Manual: CSP–HMI–2, Handbook of Maintenance Instructions
Models: 369D/E/FF – 500/600N Helicopters
Issued: 31 October 1990
Revision 35: 20 May 2004

FILING INSTRUCTIONS:

(1) Before inserting this change, ensure the manual is current.
Check the existing List of Effective Pages in the manual to ensure all prior revisions are inserted.
(Do not insert this revision if prior revisions are not inserted).

(2) Incorporate this change by removing old pages and inserting new pages as indicated below.

Remove Pages	Insert Pages
Cover/Title	Cover/Title
	TR
1 and 2	1 and 2
	LOEP
TR 03–003	None
TR 03–004	None
A thru H	A thru J
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7 and 8	7 and 8
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407/(408 blank)	407 and 408
	62–30–60
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601 thru 604	601 thru 604
	Chapter 76
i and ii	i and ii
	76–10–00
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	76–47–00
205 and 206	205 and 206
	Chapter 78
i/(ii blank)	i and ii
	78–30–00
201 and 202	201 thru 204

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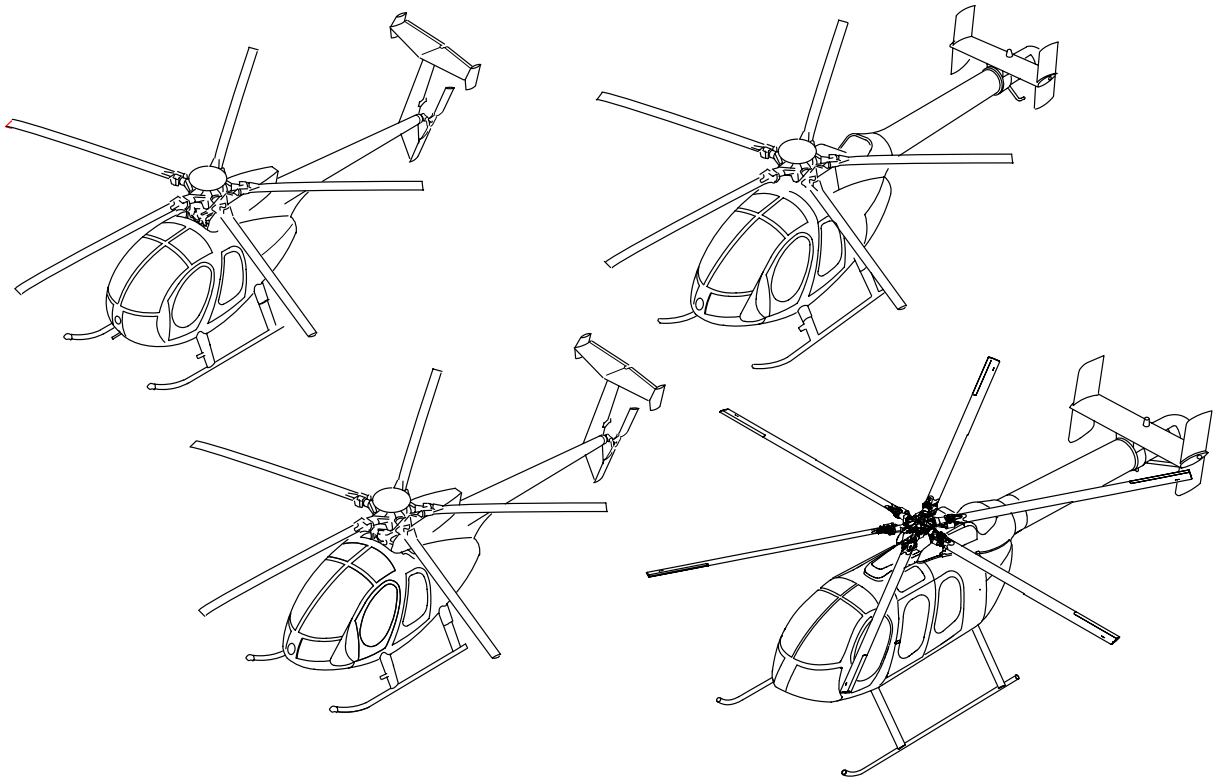
MDHI MODEL HELICOPTERS

MODELS 369D/E/FF – 500/600N

Basic Handbook of Maintenance Instructions

(CSP–HMI–2)

SERVICING AND MAINTENANCE



MD Helicopters, Inc.
4555 East McDowell Road
Mesa, Arizona 85215–9734

Issued: 31 October 1990
Revision No. 35: 20 May 2004

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MD Helicopters, Inc.
4555 East McDowell Road
Mesa, Arizona 85215–9734

MD HELICOPTERS INC.

RECORD OF TEMPORARY REVISIONS

MANUAL TITLE: CSP-HMI-2 MAINTENANCE MANUAL

REV. NO.	DATE INSERTED	BY	DATE REMOVED	BY	REV. NO.	DATE INSERTED	BY	DATE REMOVED	BY
02–001			Removed by						
and			Incorporating						
02–002			Revision 32						
03–001			Removed by						
and			Incorporating						
03–002			Revision 34						
03–003			Removed by						
and			Incorporating						
03–004			Revision 35						

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LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGE PAGES, DESTROY SUPERSEDED PAGES
The highest revision number indicates pages changed, added or removed by the current change.

Date of original and revised pages are:

Original . . . . . 31 October 1990
Revision 1 . . . . . 29 March 1991
Revision 2 . . . . . 10 May 1991
Revision 3 . . . . . 09 September 1991
Revision 4 . . . . . 20 January 1992
Revision 5 . . . . . 24 August 1992
Revision 6 . . . . . 21 December 1992
Revision 7 . . . . . 01 June 1993
Revision 8 . . . . . 23 July 1993
Revision 9 . . . . . 22 April 1994
Revision 10 . . . . . 26 September 1994
Revision 11 . . . . . 18 January 1995
Revision 12 . . . . . 06 October 1995
Revision 13 . . . . . 31 May 1996
Revision 14 . . . . . 13 September 1996
Revision 15 . . . . . 15 November 1996
Revision 16 . . . . . 06 January 1997
Revision 17 . . . . . 24 February 1997
Revision 18 . . . . . 17 October 1997
Revision 19 . . . . . 16 December 1997
Revision 20 . . . . . 01 June 1998
Revision 21 . . . . . 24 August 1998
Revision 22 . . . . . 10 March 1998
Revision 23 . . . . . 01 June 1999
Revision 24 . . . . . 07 December 1999
Revision 25 . . . . . 28 April 2000
Revision 26 . . . . . 17 August 2000
Revision 27 . . . . . 09 October 2000
Revision 28 . . . . . 30 November 2000
Revision 29 . . . . . 11 May 2001
Revision 30 . . . . . 11 July 2001
Revision 31 . . . . . 05 November 2001
Revision 32 . . . . . 18 March 2002
Revision 33 . . . . . 24 June 2002
Revision 34 . . . . . 21 August 2003
Revision 35 . . . . . 20 May 2004

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Table 1. ACTIVE SERVICE BULLETINS (Cont.)

369D	369E	369F	500N	600N	SUBJECT	DATE
				013R1	Low Fuel Level Warning Light	4–15–98
	090R1	077R1	017R1	014R1	Socket Contact Assembly Inspection	9–25–98
				015	Engine Fuel Control Box Replacement	4–23–99
				016R1	Audio Warning System Replacement	9–19–00
				017	FADEC Manual Switch Guard Modification	10–6–98
				018R1	Torque Pressure Transducer High Intensity Radiated Fields (HIRF) Protection Modification	2–7–00
				019	FADEC Wire Harness Standoff Installation/Inspection	4–23–99
				020R2	Electromagnetic Compatability Test (EMC) for Optional Equipment Effects on the FADEC Control	4–14–03
				021R1	Inspection/Reidentification/Serialization of Cyclic Control Stick Sockets and Left Hand Command (Co–Pilot) Cyclic Tube	3–11–99
197	091		018		Engine Fuel Pressure Switch Replacement	2–23–99
198	092				Tail Rotor Fork Inspection, Four–Bladed	5–10–99
				022	Torque Transducer Replacement	4–23–99
				023R1	Cyclic Stick Replacement	7–30–99
				024R1	Link Assembly Replacement	4–6–99
				025	Fuel System Inspection	7–2–99
199	093		019		Turbine Outlet Temperature (TOT) Indicating System, One Time Inspection	1–11–00
				026	Turbine Outlet Temperature (TOT) Indicating System, One Time Inspection	1–11–00
			020R2	027R2	Forward and Center Thruster Control Cables, Conduit Cap Relief Area, Inspection	4–24–00
			021	028	Forward and Center Thruster Cables, Conduit Cap at Telescopic Swivel End, Inspection	11–19–99
200	094	078	022		Landing Gear Strut Inspection and Fairing Modification	4–7–00
				029	Motive Flow Restrictor Removal	1–10–01
				030R1	Inspection of Vertical Stabilizer and Torque Tube and Replacement of Attaching Hardware	5–25–01
201R1	095R1	079R1	023R1	031R1	Main Rotor Blade Torque Event Inspection	7–24–01
				032	Turbine Outlet Temperature (TOT) Indicator Replacement	12–13–01
				033	Main Rotor Drive Shaft Life Reduction	12–13–01
				034	Torque Transducer Electrical Connector One Time Inspection	12–13–01
			024	035	Fan Pitch Control Aft Tube Assembly One Time Inspection	10–23–01
				036	Tailboom Assembly Attach Fitting One Time Inspection and Repair	11–2–01
202	096	080	025	037	Main Transmission Bonding Jumper Inspection and Rework	8–14–02
				038	Exhaust Duct Inspection	5–6–03
		081			Minimum N1 Starting Speed Decal/Placard Installation	7–22–03
				039	Tailboom Attach Fittings and Upper Longerons Inspection	12–9–03
				040	Control Support Bracket Assembly Life Reduction with YSAS Installed	12–19–03
			026	041	Tailboom Assembly Overlap Inspection and Rework	11–26–03

4. Cancelled or Superceded Service Information Notices

(1). Table 2 a list of Service Information Notices that have been cancelled or superceded.

(2). Updated information, pertinent to the Notice, has been incorporated into the appropriate manuals.

(3). If the Notice is superceded by another Notice, it will be noted in the Subject column after the description.

5. Scope

The following is an explanation of how to read Table 2.

(1). **DN**-369D Model Helicopters
EN-369E Model Helicopters
FN-369F and 369FF Model Helicopters
NN-500N Model Helicopters.

(2). **Subject** - A brief description of the Notice.

(3). **Date** - Date the Notice was cancelled or superceded.

Table 2. CANCELLED OR SUPERCEDED SERVICE INFORMATION NOTICES

369D	369E	369F	500N	600N	SUBJECT	DATE
2.3					Main Rotor Strap Pack Lamination Inspection (Superceded by DN–154)	1–15–88
4.1					Main Rotor Blade Phasing, Tracking and Balancing	8–2–93
5					600–Hour Periodic Inspection – Model 369D Cyclic Control System	8–2–93
7					Installation of 369D21008 Main Rotor Pitch Control Rod Assembly, Upper and Lower Rod End Bearings	8–2–93
15					Periodic Inspection of 369D26300 and 369D26301 Landing Gear Damper Assemblies	8–2–93
28					Field Modification of 369D29919 Main Rotor Blade Phasing Kit to new 369D29919–501 Configuration	8–2–93
29.3					Periodic Replacement of 369H5655–3 and –5 Oil Cooler Blower Fan Bearings; Inspection of Pulley Attach Hardware and Driveshaft Couplings; Inspection and Adjustment of Fan Drive Belt; Driveshaft Compression Check	8–2–93
32					New Periodic Inspection Intervals – Battery Overtemperature Warning System	8–2–93
33.1					Replacement of 369A1602 Tail Rotor Drive Fork Hinge Bolt and 369A1603 Nut; New Assembly Procedure for Tail Rotor Hub and Drive Fork Unit; Periodic Check of Flapping Hinge Bolt Preload	8–2–93
38					Daily Inspection of 369H5307 Tail Rotor Stop and 369D21724–3 Support	8–2–93
41.1					Operational Check of Engine Fuel Pump Filter Pressure (Bypass) Switch Assembly	8–2–93
	2				Inspection of Spare Main Rotor Blade Root Fitting Assemblies; Inspection of Main Rotor Hub Lead–Lag Link Assemblies (Superceded by EN–42)	11–13–87
		2			Inspection of Main Rotor Hub Lead–Lag Link Assemblies (Superceded by FN–31)	11–13–87
53.1					100–Hour Periodic Inspection of Fuel Tank Sending Unit and Fuel Low Warning Light Indicating System	8–2–93
57					Field Repair of 369D21300 Pitch Housing Assembly, Main Rotor Hub	8–2–93
61.2					Periodic Check of 369D21400–502 and M50452 Main Rotor Elastomeric Damper Assemblies	8–2–93
64					Pilot/Operator Check of 369D21210–501 Main Rotor Hub Strap Pack Assembly (Superseded by DN–154)	1–15–88
74					Un–Assigned	
75.1					Procedure for Installation of Tail Rotor Drive Shaft (Superceded by DN–95)	9–27–82
77.1					Main Rotor Strap Pack Lamination Inspection (Superceded by DN–154)	1–15–88

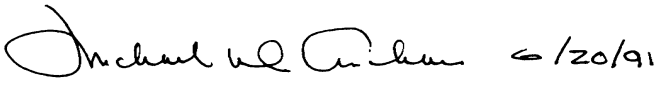
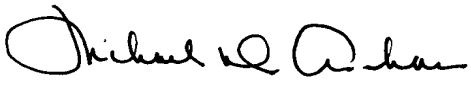
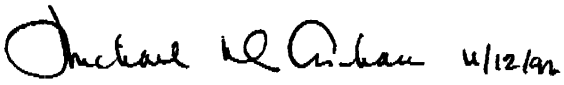
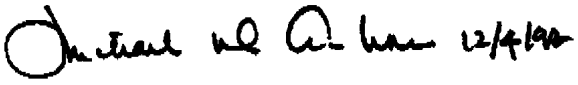
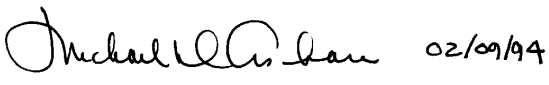
AIRWORTHINESS LIMITATIONS

Type Certificate No. H3WE

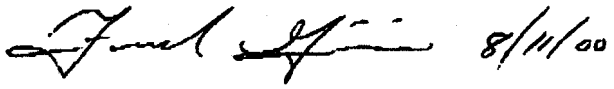
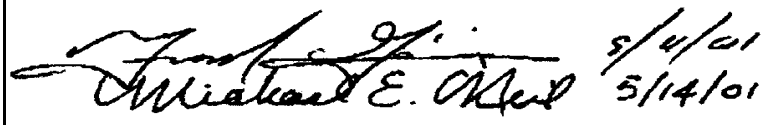
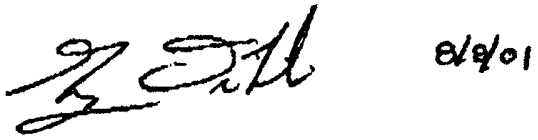
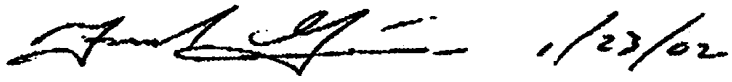
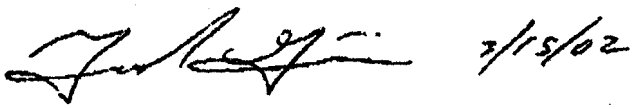
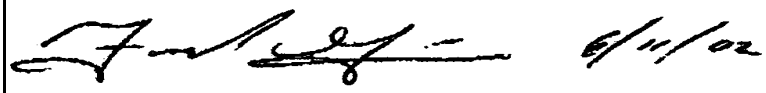
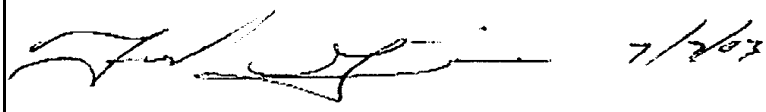
FAA Approved Airworthiness Limitations for MD Helicopters, Inc., Models 369D/E/F/FF and 500/600N.

1. General

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Code of Federal Regulations (CFR), Title 14, Federal Aviation Regulation (FAR), Part 43.16 and 91.403 unless an alternative program has been FAA approved.

REVISION:	DATE	FAA SIGNATURE AND DATE
Original Issue:	October 31, 1990	Not FAA approved
Revision 1:	March 29, 1991	Not FAA approved this revision
Revision 2:	May 10, 1991	
TR 91–001	August 12, 1991	
Revision 3:	September 9, 1991	
TR 91–002	November 5, 1991	
Revision 4:	January 20, 1992	
TR 92–004	May 20, 1992	
Revision 5:	August 24, 1992	
TR 92–005	November 20, 1992	
Revision 6:	December 21, 1992	
Revision 7:	June 1, 1993	Section 04–00–00 Not Affected This Revision
TR 93–002	May 27, 1993	
Revision 8:	July 23, 1993	
TR 94–001	January 21, 1994	
Revision 9:	April 22, 1994	
Revision 10:	September 26, 1994	Section 04–00–00 Not Affected This Revision

REVISION:	DATE	FAA SIGNATURE AND DATE
TR 94–002	October 24, 1994	Michael W. Adams 10/24/94
Revision 11:	January 18, 1995	Michael W. Adams 01/23/95
Revision 12:	October 6, 1995	Section 04–00–00 Not Affected This Revision
TR 96–002:	April 24, 1996	Michael W. Adams 04/24/96
Revision 13:	May 31, 1996	Michael E. O'Neil 6/12/96 acting Mgr ANM-120L
Revision 14:	September 13, 1996	Michael W. Adams 09/09/96
Revision 15:	November 15, 1996	Section 04–00–00 Not Affected This Revision
Revision 16:	January 6, 1997	Section 04–00–00 Not Affected This Revision
Revision 17:	February 24, 1997	Michael W. Adams 02/20/97
TR 97–001:	July 2, 1997	Michael W. Adams 07/02/97
TR 97–002:	August 19, 1997	Michael W. Adams 08/19/97
Revision 18:	October 17, 1997	Section 04–00–00 Not Affected This Revision T/R 97–001 and 97–002 Previously Signed
Revision 19:	December 16, 1997	Michael W. Adams 12/19/97
TR 98–001:	March 25, 1998	Michael W. Adams 03/25/98
Revision 20:	June 1, 1998	Section 04–00–00 Not Affected This Revision T/R 98–001 Previously Signed
TR 98–002:	June 22, 1998	[illegible] 7/10/98 ACTING MGR.
TR 98–003:	3 August 1998	Michael W. Adams 8/3/98
Revision 21:	24 August 1998	Section 04–00–00 Not Affected This Revision T/R 98–002 and 98–003 Previously Signed
Revision 22:	10 March 1999	Section 04–00–00 Not Affected This Revision
Revision 23:	1 June 1999	Section 04–00–00 Not Affected This Revision
Revision 24:	7 December 1999	Maurice P. Cook 12/30/99 ACTING MGR
Revision 25:	28 April 2000	Section 04–00–00 Not Affected This Revision

REVISION:	DATE	FAA SIGNATURE AND DATE
Revision 26:	17 August 2000	
Revision 27:	9 October 2000	Section 04–00–00 Not Affected This Revision
Revision 28:	30 November 2000	Section 04–00–00 Not Affected This Revision
Revision 29:	11 May 2001	
Revision 30:	11 July 2001	Section 04–00–00 Not Affected This Revision
TR 01–001:	10 August 2001	
Revision 31:	5 November 2001	Section 04–00–00 Not Affected This Revision T/R 01–001 Previously Signed
TR 02–002:	30 January 2002	
Revision 32:	18 March 2002	
Revision 33:	24 June 2002	
TR 03–001:	18 June 2003	
TR 03–002:	25 June 2003	
Revision 34:	21 July 2003	Section 04–00–00 Not Affected This Revision T/R 03–001 and 03–002 Previously Signed
TR 03–003:	30 September 2003	
TR 03–004:	17 December 2003	
Revision 35:	?? May 2004	Section 04–00–00 Not Affected This Revision T/R 03–003 and 03–004 Previously Signed

This document conforms to Main Rotor Stress Analysis 369D/E, Rev. U.

This document conforms to Stress Analysis 369FF, Rev. R.

This document conforms to Service Life Analysis 500N, Rev. T.

This document conforms to Service Life Analysis 600N, Rev. U.

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AIRWORTHINESS LIMITATIONS

2. Component Mandatory Replacement

The Airworthiness Limitation Replacement Schedule specifies the mandatory replacement time, structural inspection interval and related structural inspection procedures approved per the certificate basis of the Type Certificate Data Sheet No. H3WE and CAR 6 (6.250, 6.251) and CFR 27.571 for models 500/600N unique components only. At the listed finite-life, components or assemblies must be removed from the helicopter and permanently retired from service. At the listed inspection interval, the components or assemblies must be inspected in accordance with the Handbook of Maintenance Instructions (HMI). The title of the task and section of the HMI are referred to which provide the inspection procedures and criteria.

NOTE: Refer to CFR Part 43.10 for latest requirements for the removal, installation, storage and disposition of life-limited parts.

(1). A "life-limited" part is a physical component of the helicopter to which a maximum number of allowable operating hours or cycles are assigned. Certain assemblies and components on the helicopter have a limited life established by MDHI and approved by FAA Engineering. For example, a part with an assigned limit of 1000 hours, may accumulate 1000 hours of operation in service. Upon completion of the 1000 hours of operation, useful life of the part is ended. The finite-life assigned to different parts varies according to engineering fatigue tests, part experience, etc. The parts listed in this section must be removed from the helicopter at the finite-life indicated and identified as to it's expired life (Ref, Table 1, Note (1)).

(2). All parts not having an assigned life or stated to be of unlimited life, have a life of not less than 20,000 hours.

(3). When a life-limited part or an assembly that incorporates a life-limited part is installed on a new or used helicopter, the nomenclature, part number, serial number, component time and current helicopter hours are recorded in the Log Book and component log for the helicopter. Whether the life-limited part is new or used, the remaining number of useful life hours and previous inspection time, if applicable, for the part is added to the existing helicopter time. The total helicopter hours obtained then denotes the subsequent time at which the part must be removed from the helicopter or inspected.

(4). If a life-limited part, is part of an assembly, the assembly must be removed from the helicopter when the time expires. The assembly may be overhauled and restored to maximum number of hours of useful life by installing new life-limited parts plus all other parts specified in the overhaul instructions (Refer to Component Overhaul Manual).

(5). If interchanged between different model helicopters (for instance, Model 369D to 369FF or vice versa), any component having a limited life or overhaul schedule must be restricted to the lowest service life or TBO schedule indicated for the helicopter models and serial numbers affected.

(6). Refer to the appropriate Allison Operation and Maintenance Manual for engine component replacement requirements.

3. Component Mandatory Inspections

Some components with mandatory inspection intervals require inspections to be completed in accordance with procedures detailed in other sections of this maintenance manual. The appropriate inspection procedures are referenced in the **Notes** flagged to each component to be inspected. All maintenance manual procedures which are referenced in the FAA Approved Airworthiness Limitations Component Mandatory Replacement Schedule are FAA approved procedures which cannot be changed without FAA review and approval of the proposed changes.

4. Retirement Index Number (RIN)

(1). A Retirement Index Number (RIN) is a number that accounts for different usage spectra in assigning the retirement time for a component.

The RIN is calculated as the sum of an adjustment factor times flight hours plus another adjustment factor times Torque Events.

When a component reaches 1,000,000 RIN's, it has reached it's maximum life and is to be scrapped.

5. Torque Event (TE)

A Torque Event (TE) is defined as:

The transition to a hover from forward flight.

Any external lift operation.

NOTE: An external lift can either be on the cargo hook, external hoist or in external baskets.

For external lift operators, an external load is recorded as two (2) TE's (pick-up and drop-off).

Hover taxi with no external load will typically result in no TEs.

6. External Lift and Torque Event (TE) Requirements

The 369D/E/F/FF - 500/600N helicopters are multi-use helicopters. If the helicopter is used primarily for external lifts or training flights (high TE flights), there may be a reduction in inspection intervals of some components.

CAUTION For safe operation of the helicopter, TE's must be recorded in the Rotorcraft Log Book. Each external lift will be recorded as two (2) TE's.

(1). Determine the number of TE's and external lifts the helicopter accumulates per hour of flight time.

(2). Record all TE's in Rotorcraft Log Book and continue to record all TE's.

(3). Perform required TE inspections.

