TM 1–1520–264–23

TECHNICAL MANUAL

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

NONDESTRUCTIVE INSPECTION PROCEDURES

FOR

AH–64 HELICOPTER SERIES

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY
30 NOVEMBER 1996

Change NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 30 March 2000

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NONDESTRUCTIVE PROCEDURES FOR AH-64 HELICOPTER SERIES

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TM 1-1520-264-23, 30 November 1996, is changed as follows.

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand

Remove pages	Insert pages
Cover	Cover
	A/(B blank)
iii and iv	iii and iv
	2-38-1 through 2-38.8 blank
	2-71 through 2-74 blank

2. Retain this sheet in front of the manual for reference purpose.

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
9934002

Distribution:

To be distributed in accordance with Initial Distribution Number (IDN) 313681 requirements for TM 1-1520-264-23.

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 helicopter 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). 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.

CAUTION

Exercise extreme caution when handling and inspecting the drive shaft assemblies. The assembly may be rendered unserviceable by even slight dents or scratches.

LIST OF EFFECTIVE PAGES

Insert latest changed pages; dispose of superseded pages in accordance with regulations.

NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line, or other change symbol, in the outer margin of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicatd by shaded areas.

Dates of issue for origional and changed pages are:

Origional -30 November 1996
Change 1 -30 March 2000

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TECHNICAL MANUAL

No. 1-1520-264-23

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 AH-64A Helicopter

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.

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SECTION I

INTRODUCTION

1. INTRODUCTION.

a. This manual contains instructions for accomplishing Nondestructive Inspection (NDI) of the AH-64A helicopter 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 AH-64A Aircraft 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 a DA Form 2028. Mail to: U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Boulevard, 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 AH-64A helicopter. 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 AH-64A helicopter, 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 1-1520-238-23	Aviation Unit and Intermediate Maintenance Manual, Helicopter, Attack, AH-64A Apache
Chapter 1	Aircraft General
Chapter 2	Airframe
Chapter 3	Landing Gear System
Chapter 4	Power Plant
Chapter 5	Rotors
Chapter 6	Drive System

Table 1-1. Supporting Technical Documentation - Continued

Document	Description
Chapter 7	Hydraulic and Pneumatic Systems
Chapter 11	Flight Control System
TM 55-2840-248-23 (series)	Aviation Unit and Intermediate Maintenance Instructions, Engine Aircraft, Turboshaft Model T700-GE-701

1.1.1 Special Terms. Abbreviations. and Acronyms.

AC	Alternating Current
APU	Auxiliary Power Unit
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
BL	Buttline
BT	Bond Testing Method
C	Celsius
CCW	Counterclockwise
CL	Centerline
CPG	Co-Pilot/Gunner
CRT	Cathode Ray Tube
CW	Clockwise
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
INBD	Inboard
IR	Infrared
KHz	Kilohertz
LCD	Liquid Crystal Display

LH	Left-hand (left side of aircraft aft looking forward)
LPF	Low Pass Filter
MAC	Maintenance Allocation Chart
MAX	Maximum
MHz	Megahertz
MIN	Minimum
MLG	Main Landing Gear
M/R	Main Rotor
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
SPAD	Shear Pin Activated Decoupler
STA	Station
TLG	Tail Landing Gear
TM	Technical Manual
T/R	Tail Rotor
UT	Ultrasonic Method
VdB	Vertical Decibels .(Gain)
V Pos	Vertical Position
WL	Waterline

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

I	Introduction.
II	Rotor System
III	Drive System
IV	Airframe and Landing Gear System
V	Engine System
VI	Flight Control System

Section I contains the introduction and general information pertaining to the AH-64A helicopter and Nondestructive Inspections. Sections II through VI contain detailed inspection procedures for specific items located within each system. In general, inspection items are grouped with respect to part location and function. To use the manual, it is necessary to know the system and name of the inspection item.

When the system and part name are known:

a. Turn to the applicable section of the manual covering that system. 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 or procedure 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 AH-64A helicopter. 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. The AH-64A advanced attack helicopter is a twin engine helicopter designed specifically for the attack helicopter role. The helicopter accommodates an aircrew of two in a tandem configuration. The helicopter delivers various combinations of ordnance while providing maximum helicopter survivability and aircrew protection.

Maximum helicopter survivability is achieved by providing redundant systems/components ballistic resistance, high impact survivability, reduced detectability, and wire strike protection. The wings provide mounting surfaces for four external pylons, which can carry external fuel tanks, point target missiles, 2.75-inch folding fin aerial rocket launchers, or a symmetrically loaded combination of any two weapon racks.

The helicopter is powered by two T700-GE-701 orT700-GE-701C engines which drive the main rotor through individual engine nose-mounted gearboxes and a main transmission. The main transmission power takeoff shaft drives the tail rotor through intermediate and tail rotor gearboxes.

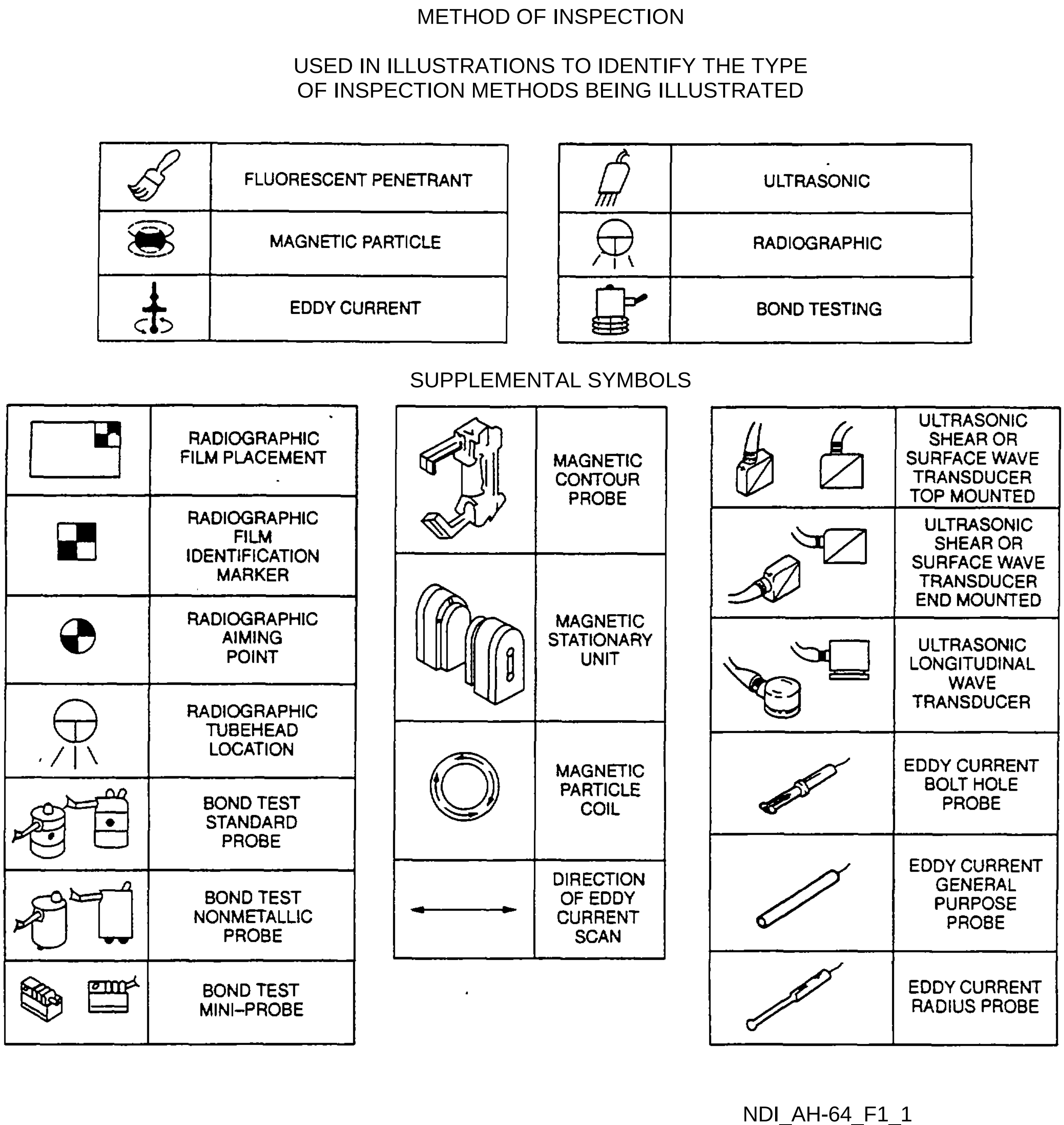

Figure 1-1. Nondestructive Inspection Symbols

The auxiliary power unit drives the accessory drive section of the main transmission to provide full electrical, pneumatic, and hydraulic power to-the helicopter when the main engines are not on line. The auxiliary power unit is also used to provide pressurized air system air to start the main engines.

Flight controls are mechanically actuated, hydraulically powered, and electrically assisted in all flight control axes.

A curved canopy structure provides integral rollover protection. The canopy has a blast shield between the two crew stations. Each crew station contains an adjustable armored seat. The seats incorporate armored wings which pivot to facilitate entrance to, and exit from, the crew stations.

1.1.8 Configuration. The general configuration of the AH-64A helicopter is shown in Figure 1-2.

1.1.9 Airframe Stations. Fuselage stations, waterlines, buttlines, and centerlines provide an accurate method of locating or installing parts and/or equipment in the airframe (Figure 1-3). All dimensions are in inches. Dimensions have FS, WL, CL, or BL in front of the numbers.

a. Fuselage Stations. Fuselage stations (FS) are distances from a point in front of the helicopter nose. The first station is zero (0.00).

b. Waterlines. Waterlines (WL) are distances from a point below the helicopter. They follow the centerline.

c. Centerline. Centerline (CL) is an imaginary line that passes through the center of the helicopter. The centerline runs from the nose to the tail.

d. Buttlines. Buttlines (BL) are distances from the centerline. They start at the centerline and show the distance to each side of the helicopter. Buttlines will be either to the left or right side.

These dimensions help you find any point on the helicopter. Each point shown on the following pages is a part of the helicopter you can see.

1.2 TYPE OF CONSTRUCTION.

NOTE

The following paragraphs describe the type of construction and materials used in the manufacture of the major AH-64A helicopter components.

1.2.1 Rotor System. The rotor system interfaces with the drive system and flight controls system. The rotor system provides lift, thrust, directional flight, and anti-torque control for the helicopter. The rotor system includes the 'main rotor assembly, a single, four-bladed, 48-foot diameter main rotor that provides vertical, longitudinal, and lateral flight capabilities; the tail rotor assembly, a single, four-bladed, nine-foot diameter teetering tail rotor that provides anti-torque and directional flight capabilities; and controls and indicators, various cockpit-mounted controls and indicators used by the aircrew for operating the rotor system. The controls and indicators provide indications of system operational performance.

The main rotor assembly is secured to the upper portion of the static mast and main drive shaft. The main rotor head assembly is a fully articulated assembly that provides attachment points for the four main rotor blade assemblies. The main rotor head assembly provides the means to drive the main rotor blade assemblies in a counterclockwise rotation while providing feathering, flapping, and lead-lag movement of each blade.

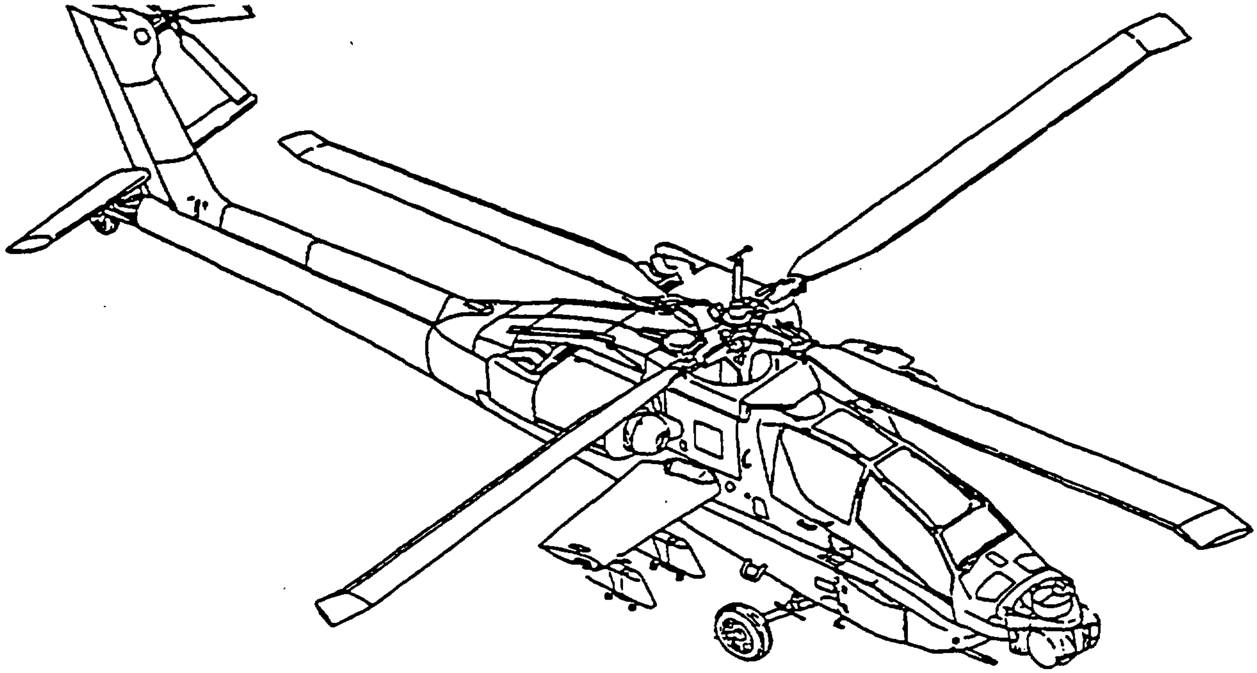

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Figure 1-2. General Configuration of AH-64A Helicopter

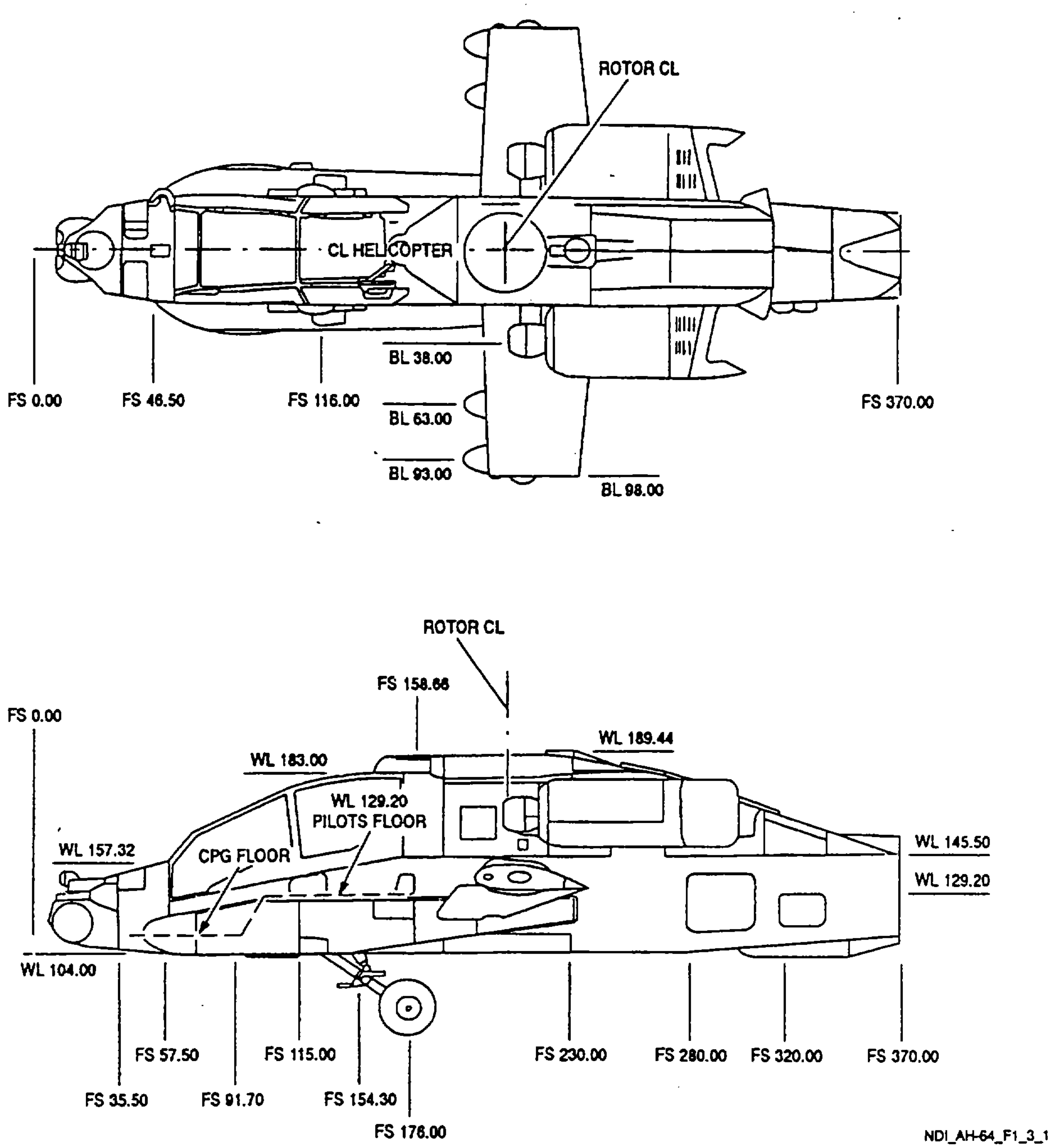
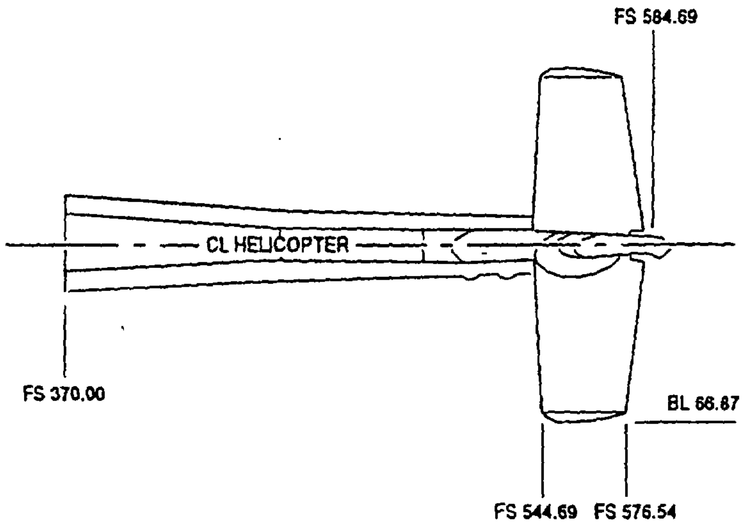
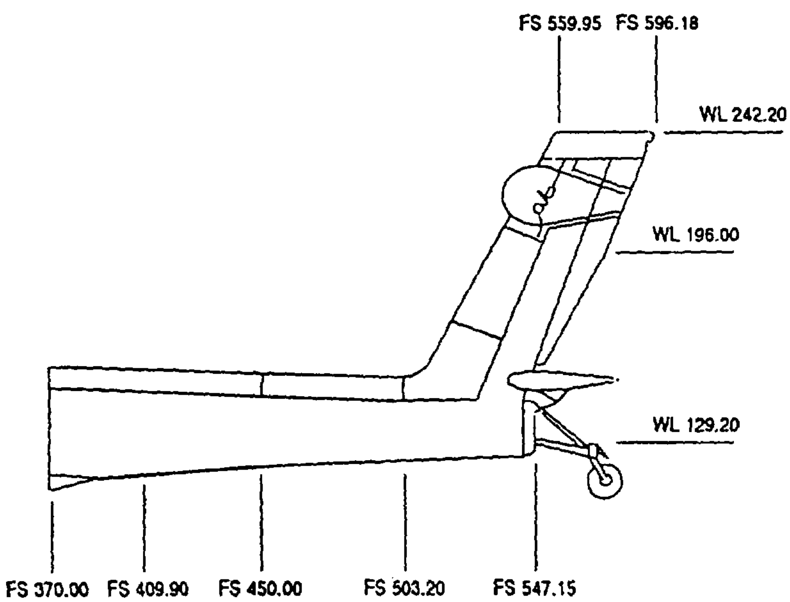


Figure 1-3. Fuselage Stations, Buttlines, Centerline, and Waterlines (Sheet 1 of 2)





NDI_AH-64_F1_3_2

Figure 1-3. Fuselage Stations, Buttlines, Centerline, and Waterlines (Sheet 2 of 2)

The main rotor head assembly is attached to the main drive shaft and static mast and provides mounting points for the scissors and pitch change links. The main rotor head assembly transfers flight loads from the main rotor assembly to the static mast, into the airframe. The main rotor head assembly requires no periodic lubrication.

The main rotor blade assemblies are rotating airfoils with swept tips that are constructed of stainless steel and fiberglass. Each blade attaches to the main rotor head assembly by a lead-lag link and blade attachment pin.

The four lead-lag links are titanium mounts that provide a mounting point for each of the main rotor blade assemblies. The four blade attachment pins are steel pins that attach to each of the lead-lag links to secure each main rotor blade assembly to the main rotor head assembly.

The tail rotor assembly is installed on the tail rotor gearbox output shaft. The tail rotor assembly is a two-armed, teetering assembly that provides attachment points for the four tail rotor blade assemblies. The tail rotor head assembly provides a means to drive the tail rotor blade assemblies in a clockwise rotation providing feathering anti-torque control for the helicopter. The tail rotor head assembly attaches to the tail gearbox output shaft and static support, providing mounting points for the four pitch change links. The tail rotor head assembly transfers flight loads from the tail rotor assembly to the static support, into the airframe.

The four tail rotor blade assemblies are rotating airfoils that are constructed of aluminum. Each tail rotor blade assembly is attached to the tail rotor head assembly by a preload indicating washer, bolt, and nut combination.

1.2.2 <u>Drive System</u>. The main transmission assembly combines and reduces rpm from both engine nose gearboxes and inputs usable engine power through the input clutch assemblies to the main rotor drive shaft and the main rotor head. It is mounted on the main rotor static mast support directly below the main rotor static mast. Primary and accessory gear trains are in the transmission housing and accessory drive housing assembly. They provide separate outputs for the main rotor, tail rotor, transmission oil pumps, accessories, and rotor brake.

The main transmission assembly directs power from the auxiliary power unit to drive the accessories when the engines are not operating. It also provides accessory drives for two AC generators, two hydraulic pumps, an accessory drive oil pump, and a shaft-driven compressor. It provides mounting for accessory drive oil filters, two oil pressure switches, chip detector/temperature switches, and an oil level sight indicator. During normal operation, the main transmission drives the shaft-driven compressor, the accessory drive lubrication pump, two AC generators, two hydraulic pumps, tail rotor output shaft, and the main rotor drive shaft.

The drive system consists of engine nose gearbox assemblies 1 and 2, the main transmission assembly, the intermediate gearbox assembly, the tail rotor gearbox assembly, and the drive shaft assembly (7 drive shafts). The drive system changes the angle of drive and converts the output rpm of the engines into usable power to drive the main rotor system, tail rotor system, and the gear driven accessories.

1.2.3 <u>Airframe and Landing Gear System</u>. The airframe provides mounting points for the helicopter systems/subsystems and components. The design features incorporated into the airframe increase both aircraft and aircrew survivability. The airframe is a one-piece integral design that has the strength to withstand compression, tension, torsion, and shearing force loads that exceed the required design limits throughout the entire flight envelope.

The fuselage is a semi-monocoque construction which greatly reduces the potential of catastrophic damage to the fuselage. Fuselage strength and rigidity is obtained through the structural members and the skin. Some airframe components are constructed with Kevlar. Kevlar is a synthetic resin-base fiber composite.

Airframe components have silver/aluminum tape, aluminum tape, conductive gaskets and retainers, and conductive surfaces for gaskets installed to prevent electro-magnetic interference. The landing gear system provides support and ground stability for helicopter fuselage during taxiing, takeoff, landing, towing, and parking. The system damps and absorbs landing shocks before they can be transmitted to the airframe structure. The system provides for mounting of helicopter wheel brakes. The brake system provides ground speed control and braking, and assistance in maneuvering the helicopter during ground taxi operations.

1.2.4 Engine System. The engine system consists of two General Electric T700-GE-701 or T700-GE-701 C front drive turboshaft engines. The T700-GE-701 provides 1,546 shaft horsepower and the T700-GE-701C provides 1,690 shaft horsepower at 20,900 rpm engine torque (Np), to drive the main transmission.

1.2.5 Flight Control System. The flight controls system establishes vertical (up and down), longitudinal (forward and backward), lateral (left and right), and directional (heading) flight of the helicopter through crew-initiated mechanical inputs. Helicopter flight control is maintained by demand inputs to the main rotor, tail rotor, and stabilator in the pitch, roll, and yaw axes.

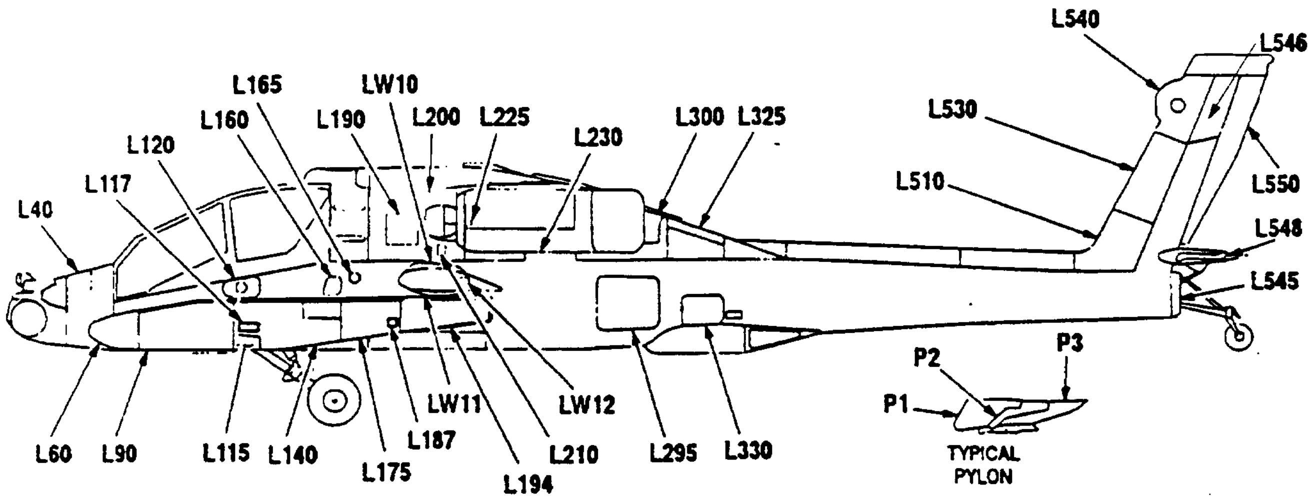
Mechanical flight controls are provided for the pilot and copilot. Hydraulic pressure boosts crew-initiated control stick and pedal movements by use of servocylinders operating at 3000 psi. The primary hydraulic system provides power for the collective, longitudinal, lateral, and directional control servocylinders. The servocylinders are grounded to prevent electro-magnetic interference. The utility hydraulic system provides redundant hydraulic power to the servocylinders and utility hydraulic system components. Digital automatic stabilization equipment aids in stabilizing helicopter flight attitudes and reducing pilot workload. Flight control can be maintained by use of a fly-by-wire backup control system if mechanical control is lost. All mechanical control linkages are routed separately from the backup control system to preclude the loss of both systems from a single projectile impact. Selectable and adjustable trim/feel units are provided for the cyclic control sticks and directional pedals to maintain desired stick and pedal position. A horizontal stabilator improves handling characteristics of the helicopter at various airspeeds.

1.2.6 Access Provisions. Access provisions consist of the access doors, covers, panels, and fairings. Inspection of the helicopter and its components can be done through principal access provisions. 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.



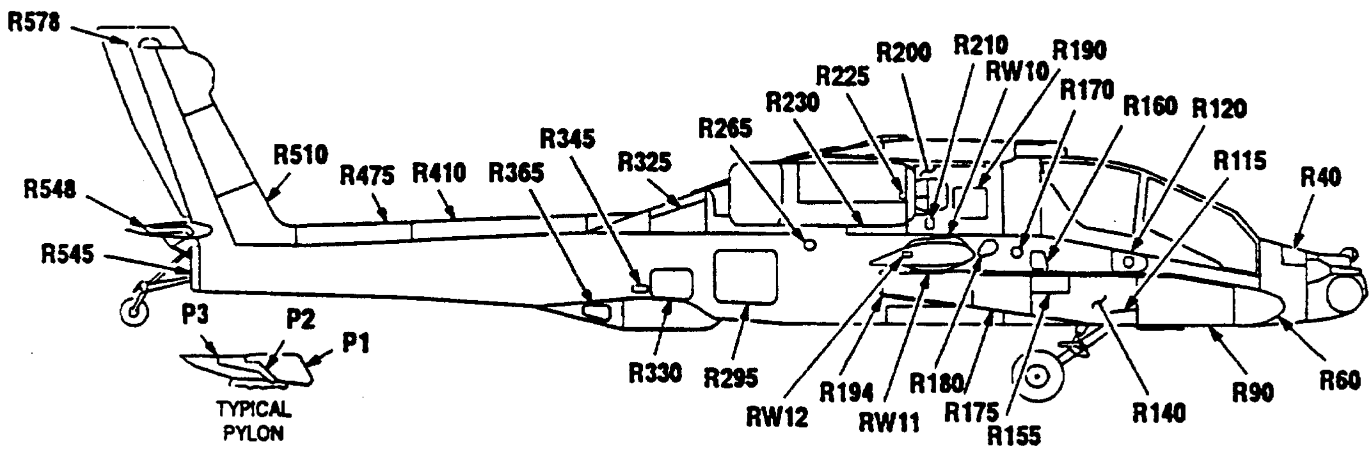


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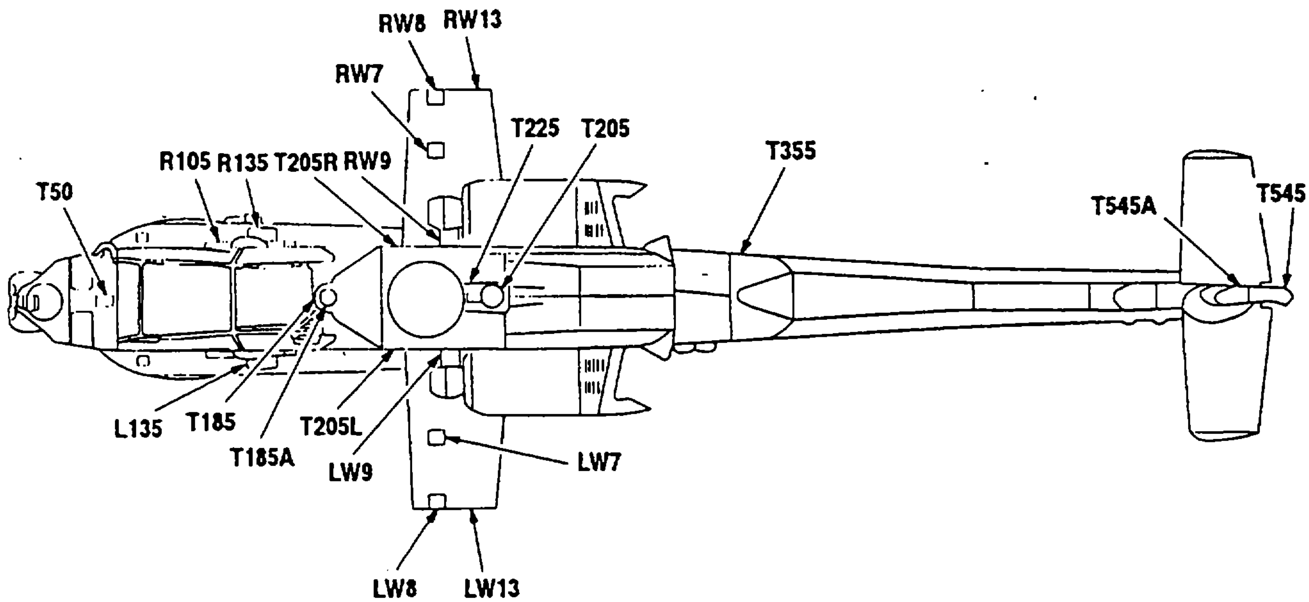
Figure 1-4. Access Provisions (Sheet 1 of 3)



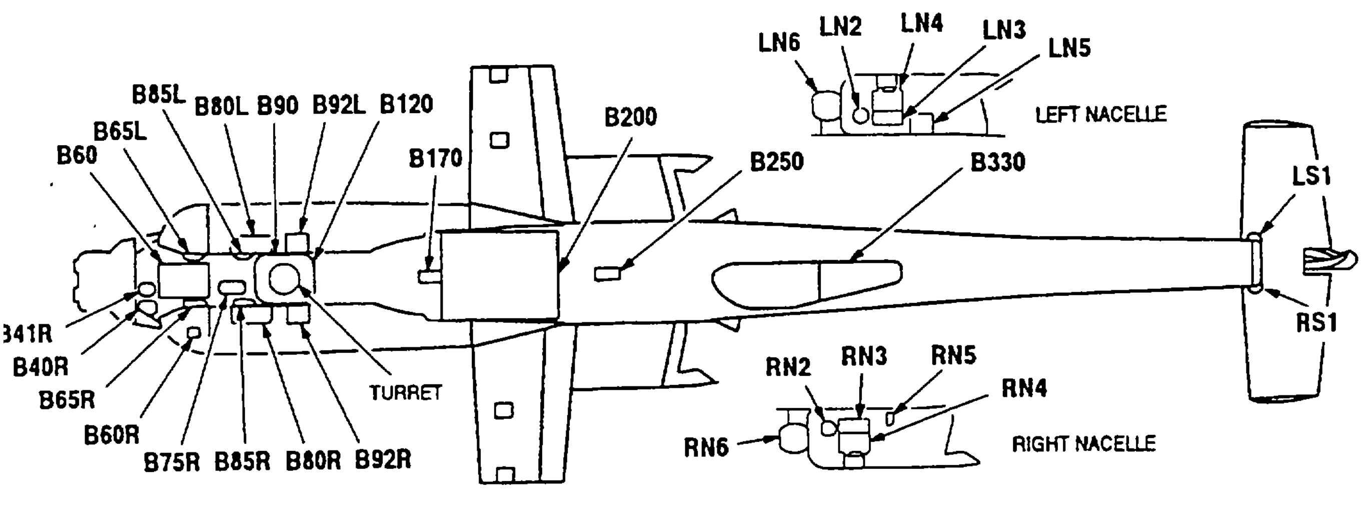


Figure 1-4. Access Provisions (Sheet 2 of 3)

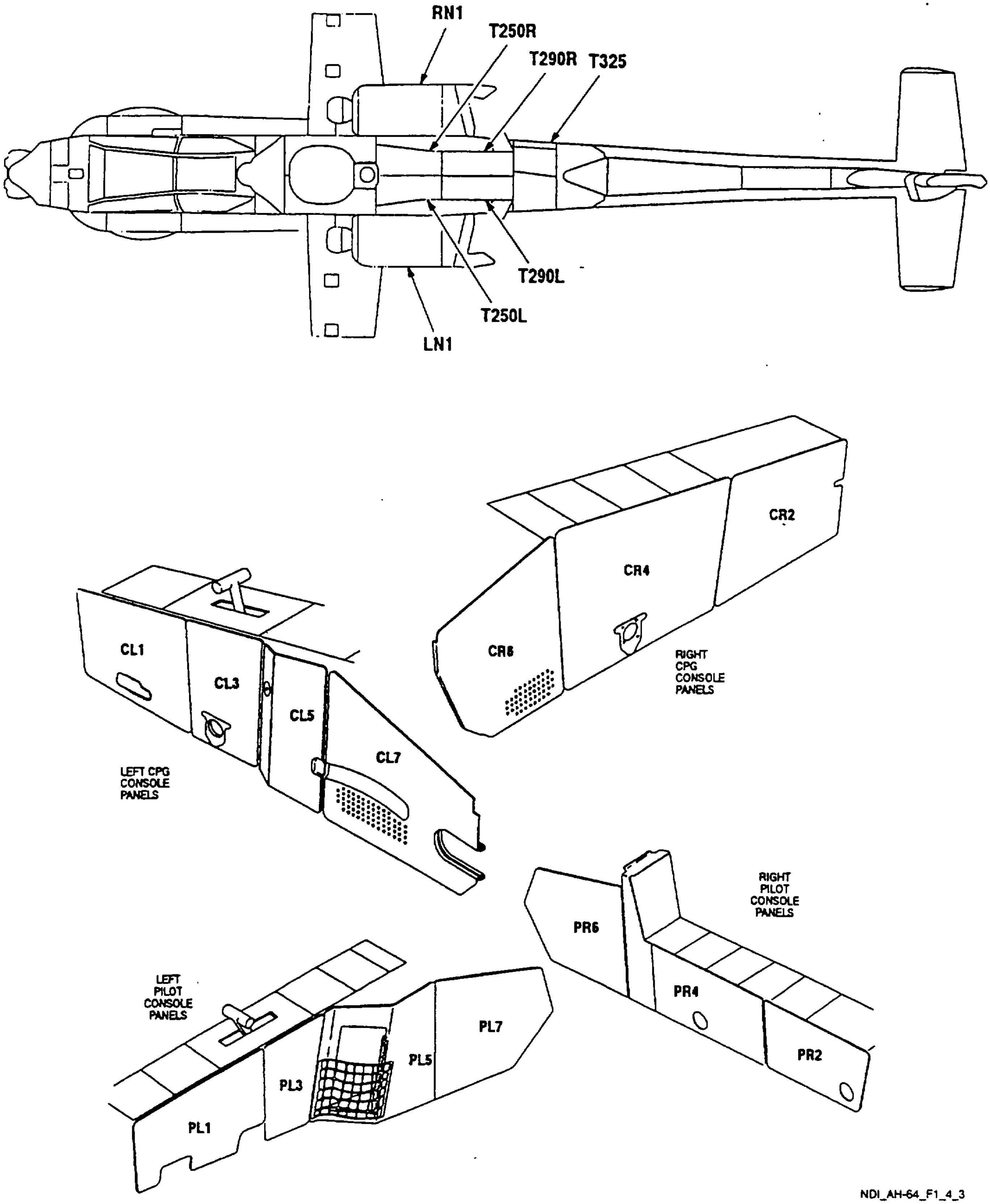


Figure 1-4. Access Provisions (Sheet 3 of 3)

Table 1-2. Access Provisions

Item Number	Item	Access To
Left Side		
L40	Cover	Electronic Equipment
L60	Fairing	Forward Avionics Bay Nose
L90	Door	IHADSS and PNVS Boxes and ICU
L115	Door	Mooring Lug
L117	Door	Rounds Counter
L120	Fairing	Shock Strut Attach Fitting
L140	Fairing	Ammunition Feed Mechanism (forward)
L160	Cover	Pilot Collective Bellcrank
L165	Cover	Rectifier
L175	Fairing	Ammunition Feed Mechanism (aft)
L187	Door	Hydraulic Return Accumulator Manifold
L190	Door	Hydraulic Oil Level Sight Gage and Controls Access
L194	Fairing	Ammunition Feed Mechanism
L200	Panel	Main Rotor Transmission
L210	Door	Main Transmission Oil Level Sight Gage
L225	Door	Oil Tank Level Viewing Glass
L230	Fairing	Hydraulic Heat Exchanger
L295	Door	Aft Stowage Bay
L300	Fairing	Environmental Control Unit Exhaust
L325	Door	Walkway Access - Deck Area
L330	Door	Fuselage Stowage Compartment
L510	Fairing	Vertical Stabilizer
L530	Fairing	Vertical Stabilizer, Leading Edge
L540	Fairing	Tail Rotor Transmission
L545	Cover	Tailboom
L546	Fairing	Tail Rotor Transmission
L548	Fairing	Stabilator Tip
L550	Fairing	Vertical Stabilizer, Trailing Edge
P1	Fairing	Pylon Nose
P2	Fairing	Station Director
P3	Fairing	Extended Range Kit and Multiplexer
LW10	Fairing	Wing (Upper)
LW11	Fairing	Wing (Lower)
LW12	Door	Maintenance Intercom
Right Side		
R40	Cover	Electronic Equipment
R60	Fairing	Forward Avionics Bay Nose
R90	Door	Laser, PNVS, MUX, HF Remote
R115	Door	Mooring Lug
R120	Fairing	Shock Strut Attach Fitting

Table 1-2. Access Provisions - Continued

Item Number	Item	Access To
Right Side - Continued		
R155	Door	Fire Extinguisher
R160	Door	Refueling Controls
R170	Cap	Gravity Refueling (forward)
R175	Fairing	Ammunition Feed Mechanism (aft)
R180	Cover	Pressure Refueling
R190	Door	Transmission Inspection
R194	Fairing	Ammunition Feed Mechanism
R200	Panel	Main Rotor Transmission
R210	Door	Transmission Area
R225	Door	Engine
R230	Fairing	Hydraulic Heat Exchanger
R265	Cap	Gravity Refueling
R295	Door	Aft Electronics Equipment
R325	Door	Hydraulic Equipment
R330	Door	Fuselage Stowage Compartment
R345	Door	External Power
R365	Panel	ADF Loop (anterior)
R410	Fairing	Tail Rotor Drive Shaft
R475	Fairing	Tail Rotor Drive Shaft
R510	Fairing	Vertical Stabilizer
R545	Cover	Tailboom
R548	Fairing	Stabilator Tip
R578	Door	Antenna Connection
P1	Fairing	Pylon Nose
P2	Fairing	Station Director (Strut must be removed at bottom)
P3	Fairing	Extended Range Kit and Multiplexer
RW10	Fairing	Wing (Upper)
RW11	Fairing	Wing (Lower)
RW12	Door	Maintenance Intercom
Top Side		
L135	Door	Main Landing Gear Shock Strut
LW7	Cover	Pylon Connector
LW8	Cover	Pylon Connector
LW9	Cover	Hydraulic Lines and Electrical Wiring
LW13	Fairing	Hydraulic and Pilot Lines and Electrical Wiring
R105	Fairing	Ammunition Chute (Right Forward)
R135	Door	Main Landing Gear Shock Strut
RW7	Cover	Pylon Connector

Table 1-2. Access Provisions - Continued

Item Number	Item	Access To
Top Side - Continued		
RW8	Cover	Pylon Connector
RW9	Cover	Hydraulic Lines and Electrical Wiring
RW13	Fairing	Hydraulic and Pilot Lines and Electrical Wiring
T50	Door	Canopy Emergency Release
T185	Fairing	Doghouse
T185A	Cover	Doghouse
T205	Cover	I/R Jammer
T225	Fairing	Main Rotor Shaft
T355*	Fairing	Tail Rotor Shaft
T205L	Fairing	Main Rotor Shaft
T250R	Fairing	Main Rotor Shaft
T545	Fairing	Vertical Stabilizer
T545A	Fairing	Vertical Stabilizer
B40R	Door	Flight Controls
B41R	Door	Flight Controls
B60#	Door	Cyclic Stick Controls
B60R	Door	Utility Light and Ground Power Receptacle
B65L#	Door	Flight Controls
B65R#	Door	Flight Controls
B75R	Door	Cyclic Stick
B80L	Cover	FAB and Controls
B80R	Cover	FAB and Controls
B85L	Cover	Flight Controls
B85R	Cover	Flight Controls
B90	Fairing	Gun Turret Bay
B92L	Cover	Flight Controls
B92R	Cover	Environmental Control System
B120	Fairing	Gun Turret Bay
B170#	Door	Fuel Dump Valve
B200	Door	Ammunition Bay
B250#	Door	Fuel Dump Valve
B330*	Fairing	Doppler Radar and Radar Altimeters
LN2*	Door	Water Wash
LN3	Door	Engine
LN4	Door	Engine
LN5	Door	Engine
LN6*	Fairing	Engine Nose Gearbox
RN2 *	Door	Water Wash
RN3	Door	Engine
RN4	Door	Engine

Table 1-2. Access Provisions - Continued

Item Number	Item	Access To
		Top Side - Continued
R140	Fairing	Ammunition Feed Mechanism (forward) (R115 and R155 must be open)
RN5	Door	Oil Tank Level Viewing Glass
RN6*	Fairing	Engine Nose Gearbox
LS1 *	Door	Stabilator
RS1 *	Door	Stabilator
		Top Side Engine Work Platform and Equipment Bay
LN1	Door	Engine Work Platform
RN1	Door	Engine Work Platform
T250L	Door	Deck Area
T290L	Door	Deck Area
T250R	Door	Deck Area
T290R	Door	Deck Area
T325	Fairing	Deck Area
		Pilot Left and Right Console Panels Removal/Installation
PL1	Aft Console Panel	Pilot Armored Crew Seat Removed
PL3	Center Console Panel	
PL5	Map Case Console Panel	
PL7	Forward Console Panel	Pilot Scuff Plate Assembly Removed CPG Armored Crew Seat Removed
PR2	Forward Console Panel	Pilot Scuff Plate Assembly Removed CPG Armored Crew Seat Removed
PR4	Center Console Panel	ECS Duct Removed Helmet Holster Removed
PR6	Aft Console Panel	ECS Duct Removed

Table 1-2. Access Provisions - Continued

Item Number	Item	Access To
CPG Left and Right Console Panels Removal/Installation		
CL1	Aft Console Panel	CPG Armored Crew Seat Removed CPG Collective Cover Removed
CL3	Lower Aft Console Panel	ECS Crew Station Valve Removed
CL5	Center Console Panel	
CL7	Forward Console Panel	CPG Armored Crew Seat Removed CPG Scuff Plate Assembly Removed CPG ICS Foot Switch Removed
CR2	Aft Console Panel	
CR4	Center Console Panel	Helmet Holster Removed ECS Valve Removed
CR6	Forward Console Panel	CPG Armored Crew Seat Removed CPG Scuff Plate Assembly Removed CPG ICS Foot Switch Removed

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 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 manual 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 (i.e., vaseline, grease, paraffin) 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 workstands, 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.

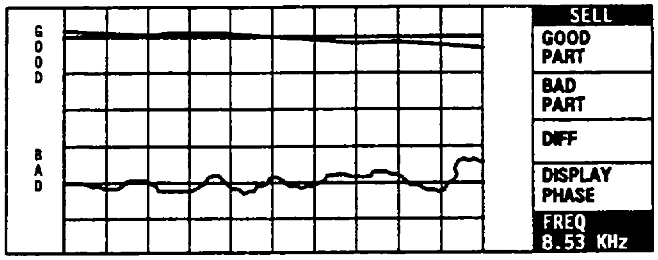
1.4.6.1 Bond Testing Equipment. The bond testing equipment, Bondmaster, used in the procedures in this manual, operates by generating a mechanical vibration into the material being tested. This equipment is designed to detect flaws in adhesive bonded joints in composite structures. The instrument is 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.

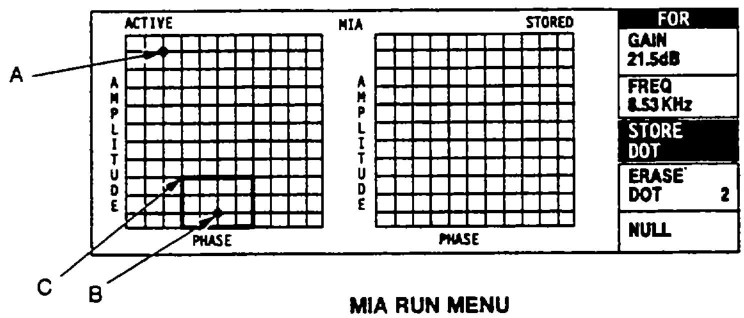
c. Pitch Catch Impulse. Measures amplitude and phase changes using a short burst of energy to detect unbonds. Requires no couplant.

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

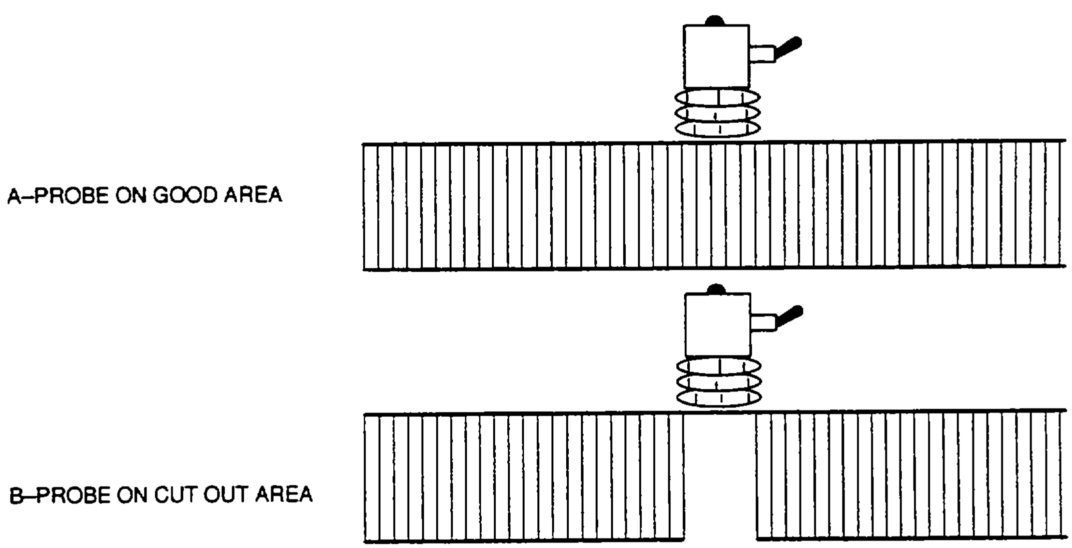


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Figure 1-5. Bond Testing Reference Block Displays

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 and then be analyzed. Because 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 washed off 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-1-25135, Type 1, 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.

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 nose.

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.

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

Task	Description
a. Preparation of Part:	Refer to Preparation of Part or Area for.ND!, 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 of 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 (1 40°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 all 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 16°C to 38°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 1, Method D, Level 3 or 4 (hydrophilic remover) Penetrant (Refer to Table 1-8).

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.

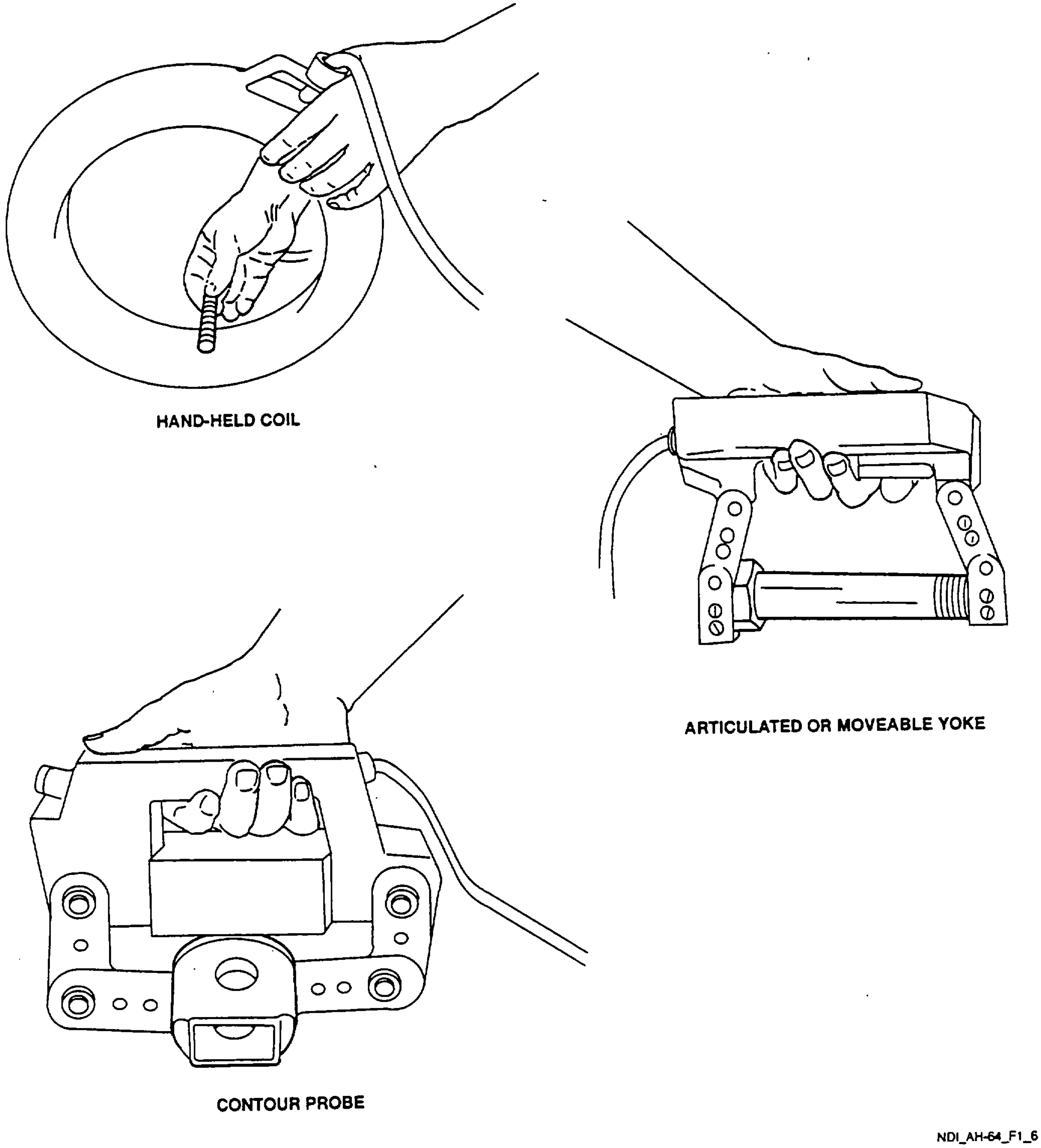

Figure 1-6. Portable Magnetic Particle Inspection Equipment

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° on the part for the second position, circular and longitudinal magnetization to the axis of the part has been produced. 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 lights 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 three 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 Eddy Current (ET) Method.

NOTE

Eddy current inspections 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.

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 block) 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 Safety Precautions During Eddy Current 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.

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 indications. Common materials for mechanical guides are plastic (polyethylene, acrylic, and polycarbonate), wood, phenolic impregnated mask (masonite), 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 or can be locally manufactured. (Refer to TM 55-1500-335-23.)

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 reduce wear. Instrument settings shall be made with Teflon tape on the probe, if used.)

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 permeability information may permit proper classification (see 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 <u>Ultrasonic (UT) Method</u>.

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.

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 CRT and interpreted for indications of defects. Accessory wedges can be used to provide adequate transducer mating to curved surfaces, change the angle, and/or the mode of propagation 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.

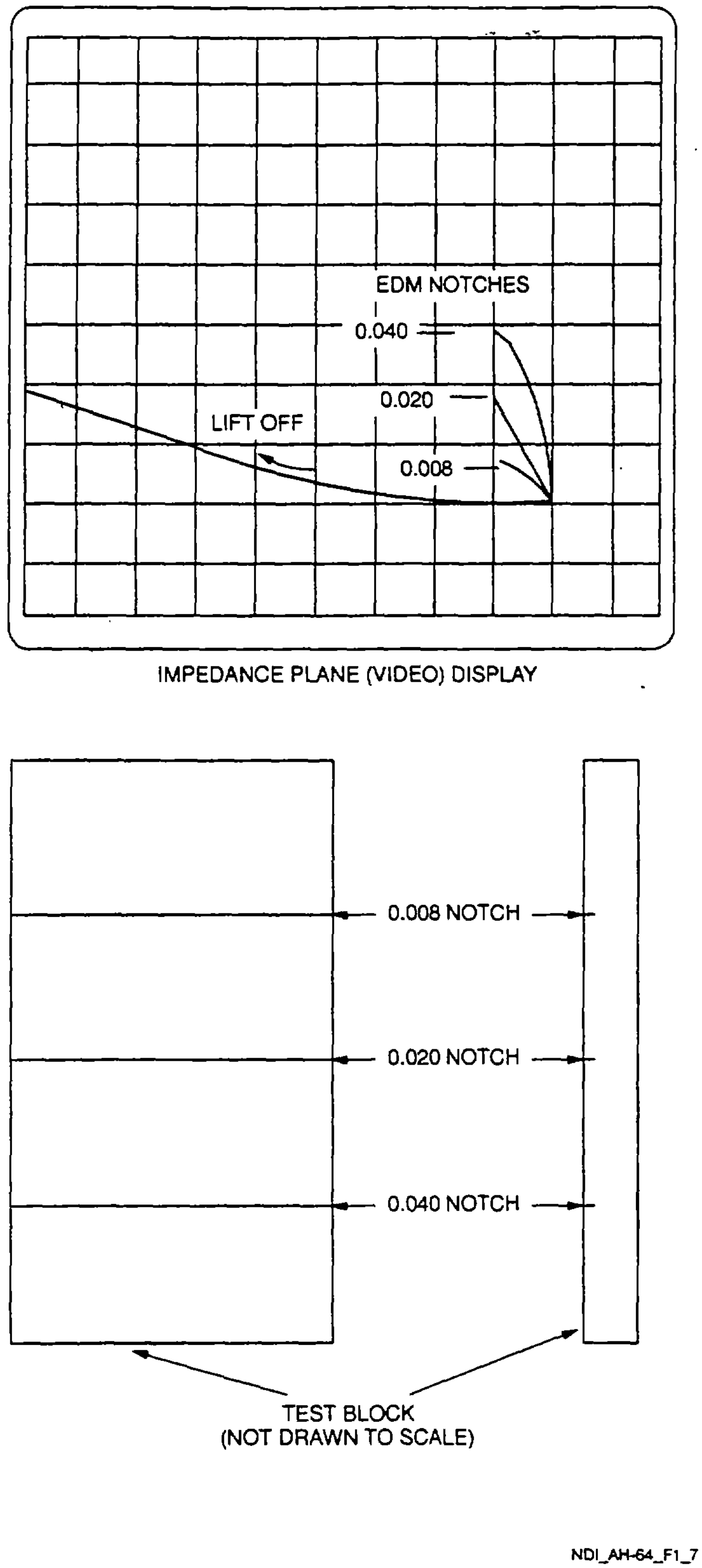

Figure 1-7. Signatures of EDM Notches in Test Block

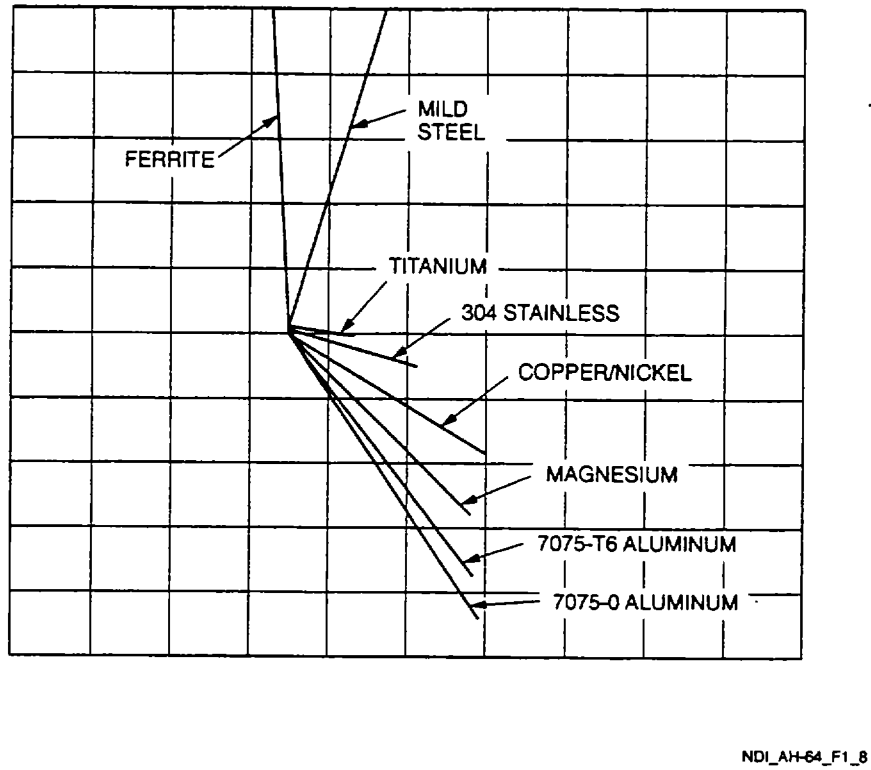

Figure 1-8. Typical Metal Sorting Display

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.

1.4.16 Post Cleaning and Restoration of Part or Area After NDI. Upon completion of the 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.

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
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-1-25135	General Services 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			
Tape, Teflon	MIL-I-23594	General Service Administration (GSA)	5970-00-812-7387
Ultrasonic Method			
Couplant, Ultrasonic	Ultragel II	Sonotech, Inc. 1413 Frasier St. Suite 2, Bldq. H P.O. Box 2189 Bellingham, WA 98226	6850-01-157-4348
Bond Test Method			
Tape, Teflon	MIL-1-23594	General Service Administration (GSA)	5970-00-813-7387
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
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

Table 1-8. Materials Used for NDI - Continued

Nomenclature	P/N or Specification	Manufacturer	National Stock Number
Radiographic Method - continued			
AA-2 Film, Ready Pack 14 inch x 17 inch	145 92Q5	Eastman Kodak Co. 343 State St. Rochester, NY 14650	6635-00-850-3321
AA-2 Film, Ready Pack 8 inch x 10 inch	827 8137	Eastman Kodak Co. 343 State St. Rochester, NY 14650	6635-00-850-3326
Miscellaneous Materials			
Gloves, Protective	ZZ-G-381	General Services Administration (GSA)	8415-00-823-7456
Gloves, Surgeon	E-008	Defense Services Administration (DSA)	1615-01-149-8843
Apron, General Purpose	A-A-55063	General Services Administration (GSA)	8415-00-082-6108
Face Shield	A-A-1770	General Services Administration (GSA)	4240-00-542-2048
Cloth, Low-Lint Cleaning	MIL-C-85043	General Services Administration (GSA)	7920-00-044-9281
Dry-Cleaning Solvent	P-D-680, Type II	General Services Administration (GSA)	6850-00-274-5421
Cleaning Solvent	MIL-C-38736	General Services Administration (GSA)	6850-00-538-0929
Scotch-Brite, Type A	L-P-0050	General Services Administration (GSA)	7920-00-659-9175

Table 1-8. Materials Used for NDI - Continued

Nomenclature	P/N or Specification	Manufacturer	National Stock Number
<u>Temporary Marking Materials</u>			
Aircraft Marking Pencils (China Marker)	MIL-P-83953 Yellow	General Services Administration (GSA)	7510-00-537-6930

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 SYSTEM

2. GENERAL.

2.1 CONTENTS. The rotor system inspection items covered in this section are those critical items of the AH-64A helicopter rotor blades, rotor head, and components listed in the Rotor System 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 System Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Main Rotor Droop Stop Follower (Plunger)	PT	2.2	2-2
3	Droop Stop Ring	MT	2.3	2-3
*4	Main Rotor Blade (Voids)	BT	2.4	2-4
*5	Main Rotor Blade	PT	2.5	2-5
*6	Main Rotor Blade	RT	2.6	2-6
7	Main Rotor Blade Weight Support Fittings	ET	2.7	2-7
*8	Main Rotor Mast	MT	2.8	2-8
9	Main Rotor Mast Retaining Ring	MT	2.9	2-9
*10	Main Rotor Hub Retention Nut	MT	2.10	2-10
*11	Main Rotor Head (Hub)	ET	2.11	2-11
*12	Main Rotor Lead Lag Link (Damper Link)	ET	2.12	2-12
13	Main Rotor Damper	ET	2.13	2-13
14	Main Rotor Damper Trunnion	ET	2.14	2-14
*15	Main Rotor Damper Rod End	MT	2.15	2-15
*16	Main Rotor Pitch Housing	ET	2.16	2-16
*17	Main Rotor Feathering Bearing Housing	ET	2.17	2-17
18	Main Rotor Striker Plate and Shims	MT	2.18	2-18
*19	Main Rotor Hub Bearing	ET	2.19	2-19
*20	Main Rotor Lower Shoe	ET	2.20	2-20
*21	Main Rotor Head Hub Load Plate	MT	2.21	2-21
22	Main Rotor Hub Brackets	MT	2.22	2-22

Table 2-1. Rotor System Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*23	Main Rotor Hub Lower Plate	MT	2.23	2-23
*24	Tail Rotor Fork Assembly (Head and Teeter Stop)	ET	2.24	2-24
*25	Tail Rotor Blade	PT	2.25	2-25
*26	Tail Rotor Blade (Voids)	BT	2.26	2-26
*27	Tail Rotor Blades (Fluid)	RT	2.27	2-27
*28	Tail Rotor Hub	ET	2.28	2-28
29	Tail Rotor Clamps and Locking Plates	ET	2.29	2-29

NOTE: *Indicates Flight Safety Part.

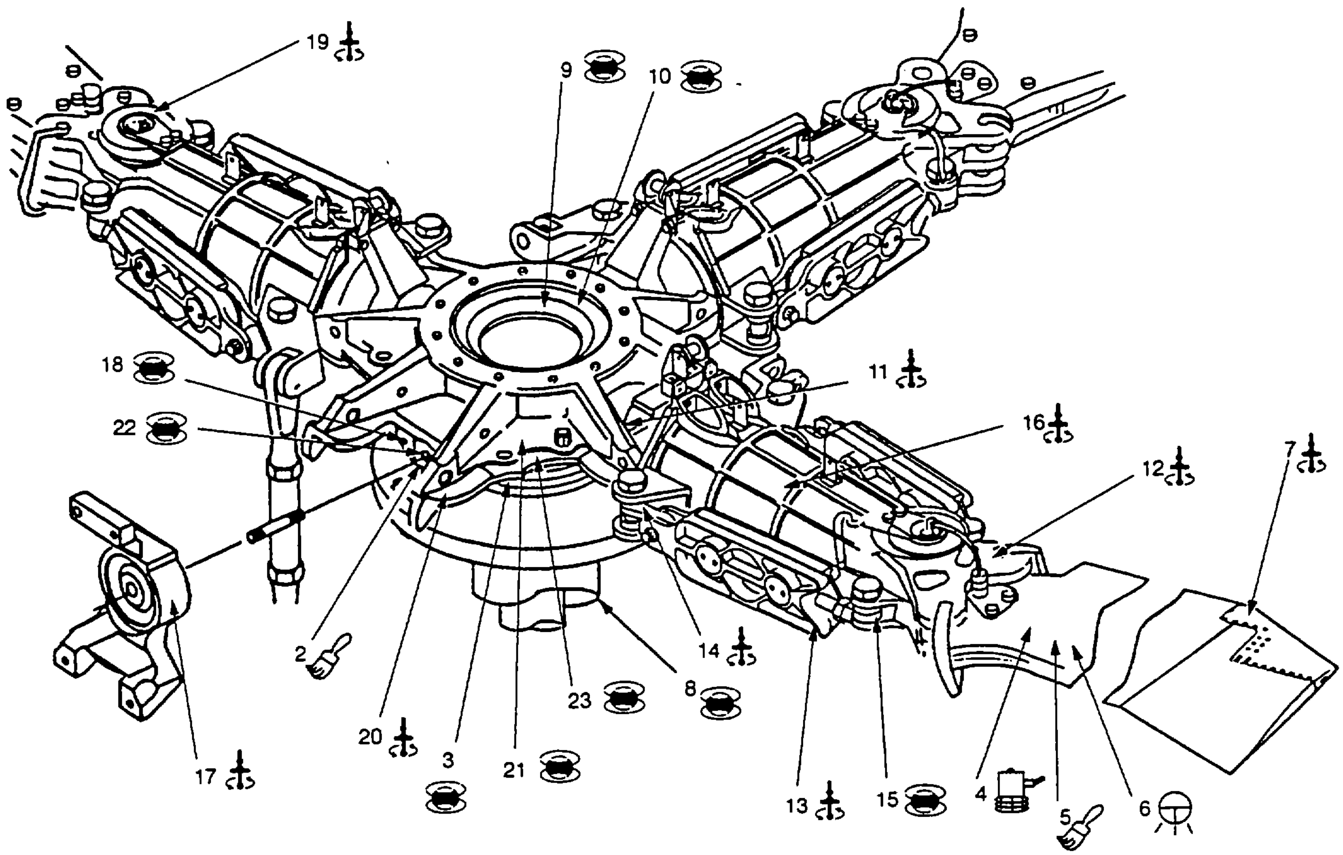

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Figure 2-1. Rotor System (Sheet 1 of 2)

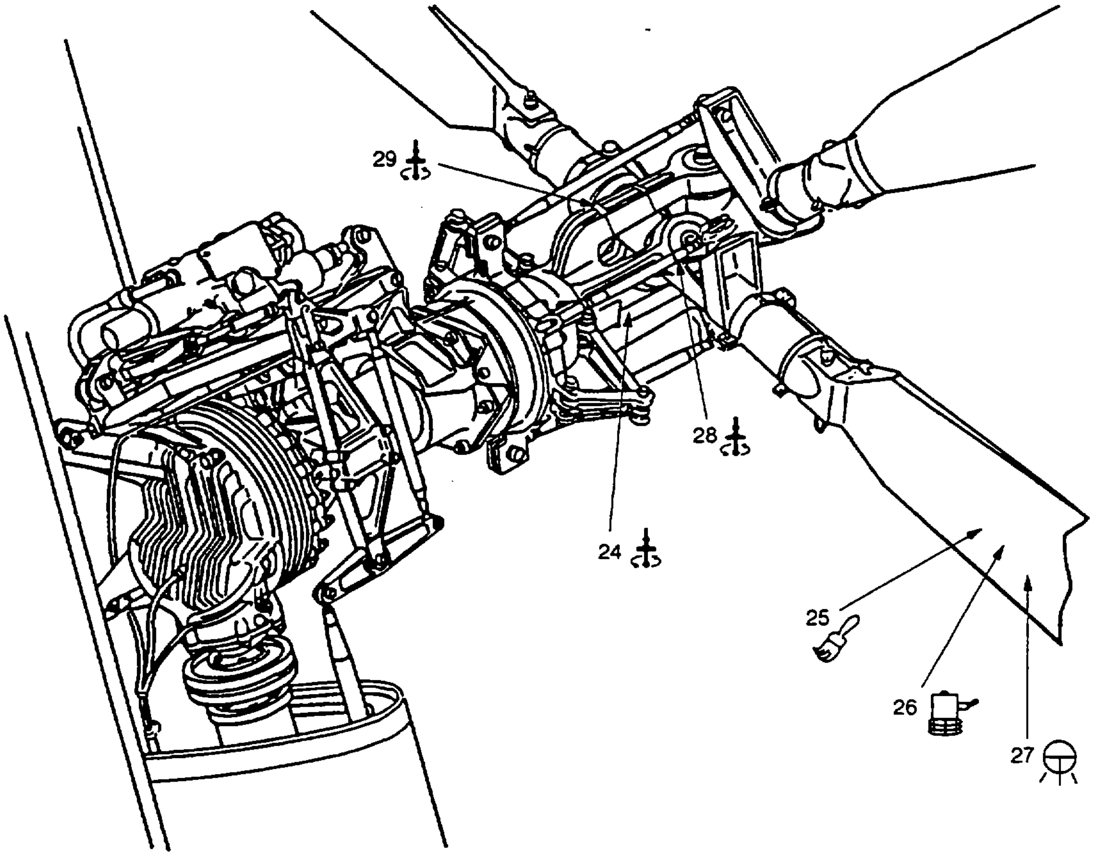

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Figure 2-1. Rotor System (Sheet 2 of 2)

2.2 MAIN ROTOR DROOP STOP FOLLOWER (PLUNGER) (PT).

2.2.1 Description (Figure 2-1. Index No. 2). The main rotor droop stop follower (plunger) contacts the droop stop ring to limit the pitch housing downward movement when the main rotor blade assembly is stopped.

2.2.2 Defects. This inspection is used to verify crack indications found visually on the main rotor droop stop follower (plunger). No cracks are allowed.

2.2.3 Primary Method. Fluorescent Penetrant.

2.2.3.1 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.

2.2.3.2 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 main rotor droop stop follower (plunger) shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.2.3.3 Access. Not applicable.

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

2.2.3.5 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 2-2.

2.2.3.6 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.

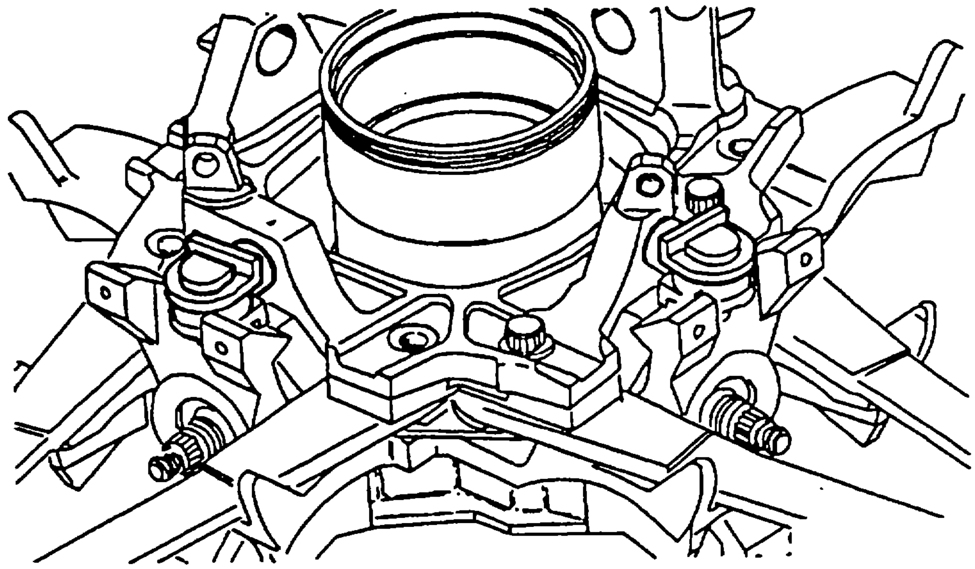
2.2.5 System Securing. Clean the main rotor droop stop follower (plunger) to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The main rotor droop stop follower (plunger), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

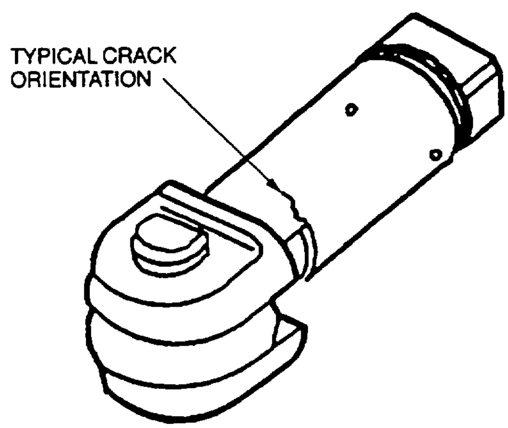
2.3 DROOP STOP RING (MT).

2.3.1 Description (Figure 2-1. Index No. 3). The main rotor droop stop ring provides the contact surface for the droop stop follower to limit downward movement when the main rotor blade assembly is stopped.

2.3.2 Defects. This inspection is used to verify crack indications found visually on the main rotor droop stop ring. No cracks are allowed.

2.3.3 Primary Method. Magnetic Particle.





NDI_AFH64_F2_2

Figure 2-2. Main Rotor Droop Stop Follower (Plunger)

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

e. Consumable Materials, refer to Table 1-8

f. 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 applicable positions of this procedure. If required, the main rotor droop stop ring 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. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.3.3.6 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 2-3.

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.

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

2.3.3.8 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.

