**Manual:** CSP-HMI-2, Handbook of Maintenance Instructions
**Models:** 369D/E/FF - 500/600N Helicopters
**Issued:** 31 October 1990
**Revision 33:** 24 June 2002

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| Cover/Title | Cover/Title |
| | **LOEP** |
| A thru H | A thru H |
| | **04–00–00** |
| 1 thru 14 | 1 thru 14 |
| | **05–20–00** |
| 1 thru 12 | 1 thru 12 |
| | **05–20–10** |
| 1 thru 4 | 1 thru 4 |
| | **05–20–20** |
| 3 and 4 | 3 and 4 |
| | **Chapter 53** |
| iii thru vi | iii thru vi |
| | **53–30–30** |
| 203 thru 206 | 203 thru 206 |
| | **53–50–30** |
| 203 thru 206 | 203 thru 206 |
| | **62–10–00** |
| 607 and 608 | 607 and 608 |
| 801 and 802 | 801 and 802 |
| | **62–20–60** |
| 603 thru 608 | 603 thru 608 |
| | **Chapter 63** |
| ix and x | ix and x |
| | **63–25–30** |
| 203 and 204 | 203 and 204 |
| | **64–25–30** |
| 401 and 402 | 401 and 402 |
| | **Chapter 67** |
| ix thru xi/(xii blank) | ix thru xii |
| | **67–20–30** |
| 403 thru 406 | 403 thru 406 |
| 409 thru 412 | 409 thru 412 |
| 501 and 502 | 501 and 502 |
| 601 thru 604 | 601 thru 604 |
| | **71–10–10** |
| 603 and 604 | 603 and 604 |
| | **71–10–60** |
| 601 and 602 | 601 and 602 |
| | **76–47–00** |
| 203 thru 206 | 203 thru 206 |

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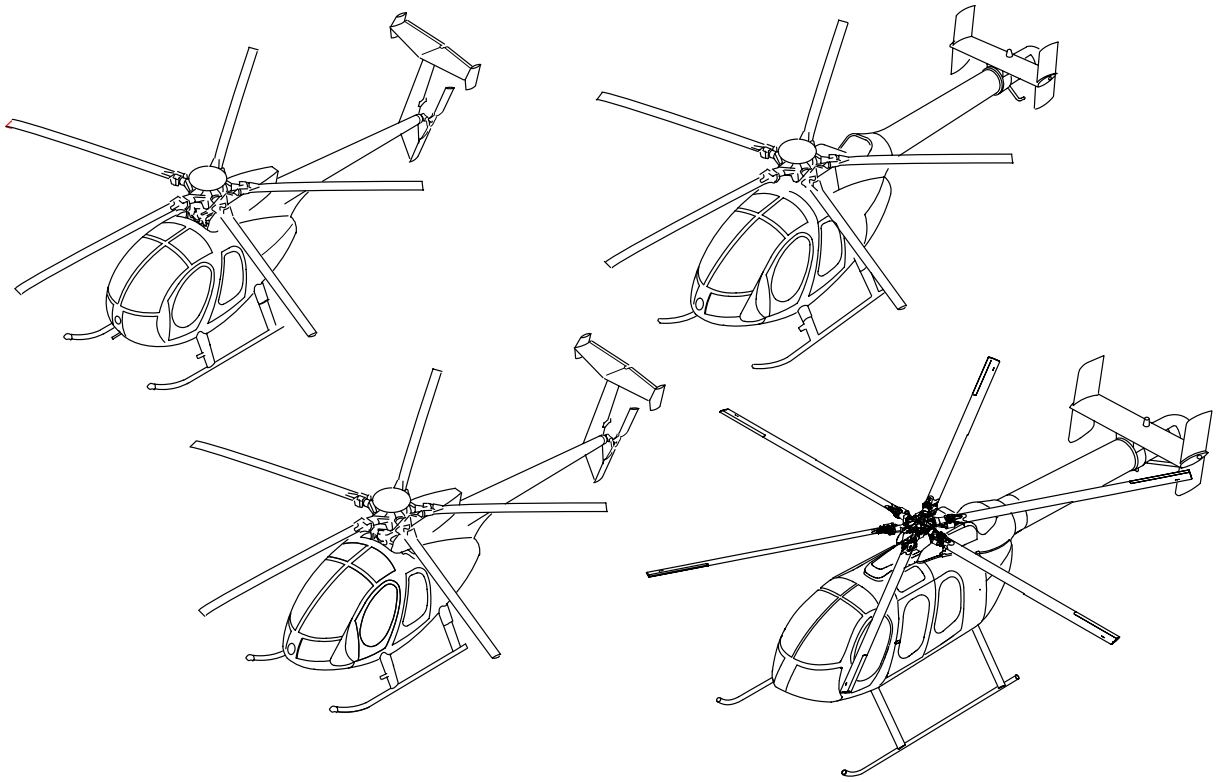
# MDHI MODEL HELICOPTERS

## 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. 33: 24 June 2002**

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**MD Helicopters, Inc.**
**4555 East McDowell Road**
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Date of original and revised pages are:

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

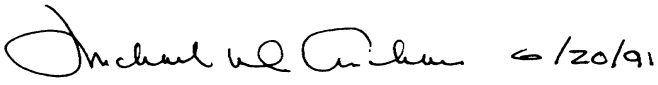
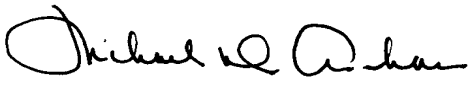
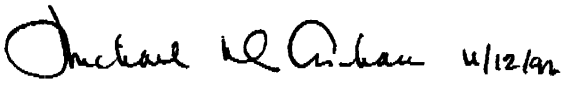
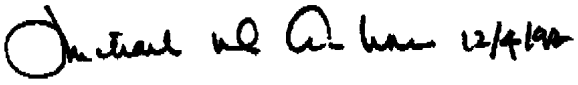
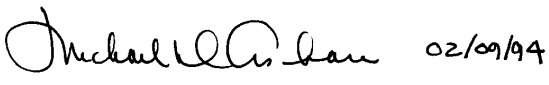
# AIRWORTHINESS LIMITATIONS

Type Certificate No. H3WE

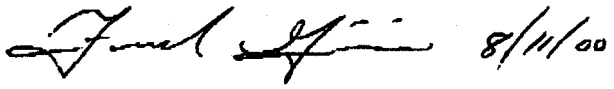
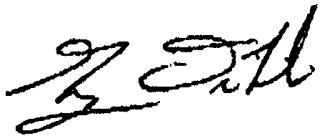
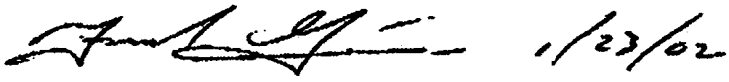
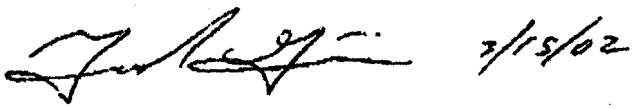
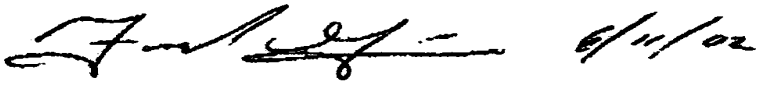
FAA Approved Airworthiness Limitations for MD Helicopters, Inc., Models 369D/E/F/FF and 500/600N.

