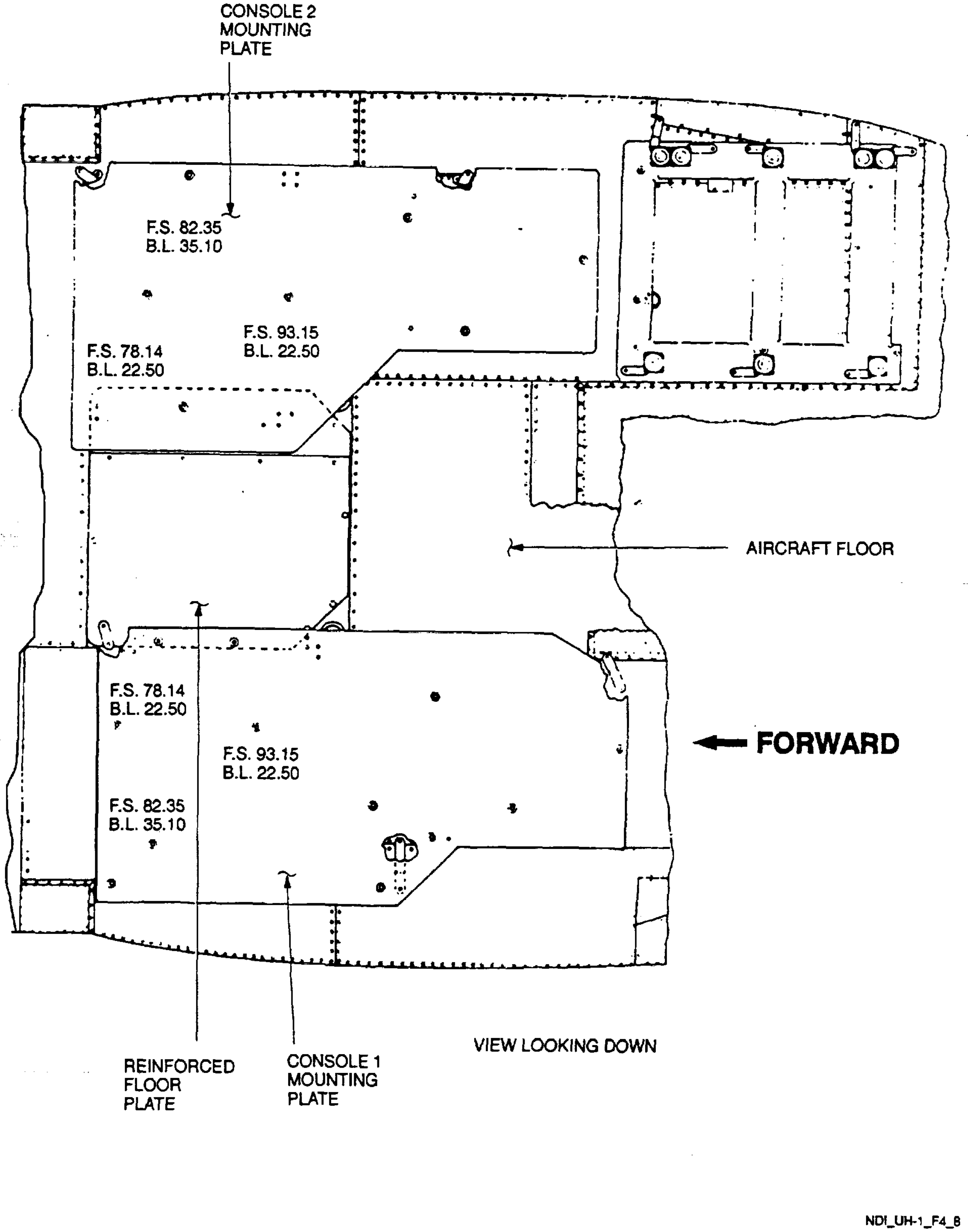


Figure 4-8. Reinforced Floor Mounting Plates and Base Assembly

4.9 TRANSMISSION AND ENGINE COWLING (ET).

4.9.1 Description (Figure 4-1. Index No. 9). A one piece transmission cowling is secured by three latches. The engine compartment is covered by side and upper cowling assemblies. Access to transmission and engine is through those cowlings. The tailpipe fairing is part of the aft engine cowling.

4.9.2 Defects. This inspection is to verify crack indications found visually in the transmission and engine cowling, tailpipe fairing, and surrounding areas. No cracks are allowed.

4.9.3 Primary Method. Eddy Current.

4.9.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the cowlings and fairings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.9.3.3 Access. Not applicable.

4.9.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

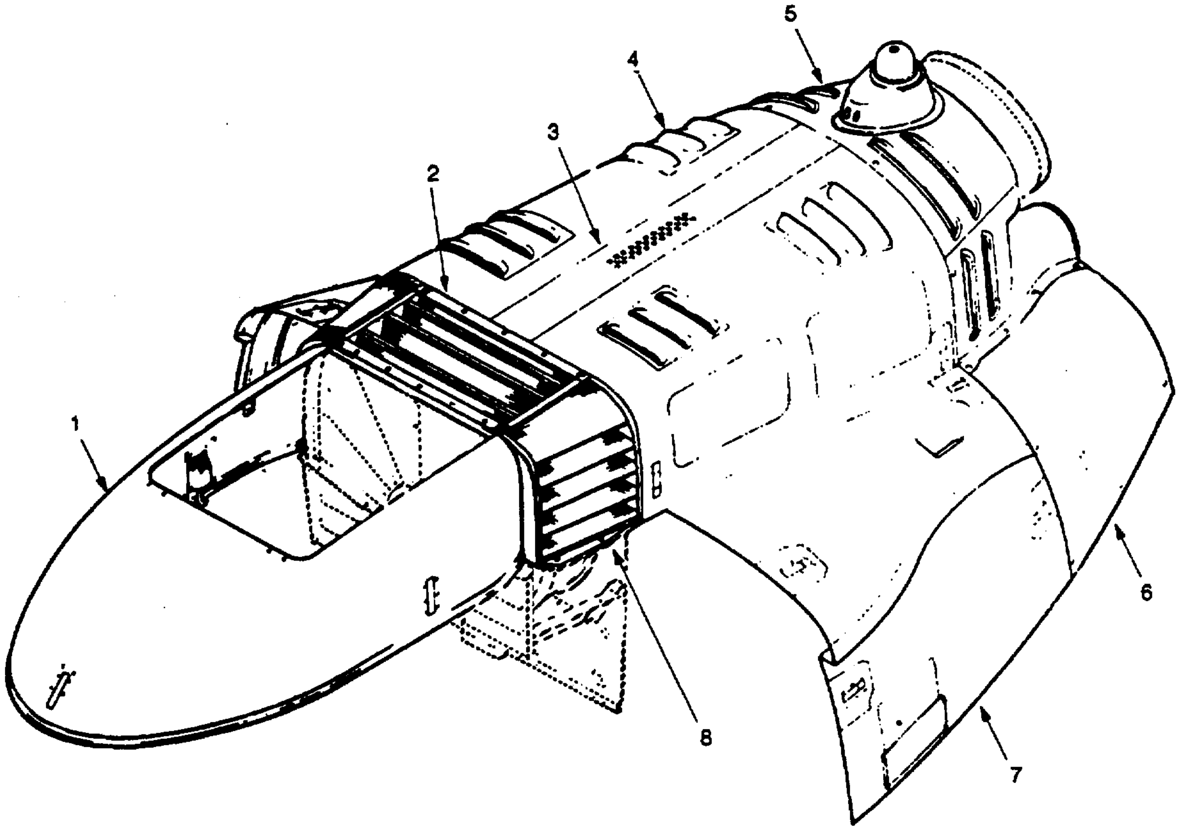
4.9.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e[11].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.9.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-9.



1. TRANSMISSION FAIRING
2. UPPER AIR INLET SCREEN
3. BEAM ASSEMBLY
4. ENGINE UPPER COWL
5. TAILPIPE UPPER FAIRING
6. TAILPIPE LOWER FAIRING
7. ENGINE LOWER COWL
8. SIDE AIR INLET SCREEN

NDI_UH-1_F4_9

Figure 4-9. Transmission and Engine Cowling

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.9.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.9.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.9.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.9.4 Backup Method. None required.

4.9.5 System Securing. The tailpipe and fairings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.10 ANTI-COLLISION LIGHT MOUNT (ET).

4.10.1 Description (Figure 4-1. Index No.10). The anti-collision light is mounted on top of the upper tailpipe fairing.

4.10.2 Defects. This inspection is to verify crack indications found visually in the anti-collision light mount and surrounding areas. No cracks are allowed.

4.10.3 Primary Method. Eddy Current.

4.10.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.10.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the anti-collision light mount shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.10.3.3 Access. Not applicable.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.10.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.10.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.10.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-10.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.10.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.10.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

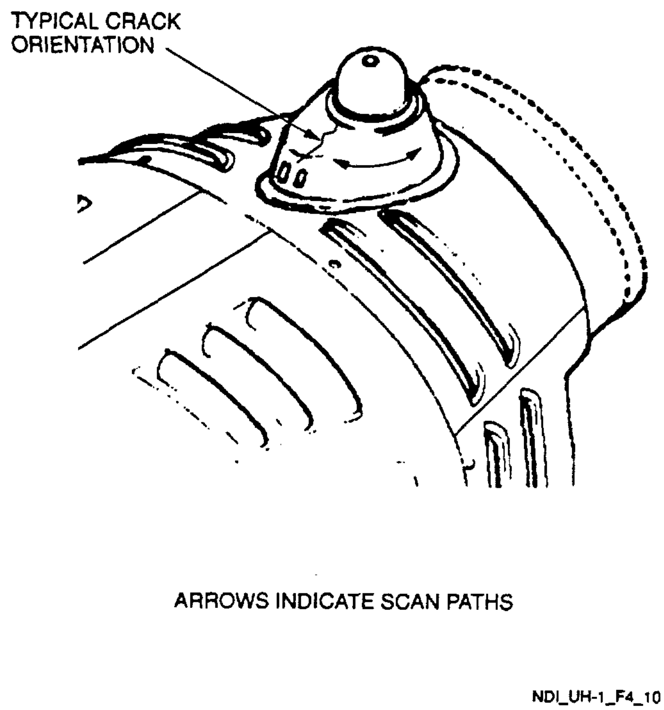


Figure 4-10. Anti-Collision Light Mount

4.10.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.10.4 Backup Method. None required.

4.10.5 System Securing. The anti-collision light mount, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.11 LIFT BEAM CAP AND ADJACENT STRUCTURE (ET).

4.11.1 Description (Figure 4-1. Index No. 11). The lift beam absorbs or carries all vertical loads induced during flight. The beam is constructed of aluminum alloy web, stiffeners, and extrusions. Fittings are installed on the beam to provide attachment points for the lift link and cargo hook.

4.11.2 Defects. This inspection is to verify crack indications found visually in the lift beam cap and adjacent structure and surrounding areas. No cracks are allowed.

4.11.3 Primary Method. Eddy Current.

4.11.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.11.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure.

4.11.3.3 Access. Access is through the pylon door. (Figure 1-4, Item 3)

4.11.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.11.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e1.
Frequency F1 - 200 KHz F2 - off
HdB - 57.0
VdB - 69.0
Rot - 56°
Probe drive - mid
LPF - 100
HPF -0
H Pos - 80%
V Pos- 20%

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

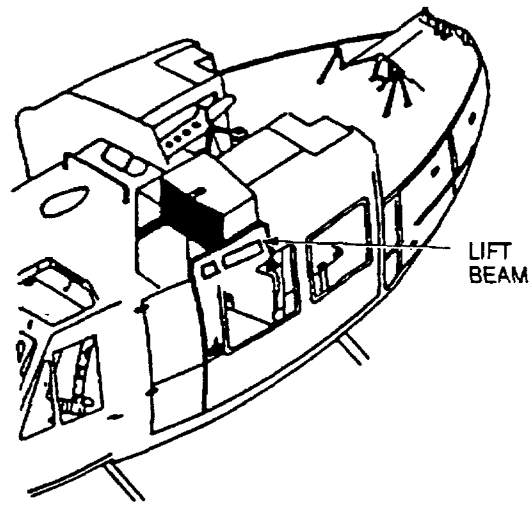
(3) Move probe overall three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.11.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-11.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.



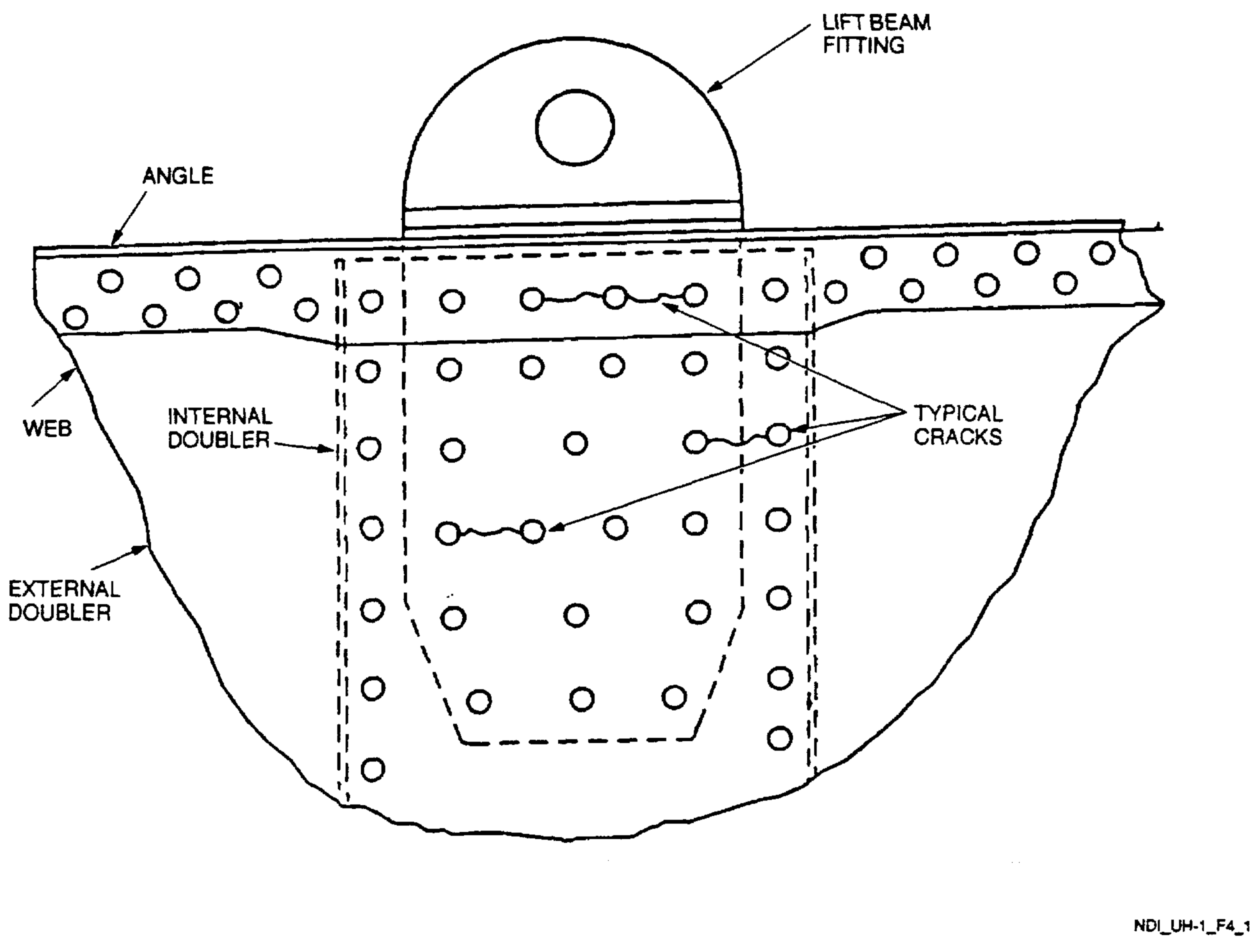


Figure 4-11. Lift Beam Cap and Adjacent Structure

NOTE

Either probe identified in paragraph 4.11.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.11.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.11.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.11.4 Backup Method. None required.

4.11.5 System Securing. Secure the pylon door as required.

4.12 FRICTION DAMPER SUPPORT, CLIP, RETAINING CLIP, A ND MOUNT ASSEMBLY (ET).

4.12.1 Description (Figure 4-1. Index No. 12). The friction damper support, clip, retaining clip, and mount assembly are used to support the transmission attachment to the airframe.

4.12.2 Defects. This inspection is to verify crack indications found visually in the friction damper support, clip, retaining clip, mount assembly, and surrounding areas. No cracks are allowed.

4.12.3 Primary Method. Eddy Current.

4.12.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the parts shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.12.3.3 Access. Access is through the transmission fairing. (Figure 1-4, Item 2)

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.12.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.12.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e".

Frequency F1	-200 KHz	F2	- off
HdB	-57.0		
VdB	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	-0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.12.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-12.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

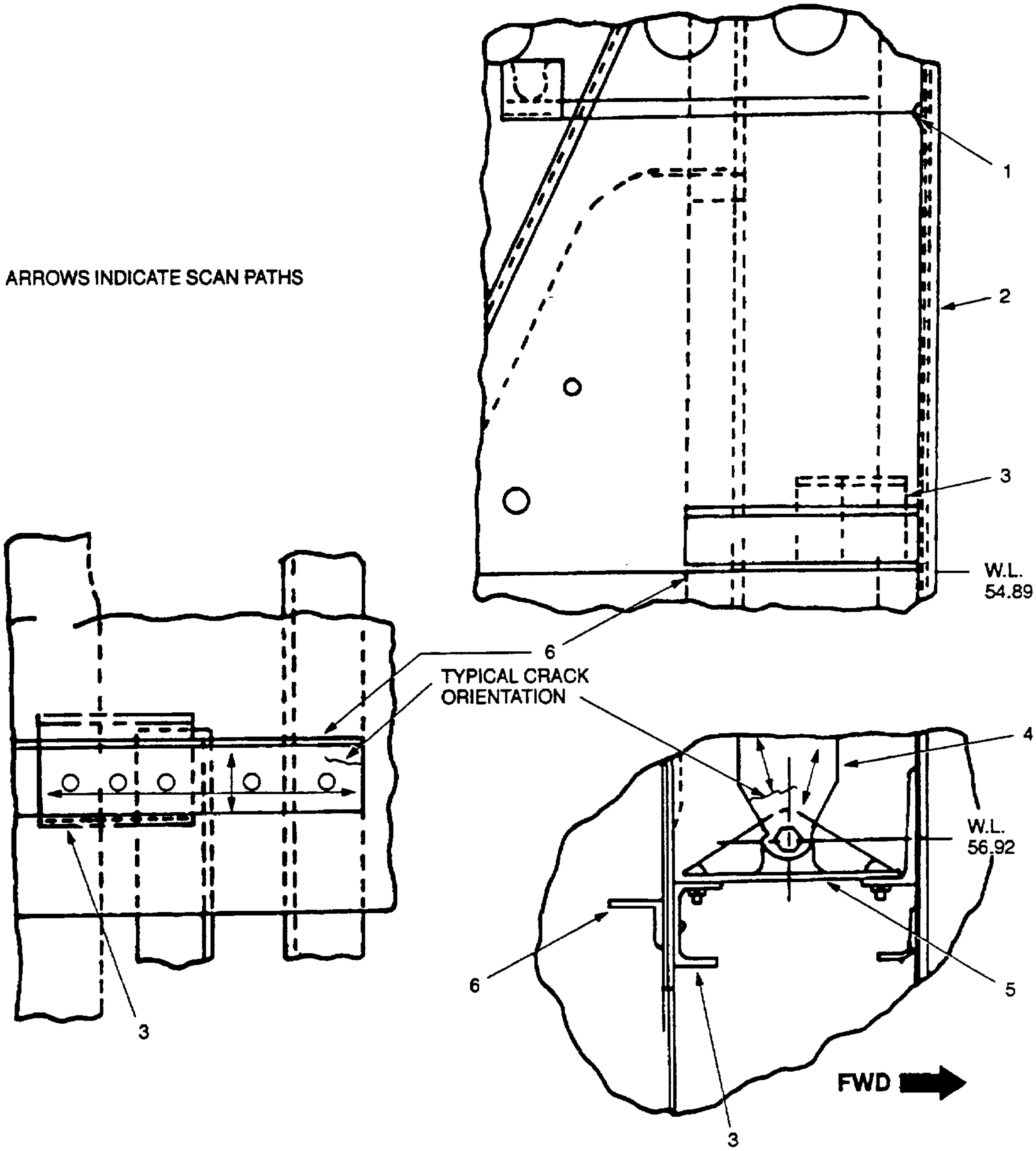
NOTE

Either probe identified in paragraph 4.12.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.12.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.12.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.12.4 Backup Method. None required.

4.12.5 System Securing. The friction damper support, clip, retaining clip, and mount assembly, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the transmission fairing as required.



1. FIFTH MOUNT FITTING
2. PYLON SUPPORT STRUCTURE
3. FRICTION DAMPER MOUNT ATTACH CLIP
4. FRICTION DAMPER
5. FRICTION DAMPER MOUNT ASSEMBLY
6. CLIP

NDI_UH-1_F4_12

Figure 4-12. Friction Damper Support, Clip, Retaining Clip, and Mount Assembly

4.13 FRICTION DAMPER MOUNT ASSEMBLY (ET).

4.13.1 Description (Figure 4-1. Index No. 13). The friction damper mount assembly is the attachment point of the transmission to the airframe.

4.13.2 Defects. This inspection is to verify crack indications found visually in the friction damper mount stiffener and support assembly. No cracks are allowed.

4.13.3 Primary Method. Eddy Current.

4.13.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three notched-aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.13.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the friction damper mount assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.13.3.3 Access. Access is through the transmission fairing. (Figure1-4,-;Item2)

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

4.13.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.13.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 560		

Probe drive	- mid
LPF	- 100
HPF	- 0
H Pos	- 80%
V Pos	- 20%

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.13.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-13.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

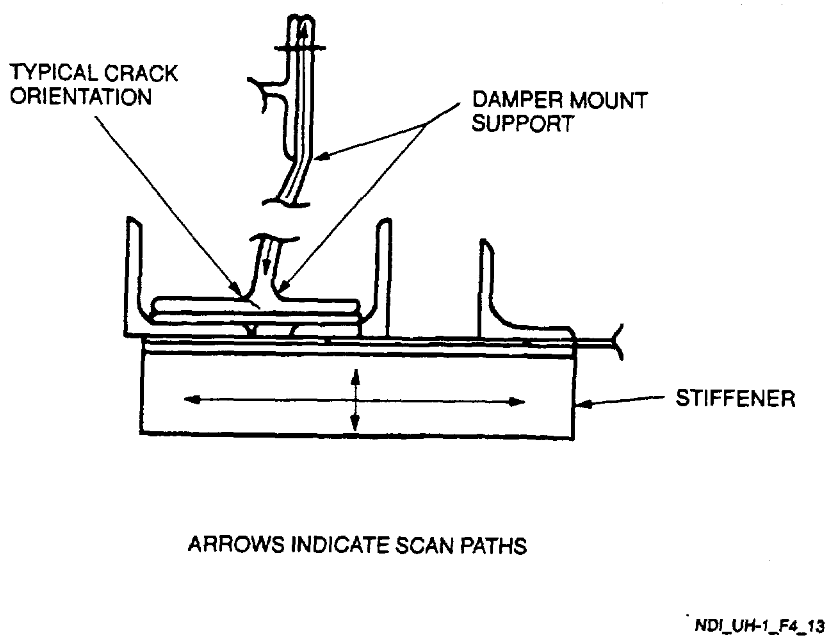


Figure 4-13. Friction Damper Mount Assembly

NOTE

Either probe identified in paragraph 4.13.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.13.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.13.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.13.4 Backup Method. None required.

4.13.5 System Securing. The friction damper mount assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the transmission fairing as required.

4.14 AFT LANDING GEAR ATTACHMENTS (ET).

4.14.1 Description (Figure 4-1. Index No. 14). The aft landing gear attachments require inspection if the landing gear reveals excessive wear of the supports resulting in looseness of the landing gear or contact with the fuselage.

4.14.2 Defects. Defects can occur anywhere on the surface of the part. No cracks are allowed.

4.14.3 Primary Method. Eddy Current.

4.14.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the aft landing gear shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.14.3.3 Access. Not applicable.

4.14.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.14.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19el1.

Frequency F1	-200 KHz	F2	- off
HdB	-57.0		
VdB	-69.0		
Rot -	-56°		
Probe drive	-mid		
LPF	-100		
HPF	-0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.14.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-14.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.14.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.14.3.5 b. (1), (2), and (3) shall be repeated each time a change is made. 4.14.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.14.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

4.14.5 System Securing. The aft landing gear attachment points, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.15 CREW DOOR HINGES (ET).

4.15.1 Description (Figure 4-1. Index No.15). The crew door hinges attach the door to the airframe which enables the door to swing open and closed.

4.15.2 Defects. Defects can occur anywhere on the surface of the hinges. No cracks are allowed.

4.15.3 Primary Method. Eddy Current.

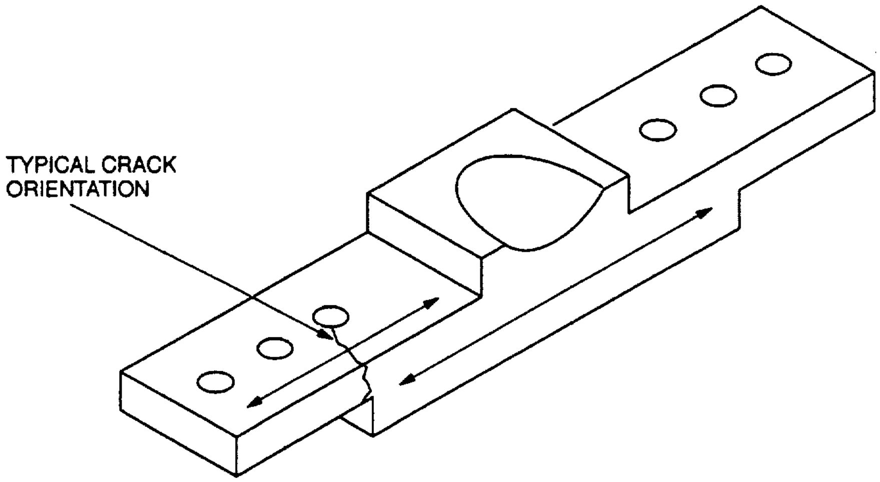


Figure 4-14. Aft Landing Gear Attachments

4.15.3.1 DI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.15.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the hinges removed in accordance with the applicable technical manuals listed in Table 1-1.

4.15.3.3 Access. Not applicable.

4.15.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.15.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e".

Frequency F1	-200 KHz	F2	- off
HdB	-57.0		
VdB -	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	-0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.15.3.6 Inspection Procedure. Refer Eddy Current Method, paragraph 1.4.11 and Figure 4-15

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

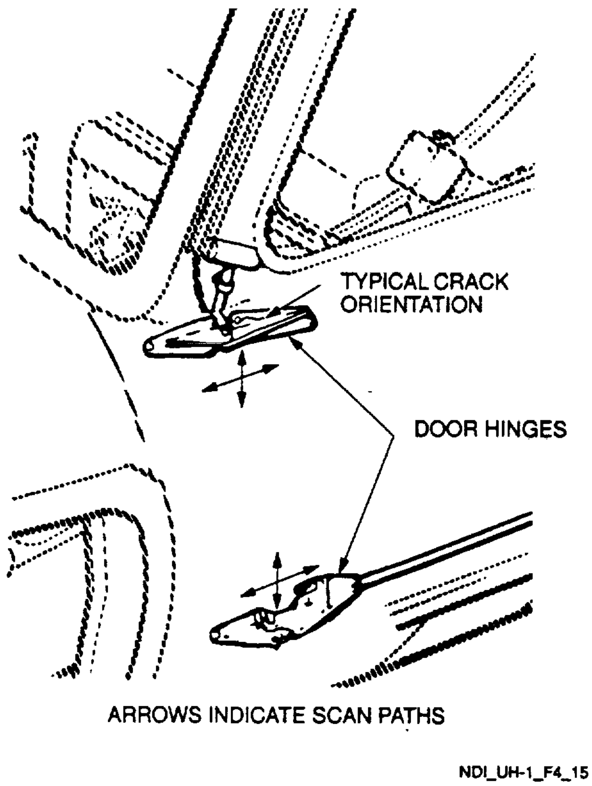


Figure 4-15. Crew Door Hinges

NOTE

Either probe identified in paragraph 4.15.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.15.3.5 b.(1), (2), and (3) shall be repeated each time a change is made.

4.15.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.15.4 Backup Method. None required.

4.15.5 System Securing. The crew door hinges require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.16 HINGED PANEL AND HINGES (ET).

4.16.1 Description (Figure 4-1. Index No. 16). The hinged panel is attached to the door post forward of each cargo door to provide a wider cargo-passenger opening. The panel is attached to the fuselage with hinges and quick release pins. A position spring with detent is provided to hold panel open during loading and unloading operations.

4.16.2 Defects. Defects can occur anywhere on the surface of the panel hinges. No cracks are allowed.

4.16.3 Primary Method. Eddy Current.

4.16.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.16.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the hinges and latch spring shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.16.3.3 Access. Not applicable.

4.16.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.16.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9eI.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	-69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.) - 4.16.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-16.

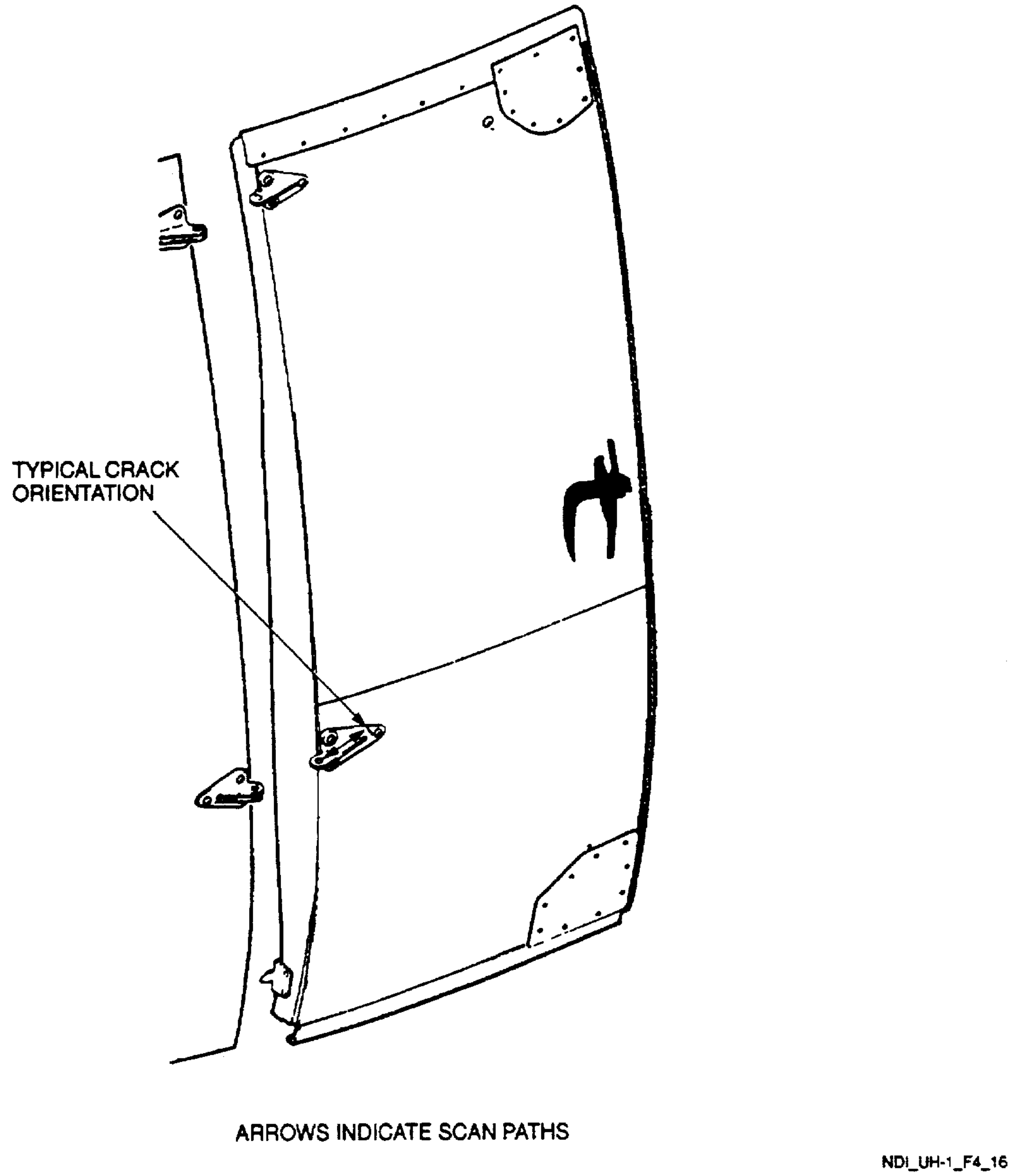


Figure 4-16. Hinged Panel and Hinges

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.16.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.16.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.16.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.16.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

4.16.5 System Securing. The hinged panel and hinges, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.17 HINGED PANEL ASSEMBLY HARDWARE (PT).

4.17.1 Description (Figure 4-1. Index No. 17). This inspection is applicable to the hinged panel assembly and all related hardware contained within the assembly.

4.17.2 Defects. This inspection is to verify crack indications found visually on any part of the hinged panel assembly. No cracks are allowed.

4.17.3 Primary Method. Fluorescent Penetrant.

4.17.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

4.17.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the identified components shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.17.3.3 Access. Not applicable.

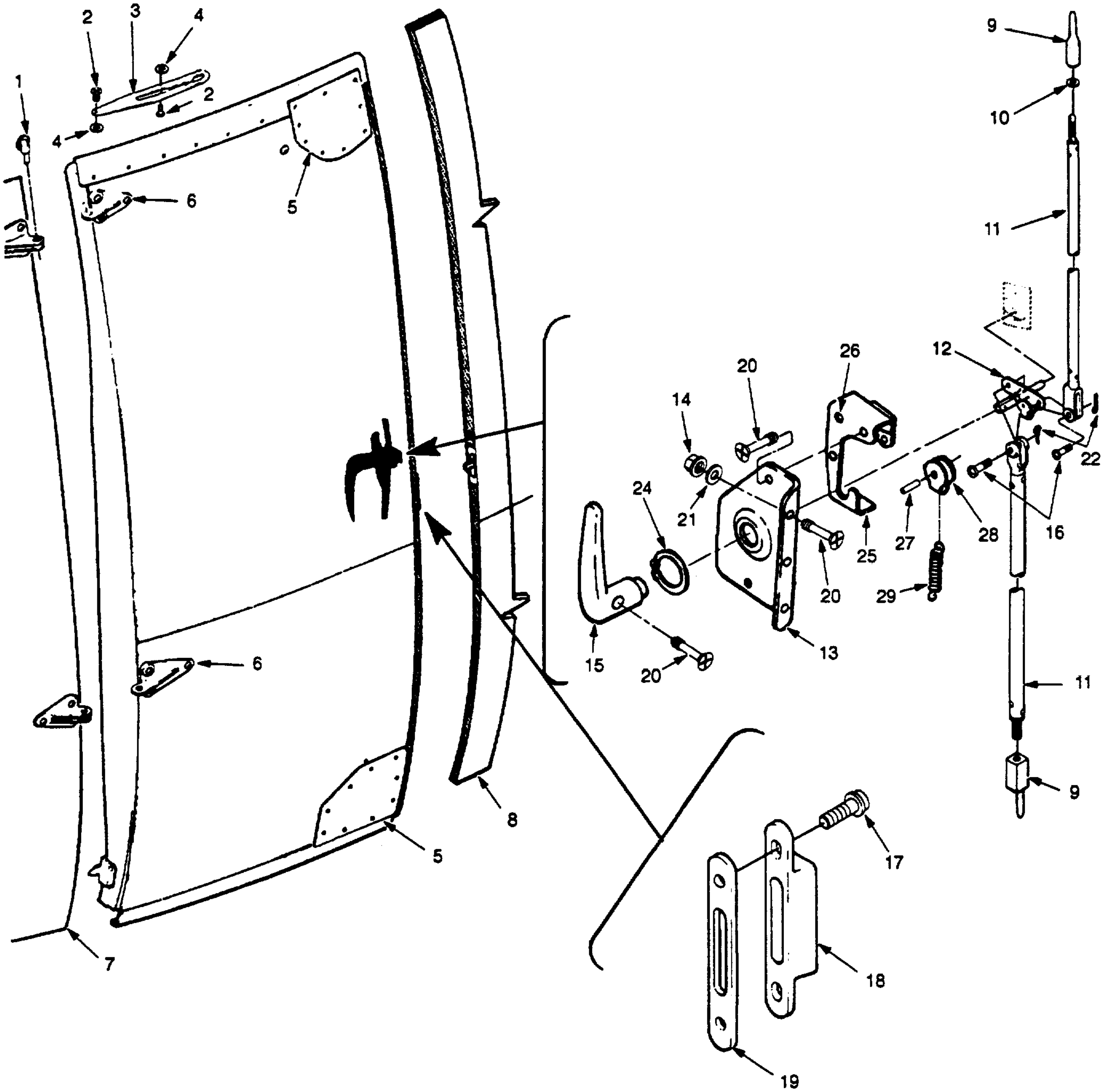
4.17.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.17.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 4-17.

4.17.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.17.4 Backup Method. None required.

4.17.5 System Securing. Clean the component(s) to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The component(s), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.



1. QUICK RELEASE PIN
2. SHOULDER BOLT
3. LATCH SPRING
4. WASHER
5. COVERS
6. HINGES
7. DOOR POST
8. CARGO DOOR
9. PINS
10. CHECK NUT
11. TUBE ASSEMBLY
12. SPINDLE ASSEMBLY
13. ESCUTCHEON
14. CAP NUT
15. HANDLE
16. PIN
17. SCREW
18. CATCH
19. LAMINATED SHIM
20. SCREW
21. WASHER
22. COTTER PIN
24. RING, RETAINER
25. SUPPORT
26. NUT, SELF-LOCKING PLATE
27. PIN
28. GUIDE LATCH SPRING
29. SPRING

NDI_UH-1_F4_17

Figure 4-17. Hinged Panel Assembly Hardware

4.18 CARGO DOOR (ET).

4.18.1 Description (Figure 4-1. Index No. 18). A large sliding door operating on rollers and tracks gives access to cargo/passenger area on each side of the cabin.

4.18.2 Defects. This inspection is to verify crack indications found visually in the cargo door and surrounding areas. No cracks are allowed.

4.18.3 Primary Method. Eddy Current.

4.18.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.18.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the cargo door shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.18.3.3 Access. Not applicable.

4.18.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.18.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e".

Frequency F1	-200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.18.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-18.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.18.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.18.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.18.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.18.4 Backup Method. None required.

4.18.5 System Securing. The cargo door, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

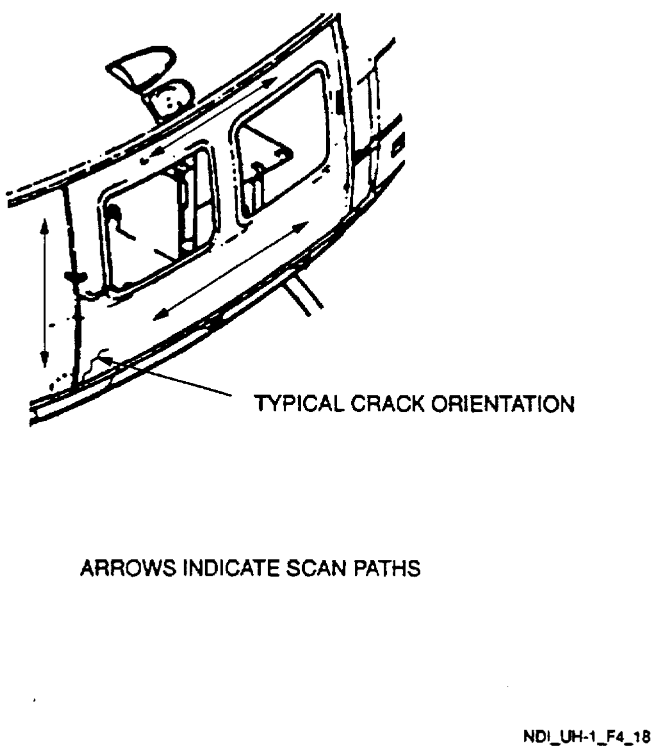


Figure 4-18. Cargo Door

4.19 CARGO DOOR RETAINERS AND RETAINER STRAP (ET).

4.19.1 Description (Figure 4-1. Index No. 19). The cargo door retainers and retainer strap are used to secure the cargo door in an open position located on rear bulkhead of cabin.

4.19.2 Defects. This inspection is to verify crack indications found visually in the cargo door retainers, retainer strap, and surrounding areas. No cracks are allowed.

4.19.3 Primary Method. Eddy Current.

4.19.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.19.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the retainers or retainer strap shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.19.3.3 Access. Not applicable.

4.19.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.19.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eII.

Frequency F1	-200 KHz	F2	-off
HdB	-57.0		
VdB	-69.0		
Rot	-56°		
Probe drive - mid			
LPF	-100		
HPF	-0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.19.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-19.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.19.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.19.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.19.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.19.4 Backup Method. None required.

4.19.5 System Securing. The retainers or retainer strap, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.20 PASSENGER STEP (PT).

4.20.1 Description (Figure 4-1. Index No. 20). Passenger steps may be installed to assist in entering and exiting the aircraft through the cargo doors.

4.20.2 Defects. This inspection is to verify crack indications found visually in the passenger steps and surrounding areas. Particular attention shall be given to the weld joints. No cracks are allowed.

4.20.3 Primary Method. Fluorescent Penetrant.

4.20.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

4.20.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the steps shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

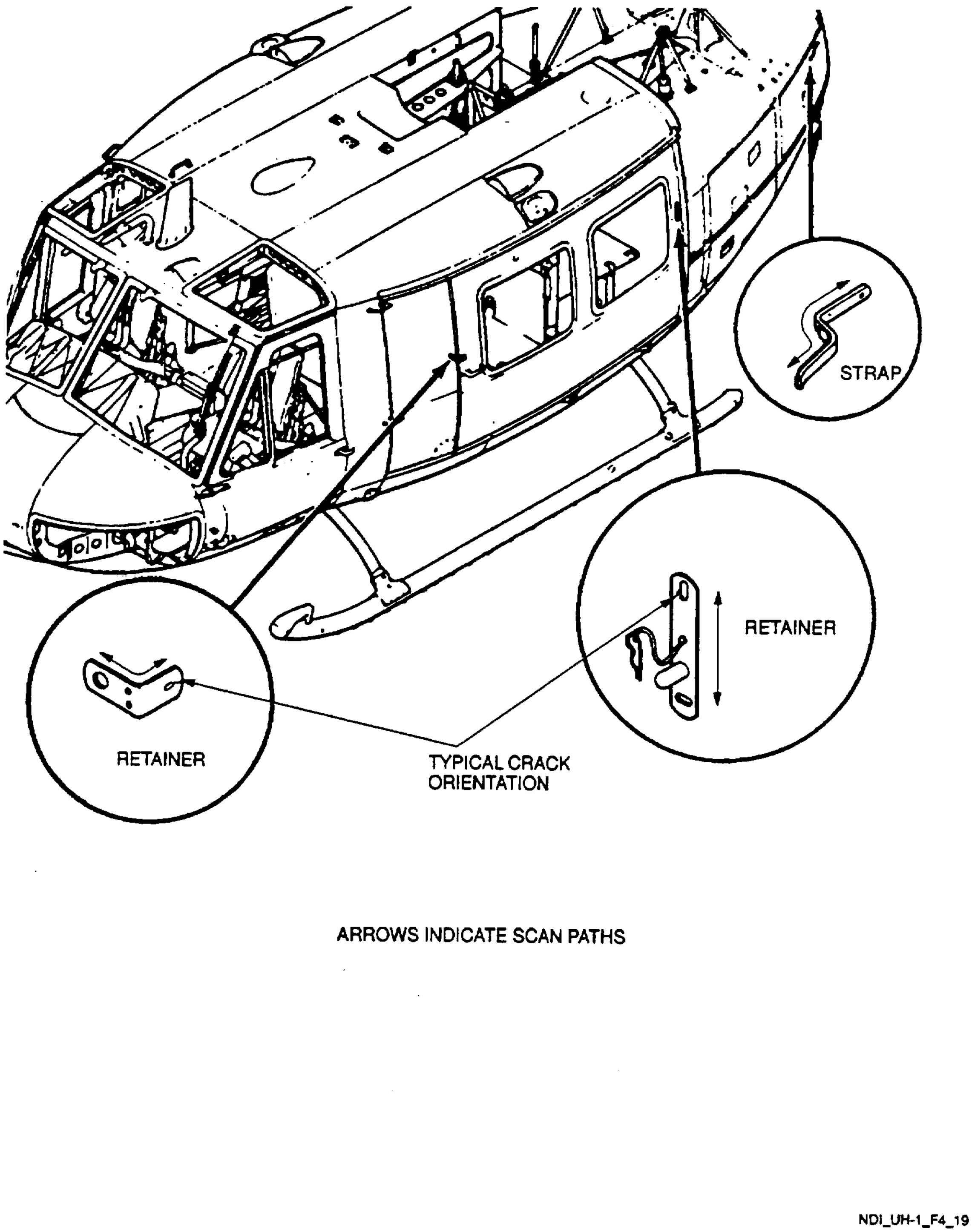


Figure 4-19. Cargo Door Retainers and Retainer Strap

4.20.3.3 Access. Not applicable.

4.20.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.20.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 4-20.

4.20.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.20.4 Backup Method. None required.

4.20.5 System Securing. Clean the steps to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The steps, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.21 PARATROOP STATIC LINE FITTING AND COMPRESSION TUBE (ET).

4.21.1 Description (Figure 4-1. Index No. 21). A paratroop static line cable may be installed on the center of the aft cabin bulkhead. This installation consists of a cable, a compression tube, attach plates, attach fitting, and attaching hardware.

4.21.2 Defects. This inspection is to verify any cracks found visually on the attach fitting and the compression tube. No cracks are allowed.

4.21.3 Primary Method. Eddy Current.

4.21.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

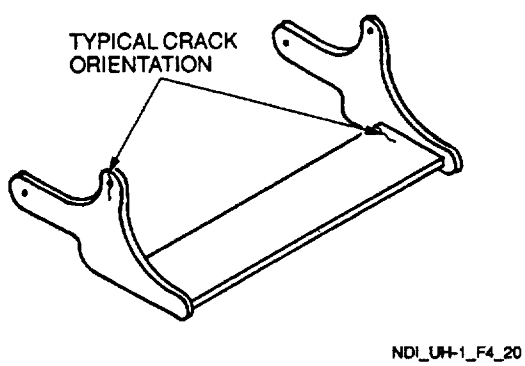


Figure 4-20. Passenger Step

4.21.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the fitting and/or the compression tube shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.21.3.3 Access. Access is obtained through cabin doors.