2.3.4 Backup Method. None required.

2.3.5 System Securing. Clean the main rotor droop stop ring 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 droop stop ring, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

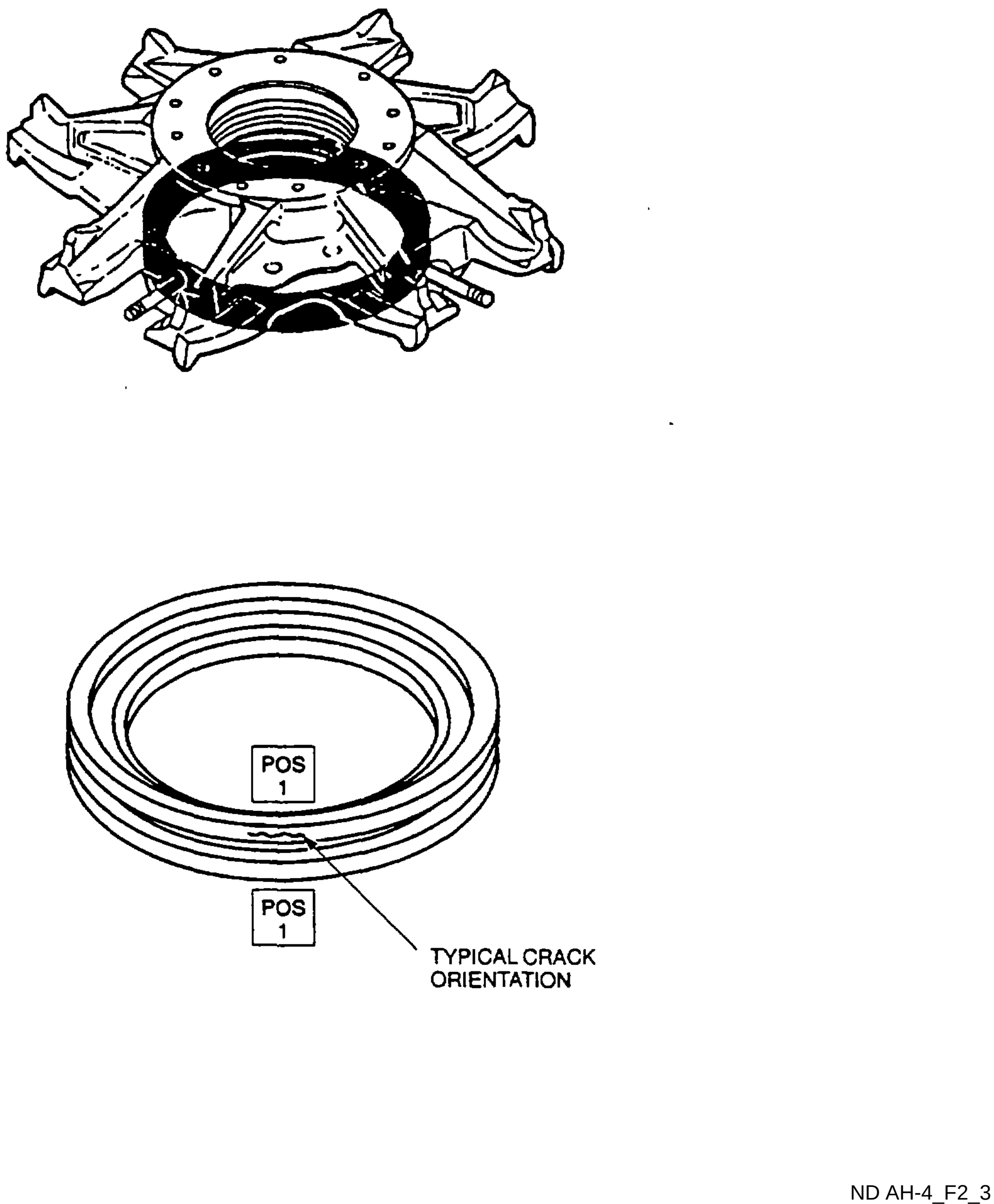


Figure 2-3. Droop Stop Ring

2.4 MAIN ROTOR BLADE (VOIDS) (BT).

2.4.1 Description (Figure 2-1. Index No. 4). The main rotor blade assemblies are rotating airfoils with swept tips that are constructed of stainless steel and fiberglass. Each attaches to the main rotor head assembly by a lead lag link and a blade attachment pin.

2.4.2 Defects. Void damage can occur anywhere on both sides of the blade shown in Figure 2-4.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions 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").

2.4.3 Primary Method. Bond Testing.

2.4.3.1 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. Test Block, Composite Defect Standard #1

g. Teflon Tape, refer to Table 1-8

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

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

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 helicopter in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

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

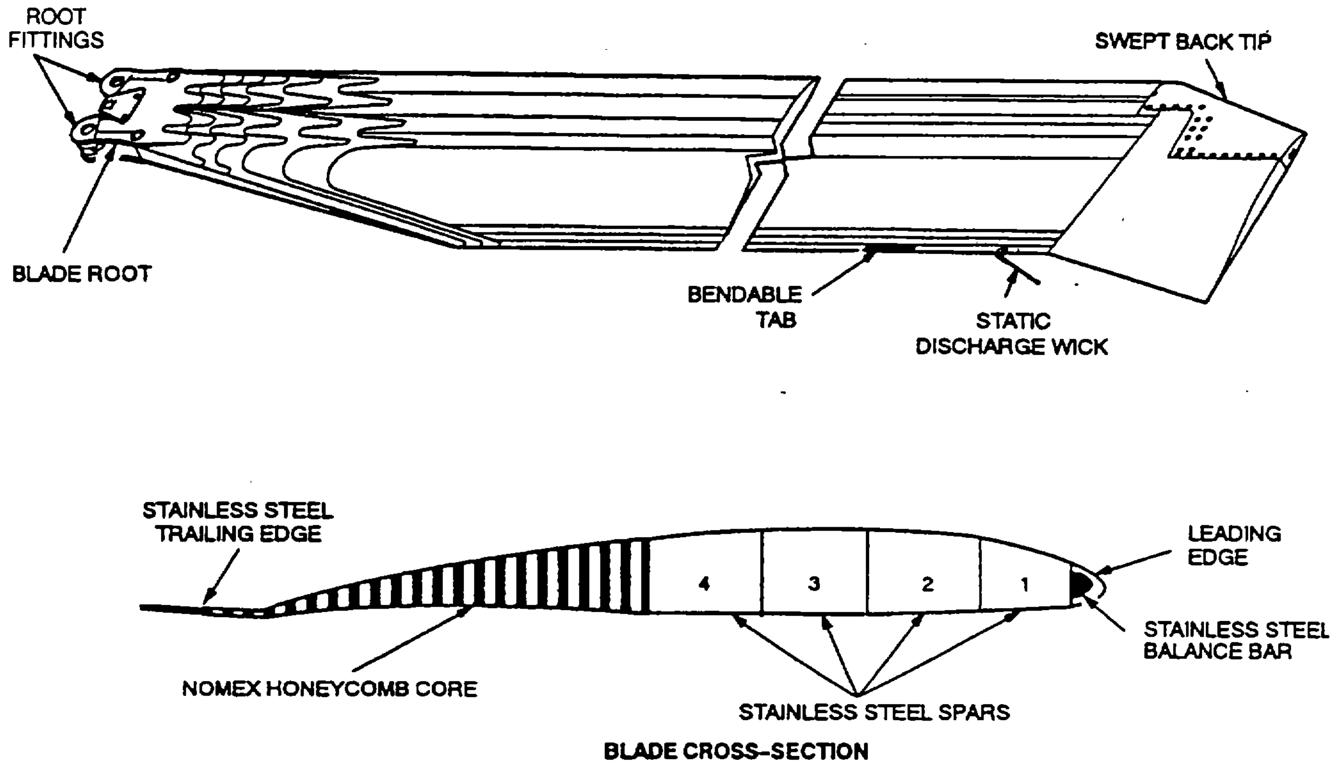


Figure 2-4. Main Rotor Blade (Voids)

2.4.3.5 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.

2.4.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6 and inspection areas shown in Figure 2-4.

a. Skin-to-Honeycomb Voids. Place probe on 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.

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 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.

2.4.3.7 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.

2.4.4 Backup Method. None required.

2.4.5 System Securing. None required.

2.5 MAIN ROTOR BLADE (PT).

2.5.1 Description (Figure 2-1. Index No. 5). The main rotor blade assemblies are rotating airfoils with swept tips that are constructed of stainless steel and fiberglass. Each attaches to the main rotor head assembly by a lead lag link and a blade attachment pin.

2.5.2 Defects. This inspection is used to verify crack indications found visually on the main rotor blade. No cracks are allowed.

2.5.3 Primary Method. Fluorescent Penetrant.

2.5.3.1 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.

2.5.3.2 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 main rotor blade shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.5.3.3 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 helicopter in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

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

2.5.3.5 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 2-5.

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

2.5.4 Backup Method. None required.

2.5.5 System Securing. Clean the main rotor blade to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The main rotor blade, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

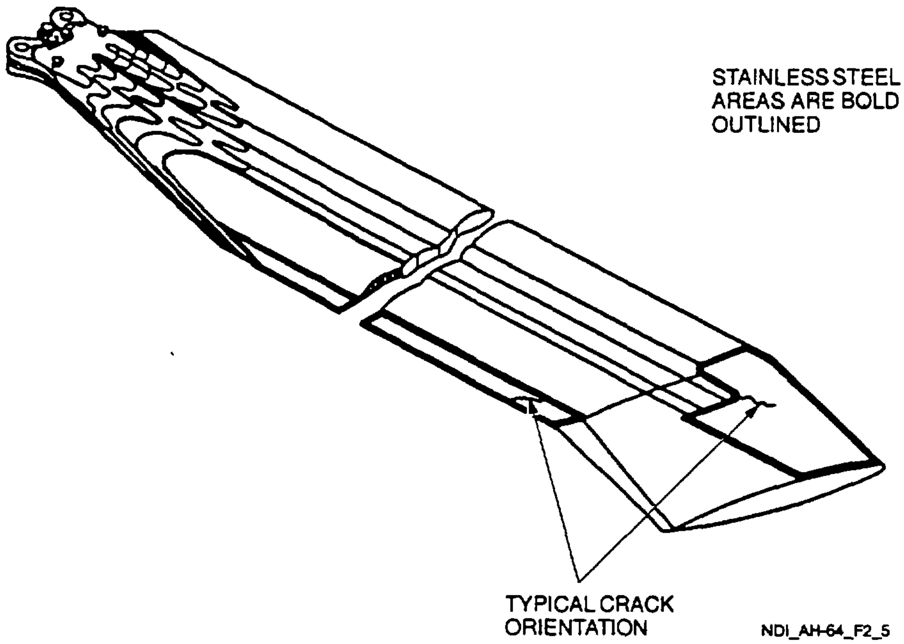


Figure 2-5. Main Rotor Blade

2.6 MAIN ROTOR BLADE (RT).

2.6.1 Description (Figure 2-1. Index No. 6). The main rotor blade assemblies are rotating airfoils with swept tips that are constructed of stainless steel and fiberglass. Each attaches to the main rotor head assembly by a lead lag link and a blade attachment pin.

2.6.2 Defects. Water in the honeycomb core.

2.6.3 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.

2.6.3.1 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 14 inch x 17 inch

e. Marking Material, refer to Table 1-8

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

2.6.3.3 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 helicopter in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.6.3.4 Preparation of Part. The rotor blade shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.6.3.5 NDI Equipment Settings.

a. Refer to Radiographic (X-ray) method, paragraph 1.4.10.

b. Typical equipment settings, inspection, and exposure data are given in Figure 2-6.

2.6.3.6 Inspection Procedure. Inspect designated areas, refer to Figure 2-6 for typical fluid entrapment and source/film placement.

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

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

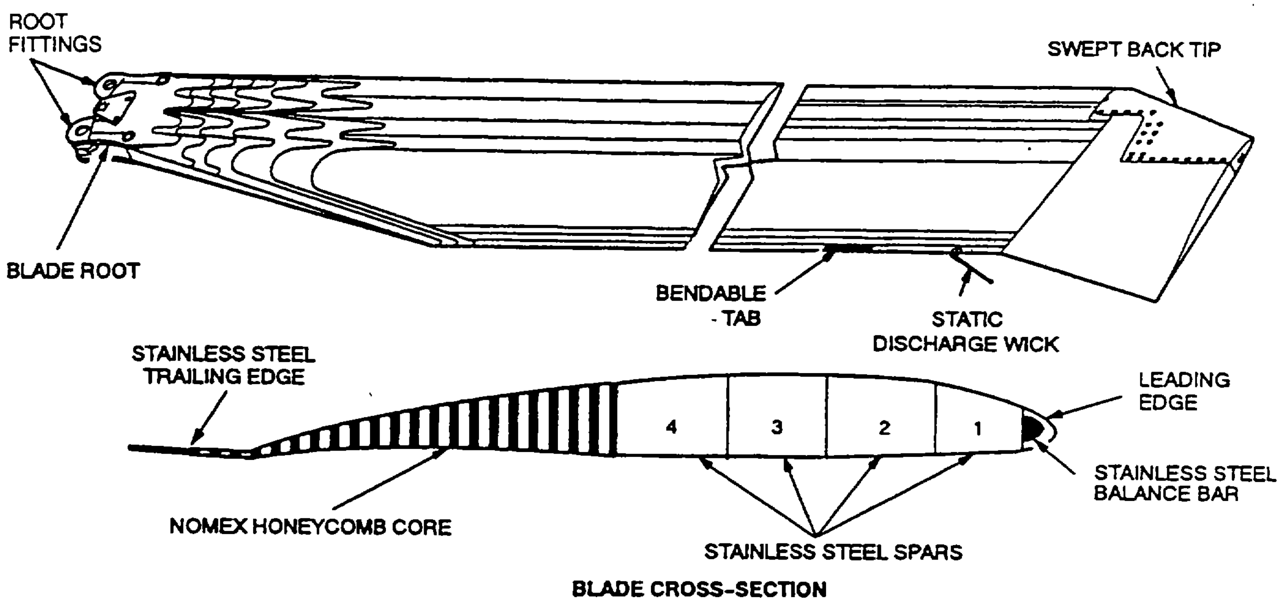
c. Set X-ray unit to the values given in the Radiographic Inspection Data chart for exposure number 1.

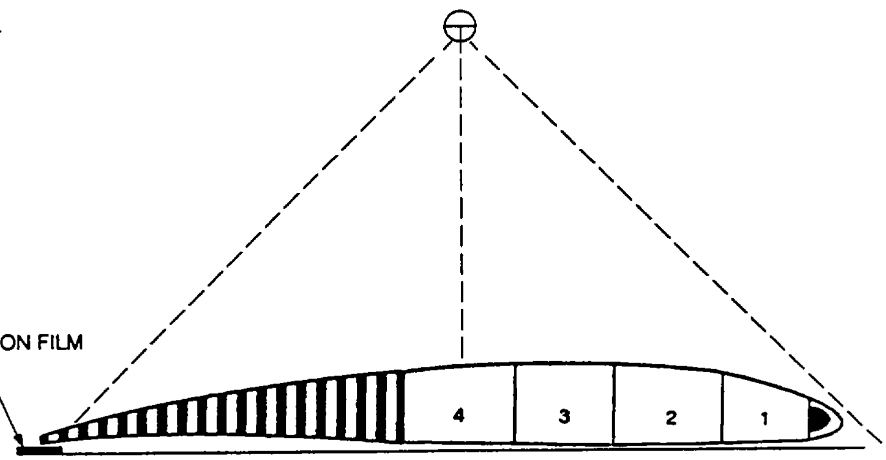
d. Make exposure number 1.

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 2.6.2 and as shown in Figure 2-6.





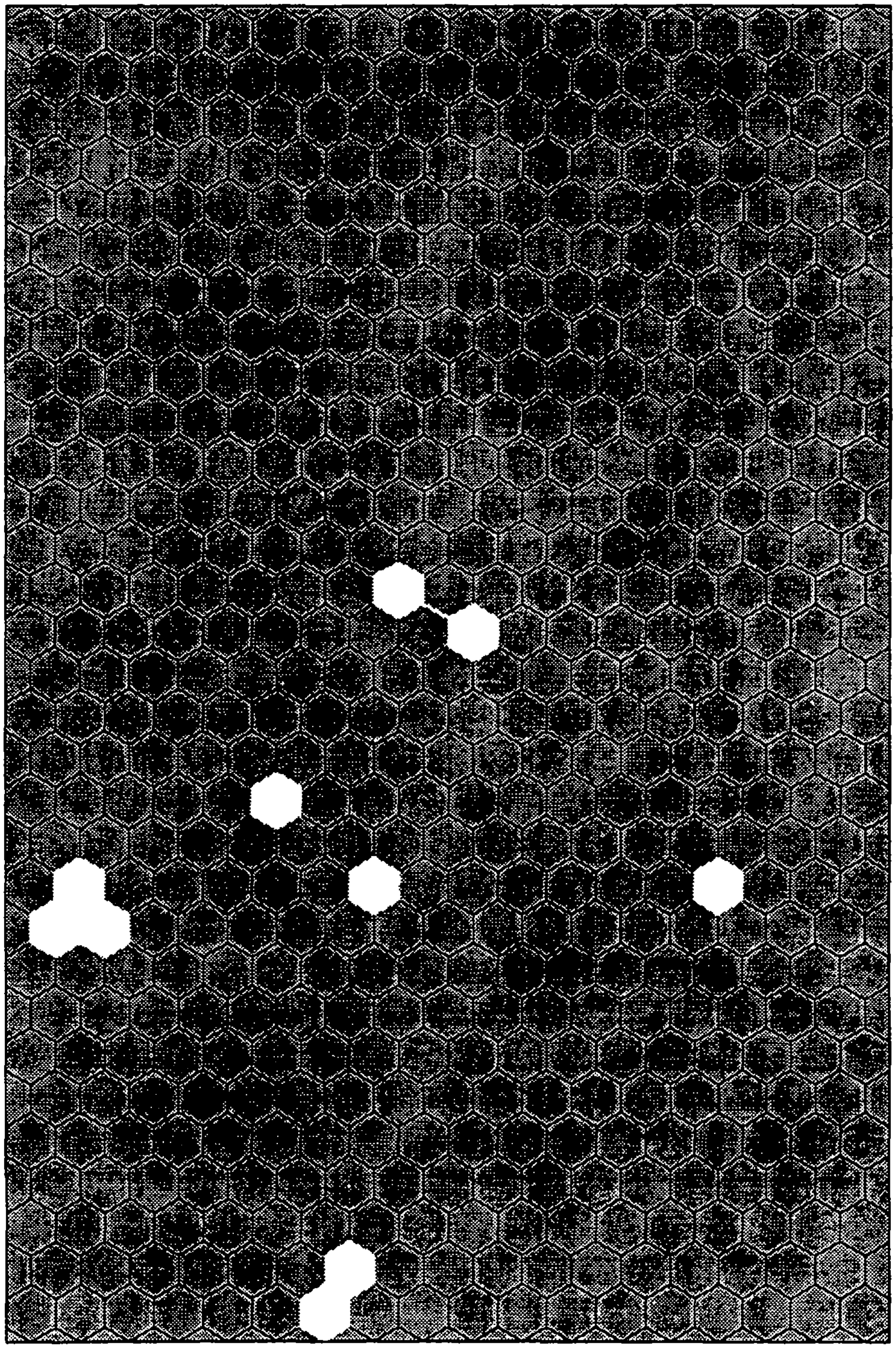
RADIOGRAPHIC INSPECTION DATA						
EXPOSURE NUMBER	KV	MA	FFD (INCHES)	TIME (SEC)	FILM	
					TYPE	SIZE
E1	50	3.5	60	46	M-2	14 x 17

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.

NDI_AH-64_F2_6_1

Figure 2-6. Main Rotor Blade (Sheet 1 of 2)



LIGHT AREAS-FLUID IN HONEYCOMB

NDI_AH-64_F2_6_2

Figure 2-6. Main Rotor Blade (Sheet 2 of 2)

2.6.4 Backup Method. None required.

2.6.5 System Securing. The main rotor blade shall be cleaned as necessary. Refer to Post Cleaning and Restoration of Part or Area after NDI, paragraph 1.4.1.6. The main rotor blade, if off the helicopter, requires reinstallation in accordance with the applicable technical manual listed in Table 1-1.

2.7 MAIN ROTOR BLADE WEIGHT SUPPORT FITTINGS (ET).

2.7.1 Description (Figure 2-1. Index No. 7). The main rotor blade weight support fittings are located within the swept back tip. The fitting supports the weight used when balancing the blade.

2.7.2 Defects. This inspection is used to verify crack indications found visually on the main rotor blade weight support fitting. 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. Reference Block, three-notched titanium (0.008, 0.020, and 0.040 EDM notches)

g. Teflon Tape, refer to Table 1-8

h. 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 in accordance with the applicable technical manuals listed in Table 1-1.

2.7.3.3 Access. Tip cap removed.

WARNING

Maintenance Platforms/Workstands

Use only appropriate platforms, workstands, or other approved locally procured stands and restraint equipment when working above 10 feet on helicopter 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-19eII.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- (56° aluminum) (30° titanium)		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
VPos	- 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 the 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.

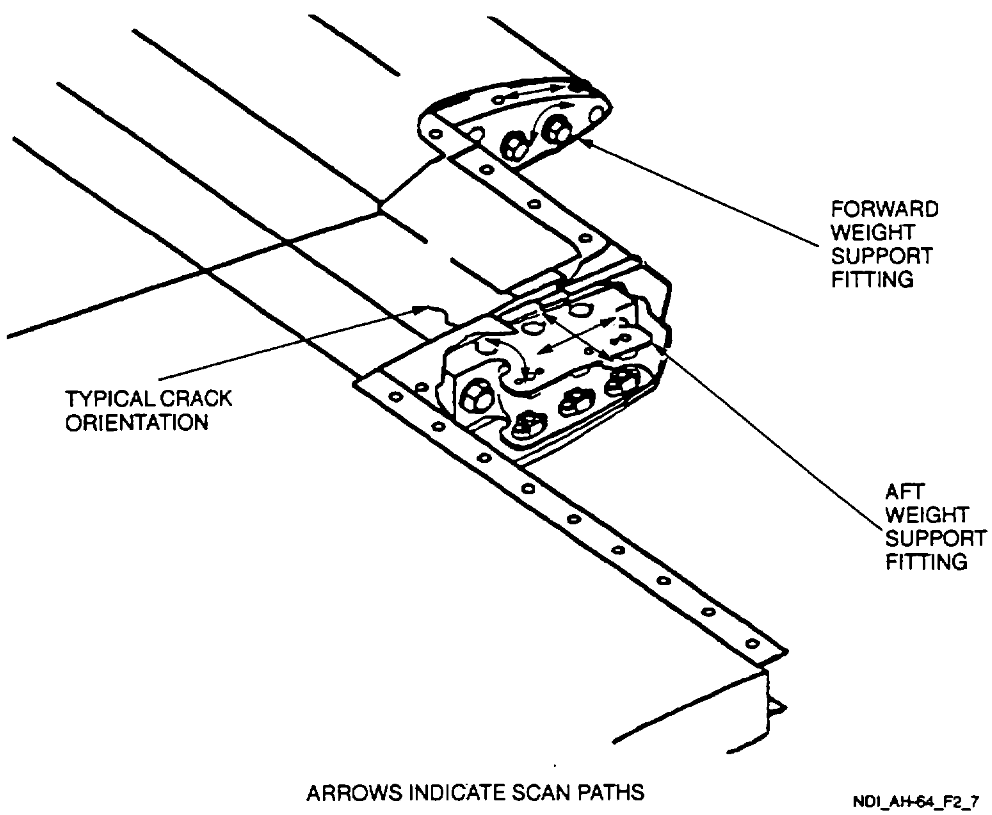


Figure 2-7. Main Rotor Blade weight support Fittings

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 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.

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. T he main rotor blade weight support fitting, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.8 MAIN ROTOR MAST (MT).

2.8.1 Description (Figure 2-1. Index No. 8). The main rotor mast provides the attachment point for the main rotor head assembly.

2.8.2 Defects. This inspection is used to verify crack indications found visually on the main rotor mast. 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 ProbeNYoke

b: Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

2.8.3.2 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 applicable positions of this procedure. If required, the main rotor mast shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.8.3.3 Access. Accessibility of the main rotor mast varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

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

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. The 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 typical position 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 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.

2.8.4 Backup Method. None required.

2.8.5 System Securing. Clean the main rotor mast 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, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.9 MAIN ROTOR MAST RETAINING RING (MT).

2.9.1 Description (Figure 2-1, Index No. 9). The main rotor mast retaining ring secures the main rotor mast retention nut to the main rotor mast.

2.9.2 Defects. This inspection is used to verify crack indications found visually on the main rotor mast retaining ring. No cracks are allowed.

2.9.3 Primary Method. Magnetic Particle.

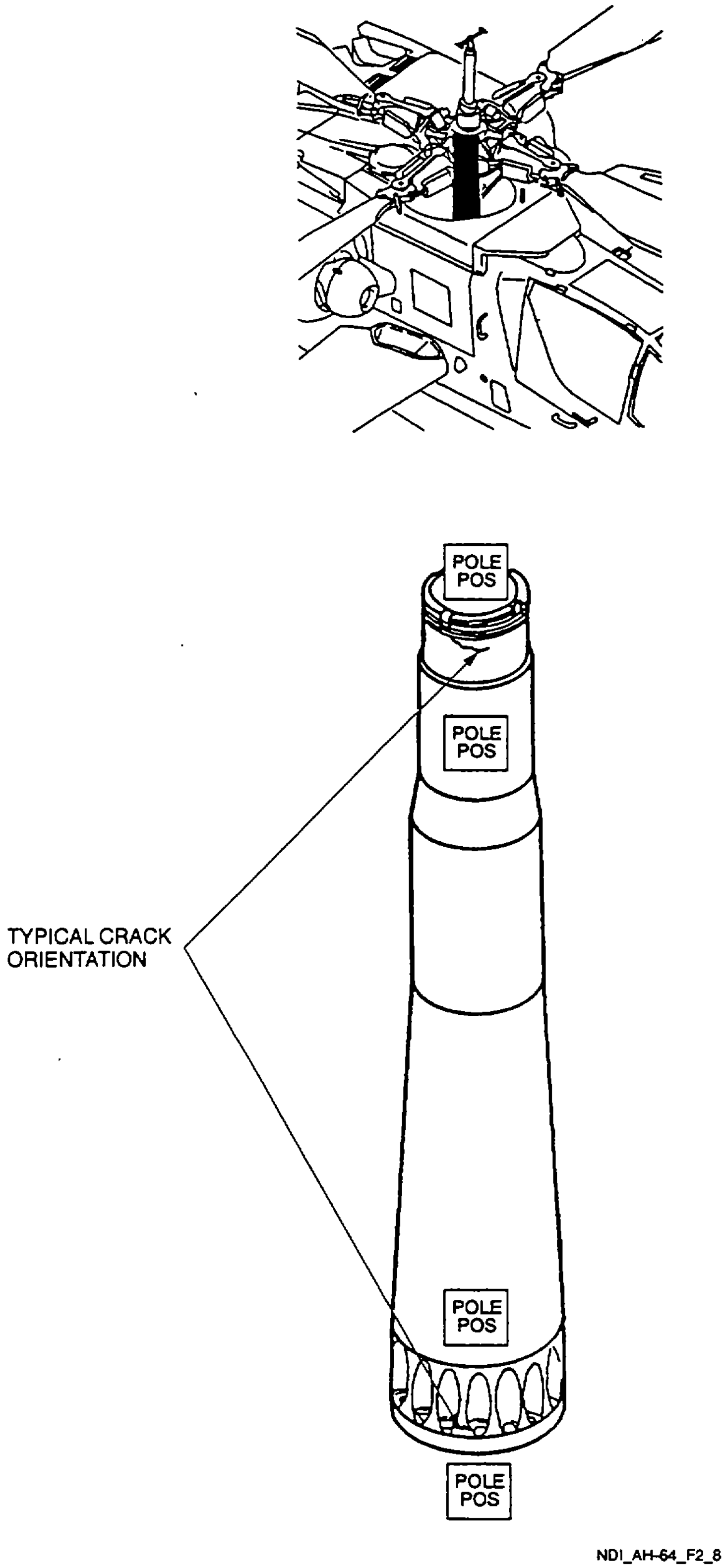


Figure 2-8. Main Rotor Mast

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, refer to Table 1-8

e. Consumable Materials, refer to Table 1-8

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

2.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main rotor mast retaining ring 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 part 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. Positions required for this inspection are illustrated in Figure 2-9.

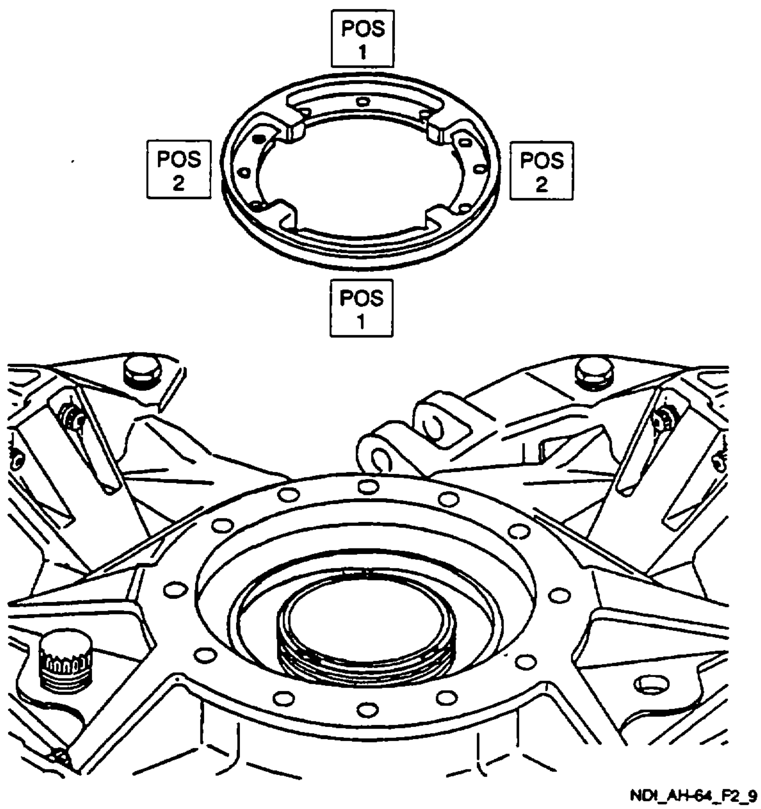


Figure 2-9. Main Rotor Mast Retaining Ring

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 mast retaining ring 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 retaining ring, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.10 MAIN ROTOR HUB RETENTION NUT (MT).

2.10.1 Description (Figure 2-1. Index No. 10). The main rotor hub retention nut secures the main rotor hub assembly to the main rotor mast.

2.10.2 Defects. Defects can occur anywhere on the surface of the main rotor hub retention nut. 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, refer to Table 1-8

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 main rotor hub retention nut shall be 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 part 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.

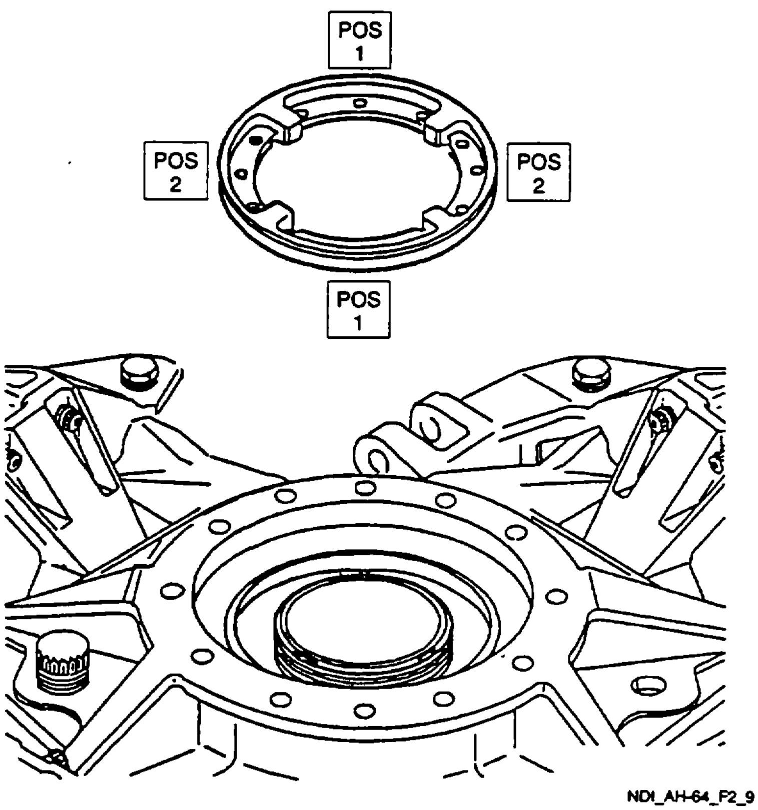


Figure 2-10. Main Rotor Hub Retention Nut

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 main rotor hub 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 main rotor hub retention nut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.11 MAIN ROTOR HEAD (HUB) (ET).

2.11.1 Description (Figure 2-1. Index No. 11). The main rotor head assembly is a fully-articulated assembly that provides attachment points for the four main rotor blade assemblies.

2.11.2 Defects. This inspection is used to verify crack indications found visually on the main rotor head (hub). No cracks are allowed.

2.11.3 Primary Method. Eddy Current.

2.11.3.1 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

2.11.3.2 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 main rotor head (hub) shall be 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 part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.11.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

2.11.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-11.

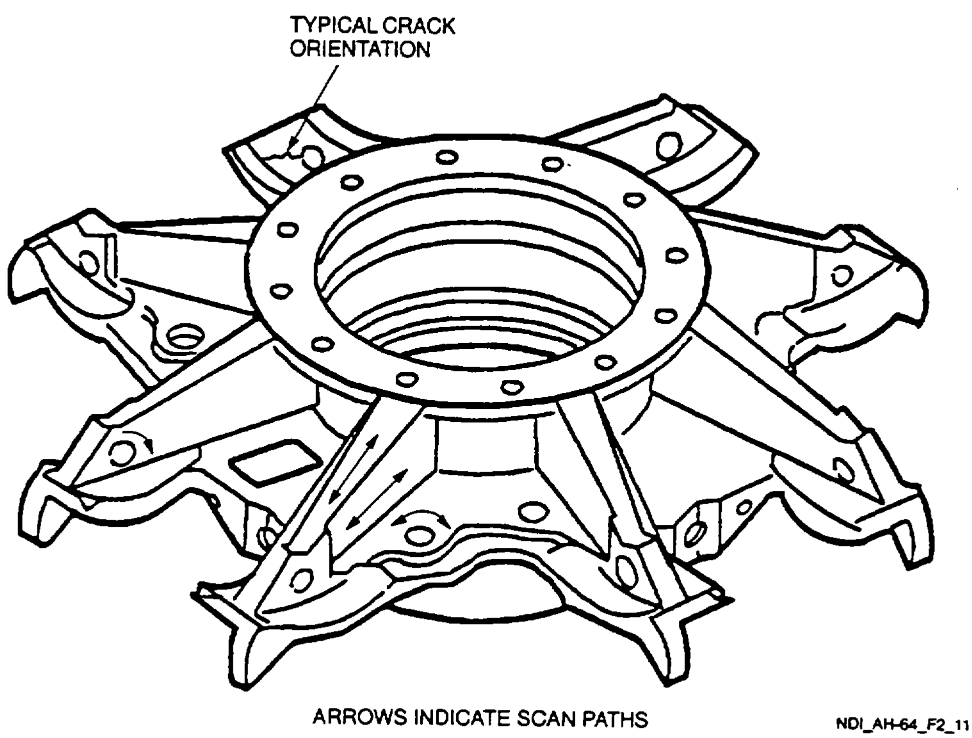


Figure 2-11. Main Rotor Head (Hub)

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 2.11.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.11.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

2.11.4 Backup Method. None required.

2.11.5 System Securing. The main rotor head (hub), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.12 MAIN ROTOR LEAD LAG LINK (DAMPER LINK) (ET).

2.12.1 Description (Figure 2-1. Index No. 12). The four lead lag links are titanium mounts that provide a mounting point for each of the main rotor blade assemblies.

2.12.2 Defects. This inspection is used to verify crack indications found visually on the lead lag ink (damper link). No cracks are allowed.

2.12.3 Primary Method. Eddy Current.

2.12.3.1 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 titanium (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

2.12.3.2 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 lead lag link shall be 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 part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

2.12.3.5 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	- 30°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

2.12.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-12.

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 2.12.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.12.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

2.12.4 Backup Method. None required.

2.12.5 System Securing. The lead lag link (damper link), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

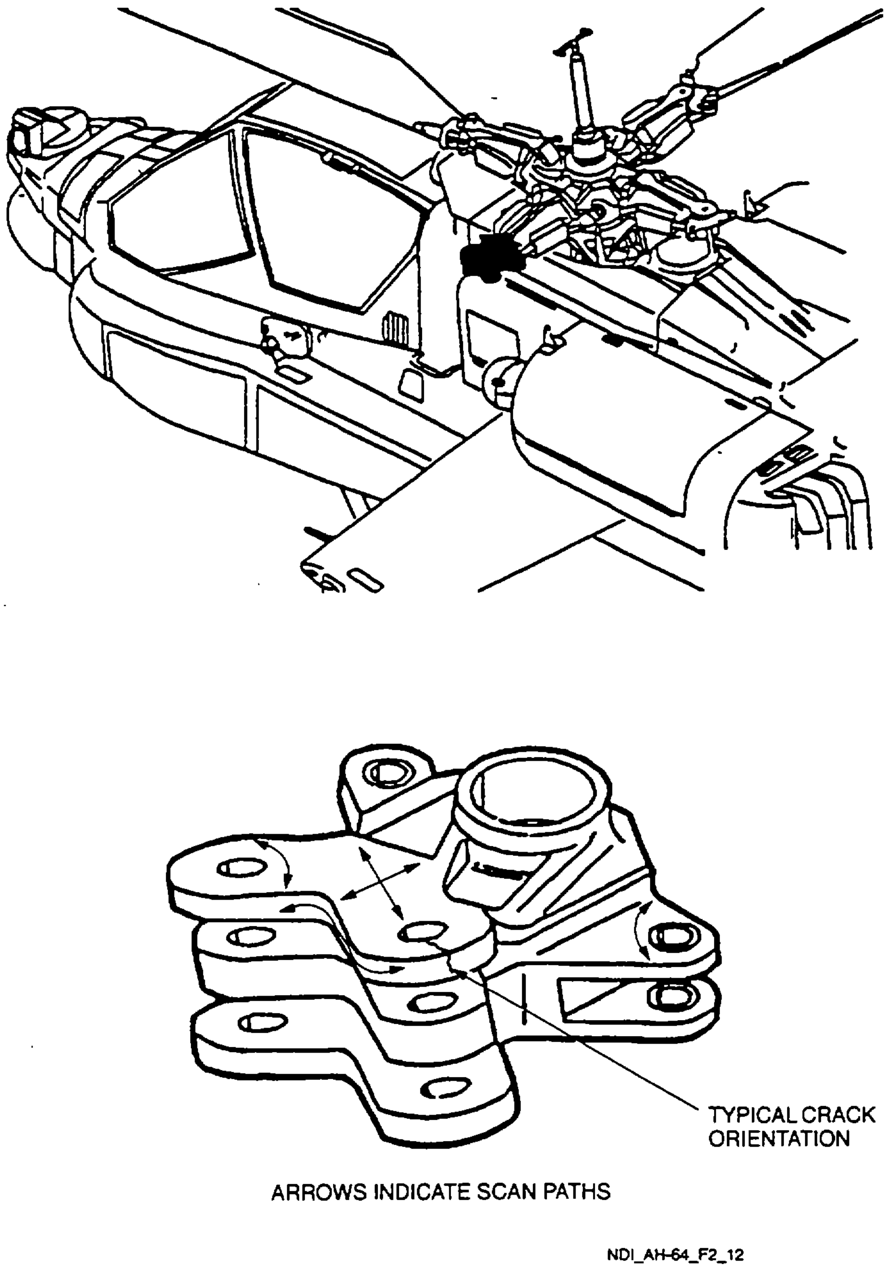


Figure 2-12. Main Rotor Lead Lag Link (Damper Link)

2.13 MAIN ROTOR DAMPER (ET).

2.13.1 Description (Figure 2-1. Index No. 13). Two dampers are attached between each pitch housing and its lead lag link. The dampers are used to control the lead lag movement of the rotor blades and to prevent mass imbalance (unequal blade spacing) and for main rotor blade phase adjustment.

2.13.2 Defects. This inspection is used to verify crack indications found visually on the main rotor damper. 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. 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 damper shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.13.3.3 Access. Not applicable.

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[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 the 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 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 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. The main rotor damper, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.14 MAIN ROTOR DAMPER TRUNNION (ET).

2.14.1 Description (Figure 2-1. Index No. 14). The main rotor damper trunnion provides the attachment point for the main rotor damper to the main rotor pitch housing.

2.14.2 Defects. This inspection is used to verify crack indications found visually on the main rotor damper trunnion. No cracks are allowed.

2.14.3 Primary Method. Eddy Current.

2.14.3.1 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

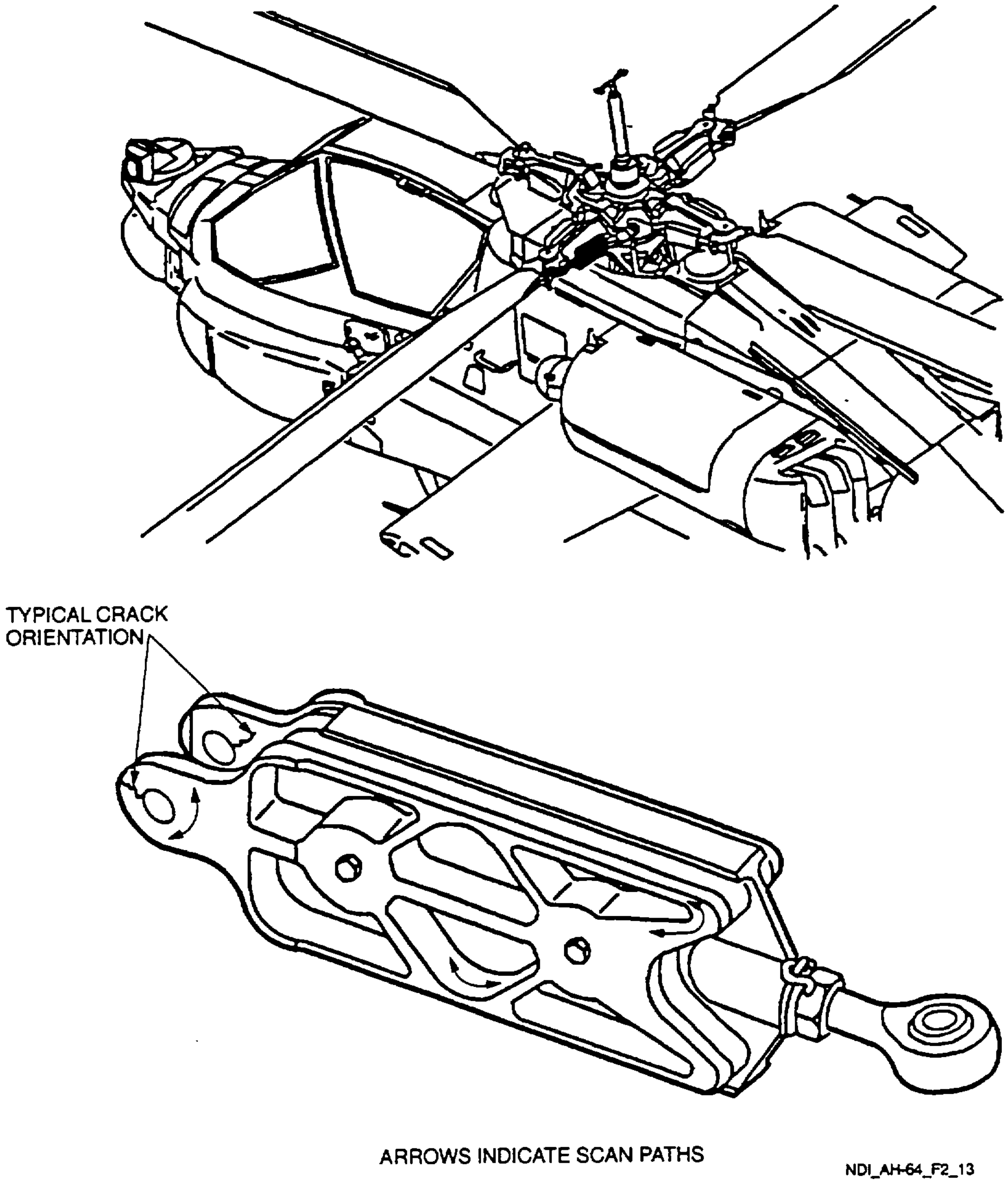


Figure 2-13. Main Rotor Damper

2.14.3.2 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 main rotor damper trunnion shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.14.3.3 Access. Not applicable.

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

2.14.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

2.14.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-14.

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 2.14.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.14.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

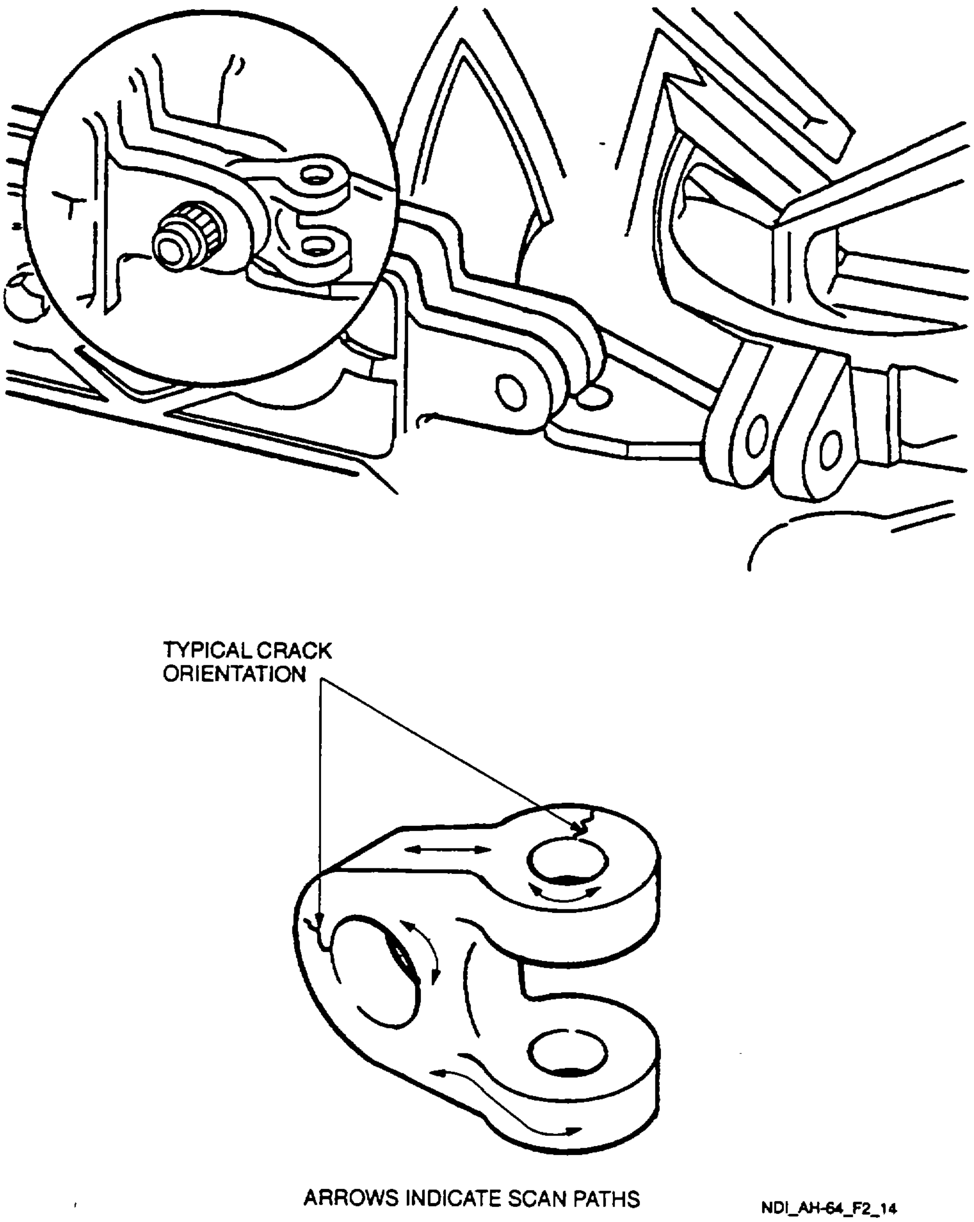


Figure 2-14. Main Rotor Damper Trunnion

2.14.4 Backup Method. None required.

2.14.5 System Securing. The main rotor damper trunnion, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.15 MAIN ROTOR DAMPER ROD END (MT).

2.15.1 Description (Figure 2-1. Index No. 15). The main rotor damper rod end provides for attachment of the damper assembly to the lead lag link.

2.15.2 Defects. This inspection is used to verify crack indications found visually on the main rotor damper rod end. No cracks are allowed.

2.15.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

2.15.3.2 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 main rotor damper rod end shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.15.3.3 Access. Not applicable.

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

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

2.15.3.6 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 2-15.

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

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

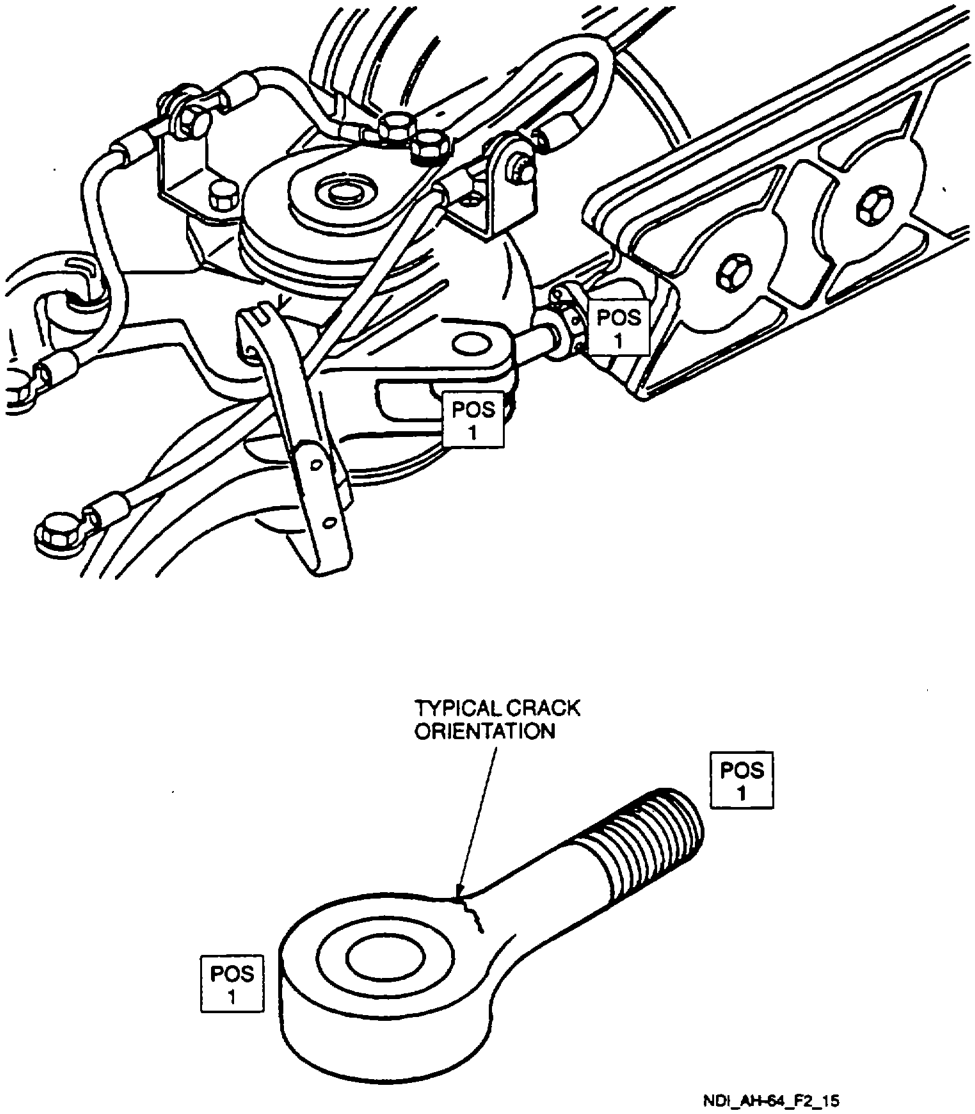


Figure 2-15. Main Rotor Damper Rod End

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.

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

2.15.3.8 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.

2.15.4 Backup Method. None required.

2.15.5 System Securing. Clean the main rotor damper rod end 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 damper rod end, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.16 MAIN ROTOR PITCH HOUSING (ET).

2.16.1 Description (Figure 2-1. Index No. 16). The main rotor pitch housing assembly control inputs to course angle changes on the main rotor blade assembly.

2.16.2 Defects. This inspection is used to verify crack indications found visually on the main rotor pitch housing. No cracks are allowed.

2.16.3 Primary Method. Eddy Current.

2.16.3.1 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, 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

2.16.3.2 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 main rotor pitch housing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.16.3.3 Access. Not applicable.

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

2.16.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

2.16.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-16.

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 2.16.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.16.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

2.16.4 Backup Method. None required.

2.16.5 System Securing. The main rotor pitch housing, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.16.1.1 STRAP PACK OUTBOARD BOLT INSPECTION (UT)

2.16.1.1.1 Description. The four strap pack outboard bolts are made of PH13-8 MO steel and are secured by a pin to the lead lag link and pitch housing.

2.16.1.1.2 Defects. This inspection is used to detect inside and outside diameter circumferential cracks in the shank of the strap pack bolt.

2.16.1.1.3 Primary Method. Ultrasonic specific.

NOTE

This inspection procedure and graphics shall be reviewed in its entirety prior to performing the inspection. The supplemental training CD ROM should also be reviewed in conjunction with performing this procedure.

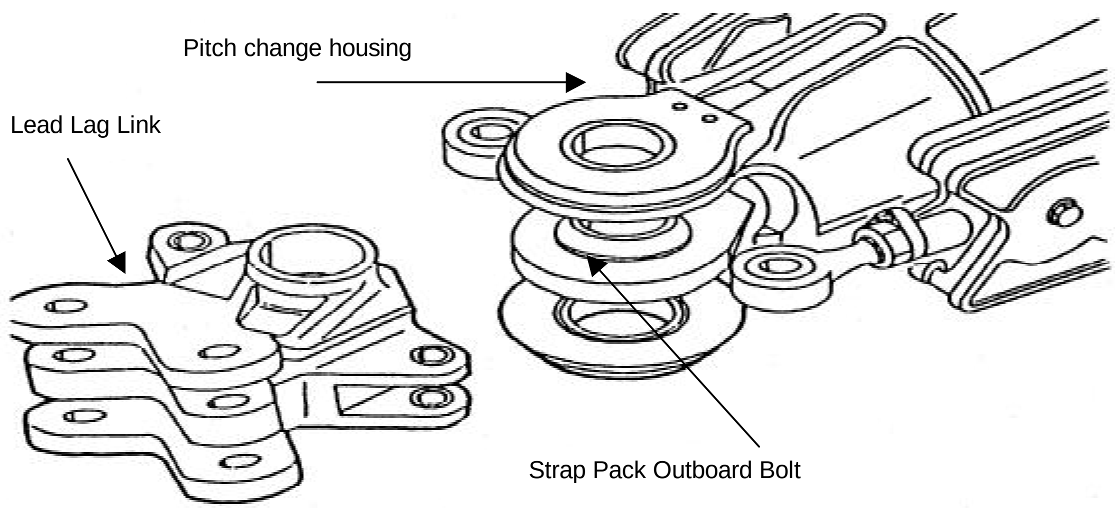
2.16.1.1.3.1 NDI Equipment and Materials. (Refer to Appendix B)

a. Ultrasonic Inspection Unit, USD 15S/AF
b. Transducer, 15.0 MHz, longitudinal wave, 1/8 in. x 1/8 in. element
c. Transducer Positioner
d. Cable Assembly, BNC to Microdot
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

2.16.1.1.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. The lead lag link shall be removed in accordance with TM 1-1520-238-23.

2.16.1.13.3 Access. Access to the strap pack outboard bolt can be accomplished by removal of the main rotor blade and the lead lag link in accordance with TM 1-1520-238-23.

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



2.16.1.1.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Ultrasonic Inspection Unit, USD 15S:

(SETUP – DEFAULT SETTINGS)		**(BASICS)**	
DIALOG	ENGLISH	GAIN	58 dB
UNIT	INCH	RANGE	1.770 in
GAT-SEL	Gate-A	MTL VEL	233.0 in/ms
A-OUT	amplit	D-DELAY	0.00 in
A-LOGIC	pos	P-DELAY	0.00 ms
A-HORN	on		
A-ALARM	short		
(PULSER)		**(RECEIVER)**	
DAMPING	50 ohm	FREQ	15 MHz
ASCAN	NORMAL	REJECT	0%
PRF-MOD	AUTOLOW	RECTIF	FULL-W
PRF-VAL	See Note 1	DUAL	OFF
(GATES)		**(MEASURE)**	
GAT-SEL	Gate-A	GATE-SEL	Gate-A
A-START	0.500 in.	A-TOF	peak
A-WIDTH	1.100 in.	A-AMPLI	%
A-THRSH	40%	MEAS_VA	none

(KEYS)	See Note 2
(DATALOG)	See Note 2
(ANGLE)	See Note 2
(DAC)	See Note 2

NOTES:

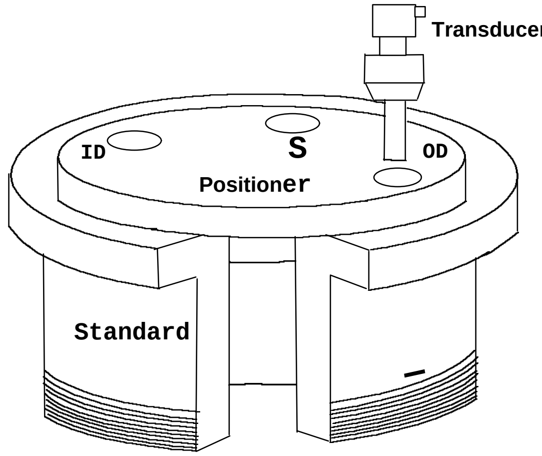
(1) WHEN THE PULSE REP FREQUENCY IS IN AN AUTOMATIC MODE, THE VALUE IS ELECTRONICALLY DETERMINED.

(2) NOT USED - LEAVE AT DEFAULT VALUES.

b. Refer to the Ultrasonic Method, paragraph 1.4.12. Calibrate the ultrasonic instrument as follows:

NOTE

The transducer guide holes are a snug fit. Make sure the set screw is completely backed out of the bore prior to inserting the transducer.



(1) SET UP

(a) Attach the transducer and cable to the ultrasonic instrument.

(b) Apply a thin layer of couplant to the calibration standard bolt head surface near the edge of the bore.

(c) Smooth the couplant with your finger to produce a uniform thin layer around the bolt.

(d) Place the **POSITIONER** on the calibration standard and rotate it until the " OD" guide hole is above the lower outside diameter EDM notch.

(e) Insert the **TRANSDUCER** in the OD guide hole until it bottoms. Slowly rotate the **POSITIONER** to maximize the signal from the notch. Reference Figure 1 for positioning, reference Figure 2 for signal position on the CRT display.

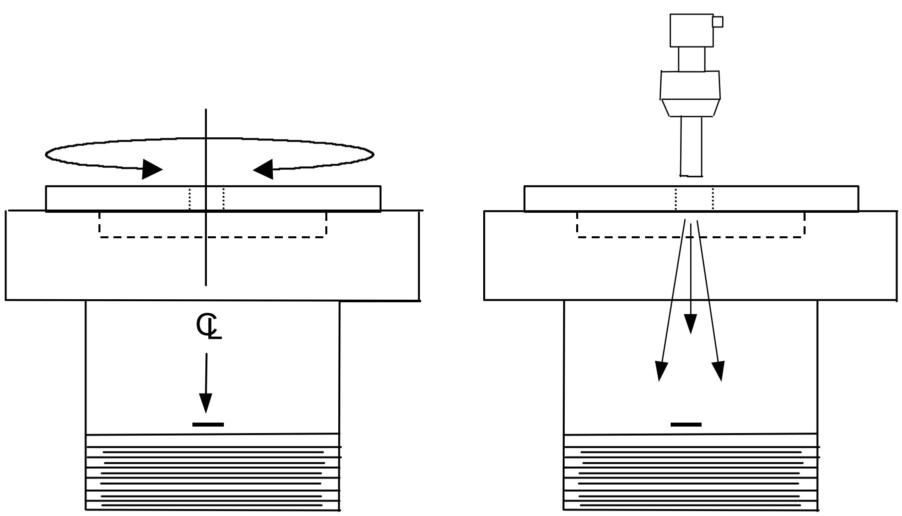


Figure 1. Positioner/transducer placement

(2) CALIBRATION

(a) With the transducer positioned from the SET UP procedure, adjust the gain setting to achieve a signal 80% of full screen height (FSH) from the lower OD EDM notch. Reference Figure 2 below.

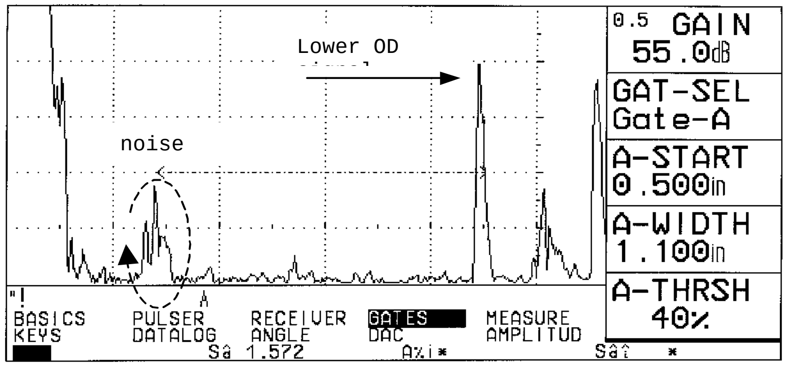


Figure 2. Lower OD EDM notch

(b) Rotate the **POSITIONER** off of the lower OD EDM notch. Slowly rotate the transducer to minimize base line noise. Review Figures 2 and 3. When the base line noise is minimized, carefully tighten the set screw.

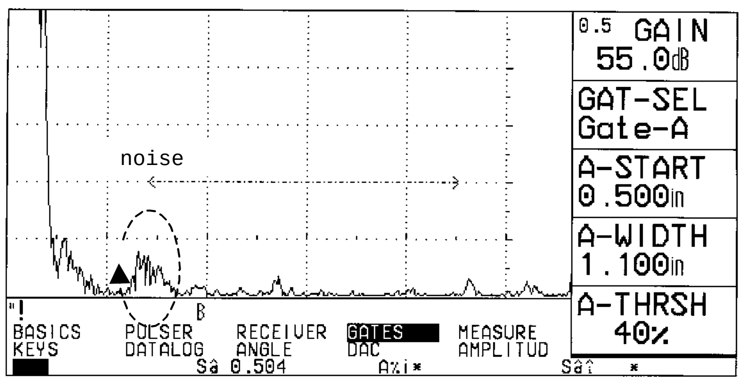


Figure 3. Base line noise reduction

(c) Locate the **POSITIONER** over the upper OD EDM notch and adjust the gain setting to achieve a signal 60 % FSH. Reference Figure 4.

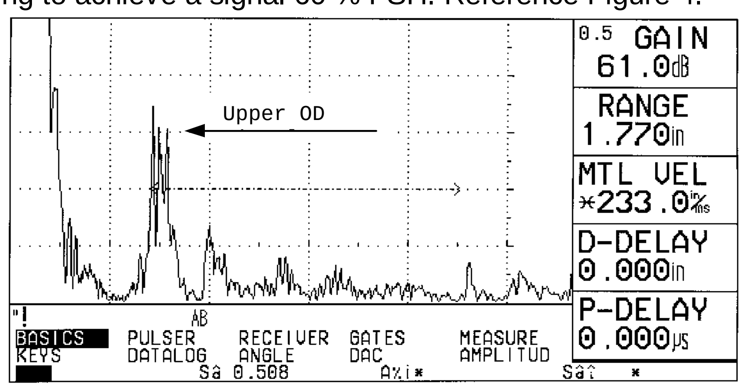


Figure 4. Upper OD EDM notch

(d) Rotate the positioner away from the upper OD EDM notch, and note the position along the time base line of the signal received from the thread run- out groove. This signal is located just **outside** the gate on the right hand side of the CRT. Moisten a finger with couplant and damp this signal to gain familiarity. The appearance and amplitude of this signal is dependent upon the radius of the thread run-out groove. A large signal will be generated from a sharper edge, as a lesser or nonexistent signal would be indicative of a smoother transition area. Reference Figure 5.

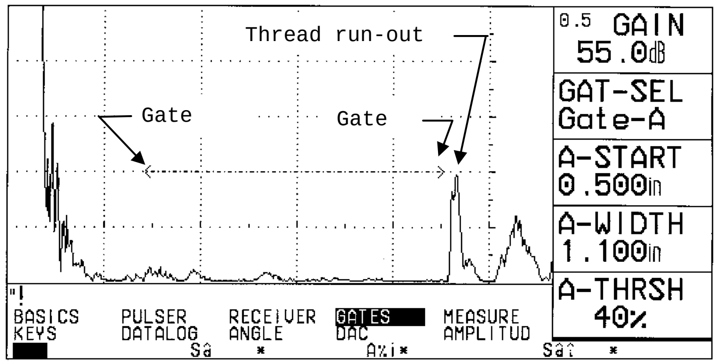


Figure 5. Signal from thread run-out groove

(e) Again rotate the **POSITIONER** 360 degrees to confirm the electronic gate positioning and verify the upper and lower OD EDM notches break the gate threshold. Reference Figure 6 for CRT displays of upper and lower outside diameter EDM notches.

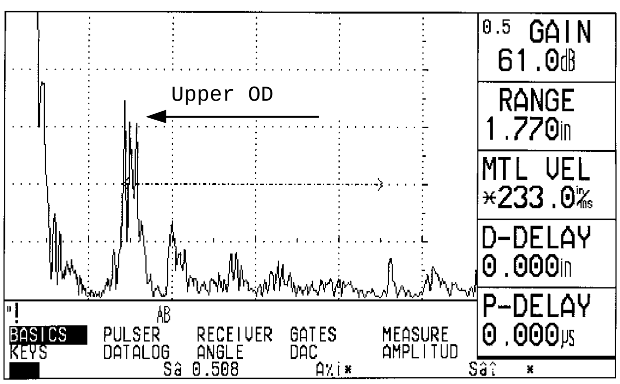


Figure 6a. Upper OD EDM notch

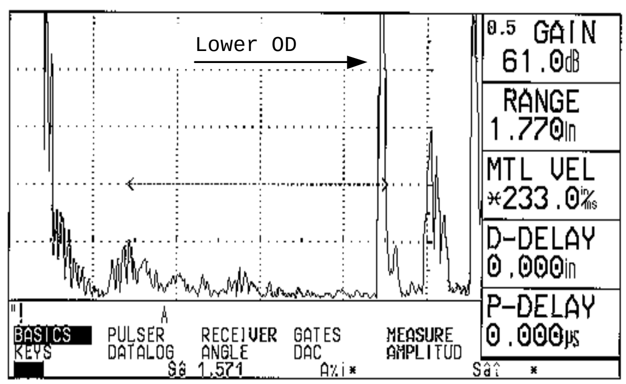


Figure 6b. Lower OD EDM notch

(f) Perform the OD inspection scan after completion of the OD calibration. Make two complete revolutions with the transducer in the OD position.

(g) Upon completion of the OD scan, wipe the calibration standard clean, reapply couplant, and place the positioner on the calibration standard.

(h) Place the transducer in the ID guide hole. Rotate the **POSITIONER,** and identify the signal obtained from the upper ID EDM notch.

(i) Continue the rotation of the **POSITIONER** to locate the lower ID EDM notch. Adjust the gain to achieve a signal height of 60% FSH. Rotate the transducer carefully to minimize base line noise if necessary. Tighten the set screw.

(j) Rotate the **POSITIONER** 360 degrees to verify both upper and lower ID signals are readily identifiable and break the gate threshold. Reference Figure 7 for upper and lower ID EDM notch displays.

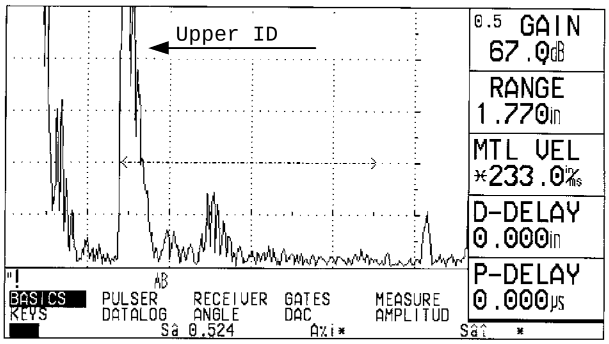


Figure 7a. Upper ID notch

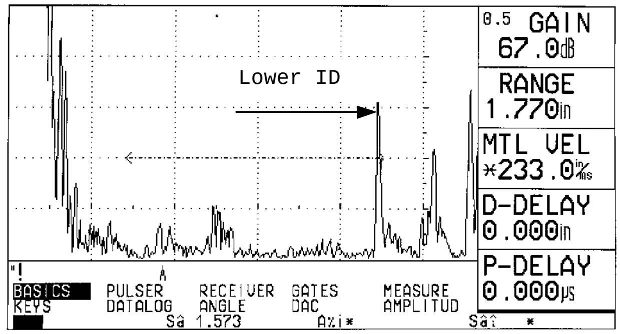


Figure 7b. Lower ID notch

(3)INSPECTION PROCEDURE

(a) Perform the OD inspection scan after completion of the OD calibration. Make two complete revolutions with the transducer in the OD position.

(b) Perform the ID inspection scan after completion of the ID calibration procedure. Make two complete revolutions with the transducer in the ID position.

(c) Perform the calibration set up every time prior to inspecting the ID or OD of a new bolt.

NOTE

The thin couplant layer is only adequate for approximately two passes without signal amplitude loss. Excessive couplant under the positioner can also create noise and erroneous signals on the CRT. When in doubt clean the bolt, reapply couplant, and rescan.

(4) ACCEPTANCE/REJECTION CRITERIA

Relevant signals exceeding the 40% gate threshold are rejectable. ID or OD cracks can appear anywhere within the gated area. Cracks may be detected on both the ID and OD surfaces with either scan. The signal received from a small crack will usually have a very quick rise and fall time when scanning. A legitimate crack indication will have a consistent location on the bolt perimeter and can be easily repeated on subsequent rescans. Verify all indications by cleaning the bolt, reapplying couplant and rescanning.

(5) POST CLEAN

Clean the bolt with a cloth dampened with water to remove couplant residue.

"S" SCAN

SUPPLEMENTAL SCAN FOR THE STRAP PACK BOLT INSPECTION

Description. An additional scan is required to detect cracks initiating at more severe angles from the inner wall of the strap pack bolt.

(1) SET UP

(a) Apply couplant to the calibration standard, and smooth the couplant with your finger to produce a uniform thin layer.

(b) Place the **POSITIONER** on the calibration standard, and insert the **TRANSDUCER** in the " S" guide hole until it bottoms. Align the transducer with the lower OD EDM notch.

(c) Identify the signal received from the notch, and adjust the gain to obtain 100% FSH. Reference Figure 1 for a CRT display of the calibration notch.

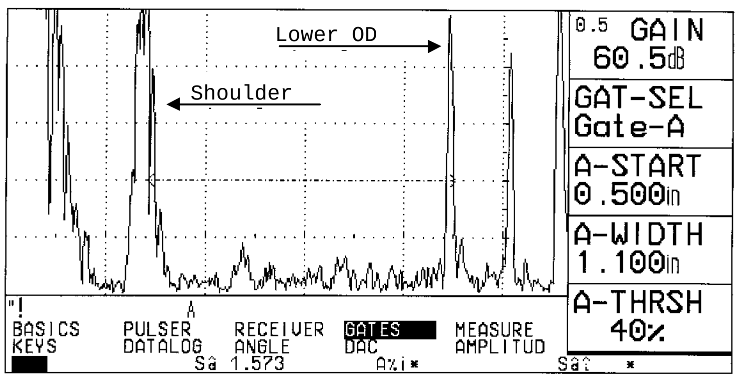


Figure 1. "S" scan calibration notch signals

(2) INSPECTION PROCEDURE

(a) Do to the increased angle of inspection additional signals are received within the gate. Reference Figure 1 to assist with signal interpretation. Damp signals on the calibration standard with a finger moistened with couplant to gain familiarity.

(b) This inspection technique focuses the sound beam on the ID mid-shank of the bolt but will detect ID and OD cracks at other locations.

(a) Place the positioner on the bolt to be inspected, slowly rotate the positioner making two passes with the " S" scan.

(3) ACCEPTANCE/REJECTION CRITERIA

ID or OD cracks can appear anywhere within the gated area. The signal received from a small crack will usually have a very quick rise and fall time when scanning. Any relevant signal exceeding the gate threshhold is rejectable.

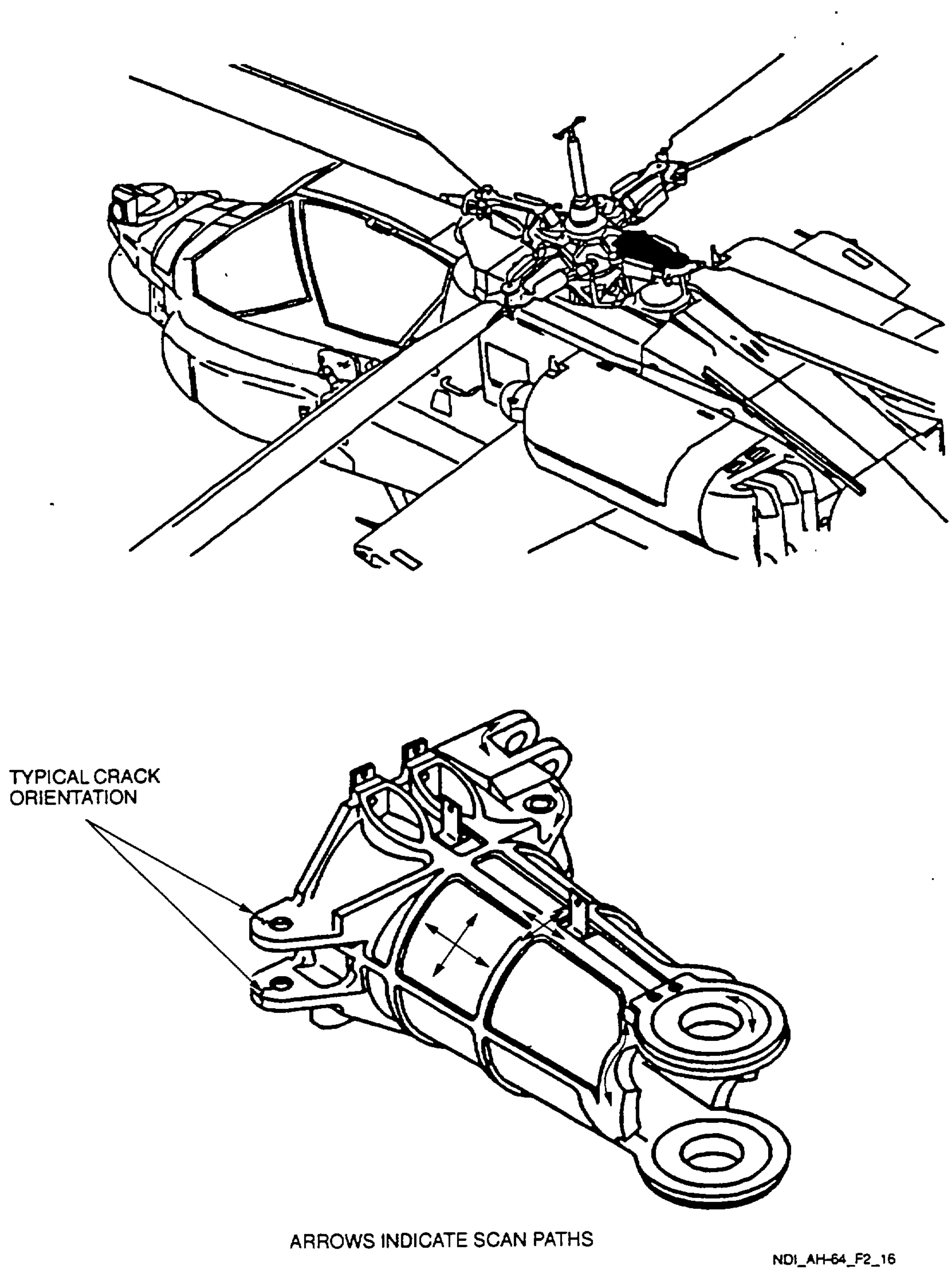


Figure 2-16. Main Rotor Pitch Housing

2.17 MAIN ROTOR FEATHERING BEARING HOUSING (ET).

2.17.1 Description (Figure 2-1 Index No. 17). The main rotor feathering bearing housing is between the main rotor hub and the pitch housing. The feathering bearing allows the pitch housing assembly to move up and down.

2.17.2 Defects. This inspection is used to verify crack indications found visually on the main rotor feathering bearing housing. 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, and 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 main rotor feathering bearing housing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.17.3.3 Access. Not applicable.

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[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%		
VPos	- 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 the 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 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 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 Backup Method. None required.

2.17.5 System Securing. The main rotor feathering bearing housing, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.18 MAIN ROTOR STRIKER PLATE AND SHIMS (MT).

2.18.1 Description (Figure 2-1. Index No. 18). The main rotor striker plate and shims attach to the feathering bearing housing providing a contact point for the main rotor droop stop follower.

2.18.2 Defects This inspection is used to verify crack indications found visually on the main rotor striker plate and shims. No cracks are allowed.