## 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<br>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<br>T/R 98–001 Previously Signed |
| TR 98–002: | June 22, 1998 | Acting Mgr. 7/10/98 |
| 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<br>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 |  8/11/00 |
| 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 |  5/4/01 5/14/01 |
| Revision 30: | 11 July 2001 | Section 04–00–00 Not Affected This Revision |
| TR 01–001: | 10 August 2001 |  8/8/01 |
| Revision 31: | 5 November 2001 | Section 04–00–00 Not Affected This Revision<br>T/R 01–001 Previously Signed |
| TR 02–002: | 30 January 2002 |  1/23/02 |
| Revision 32: | 18 March 2002 |  3/15/02 |
| Revision 33: | 24 June 2002 |  6/11/02 |

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

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

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

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

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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) |
| | 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) |
| | 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) |
| | 600N (6) | 369D21102–517 (21) | 1900 (32)(37) | 100 (20) |
| | | 369D21102–523 | 3200 (33)(37) | 100 (20) |
| | | 369D21121–501 | 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 | |
| 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) | |

**Table 1. Airworthiness Limitations Schedule (Cont.)**

| Component (1) | Model | Part Number (2) | Finite Life Hours (1) | Mandatory Inspection Hours |
|---|---|---|---|---|
| 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 | |
| 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 | (3) | 300 (10) |
| | | 369D25351 | | |
| | 500N | 369D25351 | (3) | 300 (10) |
| | 369D/E/F/FF 500/600N | 369F5456 | (3) | 300 (17) |

**Table 1. Airworthiness Limitations Schedule (Cont.)**

| Component (1) | Model | Part Number (2) | Finite Life Hours (1) | Mandatory Inspection Hours |
|---|---|---|---|---|
| Drive shaft, fan | 500N | 500N5200 | 2620 | |
| | 600N | 500N5200 | 1200 (36) | |
| Drive shaft, tail rotor | 369D/E | 369D25518 | 13900 | |
| | 369F/FF | 369DSK152–11 | 13900 | |
| | | 369D25518–503 | 14610 | |
| Coupling – tail rotor drive shaft (Bendix) (**NOTE**: Not certified on 369FF Model) (9) | 369D/E/F | 369A5501 | 4980 | |
| | | 369H92564 (7) | 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 | 5200 | |
| | | 369D21613–11 | 5140 | |
| | | 369D21613–31 | 5140 | |
| | | 369D21613–41 | 5140 | |
| | | 369D21613–51 | 5140 | |
| | | 369D21613–61 | 5140 | |
| | | 369D21613–71 | 5140 | |
| | | 369D21640 (38) | 5140 | |
| | 369F/FF | 369D21606 | 5140 | |
| | | 369D21642 (38) | 5140 | |
| Blade assembly, tail rotor (optional 4–blade) | 369D/E | 369D21615 | 10000 | |
| | | 369D21641 (38) | 10000 | |
| Hub, tail rotor | 369D/E/F/FF | 369A1725 | 3450 | |
| 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 | |

**Table 1. Airworthiness Limitations Schedule (Cont.)**

| Component (1) | Model | Part Number (2) | Finite Life Hours (1) | Mandatory Inspection Hours |
|---|---|---|---|---|
| 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) | |
| 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) | |
| 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 | 500N3910–21 | Unlimited Life | |
| | | 500N3910–23 | Unlimited Life | |
| | | 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) |

**Table 1. Airworthiness Limitations Schedule (Cont.)**

| Component (1) | Model | Part Number (2) | Finite Life Hours (1) | Mandatory Inspection Hours |
|---|---|---|---|---|
| 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 | |
| **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<br>**NOTE:** Life is based from original date of manufacture. | 369D/E/F/FF 500N | 12552–1 (Holex, Inc.)<br>281993 (Walter Kidde)<br>12754–1 (Holex, Inc.)<br>5003527 (Tavco) | 5 years<br>5 years<br>5 years<br>5 years | |
| Stabilizer support, utility float | 369D/E | 369D292036<br>369DSK66 | 3190<br>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 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 main rotor blade has all the same inspections and interchangeability as the 369D21102–517 main rotor blade.
For the 600N helicopters, the 369D21121–501 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 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 tail rotor blade has all the same inspections and interchangeability as the 369D21613 tail rotor blade.
The 369D21641 tail rotor blade has all the same inspections and interchangeability as the 369D21615 tail rotor blade.
The 369D21642 tail rotor blade has all the same inspections and interchangeability as the 369D21606 tail rotor blade.

(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.

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# 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 Allison 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.<br>* 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:<br>* Damage and cleanliness.<br>* Wear and security of internal components.<br>* Particle separator mounting structure for cracks or damage. | 71<br>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:<br>* Damage and condition.<br>* Mast base drain holes clean and free of debris (blow air thru holes to ensure no clogging).<br>* Engine air inlet fairing free from damage. No delamination noted. Bypass door operationally checked. Seals free from damage.<br>* Engine access doors for proper operation of latches and closure, distortion, damage, cracks and security. | 52<br>53 | |
| ALL | Fuselage for:<br>* Damage and condition.<br>* Compartment fresh air vents in doors and front of canopy for easy of operation and security.<br>* Fuel cell vent fairings free of obstructions and obvious damage.<br>* Pilot's and passenger/cargo compartment doors for condition of door glass, vents and proper operation of latching and locking mechanisms.<br>* Door hinges and pins for play or wear. Ensure door pin locking tab is engaged with slot in frame.<br>* No evidence of oil leakage around fuselage drain holes.<br>* Aft fuselage internal skin surface, located directly above engine compartment, for evidence of cracks. Observe area through tail rotor control bellcrank access door. | 52<br>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:<br>* Screen for cleanliness and damage.<br>* Attaching hardware for security.<br>* Interior of fan inlet for cleanliness and damage.<br>* Driveshaft cover for damage. | 53 | |
| ALL | * Check for no gap between tailboom and fuselage at attach points.<br>* Check tailboom skin around stabilizer fittings for cracks.<br>* 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.<br>* 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).<br>* 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).<br>* 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).<br>* Tailboom closeout fairings for security of attachment hardware. Inspect for damage and chafing between closeout fairing and tailboom. | 53–40–30<br>53–50–30 | |
| 369D/E/FF | Horizontal stabilizer for:<br>* Skin damage and loose rivets.<br>* Tip plates for damage. Check for secure attachments (Ref. Horizontal Stabilizer and Tip Plates Inspection). | 53–50–10 | |
| 500/600N | Horizontal stabilizer for:<br>* Skin damage and loose rivets.<br>* Mounting fittings for cracks and security.<br>* Stabilizer attach bolts for security. | 53 | |
| 369D/E/FF | Vertical stabilizer for:<br>* Damage to leading and trailing edges and damaged stressed side panels (no repair of side panels permitted).<br>* Mounting fittings for cracks and security.<br>* Tail skid for obvious damage and security (Ref. Vertical Stabilizer Inspection). | 53–50–10 | |
| 500/600N | Vertical stabilizers for:<br>* Damage to leading or trailing edges and damaged side panels.<br>* Cracks in skin, no cracks permitted (pay particular attention to areas around mounting bolts).<br>* Mounting fittings for cracks and security.<br>* Stabilizer attach bolts for security.<br>* Stabilizer mount bushings for wear.<br>* 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:<br>* Wear and damage in excess of permissible limits.<br>* Upper fairing fillets for freedom of movement and general condition.<br>* Strut attachment points for security and pivot (swivel) bearings for excessive play.<br>* Landing gear dampers for correct extension, security of attachment and for signs of fluid leakage. Pivot bearings for excessive play.<br>* 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:<br>* Easy and correct operation and rigging.<br>* Heating system heat diffusers for security. | 21 | |
| ALL | * Seat belts for condition and security.<br>* Inertia reels for condition and proper extension/retraction. | 25 | |
| ALL | Pilot/copilot controls for:<br>* Wear, looseness and general condition of control rods and rod end bearings.<br>* Quick–release pins for condition.<br>* Cyclic, collective and anti–torque controls for free movement.<br>* Cyclic trim actuators for security.<br>* 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).<br>* $N_1$ power controls for obvious damage.<br>* Check for minimum cyclic friction adjustment (resistance to turning spring with fingers).<br>* Flight control system one–way lock (Uniloc) for oil leakage, condition and security. Fluid reservoir 1/2 – 3/4 full; replenish if low. | 67<br>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:<br>* Free movement, full travel, security, obvious damage and proper rigging.<br>* 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<br>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<br>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<br>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<br>62–20–60 | |
| ALL | * Main rotor hub feathering bearings for excessive wear (Ref. Main Rotor Hub Inspection).<br>* Main rotor droop stop ring for corrosion, dents and scratches.<br>* Main rotor droop stop striker plate rollers for play and excessive wear. | 62–20–00<br>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<br>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<br>62–20–60 | |
| 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<br>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 | |