4.21.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.21.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	-200 KHz	F2	-off
HdB	-57.0		
VdB	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.21.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-21.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.21.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.21.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

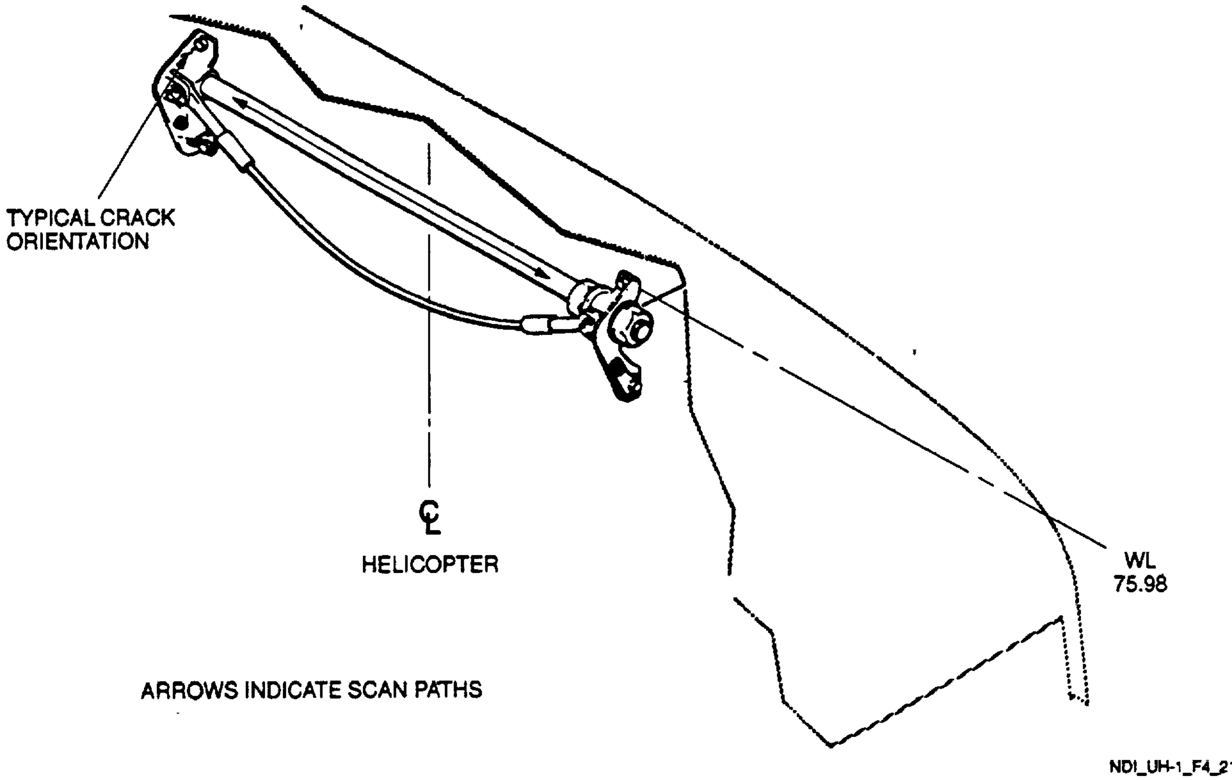


Figure 4-21. Paratroop Static Line Fitting and Compression Tube

4.21.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.21.4 Backup Method. None required.

4.21.5 System Securing. The part(s) inspected, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.22 JACK AND MOORING FITTINGS (MT).

4.22.1 Description (Figure 4-1. Index No.22).Two forward jack pads are located forward of the front cross tube at each side. Two aft jack pads are located behind aft cross tubes. The jack fittings provide a mounting point for the mooring fittings.

4.22.2 Defects. This inspection is to verify crack indications found visually in the jack fittings or the mooring fittings. No cracks are allowed.

4.22.3 Primary Method. Magnetic Particle.

4.22.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

4.22.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the mooring fittings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.22.3.3 Access. Not applicable.

4.22.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.22.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.22.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 4-22.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

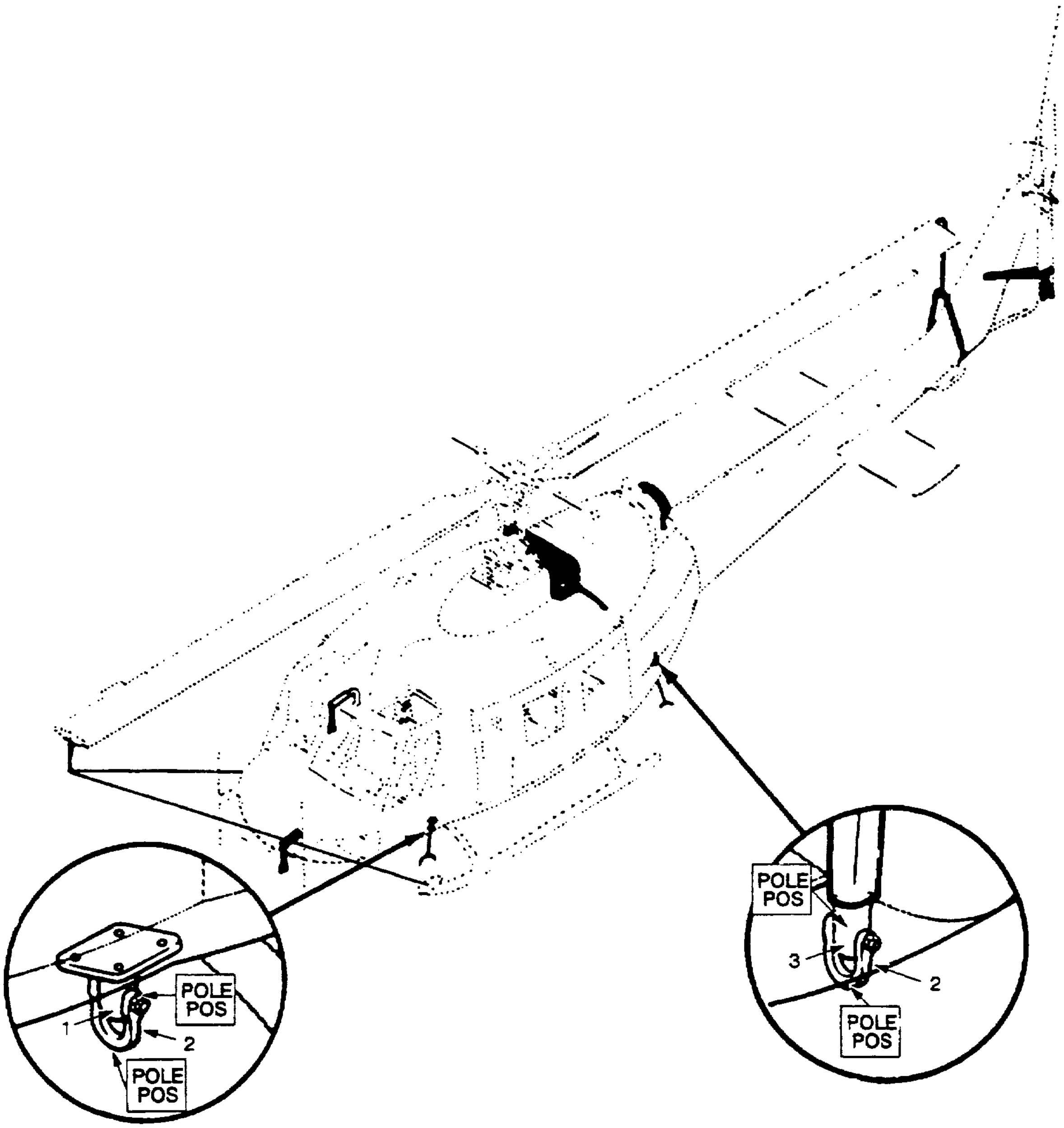
d. Inspect for cracks using the black light.

4.22.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.22.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

4.22.4 Backup Method. None required.

4.22.5 System Securing. Clean the moor fittings thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The mooring fittings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.



1. JACK PAD FITTING – FWD LH AND RH SIDES
2. MOORING FITTING – ALL LOCATIONS
3. JACK PAD FITTING – AFT LH AND RH SIDES

NDI_UH-1_F4_22

Figure 4-22. Jack and Mooring Fittings

4.23 STANDARD CREW SEAT (ET).

4.23.1 Description (Figure 4-1. Index No. 23). Seats are adjustable, non-reclining type, mounted on tracks fixed to the cabin floor.

4.23.2 Defects. Inspect forward and aft fittings, seat back attach fittings, and tubes for cracks. No cracks are allowed.

4.23.3 Primary Method. Eddy Current.

4.23.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.23.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the seat shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.23.3.3 Access. Access is obtained through the crew door.

4.23.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.23.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e[II].

Frequency F1	-200 KHz	F2	- off
HdB	-57.0		
VdB	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	-0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.23.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-23.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.23.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.23.3.5 b.(1), (2), and (3) shall be repeated each time a change is made.

4.23.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.23.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

4.23.5 System Securing. The seat, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.24 MISSION OPERATOR SEATS (ET).

4.24.1 Description (Figure 4-1. Index No. 24). The mission operators' seats are adjustable, non-reclining, swivel based with webbing on back. Each seat is equipped with a lap safety belt and inertiareel harness.

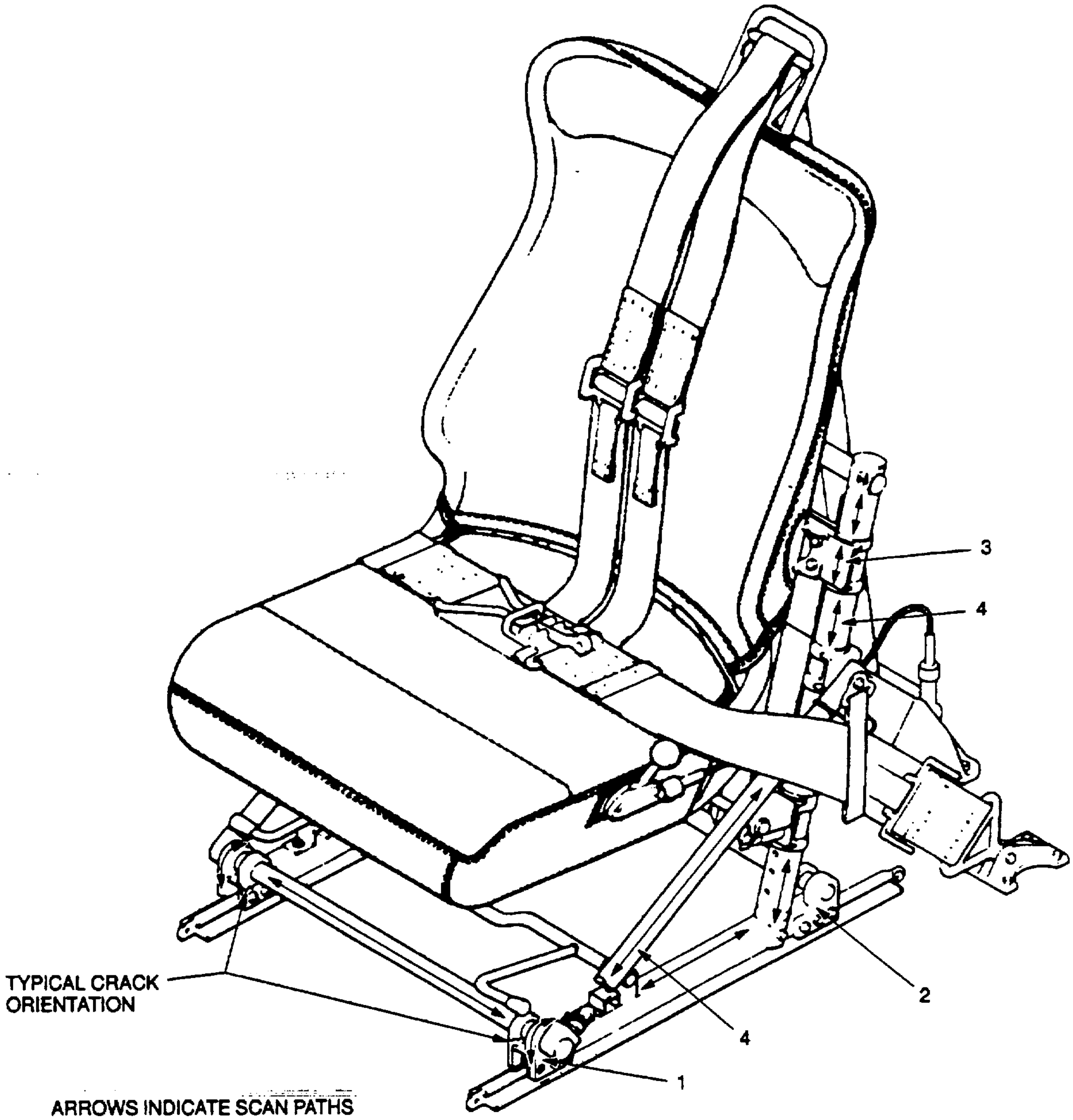
4.24.2 Defects. Inspect the four mounting pads, mounting plate, and seat back and bottom assemblies for cracks. No cracks are allowed.

4.24.3 Primary Method. Eddy Current.

4.24.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.24.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the seat shall be removed in accordance with the applicable technical manuals listed in Table 1-1.



1. FORWARD FITTING
2. AFT FITTING
3. SEAT BACK ATTACH FITTING
4. TUBES

NDI_UH-1_F4_23

Figure 4-23. Standard Crew Seat

4.24.3.3 Access. Access is obtained through the cabin door.

4.24.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.24.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9el. -

Frequency F1	-200 KHz	F2	-off
HdB	-57.0		
VdB	-69.0		
Rot	-56°		
Probe drive	-mid		
LPF	-100		
HPF	-0		
H Pos	-80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.24.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-24.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.24.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.24.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.24.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.24.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

4.24.5 System Securing. The seat, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

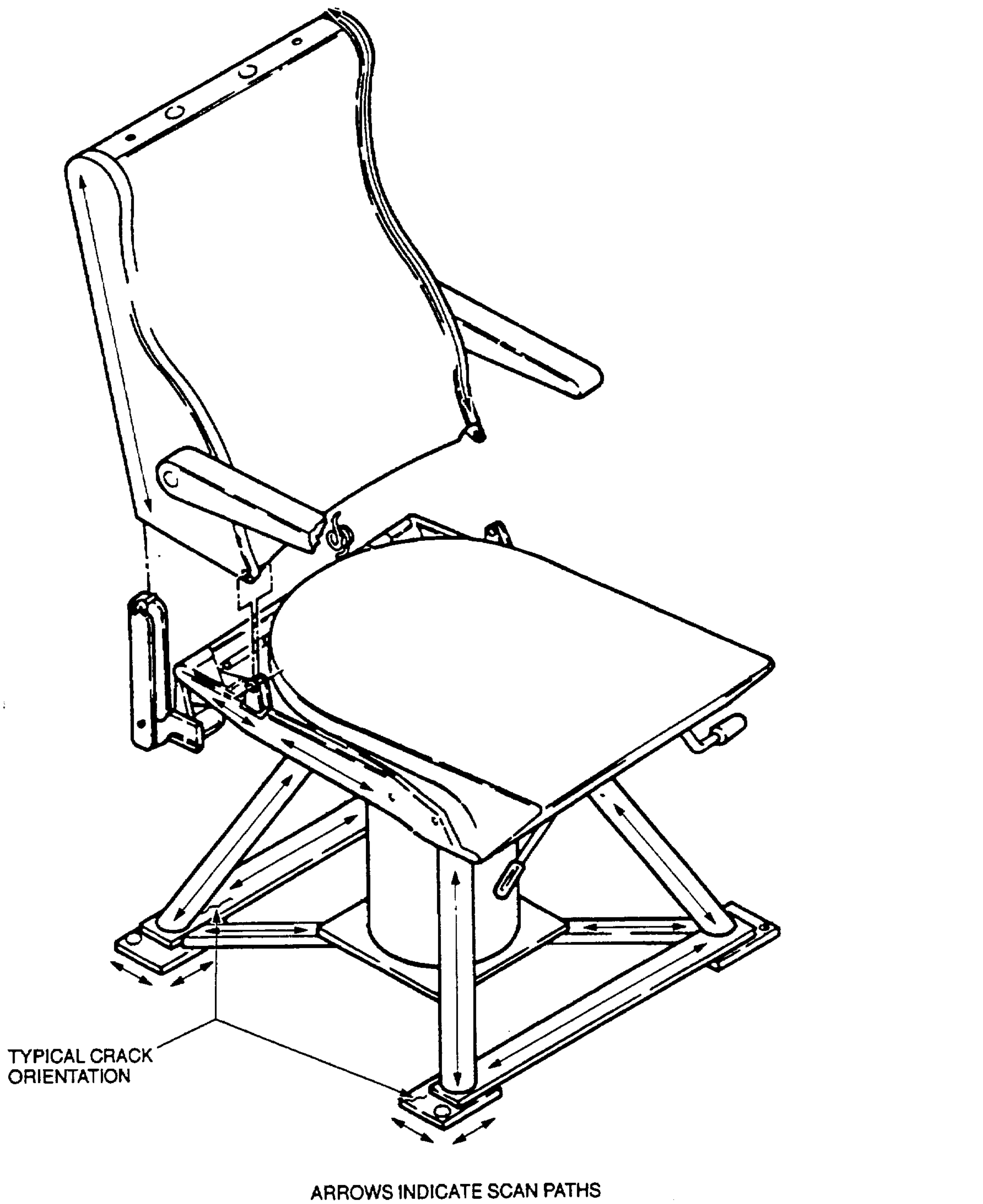


Figure 4-24. Mission Operator Seats

4.25 ENGINE MOUNTS (MT).

4.25.1 Description (Figure 4-1. Index No. 25). The engine is suspended at three points by supports made of steel tubing. These supports are attached to fittings on the service deck. The forward support tube has a rod end bearing for mounting to forward trunnion. The bipod support, on the right hand side, and tripod support, on the left hand side, both have pillow blocks with hinged bearing caps.

4.25.2 Defects. This inspection is to verify any crack indications found visually on the engine mounts. No cracks are allowed. Welded areas shall be a primary concern.

4.25.3 Primary Method. Magnetic Particle.

4.25.3.1 NDI Equipment and Materials (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE
Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

4.25.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the engine mounts shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.25.3.3 Access. Access is through the engine cowls. (Figure 1-4, Item 6 and 7)

4.25.3.4 Preparation of Part. The engine mounts shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.25.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.25.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 4-25.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 4.25.3.8.
f. Repeat steps a. through e. for positions 2 through 12.

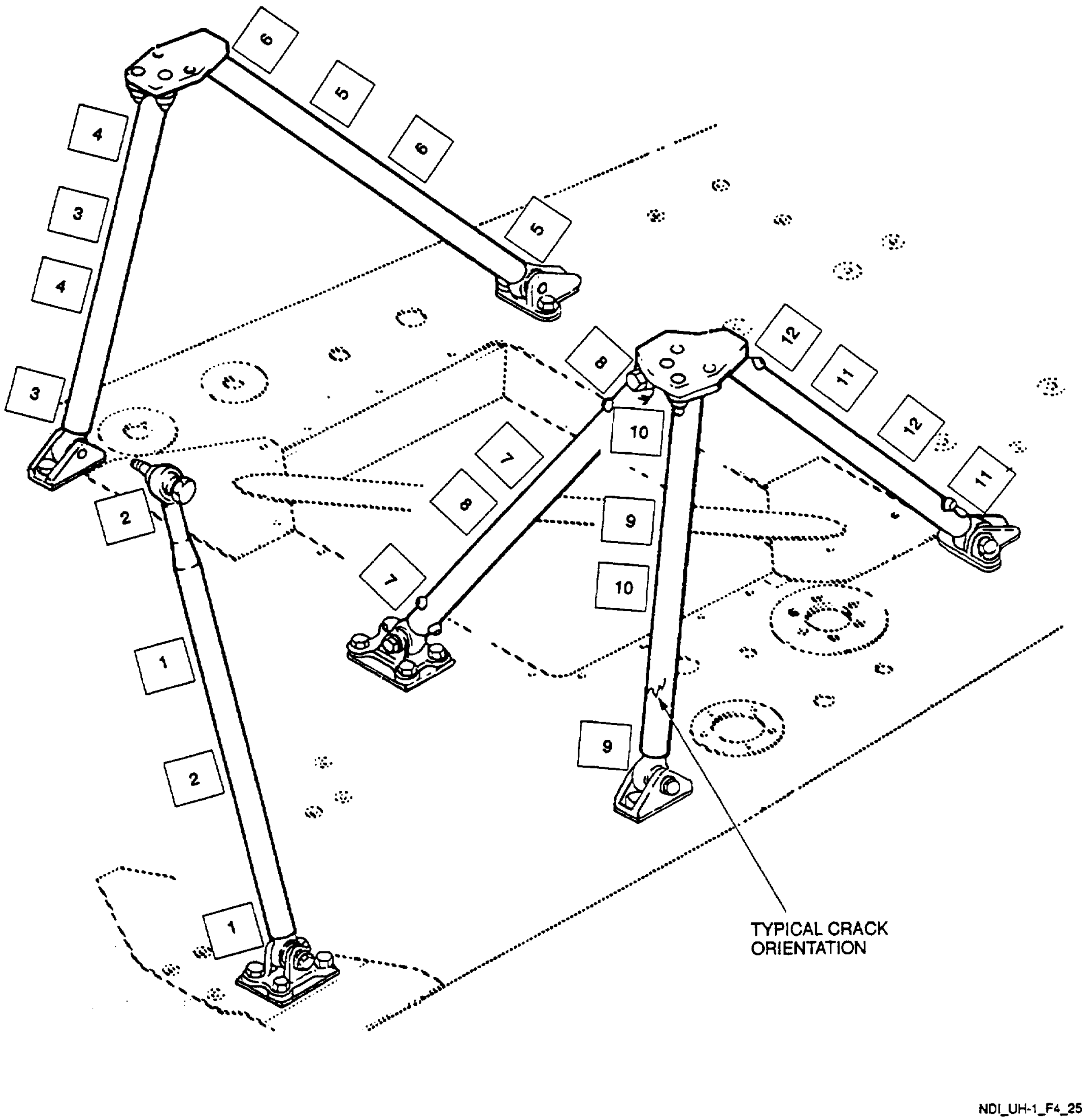


Figure 4-25. Engine Mounts

4.25.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.25.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs % in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

4.25.4 Backup Method. None required.

4.25.5 System Securing. Clean the inspection areas thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine mounts, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the engine cowls as required.

4.26 ENGINE MOUNT FITTINGS (MT).

4.26.1 Description (Figure 4-1. Index No. 26). The forward engine mount fittings (trunnions) are located on the forward section of the engine which attach the engine to the forward engine mount assembly. The aft engine mount fitting (trunnion) is located on the aft section of the engine which attaches the engine to the aft engine mount assembly.

4.26.2 Defects. This inspection is to verify crack indications found visually on the engine mount fittings. No cracks are allowed.

4.26.3 Primary Method. Magnetic Particle.

4.26.3.1 NDI Equipment and Materials (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

4.26.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the engine mount fittings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.26.3.3 Access. Access is through the engine cowls. (Figure 1-4, Item 6 and 7) 4.26.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.26.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.26.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 4-26.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 4.26.3.8.

f. Repeat steps a. through e. for positions 2 through 5.

4.26.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.26.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

4.26.4 Backup Method. None required.

4.26.5 System Securing. Clean the inspected areas thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine mount fittings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the engine cowls as required.

4.27 ENGINE DECK FITTINGS (MT).

4.27.1 Description (Figure 4-1, Index No. 27). The forward engine support tube, the bipod, and the tripod supports are attached to the helicopter by fittings on the service deck.

4.27.2 Defects. This inspection is to verify crack indications found visually on the deck fittings. No cracks are allowed.

4.27.3 Primary Method. Magnetic Particle.

4.27.3.1 NDI Equipment and Materials (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

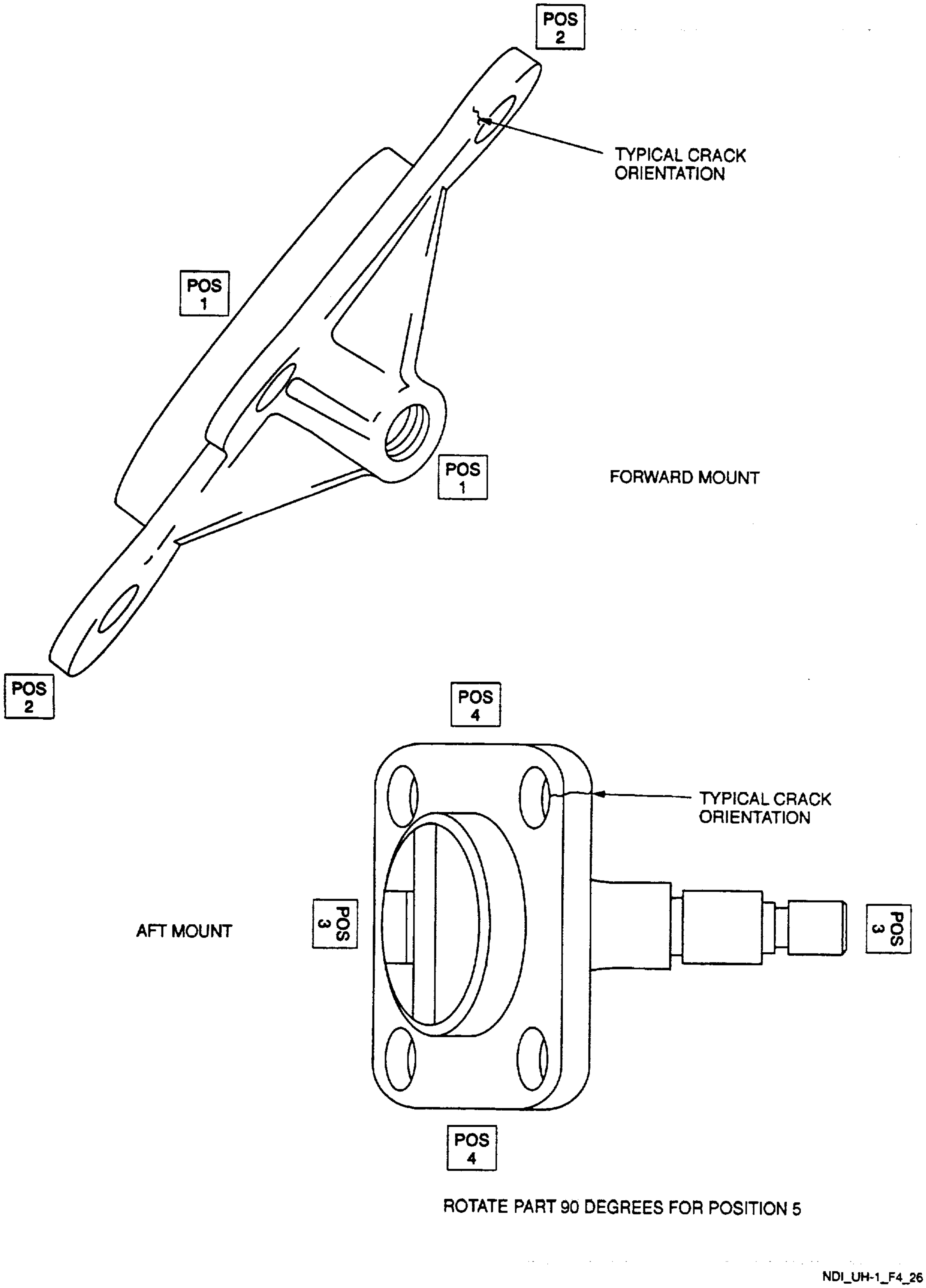


Figure 4-26. Engine Mount Fittings

4.27.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the deck fittings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.27.3.3 Access. Access is through the engine cowls. (Figure 1-4, Items 6 and 7) 4.27.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.27.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.27.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 4-27.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 4.27.3.8.

f. Repeat steps a. through e. for all other positions, as required.

4.27.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.27.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

4.27.4 Backup Method. None required.

4.27.5 System Securing. Clean the inspected areas thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The deck fittings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the engine cowls as required.

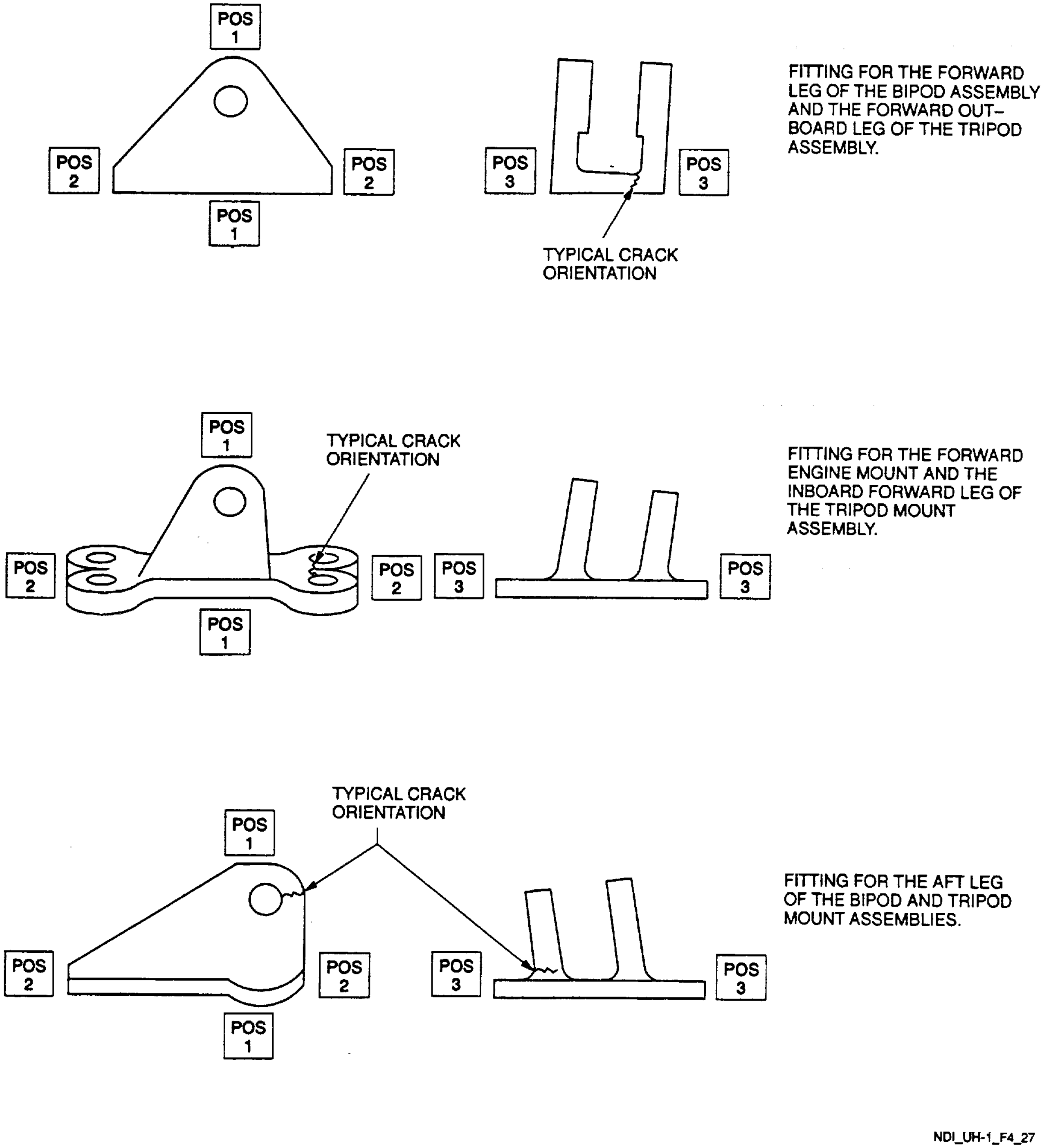


Figure 4-27. Engine Deck Fittings

4.28 PILLOW BLOCKS (MT).

4.28.1 Description (Figure 4-1. Index No. 28). Pillow blocks are installed on top of each engine mount (bipod and tripod) and are designed to transfer engine vibrations from the engine to the engine mounts. Pillow blocks hold the trunnion bearings to secure the engine.

4.28.2 Defects. This inspection is to verify any cracks found visually on the pillow blocks. No cracks are allowed.

4.28.3 Primary Method. Magnetic Particle.

4.28.3.1 NDI Equipment and Materials (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

4.28.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If 5-' required, the pillow blocks shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.28.3.3 Access. Access is through the engine cowls. (Figure 1-4, Items 6 and 7)

4.28.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.28.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.28.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 4-28.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 4.28.3.8.
f. Repeat steps a. through e. for position 2.

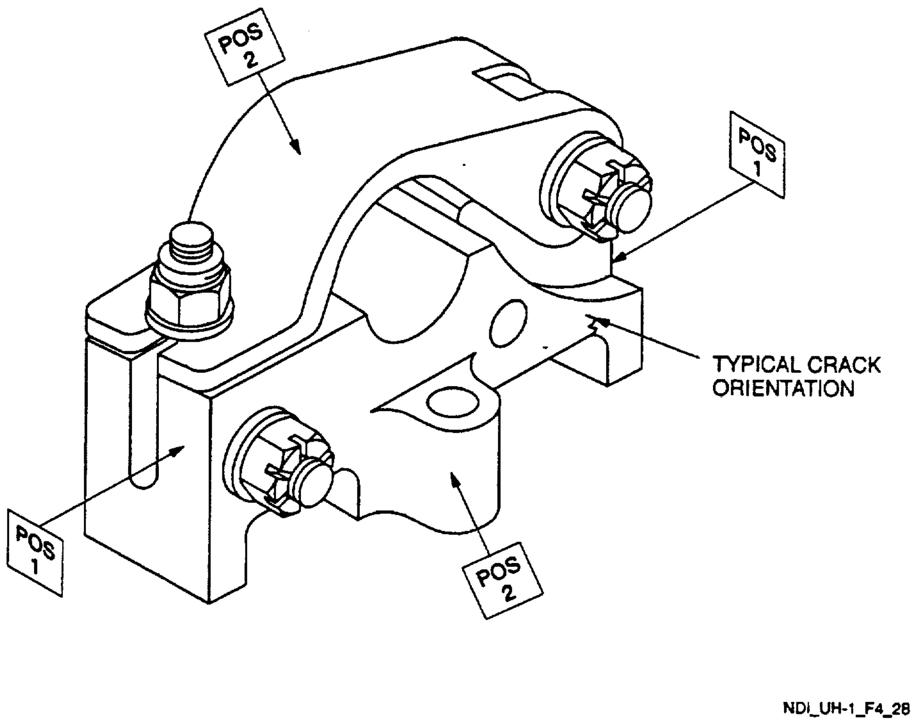


Figure 4-28. Pillow Block

4.28.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.28.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

4.28.4 Backup Method. None required.

4.28.5 System Securing. Clean the pillow block thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The pillow block, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the engine cowls as required.

4.29 EXHAUST TAILPIPE AND DUCT ASSEMBLIES (PT).

4.29.1 Description (Figure 4-1. Index No. 29). The heat suppressor kit includes an upturned exhaust duct assembly, oil cooler exit shield, the engine side shields, forward duct assembly, and necessary attaching hardware.

4.29.2 Defects. This inspection is to verify cracks found visually in the exhaust tailpipe and duct assemblies. No cracks are allowed.

4.29.3 Primary Method. Fluorescent Penetrant.

4.29.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

4.29.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the part to be inspected shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.29.3.3 Access. Access is through the upper and lower tailpipe fairings. (Figure 1-4, Items 8 and 10).

4.29.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.29.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 4-29.

4.29.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.29.4 Backup Method None required.

4.29.5 System Securing. Clean the inspected area to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The parts that were inspected, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the tailpipe fairing as required.

4.30 BOLTS, ROD ENDS, TURNBUCKLES, RODS, AND PINS (MT).

4.30.1 Description (Figure 4-1. Index No. 30). All bolts, rod ends, turnbuckles, rods, and pins are made of ferromagnetic materials.

4.30.2 Defects. Cracks can occur anywhere on the part in the circumferential direction. Particular attention should be given to bolt head radii, threads (especially at the thread transition area), and pin holes. See Figure 4-30. No cracks are allowed.

4.30.3 Primary Method. Magnetic Particle.

4.30.3.1 NDI Equipment and Materials (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

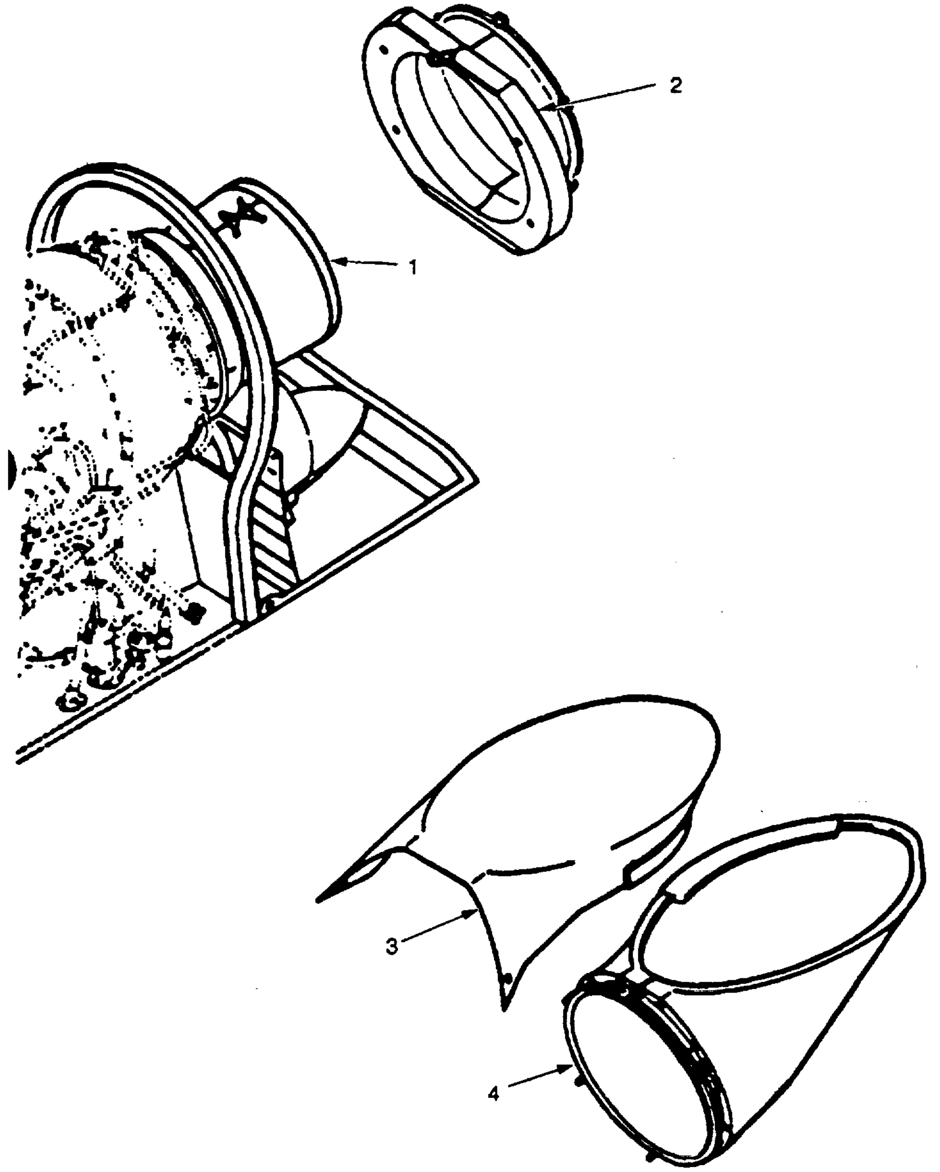
b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8



1. EXHAUST TAIL PIPE
2. DUCT ASSEMBLY
3. DUST COVER ASSEMBLY
4. INSULATED EXHAUST DUCT ASSEMBLY

NDI_UH-1_F4_29

Figure 4-29. Exhaust Tailpipe and Duct Assemblies

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

4.30.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the part shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.30.3.3 Access. Not applicable.

4.30.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.30.3.5 NDI Equipment Settings. Refer to Magnetic-Particle Method, paragraph 1.4.8.

4.30.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 4-30.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

4.30.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.30.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

4.30.4 Backup Method None required.

4.30.5 System Securing. Clean the inspected part thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The part requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.31 TAILBOOM AND FUSELAGE ATTACH FITTINGS (ET).

4.31.1 Description (Figure 4-1. Index No. 31). The tailboom is a semi-monologue structure that supports the elevator, tail rotor drivetrain components, and the tail rotor. Four attachment fittings are provided for installation of the tailboom on the forward fuselage assembly.

4.31.2 Defects. This inspection is to verify crack indications found visually in the tailboom and fuselage attach fittings and surrounding areas. No cracks are allowed.

4.31.3 Primary Method. Eddy Current.

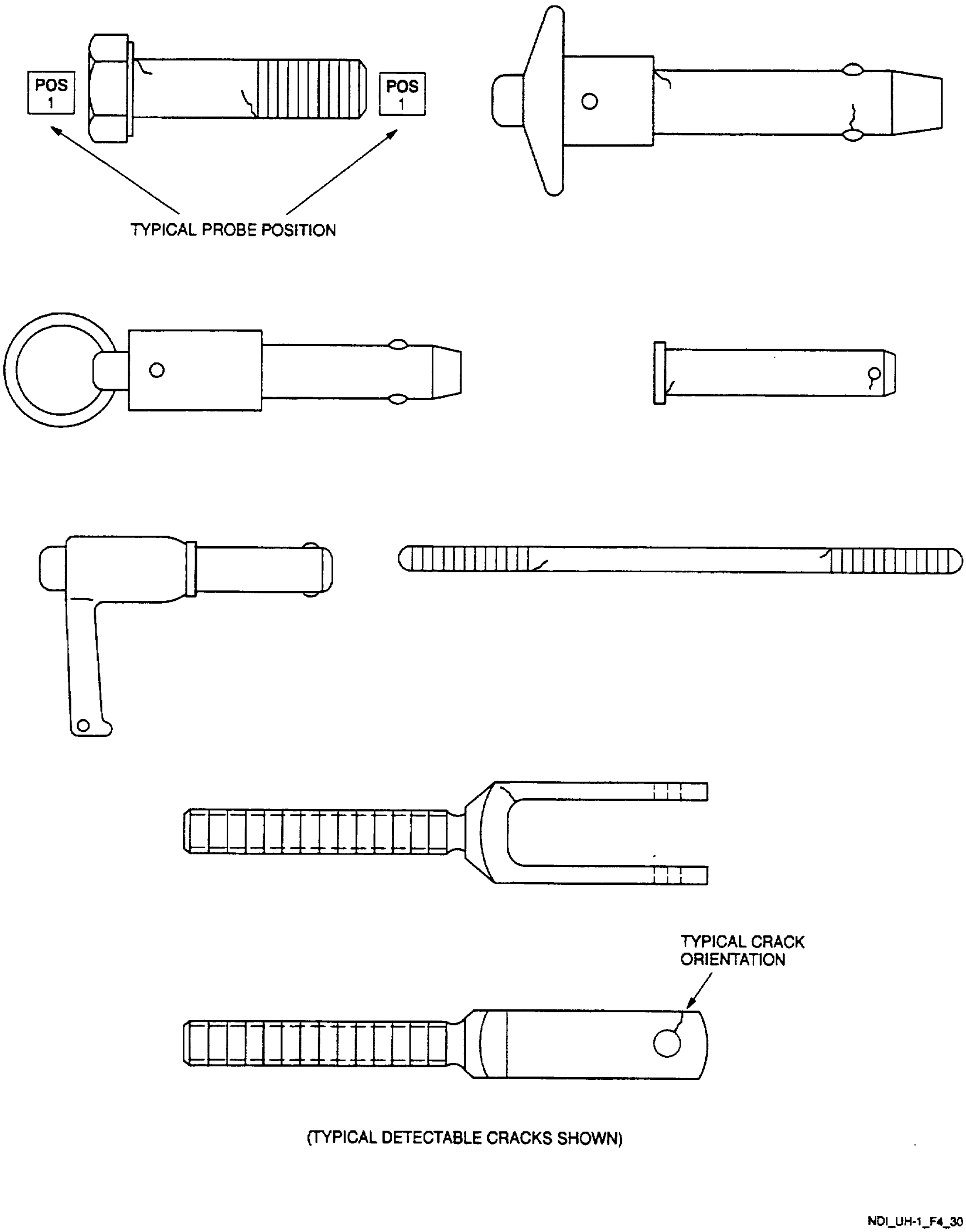


Figure 4-30. Bolts, Rod Ends, Turnbuckles, Rods, and Pins

4.31.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.31.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the tailboom shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.31.3.3 Access. Not applicable.

4.31.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.31.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.31.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-31.

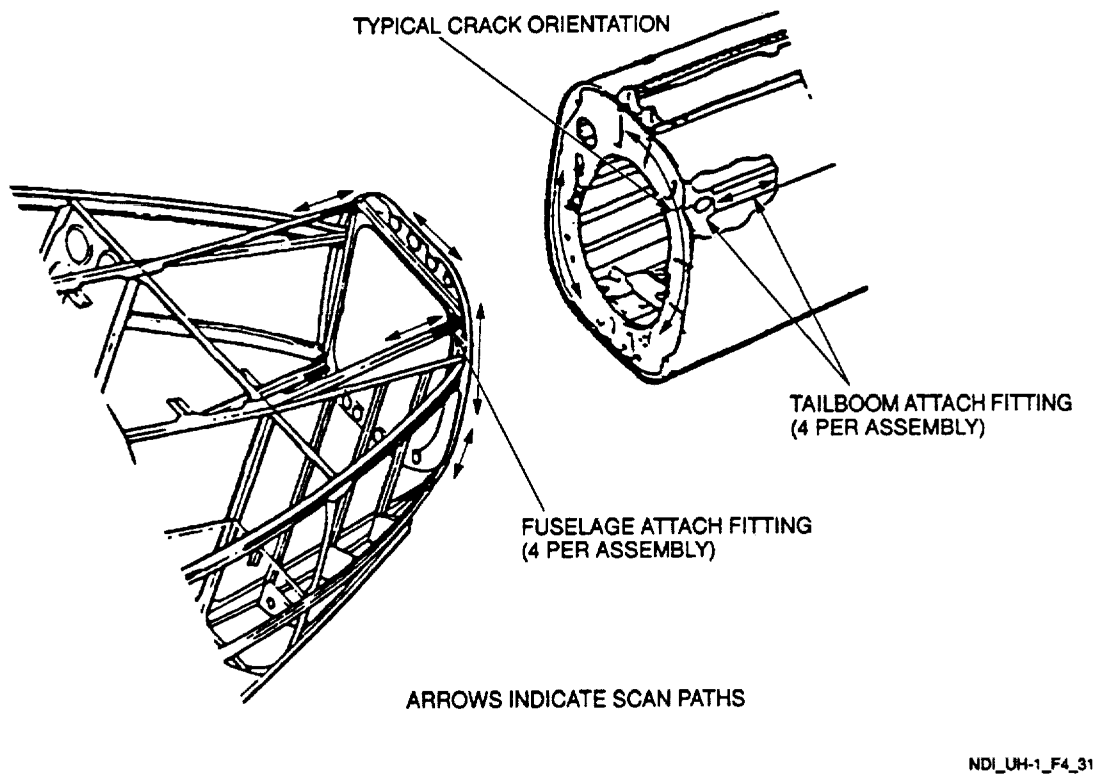


Figure 4-31. Tailboom and Fuselage Attach Fittings

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.31.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.31.3.5 b. (1), (2), and (3) shall be repeated each time a change is made. 4.31.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.31.4 **Backup Method** None required.