2.18.3 Primary Method. Magnetic Particle.

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

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

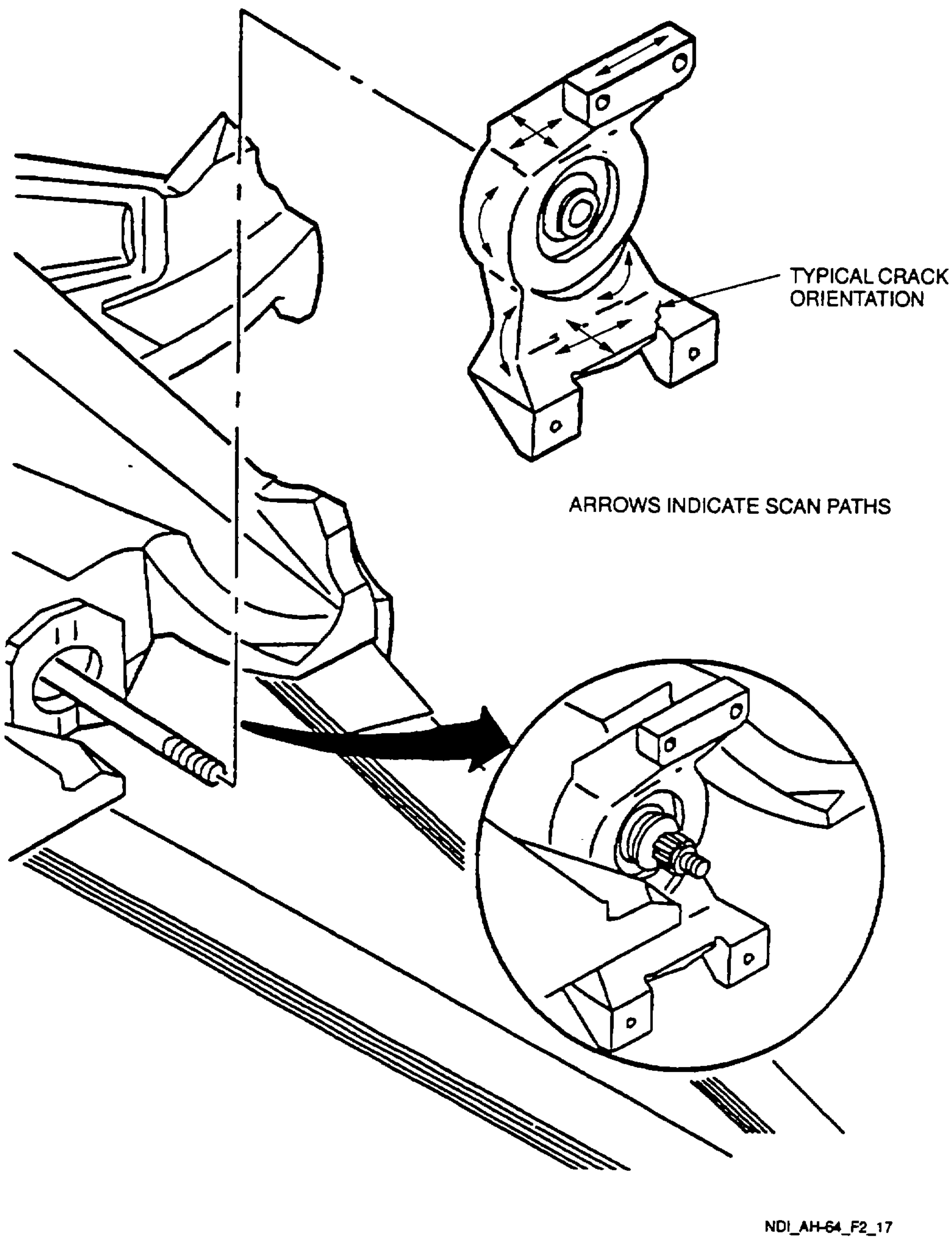


Figure 2-17. Main Rotor Feathering Bearing Housing

NOTE

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

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 striker plate using applicable positions of this procedure. If required, the main rotor striker plate and shims shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.18.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.18.3.6 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 2-18.

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.

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

2.18.3.8 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.

2.18.4 Backup Method. None required.

2.18.5 System Securing. Clean the main rotor striker plate and shims 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 striker plate and shims, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

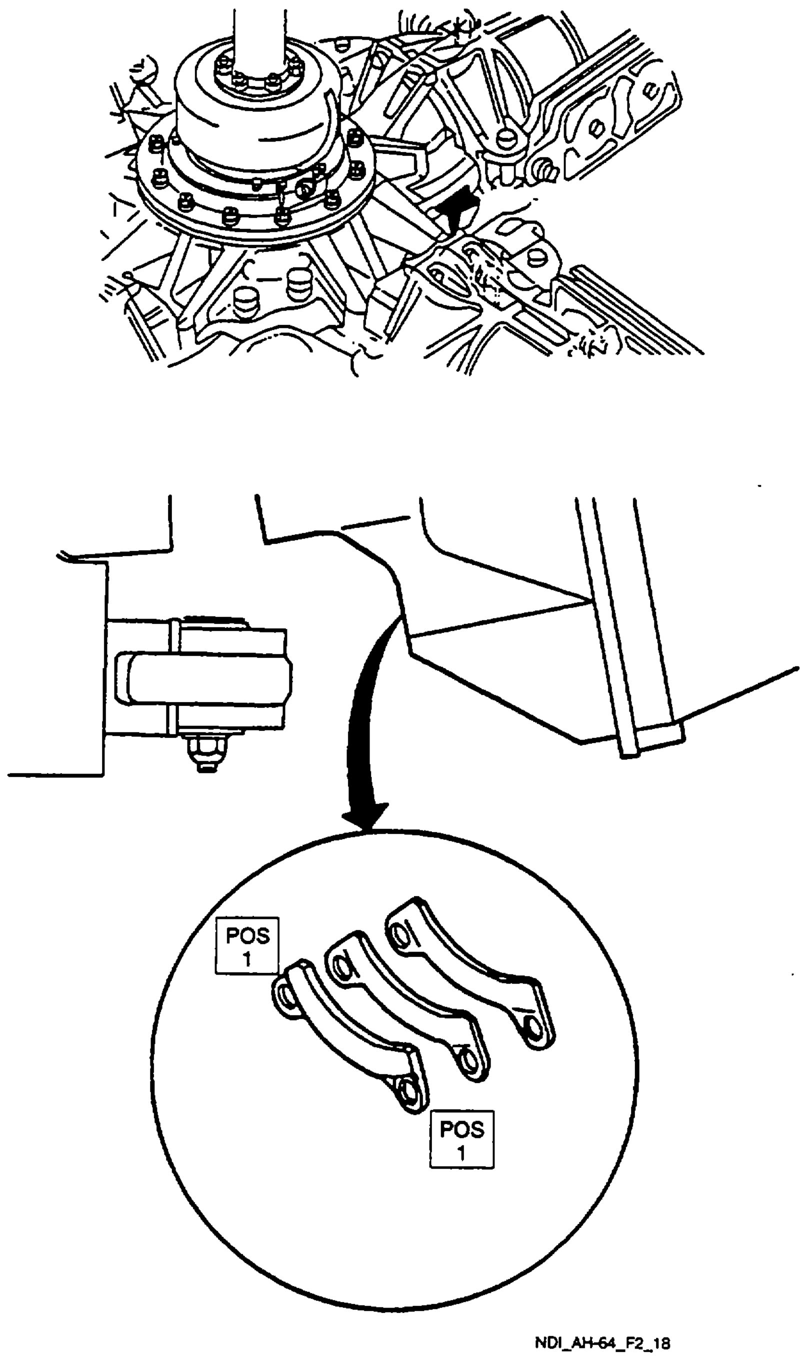


Figure 2-18. Main Rotor Striker Plate and Shims

2.19 MAIN ROTOR HUB BEARING (ET).

2.19.1 Description (Figure 2-1. Index No. 2-19). The main rotor hub bearing provides a hinge point for the lead lag link.

2.19.2 Defects. This inspection is used to verify crack indications found visually on the main rotor hub bearing. 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 main rotor hub bearing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.19.3.3 Access. Not applicable.

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-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%		
VPos	- 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 the 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.

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 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. None required.

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

2.20 MAIN ROTOR LOWER SHOE (ET).

2.20.1 Description (Figure 2-1. Index No. 20). The main rotor lower shoe is attached at the base of the main rotor hub and provides a mounting point for the droop stop follower.

2.20.2 Defects. This inspection is used to verify crack indications found visually on the main rotor lower shoe. No cracks are allowed.

2.20.3 Primary Method. Eddy Current.

2.20.3.1 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° 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

2.20.3.2 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 main rotor lower shoe shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

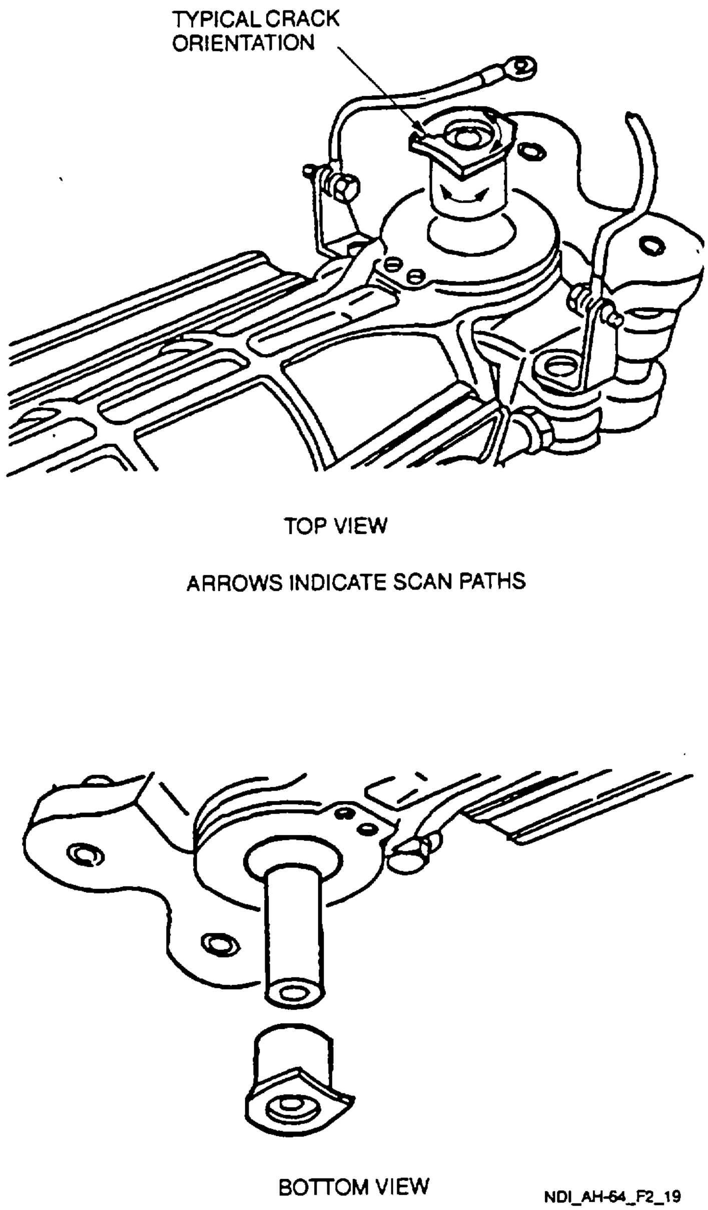


Figure 2-19. Main Rotor Hub Bearing

2.20.3.3 Access. Not applicable.

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

2.20.3.5 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 the standard instrument display shown in Figure 1-7.)

2.20.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-20.

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.

NOTE

Either probe identified in paragraph 2.20.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 2.20.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

2.20.4 Backup Method. None required.

2.20.5 System Securing. The main rotor lower shoe, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

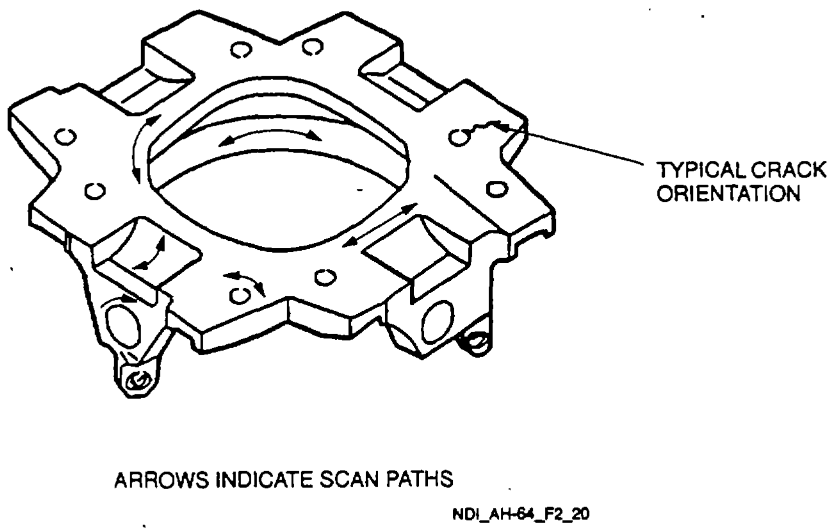


Figure 2-20. Main Rotor Lower Shoe

2.21 MAIN ROTOR HEAD HUB LOAD PLATE (MT).

2.21.1 Description (Figure 2-1. Index No. 21). The main rotor head hub load plate provides a mounting surface for the main rotor hub.

2.21.2 Defects. This inspection is used to verify crack indications found visually on the main rotor head hub load plate. No cracks are allowed.

2.21.3 Primary Method. Magnetic Particle.

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

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

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

2.21.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.21.3.6 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 2-21.

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.

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

2.21.3.8 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.

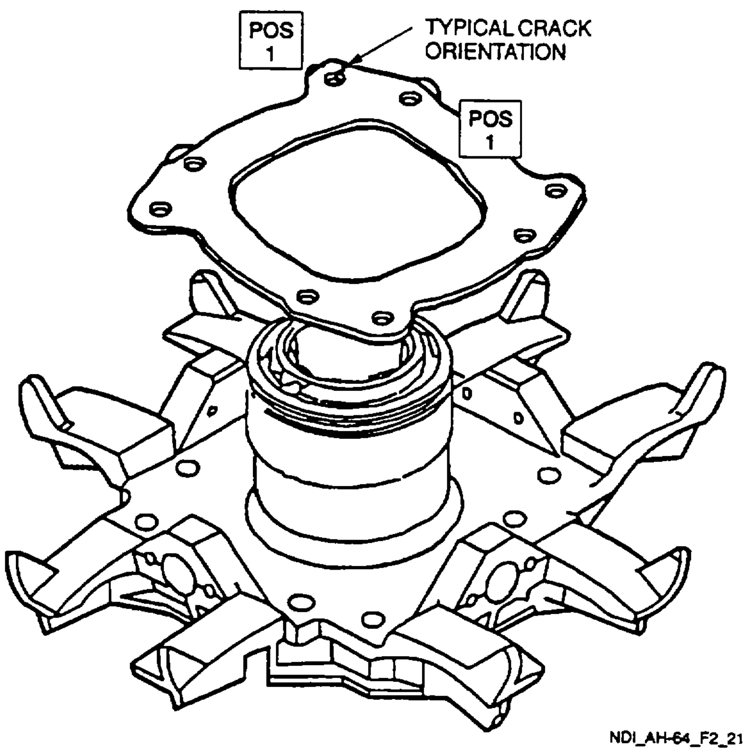


Figure 2-21. Main Rotor Head Hub Load Plate

2.21.4 Backup Method. None required.

2.21.5 System Securing. Clean the main rotor head hub load plate 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 head hub load plate requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.22 MAIN ROTOR HUB BRACKETS (MT).

2.22.1 Description (Figure 2-1. Index No. 22). The main rotor hub brackets are attached at the inboard section of the hub which provides support for the feathering bearing studs.

2.22.2 Defects. This inspection is used to verify crack indications found visually on the main rotor hub brackets. No cracks are allowed.

2.22.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black.Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

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

2.22.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

2.22.3.6 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 2-22.

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.

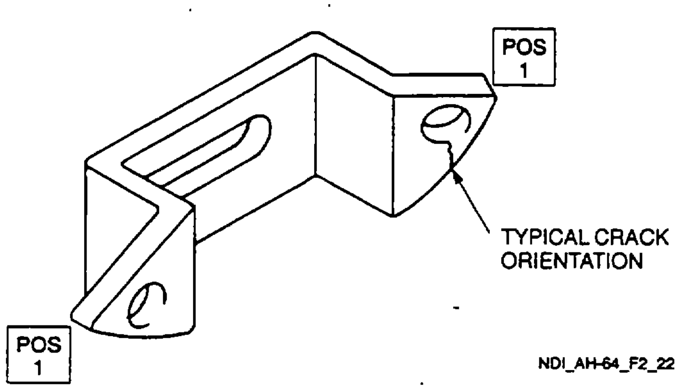


Figure 2-22. Main Rotor Hub Brackets

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

2.22.3.8 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.

2.22.4 Backup Method. None required.

2.22.5 System Securing. Clean the main rotor hub brackets 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 hub brackets require installation in accordance with the applicable technical manuals listed in Table 1-1.

2.23 MAIN ROTOR HUB LOWER PLATE (MT).

2.23.1 Description (Figure 2-1. Index No. 23). The main rotor hub lower plate provides the attachment point for the main rotor strap packs.

2.23.2 Defects. This inspection is used to verify crack indications found visually on the main rotor hub lower plate. 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, refer to Table 1-8

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.

2.23.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main rotor hub lower plate shall be 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 part 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. The position required for this inspection is illustrated in Figure 2-23.

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.

2.23.3.7 Marking and Recording of Inspection Results. Mark and record the 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.

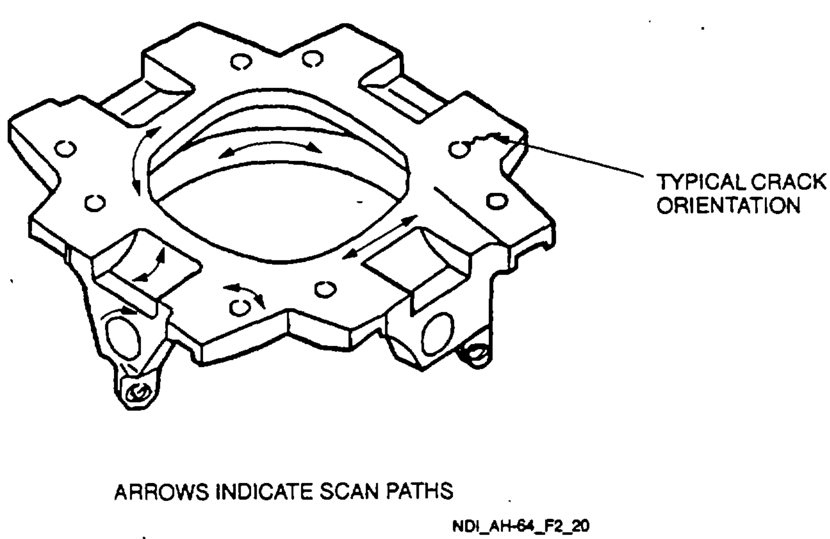


Figure 2-23. Main Rotor Hub Lower Plate

2.23.4 Backup Method. None required.

2.23.5 System Securing. Clean the main rotor hub lower plate 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 hub lower plate requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.24 TAIL ROTOR FORK ASSEMBLY (HEAD AND TEETER STOP) (ET).

2.24.1 Description (Figure 2-1. Index No. 24). The tail rotor fork (head and teeter stop) assembly is a two-armed, teetering assembly that provides attachment points for the four tail rotor blade assemblies.

2.24.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor fork assembly (head and teeter stop). 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 titanium (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 tail rotor fork assembly (head and teeter stop) 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 helicopter 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".

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 30°		
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 riotch in test block. (See the standard instrument display shown in Figure 1-7.)

2.24.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 2-24.

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 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 tail rotor fork assembly (head and teeter stop), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

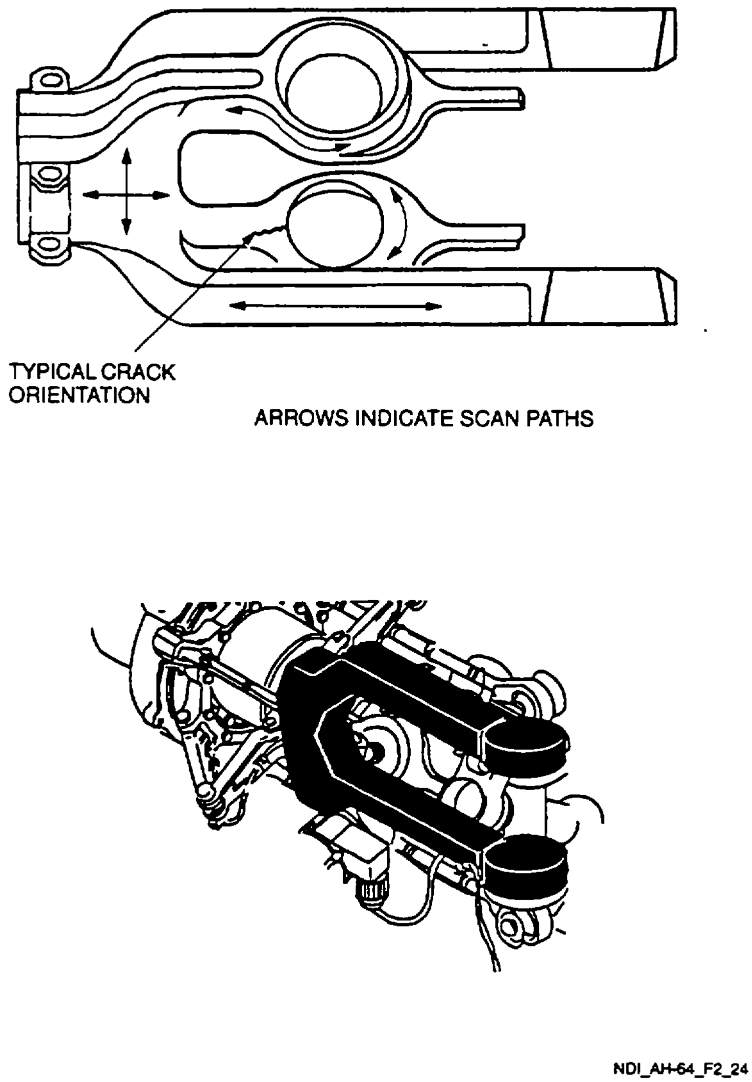


Figure 2-24. Tail Rotor Fork Assembly (Head and Teeter Stop)

2.25 TAIL ROTOR BLADE (PT).

2.25.1 Description (Figure 2-1. Index No. 25). The tail rotor blade assemblies are rotating airfoils. The blade is constructed with a stainless steel leading edge. Eleven aluminum honeycomb stiffeners are bonded into the spar, and the blade skin is aluminum with bonded doublers near the root fitting.

2.25.2 Defects. Defects can occur anywhere on the surface of the tail rotor blade. No cracks are allowed.

2.25.3 Primary Method. Fluorescent Penetrant.

2.25.3.1 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.

2.25.3.2 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 tail rotor blade shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

2.25.3.3 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 helicopter in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

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

2.25.3.5 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 2-25.

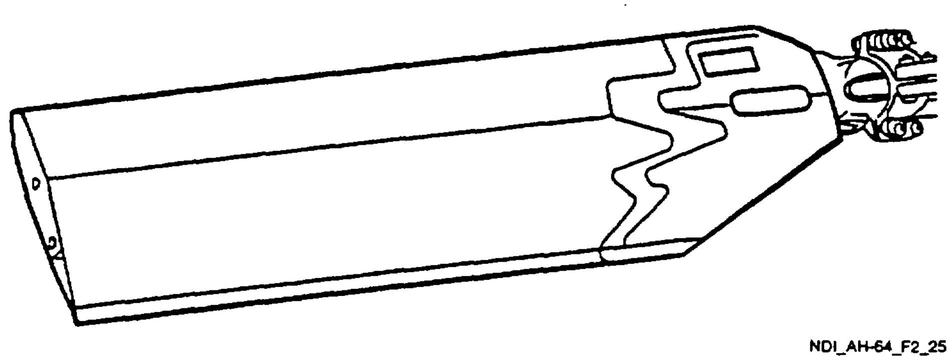


Figure 2-25. Tail Rotor Blade

2.25.3.6 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. Clean the tail rotor blade to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The tail rotor blade, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

2.26 TAIL ROTOR BLADE (VOIDS) (BT).

2.26.1 Description (Figure 2-1. Index No. 26). The tail rotor blade assemblies are rotating airfoils. The blade is constructed with a stainless steel leading edge. Eleven aluminum honeycomb stiffeners are bonded into the spar, and the blade skin is aluminum with bonded doublers near the root fitting.

2.26.2 Defects. Void damage may occur anywhere on both sides of the blade.

NOTE

A void is defined as an unbonded area that is supposed to be bonded. Many subdefinitions 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").

2.26.3 Primary Method. Bond Testing.

2.26.3.1 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. Test Block, Composite Defect Standard #1

g. Test Block, Composite Defect Standard #3

h. Teflon Tape, refer to Table 1-8

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

2.26.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. 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, remove the tail rotor blades 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 helicopter in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

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

2.26.3.5 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%
VPos	- 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.

2.26.3.6 Inspection Procedure. Refer to Bond Test Method, paragraph 1.4.6 and inspection areas are shown in Figure 2-26.

a. Skin-to-Honeycomb Voids. Place probe on 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 set-up 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.

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 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.

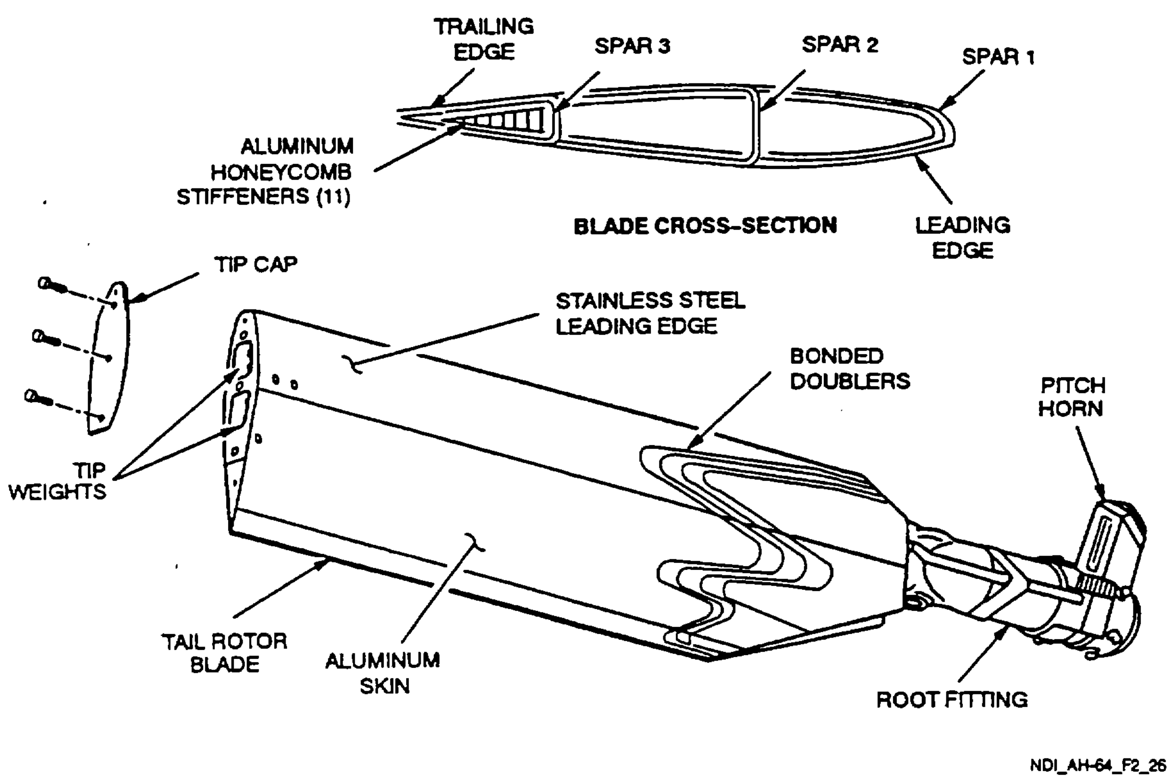


Figure 2-26. Tail Rotor Blade (Voids)

2.26.3.7 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.

2.26.4 Backup Method. None required.

2.26.5 System Securing. The tail rotor blades, if removed, require installation in accordance with the applicable technical manual listed in Table 1-1.

2.27 TAIL ROTOR BLADES (FLUID) (RT).

2.27.1 Description (Figure 2-1. Index No. 27). The tail rotor blade assemblies are rotating airfoils. The blade is constructed with a stainless steel leading edge. Eleven aluminum honeycomb stiffeners are bonded into the spar, and the blade skin is aluminum with bonded doublers near the root fitting.

2.27.2 Defects. Fluid in the honeycomb core.

2.27.3 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.

2.27.3.1 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 14 inch x 17 inch

e. Marking Material, refer to Table 1-8

2.27.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. 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 blades shall be removed in accordance with 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 helicopter in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

2.27.3.4 Preparation of Part. The rotor blade 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. Refer to Radiographic (X-ray) method, paragraph 1.4.10.

b. Typical equipment settings, inspection, and exposure data are given in Figure 2-27.

2.27.3.6 Inspection Procedure. Inspect designated areas, refer to Figure 2-27 for typical fluid entrapment and source/film placement.

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.

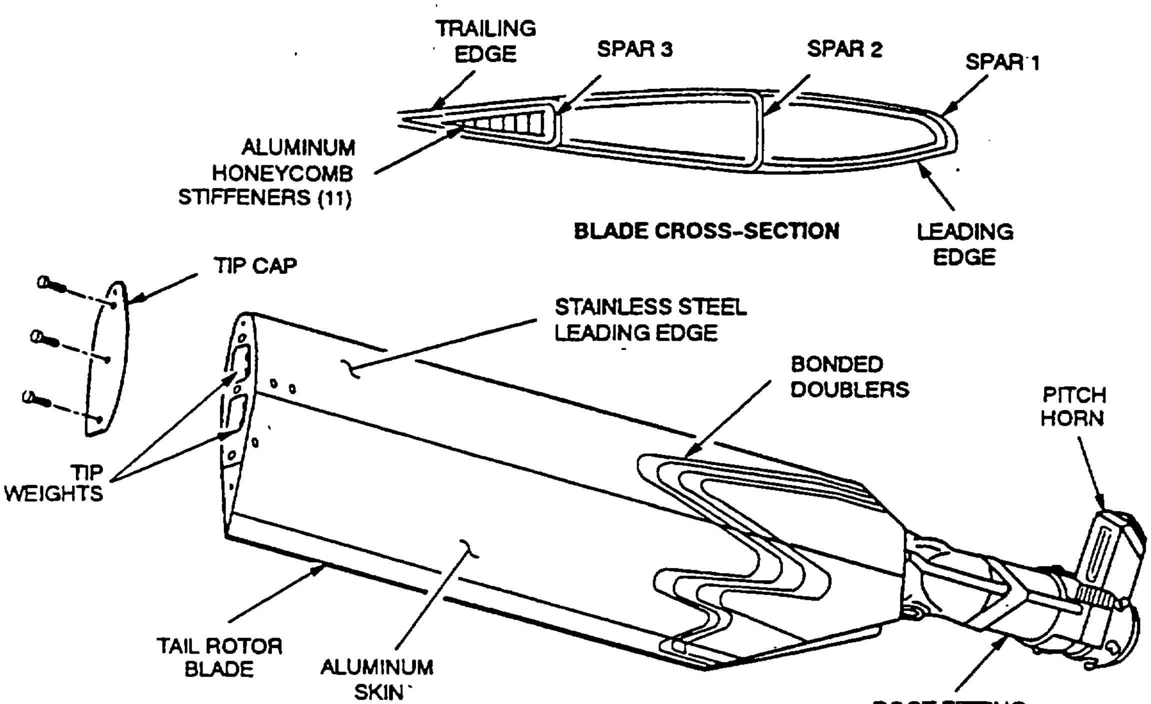
e. Remove exposed film.

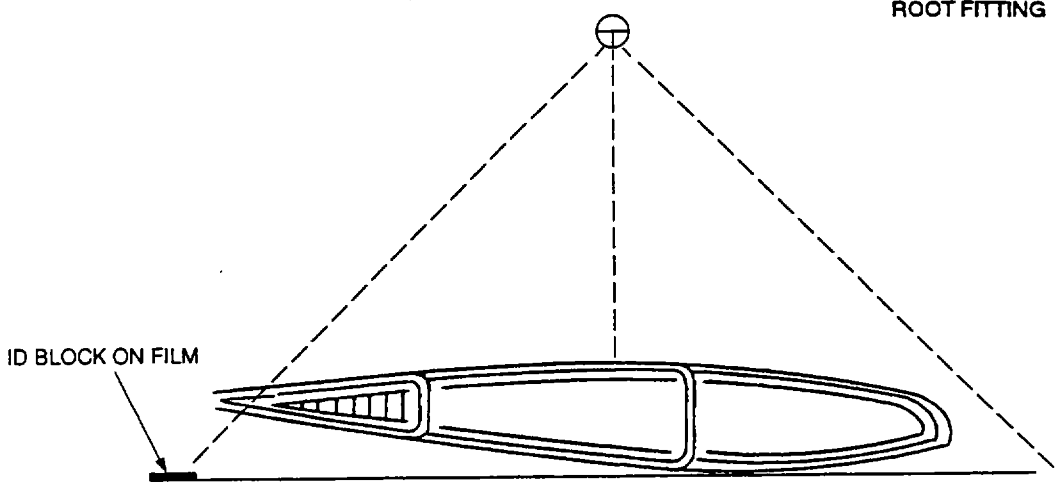
f. Repeat inspection procedure (steps a. through e. above) for each exposure.

g. Process and interpret film for defects as noted in paragraph 2.27.2 and as shown in Figure 2-27.

2.27.4 Backup Method. None required.

2.27.5 System Securing. The tail rotor blade shall be cleaned as necessary. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.6.1. The tail rotor blade, if off the helicopter, requires reinstallation in accordance with the applicable technical manual listed in Table 1-1.





RADIOGRAPHIC INSPECTION DATA						
EXPOSURE NUMBER	KV	MA	FFD (INCHES)	TIME (SEC)	FILM	
					TYPE	SIZE
E1	50	3.5	60	46	M-2	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.

NDI_AH-64_F2_27_1

Figure 2-27. Tail Rotor Blades (Fluid) (Sheet 1 of 2)

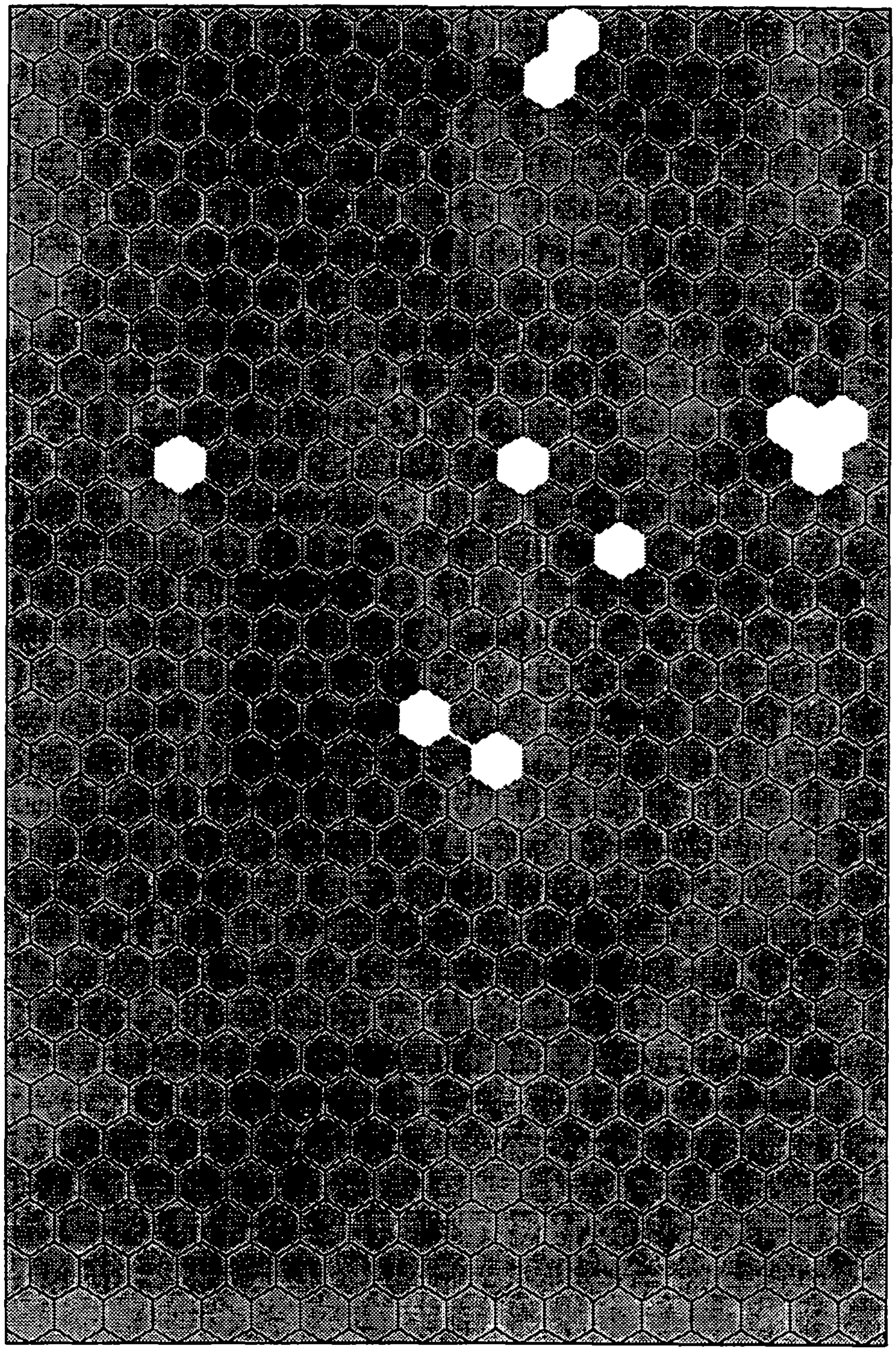


Figure 2-27. Tail Rotor Blades (Fluid) (Sheet 2 of 2)

2.28 TAIL ROTOR HUB (ET).

2.28.1 Description (Figure 2-1. Index No. 28). The tail rotor hub has a stainless steel strap pack that passes through the hub to provide for attachment of the tail rotor blades.

2.28.2 Defects. Defects can occur anywhere on the surface of the tail rotor hub. 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 titanium (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 tail rotor hub 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 helicopter 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-19".

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 30°		
Probe drive	- mid		

LPF	-100
HPF	-0
H Pos	- 80%
VPos	-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 the 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 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 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. None required.

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

2.29 TAIL ROTOR CLAMPS AND LOCKING PLATES (ET).

2.29.1 Description (Figure 2-1. Index No. 29). The tail rotor clamps and locking plates provide for attachment of the de-icing harness.

2.29.2 Defects. Defects can occur anywhere on the surface of the tail rotor clamps and locking plates. No cracks are allowed.

2.29.3 Primary Method. Eddy Current.

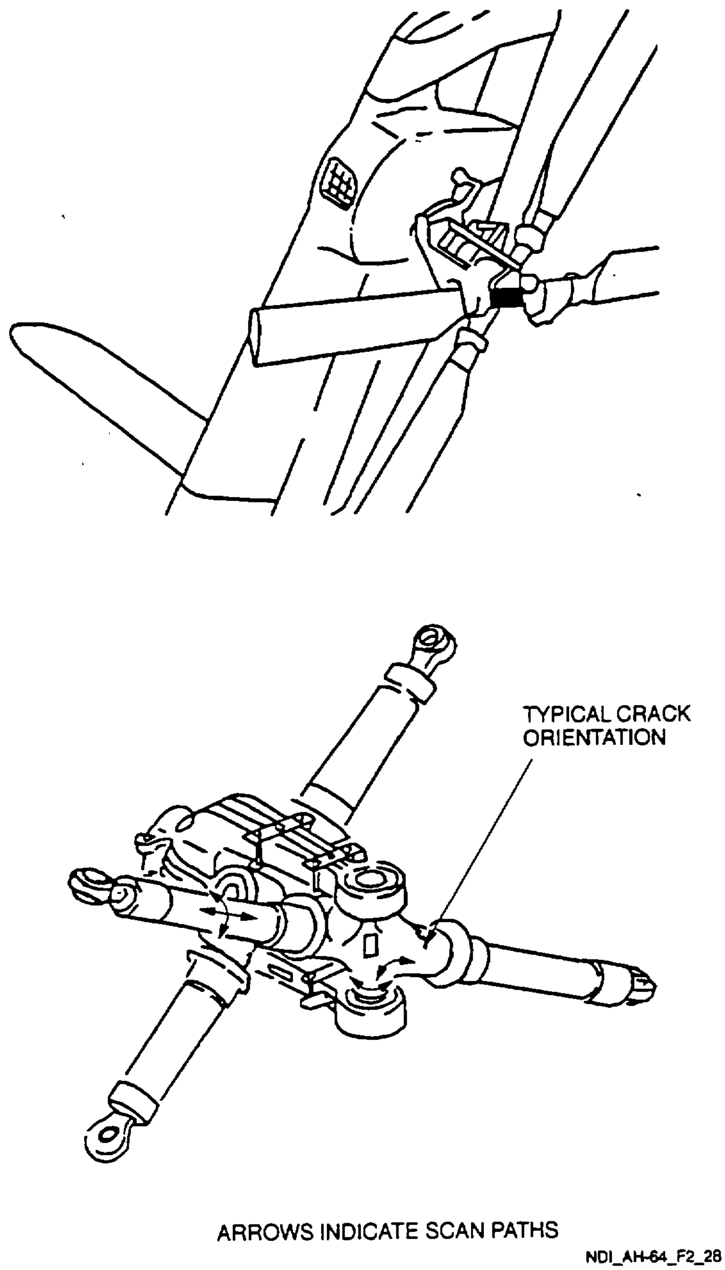


Figure 2-28. Tail Rotor Hub

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 tail rotor clamps and locking plates 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 helicopter 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".

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 the 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 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 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.

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. None required.

2.29.5 System Securing. The tail rotor clamps and locking plates, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

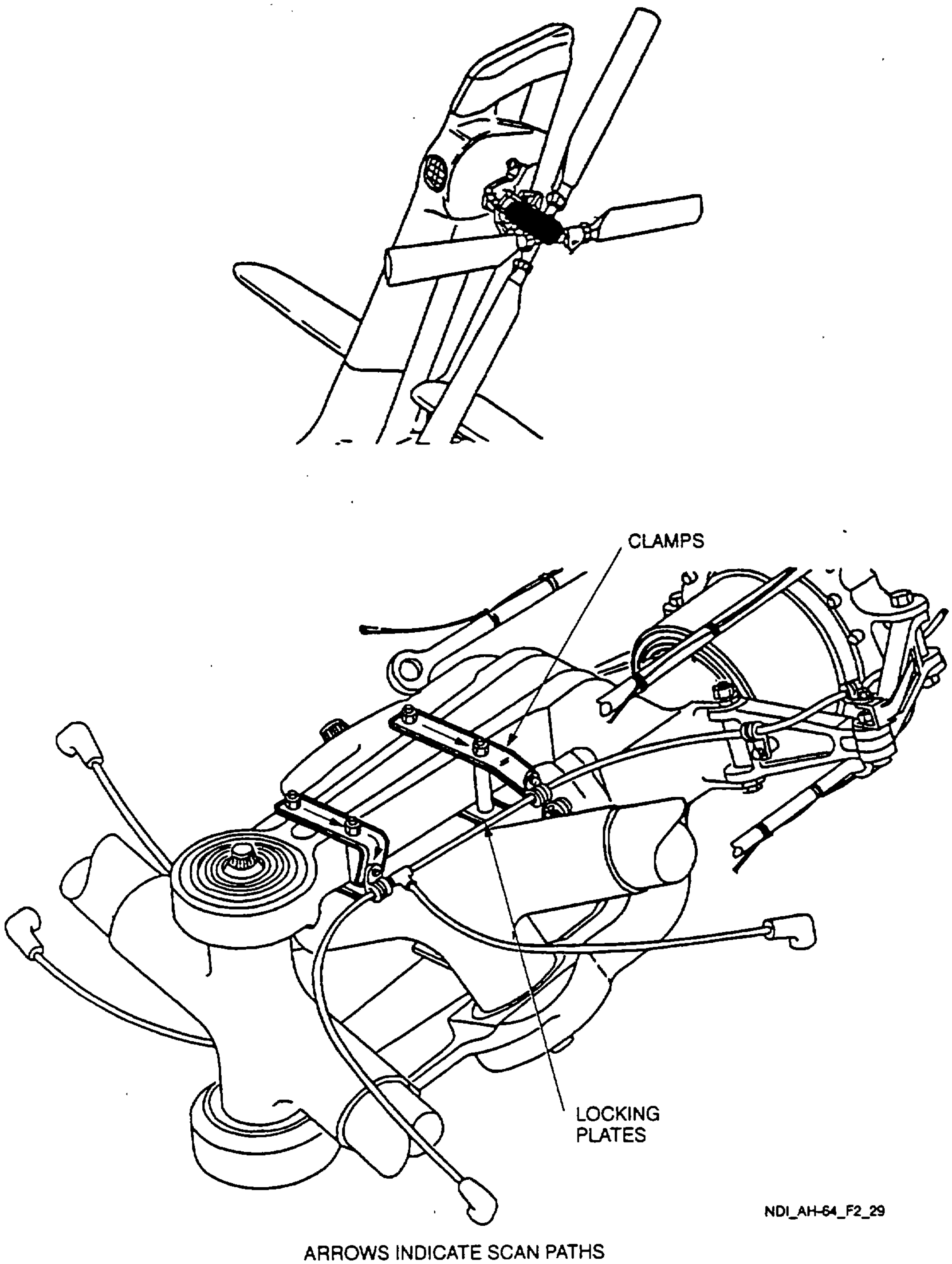


Figure 2-29. Tail Rotor Clamps and Locking Plates

2.30 Mast Mounted Assembly (BT)

2.30.1 Description. The base-plate is mounted to the top of the mast.

2.30.2 Defect. Voids may occur on the bottom surface extending from the mast to outboard 13 inches.

NOTE

A void is defined as a 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” .

2.30.3 Primary Method. Bond Testing.

2.30.3.1 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 skin and Nomex honeycomb, P/N 76091902-001/002

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 in accordance with applicable technical manuals listed in Table 1-1. Inspection areas are accessible with the radome installed on the helicopter.

2.30.3.3 Access. Both radio frequency interferometers (RFI) antenna assembly and receiver assembly and the attaching cannon plugs must be removed to provide complete access.

WARNING

Maintenance Platforms/workstands

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

2.30.3.4 Preparation of Part. The bottom side of the base-plate shall be thoroughly cleaned. Refer to Preparation of Part Area for NDI, paragraph 1.4.4 Do not remove paint.

2-30.3.5 NDI Equipment Settings. Refer to Bond Test Equipment, paragraph 1.4.6.1

a. Attach cable and probe to the Bondmaster. Install the probe in the probe holder.

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

H Pos	**77%**
V Pos	**100%**
PHASE RED	**270 degrees**
DRIVE	**HIGH**

c. Press SPCL a second time and make the following adjustments:

V-GAIN	**26.0db**
T-Erase	**1**

NOTE

V-GAIN may be adjusted to plus or minus 3db to fine tune the instrument as the probe especially as it moved outboard during the inspection.

d. Press SET and select DISPLAY AMPL1

e. Adjust the frequency to 5.01 kHz.

f. Press the RUN key and reset the V-GAIN to 26.0dB.

g. Place the probe on a good area of the test block and press NULL. The dot should be at the top of the screen, near the center.

h. Slide the probe to the inboard ½ inch void and note the dot position. The dot should fall to the bottom center of the screen well within the alarm box causing the alarm to activate with a steady tone.

i. Press the ALARM key and select HORN VOL. The alarm sound volume may be adjusted to operator preference.

j. Press the RUN key and place the probe on the good area near the inboard void.

k. Press the NULL key. The dot should move to the top center of the screen. As the probe is moved outboard of the mast, note the average position of the dot. It may be necessary to re-null to allow for the progressively thinner skin towards the outboard areas.

l. Although the Bondmaster is programmed to automatically set test parameters, the specific requirements of this inspection require that the preceeding be used as a starting point.

2.30.3.6 Inspection Procedure. Refer to Bond Test method, paragraph 1.4.6.

a. Using the aircraft marking pencil, trace out a pattern of concentric circles beginning ½ in ch from the mast and spaced ½ inch apart so that the last circle is 12 ½ to 13 inches from the mast. Make the marks only dark enough to be visible at close distance. If an attachment or other feature intersects the circle, merely stop and restart on the other side of the obstruction.

b. Place the probe on the underside of the base-plate as close to the mast as possible.

c. Scan around the mast. Actual inspection can be carried out by doing one half the base-plate at a time. Move the center of the probe out to each progressively larger concentric circle. Use the circle as a guide to insure complete coverage by keeping the probe centered on the circle.

d. Mark all areas that cause the alarm to sound with a steady tone.

SECTION III

DRIVE SYSTEM

3. **GENERAL.**

3.1 **CONTENTS.** The drive system inspection items covered in this section are those items of the AH-64A helicopter transmission, gear boxes, drive shafts and components listed in the Drive System Inspection Index (Table 3-1). Corresponding inspection figures and the 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. Drive System Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*2	Drive Shafts	ET	3.2	3-2
*3	Drivetrain Couplings	ET	3.3	3-3
4	Drivetrain Flanges	MT	3.4	3-4
5	Damper and Anti-Flail Supports	ET	3.5	3-5
6	Forward Hanger Bearing Flange	MT	3.6	3-6
7	Forward Hanger Bearing Support	ET	3.7	3-7
8	Aft Hanger Bearing Flange	MT	3.8	3-8
9	Aft Hanger Bearing Support	ET	3.9	3-9
10	Intermediate Gearbox Centrifugal Fan	ET	3.10	3-10
*11	Engine Nose Gearbox	ET	3.11	3-11
12	Engine Nose Gearbox Input Quill Shaft	MT	3.12	3-12
*13	Main Transmission	ET	3.13	3-13
14	Main Transmission Compressor Drive Adapter	ET	3.14	3-14
15	Main Transmission APU Drive Flange	MT	3.15	3-15
16	Main Transmission Tail Rotor Drive Flange	MT	3.16	3-16
17	Main Rotor Gearshaft Drive Gear Teeth	MT	3.17	3-17
*18	Main Rotor Mast Support Base	ET	3.18	3-18
*19	Intermediate Gearbox	ET	3.19	3-19
20	Intermediate Gearbox Retainers	ET	3.20	3-20
21	Intermediate Gearbox Flange and Shouldered Shaft	MT	3.21	3-21
*22	Tail Rotor Gearbox	ET	3.22	3-22

Table 3-1. Drive System Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
23	Tail Rotor Gearbox Shouldered Shaft	MT	3.23	3-23
24	Tail Rotor Gearbox Retainers	ET	3.24	3-24
*25	Tail Rotor Gearbox Forward and Aft Strut	MT	3.25	3-25
26	Tail Rotor Gearbox Forward and Aft Strut Fittings	MT	3.26	3-26
*27	Main Rotor Head (Hub)	ET	3.27	
*28	Main Rotor Support Mast	MT	3.28	

NOTE: *Indicates Flight Safety Part.

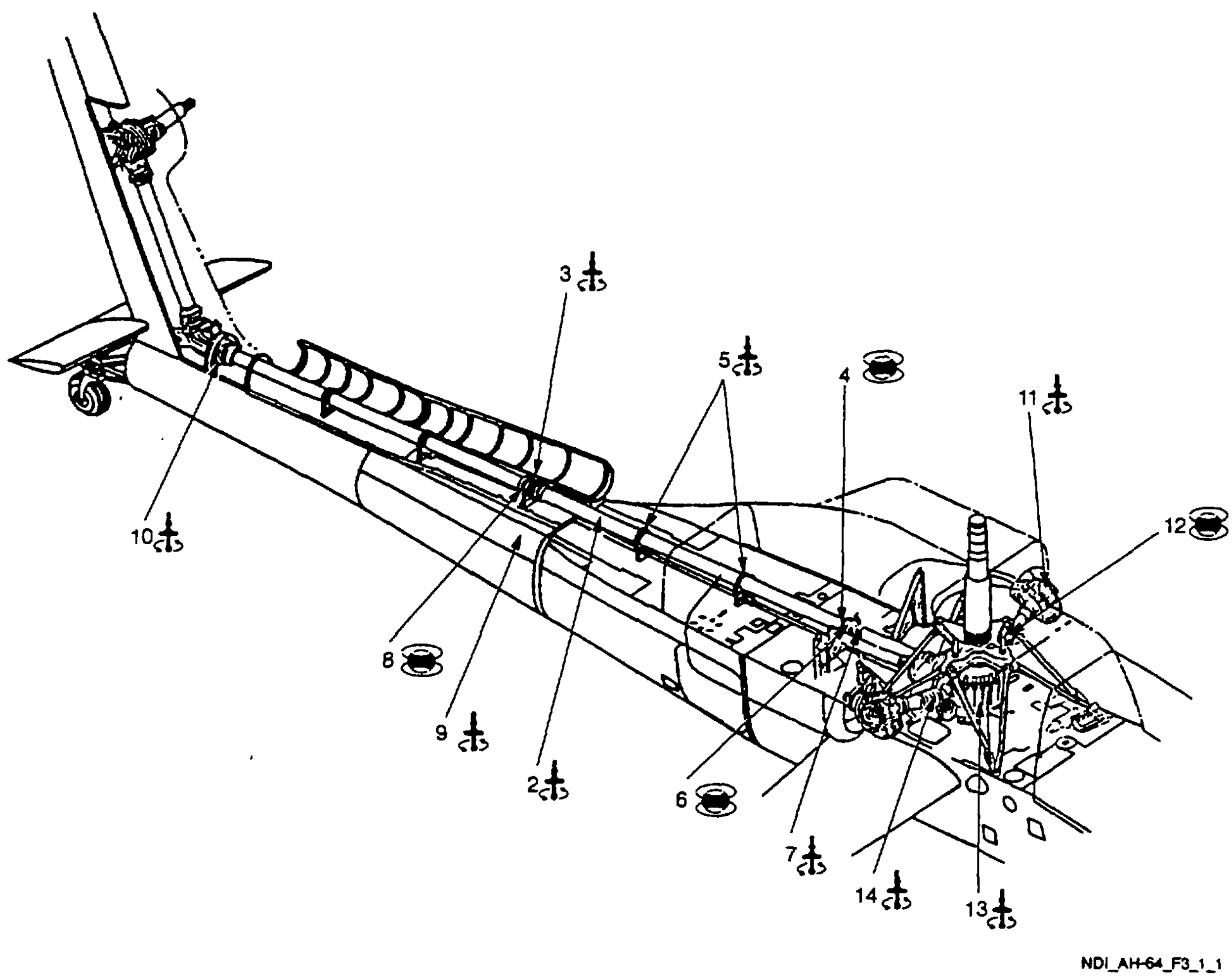


Figure 3-1. Drive System (Sheet 1 of 2)

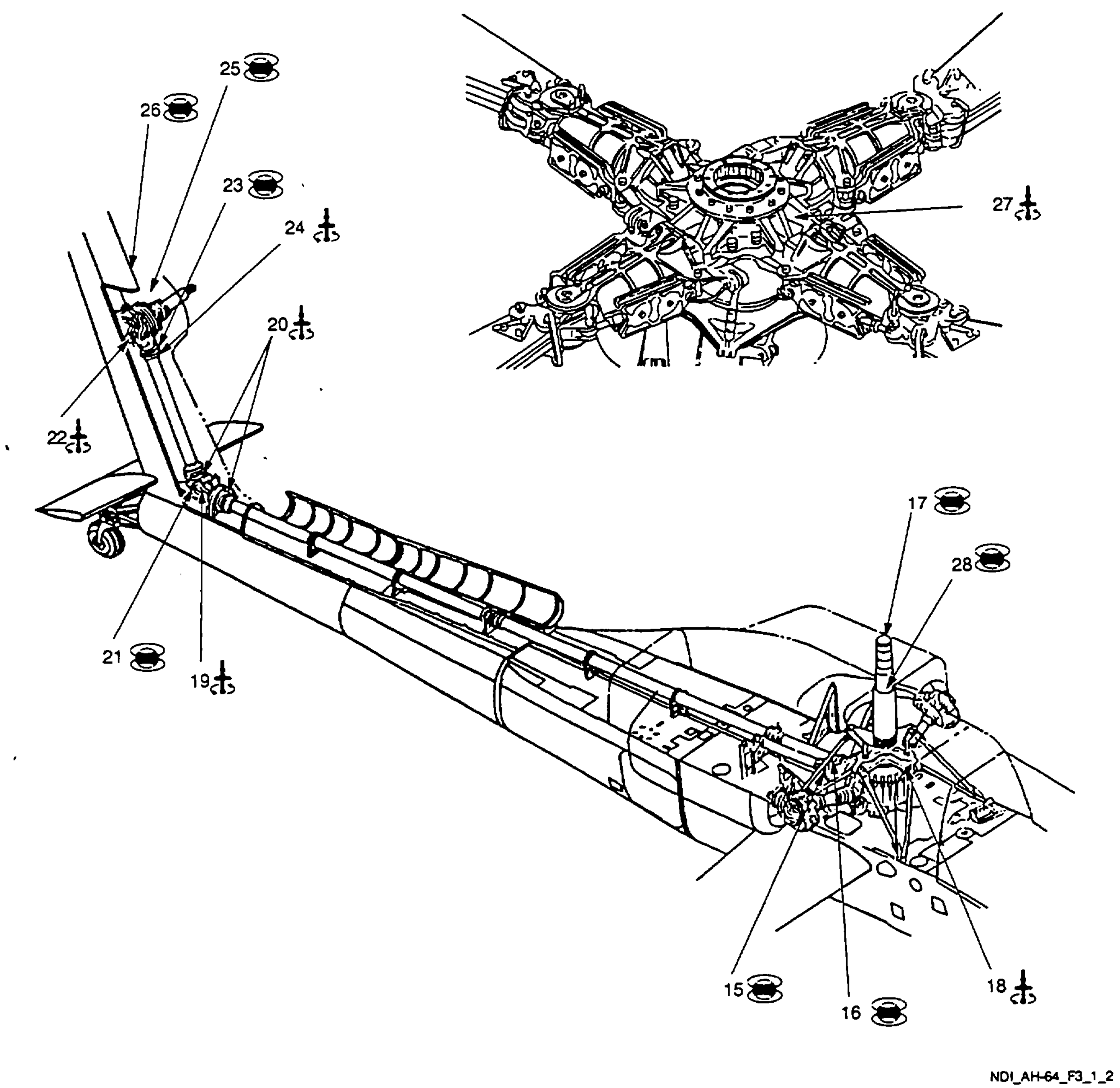


Figure 3-1. Drive System (Sheet 2 of 2)

3.2 DRIVE SHAFTS (ET).

3.2.1 Description (Figure 3-1. Index No. 2). The drive shaft assembly links the helicopter drive system gearboxes to the main transmission. The system consists of input drive shafts 1 and 2; tail rotor drive shafts 3, 4, 5, and 6; and a titanium APU drive shaft 7. See Figure 3-2 for drive shaft locations.

3.2.2 Defects. This inspection is used to verify crack indications found visually on the drive shafts. No cracks are allowed.

3.2.3 Primary Method. Eddy Current.

3.2.3.1 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) (use for 1 through 6)

f. Reference Block, three-notched titanium (0.008, 0.020, and 0.040 EDM notches) (use for drive shaft 7)

g. Teflon Tape, refer to Table 1-8

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

CAUTION

Exercise extreme caution when handling and inspecting the drive shaft assemblies. The assembly may be rendered unserviceable by even slight dents or scratches.

3.2.3.2 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 drive shaft shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.2.3.3 Access. Accessibility of the drive shafts varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

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

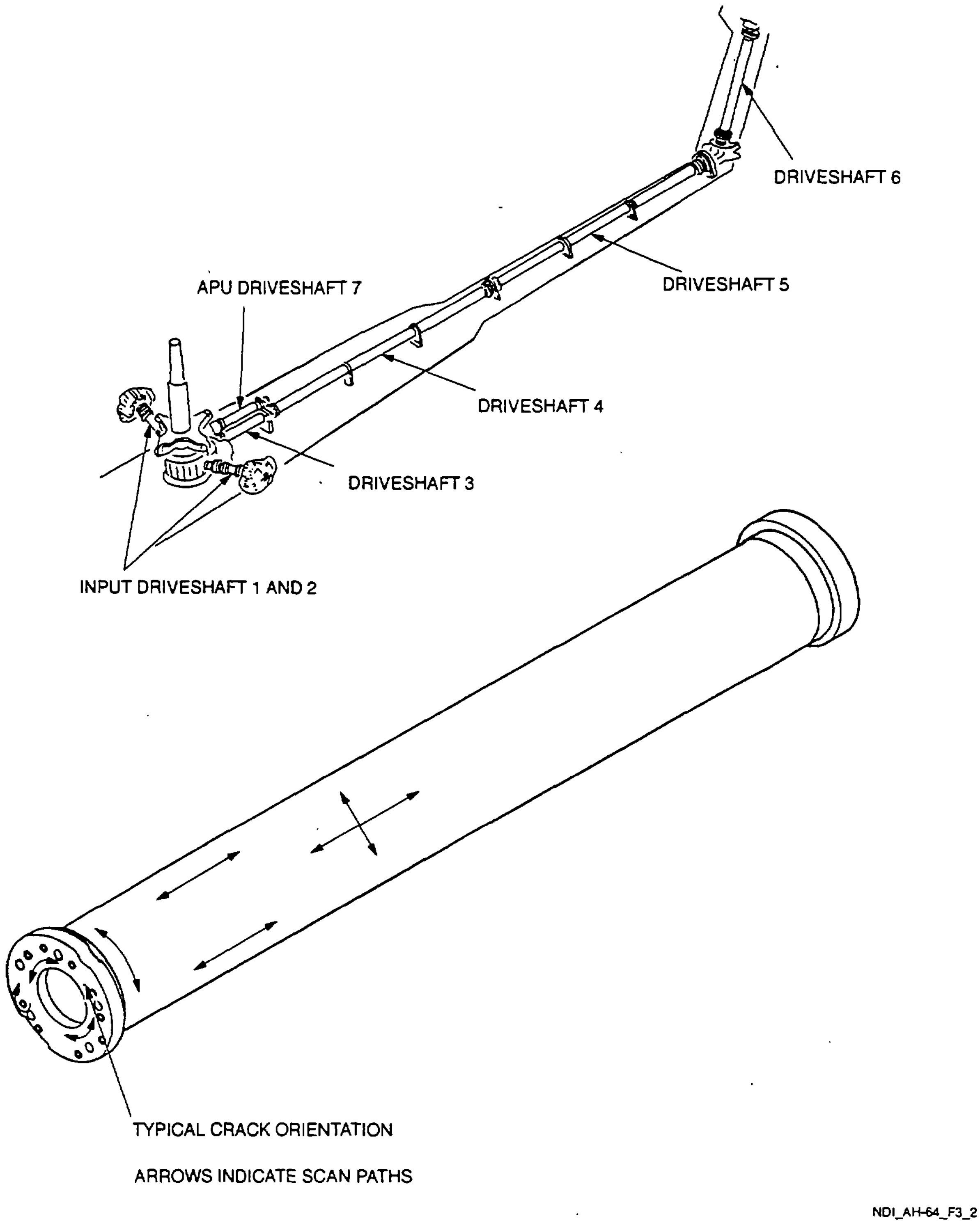


Figure 3-2. Drive Shafts

3.2.3.5 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° aluminum) (30° titanium)		
Probe drive	- mid		
LPF	- 100		
HPF	-O		
H Pos	- 80%		
VPos	-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 the standard instrument display shown in Figure 1-7.)

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

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 3.2.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.2.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

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

3.2.5 System Securing. The drive shafts, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.3 DRIVETRAIN COUPLINGS (ET).

3.3.1 Description (Figure 3-1. Index No. 3). The drivetrain couplings are attached to each end of the drive shaft to provide flexibility of the drive shafts during operation.

3.3.2 Defects. This inspection is used to verify crack indications found visually on the drivetrain couplings. No cracks are allowed.

3.3.3 Primary Method. Eddy Current.

3.3.3.1 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 titanium (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

3.3.3.2 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 drivetrain couplings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.3.3.3 Access. Accessibility of the drivetrain couplings varies considerably. Refer to Figure 1 -4 and Table 1-2 to locate applicable access provisions.

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

3.3.3.5 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	- 30°		
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 the standard instrument display shown in Figure 1-7.)

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

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.

NOTE

Either probe identified in paragraph 3.3.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.3.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

3.3.4 Backup Method. None required.

3.3.5 System Securing. The drivetrain couplings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.4 DRIVETRAIN FLANGES (MT).

3.4.1 Description (Figure 3-1. Index No. 4). The drivetrain flanges are used throughout the drive system to mate the drive shaft assemblies to the main transmission and various gear boxes contained in the drive system.

3.4.2 Defects. This inspection is used to verify crack indications found visually on the drivetrain flanges. 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, refer to Table 1-8

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 drive shaft removed in accordance with the applicable technical manuals listed in Table 1-1.

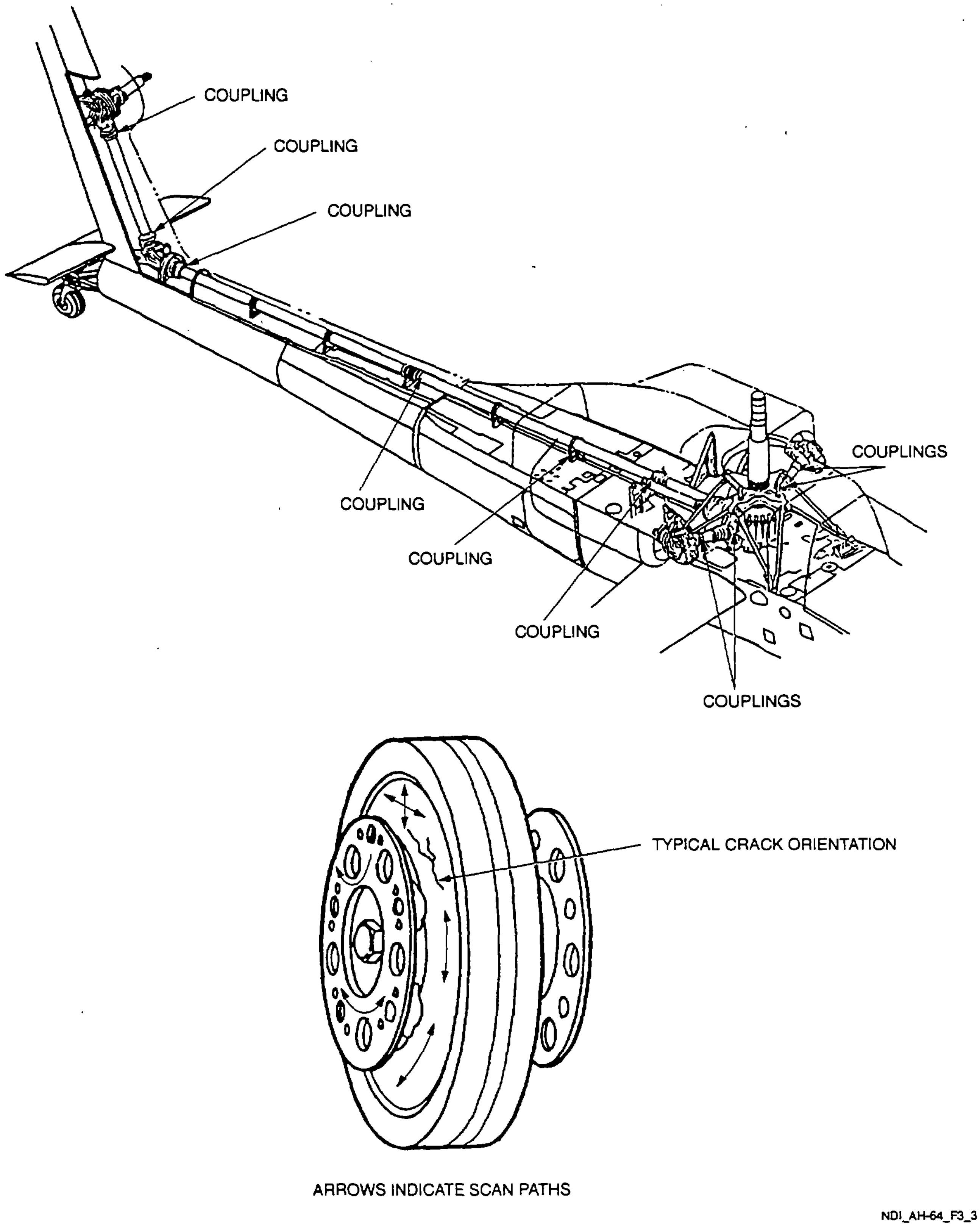


Figure 3-3. Drivetrain Couplings

3.4.3.3 Access. Accessibility of drivetrain flanges varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

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

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. The position required for this inspection is 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.

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.

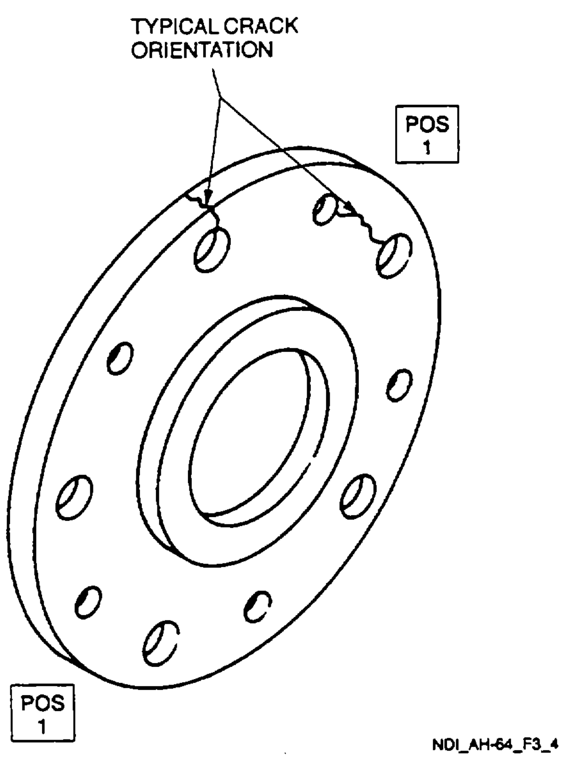


Figure 3-4. Drivetrain Flanges

3.4.4 Backup Method. None required.

3.4.5 System Securing. Clean the drivetrain flange 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 drive shaft requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.5 DAMPER AND ANTI-FLAIL SUPPORTS (ET).

3.5.1 Description (Figure 3-1. Index No. 5). The damper and anti-flail supports are installed on the drive shafts between the main transmission and the intermediate gearbox. The damper assemblies define the natural frequencies of the drive shafts to allow them to operate at critical speeds and the anti-flail assemblies hold the drive shafts in position if partial or full separation of the drive shaft occurs.

3.5.2 Defects. This inspection is used to verify crack indications found visually on the damper and anti-flail supports. No cracks are allowed.

3.5.3 Primary Method. Eddy Current.

3.5.3.1 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

3.5.3.2 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 damper and anti-flail supports shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.5.3.3 Access. Accessibility of the damper and anti-flail supports varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

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

3.5.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

3.5.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-5.

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 3.5.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.5.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

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

3.5.5 System Securing. The damper and anti-flail supports, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

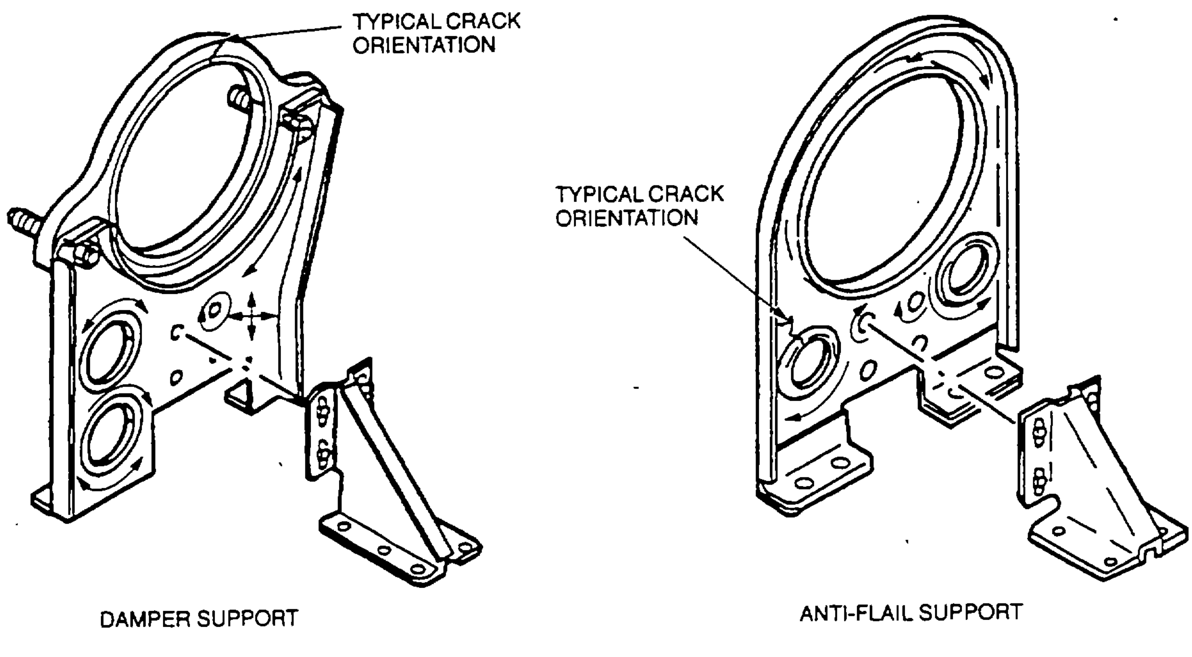


Figure 3-5. Damper and Anti-Flail Supports

3.6 FORWARD HANGER BEARING FLANGE (MT).

3.6.1 Description (Figure 3-1. Index No. 6). The forward hanger bearing flange connects drive shafts 3 and 4. The forward hanger bearing assembly support and align drive shafts 3 and 4.

3.6.2 Defects. This inspection is used to verify crack indications found visually on the forward hanger bearing flange. No cracks are allowed.

3.6.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

e. Consumable Materials, refer to Table 1-8

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

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

3.6.3.3 Access. Access is through the deck area doors, fairing, and walkway area (Figure 1-4, Items T250, T290, and T325).

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

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

3.6.3.6 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 3-6.

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.

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

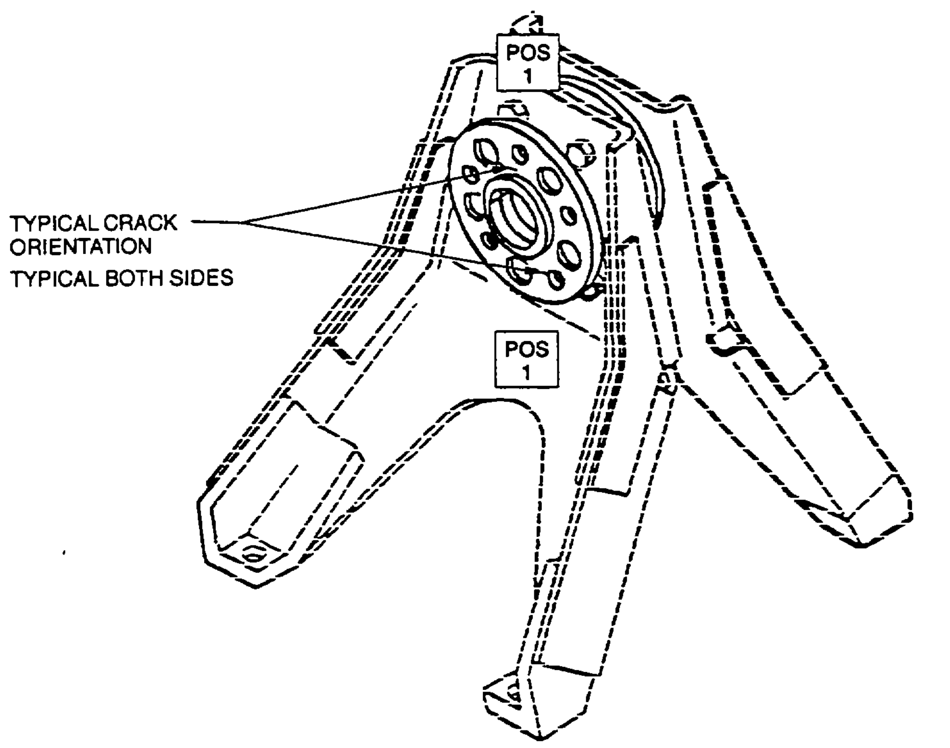


Figure 3-6. Forward Hanger Bearing Flange

3.6.3.8 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.

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

3.6.5 System Securing. Clean the forward hanger bearing flange 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 hanger bearing flange requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.7 FORWARD HANGER BEARING SUPPORT (E).

3.7.1 Description (Figure 3-1. Index No. 7). The forward hanger bearing support is an "A" Frame which supports the sealed bearing.

3.7.2 Defects. This inspection is used to verify crack indications found visually on the forward hanger bearing support. No cracks are allowed.

3.7.3 Primary Method. Eddy Current.

3.7.3.1 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

3.7.3.2 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 forward hanger bearing support shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.7.3.3 Access. Access is through the deck area doors and fairing (see Figure 1-4, Items T250, T290, and T325).

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

3.7.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e"

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 the standard instrument display shown in Figure 1-7.)

3.7.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-7.