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

| | | | |
|---|---|---|---|
| **Registration No.** _____ **Serial No.** _____ | | | |
| **Helicopter Hours** _____ **Torque Events** _____ | | | |
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| 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:<br>* Main transmission case and cooling installation for evidence of leakage and security of attachment.<br>* Oil cooler blower, mount, ducting and hardware for security and damage.<br>* Oil lines for chafing damage.<br>* Clamps attached to oil lines for evidence of cushion wear or deterioration (if noted, remove clamp and inspect tube under clamp for chafing damage).<br>* 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:<br>* Pucks and disc for wear and general condition.<br>* Hydraulic lines for security and leaks.<br>* Master cylinder for leaks.<br>* Air in system (spongy feel at brake actuating handle when force is applied). | 63 | |
| ALL | Overrunning clutch for:<br>* Evidence of oil leakage.<br>* 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 | |

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

| **Registration No.** _____ **Serial No.** _____ | | | |
|---|---|---|---|
| **Helicopter Hours** _____ **Torque Events** _____ | | | |
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| **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.<br>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.<br>* Inter–Connect drive shaft for dents and obvious damage.<br>* 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:<br>* Evidence of buckling, dents, bulkhead chafing and obvious damage.<br>* 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:<br>* Corrosion, excessive oil leakage, cracks and other damage.<br>* 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:<br>* Binding and unusual sounds (teeter blades to check for binding).<br>* Teeter bearings for axial or radial play (no play allowed).<br>* Control rod, pitch control links, hub and drive fork for play or damage.<br>* Boots for installation and deterioration.<br>* Retaining nut and lockwasher secure (no broken tangs noted and nut has not rotated).<br>* Pitch control for evidence of seal rotation or loss of grease. | 64 | |
| 369D/E/FF | Drive fork for;<br>* Elastomeric bearing elements for bond failure.<br>* 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 | |

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

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

**Helicopter Hours**_____ **Torque Events**_____

| Model | Requirement | Chap/Sect | Initial |
|---|---|---|---|
| 369D/E/FF | Tail rotor blades for:<br>* Evidence of damage, including leading edges, trailing edges, skin.<br>* Open vent and drain holes.<br>* Loose or damaged tip caps.<br>* Rivets securing tip cap for installation and condition.<br>* 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).<br>* 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.<br>* Fan assembly for cleanliness and damage.<br>* Fan blades for excessive play.<br>* Fan seal for cleanliness, cracks, damage and corrosion.<br>* Check gap between fan blades and tip seal.<br>* 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 | |
| | **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 | |

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

| | | | |
|---|---|---|---|
| **Registration No.** _____ **Serial No.** _____ | | | |
| **Helicopter Hours** _____ **Torque Events** _____ | | | |
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| **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:<br>* Connector pins for evidence of corrosion.<br>* Leakage (if battery is leaking (wet), remove and replace battery).<br>* Battery case for cracks in support flanges.<br>* Dc wiring for chafing caused by wiring rubbing against battery case.<br>* 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 | |
| ALL | Entire engine for:<br>* Loose bolts; loose or broken connections.<br>* Accessories for security and broken or missing lockwire.<br>* Fuel and oil lines for chafing and kinking.<br>* Fuel drain line valve for leakage.<br>* Oil cooler and cooler deflector for security and obvious damage.<br>* Accessible areas for obvious damage; evidence of fuel and oil leaks.<br>* Engine mounts for cracks and play in mounting hardware at engine and airframe (retorque any loose mounting bolts).<br>* Fuel control and compressor exterior for condition and security. | 71<br>75<br>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 | |

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

| | | | |
|---|---|---|---|
| **Registration No.** _____ **Serial No.** _____ | | | |
| **Helicopter Hours** _____ **Torque Events** _____ | | | |
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| | **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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**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
# 300–HOUR INSPECTION CHECKLIST

## 1. 300–Hour Inspection

This check sheet is designed to be used when performing scheduled inspections as defined under FAR Part 91. 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 Allison engine inspection check list for required engine maintenance.

**Table 1. 300–Hour Inspection**

| **Registration No.**_____ **Serial No.**_____ **Helicopter Hours**_____ | | | |
|---|---|---|---|
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| | **EXTERIOR** | | |
| ALL | Retorque tailboom attachment bolts. | 53 | |
| 500/600N | Remove rotating cone and tip cap (500N) and inspect:<br>* Cables, cable ends and pulleys for condition and security. Perform Forward and Center Cable Assembly Inspection (Ref. Sec. 67–20–30).<br>* Cone rollers for condition and security.<br>* Four fasteners that attach 500N3760–1 upper input shaft to the stationary thruster for play (replace pins and collars if any play is found).<br>* Three fasteners that attach 500N3759 support shaft assembly for play (if play is found in top bolt, retorque to **10 – 15 inch–pounds (1.13 – 1.69 Nm)**. Replace pins and collars if any play is found in bottom fasteners).<br>Reinstall rotating cone and tip cap (500N). | 53 | |
| 369D/E/FF | Remove engine inlet bypass door and check latches, hinges and hardware for wear and security. Remove and replace the latch retention cotter pin (located inside the attach "U" clamp) (Ref. Engine Air Inlet Bypass Door 300–Hour Inspection). | 71–10–10 | |
| 369D/E/FF | Check horizontal and vertical stabilizer attach bolts for proper torque (Ref. Horizontal Stabilizer Tip Plate Installation and Vertical Stabilizer Installation). | 53–50–10 | |
| 369D/E/FF | Check lower surface of horizontal stabilizer for drain holes. Also check for gaps between upper and lower doublers and stabilizer skin (Ref. Horizontal Stabilizer and Tip Plates Inspection). | 53–50–10 | |
| 500/600N | Control tubes and bellcranks in horizontal stabilizer for condition and security. | 53 | |

**Table 1. 300–Hour Inspection (Cont.)**

| Registration No._____ Serial No._____ Helicopter Hours_____ | | | |
|---|---|---|---|
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| 500/600N | Inspect S.A.S. system for:<br>* Actuator for security and damage (no damage allowed).<br>* Wiring for condition and security (no wire chaffing, fraying or insulation cracking allowed).<br>* Actuator mounting bracket for cracks, pay particular attention to area around four rivet attach holes (no cracks allowed).<br>* Rate gyro and control box for security in mount and electrical connector secure. Inspect mount for security and condition (no corrosion or cracks allowed). | 67 | |
| **LANDING GEAR** | | | |
| ALL | Perform Landing Gear Inspection. | 32–10–00 | |
| ALL | Perform Cabin Entry Step Inspection. | 32–10–00 | |
| **CABIN** | | | |
| ALL | Remove instrument console base covers and inspect anti–torque pedal crossover torque tube and bellcrank for cracks, damage and security. | 67 | |
| ALL | Push–pull rods for excessive bearing play, wear and security. | 67 | |
| ALL | Perform Tunnel–Routed Control Rod Inspection. | 67–10–00 | |
| ALL | Check oil tank for security and evidence of leakage and damage. | 79 | |
| **MAIN ROTOR** | | | |
| ALL | Perform Swashplate Inspection. | 62 | |
| ALL | Perform Lead–Lag Bolt Inspection. | 62 | |
| ALL | Perform Main Rotor Hub Droop Angle Check. | 62 | |
| ALL | Perform Main Rotor Blade Inspection. | 62 | |
| ALL | Inspect main rotor mast, mast base and mast base support structure for evidence of cracks. Check with bright light and 5X magnifying glass. Visually check mast support bolts for security and condition. Inspect internal bore for chipping, orange peeling or flaking paint (Ref. Main Rotor Static Mast Inspection and Repair). | 63–30–00 | |
| ALL | Inspect hoisting eye–bolts for cracks or corrosion. | 63 | |
| 369D/E/FF 500N | 369D25510 drive shaft only, perform Main Rotor Drive Shaft Inspection (300–Hour). | 63–10–00 | |
| **DRIVE TRAIN** | | | |
| ALL | Remove, inspect and clean main transmission chip detectors. | 63 | |
| 369D/E/FF 500N | 369A5350 Overrunning Clutch: Perform Ball Bearing Inspection and Grease Repack (300 Hour). | COM | |
| ALL | 369F5450 Overrunning Clutch: Perform Ball Bearing Grease Repack (300 Hour). | COM | |
| 369D/E/FF | Remove tail rotor drive shaft and check boom fairing and tail boom for buckles, dents, bulkhead chafing and obvious damage. | 53 | |
| 369D/E/FF | Remove tailboom control rod and inspect for wear though hard anodized surface (Ref. Tailboom Control Rod Replacement); inspect grommets for wear and deterioration. | 67–20–10 | |