Table 1. Airworthiness Limitations Schedule

Component (1)	Model	Part Number (2)	Finite Life Hours (1)	Mandatory Inspection Hours
Main Rotor System				
Blade assembly, main rotor	369D/E(5)(6)	369D21100	3530 (37)	25 (11)(20)
		369D21100–516	3530 (37)	100 (20)
		369D21100–517	2500 (31)	25 (22)
		369D21100–517	3530 (37)	100 (20)
		369D21100–523	4000 (37)	100 (20)
		369D21120–501	3530 (37)	100 (20)
		369D21120–503	3530 (37)	100 (20)
	369F/FF (6)	369D21102	3430 (37)	25 (11)(20)
		369D21102–503	3430 (37)	100 (20)
		369D21102–517	2500 (31)	25 (22)
		369D21102–517	3430 (37)	100 (20)
		369D21102–523	4000 (37)	100 (20)
		369D21121–501	3430 (37)	100 (20)
		369D21121–503	3430 (37)	100 (20)
	500N (6)	369D21102–503	3430 (37)	100 (20)
		369D21102–517	2500 (31)	25 (22)
		369D21102–517	3430 (37)	100 (20)
		369D21102–523	4000 (37)	100 (20)
		369D21121–501	3430 (37)	100 (20)
		369D21121–503	3430 (37)	100 (20)
	600N (6)	369D21102–517 (21)	1900 (32)(37)	100 (20)
		369D21102–523	3200 (33)(37)	100 (20)
		369D21121–501	3200 (33)(37)	100 (20)
		369D21121–503	3200 (33)(37)	100 (20)
Folding pin, main rotor blade attach	369D/E/F/FF	369A1004	2850	
		369A1004–3	2850	
		369A1004–5	7600	
	500/600N	369A1004–5	7600	
Hub subassembly, main rotor	369D/E/F/FF 500N	369D21201	8900	
Pitch housing assembly, main rotor hub	369D	369D21300	9100	
		369D21300–501	9100	
	369E/F/FF 500N	369D21300–501	9100	

Table 1. Airworthiness Limitations Schedule (Cont.)

Component (1)	Model	Part Number (2)	Finite Life Hours (1)	Mandatory Inspection Hours
Retention strap assembly, main rotor hub	369D	369D21210	2770	100 (4)
		369D21210–501	2770	100 (4)
	369E/F/FF	369D21210–501	2770	100 (4)
	500/600N	369D21210–501	2770	100 (4)
Bolt – lead–lag hub, main rotor	369D	369A1220	6120	
	369D/E/F/FF 500N	369D21220	6120	
	600N	369D21220	5400 (34)	
Link assembly – lead lag hub, main rotor	369D/E	369H1203–BSC (39)	5762	25 (23)
		369H1203–21 (39)	5762	25 (23)
		369H1203–31 (39)	5762	25 (11)
		369H1203–51 (39)	11080	
		369H1203–53 (40)	11080	
		369H1203–61 (39)	11080	
	369F/FF	369H1203–21 (39)	5762	25 (23)
		369H1203–31 (39)	5762	25 (11)
		369H1203–51 (39)	11080	
		369H1203–53 (40)	11080	
		369H1203–61 (39)	11080	
	500N	369H1203–51 (39)	11080	
		369H1203–53 (40)	11080	
		369H1203–61 (39)	11080	
	600N	369H1203–51 (39)	11080	
		369H1203–53 (40)	11080	
Lead lag damper – main rotor	369D	369D21400–501	6060	
		M50452	On Cond.	(16)
	369D/E/F/FF 500/600N	369D21400–503	On Cond.	(16)
Drive shaft, main rotor	369D/E	369D25510	5020	300 (8)
	369F/FF	369D25510	3675	300 (8)
	500N	369D25510–21	3260	300 (15)
	369D/E	369F5510	5020	
	369F/FF	369F5510	3675	
	500N	369F5510	3260	
	600N	600N5510	14000 (35)	
Mast assembly, main rotor	369D/E/F/FF 500N	369D22014	10450	
	600N	369D22014	3500	
Drive Shafts, Couplings and Clutches				
Drive shaft, main rotor transmission	369D/E/F	369A5510	3790	

Table 1. Airworthiness Limitations Schedule (Cont.)

Component (1)	Model	Part Number (2)	Finite Life Hours (1)	Mandatory Inspection Hours
Coupling, main transmission drive shaft	369D/E/F/FF	369H5660	4300	
	500N	369H5660	3200	
Overrunning clutch assembly	369D/E/F/FF 500/600N	369F5450–501	On Cond.	100 (24)
Sprag assembly, overrunning clutch	369D/E/F/FF	369A5364 369D25351	(3)	300 (10)
	500N	369D25351	(3)	300 (10)
	369D/E/F/FF 500/600N	369F5456	(3)	300 (17)
Drive shaft, fan	500N	500N5200	2620	
	600N	500N5200	1200 (36)	
Drive shaft, tail rotor	369D/E	369D25518	13900	
	369F/FF	369DSK152–11 369D25518–503	13900 14610	
Coupling – tail rotor drive shaft (Bendix) (**NOTE**: Not certified on 369FF Model) (9)	369D/E/F	369A5501 369H92564 (7)	4980 4980	
Anti–Torque System				
Gearshaft assembly, tail rotor input	369D/E	369D25434	12000	
	369F/FF	369D25434	3365	
Gearshaft, tail rotor output pinion	369D/E/F/FF	369D25430	7290	
Blade assembly, tail rotor	369D/E	369D21613 369D21613–11 369D21613–31 369D21613–41 369D21613–51 369D21613–61 369D21613–71 369D21640–501 (38) 369D21640–503 (38) 369D21640–505 (38)	5200 5140 5140 5140 5140 5140 5140 400 5140 5140	
	369F/FF	369D21606 369D21642–501 (38) 369D21642–503 (38) 369D21642–505 (38)	5140 400 5140 5140	
Blade assembly, tail rotor (optional 4–blade)	369D/E	369D21615 369D21641–501 (38) 369D21641–503 (38) 369D21641–505 (38)	10000 400 10000 10000	
Hub, tail rotor	369D/E/F/FF	369A1725	3450	

Table 1. Airworthiness Limitations Schedule (Cont.)

Component (1)	Model	Part Number (2)	Finite Life Hours (1)	Mandatory Inspection Hours
Retention strap assembly, tail rotor	369D/E/F	369A1706	5100	
	369FF	369A1706–507	5100	
		369A1706–509	5100	
Blade assembly, NOTAR fan	500N	500N5310–15	7500	
		500N5310–19	7500	
	600N	500N5310–19	12500	
Hub, fan	500N	500N5352–7	7500	
		500N5352–9	7500	
	600N	500N5352–9	7500	
Shaft, NOTAR fan support	600N	500N5357–13	4000	
Pitch plate assembly	500/600N	500N5363–7	7500	
Tube assembly, fan pitch	500N	500N7113–3	600 (18)	
Rotating cone assembly	500N	500N3740–1	10000	
		500N3740–41	10000	
	600N	500N3740–61	10000	
Tailboom				
Bolts, tailboom attach	369D/E/F/FF	MS21250–06014	21950	
Tailboom assembly	369D/E	369D23500	10300	
	369F/FF	369D23500–507	10300	
	500N	500N3500–19	10000	100 (14)
		500N3500–29	10000	
		500N3500–501	10000	
		500N3600–501	2400 (19)	
	600N	600N3500–503	2500 (25)	
		600N3500–505	5900	
		600N3500–507	1000 (19)	
		600N3500–509	1000 (19)	
		600N3500–511	1000 (19)	
		600N3500–513	2500 (25)	
		600N3500–515	5900	
		600N3500–517	1000 (19)	
Empennage fittings	600N	500N3530–7/8	On Cond.	100 (26)
		500N3530–9/10	On Cond.	100 (26)
Vertical stabilizer assembly	369D/E	369D23600	12700	
	369F/FF	369D23600–505	3388	
Torque tube, horizontal stabilizer	500N	500N3950–5	5000	
	600N	500N3950–7	3000	
		600N3950	1000 (19)	

Table 1. Airworthiness Limitations Schedule (Cont.)

Component (1)	Model	Part Number (2)	Finite Life Hours (1)	Mandatory Inspection Hours
Horizontal stabilizer assembly	369D (12)	369D23601	7700	
	369E (12)	421–087–505	7700	
		421–087–905 (13)	7700	
	369F/FF (12)	421–087–503	7700	
		421–087–903	7700	
	600N	500N3910–25	10000 (19)	
		500N3910–27	10000 (19)	
Controls				
Longitudinal idler bellcrank assembly	369D	369A7301	6500	
		369A7301–501	6500	
	369E/F/FF	369A7301–501	6500	
	500N	369A7301–501	2870	
Idler assembly, longitudinal pitch mixer	369D/E/F/FF	369A7603	13600	
	500N	369A7603	6050	
Longitudinal control rod	500N	369A7011–13	7740	
		369A7011–15	7740	
Socket, cyclic stick	600N	369A7141	1000	8 (27)
Cyclic tube assembly	600N	369D27132–503	1200	8 (27)
Housing, collective stick	600N	369A7347	450	
Tube, collective pitch control	600N	369A7348	400	
Tube assembly, collective pitch (pilot)	600N	369H7354–3	600	
Socket, cyclic stick	600N	369A7802	1000	8 (27)
Tube, collective pitch (co–pilot)	600N	369A7809	1800	
Housing, collective stick	600N	369A7820	450	
Housing, collective stick	600N	369H7837	450	
Tube assembly, collective pitch (co–pilot)	600N	369H7838–3	1000	
Fuselage Sta. 75 controls support bracket	600N	369N2608–11	6000 (41)	
		600N2608–1	Unlimited	
Airframe				
Landing gear brace	600N	600N6010–17/19	5900 (28)	
Landing gear strut	600N	600N6022–7/8	696 (29)	
Landing gear foot	600N	600N6043–3	3900 (30)	
Floats				
Squib cartridge, used on Emergency float kit 369D292473–5, –6, –9, –10, –11, –12 **NOTE:** Life is based from original date of manufacture.	369D/E/F/FF 500N	12552–1 (Holex, Inc.) 281993 (Walter Kidde) 12754–1 (Holex, Inc.) 5003527 (Tavco)	5 years 5 years 5 years 5 years	

Table 1. Airworthiness Limitations Schedule (Cont.)

Component (1)	Model	Part Number (2)	Finite Life Hours (1)	Mandatory Inspection Hours
Stabilizer support, utility float	369D/E	369D292036 369DSK66	3190 3190	

NOTES:

(1) Life–limited components interchanged between models or configurations must be restricted to the lowest service life indicated for the models or configurations affected. Life–limited components removed at retirement are to be mutilated/destroyed or conspicuously marked to prevent inadvertent return to service. Parts are applicable only on models under which a service life is listed.
Life–limited components cannot be altered or permanently marked in any manner without compromising the part integrity. Part tagging or other record keeping system is required.
Related component records must be updated each time component is removed from service.

(2) Service life shown for the basic (no dash number) part numbers apply to all dash numbered versions unless otherwise indicated.

(3) With no cargo hook attached: – No retirement life assigned (Ref. Sec. 05–10–00, Component Overhaul or Recommended Replacement Schedule).
With cargo hook attached and no separate log: – 1800 hours.
With cargo hook attached and with separate log: – 1800 hours of external load operating time when logged separately.
(For 369D/E/F/FF helicopters with 369A5364 or 369D25351 sprag assembly, Refer to AD 90–19–02.)

(4) Inspect in accordance with Main Rotor Strap Pack Lamination Inspection at 100–hour intervals, or 25–hour intervals if 2 laminates (369D/E/F/FF – 500N) or 1 laminate (600N) have failed in any one leg or tongue area of any strap assembly. A single cracked laminate between the shoes at the outboard end of a strap pack is cause for rejection of the hub assembly
369D/E/F/FF – 500N: (Ref. Sec. 62–20–00, Main Rotor Strap Pack Lamination Inspection).
600N: (Ref. Sec. 62–20–60, Main Rotor Strap Pack Lamination Inspection).
(For 369D/E/F/FF helicopters, refer to AD 89–02–01.)

(5) The 369D21100–513, –515, 516, 517 and –523 main rotor blades are not interchangeable with any earlier configuration blades (Basic, –505 or –509); however, the –505 and –509 blades are interchangeable and the –513 and –515 blades are interchangeable. The –505 and –509 configuration blades may be modified to the –513M configuration, which is fully compatible with the –513 blade. (For information concerning modification, contact MDHI Customer Service Department.)

(6) For the 369D/E helicopters, the 369D21120–501, –503 main rotor blade has all the same inspections and interchangeability as the 369D21100–517 main rotor blade.
For the 369F/FF – 500N helicopters, the 369D21121–501, –503 main rotor blade has all the same inspections and interchangeability as the 369D21102–517 main rotor blade.
For the 600N helicopters, the 369D21121–501, –503 main rotor blade has all the same inspections and interchangeability as the 369D21102–523 main rotor blade.

(7) Used with 369H90123 Rotor Brake Kit.

(8) Inspect main rotor drive shaft every 300 hours (Ref. Sec. 63–10–00, Main Rotor Drive Shaft Inspection (300 Hour)) (Reference AD 81–26–01).

(9) Failsafe device, P/N 369D25530 bolt and 369D25531 socket, must be used at both ends of tail rotor driveshaft in accordance with Tail Rotor Drive Shaft Installation with Bendix Couplings (Reference AD 86–20–07).

(10) For helicopters equipped with a cargo hook, inspect overrunning clutch sprag assembly P/N 369D25351, clutch inner race P/N 369A5353 and outer race 369A5352 every 300 hours (Ref. C.O.M., Sec. 63–10–10, Overrunning Clutch Sprag Inspection (300 Hour)). To establish time in service, either clutch total time with hook attached or a separate and permanent log of external load operating time per CFR 91.417, may be used.
(For 369D/E/F/FF helicopters with 369A5364 or 369D25351 sprag assembly, Refer to AD 90–19–02.)

(11) Inspect main rotor blade root fittings and main rotor lead–lag link assemblies every 25 hours in accordance with Main Rotor Blade Upper and Lower Root Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (25 Hour) and every 100 hours in accordance with Main Rotor Blade Upper and Lower Root, Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (100 Hour) (Ref. Sec. 62–10–00) (Reference AD 95–03–13).

(12) Tip plates, tip weights (where applicable) and attaching hardware have no retirement life and may be reused on replacement horizontal stabilizers.

(13) 421–087–903 and –905 require addition of tip plates, tip weights and attaching hardware before installation.

(14) Inspect the three upper slot bridges for cracks (Ref. Sec. 05–20–00).

(15) Inspect main rotor drive shaft every 300 hours (Ref. Sec. 63–10–00, Main Rotor Drive Shaft Inspection (300 Hour)).

(16) Inspect for deterioration every 600 hours up to a total time of 4200 hours and every 300 hours thereafter until deterioration is sufficient to retire assembly
369D/E/FF – 500N: (Ref. Sec. 62–20–00, Main Rotor Damper and Attachments Inspection)
600N: (Ref. Sec. 62–20–60, Main Rotor Damper and Attachments Inspection).

(17) For helicopters equipped with a cargo hook, inspect overrunning clutch sprag assembly P/N 369F5456, clutch inner race P/N 369F5455 and outer race 369F5453 every 300 hours. To establish time in service, either clutch total time with hook attached or a separate and permanent log of external load operating time may be used.

(18) 500N7113–11 tube assembly, fan pitch is an On–Condition part and replaces the 500N7113–3 tube assembly.

(19) Interim hours: life extension testing in progress.

(20) Inspect upper and lower blade root fittings every 100 hours in accordance with Main Rotor Blade Upper and Lower Root, Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (100 Hour) (Ref. Sec. 62–10–00)
(For 369D/E/F/FF – 500N helicopters, Reference AD 96–10–09).

(21) Main rotor blades, P/N 369D21102–517 with S/N 1976 thru 2100, 2106 thru 2115 are not to be installed on 600N helicopter (Reference Service Bulletin SB600N–007R2) (Reference AD 98–15–26).

(22) Inspect main rotor blades with 600 or more hours of operation every 25 hours of helicopter operation with a 10X magnifying glass for cracking of the lower surface of the blade emanating from the root fitting and doubler at the inboard end of the blade and to detect debonding between the blade root end fitting and doubler if missing or cracked adhesive or paint is observed. (Reference Service Bulletins SB369D–195R3, SB369E–088R3, SB369F–075R3, SB500N–015R3) (Reference AD 98–15–26).

(23) Perform Main Rotor Blade Upper and Lower Root, Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (25 Hour) up to a total time of 500 hours and every 15 hours thereafter and every 100 hours in accordance with Main Rotor Blade Upper and Lower Root Fitting, Attach Lug and Lead–Lag Link Attach Lug Inspection (100 Hour) (Ref. Sec. 62–10–00) until retirement of 369H1203–BSC and –21 Lead–Lag Link Assembly. (Reference AD 95–03–13).

(24) Inspect clutch retainer and bearing carrier for evidence of spinning and/or wear (Ref. Sec. 05–20–20).

(25) The 600N3500–503 tailboom may be reworked to a 600N3500–505 tailboom, and the 600N3500–513 tailboom may be reworked to a 600N3500–515 tailboom by modifying the attachment fittings to all–steel fittings.

(26) (Ref. Sec. 05–20–00) Using a flashlight and 10X magnifying glass, inspect horizontal stabilizer mounting brackets for cracks (pay particular attention to the forward inboard legs) (Ref. Tailboom Inspection).

(27) Sockets must be inspected for cracks every eight hours after the initial 100 hour inspection.

(28) Log all landings: Brace life is limited to 35400 logged landings or 5900 hours flight time if landing are not logged (assumed six landings per one hour of flight time).

(29) Log all landings: Strut life is limited to 4170 logged landings or 696 hours flight time if landing are not logged (assumed six landings per one hour of flight time).

(30) Log all landings: Foot life is limited to 23780 logged landings or 3900 hours flight time if landing are not logged (assumed six landings per one hour of flight time).

(31) The following main rotor blades have a finite life of 2,500 hours or 15,000 torque events*, whichever occurs first;
P/N 369D21100–517 with S/N H664, H665, H667, H669, H671, H672, H674, H676, H679, H680, H683 thru H724, H726 thru H999 and J000 thru J039, J041 thru J055 and
P/N 369D21102–517 with S/N 1976 thru 2100, 2106 thru 2115.
* TORQUE EVENT (TE) – A TE is recorded for every transition from forward flight to a hover (Reference Service Bulletins SB369D–195R3, SB369E–088R3, SB369F–075R3, SB500N–015R3).

(32) RIN = (200 x Hrs.) + (52 x TE).

(33) RIN = (160 x Hrs.) + (24 x TE).

(34) RIN = (153 x Hrs.) + (3 x TE).

(35) RIN = (50 x Hrs.) + (3 x TE).

(36) RIN = (768 x Hrs.) + (11 x TE).

(37) After accumulation of 750 flight hours and 13,720 TE, perform Main Rotor Blade Torque Event Inspection (Ref. Sec. 62–10–00) every 35 flight hours or 200 TE's (whichever occurs first).

(38) The 369D21640–501, –503, –505 tail rotor blades are two–way interchangeable with the 369D21613 tail rotor blades in sets of two only.
The 369D21641–501, –503, –505 tail rotor blades are two–way interchangeable with the 369D21615 tail rotor blades in sets of two only (installed on the same inboard or outboard hub).
The 369D21642–501, –503, –505 tail rotor blades are two–way interchangeable with the 369D21606 tail rotor blades in sets of two only.

(39) The 369H1203–BSC, –11, –21, –31, –51 and –61 lead lag link assemblies can only be installed using the 369H1235–BSC bearing.

(40) The 369H1203–53 lead lag link assembly can only be installed using the 369H1235–1 bearing.

(41) The 369N2608–11 Control Support Bracket must be removed from 600N helicopters equipped with YSAS (Ref. SB600N–040).

CONTINUED AIRWORTHINESS
100–HOUR OR ANNUAL INSPECTION CHECKLIST

1. 100–Hour or Annual Inspection

This check sheet is designed to be used when performing 100-Hour or Annual inspections as defined under FAR, Part 43, Appendix D. This checklist, when completed, should be kept as a permanent part of the helicopter's records. Adherence to Maintenance Manual information is required, and the manual should be consulted when using the checklist.

NOTE:

- The Chap/Sect column of the following table is for reference unless a specific inspection requirement is called out. If there is only two numbers in the column, it refers to the Chapter. If there is three numbers, it refers to the Section the inspection is found.
- Refer to applicable Rolls-Royce engine inspection check list for required engine maintenance.

Table 1. 100–Hour or Annual Inspection

Registration No. _____ **Serial No.** _____
Helicopter Hours _____ **Torque Events** _____

Model	Requirement	Chap/Sect	Initial
	GENERAL		
ALL	Thoroughly clean helicopter and engine prior to start of inspection.	20	
ALL	Remove trim panels, covers and access panels as necessary.	52–50–00	
ALL	Ensure all placards and markings are installed.	11–00–00	
ALL	Ensure compliance with component mandatory retirement schedule.	04–00–00	
ALL	Calculate and record TE's or RIN's, of all affected components, in Table 2.	04–00–00	
ALL	Ensure compliance with component overhaul schedule.	05–10–00	
ALL	Ensure compliance with all applicable airworthiness directives, service bulletins and special inspections.	N/A	
ALL	Review aircraft maintenance records for recorded discrepancies and correct discrepancies as applicable.	N/A	
ALL	Refer to related manufacturer's publications for detailed requirements on inspection of engine, starter/generator, battery and all installed STC equipment.	01–00–00	
	EXTERIOR		
ALL	* Air intake for cleanliness and foreign matter. * Visible portion of engine compressor inlet for foreign object damage.	71	
CAUTION:	Ensure that compressor cover is installed to prevent FOD.		
ALL	Engine air plenum chamber for: * Damage and cleanliness. * Wear and security of internal components. * Particle separator mounting structure for cracks or damage.	71 53	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____			
Helicopter Hours _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
ALL	Fuselage upper surfaces for: * Damage and condition. * Mast base drain holes clean and free of debris (blow air thru holes to ensure no clogging). * Engine air inlet fairing free from damage. No delamination noted. Bypass door operationally checked. Seals free from damage. * Engine access doors for proper operation of latches and closure, distortion, damage, cracks and security.	52 53	
ALL	Fuselage for: * Damage and condition. * Compartment fresh air vents in doors and front of canopy for easy of operation and security. * Fuel cell vent fairings free of obstructions and obvious damage. * Pilot's and passenger/cargo compartment doors for condition of door glass, vents and proper operation of latching and locking mechanisms. * Door hinges and pins for play or wear. Ensure door pin locking tab is engaged with slot in frame. * No evidence of oil leakage around fuselage drain holes.	52 53	
369D/E/FF	Sta. 142.0 tail rotor control bellcrank support for cracking or damage, use bright light and mirror (Ref. Upper Fuselage and Tailboom Control Linkage Inspection).	67–20–10	
500/600N	Anti–torque fan inlet for: * Screen for cleanliness and damage. * Attaching hardware for security. * Interior of fan inlet for cleanliness and damage. * Driveshaft cover for damage.	53	
ALL	* Check for no gap between tailboom and fuselage at attach points. * Check tailboom skin around stabilizer fittings for cracks. * Tailboom attachment–to–fuselage for security, evidence of corrosion or cracks, loose rivets or buckling.	53	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____			
Helicopter Hours _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
500/600N	* Thruster cones and tip cap (500N only) for damage and security. Inspect for wear between thruster cones and tailboom at points of contact. * Using a flashlight and 10X magnifying glass, inspect horizontal stabilizer mounting brackets for cracks (pay particular attention to the forward inboard legs) (Ref. Tailboom Inspection). * Using a bright flashlight, inspect fore and aft radii of the lower portion of the three upper slot bridges for cracks, illuminate area under the flap. The flap may be raised slightly, using finger pressure only, to aid in checking this area (Ref. Tailboom Inspection). * Using a bright light and 10X magnifying glass, inspect the four tailboom attachment lugs for cracks and fiber damage. Pay particular attention to area on top of the lug from the radius block to 2 inches aft (Ref. Tailboom Inspection). * Tailboom closeout fairings for security of attachment hardware. Inspect for damage and chafing between closeout fairing and tailboom.	53–40–30 53–50–30	
369D/E/FF	Horizontal stabilizer for: * Skin damage and loose rivets. * Tip plates for damage. Check for secure attachments (Ref. Horizontal Stabilizer and Tip Plates Inspection).	53–50–10	
500/600N	Horizontal stabilizer for: * Skin damage and loose rivets. * Mounting fittings for cracks and security. * Stabilizer attach bolts for security.	53	
369D/E/FF	Vertical stabilizer for: * Damage to leading and trailing edges and damaged stressed side panels (no repair of side panels permitted). * Mounting fittings for cracks and security. * Tail skid for obvious damage and security (Ref. Vertical Stabilizer Inspection).	53–50–10	
500/600N	Vertical stabilizers for: * Damage to leading or trailing edges and damaged side panels. * Cracks in skin, no cracks permitted (pay particular attention to areas around mounting bolts). * Stabilizer attach bolts for security. * Stabilizer mount bushings for wear. * Excess play in control linkage, bearings and security of attaching hardware.	53	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____			
Helicopter Hours _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
	LANDING GEAR		
ALL	Landing gear skid tubes and fairings for: * Wear and damage in excess of permissible limits. * Upper fairing fillets for freedom of movement and general condition. * Strut attachment points for security and pivot (swivel) bearings for excessive play. * Landing gear dampers for correct extension, security of attachment and for signs of fluid leakage. Pivot bearings for excessive play. * Passenger steps for security and damage.	32	
369D/E/FF 500N	Remove landing gear fairing fillets and visually inspect landing gear strut assemblies for cracks and damage.		
369D/E/FF 500N	For aircraft 369D; 001 & subs, 369E; 0001 thru 0528, 369FF; 0001 thru 0114 and 500N; 001 thru 077: Remove plug button from inboard of fairing assembly. Using a bright light and 10X magnifying glass, inspect rivet hole in underside of strut for cracks. If crack is found, strut must be scrapped.		
	CABIN		
ALL	Compartment heat and anti–icing valve controls for: * Easy and correct operation and rigging. * Heating system heat diffusers for security.	21	
ALL	* Seat belts for condition and security. * Inertia reels for condition and proper extension/retraction.	25	
ALL	Pilot/copilot controls for: * Wear, looseness and general condition of control rods and rod end bearings. * Quick–release pins for condition. * Cyclic, collective and anti–torque controls for free movement. * Cyclic trim actuators for security. * Collective torque tube, support bracket and bungee support bracket for evidence of cracks, gouges or other visible damage in attach lug and bungee support bracket attach areas; gaps between bracket and cradle cap of collective torque tube (use bright light and mirror). * N_1 power controls for obvious damage. * Check for minimum cyclic friction adjustment (resistance to turning spring with fingers). * Flight control system one–way lock (Uniloc) for oil leakage, condition and security. Fluid reservoir 1/2 – 3/4 full; replenish if low.	67 76	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____			
Helicopter Hours _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
NOTE: With main rotor blades stationary, some friction drag is felt in the cyclic. The collective also has some drag, plus resistance of the collective bungee spring. Heavy drag is an indication of droop stop deformation caused by droop stop pounding.			
ALL	Engine N_1 and N_2 (N/A 600N) power controls for: * Free movement, full travel, security, obvious damage and proper rigging. * Pilot's and copilot's throttle rigging checks at **FULL**, **GROUND IDLE** and **CUTOFF** positions.	76	
	MAIN ROTOR		
ALL	Main rotor mixer control push–pull rods, links, scissors and bellcranks for excessive bearing play, bent rods or links, worn bushings and cracked bellcranks or brackets; all rodends centered.	62 67	
ALL	Main rotor pitch control rod assemblies, upper and lower rod end bearing for evidence of axial play and for any extrusion, displacement or damage to the bearing teflon liner. Check that all rodends are centered and security of lockwire (Ref. Pitch Control Rod Inspection).	62–30–00 62–30–60	
ALL	Swashplate for evidence of galling or corrosion of spherical bearing, and seals for deterioration and evidence of grease leakage. Upper and lower dust boots free from damage and security. Swashplate interrupters and magnetic pick–up secure.	62	
ALL	Main rotor hub retention strap assemblies for breaks or cracks in strap pack laminations. Check visible portions of both lead and lag legs of pack in each pitch housing (Ref. Main Rotor Strap Pack Lamination Inspection). Refer to 04–00–00 for strap pack lamination airworthiness requirements.	62–20–00 62–20–60	
ALL	Outboard ends of main rotor hub retention strap assemblies for gaps between pack laminates (Ref. Main Rotor Strap Pack Lamination Inspection).	62–20–00 62–20–60	
ALL	* Main rotor hub feathering bearings for excessive wear (Ref. Main Rotor Hub Inspection). * Main rotor droop stop ring for corrosion, dents and scratches. * Main rotor droop stop striker plate rollers for play and excessive wear. * Main rotor droop stop follower attachment pins for proper installation. * Main rotor droop stop plunger for corrosion, dents and scratches.	62–20–00 62–20–60	
ALL	Main rotor blade damper assemblies for obvious damage, security and excessive play in blade and pitch housing bearings, bonding of elastomeric material and corrosion (Ref. Main Rotor Damper and Attachments Inspection).	62–20–00 62–20–60	
ALL	Using bright light and 5X magnifying glass, inspect all main rotor hub assembly lead–lag links for corrosion, discoloration, pitting, intergranular cracks or stress corrosion cracks. Any discoloration or pitting is evidence of more than superficial corrosion, and the main rotor hub must be removed for replacement of lead–lag links (Ref. Main Rotor Hub Inspection).	62–20–00 62–20–60	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____