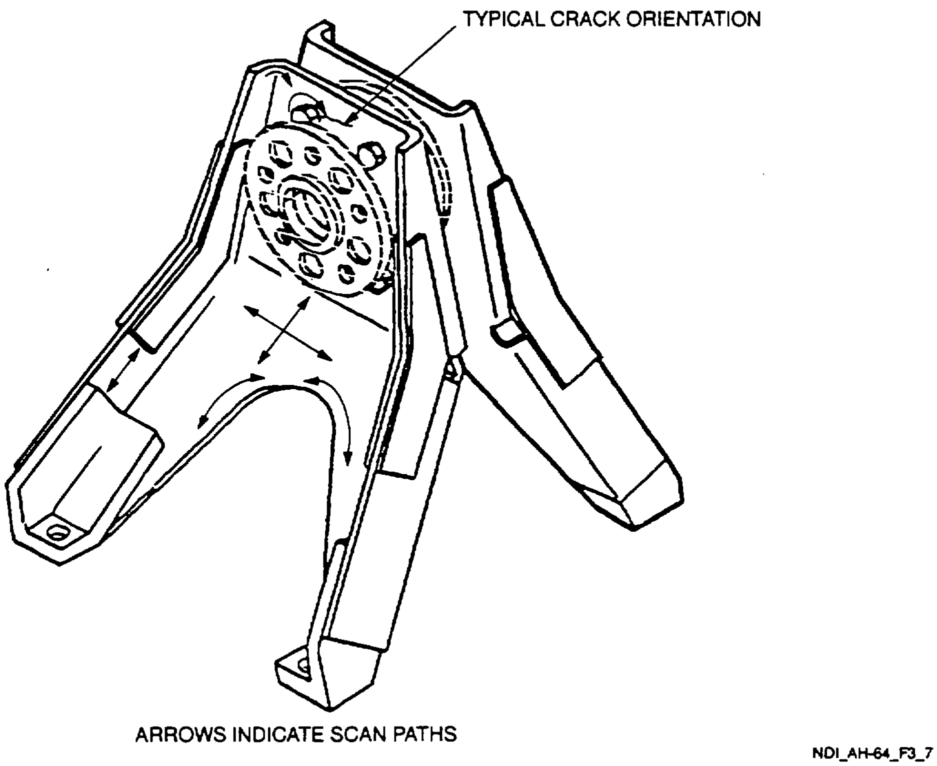


Figure 3-7. Forward Hanger Bearing Support

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 3.7.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.7.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

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

3.7.5 System Securing. The forward hanger bearing support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.8 AFT HANGER BEARING FLANGE (MT).

3.8.1 Description (Figure 3-1. Index No. 8). The aft hanger bearing flange connects drive shaft 4 and 5. The aft hanger bearing assembly supports and aligns drive shafts 4 and 5.

3.8.2 Defects. This inspection is used to verify crack indications found visually on the aft hanger bearing flange. 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, refer to Table 1-8
e. Consumable Materials, refer to Table 1-8
f. Aircraft Marking Pencil, refer to Table 1-8

3.8.3.2 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 applicable positions of this procedure. If required, the drive shaft shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.8.3.3 Access. Access is through the tail rotor drive shaft fairing (Figure 1-4, Item R410).

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.

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

3.8.5 <u>System Securing.</u> Clean the aft hanger bearing flange 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 aft hanger bearing flange, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.9 AFT HANGER BEARING SUPPORT (ET).

3.9.1 <u>Description (Figure 3-1. Index No. 9).</u> The aft hanger bearing support is semi rigid consisting of a single support and a sealed bearing assembly. The support incorporates three spherical bearings in the mount holes which mount the support to the bracket.

3.9.2 <u>Defects</u>. This inspection is used to verify crack indications found visually on the aft hanger bearing support. No cracks are allowed.

3.9.3 <u>Primary Method.</u> Eddy Current.

3.9.3.1 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

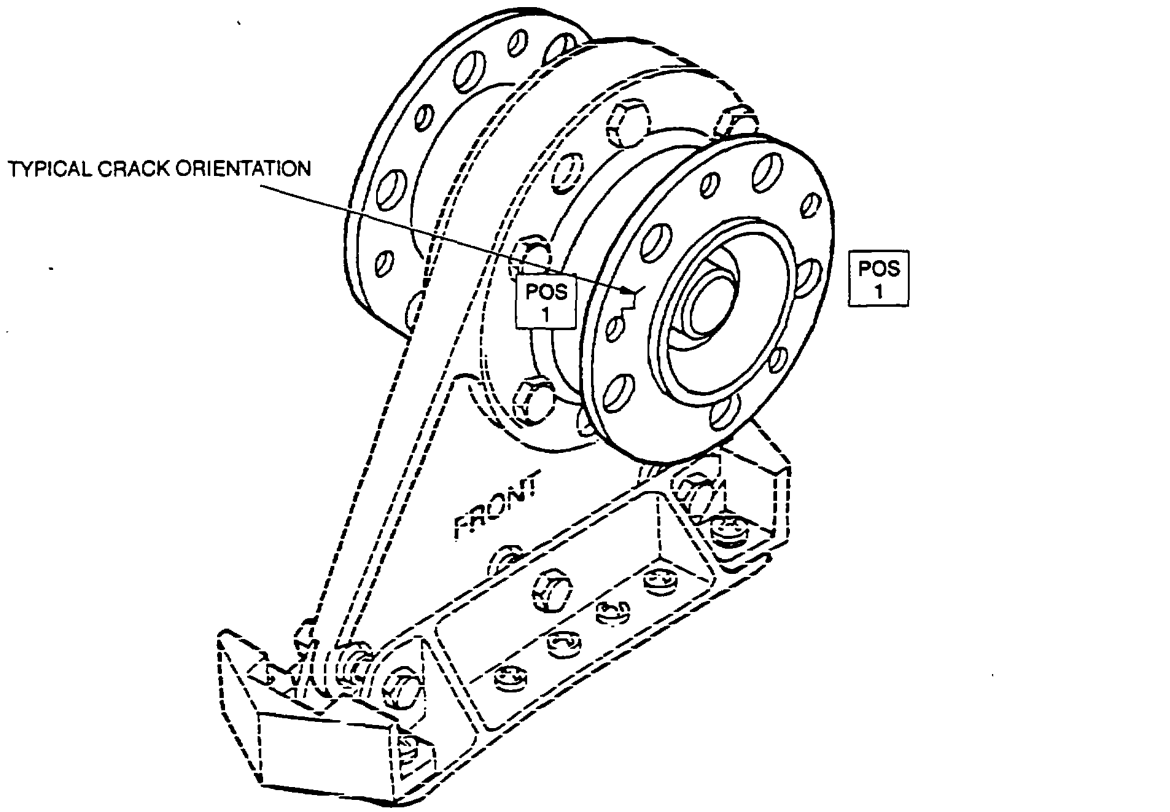


Figure 3-8. Aft Hanger Bearing Flange

3.9.3.2 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 aft hanger bearing support shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.9.3.3 Access. Access is through the tail rotor drive shaft fairing (Figure 1-4, Item R410).

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

3.9.3.5 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 the standard instrument display shown in Figure 1-7.)

3.9.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-9.

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 3.9.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.9.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

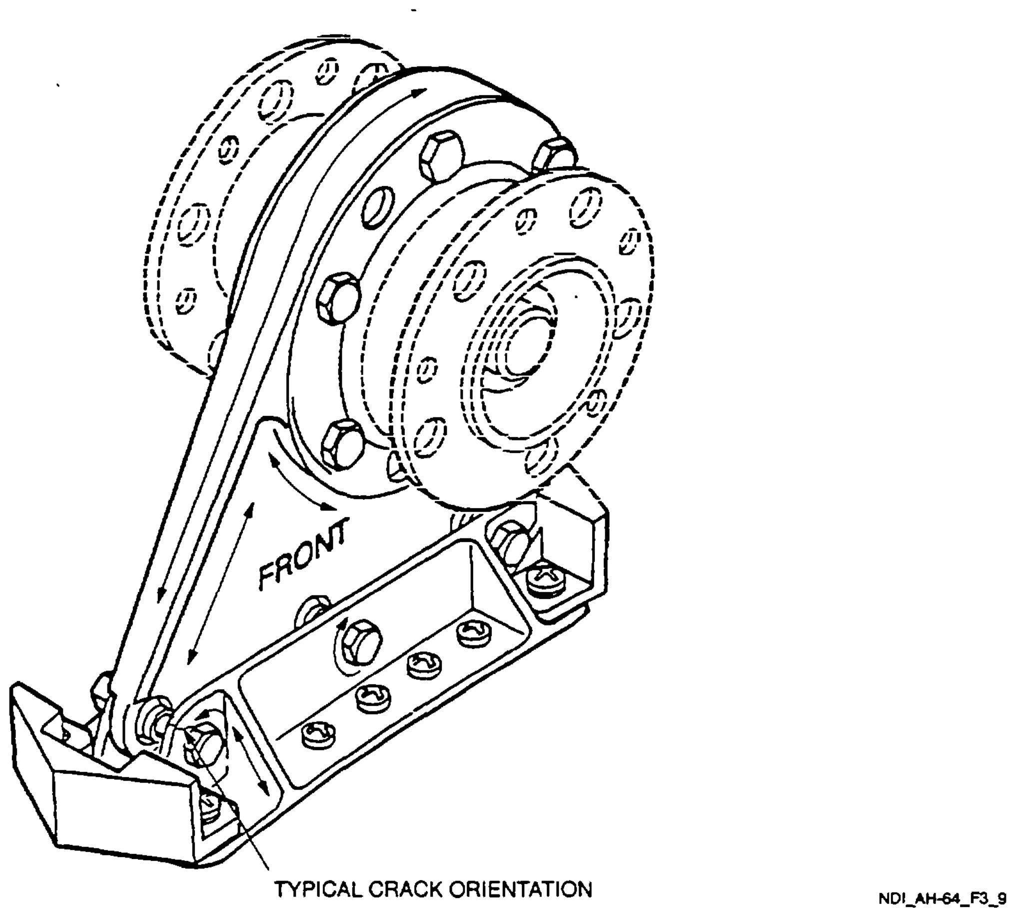


Figure 3-9. Aft Hanger Bearing Support

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

3.9.4 Backup Method. None required.

3.9.5 System Securing. The aft hanger bearing support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.10 INTERMEDIATE GEARBOX CENTRIFUGAL FAN (ET).

3.10.1 Description (Figure 3-1. Index No. 10). The intermediate gearbox centrifugal fan is mounted to the intermediate gearbox input flange. The centrifugal-fan maintains the intermediate gearbox assembly at normal operating temperature.

3.10.2 Defects. This inspection is used to verify crack indications found visually on the intermediate gearbox centrifugal fan. 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. 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 centrifugal fan shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.10.3.3 Access. Not applicable.

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 the 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 probes 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 Backup Method. None required.

3.10.5 System Securing. The intermediate gearbox centrifugal fan, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

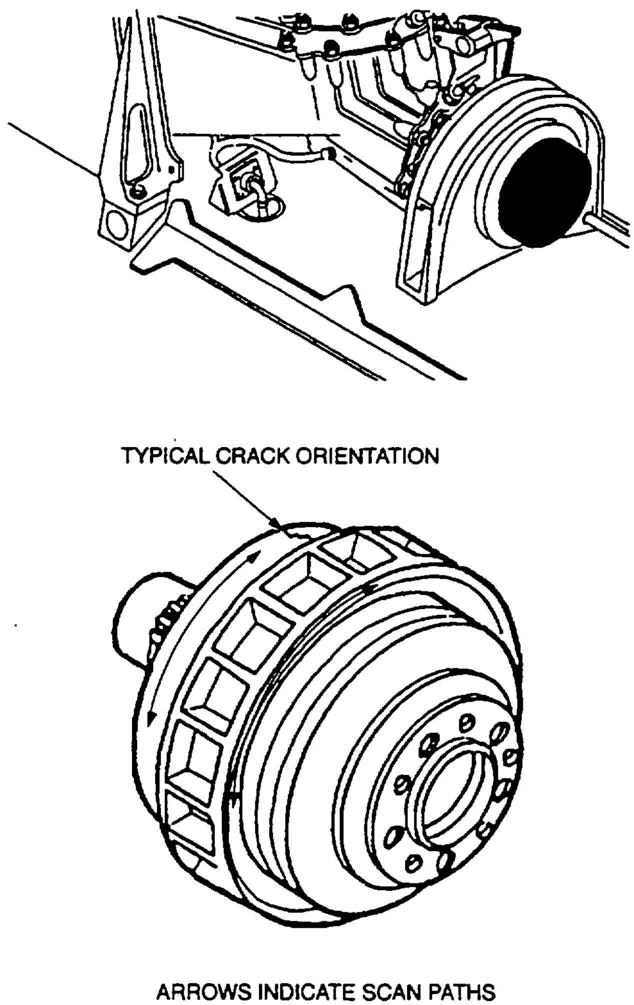


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Figure 3-10. Intermediate Gearbox Centrifugal Fan

3.11 ENGINE NOSE GEARBOX (ET).

3.11 .1 Description (Figure 3-1. Index No. 11). The engine nose gearbox assembly is mounted on the forward end of each engine nacelle. The engine nose gearbox assemblies change the drive angle and reduce the engine RPM output to the main transmission.

3.11.2 Defects. This inspection is used to verify crack indications found visually on the engine nose gearbox. No cracks are allowed.

3.11.3 Primary Method. Eddy Current.

3.11.3.1 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. Reference Block, three-notched magnesium (0.008, 0.020, and 0.040 EDM notches)
g. Teflon Tape, refer to Table 1-8
h. Aircraft Marking Pencil, refer to Table 1-8

3.1 1.3.2 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 engine nose gearbox shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.11.3.3 Access. Access is through the engine nose gearbox fairing (see Figure 1-4, Item LN6 and RN6).

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.

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 the standard instrument display shown in Figure 1-7.)

3.11.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-11.

NOTE

The engine nose gearbox contains a higher conductivity magnesium which will require the use of the aluminum test block when performing inspections in these areas. Refer to paragraph 1.4.11.4, Sorting Metal Using Eddy Current, to determine what test block is best suited for this inspection.

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 3.11.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.1 1.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

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

3.11.5 System Securing. The engine nose gearbox, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.12 ENGINE NOSE GEARBOX INPUT QUILL SHAFT (MT).

3.12.1 Description (Figure 3-1. Index No. 12). The engine nose gearbox input quill shaft transmits power from the engine to the nose gearbox.

3.12.2 Defects. This inspection is used to verify crack indications found visually on the engine nose gearbox input quill shaft. No cracks are allowed.

3.12.3 Primary Method. Magnetic Particle.

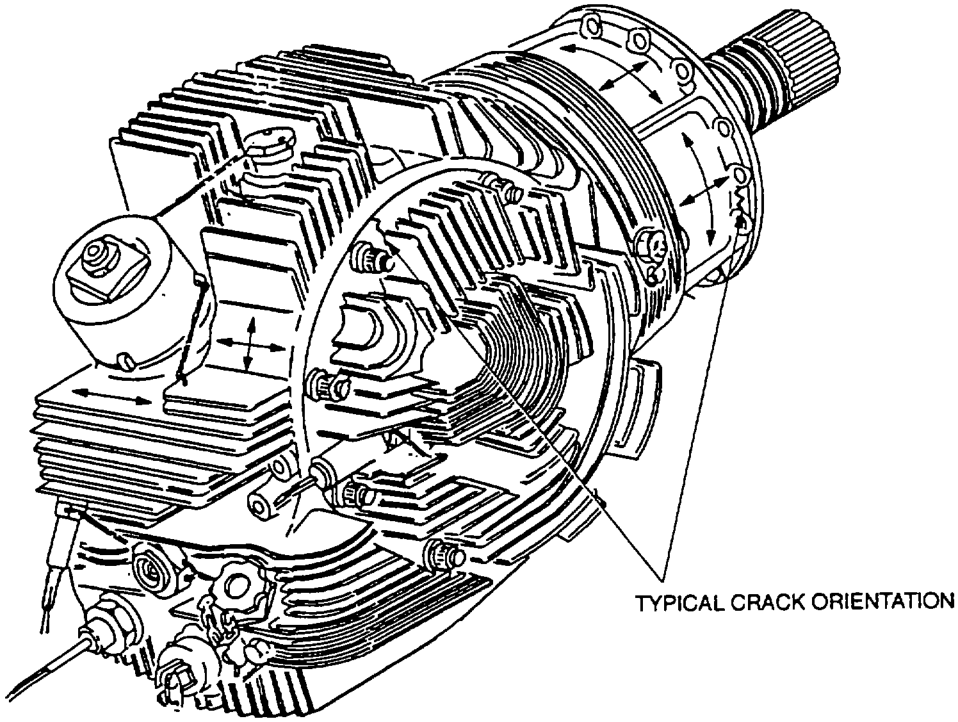

Figure 3-11. Engine Nose Gearbox

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

3.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the engine nose gearbox input quill shaft removed in accordance with the applicable technical manuals listed in Table 1-1.

3.12.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.12.3.6 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 3-12.

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.

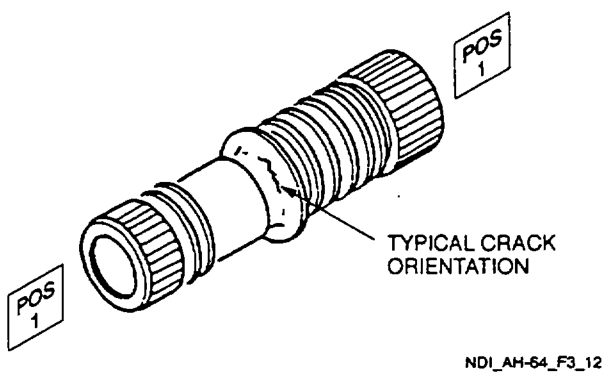

Figure 3-12. Engine Nose Gearbox Input Quill Shaft

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

3.12.3.8 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.

3.12.4 Backup Method. None required.

3.12.5 System Securing. Clean the engine nose gearbox input quill 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 engine nose gearbox input quill shaft requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.13 MAIN TRANSMISSION (ET).

3.13.1 Description (Figure 3-1. Index No. 13). The main transmission is the primary drive for the main rotor, tail rotor, and accessories. The main transmission is located beneath the main rotor support mast base assembly.

3.13.2 Defects. This inspection is used to verify crack indications found visually on the main transmission. No cracks are allowed.

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, 1 00 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 **magnesium** (0.008, 0.020, and 0.040 EDM notches)
g. Teflon Tape, refer to Table 1-8
h. Aircraft Marking Pencil, refer to Table 1-8

3.13.3.2 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 main transmission shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.13.3.3 Access. Access is through the main rotor transmission panel (see Figure 1-4, Items L200 and R200).

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-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 the 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.

NOTE

The main transmission contains a higher conductivity magnesium which will require the use of the aluminum test block when performing inspections in these areas, refer to paragraph 1.4.11.4, Sorting Metal Using Eddy Current, to determine what test block is best suited for this inspection.

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 probes 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.

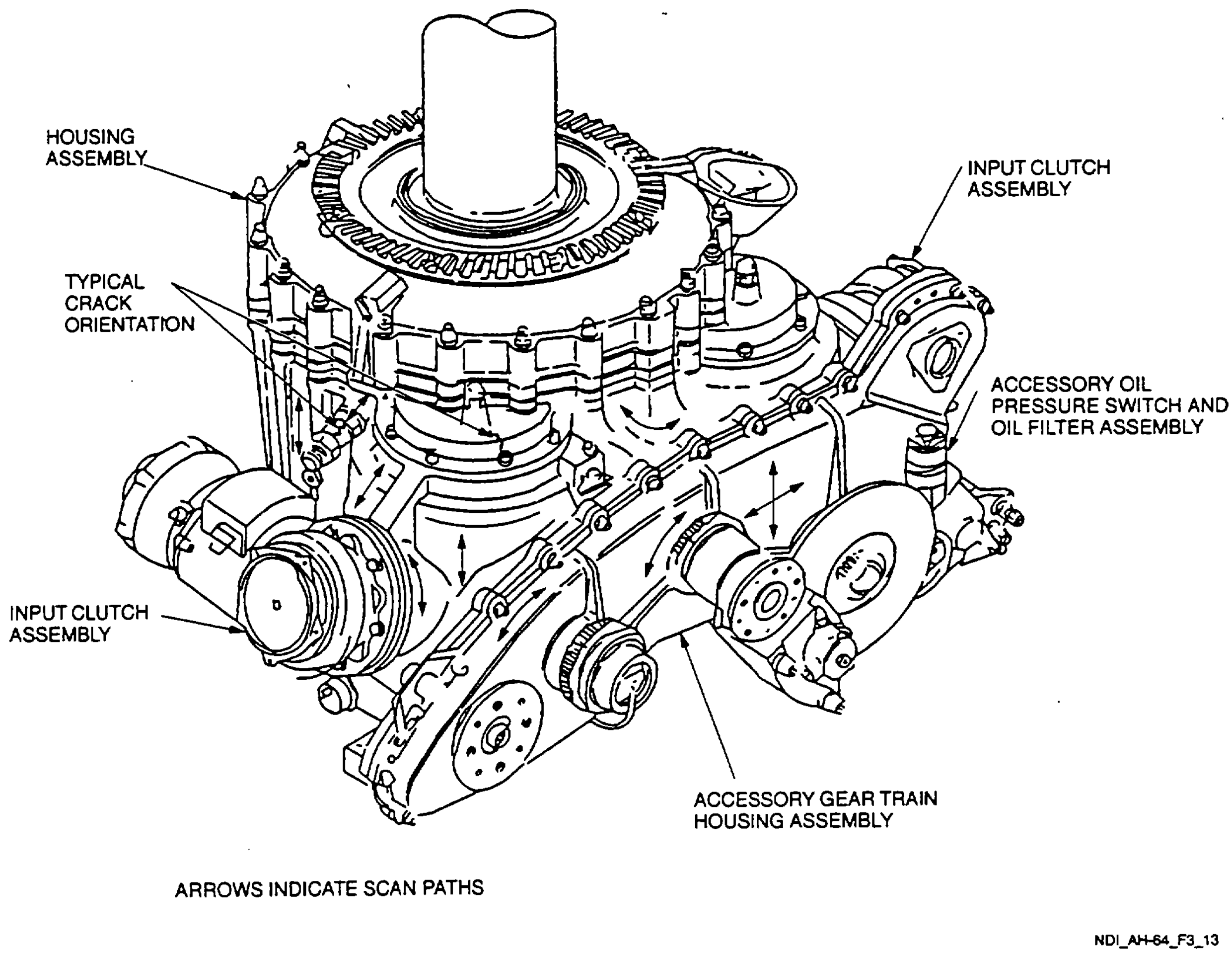

Figure 3-13. Main Transmission

3.13.4 Backup Method. None required.

3.13.5 System Securing. The main transmission, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.14 MAIN TRANSMISSION COMPRESSOR DRIVE ADAPTER (ET).

3.14.1 Description (Figure 3-1. Index No. 14). The main transmission compressor drive adapter provides for attachment of the main transmission to the shaft drive compressor.

3.14.2 Defects. This inspection is used to verify crack indications found visually on the main transmission compressor drive adapter. No cracks are allowed.

3.14.3 Primary Method. Eddy Current.

3.14.3.1 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

3.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main transmission compressor drive adapter removed in accordance with the applicable technical manuals listed in Table 1-1.

3.14.3.3 Access. Not applicable.

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

3.14.3.5 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 the standard instrument display shown in Figure 1-7.)

3.14.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-14.

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 3.14.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.14.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.14.3.7 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. The main transmission compressor drive adapter requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.15 MAIN TRANSMISSION APU DRIVE FLANGE (MT).

3.15.1 Description (Figure 3-1. Index No. 15). The main transmission APU drive flange is externally splined which provides for connection of the number 7 APU drive shaft and the main transmission.

3.15.2 Defects. This inspection is used to verify crack indications found visually on the main transmission APU drive flange. No cracks are allowed.

3.15.3 Primary Method. Magnetic Particle.

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

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

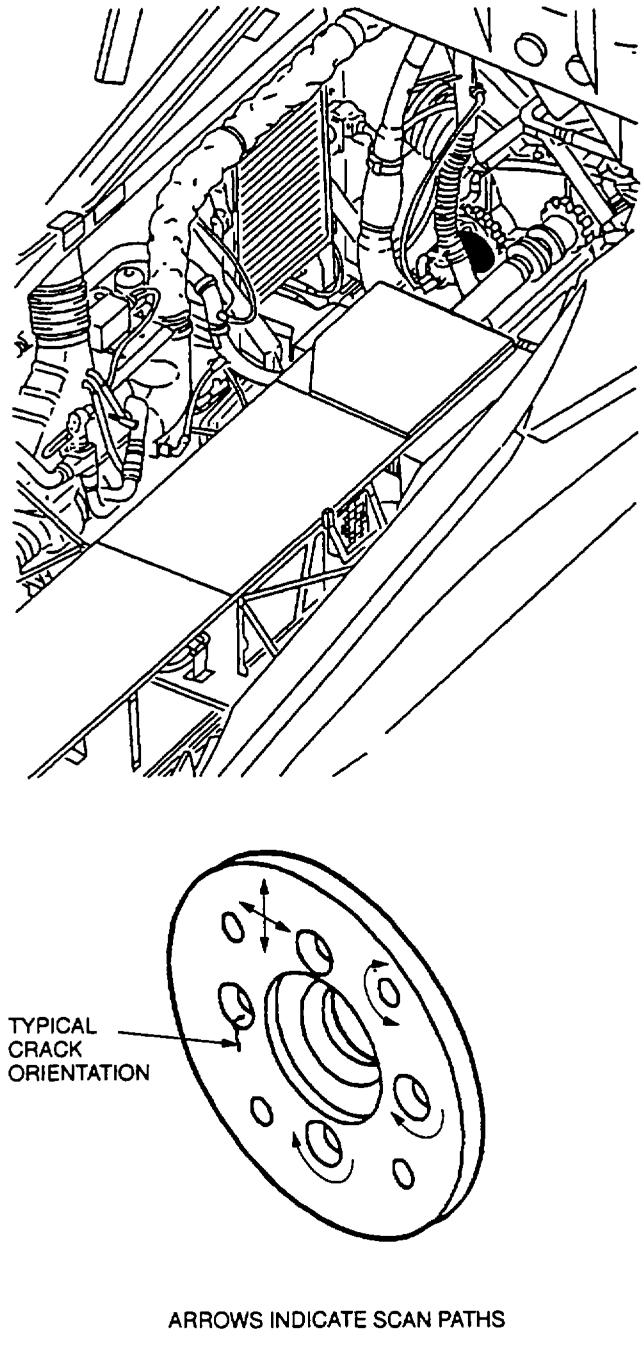

Figure 3-14. Main Transmission Compressor Drive Adapter

NOTE

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

3.15.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main transmission APU drive flange 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. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

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

3.15.3.6 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 3-15.

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.
e. Demagnetize before moving to the next position. Refer to paragraph 3.15.3.8.
f. Repeat steps a. through e. for position 2.

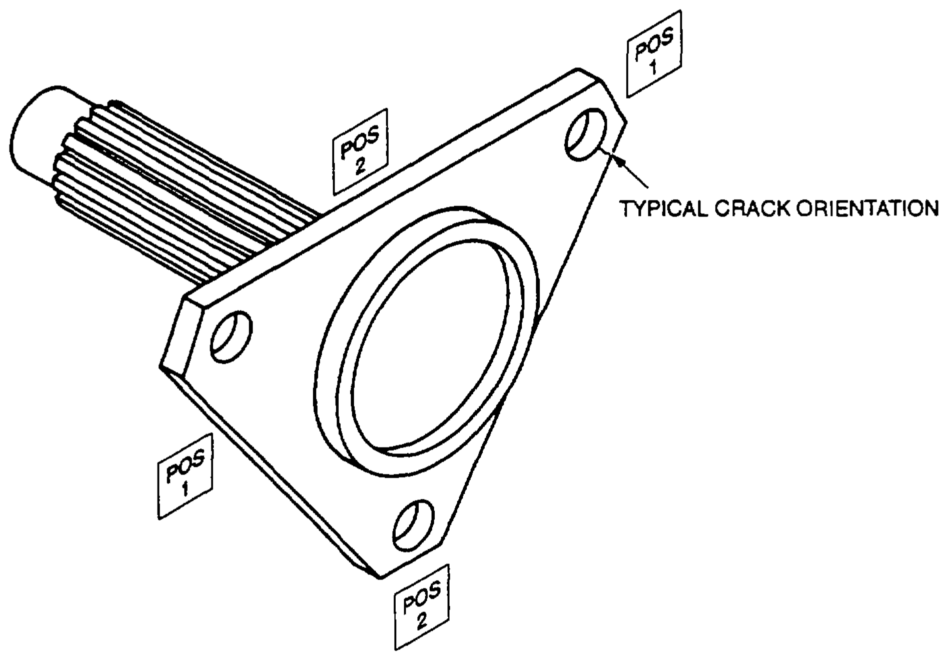

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Figure 3-15. Main Transmission APU Drive Flange

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

3.15.3.8 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.

3.15.4 Backup Method. None required.

3.15.5 System Securing. Clean the main transmission APU drive flange 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 transmission APU drive flange requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.16 MAIN TRANSMISSION TAIL ROTOR DRIVE FLANGE (MT).

3.16.1 Description (Figure 3-1. Index No. 16). The main transmission tail rotor drive flange is externally splined which provides for connection of the number 3 tail rotor drive shaft to the main transmission.

3.16.2 Defects. This inspection is used to verify crack indications found visually on the main transmission tail rotor drive flange. No cracks are allowed.

3.16.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

3.16.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main transmission tail rotor drive flange 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. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

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

3.16.3.6 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 3-16.

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 3.16.3.8.
f. Repeat steps a. through e. for positions 2 and 3.

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

3.16.3.8 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.

3.16.4 Backup Method. None required.

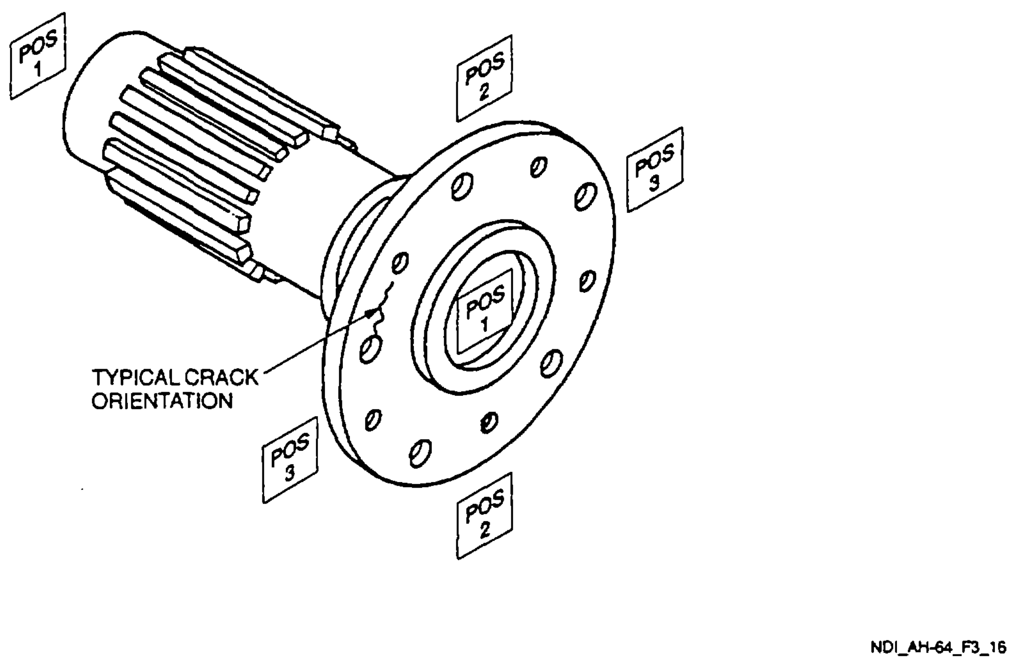

Figure 3-16. Main Transmission Tail Rotor Drive Flange

3.16.5 System Securing. Clean the main transmission tail rotor drive flange 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 transmission tail rotor drive flange requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.17 MAIN ROTOR GEARSHAFT DRIVE GEAR TEETH (MT).

3.17.1 Description (Figure 3-1 . Index No. 17). The main rotor gearshaft is a semi-floating drive shaft mounted inside the static mast. The main rotor gearshaft transmits power from the main transmission to drive the main rotor.

3.17.2 Defects. This inspection is used to verify crack indications found visually on the main rotor gearshaft drive gear teeth. No cracks are allowed.

3.17.3 Primary Method. Magnetic Particle.

3.17.3.1 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

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

3.17.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

3.17.3.6 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 3-17.

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 3.17.3.8.
f. Repeat steps a. through e. for position 2.

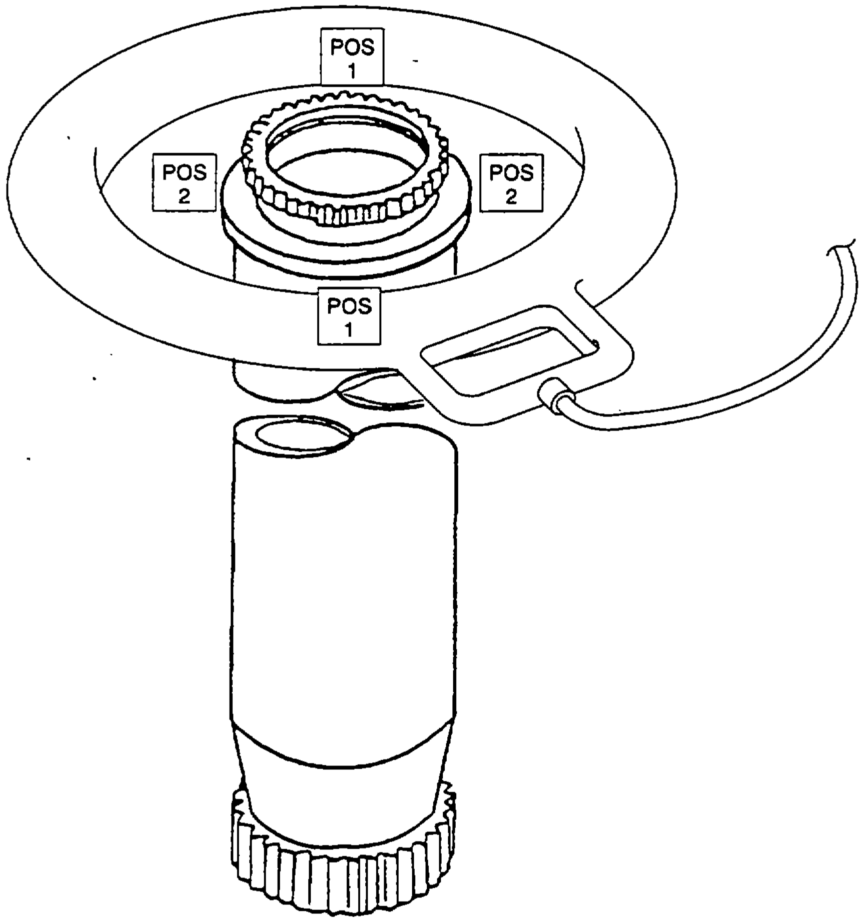

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Figure 3-17. Main Rotor Gearshaft Drive Gear Teeth

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

3.17.3.8 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.

3.17.4 Backup Method. None required.

3.17.5 System Securing. Clean the main rotor gearshaft 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 gearshaft requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.18 MAIN ROTOR MAST SUPPORT BASE (ET).

3.18.1 Description (Figure 3-1. Index No. 18). The main rotor mast support base is located in the center fuselage area, underneath the main rotor components. It is attached to four transmission rotor support assemblies.

3.18.2 Defects. This inspection is used to verify crack indications found visually on the rotor support mast support base. No cracks are allowed.

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, 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

3.18.3.2 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 main rotor station mast shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.18.3.3 Access. Access is through panels (Figure 1-4, Items L200 and R200).

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 the 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.

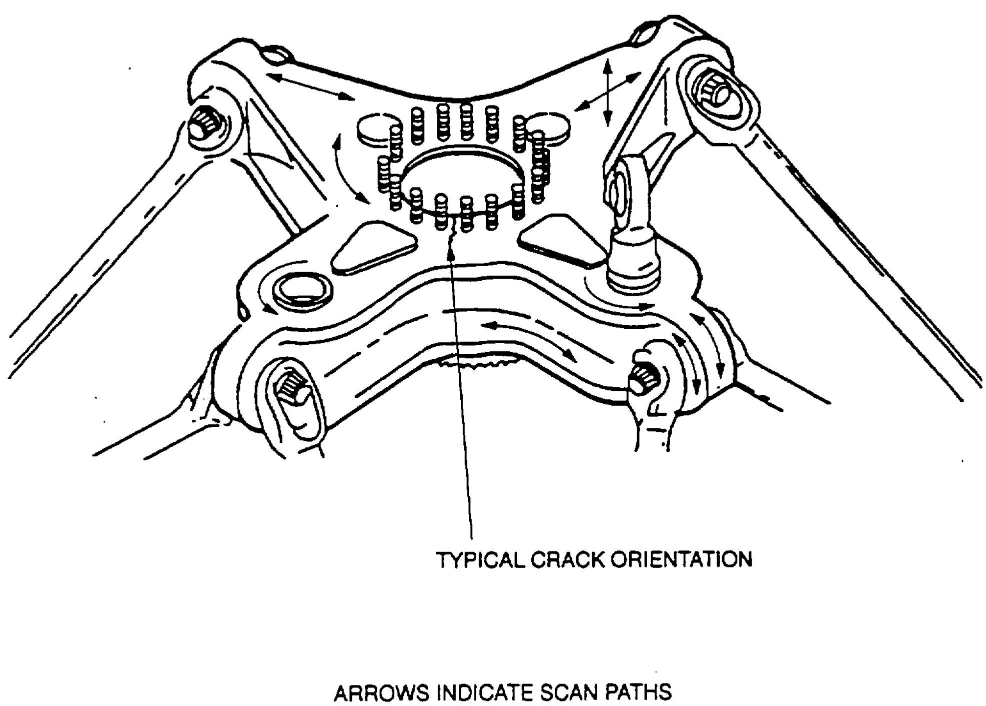

Figure 3-18. Main Rotor Mast Support Base

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 probes 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 Backup Method. None required.

3.18.5 System Securing. The main rotor mast support base, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.19 INTERMEDIATE GEARBOX (Et).

3.19.1 Description (Figure 3-1. Index No. 19). The intermediate gearbox transmits power from the main transmission to the tail rotor gearbox. The intermediate gearbox is mounted on the vertical stabilizer.

3.19.2 Defects. This inspection is used to verify crack indications found visually on the intermediate gearbox. No cracks are allowed.

3.19.3 Primary Method. Eddy Current.

3.19.3.1 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. Reference Block, three-notched magnesium (0.008, 0.020, and 0.040 EDM notches)
g. Teflon Tape, refer to Table 1-8
h. Aircraft Marking Pencil, refer to Table 1-8

3.19.3.2 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 intermediate gearbox shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.19.3.3 Access. Access to the intermediate gearbox is through the vertical stabilizer fairing (Figure 1-4, Items L510 and R510).

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

3.19.3.5 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 the standard instrument display shown in Figure 1-7.)

3.19.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-19.

NOTE

The intermediate gearbox contains a higher conductivity magnesium which will require the use of the aluminum test block when performing inspections in these areas, refer to paragraph 1.4.11.4, Sorting Metal Using Eddy Current, to determine what test block is best suited for this inspection.

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.

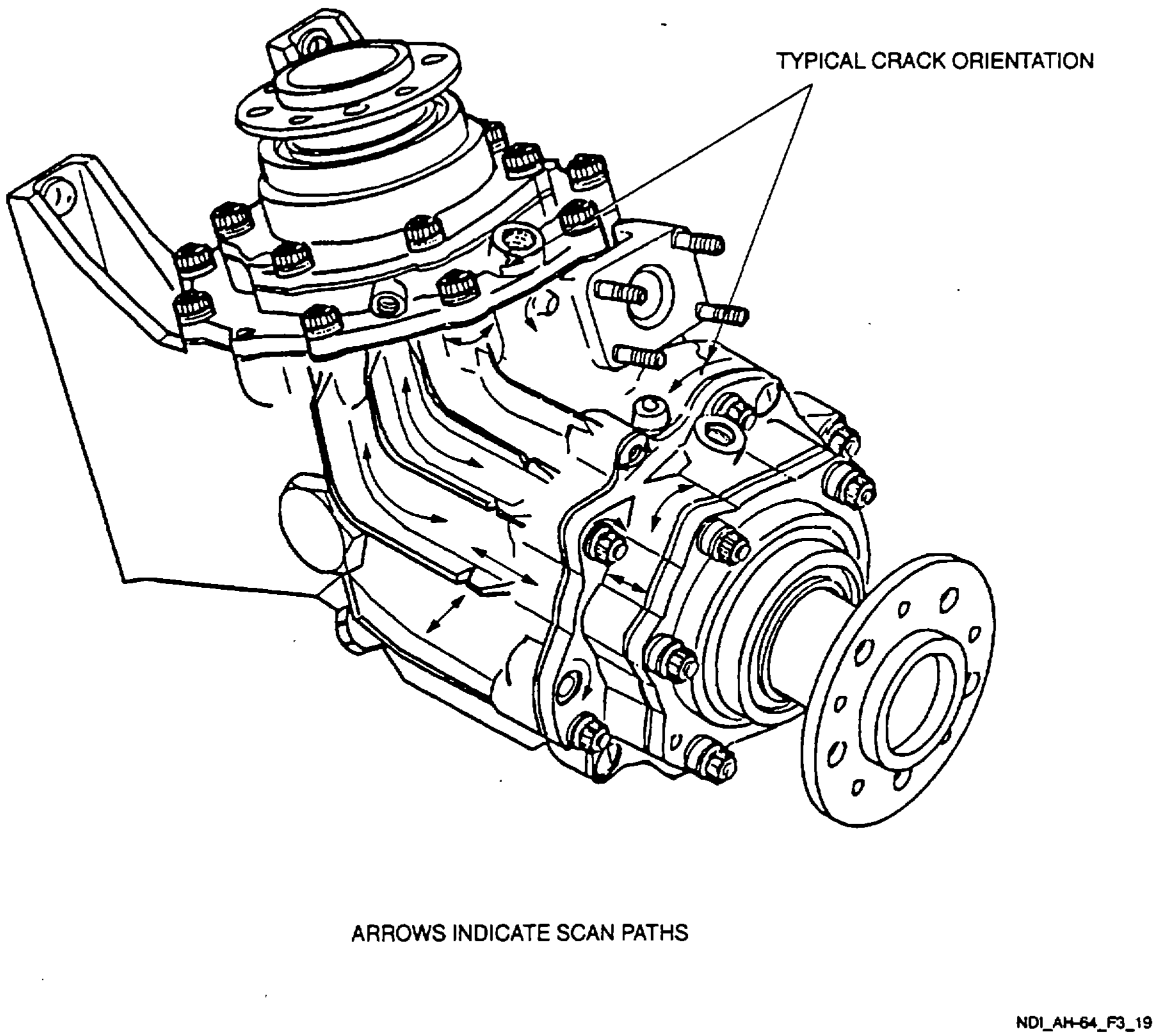

Figure 3-19. Intermediate Gearbox

NOTE

Either probe identified in paragraph 3.19.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.19.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

3.19.3.7 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. The intermediate gearbox, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.20 INTERMEDIATE GEARBOX RETAINERS (ET).

3.20.1 Description (Figure 3-1. Index No. 20). The intermediate gearbox retainers maintain the bearings and seals within the intermediate gearbox assembly.

3.20.2 Defects. This inspection is used to verify crack indications found visually on the intermediate gearbox retainers. No cracks are allowed.

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, 90° 1/2 inch drop
d. Cable Assembly
e. Reference Block, three-notched magnesium (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. 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 retainers shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.20.3.3 Access. Access is through the vertical stabilizer fairings (Figure 1-4, Items R510 and L51 0).

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.

3.20.3.5 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 the 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.

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 probes 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. Fluorescent Penetrant, refer to paragraph 1.4.7.

3.20.5 System Securing. The intermediate gearbox retainers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

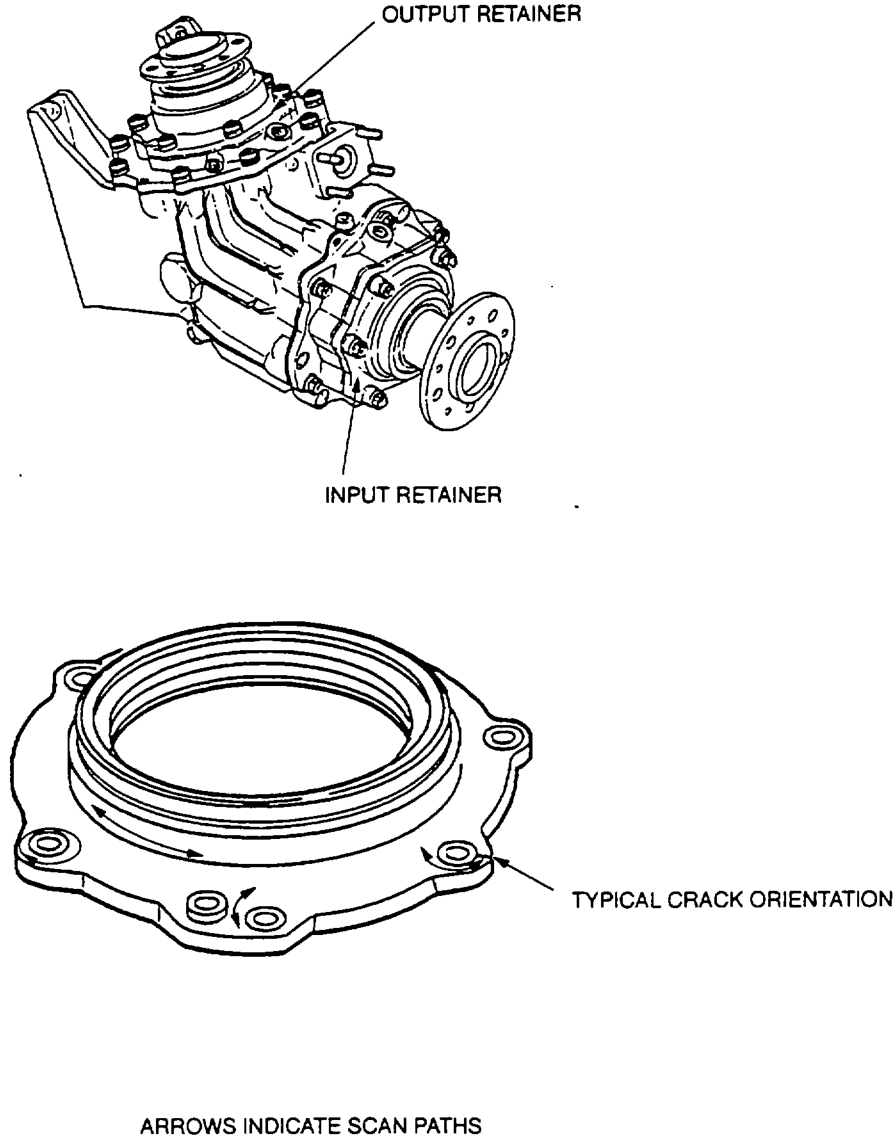

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Figure 3-20. Intermediate Gearbox Retainers

3.21 INTERMEDIATE GEARBOX FLANGE AND SHOULDERED SHAFT (MT).

3.21.1 Description (Figure 3-1. Index No. 21). The intermediate gearbox flange and shouldered shaft is an externally splined shaft which is connected to the intermediate gearbox and the number 6 tail rotor drive shaft.

3.21.2 Defects. T his inspection is used to verify crack indications found visually on the intermediate gearbox flange and shouldered shaft. No cracks are allowed.

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, refer to Table 1-8

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.

3.21.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the intermediate gearbox flange and shouldered shaft 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 part 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 through 5.

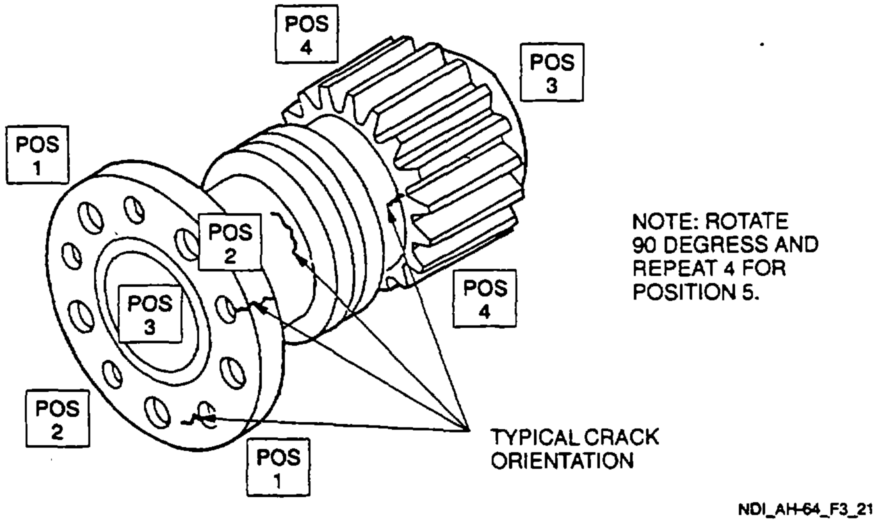

Figure 3-21. Intermediate Gearbox Flange and Shouldered Shaft

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 intermediate gearbox flange and shouldered 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 flange and shouldered shaft require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.22 TAIL ROTOR GEARBOX (ET).

3.22.1 Description (Figure 3-1. Index No. 22). The tail rotor gearbox transmits power from the intermediate gearbox to the tail rotor head while changing the drive angle 900. The tail rotor gearbox is mounted on the vertical stabilizer.

3.22.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor gearbox. No cracks are allowed.

3.22.3 Primary Method Eddy Current.

3.22.3.1 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° 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 **magnesium** (0.008, 0.020, and 0.040 EDM notches)

g. Teflon Tape, refer to Table 1-8

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

3.22.3.2 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 tail rotor gearbox shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.22.3.3 Access. Access is through the tail rotor transmission fairings (Figure 1-4, Items L540 and L546).

WARNING

Maintenance Platforms/Workstands

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

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

3.22.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e11.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 560		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
VPos	-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 the standard instrument display shown in Figure 1-7.)

3.22.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-22.

NOTE

The tail rotor gearbox contains a higher conductivity magnesium which will require the use of the aluminum test block when performing inspections in these areas, refer to paragraph 1.4.11.4, Sorting Metal Using Eddy Current, to determine what test block is best suited for this inspection.

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 similarto the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 3.22.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.22.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

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

3.22.5 System Securing. The tail rotor gearbox, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

3.23 TAIL ROTOR GEARBOX SHOULDERED SHAFT (MT).

3.23.1 Description (Figure 3-1. Index No. 23). The tail rotor gearbox shouldered shaft is an externally splined shaft which connects the tail rotor gearbox to the number 6 tail rotor drive shaft.

3.23.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor gearbox shouldered shaft. No cracks are allowed.

3.23.3 Primary Method Magnetic Particle.

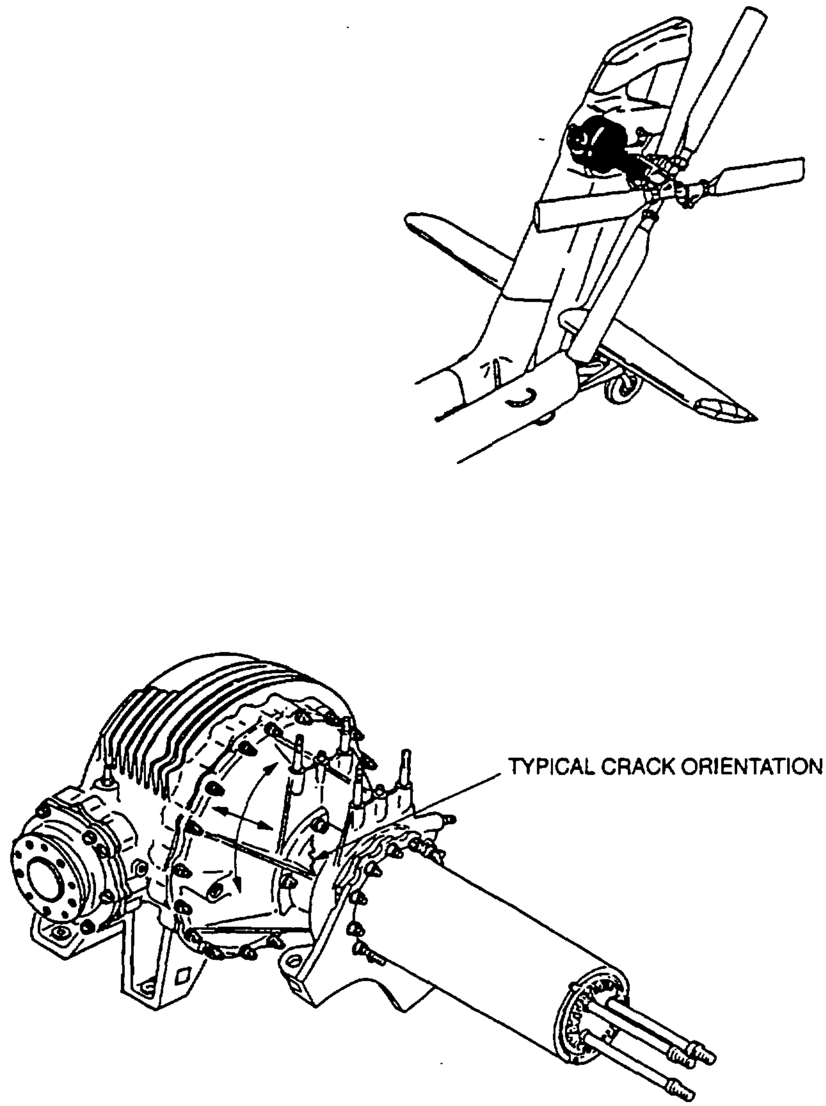

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Figure 3-22. Tail Rotor Gearbox

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, refer to Table 1-8

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 tail rotor gearbox shouldered shaft 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 part 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. Positions required for this inspection are 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.

e. Demagnetize before moving to the next position. Refer to paragraph 3.23.3.8.

f. Repeat steps a. through e. for positions 2 through 4.

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.

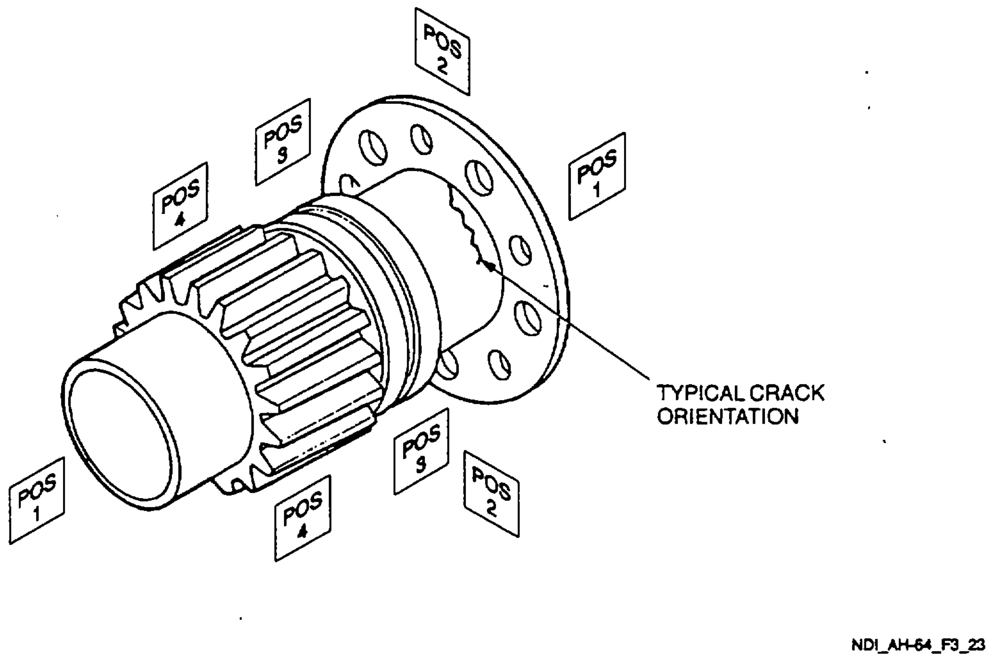


Figure 3-23. Tail Rotor Gearbox Shouldered Shaft

3.23.4 Backup Method. None required.

3.23.5 System Securing. Clean the tail rotor gearbox shouldered 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 tail rotor gearbox shouldered shaft requires installation in accordance with the.
applicable technical manuals listed in Table 1-1.

3.24 TAIL ROTOR GEARBOX RETAINERS (ET).

3.24.1 Description (Figure 3-1. Index No. 24). The tail rotor gearbox retainers maintain the pinion gear and bearings within the tail rotor gearbox.

3.24.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor gearbox retainers. No cracks are allowed.

3.24.3 Primary Method. Eddy Current.

3.24.3.1 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 **magnesium** (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

3.24.3.2 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 tail rotor gearbox retainers shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.24.3.3 Access. Access is through the tail rotor transmission fairing (Figure 1-4, Item L540).

WARNING

Maintenance Platforms/Workstands

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

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

3.24.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

3.24.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 3-24.

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 3.24.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 3.24.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

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

3.24.5 System Securing. The tail rotor gearbox retainers, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.25 TAIL ROTOR GEARBOX FORWARD AND AFT STRUT (MT).

3.25.1 Description (Figure 3-1. Index No. 25). The tail rotor gearbox forward and aft struts are connected to the tail rotor gearbox and the vertical stabilizer to provide structural support for the tail rotor gearbox assembly.

3.25.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor gearbox forward and aft strut. No cracks are allowed.

3.25.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Ydke

b. Magnetometer

c. Black Light

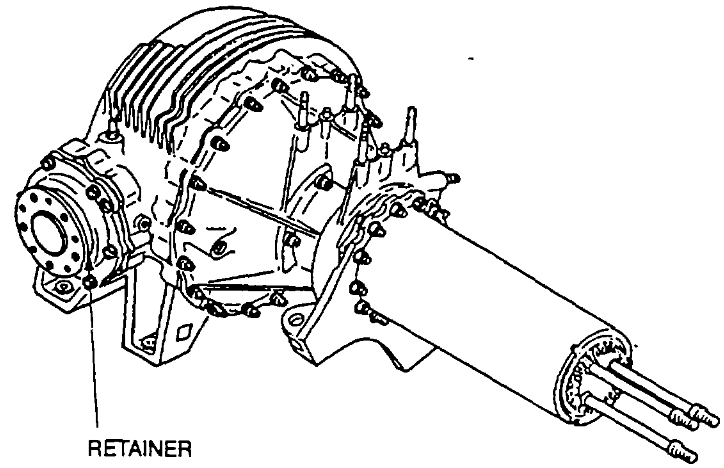
d. Fluorescent Magnetic Particles, refer to Table 1-8

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.



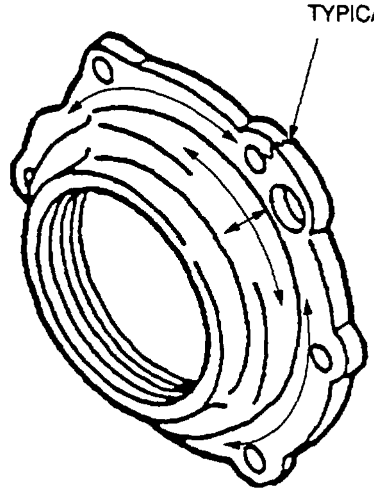


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Figure 3-24. Tail Rotor Gearbox Retainers

3.25.3.2 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 tail rotor gearbox forward and aft strut shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.25.3.3 Access. Access is through the tail rotor transmission fairings (Figure 1-4, Items L540 and L546). If the strut is removed, the bearing surfaces shall be marked.

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.

WARNING

Maintenance Platforms/Workstands

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

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. The position required for this inspection is illustrated in Figure 3-25.

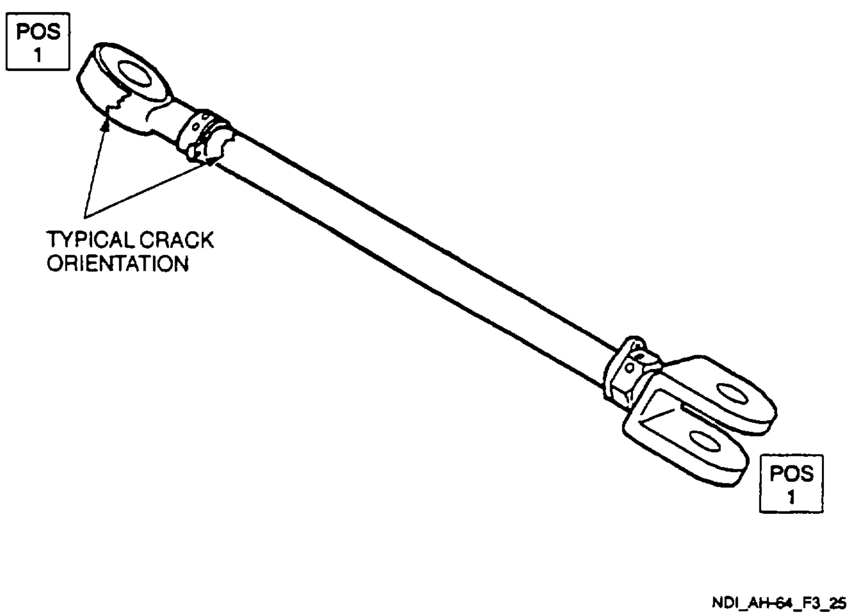

Figure 3-25. Tail Rotor Gearbox Forward and Aft Strut

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 3-25..

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

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 tail rotor gearbox forward and aft strut 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 forward and aft strut, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

3.26 TAIL ROTOR GEARBOX FORWARD AND AFT STRUT FITTINGS (MT).

3.26.1 Description (Figure 3-1. Index No. 26).The tail rotor gearbox forward and aft strut fittings provide for attachment of the forward and aft struts to the vertical stabilizer.

3.26.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor gearbox forward and aft strut fittings. 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, refer to Table 1-8

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.

3.26.3.2 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 tail rotor gearbox forward and aft strut fittings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

3.26.3.3 Access. Access is through the tail rotor transmission fairing (Figure 1-4, Item L546).

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

WARNING

Maintenance Platforms/Workstands

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

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.

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 position 2.

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 tail rotor gearbox forward and aft strut 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 tail rotor gearbox forward and aft strut fittings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

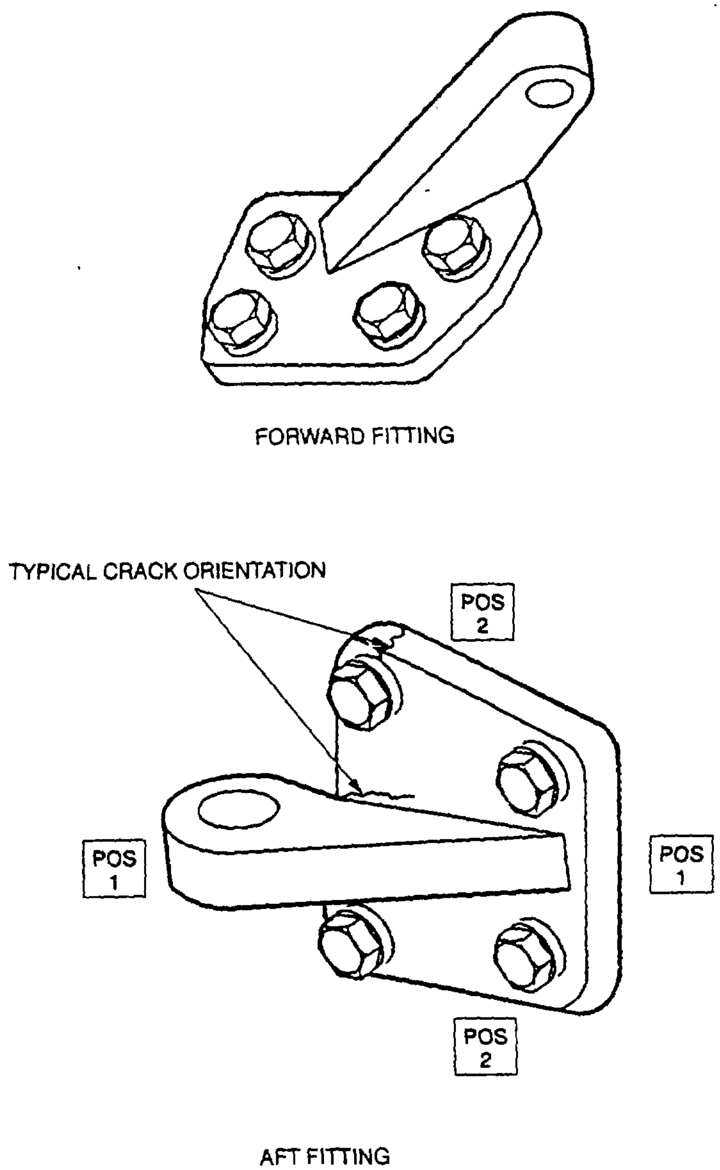

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Figure 3-26. Tail Rotor Gearbox Forward and Aft Strut Fittings

3.27 MAIN ROTOR HEAD (HUB) (ET).

3.27.1 Description (Figure 3-1. Index No. 27). Refer to procedure 2.11 for inspection procedure of the main rotor head (hub).

3.28 MAIN ROTOR SUPPORT MAST (MT).

3.28.1 Description (Figure 3-1. Index No. 28). Refer to paragraph 2.8 for inspection procedure for the main rotor support mast.

SECTION IV

AIRFRAME AND LANDING GEAR SYSTEM

4. GENERAL.

4.1 CONTENTS. The airframe and landing gear system inspection items covered in this section are those critical items of the AH-64A helicopter listed in the Airframe and Landing Gear System 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.

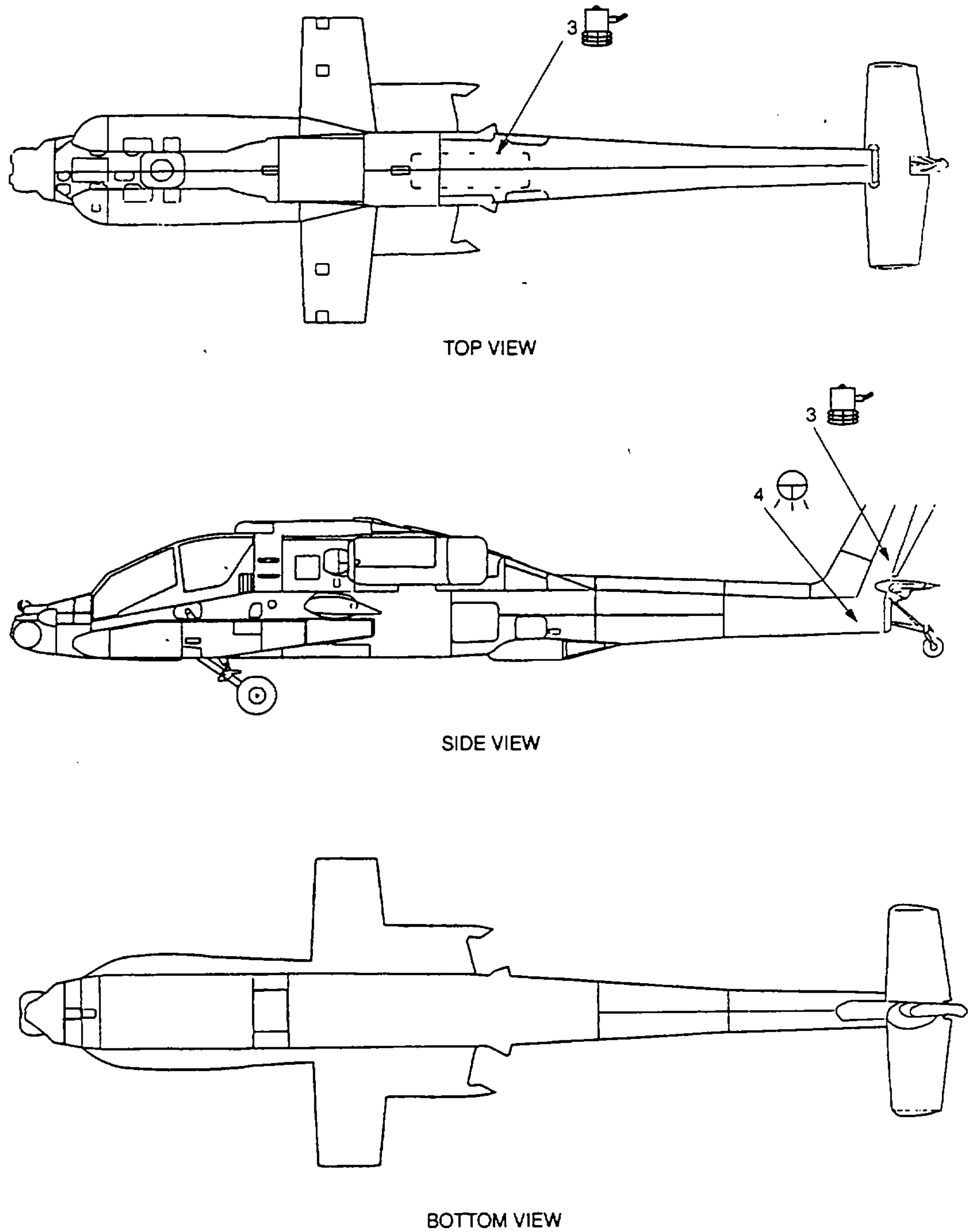
Table 4-1. Airframe and Landing Gear System Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Fuselage and Empennage Access Doors, Covers, Panels, Skins, and Fairings - Metal	ET	4.2	4-2
3	Honeycomb Core Fuselage Panels, Vertical Fin, etc.	BT	4.3	4-3
4	Fluid in Honeycomb Core Fuselage Panels, Vertical Fin, etc.	RT	4.4	4-4
5	Fittings, Castings, and Forgings	ET	4.5	4-5
6	Transmission Deck	ET	4.6	4-6
7	Empennage Frame Assemblies F.S. 530 and F.S. 547 and Attached Stringers	ET	4.7	4-7
8	Fuselage Support Holes	ET	4.8	4-8
9	Gun and Ammo Support Mount Pads	ET	4.9	4-9
10	Main Landing Gear Shock Strut Support	MT	4.10	4-10
11	Main Landing Gear Cross Tube Mounting Points	ET	4.11	4-11
*12	Rotor Support Mixer Assembly and Mounting Surfaces	MT	4.12	4-12
*13	Rotor Mixer Support Assembly Bolt	MT	4.13	4-13
*14	Transmission Rotor Support Strut Assemblies	ET	4.14	4-14
15	Nacelle Carry-Through Post Assembly	ET	4.15	4-15
16	Wing Attachment Fittings on Wing and Fuselage	ET	4.16	4-16
17	Wing Rack Attachment Points/Mounts	ET	4.17	4-17
18	TADS/PNVS Support Fitting	ET	4.18	4-18
19	Vertical Stabilizer Lugs	ET	4.19	4-19
20	Vertical Stabilizer Barrel Nuts	MT	4.20	4-20

Table 4-1. Airframe and Landing Gear Group Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
21	Horizontal Stabilator Actuator Fitting	ET	4.21	4-21
22	Engine Access and Ventilation Door Assembly Rig Connecting Link	PT	4.22	4-22
23	Aft Inboard Engine Mount Support	ET	4.23	4-23
24	Engine Nacelle Strut Attachment Area	ET	4.24	4-24
25	Main Landing Gear Trailing Arms.	MT	4.25	4-25
26	Main Landing Gear Wheels	ET	4.26	4-26
27	Main Landing Gear Shock Strut Housing, Piston, and Rod Ends	MT	4.27	4-27
28	Main Landing Gear Lower Structural Support	MT	4.28	4-28
29	Main Landing Gear. Jack Pad Adapter	MT	4.29	4-29
30	Main Landing Gear Trailing Arm Cross Tube	MT	4.30	4-30
31	Main Landing Gear Shock Strut Mount Shaft	MT	4.31	4-31
32	Tail Landing Gear Fork	ET	4.32	4-32
33	Tail Wheel	ET	4.33	4-33
34	Tail Landing Gear Shock Strut	MT	4.34	4-34
35	Tail Landing Gear Trailing Arms	ET	4.35	4-35
36	Tail Landing Gear Actuating Cylinder Assembly	ET	4.36	4-36
37	Brake System Components	PT	4.37	4-37
38	General Helicopter Attaching Hardware	MT	4.38	4-38

NOTE: *Indicates Flight Safety Part.



NOTE: INDEX ITEM NUMBER 2 IS NOT SHOWN BECAUSE OF NUMEROUS LOCATIONS THROUGHOUT THE HELICOPTER

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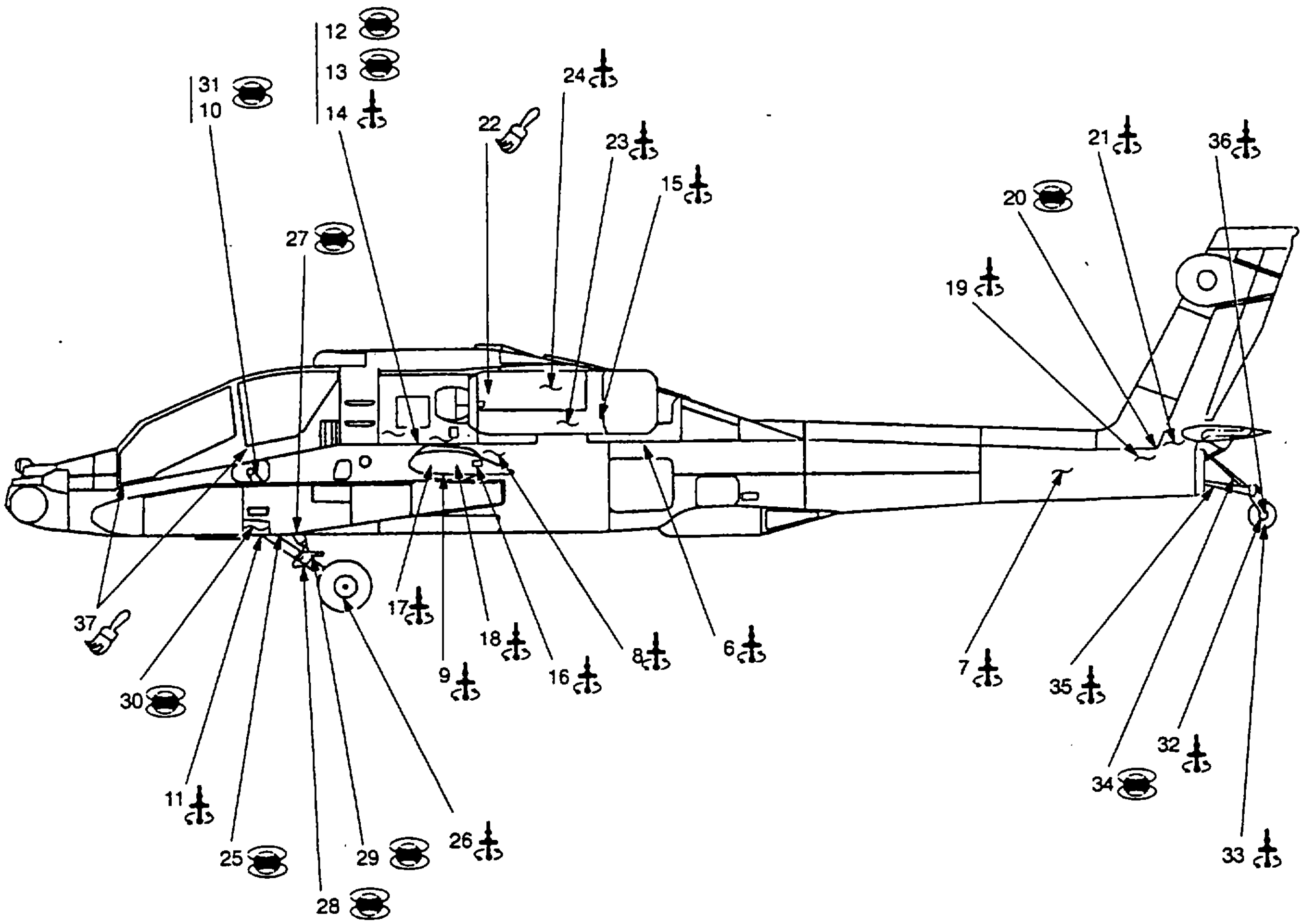
Figure 4-1. Airframe and Landing Gear System (Sheet 1 of 2)



NOTE: INDEX ITEM NUMBER 5 AND 38 ARE NOT SHOWN BECAUSE OF NUMEROUS LOCATIONS THROUGHOUT THE HELICOPTER

NDI_AH4_F4_1_2

Figure 4-1. Airframe and Landing Gear System (Sheet 2 of 2)

4.2 FUSELAGE AND EMPENNAGE ACCESS DOORS, COVERS, PANELS, SKINS, AND FAIRINGS- METAL (ET).

4.2.1 Description (Figure 4-1. Index No. 2). This inspection is applicable to all access doors, covers, panels, skins, and fairings constructed of nonferrous metallic materials.

4.2.2 Defects. Defects may occur anywhere on the surface of the components listed above. The primary purpose of this inspection is for: (1) confirmation of crack indications identified by visual inspections; (2) verifications that dents, scratches, or gouges do not conceal cracks; and (3) locating the ends of confirmed cracks so that stop drilling may be performed. No cracks are allowed.