4.31.5 **System Securing.** The tailboom requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.32 ELEVATOR ASSEMBLY SUPPORT FITTINGS (ET).

4.32.1 Description (Figure 4-1, Index No. 32). The elevator assembly support fittings secure the elevator horn assembly to the elevator assembly.

4.32.2 Defects. This inspection is to verify crack indications found visually on the fittings. No cracks are allowed.

4.32.3 Primary Method. Eddy Current.

4.32.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.32.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the elevator control assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.32.3.3 Access. Not applicable.

4.32.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.32.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.32.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-32

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.32.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.32.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.32.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.32.4 Backup Method Fluorescent Penetrant, refer to paragraph 1.4.7.

4.32.5 System Securing. The elevator control assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

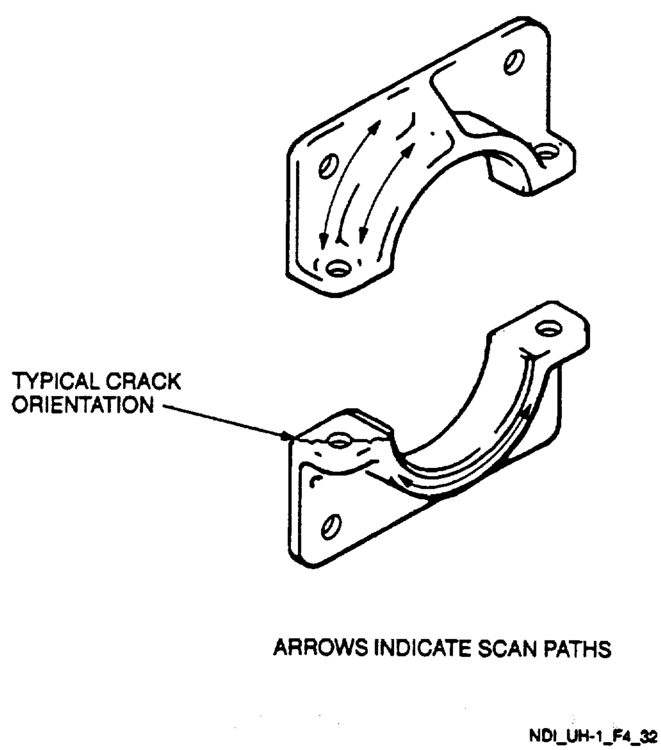


Figure 4-32. Elevator Assembly Support Fittings

4.33 ELEVATOR HORN ASSEMBLY (ET).

4.33.1 Description (Figure 4-1. Index No. 33). A control arm on the horn assembly, which is mounted to the elevator, provides attachment for linkage from the fore-aft cyclic control system at the swashplate for rotational movement of the elevator.

4.33.2 Defects. This inspection is to verify crack indications found visually on the horn assembly. No cracks are allowed. Particular attention shall be given to shaded areas in Figure 4-33.

4.33.3 Primary Method. Eddy Current.

4.33.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.33.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the horn assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

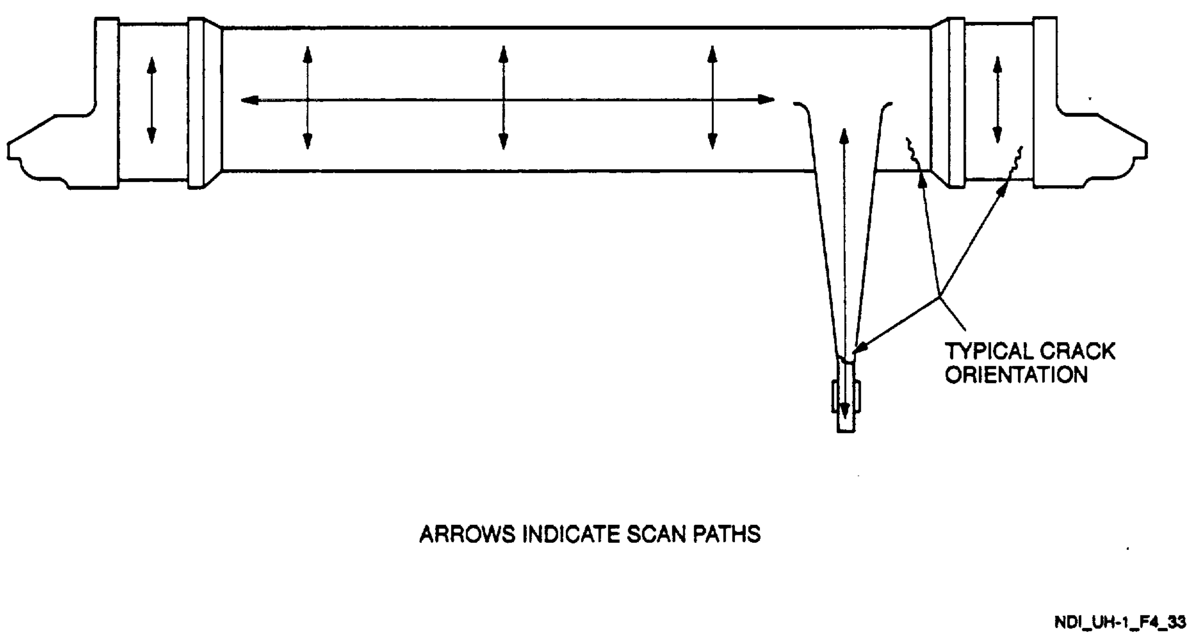


Figure 4-33. Elevator Horn Assembly

4.33.3.3 Access. Not applicable.

4.33.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.33.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.33.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-33.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.33.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.33.3.5 b.(1), (2), and (3) shall be repeated each time a change is made.

4.33.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.33.4 Backup Method Fluorescent Penetrant, refer to paragraph 1.4.7.

4.33.5 System Securing. The horn assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.34 INTERMEDIATE GEARBOX SUPPORT INSTALLATION (ET).

4.34.1 <u>Description (Figure 4-1, Index No. 34).</u> The 45 degree intermediate gearbox is mounted on the intermediate gearbox support at the base of the vertical fin.

4.34.2 <u>Defects</u>. This inspection is to verify crack indications found visually on the intermediate gear-box support installation. No cracks are allowed.

4.34.3 <u>Primary Method</u>. Eddy Current.

4.34.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.34.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the intermediate gearbox shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.34.3.3 Access. Access is through the intermediate gearbox cover. (Figure 1-4, Item 13)

4.34.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.34.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.34.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-34.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.34.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.34.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.34.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.34.4 <u>Backup Method</u> None required.

4.34.5 <u>System Securing.</u> The intermediate gearbox, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the intermediate gearbox cover as required.

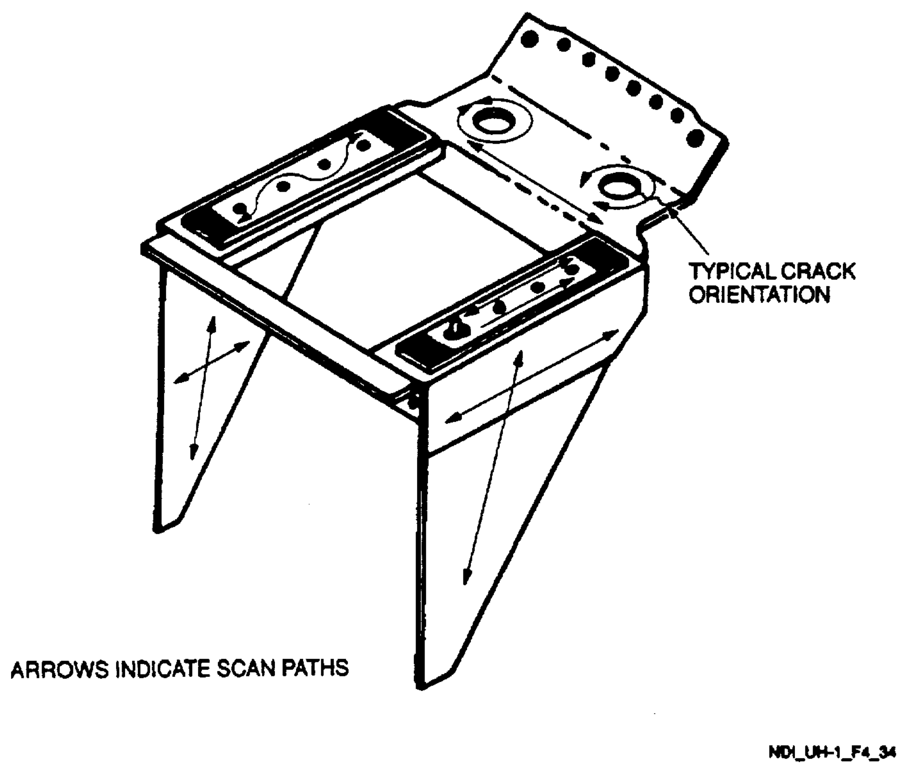


Figure 4-34. Intermediate Gearbox Support Installation

4.35 TAILBOOM STRUCTURE (ET).

4.35.1 **Description (Figure 4-1. Index No. 35)**. The tailboom structure attaches to the fuselage. The tailboom is the entire structure aft of the fuselage, including the ventricle fin.

4.35.2 **Defects**. This inspection is to verify crack indications found visually in the tailboom structure including bulkheads, longerons, stringers, ribs, stiffeners, spars, and skin. No cracks are allowed.

4.35.3 **Primary Method**. Eddy Current.

4.35.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

4.35.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tailboom shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

4.35.3.3 Access. Refer to Figure 1-4 and Table 1-2 for applicable access panels, doors, and fairings.

4.35.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.35.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.35.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-35.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.35.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.35.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.35.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.35.4 Backup Method None required.

4.35.5 System Securing. The tailboom, if removed and disassembled, requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1. Secure access panels, doors, and fairings as required.

4.36 NINETY DEGREE GEARBOX SUPPORT FITTING (ET).

4.36.1 Description (Figure 4-1, Index No. 36). The 90 degree gearbox support fitting is mounted at the top of the vertical fin and supports the gearbox that drives the tail rotors.

4.36.2 Defects. This inspection is to verify any cracks found visually on the support fitting. No cracks are allowed.

4.36.3 Primary Method. Eddy Current.

4.36.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.36.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the 90 degree gearbox shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

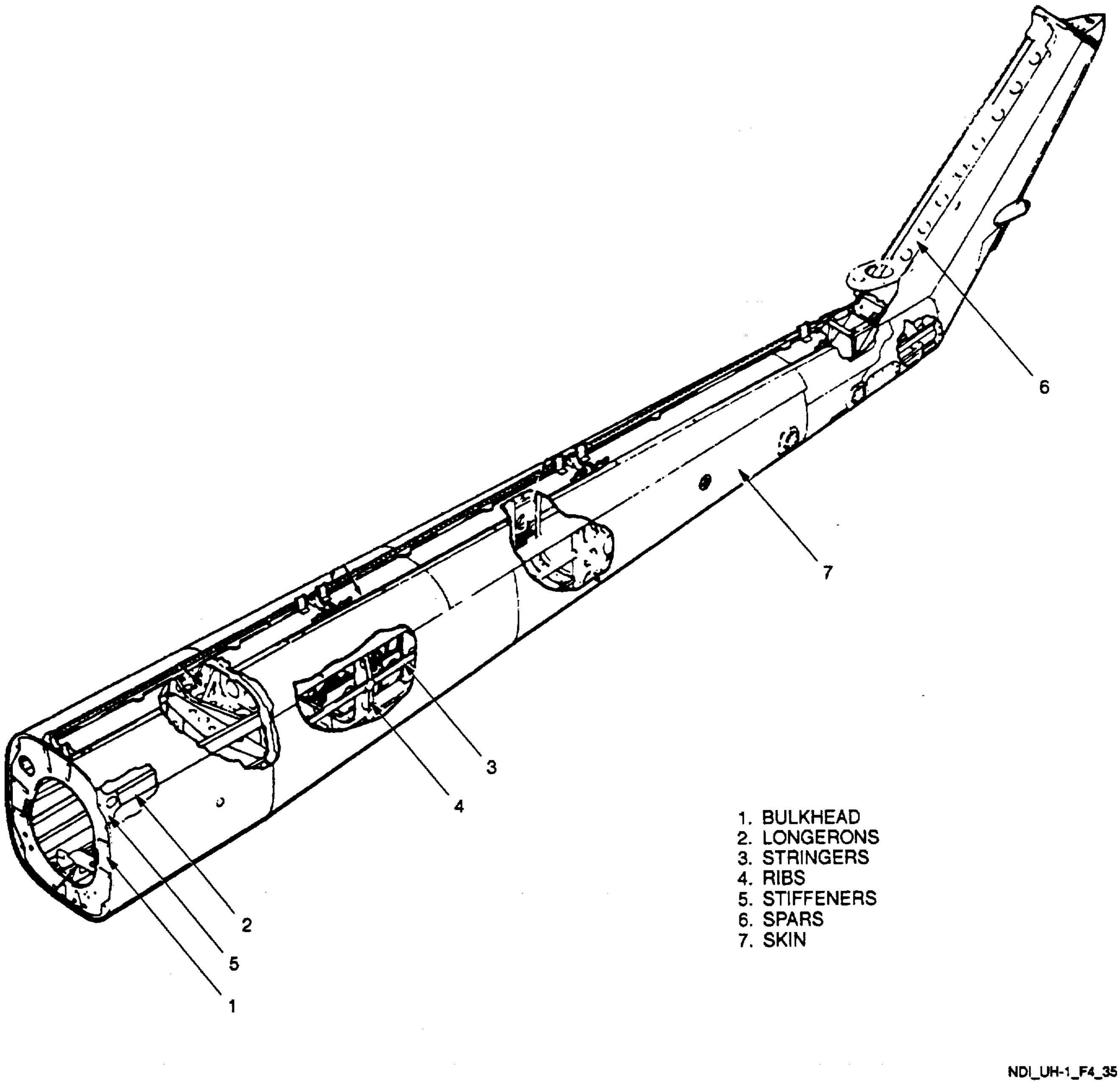


Figure 4-35. Tailboom Structure

4.36.3.3 Access. Access is through the tail rotor chain cover. (Figure 1-4, Item 29)

4.36.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.36.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.36.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-36.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.36.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.36.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

4.36.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.36.4 <u>Backup Method</u> None required.

4.36.5 <u>System Securing</u>. The 90 degree gearbox, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the tail rotor chain cover as required.

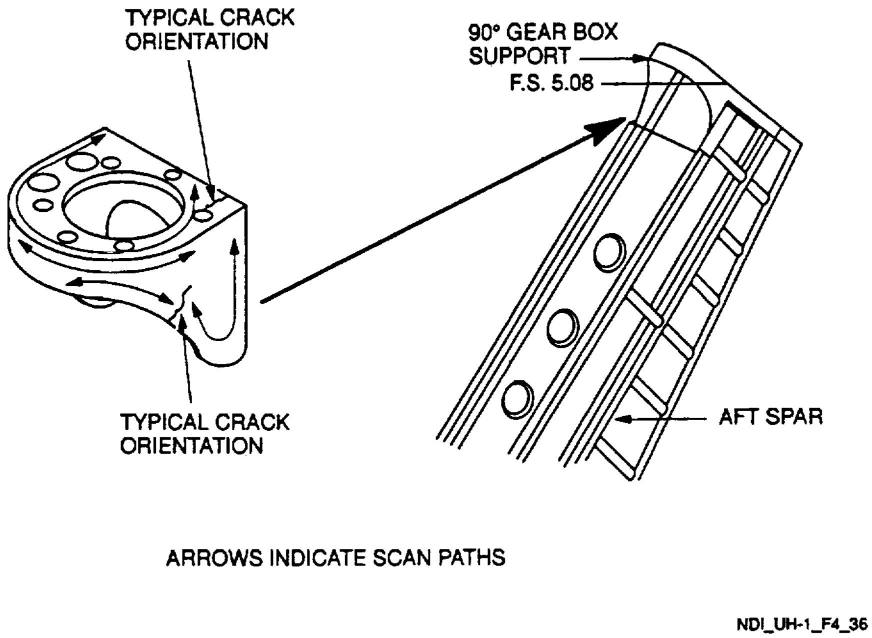


Figure 4-36. Ninety Degree Gearbox Support Fitting

4.37 VERTICAL FIN (PT).

4.37.1 Description (Figure 4-1. Index No. 37). Area of interest is where the left hand upper skin attaches to the stiffener at fin station 5.08 to the rib area at fin station 22.37.

4.37.2 Defects. Check for cracks in the ribs and stiffeners between fin STA 5.08 and fin STA 22.37. If cracks are found, locate the exact end of the crack. After crack has been stop drilled, check crack again to be sure that no portion of the crack extends beyond the stop drill hole.

4.37.3 Primary Method. Fluorescent Penetrant.

4.37.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

4.37.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the vertical fin shall be prepared in accordance with the applicable technical manuals listed in Table 1-1.

4.37.3.3 Access. Not applicable.

4.37.3.4 Preparation of Part Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.37.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 4-37.

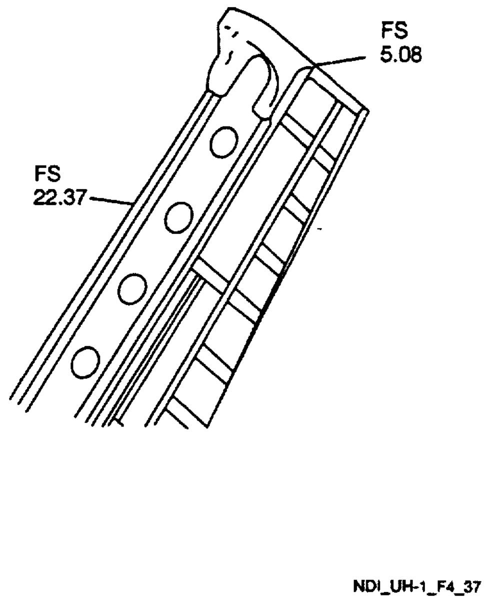


Figure 4-37. Vertical Fin

4.37.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.37.4 Backup Method None required.

4.37.5 System Securing. Clean the inspected area to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The vertical fin shall be repaired as required in accordance with the applicable technical manuals listed in Table 1-1.

4.38 LANDING GEAR CROSS TUBES (UT).

4.38.1 Description (Figure 4-1, Index No. 38). The landing gear assembly has two arched aluminum cross tubes secured to the fuselage structure by four padded caps. Cross tubes are fitted with bearing straps at fuselage attachment locations.

4.38.2 Defects. Inspect the cross tube for cracks in an area approximately three inches wide around each side of the bearing support plate attachments (bearing straps).

4.38.3 Primary Method. Ultrasonic.

4.38.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Ultrasonic Inspection Unit

b. Transducer, 60° shear wave, 1/4 x 1/4 inch element

c. Cable Assembly, BNC to Microdot

d. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

4.38.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the landing gear assembly removed from the helicopter in accordance with applicable technical manuals listed in Table 1-1.

4.38.3.3 Access. Not applicable.

4.38.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4. Paint removal is not necessary. However, rough and flaking paint and overspray may require smoothing with a Scotch Brite pad.

4.38.3.5 NDI Equipment Settings.

a. Make the following initial settings on the USD 15S:

(SETUP - DEFAULT SETTINGS)	
DIALOG	ENGLISH
UNIT	INCH
(BASICS)	
GAIN	40db
RANGE	5.0 in
MTL VEL	124.0 in/ms
D-DELAY	0.00 in
P-DELAY	0.00 ms
(PULSER)	
DAMPING	500 ohm
POWER	1000 PF
PRF-MOD	AUTOLOW
PRF-VAL	See Note 1
(RECEIVER)	
FREQ	5 MHz
REJECT	0%
RECTIF	FULL-W
DUAL	OFF

(GATES)	See Note 2
(MEAS)	See Note 3
(KEYS)	See Note 3
(ANGLE)	See Note 3
(DAC)	
DAC-MOD	OFF
DAC-REC	OFF
A-START	See Note 3
DAC-ECH	0

NOTE

(1) When pulse rep frequency is in an automatic mode the value is electronically determined.

(2) Not used - disable by selecting logic - OFF

(3) Not used - leave at default values

b. Refer to Ultrasonic Method, paragraph 1.4.12. Set up on test block as follows:

NOTE

The ideal reference block is a section of UH-1 cross tube, rejected for cracks, having both cracked and uncracked holes. (A hole may have to be drilled in some rejected cross tubes in order to provide a good hole.) Also, setup may be made using the reference block three-notched aluminum, which has the same thickness as the tube wall.

(1) Attach transducer to cable and cable to ultrasonic unit. Couple transducer to reference block as shown in Figure 4-38 with the sound path parallel to the long axis of the tube. Position transducer approximately 1-1/2 inches from a good hole and manipulate transducer to obtain a reflection. Now, the objective is to manipulate the transducer to obtain two reflections of equal amplitude. These are trapped signals from the top and bottom of the hole. Adjust gain to obtain amplitude of approximately 50 percent FSH. With the delay control, move unwanted shoe noise off screen and use range control to position the rivet hole signals at mid-screen. The CRT display should appear similar to those shown in Figure 4-38. Now, move the transducer circumferentially and note the amount of transducer movement (distance) from when the signal is first detected, through maximum amplitude, to where the signal is again barely detectable. This will provide a rough measuring guide for an uncracked hole. Rivet holes on the in-service components may be misdrilled or damaged and frequently will not give clean split signal shown by the reference block. Therefore, it is important to note the position and distance of the transducer from the good hole in the reference block so that the transducer may be positioned correctly on parts that do not respond appropriately. These equipment settings may be stored in memory to facilitate setup.

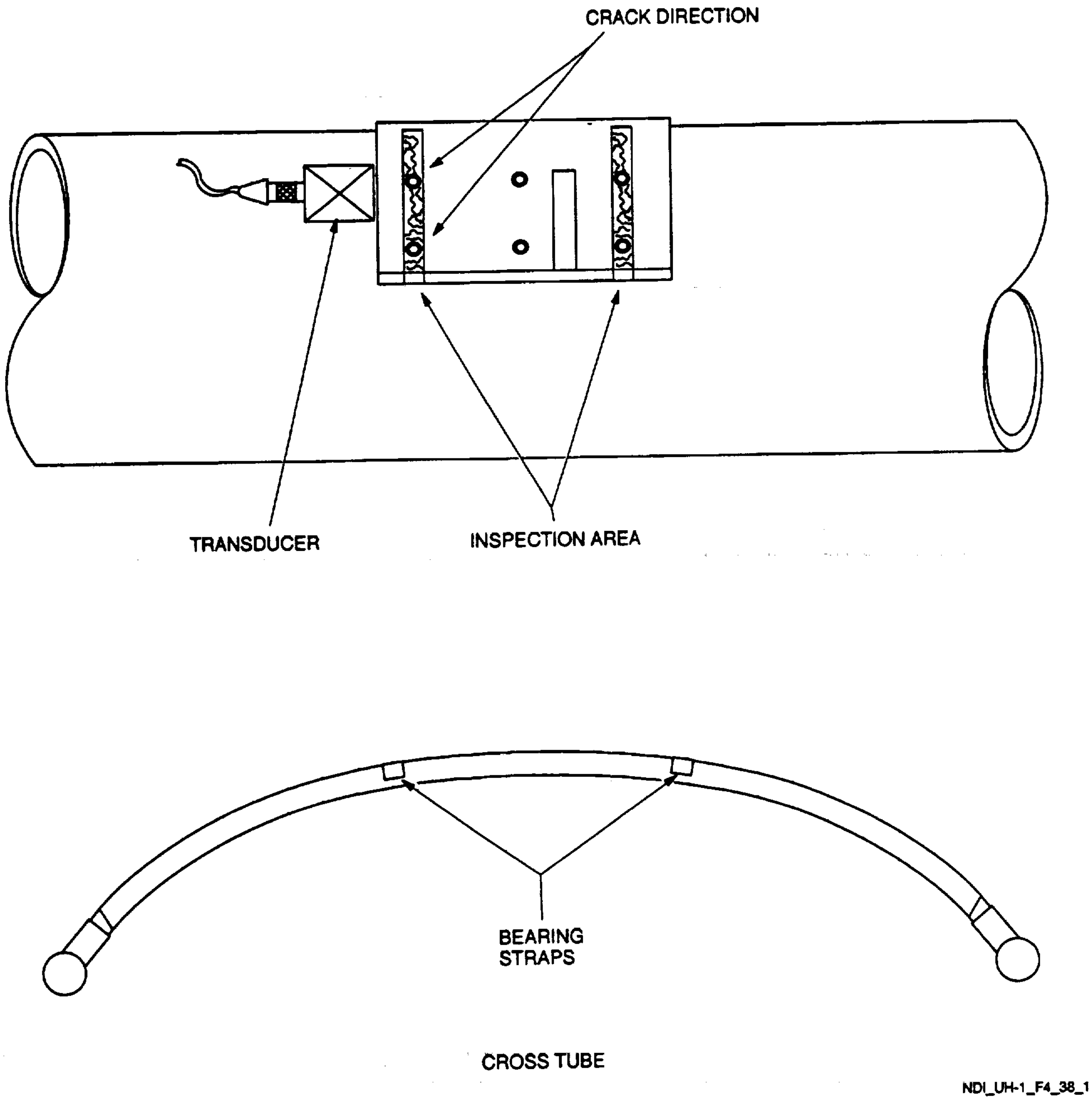
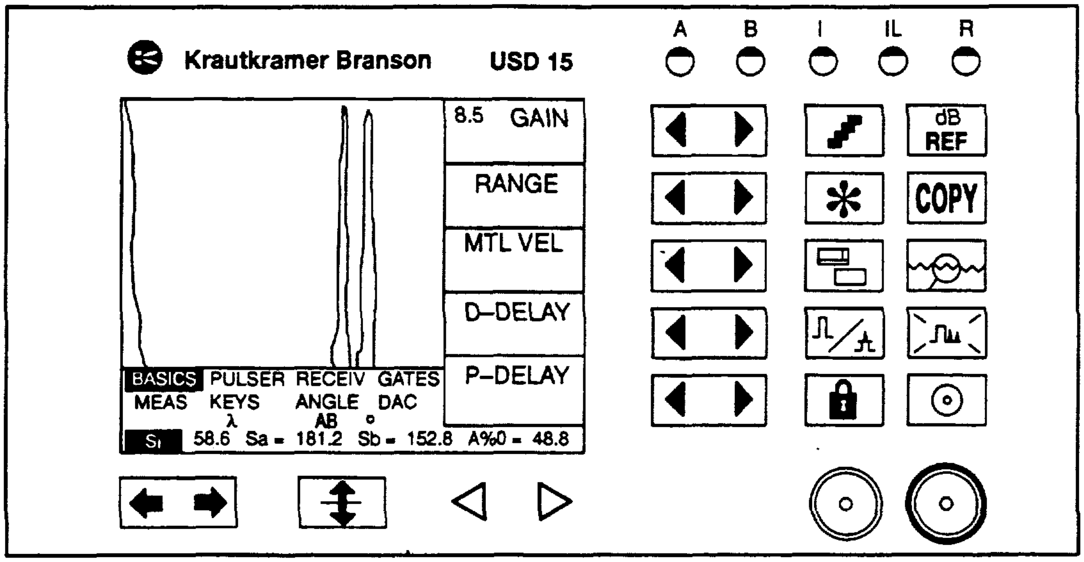
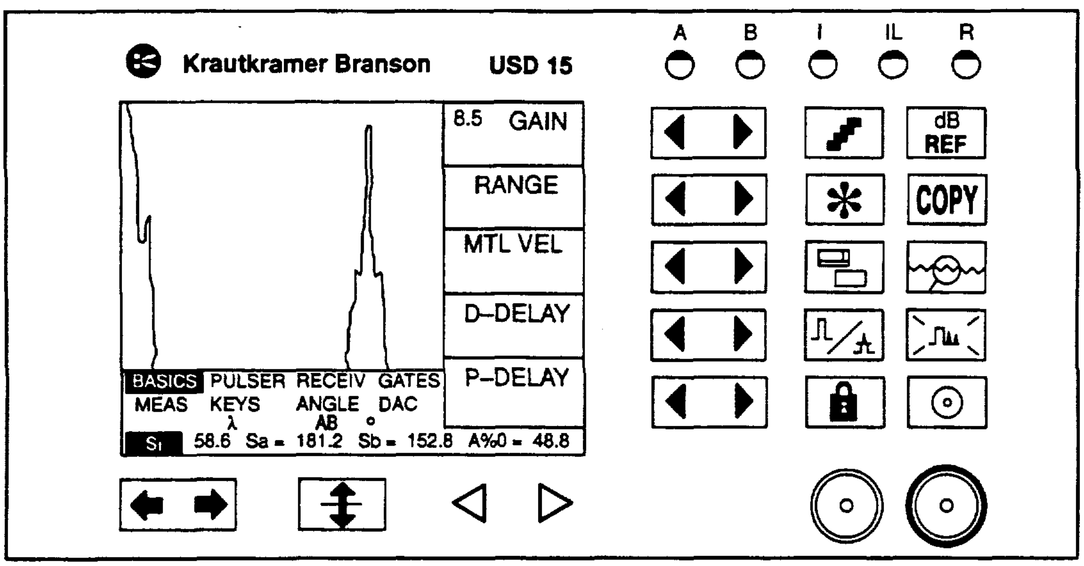


Figure 4-38. Landing Gear Cross Tubes (Sheet 1 of 2)



BOLT HOLE



CRACK FROM BOLTHOLE

NDI_UH-1_F4_38_2

Figure 4-38. Landing Gear Cross Tubes (Sheet 2 of 2)

(2) Position transducer at a cracked hole and note signal from cracks. Typically, the reflection from the cracks (especially large cracks) will be larger than the signal from the hole. Move the transducer circumferentially and note the additional amount of transducer movement (distance) obtained from the cracks. Mark the points at which the amplitude of the crack signals are just detectable (0 percent to 5 percent FSH). By knowing the size of the cracks in the reference block and the differences in transducer movement (distance) between the uncracked and cracked a rough estimate of crack size may be made.

If the reference block is used, position transducer on back of the reference block (notches down) so that the ultrasonic signal is trapped by the end of the block. "Peak" out the first reflection from the 0.040-inch deep notch and adjust gain level to approximately 50 percent FSH. Use delay to position this peaked signal at mid-screen. This block will permit setup of gain, range and delay only. As experience is gained with this inspection, setup may be made using holes in the test part.

4.38.3.6 Inspection Procedure. Couple the transducer to the cross tube at the area to be inspected. Locate and peak out signal from one of the rivet holes. Adjust gain to compensate for paint and surface finish differences between reference block and the cross tube requiring inspection. Manipulate the transducer circumferentially. Note transducer travel distance and observe CRT for signals indicative of crack. Transducer movement more than 1/4 inch greater than from a good hole and indication is still present on CRT are cause for rejection. Repeat the inspection for the remaining holes.

4.38.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.38.4 Backup Method Fluorescent Penetrant, refer to paragraph 1.4.7.

4.38.5 System Securing. The landing gear assembly requires cleaning to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The landing gear assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.39 SKID TUBE SADDLES (ET).

4.39.1 Description (Figure 4-1. Index No. 39). The landing gear assembly consists of two skid tubes attached on ends of the arched cross tubes which are secured to the fuselage structure. Each skid tube is fitted with two saddles with sockets for forward and aft cross tubes.

4.39.2 Defects. This inspection is to verify cracks found visually on the saddles surrounding areas of the skid tubes or the cross tubes. No cracks are allowed.

4.39.3 Primary Method. Eddy Current.

4.39.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

4.39.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the skid tube saddles removed in accordance with the applicable technical manuals listed in Table 1-1.

4.39.3.3 Access. Not applicable.

4.39.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

4.39.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

4.39.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-39.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 4.39.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.39.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

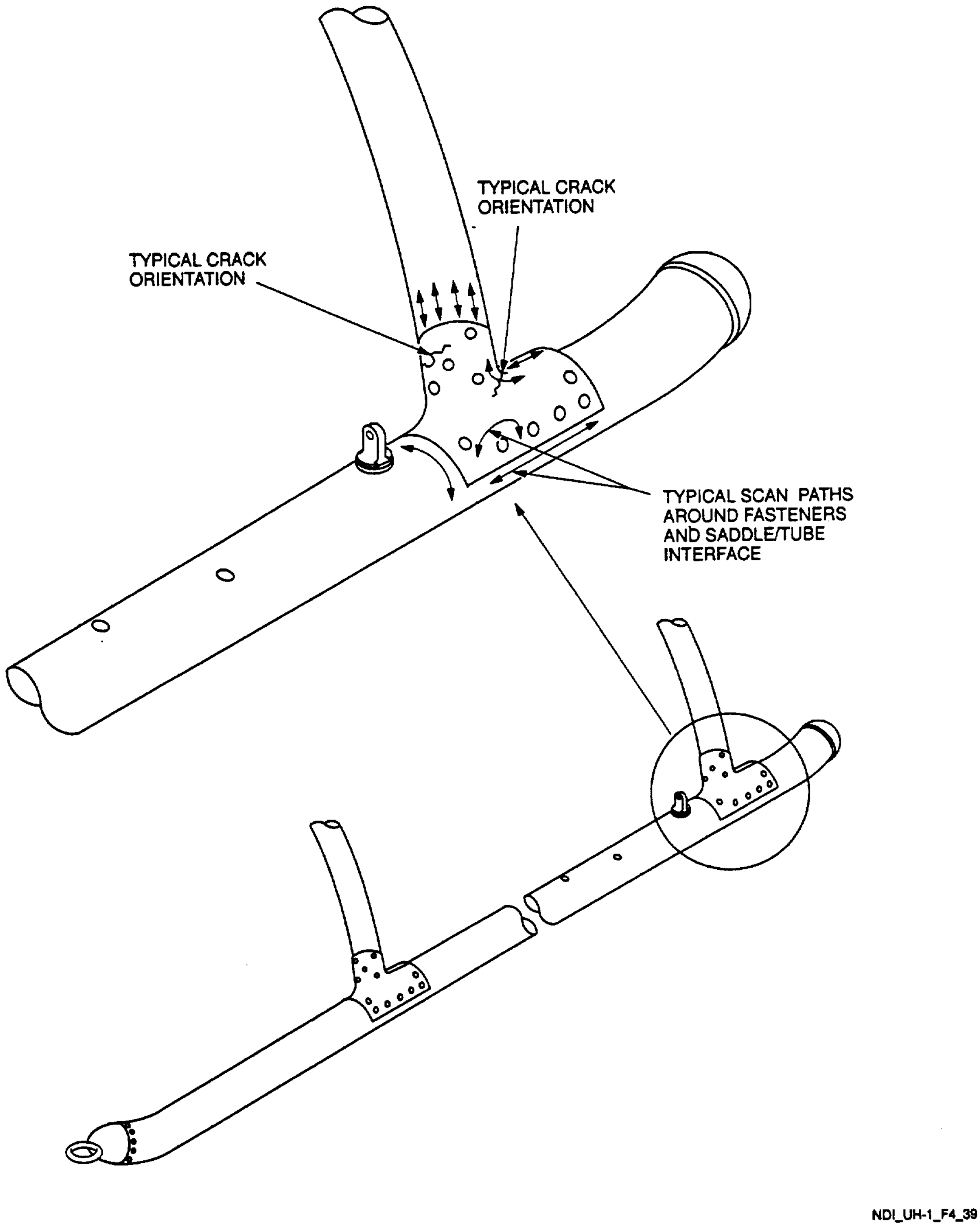


Figure 4-39. Skid Tube Saddles

4.39.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

4.39.4 Backup Method None required.

4.39.5 System Securing. The skid tube saddles require installation in accordance with the applicable technical manuals listed in Table 1-1.

SECTION V

ENGINE GROUP

5. GENERAL.

5.1 CONTENTS. The engine group inspection items covered in this section are those items of the UH-1 helicopter series gas turbine engine, model T53-L-13B, and components listed in Table 5-1, Engine Group Inspection Index. Corresponding inspection figures and applicable text paragraphs are listed opposite each item. The index number for each item may be used to locate it in Figure 5-1.

Table 5-1. Engine Group Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Non-Self-Purging Particle Separator- Air Induction System	PT	5.2	5-2
3	Inlet Screen Latch Assembly Self-Purging - Air Induction System	PT	5.3	5-3
4	Air Particle Separator Self-Purging - Air Induction System	PT	5.4	5-4
5	Improved Particle Separator (IPS) Air Induction System	PT	5.5	5-5
6	Exhaust System Clamp	PT	5.6	5-6
7	Tailpipe and Heatshield	PT	5.7	5-7
8	Oil System - Metal Lines and Fittings	PT	5.8	5-8
9	Engine Oil Tank Support	PT	5.9	5-9
10	Engine Oil Cooler	PT	5.10	5-10
11	Engine Oil Cooler Turbo Blower	PT	5.11	5-11
12	Oil Separator	PT	5.12	5-12
13	Engine External Oil Filter Head and Bowl	PT	5.13	5-13
*14	Power Lever Control Rods	MT	5.14	5-14
*15	Power Lever Torque Tube	MT	5.15	5-15
16	Power Lever Controls	ET	5.16	5-16
17	Cambox Assembly	ET	5.17	5-17
18	Power Lever Control Mounting Brackets and Plates	PT	5.18	5-18

NOTE: *Indicates Flight Safety Part.

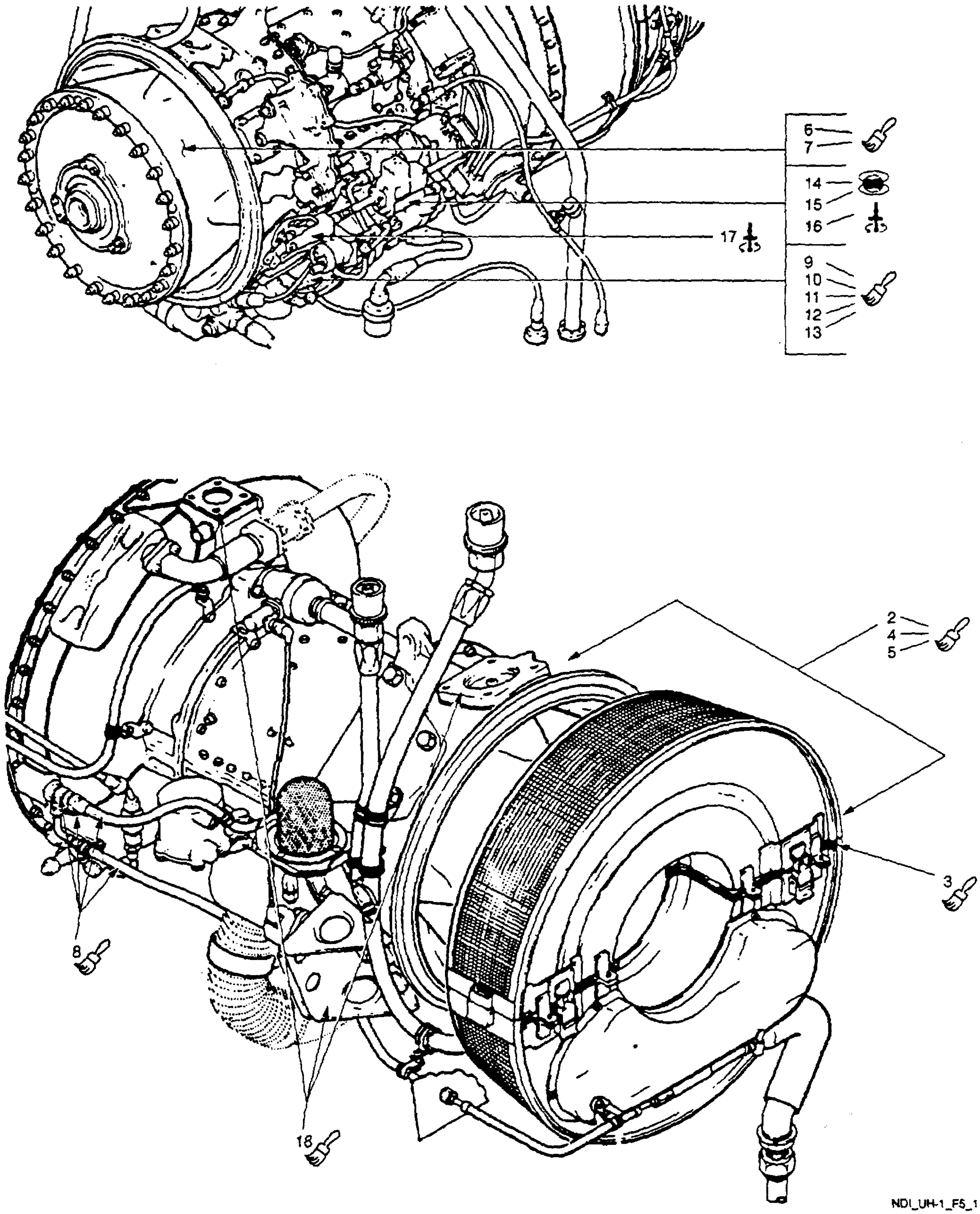


Figure 5-1. Engine Group

5.2 NON-SELF-PURGING PARTICLE SEPARATOR - AIR INDUCTION SYSTEM (PT).

5.2.1 **Description (Figure 5-1. Index No. 2).** The air particle separator is an inertial type separator consisting of an upper and lower assembly. Removal of the upper assembly half permits maintaining the main driveshaft and inspecting the engine inlet. The lower half mounts the air cleaner which collects particles removed from the engine inlet air and ejects them overboard. Inlet air then travels through a separator where remaining fine particles are circulated and stored in the separator.

5.2.2 **Defects.** This inspection is to verify crack indications found visually on any metal part of the system. This procedure can also be used to locate the exact ends of cracks to facilitate stop drill repairs.

5.2.3 **Primary Method**. Fluorescent Penetrant.

5.2.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.2.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed system using this procedure. If required, the air induction system shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

5.2.3.3 Access. Access is through the upper and side filter covers.

5.2.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.2.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-2.

5.2.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.2.4 **Backup Method** None required.

5.2.5 **System Securing**. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The air induction system, if removed, requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the upper and side filter covers as required.

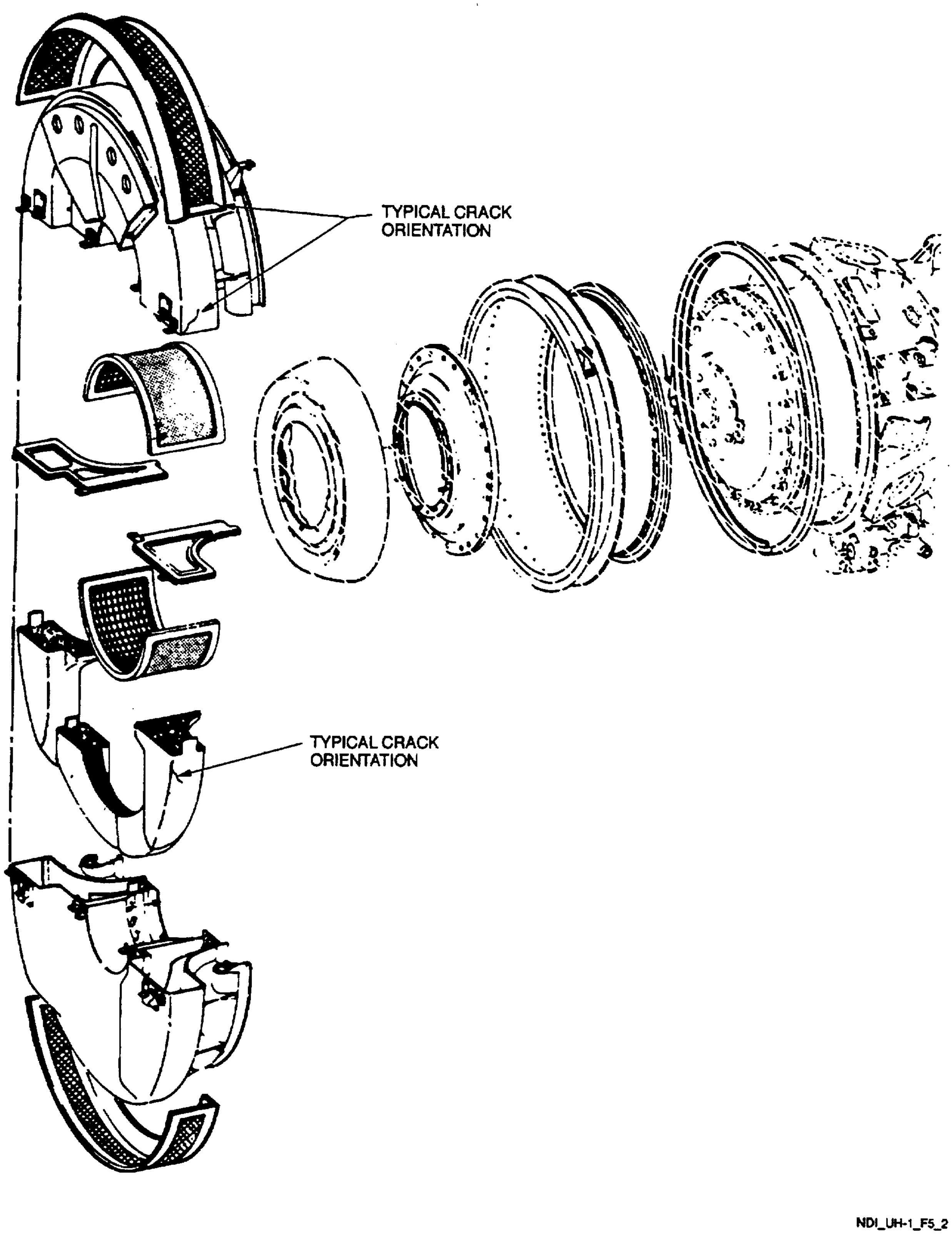


Figure 5-2. Non-Self-Purging Particle Separator - Air Induction System

5.3 INLET SCREEN LATCH ASSEMBLY SELF-PURGING - AIR INDUCTION SYSTEM (PT).

5.3.1 Description (Figure 5-1. Index No. 3). The particle separator inlet screen prevents engine damage from large foreign objects being injected into the engine intake. The upper and lower stainless steel wire woven screen assemblies are held together by latches.

5.3.2 Defects. This inspection is to verify cracks found visually on the latch assembly. No cracks are allowed.

5.3.3 Primary Method. Fluorescent Penetrant.

5.3.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.3.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with the applicable technical manuals listed in Table 1-1.

5.3.3.3 Access. Access is through the upper and side filter covers.

5.3.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.3.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1,4.7 and Table 1-5. Inspect area of concern. See Figure 5-3.

5.3.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.3.4 Backup Method None required.

5.3.5 System Securing. Clean the latch assembly to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. Secure the upper and side filter covers as required.