Helicopter Hours _____ **Torque Events** _____

Model	Requirement	Chap/Sect	Initial
ALL	Main rotor hub bearings for roughness by rotating main rotor assembly several times by hand and listening for unusual noise (Ref. Main Rotor Hub Inspection).	62–20–00 62–20–60	
NOTE: Do not confuse with normal no–load transmission and overrunning clutch noise.			
ALL	Main rotor blade and damper attach pins tight and levers properly locked.	62	
ALL	Entire trailing edge and tabs for nicks, scratches and cracks generating from trailing edge (Ref. Main Rotor Blade Inspection).	62–10–00	
WARNING: Using a bright light and 5X to 10X magnifying glass, inspect root fitting, attach lugs and doublers for cracks and security.			
ALL	Inspect main rotor blade root fittings, attach lug and lead–lag link attach lug every 100 hours in accordance with Main Rotor Blade Upper and Lower Root Fitting, Attach Lug and Lead–Lag Link Attach Lug Inspection (100 Hour). Pay particular attention to the lower side of the root fitting.	62–10–00	
ALL	Using a bright light and 10X magnifying glass, inspect main rotor blade abrasion strips for security of bonding on lower and upper surfaces, and by tapping at bond lines. Any blisters, bubbling or lifting of abrasion strip indicates a void (Ref. Main Rotor Blade Inspection).	62–10–00	
ALL	Tip area of main rotor blades for evidence of corrosion; pay particular attention to mating area of blade skin–to–tip weight interface; verify integrity of sealant coating (Ref. Main Rotor Blade Forward Tip Cap Inspection and Corrosion Protection).	62–10–00	
ALL	Drain holes in main rotor blade aft tip cap and vent holes in lower skin for clogging. Main rotor tip caps for security and evidence of corrosion.	62	
369D/E/FF 500N	Main rotor hub fairing for cracks, damage and security.	62	
	DRIVE TRAIN		
ALL	Main transmission lubrication and cooling system for: * Main transmission case and cooling installation for evidence of leakage and security of attachment. * Oil cooler blower, mount, ducting and hardware for security and damage. * Oil lines for chafing damage. * Clamps attached to oil lines for evidence of cushion wear or deterioration (if noted, remove clamp and inspect tube under clamp for chafing damage). * Pressure switch for security and deterioration; wiring for chafing.	63	
369D/E/FF 500N	Tach generator for security and deterioration; wiring for chafing.	63	
ALL	Rotor brake for: * Pucks and disc for wear and general condition. * Hydraulic lines for security and leaks. * Master cylinder for leaks. * Air in system (spongy feel at brake actuating handle when force is applied).	63	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____ **Helicopter Hours** _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
ALL	Overrunning clutch for: * Evidence of oil leakage. * Proper operation: turn rotor in forward direction by hand – engine must decouple; turn rotor in reverse direction – engine must rotate (listen for turbine noise during reverse rotation). Rotor brake disc should not drag.	63	
NOTE: Normal seal drag may be sufficient to rotate engine at low rpm.			
369D/E/FF 500N	With 369A5350 overrunning clutch installed, regrease clutch splines.	63	
ALL	Engine–to–main transmission drive shaft couplings and shaft for condition and security of attachment. Bendix couplings only: inspect shaft coupling diaphragms for scratches, nicks or cracks (Ref. Main Transmission Drive Shaft Inspection (Bendix)).	63–10–00	
500/600N	* Main transmission–to–fan transmission drive shaft for dents, bulkhead chafing and obvious damage. * Inter–Connect drive shaft for dents and obvious damage. * Free movement of control rod thru interconnect drive shaft.	63	
369D/E	Bendix couplings only: Check tail rotor blade tip movement in excess of 0.75 inch, without main rotor blade movement, when tail rotor blades are rocked back and forth in plane of rotation.	63	
369D/E/FF	Tail rotor drive shaft for: * Evidence of buckling, dents, bulkhead chafing and obvious damage. * Align aft coupling index stripe with corresponding tail rotor transmission stripe and verify that bulkhead–to–drive shaft index stripes align (Ref. Tail Rotor Drive Shaft Twist Inspection).	63–15–10	
ANTI–TORQUE			
Tail Rotor System			
369D/E/FF	Tail rotor transmission for: * Corrosion, excessive oil leakage, cracks and other damage. * Check torque of mounting nuts (also tailboom extension hardware on 369FF helicopters) (Ref. Tail Rotor Transmission Installation).	63–25–10	
369D/E/FF	Tail rotor pitch control assembly for: * Binding and unusual sounds (teeter blades to check for binding). * Teeter bearings for axial or radial play (no play allowed). * Control rod, pitch control links, hub and drive fork for play or damage. * Boots for installation and deterioration. * Retaining nut and lockwasher secure (no broken tangs noted and nut has not rotated). * Pitch control for evidence of seal rotation or loss of grease.	64	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____			
Helicopter Hours _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
369D/E/FF	Drive fork for; * Elastomeric bearing elements for bond failure. * Apply teetering force by hand (stop–to–stop) to rotor blades and inspect elastomers for radial–molded ridges on each bearing face. Discontinuity in molded ridges indicates bearing failure. There should by no apparent motion between the cage and fork, observed motion indicates bond failure.	64	
NOTE: Light swelling, pock marks and crumbs are surface conditions and do not indicate bearing failure.			
369D/E	If equipped with conical–type teetering bearings, torque check teeter bolt.	64	
369D/E/FF	Tail rotor blades for: * Evidence of damage, including leading edges, trailing edges, skin. * Open vent and drain holes. * Loose or damaged tip caps. * Rivets securing tip cap for installation and condition. * Abrasion strips free of damage, no excessive erosion noted and no separation in bond around edges or at tip end of blade (Ref. Tail Rotor Blade Inspection). * While holding hub stationary, check tail rotor blade pitch bearings for lead–lag play in excess of 0.250 inch (6.35 mm) at blade tip. If excess play is found, remove blades, replace pitch bearings and inspect hub–to–pitch bearing contact surface of hub (Ref. COM).	64–10–00	
369D/E/FF	Perform Tail Rotor Balance.	18	
NOTAR® Anti–Torque System			
500/600N	* Rotate rotor system and check for unusual noises. * Fan assembly for cleanliness and damage. * Fan blades for excessive play. * Fan seal for cleanliness, cracks, damage and corrosion. * Check gap between fan blades and tip seal. * Check gap between fan blades and hub.	64	
NOTE: If any of these gaps for any blade exceeds the average gap of the other blades by more than 0.10 inch (2.54 mm), remove and inspect the tension–torsion strap for that blade.			
500/600N	Perform Fan Blade Inspection (100–Hour).	64–25–30	
500/600N	Fan Transmission for corrosion, excessive oil leakage, cracks, damage and security on mounting frame. Drain line for cracks and security.	63	
500/600N	Rotating cone control tubes and cables for freedom of movement and unusual sounds.	67	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____			
Helicopter Hours _____ **Torque Events** _____			
Model	**Requirement**	**Chap/Sect**	**Initial**
	ELECTRICAL		
NOTE: When possible, use auxiliary power source, not battery, during **POWER ON** inspection.			
ALL	**XMSN OIL TEMP, FUEL FILTER** and **CHIPS** warning lights; electrical circuits for continuity to lamps by connecting jumper wire from each sender or chip detector terminal stud to an unpainted grounding surface; check each light for illumination (Ref. Caution/Warning System Operational Check).	95–00–00	
ALL	Push **PRESS TO TEST** switch: all caution and warning lights **ON**; depress instrument light rheostat knob; verify **CAUTION** lights dim.	95	
369D/E/FF 500N	Conduct operational check of automatic reignition system; igniter noise heard and reignition indicator light functions. Reset as required.	PFM	
CAUTION: Do not leave landing light **ON** for more that one minute during next check; lamp will overheat and lamp life will be shortened.			
ALL	Exterior lighting (landing, position and anti–collision lights) for proper operation; all switches **OFF** after check.	96	
WARNING: Do not leave pitot heater ON for more than one minute during next check; severe burns to personnel may result.			
ALL	**PITOT HTR** switch **ON** for a few seconds. Heated pitot tube will feel warm to the touch; turn switch to **OFF** after check.	95	
600N	Apply power to aircraft and disconnect CIT sensor (Ref. CIT (Compressor Inlet Temperature) Sensor Replacement); Verify ECU FAIL light illuminates. Re–connect CIT sensor.	76–00–00	
ALL	Clean battery and inspect for: * Connector pins for evidence of corrosion. * Leakage (if battery is leaking (wet), remove and replace battery). * Battery case for cracks in support flanges. * Dc wiring for chafing caused by wiring rubbing against battery case. * Deep cycle charge (recondition) battery every 100 hours or on conditional basis at operator's discretion.	96	
ALL	Functionally check and inspect all installed avionics, auxiliary or optional systems and equipment. Do not actuate hoist guillotine or emergency floats.	97	
	ENGINE COMPARTMENT		
ALL	Exhaust stack(s) and exhaust supports for cracks, defects and improper attachment.	78	
ALL	Engine compartment plumbing and electrical relay installation on left or right side oleo (landing gear damper) support fitting for good condition and security of mounting. Diodes for broken terminals and wires. Diode bracket for security and corrosion.	96	

Table 1. 100–Hour or Annual Inspection (Cont.)

Registration No. _____ **Serial No.** _____

Helicopter Hours _____ **Torque Events** _____

Model	Requirement	Chap/Sect	Initial
ALL	Entire engine for: * Loose bolts; loose or broken connections. * Accessories for security and broken or missing lockwire. * Fuel and oil lines for chafing and kinking. * Fuel drain line valve for leakage. * Oil cooler and cooler deflector for security and obvious damage. * Accessible areas for obvious damage; evidence of fuel and oil leaks. * Engine mounts for cracks and play in mounting hardware at engine and airframe (retorque any loose mounting bolts). * Fuel control and compressor exterior for condition and security.	71 75 76	
369D/E/FF 500N	RPM governor lever control rod (replace if aluminum).	76–10–00	
369D/E/FF 500N	Clean and lubricate drive splines of starter–generator drive shaft, and female splines in engine accessory gear case on dry spline installations.	96	
369D/E/FF 500N	Anti–ice air tubes and compressor scroll for cracks or breaks at the anti–ice air valve and bleed port. If cracks exist, check engine for possible vibration causes (Ref. Engine Anti–icing System and applicable Allison Engine Operation and Maintenance Manual).	75–10–00	
	AFTER INSPECTION		
ALL	Touch–up all damaged paint and exterior markings, as necessary.	20	
ALL	Ensure all fluid levels are correct; service as required.	12	
ALL	Perform operational check of particle separator filter (Ref. Scavenge Air Operational Check).	71–10–10	
ALL	Install or close all stressed panels, covers and trim panels removed or opened for inspection. Check closure, fit and security. All loose equipment for proper stowage.	52–50–00	

CAUTION: Helicopter must not be flown unless controls access panel and fuel cell access panels in cargo compartment are securely installed. These are stressed panels.

POST INSPECTION RUN UP

See applicable Pilot's Flight Manual for cockpit check and engine starting procedures. For troubleshooting procedures, refer to applicable section of this manual.

100–HOUR OR ANNUAL INSPECTION CERTIFICATION

It is certified that this helicopter has been thoroughly inspected as required by FAR, found to be airworthy, and appropriate entries made in the helicopter log book. It is further certified that the helicopter conforms to FAA specifications, that all FAA Airworthiness Directives and Manufacturer's Service Notices and Maintenance Manual data have been complied with, and the helicopter records are in proper order

Signature _____

Rating Type or Certificate No. _____

Date _____

2. Retirement Index Numbers Attachment

Table 2 is to be used for calculating and recording the Retirement Index Number (RIN) or Torque Events (TE) of components that are affected by Torque Events (TE).

This record of RINs/TE's should be kept as a permanent record.

Refer to Section 04-00-00 for components requiring calculation of RIN's/TE's and information pertaining to calculation of RIN's/TE's.

Component must be scrapped when it reaches 1,000,000 RIN's or maximum TE's (Ref. Sec. 04-00-00).

Table 2. Permanent Record of Retirement Index Numbers/Torque Events

Component	Part No.	Serial No.	Hours	TE's	RIN's	Signature

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CONTINUED AIRWORTHINESS

SPECIAL INSPECTIONS

1. Special Inspection Hourly and Calendar

This table is a schedule of time-phase inspections that are contingent upon elapsed flight time or calendar time. These inspections require a Log Book entry. Adherence to Maintenance Manual information is required, and the manual should be consulted when using this checklist.

NOTE:

- The Chap/Sect column of the following table is for reference unless a specific inspection requirement is called out. If there is only two numbers in the column, it refers to the Chapter. If there is three numbers, it refers to the Section the inspection is found.
- Refer to applicable Rolls-Royce engine inspection check list for required engine maintenance.

Table 1. Special Inspections Hourly

Model	What to Inspect	Chap/Sect
AFTER INSTALLATION OF NEW 369F5100 MAIN ROTOR TRANSMISSION		
ALL	Perform transmission run–in (Ref. Main Transmission Run–In Procedure)	63–20–25
2 – 10 HOURS AFTER INSTALLATION OF TAIL ROTOR TRANSMISSION		
369D/E/FF	Using drag torque previously recorded, apply a torque load of **95 ±3 inch–pounds (10.73 ±0.34 Nm) plus the noted drag torque** (noted for each individual nut) to each mounting nut of the transmission (Ref. Tail Rotor Transmission Installation).	63–25–10
EVERY 15 HOURS		
369D/E/FF	Effectivity: 369H1203–BSC or 369H1203–21 lead–lag link assemblies with at least 500 hours, perform Main Rotor Blade Upper and Lower Root Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (25 Hour) and every 100 hours in accordance with Main Rotor Blade Upper and Lower Root Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (100 Hour) until retirement of 369H1203–BSC or–21 Lead–Lag Link Assembly. (Reference AD 95–03–13).	62–10–00
25 HOURS AFTER REPLACING TAIL ROTOR DRIVE FORK HINGE BOLT		
369D/E/FF	Check rotational torque of bolt by applying **125 inch–pounds (14.12 Nm)** with torque wrench. If 125 inch–pounds (14.12 Nm) torque does not rotate bolt, preload is correct (Ref. COM, Hub and Fork Assembly).	64–20–10 64–20–20
25 HOURS AFTER INSTALLATION OF OIL COOLER BLOWER		
ALL	With two pounds of force applied, check belt tension for 0.17 to 0.20 inch (4.32 – 5.08 mm) deflection. Check pulley (Ref. Cooling Blower Belt Tension Check and Adjustment). Check oil cooler blower driven pulley retaining nut for minimum torque of **160 inch–pounds (18.08 Nm)**. If loss of torque is noted, remove pulley nut and inspect pulley shaft and splines for condition. Reinstall nut and torque to **160 – 190 inch–pounds (18.08 – 21.47 Nm) plus drag torque**.	63
EVERY 25 HOURS WITH 2 FAILED LAMINATES IN MAIN ROTOR STRAP ASSEMBLY		
369D/F/FF 500N	Inspect in accordance with Main Rotor Strap Pack Lamination Inspection at 25–hour intervals if 2 laminates have failed in any one leg or tongue area of any strap assembly. A single cracked laminate between the shoes at the outboard end of a strap pack is cause for rejection of the hub assembly (Ref. Main Rotor Strap Pack Lamination Inspection).	62–20–00

Table 1. Special Inspections Hourly (Cont.)

Model	What to Inspect	Chap/Sect
EVERY 25 HOURS WITH 1 FAILED LAMINATES IN MAIN ROTOR STRAP ASSEMBLY		
600N	Inspect in accordance with Main Rotor Strap Pack Lamination Inspection at 25–hour intervals if 1 laminate has failed in any one leg or tongue area of any strap assembly. A single cracked laminate between the shoes at the outboard end of a strap pack is cause for rejection of the hub assembly (Ref. Main Rotor Strap Pack Lamination Inspection).	62–20–60
EVERY 25 HOURS		
NOTE: This inspection does not apply to 369D21100–516, –517, –523 and 369D21102–503, –517, –523 main rotor blades or the 369H1203–51 and –61 lead–lag links.		
369D/E/FF	Visually inspect exposed portion of all installed main rotor blade upper and lower root fitting attach lugs and main rotor hub lead–lag link attach lugs for broken or cracked lugs, corrosion or other damage to the lug areas (Ref. Main Rotor Blade Upper and Lower Root Fitting Attach Lug and Lead–Lag Link Attach Lug Inspection (25–Hour)).	62–10–00
600N	(Effectivity: RN003–RN077, Ref. SB600N–039), Perform Tailboom Attach Fitting Inspection (Ref. EAD 2001–24–51).	53–30–30
EVERY 50 HOURS		
369D/E/FF 500N	Effectivity: On models equipped with Rotorcraft Litter Kit: visually inspect litter doors for condition and security of quick–release fasteners. Rubber gasket between window glass and door for proper sealing.	CSP–026
EVERY 50 HOURS IF CRACKS ARE FOUND IN FAN LINER		
NOTE: If cracks protrude into Felt Metal Seal, replace seal.		
500/600N	Inspect fan liner to ensure cracks do not protrude into Felt Metal Seal (Ref. Anti–Torque Fan Liner (Felt Metal Seal) Inspection).	64–25–30
EVERY 100 HOURS		
ALL	If installed, floats and associated components for condition and security.	32
ALL	Effectivity: With 369F5450–501 overrunning clutch installed, remove clutch assembly and inspect clutch retainer, bearing carrier and housing at pin and shoulder for evidence of spinning and/or wear. If spinning and/or wear is observed, replace clutch assembly.	63
EVERY 300 HOURS OR ONE YEAR (Whichever occurs first)		
ALL	Effectivity: 369D25100 main transmission serviced with MIL–L–23699 oil, drain main transmission oil system; Flush with sufficient new oil to remove sludge accumulation. Replace filter and refill with new oil.	12
EVERY 300 HOURS OR TWO YEARS (Whichever occurs first)		
600N	Main rotor upper thrust bearing assembly must be relubricated every 2 years or 300 hours, whichever occurs first (Ref. Main Rotor Hub Upper Bearing Grease Repack, Inspection and Replacement).	62–20–60
EVERY 300 HOURS		
ALL	Effectivity: 369D21400–503 (369D/E/FF – 500/600N) or M50452 (369D/E/FF – 500N) lead–lag dampers with at least 4200 hours, inspect for deterioration until deterioration is sufficient to retire assembly (Ref. Main Rotor Damper and Attachments Inspection and Main Rotor Damper Weight Loading and Extension Check).	62–20–00 62–20–60

Table 1. Special Inspections Hourly (Cont.)

Model	What to Inspect	Chap/Sect
NOTE: The following inspection does not apply to 369D25100–505 and –507 transmissions.		
369D/E/FF	Visually inspect upper surface of main transmission output shaft assembly (ring gear carrier) for bulging or raised surfaces. Using 10X magnifying glass, inspect upper surface of shaft for cracks. (Ref. COM, Output Drive Shaft Visual Inspection)	63–20–00
369D/E 500/600N	Replace anti–ice/airframe fuel filter element (if installed) (Ref. Anti–Ice Fuel Filter Replacement).	28–25–00
ALL	Mist eliminator and access door for proper installation (attaching hardware for security).	71
ALL	Hoist installation (if installed) for condition and security.	25
EVERY 600 HOURS OR ONE YEAR (Whichever occurs first)		
ALL	Effectivity: 369D25100 main transmission serviced with Mobil SHC 626 oil and 369F5100 main transmission, drain main transmission oil system; Flush with sufficient new oil to remove sludge accumulation. Replace filter and refill with new oil.	12
369D/E/FF 500N	Effectivity: 369F5510 Main Rotor Drive Shaft, perform 369F5510 Main Rotor Drive Shaft Inspection (Ref. 600N5510 and 369F5510 Main Rotor Drive Shaft Inspection).	63–10–00
600N	Effectivity: 600N5510 Main Rotor Drive Shaft, perform 600N5510 Main Rotor Drive Shaft Inspection (Ref. 600N5510 and 369F5510 Main Rotor Drive Shaft Inspection).	63–10–00
EVERY 600 HOURS		
ALL	Cyclic control system for excessive slack or free play. Cyclic control stick, at grip, for play in excess of 3/8 inch (9.53 mm) (Ref. Main Rotor Flight Control System 600–Hour Inspection).	67–10–00
ALL	Effectivity: 369D21400–503 (369D/E/FF – 500/600N) or M50452 (369D/E/FF – 500N) lead–lag dampers with less than 4200 hours, inspect for deterioration until deterioration is sufficient to retire assembly (Ref. Main Rotor Damper and Attachments Inspection and Main Rotor Damper Weight Loading and Extension Check).	62–20–00 62–20–60
500/600N	Using a dial indicator, measure the rotation of the fan pitch control clevis mounted on the fan pitch control tube. If clevis rotation is more than 0.025 in. (0.635 mm), inspect splines on fan pitch control tube (Ref. Fan Pitch Control Tube Inspection) and splines in tube support (Ref. Tube Support Inspection).	63–25–30 67–20–30
EVERY 1200 HOURS		
ALL	Test battery over temperature sensor unit for proper operation and accuracy (Ref. Battery Temperature Sensing Equipment Operational Check).	96–05–00
500/600N	Perform visual inspection, using a 10x magnifying glass, on horizontal stabilizer mounting brackets (pay particular attention to the forward inboard legs).	53
500N	Regrease YSAS actuator (Ref. YSAS Actuator Regrease Procedure).	67–20–30
EVERY 1200 HOURS OR 2 YEARS (WHICHEVER OCCURS FIRST)		
500/600N	Clean, inspect and relubricate (repack) fan support and pitch plate bearings (Ref. Anti–Torque Fan Bearing Regreasing).	64–25–30
500/600N	Perform Anti–Torque Fan Inspection.	64–25–30
500/600N	Check pitch bearing retainer for cracks or damage.	64
EVERY 2700 HOURS OR 2 YEARS (WHICHEVER OCCURS FIRST)		
600N	Main rotor lower thrust bearing assembly must be relubricated every 2 years or 2700 hours, whichever occurs first.	62–20–60

Table 1. Special Inspections Hourly (Cont.)