4.2.3 Primary Method Eddy Current.

4.2.3.1 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. Reference Block, three-notched magnesium (0.008, 0.020, and 0.040 EDM notches)

g. Reference Block, three-notched titanium (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

4.2.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance. If required, access doors, covers, panels, and fairings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.2.3.3 Access. The components are generally accessed from outside the helicopter.

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

4.2.3.5 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° aluminum and magnesium) (30° titanium)		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
VPos	- 20%		

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

(1) Null probe on the appropriate test block - aluminum test block for aluminum alloys, the magnesium test block for magnesium alloys, or the titanium test block for titanium and non-ferromagnetic stainless steel.

(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 the standard instrument display shown in Figure 1-7.)

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

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 4.2.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.2.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

4.2.4 Backup Method. None required.

4.2.5 System Securing. The access doors, covers, panels, and fairings, if removed or opened, require installation or securing in accordance with the applicable technical manuals listed in Table 1-1.

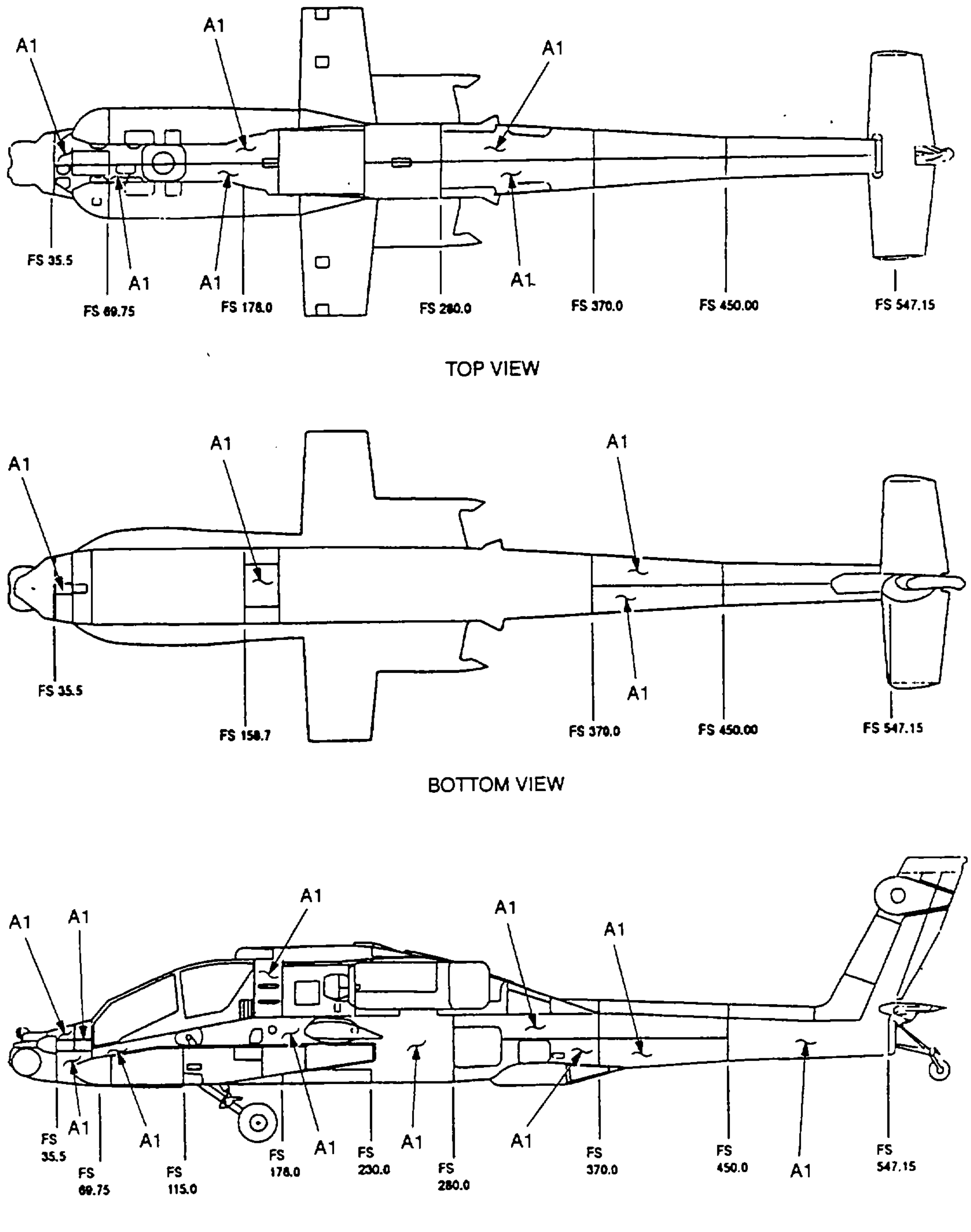
4.3 HONEYCOMB CORE FUSELAGE PANELS, VERTICAL FIN, ETC. (BT).

4.3.1 Description (Figure 4-1. Index No. 3). This inspection is applicable to parts or components made of metallic/nonmetallic skins bonded to metallic/ nonmetallic cores and laminations of facings of metal or fiberglass panels. The structural assembly components identified for inspection are: forward fuselage honeycomb panels, decking honeycomb panels, and vertical fin honeycomb panels.

4.3.2 Defects. Perform the NDI method contained herein on the components listed above for the purpose of verification of void damage identified by visual inspection. Void damage may occur anywhere on either side of bonded panels as a result of mechanical damage (dents, punctures, scratches, etc.) or fluid intrusion/corrosion.

NOTE

A void is defined as an unbonded area that is suppose to be bonded. Many subdefinitions are given such as bond separation, delimitation, lack of adhesive, gas pocket, misfit, etc. This procedure makes no distinction among these instead grouping under the general term "void."



A1=ALUMINUM PANELS

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Figure 4-2. Fuselage and Empennage Access Doors, Covers, Panels, Skins, and Fairings- Metal

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, metal honeycomb with skin thickness closest to that of the panel to be inspected (refer to Appendix C)

f. Test Block, Composite Defect Standard #1

g. Test Block, Composite Defect Standard #3

h. Teflon Tape, consumable material, refer to Table 1-8

i. 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. Not applicable.

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.

4.3.3.5 NDI Equipment Settings. Refer to Bond Testing 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%
VPos	- 80%
PHASE REF	- 0
DRIVE	- MID

c. Press SET and select DISPLAY - PHASE.

d. Place probe on 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 the 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.

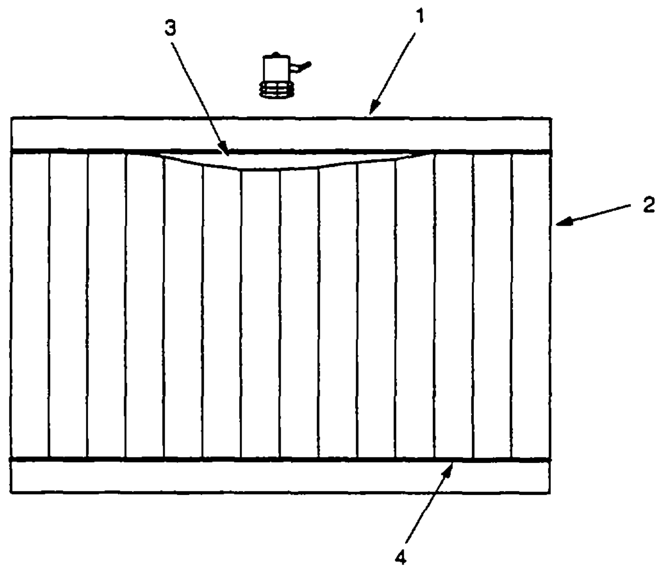
NOTE

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 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 and inspection areas shown in Figure 4-3. Place probe 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 test block is indicative of a void.



1. SKIN
2. CORE
3. VOID
4. ADHESIVE

Figure 4-3. Honeycomb Core Fuselage Panels, Vertical Fin, etc.

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 rigidified skins are more easily scanned using wide Teflon tape on the probe holder.

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 marking the boundaries of all voids on both sides of the panel. These markings will be needed to determine acceptance/rejection criteria in accordance with the applicable technical manuals listed in Table 1-1.

4.3.4 Backup Method. None required.

4.3.5 System Securing. Reinstall acceptable panels that were removed for inspection in accordance with the applicable technical manual listed in Table 1-1.

4.4 FLUID IN HONEYCOMB CORE FUSELAGE PANELS, VERTICAL FIN, ETC. (RT).

4.4.1 Description (Figure 4-1. Index No. 4). This inspection is applicable to parts or components made of metallic/nonmetallic skins bonded to metallic/nonmetallic cores and laminations of facings of metal or fiberglass panels. The structural assembly components identified for inspection are: forward fuselage honeycomb panels, decking honeycomb panels, and vertical fin honeycomb panels.

4.4.2 Defects. Fluid in honeycomb core of fuselage panels, vertical fin, etc.

4.4.3 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.

4.4.3.1 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

4.4.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance in accordance with applicable technical manuals listed in Table 1-1.

4.4.3.3 Access. Not applicable.

4.4.3.4 Preparation of Part. The identified area of interest 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. Refer to Radiographic (X-ray) method, paragraph 1.4.10.

b. Typical equipment settings, inspection and exposure data are given in Figure 4-4.

4.4.3.6 Inspection Procedure. Inspect designated areas, refer to Figure 4-4 for typical fluid entrapment and source/film placement.

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.

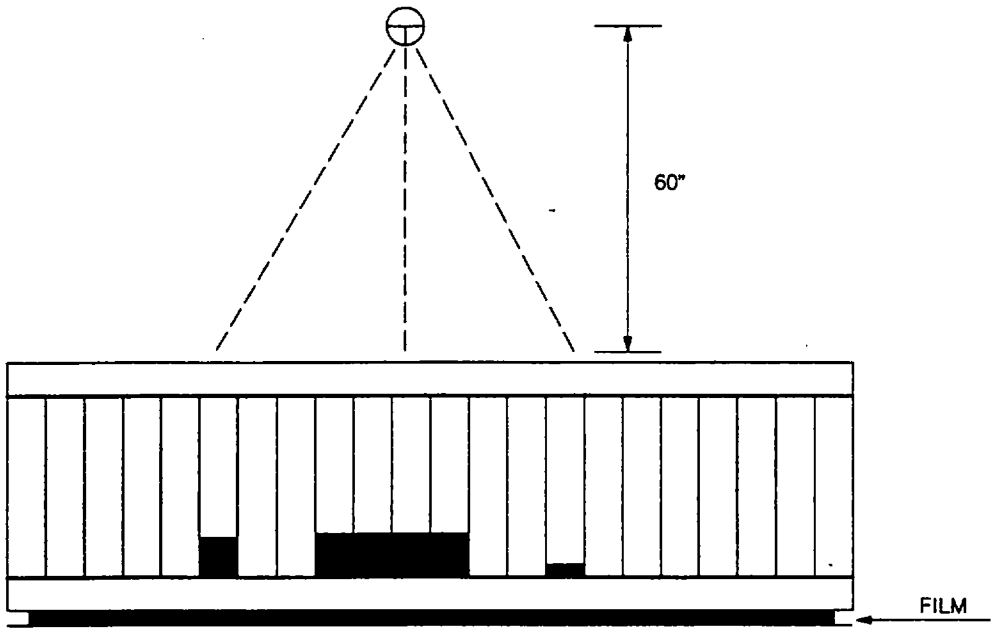
e. Remove exposed film.

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

g. Process and interpret film for defects as noted in paragraph 4.4.2 and as shown in Figure 4-4.

4.4.4 Backup Method. None required.

4.4.5 System Securing. The inspected area shall be cleaned as necessary. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.6.1.



RADIOGRAPHIC INSPECTION DATA						
EXPOSURE NUMBER	KV	MA	FFD (INCHES)	TIME (SEC)	FILM	
					TYPE	SIZE
E1	50	3.5	60	40	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 AND D UNITS IN AREAS OF INTEREST.
3. INSPECTION DATA SHALL BE ADJUSTED AS REQUIRED.

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Figure 4-4. Fluid in Honeycomb Core Fuselage Panels, Vertical Fin, etc. (Sheet 1 of 2)

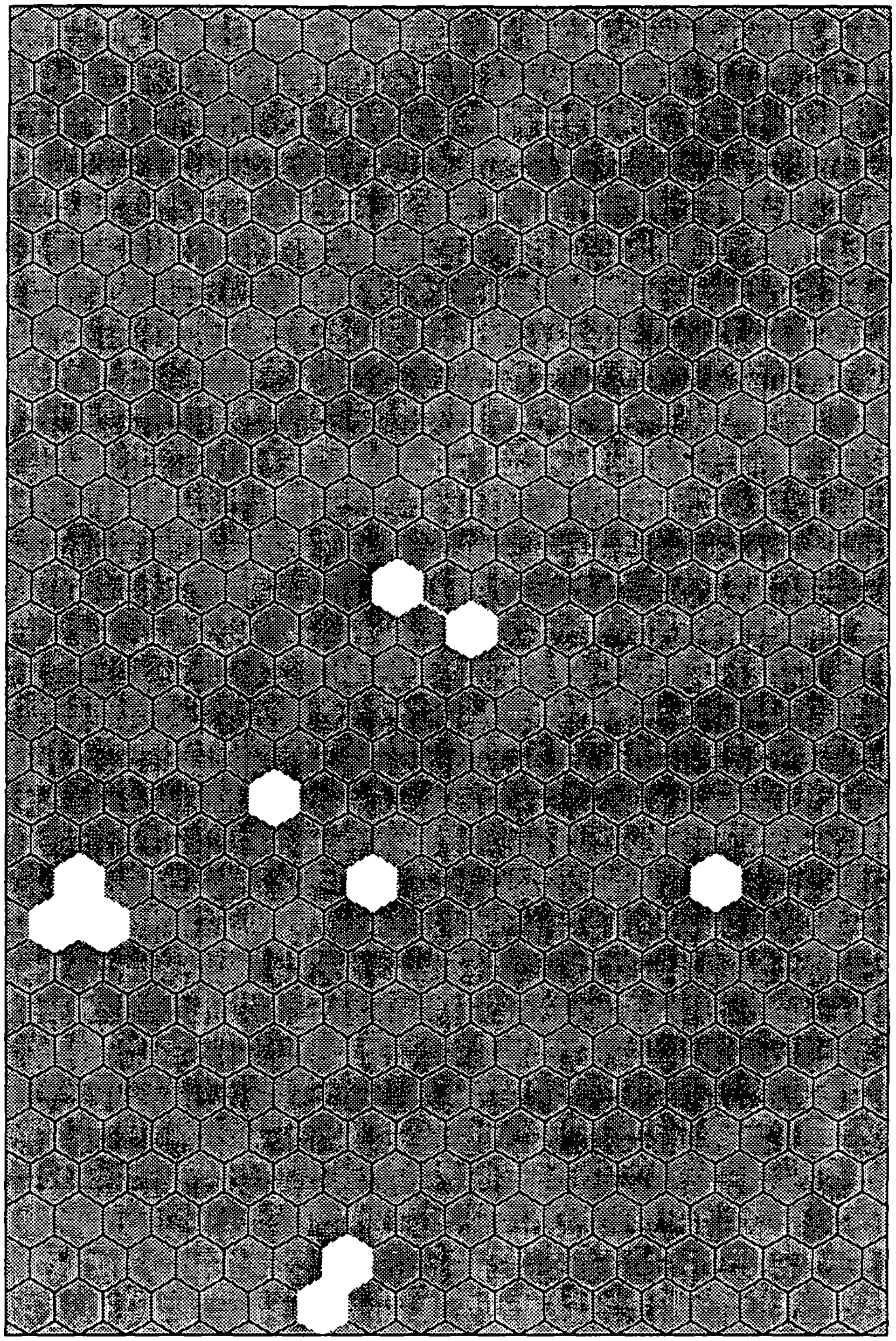

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Figure 4-4. Fluid in Honeycomb Core Fuselage Panels, Vertical Fin, etc. (Sheet 2 of 2)

4.5 FITTINGS, CASTINGS, AND FORGINGS (ET).

4.5.1 Description (Figure 4-1. Index No. 5).Fittings, castings, and forgings made of nonferrous material can be found throughout the helicopter. Those items generally serve as structural attaching points, stiffening points, and equipment mounts.

4.5.2 Defects. Cracks may occur anywhere on the surface of these components. The primary purpose of this inspection is for: (1) confirmation of crack indications identified by visual inspections; (2) verification that dents, scratches, or gouges do not conceal cracks; and (3) ensuring that no cracks remain after any blending is completed (when allowed). No cracks are allowed.

4.5.3 Primary Method.Eddy Current.

4.5.3.1 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

4.5.3.2 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 fittings, castings, and forgings shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.5.3.3 Access. Accessibility of fittings, castings, and forgings varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

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

4.5.3.5 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%		
VPos	-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 the standard instrument display shown in Figure 1-7.)

4.5.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-5.

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 4.5.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.5.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

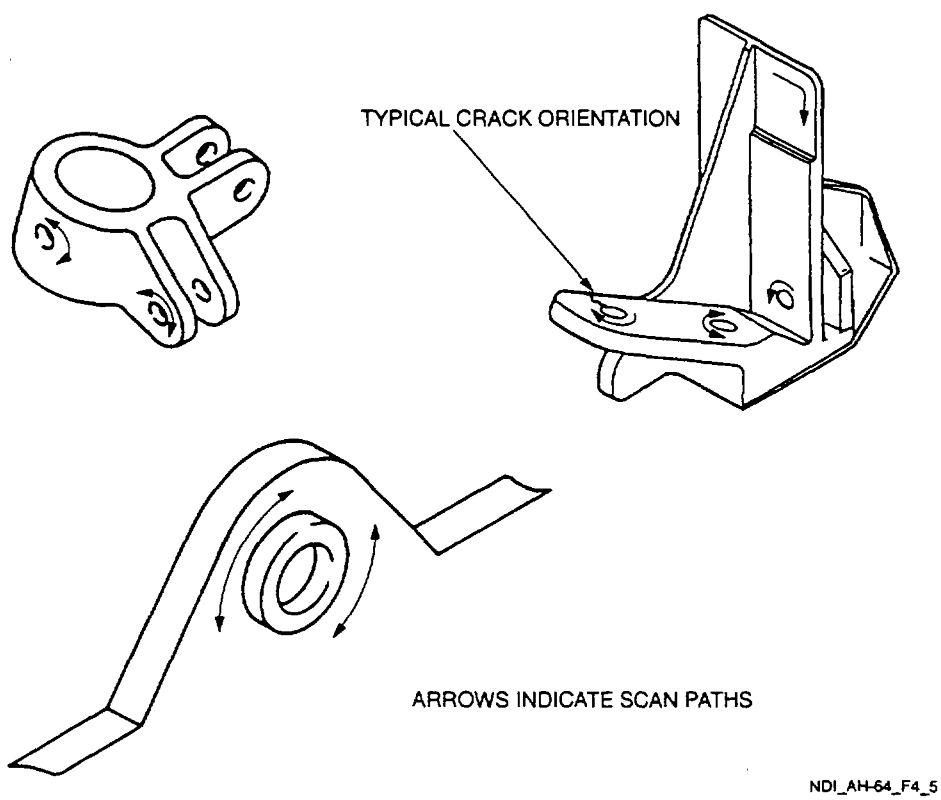


Figure 4-5. Fittings, castings, and Forgings

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

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

4.5.5 System Securing. The fittings, castings, and forgings, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.6 TRANSMISSION DECK (ET).

4.6.1 Description (Figure 4-1. Index No. 6). The transmission deck is found below the transmission. It separates the transmission compartment from the lower-fuselage. The transmission struts are affixed directly to the transmission deck. The catwalk, which is over the aft portion of the deck, is a four-piece platform (one piece includes a folding structure) that covers the drive shaft area.

4.6.2 Defects. This inspection is used to verify crack indications found visually on the transmission deck. No cracks are allowed.

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 (0.08, 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. 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 catwalk shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.6.3.3 Access. Access is through the main rotor transmission panel, hydraulic heat exchanger fairings, and deck area doors and fairings (Figure 1-4, Items T250L, T250R, T290L, L200, R200, and L325).

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-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%		
VPos	- 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 the 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.

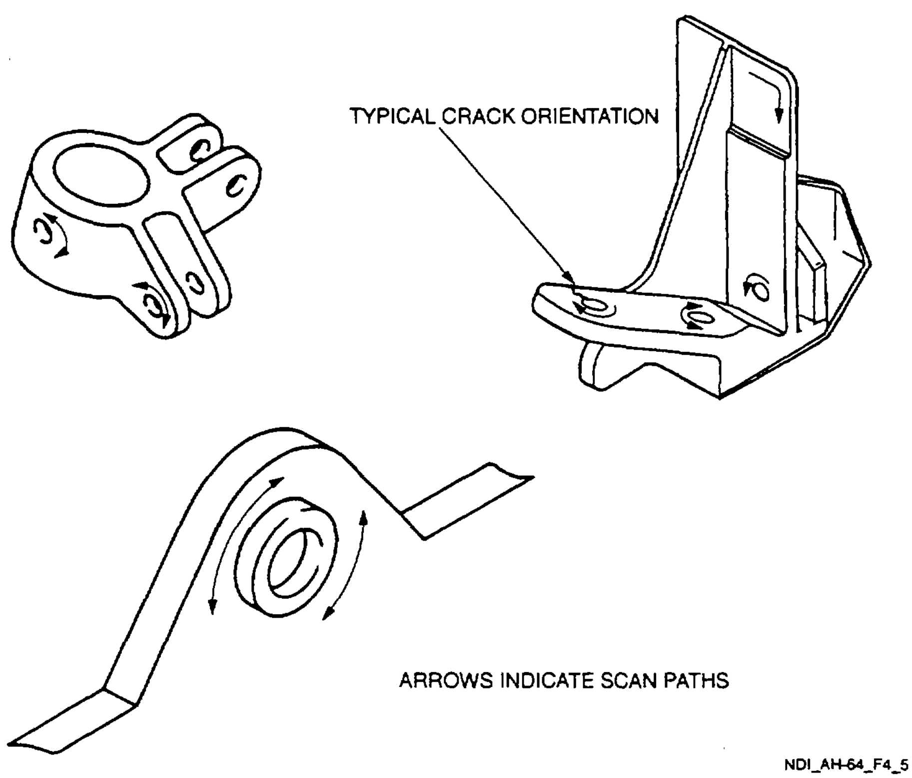


Figure 4-6. Transmission Deck

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 4.6.3.1 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 catwalk, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.7 EMPENNAGE FRAME ASSEMBLIES F.S. 530 AND F.S. 547 AND ATTACHED STRINGERS (ET).

4.7.1 Description (Figure 4-1. Index No. 7). The frame assemblies are located within the tailboom and form the four attaching points for the vertical stabilizer. Each of the attaching points protrudes through the tailboom skin at two points at F.S. 530 and two points at F.S. 547. The stringers are attached to the inner surface of the tailboom skin along the length of the stringers and are sandwiched between the skin and the frame flanges.

4.7.2 Defects. Defects can occur anywhere on the surface of the empennage frame assemblies and attached stringers. No cracks are allowed.

4.7.3 Primary Method. Eddy Current.

4.7.3.1 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

4.7.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance.

4.7.3.3 Access. Access to the aft portions of F.S. 530, all stringers aft of F.S. 530, and both forward and aft portions of F.S. 547 is by removal of covers R/L 545. Access to all stringers forward of F.S..530 and the forward portion of the F.S. 530 frame is by entry into the tailboom at L/R 330 and crawling aft.

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-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%		
VPos	- 20%		

b. Refer to Eddy Current Method, paragraph 1.4.11. Setup 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 the 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.

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. Secure applicable access covers.

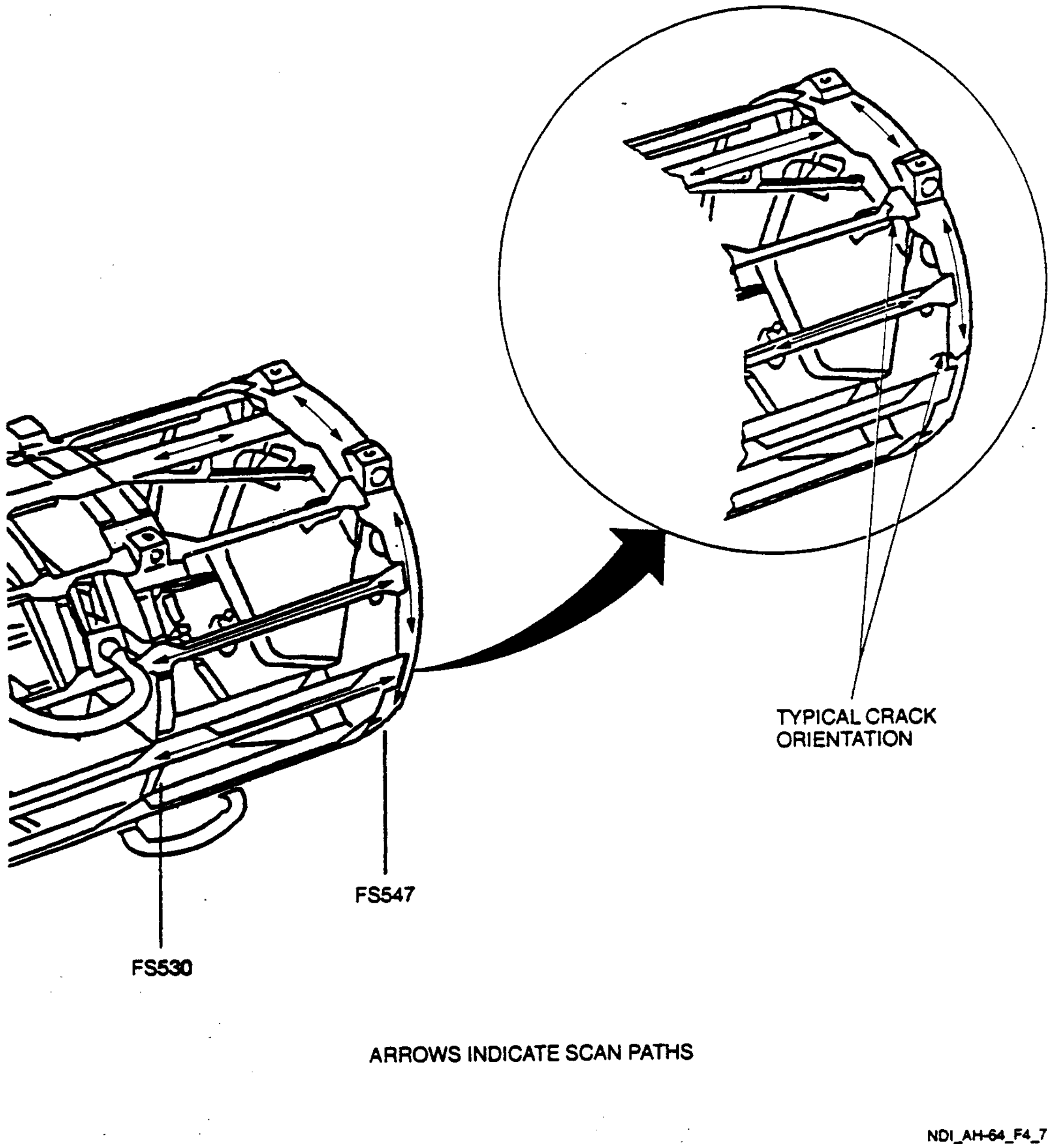


Figure 4-7. Empennage Frame Assemblies F.S. 530 and F.S. 547 and Attached Stringers

4.8 FUSELAGE SUPPORT HOLES (ET).

4.8.1 Description (Figure 4-1. Index No. 8). The fuselage support holes to be checked are located inside the helicopter in the wing mounting area. The holes are used to mount the wing barrel nuts.

4.8.2 Defects. Defects can occur anywhere on the surface of the fuselage support holes. No cracks are allowed.

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 and the wings, ammunition storage magazine, and the barrel nuts removed in accordance with the applicable technical manuals listed in Table 1-1.

4.8.3. Access. Not applicable.

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-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%		
VPos	- 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 the 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 wings, ammunition storage magazine, and barrel nuts require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.9 GUN AND AMMO SUPPORT MOUNT PADS (ET).

4.9.1 Description (Figure 4-1. Index No. 9). There are four gun and ammo support mount pads, two located in the forward fuselage area, where they support the forward fuselage gun, and two in the aft fuselage, where they function as the ammo support aft mount pads.

4.9.2 Defects. Defects can occur anywhere in, or on the surface of, the bushing bore areas.

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 gun and ammo support mount pads shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

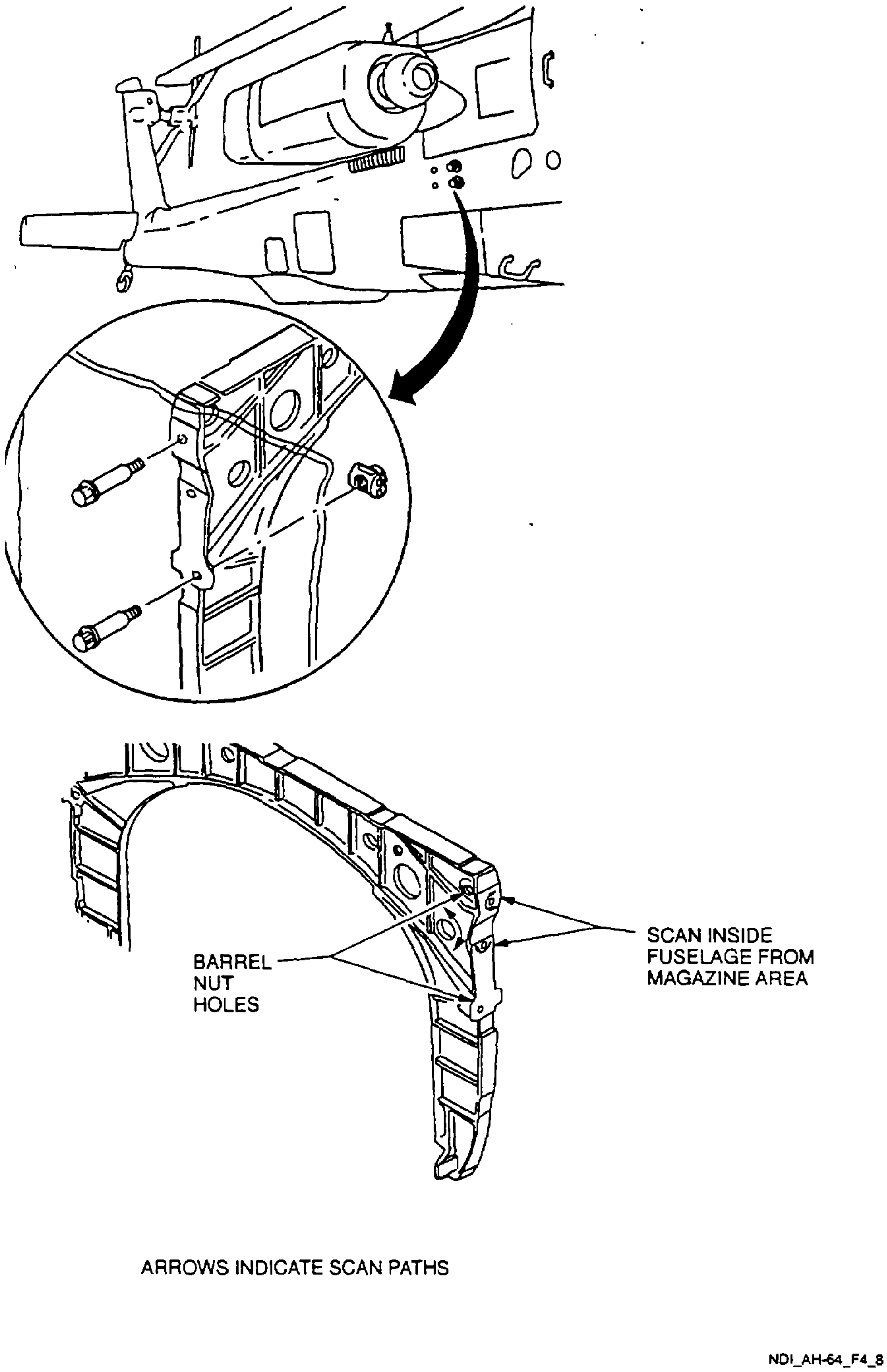


Figure 4-8. Fuselage Support Holes

4.9.3.3 Access. Access is through the gun turret bay fairings (Figure 1-4, Items B90 and B120).

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%		
VPos	- 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 the 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.

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.

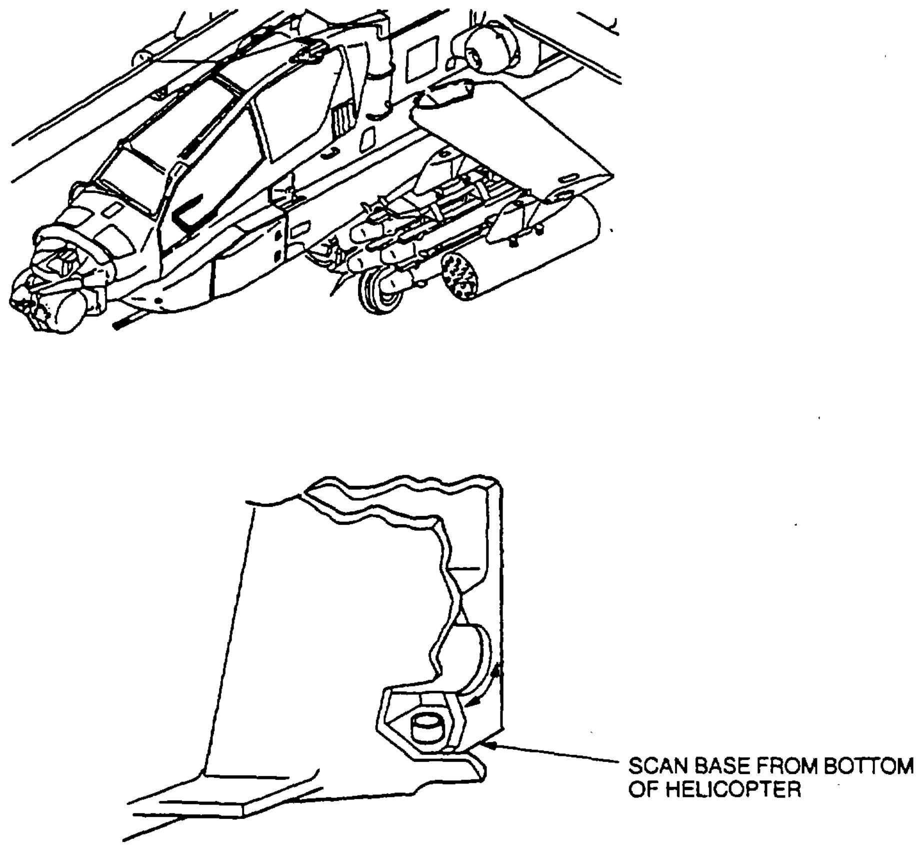
NOTE

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 gun and ammo support mount pads, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.



NOTE: SCAN AROUND BUSHING HOLE AND BORE
WHEN BUSHING IS REMOVED

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Figure 4-9. Gun and Ammo Support Mount Pads

4.10 MAIN LANDING GEAR SHOCK STRUT SUPPORT (MT).

4.10.1 Description (Figure 4-1. Index No. 10). The main landing gear shock strut support mounts the main landing gear shock strut to the fuselage. Left and right units are similar.

4.10.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear shock strut support. No cracks are allowed.

4.10.3 Primary Method Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

e. Consumable Materials, refer to Table 1-8

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

4.10.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main landing gear shock strut support removed in accordance with the applicable technical manuals listed in Table 1-1.

4.10.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.10.3.6 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 4-10.

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 4.10.3.8.

f. Repeat steps a. through e. for positions 2 through 5.

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

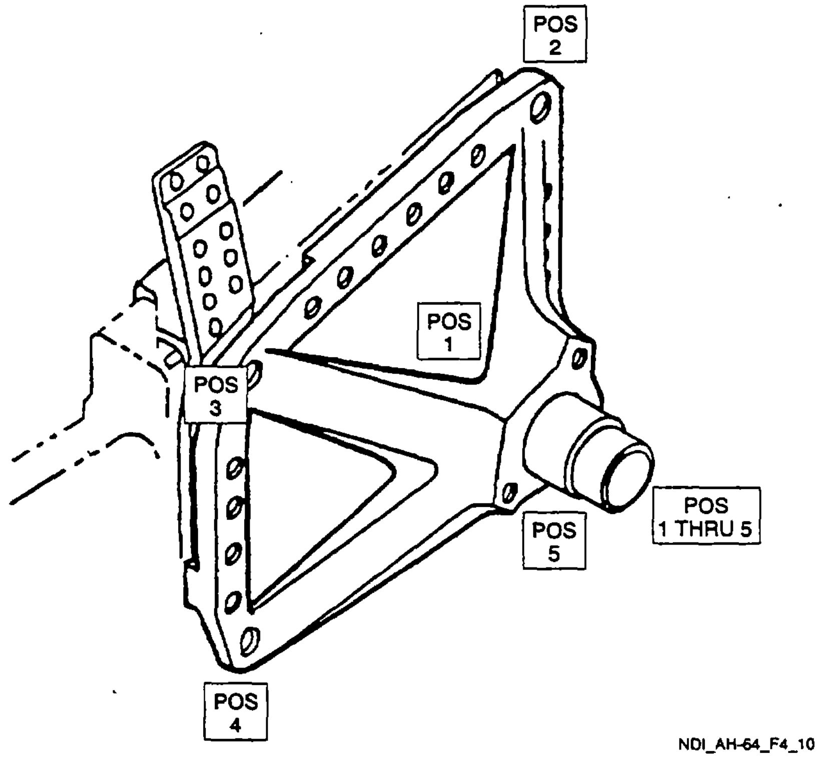

Figure 4-10. Main Landing Gear Shock strut Support

4.10.3.8 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.

4.10.4 Backup Method. None required.

4.10.5 System Securing. Clean the main landing gear shock strut support 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 landing gear shock strut support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.11 MAIN LANDING GEAR CROSS TUBE MOUNTING POINTS (ET).

4.11.1 Description (Figure 4-1. Index No. 11). The main landing gear cross tube is supported by mounts that are integral to the helicopter fuselage.

4.11.2 Defects. This inspection is used to verify crack indications found visually on the mounting point area. 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. If required, the main landing gear cross tube shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.11.3.3 Access. Not applicable.

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-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%		
VPos	- 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 the 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.

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 inspection results as required by paragraph 1.3.

4.11.4 Backup Method. None required.

4.11.5 System Securing. The main landing gear cross tube, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.12 ROTOR SUPPORT MIXER ASSEMBLY AND MOUNTING SURFACES (MT).

4.12.1 Description (Figure 4-1. Index No. 12). The rotor support mixer assemblies are located on the main rotor support base.

4.12.2 Defects. This inspection is used to verify crack indications found visually on the rotor support mixer assembly and mounting surfaces. No cracks are allowed.

4.12.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

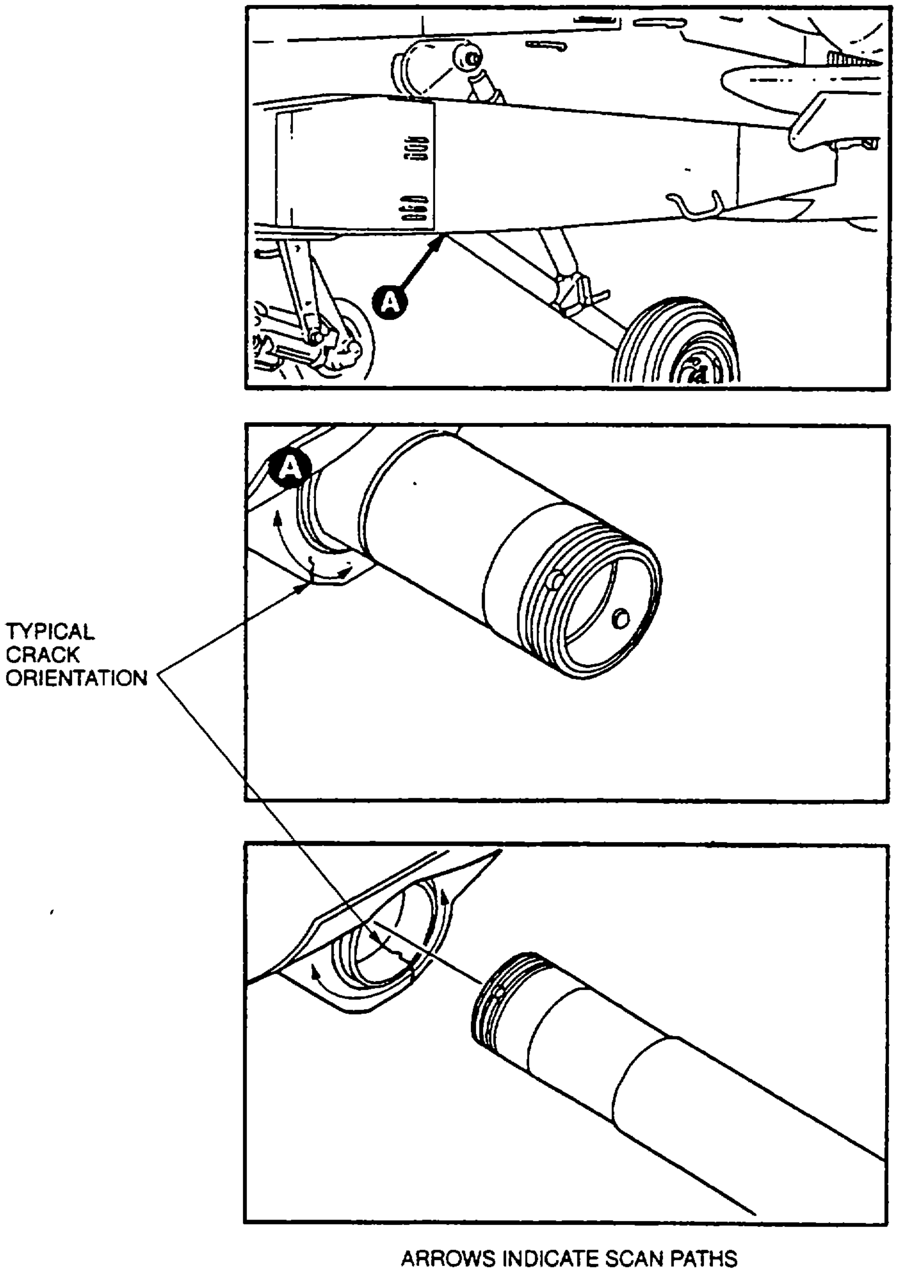

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Figure 4-11. Main Landing Gear Cross Tube Mounting Points

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 rotor support mixer assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.12.3.3 Access. Access is through the main transmission access panels (Figure 1-4, Items L200 and R200).

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.12.3.6 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 4-12.

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 4.12.3.8.

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

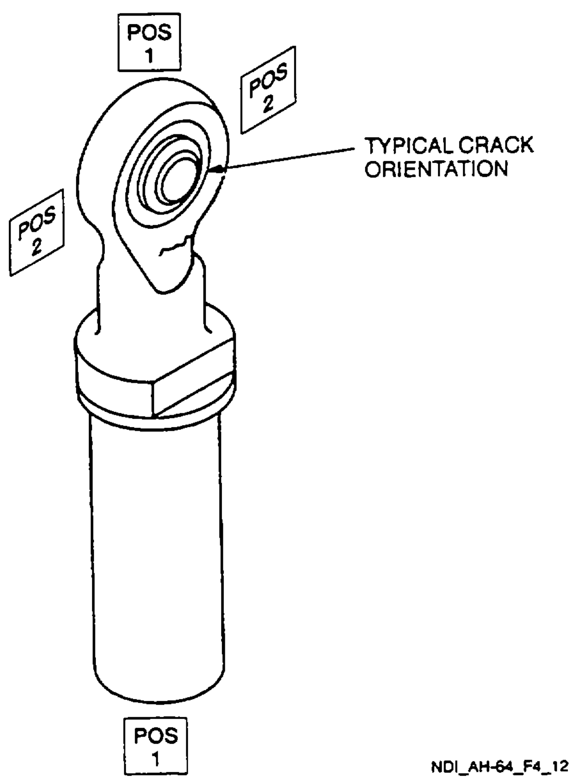


Figure 4-12. Rotor Support Mixer Assembly and Mounting Surfaces

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

4.12.3.8 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.

4.12.4 Backup Method. None required.

4.12.5 System Securing. Clean the rotor support mixer assembly and mounting surfaces 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 rotor support mixer assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.13 ROTOR MIXER SUPPORT ASSEMBLY BOLT (MT).

4.13.1 Description (Figure 4-1, Index No. 13). The rotor mixer support bolt is found on the underside of the rotor support mast support base.

4.13.2 Defects. This inspection is used to verify crack indications found visually on the rotor support mixer assembly bolt. No cracks are allowed.

4.13.3 Primary Method Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

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

4.13.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.13.3.6 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 4-13.

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 no more than five seconds.

d. Inspect for cracks using the black light.

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

4.13.3.8 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.

4.13.4 Backup Method. None required.

4.13.5 System Securing. Clean the rotor mixer support 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 rotor mixer support bolt requires installation in accordance with the applicable technical manuals listed in Table 1-1.

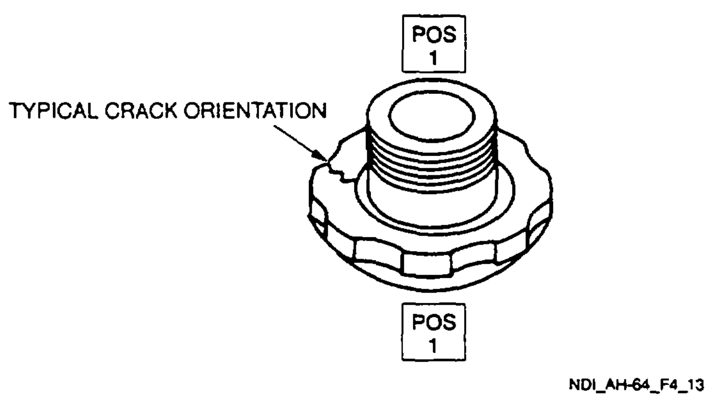


Figure 4-13. Rotor Mixer Support Assembly Bolt

4.14 TRANSMISSION ROTOR SUPPORT STRUT ASSEMBLIES (ET).

4.14.1 Description (Figure 4-1. Index No. 14). There are eight transmission rotor support strut assemblies. They are attached between rotor mast support base and the fuselage. They are located in the center fuselage area.

4.14.2 Defects. Defects can occur anywhere on the surface of the transmission rotor support strut assemblies. 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 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 transmission rotor support strut assemblies shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.14.3.3 Access. Access is from the main transmission access panels (Figure 1-4, Items L200 and R200).

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-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%		
VPos	- 20%		

HPF -0
H Pos - 80%
VPos - 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 the 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 similarto 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. None required.

4.14.5 System Securing. The transmissionrotor support strut assemblies, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.15 NACELLE CARRY-THROUGH POST ASSEMBLY (ET).

4.15.1 Description (Figure 4-1, Index No. 15). The nacelle carry-through post assembly is located beneath the catwalk center aft panel. There are two posts, left and right.

4.15.2 Defects. Defects can occur anywhere on the surface of the nacelle carry-through post assembly. No cracks are allowed.

4.15.3 Primary Method. Eddy Current.

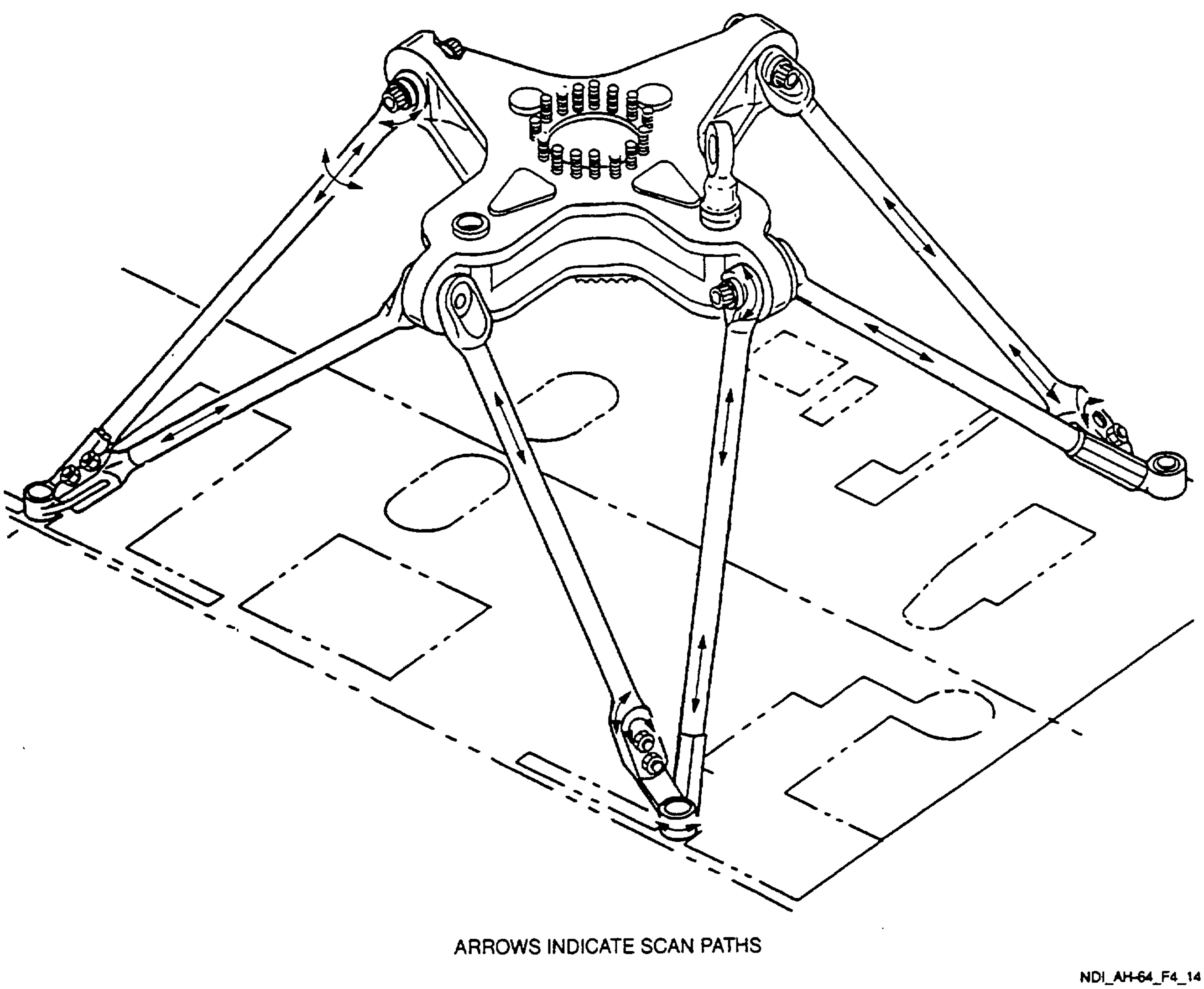


Figure 4-14. Transmission Rotor Strut Assemblies

4.15.3.1 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

4.15.3.2 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 nacelle carry-through post assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.15.3.3 Access. Access is through doors (Figure 1-4, Items T250L, T250R, T290L, T290R, and L325).

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-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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

4.15.3.6 Inspection Procedure. Refer to 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.

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 nacelle carry-through post assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1. Secure opened access doors.

4.16 WING ATTACHMENT FITTINGS ON WING AND FUSELAGE (ET).

4.16.1 Description (Figure 4-1. Index No. 16). The wing attach fittings on the wings and fuselage are located at F.S. 199.75, F.S. 214.50, and WL 139.34, and 129.2. All of the attach fittings are made from aluminum alloy.

4.16.2 Defects. This inspection is used to verify crack indications found visually on the wing attach fittings. 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, 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

4.16.3.2 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 wing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

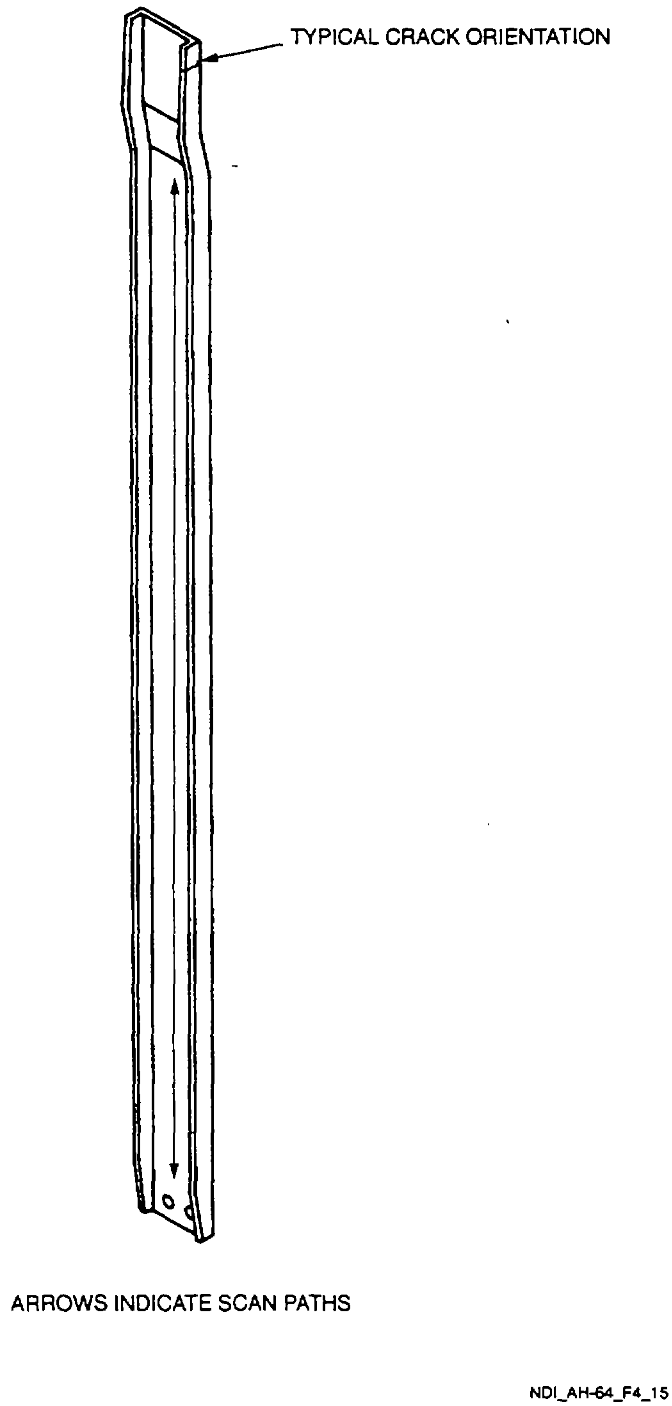


Figure 4-15. Nacelle Carry-Through Post Assembly

4.16.3.3 Access. Access is through wing fairings (Figure 1-4, Items LW10, RW10, LW11, and RW11).

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-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%		
VPos	- 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 the 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.

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. None required.

4.16.5 System Securing. The wing(s), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

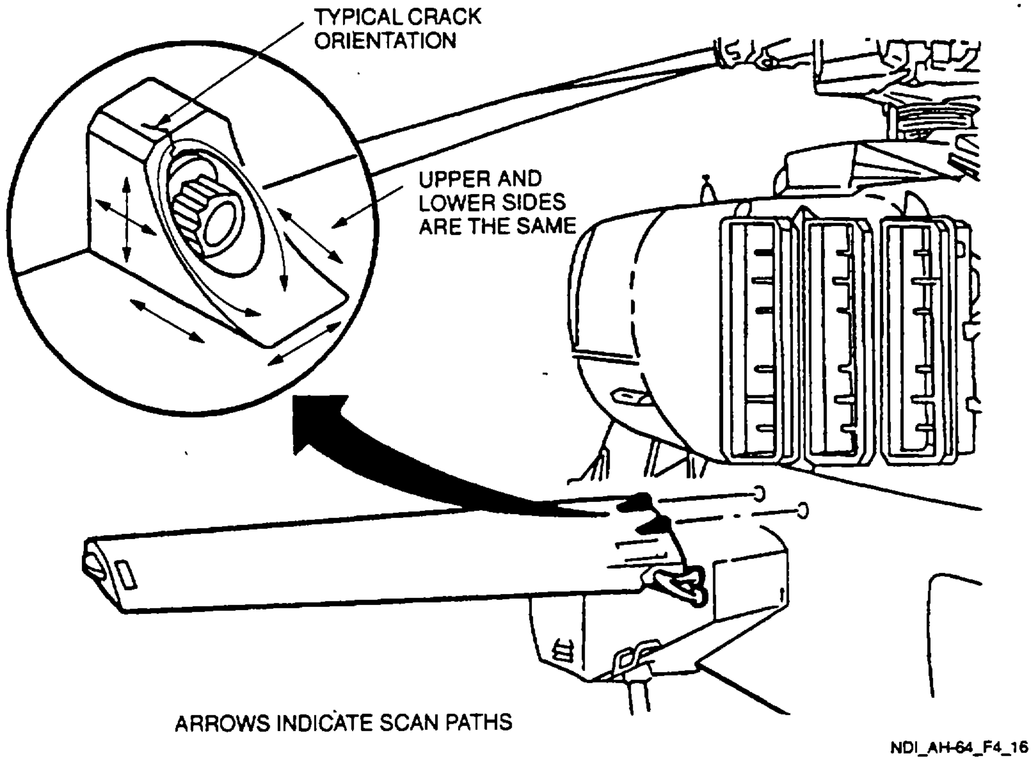


Figure 4-16. Wing Attachment fittings on Wing and Fuselage

4.17 WING RACK ATTACHMENT POINTS/MOUNTS (ET).

4.17.1 Description (Figure 4-1. Index No. 17). The wing rack attachment points/mounts provide a means and place to attach the pylons, fuel tanks, and ordinance to the wings.

4.17.2 Defects. This inspection is used to verify crack indications found visually on the wing rack attachment points/mounts. Pay particular attention to the areas around the yoke or clevis to include the hollow pin mounting area. No cracks are allowed.

4.17.3 Primary Method. Eddy Current.

4.17.3.1 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

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 in accordance with the applicable technical manuals listed in Table 1-1.

4.17.3.3 Access. Access is through the pylon nose fairing (Figure 1-4, Item P1).

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

4.17.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

4.17.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-17.

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 4.17.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 4.17.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

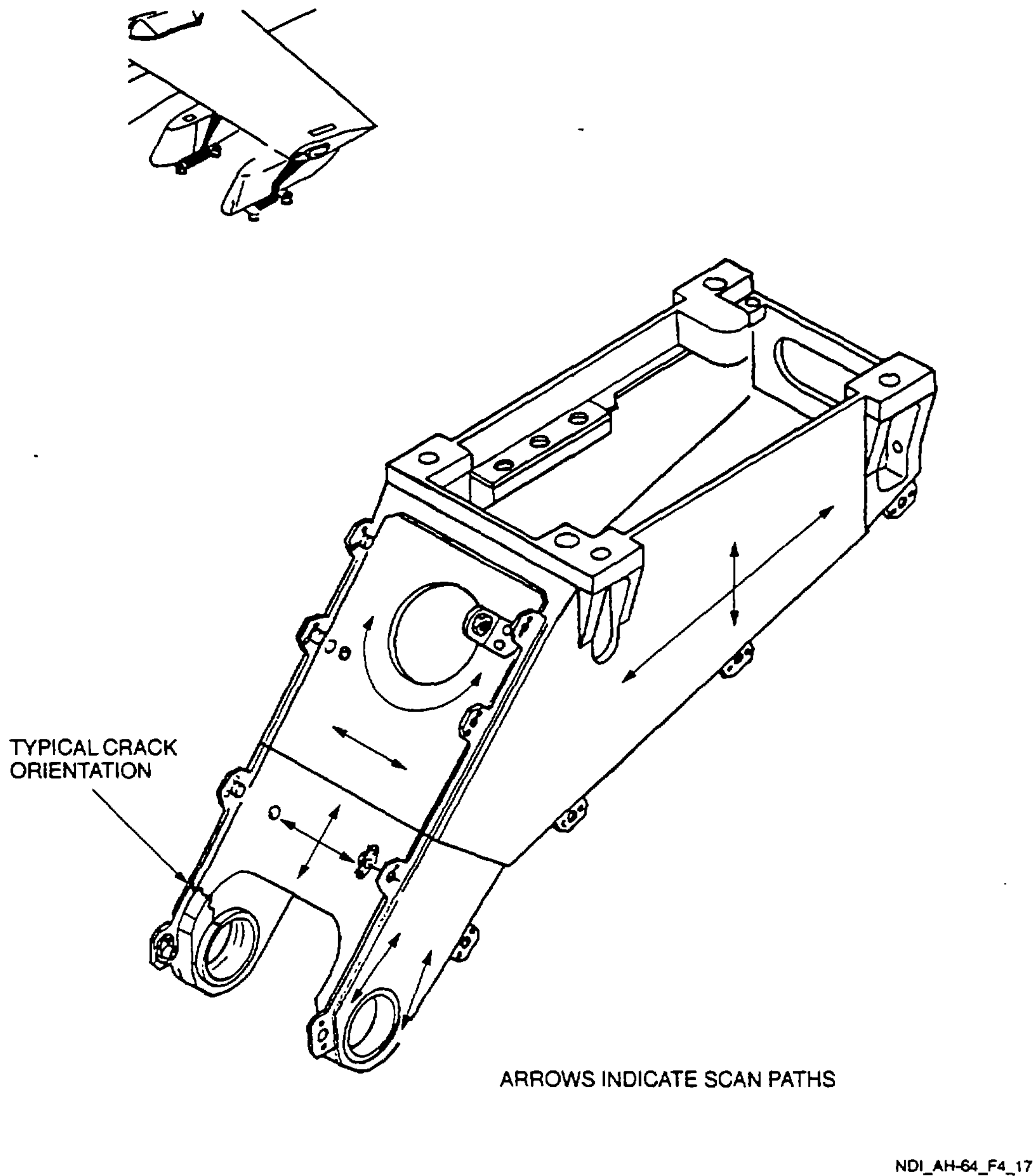


Figure 4-17. Wing Rack Attachment Points/Mounts

4.17.3.7 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. None required. Secure the pylon nose fairing.

4.18 TADS/PNVS SUPPORT FITTING (ET).

4.18.1 <u>Description (Figure 4-1. Index No. 18)</u>. The TADS/PNVS is located at F.S. 33.50. This lower support fitting supports and separates the TADS/PNVS from the forward cockpit area. It is constructed of aluminum alloy.

4.18.2 <u>Defects</u>. This inspection is used to verify crack indications found visually on the TADS/PNVS support fitting. 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 and the TADS/PNVS 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[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%		
VPos	- 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 the 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.

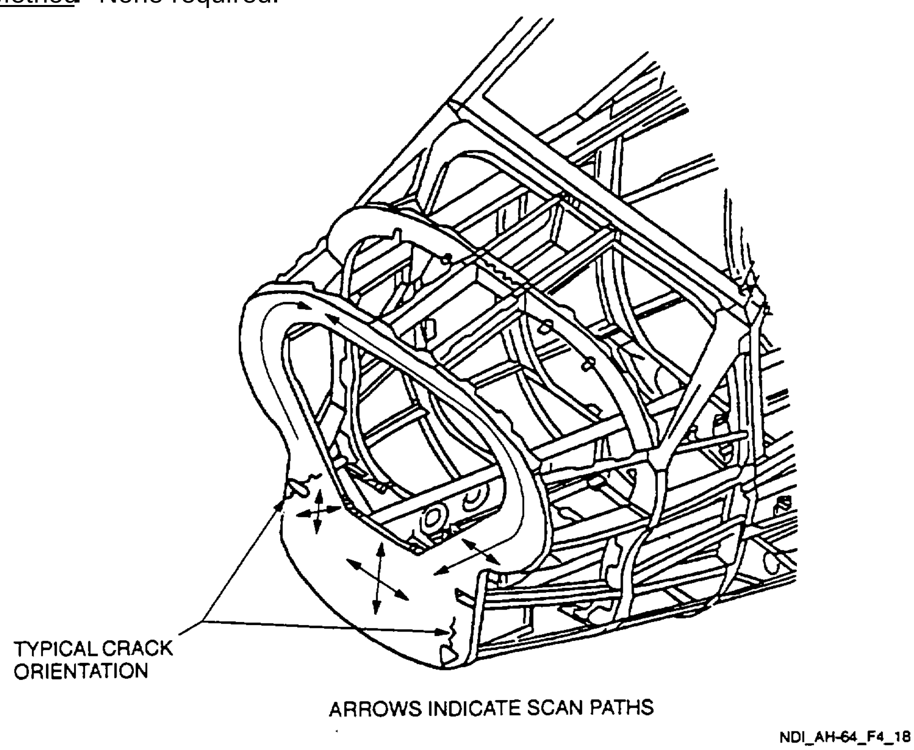


Figure 4-18. TADS/PNVS Support Fitting

4.18.5 System Securing. The TADS/PNVS support fitting requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.19 VERTICAL STABILIZER LUGS (ET).

4.19.1 Description (Figure 4-1. Index No. 19). The four vertical stabilizer lugs attach the vertical stabilizer to the tailboom.

4.19.2 Defects. Defects can occur anywhere on the surface of the vertical stabilizer lugs. 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 vertical stabilizer lugs shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.19.3.3 Access. Access is through the vertical stabilizer and vertical stabilizer leading edge fairings (Figure 1-4, Items UR 510 and L/R 530).

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-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%		
VPos	-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 obtainhorizontal 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 the 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.

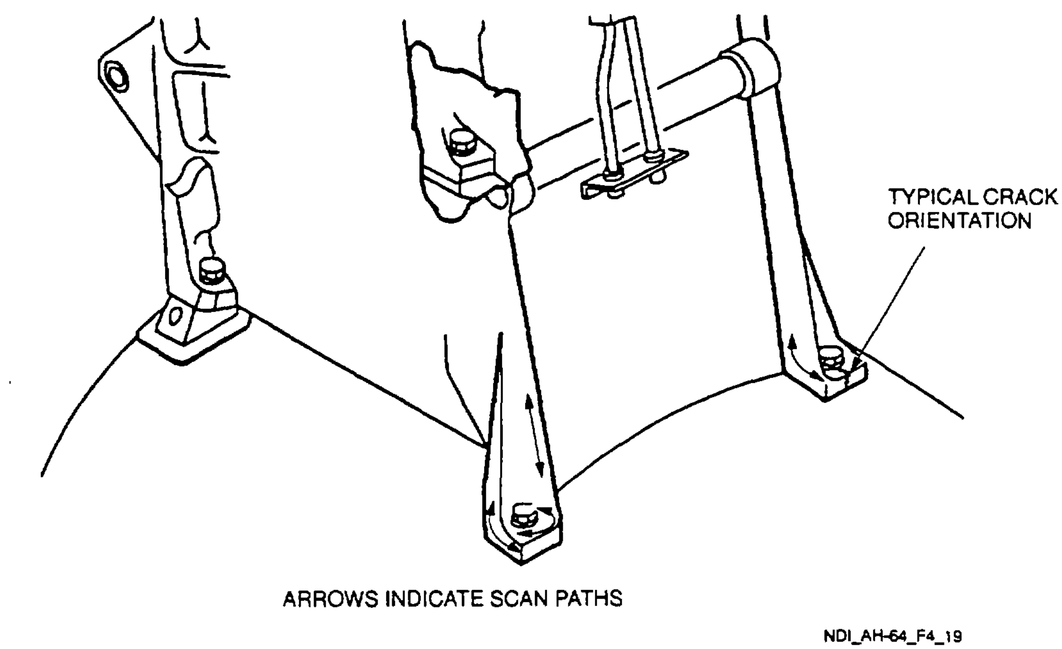


Figure 4-19. Vertical Stabilizer Lugs

4.19.4 Backup Method. None required.

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

4.20 VERTICAL STABILIZER BARREL NUTS (MT).

4.20.1 Description (Figure 4-1. Index No. 20) The vertical stabilizer barrel nuts are located beneath the vertical stabilizer lugs and may only be seen when the vertical stabilizer is removed.

4.20.2 Defects. This inspection is used to verify crack indications found visually on the vertical stabilizer barrel nuts. No cracks are allowed.

4.20.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

4.20.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the vertical stabilizer barrel nuts removed in accordance with the applicable technical manuals listed in Table 1-1.

4.20.3.3 Access. Not applicable.

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

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

4.20.3.6 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 4-20.

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.

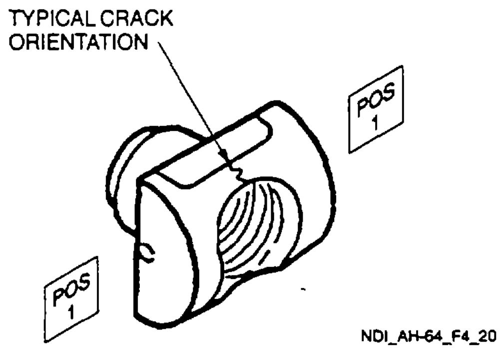


Figure 4-20. Vertical Stabilizer Barrel Nuts

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

4.20.3.8 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.

4.20.4 Backup Method. None required.

4.20.5 System Securing. Clean the vertical stabilizer barrel 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 vertical stabilizer requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.21 HORIZONTAL STABILATOR ACTUATOR FITTING (ET).

4.21.1 Description (Figure 4-1. Index No. 21). The horizontal stabilator actuator fitting is located on the horizontal stabilator and provides a mounting point for the horizontal stabilator actuator.

4.21.2 Defects. Defects can occur anywhere on the surface of the actuator fitting. 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

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 horizontal stabilator actuator shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.21.3.3 Access. Access is through tailboom cover (Figure 1-4, Items L545 and R545).

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".

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

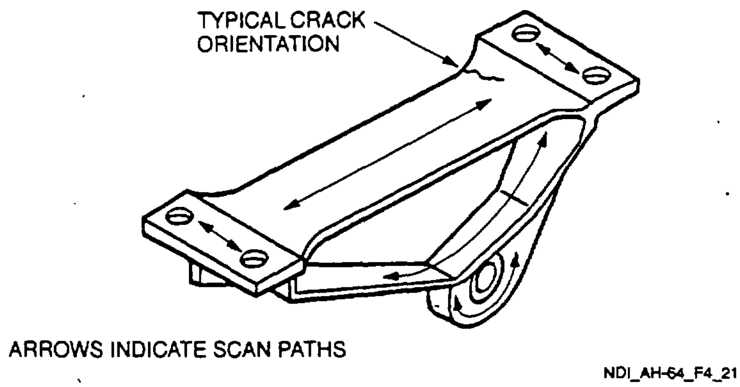


Figure 4-21. Horizontal Stabilator Actuator Fitting

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.

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 horizontal stabilator actuator requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.22 ENGINE ACCESS AND VENTILATION DOOR ASSEMBLY RIG CONNECTING LINK (PT).

4.22.1 Description (Figure 4-1. Index No. 22). The left and right engine ventilation door rig connecting links are the same. They act to control the air flow into the engine nacelle to assist in controlling engine temperatures.

4.22.2 Defects. This inspection is used to verify crack indications found visually on the connecting links. No cracks are allowed.

4.22.3 Primary Method. Fluorescent Penetrant.

4.22.3.1 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.

4.22.3.2 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 link shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.22.3.3 Access. Access is through doors (Figure 1-4, Items LN3 or RN3, opened).

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

4.22.3.5 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 4-22.

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

4.22.4 Backup Method. None required.

4.22.5 System Securing. Clean the link to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The door assembly rig connecting link, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.23 AFT INBOARD ENGINE MOUNT SUPPORT (ET).

4.23.1 Description (Figure 4-1. Index No. 93). The aft inboard engine mount supports are made of titanium and provide support at the aft end of the engines. There are two aft engine mount supports, one on each side of the helicopter.

4.23.2 Defects. Defects can occur anywhere on the surface of the aft inboard engine mount support. The primary purpose of this inspection is for: (1) confirmation of crack indications previously identified by visual inspection; (2) verification that dents, scratches, or gouges do not conceal cracks; and (3) identifying the size of confirmed cracks. Typically, no cracks are allowed. In some cases, cracks may be allowed up to the size specified in the associated technical manuals listed in Table 1-1.

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 titanium (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

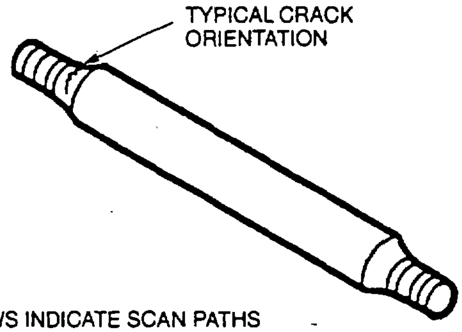


Figure 4-22. Engine Access and Ventilation Door Assembly Rig Connecting Link

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

4.23.3.3 Access. Not applicable.

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-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%		
VPos	- 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 the 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. None required.

4.23.5 System Securing. The engine requires installation in accordance with the applicable technical manuals listed in Table 1-1.

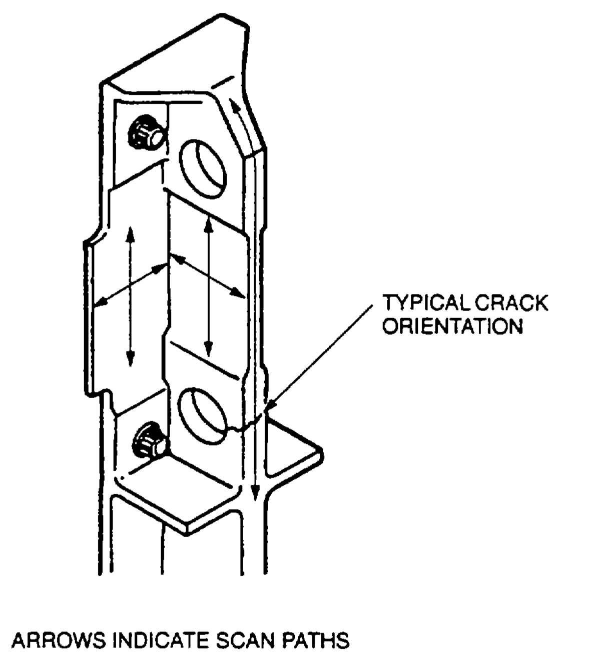


Figure 4-23. Aft Inboard Engine Mount Support

4.24 ENGINE NACELLE STRUT ATTACHMENT AREA (ET).

4.24.1 Description (Figure 4-1. Index No. 24). The two engine nacelle struts are located inside the engine nacelle at the rear end and above each engine. The struts and the nacelle attachment area are aluminum.

4.24.2 Defects. Defects can occur anywhere on the surface of the engine. nacelle strut attachment area. 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 engine nacelle strut shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.24.3.3 Access. Access is through the engine work platform door (Figure 1-4, Items RN 1 and LN 1).

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-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%		
VPos	- 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 the 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. None required.

4.24.5 System Securing. The engine nacelle strut, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.25 MAIN LANDING GEAR TRAILING ARMS (MT).

4.25.1 Description (Figure 4-1. Index No. 25) The left and right main landing gear trailing arms are the largest tubular portion of each of the landing gear assemblies. The upper end attaches to the cross tube and the lower end is the axle.

4.25.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear trailing arms. No cracks are allowed.

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, refer to Table 1-8

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.

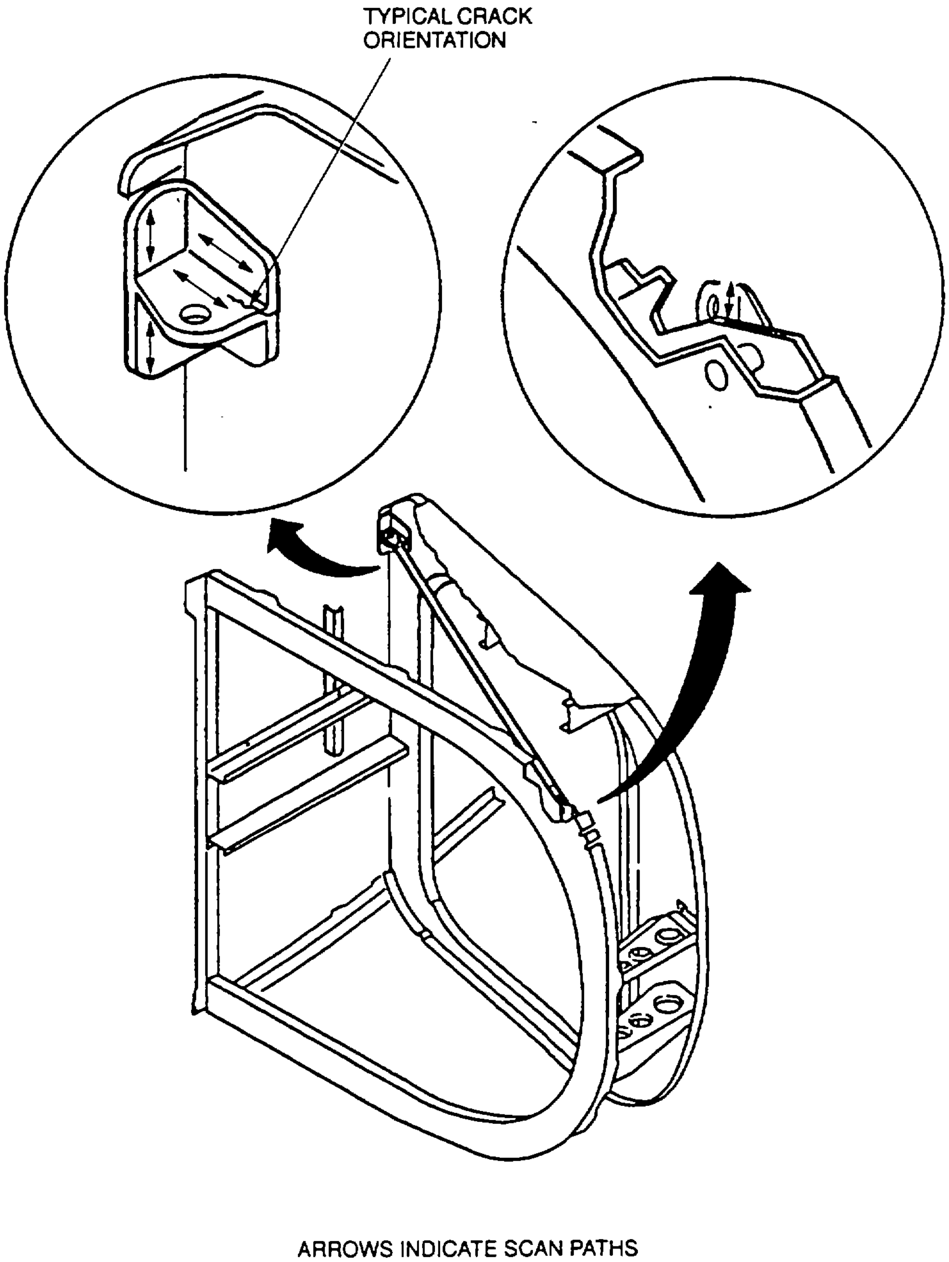


Figure 4-24. Engine Nacelle Strut Attachment Area

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 main landing gear trailing arms shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.25.3.3 Access. Access is from panels (Figure 1-4, Items L140 and R140).