**Table 1. 300–Hour Inspection (Cont.)**

| Registration No._____ Serial No._____ Helicopter Hours_____ | | | |
|---|---|---|---|
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| 369D/E/FF | Check shaft damper for proper friction drag. Inspect damper for damage and security (Ref. Tail Rotor Drive Shaft Damper Inspection). | 63–15–10 | |
| 369D/E | Check forward and aft coupling bolt and socket for indication of contact, Bendix couplings only (Ref. Tail Rotor Drive Shaft Inspection). | 63–15–10 | |
| **ANTI–TORQUE** | | | |
| **Tail Rotor System** | | | |
| 369D/E/FF | Remove, inspect and clean chip detectors. | 63 | |
| 369D/E/FF | Check for contact between tail rotor bellcrank and tail rotor transmission housing at extreme right pedal travel. | 67 | |
| 369D/E/FF | Tail rotor assembly: Elastomeric teeter bearings for wear; bond between concentric metal cones and elastomer rings of bearing assembly (Ref. Elastomeric Bearing Inspection). | 64–20–00 | |
| 369D/E/FF | Remove blade stop for thorough inspection; in particular, check for cracks or splits in stem area (Ref. Tail Rotor Blade Stop Inspection). | 64–30–00 | |
| **NOTAR® Anti–Torque System** | | | |
| 500/600N | Check balance weights for security. If any balance weight stud is found to be loose, perform Fan Balance Stud Replacement. | 64 | |
| 500/600N | Remove, inspect and clean fan transmission chip detector. | 63 | |
| 500/600N | Remove tailboom:<br>Perform visual inspection of fan assembly for:<br>* Cracks, nicks or corrosion.<br>* Blades for cracks, nicks or impact damage.<br>* Gap between fan blade and tip seal and gap between fan blade and hub (inboard end of the blade). 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.<br>* Fan liner for cracks, debonding or corrosion of liner material.<br>* P–seal for tears, deterioration and debonding.<br>Reinstall tailboom (on 600N only, install new tailboom mounting bolts). | 53<br>64 | |
| **ELECTRICAL** | | | |
| **NOTE:** When possible, use auxiliary power source during **POWER ON** inspection, not battery. | | | |
| ALL | Perform Battery Temperature Sensing Switches – Testing. | 96 | |
| ALL | Check TOT indicating system for proper calibration (Ref. TOT Indicating System Calibration). | 95–30–00 | |
| **ENGINE COMPARTMENT** | | | |
| ALL | Inspect starter/generator for:<br>* Condition of brushes, electrical connections and commutator.<br>* Screens for clogging.<br>* Condition of O–ring on drive spline.<br>* Damper backplate and clutch for condition. | 96 | |

**Table 1. 300–Hour Inspection (Cont.)**

| **Registration No.**_____ **Serial No.**_____ **Helicopter Hours**_____ | | | |
|---|---|---|---|
| **Model** | **Requirement** | **Chap/Sect** | **Initial** |
| ALL | Perform Fuel Filter (Bypass) Caution Light Pressure Switch Test. | 28–00–00<br>28–00–60 | |
| **NOTE:** Also, perform this operational check whenever low pressure fuel pump filter element is replaced for any reason, or if contaminated. | | | |

# 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 Allison 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 | For 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<br>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** | | |
| ALL | Inspect in accordance with Main Rotor Stap 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<br>62–20–60 |

**Table 1. Special Inspections Hourly (Cont.)**

| Model | What to Inspect | Chap/Sect |
|---|---|---|
| **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 | Perform Tailboom Attach Fitting Inspection. | 53–30–30 |
| **EVERY 50 HOURS** | | |
| 369D/E/FF 500N | 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 | 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 | For 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 | For 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<br>62–20–60 |
| **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 |

**Table 1. Special Inspections Hourly (Cont.)**

| Model | What to Inspect | Chap/Sect |
|---|---|---|
| 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 | For 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 | For 369F5510 Main Rotor Drive Shaft, perform Main Rotor Drive Shaft Inspection. | 63–10–00 |
| 600N | For 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 | For 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<br>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<br>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 |
| 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 |

**Table 1. Special Inspections Hourly (Cont.)**

| Model | What to Inspect | Chap/Sect |
|---|---|---|
| 369D/E/FF | Clean, inspect and relubricate (repack) tail rotor swashplate bearings (Ref. Tail Rotor Swashplate Bearing Regreasing). | 64–30–00 |
| **EVERY 100 HOURS AFTER 6000 HOURS FLIGHT TIME** | | |
| 600N | Remove interior trim from aft side of Sta. 78.50 bulkhead and tunnel control boot. Inspect interface between 369H2564 tunnel beams and 369D22508–7 web | 25 |
| **EVERY 6000 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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### B. Fan Hub and Transmission Cover Installation

(1). Inspect fairing for cracks and general condition.

(2). Install attaching hardware.

(3). Check for minimum run-on torque of attaching screws, **2 inch-pounds (0.226 Nm) minimum**.

## 8. Engine Plenum Access Cover Replacement

**CAUTION** Avoid FOD, Cover compressor inlet prior to working in plenum chamber area. Vacuum all FOD debris out of the plenum chamber before removing the protective cover from the inlet bell. Severe damage to the engine may result from entry of foreign objects.

### A. Engine Plenum Access Cover Removal

**NOTE:** If particle separator is installed, ejector ducting is not removed with plenum access cover.

(1). Remove hardware that attaches engine plenum access cover to supporting structure.

(2). Remove plenum cover.

### B. Engine Plenum Access Cover Installation

(1). Position engine plenum access cover to align with mounting holes in fuselage.

(2). Install hardware attaching plenum cover to structure.

## 9. Tailboom Attach Fitting Inspection

(Ref. Figure 203) Inspect the upper left-hand and right-hand tailboom attach fittings, angles and nutplates as follows:

(1). Remove button plug from attach fitting access cover.

(2). Using a bright light, inspect fitting and angle:

(a). Inspect attach fittings for cracks.

**NOTE:** Pay particular attention to area around aft rivet holes. No cracks are allowed.

(b). Inspect angle for cracks.

(c). If any cracks are found in attach fitting or angle, contact MDHI Field Service Dept. for replacement instructions.

(3). Inspect nutplate for thread damage and cracks.

**NOTE:** Cracks would appear from top of self-locking nut split to base of nut.

(a). Replace nutplate if threads are damaged or cracked.