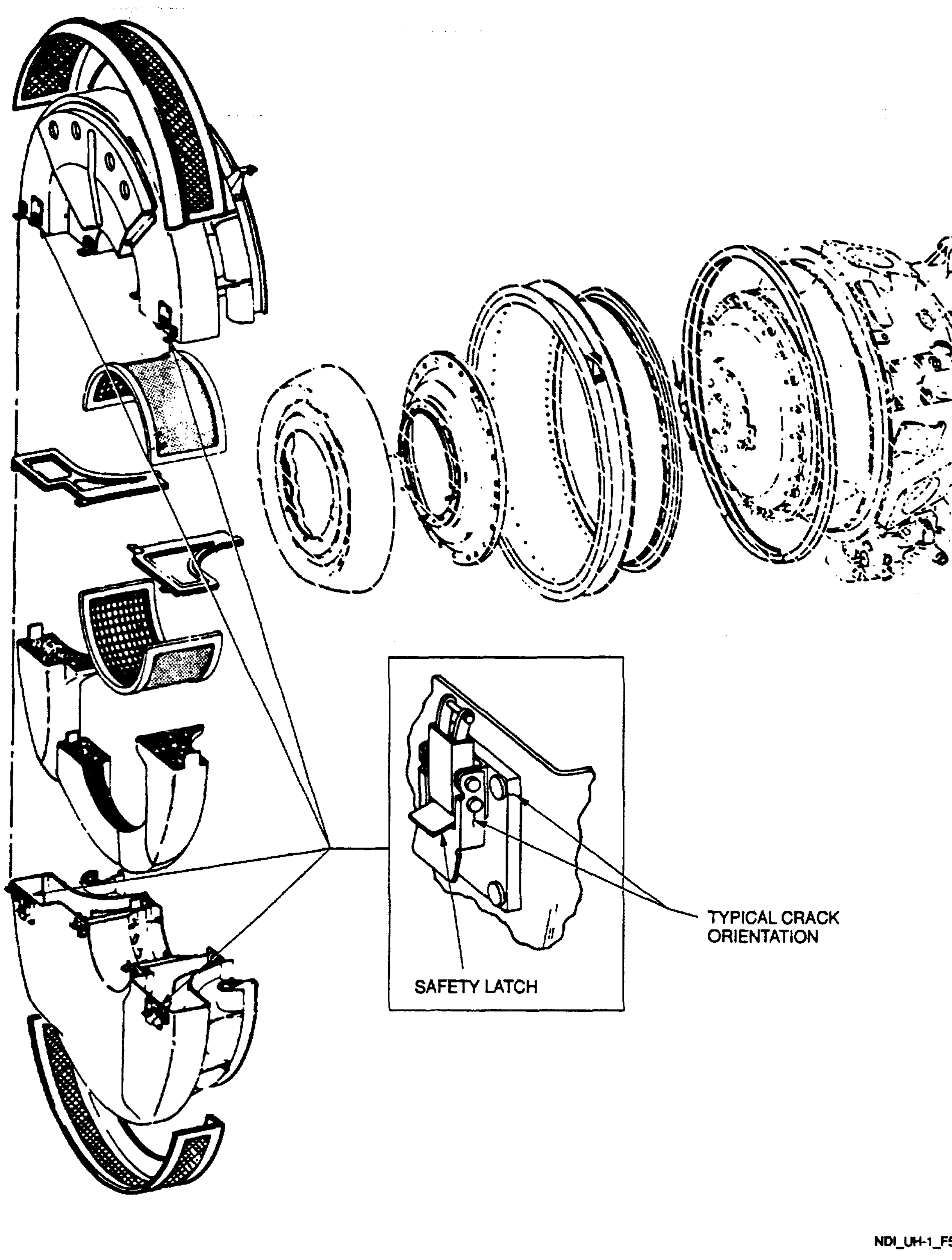


Figure 5-3. Inlet Screen Latch Assembly Self-Purging - Air Induction System

5.4 AIR PARTICLE SEPARATOR SELF-PURGING - AIR INDUCTION SYSTEM (PT).

5.4.1 Description (Figure 5-1. Index No. 4). Helicopters have a sand and dust separator that is an inertial type separator consisting of an upper and lower assembly. Removal of the upper assembly half permits maintaining the main driveshaft and inspecting the engine inlet. The lower assembly half mounts the air cleaner which collects particles removed from the engine inlet air and ejects them overboard. Inlet air then travels through a separator where remaining fine particles are filtered out and carried overboard through air frame plumbing.

5.4.2 Defects. This inspection is to verify crack indications found visually on all metal surfaces to include weld cracks, particularly in areas of inlet vanes in both the upper and lower assembly halves. This procedure can also be used to locate the exact ends of cracks to facilitate stop drill repairs.

5.4.3 Primary Method. Fluorescent Penetrant.

5.4.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.4.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed system using this procedure. If required, the air induction system shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

5.4.3.3 Access. Access is through the upper and side filter covers.

5.4.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.4.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent , Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-4.

5.4.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.4.4 Backup Method. None required.

5.4.5 System Securing. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The air induction system, if removed, requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1. Secure upper and side filter covers as required.

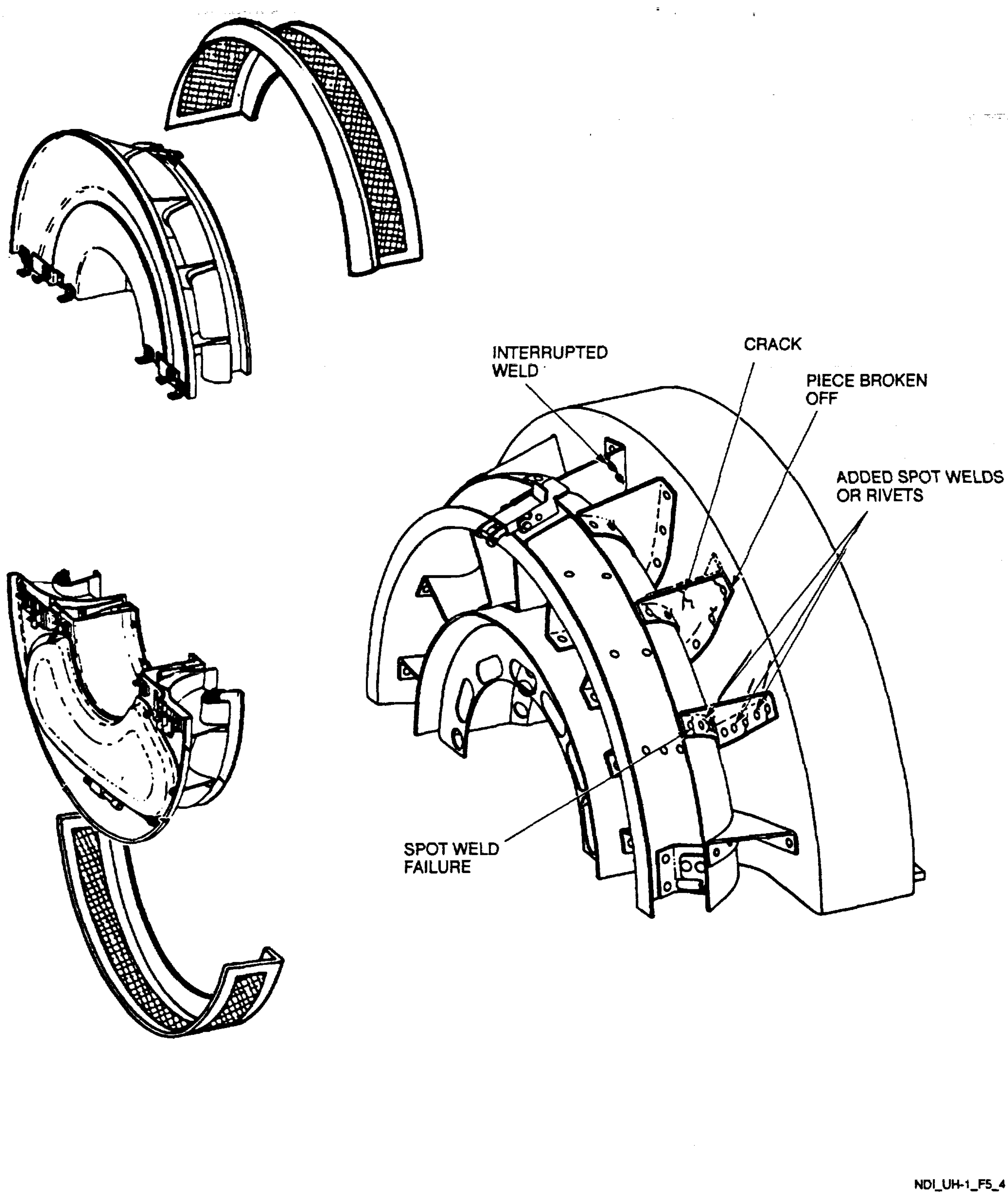


Figure 5-4. Air Particle Separator Self-Purging - Air Induction System

5.5 IMPROVED PARTICLE SEPARATOR (IPS) AIR INDUCTION SYSTEM (PT).

5.5.1 Description (Figure 5-1. Index No. 5). The IPS is a self-purging particle separator air induction system. It is an inertial type system consisting of an upper and lower assembly. Removal of upper assembly allows detailed examination of main driveshaft and engine inlet. The lower assembly is attached to the fuselage. The upper half is attached to the lower half and engine firewall and contains vortex generator tubes which separate dust and foreign objects from incoming air and eventually ejects them through rear vertical slots.

5.5.2 Defects. This inspection is to verify crack indications found visually in the structures or welds of the upper or lower halves, the inner bellows, and bleed air connector. This procedure can also be used to locate the exact ends of cracks to facilitate stop drill repairs.

5.5.3 Primary Method. Fluorescent Penetrant.

5.5.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.5.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed system using this procedure. If required, the air induction system shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

5.5.3.3 Access. Access is through the transmission fairing and upper engine cowl. (Figure 1-4, Items 2 and 6)

5.5.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.5.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-5.

5.5.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.5.4 Backup Method None required.

5.5.5 System Securing. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The air induction system, if removed, requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the transmission fairing and upper engine cowl as required.

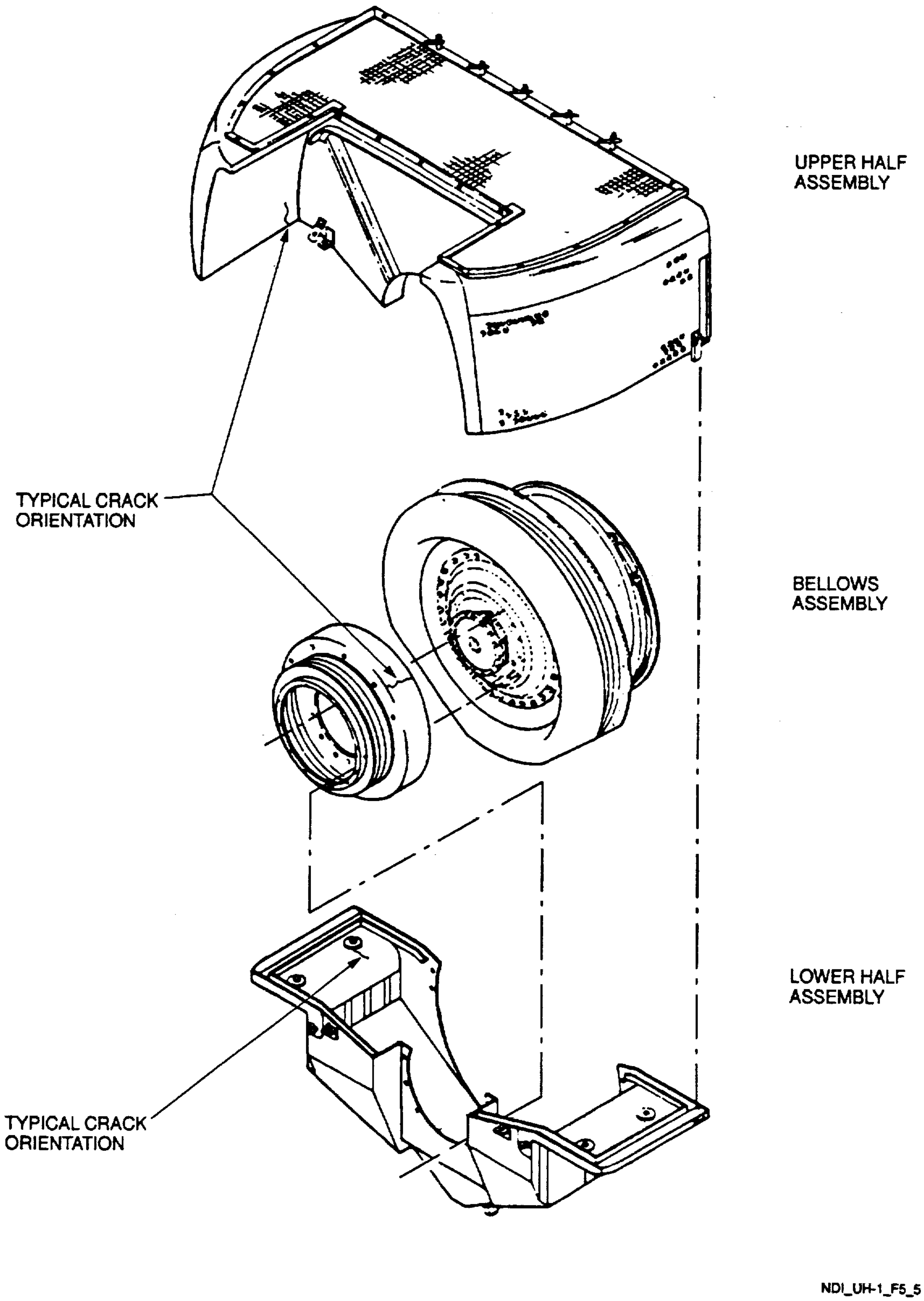


Figure 5-5. Improved Particle Separator (IPS) Air Induction System

5.6 EXHAUST SYSTEM CLAMP (PT).

5.6.1 **Description (Figure 5-1. Index No. 6).** The exhaust system clamp is used to attach the tailpipe to outer diffuser flange of engine.

5.6.2 **Defects.** This inspection is to verify crack indications found visually on the clamp. No cracks are allowed.

5.6.3 **Primary Method.** Fluorescent Penetrant.

5.6.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.6.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the clamp shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.6.3.3 Access. Access is through the upper and lower tailpipe fairing. (Figure 1-4, Items 8 and 10)

5.6.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.6.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-6.

5.6.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.6.4 **Backup Method** None required.

5.6.5 **System Securing.** Clean the clamp to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The exhaust clamp, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the upper and lower tailpipe fairings as required.

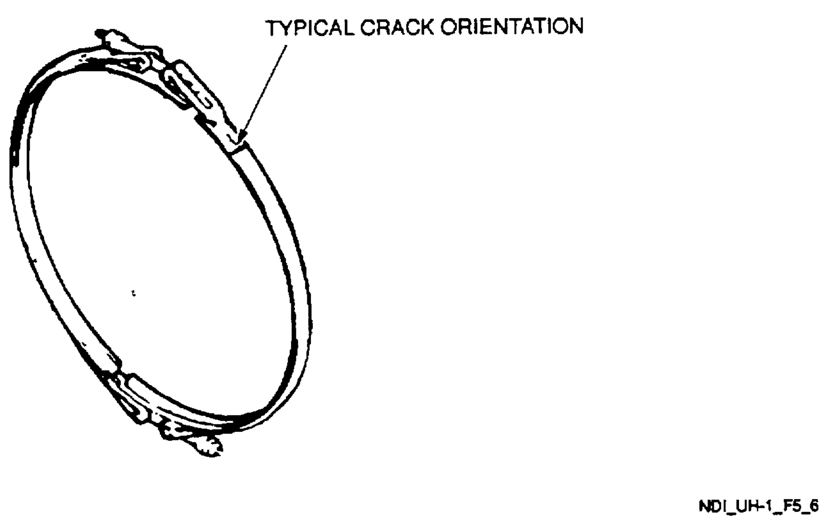


Figure 5-6. Exhaust System Clamp

5.7 TAILPIPE AND HEATSHIELD (PT).

5.7.1 Description (Figure 5-1. Index No. 7). The tailpipe is constructed of 0.032-inch corrosion resistant steel, AMS-5532, condition N-155. It is clamped on outer diffuser flange and directs hot gases aft and slightly up away from tailboom. The heatshield protects the airframe from tailpipe heat damage.

5.7.2 Defects. This inspection is to verify crack indications found visually on the tailpipe and the heatshield. This procedure can also be used to locate the exact ends of cracks to facilitate stop drill repairs.

5.7.3 Primary Method. Fluorescent Penetrant.

5.7.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.7.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tailpipe shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.7.3.3 Access. Access is through the upper and lower tailpipe fairings. (Figure 1-4, Items 8 and 10)

5.7.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.7.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-7.

5.7.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

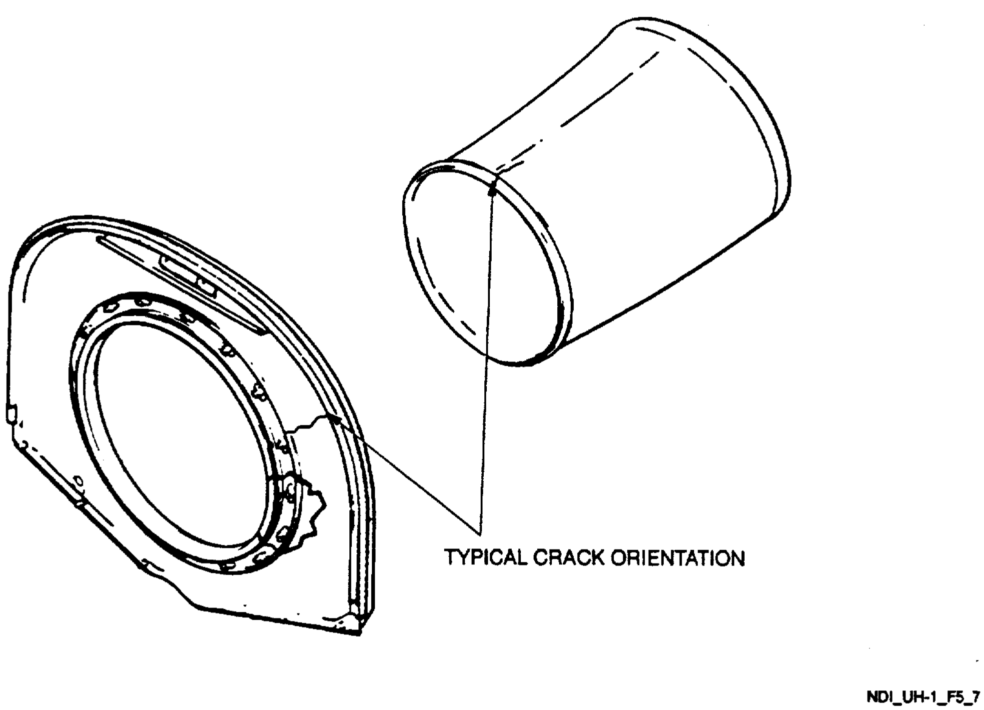


Figure 5-7. Tailpipe and Heatshield

5.7.4 Backup Method None required.

5.7.5 System Securing. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tailpipe assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the upper and lower tailpipe fairings as required.

5.8 OIL SYSTEM - METAL LINES AND FITTINGS (PT).

5.8.1 Description (Figure 5-1. Index No. 8). The oil system plumbing consists of flexible hose, metal tubing, valves, and connector fittings. Flexible hose is used in low-pressure systems where components are subjected to vibration. Metal tubing is used in high-pressure or critical systems.

5.8.2 Defects. This inspection is to verify crack indications found visually on any metal tubing or fitting. No cracks are allowed.

5.8.3 Primary Method. Fluorescent Penetrant.

5.8.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.8.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed parts using this procedure. If required, the metal tubing and fittings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.8.3.3 Access. Access is through the transmission fairing and engine cowl. (Figure 1-4, Items 2 and 4)

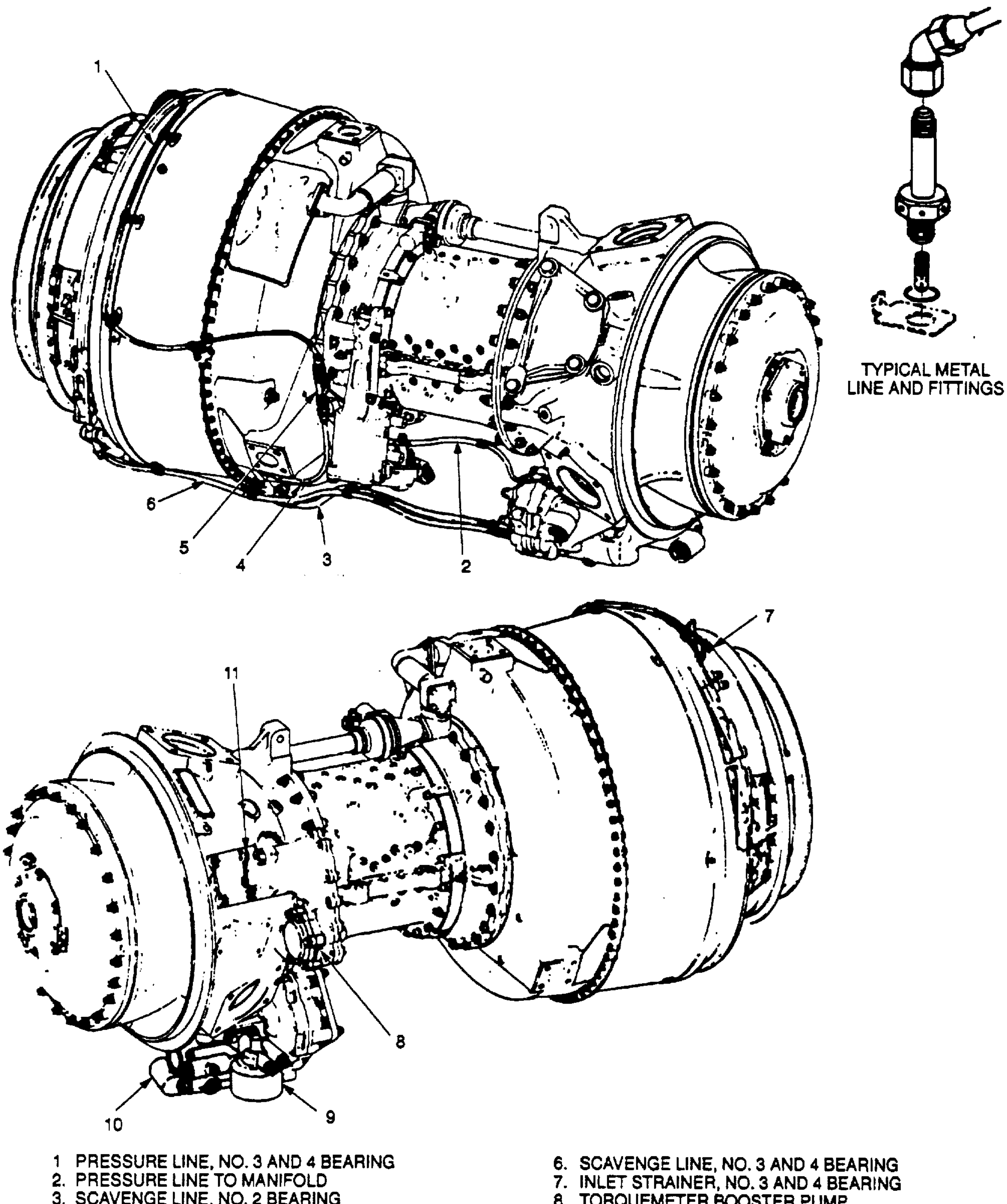
5.8.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.8.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-8.

5.8.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.8.4 Backup Method None required.

5.8.5 System Securing. Clean the tubing and fittings to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The metal tubing and fittings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the transmission fairing and engine cowl as required.



1 PRESSURE LINE, NO. 3 AND 4 BEARING
2. PRESSURE LINE TO MANIFOLD
3. SCAVENGE LINE, NO. 2 BEARING
4 PRESSURE LINE, NO. 2 BEARING
5. PRESSURE MANIFOLD
6. SCAVENGE LINE, NO. 3 AND 4 BEARING
7. INLET STRAINER, NO. 3 AND 4 BEARING
8. TORQUEMETER BOOSTER PUMP
9. ENGINE OIL FILTER
10. OIL PUMP
11. TEST GAGE CONNECTION

NDI_UH-1_F5_8

Figure 5-8. Oil System - Metal Lines and Fittings

5.9 ENGINE OIL TANK SUPPORT (PT).

5.9.1 Description (Figure 5-1. Index No. 9). The engine oil tank is secured by straps to a padded support on right side of forward firewall.

5.9.2 Defects. This inspection is to verify crack indications found visually on the tank support (removed from firewall) at mounting points. No cracks are allowed.

5.9.3 Primary Method. Fluorescent Penetrant.

5.9.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the engine oil tank support removed in accordance with the applicable technical manuals listed in Table 1-1.

5.9.3.3 Access. Not applicable.

5.9.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.9.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-9.

5.9.3.6 Marking and Recording of Inspection Results. Mark and record the Inspection results as required by paragraph 1.3.

5.9.4 Backup Method. None required.

5.9.5 System Securing. Clean the support to remove inspection media. Refer to Post Cleaning and - Restoration of Part or Area After NDI, paragraph 1.4.16. The engine oil tank support requires installation in accordance with the applicable technical manuals listed in Table 1-1.

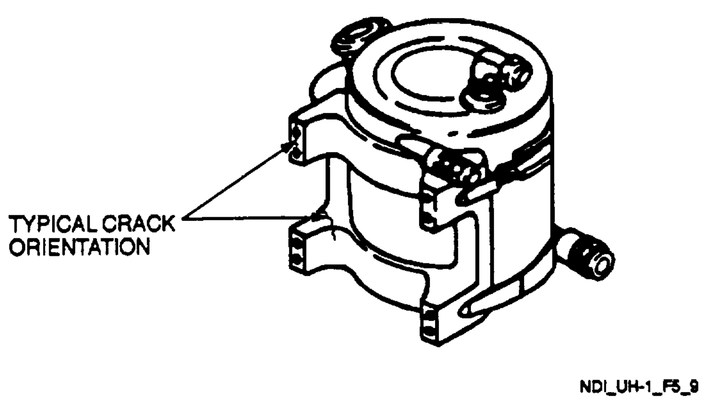


Figure 5-9. Engine Oil Tank Support

5.10 ENGINE OIL COOLER (PT).

5.10.1 Description (Figure 5-1. Index No. 10). The oil cooler for engine oil is mounted in bottom of fuselage behind engine and is connected into the oil return line through a thermal bypass valve. Cooling air flow is provided by a turbo blower driven by bleed air taken from engine diffuser housing.

5.10.2 Defects. This inspection is to verify crack indications found visually in the oil cooler. Particular attention should be given to detecting cracked flanges, shrouds, ducts, castings, and welds. No cracks are allowed.

5.10.3 Primary Method. Fluorescent Penetrant.

5.10.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.10.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed cooler using this procedure. If required, the engine oil cooler shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.10.3.3 Access. Access is through the lower tailpipe cover. (Figure 1-4, Item 10) 5.10.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.10.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-10.

5.10.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.10.4 Backup Method. None required.

5.10.5 System Securing. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine oil cooler, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the lower tailpipe cover as required.

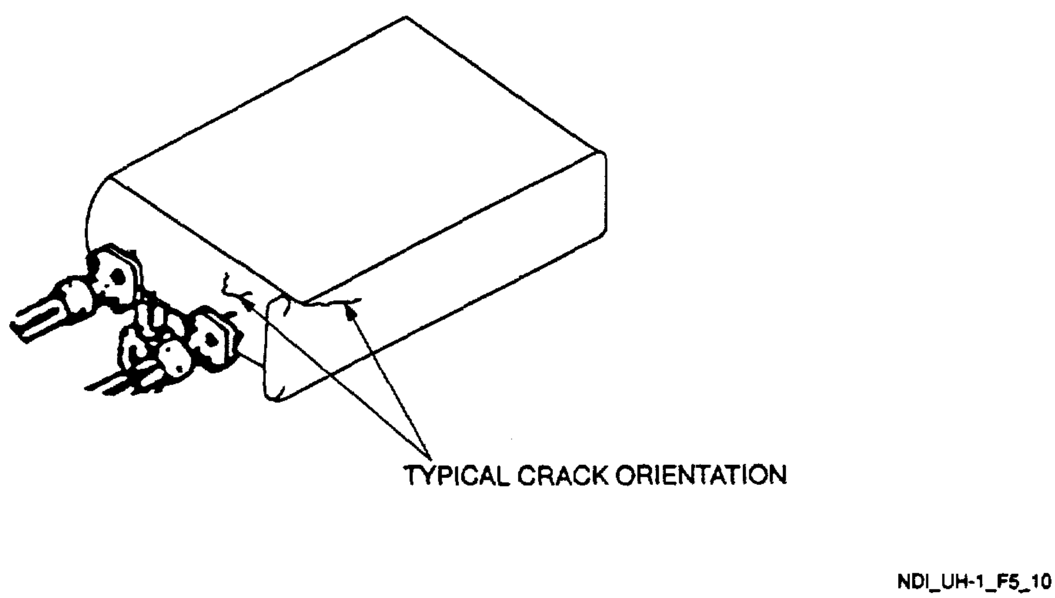


Figure 5-10. Engine Oil Cooler

5.11 ENGINE OIL COOLER TURBO BLOWER (PT).

5.11.1 Description (Figure 5-1. Index No. 11). Cooling air is provided by a turbo blower driven by bleed air taken from engine diffuser housing.

5.11.2 Defects. This inspection is to verify crack indications found visually in the welds or in the fan and turbine assembly of the turbo blower. No cracks are allowed.

5.11.3 Primary Method. Fluorescent Penetrant.

5.11.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.11.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the Installed turbo blower using this procedure. If required, the turbo blower assembly shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

5.11.3.3 Access. Access is through the lower tailpipe fairing. (Figure 1-4, Item 10) 5.11.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.11.3.5 Inspection Procedure. Perform fluorescent penetrant inspection; Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-11.

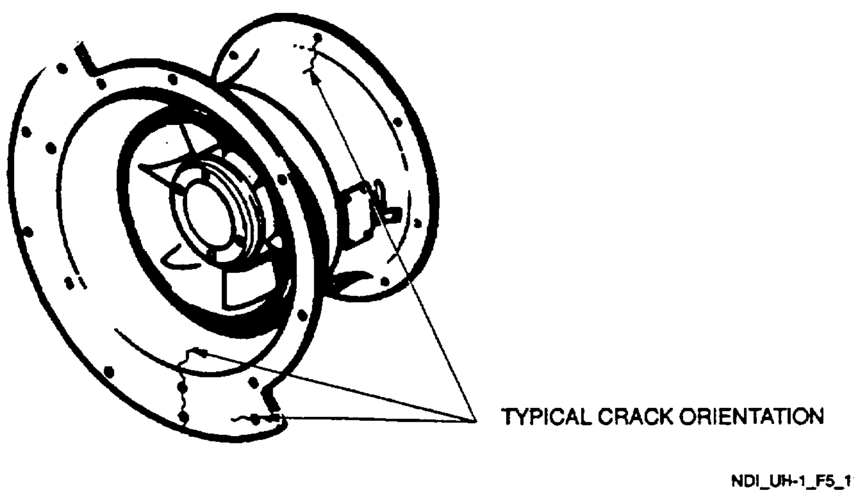


Figure 5-11. Engine Oil Cooler Turbo Blower

5.11.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.11.4 Backup Method. None required.

5.11.5 System Securing. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine oil cooler turbo blower, if removed, requires assembly and installation in accordance with the applicable technical_ manuals listed in Table 1-1. Secure the lower tailpipe fairing as required.

5.12 OIL SEPARATOR (PT).

5.12.1 Description (Figure 5-1. Index No. 12). A cyclonic oil separator and monitor is mounted on a bracket assembly on the left side of the forward firewall of the engine compartment. The separator has magnets in its chip detector that senses ferrous metal chips.

5.12.2 Defects. This inspection is to verify crack indications found visually, particularly at ports and mounting holes. No cracks are allowed.

5.12.3 Primary Method. Fluorescent Penetrant.

5.12.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the oil separator shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.12.3.3 Access. Access is through the left lower engine cowling. (Figure 1-4, Item 7) 5.12.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.12.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-12.

5.12.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.12.4 Backup Method. None required.

5.12.5 System Securing. Clean the inspected areas to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The oil separator, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the left lower engine cowling as required.

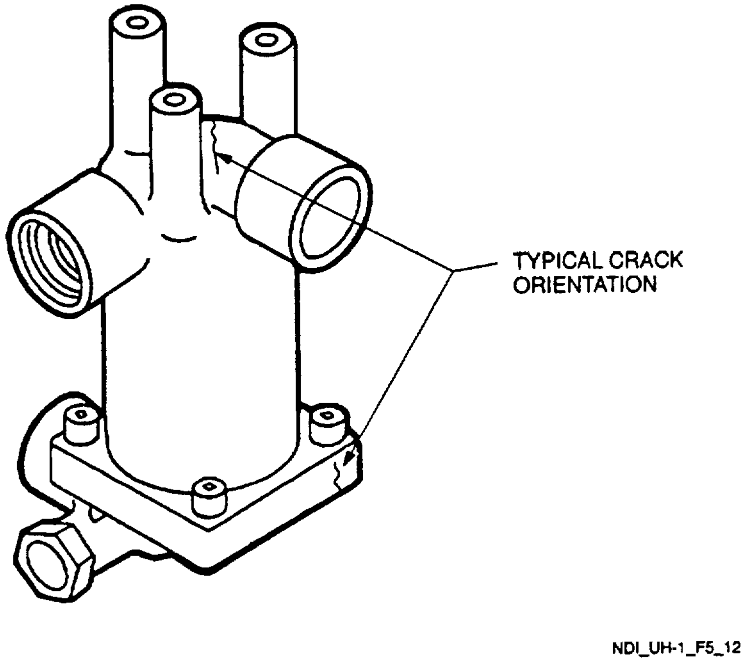


Figure 5-12. Oil Separator

5.13 ENGINE EXTERNAL OIL FILTER HEAD AND BOWL (PT).

5.13.1 Description (Figure 5-1. Index No. 13). The oil filter is mounted on a bracket on the firewall of the engine compartment, left side. The filter is encased in the filter bowl which is screwed onto the filter.

5.13.2 Defects. This inspection is to verify any crack indications found visually on the filter head and bowl. No cracks are allowed.

5.13.3 Primary Method. Fluorescent Penetrant.

5.13.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.13.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the filter head and bowl shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.13.3.3 Access. Access is through the left lower engine cowling. (Figure 1-4, Item 7) 5.13.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.13.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-13.

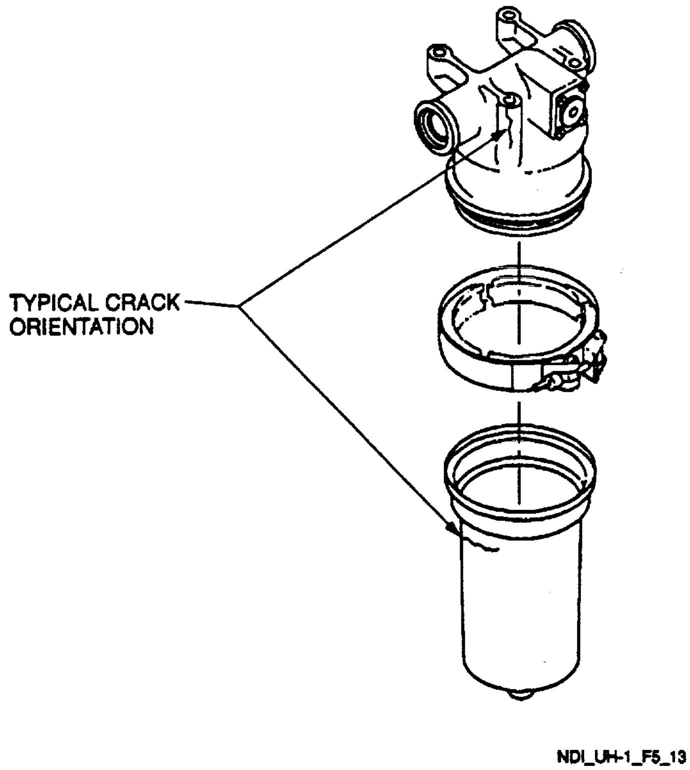


Figure 5-13. Engine External Oil Filter Head and Bowl

5.13.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.13.4 Backup Method. None required.

5.13.5 System Securing. Clean the filter head and bowl to remove inspection media. Refer to Post Cleaning and' Restoration of Part or Area After NDI, paragraph 1.4.16. The filter head and bowl, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

Secure the lower left engine cowling as required.

5.14 POWER LEVER CONTROL RODS (MT).

5.14.1 Description (Figure 5-1 . Index No. 14). A mechanical linkage system consists of power lever control rods that provide manual control of power lever on fuel control unit.

5.14.2 Defects. This inspection is to verify any crack indications found visually on power lever control rods. No cracks are allowed.

5.14.3 Primary Method. Magnetic Particle.

5.14.3.1 NDI Equipment and Materials (Refer to Appendix B.) a. Magnetic Particle Inspection Probe/Yoke b. Magnetometer c. BlackLight

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

5.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If ' required, the power lever control rods shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.14.3.3 Access. Obtain access to forward linkage by removing access doors along center of cabin floor and on structural pylon island. Obtain access to linkage aft of cabin through openings in lower side of fuselage and by opening engine compartment cowling on left side.

5.14.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.14.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

5.14.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 5-14.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 5.14.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

5.14.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

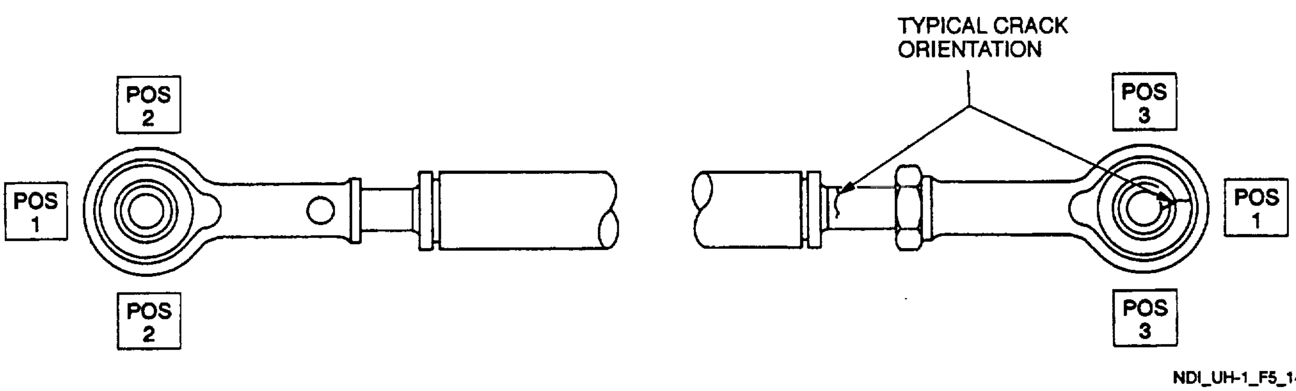


Figure 5-14. Power Lever Control Rods

5.14.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

5.14.4 Backup Method. None required.

5.14.5 System Securing. Clean the power lever control rods thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The control rods, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all doors and cowlings as required.

5.15 POWER LEVER TORQUE TUBE (MT).

5.15.1 Description (Figure 5-1. Index No. 15). The power lever torque tube is a pivoting attach point between the control stick and the fuel control unit.

5.15.2 Defects. This inspection is to verify crack indications found visually on the power lever torque tube. No cracks are allowed.

5.15.3 Primary Method. Magnetic Particle.

5.15.3.1 NDI Equipment and Materials (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8 5.1

5.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical arrange corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the power lever torque tube shall be removed in accordance with the applicable technical manuals listed In Table 1-1.

5.15.3.3 Access. Obtain access by removing access doors along center of cabin floor.

5.15.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.15.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

5.15.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 5-15.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

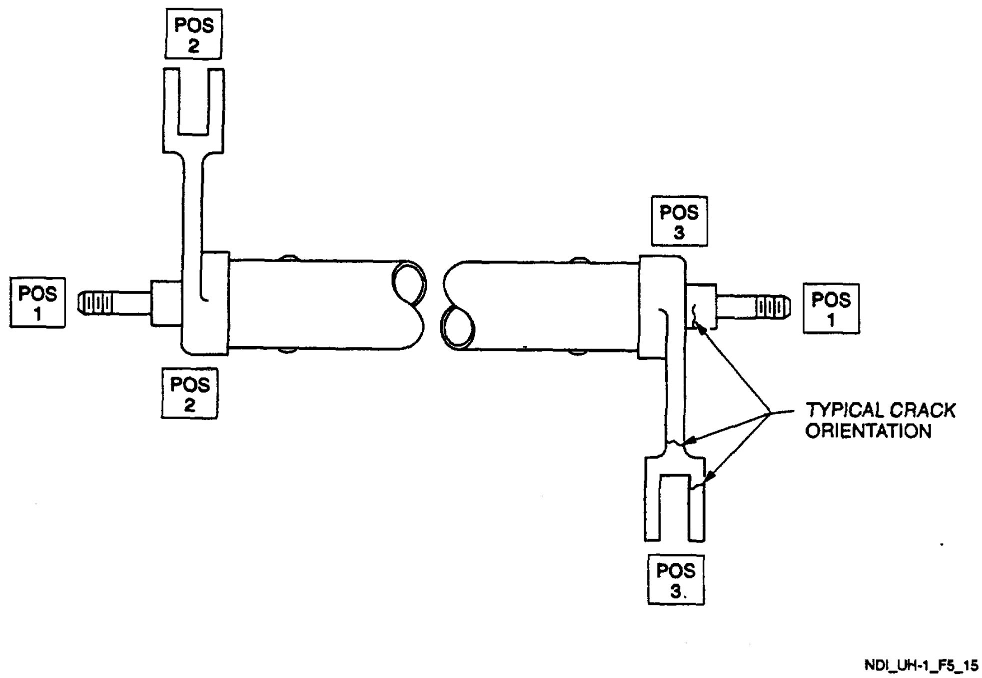


Figure 5-15. Power Lever Torque Tube

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 5.15.3.8.

f. Repeat steps a. through e. for positions 2 and 3.

5.15.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.15.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

5.15.4 Backup Method. None required.

5.15.5 System Securing. Clean the power lever torque tube thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The power lever torque tube, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure access doors as required.

5.16 POWER LEVER CONTROLS (ET).

5.16.1 Description (Figure 5-1. Index No. 16). This inspection is for bellcranks, control levers, and serrated washers in the power lever control system.

5.16.2 Defects. This inspection is to verify any crack indications found visually on power lever control parts. No cracks are allowed.

5.16.3 <u>Primary Method</u>. Eddy Current.

5.16.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

5.16.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the part to be inspected shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.16.3.3 Access. Obtain access to forward controls by removing access doors along center of cabin floor for controls aft of the cabin through openings in lower side of fuselage and by opening engine compartment cowling on left side.

5.16.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.16.3.5 NDI Equipment Settings

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19ell.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive - mid			
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:
   (1) Null probe on test block.
   (2) Adjust phase as required to obtain horizontal lift-off.
   (3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

5.16.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 5-16.

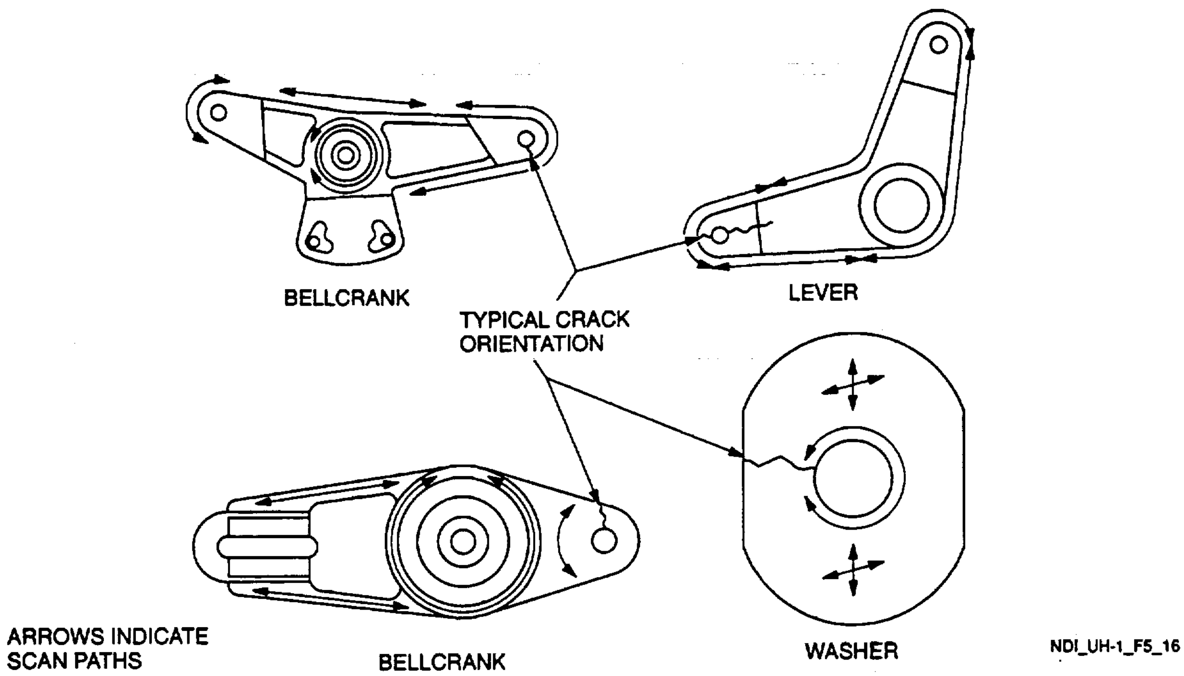


Figure 5-16. Power Lever Controls

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 5.16.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 5.16.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

5.16.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.16.4 Backup Method. None required.

5.16.5 System Securing. The parts inspected, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all doors and cowlings as required.

5.17 CAMBOX ASSEMBLY (ET).

5.17.1 Description (Figure 5-1. Index No.17). The cambox assembly consists of a housing, a cam, a bellcrank, and a slider. To stabilize RPM as engine load fluctuates, mechanical control linkages translate motion from a collective pitch control through the cambox to the fuel control governor lever.

5.17.2 Defects. This inspection is to verify any crack indications found visually on cambox assembly parts. No cracks are allowed.

5.17.3 Primary Method. Eddy Current.

5.17.3.1 NDI Equipment and Materials. (Refer to Appendix B.) a. Eddy Current Inspection Unit b. Probe, straight, shielded surface, 100 KHz-500 KHz c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop d. Cable Assembly e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches) f. Teflon Tape, refer to Table 1-8 g. Aircraft Marking Pencil, refer to Table 1-8 5.17.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the part to be inspected shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.17.3.3 Access. Access is through the left lower engine cowling. (Figure 1-4, Item 7) 5.17.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.17.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eII.

Frequency F1	-200 KHz	F2	-off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive - mid			
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

5.17.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 5-17.