Model	What to Inspect	Chap/Sect
600N	Clean, inspect and relubricate (repack) main rotor swashplate bearings.	62–30–60
EVERY 2770 HOURS OR 2 YEARS (WHICHEVER OCCURS FIRST)		
369D/E/FF 500N	Clean, inspect and relubricate (repack) main rotor swashplate bearings and main rotor hub tapered bearings (Ref. Main Rotor Hub Tapered Bearing Replacement).	62–20–00
369D/E/FF	Clean, inspect and relubricate (repack) tail rotor swashplate bearings (Ref. Tail Rotor Swashplate Bearing Regreasing).	64–30–00
AT 6000 HOURS AND EVERY 100 HOURS THEREAFTER		
600N	Remove tunnel control boot. Inspect interface between 369H2564 tunnel beams and 369D22508–7 web for cracks (Ref. Control Tunnel (FS 78.50) Beam Inspection).	53–30–30
600N	Perform Forward Upper Longeron Inspection (L137, R137).	53–30–30
AT 15,000 HOURS AND EVERY 1500 HOURS THEREAFTER		
600N	Perform Lower Longeron Inspection (L158, R158).	53–30–30
EVERY 6,000 HOURS		
369D	Replace the 369H6414 Edgelighted Panel (Ref. Instrument Panel Lights Description and Replacement).	96–40–00

Table 2. Special Inspections Calendar

Model	What to Inspect	Section
(DAILY) BEFORE FINAL SHUTDOWN IN CORROSIVE ENVIRONMENT		
ALL	It is recommended that before shutdown from the last flight of the day, for helicopters operating in a corrosive environment, a Tri–Flow wash be preformed on the main rotor hub and strap pack assembly (Ref. Main Rotor Hub Corrosion Prevention (Tri–Flow Wash Procedure)).	20–40–00
(DAILY) AFTER FINAL SHUTDOWN IN CORROSIVE ENVIRONMENT		
500N	It is recommended that after shutdown from the last flight of the day, for helicopters operating in a corrosive environment, the splitter bungee spring be sprayed with Tri–Flow.	20
EVERY 6 MONTHS OR 5 INFLATIONS		
ALL	Inflate emergency floats to 4.5 psi (0.3164 kg/cm^2) for one hour. Check for leaks and condition. Continue inflation to 5.5 psi (0.3867 kg/cm^2) and check that chamber pressure relief valves operate. Pressure–test float compartments (Ref. Float Compartments Pressure Test).	32–82–00
AFTER COMPRESSOR WATER WASH/RINSE WITH PARTICLE SEPARATOR INSTALLED		
ALL	During engine run after compressor water wash with particle separator installed, it is recommended that scavenge air switch be switched on to remove any moisture that has accumulated in the solenoid air valve.	RFM
BEFORE OPERATION OF BREEZE HOIST SYSTEM		
ALL	Prior to daily hoisting operations: unreel and inspect entire length of hoist cable for broken strands (cluster of 7 wires), excessive broken wires, corrosion, and security of attachment to cable drums and swivel hook. Replace cable if broken strand or excessive broken wires are noted. (Refer to hoist manufacturer’s handbook, Table 201.)	01

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UPPER AFT SECTION FUSELAGE (369D/E/FF)

MAINTENANCE PRACTICES

1. Upper Firewall Replacement

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM234	Solvent, dry-cleaning
CM721	Tape, aluminum foil

CAUTION Use care when working on or around firewall shell because of its light-weight construction.

(1). Remove tailpipes (Ref. Chap. 78, Exhaust System Replacement).

(2). Remove tape covering fasteners and firewall edges.

(3). Detach compressor cooling air duct support bracket (Ref. Chap. 71, Engine Cooling System Repair and Replacement). Remove firewall shell by pulling out button head fasteners (Ref. Figure 203).

(4). If burn marks are detected on firewall shell or button head fasteners, inspect airframe above burn marks for damage.

(5). Replace damaged or corroded fasteners.

(6). Replace aft firewall shell if damaged beyond practical repair. Trim replacement shell to fit installation. Allow sufficient trim excess for folding back to provide double thickness at attach points.

(7). Pierce fastener holes in new firewall shell to align holes in surrounding fuselage rings and waterline 34.96 rib.

(8). Place firewall shell in position and secure in place by pressing fasteners into holes. Attach compressor cooling air duct support bracket to hoist fitting (Ref. Chap. 75, Engine Cooling System Repair and Replacement).

(9). Using solvent (CM234), clean forward flanges, lower flanges and surface where tape routing covers fasteners; then apply tape (CM721).

(10). Install compressor cooling air duct support bracket.

(11). Install tailpipes.

2. Firewall and Plenum Chamber Panels Replacement

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM234	Solvent, dry-cleaning
CM419	Sealer

Replace all defective, torn or fraying sound-proofing panels. Loose panels may be pressed back in place. (For part number identification of individual panels, refer to the IPC.)

(1). Open engine compartment access doors.

(2). Remove individual panels (Ref. Figure 201, Sheet 1 of 2) by pulling away from structure.

(3). (If applicable) Remove individual panels (Ref. Figure 201, Sheet 2 of 2) by removing fasteners.

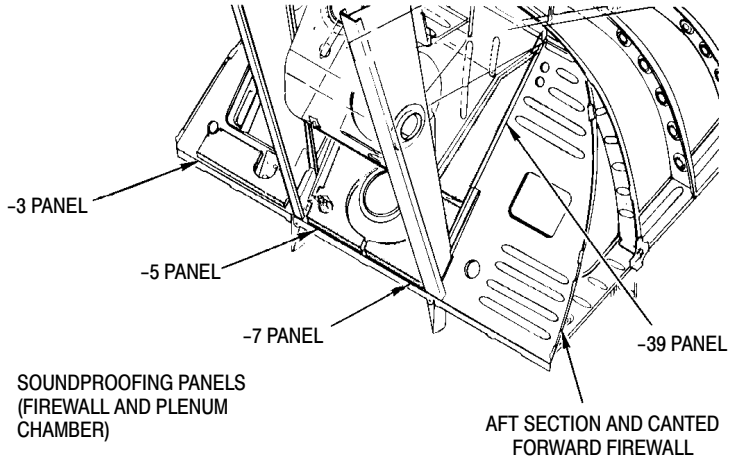
NOTE: Panels have pressure-sensitive tape backing.

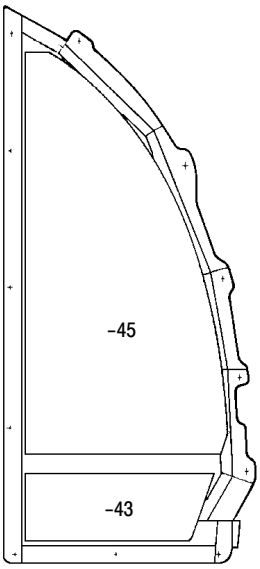
(4). Prior to installing replacement panel, clean surfaces with solvent (1, Table 201, 91-00).

(5). Install replacement panel in place and trim edges as necessary. Press panel in place to secure.

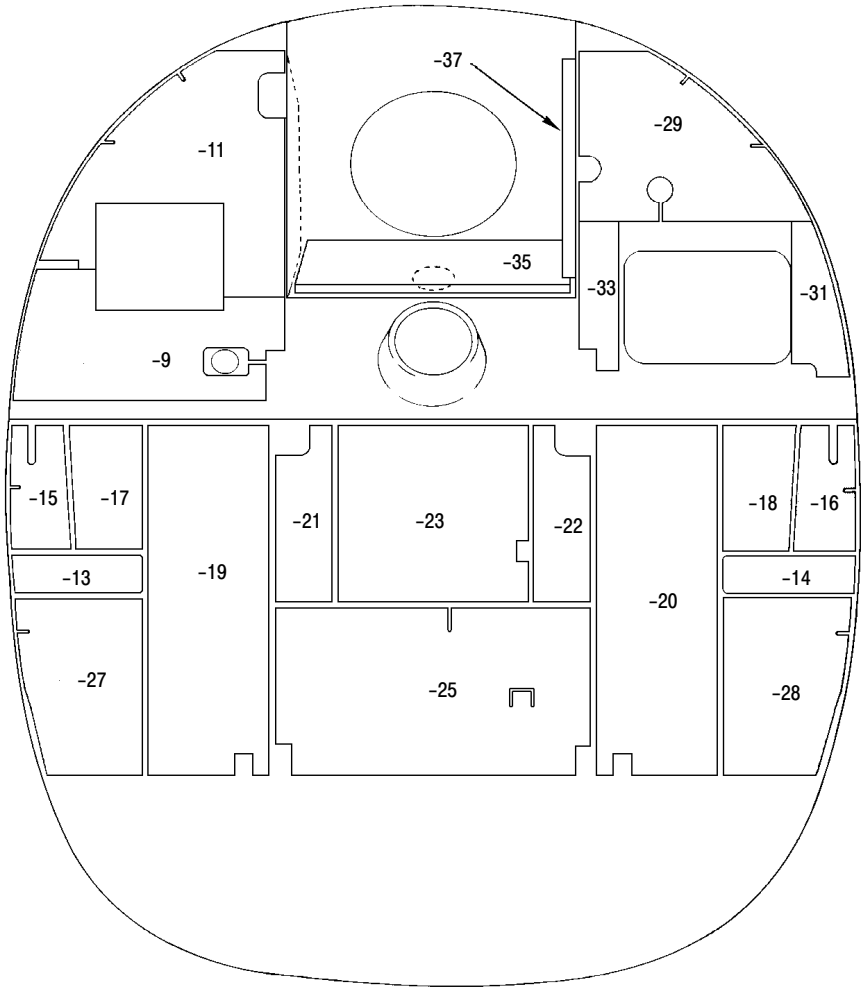
(6). Seal edges of replacement panel with sealer (130).

(7). Reinstall trim (Ref. Sec. 25-30, Interior Trim Replacement) and close engine access doors.





SOUNDPROOFING PANELS (ON AFT SIDE OF ACCESS DOORS) (NOTE 1)



SOUNDPROOFING PANELS (ENGINE COMPARTMENT SIDE OF FIREWALL)

NOTES:
1. RIGHT PANEL SHOWN. OPPOSITE SIDE LEFT PANEL (-41) IS SAME; EXCEPT MIRROR IMAGE AND A SOLID PANEL.
2. ALL DASH NUMBERS SHOWN APPLY TO BASIC PART NO. 369H2008. (EXAMPLE: -25 INDICATES PART NO. 369H2008-25.)

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Figure 201. Soundproofing Insulation – Firewall and Plenum Chamber (Sheet 1 of 2)

NOTE: To inhibit corrosion of mast when operating in salt water environment, check tape at frequent intervals. Also, apply thin grease film (CM115) to bearing journals.

A. Firewalls

(Ref. Figure 203) A shell-like aft section upper firewall surrounds the upper portion of engine combustion chamber and exhaust pipe assembly. The design contains engine heat as well as any fire that might develop within the engine compartment. Upper firewall is thin, 0.0015 inch (0.0381 mm) thick sheet, rigidized CRES sheet covered with double thickness of nonflammable ceramic fiber blanket.

6. Firewalls Inspection

No unrepaired damage is permissible. (For repairs to forward firewall, Ref. FAA AC 43-13-1A & 2A or Structural Repair Manual.) For repairs of the upper firewall (Ref. Silver Brazing Upper Firewall Shelf Patch).

(1). Inspect forward firewall for punctures and corrosion.

(2). Inspect upper firewall for punctures, corrosion and evidence of contact with discoloration. If contact with discoloration is observed on the firewall attachment button heads, remove the upper firewall and inspect the attach frames for discoloration or damage; contact MDHI for further directions.

(3). Inspect for complete seal around openings for overrunning clutch, engine compressor air inlet and oil cooler.

A. Firewall, Station 124.00 Insulation and Soundproofing

(Ref. Figure 201, Sheet 1 of 2) Engine compartment forward firewall is insulated and soundproofed for heat and noise reduction in passenger/cargo compartment.

7. Firewall and Plenum Chamber Soundproofing Panel Inspection

(Ref. Figure 201, Sheet 1 of 2 and Figure 203)

(1). Remove trim (Ref. Sec. 25-30-00, Interior Trim Replacement) for access to passenger/cargo compartment firewall areas. Open engine access doors to inspect engine compartment panels.

(2). Check for defective, torn, loose or missing panels.

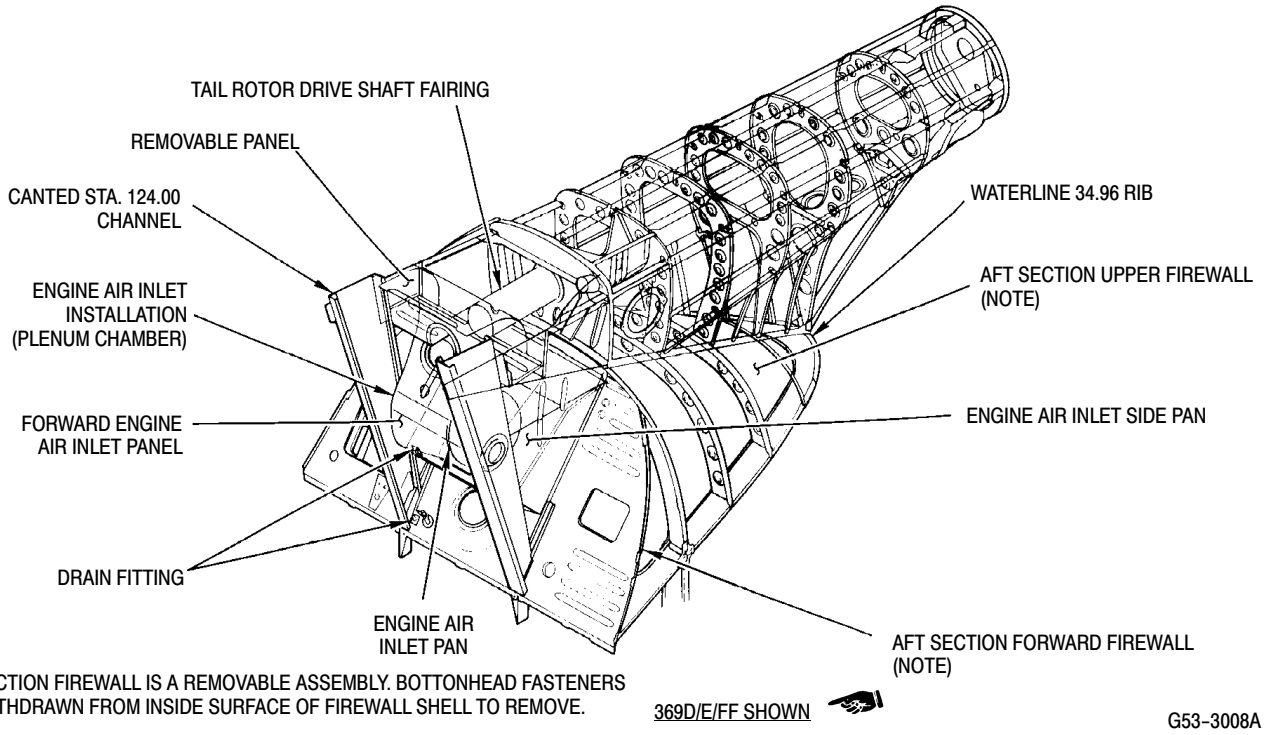


Figure 203. Firewall and Aft Section

(3). Inspect aft firewall for security, punctures and corrosion.

(4). Check that all individual panels are securely attached to firewall and plenum areas with no loose edges.

(5). Check panels in passenger compartment of defects, tears, looseness, or missing panels.

(6). For applicable repairs refer to Plenum Chamber Hole Sealing reference.

A. Engine Air Inlet Fairing

The engine air inlet fairing on top of the fuselage structure directs ambient outside air to the engine air inlet and oil cooler blower. The fairing installation consists of a forward fairing section and an aft fairing section. Right and left halves of forward fairing are removable. The aft fairing is riveted to fuselage structure. A UHF/VHF antenna is bonded to the aft vertical face and is part of aft fairing.

8. Engine Air Inlet (Plenum Chamber) Inspection

(1). For access, open bypass door on right side of engine air inlet and engine compartment access doors for view of rear side of plenum (Ref. Figure 203).

(2). Inspect all panels for evidence of corrosion, security of rivets and punctures.

(3). Inspect engine air shield mounting clips for secure attachment.

(4). Inspect aft section strut for rivet corrosion and edge clearance where it passes through cutout in forward panel. For applicable repairs (Ref. Aft Section Strut Repair).

(5). Ensure that removable forward panels are secure. Inspect rubber seals for security and partial compression.

(6). Inspect drive shaft tube fairing for dents, buckled or wrinkled areas and signs of corrosion.

(7). Close engine compartment access doors and two air inlet access doors.

A. Upper Aft Section General Repair

Ref. FAA AC 43.13-1A & 2A and Structural Repair Manual for additional repair procedures.

B. Aft Fuselage Fittings

Mast support structure fitting and fuselage boom fairing frame fitting are critical fatigue-loaded parts. Any damage in excess of negligible limits specified in (Ref. Aft Section Strut Repair) requires replacement of part.

C. Aft Fuselage Fittings General Repair

Repair of cast and forged fittings should only be temporary and be performed only when replacement components are not immediately available. Replacement of bushings or inserts that become part of fitting assembly are considered insertion repairs. (Insertion repairs are described in FAA AC 43.13-1A & 2A and Structural Repair Manual.)

(1). Negligible Damage (Ref. Table 201, 53-00-00).

(2). Replacement. Replace fittings according to Structural Repair Manual.

9. Aft Section Strut Repair

Repair of strut is limited to smoothing out minor dents, scratches or nicks. Replace strut if it is badly damaged according to Structural Repair Manual.

10. Silver Brazing Procedure – Upper Firewall Shell Patch

(Ref. Figure 204)

Consumable Materials
(Ref. Section 91–00–00)

Item	Nomenclature
CM234	Solvent, dry-cleaning
CM721	Tape, aluminum foil
CM817	Brazing flux
CM818	Brazing alloy

(1). Remove aft section upper firewall (Ref. Upper Firewall Replacement).

(2). Remove tape and ceramic fiber blankets from firewall shell.

(3). Clean firewall shell with stiff bristle brush moistened with solvent (CM234) and wipe dry with clean, dry cloth.

(4). Smooth out rigidized pattern in area on which patch will be brazed.

(5). Cut suitable repair patch for Type 321 stainless steel sheet in thickness range of 0.0015–0.0018 inch (0.0381–0.04572 mm).

(6). Contour patch to match contour of firewall shell repair area.

CAUTION Use only stainless steel wire brush in next step. Particles from bristles of other metals can contaminate the patch area and cause brazing to fail.

(7). Use stainless steel wire brush to clean and abrade inner and outer surfaces of stainless steel patch and firewall.

(8). Rinse patch and firewall shell thoroughly with clean water and allow to air dry.

(9). Coat surfaces to be joined with a thin even coating of silver alloy brazing flux (CM817).

(10). Use clamp or other suitable device to hold patch in place during brazing operation.

CAUTION Use extreme care not to overheat and burn through firewall shell.

(11). Braze patch in place with Class 8 silver brazing alloy (CM818), using suitable torch to heat patch area to temperature moderately above 1295°F (707°C) flow point of brazing alloy.

(12). Allow joint to cool for at least 60 seconds before removing clamping device.

(13). Remove flux by immersing repaired area in water at 160°–212°F (72°–101°C) for 40 minutes.

(14). Thoroughly rinse in clear, running water; air dry, or wipe dry with clean, dry cloth.

(15). Install ceramic blanket on outer surface of firewall shell.

(16). Install aft section upper firewall shell (Ref. Upper Firewall Replacement).

(17). Install tape (CM721) on flanges of firewall shell.

11. Plenum Chamber Hole Sealing

(Ref. Figure 204)

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM418	Cement, epoxy
CM424	Sealing compound
CM713	Tape, pressure sensitive

CAUTION All tape must be applied to outside of inlet surfaces, so that any subsequently loosened tape cannot enter plenum chamber to cause engine damage.

(1). Using 10 mil by 1 inch (2.54 cm) pressure-sensitive tape (CM713), tape all 0.130 inch (3.302 mm) diameter or larger holes.

(2). Using sealant (CM424), seal all holes less than 0.130 inch (3.302 mm) diameter.

(3). Rebond loose rubber seals with adhesive (CM418) according to container instructions.

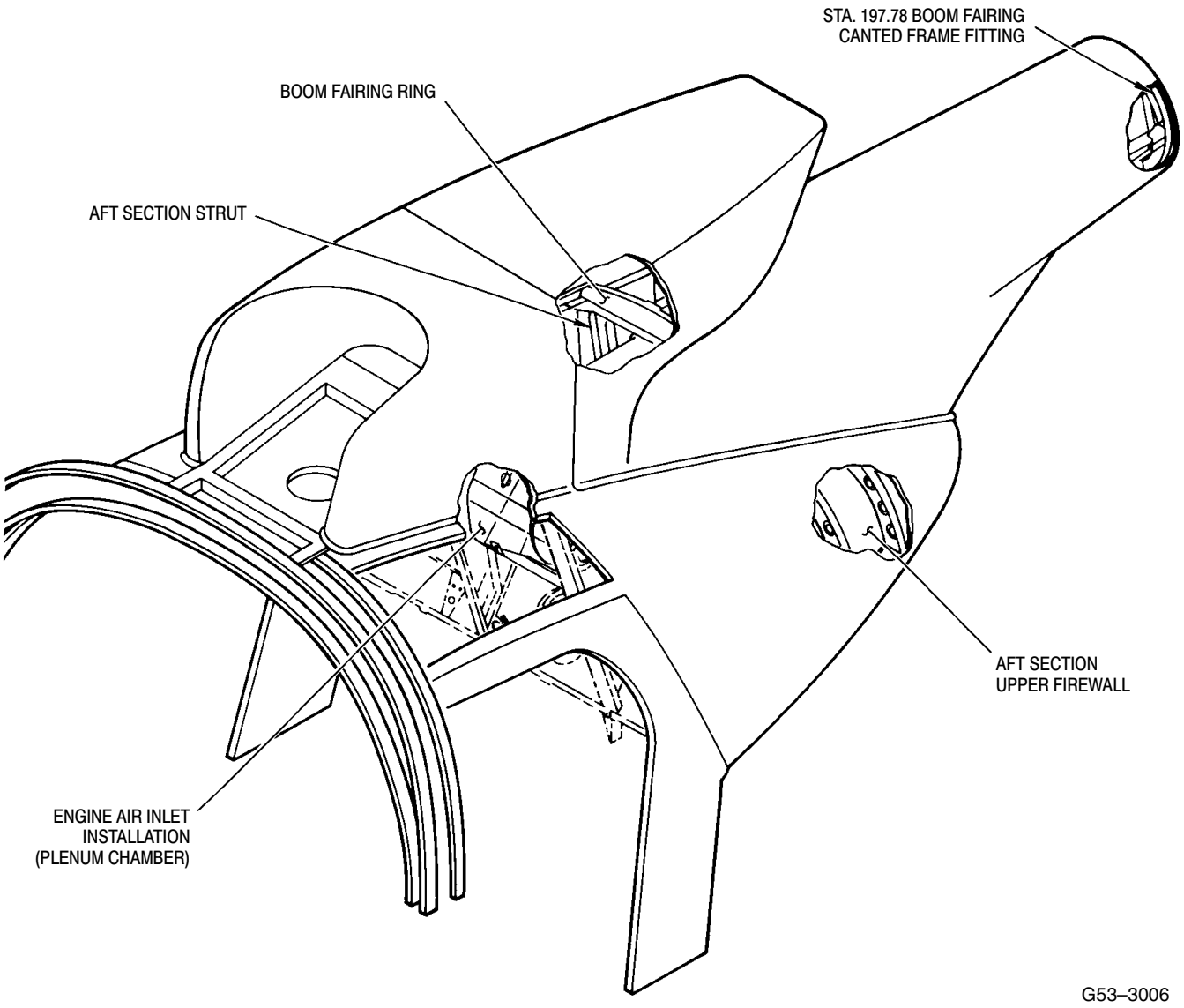


Figure 204. Major Bulkheads and Structural Members – Aft Fuselage

12. Forward Fuselage Section Structure Rework

(Ref. Figure 205) The following information is a procedure for installing support assemblies to the fuselage frame structure to provide reinforcement at the forward attach points for the engine inlet fairing assemblies.