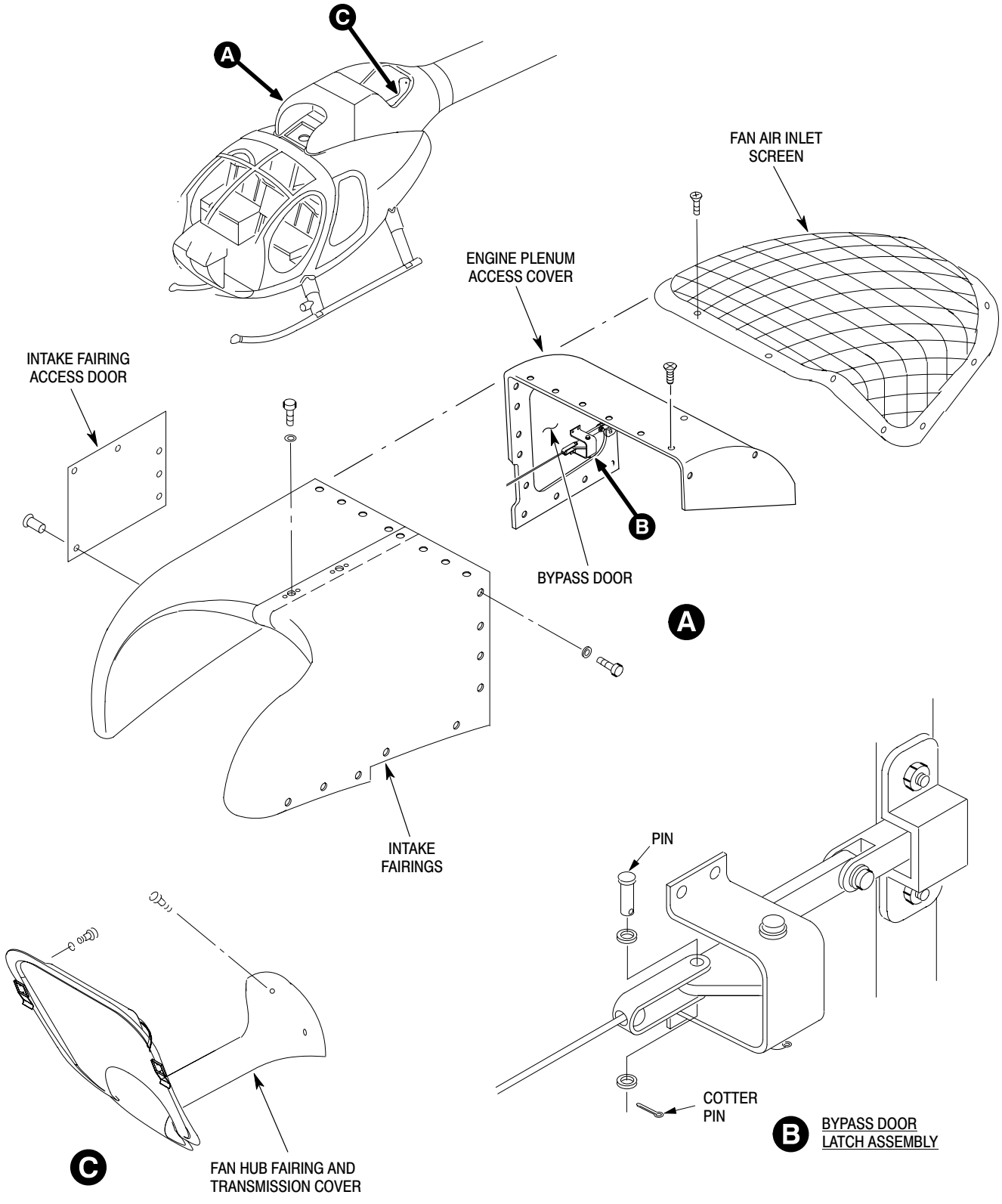



**Figure 201. Upper Aft Section (500N)**

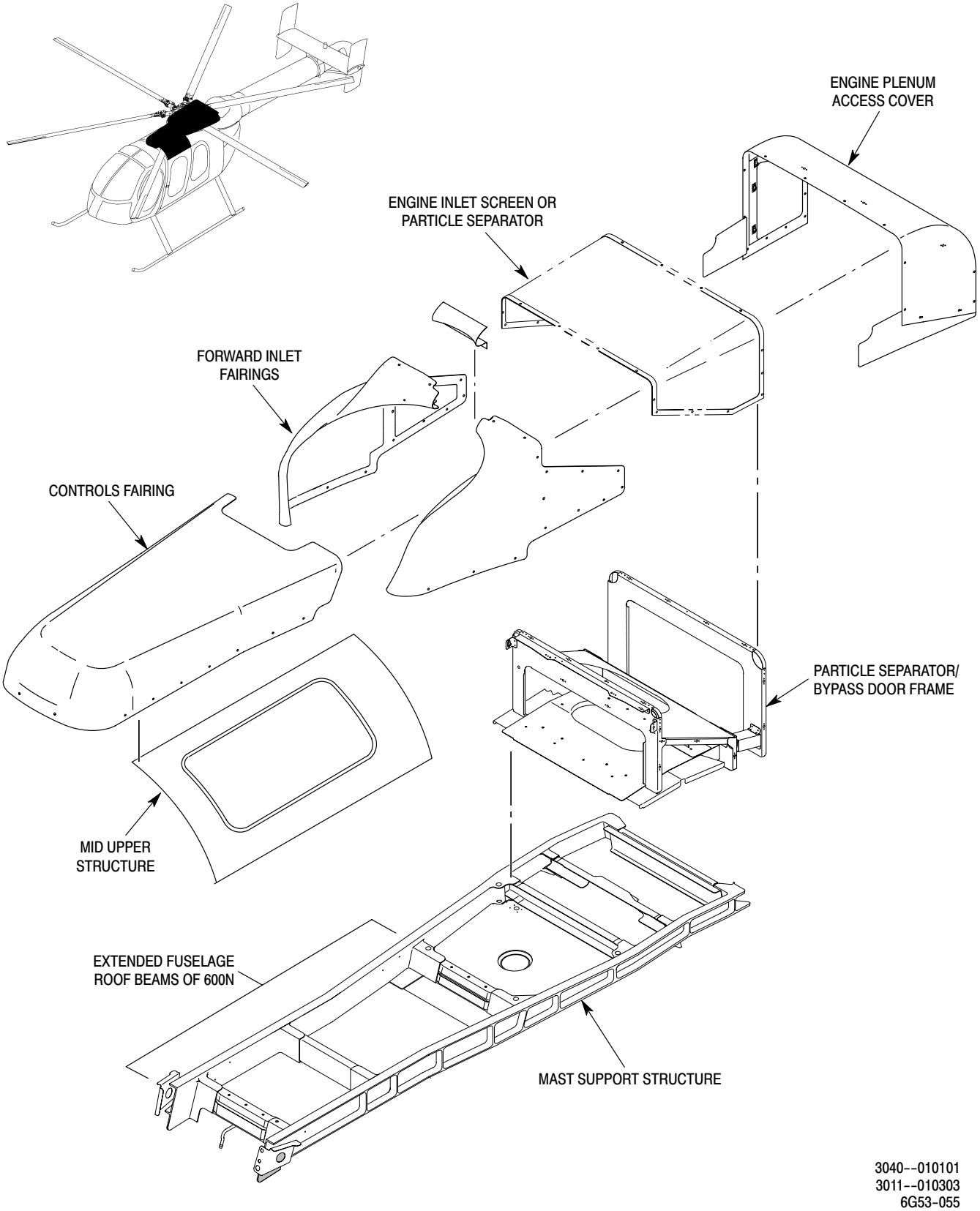



**Figure 202. Upper Aft Section Fuselage (600N)**