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

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 5.

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

4.25.5 <u>System Securing</u>. Clean the main landing gear trailing arms 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 landing gear trailing arms, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.26 MAIN LANDING GEAR WHEELS (ET).

4.26.1 <u>Description (Figure 4-1. Index No. 26)</u>. The main landing gear wheels are two-piece aluminum. The items typically requiring inspection are the aluminum wheel halves, the valve stem boss, the valve stem hole, threaded areas, and areas around threaded inserts.

4.26.2 <u>Defects</u>. This inspection is used to verify crack indications found visually on the main landing gear wheels. No cracks are allowed.

4.26.3 <u>Primary Method</u>. Eddy Current.

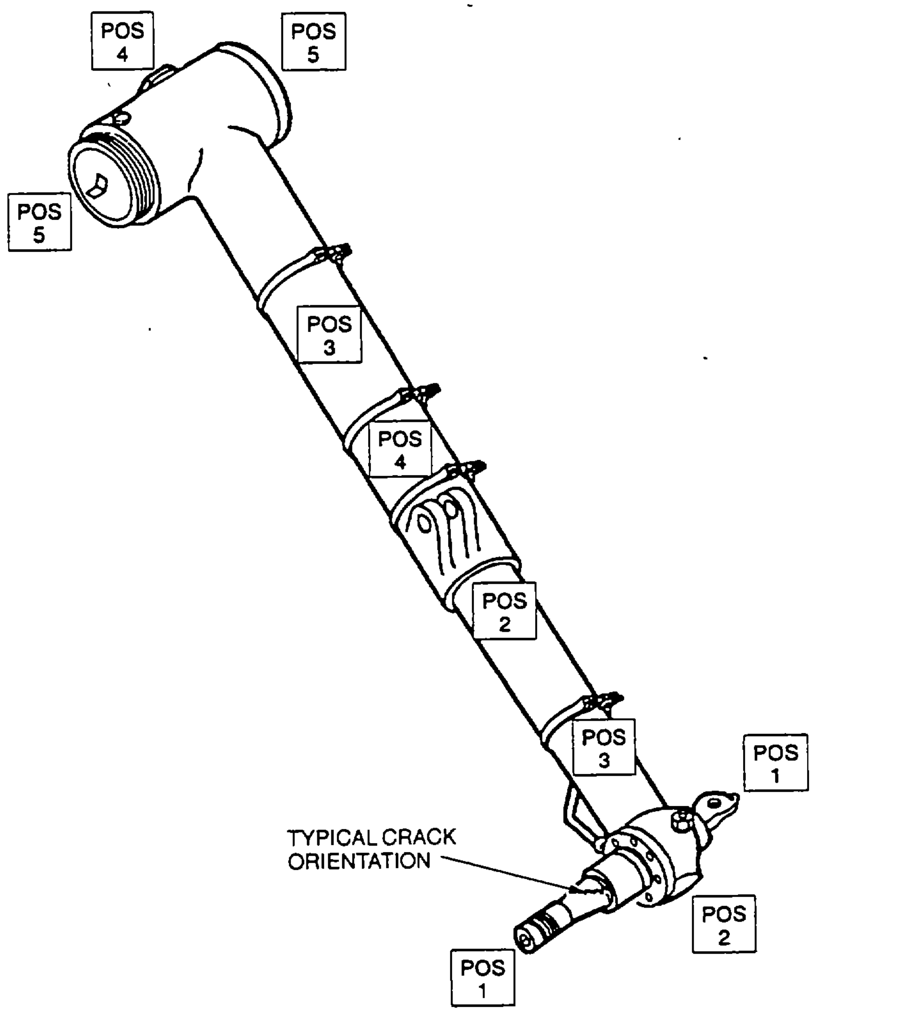


Figure 4-25. Main Landing Gear Trailing Arms

4.26.3.1 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

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 this procedure. If required, the main landing gear wheel assembly shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

4.26.3.3 Access. Not applicable.

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.

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%		
VPos	-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 the standard instrument display shown in Figure 1-7.)

4.26.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 4-26.

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 4.26.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the-probes are changed, steps 4.26.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

4.26.4 Backup Method. None required.

4.26.5 System Securing. The main landing gear wheel assembly requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1.

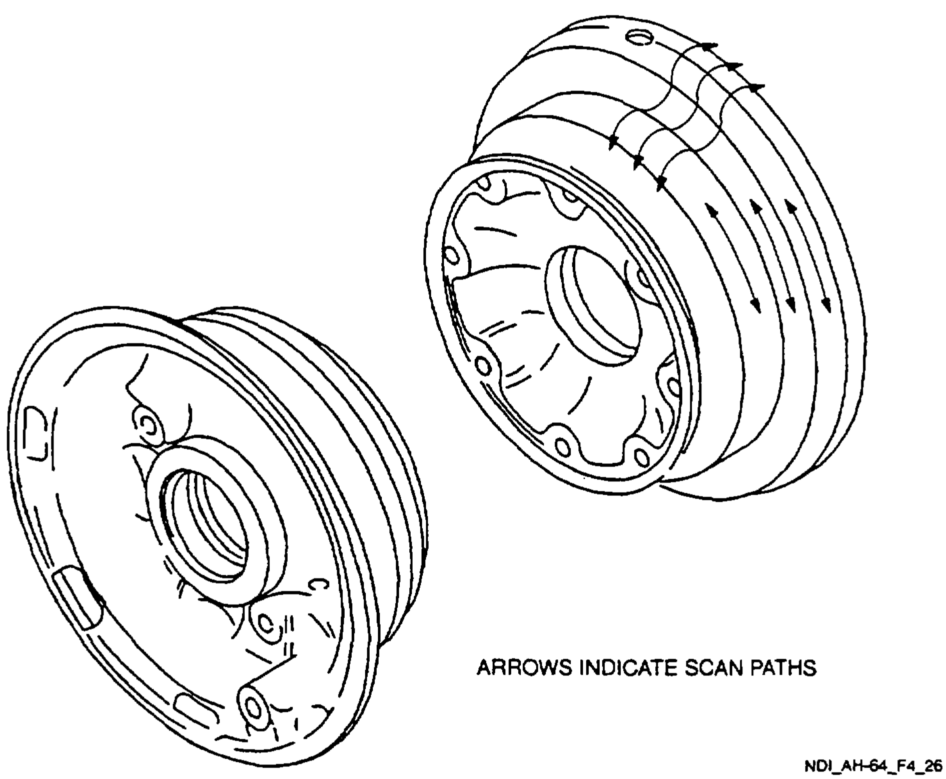


Figure 4-26. Main Landing Gear Wheels

4.27 MAIN LANDING GEAR SHOCK STRUT HOUSING, PISTON, AND ROD ENDS (MT).

4.27.1 Description (Figure 4-1. Index No. 27). The main landing gear shock strut assembly attaches to the lower end of the landing gear trailing arm. The upper end attaches to the fuselage at the landing gear support mount.

4.27.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear shock strut housing, pistons, rod ends, and locking shear collar. 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, refer to Table 1-8

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.

4.27.3.2 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 main landing gear shock struts shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.27.3.3 Access. Access is through the main landing gear shock strut door and ammunition feed mechanism (forward) fairing (Figure 1-4, Items L/R 135 and L/R 140).

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 positions 2, 3, and 4.

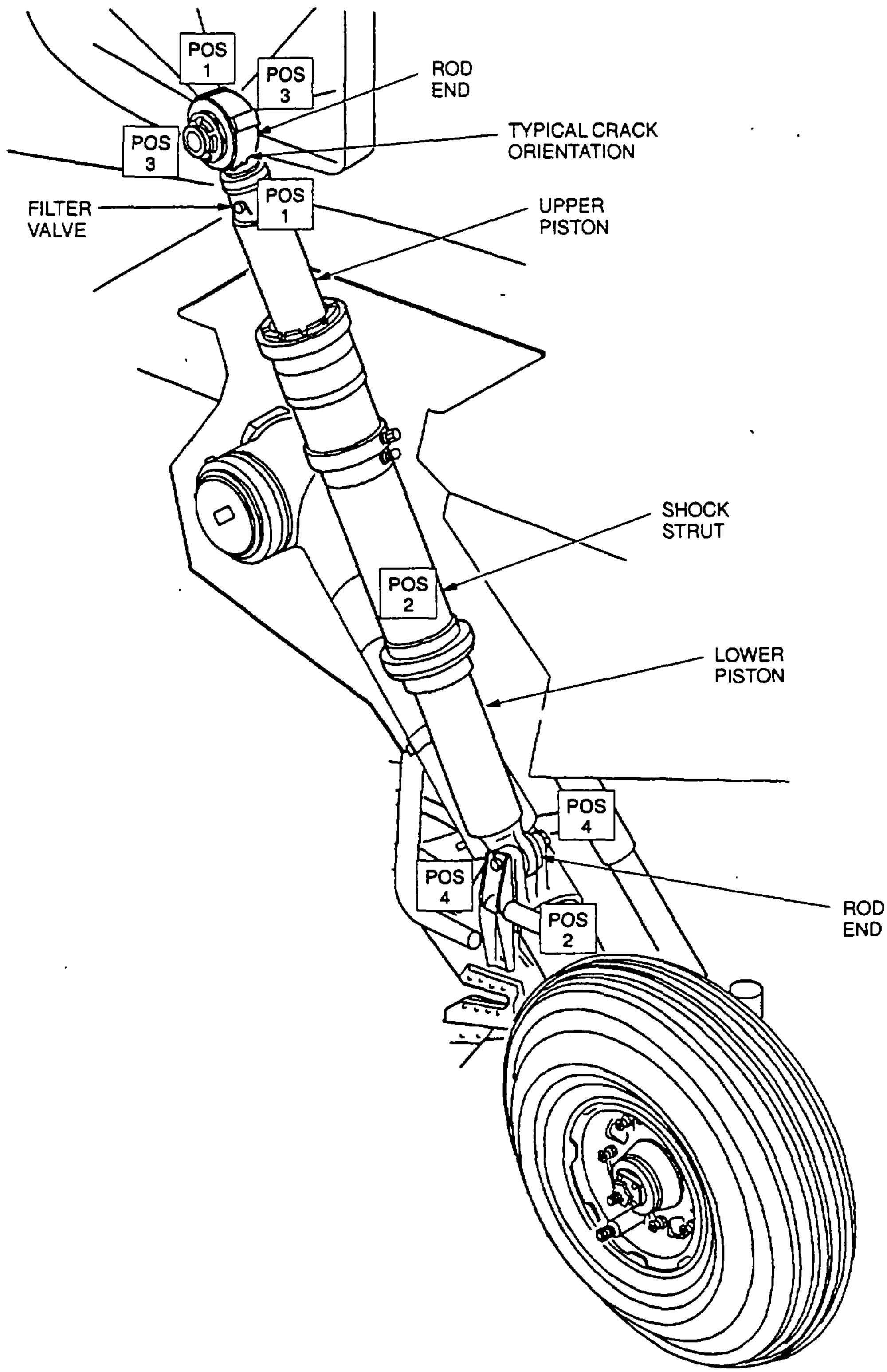


Figure 4-27. Main Landing Gear Shock Strut Housing, Piston, and Rod Ends

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 main landing gear shock strut rod ends 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 landing gear shock strut, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.28 MAIN LANDING GEAR LOWER-STRUCTURAL SUPPORT (MT).

4.28.1 Description (Figure 4-1. Index No. 28). The main landing gear lower structural support is a boomerang-shaped tubular part attached to the cable cutter on one end and a clamp around the trailing arm on the other. There are two supports, one on each side of the helicopter.

4.28.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear lower structural support attachment area. 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, refer to Table 1-8

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.

4.28.3.2 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 required, the main landing gear lower structural support shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.28.3.3 Access. Not applicable.

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.

4.28.3.7 Marking and Recording of Inspection Results. Mark and record 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 main landing gear lower structural support thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After N DI, paragraph 1.4.16. The main landing gear lower structural support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.29 MAIN LANDING GEAR JACK PAD ADAPTER (MT).

4.29.1. Description (Figure 4-1. Index No. 29) The main landing gear jack pad adapters are found at the inside of each of the main landing gear.

4.29.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear jack pad adapter. No cracks are allowed.

4.29.3 Primary Method Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

e. Consumable Materials, refer to Table 1-8

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

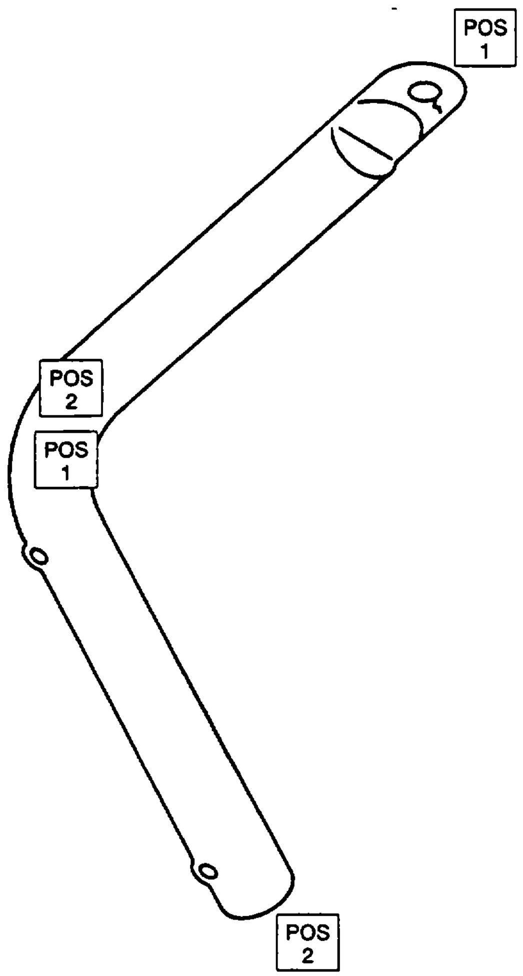


Figure 4-28. Main Landing Gear Lower Structural Support

NOTE

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

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 applicable positions of this procedure. If required, the main landing gear jack pad adapter shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.29.3.3 Access. Not applicable.

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

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

4.29.3.6 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 4-29.

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 4.29.3.8.

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

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

4.29.3.8 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.

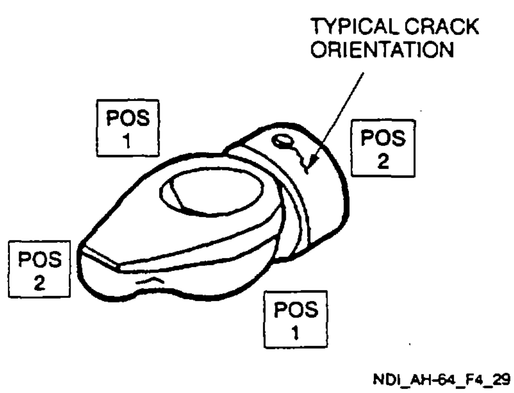


Figure 4-29. Main Landing Gear Jack Pad Adapter

4.29.4 Backup Method. None required.

4.29.5 System Securing. Clean the main landing gear jack pad 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 main landing gear jack pad, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.30 MAIN LANDING GEAR TRAILING ARM CROSS TUBE (MT).

4.30.1 Description (Figure 4-1. Index No. 30). The main landing gear trailing arm cross tube is the location at which the upper end of the trailing arm is attached to the helicopter fuselage.

4.30.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear trailing arm cross tube. 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, refer to Table 1-8

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.

4.30.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main landing gear trailing arm 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. Positions required for this inspection are illustrated in Figure 4-30.

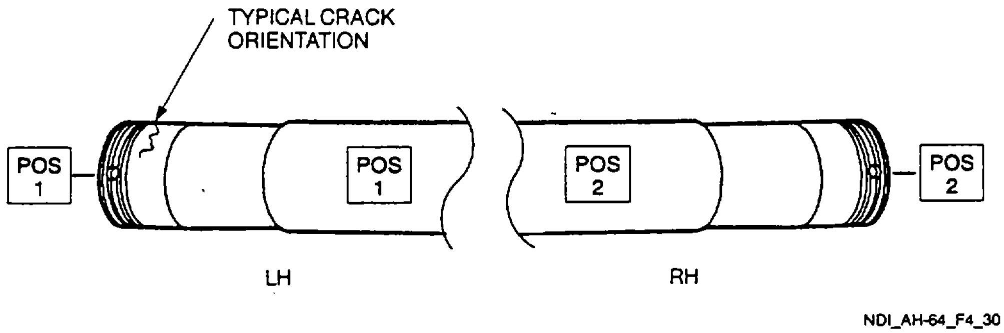


Figure 4-30. Main Landing Gear Trailing Arm Cross Tube

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 4.30.3.8.

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

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 main landing gear trailing arm cross 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 main landing gear trailing arm requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.31 MAIN LANDING GEAR SHOCK STRUT MOUNT SHAFT (MT). (Per TB 1-1520-238-20-81)

4.31.1 Description (Figure 4-1. Index No. 31) The main landing gear shock strut mount shaft projects from the fuselage and the main landing gear shock strut is attached to it. There is one for each main landing gear.

4.31.2 Defects. This inspection is used to verify crack indications found visually on the main landing gear shock strut mount shaft. No cracks are allowed.

4.31.3 Primary Method Magnetic Particle.

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

a. Hand-held Magnetic Coil

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

4.31.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the main landing gear shock strut 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. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.31.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The position required for this inspection are illustrated in Figure 4-31.

a. Place coil on part as shown.

b. 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.

c. Inspect for cracks using the black light.

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

4.31.3.8 Demagnetization. Place the coil in the same position used for magnetizing. Press the test switch and withdraw the coil from the part for a distance of two feet before releasing the switch.

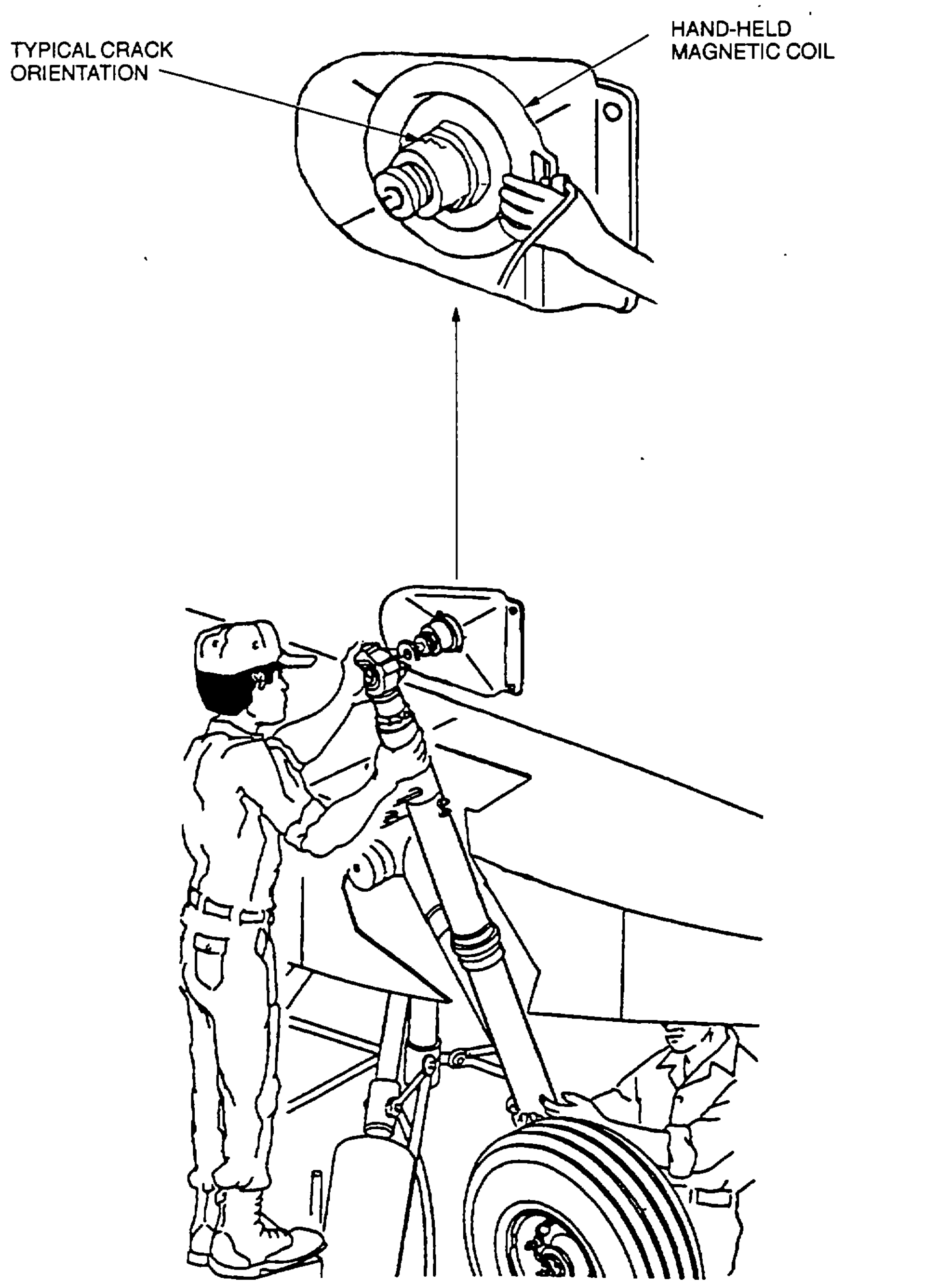


Figure 4-31. Main Landing Gear Shock Strut Mount Shaft

4.31.4 Backup Method. None required.

4.31.5 System Securing. Clean the main landing gear mount 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 main landing gear shock strut requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.32 TAIL LANDING GEAR FORK (ET).

4.32.1 Description (Figure 4-1. Index No. 32). The tail landing gear fork holds and attaches the tail wheel to the helicopter by means of a shaft to the tail landing gear trailing arm assembly.

4.32.2 Defects. Defects can occur anywhere on the surface of the tail landing gear fork. 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. 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 landing gear fork 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-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%

VPos - 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 the 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.

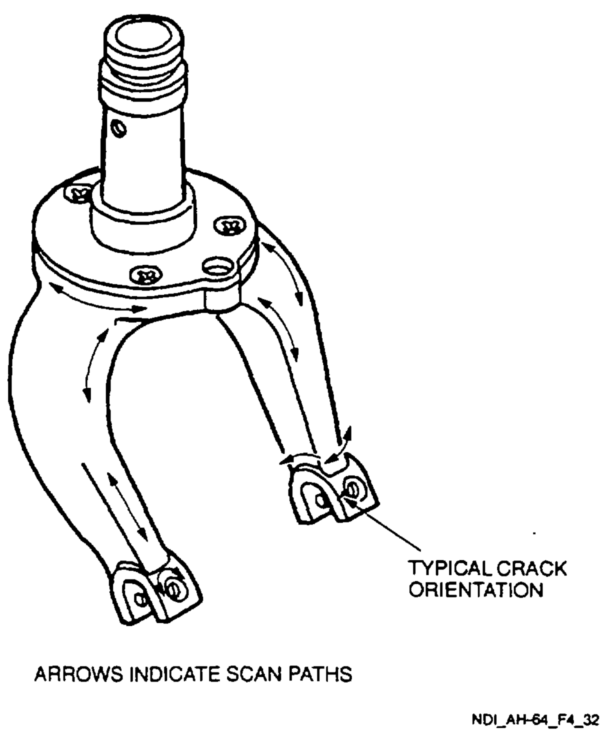


Figure 4-32. Tail Landing Gear Fork

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. None required.

4.32.5 System Securing. The tail landing gear fork, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

4.33 TAIL WHEEL (ET).

4.33.1 Description (Figure 4-1. Index No. 33) The tail wheel comes either with or without a grease fitting. The wheels are the same for inspection purposes. The wheel assembly consists of male and female wheel halves.

4.33.2 Defects. This inspection is used to verify crack indications found visually on the tail wheel. No cracks are allowed.

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. 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 wheel assembly shall be removed and disassembled in accordance with the applicable technical manuals listed in Table 1-1.

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-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%
VPos	- 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 the 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.

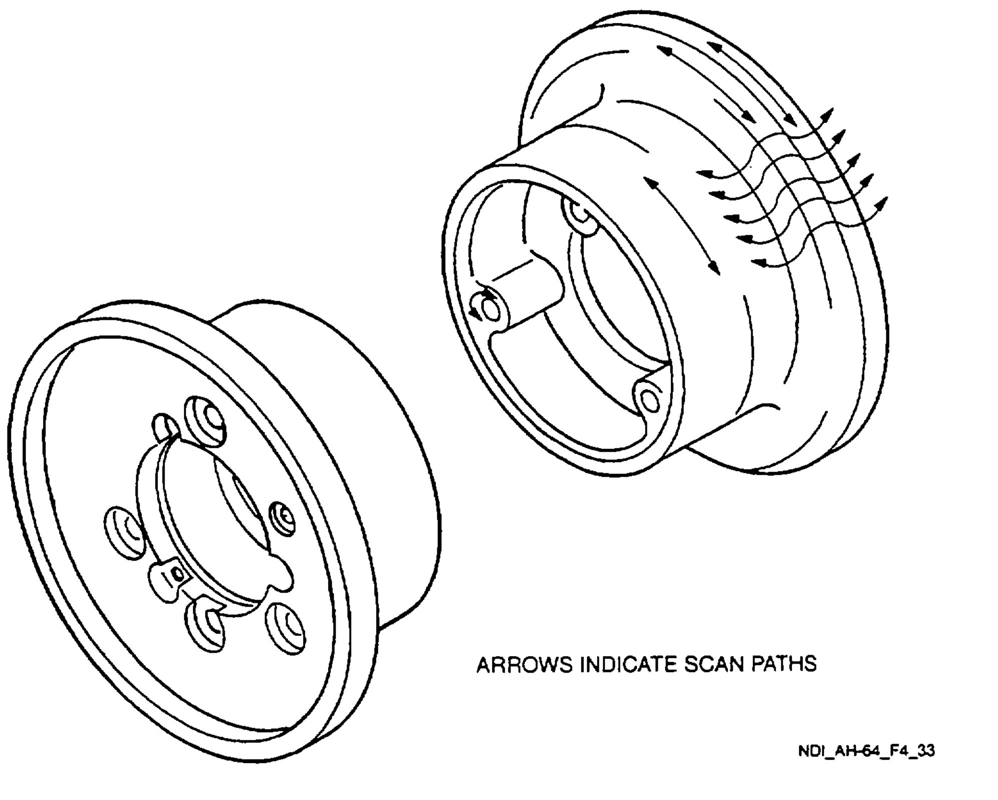


Figure 4-33. Tail Wheel

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. None required.

4.33.5 System Securing. The tail wheel, if removed, requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1.

4.34 TAIL LANDING GEAR SHOCK STRUT (MT).

4.34.1 Description (Figure 4-1. Index No. 34). The tail landing gear shock strut is attached to the aft end of the trailing arm to the aft upper area of the empennage. It absorbs shock generated by the tail landing gear.

4.34.2 Defects. This inspection is used to verify crack indications found visually on the tail landing gear shock strut. No cracks are allowed.

4.34.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

4.34.3.2 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 tail landing gear shock strut shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.34.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

4.34.3.6 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 4-34.

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 4.34.3.8.
f. Repeat steps a. through e. for positions 2, 3, and 4.

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

4.34.3.8 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.

4.34.4 Backup Method. None required.

4.34.5 System Securing. Clean the tail landing gear shock strut 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 landing gear shock strut, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

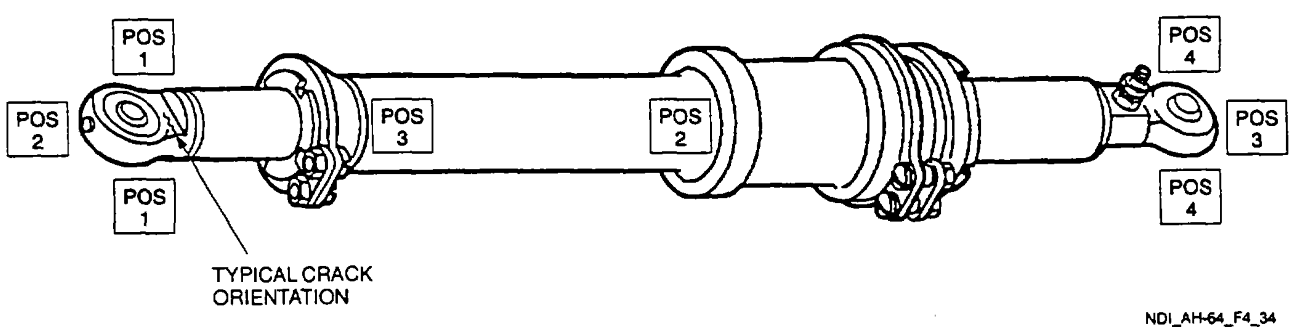


Figure 4-34. Tail Landing Gear Shock Strut

4.35 TAIL LANDING GEAR TRAILING ARMS (ET).

4.35.1 Description (Figure 4-1. Index No. 35) The tail landing gear trailing arms are the two lower arms attaching the tail landing gear to the helicopter.

4.35.2 Defects. Defects can occur anywhere on the surface of the tail landing gear trailing arms. 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 tail landing gear trailing arms shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

4.35.3.3 Access. Not applicable.

4.35.3.4 4Preparation 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-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%		
VPos	- 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 the 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 tail landing gear trailing arms, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.36 TAIL LANDING GEAR ACTUATING CYLINDER ASSEMBLY (ET).

4.36.1 Description (Figure 4-1. Index No. 36). The tail landing gear actuating cylinder allows the tail wheel to lock.

4.36.2 Defects. Defects can occur anywhere on the surface of the tail landing gear actuating cylinder. 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, 100KHz-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 tail landing gear actuating cylinder shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

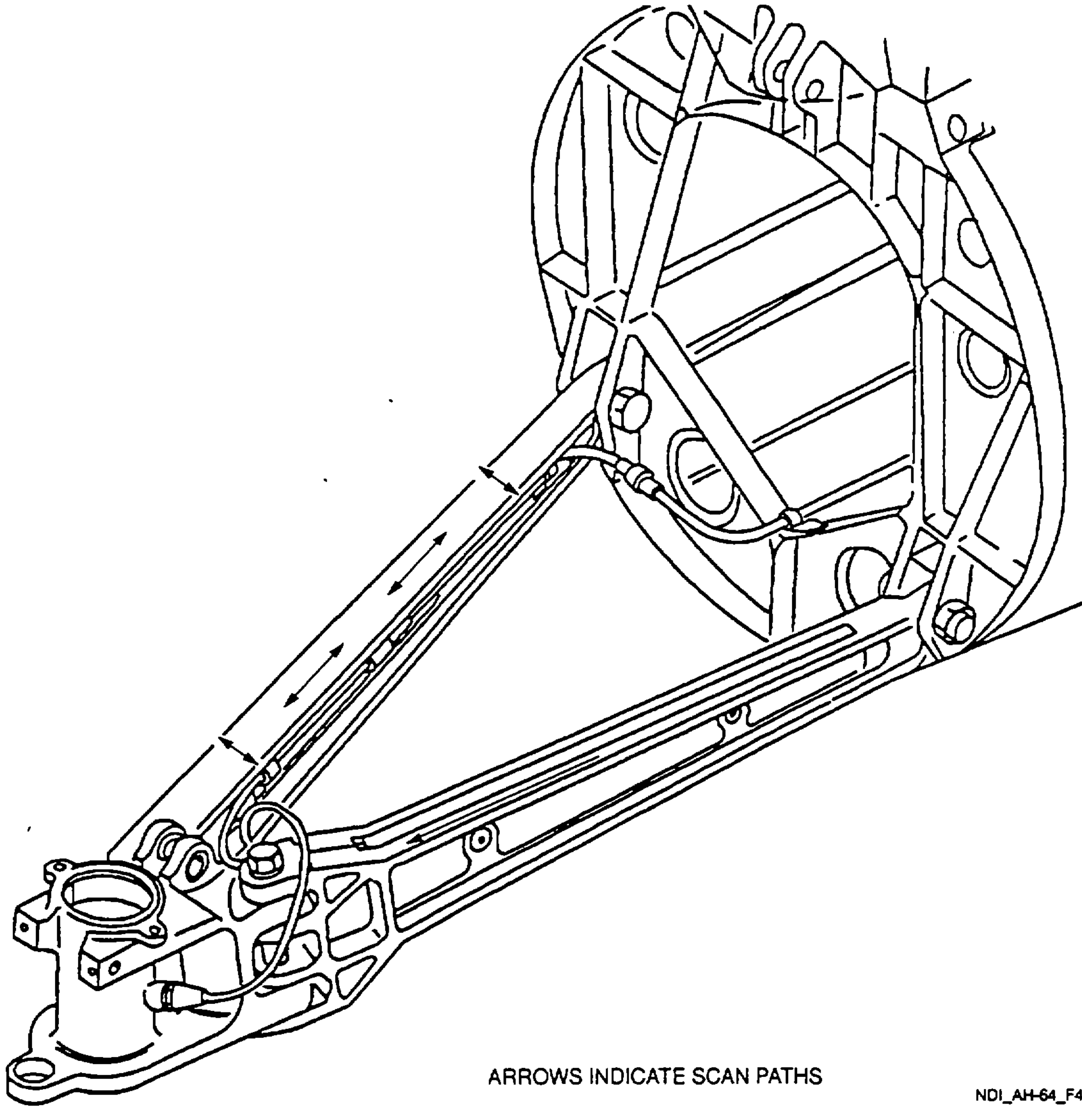


Figure 4-35. Tail Landing Gear Trailing Arms

4.36.3.3 Access. Not applicable.

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-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%		
VPos	- 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 the 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 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 Backup Method. None required.

4.36.5 System Securing. The tail landing gear actuating cylinder, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

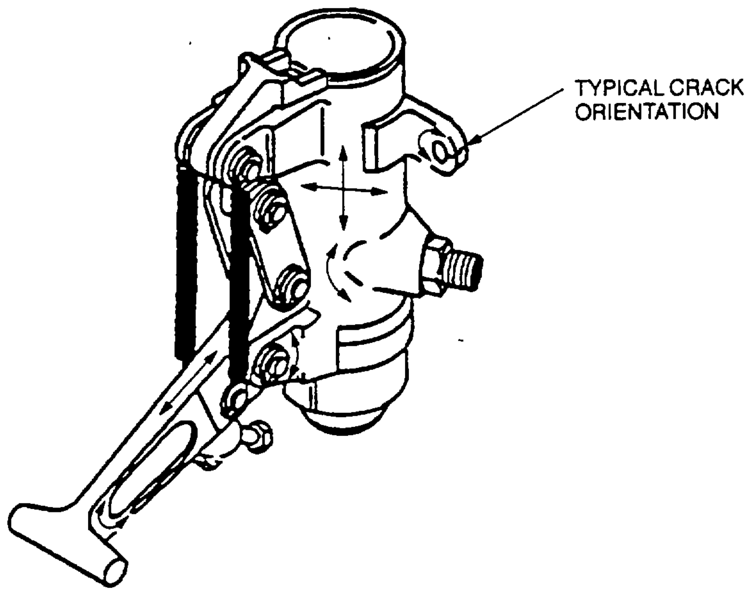


Figure 4-36. Tail Landing Gear Actuating Cylinder

4.37 BRAKE SYSTEM COMPONENTS (PT).

4.37.1 Description (Figure 4-1'. Index No. 37) The following brake system components are covered by this procedure: parking brake master cylinder and components; parking brake rotary direct valve and attaching components; and brake control valves and attaching components. This is a generic procedure to cover all parts requiring inspection.

4.37.2 Defects. This inspection is used to verify crack indications found visually on the brake system components. No cracks are allowed.

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-1-25135 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 brake system components removed 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.

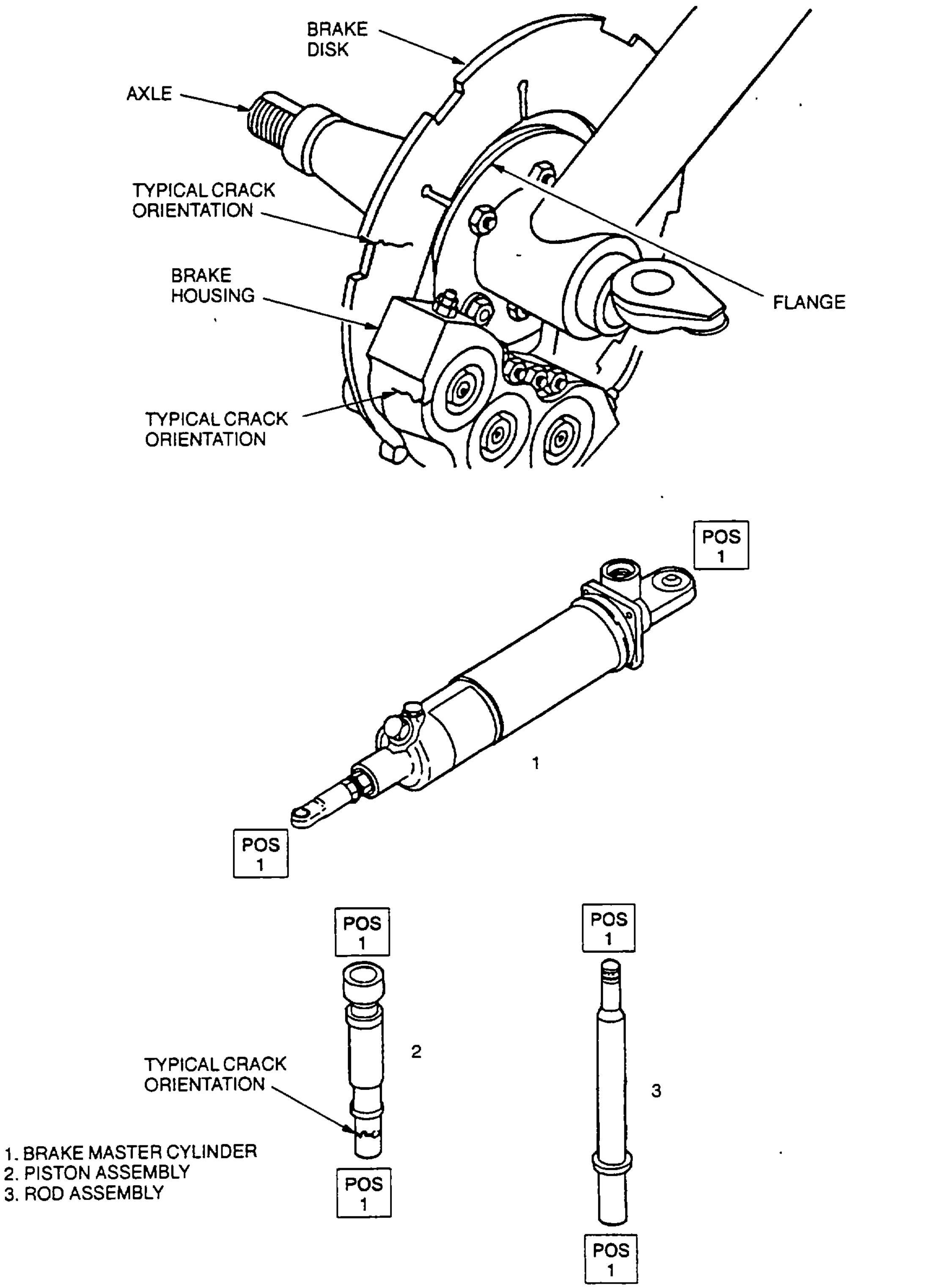


Figure 4-37. Brake System Components

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 brake system components to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The brake system components require installation in accordance with the applicable technical manuals listed in Table 1-1.

4.38 GENERAL HELICOPTER ATTACHING HARDWARE (MT).

4.38.1 Description (Figure 4-1 Index No. 38). This inspection is applicable to all attaching hardware contained throughout the helicopter sections.

4.38.2 Defects. Defects can occur anywhere on the surface of any attaching hardware. No cracks are allowed.

4.38.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

4.38.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe rgund maintenance and the identified hardware removed in accordance with the 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.

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

4.38.3.6 Inspection Procedure. A magnetic field shall be applied to the part perpendicular to the orientation of possible cracks. The positions generally required for this inspection are illustrated in Figure 4-38.

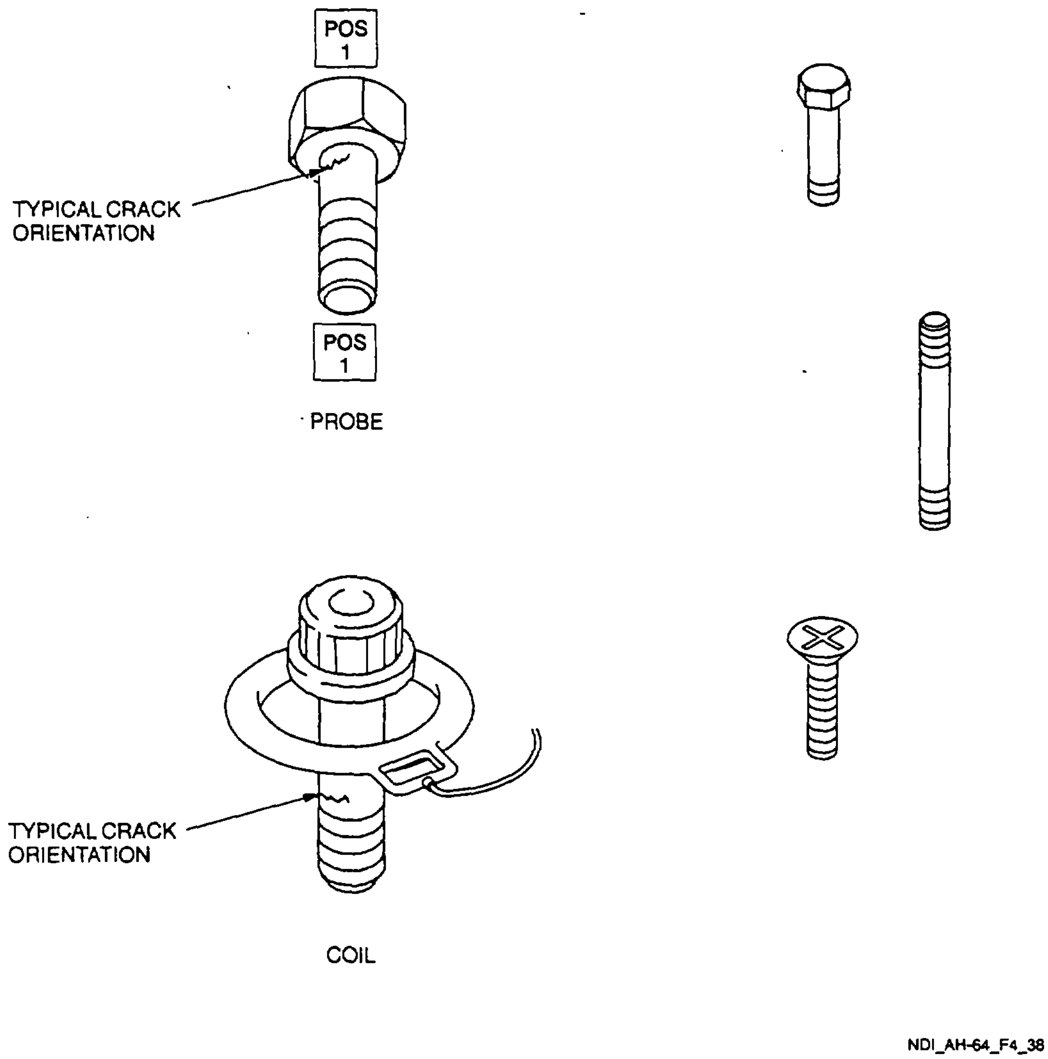


Figure 4-38. General Helicopter Attaching Hardware

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.

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

4.38.3.8 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.

4.38.4 Backup Method. None required.

4.38.5 System Securing. Clean the identified 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 identified hardware requires installation in accordance with the applicable technical manuals listed in Table 1-1.

SECTION V
ENGINE SYSTEM

5. GENERAL.

5.1 CONTENTS. The engine system inspection items covered in this section are those items of the AH-64A helicopter gas turbine engine, model T700-GE-701, and components listed in Table 5-1, Engine System 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 System Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Aft Inboard and Aft Lower Engine Mounts	ET	5.2	5-2
3	Forward Inboard Engine Mount	MT	5.3	5-3
4	Forward Lower Engine Mount	MT	5.4	5-4
5	Engine Tubing, Couplings, Air Ducts, Fittings, Supports, Brackets, and Clips	PT	5.5	5-5
6	Air Inlet Assembly	ET	5.6	5-6
7	Engine Air Inlet "V" Band Clamp	PT	5.7	5-7
8	Starter Flange	ET	5.8	5-8
9	Engine Shroud	PT	5.9	5-9
10	Engine Load Demand Spindle Bellcrank Support	ET	5.10	5-10
11	Engine Components	PT	5.11	5-11

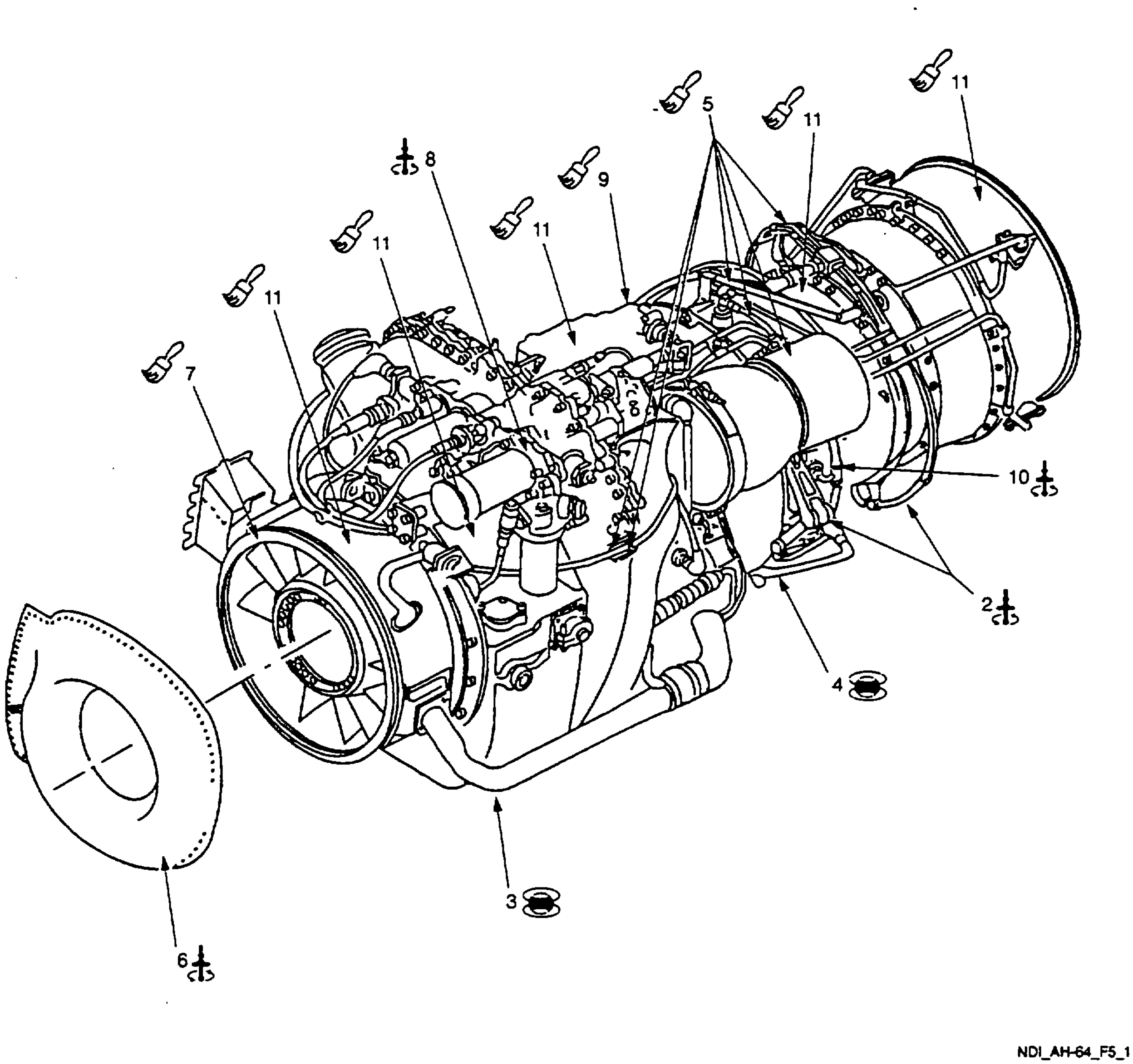


Figure 5-1. Engine System

5.2 AFT INBOARD AND AFT LOWER ENGINE MOUNTS (ET).

5.2.1 Description (Figure 5-1. Index No. 2) The aft inboard and aft lower mounts are made of titanium and attach to the diffuser case. This task is applicable to both mounts on both engines.

5.2.2 Defects. This inspection is used to verify crack indications found visually on the engine mounts. No cracks are allowed.

5.2.3 Primary Method Eddy Current.

5.2.3.1 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 titanium (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

5.2.3.2 Preparation of Helicopter. The heliopter 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 engine mounts shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.2.3.3 Access. Access is through the engine door (Figure 1-4, Items R/L N3 and N4).

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

5.2.3.5 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	- 30°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

5.2.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 5-2.

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 5.2.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 5.2.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

5.2.3.7 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. The engine mounts, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

5.3 FORWARD INBOARD ENGINE MOUNT (MT).

5.3.1 Description (Figure 5-1. Index No. 3). The forward inboard engine mount is attached to the forward inboard portion of the engine main frame.

5.3.2 Defects. This inspection is used to verify crack indications found visually. No cracks are allowed.

5.3.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

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

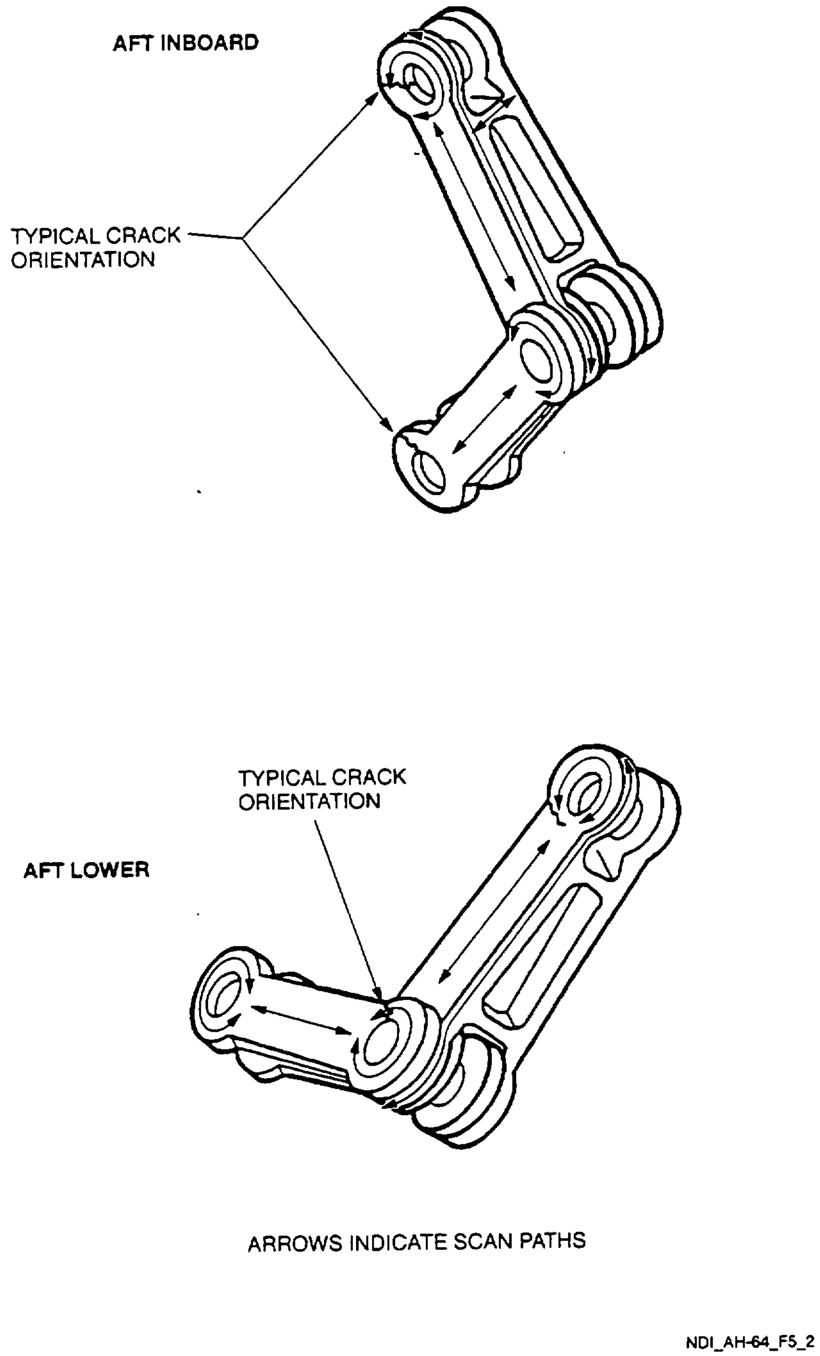


Figure 5-2. Aft Inboard and Aft Lower Engine Mounts

5.3.3.3 Access. Remove engine.

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

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

5.3.3.6 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 5-3.

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 lght.
e. Demagnetize before moving to the next position. Refer to paragraph 5.3.3.8.
f. Repeat steps a. through e. for positions 2 and 3.

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

5.3.3.8 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.

5.3.4 Backup Method. None required.

5.3.5 System Securing. Clean the engine mount 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 requires installation in accordance with the applicable technical manuals listed in Table 1-1.

5.4 FORWARD LOWER ENGINE MOUNT (MT).

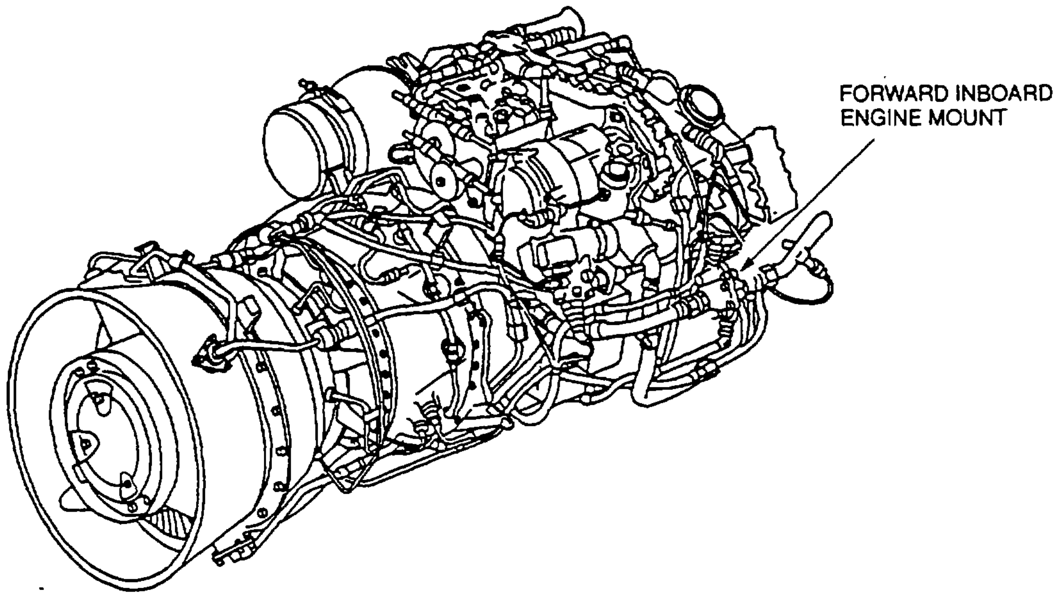
5.4.1 Description (Figure 5-1. Index No. 4). The forward lower engine mount is attached to the lower forward portion of the engine main frame. This task is applicable to mounts on both engines.

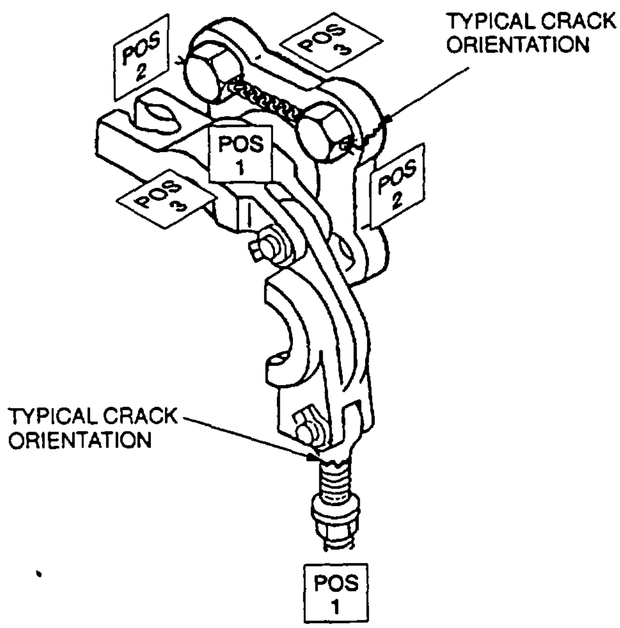
5.4.2 Defects. This inspection is used to verify crack indications found visually. No cracks are allowed.

5.4.3 Primary Method. Magnetic Particle.

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

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





NDI_AH-64_FS_3

Figure 5-3. Forward Inboard Engine Mount

NOTE

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

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

5.4.3.3 Access. Remove engine.

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

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

5.4.3.6 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 5-4.

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 5.4.3.8.
f. Repeat steps a. through e. for position 2.

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

5.4.3.8 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.

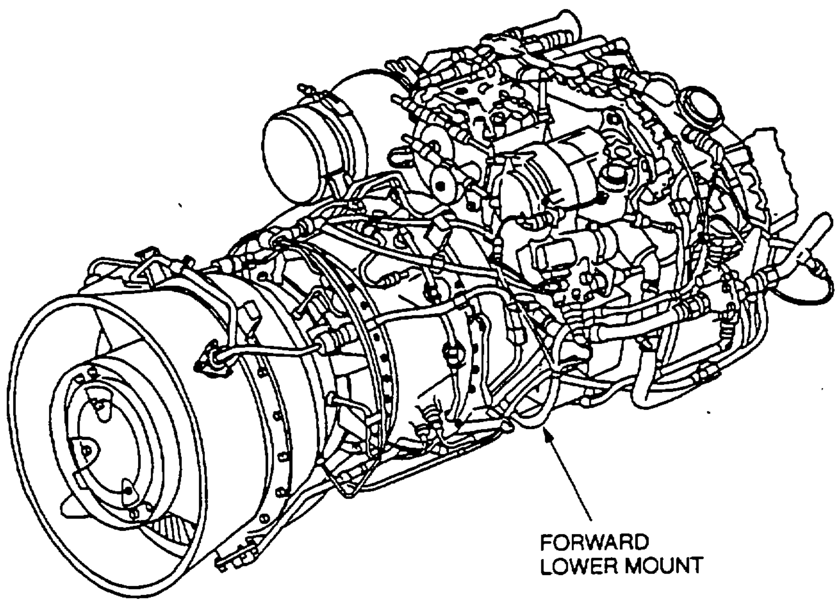
5.4.4 Backup Method. None required.

5.4.5 System Securing. Clean the engine mount 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 requires installation in accordance with the applicable technical manuals listed in Table 1-1.

5.5 ENGINE TUBING, COUPLINGS, AIR DUCTS, FITTINGS, SUPPORTS, BRACKETS, AND CLIPS (PT).

5.5.1 Description (Figure 5-1. Index No. 5). This task is for all metallic, unpainted engine tubing, couplings, air ducts, related fittings, supports, brackets, and bracket clips.

5.5.2 Defects. This inspection is used to verify crack indications found visually. No cracks are allowed.



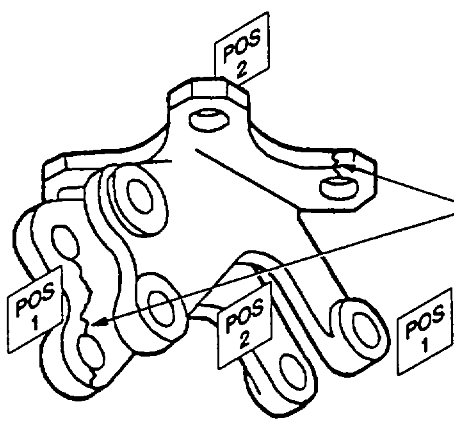


Figure 5-4. Forward Lower Engine Mount

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 part using this procedure. If required, the part(s) shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.5.3.3 Access. Refer to Figure 1-4 as applicable.

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 part(s) to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The part(s), if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

5.6 AIR INLET ASSEMBLY (ET).

5.6.1 Description (Figure 5-1. Index No. 6). The aluminum air inlet assembly is at the front of the engine through which air is directed into the engine.

5.6.2 Defects. This inspection is used to verify crack indications found visually on the air inlet. No cracks are allowed.

5.6.3 Primary Method. Eddy Current.

5.6.3.1 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

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 air inlet assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

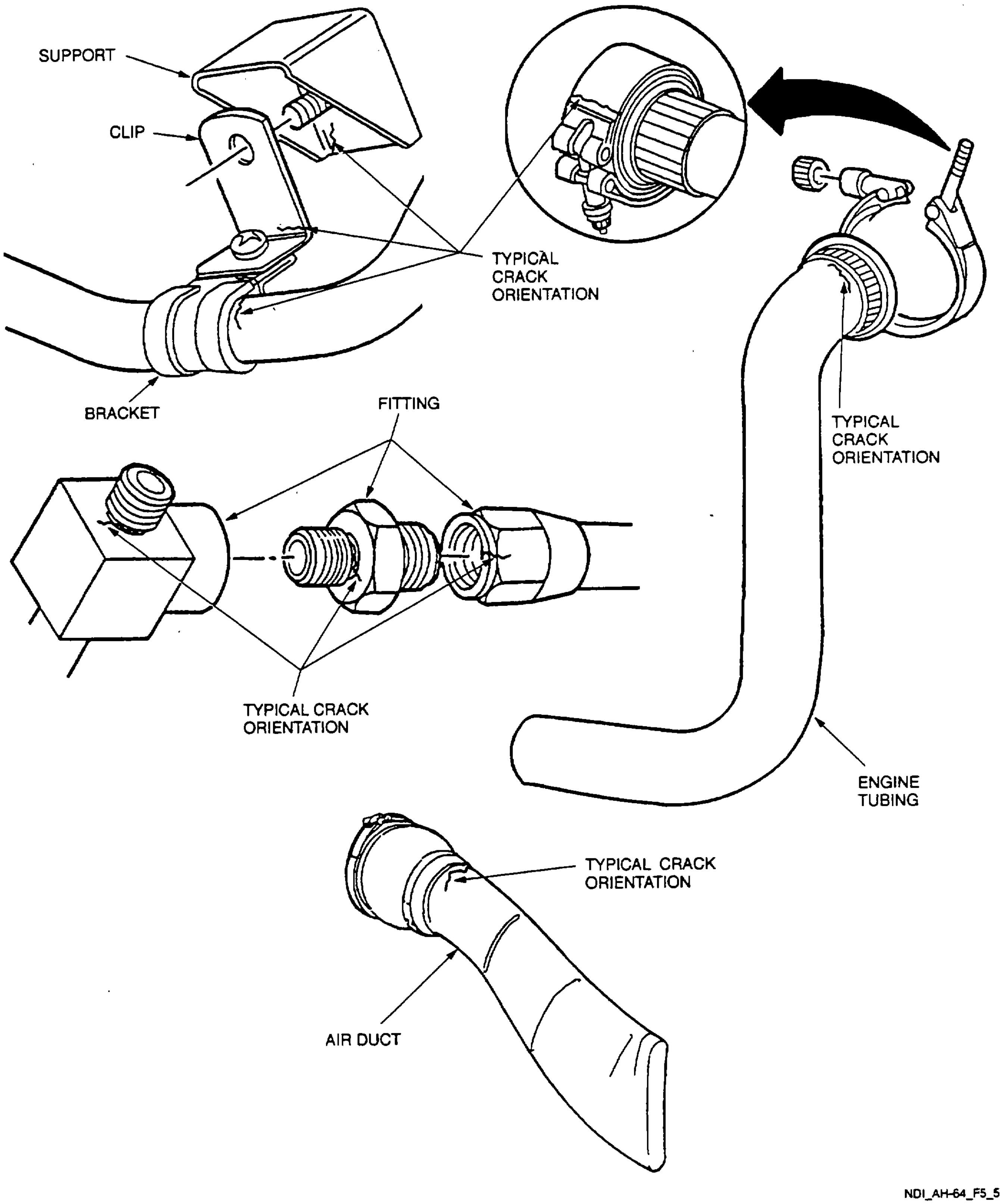


Figure 5-5. Engine Tubing, Couplings, Air Ducts, Fittings, Supports, Brackets, and ;Clips

5.6.3.3 Access. Not applicable.

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

5.6.3.5 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 the standard instrument display shown in Figure 1-7.)

5.6.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 5-6.

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 to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 5.6.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 5.6.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

5.6.3.7 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. The air inlet assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

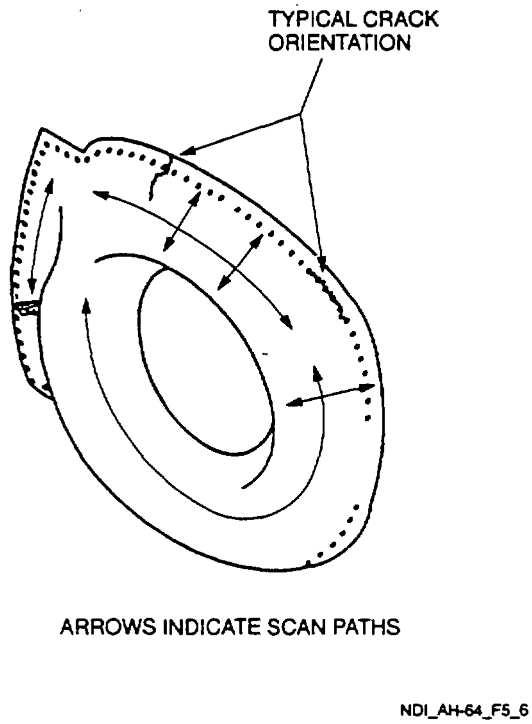


Figure 5-6. Air Inlet Assembly

5.7 ENGINE AIR INLET "V" BAND CLAMP (PT).

5.7.1 Description (Figure 5-1. Index No. 7) The air inlet flange is integral to air inlet. The engine (compressor case) flange is integral to the compressor case. The "V" band clamp holds the air inlet to the compressor case.

5.7.2 Defects. This inspection is used to verify crack indications found visually in the "V" band clamp. No cracks are allowed.

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 flanges shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.7.3.3 Access. Access is through access doors (Figure 1-4, Items LN1 or RN1).

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.

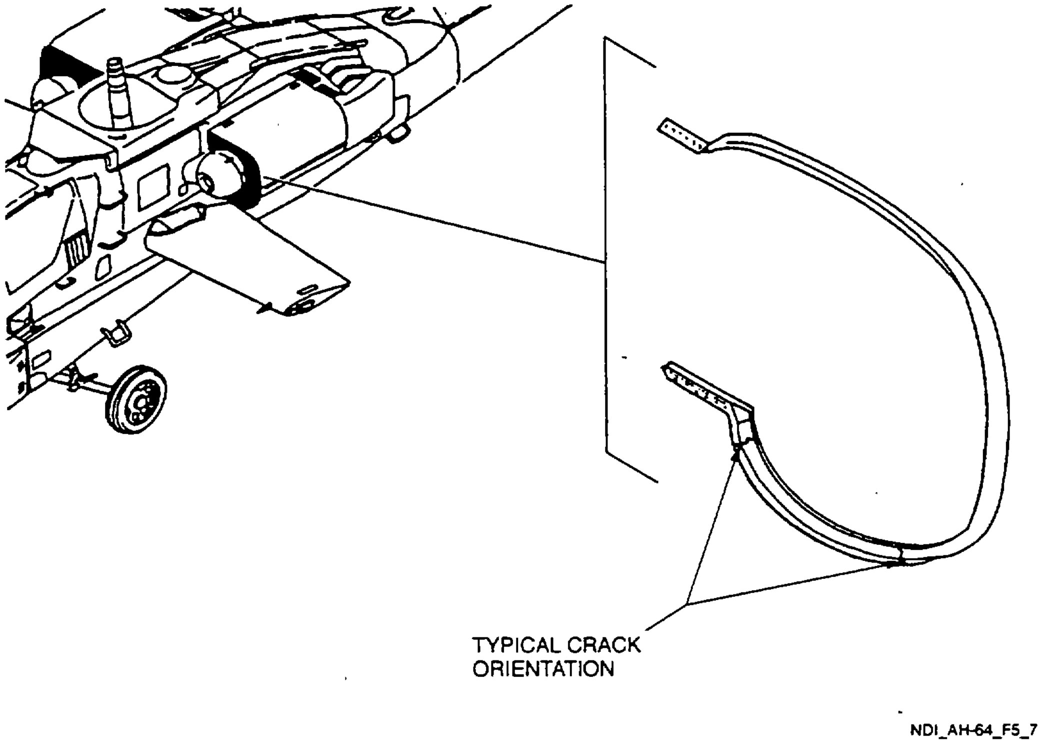


Figure 5-7. Engine Air Inlet "V" Band Clamp

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

5.7.4 Backup Method. None required.

5.7.5 System Securing. Clean the "V" band clamp to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The "V" band, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

5.8 STARTER FLANGE (ET).

5.8.1 Description (Figure 5-1. Index No. 8). The air starter is located on the right upper side of the engine and is mounted to the engine accessory drive case. It uses compressed air from the APU to turn the engine.

5.8.2 Defects. This inspection is used to verify crack indications found visually on the starter flange. No cracks are allowed.

5.8.3 Primary Method. Eddy Current.

5.8.3.1 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

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 part using this procedure. If required, the starter flange shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.8.3.3 Access. Access is through engine access doors (Figure 1-4, Items LN1 or RN1).

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

5.8.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

5.8.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 5-8.

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.

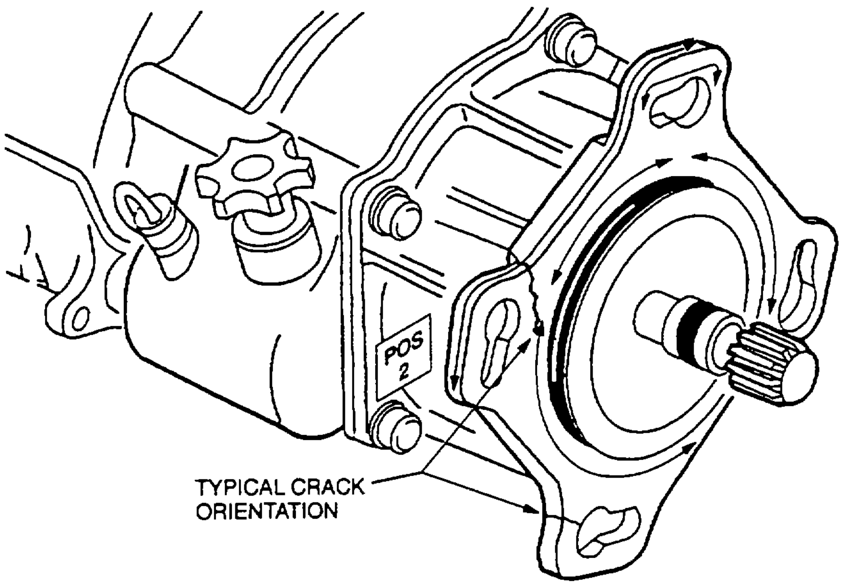


Figure 5-8. Starter Flange

NOTE

Either probe identified in paragraph 5.8.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 5.8.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

5.8.3.7 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. The starter flange, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

5.9 ENGINE SHROUD (PT).

5.9.1 Description (Figure 5-1. Index No. 9). The engine shroud is mounted on top of the engine.

5.9.2 Defects. This inspection is used to verify crack indications found visually. 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. 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 shroud shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.9.3.3 Access. Access is through access doors (Figure 1-4, Items LN1 or RN1).

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 shroud to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The shroud, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

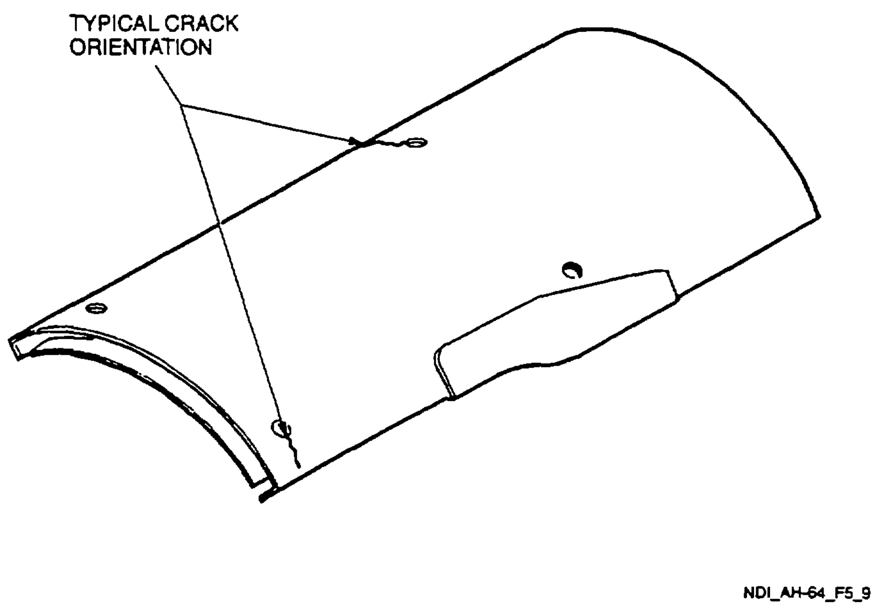


Figure 5-9. Engine Shroud

5.10 ENGINE LOAD DEMAND SPINDLE BELLCRANK SUPPORT (ET).

5.10.1 Description (Figure 5-1. Index No. 10) This support is located on the transmission bay dock, just forward of the transmission. It is the point at which three systems join. It ties the engines (torque sensing) to the flight controls (pilot/CPG's collectives) and is mounted in the main part of the airframe.

5.10.2 Defects. This inspection is used to verify crack indications found visually on the support. No cracks are allowed.

5.10.3 Primary Method Eddy Current.

5.10.3.1 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

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 part using this procedure. If required, the support shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.10.3.3 Access. Access is through access panels (Figure 1-4, Items L200 and R200).

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

5.10.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

5.10.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 5-10.