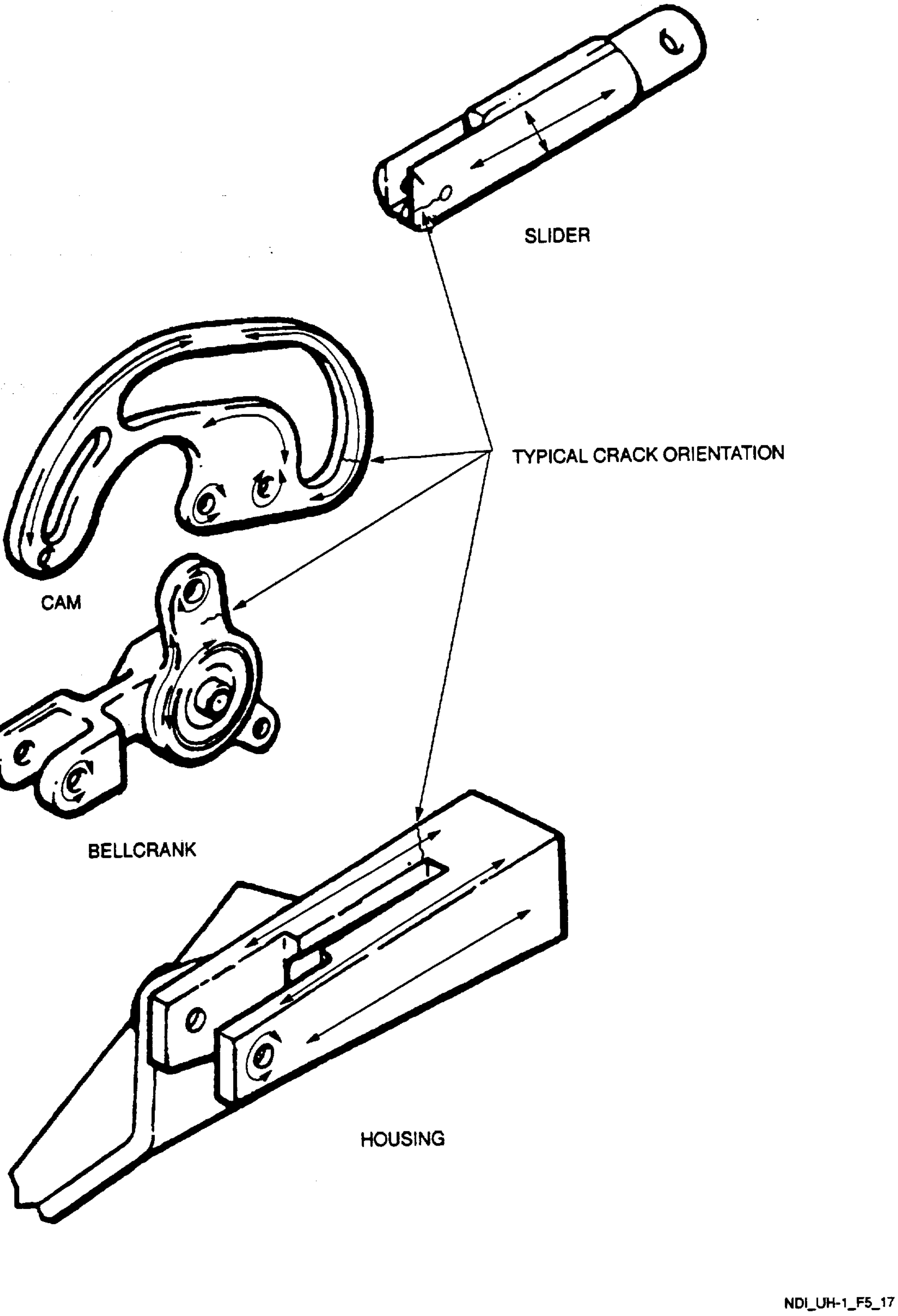


Figure 5-17. Cambox Assembly

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 5.17.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 5.17.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

5.17.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

5.17.4 Backup Method. None required.

5.17.5 System Securing. The part that was inspected, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the left lower engine cowling as required.

5.18 POWER LEVER CONTROL MOUNTING BRACKETS AND PLATES (PT).

5.18.1 Description (Figure 5-1. Index No. 18). The power lever control mounting brackets and plates are positioned throughout the forward fuselage and engine compartment area to support linkages, bellcranks, and levers required for maintaining fuel control integrity.

5.18.2 Defects. This inspection is to verify any crack indications found visually in the mounting brackets and plates. This inspection can also be used to detect hidden cracks in gouges and dents, before and after repair, and to locate exact ends of cracks to facilitate stop drill repair.

5.18.3 Primary Method. Fluorescent Penetrant.

5.18.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

5.18.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the part to be inspected shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.18.3.3 Access. Obtain access to forward mounting brackets and plates by removing access doors along center of cabin floor and on structural pylon island. Obtain access to aft of cabin through openings in lower side of fuselage and by opening engine compartment cowling on left side.

5.18.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

5.18.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 5-18.

5.18.3.6 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

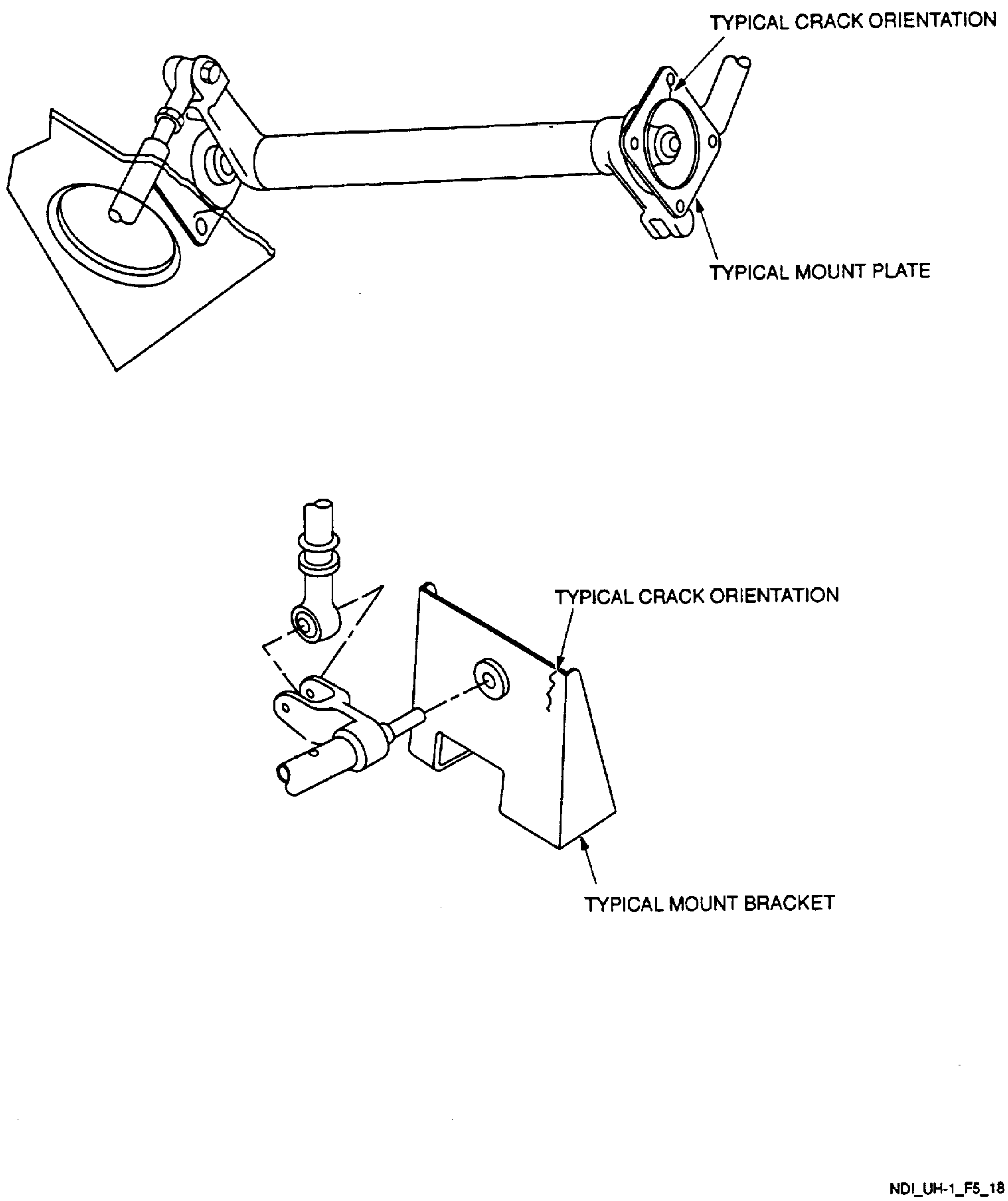


Figure 5-18. Power Lever Control Mounting Brackets and Plates

5.18.4 Backup Method. None required.

5.18.5 System Securing. Clean the inspected part to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The inspected part, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access doors, openings, and cowlings as required.

SECTION VI

FLIGHT CONTROL GROUP

6. GENERAL.

6.1 CONTENTS. The flight control group inspection items covered in this section are those items of the UH-1 helicopter series flight control and related hydraulic systems. The parts and components are listed in the Flight Control Group Inspection Index (Table 6-1). Corresponding inspection figures and applicable text paragraphs are listed opposite each item. The index number for each item may be used to locate it in Figure 6-1.

Table 6-1. Flight Control Group Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Hydraulic System Components	PT	6.2	6-2
3	Hydraulic Pump Assembly	ET	6.3	6-3
4	Ground Test Connections	PT	6.4	6-4
5	Relief Valve, Bolt, and Fitting	PT	6.5	6-5
6	Pressure Switch	PT	6.6	6-6
7	Solenoid Valves	PT	6.7	6-7
*8	Hydraulic Servo Cylinder Assembly (Cyclic (Control) Clevis	MT	6.8	6-8
*9	Hydraulic Servo Cylinder Tube Assembly (Cyclic Control)	PT	6.9	6-9
10	Hydraulic Servo Cylinder Assembly (Cyclic (Control) Housing	PT	6.10	6-10
11	Hydraulic Servo Cylinder (Cyclic Control) Cylinder Caps	PT	6.11	6-11
12	Hydraulic Servo Cylinder Assembly (Cyclic (Control)	PT	6.12	6-12
*13	Hydraulic Servo Cylinder Assembly (Collective (Control) Clevis	MT	6.13	6-13
14	Hydraulic Servo Cylinder (Collective Control) Tube Assembly	PT	6.14	6-14
15	Hydraulic Servo Cylinder Assembly (Collective Control) Piston Rod	MT	6.15	6-15
16	Hydraulic Servo Cylinder Assembly (Collective Control) Bearing Housing	PT	6.16	6-16
*17	Collective Control System Bellcrank	ET	6.17	6-17
*18	Collective Control System Lever Assembly	ET	6.18	6-18

Table 6-1. Flight Control Group Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*19	Collective Control System Support	ET	6.19	6-19
*20	Collective Control System Control Tubes	ET	6.20	6-20
*21	Tube and Lever Assembly	ET	6.21	6-21
22	Support Assembly, Hydraulic Cylinder Assembly (Starboard)	ET	6.22	6-22
23	Support Assembly, Hydraulic Cylinder Assembly (Port)	ET	6.23	6-23
24	Mixing Lever Assembly - Cyclic Controls	ET	6.24	6-24
*25	Cyclic Control System Control Tubes	ET	6.25	6-25
*26	Cyclic Control System Bellcranks and Levers	ET	6.26	6-26
*27	Cyclic Control System Supports	ET	6.27	6-27
28	Adjuster Assembly	ET	6.28	6-28
*29	Tail Rotor Control Quadrant	ET	6.29	6-29
30	Tail Rotor Control Tube and Quill - Sprocket Guard	PT	6.30	6-30
*31	Tail Rotor Control Tube and Quill - Control Tube	MT	6.31	6-31
*32	Tail Rotor Control Tube and Quill - Housing	PT	6.32	6-32
*33	Tail Rotor Control Tube and Quill - Retaining Nut	MT	6.33	6-33
*34	Tail Rotor Control Tube and Quill - Sprocket	PT	6.34	6-34
*35	Tail Rotor Control Tube and Quill - Bearing Retainer	PT	6.35	6-35
*36	Tail Rotor Control Tube and Quill - Spacer	MT	6.36	6-36
37	Tail Rotor Control Tube and Quill - Control Nut	PT	6.37	6-37
*38	Tail Rotor Control Tubes	ET	6.38	6-38
39	Tail Rotor Hydraulic Power Cylinder - Piston Rod	MT	6.39	6-39
40	Tail Rotor Hydraulic Power Cylinder Adapter	MT	6.40	6-40
*41	Tail Rotor Support Assembly	ET	6.41	6-41
*42	Tail Rotor Arm Assemblies	ET	6.42	6-42

Table 6-1. Flight Control Group Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*43	Tail Rotor Bellcrank Assembly	ET	6.43	6-43
44	Tail Rotor Cylinder and Support Assembly - Hardware	MT	6.44	6-44
*45	Tail Rotor Control System - Bellcranks	ET	6.45	6-45
*46	Tail Rotor Control System - Levers	ET	6.46	6-46
*47	Elevator Control System - Control Tubes	ET	6.47	6-47
*48	Elevator Control System - Bellcranks	ET	6.48	6-48
*49	Elevator Control System - Levers	ET	6.49	6-49
*50	Elevator Control System - Supports	ET	6.50	6-50
*51	Elevator Control System - Bellcranks, Levers, and Supports - Bearing Replacement	ET	6.51	6-51

NOTE: *Indicates Flight Safety Part.

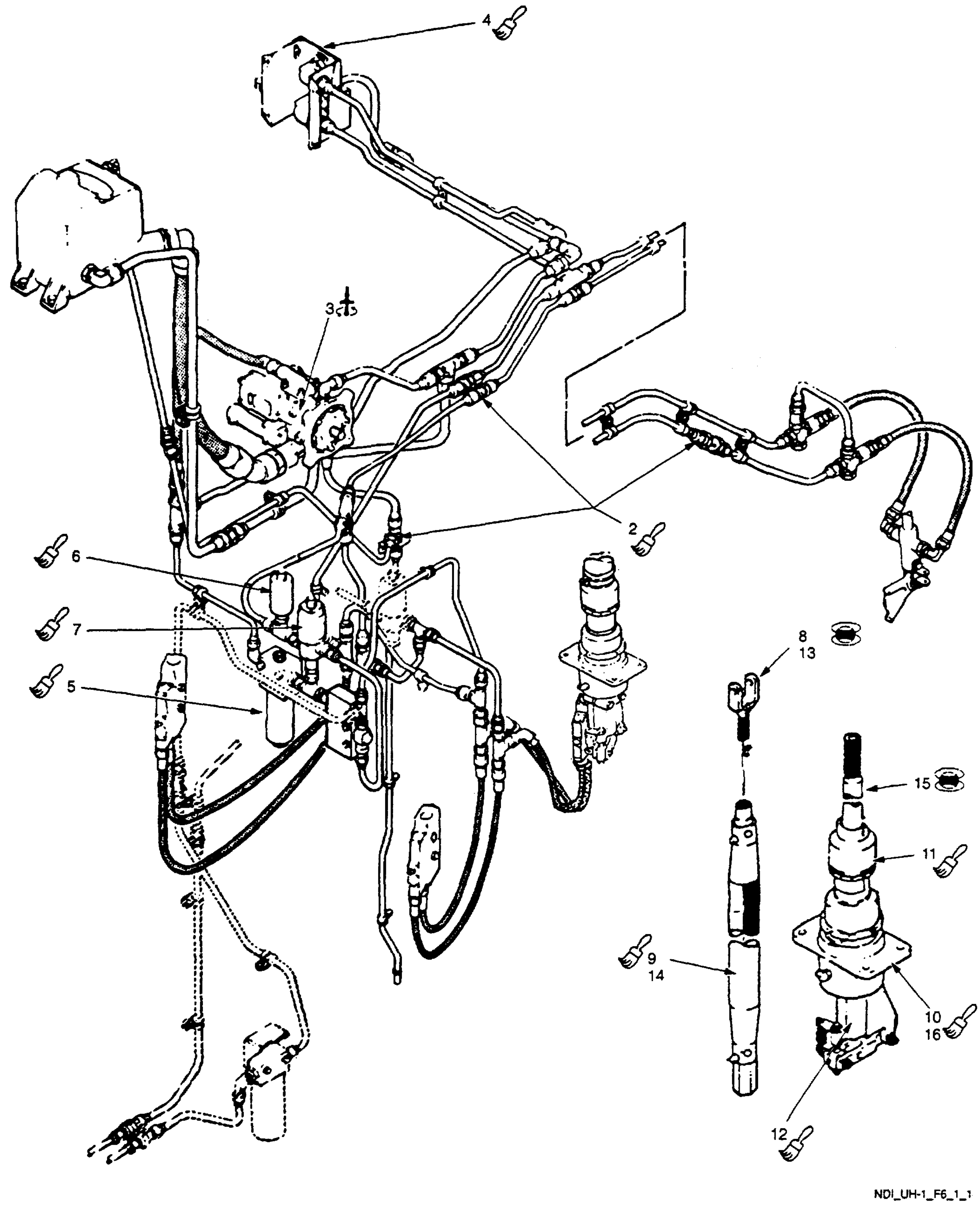


Figure 6-1. Flight Control Group (Sheet 1 of 5)

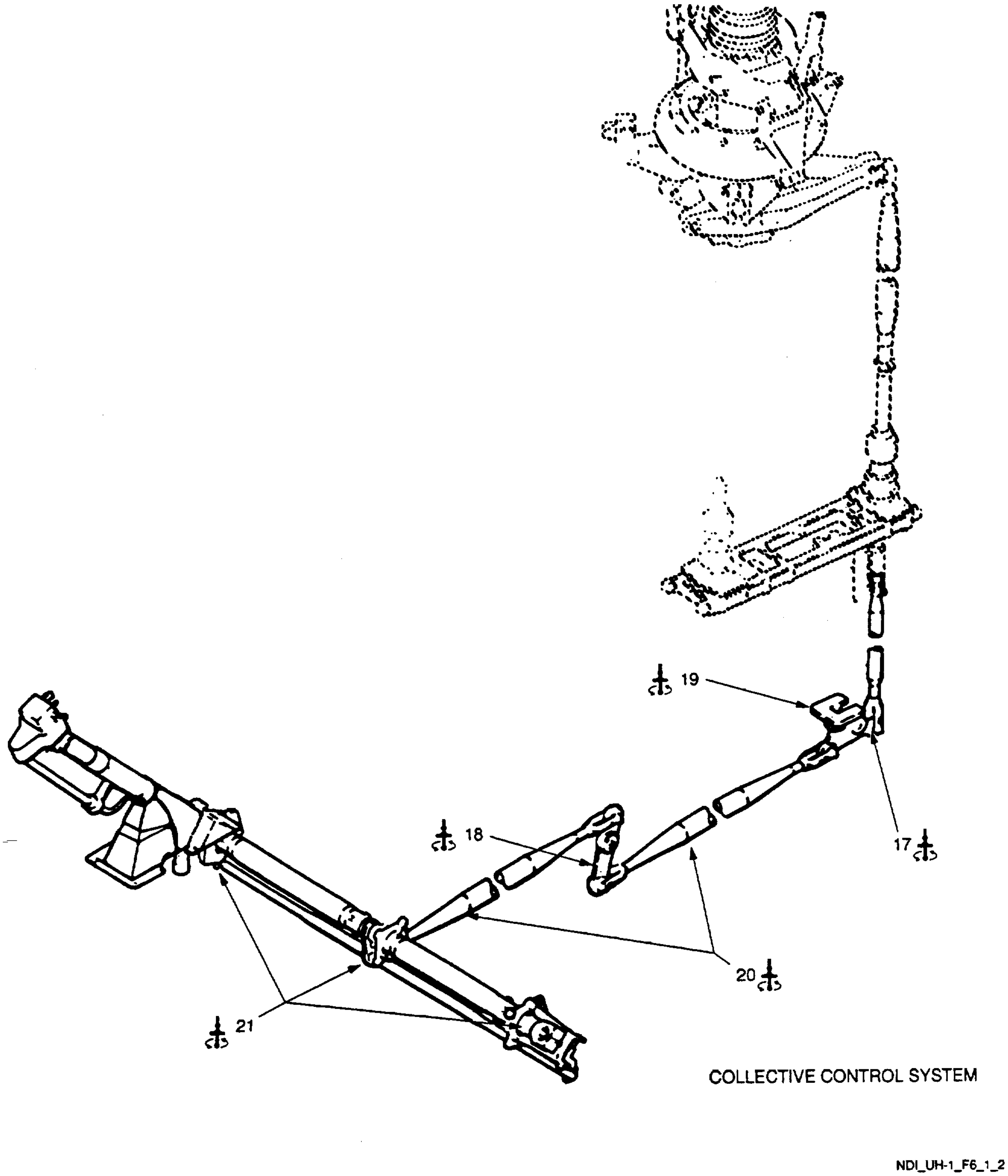


Figure 6-1. Flight Control Group (Sheet 2 of 5)

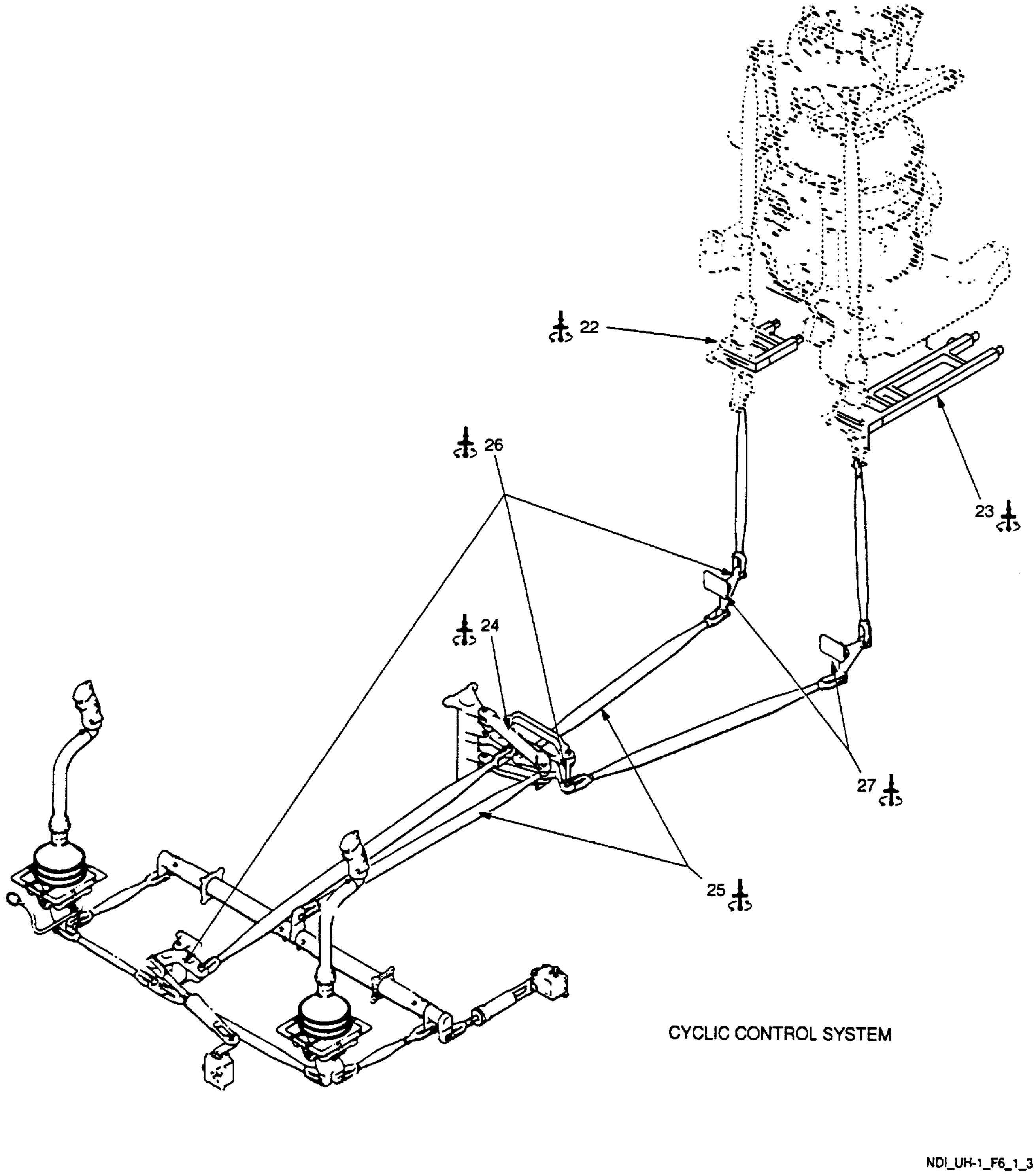


Figure 6-1. Flight Control Group (Sheet 3 of 5)

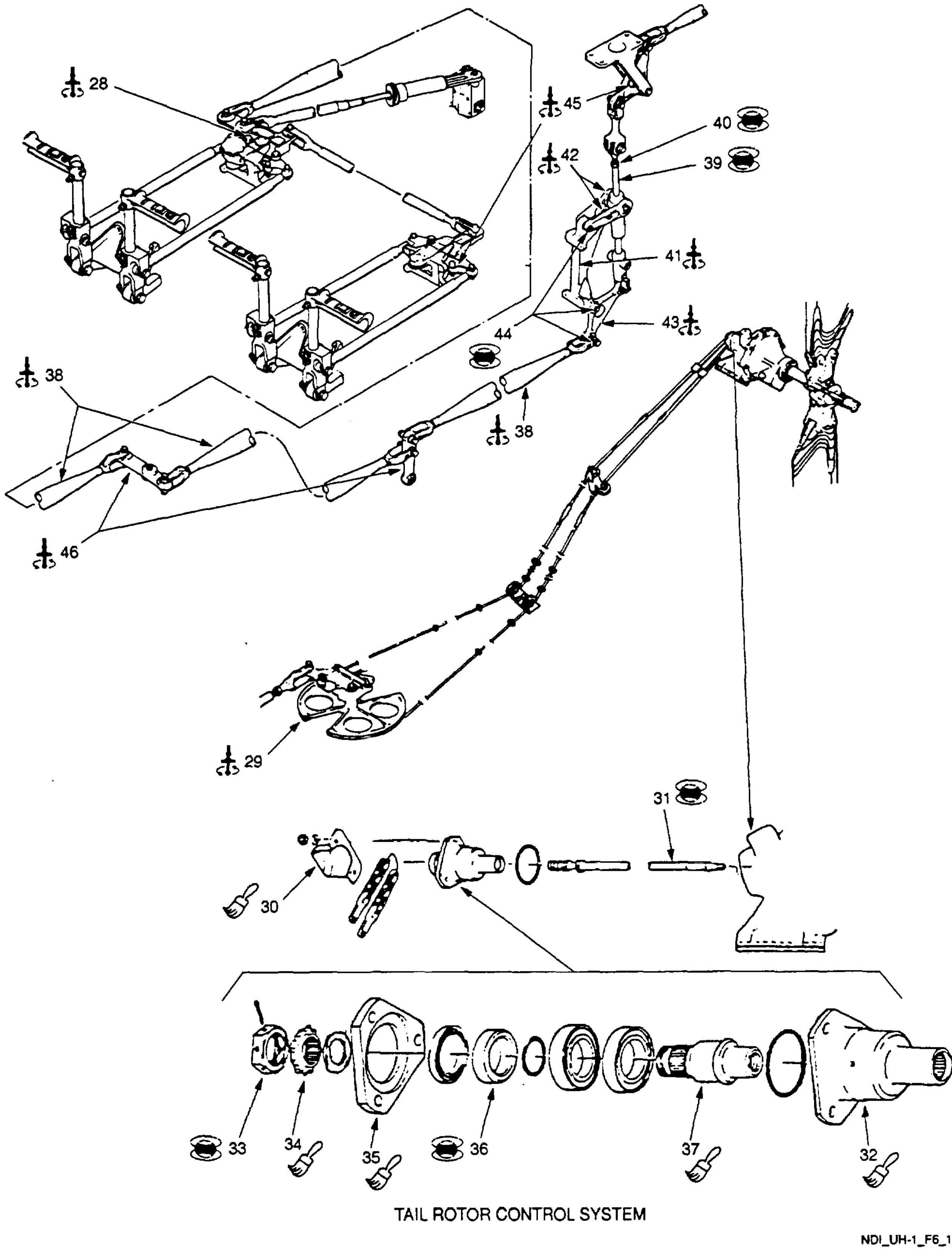


Figure 6-1. Flight Control Group (Sheet 4 of 5)

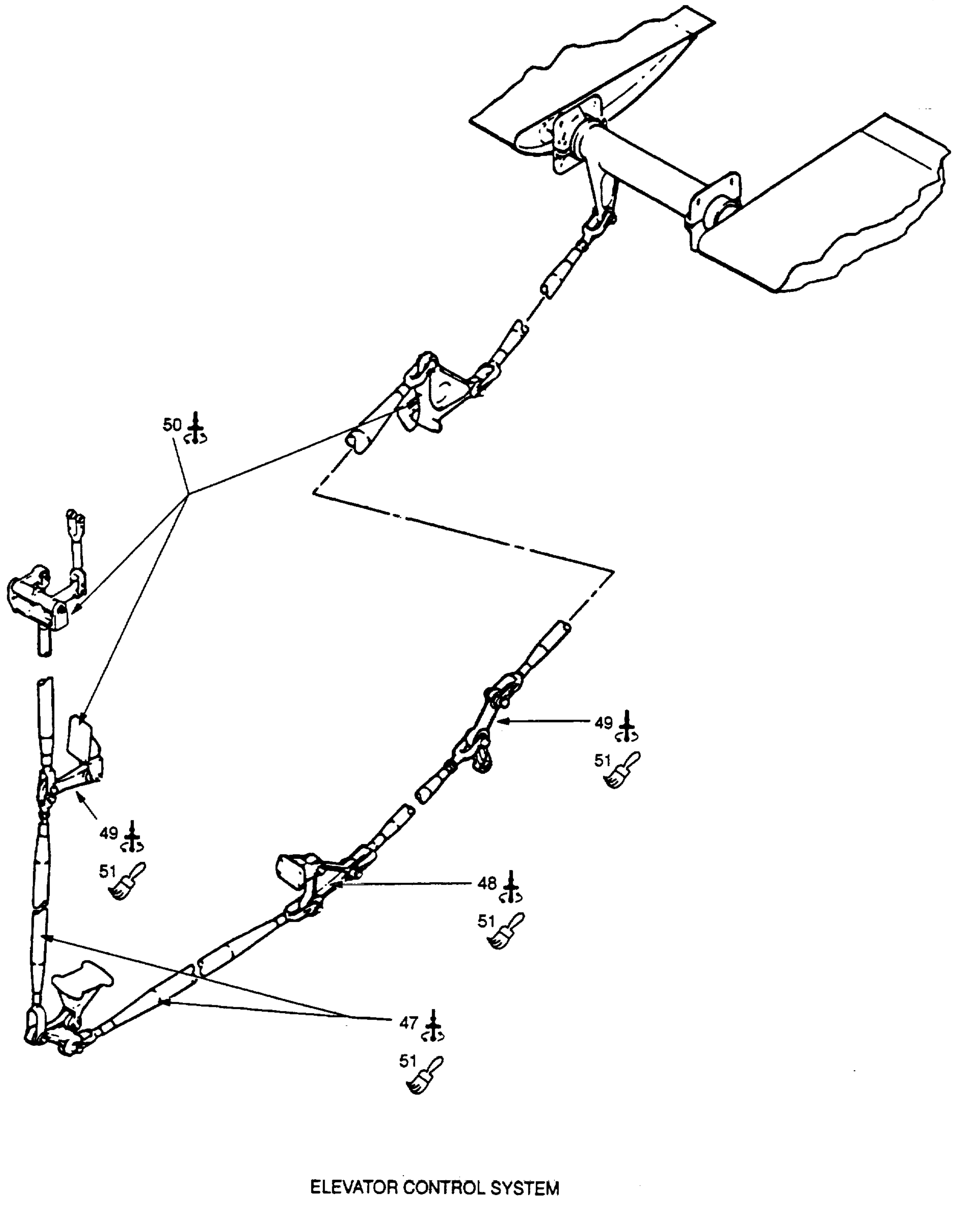


Figure 6-1. Flight Control Group (Sheet 5 of 5)

6.2 HYDRAULIC SYSTEM COMPONENTS (PT).

6.2.1 Description (Figure 6-1, Index No. 9). This inspection is applicable to all unpainted check valves, baffles, plugs, tubes, fittings, and nuts contained within the hydraulic system to verify cracks found visually. This inspection can also be used to verify any indications found on painted surfaces providing the paint is only removed from the immediate area of interest.

6.2.2 Defects. This inspection is to verify crack indications found visually in the hydraulic system components and surrounding areas. No cracks are allowed.

6.2.3 Primary Method. Fluorescent Penetrant.

6.2.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.2.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the component(s) shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.2.3.3 Access. Not applicable.

6.2.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.2.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-2.

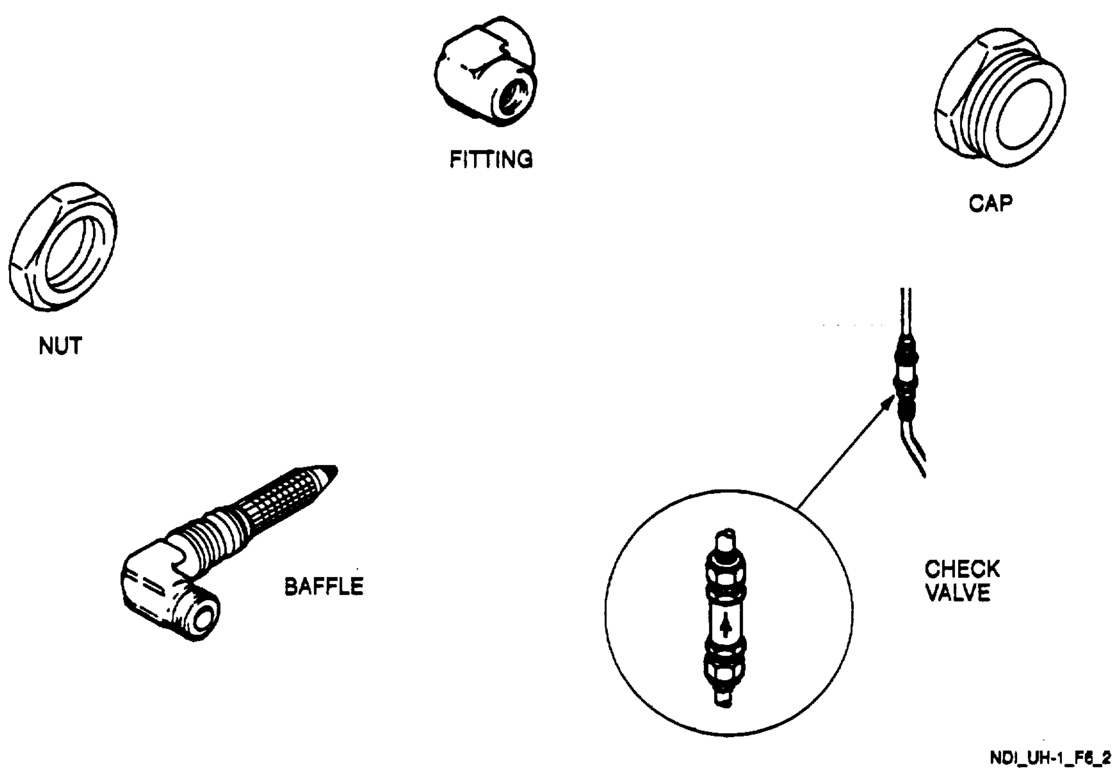


Figure 6-2. Hydraulic System Components

6.2.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.2.4 Backup Method. None required.

6.2.5 System Securing. Clean the identified component(s) to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The component(s), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.3 HYDRAULIC PUMP ASSEMBLY (ET).

6.3.1 Description (Figure 6-1. Index No. 3). The hydraulic pump is a variable-delivery axial-piston unit mounted on a geared trim pad at right side of transmission accessory drive adjacent to the rotor tachometer generator. Four external ports of the hydraulic pump are provided for connecting suction, pressure, pump lubrication, and for seepage drain.

6.3.2 Defects. This inspection is to verify crack indications found visually in the hydraulic pump assembly and surrounding areas. No cracks are allowed.

6.3.3 Primary Method. Eddy Current.

6.3.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Consumable Materials, refer to Table 1-8
h. Aircraft Marking Pencil, refer to Table 1-8

6.3.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the hydraulic pump shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.3.3.3 Access. Access is through the right pylon door. (Figure 1-4, Item 3) 6.3.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.3.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eI".

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		

Rot	- 56°
Probe drive	- mid
LPF	- 100
HPF	- 0
H Pos	- 80%
V Pos	-20%

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.3.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-3.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

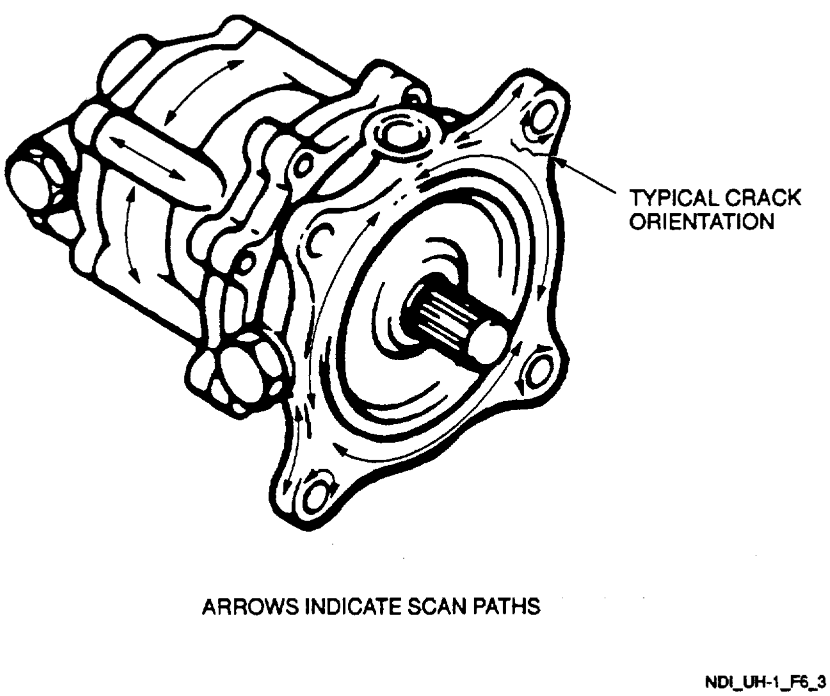


Figure 6-3. Hydraulic Pump Assembly

NOTE

Either probe identified in paragraph 6.3.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.3.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.3.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.3.4 Backup Method. None required.

6.3.5 System Securing. The hydraulic pump, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the right pylon door as required.

6.4 GROUND TEST CONNECTIONS (PT).

6.4.1 Description (Figure 6-1. Index No. 4). The ground test connections are used to connect the hydraulic test stand to functionally check hydraulic and flight control systems. This inspection is to verify any indications found visually on the coupling halves, cap assembly, and brackets providing the paint is removed only from the immediate area of interest.

6.4.2 Defects. This inspection is to verify crack indications found visually in the ground test connections and surrounding areas. No cracks are allowed.

6.4.3 Primary Method. Fluorescent Penetrant.

6.4.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table< =f 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.4.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the ground test connections shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.4.3.3 Access. Access is through the right side, lower engine cowling. (Figure 1-4, Item 7) 6.4.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.4.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-4.

6.4.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.4.4 Backup Method. None required.

6.4.5 System Securing. Clean the ground test connections to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The ground test connections, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the right side lower engine cowling as required.

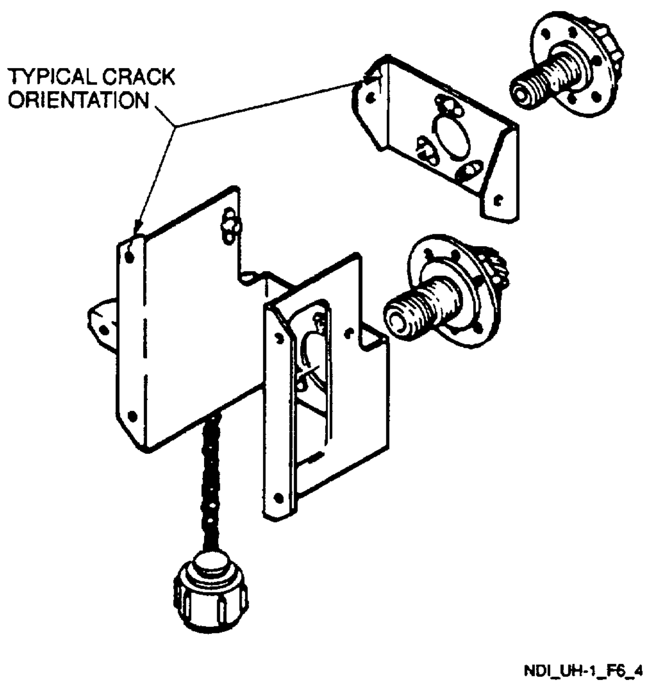


Figure 6-4. Ground Test Connections

6.5 RELIEF VALVE, BOLT, AND FITTING (PT).

6.5.1 Description (Figure 6-1, Index No. 5). A relief valve, located on the forward side of the cargo hook lift beam, acts as a safety device that monitors system pressure. This inspection is used to verify any crack indications found visually on the relief valve, bolt, and fitting providing paint is removed only from the immediate area of interest.

6.5.2 Defects. This inspection is to verify crack indications found visually in the relief valve, bolt, fitting, and surrounding areas. No cracks are allowed.

6.5.3 Primary Method. Fluorescent Penetrant.

6.5.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.5.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the identified components shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.5.3.3 Access. Not applicable.

6.5.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.5.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-5.

6.5.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.5.4 Backup Method. None required.

6.5.5 System Securing. Clean the identified component(s) to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The identified component(s), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.6 PRESSURE SWITCH (PT).

6.6.1 Description (Figure 6-1. Index No. 6). The hydraulic pressure switch is used in the hydraulic system pressure line to sense the system pressure.

6.6.2 Defects. This inspection is to verify crack indications found visually in the pressure switch and surrounding areas. Particular attention shall be given to the threaded area. No cracks are allowed.

6.6.3 Primary Method. Fluorescent Penetrant.

6.6.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

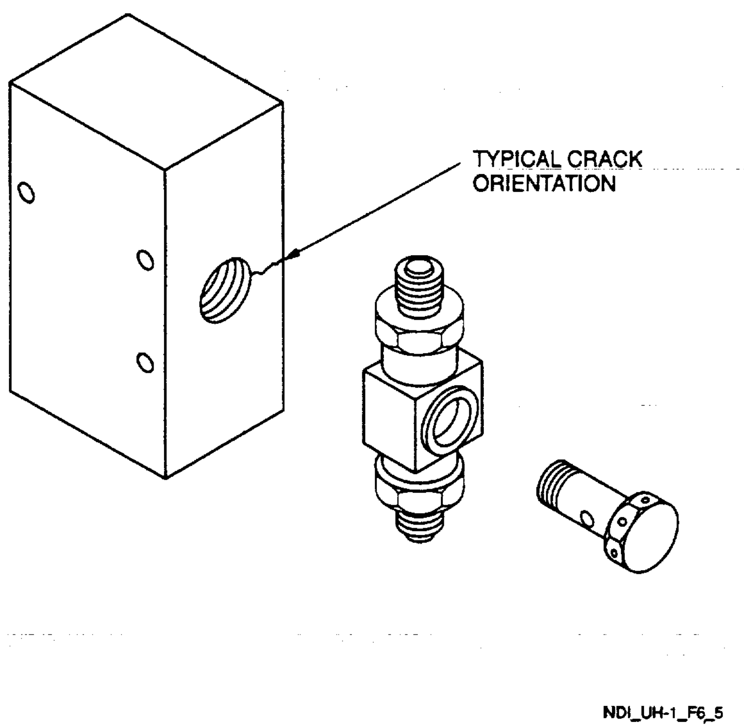


Figure 6-5. Relief Valve, Bolt, and Fitting

6.6.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the pressure switch shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.6.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.6.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.6.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-6.

6.6.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.6.4 Backup Method. None required.

6.6.5 System Securing. Clean the pressure switch to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The pressure switch, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.
Secure all applicable access panels, doors, and fairings as required.

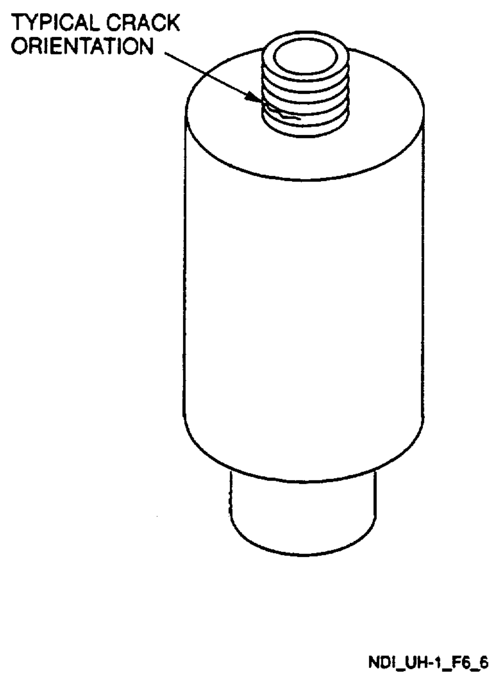


Figure 6-6. Pressure Switch

6.7 SOLENOID VALVES (PT).

6.7.1 Description (Figure 6-1. Index No. 7). Two solenoid valves are used. One is located on the forward side of the cargo lift beam and the other (on helicopters with armament provisions) is located on the aft side of the cargo lift beam.

6.7.2 Defects. This inspection is to verify crack indications found visually in the solenoid valves and surrounding areas. No cracks are allowed.

6.7.3 Primary Method. Fluorescent Penetrant.

6.7.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.7.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the solenoid valves shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.7.3.3 Access. Not applicable.

6.7.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.7.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-7.

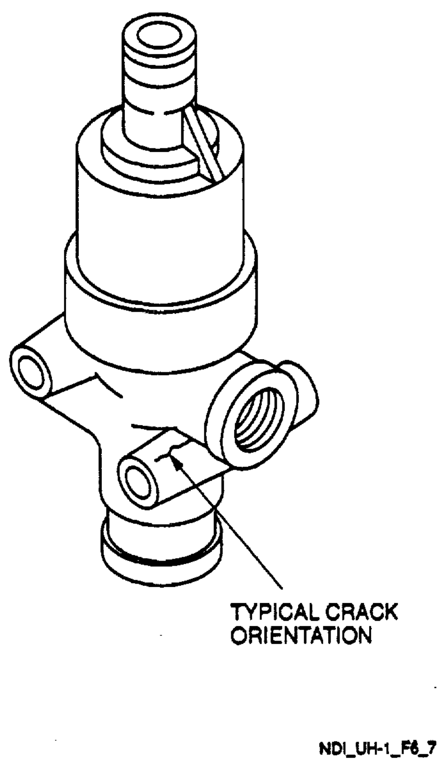


Figure 6-7. Solenoid Valves

6.7.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.7.4 Backup Method. None required.

6.7.5 System Securing. Clean the solenoid valves to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The solenoid valves, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

6.8 HYDRAULIC SERVO CYLINDER ASSEMBLY (CYCLIC CONTROL) CLEVIS (MT).

6.8.1 Description (Figure 6-1. Index No. 8). The hydraulic servo cylinder assembly (cyclic control) clevis is attached to the tube assembly which allows for attachment of the hydraulic cylinder to the support assembly.

6.8.2 Defects. Defects may occur anywhere on the surface of the clevis. No cracks are allowed.

6.8.3 Primary Method. Magnetic Particle.

6.8.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE
Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.8.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the clevis removed in accordance with the applicable technical manuals listed in Table 1-1.

6.8.3.3 Access. Not applicable.

6.8.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.8.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.8.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection Is illustrated in Figure 6-8.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.