Consumable Materials
(Ref. Section 91–00–00)

Item	Nomenclature
CM318	Primer

(1). Remove engine inlet forward fairing assemblies from helicopter (Ref. Engine Inlet Fairing Replacement).

(2). Remove interior trim panels and wire harnesses, as applicable, to gain access to work area at forward area at forward attach nutplate assembly for L/H and R/H engine inlet forward fairings.

(3). Remove existing forward nutplate (for both L/H and R/H fairing assemblies) from fuselage frame structure.

(4). Inspect upper fuselage skin for cracks or damage at area of forward nutplate attachment holes. Also inspect repair

B. Tailboom Installation

CAUTION Before tailboom installation, inspect radius blocks for brinneling, corrosion and indication of indent on face; none allowed.

NOTE: If installing a new tailboom, the 500N3500-5 cover will have to be installed after internal tailboom components are installed (Ref. 500N3500-5 Cover Installation).

(1). Support tailboom so that the mating bulkhead surfaces are flush.

(2). Slide countersunk/chamber washers on external wrenching bolts with countersunk side facing bolt head.

CAUTION If washers are installed backwards, structural failure may result due to insufficient surface in load bearing area that can cause spreading or cracking of washers and result in loss of clamp-up torque.

(3). With the tailboom supported in place, install four bolts with washers.

(a). 500N:

Torque bolts to **130 - 150 inch-pounds (14.69 - 16.95 Nm) plus drag torque**. Verify minimum run on torque of 6.5 inch-pounds (0.73 Nm).

(b). 600N:

RN003 - RN059 without TB600N-007 complied with; torque the two smaller diameter bolts to **130 - 150 inch-pounds (14.68 - 16.94 Nm) plus drag torque** and the two larger diameter bolts to **180 - 220 inch-pounds (20.33 - 24.85 Nm) plus drag torque**. Safety bolts.

RN003 - RN059 with TB600N-007 complied with and RN060 & subs; torque bolts to **180 - 220 inch-pounds (20.33 - 24.85 Nm) plus drag torque**. Safety bolts.

(4). Re-connect electrical connectors.

(5). Re-connect control cable assembly.

(6). Install tailboom fairing.

3. Tailboom Inspection

(Ref. Figure 201)

(1). Inspect tailboom exterior as follows:

(a). Inspect tailboom fairing for cracks and delaminations.

(b). Inspect tailboom flange and mounting bolt holes attachment area for cracks at Sta. 168.20.

(c). Inspect radius blocks for brinneling, corrosion and indication of indent on face; none allowed. If found, scrap radius block and install new radius block.

(d). Inspect strake for cracks, delaminations, debonding, dents, nicks and separation.

NOTE: Damage to slots can cause significant degradation of aircraft performance in a hover.

(e). Inspect tailboom surface area and tailboom circulation control slots surface area for cracks, voids, dents, holes, scratches, separation, delaminations at tailboom and security.

1). Using a bright light, inspect fore and aft radii of the lower portion of the three upper slot bridges for cracks, illuminate area under the flap.

NOTE: The flap may be raised slightly, using finger pressure only, to aid in checking this area.

(f). Inspect flaps for cracking and debonding (Ref. Figure 202):

1). A crack of any length, in line with aft edge of flap, is permissible at interface between flap and tailboom.

2). A crack of 1.25 inch (3.175 cm) maximum length, in line with the forward edge of flap, is permissible at interface between flap and tailboom.

NOTE: If crack in forward edge of flap is longer than 1.25 inch (3.175 cm), contact your local MDHI Field Service Representative for disposition.

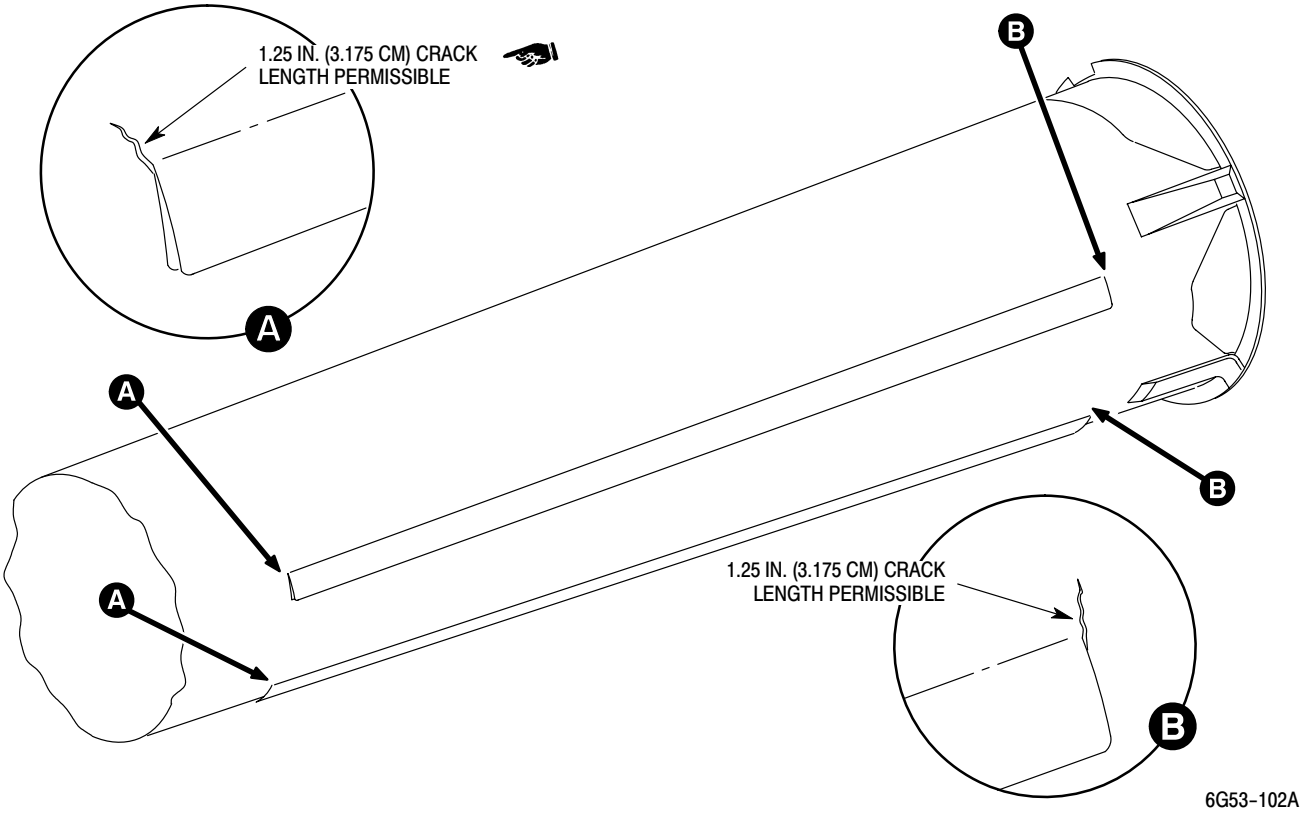


Figure 202. Tailboom Flap Inspection

(g). Inspect horizontal stabilizer mounting brackets (pay particular attention to the forward inboard legs) and attachment fittings for cracks, voids, separation and delamination.

(h). Inspect stabilizers (Ref. Sec. 53-50-30).

(i). Inspect (tail-skid) for cracks, dents, holes and delamination.

(j). Inspect rotating thruster cone for freedom of operation, cracks, holes, separation and delamination.

(k). Inspect tailboom grommets (2) places for cracks and proper fit.

(2). Inspect tailboom interior as follows:

(a). Check stator vanes and stator diffuser cone for cracks, delaminations and separation.

1). Maximum allowable cracks found emanating from stator vane inserts should not exceed 0.10 inch (2.54 mm) span-wise.

2). No cracks allowed running cord-wise towards leading or trailing edge

(b). Inspect slot air foils for cracks, delamination and separation from boom.

(c). Inspect control cable assembly attachment points for looseness, cracks and condition.

(d). Inspect cable conduit for cracks, separation and delamination.

(e). Inspect air circulation area for FOD and cleanliness. If necessary, clean with mild soap and water.

(3). Inspect rotating thruster cone collar strap ring rivets for looseness, strap for cracks and condition.

4. Tailboom Repair

There are no repair procedures for the tailboom at this time. Refer to MDHI Field Service Representative.

5. Stator Replacement

(Ref. Figure 201, View D)

possible rework. If slippage mark is degraded, reapply.

(4). Perform main rotor blade upper and lower root fitting inspection as follows:

(a). Inspect main rotor blade root fitting for missing (no squeeze-out) or cracked adhesive/paint around the periphery of the root fitting. If this condition exists, proceed as follows:

1). Loosen, but do not remove the extreme outboard bolt.

2). Insert a 0.004 inch (0.102 mm) thick piece of mylar/viewfoil between the fitting and the doubler.

3). If the mylar can be inserted, contact Field Service Representative for disposition of blade.

4). If the insertion is 0.10 inch (2.54 mm) or greater, remove blade from service.

NOTE: Measurement of the insertion is from the edge of the root fitting.

5). Retorque root fitting outboard bolt to **60 - 65 inch-pounds (6.78 - 7.34 Nm) plus drag torque**.

CAUTION In the following step, a crack might be difficult to detect if bright light is not used.

NOTE: The lower side of the blade is more susceptible to cracking.

(b). Using a bright light, inspect doubler and root fitting, paying particular attention to the lower side, for cracks. If crack is found, blade is to be scrapped.

NOTE: Lead-Lag link assemblies may only be replaced by MDHI authorized personnel or under MDHI supervision. Contact your local Field Service Representative for further information.

(5). Inspect lead-lag link blade attach pin hole bushings for any indication of movement of the bushings in the links. If any of the bushings have movement, replace the links.

CAUTION If required, apply a light but thorough coat of sealer (CM420) or primer (CM318) around bushings. Note that excessive amounts of sealant or primer around the bushings are not desirable and can unbalance the main rotor system.

(6). If sealing compound is not already installed or becomes loose, clean and then seal all junctions between all the steel bushings and the main rotor blade root fitting attach lugs with a film of sealing compound or zinc-chromate primer without removing the bushings.

(7). For the main rotor blade root fitting attach lugs, carefully remove sufficient amount of sealant and paint from only the bushing in the area where the slippage mark is to be applied (if not already done). Using isopropyl alcohol (CM217), clean the area where the slippage mark is going to be applied to allow adequate adherence of epoxy paint.

NOTE:

- Locate slippage mark in a position that can be viewed at subsequent inspections with main rotor blade installed in the hub. Slippage marks should not be applied to cross-hatched areas to preclude masking possible cracks.
- Insure that slippage mark is applied to bushing at upper and lower root fitting inside surfaces.
- Do not use torque seal.

(8). Apply epoxy paint slippage marks to four locations as shown.

(9). Install main rotor blades (Ref. Main Rotor Blade Installation).

7. Main Rotor Blade Leading Edge Abrasion Strip Check

The leading edge abrasion strip should be checked prior to each flight or on every daily check. The following is a comprehensive checklist:

NOTE: If void is noted towards end of blade, remove tip cap and check for presence of balance weights. If weights are not installed, a false indication of a void is possible.

(1). Check for any blistering, bubbling or lifting of the abrasion strip; this indicates a void.

(a). Voids cannot be closer than 0.50 inch (12.70 mm) to any outside edge of abrasion strip.

(b). Voids exceeding 1.5 square inch (9.677 square cm) are unacceptable.

(c). Voids cannot be closer than one inch (2.54 cm) to any other void.

(2). Number of acceptable voids depends upon length of abrasion strip.

(a). There cannot be more than three voids on either the top or bottom of the 36 inch (91.44 cm) long abrasion strip surface.

(b). There cannot be more than two voids on either the top or bottom of the 18 inch (45.72 cm) long abrasion strip surface.

(3). Record all voids in regards to size and location in the helicopter log book and check each void prior to each flight for growth and acceptable criteria.

8. Main Rotor Blade Torque Event Inspection

(Ref. Figure 604)

NOTE: This inspection requires the use of a bright light.

(1). Lifting from the outboard end of the blade, lift blade off the droop stop.

(2). Inspect the bottom-side of the blade as follows:

(a). Using a bright light and 10x magnifying glass, inspect for chordwise cracks protruding from under root fitting and doubler (View C and Note 7).

(b). Inspect the area around the root fitting, doubler and skin for cracks.

(c). Inspect the attach lugs at the bushings for cracks.

(d). Inspect the entire length of the blade for cracks.

(e). Lower blade back onto droop stop.

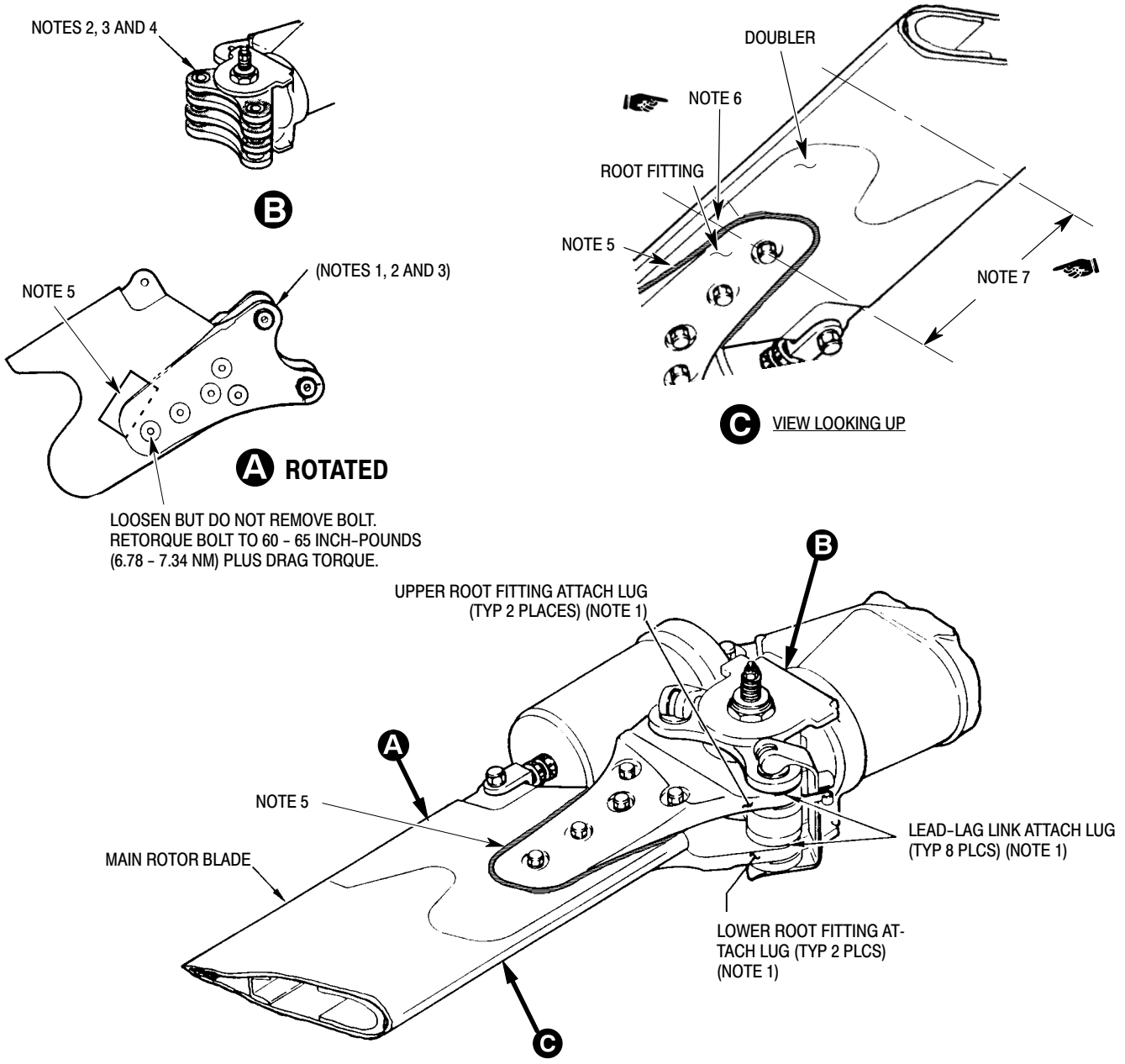
(3). With blade resting on the droop stop, inspect the top-side of the blade as follows:

(a). Inspect the area around the root fitting, doubler and skin for cracks.

(b). Inspect the attach lugs at the bushings for cracks.

(c). Inspect the entire length of the blade for cracks.

(4). If any of the above defects are found, the main rotor blade is to be rejected and scrapped.



NOTES:

1. VISUALLY INSPECT AREAS OF ALL ROOT FITTINGS AND LEAD-LAG ATTACH LUGS FOR CRACKS OR BREAKS. INSPECT BLADE ATTACH BUSHINGS FOR LOOSENESS. IF LOOSE, REPLACE LEAD-LAG LINKS.
2. PAY PARTICULAR ATTENTION TO AREA AROUND ATTACH PIN HOLES IN LUGS.
3. SEAL ALL JUNCTIONS BETWEEN BUSHINGS AND ATTACH LUGS WITH SEALER OR PRIMER (CM318).
4. LEAD-LAG LINK ASSEMBLIES ARE SUB-ASSEMBLIES OF THE MAIN ROTOR HUB ASSEMBLY.
5. INSPECT MAIN ROTOR BLADE UPPER AND LOWER ROOT FITTING FOR MISSING OR CRACKED ADHESIVE.
6. USING BRIGHT LIGHT, INSPECT MAIN ROTOR BLADE DOUBLER FOR CRACKS. PAY PARTICULAR ATTENTION TO BOTTOM SIDE OF BLADE, JUST BEYOND ROOT FITTING AND IN LINE WITH ROOT FITTING ATTACH BOLTS.
7. USING A BRIGHT LIGHT AND 10X MAGNIFYING GLASS, INSPECT FOR CHORDWISE CRACKS PROTRUDING FROM UNDER ROOT FITTING AND DOUBLER.

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Figure 604. Main Rotor Blade Root Fitting, Attach Lugs and Lead–Lag Link Assembly Inspection

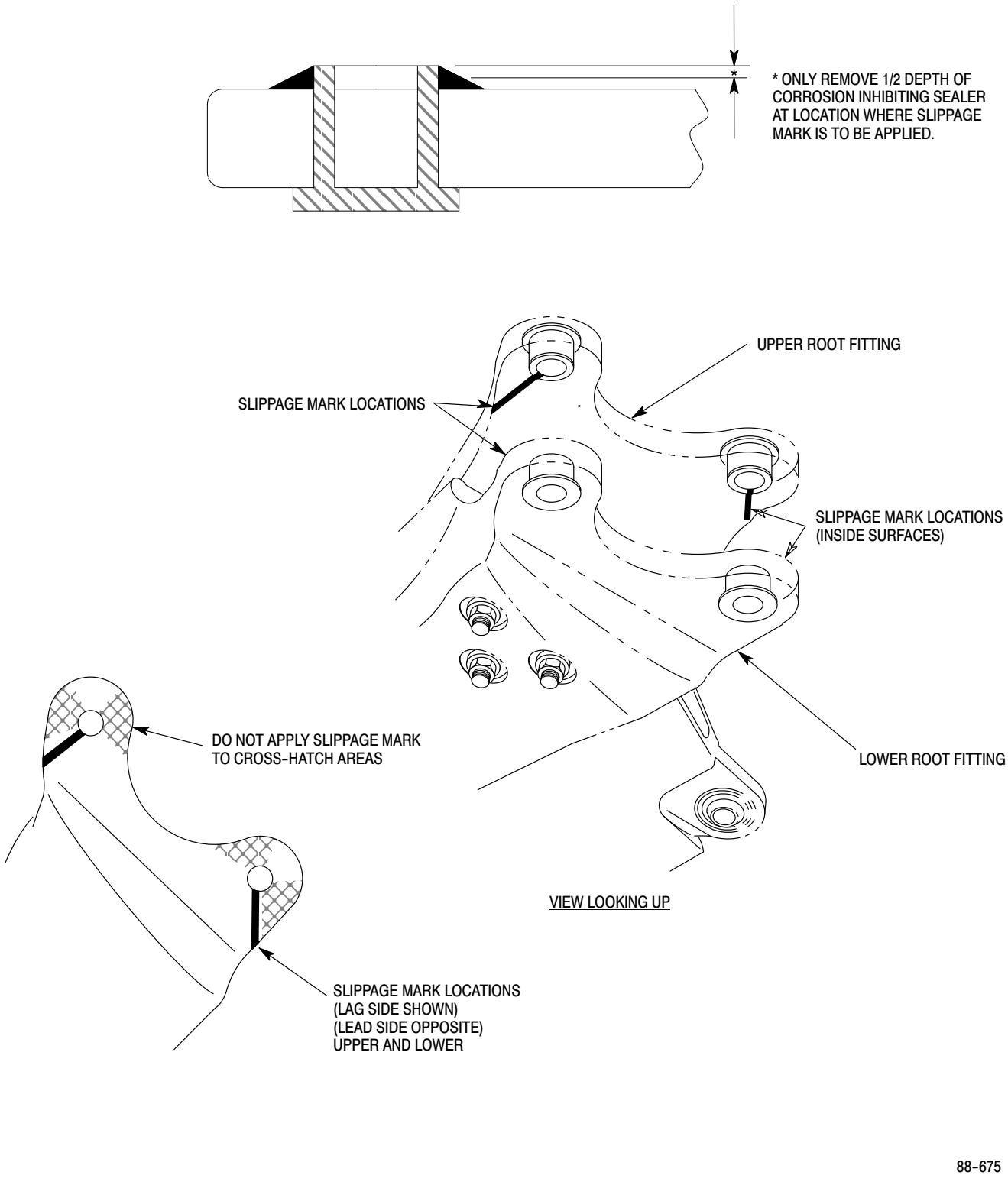

Figure 605. Application of Slippage Mark to Main Rotor Blade Bushings and Root Fittings

spacer) over mast. Rest spacer on top of sleeve bushing.

NOTE: If lead spacer is not available, fabricate its equivalent from lead sheet. Spacer dimensions are; 2.96 inch (7.5184 cm) outside diameter; 2.68 inch (608072 cm) ID; 0.075–0.085 inch (1.905–2.159 mm) thick.

(13). Install upper bearing cone into hub and on top of lead spacer.

(14). Install steel ring washer, equivalent to tool F (Ref. Figure 806), as substitute for seal retainer (Ref. Figure 805).

NOTE: Step (14). is not required. However, use of substitute washer for retainer prevents unnecessary scoring of retainer. Several tightening and loosening actions may be required to get correct rotational drag on hub bearings.

(15). Install mast nut on mast using mast nut wrench (ST701), tighten until bearings are preloaded to **10 - 12 inch-pounds (1.13 - 1.36 Nm) of rotational drag**. Measure rotational drag using **0 - 10 pound (0 - 4.536 kg)** spring scale hooked over one of hub support web bosses, 6.5 inch (16.51 cm) from hub centerline). A 1.50 – 1.75 pound (0.681 – 0.7945 kg) pull with hub in motion indicates correct rotational drag.

(16). Remove mast nut, tool F (Ref. Figure 806), (or seal retainer), and upper bearing cone. Remove lead spacer and measure compressed thickness. Obtain serviceable recessed spacer of same thickness, or grind new recessed spacer to required dimension. Discard lead spacer after recessed spacer is correctly ground.

NOTE: To insure that hub is seated onto mast properly before torquing, 2 – 4 threads should be showing above the mast nut with nut installed finger tight.

(17). Install recessed spacer, recess down, on top of sleeve bushing. Reinstall upper bearing cone, seal retainer and mast nut. Torque nut to **200 - 250 foot-pounds (271 - 339 Nm)** and check for rotational drag of **10 - 15 inch-pounds (1.13 - 1.69 Nm)**. This will be **1.5 - 3 pounds (0.681 - 1.362 kg)** on spring scale used as in step (15). above.

(18). Remove hub and sleeve bushing with lower bearing cone from mast.

(19). Position hub upside–down. Hand–pack lower hub cavity (Ref. Figure 805) and bearing cone on sleeve bushing with grease.