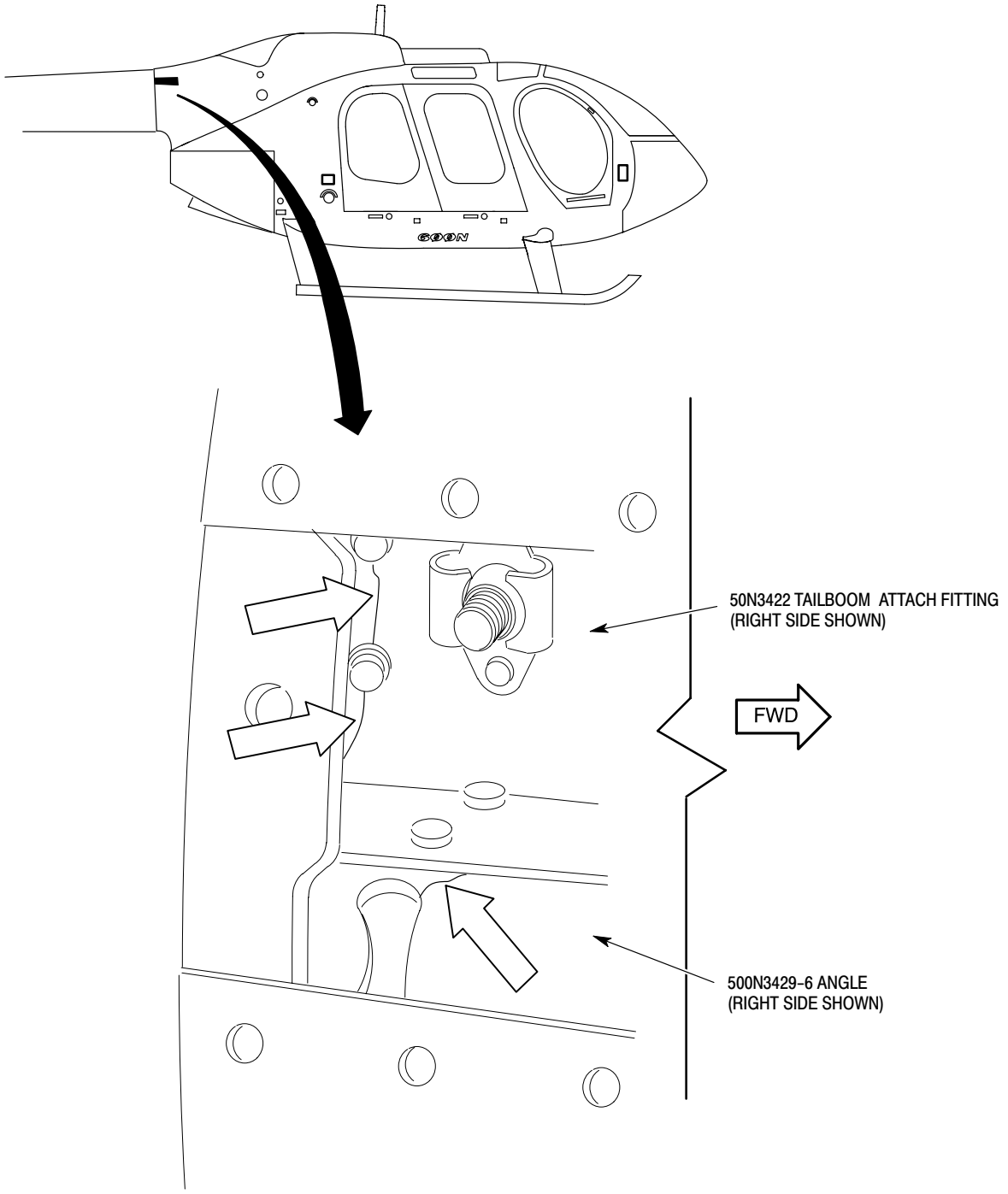



**Figure 203. Tailboom Attach Fitting Inspection**

6G53-103

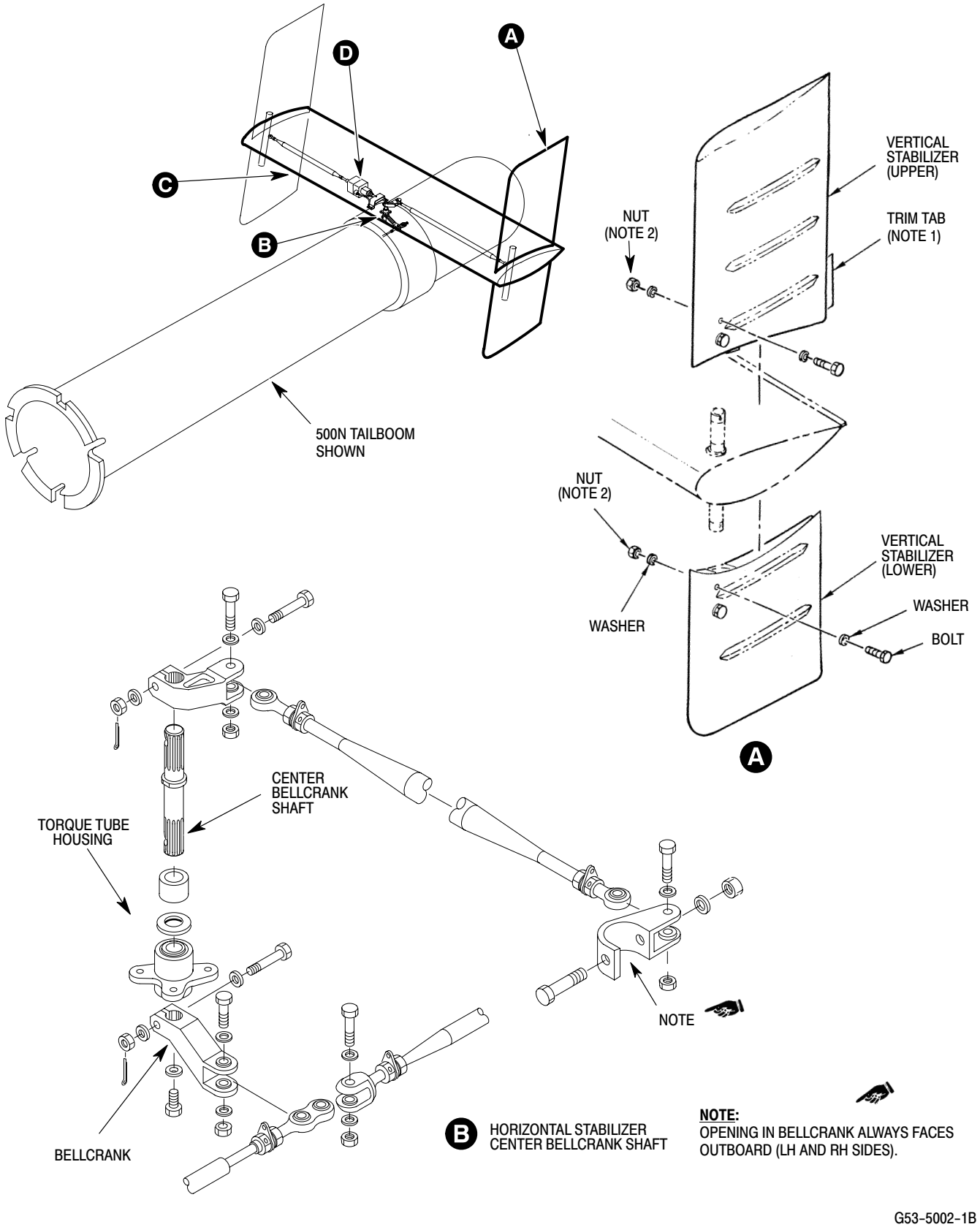
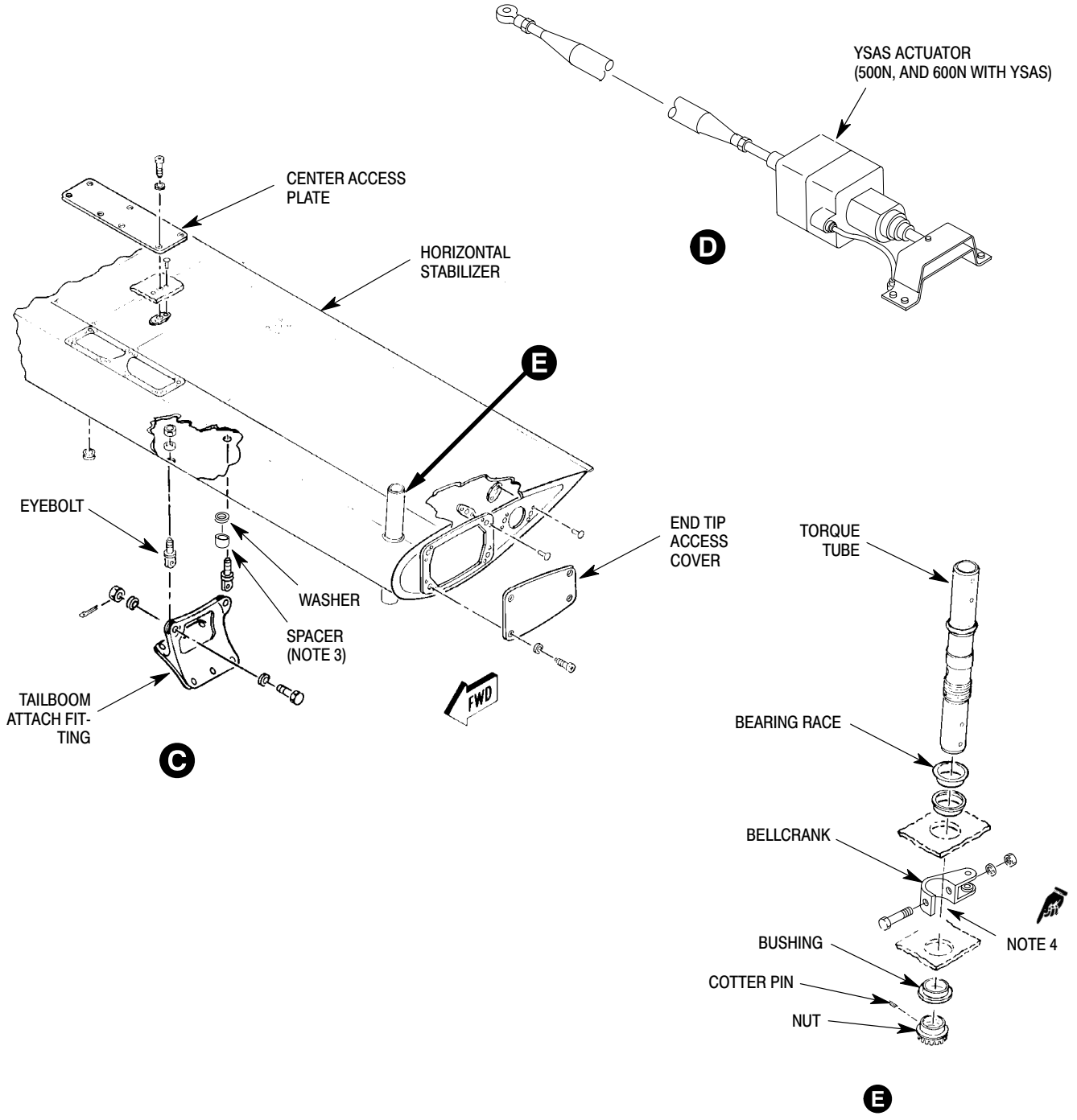