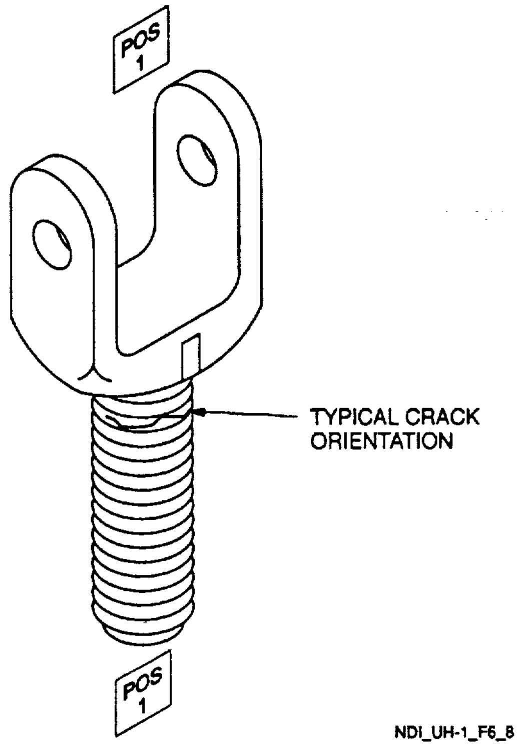


Figure 6-8. Hydraulic Servo Cylinder Assembly (Cyclic Control) Clevis

6.8.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

6.8.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.8.4 Backup Method. None required.

6.8.5 System Securing. Clean the clevis thoroughly to remove all residual magnetic particle media.

Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The clevis requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.9 HYDRAULIC SERVO CYLINDER TUBE ASSEMBLY (CYCLIC CONTROL) (PT).

6.9.1 Description (Figure 6-1. Index No. 9). The hydraulic servo cylinder (cyclic control) tube assembly connects the cockpit controls to the collective control surfaces.

6.9.2 Defects. Defects can occur anywhere on the surface of the tube assembly. No cracks are allowed.

6.9.3 Primary Method. Fluorescent Penetrant.

6.9.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tube assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.9.3.3 Access. Access is through the pylon doors. (Figure 1-4, Item 3) 6.9.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.9.3.5 Inspection Procedure. Perform fluorescent penetrant inspection: Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-9.

6.9.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.9.4 Backup Method. None required.

6.9.5 System Securing. Clean the tube assembly to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tube assembly, if removed, re-' quires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the pylon doors as required.

6.10 HYDRAULIC SERVO CYLINDER ASSEMBLY (CYCLIC CONTROL) HOUSING (PT).

6.10.1 Description (Figure 6-1. Index No. 10). The hydraulic servo cylinder assembly (cyclic control) housing supports the bearing and piston rod assembly.

6.10.2 Defects. Defects can occur anywhere on the surface of the housing. No cracks are allowed.

6.10.3 Primary Method. Fluorescent Penetrant.

6.10.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.10.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the housing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

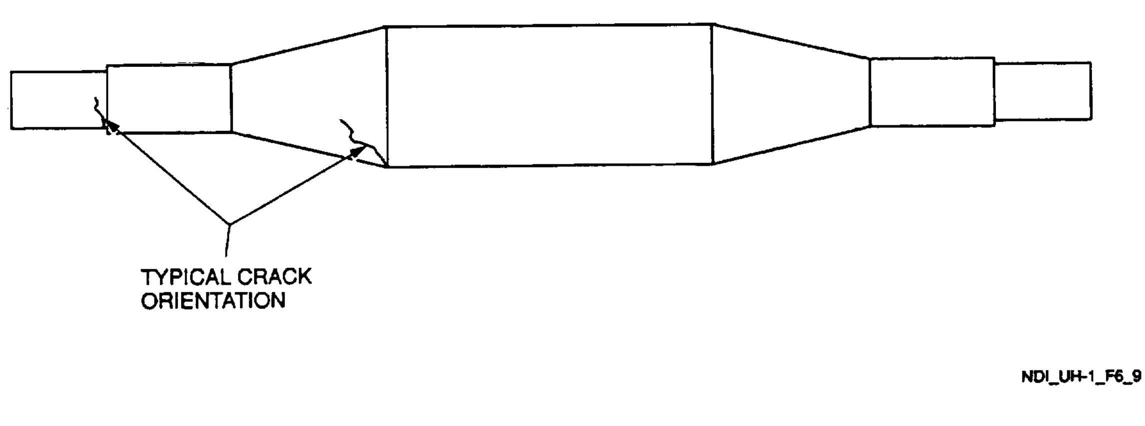


Figure 6-9. Hydraulic Servo Cylinder Tube Assembly (Cyclic Control)

6.10.3.3 Access. Access is through the pylon doors. (Figure 1-4, Item 3) 6.10.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.10.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-10.

6.10.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph' 1.3.

6.10.4 Backup Method. None required.

6.10.5 System Securing. Clean the housing to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The housing, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure pylon doors as required.

6.11 HYDRAULIC SERVO CYLINDER (CYCLIC CONTROL) CYLINDER CAPS (PT):

6.11.1 Description (Figure 6-1. Index No. 11). The hydraulic servo cylinder (cyclic control) cylinder caps retain the various packings and seals to prevent leakage of the cylinder.

6.11.2 Defects. Defects can occur anywhere on the surface of the caps. No cracks are allowed.

6.11.3 Primary Method. Fluorescent Penetrant.

6.11.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-86.11.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the caps shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.11.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

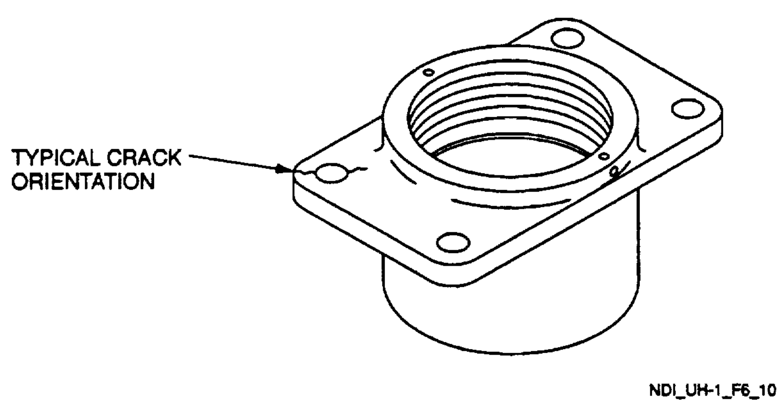


Figure 6-10. Hydraulic Servo Cylinder Assembly (Cyclic Control) Housing

6.11.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.11.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-11.

6.11.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.11.4 Backup Method. None required.

6.11.5 System Securing. Clean the caps to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The caps, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all applicable access panels, doors, and fairings as required.

6.12 HYDRAULIC SERVO CYLINDER ASSEMBLY (CYCLIC CONTROL) (PT).

6.12.1 Description (Figure 6-1. Index No. 12). Two hydraulic cylinder assemblies are incorporated to reduce effort required for fore and aft, and lateral control and to reduce feedback or forces from main rotor.

6.12.2 Defects. Defects can occur anywhere on the surface of the cylinder assembly. No cracks are allowed.

6.12.3 Primary Method. Fluorescent Penetrant.

6.12.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the hydraulic servo cylinder assembly (cyclic control) shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.12.3.3 Access. Access is through the pylon doors. (Figure 1-4, Items 3 and 24)

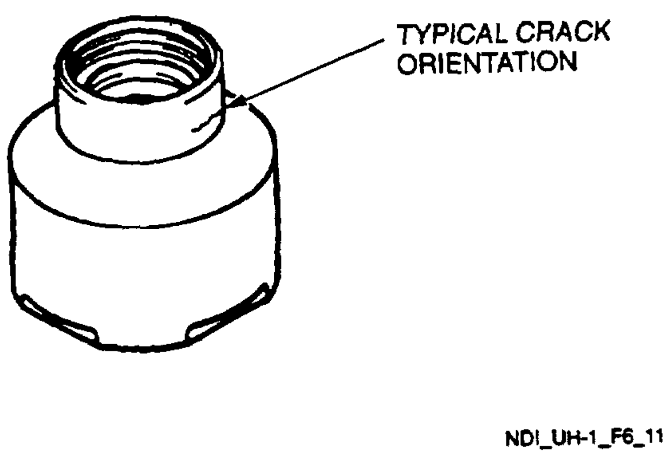


Figure 6-11. Hydraulic Servo Cylinder (Cyclic Control) Cylinder Caps

6.12.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.12.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-12.

6.12.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.12.4 Backup Method. None required.

6.12.5 System Securing. Clean the hydraulic servo cylinder assembly (cyclic control) to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The hydraulic servo cylinder assembly (cyclic control), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the pylon doors as required.

6.13 HYDRAULIC SERVO CYLINDER ASSEMBLY (COLLECTIVE CONTROL) CLEVIS (MT).

6.13.1 Description (Figure 6-1. Index No. 13). The hydraulic servo assembly (collective control) clevis is attached to the tube assembly which allows for the attachment of the hydraulic cylinder to the support assembly.

6.13.2 Defects. Defects can occur anywhere on the surface of the clevis. No cracks are allowed.

6.13.3 Primary Method. Magnetic Particle.

6.13.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.13.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the clevis removed in accordance with the applicable technical manuals listed in Table 1-1.

6.13.3.3 Access. Not applicable.

6.13.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.13.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

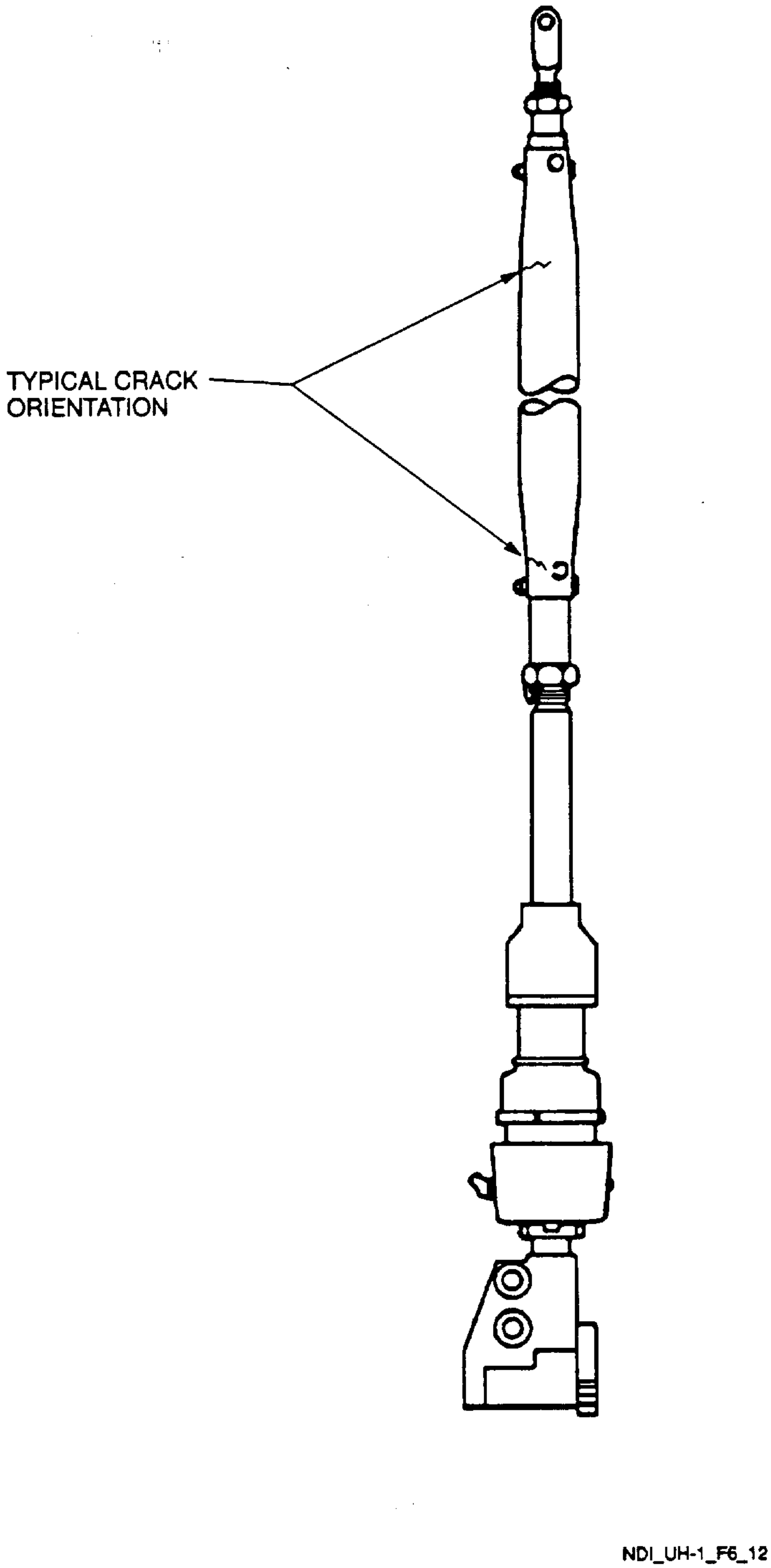


Figure 6-12. Hydraulic Servo Cylinder Assembly (Cyclic Control)

6.13.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 6-13.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. _ Remove the media momentarily before removing the current. Current should be applied for a no more than five seconds.

d. Inspect for cracks using the black light.

6.13.3.7 Marking and Recording of Inspection Results; Mark and record the inspection results as required by paragraph 1.3.

6.13.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.13.4 Backup Method. None required.

6.13.5 System Securing. Clean the clevis thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The clevis requires installation in accordance with the applicable technical manuals listed in Table 1-1.

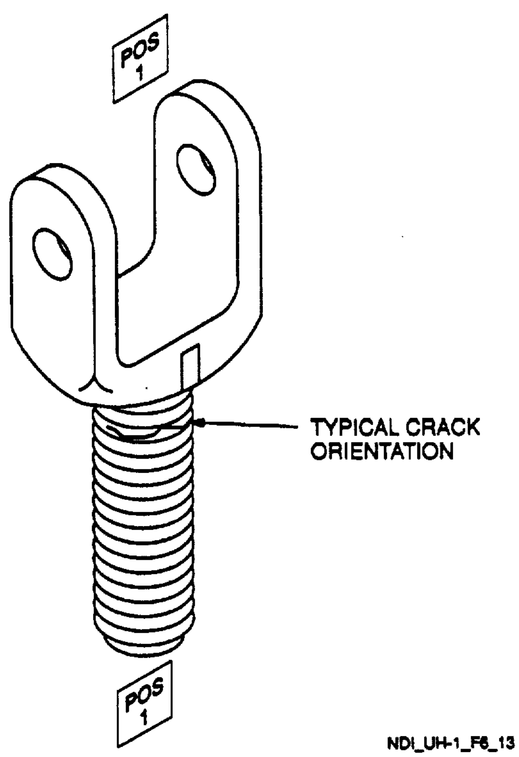


Figure 6-13. Hydraulic Servo Cylinder Assembly (Collective Control) Clevis

6.14 HYDRAULIC SERVO CYLINDER (COLLECTIVE CONTROL) TUBE ASSEMBLY (PT).

6.14.1 Description (Figure 6-1. Index No. 14). The hydraulic servo cylinder (collective control) tube assembly connects the cockpit controls to the collective control surfaces.

6.14.2 Defects. Defects can occur anywhere on the surface of the tube assembly. No cracks are allowed.

6.14.3 Primary Method. Fluorescent Penetrant.

6.14.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the tube assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.14.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.14.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.14.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-14.

6.14.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.14.4 Backup Method. None required.

6.14.5 System Securing. Clean the tube assembly to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tube assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all applicable access panels, doors, and fairings as required.

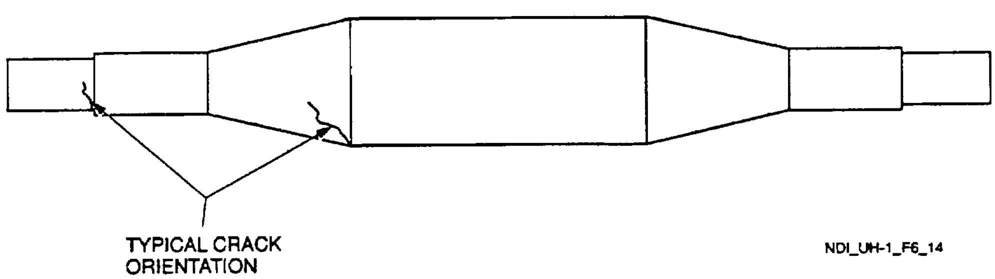


Figure 6-14. Hydraulic Servo Cylinder (Collective Control) Tube Assembly.

6.15 HYDRAULIC SERVO CYLINDER ASSEMBLY (COLLECTIVE CONTROL) PISTON ROD (MT).

6.15.1 Description (Figure 6-1. Index No. 15). The hydraulic servo cylinder assembly (collective control) piston rod is contained within the cylinder assembly at one end and attached to the tube assembly at the other.

6.15.2 Defects. This inspection is to verify crack indications found visually in the hydraulic servo cylinder assembly (collective control) piston rod and surrounding areas. No cracks are allowed.

6.15.3 Primary Method. Magnetic Particle.

6.15.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.15.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the piston rod removed in accordance with the applicable technical manuals listed in Table 1-1.

6.15.3.3 Access. Not applicable.

6.15.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.15.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.15.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 6-15.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.

6.15.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

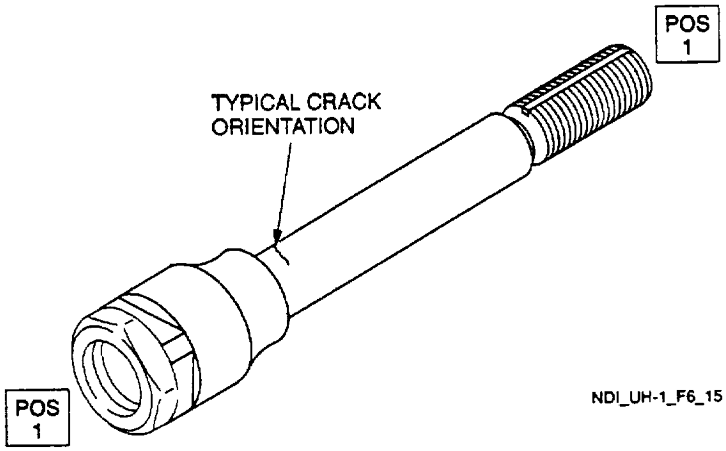


Figure 6-15. Hydraulic Servo Cylinder Assembly (Collective Control) Piston Rod.

6.15.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.15.4 Backup Method. None required.

6.15.5 System Securing. Clean the piston rod thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The piston rod requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.16 HYDRAULIC SERVO CYLINDER ASSEMBLY (COLLECTIVE CONTROL) BEARING HOUSING (PT).

6.16.1 Description (Figure 6-1. Index No. 16). The hydraulic servo cylinder assembly (collective control) bearing housing supports the bearing and piston rod assembly.

6.16.2 Defects. This inspection is to verify crack indications found visually in the hydraulic servo cylinder assembly (collective control) bearing housing and surrounding areas. No cracks are allowed.

6.16.3 Primary Method. Fluorescent Penetrant.

6.16.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.16.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bearing housing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.16.3.3 Access. Access is through the pylon doors. (Figure 1-4, Items 3 and 24)

6.16.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.16.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-16.

6.16.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.16.4 Backup Method. None required.

6.16.5 System Securing. Clean the bearing housing to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The bearing housing, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure pylon doors as required.

6.17 COLLECTIVE CONTROL SYSTEM BELLCRANK (ET).

6.17.1 Description (Figure 6-1. Index No. 17). Various bellcranks are incorporated in the collective control system to provide movement of its respective control surface.

6.17.2 Defects. This inspection is to verify crack indications found visually in the collective control system bellcrank and surrounding areas. No cracks are allowed.

6.17.3 Primary Method. Eddy Current.

6.17.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

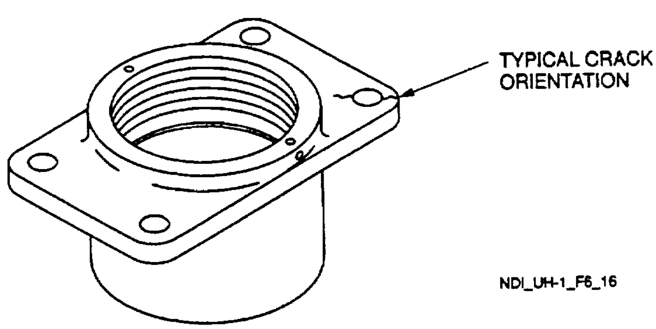


Figure 6-16. Hydraulic Servo Cylinder Assembly (Collective Control) Bearing Housing.

6.17.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.17.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.17.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.17.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.17.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-17.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.17.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.17.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.17.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

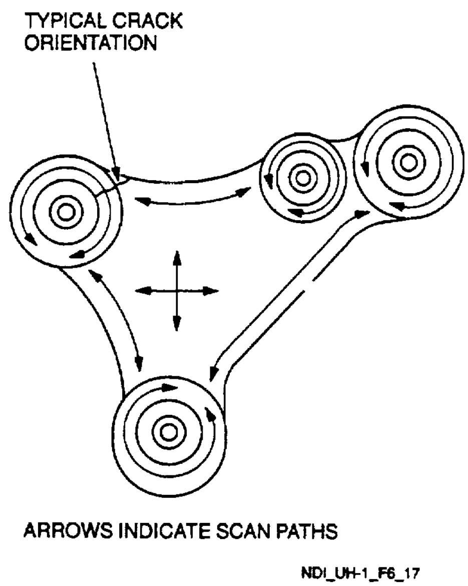


Figure 6-17. Collective Control System Bellcrank.

6.17.4 Backup Method. None required.

6.17.5 System Securing. The bellcrank, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.18 COLLECTIVE CONTROL SYSTEM LEVER ASSEMBLY (ET).

6.18.1 Description (Figure 6-1. Index No. 18). Various levers are incorporated in the collective control system to provide movement of its respective control surface.

6.18.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.18.3 Primary Method. Eddy Current.

6.18.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.18.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.18.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.18.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.18.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.18.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-18.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.18.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.18.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

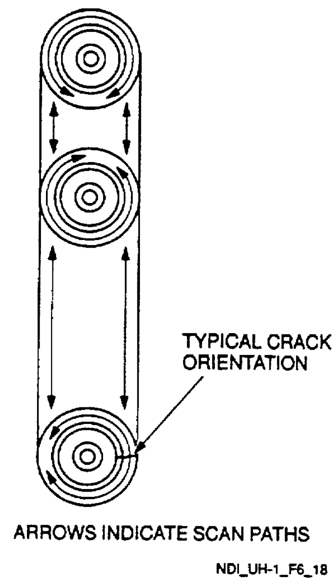


Figure 6-18. Collective Control System Lever Assembly.

6.18.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.18.4 Backup Method. None required.

6.18.5 System Securing. The lever assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.19 COLLECTIVE CONTROL SYSTEM SUPPORT (ET).

6.19.1 Description (Figure 6-1. Index No. 19). The collective control system supports are airframe mounted and provide a pivot point for levers and bellcranks.

6.19.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.19.3 Primary Method. Eddy Current.

6.19.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.19.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.19.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.19.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.19.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.19.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-19.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

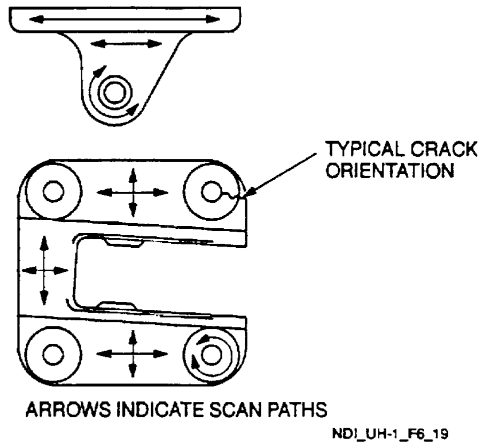


Figure 6-19. Collective Control System Support.

NOTE

Either probe identified in paragraph 6.19.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.19.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.19.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.19.4 Backup Method. None required.

6.19.5 System Securing. The support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.20 COLLECTIVE CONTROL SYSTEM CONTROL TUBES (ET).

6.20.1 Description (Figure 6-1. Index No. 20). Adjustable and nonadjustable control tubes are used in the collective control system. The nonadjustable type is fitted with bonded and riveted clevis ends. The adjustable type has a threaded clevis end and lock nut which secures the clevis end.

6.20.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.20.3 Primary Method. Eddy Current.

6.20.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.20.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.20.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.20.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.20.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.20.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-20.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

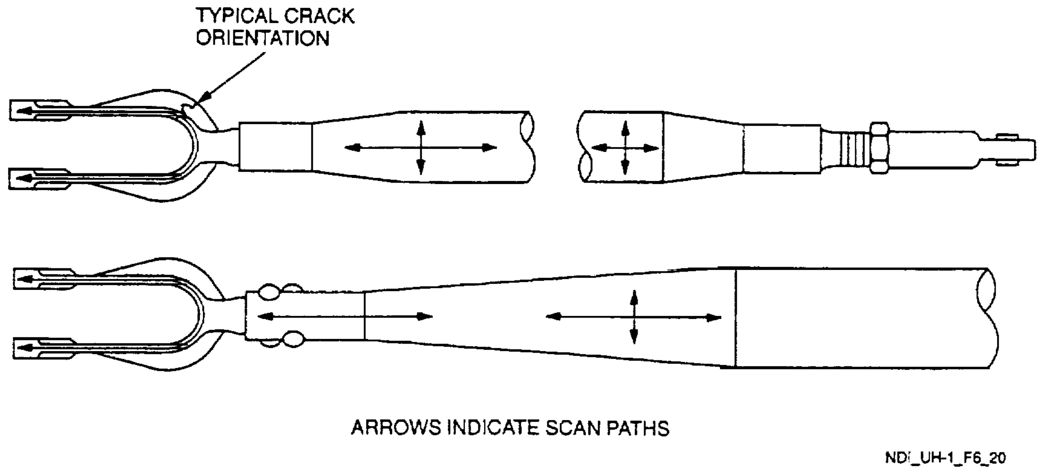


Figure 6-20. Collective Control System Control Tubes.

NOTE

Either probe identified in paragraph 6.20.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.20.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.20.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.20.4 Backup Method. None required.

6.20.5 System Securing. The control tubes, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.21 TUBE AND LEVER ASSEMBLY (ET).

6.21.1 Description (Figure 6-1. Index No. 21). Two control types and lever assemblies are mounted under the floor and forward of the pilot seats. These are segments of linkage between cyclic control sticks and swashplate control horns.

6.21.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.21.3 Primary Method. Eddy Current.

6.21.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.21.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.21.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.21.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.21.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.21.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-21.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

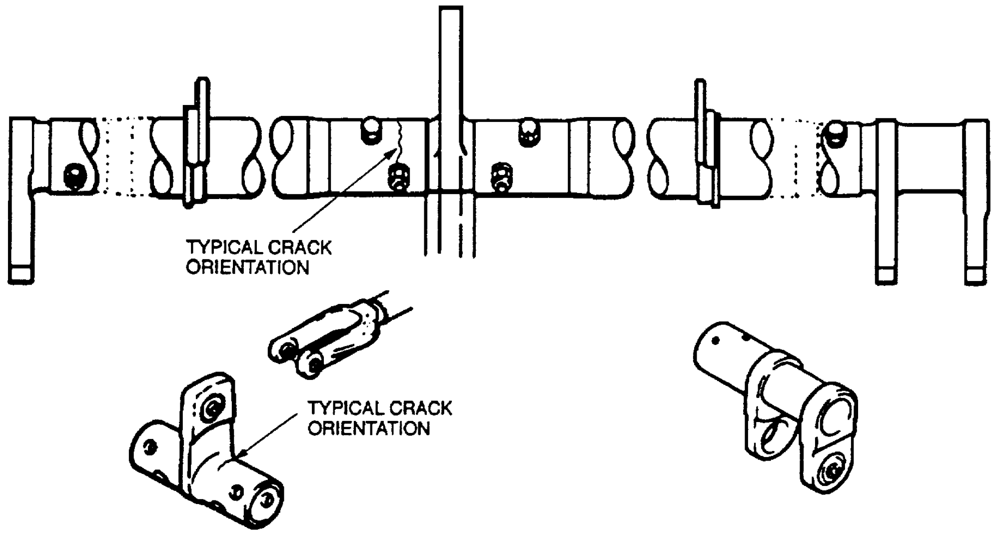


Figure 6-21. Tube and Lever Assembly.

NOTE

Either probe identified in paragraph 6.21.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.21.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.21.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.21.4 Backup Method. None required.

6.21.5 System Securing. The tube and lever assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.22 SUPPORT ASSEMBLY, HYDRAULIC CYLINDER ASSEMBLY (STARBOARD) (ET).

6.22.1 Description (Figure 6-1. Index No. 22). The support assembly (located starboard side, and below transmission assembly) is provided for support of the cyclic and collective cylinder assemblies. The support is attached to the cabin structure and top side of cargo lift beam.

6.22.2 Defects. Defects can occur anywhere on the surface of the support assembly. No cracks are allowed.

6.22.3 Primary Method. Eddy Current.

6.22.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.22.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.22.3.3 Access. Access is through the pylon door. (Figure 1-4, Item 4)

6.22.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.22.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.22.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-22.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

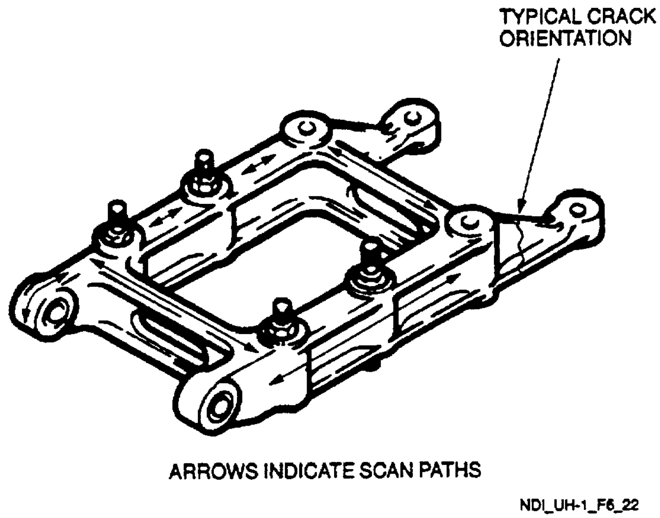


Figure 6-22. Support Assembly, Hydraulic Cylinder Assembly (Starboard).

NOTE

Either probe identified in paragraph 6.22.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.22.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.22.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.22.4 Backup Method. None required.

6.22.5 System Securing. The support assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.23 SUPPORT ASSEMBLY, HYDRAULIC CYLINDER ASSEMBLY (PORT) (ET).

6.23.1 Description (Figure 6-1. Index No. 23). The support assembly (located port side and below transmission assembly) is provided for support of the cyclic and collective cylinder assemblies. The support is attached to the cabin structure and top side of cargo lift beam.

6.23.2 Defects. Defects can occur anywhere on the surface of the support assembly. No cracks are allowed.

6.23.3 Primary Method. Eddy Current.

6.23.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.23.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.23.3.3 Access. Access is through the pylon door. (Figure 1-4, Item 3)

6.23.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.23.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.23.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-23.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

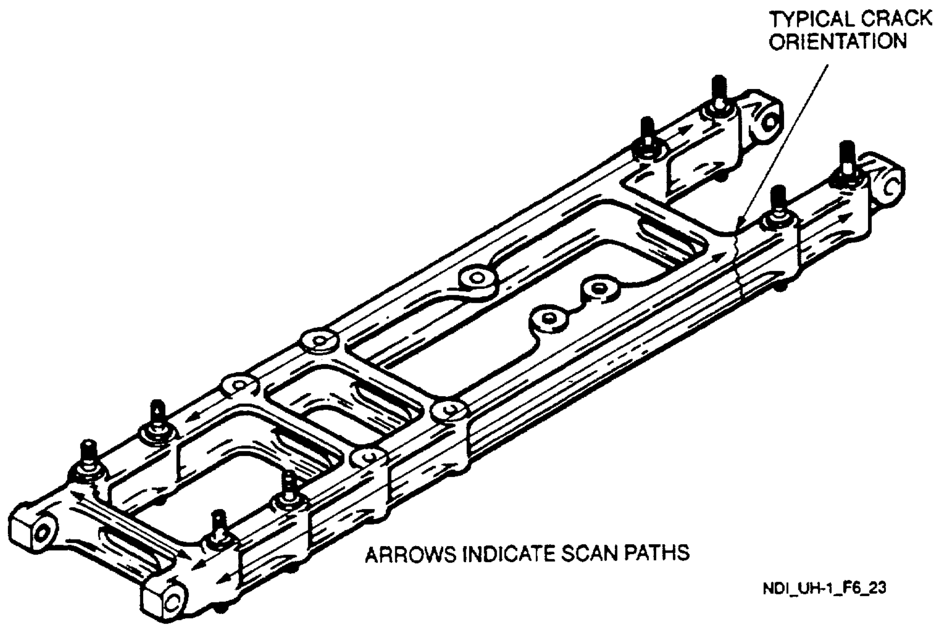


Figure 6-23. Support Assembly, Hydraulic Cylinder Assembly (Port).

NOTE

Either probe identified in paragraph 6.23.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.23.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.23.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.23.4 Backup Method. None required.

6.23.5 System Securing. The support assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.24 MIXING LEVER ASSEMBLY - CYCLIC CONTROLS (ET).

6.24.1 Description (Figure 6-1. Index No. 24). The mixing lever assembly consists of bellcranks, matched links, and support. It is mounted on the right main beam below the cabin floor area.

6.24.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.24.3 Primary Method. Eddy Current.

6.24.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.24.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.24.3.3 Access. Access is through the pylon door. (Figure 1-4, Item 42)

6.24.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.24.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.24.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-24.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

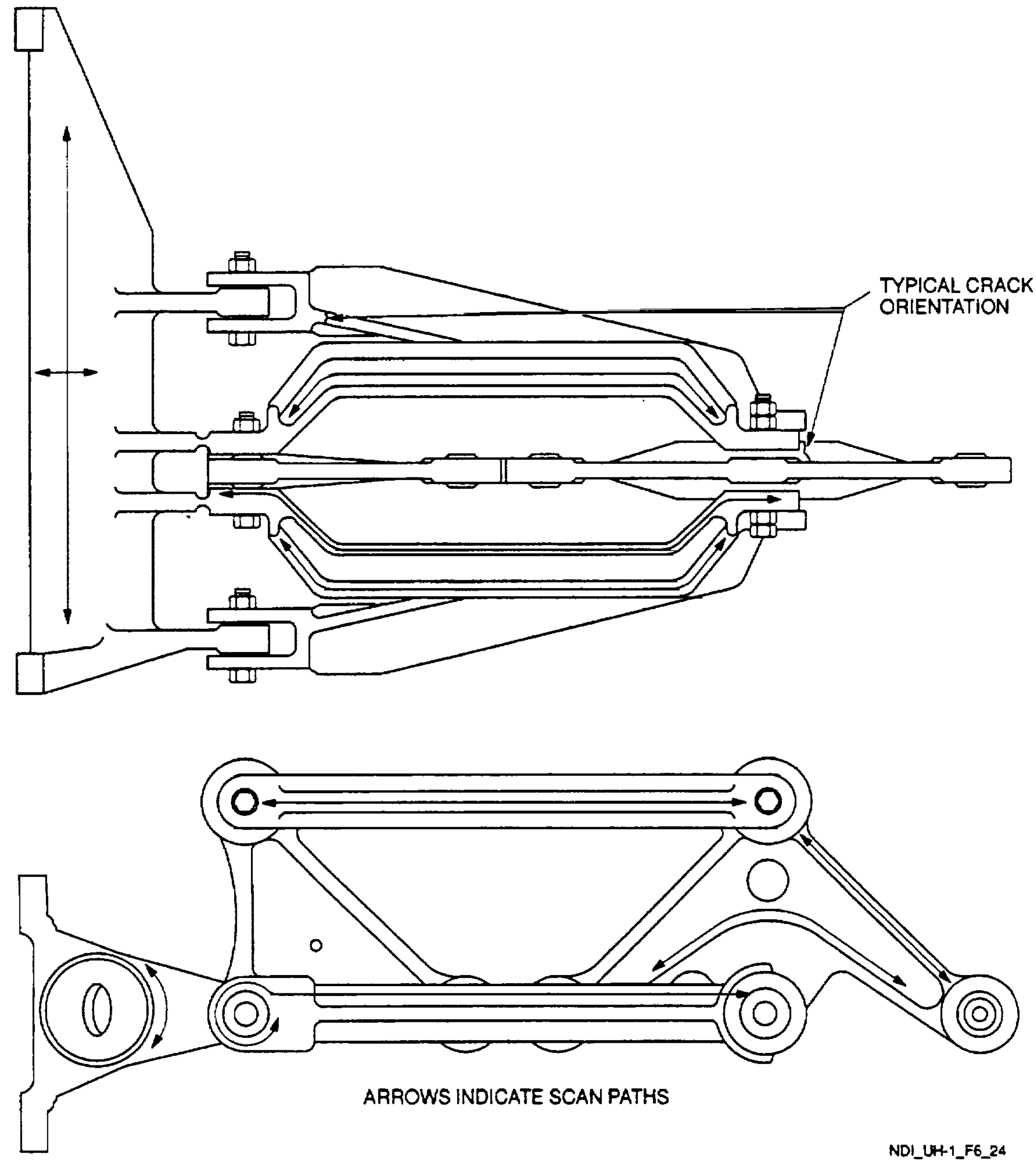


Figure 6-24. Mixing Lever Assembly - Cyclic Controls.

NOTE

Either probe identified in paragraph 6.24.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.24.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.24.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.24.4 Backup Method. None required.

6.24.5 System Securing. The mixing lever assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.25 CYCLIC CONTROL SYSTEM CONTROL TUBES (ET).

6.25.1 Description (Figure 6-1. Index No. 25). Various levers are incorporated in the collective control system to provide movement of its respective control surface.

6.25.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.25.3 Primary Method. Eddy Current.

6.25.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.25.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.25.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.25.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.25.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		

Rot	- 56°
Probe drive	- mid
LPF	- 100
HPF	- 0
H Pos	- 80%
V Pos	- 20%

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.25.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-25.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

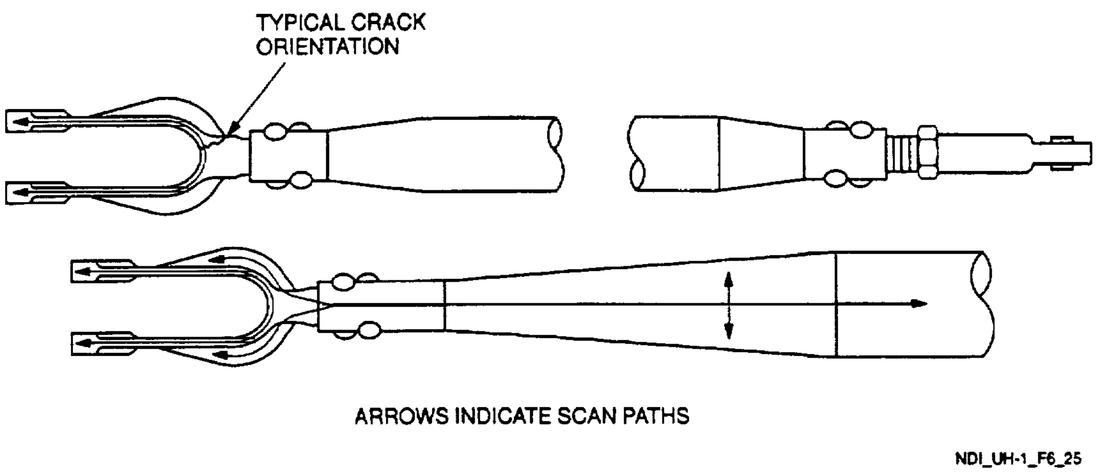


Figure 6-25. Cyclic Control System Control Tubes.

NOTE

Either probe identified in paragraph 6.25.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.25.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.25.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.25.4 Backup Method. None required.

6.25.5 System Securing. The control tubes, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.26 CYCLIC CONTROL SYSTEM BELLCRANKS AND LEVERS (ET).

6.26.1 Description (Figure 6-1. Index No. 26). This inspection is applicable to all bellcranks and levers contained within the cyclic control system.

6.26.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.26.3 Primary Method. Eddy Current.

6.26.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.26.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.26.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.26.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.26.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.26.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-26.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.26.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.26.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.26.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.26.4 Backup Method. None required.

6.26.5 System Securing. The bellcrank, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

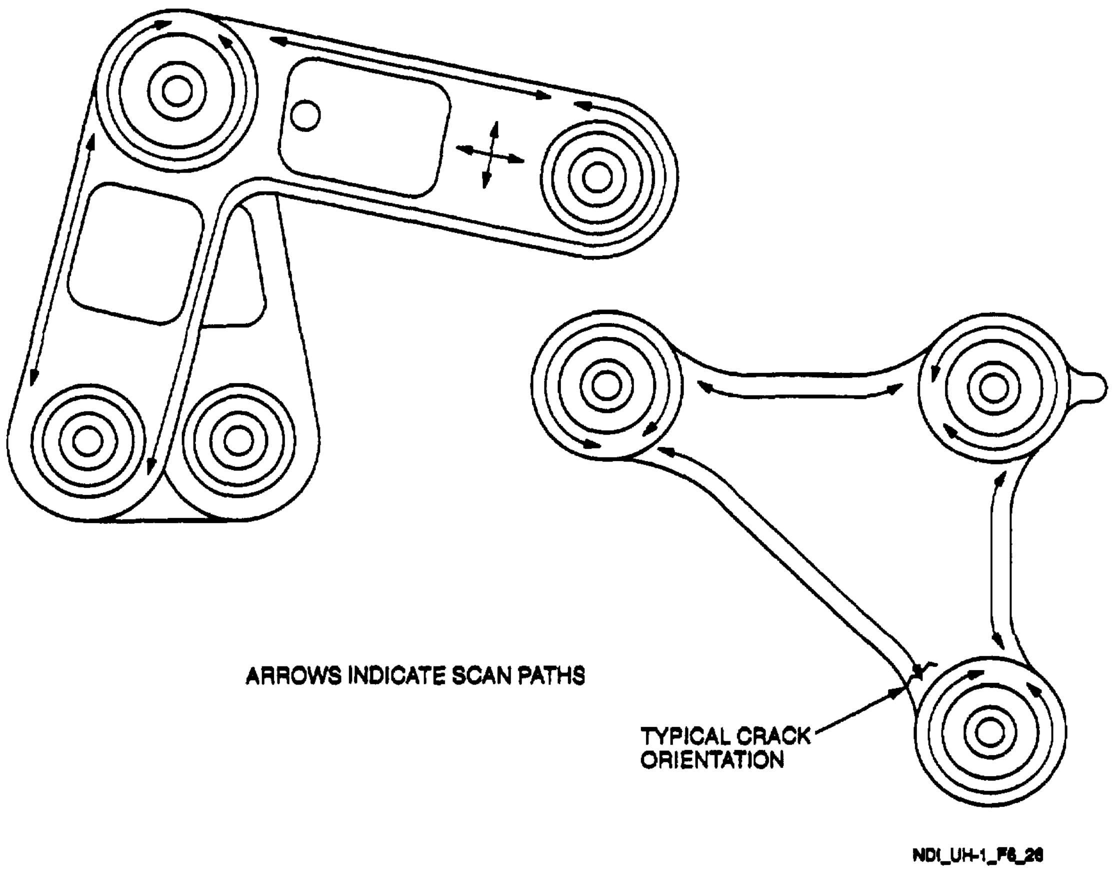


Figure 6-26. Cyclic Control System Bellcranks and Levers.

6.27 CYCLIC CONTROL SYSTEM SUPPORTS (ET).

6.27.1 Description (Figure 6-1. Index No. 27). Various levers are incorporated in the collective control system to provide movement of its respective control surface.

6.27.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.27.3 Primary Method. Eddy Current.

6.27.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.27.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.27.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.27.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.27.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.27.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-27.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.27.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.27.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.27.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.27.4 Backup Method. None required.

6.27.5 System Securing. The supports, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

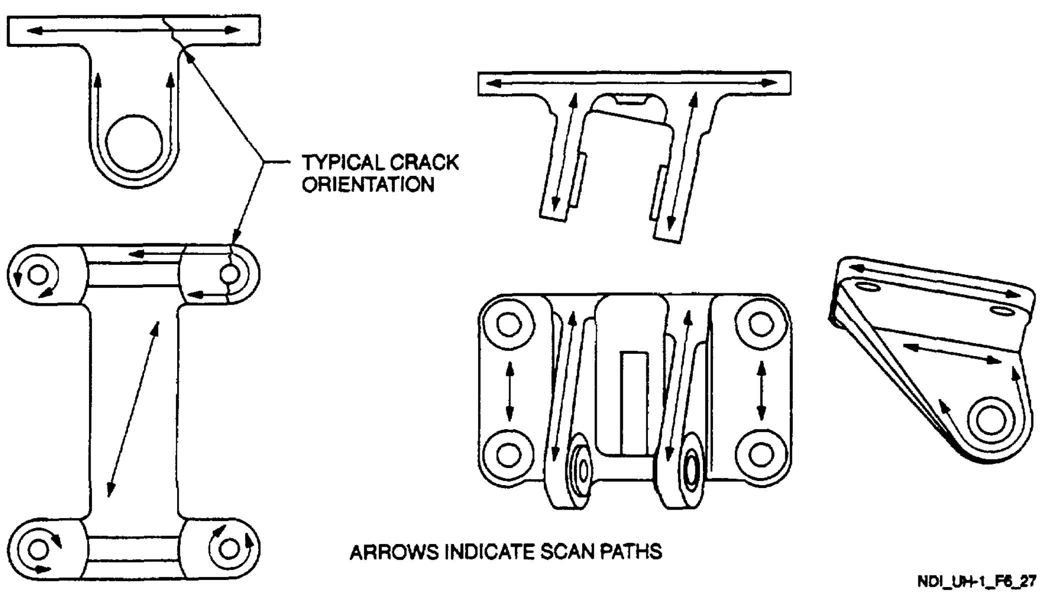


Figure 6-27. Cyclic Control System Supports.

6.28 ADJUSTER ASSEMBLY (ET).

6.28.1 Description (Figure 6-1. Index No. 28). Various levers are incorporated in the collective control system to provide movement of its respective control surface.

6.28.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.28.3 Primary Method. Eddy Current.

6.28.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.28.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the adjuster assembly removed in accordance with the applicable technical manuals listed in Table 1-1.

6.28.3.3 Access. Not applicable.

6.28.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.28.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e‖.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.28.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-28.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.28.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.28.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.28.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.28.4 Backup Method. None required.