(20). Install sleeve bushing with bearing cone in hub. Hand–pack cavity between bearing and hub liner with grease; then press in lower seal with seal lip toward top of hub. Wipe off excess grease.

(21). Turn hub assembly right side up.

(22). Complete reassembly of hub by installing recessed spacer, upper bearing cone, upper seal and seal retainer in hub at installation of hub on mast.

18. Main Rotor Hub Scissors Attach Lug Bearing Replacement

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM206	Chemical coating
CM216	Loctite remover
CM304	Enamel, epoxy
CM321	Surface primer locking compound
CM431	Sealing, locking and retaining compound

(1). Remove main rotor hub (Ref. Main Rotor Hub Replacement).

(2). Invert hub and place on work bench.

(3). Remove droop stop ring (Ref. Droop Stop Ring Replacement).

(4). Press bearing from hub lug.

(5). Clean bearing bore with locktite remover (CM216).

(6). Inspect bearing bore for nicks, scratches and grooves.

(7). Inspect bore for diameter of 0.6551–0.6556 inch (16.63954–16.65224 mm).

(8). Touch up bearing bore with chemical coating (CM206).

(9). Apply surface primer (CM321) to mating surfaces of bearing and boreas per manufacturer's instructions.

NOTE: Do not allow primer to enter bearing.

(10). Apply locking compound (CM431) to faying surfaces of bearing and bore, press bearing into bore while locking compound is wet.

(11). Remove excess sealant, do not allow sealant to enter bearing.

(12). Apply a small fillet of sealant around bearing and allow to dry for 24 hours at room temperature or heat to 140° – 160°F (60° – 72°C) for one hour.

(13). As required, touch up bearing lug with paint (CM304).

(14). Check bearing for a no–load rotational drag of **1.0 - 2.0 inch-pounds (0.113 - 0.226 Nm)**.

(15). Reinstall droop stop ring (Ref. Droop Stop Ring Replacement).

(16). Reinstall main rotor hub (Ref. Main Rotor Hub Replacement).

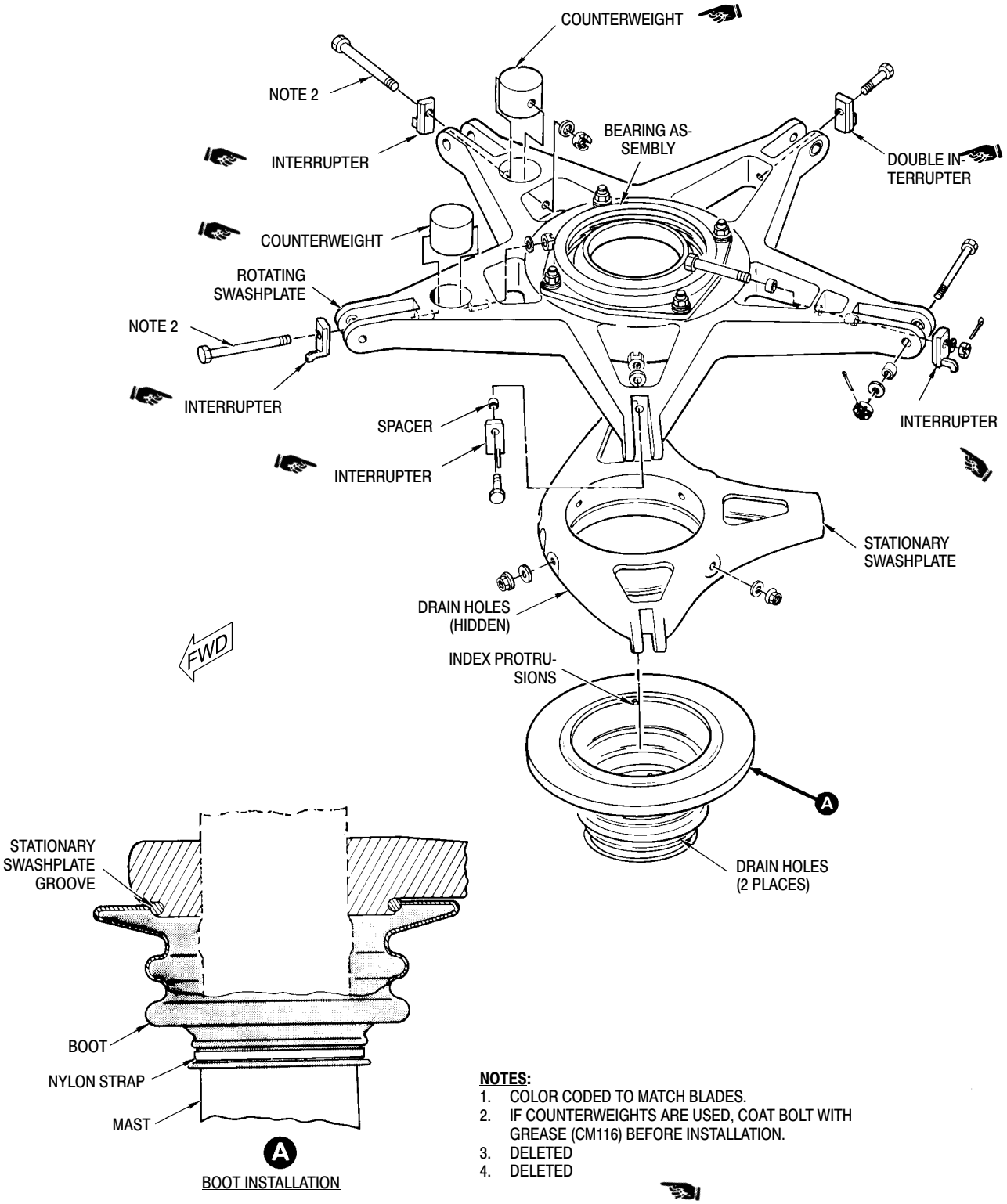

Figure 403. Main Rotor Swashplate

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3. Controls Mixer

Controls mixer includes links, bellcranks, idlers, support bracket and fasteners to secure these components in place and to the control rods and main rotor swashplate.

4. Controls Mixer Replacement

A. Controls Mixer Removal

(Ref. Figure 402)

(1). Remove air intake forward fairing for access.

(2). Disconnect upper ends of collective, lateral and longitudinal control links (Ref. Figure 401).

NOTE: Control links are attached by slightly different length bolts. Reinstall each bolt in its bellcrank following control rod removal to simplify reinstallation at correct locations.

(3). Remove mixer links. (Mixer link bearings are not replaceable.)

(4). Disconnect longitudinal link from stationary swashplate.

(5). Remove longitudinal control mixer link.

(6). Disconnect lateral mixer bellcrank from collective pitch mixer bellcrank.

(7). Remove connecting hardware (including flanged bushing) from each side of longitudinal pitch mixer bellcrank. Carefully remove bellcrank. Retain any shims that may be installed.

(8). Remove bolt from hingeline of support bracket, longitudinal pitch idler and collective pitch mixer bellcrank. Separate the three parts.

(9). Remove mixer support bracket from mast base.

CAUTION To prevent washing dirt into bearings, or washing grease out of bearings, do not permit solvent to enter bearings when cleaning mixer control components.

B. Mixer Controls Installation

(Ref. Figure 402)

(1). Position support bracket over forward lug on mast base.

(2). Install two aft bolts and washers in support bracket and mast base. Install two thin washers and nuts; torque nuts to **80 - 100 inch-pounds (9.04 - 11.30 Nm) plus drag torque**.

(3). Using ball hole gage and standard micrometer, check that misalignment between forward bolt hole bore in support bracket and bore in mast base lug is 0.015 inch (0.381 mm) or less.

NOTE: If necessary, loosen aft two bracket-to-fitting nuts, position support bracket to minimize misalignment and retighten nuts.

(4). Install mixer support attaching bushing in bracket and mast base lug.

(5). Check that sleeve bushing is in place; then install bolt, two washers and nut. Torque nut to **80 - 100 inch-pounds (9.04 - 11.30 Nm)**.

(6). Position longitudinal pitch idler and collective pitch mixer bellcrank on support bracket. Position washer between right side of longitudinal pitch idler bearing and center bearing of mixer support bracket. Install left-hand bearing, with attaching hardware.

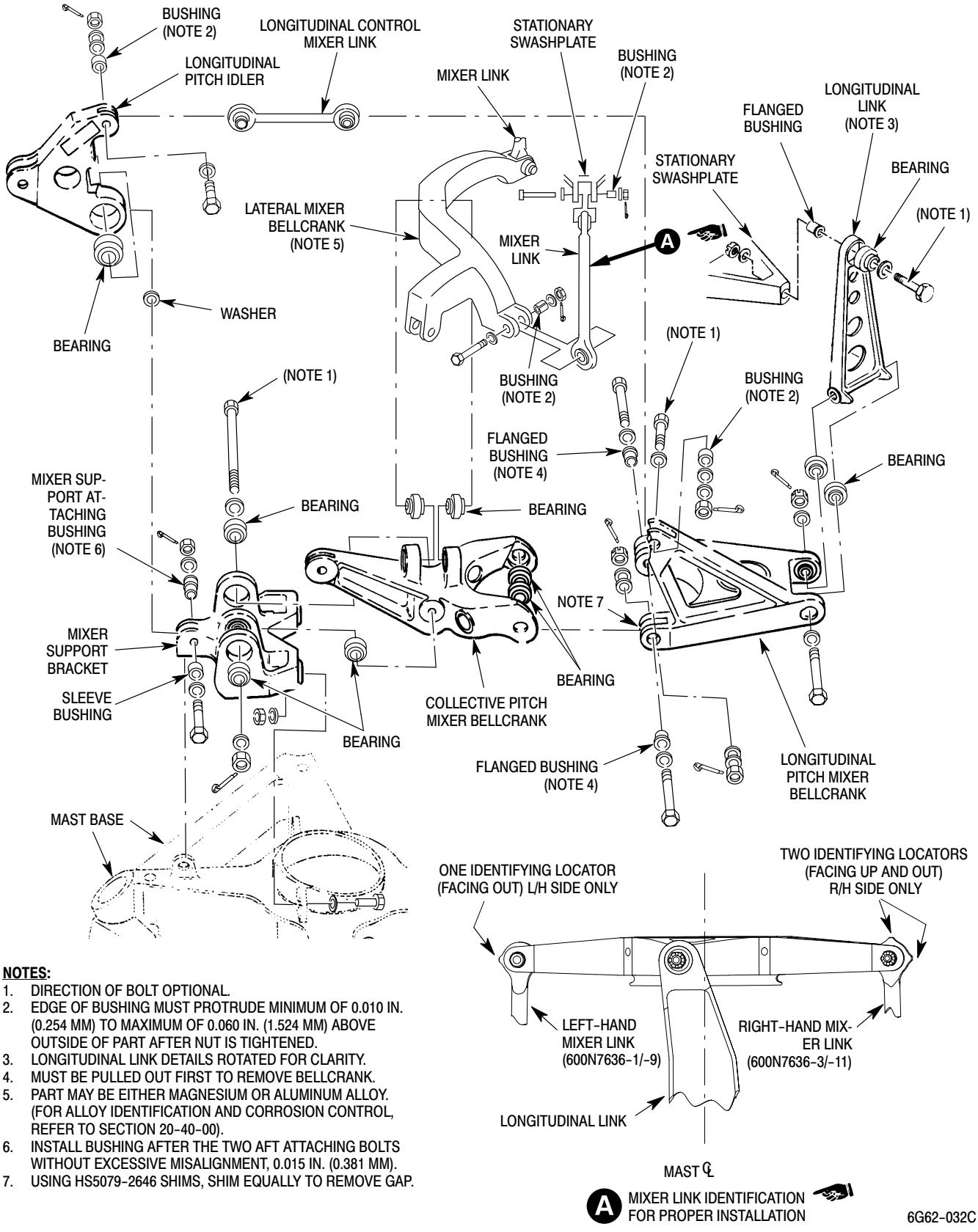
(7). Position lateral bellcrank between collective pitch mixer bellcrank bearings and install attaching hardware.

(8). Position longitudinal pitch mixer bellcrank with collective pitch mixer bellcrank; insert two flanged bushings. Install two bolts.

(9). Push longitudinal bellcrank to one side and measure gap between bellcrank and bearings in collective pitch bellcrank.

(10). Using HS5079-2646 laminated washer(s), shim evenly to take up gap.

(11). Insert flanged bushings, bolts, six washers (two under each nut) shims and nuts. Torque nut to **30 - 40 inch-pounds (3.39 - 4.52 Nm)** and install cotter pin.



NOTES:

1. DIRECTION OF BOLT OPTIONAL.
2. EDGE OF BUSHING MUST PROTRUDE MINIMUM OF 0.010 IN. (0.254 MM) TO MAXIMUM OF 0.060 IN. (1.524 MM) ABOVE OUTSIDE OF PART AFTER NUT IS TIGHTENED.
3. LONGITUDINAL LINK DETAILS ROTATED FOR CLARITY.
4. MUST BE PULLED OUT FIRST TO REMOVE BELLCRANK.
5. PART MAY BE EITHER MAGNESIUM OR ALUMINUM ALLOY. (FOR ALLOY IDENTIFICATION AND CORROSION CONTROL, REFER TO SECTION 20-40-00).
6. INSTALL BUSHING AFTER THE TWO AFT ATTACHING BOLTS WITHOUT EXCESSIVE MISALIGNMENT, 0.015 IN. (0.381 MM).
7. USING HS5079-2646 SHIMS, SHIM EQUALLY TO REMOVE GAP.

Figure 402. Controls Mixer – Assembly

(12). Position longitudinal control mixer link between longitudinal pitch idler and longitudinal pitch mixer bellcrank; check that two slotted bushings are in place. Install bolt, three washers (two under each nut), nut and cotter pin at each end of link.

(13). Position longitudinal link between longitudinal pitch mixer bellcrank bearings. Install attaching hardware.

NOTE: In the following step, ensure mixer links are not installed inverted and are installed in the correct position (Ref. Figure 402, View A).

(14). Position mixer links in stationary swashplate and lateral mixer bellcrank; check that slotted bushings are in place. Install attaching hardware.

(15). Place collective, lateral longitudinal control links (Ref. Figure 401) in mounting position; check that slotted bushing is in place. Install attaching hardware.

(16). Install air intake forward fairing.

(17). Check rigging of collective and cyclic controls.

5. Scissors

The scissors provide a movable connection between the rotating swashplate and main rotor hub.

6. Scissors Replacement

A. Scissors Removal

(Ref. Figure 401)

CAUTION Removal of all pitch control rods is recommended prior to scissors removal. Failure to observe this precaution could result in damage to pitch control rods, swashplate and/or hub. Ensure all rods are color-coded or marked so they will be reinstalled in the correct location.

(1). Disconnect lower end of pitch control rod that is in line with scissors link in rotating swashplate.

(2). Remove cotter pin, nut, washer, and bolt from each leg of scissors crank. Disconnect crank from hub lower shoe.

(3). Remove cotter pin, nut, washer, and bolt connecting scissors link to swashplate; remove scissors.

B. Scissors Installation

(Ref. Figure 401)

(1). Place scissors link in mounting position, chamfered edge of link must face outboard.

(2). Check that slotted bushing is in swashplate web and install attaching hardware. Torque nut to **15 - 20 inch-pounds (1.69 - 2.26 Nm)**.

CAUTION Scissors crank must be positioned (Ref. Figure 401) with decal up and proper direction towards lower side lugs.

NOTE: Ensure crank-to-hub lower shoe lugs are not preloaded.

(3). Position scissors crank on hub lower shoe lugs; install connecting hardware. Install bolts with bolt heads facing inward and a washer under head of bolt (Ref. Figure 401). Torque nuts to **30 - 60 inch-pounds (3.39 - 6.78 Nm)**.

NOTE: Shim washers may be required on shouldered bushing side of clevis.

(4). Position elastomer rings and lower end of pitch control rod in swashplate lug and install attaching hardware. (Nut is to be adjacent to bushing in swashplate.) Torque nut to **30 - 60 inch-pounds (3.39 - 6.78 Nm)**.

7. Scissors Link Replacement

Consumable Materials
(Ref. Section 91–00–00)

Item	Nomenclature
CM103	Solid film lubricant

(1). Remove cotter pin, nut, washer and bolt that join link and crank.

(2). Remove two bushings from link only if replacement is necessary.

(3). Do not remove bearing from link, replace complete link if bearing is defective.

NOTE: Install new bushings using solid film lubricant (CM103); **do not use zinc chromate.**

(4). If bushings were removed at disassembly, install new bushings. After installation, dimension between outer faces of bushings should be 1.579–1.586 inches (4.011–4.028 cm).

(5). Align bore of link with bore of crank; install bolt, washer and nut. Torque nut to **30 - 40 inch-pounds (3.39 - 4.52 Nm)**; install cotter pin.

8. Pitch Control Rods

Six pitch control rods transfer pitch control from the rotating swashplate to the main rotor blades.

9. Pitch Control Rod Replacement

A. Pitch Control Rod Removal

(Ref. Figure 401)

NOTE:

- If rod is not to be reinstalled, but is to be replaced, measure and record length of removed link. Optimum length may have been changed at previous rigging; pre-adjust replacement link to length of link removed.
- Rods are color coded for reinstallation at correct locations. If more than one rod is being removed and color coding is not visible, identify each by color or similar means to points of connection to simplify reinstallation.

(1). Remove cotter pin, nut, washer and bolt from each end of pitch control rod.

(2). Remove pitch control rod and O-ring.

B. Pitch Control Rod Installation

(Ref. Figure 401)

CAUTION At installation, install rod at correct color code location. Center bearing rodends between attach clevis. If rod length is changed, blades must be tracked.

(1). If actual rod length is incorrect or either actual or required rod length is unknown, preset link length to optimum length of **6.25 inches (15.88 cm)**.

NOTE: Install both pitch change rod bolts in direction of rotation.

(2). Install rod with elastomeric rings on both sides of lower bearing.

NOTE: Add washers as required to align nut with cotter pin hole.

(3). Torque upper nut to **100 - 130 inch-pounds (11.30 - 14.69 Nm).**

NOTE: Bushing must project 0.010–0.060 inch (0.254–1.524 mm) after nut is torqued.

(4). Torque lower nut to **30 - 60 inch-pounds (3.39 - 6.78 Nm)**.

(5). Secure nuts with cotter pins.

(6). Rotate pitch control rod assembly fore and aft to ensure clearance exists between rod end bearing and pitch housing clevis at both ends.

(7). If installation is final and tracking is not required, safetywire rod ends to rod; ensure rod ends are centered.

(8). As necessary, repeat above procedures for remaining pitch control rods.

NOTAR® ANTI–TORQUE SYSTEM FLIGHT CONTROLS INSPECTION/CHECK

1. Upper Fuselage and Tailboom Control Linkage Inspection

(Ref. Figure 401)

(1). Inspect rod end bearings for binding and excessive wear (0.040 inch (1.016 mm) maximum axial play). Inspect rivet at fixed rod end.

(2). Inspect control rod for surface damage and evidence of bending.

(3). Inspect rubber boot just forward of Sta. 137.50 bulkhead for condition.

(4). Inspect control rod surfaces serviceability, wear is limited to thickness of hard anodic coating.

(5). Inspect bellcranks for scratches, cracks, corrosion and similar surface defects. Check that all bushings are secure.

(6). Inspect bellcrank bearings for looseness and binding.

(7). Visually inspect bellcrank supports for cracking/damage.

2. Anti–Torque Pedal Assembly Inspection

(Ref. Figure 502)

NOTE: Inspect components at left and right position on the right–hand command models. Check that corresponding pedals contact stops simultaneously.

(1). Inspect pedals and pedal arms for cracks, elongated pedal attach holes and open drain holes. Inspect teflon–reinforced bushing liners for deterioration.

(2). Inspect pedal–to–arm quick–release locking pin for condition and positive spring action.

(3). Inspect links and bellcrank for cracks and bends, and bearings for excessive play.

(4). Inspect control rod fitting, torque tube mounting bracket and pedal mounting bracket for cracks and corrosion. Using an 8X magnifying glass, mirror and flashlight, closely inspect pedal link bellcrank fitting of pedal bracket in center forward area where fitting (fork piece) joins tubular section. If any cracks are detected, replace bracket assembly. Inspect bracket bearings for excessive looseness.

(5). Inspect torque tube for cracks, scratches, nicks, dents and similar surface defects.

(6). Inspect pedal brackets for corrosion.

3. Sta. 97.50 (500N) or Sta. 95 (600N) Bellcrank and Support Bracket Inspection

(1). Inspect bellcrank and support bracket for cracks, corrosion and other similar surface defects.

(2). Check that all bushings are secure. Check bellcrank bearings for looseness and binding.

(3). Inspect rod ends bearings for binding and excessive wear (0.040 inch (1.016 mm) maximum axial play). Inspect control rod surface serviceability, wear is limited to thickness of hard anodic coating. Inspect for safety wire at rodends and lockwasher as required. Bolts for cotter pins as required.

4. Forward and Intermediate Directional Control Tube, and Link Inspection

(1). Inspect rodend and link bearings for binding and excessive wear (0.040 inch (1.016 mm) maximum axial play).

(2). Inspect control tubes and link for surface damage and wear. Inspect control tubes surface serviceability, wear is limited to thickness of hard anodic coating.

(3). Inspect for safety wire at rodends and lockwasher as required. Bolts for cotter pins as required.

5. Splitter Bungee Spring Inspection (500N)

(1). Inspect spring support bracket for loose rivets, loose screws, corrosion and cracks and general condition.

(2). Check link assemblies for cracks, bends and dents.

(3). Inspect spring for condition and a positive spring action.

6. Sta. 113.00 Splitter Assembly and Bellcrank Inspection

(1). Visually inspect bellcrank and support bracket for cracks and damage using 5X power magnifying glass.

(2). Inspect for cracks, corrosion and other similar surface defects.

(3). Check that all bushings and bearings are secure.

(4). Inspect rodend bearings for binding and excessive wear (0.040 inch (1.016 mm) maximum axial play). Inspect control rod surface serviceability, wear is limited to thickness of hard anodic coating. Inspect for safety wire at rodends and lockwasher as required. Bolts for cotter pins as required.

7. Forward and Center Cable Assembly Inspection

(1). Inspect for freedom of movement and no binding.

(2). Check rodend bearings for corrosion, and wear.

(3). Cable housing for fraying, and security.

(4). Inspect cable couplings for wear, deformation or damage (Ref. Figure 602).

(5). Inspect inner cable coupling hex for proper alignment with outer cable coupling.

(6). Inspect cable inner couplings for deformation or obvious damage.

(7). Using a bright light and 10X magnifying glass, inspect inner coupling male and female connectors for corrosion pitting or cracks; none allowed.

(8). Inspect center cable hex end for wear beyond allowable tolerance (Ref. Figure 601).

(9). Inspect collar for wear in locking groove.

(10). Inspect relieved area, at Sta. 123.30, between threads and swage for crack or evidence of corrosion.

(11). Inspect relieved area, at Sta. 164.00 (500N) or Sta. 292.00 (600N), between threads and swage for crack or evidence of corrosion.

(12). Inspect forward cable coupling opening for proper dimension (Ref. Figure 601).

(13). Using a bright light and 10x magnifying glass, inspect the swaged area of the telescopic swivel end for cracks (Ref. Figure 603).

(14). Inspect for any evidence of swivel ball separation.

8. YSAS Actuator, Rate Gyro and Electronic Control Box Inspection

(1). Inspect YSAS actuator for damage, no damage allowed.

(2). Inspect mounting hardware for proper installation and general condition.

(3). Inspect wiring for condition, no fraying, cracking of insulation or chafing allowed.

(4). Inspect grommet for proper installation and deterioration, replace if deteriorated.

(5). Inspect mounting bracket for cracks (pay particular attention to area around four rivet attach holes) no cracks allowed.

(6). Inspect rate gyro and electronic control box for damage, security in mount and ensure electrical plugs are secure.

(7). Inspect mounting bracket for cracks, no cracks allowed.

9. Fan Pitch Control Tube Inspection

(1). Inspect tube for dents, scratches, nicks, gouges and corrosion, none allowed.

(2). Inspect for visible step in splined area.

(3). If step is evident:

(a). Measure across splines using 0.096 in. (2.4384 mm) diameter pins.

(b). Minimum measurement across pins is 0.640 in. (16.256 mm).

10. Fan Pitch Slider Inspection

(1). Inspect slider for dents, scratches, nicks, gouges and corrosion, none allowed.

(2). Inspect Karon coating on slider for condition.

(3). Measure across slider, minimum diameter is 0.805 in. (20.447 mm).

Table 601. Isolating Control System Troubles

Symptom	Isolating Step	Corrective Action
Binding, locking–up and erratic action of foot pedals (Do not force controls).	Disconnect fwd control tube from Sta. 113.00 splitter assembly.	If symptom is gone, check from splitter assembly aft.