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 5.10.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 5.10.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

5.10.3.7 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. The support, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

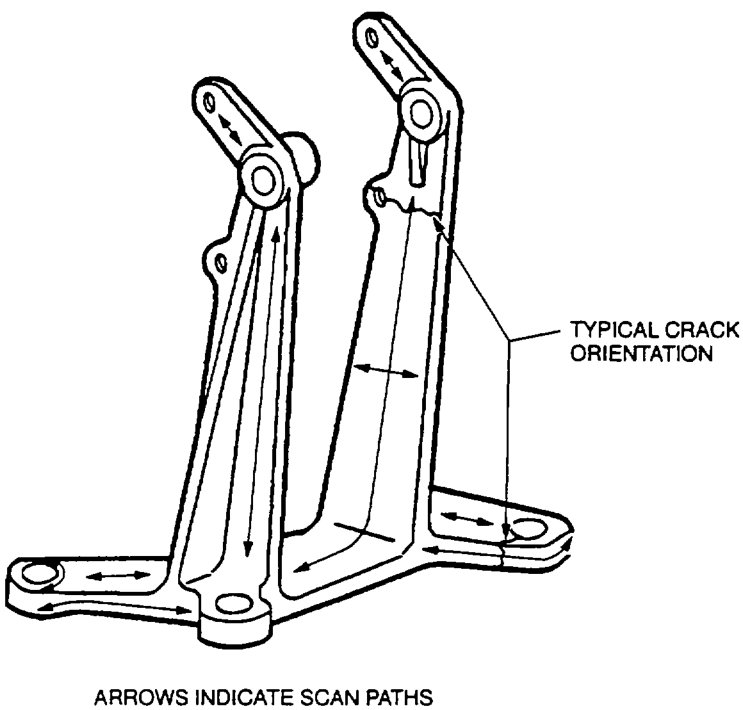


Figure 5-10. Engine Load Demand Spindle Bellcrank Support

5.11 ENGINE COMPONENTS (PT).

5.11.1 Description (Figure 5-1. Index No. 11) The engine components to be inspected are the power turbine, combustion chamber, compression housing, exhaust nozzles, and IR suppressors.

5.11.2 Defects. This inspection is to: (1) verify cracks found by visual inspection, (2) locate exact end of cracks found to facilitate stop drilling of the crack, and (3) to make sure no cracks are present after repairs.

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-1-25135 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 part using this procedure. If required, the engine shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

5.11.3.3 Access. Access is through access door (Figure 1-4, Items LN1 or RN1).

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.

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 area to remove inspection media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. The engine, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

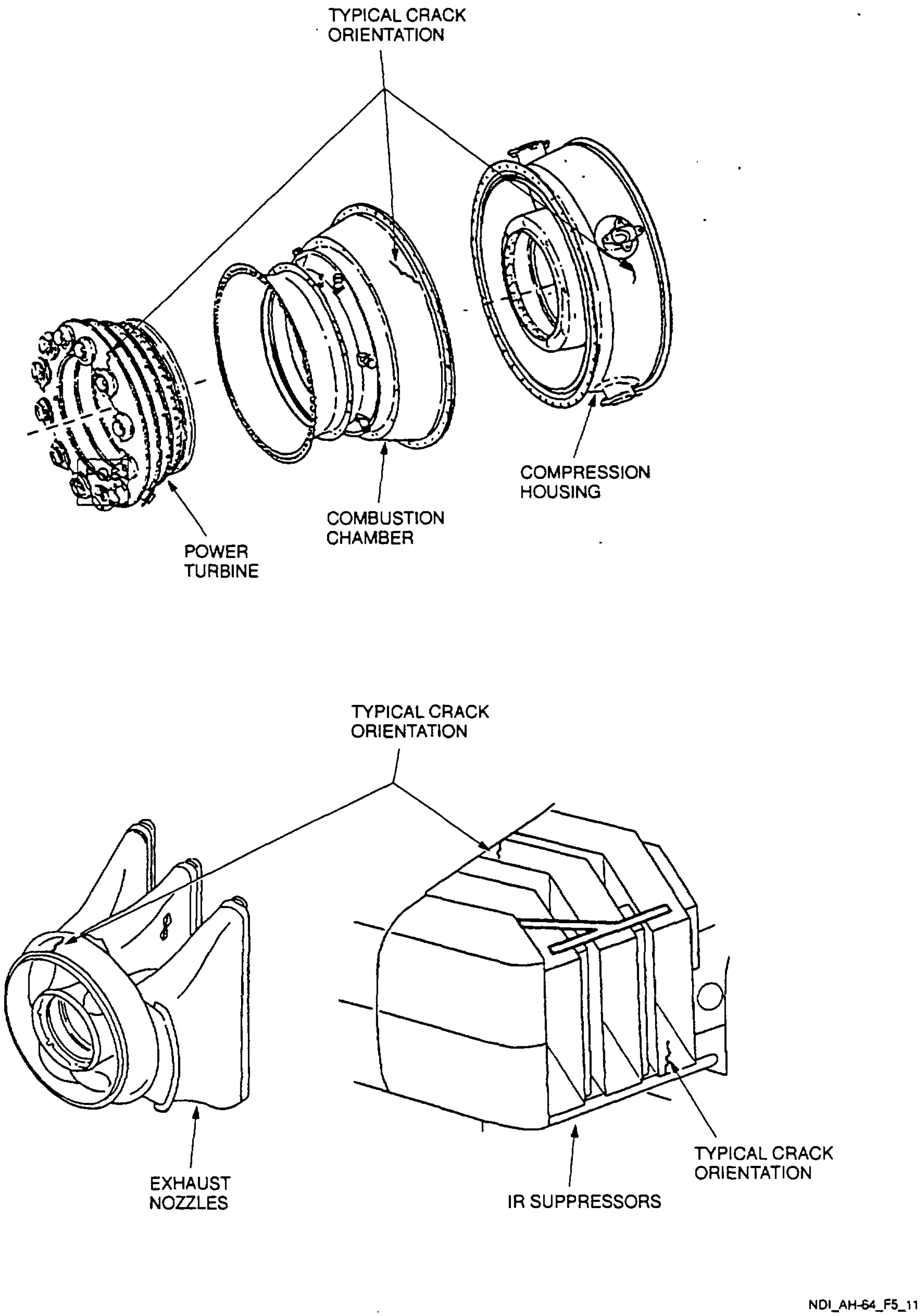


Figure 5-11. Engine Components

SECTION VI

FLIGHT CONTROL SYSTEM

6. GENERAL.

6.1 CONTENTS. The flight control system inspection items covered in this section are those items of the AH-64A helicopter flight control and related hydraulic systems. The parts and components are listed in the Flight Control System 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 System Inspection Index

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
2	Flight Control Bellcranks	ET	6.2	6-2
3	Main Rotor Swashplate Shoulder Pin Mating Bores	ET	6.3	6-3
*4	Main Rotor Link Barrels	MT	6.4	6-4
5	Main Rotor Scissors Upper Arm	ET	6.5	6-5
6	Main Rotor Scissors Lower Arm	ET	6.6	6-6
7	Pilot/CPG Collective Stick Tube	ET	6.7	6-7
8	Pilot/CPG Collective Stick Rotor Housing	ET	6.8	6-8
9	Pilot Collective Stick Cylinder	ET	6.9	6-9
*10	Flight Control Rods, Connecting Links, Rod Ends, Clevises, Levers, and Attaching Parts	ET	6.10	6-10
11	Pilot Collective Stick Support Assembly	ET	6.11	6-11
12	CPG Collective Stick Support Assembly	ET	6.12	6-12
13	Pilot Cyclic Stick	ET	6.13	6-13
14	Lateral Feel Spring Cartridge	ET	6.14	6-14
15	Pilot Cyclic Stick Housing and Support Assembly	ET	6.15	6-15
*16	CPG Cyclic Stick Forward and Aft Links	ET	6.16	6-16
*17	CPG Cyclic Stick Remote Control Lever	ET	6.17	6-17
18	CPG Cyclic Stick Fitting Assembly	ET	6.18	6-18
*19	Ferrous Flight Control System Push-Pull Rods	MT	6.19	6-19
*20	Nonferrous Flight Control System Push-Pull Rods	ET	6.20	6-20
*21	CPG to Pilot Longitudinal F.S. 82.80 Control Bracket	ET	6.21	6-21

Table 6-1. Flight Control System Inspection Index - Continued

Index Number	Nomenclature	Inspection Method	Paragraph Number	Figure Number
*22	CPG to Pilot Collective F.S. 118.50 Bellcrank	ET	6.22	6-22
23	CPG Directional Shear Pin Activated Decoupler (SPAD) Arms	ET	6.23	6-23
*24	Directional F.S. 121.40 Bellcrank	ET	6.24	6-24
*25	Directional F.S. 121.40 Bellcrank Bracket	ET	6.25	6-25
26	Pilot Directional Shear Pin Activated Decoupler (SPAD) Transducer, Arm	ET	6.26	6-26
*27	Pilot Directional Shear Pin Activated Decoupler (SPAD) Remote Control Lever	ET	6.27	6-27
*28	Pilot Directional Shear Pin Activated Decoupler (SPAD) Bellcranks	ET	6.28	6-28
*29	Directional F.S. 156.07 Bellcrank	ET	6.29	6-29
*30	Directional F.S. 159.98 Bellcrank and Bracket	ET	6.30	6-30
31	Directional F.S. 164.33 Bellcrank Bracket and Attaching Area on Deck	ET	6.31	6-31
32	Pilot Longitudinal Shear Pin Activated Decoupler (SPAD) Outer and Inner Lever	ET	6.32	6-32
33	Pilot/CPG Directional Control Pedal Release Handle	ET	6.33	6-33
34	Pilot/CPG Directional Control Pedal Release Shaft	MT	6.34	6-34
35	Pilot/CPG Directional Control Pedal Release Nuts	MT	6.35	6-35
36	Directional F.S. 199.25 Tail Rotor Fitting	ET	6.36	6-36
37	Directional F.S. 275 Rotor Control Bracket	ET	6.37	6-37
*38	Directional F.S. 348 Bellcrank	ET	6.38	6-38
39	Directional F.S. 348 Tail Rotor Bracket	ET	6.39	6-39
*40	Tail Rotor Swashplate Control Bellcrank	MT	6.40	6-40
*41	Tail Rotor Drive Links	ET	6.41	6-41
42	Exterior Surfaces of All Ferrous Hydraulic Components (Servocylinders, Actuators, Reservoirs, etc.)	MT	6.42	6-42

NOTE: *Indicates Flight Safety Part.

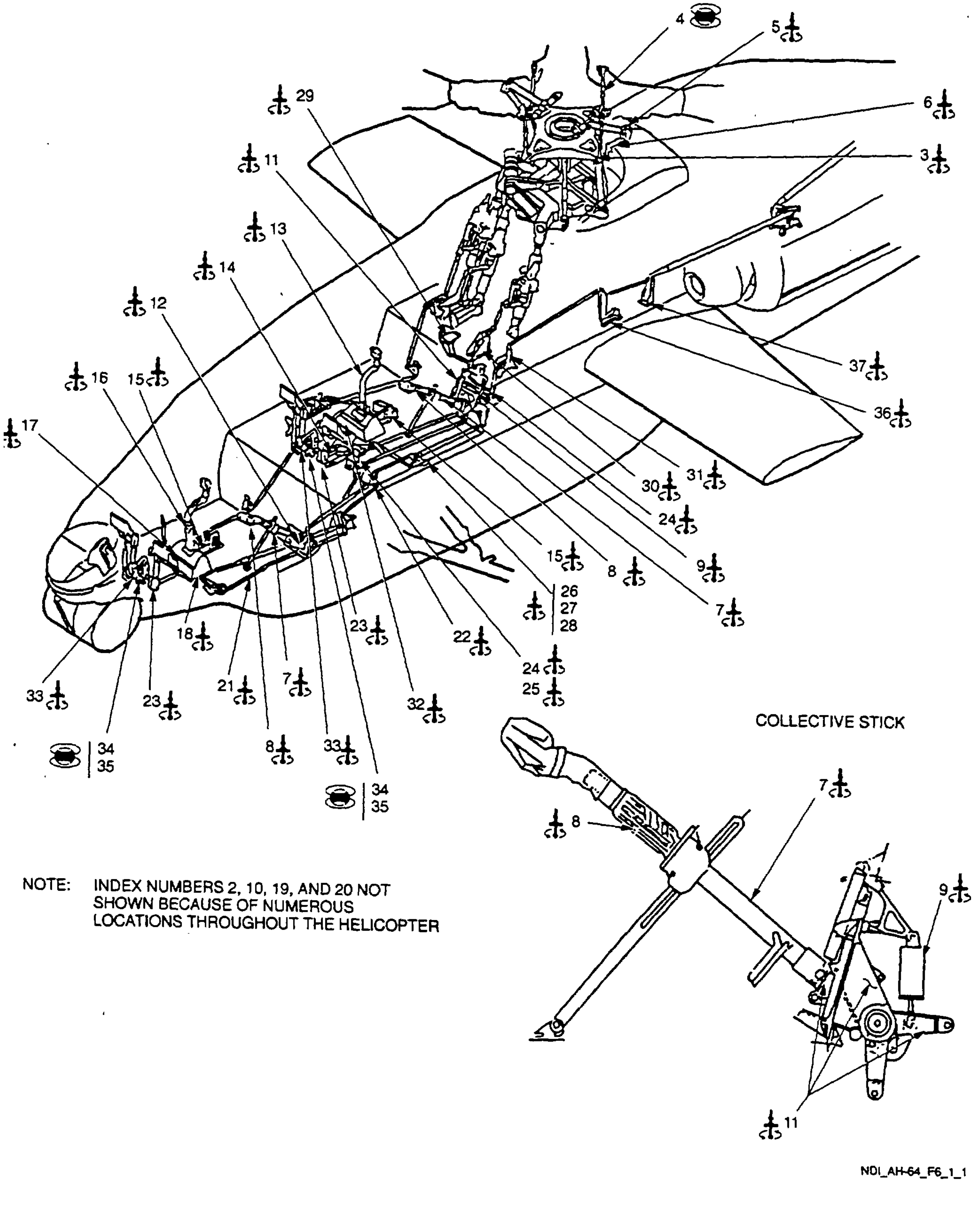


Figure 6-1. Flight Control System (Sheet 1 of 2)

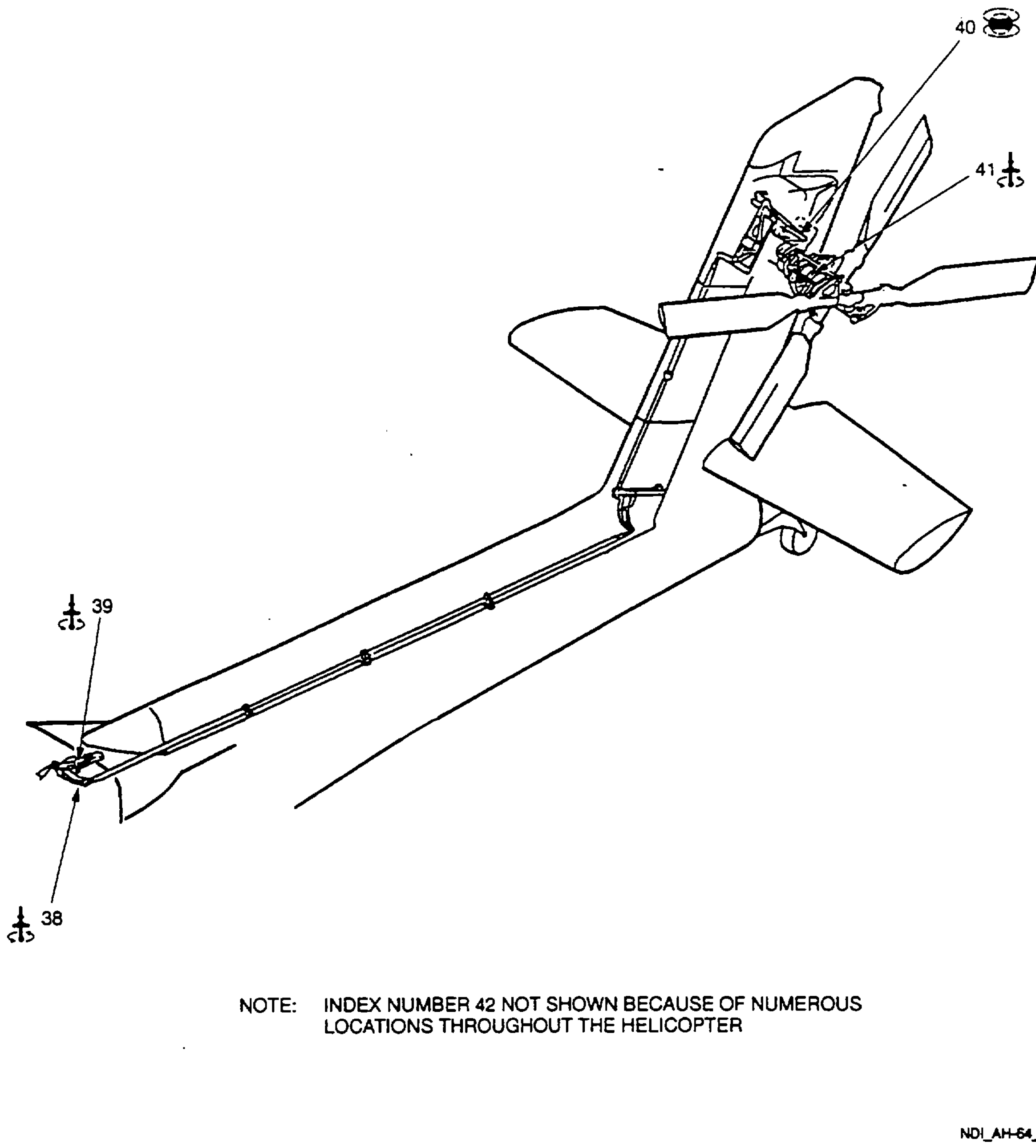


Figure 6-1. Flight Control System (Sheet 2 of 2)

6.2 FLIGHT CONTROL BELLCRANKS (ET).

6.2.1 Description (Figure 6-1. Index No. 2). This inspection is applicable to all non-ferromagnetic bellcranks contained within the flight control system.

6.2.2 Defects. The primary purpose of this inspection is for: (1) confirmation of crack indications identified by visual inspections; (2) verification that scratches and gouges do not conceal cracks; and (3) ensure no cracks are present after blend out procedures.

6.2.3 Primary Method. Eddy Current.

6.2.3.1 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

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 bellcranks using this procedure. If required, the bellcrank(s) shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.2.3.3 Access. Accessibility of the bellcranks varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

6.2.3.4 Preparation of Part. The part(s) shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.2.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.2.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-2.

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 6.2.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.2.3.5 b. (1), (2), and (3) shall be repeated each time a charge is made.

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

6.2.4 Backup Method. None required.

6.2.5 System Securing. The bellcrank(s), if removed, require(s) installation in accordance with the applicable technical manuals listed in Table 1-1.

6.3 MAIN ROTOR SWASHPLATE SHOULDER PIN MATING BORES (ET).

6.3.1 Description (Figure 6-1. Index No. 3). The task is typical for both the load bearing scissors shoulder pin and the secondary scissors shoulder pin bores. The bores are located in the swashplate itself and mate with the removed shoulder pins.

6.3.2 Defects. This inspection is used to verify crack indications found visually on the main rotor swashplate shoulder pin mating bore and the secondary scissors shoulder pin bore. 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. Aircraft Marking Pencil, refer to Table 1-8

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

6.3.3.3 Access. Not applicable.

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.

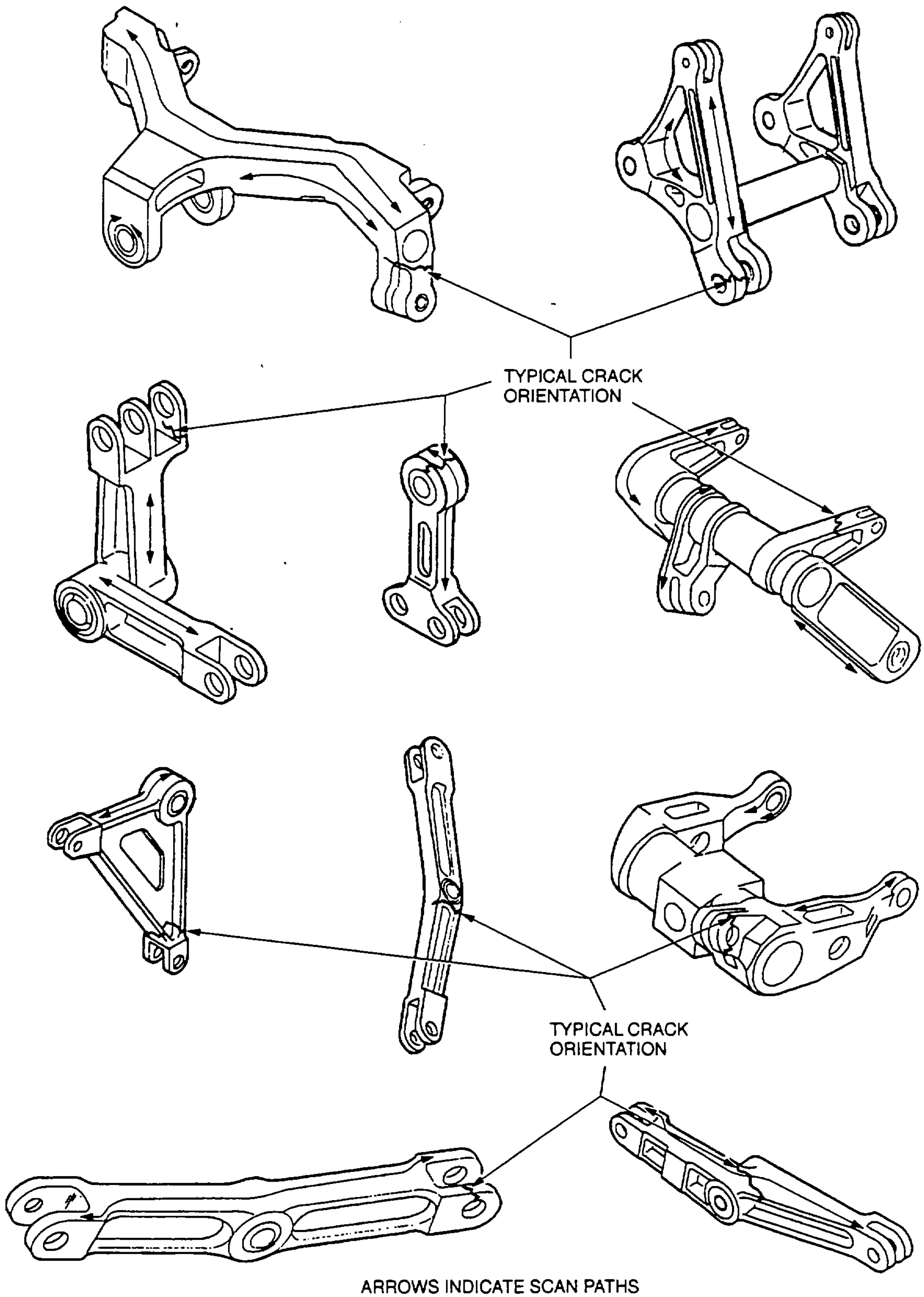


Figure 6-2. Flight Control Bellcranks

6.3.3.5 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. Setup 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 the 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.

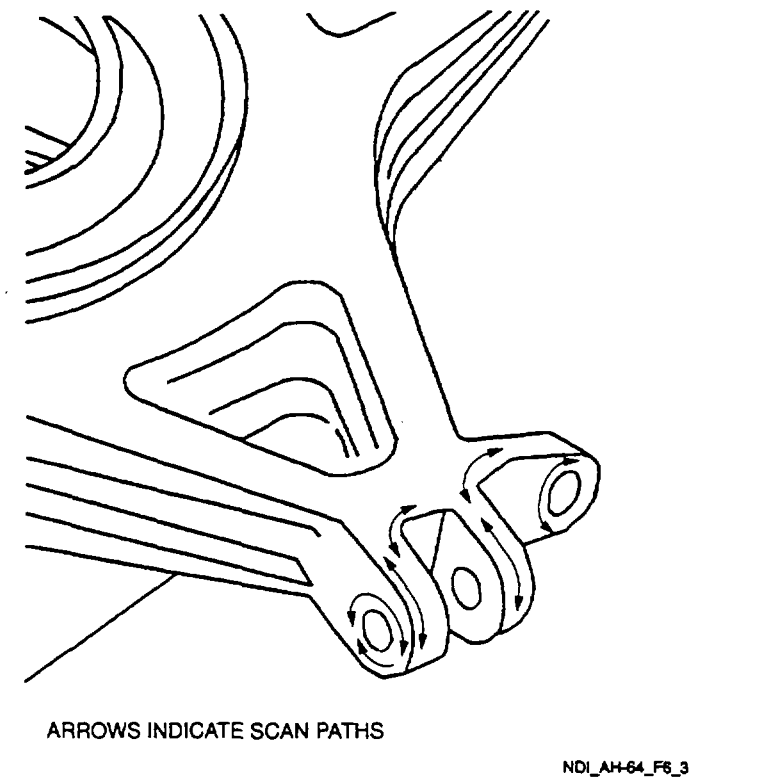


Figure 6-3. Main Rotor Swashplate Shoulder Pin Mating Bores

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 6.3.3.1 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 the inspection results as required by paragraph 1.3.

6.3.4 Backup Method. Not applicable.

6.3.5 System Securing. The main rotor swashplate shoulder pin requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.4 MAIN ROTOR LINK BARRELS (MT).

6.4.1 Description (Figure 6-1. Index No. 4). The main rotor pitch link barrel is the major center part of the main rotor pitch link into which the two rod's ends mount.

6.4.2 Defects. Defects can occur anywhere on the surface of the part. No cracks are allowed.

6.4.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

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

6.4.3.3 Access. Not applicable.

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

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

6.4.3.6 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 6-4.

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.

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

6.4.3.8 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.

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

6.4.5 System Securing. Clean the link barrel 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 pitch link requires assembly and installation in accordance with the applicable technical manuals listed in Table 1-1.

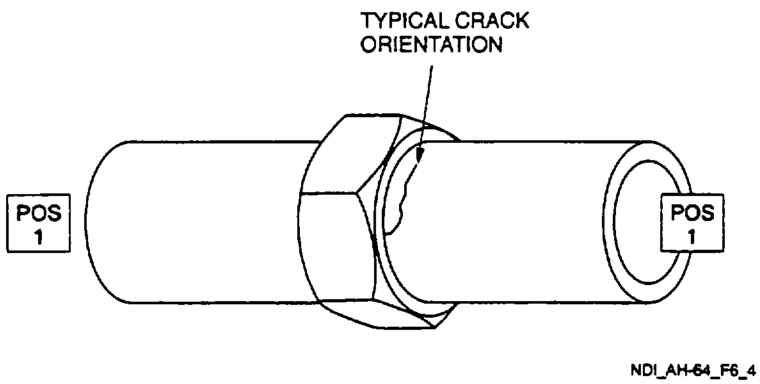


Figure 6-4. Main Rotor Link Barrels

6.5 MAIN ROTOR SCISSORS UPPER ARM (ET).

6.5.1 Description (Figure 6-1. Index No. 5). The main rotor scissors upper arm is the upper portion of the scissors assembly. The task is typical for both load bearing and secondary main rotor scissors.

6.5.2 Defects. This inspection is used to verify crack indications found visually on the main rotor scissors upper arm. No cracks are allowed.

6.5.3 Primary Method Eddy Current.

6.5.3.1 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

6.5.3.2 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 main rotor scissors upper arm 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. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.5.3.5 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 the standard instrument display shown in Figure 1-7.)

6.5.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-5.

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 6.5.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.5.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.5.4 Backup Method. None required.

6.5.5 System Securing. The main rotor scissors upper arm, if removed, requires installation in accordance with applicable technical manuals listed in Table 1-1.

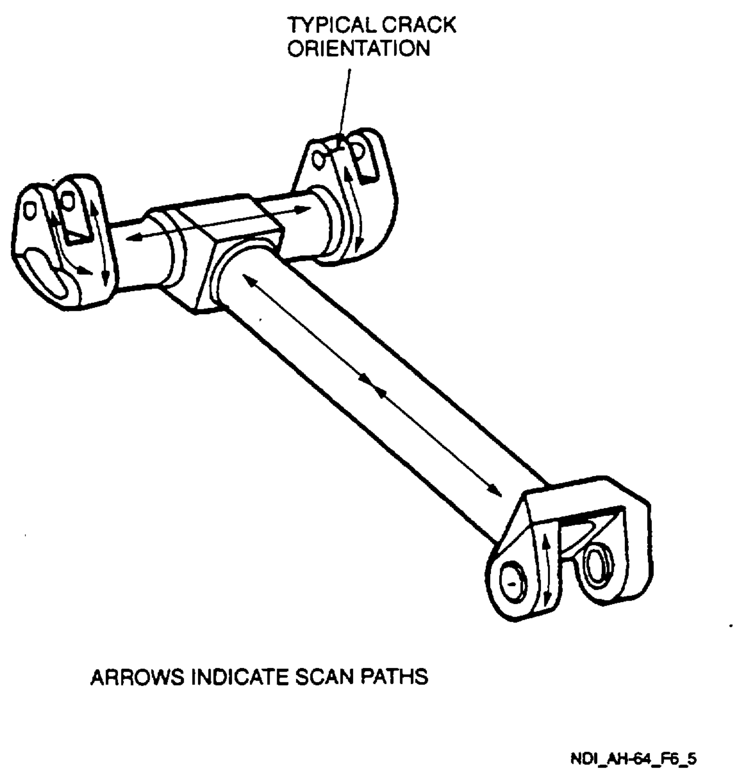


Figure 6-5. Main Rotor Scissors Upper Arm

6.6 MAIN ROTOR SCISSORS LOWER ARM (ET).

6.6.1 Description (Figure 6-1. Index No. 6) The task is typical for both load bearing and secondary main rotor scissors. The scissors are attached to, and mounted underneath, the swashplate.

6.6.2 Defects. This inspection is used to verify crack indications found visually on the main rotor scissors lower arm. No cracks are allowed.

6.6.3 Primary Method Eddy Current.

6.6.3.1 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

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 main rotor scissors lower arm shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.6.3.3 Access. Not applicable.

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

6.6.3.5 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	- 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 the standard instrument display shown in Figure 1-7.)

6.6.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-6.

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 to the notches in the test block is cause for rejection.

NOTE

Either probe identified in paragraph 6.6.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.6.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.6.4 Backup Method. None required.

6.6.5 System Securing. The main rotor scissors lower arm requires installation in accordance with the applicable technical manuals listed in Table 1-1.

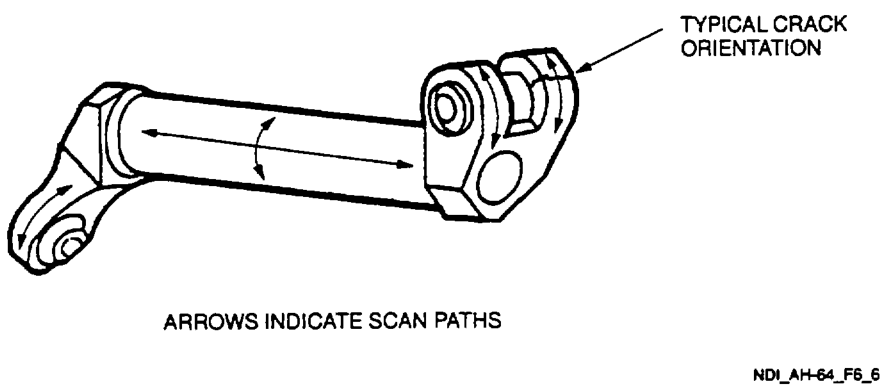


Figure 6-6. Main Rotor Scissors Lower Arm

6.7 PILOT/CPG COLLECTIVE STICK TUBE (ET).

6.7.1 Description (Figure 6-1. Index No. 7). The task is typical for either the pilot or CPG collective stick tubes. The pilot/CPG collective stick tubes are a part of the collective stick grips.

6.7.2 Defects. This inspection is used to verify crack indications found visually on the pilot/CPG collective stick tube. No cracks are allowed.

6.7.3 Primary Method Eddy Current.

6.7.3.1 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

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 pilot/CPG collective stick tube shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.7.3.3 Access. Access is through the pilot/CPG crew stations.

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

6.7.3.5 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 the standard instrument display shown in Figure 1-7.)

6.7.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-7.

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 6.7.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.7.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.7.4 Backup Method. None required.

6.7.5 System Securing. The pilot/CPG collective stick tube requires installation in accordance with the applicable technical manuals listed in Table 1-1.

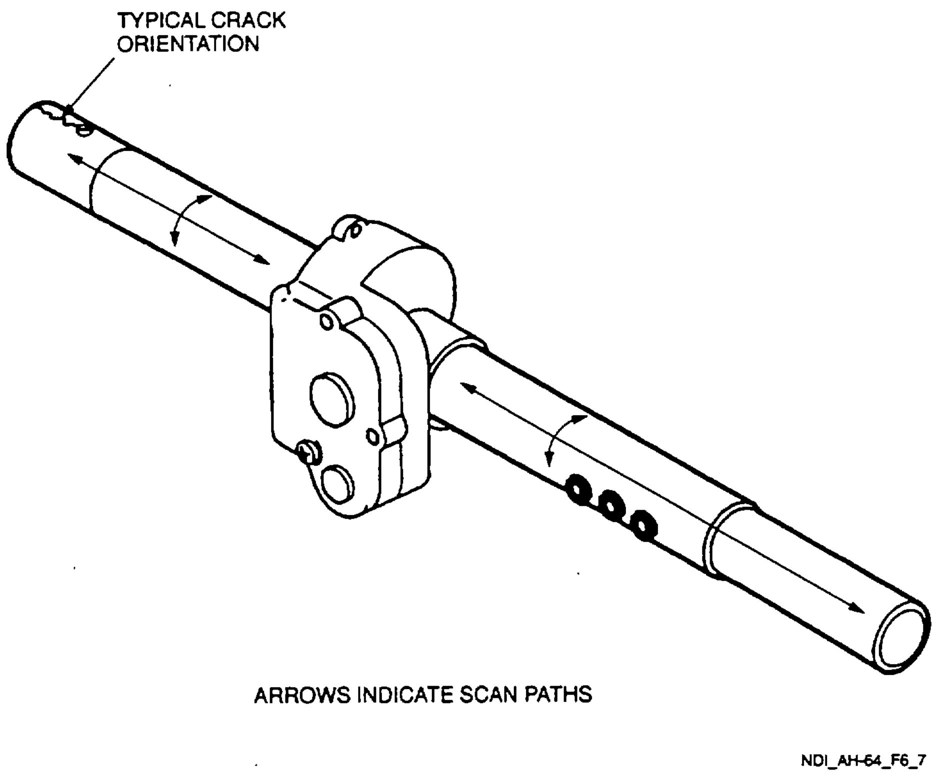


Figure 6-7. Pilot/CPG Collective Stick Tube

6.8 PILOT/CPG COLLECTIVE STICK ROTOR HOUSING (ET).

6.8.1 Description (Figure 6-1. Index No. 8). The task is typical for either the pilot or CPG collective rotor housing. The pilot/CPG collective rotor housings are a part of the collective stick grips.

6.8.2 Defects. This inspection is used to verify crack indications found visually on the pilot/CPG collective stick rotor housing. No cracks are allowed.

6.8.3 Primary Method. Eddy Current.

6.8.3.1 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

6.8.3.2 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 pilot/CPG collective stick rotor housing shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.8.3.3 Access. Access is through the pilot/CPG crew stations.

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.

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 the standard instrument display shown in Figure 1-7.)

6.8.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-8.

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 6.8.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.8.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.8.4 Backup Method. None required.

6.8.5 System Securing. The pilot/CPG collective stick rotor housing requires installation in accordance with the applicable technical manuals listed in Table 1-1.

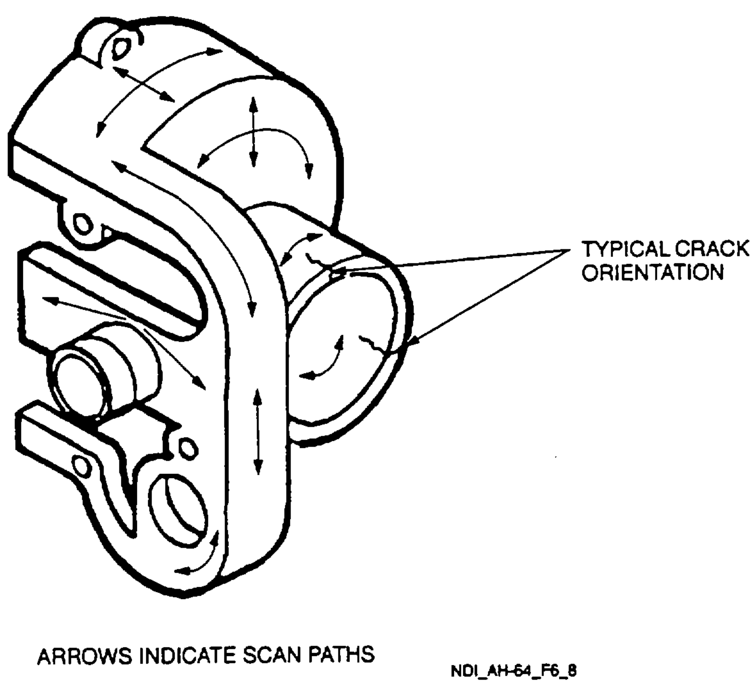


Figure 6-8. Pilot/CPG Collective Stick Rotor Housing

6.9 PILOT COLLECTIVE STICK CYLINDER (ET).

6.9.1 Description (Figure 6-1. Index No. 9). The pilot collective stick cylinder attaches between the collective arm and the airframe bracket. The cylinder attenuates vibrations/feed-back to the pilot collective stick assembly.

6.9.2 Defects. This inspection is used to verify crack indications found visually on the pilot collective stick cylinder. No cracks are allowed.

6.9.3 Primary Method Eddy Current.

6.9.3.1 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

6.9.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pilot collective stick cylinder removed in accordance with the applicable technical manuals listed in Table 1-1.

6.9.3.3 Access. Not applicable.

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

6.9.3.5 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 the standard instrument display shown in Figure 1-7.)

6.9.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-9.

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 6.9.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.9.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.9.4 Backup Method. None required.

6.9.5 System Securing. The pilot collective stick cylinder requires installation in accordance with the applicable technical manuals listed in Table 1-1.

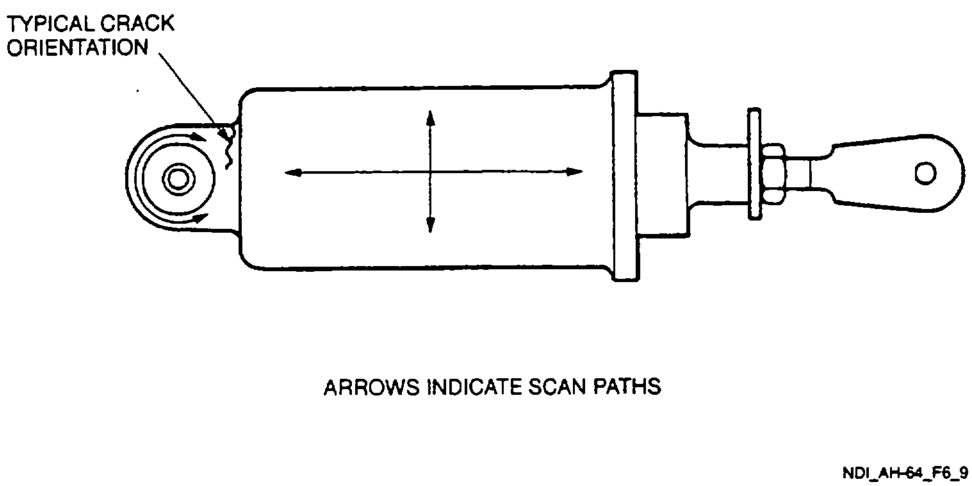


Figure 6-9. Pilot Collective Stick Cylinder

6.10 FLIGHT CONTROL RODS, CONNECTING LINKS, ROD ENDS, CLEVISES, LEVERS, AND ATTACHING PARTS (ET).

6.10.1 Description (Figure 6-1, Index No. 10). Flight control rods, connecting links, rod ends, clevises, levers, and attaching parts are found in various locations in the helicopter flight controls. This is a generic inspection for all such parts.

6.10.2 Defects. This inspection is used to verify crack indications found visually on the flight control rods, connecting links, rod ends, devises, levers, and attaching parts. No cracks are allowed.

6.10.3 Primary Method. Eddy Current.

6.10.3.1 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

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 flight control rods, connecting links, rod ends, clevises, levers, and attaching parts shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.10.3.3 Access. Accessibility of the flight control rods, connecting links, rod ends, clevises, levers, and attaching parts varies considerably. Refer to Figure 1-4 and Table 1-2 to locate applicable access provisions.

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

6.10.3.5 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 one 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 the standard instrument display shown in Figure 1-7.)

6.10.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-10.

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 6.10.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.10.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.10.4 Backup Method. None required.

6.10.5 System Securing. The flight control rods, connecting links, rod ends, devises, levers, and attaching parts, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

6.11 PILOT COLLECTIVE STICK SUPPORT ASSEMBLY (ET).

6.11.1 Description (Figure 6-1, Index No. 11). The pilot collective stick support assembly provides the supporting structure to mount the pilot's collective stick to the airframe. Inspect the support itself, the output arm, and the input arm.

6.11.2 Defects. This inspection is used to verify crack indications found visually on the pilot collective stick support assembly. No cracks are allowed.

6.11.3 Primary Method. Eddy Current.

6.11.3.1 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

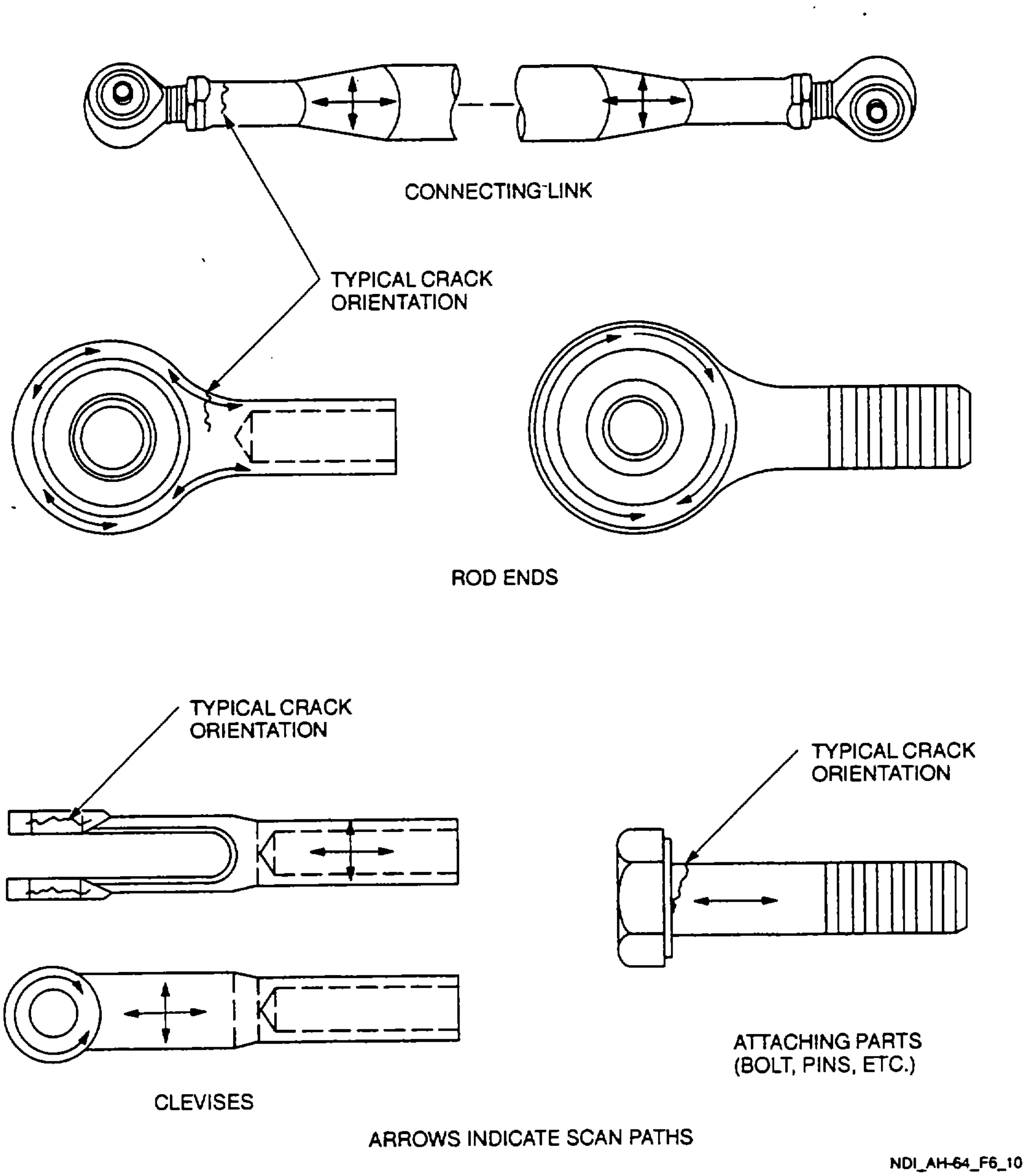


Figure 6-10. Flight Control Rods, Connecting Links, Rod Ends, Clevises, Levers, and Attaching Parts

6.11.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pilot collective stick support assembly removed in accordance with the applicable technical manuals listed in Table 1-1.

6.11.3.3 Access. Not applicable

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

6.11.3.5 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 the standard instrument display shown in Figure 1-7.)

6.11.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-11.

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.

NOTE

Either probe identified in paragraph 6.11.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.11.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.11.4 Backup Method. None required.

6.11.5 System Securing. The pilot collective stick support assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

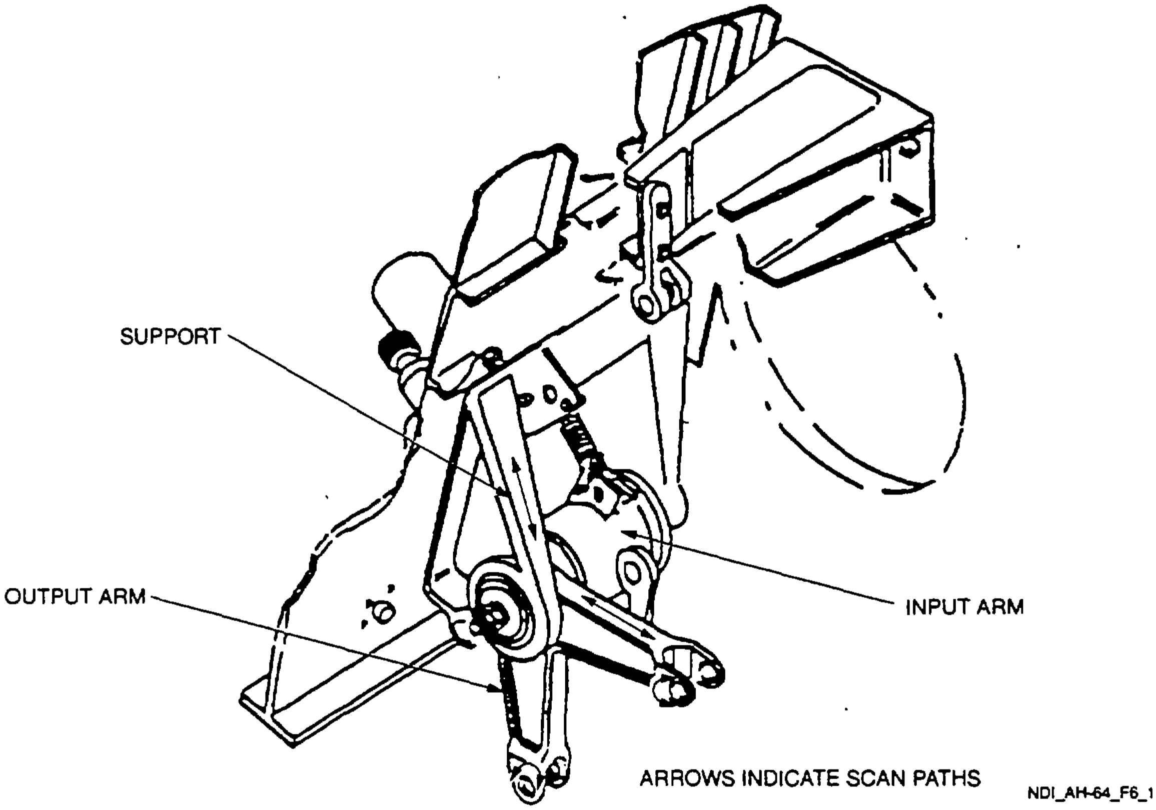


Figure 6-11. Pilot Collective Stick Support Assembly

6.12 CPG COLLECTIVE STICK SUPPORT ASSEMBLY (ET).

6.12.1 Description (Figure 6-1, Index No. 12). The CPG collective stick support assembly mounts the CPG's collective stick to the airframe. Check the drive arm, the output arm, the input arm, and the base.

6.12.2 Defects. This inspection is used to verify crack indications found visually on the CPG collective stick support assembly. No cracks are allowed.

6.12.3 Primary Method Eddy Current.

6.12.3.1 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

6.12.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the CPG collective stick support assembly removed in accordance with the applicable technical manuals listed in Table 1-1.

6.12.3.3 Access. Not applicable.

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

6.12.3.5 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 the standard instrument display shown in Figure 1-7.)

6.12.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-12.

a. Place probe on a goodarea 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 6.12.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.12.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.12.4 Backup Method. None required.

6.12.5 System Securing. The CPG collective stick support assembly requires installation in accordance with the applicable technical manuals listed in Table 1-1.

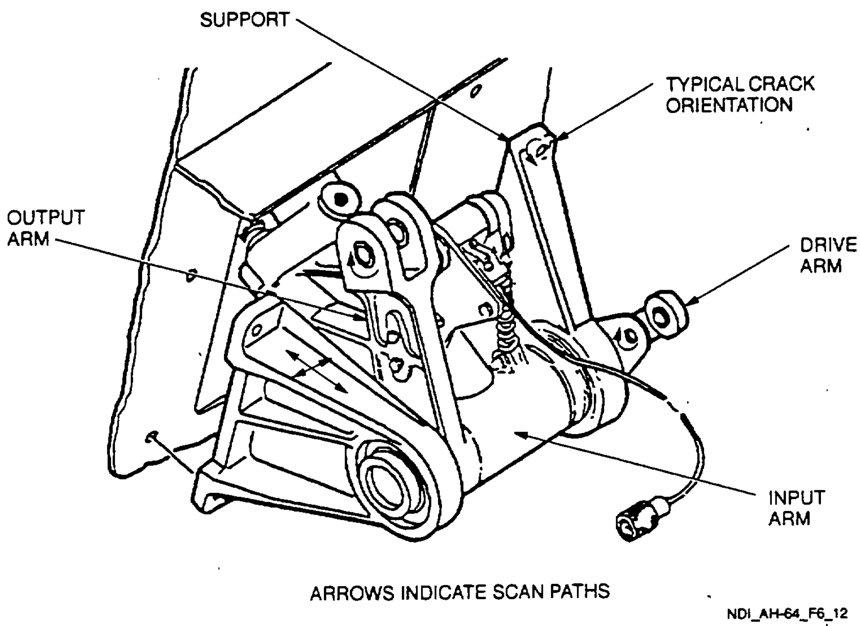


Figure 6-12. CPG Collective Stick Support Assembly

6.13 PILOT CYCLIC STICK (ET).

6.13.1 Description (Figure 6-1. Index No. 13). The pilot cyclic stick is found in the cockpit at the pilot's station. Inspect the stick and attaching parts.

6.13.2 Defects. This inspection is used to verify crack indications found visually on the pilot cyclic stick. No cracks are allowed.

6.13.3 Primary Method Eddy Current.

6.13.3.1 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

6.13.3.2 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 pilot cyclic stick shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.13.3.3 Access. Access is through the pilot crew station.

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.

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 the standard instrument display shown in Figure 1-7.)

6.13.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-13.

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 6.13.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.13.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.13.4 Backup Method. None required.

6.13.5 System Securing. The pilot cyclic stick, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

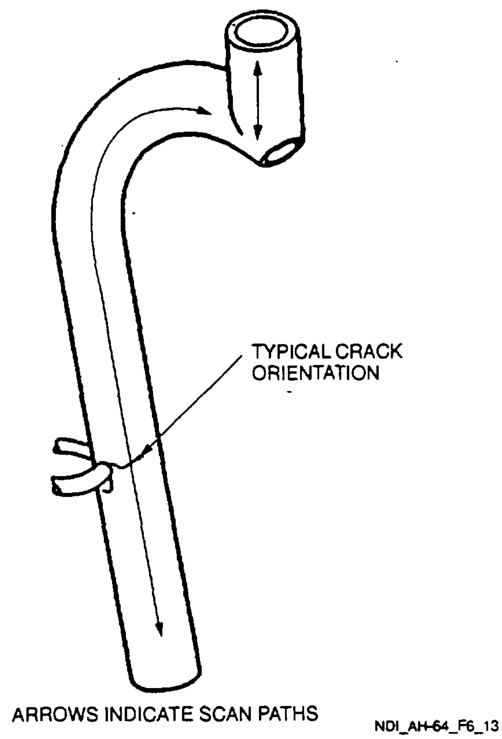


Figure 6-13. Pilot Cyclic Stick

6.14 LATERAL FEEL SPRING CARTRIDGE (ET).

6.14.1 Description (Figure 6-1. Index No. 14). The lateral feel spring cartridge is found at the base of the pilot's cyclic stick attached to the magnetic brake arm.

6.14.2 Defects. This inspection is used to verify crack indications found visually on the lateral feel spring cartridge. No cracks are allowed.

6.14.3 Primary Method. Eddy Current.

6.14.3.1 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

6.14.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the lateral feel spring cartridge removed in accordance with the applicable technical manuals listed in Table 1-1.

6.14.3.3 Access. Not applicable.

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

6.14.3.5 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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.14.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-14.

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 6.14.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.14.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.14.4 Backup Method. None required.

6.14.5 System Securing. The lateral feel spring cartridge, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

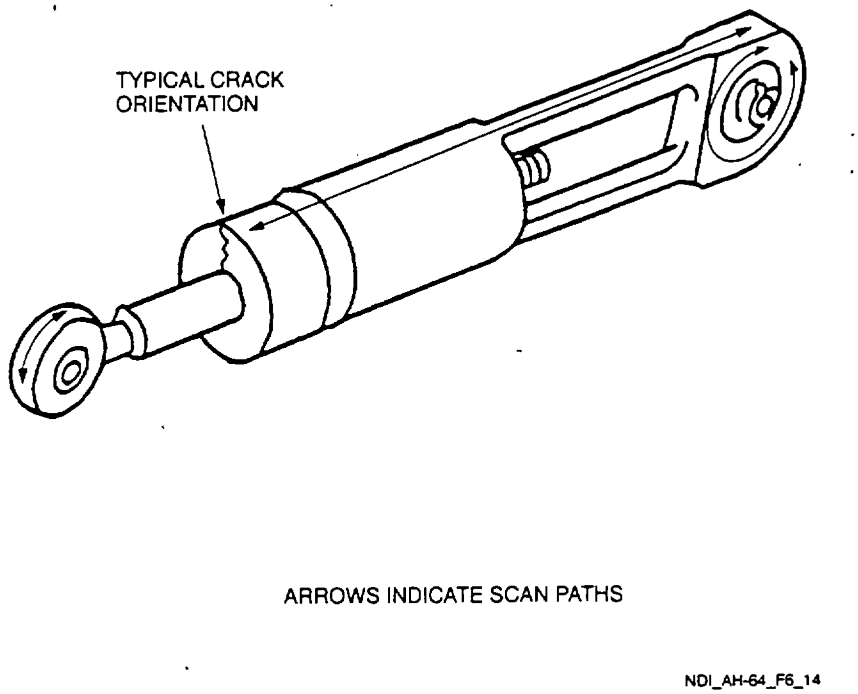


Figure 6-14. Lateral Feel Spring Cartridge

6.15 PILOT CYCLIC STICK HOUSING AND SUPPORT ASSEMBLY (ET).

6.15.1 Description (Figure 6-1. Index No. 15). The pilot cyclic stick housing and support assembly are found at the base of the pilot's cyclic stick flight control. Check the support and housing.

6.15.2 Defects. This inspection is used to verify crack indications found visually on the pilot cyclic stick, housing and support assembly. No cracks are allowed.

6.15.3 Primary Method. Eddy Current.

6.15.3.1 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

6.15.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pilot cyclic stick housing and support-assembly 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.

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	-O		
H Pos	- 80%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.15.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-15.

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.

NOTE

Either probe identified in paragraph 6.15.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.15.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.15.4 Backup Method. None required.

6.15.5 System Securing. The pilot cyclic stick housing and support assembly require installation in accordance with the applicable technical manuals listed in Table 1-1.

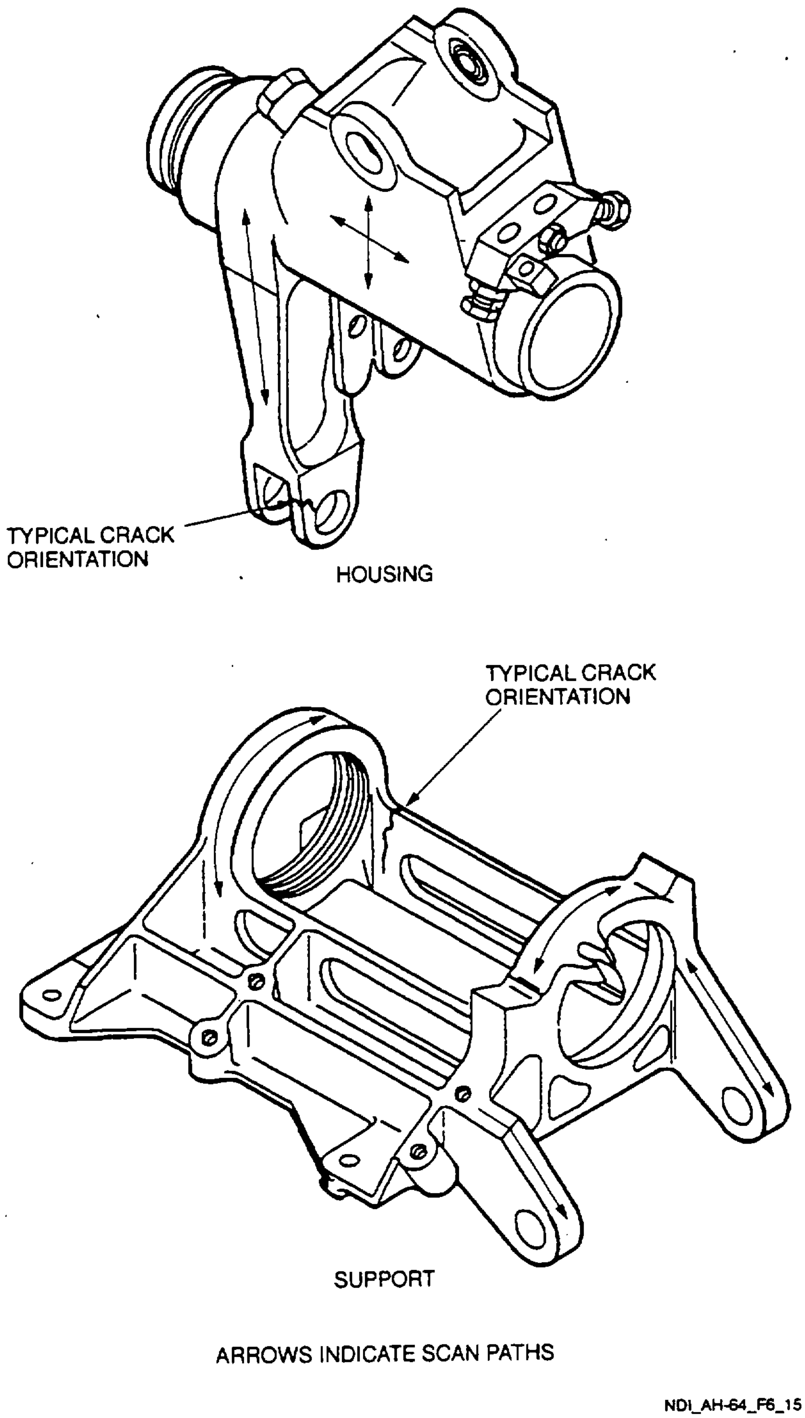


Figure 6-15. Pilot Cyclic Stick Housing and Support Assembly

6.16 CPG CYCLIC STICK FORWARD AND AFT LINKS (ET).

6.16.1 Description (Figure 6-1. Index No. 16). The CPG cyclic stick forward and aft links are found in the CPG's cyclic control stick assembly at the forward lower portion and the aft mid-portion,, respectively.

6.16.2 Defects. This inspection is used to verify crack indications found visually on the CPG cyclic stick forward and aft links. No cracks are allowed.

6.16.3 Primary Method. Eddy Current.

6.16.3.1 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, 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

6.16.3.2 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 CPG cyclic stick forward and aft links shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.16.3.3 Access. Access is from the CPG station.

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

6.16.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e11.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	-0		
H Pos	- 80%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.16.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-16.

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 6.16.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.16.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.16.4 Backup Method. None required.

6.16.5 System Securing. The CPG cyclic stick forward and aft links, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

6.17 CPG CYCLIC STICK REMOTE CONTROL LEVER (ET).

6.17.1 Description (Figure 6-1. Index No. 17). The CPG cyclic stick remote control lever is located on the CPG's cyclic stick assembly, on the left side at the lower, mid portion.

6.17.2 Defects. This inspection is used to verify crack indications found visually on the CPG cyclic stick remote control lever. 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° 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

6.17.3.2 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 CPG cyclic stick remote control lever shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

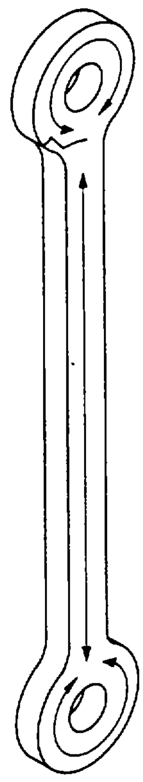


Figure 6-16. CPG Cyclic Stick Forward and Aft Links

6.17.3.3 Access. Access is from the CPG station.

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-19e11.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- O		
H Pos	- 80%		
VPos	- 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 the 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 the inspection results as required by paragraph 1.3.

6.17.4 Backup Method. None required.

6.17.5 System Securing. The CPG cyclic stick remote control lever, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

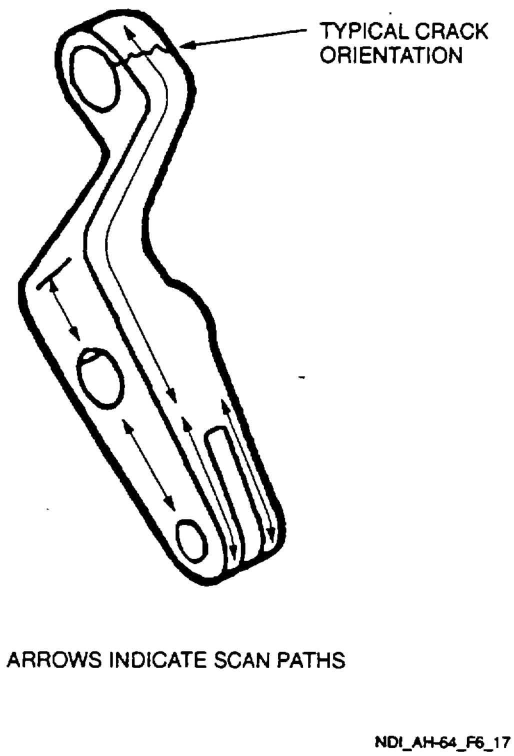


Figure 6-17. CPG Cyclic Stick Remote Control Lever

6.18 CPG CYCLIC STICK FITTING ASSEMBLY (ET).

6.18.1 Description (Figure 6-1. Index No. 18). The CPG cyclic stick fitting assembly is at the base of the cyclic stick and connects the cyclic stick to the cyclic adjust lock assembly. Inspect the fitting assembly, the cyclic adjust lock assembly, and the CPG cyclic stick.

6.18.2 Defects. This inspection is used to verify crack indications found visually on the CPG cyclic stick fitting assembly. 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° 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

6.18.3.2 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 CPG cyclic stick fitting assembly shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.18.3.3 Access. Access is through the CPG station.

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-19e11.

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

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

6.18.4 Backup Method. None required.

6.18.5 System Securing. The CPG cyclic stick fitting assembly, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

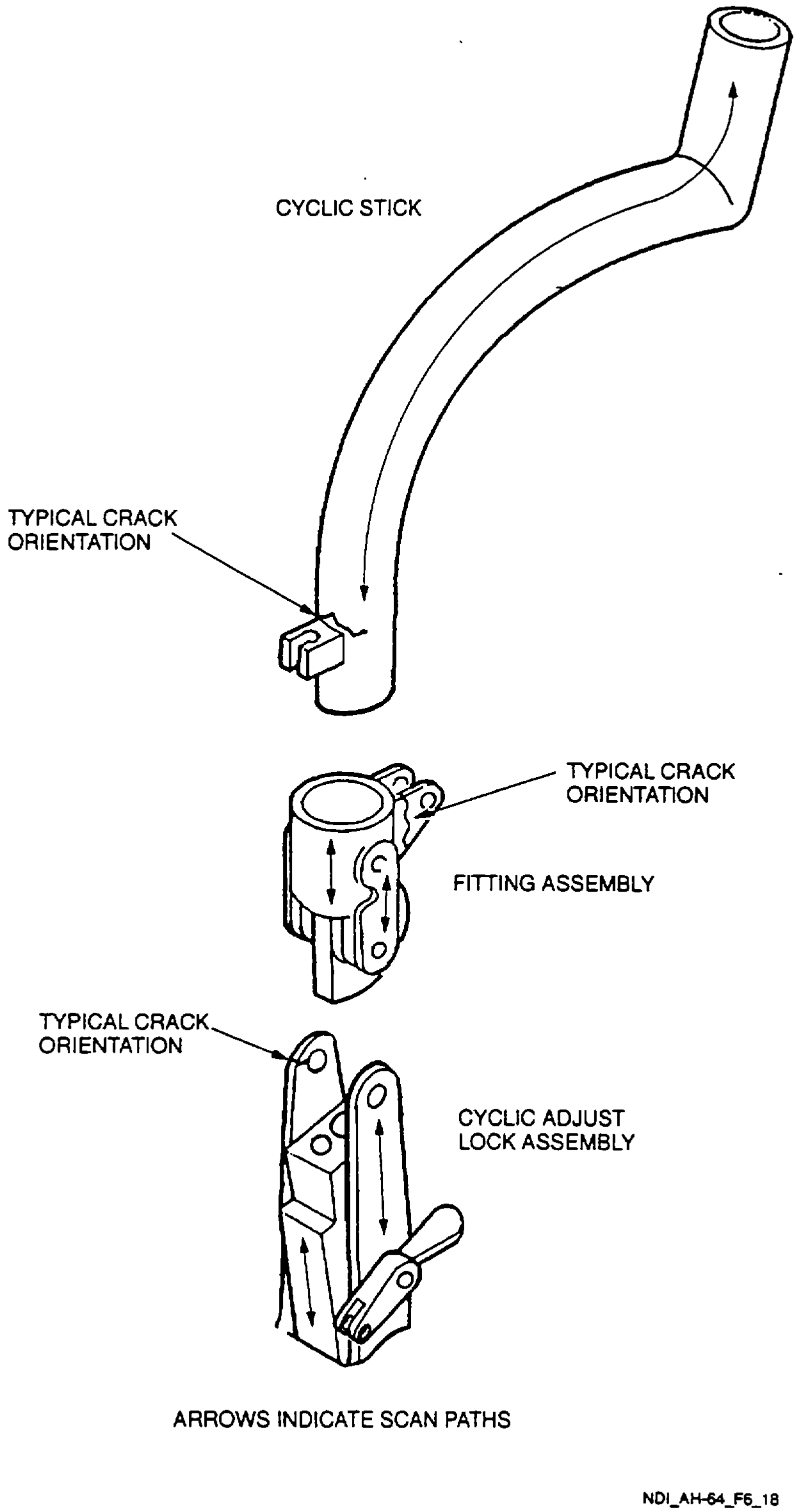


Figure 6-18. CPG Cyclic Stick Fitting Assembly

6.19 FERROUS FLIGHT CONTROL SYSTEM PUSH-PULL RODS (MT).

6.19.1 Description (Figure 6-1. Index No. 19). This is a generic inspection pertaining to ferrous flight control system push-pull rods throughout the helicopter.

6.19.2 Defects. This inspection is used to verify crack indications found visually on the flight control system push-pull rods. No cracks are allowed.

6.19.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke

b. Magnetometer

c. Black Light

d. Fluorescent Magnetic Particles, refer to Table 1-8

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.

6.19.3.2 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 parts using applicable positions of this procedure. If required, the flight control system push-pull rods 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, as applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.19.3.6 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 6-19.

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 6.19.3.8.

f. Repeat steps a. through e. for other positions, as required.

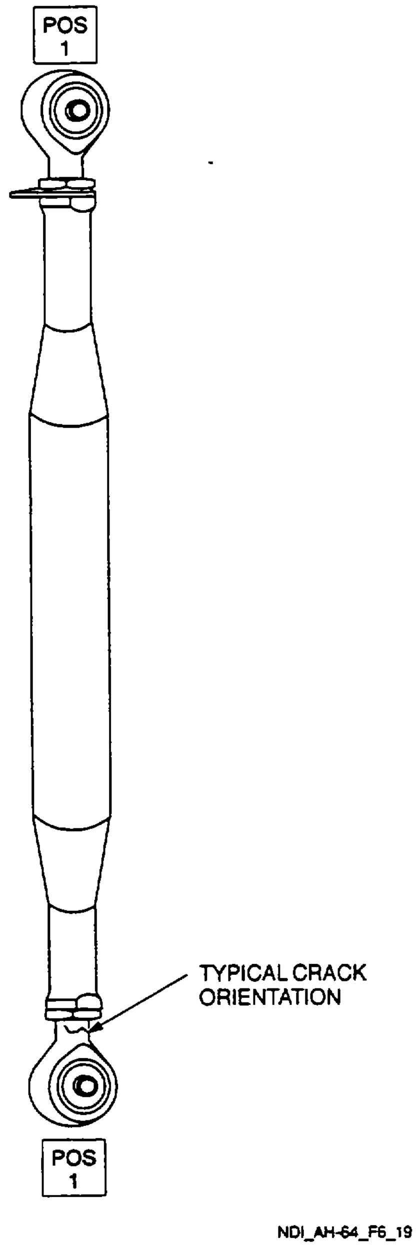


Figure 6-19. Ferrous Flight Control System Push-Pull Rods

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

6.19.3.8 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.

6.19.4 Backup Method. None required.

6.19.5 System Securing. Clean the flight control system push-pull 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 flight control system push-pull rods, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

6.20 NONFERROUS FLIGHT CONTROL SYSTEM P USH-PULL RODS (ET).

6.20.1 Description (Figure 6-1. Index No. 20). This is a generic inspection pertaining to nonferrous flight control system push-pull rods throughout the helicopter.

6.20.2 Defects. This inspection is used to verify crack indications found visually on the flight control system push-pull rods. 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° 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

6.20.3.2 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 flight control system push-pull rods 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, Table 1-2, as applicable.

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%		
VPos	-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 the 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.

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 the inspection results as required by paragraph 1.3.

6.20.4 Backup Method. None required.

6.20.5 System Securing. The flight control system push-pull rods, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

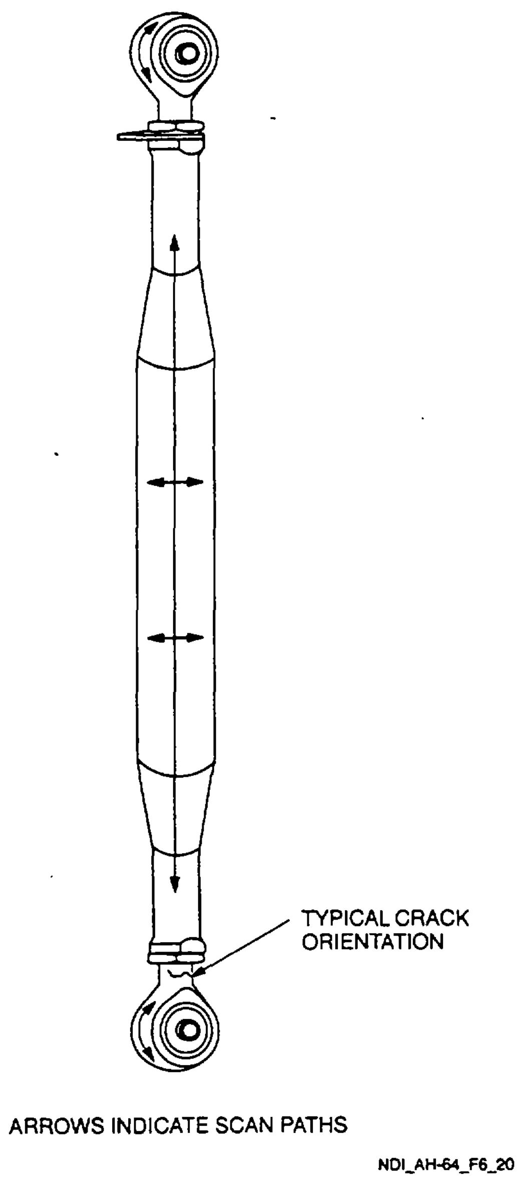


Figure 6-20. Nonferrous Flight Control System Push-Pull Rods

6.21 CPG TO PILOT LONGITUDINAL F.S. 82.80 CONTROL BRACKET (ET).

6.21.1 Description (Figure 6-1. Index No. 21). The CPG to pilot longitudinal F.S. 82.80 control bracket holds the bellcrank connecting the push-pull rods from the CPG to the pilot's longitudinal controls.

6.21.2 Defects. This inspection is used to verify crack indications found visually on the CPG to pilot longitudinal F.S. 82.80 control bracket. 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° 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

6.21.3.2 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 CPG to pilot longitudinal F.S. 82.80 control bracket shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.21.3.3 Access. Access is through the FAB and controls, and flight controls covers (Figure 1-4, Items B80R and B85R).

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-19e11.

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

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 the inspection results as required by paragraph 1.3.

6.21.4 Backup Method. None required.

6.21.5 System Securing. The CPG to pilot longitudinal F.S. 82.80 control bracket, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

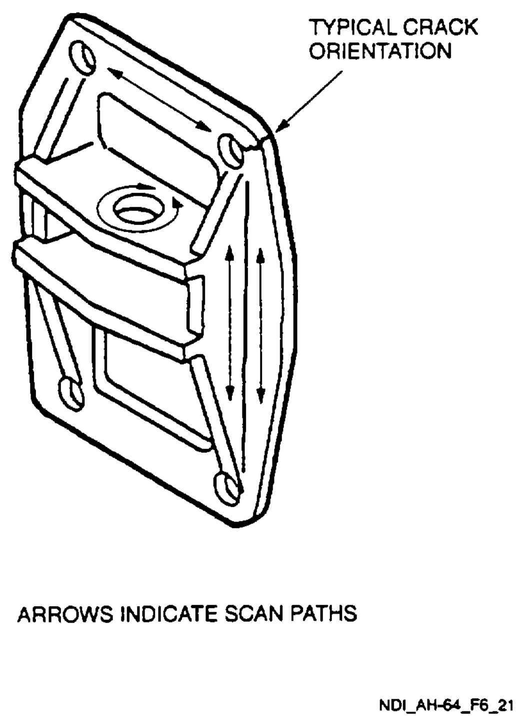


Figure 6-21. CPG to Pilot Longitudinal F.S. 82.80 Control Bracket

6.22 CPG TO PILOT COLLECTIVE F.S. 118.50 BELLCRANK (ET).

6.22.1 Description (Figure 6-1. Index No. 22). The CPG to pilot collective F.S. 118.50 bellcrank connects the CPG to pilot's collective controls push-pull rod.

6.22.2 Defects. This inspection is used to verify crack indications found visually on the CPG to pilot collective F.S. 118.50 bellcrank. 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° 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

6.22.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the C PG to pilot collective F.S. 11 8.50 bellcrank removed in accordance with the applicable technical manuals listed in Table 1-1.

6.22.3.3 Access. Not applicable.

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-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 the 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.

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 the inspection results as required by paragraph 1.3.

6.22.4 Backup Method. None required.

6.22.5 System Securing. The CPG to pilot collective F.S. 118.50 bellcrank requires installation in accordance with the applicable technical manuals listed in Table 1-1.

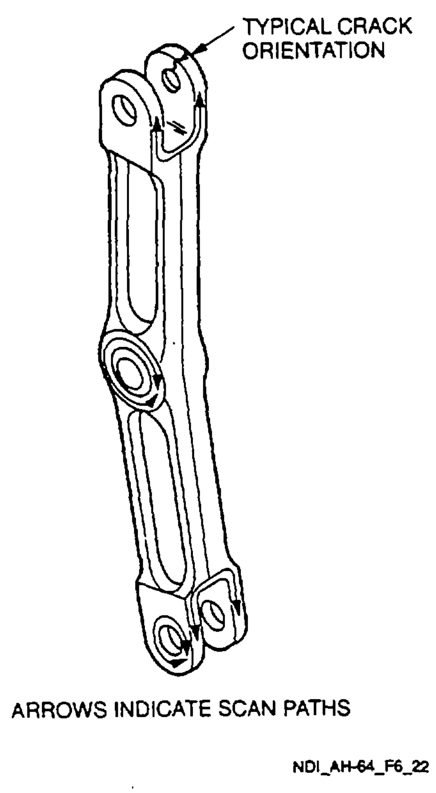


Figure 6-22. CPG to Pilot Collective F.S. 118.50 Bellcrank

6.23 CPG DIRECTIONAL SHEAR PIN ACTIVATED DECOUPLER (SPAD) ARMS (ET).

6.23.1 Description (Figure 6-1. Index No. 23). The CPG directional SPAD arms are the two major structures making up the CPG directional SPAD assembly. Inspect both arms.