**Figure 201. Stabilizer Installation with YSAS (Sheet 1 of 2)**




**NOTES:**
1. TYPICAL LEFT AND RIGHT STABILIZERS (500/600N).
2. TORQUE 30 - 40 INCH-POUNDS (3.39 - 4.52 NM) PLUS DRAG TORQUE.
3. SPACERS INSTALLED ON AFT BOSS ONLY.
4. OPENING IN BELLCRANK ALWAYS FACES OUTBOARD (LH AND RH SIDES).

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**Figure 201. Stabilizer Installation with YSAS (Sheet 2 of 2)**

### 4. Horizontal Stabilizer Eye Bolt Replacement

#### A. Horizontal Stabilizer Eye Bolt Removal

(1). Remove horizontal stabilizer.

(2). Remove eye bolts by holding the flat surface of eye bolt with a wrench and removing nut.

#### B. Horizontal Stabilizer Eye Bolt Installation

(1). Install eye bolts in horizontal stabilizer, the short eye bolts in the forward holes and the longer eye bolts with spacer to the aft holes of horizontal stabilizer.

(2). Torque eye bolts to **80 - 120 inch-pounds (9.04 - 13.56 Nm) plus drag torque**.

(3). Install horizontal stabilizer.

### 5. Horizontal/Vertical Stabilizer Control Tube and Bellcrank Replacement

(Ref. Figure 201 and Figure 202)

#### A. Horizontal/Vertical Stabilizer Control Tube and Bellcrank Removal

(1). Remove horizontal stabilizer end tip covers and center access cover for access to bellcranks and control tubes.

(2). Remove cotter pin, nut, washer and bolt from center bellcrank shaft. Index mark bellcrank with grease pencil in relationship to shaft. Disconnect bellcrank.

(3). Disconnect control tube from vertical stabilizer torque tube bellcrank. Remove controls from horizontal stabilizer as required for maintenance.

#### B. Horizontal/Vertical Stabilizer Control Tube and Bellcrank Installation

Refer to adjustment and test control rigging during installation.

(1). Connect bellcrank to center bellcrank shaft and install bolt, washers and nut. Torque bolt to standard aircraft torque values and install cotter pin.

(2). Install control tubes and bellcranks as required, safety wire or cotter pin.

(3). Install center access plate with seven screws and washers.

### 6. Vertical Stabilizer Inspection

(Ref. Figure 201 and Figure 202)

(1). Inspect skin for cracks, bonding separation, delamanation and obvious damage.

(2). Inspect stabilizer for freedom of movement through pedal travel range, check for clearance between vertical to horizontal.

(3). Check mounting fitting holes for elongation.

### 7. Vertical Stabilizer Repair

Refer to MDHI Field Service Representative.

### 8. Horizontal Stabilizer Inspection

(1). Inspect skin for cracks, bonding separation, delamination and obvious damage.

(2). Inspect mounting fitting and attachment hardware for condition.

(3). Inspect center access panel and nut plate fasteners for condition, end tip plate access covers and position lights for condition.

(4). Inspect vertical stabilizer torques tubes for excessive axial and radial movement, 0.010 inch (0.254 mm) axial end play maximum allowable.

### 9. Vertical Stabilizer Torque Tube Replacement

#### A. Vertical Stabilizer Torque Tube Removal

(1). Remove vertical stabilizers (Ref. Vertical Stabilizer Replacement).

(2). Remove horizontal tip plate access cover and disconnect YSAS torque tube (if installed) from vertical stabilizer bellcrank.

(3). Remove bellcrank from torque tube by removing expandable bolt.

(4). Remove cotter pin, locknut and bushing from torque tube. Remove torque tube by lifting upward.