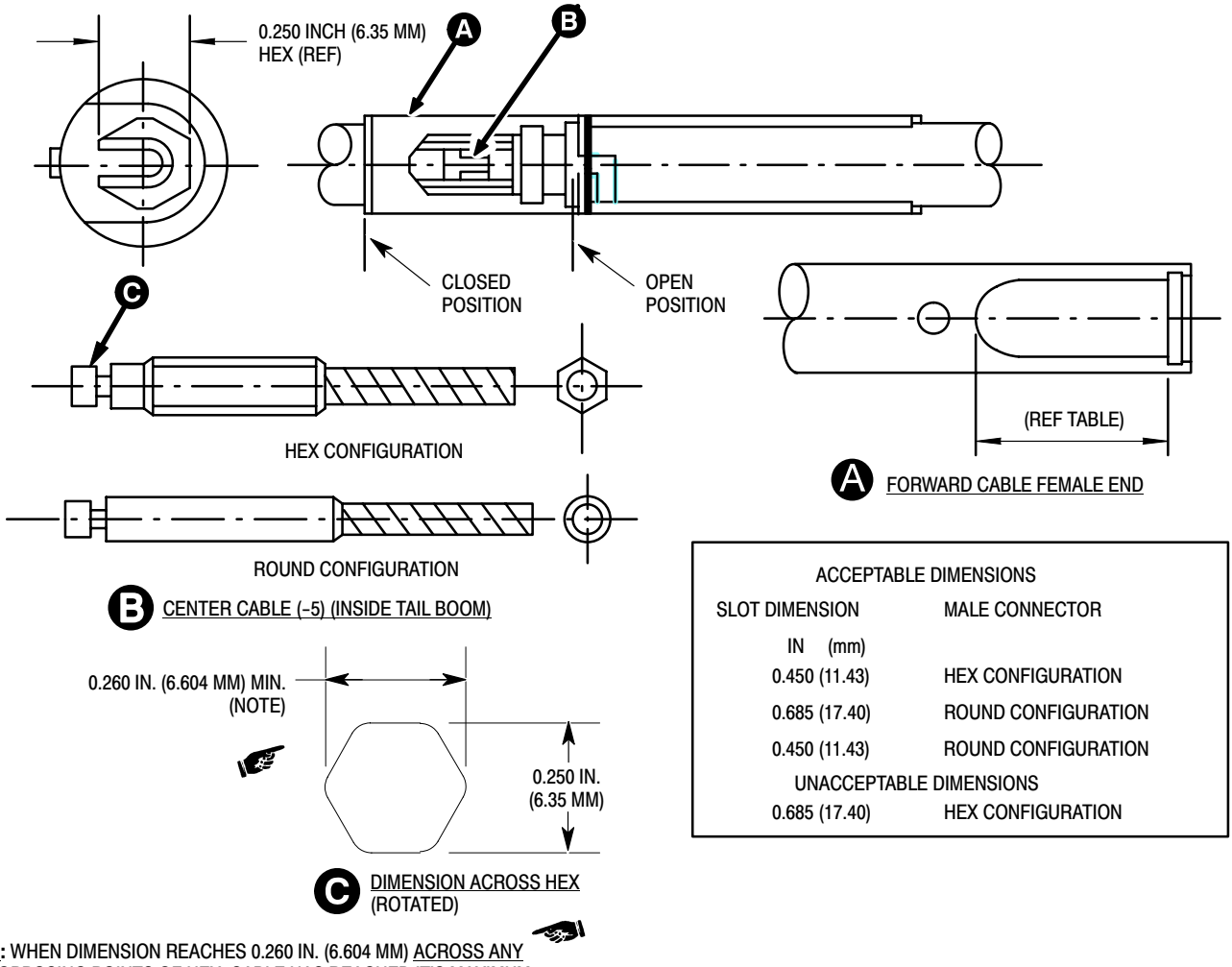


Figure 601. Control Cable Coupling Inspection

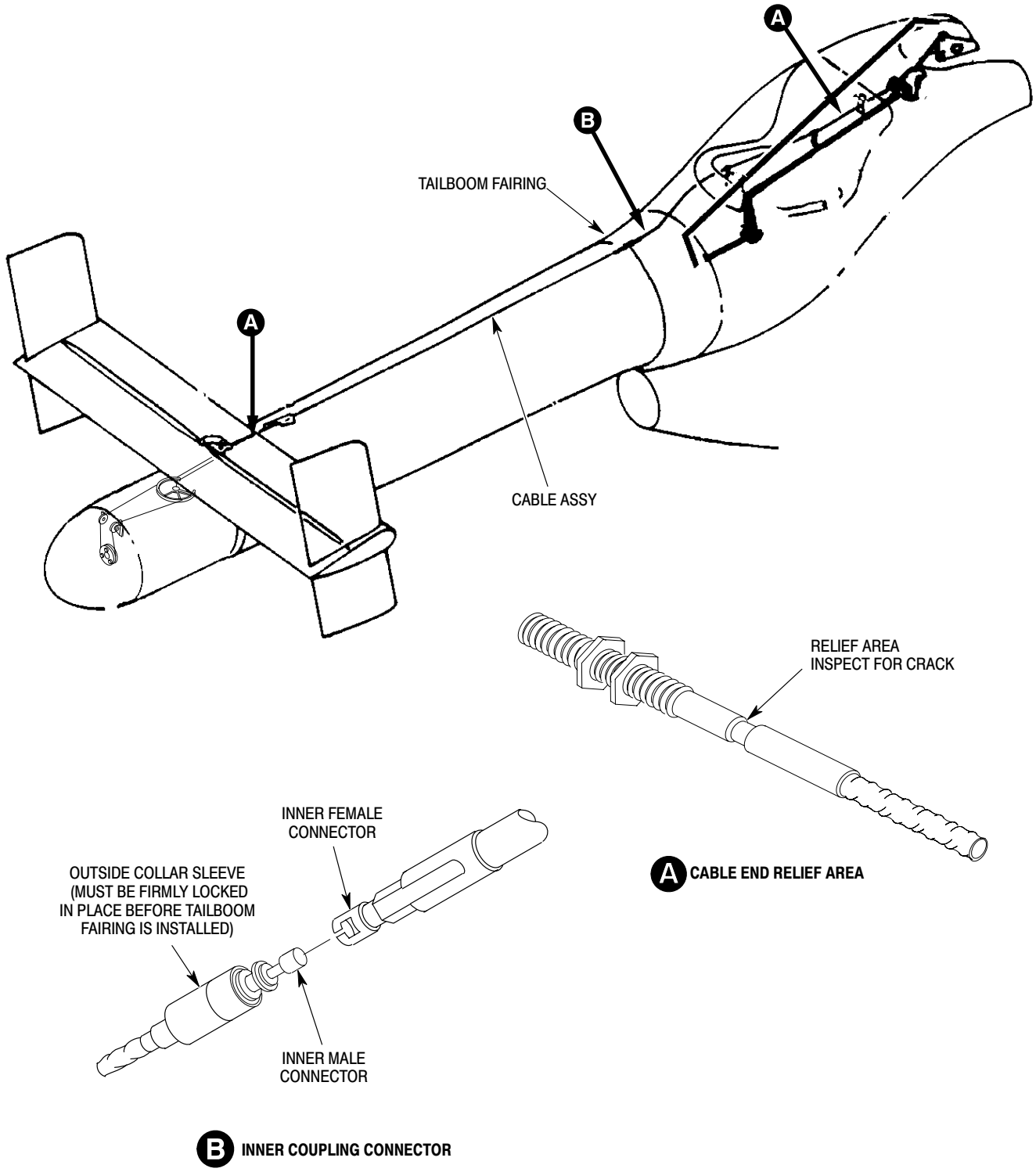


Figure 602. Forward and Center Cable Relief Area Inspection

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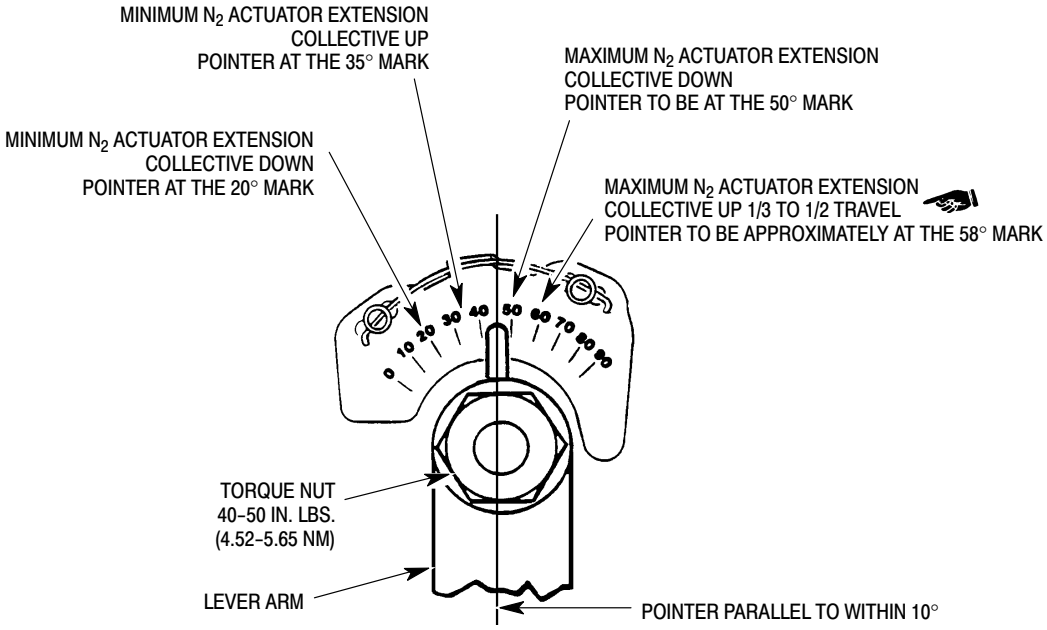

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Figure 207. Power Turbine Governor Adjustments (250–C30 Engine)

8. Governor Controls Final Check and Adjustment (250–C20B, –C20R/2)

(1). Have an assistant move collective through full range of travel while inspecting all movable linkage for clearance with adjacent parts. Check that control rod, N_2 actuator and override link bearings are not jammed when linkage is at extreme control positions.

(2). Start and operate engine at idle with main rotor blades in flat pitch per Pilot's Flight Manual.

(3). Decrease N_2 trim to minimum.

(4). Throttle up to maximum rpm.

(5). Observe N_2 tachometer pointer for (94% – 98% rpm: 369D/E) (94% or less: 500N) when rotor rpm pointer is superimposed on N_2 pointer and N_1 tachometer pointer is stabilized.

(6). Check for the following engine power out (EPO) indications:

(a). Engine–out flashing light.

(b). Audio signal in headset.

(c). Horn; sounds when N_2 pointer on dual indicator is stable.

(7). With collective stick down, increase N_2 trim to (104% rpm, 105% maximum: 369D/E) (103% rpm, 104% maximum: 500N). Observe N_2 tachometer pointer when rotor rpm pointer is superimposed on N_2 pointer and N_1 tachometer pointer is stabilized.

(8). Without decreasing N_2 trim, rotate pilot's throttle to ground idle.

NOTE: Perform a deceleration time check per PFM after rigging and testing power turbine controls. Refer to Allison Operation and Maintenance Manual for adjustment procedures if deceleration time is less than allowable minimum.

(9). Shut down engine per Pilot's Flight Manual.

WARNING **Make all engine compartment control rod adjustments with engine shut down.**

(10). Mark N_2 lever position on governor quadrant.

(11). Connect external electric power.

(12). With collective at bottom stop, beep N_2 trim to maximum rpm.

(13). Adjust governor lever control rod (105% N_2 maximum: 369D/E) (104% N_2 maximum: 500N).

(14). Start engine. With main rotor blades in flat pitch, beep N_2 trim to (102% rpm: 369D/E) (100% rpm: 500N). Lift off and hover.

(15). Observe N_2 tachometer pointer when pointer of N_1 tachometer is stabilized. N_2 pointer indication, that is, droop compensation, should be 1/2 to 1% rpm above indication in previous step.

(16). Land and shut down engine.

(17). If droop compensation occurred as required, no further adjustments are required.

(18). If droop compensation did not occur per step (15)., check and re–rig power turbine and gas producer linkage systems as required.

(19). Where N_1 and N_2 linkage are correctly adjusted, additional adjustment may be made to droop compensation adjustment fork; as follows:

NOTE: Three to five turns of droop compensation fork may be necessary to change droop compensation approximately 0.5% rpm.

(a). Shorten droop compensation adjustment fork to increase compensation.

(b). Lengthen fork extension to decrease compensation.

(c). Align fork with override link rod–end before tightening fork jamnut.

(20). Move collective through full travel after adjustment and check for clearance between movable linkage and adjacent parts.

(21). When full power is demanded in flight and high N_1 and TOT operating range cannot be reached, gas producer fuel control maximum throttle stop may require adjustment. Refer to Allison Operation and Maintenance Manual for adjustment procedure.

9. Governor Controls Final Check and Adjustment (250–C30)

(1). Have an assistant move collective through full range of travel while inspecting all movable linkage for clearance with adjacent parts. Check that control rod, N_2 actuator and override link bearings are not jammed when linkage is at extreme control positions.

(2). Start and operate engine at idle with main rotor blades in flat pitch per Pilot's Flight Manual.

(3). Rotate pilots throttle counterclockwise up to maximum rpm.

(4). Decrease N_2 trim to minimum.

(5). Observe N_2 tachometer pointer for 94 percent or less and N_1 tachometer is stabilized.

(6). With collective stick down, increase N_2 trim to maximum.

(7). Observe N_2 tachometer pointer for 103 percent minimum and N_1 tachometer pointer is stabilized.

WARNING **Make all engine compartment control rod adjustments with engine shut down.**

(8). Stop engine. Adjust length of governor control lever rod until N_2 trim is within limits specified in steps (6). and (4). above. Adjust one rod end not more than one turn at a time.

(9). Restart engine. With main rotor blades in flat pitch, actuate N_2 trim for 100 percent, lift-off and hover.

(10). Observe N_2 tachometer pointer when pointer of N_1 tachometer is stabilized. N_2 pointer indication (droop compensation) should be 1 to 2 percent above N_2 setting in step (9)..

(11). Land and shut down engine.

NOTE: If droop compensation occurs as required in (10). above, skip steps (12). and (13). below.

(12). If droop compensation does not occur as required in step (10). above, recheck entire power turbine governor (N_2 RPM) control linkage rigging and gas producer (N_1 fuel control) linkage adjustment.

CAUTION Any change to initial droop compensation fork length may result in interference between N_2 trim actuator case and fork threaded end. Move collective through full travel after adjustment and check for clearance between movable linkage and adjacent parts.

(13). If N_1 and N_2 linkage are correctly installed, an additional adjustment may be made at droop compensation adjustment fork. Shorten droop compensation adjustment fork to increase compensation. Lengthen fork extension to decrease compensation. Align fork with override link rod end before tightening fork jam nut. Three to five turns of droop compensation fork may be necessary to change droop compensation fork approximately 0.5 percent.

NOTE: Perform a deceleration time check per PFM after rigging and testing power turbine controls. Refer to Allison Operation and Maintenance Manual for adjustment procedures if deceleration time is less than allowable minimum.

10. Governor Controls Replacement

(Ref. Figure 208)

(1). Remove and replace control rods, bellcranks and supports as required, except as follows:

WARNING **Only high temperature all metal self-locking nuts are to be used for attaching control idler support to engine gearcase accessory pad.**

NOTE: Remove droop control override link, N_2 trim actuator, and Sta. 72.00 bellcrank from airframe as a unit.

(2). Leave Sta. 72.00 bellcrank attached to N_2 trim actuator and remove as a unit.

(3). Disconnect the bonding jumper and electrical connector from the actuator.

(4). Disconnect the actuator from Sta. 68 bellcrank.

(5). Disconnect Sta. 72 bellcrank from the fuselage-routed control rod end.

(6). Remove the pivot bolt that attaches Sta. 72 bellcrank to structure rib and controls support bracket; remove actuator and bellcrank.

(7). Disconnect the trim actuator from Sta. 72 bellcrank. Use care to keep sleeve bushings with bellcrank.

(8). Check replacement actuator for a maximum extended length of 5.44-5.50 inches (13.82-13.97 cm) measured between bolt hole centers. Test actuator for proper operation (Ref. N_2 Trim Actuator Test).

(9). Assemble original or replacement trim actuator to original or replacement Sta. 72 bellcrank with a bolt, two washers, nut and new cotter pin.

(10). Check that both sleeve bushings are in place in Sta. 68 bellcrank arm before connecting the actuator; then install assembled unit in controls support bracket and connect linkage as shown in Figure 208.

(11). The sleeve bushings in Sta. 68 bellcrank arm must rotate freely, without any binding, after the actuator is attached and the connecting hardware is tightened.

(12). Connect replacement droop control override link to collective torque tube.

(13). Push on rod end and check that the link assembly plunger head is free to slide back and forth in the link housing end fitting.

(14). Connect rod end to droop compensation fork; the rod end should align with the fork.

(15). Connect the bonding jumper and electrical connector to the actuator.

NOTE: Replacement trim actuator may have a tab or use a bonding strap/clamp for connection of the bonding jumper.

(16). Rig power turbine governor controls if any linkage components have been removed and replaced.

NOTE: Perform a deceleration time check per PFM after rigging and testing power turbine controls. Refer to Allison Operation and Maintenance Manual for adjustment procedures if deceleration time is less than allowable minimum.

11. Control Rod Inspection

(Ref. Figure 208)

(1). Inspect rod end bearings for binding and excessive wear, 0.040 inch (1.013 mm) maximum axial play).

(2). Inspect control rod for surface damage and evidence of bending.

(3). When necessary, perform straightness check on control rods that appear bent or bowed. Total length of gas producer control rods (excluding rod ends) must be straight within the following tolerances, with straightness variation limited to maximum of 0.010 inch (0.254 mm) in each foot of length.

(a). Fuselage-routed control rods: 0.050 inch (1.27 mm).

(b). Governor lever control rod: 0.020 inch (0.508 mm).

(c). Idler bellcrank control rod: 0.020 inch (0.508 mm).

(4). Inspect for loose rivet at fixed rod ends.

(5). Inspect bearings in bellcranks for binding.

(6). Perform fluorescent dye penetrant inspection of any suspect part.

CAUTION Control rods, part number 369A7706-3, between the idler bellcrank and governor control lever were made of aluminum and must be replaced with a steel part, P/N 369A7706-5, or the complete assembly, P/N 369A7706-11.

NOTE: After replacement and inspection of the power turbine governor controls linkage, perform a deceleration check in accordance with procedures found in the PFM. If confirmed deceleration time is less than the allowable minimum, refer to the appropriate Allison Operation and Maintenance Manual.

12. Bellcrank Inspection

(Ref. Figure 208)

(1). 369D Only: Inspect droop compensation bellcrank for installation of a spacer between fork extension jamnut and bellcrank threaded insert. As required, install spacer.

(2). Perform a fluorescent penetrant crack inspection on all suspected parts.

13. Droop Compensation Link Inspection

(Ref. Figure 208)

(1). Inspect droop compensation spring cartridge for condition and wear. Cartridge total end play is not to exceed 0.015 inch (0.381 mm).

NOTE: Perform a deceleration time check per PFM after rigging and testing power turbine controls. Refer to Allison Operation and Maintenance Manual for adjustment procedures if deceleration time is less than allowable minimum.

14. Droop Control Override Link Repair

(Ref. Figure 208)

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM117	Grease
CM321	Surface primer locking compound
CM431	Sealing, locking and retaining compound

(1). Install link end-fitting bearing (detail B) using surface primer (CM321) and locking compound (CM431) per container instructions.

(2). Replace rod-end or spring as follows:

(a). Remove four retaining rivets from housing rod-end.

(b). Drill out rod-end rivet and dismantle spring assembly. Discard rod-end and plunger.

(c). Assemble plunger, retainers, spring and jam nut. Thread jamnut onto plunger until there is minimum spring free-play.

(d). Thread rod-end onto plunger until it contacts jamnut.

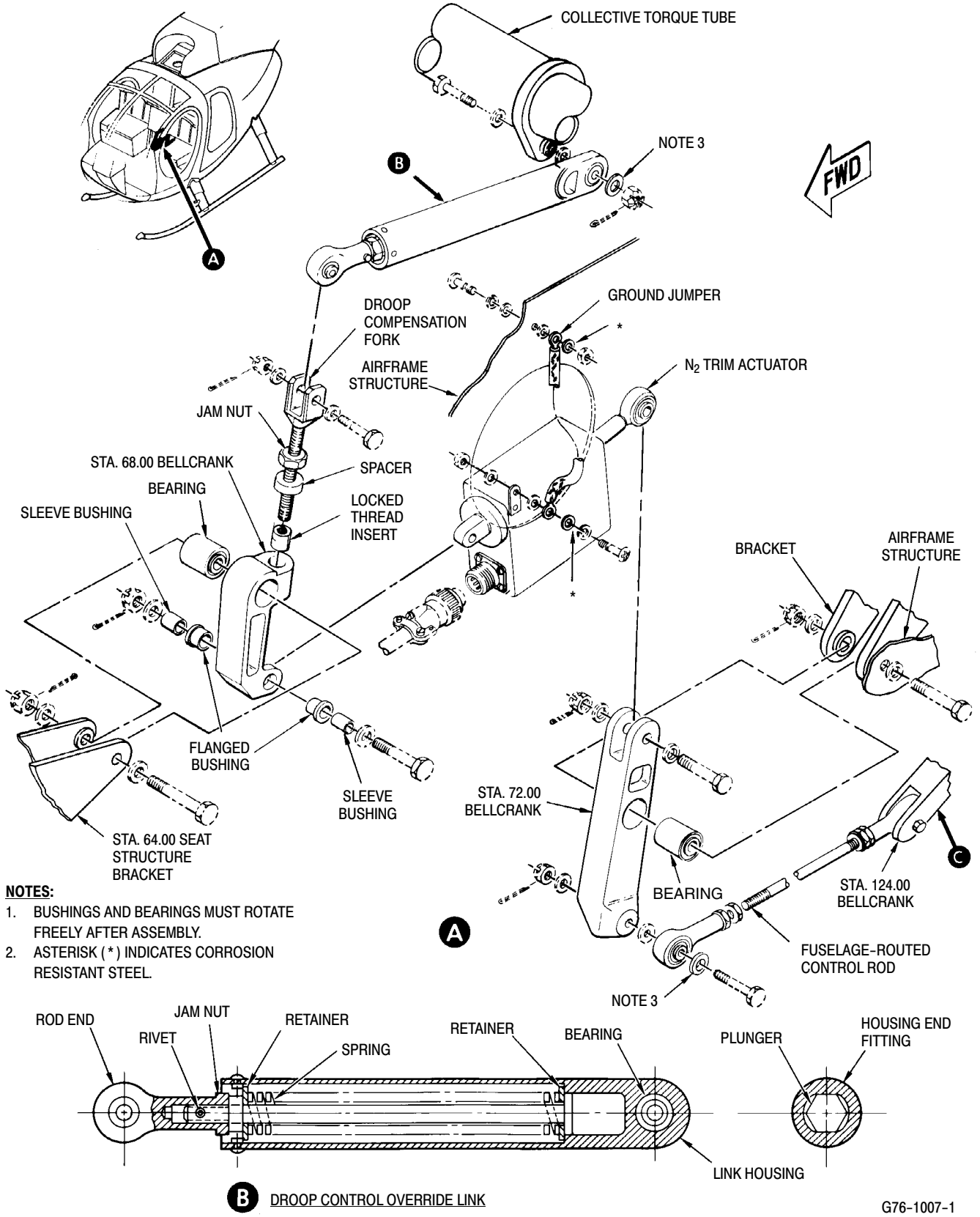
CAUTION Plunger must be free to travel to bottom of end-fitting oblong slot without binding.

(e). Align plunger-head hex-flats so that two parallel flats are at a right angle (90°) to rod-end bearing. Tighten jam nut.

(f). Using No. 50 drill, drill through rod-end and plunger at witness hole. Install rivet.

(g). Lubricate interior of housing, spring retainers and plunger with grease (CM117). Install spring assembly in housing so that plunger hex enters end fitting slot and rod-end aligns vertically with housing bearing.

(h). Install four plunger retaining rivets.