6.23.2 Defects. This inspection is used to verify crack indications found visually on the CPG directional SPAD arms. 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° 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

6.23.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the CPG directional SPAD arms removed in accordance with the applicable technical manuals listed in Table 1-1.

6.23.3.3 Access. Not applicable.

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-19e11.

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

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 the inspection results as required by paragraph 1.3.

6.23.4 Backup Method. None required.

6.23.5 System Securing. The CPG directional SPAD arms require installation in accordance with the applicable technical manuals listed in Table 1-1.

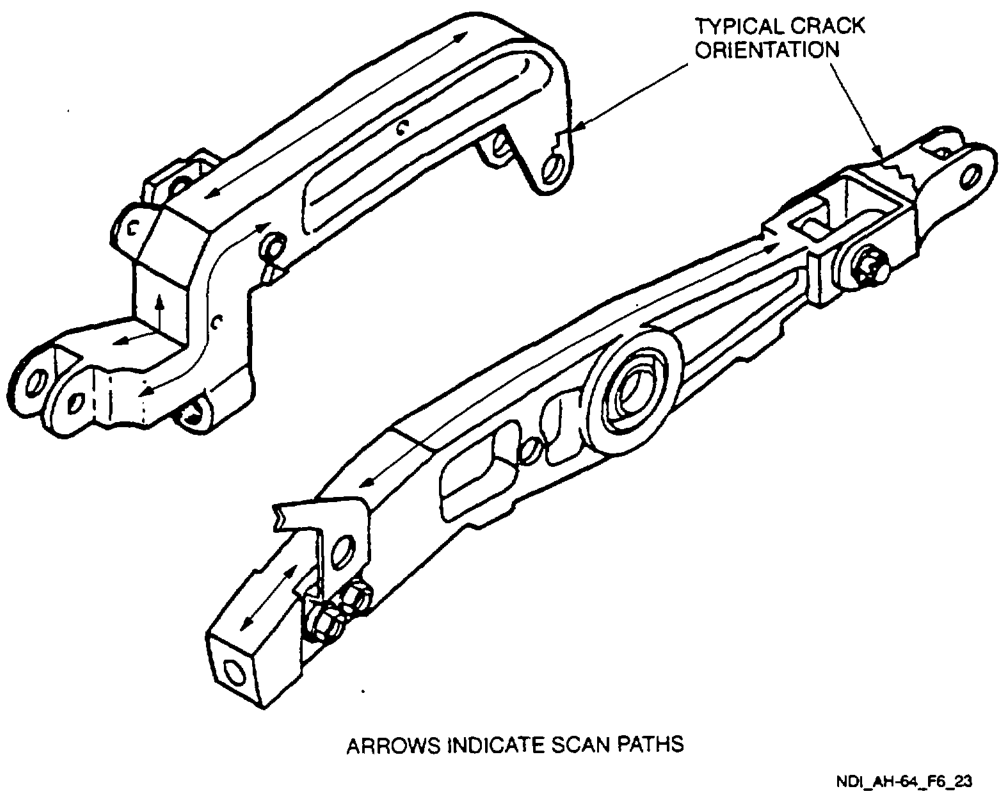


Figure 6-23. CPG Directional Shear Pin Activated Decoupler (SPAD) Arms

6.24 DIRECTIONAL F.S. 121.40 BELLCRANK (ET).

6.24.1 Description (Figure 6-1. Index No. 24). The directional F.S. 121.40 bellcrank is located underneath the pilot's station behind the pilot's floor panel.

6.24.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 121.40 bellcrank. 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° 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

6.24.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the directional F.S. 121.40 bellcrank removed in accordance with the applicable technical manuals listed in Table 1-1.

6.24.3.3 Access. Not applicable.

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[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%		
VPos	- 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 the 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.

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 the inspection results as required by paragraph 1.3.

6.24.4 Backup Method. None required.

6.24.5 System Securing. The directional F.S. 121.40 bellcrank requires installation in accordance with the applicable technical manuals listed in Table 1-1.

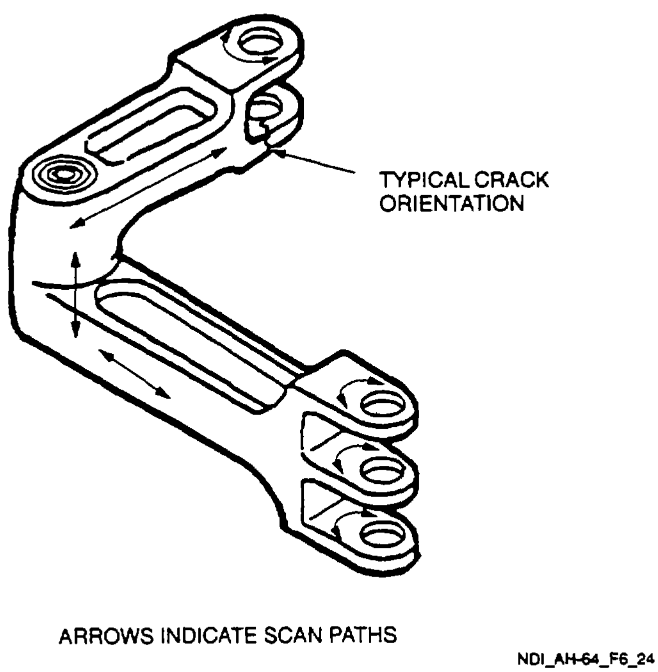


Figure 6-24. Directional F.S. 121.40 Bellcrank

6.25 DIRECTIONAL F.S. 121.40 BELLCRANK BRACKET (ET).

6.25.1 Description (Figure 6-1. Index No. 25). The directional F.S. 121.40 bellcrank bracket is located underneath the pilot's station behind the pilot's floor panel. It supports the directional F.S. 121.40 bellcrank.

6.25.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 121.40 bellcrank bracket. 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° 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

6.25.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the directional F.S. 121.40 bellcrank bracket removed in accordance with thi applicable technical manuals listed in Table 1-1.

6.25.3.3 Access. Not applicable.

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'1.

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 the 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.

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 the inspection results as required by paragraph 1.3.

6.25.4 Backup Method. None required.

6.25.5 System Securing. The directional F.S. 121.40 bellcrank bracket requires installation in accordance with the applicable technical manuals listed in Table 1-1.

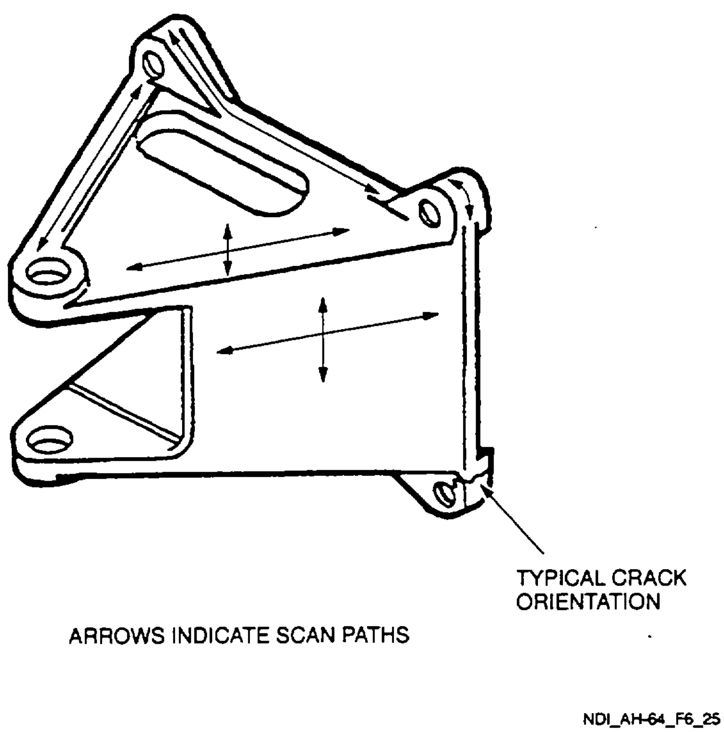


Figure 6-25. Directional F.S. 121.40 Bellcrank Bracket

6.26 PILOT DIRECTIONAL SHEAR PIN ACTIVATED DECOUPLER (SPAD) TRANSDUCER ARM (ET).

6.26.1 Description (Figure 6-1. Index No. 26). The pilot directional SPAD transducer arm is part of the pilot directional SPAD assembly.

6.26.2 Defects. This inspection is used to verify crack indications found visually on the pilot directional SPAD transducer arm. 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° 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

6.26.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pilot directional SPAD transducer arm removed in accordance with the applicable technical manuals listed in Table 1-1.

6.26.3.3 Access. Not applicable.

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[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%		
VPos	-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 the 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 the inspection results as required by paragraph 1.3.

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

6.26.5 <u>System Securing</u>. The pilot directional SPAD transducer arm requires installation in accordance with the applicable technical manuals listed in Table 1-1.

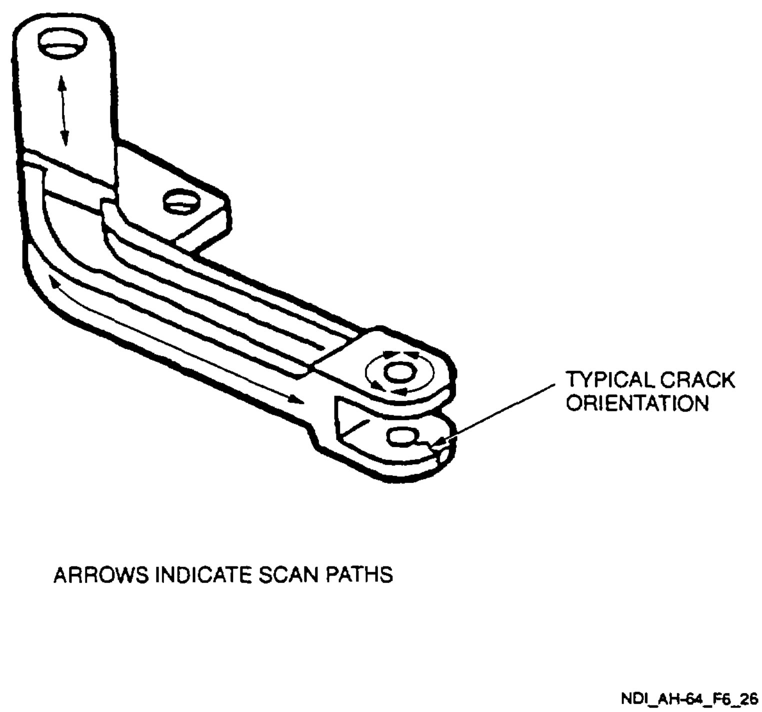


Figure 6-26. Pilot directional shear Pin activated Decoupler (SPAD) Transducer Arm

6.27 PILOT DIRECTIONAL SHEAR PIN ACTIVATED DECOUPLER (SPAD) REMOTE-CONTROL LEVER (ET).

6.27.1 Description (Figure 6-1. Index No. 27). The pilot directional SPAD remote control lever is part of the pilot directional SPAD assembly.

6.27.2 Defects. This inspection is used to verify crack indications found visually on the pilot directional SPAD remote control lever. 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° 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

6.27.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pilot directional SPAD remote control lever removed in accordance with the applicable technical manuals listed in Table 1-1.

6.27.3.3 Access. Not applicable.

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-19e11.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
VPos	- 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 the 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 the inspection results as required by paragraph 1.3.

6.27.4 Backup Method. None required.

6.27.5 System Securing. The pilot directional SPAD remote control lever requires installation in accordance with the applicable technical manuals listed in Table 1-1.

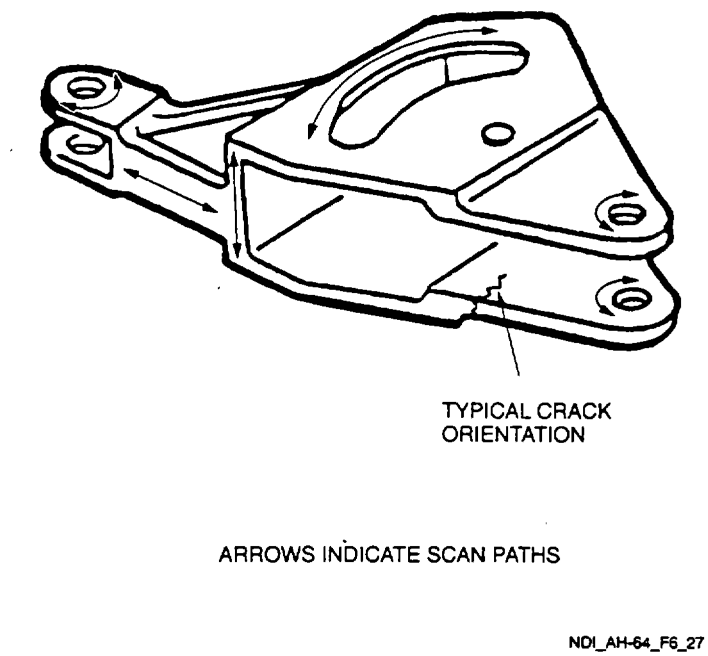


Figure 6-27. Pilot Directional Shear Pin Activated Decoupler (SPAD) Remote Control Lever

6.28 PILOT DIRECTIONAL SHEAR PIN ACTI VATED DECOUPLER (SPAD) BELLCRANKS (ET).

6.28.1 Description (Figure 6-1. Index No. 28). The pilot directional SPAD bellcranks are part of the pilot directional SPAD assembly. There are two bellcranks.

6.28.2 Defects. This inspection is used to verify crack indications found visually on the pilot directional SPAD bellcranks. 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° 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

6.28.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance pilot directional SPAD bellcranks removed and disassembled 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 the 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 the inspection results as required by paragraph 1.3.

6.28.4 Backup Method. None required.

6.28.5 System Securing. The pilot directional SPAD bellcranks require installation in accordance with the applicable technical manuals listed in Table 1-1.

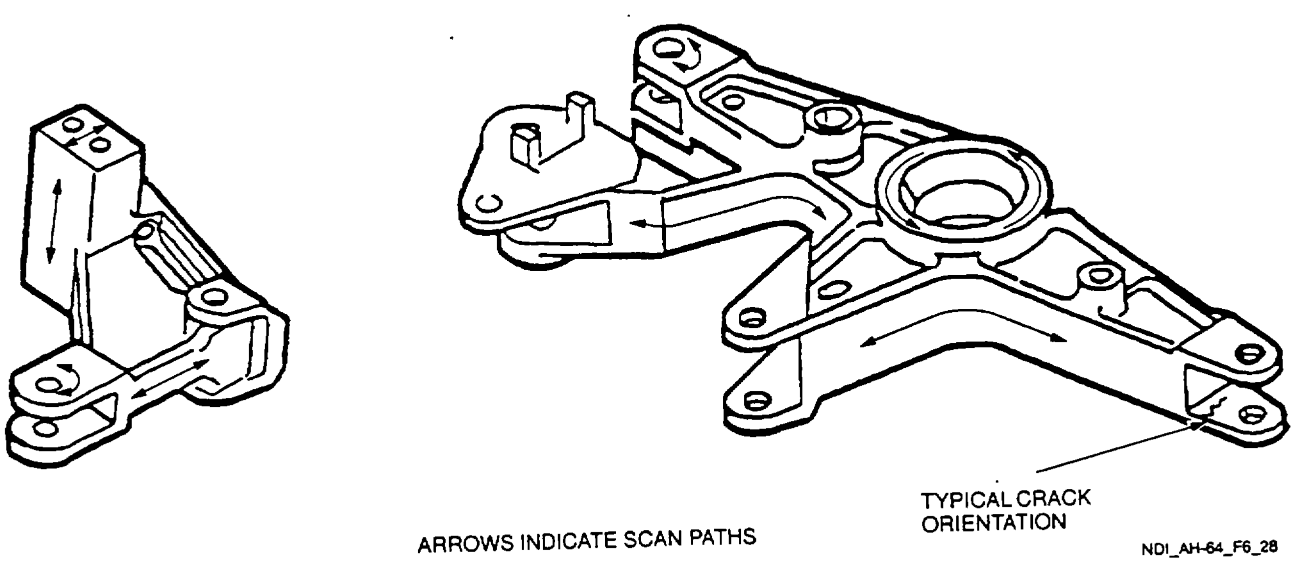


Figure 6-28. Pilot Directional Shear Pin Activated Decoupler (SPAD) Bellcranks

6.29 DIRECTIONAL F.S. 156.07 BELLCRANK (ET).

6.29.1 Description (Figure 6-1. Index No. 29). The directional F.S. 156.07 bellcrank is attached to the pilot collective support.

6.29.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 156.07 bellcrank. 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° 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

6.29.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the directional F.S.156.07 bellcrank in accordance with the applicable technical manuals listed in Table 1-1.

6.29.3.3 Access. Not applicable.

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-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 the 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 the inspection results as required by paragraph 1.3.

6.29.4 Backup Method. None required.

6.29.5 System Securing. The directional F.S. 156.07 bellcrank requires installation in accordance with the applicable technical manuals listed in Table 1-1.

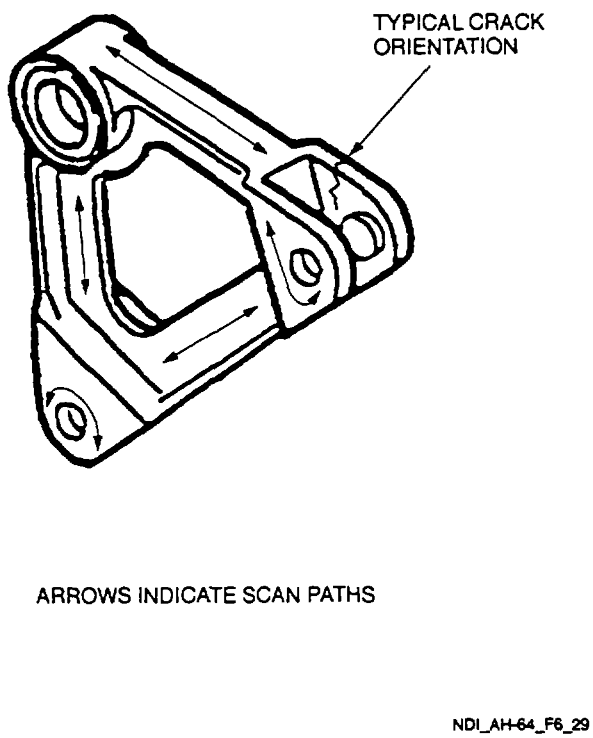


Figure 6-29. Directional F.S. 156.07 Bellcrank

6.30 DIRECTIONAL F.S. 159.98 BELLCRANK AND BRACKET (ET).

6.30.1 Description (Figure 6-1. Index No. 30). The directional F.S. 159.98 bellcrank and bracket are found on the left side of the helicopter, just aft of the cockpit area and below the transmission deck.

6.30.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 159.98 bellcrank and bracket. No cracks are allowed.

6.30.3 Primary Method. Eddy Current.

6.30.3.1 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

6.30.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the directional F.S. 159.98 bellcrank and bracket 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. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.30.3.5 NDI Equipment Settings.

a. Make the following initial settings on the Eddy Current Inspection Unit, NORTEC-19e11.

Frequency F1	- 200 KHz	F2	- off
HdB	- 57.0		
VdB	- 69.0		
Rot	- 56°		
Probe drive	- mid		
LPF	- 100		
HPF	- 0		
H Pos	- 80%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.30.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-30.

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 6.30.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.30.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.30.4 Backup Method. None required.

6.30.5 System Securing. The directional F.S. 159.98 bellcrank and bracket require installation in accordance with the applicable technical manuals listed in Table 1-1.

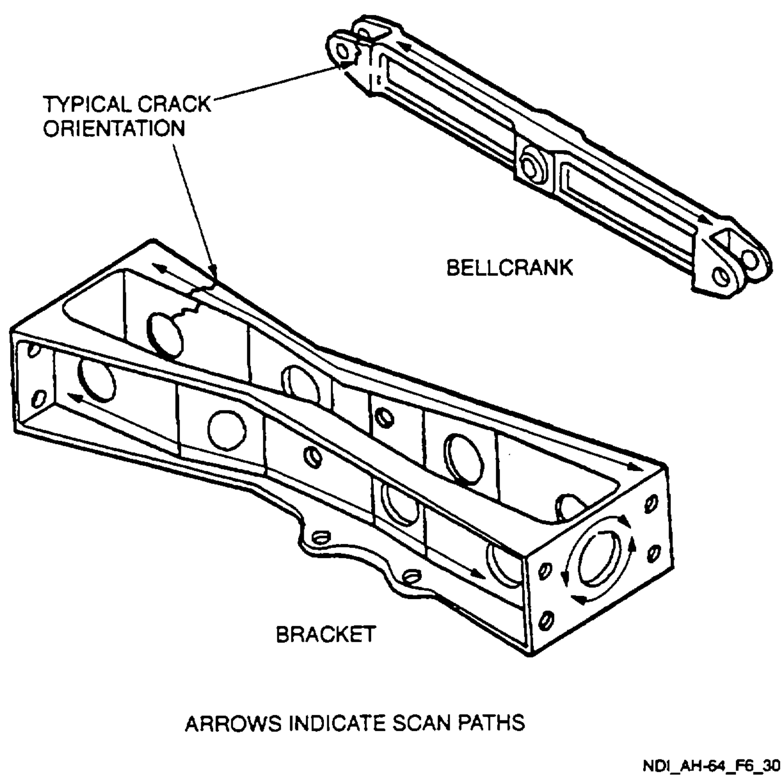


Figure 6-30. Directional F.S. 159.98 Bellcrank and Bracket

6.31 DIRECTIONAL F.S. 164.33 BELLCRANK BRACKET AND ATTACHING AREA ON DECK (ET).

6.31.1 Description (Figure 6-1. Index No. 31). The directional F.S. 164.33 bellcrank bracket and attaching area on deck are located on the left side of the helicopter, just behind the cockpit area.

6.31.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 164.33 bellcrank bracket and attaching area on the deck. No cracks are allowed.

6.31.3 Primary Method. Eddy Current.

6.31.3.1 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

6.31.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the directional F.S. 164.33 bellcrank bracket 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.

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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.31.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-31.

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 6.31.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.31.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.31.4 Backup Method. None required.

6.31.5 System Securing. The directional F.S. 164.33 bellcrank bracket requires installation in accordance with the applicable technical manuals listed in Table 1-1.

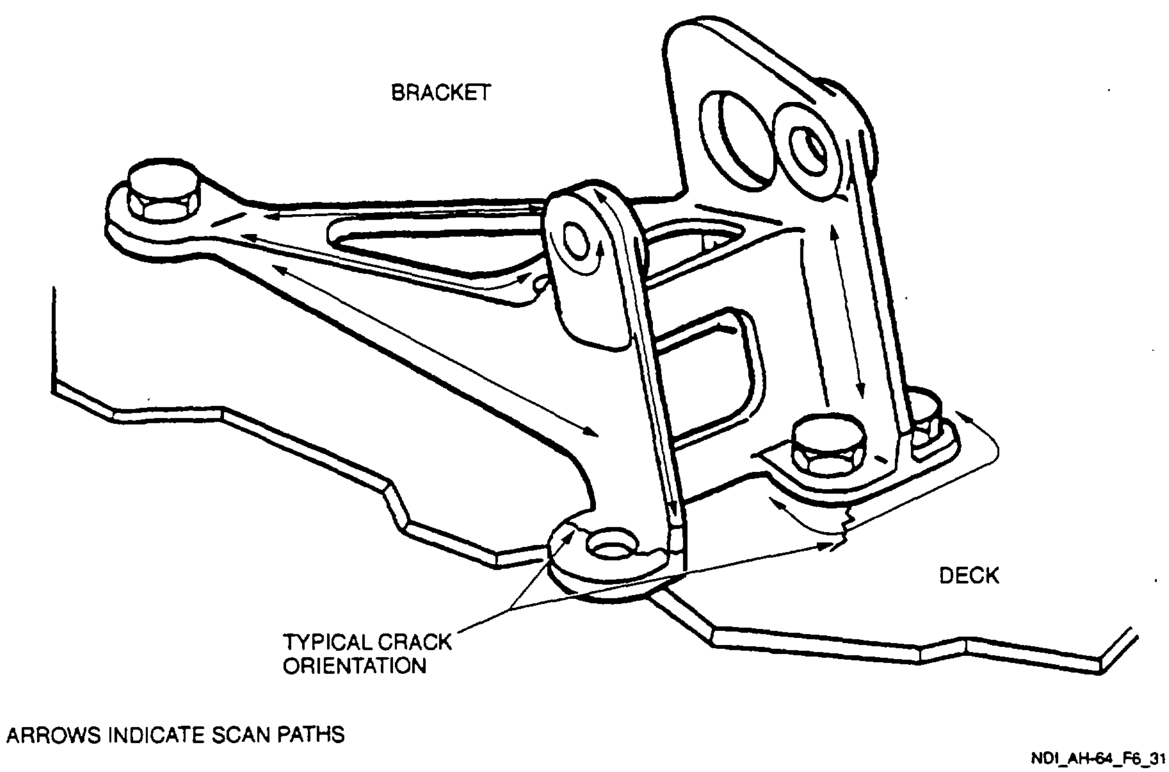


Figure 6-31. Directional F.S. 164.33 Bellcrank Bracket and Attaching Area on Deck

6.32 PILOT LONGITUDINAL SHEAR PIN ACTIVATED DECOUPLER (SPAD) OUTER AND INNER LEVER (ET).

6.32.1 Description (Figure 6-1. Index No. 32). The pilot longitudinal SPAD outer and inner levers make up the major parts of the pilot longitudinal SPAD assembly. There is one inner and one outer lever.

6.32.2 Defects. This inspection is used to verify crack indications found visually on the pilot longitudinal SPAD outer and inner levers. No cracks are allowed.

6.32.3 Primary Method. Eddy Current.

6.32.3.1 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

6.32.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the pilot longitudinal SPAD outer and inner lever 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. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.32.3.5 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 the standard instrument display shown in Figure 1-7.)

6.32.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-32.

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 6.32.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.32.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.32.4 Backup Method. None required.

6.32.5 System Securing. The pilot longitudinal SPAD outer and inner levers require installation in accordance with the applicable technical manuals listed in Table 1-1.

6.33 PILOTICPG DIRECTIONAL CONTROL PEDAL RELEASE HANDLE (ET).

6.33.1 Description (Figure 6-1. Index No. 33). The pilot/CPG directional control pedal release handles are differently shaped but similar in function. Each handle is found in the pilot/CPG compartments, just forward of the cyclic control sticks.

6.33.2 Defects. This inspection is used to verify crack indications found visually on the pilot/CPG directional control pedal release handle. No cracks are allowed.

6.33.3 Primary Method. Eddy Current.

6.33.3.1 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

6.33.3.2 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 pilot/CPG directional control pedal release handle shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

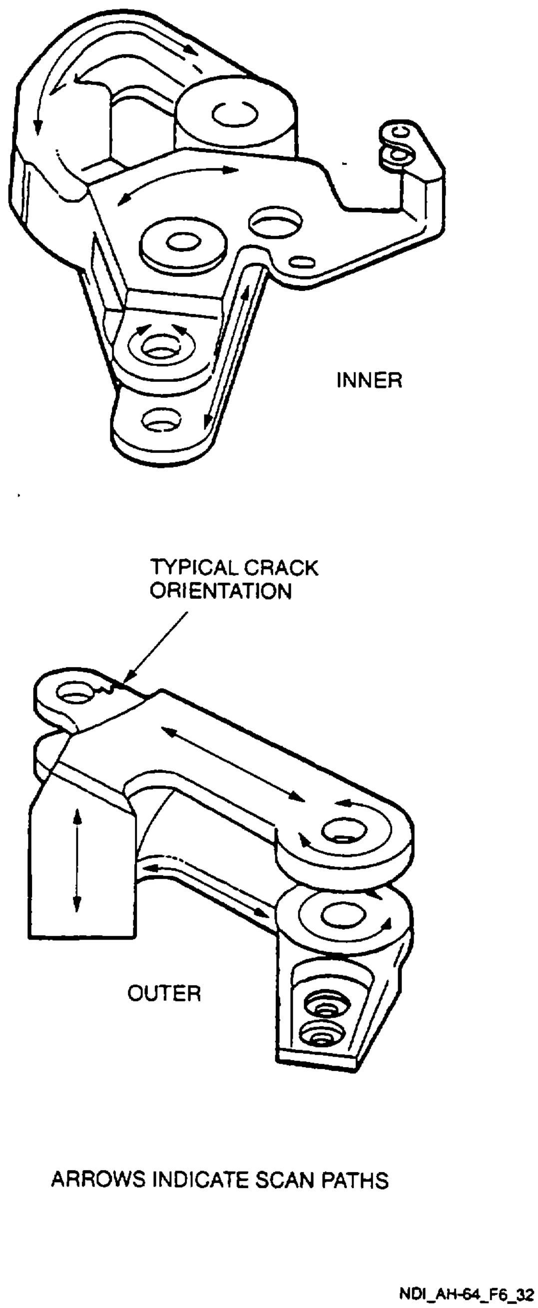


Figure 6-32. Pilot Longitudinal Shear Pin Activated Decoupler (SPAD) Outer and Inner Lever

6.33.3.3 Access. To access the directional control pedal release handle, remove the panels from the pilot's center console and the pedal adjust cover in the CPG station.

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.

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 the standard instrument display shown in Figure 1-7.)

6.33.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-33.

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 6.33.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.33.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.33.4 Backup Method. None required.

6.33.5 System Securing. The pilot/CPG directional control pedal release handle, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

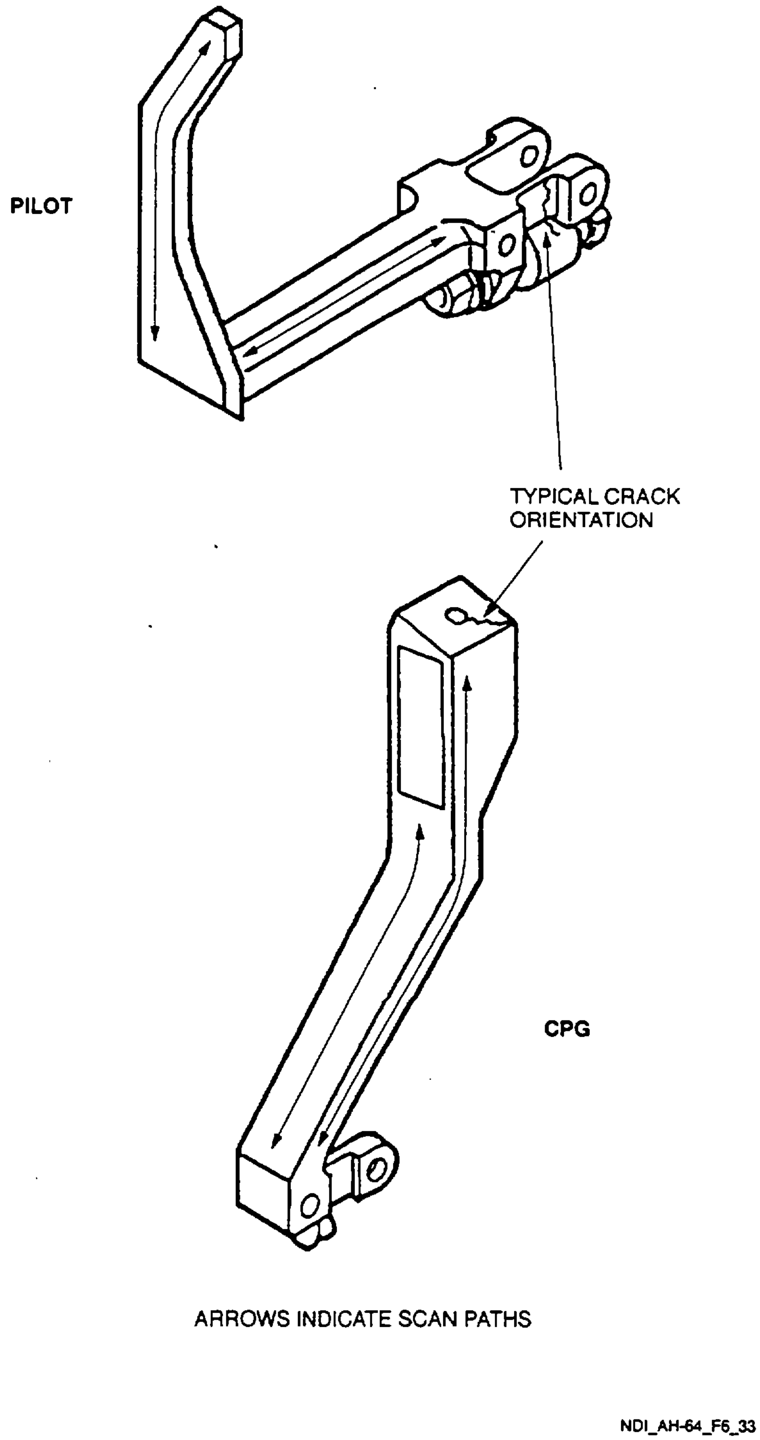


Figure 6-33. Pilot/CPG Directional Control Pedal Release Handle

6.34 PILOT/CPG DIRECTIONAL CONTROL PEDAL RELEASE SHAFT (MT).

6.34.1 Description (Figure 6-1. Index No. 34). The pilot and CPG directional control pedal release shafts connect the pedal release handles to the directional control pedal release nuts. Each is similar in design and function.

6.34.2 Defects. This inspection is used to verify crack indications found visually on the pilot/CPG directional control pedal release shaft. No cracks are allowed.

6.34.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

6.34.3.2 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 pilot/CPG directional control pedal release shaft shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.34.3.3 Access. Access is through the center console panel (Figure 1-4, Item PL3).

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

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

6.34.3.6 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 6-34.

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.

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

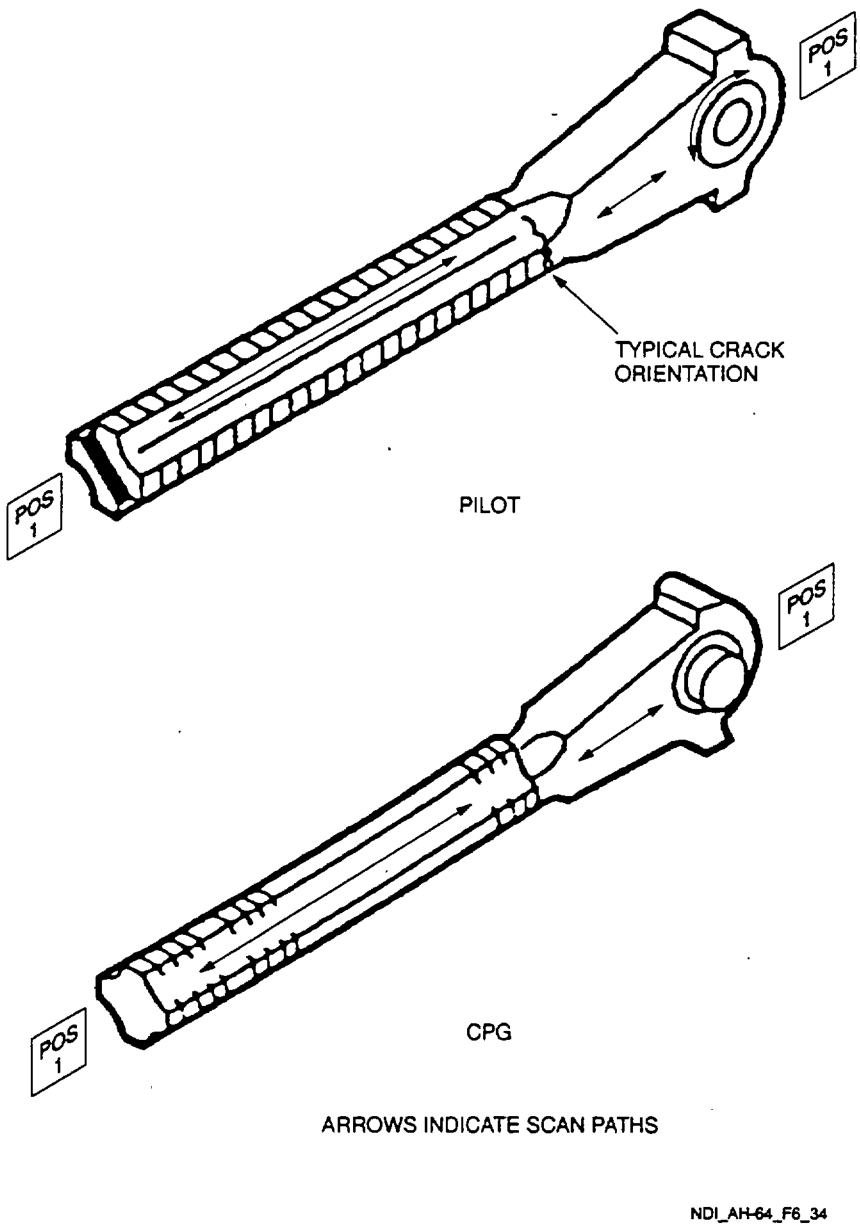


Figure 6-34. Pilot/CPG Directional Control Pedal Release Shaft

6.34.3.8 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.

6.34.4 Backup Method. None required.

6.34.5 System Securing. Clean the pilot/CPG directional control pedal release 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 pilot/CPG directional control pedal release shaft, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.35 PILOT/CPG DIRECTIONAL CONTROL PEDAL RELEASE NUTS (MT).

6.35.1 Description (Figure 6-1. Index No. 35). The pilot and CPG directional control pedal release nuts connect the pedal release handles to the shafts. Each is similar in design and function.

6.35.2 Defects. This inspection is used to verify crack indications found visually on the pilot/CPG directional control pedal release nuts. No cracks are allowed.

6.35.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

6.35.3.2 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 pilot/CPG directional control pedal release nuts shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.35.3.3 Access. Access is through the center console panels (Figure 1-4, Items PL3 and PR4).

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

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

6.35.3.6 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 6-35.

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 6.35.3.8.
f. Repeat steps a. through e. for position 2.

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

6.35.3.8 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.

6.35.4 Backup Method. None required.

6.35.5 System Securing. The pilot/CPG directional control pedal release nuts, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

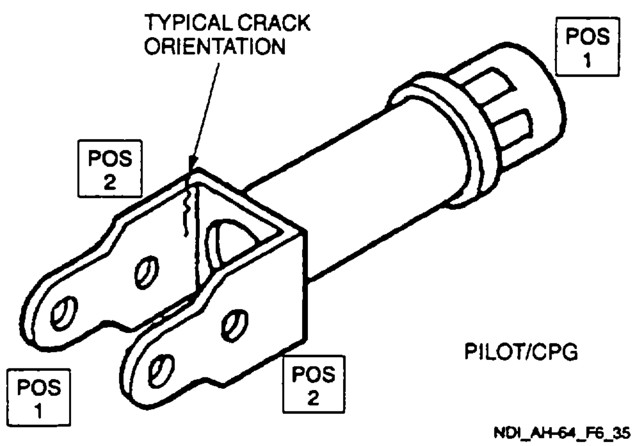


Figure 6-35. Pilot/CPG Directional Control Pedal Release Nuts

6.36 DIRECTIONAL F.S. 199.25 TAIL ROTOR FITTING (ET).

6.36.1 Description (Figure 6-1. Index No. 36). The directional F.S. 199.25 tail rotor fitting is attached to the transmission deck. Outboard of the main transmission is a mounting point for one end of the F.S. 199.25 tail rotor bellcrank.

6.36.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 199.25 tail rotor fitting. No cracks are allowed.

6.36.3 Primary Method. Eddy Current.

6.36.3.1 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

6.36.3.2 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 directional F.S. 199.25 tail rotor fitting shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.36.3.3 Access. Access is through the main rotor transmission panel (Figure 1-4, Item L200) and by removing F.S. 199.25 bellcrank.

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.

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 the standard instrument display shown in Figure 1-7.)

6.36.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-36.

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 6.36.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.36.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.36.4 Backup Method. None required.

6.36.5 System Securing. The directional F.S. 199.25 tail rotor fitting, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

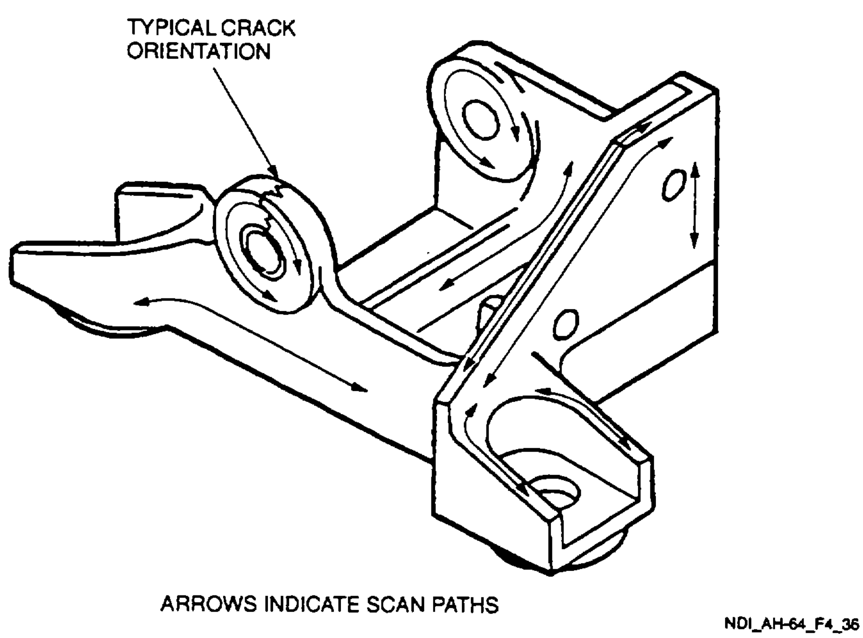


Figure 6-36. Directional F.S. 199.25 Tail Rotor Fitting

6.37 DIRECTIONAL F.S. 275 ROTOR CONTROL BRACKET (ET).

6.37.1 Description (Figure 6-1, Index No. 37). The directional F.S. 275 rotor control bracket acts as a support for the directional F.S. 275 bellcrank.

6.37.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 275 rotor control bracket. No cracks are allowed.

6.37.3 Primary Method. Eddy Current.

6.37.3.1 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

6.37.3.2 Preparation of Helicopter. The helicopter shall be prepared for safe ground maintenance and the directional F.S. 275 rotor control bracket 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. The part shall be thoroughly cleaned. Refer to Preparation of Part or Area for NDI, paragraph 1.4.4.

6.37.3.5 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 the standard instrument display shown in Figure 1-7.)

6.37.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-37.

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 6.37.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.37.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.37.4 Backup Method. None required.

6.37.5 System Securing. The directional F.S. 275 rotor control bracket requires installation in accordance with the applicable technical manuals listed in Table 1-1.

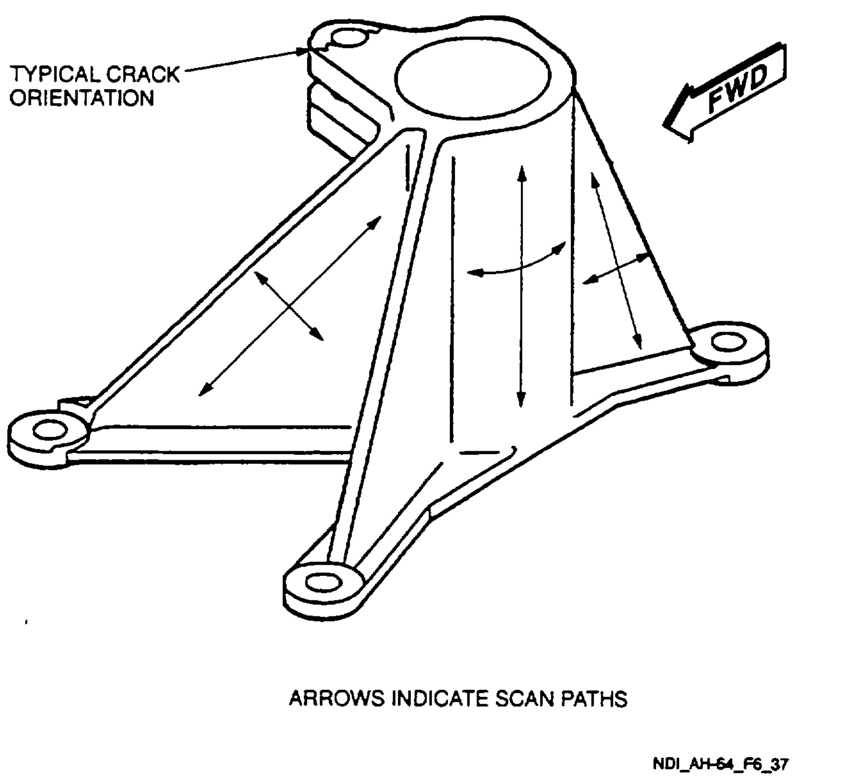


Figure 6-37. Directional F.S. 275 Rotor Control Bracket

6.38 DIRECTIONAL F.S. 348 BELLCRANK (ET).

6.38.1 Description (Figure 6-1. Index No. 38). The directional F.S. 348 bellcrank attaches the forward and directional control push-pull rods in the F.S. 348 area.

6.38.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 348 bellcrank. 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 directional F.S. 348 bellcrank shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.38.3.3 Access. Access is through the tail rotor shaft and deck area fairings (Figure 1-4, Items T325 and T355).

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-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%		
VPos	- 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 the 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.

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

6.38.4 Backup Method. None required.

6.38.5 System Securing. The directional F.S. 348 bellcrank, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

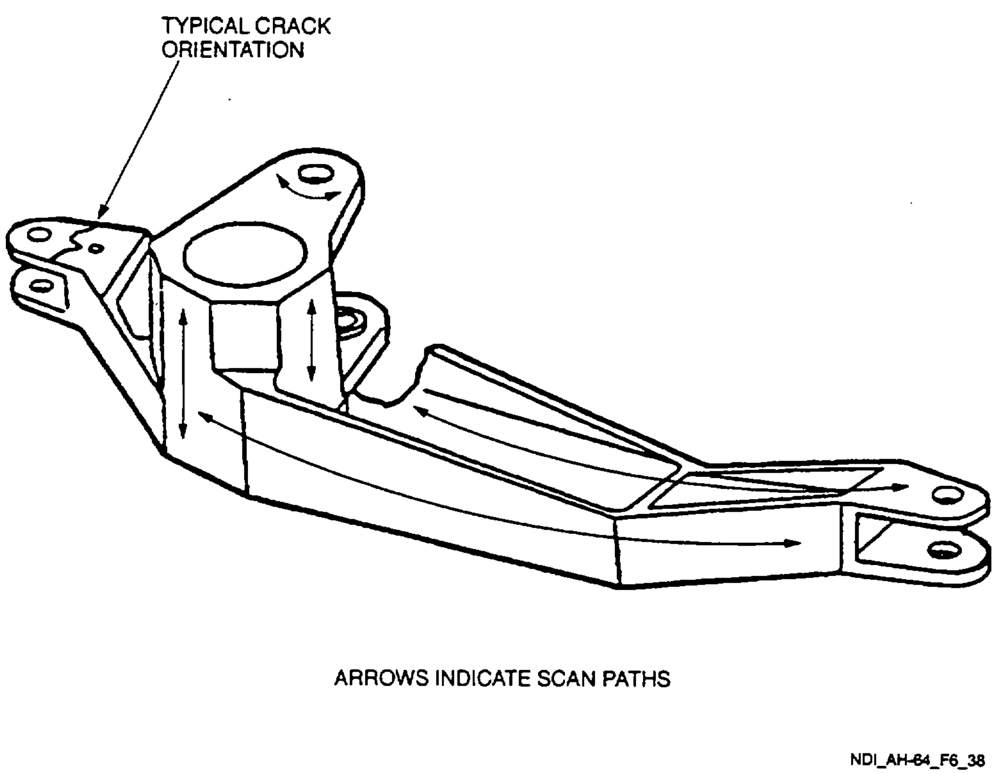


Figure 6-38. Directional F.S. 348 Bellcrank

6.39 DIRECTIONAL F.S. 348 TAIL ROTOR BRACKET (ET).

6.39.1 Description (Figure 6-1. Index No. 39). The directional F.S. 348 tail rotor bracket mounts the F.S. 348 bellcrank in the F.S. 348 area.

6.39.2 Defects. This inspection is used to verify crack indications found visually on the directional F.S. 348 tail rotor bracket. No cracks are allowed.

6.39.3 Primary Method. Eddy Current.

6.39.3.1 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

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 this procedure. If required, the directional F.S. 348 tail rotor bracket shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.39.3.3 Access. Access is through the tail rotor shaft and deck area fairings (Figure 1 -4, Items T325 and T355).

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.

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%		
VPos	- 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 the standard instrument display shown in Figure 1-7.)

6.39.3.6 Inspection Procedure. Refer to Eddy Current Method, paragraph 1.4.11 and Figure 6-39.

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 6.39.3.1 may be used depending primarily on the ease of accessibility and user friendliness. If the probes are changed, steps 6.39.3.5 b. (1), (2), and (3) shall be repeated each time a change is made.

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

6.39.4 Backup Method. None required.

6.39.5 System Securing. The directional F.S. 348 tail rotor bracket, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

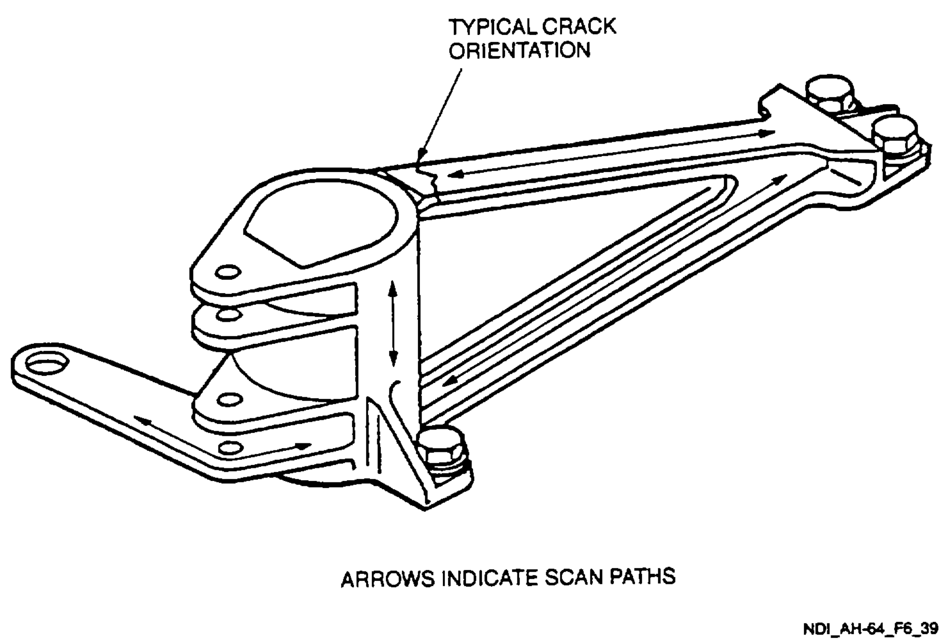


Figure 6-39. Directional F.S. 348 Tail Rotor Bracket

6.40 TAIL ROTOR SWASHPLATE CONTROL BELLCRANK (MT).

6.40.1 Description (Figure 6-1. Index No. 40). The tail rotor swashplate control bellcrank is found just inboard of the tail rotor swashplate. It connects the directional servocylinder to the swashplate.

6.40.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor swashplate control bellcrank. 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, refer to Table 1-8
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 this procedure. If required, the tail rotor swashplate control bellcrank removed in accordance with the applicable technical manuals listed in Table 1-1.

6.40.3.3 Access. Not applicable.

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 positions 2 and 3.

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

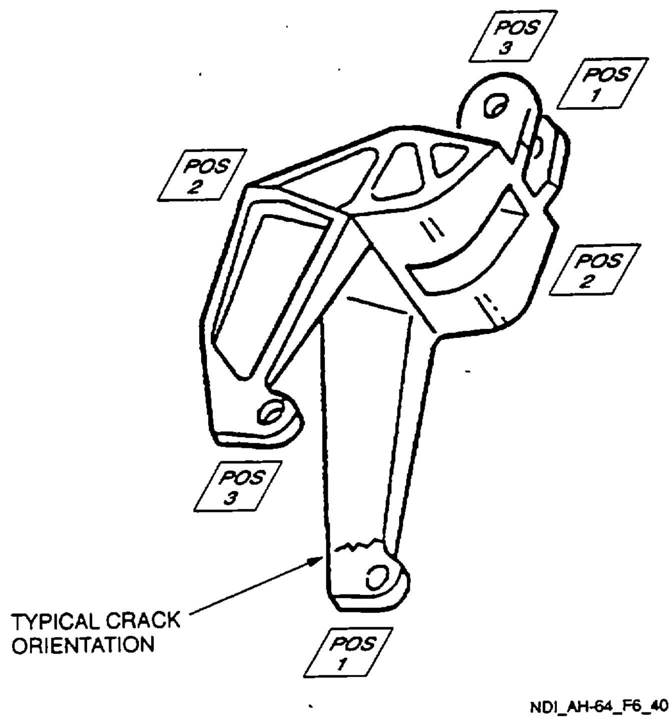


Figure 6-40. Tail Rotor Swashplate Control Bellcrank

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 tail rotor swashplate control bellcrank 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 swashplate control bellcrank, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

6.41 TAIL ROTOR DRIVE LINKS (ET).

6.41.1 Description (Figure 6-1. Index No. 41). There are two tail rotor drive links. The inspection is the same for each. The tail rotor drive links are two-part links which connect the tail rotor swashplate to a controlling fork.

6.41.2 Defects. This inspection is used to verify crack indications found visually on the tail rotor drive links. 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 tail rotor drive links shall be removed in accordance with the applicable technical manuals listed in Table 1-1.

6.41.3.3 Access. Not applicable.

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-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%		
VPos	- 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 the 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.

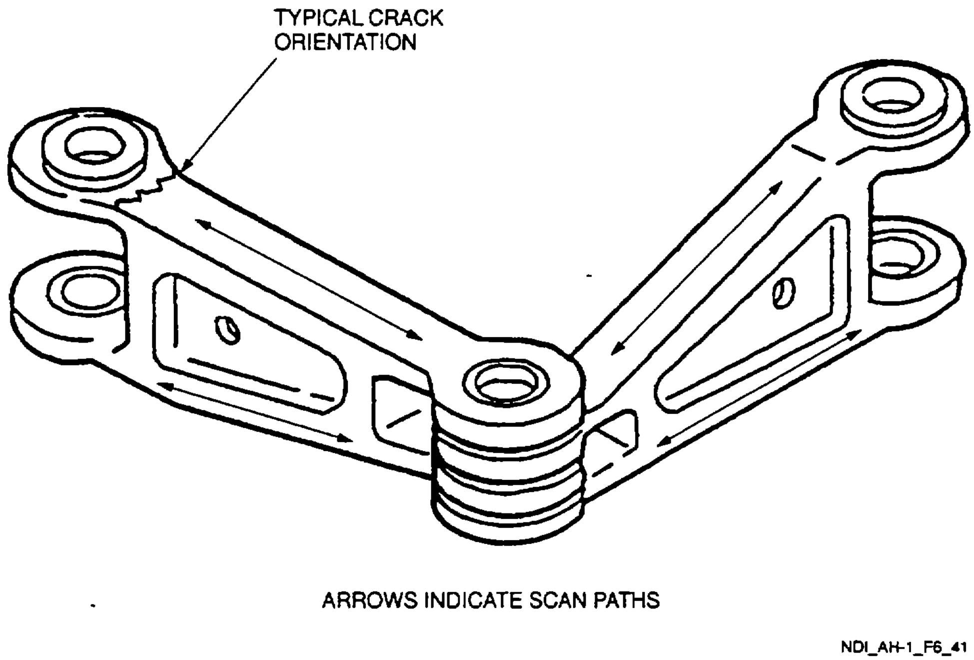


Figure 6-41. Tail Rotor Drive Links

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 the inspection results as required by paragraph 1.3.

6.41.4 Backup Method. None required.

6.41.5 System Securing. The tail rotor drive links, if removed, require installation in accordance with the applicable technical manuals listed in Table 1-1.

6.42 EXTERIOR SURFACES OF ALL FERROUS HYDRAULIC COMPONENTS (SERVOCYLINDERS, ACTUATORS, RESERVOIRS, ETC.) (MT).

6.42.1 Description (Figure 6-1. Index No. 42). Inspect the exterior surfaces of all ferrous hydraulic components (servocylinders, actuators, reservoirs, etc.) found in the areas of the aft/forward main rotor mast and the aft/above top rotor mast.

6.42.2 Defects. This inspection is used to verify crack indications found visually on the exterior surfaces of all ferrous hydraulic components. No cracks are allowed.

6.42.3 Primary Method. Magnetic Particle.

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

a. Magnetic Particle Inspection Probe/Yoke
b. Magnetometer
c. Black Light
d. Fluorescent Magnetic Particles, refer to Table 1-8
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.

6.42.3.2 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 applicable positions of this procedure. If required, the hydraulic components (servocylinders, actuators, reservoirs, etc.) shall be removed in accordance. with the applicable technical manuals listed in Table 1-1.

6.42.3.3 Access. Not applicable.

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. Refer to Magnetic Particle Method, paragraph 1.4.8.

6.42.3.6 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 6-42.

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 6.42.3.8.
f. Repeat steps a. through e. for other positions, as required.

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

6.42.3.8 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.

6.42.4 Backup Method. None required.

6.42.5 System Securing. Clean the exterior surfaces of all ferrous hydraulic components (servocylinders, actuators, reservoirs, etc.) thoroughly to remove all residual magnetic particle media. Refer to Post Cleaning and Restoration of Part or Area After NDI, paragraph 1.4.16. Any part, if removed, requires installation in accordance with the applicable technical manuals listed in Table 1-1.

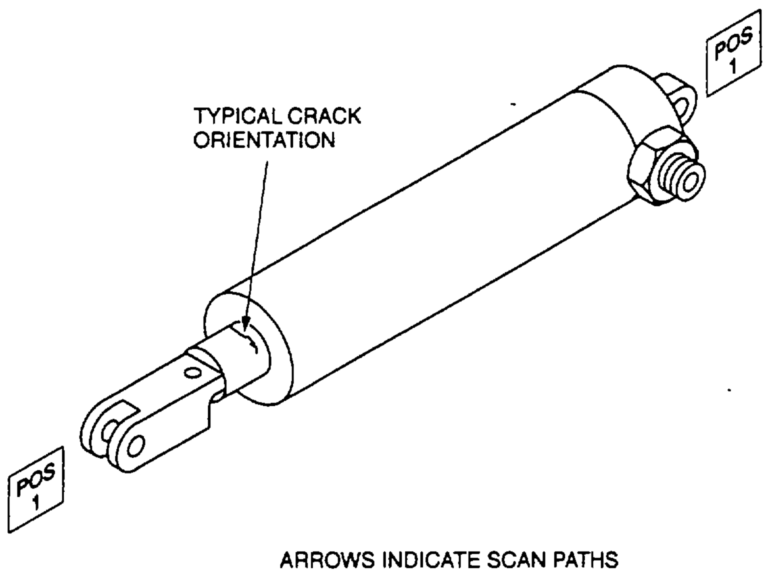


Figure 6-42. Exterior Surfaces of All Ferrous Hydraulic Components (Servocylinders, Actuators, Reservoirs, etc.)

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, AH-64A 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 Droop Stop Follower (Plunger)	Cracks		√		001	
2.3	Droop Stop Ring	Cracks		√		002	
2.4	Main Rotor Blade (Voids)	Voids		√		005	
2.5	Main Rotor Blade	Cracks		√		001	
2.6	Main Rotor Blade	Fluid		√		006	
2.7	Main Rotor Blade Weight Support Fittings	Cracks		√		003	
2.8	Main Rotor Mast	Cracks		√		002	
2.9	Main Rotor Mast Retaining Ring	Cracks		√		002	
2.10	Main Rotor Hub Retention Nut	Cracks		√		002	
2.11	Main Rotor Head (Hub)	Cracks				003	
2.12	Main Rotor Lead Lag Link (Damper Link)	Cracks		√		003	
2.13	Main Rotor Damper	Cracks		√		003	
2.14	Main Rotor Damper Trunnion	Cracks		√		003	
2.15	' Main Rotor Damper Rod End	Cracks		√		002	
2.16	Main Rotor Pitch Housing	Cracks		√		003	
2.17	Main Rotor Feathering Bearing Housing	Cracks		√		003	
2.18	Main Rotor Striker Plate and Shims	Cracks		√		002	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
2.19	Main Rotor Hub Bearing	Cracks		√		003	
2.20	Main Rotor Lower Shoe	Cracks		√		003	
2.21	Main Rotor Head Hub Load Plate	Cracks		√		002	
2.22	Main Rotor Hub Brackets	Cracks		√		002	
2.23	Main Rotor Hub Lower Plate	Cracks		√		002	
2.24	Tail Rotor Fork Assembly (Head and Teeter Stop)	Cracks		√		003	
2.25	Tail Rotor Blade	Cracks		√		001	
2.26	Tail Rotor Blade (Voids)	Voids		√		005	
2.27	Tail Rotor Blade (Fluid)	Fluid		√		006	
2.28	Tail Rotor Hub	Cracks		√		003	
2.29	Tail Rotor Clamps and Locking Plates	Cracks		√		003	
3.2	Drive Shafts	Cracks		√		003	Backup 001
3.3	Drivetrain Couplings	Cracks		√		003	
3.4	Drivetrain Flanges	Cracks		√		002	
3.5	Damper and Anti-Flail Supports	Cracks		√		003	Backup 001
3.6	Forward Hanger Bearing Flange	Cracks		√		002	Backup 001
3.7	Forward Hanger Bearing Support	Cracks		√		003	Backup 001
3.8	Aft Hanger Bearing Flange	Cracks		√		002	Backup 001
3.9	Aft Hanger Bearing Support	Cracks		√		003	
3.10	Intermediate Gearbox Centrifugal Fan	Cracks		√		003	
3.11	Engine Nose Gearbox	Cracks		√		003	Backup 001

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
3.12	Engine Nose Gearbox Input Quill Shaft	Cracks		√		002	
3.13	Main Transmission	Cracks		√		003	
3.14	Main Transmission Compressor Drive Adapter	Cracks		√		003	
3.15	Main Transmission' APU Drive Flange	Cracks		√		002	
3.16	Main Transmission Tail Rotor Drive Flange	Cracks		√		002	
3.17	Main Rotor Gearshaft Drive Gear Teeth	Cracks		√		002	
3.18	Main Rotor Mast Support Base	Cracks		√		003	
3.19	Intermediate Gearbox	Cracks		√		003	
3.20	Intermediate Gearbox Retainers	Cracks		√		003	Backup 001
3.21	Intermediate Gearbox Flange and Shouldered Shaft	Cracks		√		002	
3.22	Tail Rotor Gearbox	Cracks		√		003	Backup 001
3.23	Tail Rotor Gearbox Shouldered Shaft	Cracks		√		002	
3.24	Tail Rotor Gearbox Retainers	Cracks		√		003	Backup 001
3.25	Tail Rotor Gearbox Forward and Aft Strut	Cracks		√		002	
3.26	Tail Rotor Gearbox Forward and Aft Strut Fittings	Cracks		√		002	
3.27	Main Rotor Head (Hub)	Cracks		√		003	
3.28	Main Rotor Support Mast	Cracks		√		002	
4.2	Fuselage and Empen-nage Access Doors, Covers, Panels, and Fairings - Metal	Cracks		√		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
4.3	Honeycomb Core Fuselage Panels, Vertical Fin, etc.	Voids		√		005	
4.4	Fluid in Honeycomb Core Fuselage Panels, Vertical Fin, etc.	Fluid		√		006	
4.5	Fittings, Castings, and Forgings	Cracks		√		003	Backup 001
4.6	Transmission Deck	Cracks		√		003	
4.7	Empennage Frame Assemblies F.S. 530 and F.S. 547 and Attached Stringers	Cracks		√		003	
4.8	Fuselage Support Holes	Cracks		√		003	
4.9	Gun and Ammo Support Mount Pads	Cracks		√		003	
4.10	Main Landing Gear Shock Strut Support	Cracks		√		002	
4.11	Main Landing Gear Cross Tube Mounting Points	Cracks		√		002	
4.12	Rotor Support Mixer Assembly and Mounting Surfaces	Cracks		√		002	
4.13	Rotor Mixer Support Assembly Bolt	Cracks		√		002	
4.14	Transmission Rotor Support Strut Assemblies	Cracks		√		003	
4.15	Nacelle Carry-Through Post Assembly	Cracks		√		003	
4.16	Wing Attachment Fittings on Wing and Fuselage	Cracks		√		003	
4.17	Wing Rack Attachment Points/Mounts	Cracks		√		003	
4.18	TADSIPNVS Support Fitting	Cracks		√		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
4.19	Vertical Stabilizer Lugs	Cracks		√		003	
4.20	Vertical Stabilizer Barrel Nuts	Cracks		√		002	
4.21	Horizontal Stabilator Actuator Fitting	Cracks		√		003	
4.22	Engine Access and Ventilation Door Assem- bly Rig Connecting Link	Cracks		√		001	
4.23	Aft Inboard Engine Mount Support	Cracks		√		003	
4.24	Engine Nacelle Strut Attachment Area	Cracks		√		003	
4.25	Main Landing Gear Trailing Arms	Cracks		V		002	
4.26	Main Landing Gear Wheels	Cracks		√			
4.27	Main Landing Gear Shock Strut Housing, Piston, and Rod Ends	Cracks		√		002	
4.28	Main Landing Gear Lower Structural Support	Cracks		√		003	
4.29	Main Landing Gear Jack Pad Adapter	Cracks		√		002	
4.30	Main Landing Gear Trailing Arm Cross Tube	Cracks		√		002	
4.31	Main Landing Gear Shock Strut Mount Shaft	Cracks		√		002	
4.32	Tail Landing Gear Fork	Cracks		√		003	
4.33	Tail Wheel	Cracks		√		003	
4.34	Tail Landing Gear Shock Strut	Cracks		√		002	
4.35	Tail Landing Gear Trailing Arms	Cracks		√		003	
4.36	Tail Landing Gear Actuating Cylinder Assembly	Cracks		√		003	
4.37	Brake System Components	Cracks		√		001	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
4.38	General Helicopter Attaching Hardware	Cracks		√		002	
5.2	Aft Inboard and Aft Lower Engine Mounts	Cracks		√		003	
5.3	Forward Inboard Engine Mount	Cracks		√		002	
5.4	Forward Lower Engine Mount	Cracks		√		002	
5.5	Engine Tubing, Couplings, Air Ducts, Fittings, Supports, Brackets, and Clips	Cracks		√		001	
5.6	Ai, Inlet Assembly	Cracks		√		003	
5.7	Engine Air Inlet "V" Band Clamp	Cracks		√		001	
5.8	Starter Flange	Cracks		√		003	
5.9	Engine Shroud	Cracks		√		001	
5.10	Engine Load Demand Spindle Bellcrank Support	Cracks		√		003	
5.11	Engine Components	Cracks		√		001	
6.2	'Flight Control Bellcranks	Cracks		√		003	
6.3	Main Rotor Swashplate Shoulder Pin Mating Bores	Cracks		√		003	
6.4	Main Rotor Link Barrels	Cracks		√		002	Backup 001
6.5	Main Rotor Scissors Upper Arm	Cracks		√		003	
6.6	Main Rotor Scissors Lower Arm	Cracks		√		003	
6.7	Pilot/CPG Collective Stick Tube	Cracks		√		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
6.8	Pilot/CPG Collective Stick Rotor Housing	Cracks		√		003	
6.9	Pilot Collective Stick Cylinder	Cracks		√		003	
6.10	Flight Control Rods, Connecting Links, Rod Ends, Clevises, Levers and Attaching Parts	Cracks		√		003	
6.11	Pilot Collective Stick Support Assembly	Cracks		√		003	
6.12	CPG Collective Stick Support Assembly	Cracks		√		003	
6.13	Pilot Cyclic Stick	Cracks		√		003	
6.14	Lateral Feel Spring Cartridge	Cracks		√		003	
6.15	Pilot Cyclic Stick Housing and Support Assembly	Cracks		√		003	
6.16	CPG Cyclic Stick Forward and Aft Links	Cracks		√		003	
6.17	CPG Cyclic Stick Remote Control Lever	Cracks		√		003	
6.18	CPG Cyclic Stick Fitting Assembly	Cracks		√		003	
6.19	Ferrous Flight Control System Push-Pull Rods	Cracks		√		002	
6.20	Nonferrous Flight Control System Push-Pull Rods	Cracks		√		003	
6.21	CPG to Pilot Longitudinal F.S. 82.80 Control Bracket	Cracks		√		003	
6.22	CPG to Pilot Collective F.S. 118.50 Bellcrank	Cracks		√		003	
6.23	CPG Directional Shear Pin Activated Decoupler (SPAD) Arms	Cracks		√		003	
6.24	Directional F.S. 121.40 Bellcrank	Cracks		√		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
6.25	Directional F.S. 121.40 Bellcrank Bracket	Cracks		√		003	
6.26	Pilot Directional Shear Pin Activated Decoupler (SPAD) Transducer Arm	Cracks		√		003	
6.27	Pilot Directional Shear Pin Activated Decoupler (SPAD) Remote Control Lever	Cracks		√		003	
6.28	Pilot Directional Shear Pin Activated Decoupler (SPAD) Bellcranks	Cracks		√		003	
6.29	Directional F.S. 156.07 Bellcrank	Cracks		√		003	
6.30	Directional F.S. 159.98 Bellcrank and Bracket	Cracks		√		003	
6.31	Directional F.S. 164.33 Bellcrank Bracket and Attaching Area on Deck	Cracks		√		003	
6.32	Pilot Longitudinal Shear Pin Activated Decoupler (SPAD) Outer and Inner Lever	Cracks		√		003	
6.33	Pilot/CPG Directional Control Pedal Release Handle	Cracks		√		003	
6.34	Pilot/CPG Directional Control Pedal Release Shaft	Cracks		√		002	
6.35	Pilot/CPG Directional Control Pedal Release Nuts	Cracks		√		002	
6.36	Directional F.S. 199.25 Tail Rotor Fitting	Cracks		√		003	
6.37	Directional F.S. 275 Rotor Control Bracket	Cracks		√		003	
6.38	Directional F.S. 348 Bellcrank	Cracks		√		003	

NOMENCLATURE OF END ITEMS
HELICOPTER, AH-64A Series

(1) PROCEDURE NUMBER	(2) COMPONENT ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
6.39	Directional F.S. 348 Tail Rotor Bracket	Cracks		√		003	
6.40	Tail Rotor Swashplate Control Bellcrank	Cracks		√		002	
6.41	Tail Rotor Drive Links	Cracks		√		003	
6.42	Exterior Surfaces of All Ferrous Hydraulic Components (Servocy-linders, Actuators, Reservoirs, etc.)	Cracks		√		002	

APPENDIX B
EQUIPMENT LISTING

Nomenclature	Part Number/ Specification	Manufacturer	National Stock Number
Fluorescent Penetrant Method			
Fluorescent Penetrant Inspection Kit Level 3	MIL-1-25135 Type I, Method C,	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
Black Light 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[11]	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	6635-01-419-0694
Cable Assembly, Coaxial 6-feet long (1 required)	CBM-6	NDT Engineering Corp. 7056 S. 220th St. Kent, WA 98032	5995-01-278-1271
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	
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 degree shear wave 1/4x1/4 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	SBM-CPM-P11 9117789	Staveley Instruments, Inc. 421 North Quay St. Kennewick, WA 99336	
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	6635-01-407-8842
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		
Radiographic Method			
Tripod X-Ray Tubehead Stand	PDSANE480	Staveley Aerospace Systems, Inc. Chatsworth, CA 91311	6635-01-067-6315
AIX Warning Light W/Stand	153001	American Industrial X-ray Inc.	6210-01-374-4594

Nomenclature	Part Number/ Specification	Manufacturer	National Stock Number
X-Ray Unit (LPX-160 water-cooled digital)	3-000-0723	LORAD Corp. 36 Apple Ridge Rd. P.O. Box 710 Danbury, CT 06813-0710	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

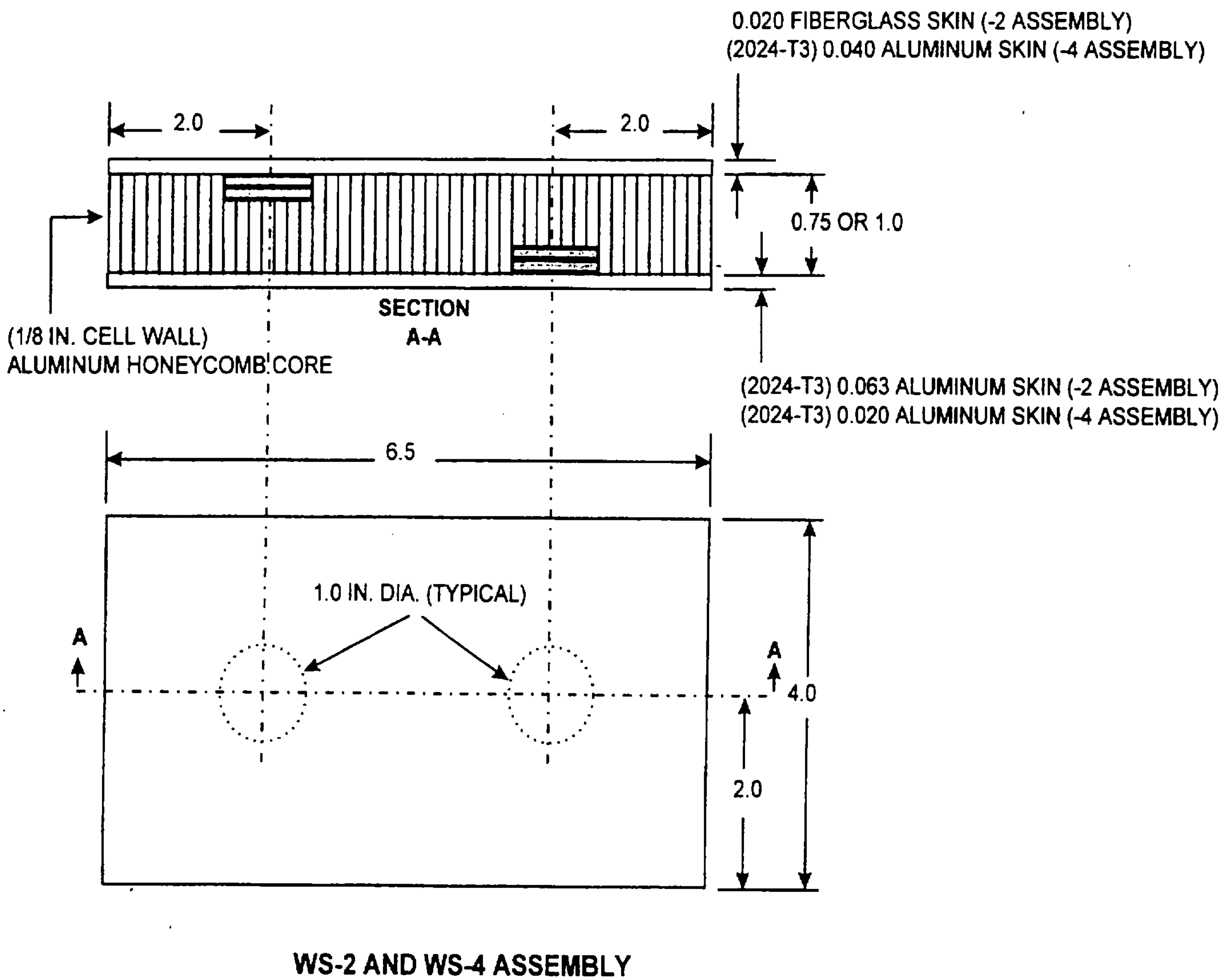


Figure C-1. Composite Test Blocks

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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
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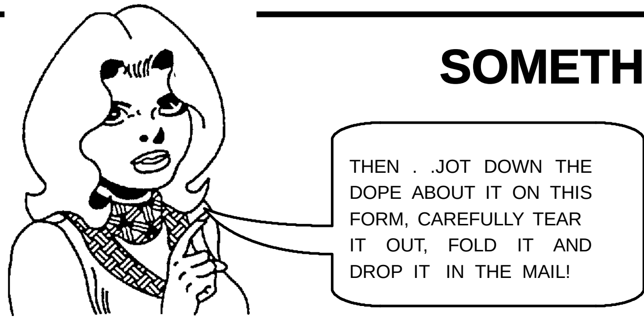

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6	2-1 a			In line 6 of paragraph 2–1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders.
81		4-3		Callout 16 on figure 4–3 is pointed at a bolt. In key to figure 4–3, item 16 is called a shim. Please correct one or the other

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BE EXACT PIN–POINT WHERE IT IS				IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028–2

PREVIOUS EDITIONS ARE OBSOLETE.

DRSTS-M verprint2, 1 Nov 80

P.S.- - IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION, MAKE A CARBON COPY OF THIS AND GIVE TO YOUR HEADQUARTERS.

FILL IN YOUR UNITS ADDRESS

FOLD BACK

TEAR ALONG PERFORATED LINE

DEPARTMENT OF THE ARMY

____

____

OFFICIAL BUSINESS

Commander
USAAMCOM
ATTN: AMSAM-MMC-LS-LP
Redstone Arsenal, AL 35898-5230

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: 075201-001