6.28.5 System Securing. The adjuster assembly, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

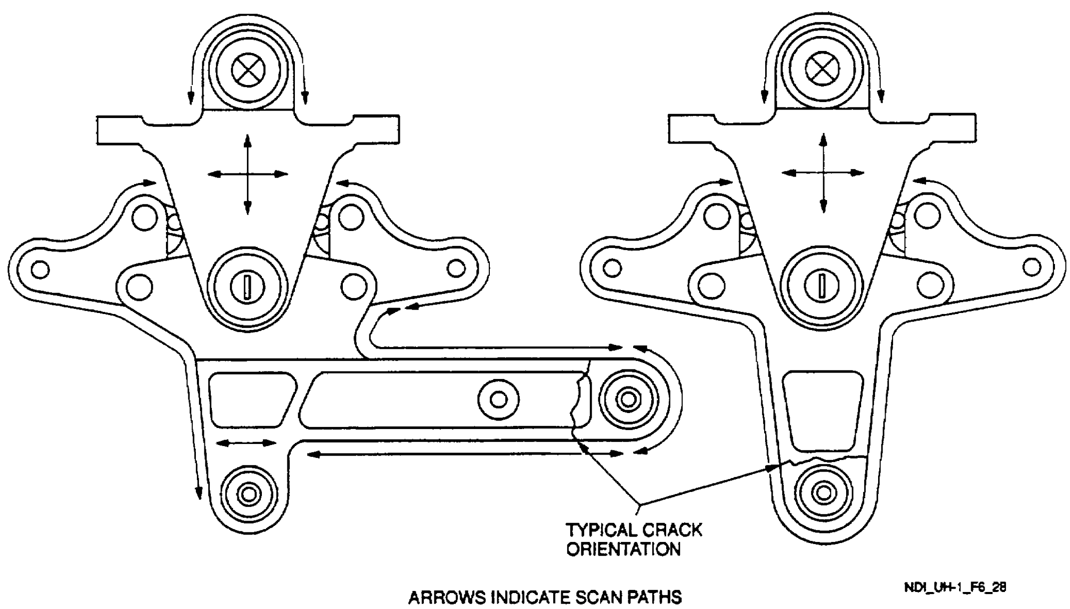


Figure 6-28. Adjuster Assembly.

6.29 TAIL ROTOR CONTROL QUADRANT (ET).

6.29.1 Description (Figure 6-1. Index No. 29). The tail rotor control quadrant is located in the upper forward section of the tailboom. The quadrant is utilized to interconnect the push-pull tubes and the tail rotor control cables.

6.29.2 Defects. This inspection is to verify crack indications found visually in the collective control system lever assembly and surrounding areas. No cracks are allowed.

6.29.3 Primary Method. Eddy Current.

6.29.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit
b. Probe, straight, shielded surface, 100 KHz-500 KHz
c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° ½ inch drop
d. Cable Assembly
e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)
f. Teflon Tape, refer to Table 1-8
g. Aircraft Marking Pencil, refer to Table 1-8

6.29.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.29.3.3 Access. Access is through the vertical fin driveshaft cover. (Figure 1-4, Item 14)

6.29.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.29.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19eⅡ.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
V Pos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.
(2) Adjust phase as required to obtain horizontal lift-off.
(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.29.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-29.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.
b. Inspect the part.
c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.29.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.29.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.29.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph - 1.3.

6.29.4 Backup Method. None required.

6.29.5 System Securing. The control quadrant, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the vertical fin driveshaft cover as required.

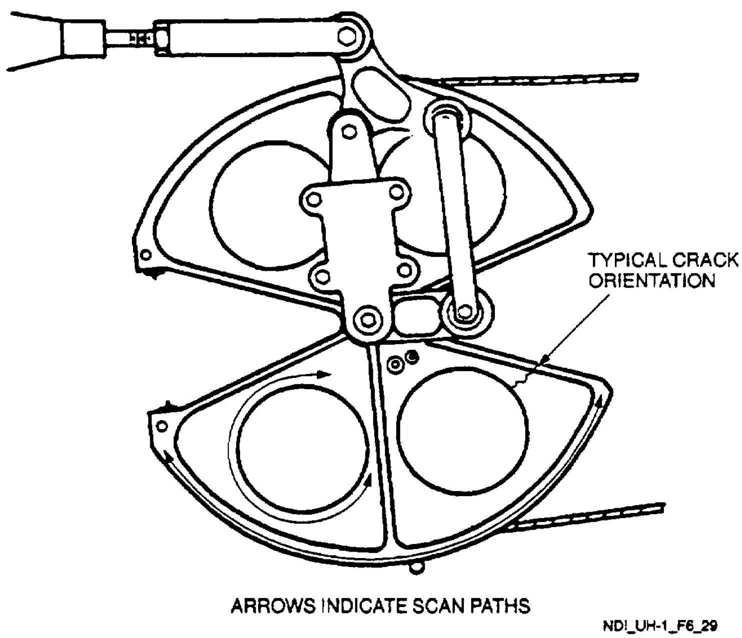


Figure 6-29. Tail Rotor Control Quadrant.

6.30 TAIL ROTOR CONTROL TUBE AND QUILL - SPROCKET GUARD (PT).

6.30.1 Description (Figure 6-1. Index No. 30). The tail rotor control tube and quill sprocket guard are attached to the quill housing which is used to cover the sprocket and control chain.

6.30.2 Defects. Defects can occur anywhere on the surface of the tube assembly. No cracks are allowed.

6.30.3 Primary Method. Fluorescent Penetrant.

6.30.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.30.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and sprocket guard removed in accordance with the applicable technical manuals listed in Table 1-1.

6.30.3.3 Access. Not applicable.

6.30.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.30.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-30.

6.30.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.30.4 Backup Method. None required.

6.30.5 System Securing. Clean the sprocket guard to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The sprocket guard requires installation in accordance with the applicable technical manuals listed in Table 1-1.

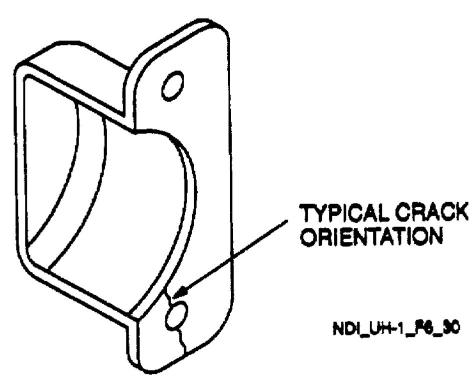


Figure 6-30. Tail Rotor Control Tube and Quill - Sprocket Guard

6.31 TAIL ROTOR CONTROL TUBE AND QUILL - CONTROL TUBE (MT).

6.31.1 Description (Figure 6-1. Index No. 31). The tail rotor control tube extends through a hollow rotor driveshaft to a pitch control crosshead and links which are connected to the tail rotor.

6.31.2 Defects. Defects may occur anywhere on the control. No cracks are allowed.

6.31.3 Primary Method. Magnetic Particle.

6.31.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.31.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the control tube removed in accordance with the applicable technical manuals listed in Table 1-1.

6.31.3.3 Access. Not applicable.

6.31.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.31.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.31.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 6-31.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.

6.31.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

6.31.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.31.4 Backup Method. None required.

6.31.5 System Securing. Clean the control tube thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The piston rod requires installation in accordance with the applicable technical manuals listed in Table 1-1.

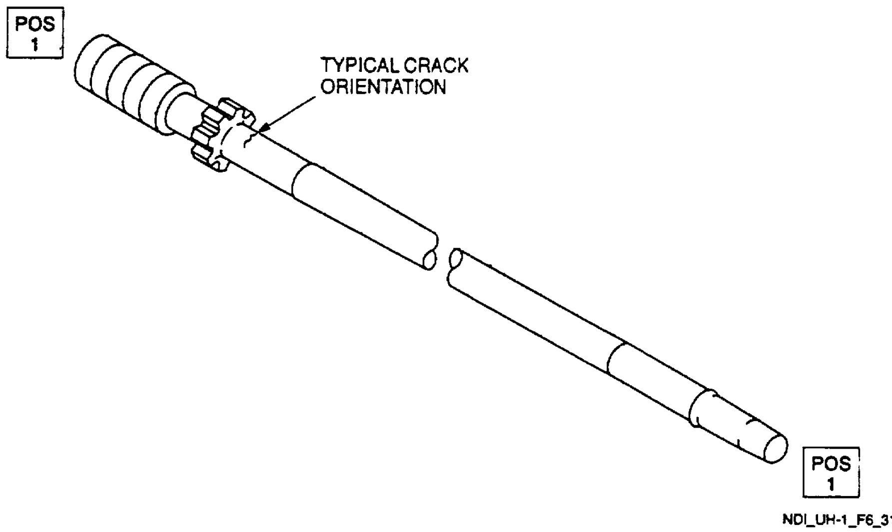


Figure 6-31. Tail Rotor Control Tube and Quill - Control Tube.

6.32 TAIL ROTOR CONTROL TUBE AND QUILL - HOUSING (PT).

6.32.1 Description (Figure 6-1. Index No. 32). The tail rotor control tube and quill housing contains the control quill assembly which attaches off the control tube.

6.32.2 Defects. Defects can occur anywhere on the surface of the housing. No cracks are allowed.

6.32.3 Primary Method. Fluorescent Penetrant.

6.32.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.32.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.32.3.3 Access. Not applicable.

6.32.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.32.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-32.

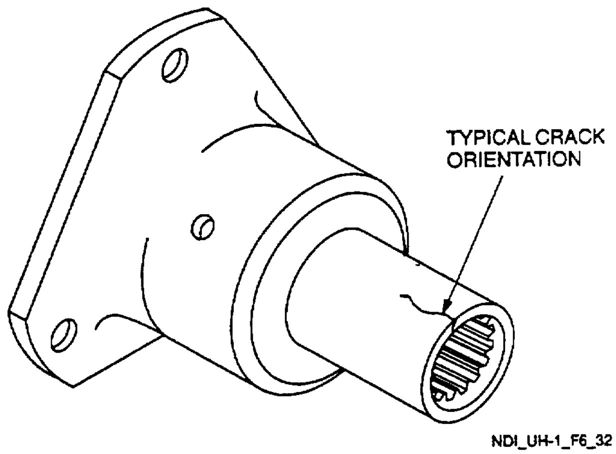


Figure 6-32. Tail Rotor Control Tube and Quill - Housing.

6.32.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.32.4 Backup Method. None required.

6.32.5 System Securing. Clean the sprocket guard to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The sprocket guard requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.33 TAIL ROTOR CONTROL TUBE AND QUILL - RETAINING NUT (MT).

6.33.1 Description (Figure 6-1. Index No. 33). The tail rotor control tube and quill retaining nut secures the sprocket to the control nut.

6.33.2 Defects. Defects may occur anywhere on the surface of the retaining nut. No cracks are allowed.

6.33.3 Primary Method. Magnetic Particle.

6.33.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light

d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

6.33.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the retaining nut removed in accordance with the applicable technical manuals listed in Table 1-1.

6.33.3.3 Access. Not applicable.

6.33.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.33.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.33.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 6-33.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.
e. Demagnetize before moving to the next position. Refer to paragraph 6.33.3.8.
f. Repeat steps a. Through e. for position 2.

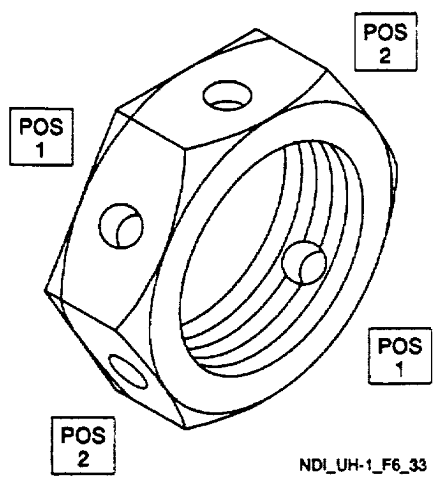


Figure 6-33. Tail Rotor Control Tube and Quill - Retaining Nut.

6.33.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

6.33.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.33.4 Backup Method. None required.

6.33.5 System Securing. Clean the control tube thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The retaining nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.34 TAIL ROTOR CONTROL TUBE AND QUILL - SPROCKET (PT).

6.34.1 Description (Figure 6-1. Index No. 34). The tail rotor control tube and quill sprocket is attached to the control nut which turns the control chain.

6.34.2 Defects. Defects can occur anywhere on the surface of the sprocket. No cracks are allowed.

6.34.3 Primary Method. Fluorescent Penetrant.

6.34.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.34.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.34.3.3 Access. Not applicable.

6.34.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.34.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-34.

6.34.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.34.4 Backup Method. None required.

6.34.5 System Securing. Clean the sprocket to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The sprocket guard requires installation in accordance with the applicable technical manuals listed in Table 1-1.

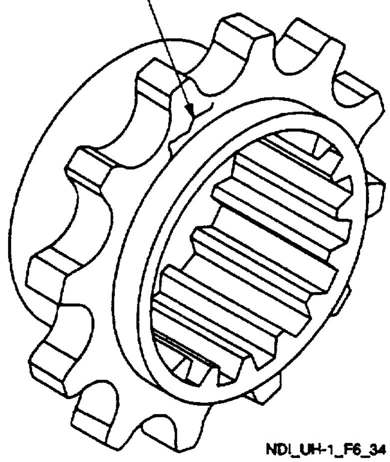


Figure 6-34. Tail Rotor Control Tube and Quill - Sprocket.

6.35 TAIL ROTOR CONTROL TUBE AND QUILL - BEARING RETAINER (PT).

6.35.1 Description (Figure 6-1. Index No. 35). The tail rotor control tube and quill bearing retainer are attached to the quill housing retaining the duplex bearings, spacer, and seals within the quill housing.

6.35.2 Defects. Defects can occur anywhere on the surface of the sprocket. No cracks are allowed.

6.35.3 Primary Method. Fluorescent Penetrant.

6.35.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-I-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.35.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.35.3.3 Access. Access is through the vertical fin driveshaft cover. (Figure 1-4, Item 14)

6.35.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.35.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-35.

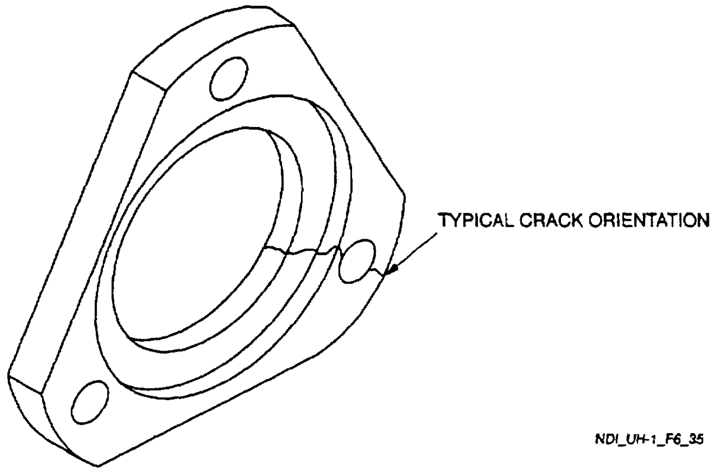


Figure 6-35. Tail Rotor Control Tube and Quill - Bearing Retainer.

6.35.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.35.4 Backup Method. None required.

6.35.5 System Securing. Clean the sprocket to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The sprocket guard requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.36 TAIL ROTOR CONTROL TUBE AND QUILL - SPACER (MT).

6.36.1 Description (Figure 6-1. Index No. 36). The tail rotor control tube and quill spacer are contained within the quill housing separating the duplex bearing from the seal.

6.36.2 Defects. Defects may occur anywhere on the surface of the spacer. No cracks are allowed.

6.36.3 Primary Method. Magnetic Particle.

6.36.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light

d. Fluorescent Magnetic Particles
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

6.36.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the retaining nut removed in accordance with the applicable technical manuals listed in Table 1-1.

6.36.3.3 Access. Not applicable.

6.36.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.36.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.36.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Position required for this inspection is illustrated in Figure 6-36.

a. Select AC on the AC/DC power switch.
b. Place probe/yoke on part in position 1 as shown.
c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.
d. Inspect for cracks using the black light.

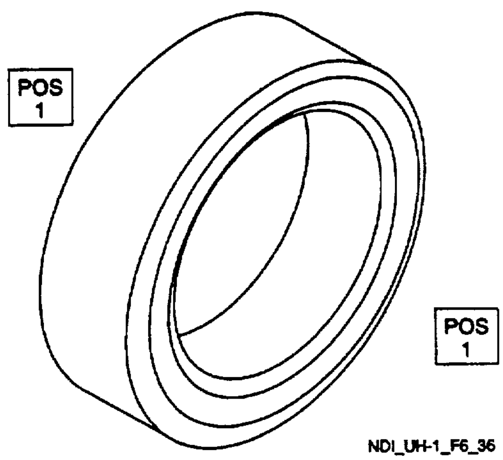


Figure 6-36. Tail Rotor Control Tube and Quill - Spacer.

6.36.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.36.4 Backup Method. None required.

6.36.5 System Securing. Clean the spacer thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The spacer requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.37 TAIL ROTOR CONTROL TUBE AND QUILL - CONTROL NUT (PT).

6.37.1 Description (Figure 6-1. Index No. 37). The tail rotor control tube and quill control nut are the bearing surface for the duplex bearings within the control housing and are also the attachment points for the sprocket and control tube.

6.37.2 Defects. Defects can occur anywhere on the surface of the control nut. No cracks are allowed.

6.37.3 Primary Method. Fluorescent Penetrant.

6.37.3.1 NDI Equipment and Materials. (Refer to Appendix B.) Inspection equipment is listed in Table 1-7. MIL-1-25135 level 3 penetrant materials shall be selected from the approved list in Table 1-8.

6.37.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the control nut removed in accordance with the applicable technical manuals listed in Table 1-1.

6.37.3.3 Access. Not applicable.

6.37.3.4 Preparation of Part. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.37.3.5 Inspection Procedure. Perform fluorescent penetrant inspection. Refer to Fluorescent Penetrant Method, paragraph 1.4.7 and Table 1-5. Inspect area of concern. See Figure 6-37.

6.37.3.6 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.37.4 Backup Method. None required.

6.37.5 System Securing. Clean the control nut to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The control nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

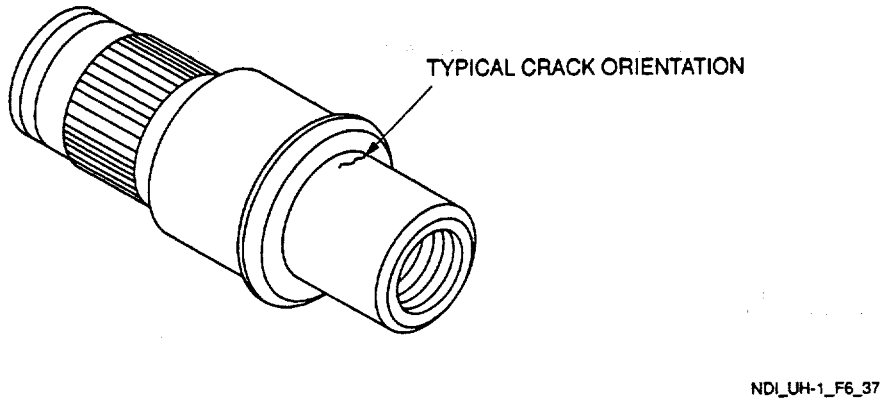


Figure 6-37. Tail Rotor Control Tube and Quill - Control Nut

6.38 TAIL ROTOR CONTROL TUBES (ET).

6.38.1 Description (Figure 6-1. Index No. 38). Adjustable length control tubes and fixed length control tubes are used in the tail rotor control system. The fixed type are fitted with bonded and riveted clevis ends. The adjustable type have a threaded clevis end and locknut which secures the clevis end.

6.38.2 Defects. This inspection is to verify crack indications found visually in the tail rotor control tubes and surrounding areas. No cracks are allowed.

6.38.3 Primary Method. Eddy Current.

6.38.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.38.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the control tubes shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.38.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.38.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.38.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.38.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-38.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.38.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.38.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

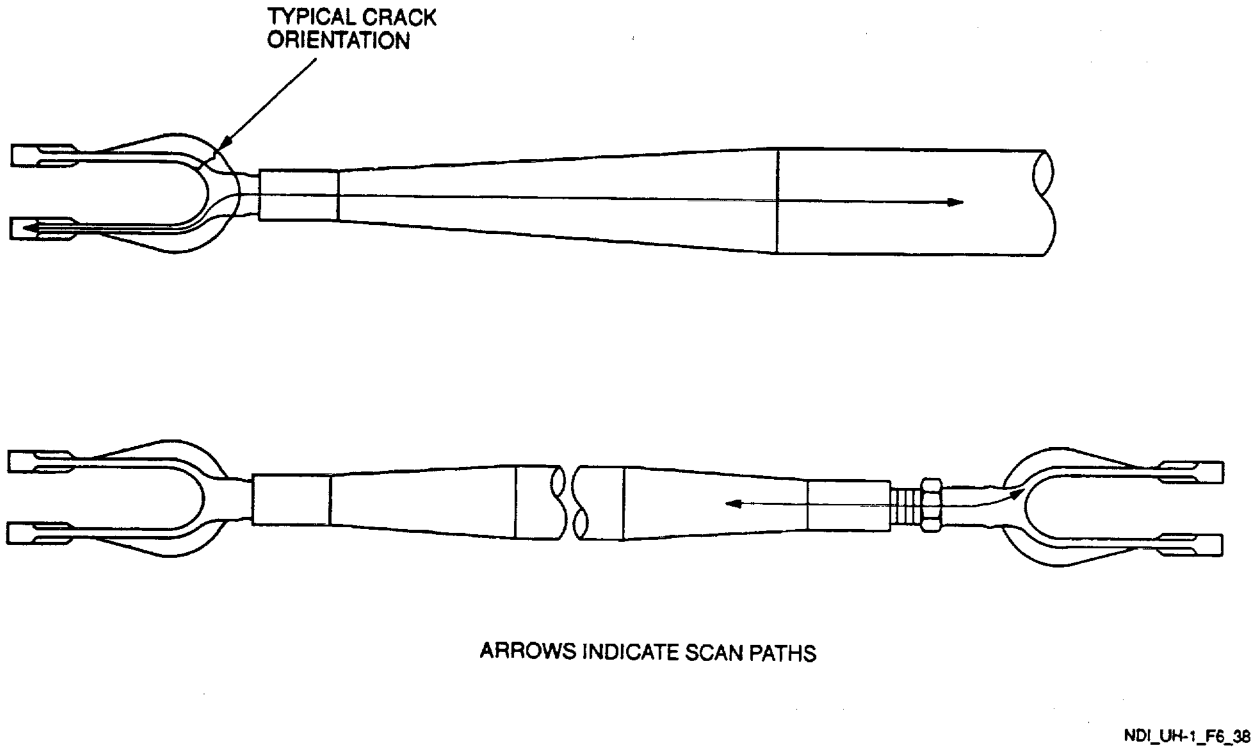


Figure 6-38. Tail Rotor Control Tubes

6.38.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.38.4 Backup Method. None required.

6.38.5 System Securing. The control tube, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all access panels, doors, and fairings as required.

6.39 TAIL ROTOR HYDRAULIC POWER CYLINDER - PISTON ROD (MT).

6.39.1 Description (Figure 6-1. Index No. 39). An hydraulic power cylinder in tail rotor control linkage is vertically mounted in a support. This inspection is applicable to the piston rod.

6.39.2 Defects. This inspection is to verify crack indications found visually in the tail rotor hydraulic power cylinder - piston rod and surrounding areas. No cracks are allowed.

6.39.3 Primary Method. Magnetic Particle.

6.39.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.39.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the piston rod shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.39.3.3 Access. Access is through the right side general door. (Figure 1-4, Item 36)

6.39.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.39.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.39.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 6-39.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

6.39.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

6.39.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.39.4 <u>Backup Method.</u> None required.

6.39.5 <u>System Securing.</u> Clean the piston rod thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The piston rod, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the right side general doors as required.

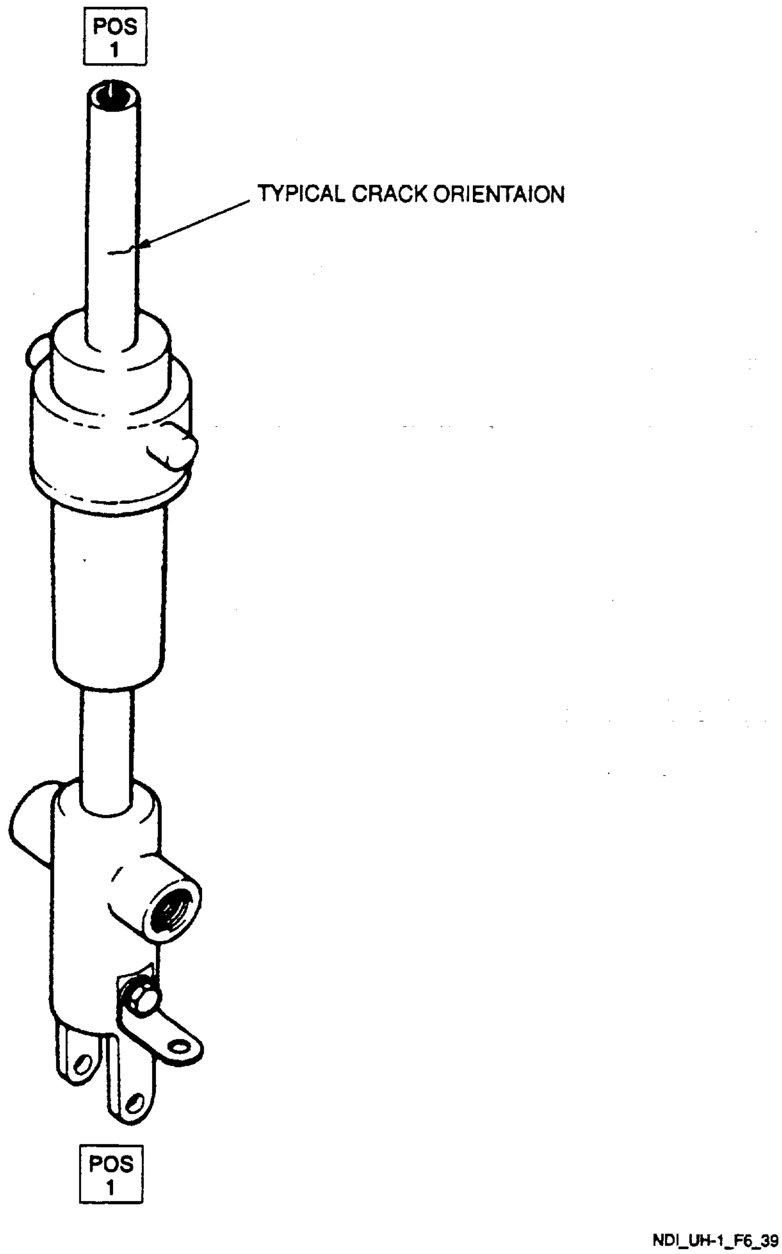


Figure 6-39. Tail Rotor Hydraulic Power Cylinder - Piston Rod

6.40 TAIL ROTOR HYDRAULIC POWER CYLINDER ADAPTER (MT).

6.40.1 Description (Figure 6-1. Index No. 40). The tail rotor hydraulic power cylinder adapter is a clevis type adapter threaded into the end of the power cylinder which is the adjustment point for the power cylinder.

6.40.2 Defects. Defects can occur anywhere on the surface of the power cylinder adapter. No cracks are allowed.

6.40.3 Primary Method. Magnetic Particle.

6.40.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.40.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using applicable positions of this procedure. If required, the hydraulic power cylinder adapter shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.40:3.3 Access. Access is through the right side general door. (Figure 1-4, Item 36)

6.40.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.40.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.40.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. Positions required for this inspection are illustrated in Figure 6-40.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

e. Demagnetize before moving to the next position. Refer to paragraph 6.40.3.8.

f. Repeat steps a. through e. for position 2.

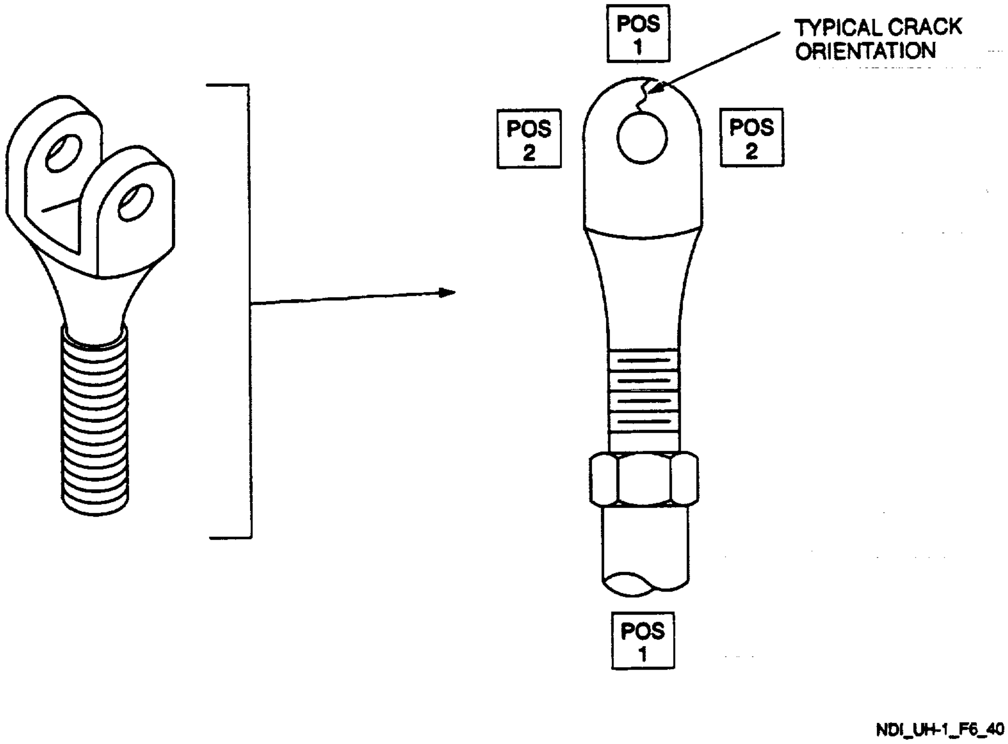


Figure 6-40. Tail Rotor Hydraulic Power Cylinder Adapter

6.40.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

6.40.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.40.4 Backup Method. None required.

6.40.5 System Securing. Clean the hydraulic power cylinder adapter thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The hydraulic power cylinder adapter, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the right side general door as required.

6.41 TAIL ROTOR SUPPORT ASSEMBLY (ET).

6.41.1 Description (Figure 6-1 . Index No. 41). The tail rotor support assembly is attached to station 211 fuselage bulkhead which supports the hydraulic power cylinder assembly.

6.41.2 Defects. Defects can occur anywhere on the surface of the support assembly. No cracks are allowed.

6.41.3 Primary Method. Eddy Current.

6.41.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.41.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the support assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.41.3.3 Access. Access is through the right side general door. (Figure 1-4, Item 36)

6.41.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.41.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.41.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-41.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

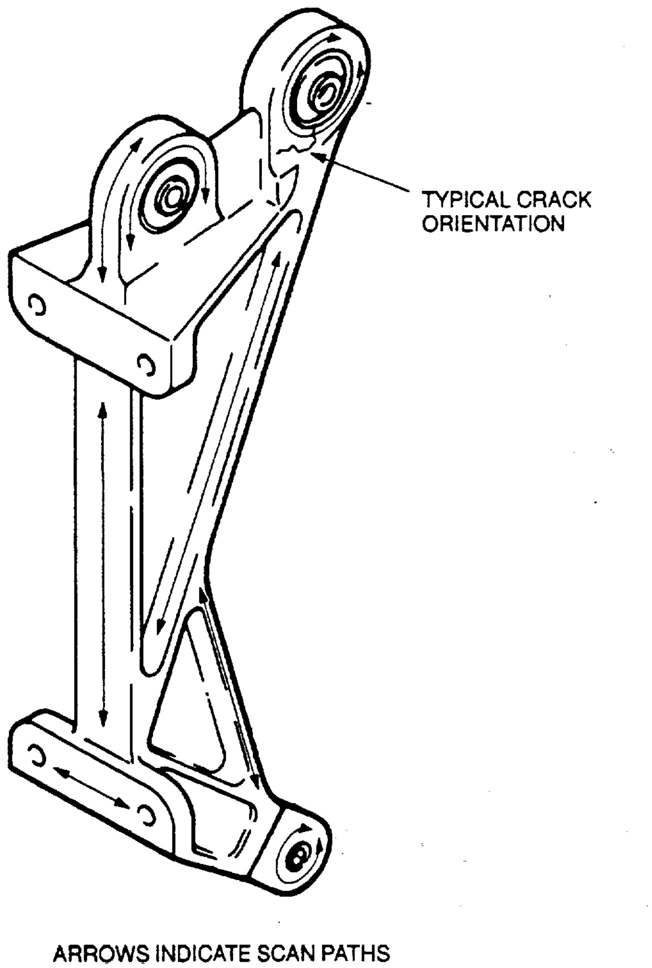


Figure 6-41. Tail Rotor Support Assembly

NOTE

Either probe identified in paragraph 6.41.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.41.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.41.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.41.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

6.41.5 System Securing. The support assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the right side general door as required.

6.42 TAIL ROTOR ARM ASSEMBLIES (ET).

6.42.1 Description (Figure 6-1. Index No. 42). The tail rotor arm assemblies attach the hydraulic power cylinder to the support assembly.

6.42.2 Defects. Defects can occur anywhere on the surface of the arm assemblies. No cracks are allowed.

6.42.3 Primary Method. Eddy Current.

6.42.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

9. Aircraft Marking Pencil, refer to Table 1-8

6.42.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the arm assemblies shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.42.3.3 Access. Access is through the right side general door. (Figure 1-4, Item 36)

6.42.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.42.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.42.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-42.

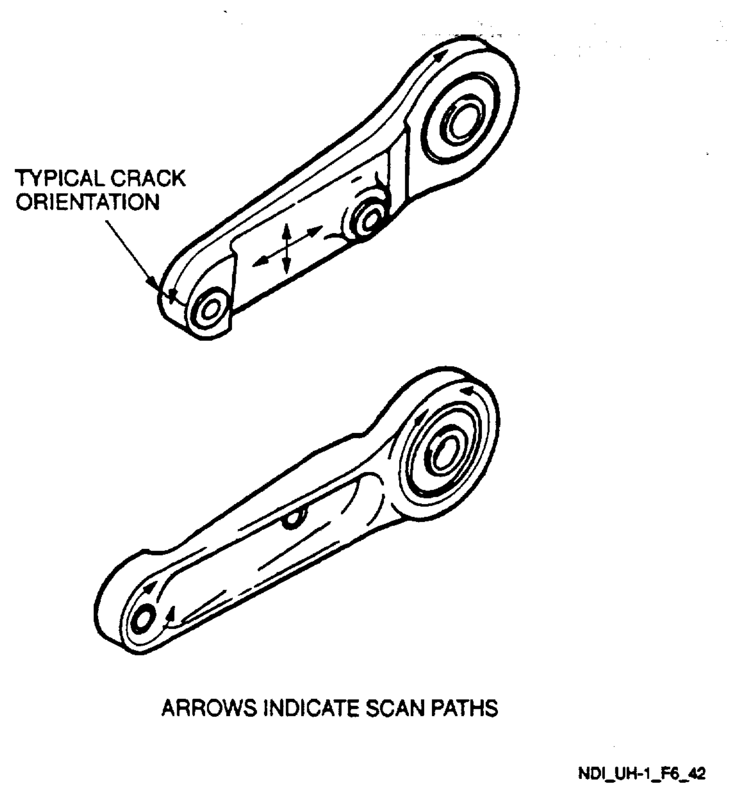


Figure 6-42. Tail Rotor Arm Assemblies

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.42.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.42.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.42.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.42.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

6.42.5 System Securing. The arm assemblies, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure the right side general door as required.

6.43 TAIL ROTOR BELLCRANK ASSEMBLY (ET).

6.43.1 Description (Figure 6-1. Index No. 43). The tail rotor bellcrank assembly is a pivot point connecting the hydraulic power cylinder, support assembly, and control tube.

6.43.2 Defects. Defects can occur anywhere on the surface of the bellcrank. No cracks are allowed.

6.43.3 Primary Method. Eddy Current.

6.43.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 900 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.43.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcrank assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.43.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.43.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.43.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-1 9e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.43.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-43.

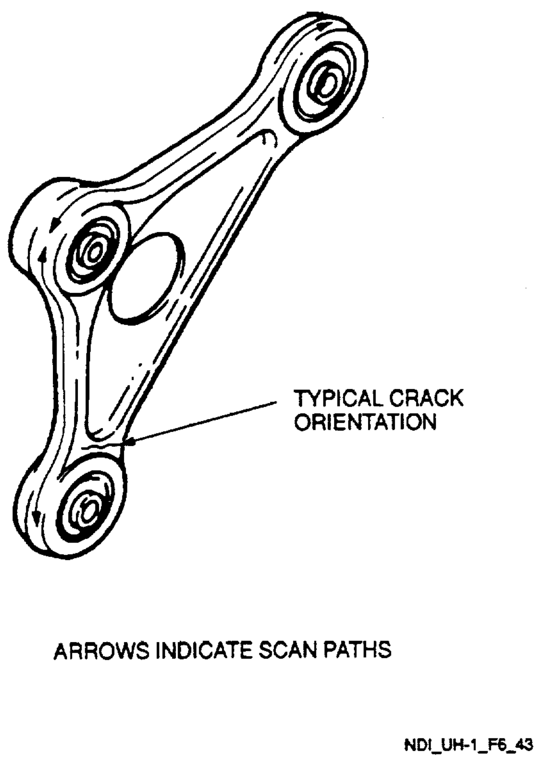


Figure 6-43. Tail Rotor Bellcrank Assembly

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.43.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.43.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.43.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.43.4 Backup Method. Fluorescent Penetrant, refer to paragraph 1.4.7.

6.43.5 System Securing. The bellcrank assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all applicable access panels, doors, and fairings as required.

6.44 TAIL ROTOR CYLINDER AND SUPPORT ASSEMBLY - HARDWARE (MT).

6.44.1 Description (Figure 6-1, Index No. 44). The tail rotor cylinder and support assembly - hardware is used throughout the assembly to secure the various components.

6.44.2 Defects. Defects can occur anywhere on the surface of the hardware. No cracks are allowed.

6.44.3 Primary Method. Magnetic Particle.

6.44.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles

e. Consumable Materials, refer to Table 1-8

f. Aircraft Marking Pencil, refer to Table 1-8

NOTE

Hand-held magnetic coil may be used. Refer to paragraph 1.4.8.1.2 and Figure 1-6.

6.44.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the hardware removed in accordance with the applicable technical manuals listed in Table 1-1.

6.44.3.3 Access. Not applicable.

6.44.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.44.3.5 NDI Equipment Settings. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.44.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection is illustrated in Figure 6-44.

a. Select AC on the AC/DC power switch.

b. Place probe/yoke on part in position 1 as shown.

c. Press the test switch and apply a light coat of magnetic particle media at the same time. Remove the media momentarily before removing the current. Current should be applied for no more than five seconds.

d. Inspect for cracks using the black light.

6.44.3.7 Marking and Recording of Inspection Results. Mark and record the inspection results as required by paragraph 1.3.

6.44.3.8 Demagnetization. With the switch remaining in the AC position, place the probe/yoke legs in the same position used for magnetizing. Press the test switch and withdraw the probe/yoke from the part for a distance of two feet before releasing the switch.

6.44.4 Backup Method. None required.

6.44.5 System Securing. Clean the hardware thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The hardware requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.45 TAIL ROTOR CONTROL SYSTEM - BELLCRANKS (ET).

6.45.1 Description (Figure 6-1, Index No. 45). Various bellcranks, levers, and supports are incorporated in the tail rotor control system. The supports are airframe mounted and provide a pivot mount for levers and bellcranks.

6.45.2 Defects. This inspection is to verify crack indications found visually In the tail rotor control system bellcranks and surrounding areas. No cracks are allowed.

6.45.3 Primary Method. Eddy Current.

6.45.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

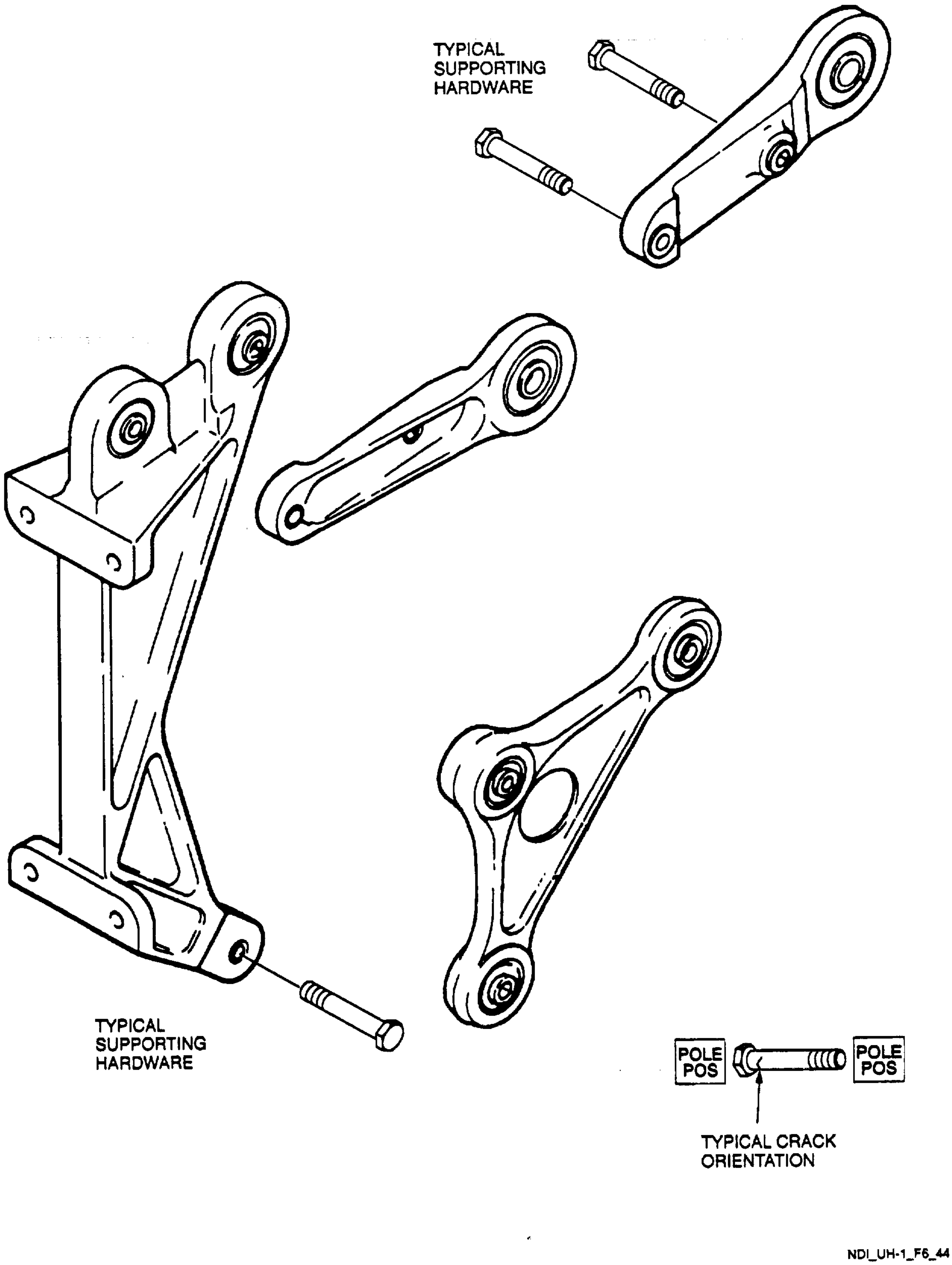


Figure 6-44. Tail Rotor Cylinder and Support Assembly - Hardware

6.45.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcranks shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.45.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.45.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.45.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.45.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-45.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.45.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.45.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

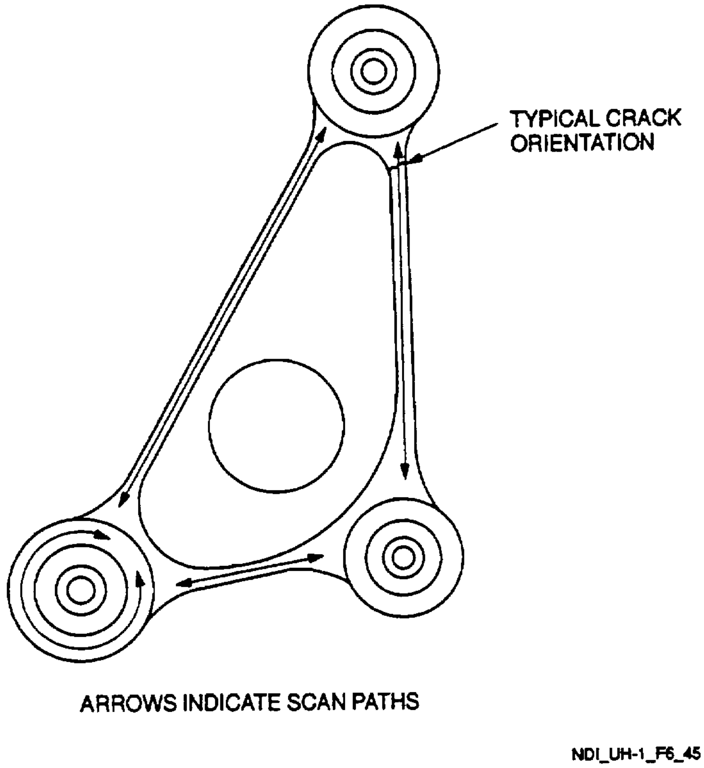


Figure 6-45. Tail Rotor Control System - Bellcranks

6.45.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.45.4 Backup Method. None required.

6.45:5 System Securing. The bellcranks, if removed, require installation in accordance with the applicable-technical manuals listed in Table 1-1. Secure the applicable access panels, doors, and fairings as required.

6.46 TAIL ROTOR CONTROL SYSTEM - LEVERS (ET).

6.46.1 Description (Figure 6-1. Index No. 46). Various bellcranks, levers, and supports are incorporated in the tail rotor control system. The supports are airframe mounted and provide a pivot mount for levers and bellcranks.

6.46.2 Defects. This inspection is to verify crack indications found visually in the tail rotor control system levers and surrounding areas. No cracks are allowed.

6.46.3 Primary Method. Eddy Current.

6.46.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.46.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the levers shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.46.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.46.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.46.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.46.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-46.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

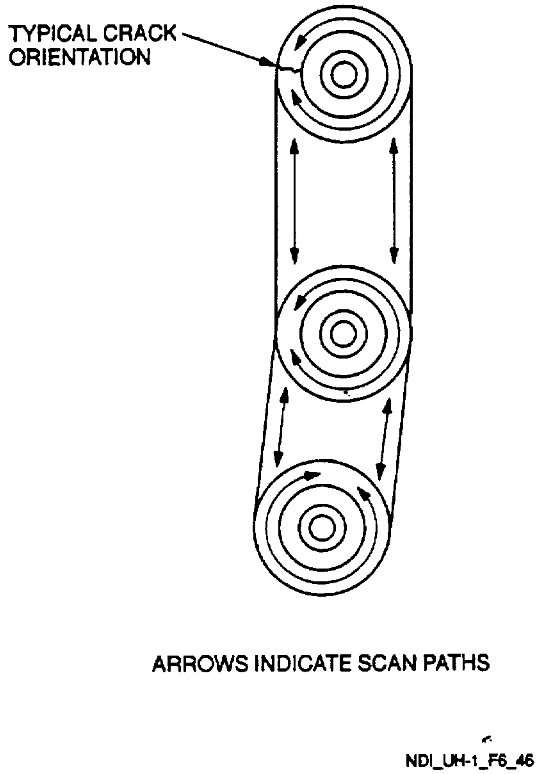


Figure 6-46. Tail Rotor Control System - Levers

NOTE

Either probe identified in paragraph 6.46.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.46.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.46.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.46.4 Backup Method. None required.

6.46.5 System Securing. The levers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure applicable access panels, doors, and fairings as required.