NOTES:

1. BUSHINGS AND BEARINGS MUST ROTATE FREELY AFTER ASSEMBLY.
2. ASTERISK (*) INDICATES CORROSION RESISTANT STEEL.

Figure 208. Power Turbine Governor Controls (Sheet 1 of 2)

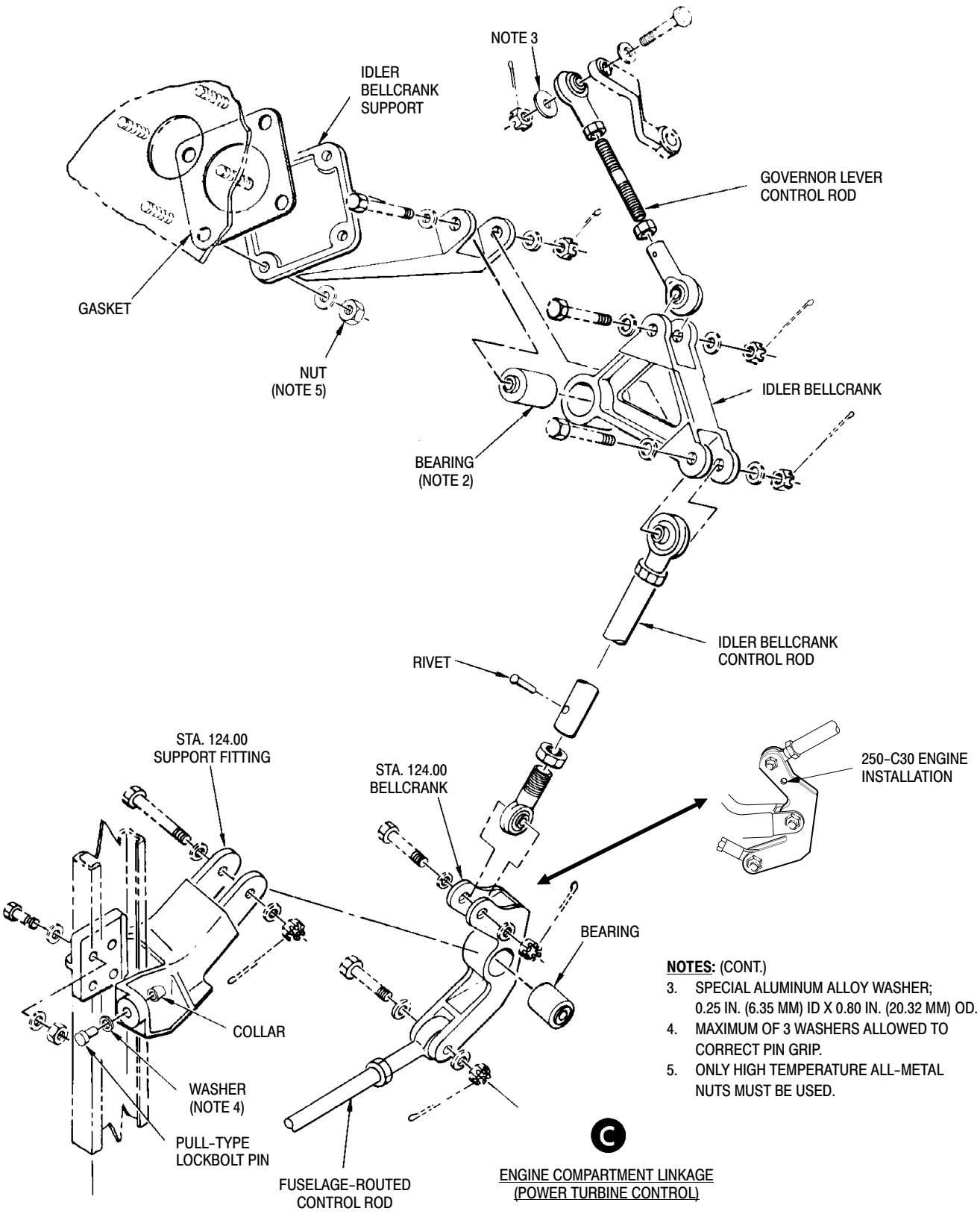


Figure 208. Power Turbine Governor Controls (Sheet 2 of 2)

15. Control Rod Repair

(Ref. Figure 208)

(1). Repair rod assemblies as follows:

CAUTION Fluorescent penetrant crack inspection shall be performed after cold-straightening control rods. Replace a cracked rod. Replace a cracked or bent rod-end.

(2). Cold-straighten bent rods provided there are no nicks or sharp dents in bend length. Do not use rod-ends to support rod during straightening process.

CAUTION Use care when drilling to remove or install riveted rod-end. Tighten jam nut before drilling or riveting.

(3). Replace control rod end if bearing axial play is more than 0.040 inch (1.016 mm).

16. Bellcrank and Support Fitting Repair

(Ref. Figure 208)

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM321	Surface primer locking compound
CM431	Sealing, locking and retaining compound

(1). Install replacement bearings using surface primer (CM321) and grade A locking compound (CM431) per container instructions.

(2). Replace distorted or cracked bellcranks and support fittings. Replace parts that have elongated holes.

17. N_2 Trim Actuator Test

(Ref. Figure 209)

(1). Connect N_2 trim actuator to test equipment.

(2). Turn on dc power and adjust output to 25.75 to 26.25 volts.

(3). With actuator ram approximately halfway between stops, measure ram end-play with dial indicator. End-play must not exceed 0.005 inch (0.127 mm) total indicator reading when measured under 10 pound (4.5 kg) reversing load.

(4). Set test switch to RETRACT and allow actuator ram to fully retract. Using end of ram sleeve as reference point, measure portion of ram that remains out of sleeve to nearest 1/64 inch (0.3968 mm). Record this measurement for use in the following step.

(5). Set test switch to EXTEND and run ram to extend stop. Measure length of extended ram. Subtract result of step (4). from extended ram value. Result should be 0.97-1.03 inches (24.638-26.162 mm).

(6). Actuator current draw at 26.0Vdc shall be:

(a). Under no-load; 0.60-1.25 amperes.

(b). Stalled; 2.0 amperes, maximum.

(7). Operate actuator motor in both extend and retract directions. Over-travel must not exceed 0.020 inch (0.508 mm) maximum when power is switched off.

(8). Reduce voltage input to 21 volts. Actuator ram must retract and extend to stops without binding on or between stops.

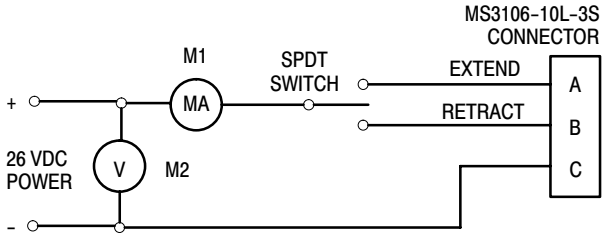
(9). Increase input voltage to 28 volts. Actuator ram must retract and extend to stops without binding on stops or between stops.

(10). Run actuator to full extended position. Extended actuator overall length shall be 5.47-5.50 inches (13.894-13.970 cm) between pivot bolt centers.

(11). Torque rod-end jamnut to **30 - 40 inch-pounds (3.39 - 4.52 Nm)**.

(12). Turn off power.

(13). Disconnect actuator.



ITEM NO.	EQUIPMENT DESCRIPTION
1	6-INCH SCALE
2	DC VOLTMETER, CLAIBRATED 0-50 VOLTS (WESTON MODEL 931 OR EQUIVALENT)
3	DC MILLIAMMETER, CALIBRATED 0-5 AMPERES (WESTON MODEL 931 OR EQUIVALENT)
4	VARIABLE DC POWER SUPPLY, 10-36 VOLTS, (N.J.E. MODEL SY36-10 OR EQUIVALENT)
5	DIAL INDICATOR GAGE (BROWN AND SHARP MODEL 740 OR EQUIVALENT)
7	SWITCH, SPDT, CENTER OFF

G76-1008

Figure 209. N_2 Trim Actuator Test Hookup

18. N_2 Trim Actuator Repair

(1). N_2 actuator repairs are limited to actuator ram rod-end replacement. Set distance between pivot-bolt centers to 5.44-5.50 inches (13.818-13.970 cm) with ram fully extended. Torque rod-end jamnut to **30 - 40 inch-pounds (3.39 - 4.52 Nm)**.

CAUTION All other actuator repairs are to be performed by an authorized overhaul station or the actuator manufacturer.

19. Sta. 68.00 Bellcrank Rework, P/N 369A7717–3 and 369N2606 Only

(Ref. Figure 210)

Consumable Materials (Ref. Section 91–00–00)

Item	Nomenclature
CM318	Primer
N/A	Dichromate
N/A	Anodizing compound

Special Tools (Ref. Section 91–00–00)

Item	Nomenclature
N/A	Spotface cutter, 0.687 inch (17450 mm) dia., 0.030 inch (0.762 mm) corner radius
N/A	Spotface cutter pilot, 5/16-24 UNF-3A thread

(1). Remove panels required to get at power turbine governor controls linkage.

(2). Unbolt and remove Sta. 68.00 bellcrank assembly.

(3). To expedite reassembly, measure and note distance between the center of droop compensation fork clevis bolt hole and bellcrank pivot bolt hole. Remove droop compensation fork from bellcrank.

(4). Screw spotface cutter pilot into bellcrank. Cut away only enough material to provide a 360° flat surface around hole. Do not cut into thread insert.

(5). Coat bare metal surface with Dow #7 or #17 chemical treatment per manufacturers instructions.

(6). Apply primer (CM318) over reworked surfaces. Allow primer to dry.

(7). Assemble locknut, spacer and droop compensation fork on bellcrank. Get as close to previously noted dimension as possible.

(8). Rig power turbine governor controls.

(9). Note compliance in helicopter log book.

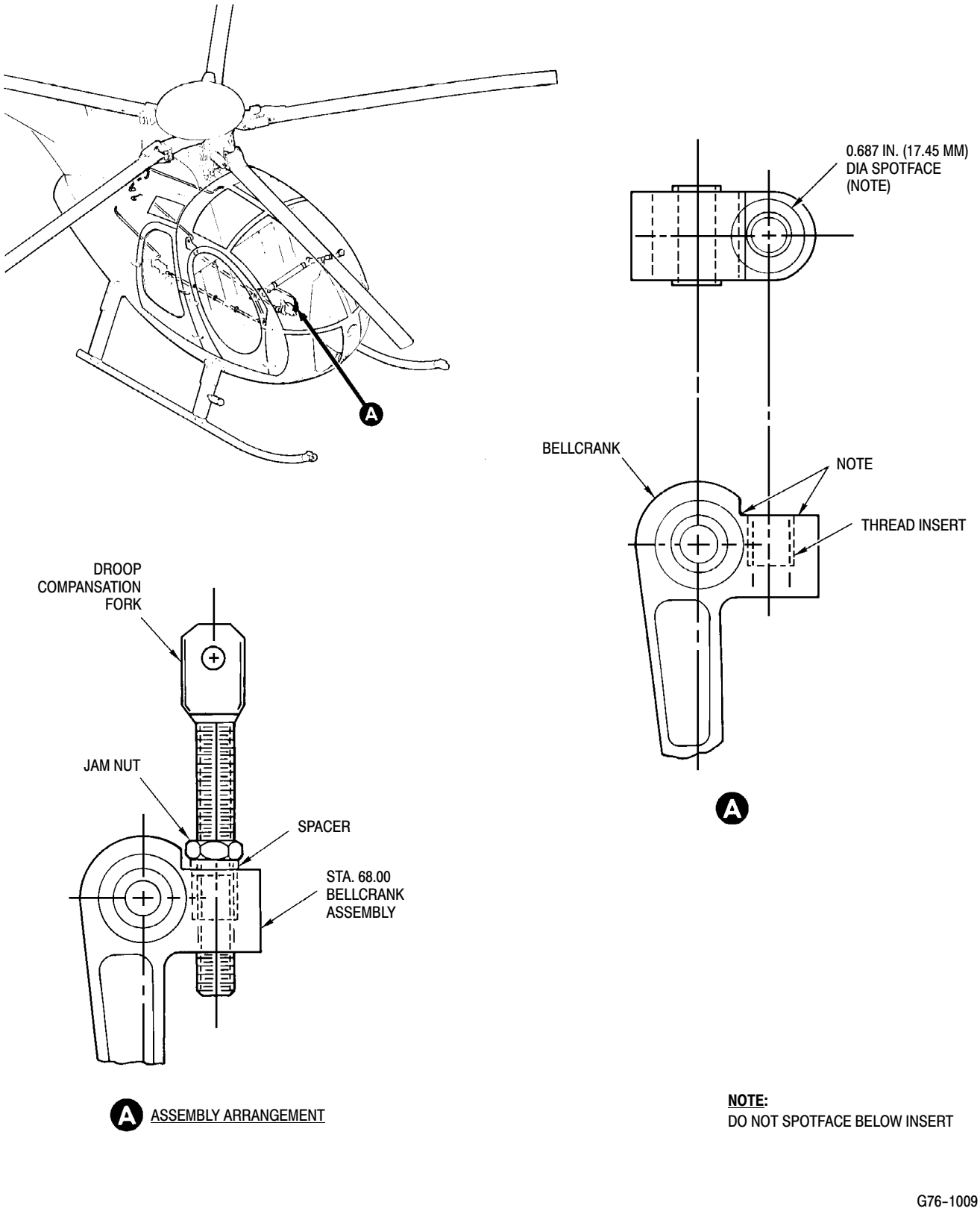


Figure 210. Station 68.00 Bellcrank Rework

(2). Loosen potentiometer mounting screws and remove drive belt.

(3). Remove screws and washers and remove potentiometer assembly from mounting bracket.

D. Directional Potentiometer Installation

Special Tools (Ref. Section 91–00–00)	
Item	Nomenclature
ST1010	Volt-ohmmeter
N/A	Laptop computer with MT35 program

(1). Prepare potentiometer mounting surfaces for electrical bonding (Ref. CSP-HMI-3, Chap. 96).

(2). Install potentiometer with screws and washers. Torque screws to **20 - 25 inch-pounds (2.25 - 2.82 Nm)**.

(3). Rig potentiometer to directional controls..

(a). Place directional control pedals to full left pedal position and connect ohmmeter (ST1010) between pins 2 and 3. Turn potentiometer gear until resistance is between 1000 and 1250 ohms.
or
Attach electrical connector to potentiometer. Connect MT35 to the ECU and apply power to aircraft. Reading on MT35 should be 0.0% – 7.1%.

CAUTION Excessive tension on drive belt may damage potentiometer.

(b). Install drive belt over both pulleys with teeth fully engaged. Tension belt with potentiometer mounting screws so that the belt does not noticeably sag over the span. Retorque screws to **20 - 25 inch-pounds (2.25 - 2.82 Nm)**.

(c). Place directional control pedals to full right pedal position and verify that potentiometer resistance is between 4500 and 4675 ohms.
or
With electrical connector attached to potentiometer and MT35 connected apply power to aircraft, reading should be 98.6% – 105.0%.

(d). If necessary, belt may be adjusted one tooth on either pulley (one tooth equals 400 ohms).

(e). If more adjustment is required, loosen pedal pulley bolt and rotate pulley to obtain desired resistance. Retorque bolt to **20 - 25 inch-pounds (2.25 - 2.82 Nm)**.

(4). If not already connected, attach electrical connector to potentiometer.

6. CIT (Compressor Inlet Temperature) Sensor Replacement

(Ref. Figure 202)

A. CIT Sensor Removal

(1). Detach electrical connector from CIT sensor.

(2). Remove bolts, washers and CIT sensor.

B. CIT Sensor Installation

(1). Install CIT sensor with bolts and washers. Torque bolts to **36 - 46 inch pounds (4.06 - 5.19 Nm)**.

(2). Attach electrical connector to CIT sensor.

7. Engine Control Box Replacement

A. Engine Control Box Removal

(1). Disconnect engine control cable nut from engine control box and remove cable end from control box coupling.

(2). Remove bolts, washers and engine control box from the engine hydromechanical control unit.

B. Engine Control Box Installation

(1). Install engine control box on the engine hydromechanical control unit with bolt and washer. Torque bolts to **36 - 46 inch pounds (4.06 - 5.19 Nm)**.

(2). Install control cable end into engine control box coupling and connect cable nut. Torque nut to **50 inch pounds (5.64 Nm)**.

(3). Rig engine control cable (Ref. Section 76-00-00).

8. Engine Control Cable Replacement

(Ref. Figure 202)

A. Engine Control Cable Removal

(1). Disconnect control cable nut from engine control box and remove cable end from control box coupling.

(2). Remove screw, washers, spacer, clamp and nut from control cable in engine compartment.

(3). Remove cotter pin, nut, bolt and washers and disconnect control cable from engine throttle bellcrank.

(4). Remove screws, nuts and washers attaching control cable bulkhead swivel to bracket.

(5). Pull engine control cable forward through bracket and control cable conduit and remove from cockpit.

B. Engine Control Cable Installation

(1). Push engine control cable through control cable conduit from cockpit aft into engine compartment.

(2). Install control cable bulkhead swivel in bracket with screws, washers and nuts. Torque nuts to **12 - 15 inch pounds (1.35 - 1.69 Nm)**.

NOTE: When installing a 600N7714–3 throttle cable, the 600N7718–1 control cable bracket must be installed for proper control cable alignment.

(3). Connect engine control cable to engine throttle bellcrank with bolt, washers, nut and cotter pin. Torque nut to **30 - 40 inch pounds (3.38 - 4.51 Nm)**.

NOTE: Ensure there are no sharp bends in cable when clamping into position.

(4). Install clamp, screw, washers, spacer and nut attaching control cable to bracket in engine compartment. Torque nut to **12 - 15 inch pounds (1.35 - 1.69 Nm)**.

(5). Run cable through full range of travel to ensure smooth operation.

(6). Install control cable end into engine control box coupling and connect cable nut. Torque nut to **50 inch pounds (5.64 Nm)**.

(7). Rig engine control cable.

9. Engine Throttle Control Cable Mounting Bracket Replacement

(Ref. Figure 202)

A. Engine Throttle Control Cable Mounting Bracket Removal

(1). Disconnect throttle cable at collective stick (Ref. Engine Control Cable Replacement).

(2). Disconnect throttle cable from bracket (Ref. Engine Control Cable Replacement).

(3). Remove two nuts, four washers, two spacers and two bolts securing bracket to socket assembly.

(4). Slide bracket over end of throttle cable.

B. Engine Throttle Control Cable Mounting Bracket Installation

(1). Slide bracket over end of throttle cable and align with bolts holes in socket assembly.

(2). Install bolts with washers through bracket and socket assembly.

(3). Install spacers, washers and nuts on bolts (spacers are installed before washers).

(4). Torque nuts to **12 - 15 inch-pounds (1.36 - 1.69 Nm) plus drag torque**.

(5). Connect throttle cable (Ref. Engine Control Cable Replacement).

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EXHAUST SYSTEM

MAINTENANCE PRACTICES

1. Description and Operation

Engine exhaust is ducted through a tailpipe bolted to the engine exhaust duct flange and supported by a flexible link mounting attached to the aft fuselage. Figure 201 shows the exhaust system and mounting details.

2. Exhaust System Replacement

(Ref. Figure 201)

A. Exhaust System Removal

(1). Detach tailpipe from engine exhaust duct by removing:

(a). Six nuts, bolts, and 12 washers from exhaust pipe side flanges.

(b). Two nutplate strips, 14 bolts and washers from exhaust pipe fore and aft flanges.

(2). Loosen the tensioning bolt passing through the hanger torsion spring mandrel.

(3). Disengage the adjuster from the spring pin.

CAUTION Whenever tailpipes are removed, cover engine exhaust ducts with clean covers to prevent entry of foreign materials into turbine section of engine.

(4). Remove tailpipe and gasket.

(5). Visually inspect bottom of upper aft section firewall for contact marks with discoloration, holes or tears. Pay particular attention to firewall blanket retainer clips at Sta. 155.75 fuselage ring.

B. Exhaust System Installation

(1). Remove protective cover from engine exhaust duct.

(2). Install gasket onto engine exhaust flange.

CAUTION Support aft ends of tailpipe during installation. Displacement from proper mounting position may damage forward mounting flanges.

(3). Place tailpipe over engine exhaust duct and secure with nuts, nutplate strips, bolts and washers; torque bolts to **36 - 46 inch-pounds (4.07 - 5.20 Nm) plus drag torque.**

(4). Install duct with duct clamp link standing vertical.

(5). When viewed from left side of helicopter. turn torsion spring adjuster 150 ±15 degrees clockwise and engage spring pin in nearest hole in adjuster.

(6). Tighten tensioning bolt to adjust spring.

(7). Inspect for no contact between top of exhaust and firewall retainer clips at Sta. 155.75 fuselage ring.

3. Exhaust System Inspection

(Ref. Figure 201)

(1). Inspect for cracks and broken weld seams.

(2). Inspect for dents and bends.

(3). Using flashlight and mirror, look in engine bay through engine access doors and look through engine oil filter access cutout.

(a). Inspect top of engine exhaust duct for contact marks and bottom of upper aft section firewall for contact marks with discoloration, holes or tears. Pay particular attention to firewall blanket retainer clips at Sta. 155.75 fuselage ring.

4. Exhaust System Repair

(Ref. Figure 201)

Consumable Materials (Ref. Section 91–00–00)	
Item	Nomenclature
CM824	Welding rod

(1). Repair dents and bends using a form block and suitable mallet.

(2). Repair cracks and breaks in tailpipes as follows:

(a). Using stainless steel brush, thoroughly clean at least 1 inch (2.54 cm) on all sides of cracked area. Cleaning should remove all carbon from both inner and outer surfaces and from crack itself.

(b). Weld, using inert arc method, with rod (CM824). Shield back side of weld with inert gas or suitable stainless steel flux.

(c). Repair single cracks less than 2 inches (5.08 cm) in length by stop-drilling 0.040 inch (1.016 mm) diameter hole at termination of each end of crack. This method of repair does not apply to intersecting cracks that form an acute angle leaving an unsupported section.

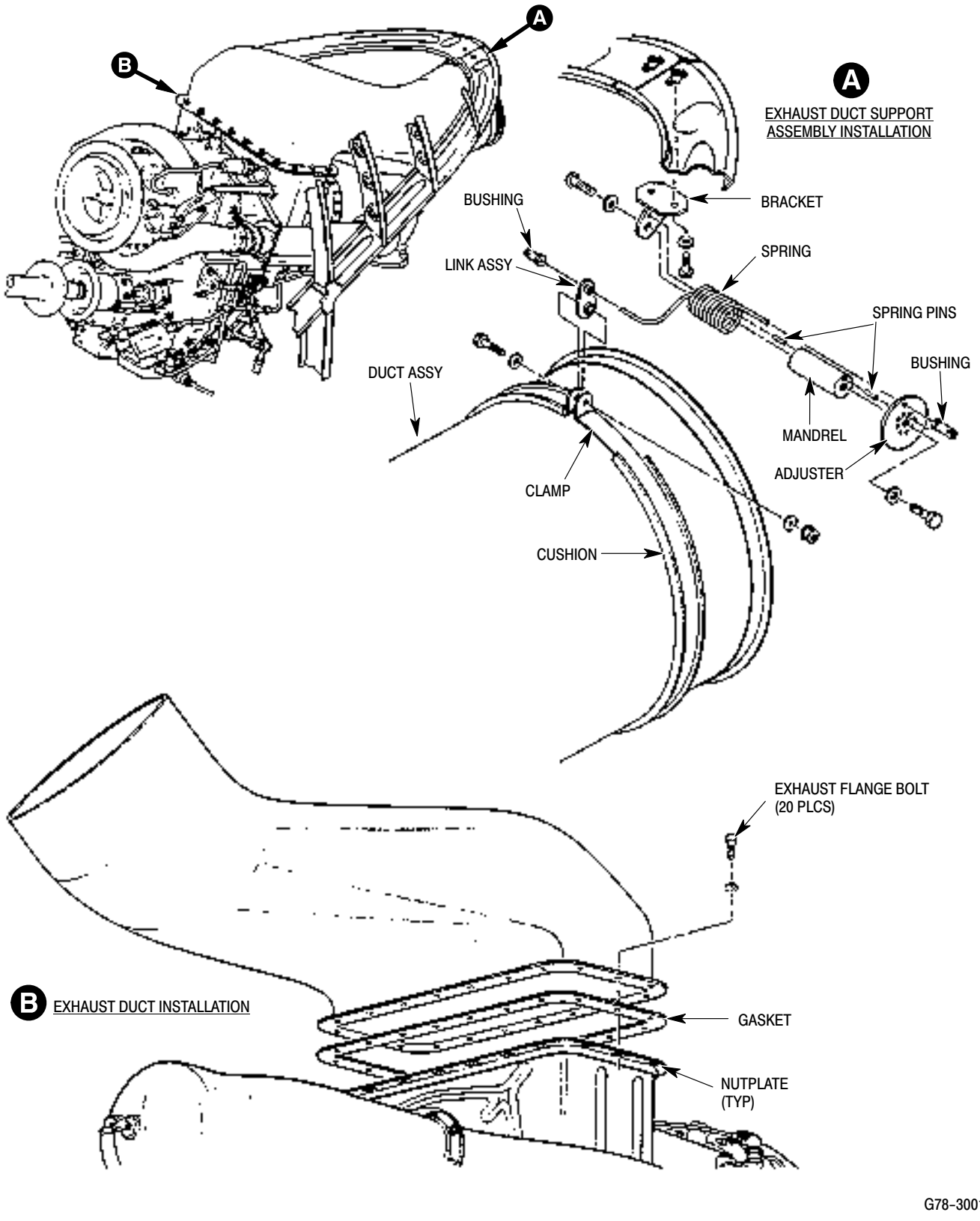

Figure 201. Engine Exhaust System Installation

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