6.47 ELEVATOR CONTROL SYSTEM - CONTROL TUBES (ET).

6.47.1 Description (Figure 6-1. Index No. 47). Control tubes (adjustable and nonadjustable) are used throughout the elevator control system. The tubes are connected to bellcranks, levers, and supports with standard hardware.

6.47.2 Defects. This inspection is to verify crack indications found' visually in the elevator control system control tubes and surrounding areas. No cracks are allowed.

6.47.3 Primary Method. Eddy Current.

6.47.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.47.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the control tubes shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.47.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.47.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.47.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11 Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.47.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-47.

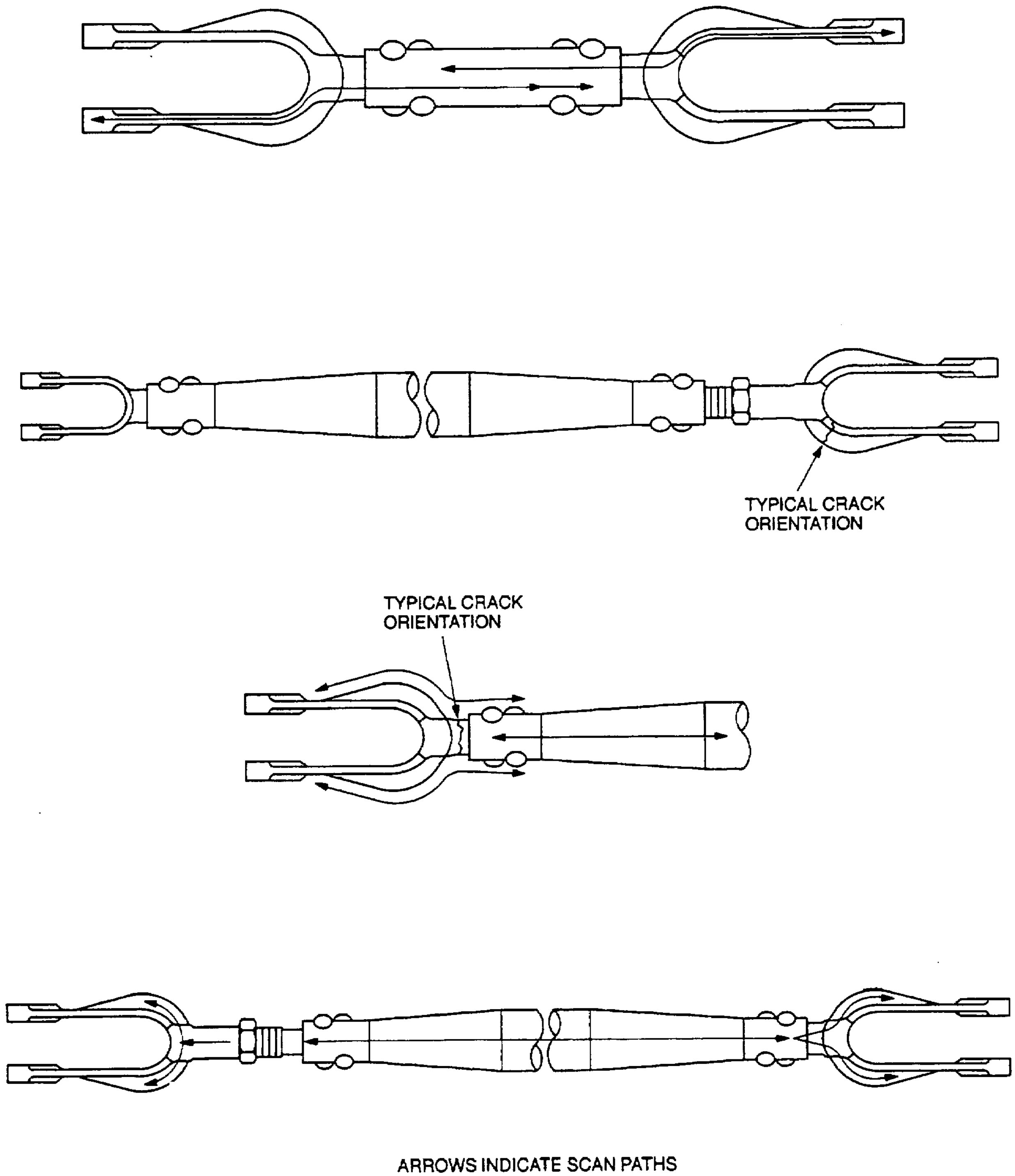


Figure 6-47. Elevator Control System - Control Tubes

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.47.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.47.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.47.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.47.4 Backup Method. None required.

6.47.5 System Securing. The control tubes, if removed, require installation in accordance with the applicable technical manuals listed in Table 1 -1. Secure applicable access panels, doors, and fairings as required.

6.48 ELEVATOR CONTROL SYSTEM BELLCRANKS (ET).

6.48.1 Description (Figure 6-1. Index No. 48). Various bellcranks, levers, and supports are incorporated in the elevator control system. The supports are airframe mounted and provide a pivot mount for levers and bellcranks.

6.48.2 Defects. This inspection is to verify crack indications found visually in the elevator control system bellcranks and surrounding areas. No cracks are allowed.

6.48.3 Primary Method. Eddy Current.

6.48.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.48.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the bellcranks shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.48.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.48.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.48.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e[II].

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.48.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-48.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.48.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.48.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.48.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.48.4 Backup Method. None required.

6.48.5 System Securing. The bellcranks, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure all applicable access panels, doors, and fairings as required.

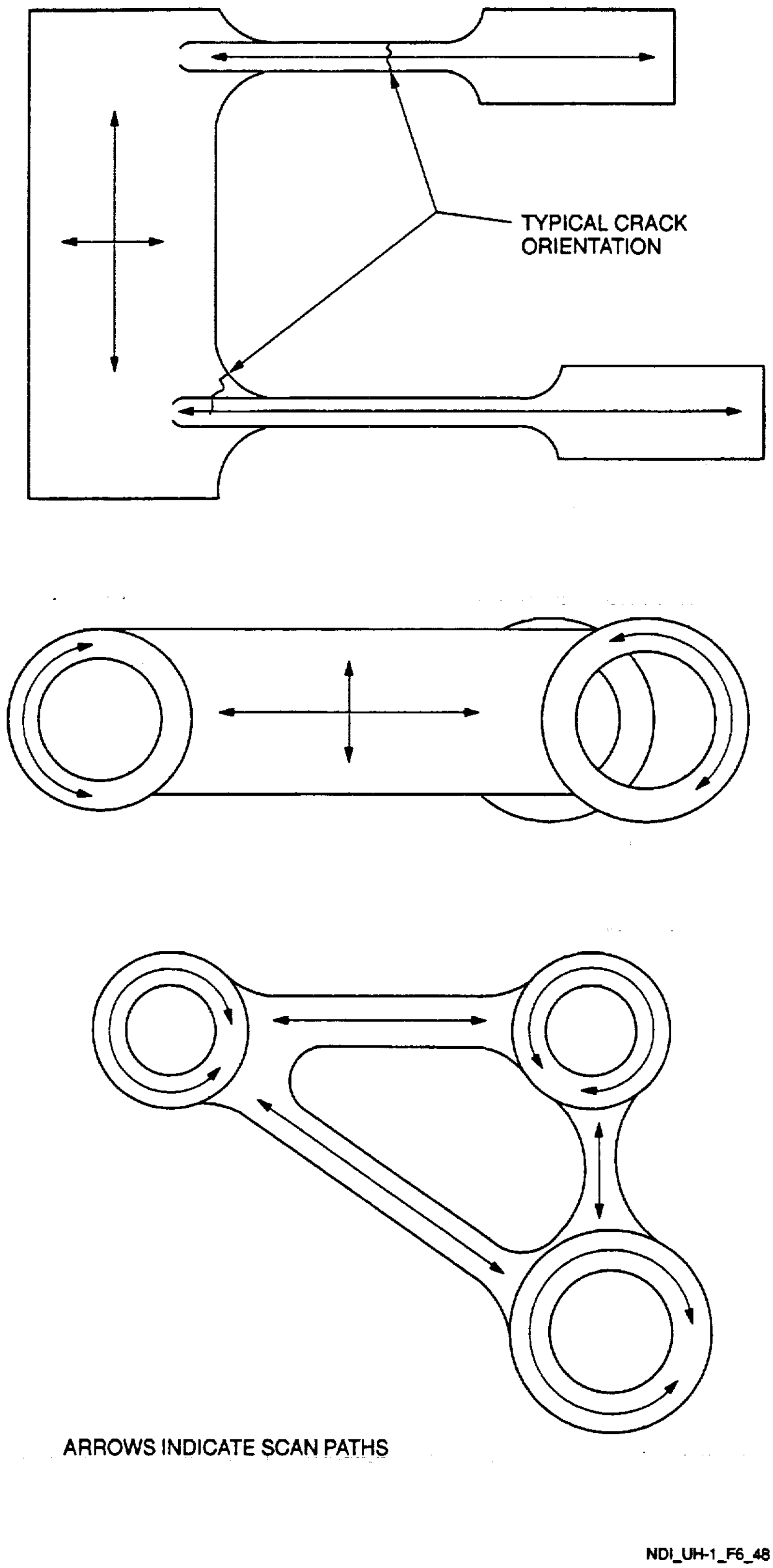


Figure 6-48. Elevator Control System - Bellcranks

6.49 ELEVATOR CONTROL SYSTEM - LEVERS (ET).

6.49.1 Description (Figure 6-1. Index No. 49). Various levers are incorporated in the collective control system to provide movement of its respective control surface.

6.49.2 Defects. This inspection is to verify crack indications found visually in the elevator control system levers and surrounding areas. No cracks are allowed.

6.49.3 Primary Method. Eddy Current.

6.49.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable-Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.49.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the levers shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.49.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.49.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.49.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.49.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-49.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.49.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.49.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.49.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.49.4 Backup Method. None required.

6.49.5 System Securing. The levers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure applicable access panels, doors, and fairings as required.

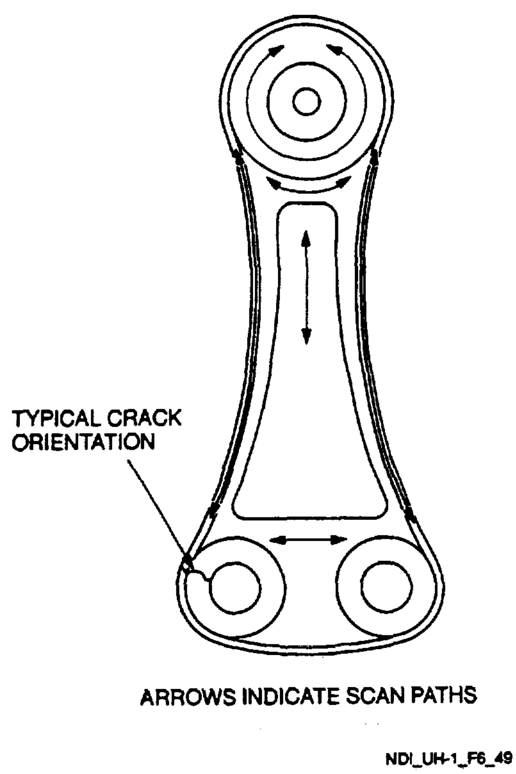


Figure 6-49. Elevator Control System - Levers

6.50 ELEVATOR CONTROL SYSTEM - SUPPORTS (ET).

6.50.1 Description (Figure 6-1. Index No. 50). The collective control system supports are airframe mounted and provide a pivot mount for levers and bellcranks.

6.50.2 Defects. This inspection is to verify crack indications found visually in the elevator control system supports and surrounding areas. No cracks are allowed.

6.50.3 Primary Method. Eddy Current.

6.50.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.50.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the installed part using this procedure. If required, the supports shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.50.3.3 Access. Refer to Figure 1-4 and Table 1-2 to locate applicable access panels, doors, and fairings.

6.50.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.50.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.50.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-50.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.50.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.50.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.50.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

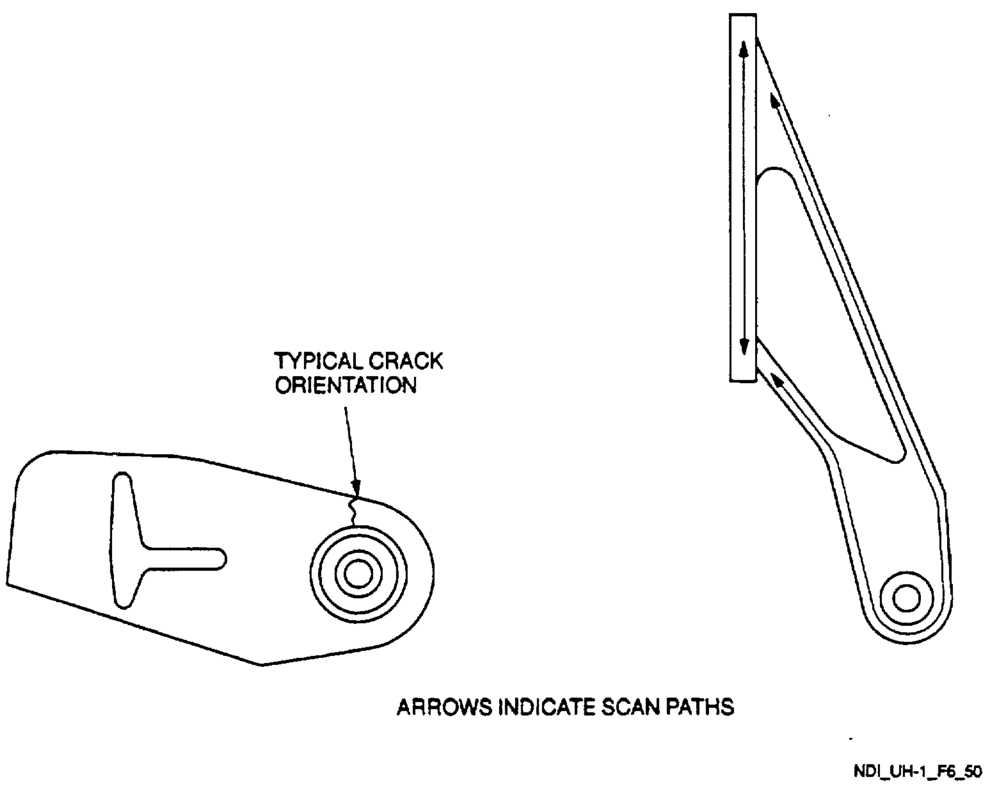


Figure 6-50. Elevator Control System - Supports

6.50.4 Backup Method. None required.

6.50.5 System Securing. The supports, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1. Secure applicable access panels, doors, and fairings as required.

6.51 ELEVATOR CONTROL SYSTEM - BELLCRANKS, LEVERS, AND SUPPORTS - BEARING REPLACEMENT (ET).

6.51.1 Description (Figure 6-1, Index No. 51). This inspection is applicable after removal of bearings from bellcranks, levers, and supports in preparation for replacement.

6.51.2 Defects. Defects can occur anywhere on the surface and in the bore. No cracks are allowed.

6.51.3 Primary Method. Eddy Current.

6.51.3.1 NDI Equipment and Materials. (Refer to Appendix B.)

a. Eddy Current Inspection Unit

b. Probe, straight, shielded surface, 100 KHz-500 KHz

c. Probe, right angle, shielded surface, 100 KHz-500 KHz, 90° 1/2 inch drop

d. Cable Assembly

e. Reference Block, three-notched aluminum (0.008, 0.020, and 0.040 EDM notches)

f. Teflon Tape, refer to Table 1-8

g. Aircraft Marking Pencil, refer to Table 1-8

6.51.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the identified component removed in accordance with the applicable technical manuals listed in Table 1-1.

6.51.3.3 Access. Not applicable.

6.51.3.4 Preparation of Part. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.51.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e^{II}.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
V Pos	-20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Set up on test block as follows:

(1) Null probe on test block.

(2) Adjust phase as required to obtain horizontal lift-off.

(3) Move probe over all three notches in test block. Adjust gain to obtain a three block vertical signal when probe is passed over 0.040-inch notch in test block. (See standard instrument display shown in Figure 1-7.)

6.51.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-51.

a. Place probe on a good area in the inspection location and null. Adjust phase as required to obtain horizontal lift-off.

b. Inspect the part.

c. Any signal similar to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.51.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.51.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

6.51.3.7 Marking and Recording of Inspection Results. Mark and record as required by paragraph 1.3.

6.51.4 <u>Backup Method.</u> Fluorescent Penetrant, refer to paragraph 1.4.7.

6.51.5 <u>System Securing.</u> The identified component requires installation in accordance with the applicable technical manuals listed in Table 1-1.

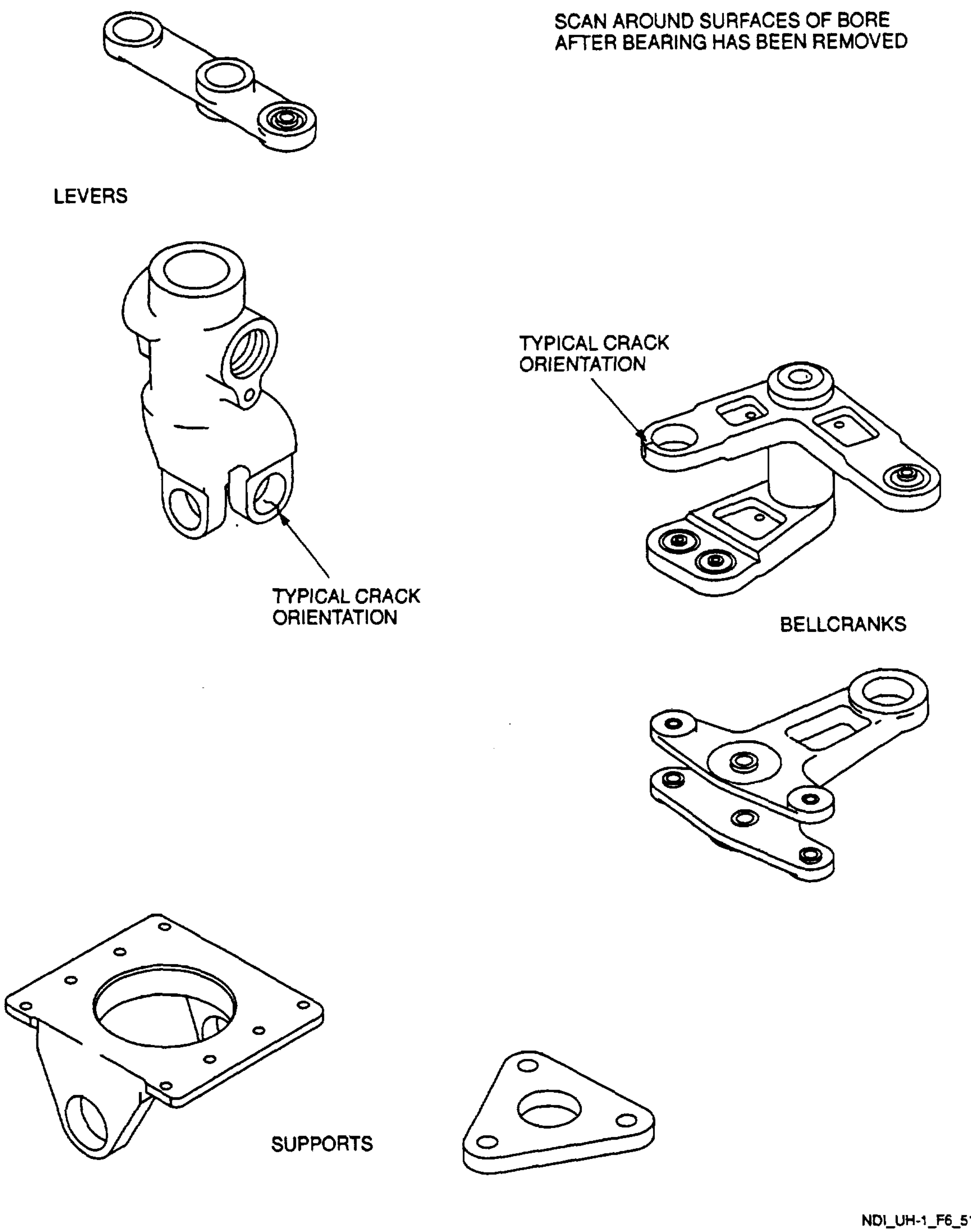


Figure 6-51. Elevator Control System - Bellcranks, Levers, and Supports - Bearing Replacement

APPENDIX A
MAINTENANCE ALLOCATION CHART
NONDESTRUCTIVE INSPECTION

NDI METHODS/EQUIPMENT
001 Fluorescent Penetrant Method
002 Magnetic Particle Method
003 Eddy Current Method
004 Ultrasonic Method
005 Bond Testing Method
006 Radiographic Method

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
2.2	Main Rotor Hub Grip	Cracks		✓		003	
2.3	Main Rotor Hub Pillow Block	Cracks		✓		003	
2.4	Main Rotor Pitch Horn	Cracks		✓		003	
2.5	Main Rotor Drag Brace Assembly	Cracks		✓		002	
2.6	Main Rotor Blade Bolt	Cracks		✓		002	
2.7	Main Rotor Hub Plate Assembly	Cracks		✓		003	
2.8	Grip Retention Nut	Cracks		✓		002	
2.9	Main Rotor Hub Shield Assembly	Cracks		✓		002	
2.10	Yoke	Cracks		✓		002	
2.11	Trunnion	Cracks		✓		002	
2.12	Strap Fitting	Cracks		✓		002	
2.13	Main Rotor Blade(Metal)	Cracks		✓		003	
2.14	Main Rotor Blade(Metal)	Voids		✓		005	
2.15	Main Rotor Blade(Metal)	Water		✓		006	
2.16	Composite Main Rotor Blade	Voids		✓		005	
2.17	Stabilizer Bar Center Frame	Cracks		✓		003	Backup 001
2.18	Stabilizer Bar Support	Cracks		✓		003	Backup 001

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
2.19	Stabilizer Bar Lever	Cracks		✓		003	Backup 001
2.20	Stabilizer Bar Tube Assembly	Cracks		✓		002	
2.21	Damper Lever Arms	Cracks		✓		003	
2.22	Rotor Mast Adapter Set	Cracks		✓		003	
2.23	Damper Wingshaft Splines	Cracks		✓		002	
2.24	Swashplate Inner Ring	Cracks		✓		003	
2.25	Swashplate Outer Ring	Cracks		✓		003	
2.26	Support Assembly	Cracks		✓		003	
2.27	Collective Levers	Cracks		✓		003	Backup 001
2.28	Scissors Assembly	Cracks		✓		003	Backup 001
2.29	Drive Link	Cracks		✓		003	Backup 001
2.30	Collective Sleeve Assembly	Cracks		✓		002	
2.31	Nut, Retainer	Cracks		✓		002	Backup 001
2.32	Nut, Collective Sleeve Bearing Retention	Cracks		✓			
2.33	Scissors and Sleeve Hub	Cracks		✓		002	
2.34	Tail Rotor Hub Grip Assembly	Cracks		✓		Backup 001	
2.35	Tail Rotor Hub Retainer Nut	Cracks		✓		002	
2.36	Tail Rotor Hub Retainer Ring	Cracks		✓		001	
2.37	Adapter Nut	Cracks		✓		002	
2.38	Tail Rotor Hub Yoke	Cracks		✓		002	
2.39	Tail Rotor Hub Trunnion	Cracks		✓		002	
2.40	Tail Rotor Crosshead	Cracks		✓		003	Backup 001
2.41	Tail Rotor Blade	Cracks		✓		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
2.42	Tail Rotor Blade	Voids		✓		005	
2.43	Tail Rotor Blade	Water		✓		006	
3.2	Main Driveshaft Inner Couplings	Cracks		✓		002	
3.3	Main Driveshaft Outer Couplings	Cracks		✓		002	
3.4	Main Driveshaft Splined Nuts	Cracks		✓		002	
3.5	Main Driveshaft Clamp Sets	Cracks		✓		002	
3.6	Main Driveshaft Grease Retainers	Cracks		✓		001	
3.7	Main Driveshaft	Cracks		✓		002	
3.8	Adapter Bolt	Cracks		✓		002	
3.9	Main Driveshaft Engine Adapter	Cracks		✓		002	
3.10	Transmission Case (Top)	Cracks		✓		003	
3.11	Ring Gear Case	Cracks		✓		002	
3.12	Main Transmission Case	Cracks		✓		003	
3.13	Transmission Support Case	Cracks		✓		003	
3.14	Lift Link Bushing Hole	Cracks		✓		001	
3.15	Threaded Fittings	Cracks		✓		001	
3.16	Input Drive Quill Wear Sleeve	Cracks		✓		001	
3.17	Generator Drive Quill Case	Cracks		✓		003	
3.18	Hydraulic Pump and Tachometer Quill Case	Cracks		✓		003	
3.19	Hydraulic Pump and Tachometer Gear Teeth	Cracks		✓		001	
3.20	Tail Rotor Drive Quill Sleeve Assembly	Cracks		✓		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
3.21	Tail Rotor Drive Quill Bevel Gear Teeth	Cracks		✓		002	
3.22	Tail Rotor Drive Quill Sleeve Spacer	Cracks		✓		002	
3.23	Pylon Mount Bolts	Cracks		✓		002	
3.24	Fifth Mount Support Fitting	Cracks		✓		001	
3.25	Friction Damper	Cracks		✓		002	
3.26	Main Rotor Mast Nut	Cracks		✓		002	
3.27	Oil Pump Driveshaft	Cracks		✓		002	
3.28	Oil Jets	Cracks		✓		001	
3.29	Tail Rotor Driveshaft	Cracks		✓		003	Backup 001
3.30	Tail Rotor Driveshaft Clamps	Cracks		✓		002	
3.31	Tail Rotor Driveshaft Hangers	Cracks		✓		002	Backup 001
3.32	Tail Rotor Driveshaft Inner (Spherical) Coupling	Cracks		✓		002	
3.33	Tail Rotor Driveshaft Forward Coupling	Cracks		✓		002	
3.34	Tail Rotor Driveshaft Rear Coupling	Cracks		✓		002	
3.35	Tail Rotor Driveshaft Coupling Shaft	Cracks		✓		002	
3.36	Tail Rotor Driveshaft Hanger Support Fittings	Cracks		✓		003	
3.37	Intermediate Gearbox Case	Cracks		✓		003	Backup 001
3.38	Intermediate Gearbox Inner Coupling	Cracks		✓		002	
3.39	Intermediate Gearbox Outer Coupling	Cracks		✓		002	
3.40	Intermediate Gearbox Sleeve	Cracks		✓		002	
3.41	Intermediate Gearbox Pinion Shaft	Cracks		✓		002	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
3.42	Tail Rotor Gearbox Case	Cracks		✓		003	
3.43	Tail Rotor Gearbox Inner Coupling	Cracks		✓		002	
3.44	Tail Rotor Gearbox Outer Coupling	Cracks		✓		002	
3.45	Tail Rotor Gearbox Sleeve	Cracks		✓		002	
3.46	Transmission Lift Link	Cracks		✓		002	
4.2	Honeycombed Structures with Metallic Covering	Voids		✓		005	
4.3	Honeycomb Structures with Non-Metallic Covering	Voids		✓		005	
4.4	Forward Fuselage Metal Structures	Cracks		✓		003	
4.5	Center Service Deck Panel	Voids		✓		005	
4.6	Center Service Deck, Hanger Bearing Brace Assembly, and Main Beam Caps	Cracks		✓		003	
4.7	Aft Fuselage Structural Tube	Cracks		✓		003	
4.8	Reinforced Floor Mounting Plates and Base Assembly	Cracks		✓		003	
4.9	Transmission and Engine Cowling	Cracks		✓		003	
4.10	Anti-Collision Light Mount	Cracks		✓		003	
4.11	Lift Beam Cap and Adjacent Structure	Cracks		✓		003	
4.12	Friction Damper Support, Clip, Retaining Clip, and Mount Assembly	Cracks		✓		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
4.13	Friction Damper Mount Assembly	Cracks		✓		003	
4.14	Aft Landing Gear Attachments	Cracks		✓		003	Backup 001
4.15	Crew Door Hinges	Cracks		✓		003	
4.16	Hinged Panel and Hinges	Cracks		✓		003	Backup 001
4.17	Hinged Panel Assembly Hardware	Cracks		✓		001	
4.18	Cargo Door	Cracks		✓		003	
4.19	Cargo Door Retainers and Retainer Strap	Cracks		✓		003	
4.20	Passenger Step	Cracks		✓		001	
4.21	Paratroop Static Line Fitting and Compression Tube	Cracks		✓		003	
4.22	Jack and Mooring Fittings	Cracks		✓		002	
4.23	Standard Crew Seat	Cracks		✓		003	Backup 001
4.24	Mission Operator Seats	Cracks		✓		003	Backup 001
4.25	Engine Mounts	Cracks		✓		002	
4.26	Engine Mount Fittings	Cracks		✓		002	
4.27	Engine Deck Fittings	Cracks		✓		002	
4.28	Pillow Blocks	Cracks		✓		002	
4.29	Exhaust Tailpipe and Duct Assemblies	Cracks		✓		001	
4.30	Bolts, Rod Ends, Turnbuckles, Rods, and Pins	Cracks		✓		002	
4.31	Tailboom and Fuselage Attach Fittings	Cracks		✓		003	
4.32	Elevator Assembly Support Fittings	Cracks		✓		003	Backup 001
4.33	Elevator Horn Assembly	Cracks		✓		003	Backup 001

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
4.34	Intermediate Gearbox Support Installation	Cracks		√		003	
4.35	Tailboom Structure	Cracks		√		003	
4.36	Ninety Degree Gearbox Support Fitting	Cracks		√		003	
4.37	Vertical Fin	Cracks		√		001	
4.38	Landing Gear Cross Tubes	Cracks		√		004	Backup 001
4.39	Skid Tube Saddles	Cracks		√		003	
5.2	Non-Self-Purging Particle Separator - Air Induction System	Cracks		√		001	
5.3	Inlet Screen Latch Assembly Self-Purging - Air Induction System	Cracks		√		001	
5.4	Air Particle Separator Self-Purging - Air Induction System	Cracks		√		001	
5.5	Improved Particle Separator (IPS) Air Induction System	Cracks		√		001	
5.6	Exhaust System Clamp	Cracks		√		001	
5.7	Tailpipe and Heatshield	Cracks		√		001	
5.8	Oil System - Metal Lines and Fittings	Cracks		√		001	
5.9	Engine Oil Tank Support	Cracks		√		001	
5.10	Engine Oil Cooler	Cracks		√		001	
5.11	Engine Oil Cooler Turbo Blower	Cracks		√		001	
5.12	Oil Separator	Cracks		√		001	
5.13	Engine External Oil Filter Head and Bowl	Cracks		√		001	
5.14	Power Lever Control. Rods	Cracks		√		002	
5.15	Power Lever Torque Tube	Cracks		√		002	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
5.16	Power Lever Controls	Cracks		√		003	
5.17	Cambox Assembly	Cracks		√		003	
5.18	Power Lever Control Mounting Brackets and Plates	Cracks		√		001	
6.2	Hydraulic System Components	Cracks		√		001	
6.3	Hydraulic Pump Assembly	Cracks		√		003	
6.4	Ground Test Connections	Cracks		√		001	
6.5	Relief Valve, Bolt, and Fitting	Cracks		√		001	
6.6	Pressure Switch	Cracks		√		001	
6.7	Solenoid Valves	Cracks		√		001	
6.8	Hydraulic Servo Cylinder Assembly (Cyclic Control) Clevis	Cracks		√		002	
6.9	Hydraulic Servo Cylinder Tube Assembly (Cyclic Control)	Cracks		√		001	
6.10	Hydraulic Servo Cylinder Assembly (Cyclic Control) Housing	Cracks		√		001	
6.11	Hydraulic Servo Cylinder (Cyclic Control) Cylinder Caps	Cracks		√		001	
6.12	Hydraulic Servo Cylinder Assembly (Cyclic Control)	Cracks		√		001	
6.13	Hydraulic Servo Cylinder Assembly (Collective Control) Clevis	Cracks		√		002	
6.14	Hydraulic Servo Cylinder (Collective Control) Tube Assembly	Cracks		√		001	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
6.15	Hydraulic Servo Cylinder Assembly (Collective Control) Piston Rod	Cracks		√		002	
6.16	Hydraulic Servo Cylinder Assembly (Collective Control) Bearing Housing	Cracks		√		001	
6.17	Collective Control System Bellcrank	Cracks		√		003	
6.18	Collective Control System Lever Assembly	Cracks		√		003	
6.19	Collective Control System Support	Cracks		√		003	
6.20	Collective Control System Control Tubes	Cracks		√		003	
6.21	Tube and Lever Assembly	Cracks		√		003	
6.22	Support Assembly, Hydraulic Cylinder Assembly (Starboard)	Cracks		√		003	Backup 001
6.23	Support Assembly, Hydraulic Cylinder Assembly (Port)	Cracks		√		003	Backup 001
6.24	Mixing Lever Assembly - Cyclic Controls	Cracks		√		003	
6.25	Cyclic Control System Control Tubes	Cracks		√		003	
6.26	Cyclic Control System Bellcranks and Levers	Cracks		√		003	
6.27	Cyclic Control System Supports	Cracks		√		003	
6.28	Adjuster Assembly	Cracks		√		003	
6.29	Tail Rotor Control Quadrant	Cracks		√		003	
6.30	Tail Rotor Control Tube and Quill - Sprocket Guard	Cracks		√		001	
6.31	Tail Rotor Control Tube and Quill - Control Tube	Cracks		√		002	

NOMENCLATURE OF END ITEMS
HELICOPTER, UH-1 Series

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
6.32	Tail Rotor Control Tube and Quill - Housing	Cracks		√		001	
6.33	Tail Rotor Control Tube and Quill - Retaining Nut	Cracks		√		002	
6.34	Tail Rotor Control Tube and Quill - Sprocket	Cracks		√		001	
6.35	Tail Rotor Control Tube and Quill - Bearing Retainer	Cracks		√		001	
6.36	Tail Rotor Control Tube and Quill - Spacer	Cracks		√		002	
6.37	Tail Rotor Control Tube and Quill - Control Nut	Cracks		√		001	
6.38	Tail Rotor Control Tubes	Cracks		√		003	
6.39	Tail Rotor Hydraulic Power Cylinder - Piston Rod	Cracks		√		002	
6.40	Tail Rotor Hydraulic Power Cylinder Adapter	Cracks		√		002	
6.41	Tail Rotor Support Assembly	Cracks		√		003 001	Backup
6.42	Tail Rotor Arm Assemblies	Cracks		√		003	Backup 001
6.43	Tail Rotor Bellcrank Assembly	Cracks		√		003	Backup 001
6.44	Tail Rotor Cylinder and Support Assembly - Hardware	Cracks		√		002	
6.45	Tail Rotor Control System - Bellcranks	Cracks		√		003	
6.46	Tail Rotor Control System - Levers	Cracks		√		003	
6.47	Elevator Control System - Control Tubes	Cracks		√		003	
6.48	Elevator Control System - Bellcranks	Cracks		√		003	

NOMENCLATURE OF END ITEMS HELICOPTER, UH-1 Series							
(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
6.49	Elevator Control System - Levers	Cracks		√		003	
6.50	Elevator Control System - Supports	Cracks		√		003	
6.51	Elevator Control System - Bellcranks, Levers, and Supports- Bearing Replacement	Cracks		√		003	Backup 001

APPENDIX B

EQUIPMENT LISTING

Nomenclature	Part Number/ Specification	Manufacturer	National Stock Number
Fluorescent Penetrant Method			
Fluorescent Penetrant Inspection Kit	MIL-1-25135 Type I, Method C, Level 3	General Services Administration (GSA)	6850-00-703-7406
Black Light UV Kit	FMI	Spectronics Corp. 956 Brush Hollow Rd. Westbury, NY 11590-1731	6635-00-566-5198
Black Light Meter	J-221	Ultraviolet Products Inc., DBA UVP Inc. 5100 Walnut Grove Ave. P.O. Box 1500 Upland, CA 91778	6695-00-488-5451
Blacklight Bulbs	A-A-1765	General Services Administration (GSA)	6240-00-233-3680
Filter UV		3901 Magnaflux Div. of Illinois Tool Works Inc. 1301 W Ainsle St. Chicago, IL 60656	6635- 00-736-5177
Magnetic Particle Method			
Yoke and Coil Kit	YL-61	Magnaflux Div. of Illinois Tool Works Inc. 1301 W. Ainsle St. Chicago, IL 60656	4920-01-145-3924
Black Light	ZB26	Spectronics Corp. 956 Brush Hollow Rd. Westbury, NY 11590-1731	6635-00-611-5617
Magnetic Particle Inspection Probe	DA200	Parker Research Corp. 2642 Enterprise Rd. Clearwater, FL 33575-1917	6635-00-022-0372
Magnetometer	2480	Sterling Mfg. Co. 1845 E. 30th St. Cleveland, OH 44114-4438	6635-00-391-0058

Nomenclature	Part Number/ Specification	Manufacturer	National Stock Number
Eddy Current Method			
Eddy Current Inspection Unit	NORTEC-19e"	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	6635-01-419-0694
Reference Block- Three-Notched Aluminum	TBS-1 1902510	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
Reference Block- Three-Notched Titanium	SRS-0824T	NDT Engineering Corp 7056 S. 220TH ST. Kent, WA 98032	
Reference Block- Three-Notched Magnesium	SRS-0824M	NDT Engineering Corp 7056 S. 220TH St. Kent, WA 98032	
Reference Block- Block of Six Conductivity Sample	1902474	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
Probe, right angle, shielded surface P/100 KHz-500 KHz /A/90.5/6	MT-905-60	NDT Engineering Corp. 7056 S. 220th St. Kent, WA 98032	
Probe, straight, shielded surface P/100 KHz-500 Khz /A/0.0/4	MP-60	NDT Engineering Corp. 7056 S. 220th St. Kent, WA 98032	
Cable Assy, Coaxial 6 ft	CBM-6	NDT Engineering Corp 7056 S. 220TH St. Kent, WA 98032	5995-01-278-1271
Ultrasonic Method			
Ultrasonic Inspection Unit	USD 15S	KrautKramer Branson 50 Industrial Park Road Lewistown, PA 17044	6635-01-417-5467
Transducer, 5.0 MHz 60° shear wave, 1/4 x 1/4 inch element	6635-01-057-2761		

Nomenclature	Part Number/ Specification	Manufacturer	National Stock Number
Bond Testing Method			
- Bondmaster	9016600-99	Staveley Instruments. Inc. 421 North Quay St. Kennewick, WA 99336	6635-01-432-9954
Cable Assembly Kennewick, WA 99336	S-BM-CPM-P11 9117789	Staveley Instruments, Inc. 421 North Quay St.	
Probe, Mechanical Impedance Analysis	S-MP-4 9317808	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
Probe Holder, spring loaded	BMM-H 9316874	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
Test Block, Composite Defect Standard #1	1916451	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
Test Block, Composite Defect Standard #3	1916453	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
Test Block, Aluminum Honeycomb with 0.020-Inch thick aluminum/fiber-glass skin	Refer to Appendix C		
Test Block, Aluminum Honeycomb with 0.040-inch thick aluminum skin	Refer to Appendix C		
Test Block, Aluminum Honeycomb with 0.063-Inch thick aluminum skin	Refer to Appendix C		
Cable Assembly, Coaxial 6-feet long (1 required)	CBM-6	NDT Engineering Corp. 7056 S. 220th St. Kent, WA 98032	
Radiographic Method			
Tripod X-Ray Tubehead Stand	PDSANE480	Staveley Aerospace Systems, Inc. Chatsworth, CA 91311	6635-01-067-6315

Nomenclature	Part Number/ Specification	Manufacturer	National Stock Number
AIX Warning Light W/Stand	153001	American Industrial X-ray Inc	6210-01-374-4594
X-Ray Unit (LPX-160 water-cooled digital)	3-000-0723	LORAD Corp. 36 Apple Ridge Rd. P.O. Box 710 Danbury, CT 06813-710	6635-01-417-1830

APPENDIX C

ILLUSTRATED FIELD MANUFACTURE ITEMS LIST

Introduction

A. This appendix contains complete instructions for manufacturing nondestructive inspection support accessories in the field.
B. An index order is provided for cross-referencing the number of the item to be manufactured to the figure number which covers fabrication criteria.
C. All bulk materials needed for manufacture of an item are listed by part number or specification number.
D. See Figure C-1.

Item Number	Support Accessories
WS-2	Test block with aluminum honeycomb (0.75 or 1.0 inch) between 0.020
	fiberglass skin and a 0.063 aluminum skin
WS-4	Test block with aluminum honeycomb (0.75 or 1.0 inch) between a 0.040
	aluminum skin and a 0.020 skin

NOTES

1. **All dimensions /+/-) 1/16 inch. Break all sharp edges and corners.**
2. **Scuff sand the adhesive side of the fiberglass panel.**
3. **Scotchbrite scuff and alcohol/acetone rinse the adhesive side of the aluminum panels.**
4. **Milling or grinding of core cutouts is preferable over crushing techniques. A rotary file or end mill cutter should produce acceptable results.**
5. **Polyolefin disks (inserts) should be flush with core if not slightly recessed.**
6. **Mix adhesives per manufacturer's instructions; exercise caution applying around inserts.**
7. **Moderate weight should be applied to the panels throughout the cure cycle.**

BULK MATERIALS

1. 2024-T3 aluminum panels (0.020, 0.040 and 0.063 inch thick) specification QQ-4-250/5
2. Fiberglass panel 0.020 inch thick, specification MIL-1-24768/27
3. Aluminum honeycomb core 0.75 or 1.0 inch thick, 1/8 cell size specification MIL-C-7438-G
4. Polyolefin disks 0.025-0.030 inch thick (High-Density Polyethylene or Polypropylene)
5. Adhesive EA934 or equivalent

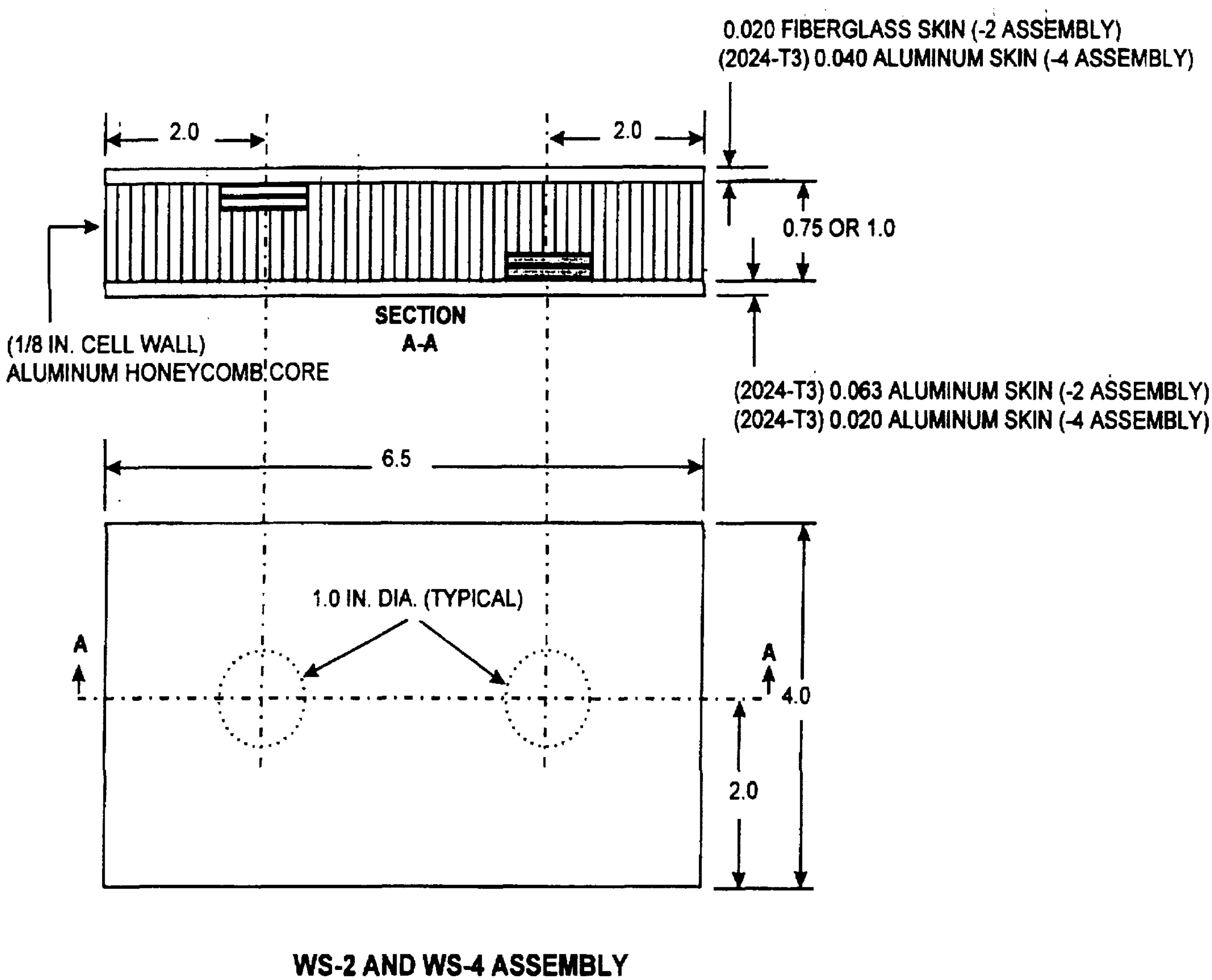


Figure C-1. Composite Test Blocks

INDEX

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

INDEX- Continued

By Order of the Secretary of the Army.

DENNIS J. REIMER
General, United States Army
Chief of Staff

Offic
OEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

DISTRIBUTION:
To be distributed in accordance with DA Form 12-31 -E, block no. 3680, requirements for TM 1-1520-256-23.

*U.S. GOVE£LMVET PRITINTC OFFICE:1997-554-121/60027

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

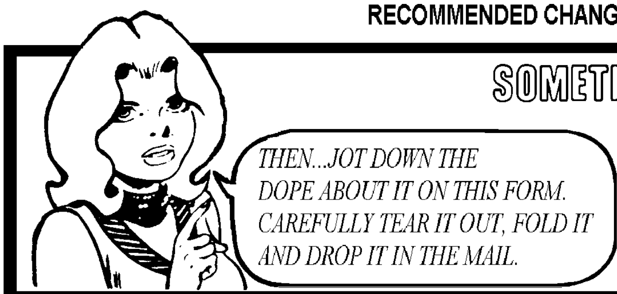
From: "Whomever" <whomever@avma27.army.mil>
To: mpmtl/oavma28@st-louis-emh7.army.mil
Subject: DA Form 2028

1. ***From:*** Joe Smith
2. *Unit:* home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19-OCT-93
8. ***Pub no:*** 55-2840-229-23
9. ***Pub Title:*** TM
10. ***Publication Date:*** 04-JUL-85
11. *Change Number:* 7
12. *Submitter Rank:* MSG
13. ***Submitter FName****:* Joe
14. *Submitter MName:* T
15. ***Submitter LName:*** Smith
16. ***Submitter Phone:*** 123-123-1234
17. ***Problem:*** **1**
18. *Page:* 2
19. *Paragraph:* 3
20. *Line:* 4
21. *NSN:* 5
22. *Reference:* 6
23. *Figure:* 7
24. *Table:* 8
25. *Item:* 9
26. *Total:* 123
27. ***Text:***

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH PUBLICATION



FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.	IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 075199-000