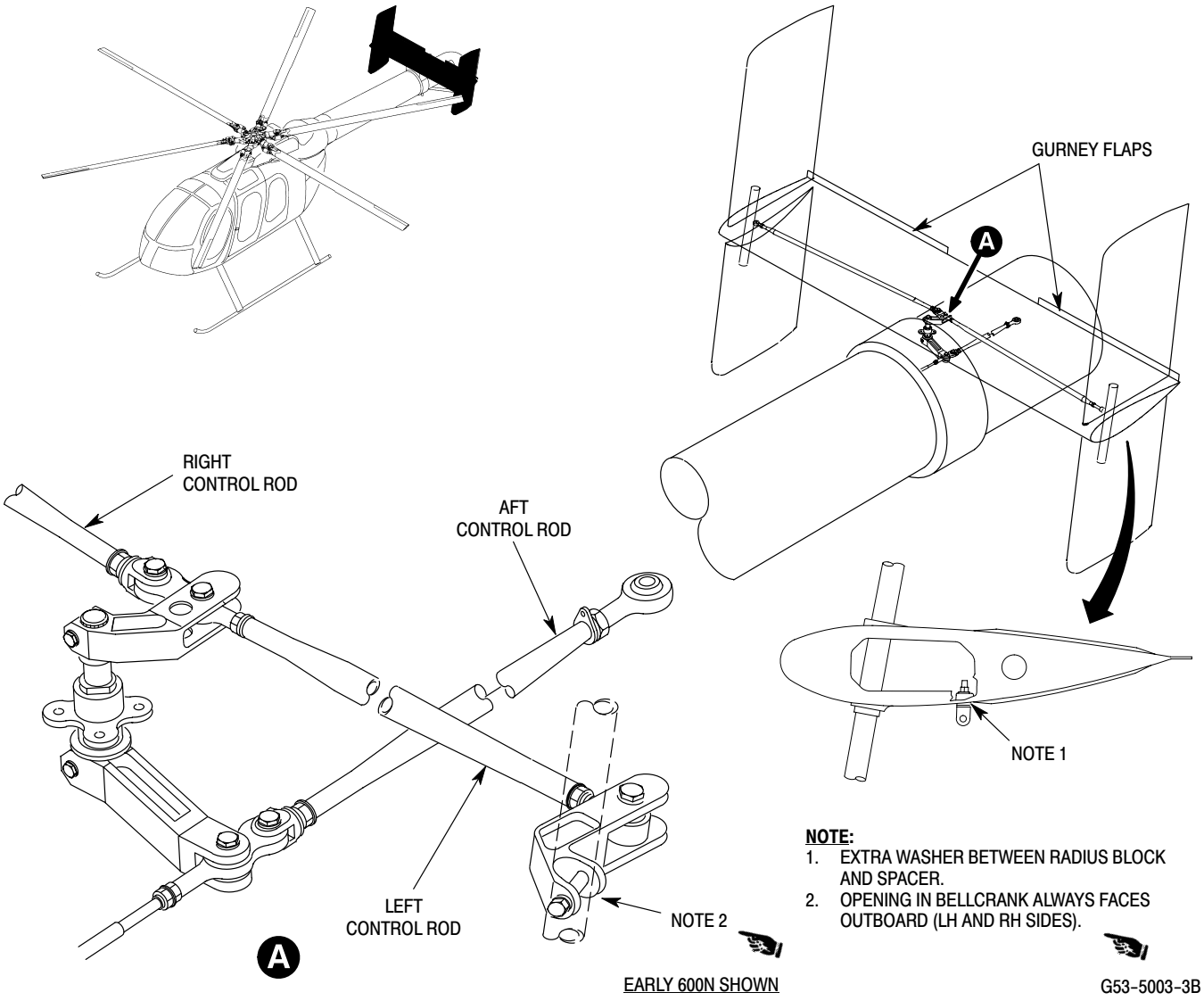



**Figure 202. Stabilizer Installation without YSAS**

### B. Vertical Stabilizer Torque Tube Installation

(1). Slide torque tube from the top thru the horizontal stabilizer.

(2). Apply one layer of teflon tape (CM726) to threads of torque tube prior to installing locknut.

(3). Install locknut, hand tighten and adjust to a 0.005–0.010 inch (0.127–0.254 mm) gap; Install cotter pin.

**NOTE:** When installing the bellcrank, opening in bellcrank must face outboard.

(4). Install bellcrank, with opening facing outboard, on torque tube and install expandable bolt; Torque to **30 - 40 inch-pounds (3.39 - 4.52 Nm) plus drag torque**; Install cotter pin.

(5). Connect YSAS actuator to vertical stabilizer torque tube bellcrank. Torque nut to **30 - 40 inch-pounds (3.39 - 4.52 Nm)** and install cotter pin.

(6). Install end plate access covers.

(7). Install vertical stabilizer (Ref. Vertical Stabilizer Replacement).

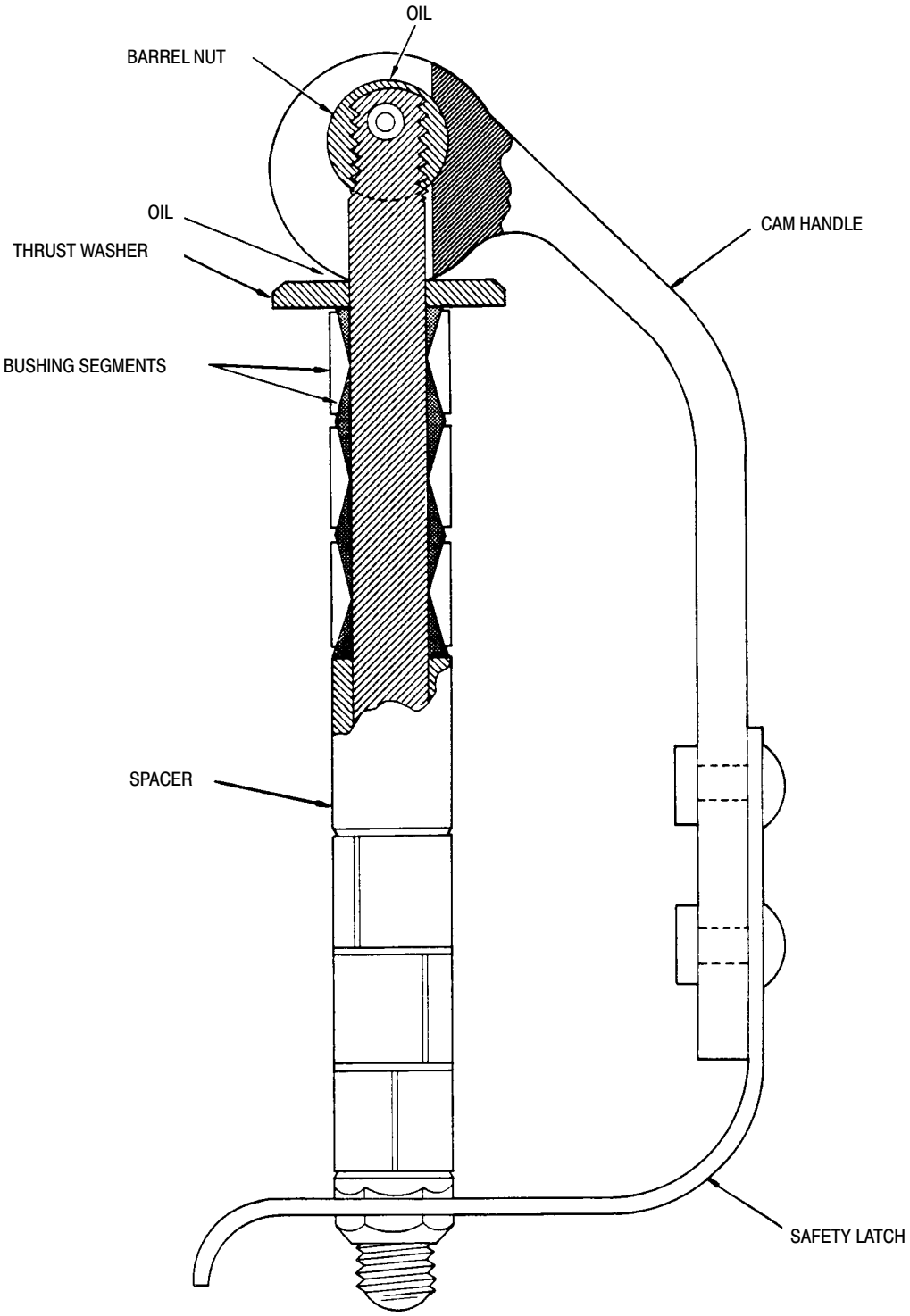



**Figure 603. Main Rotor Blade Attach Pin**

G62-1008

**NOTE:** If movement is suspected but cannot be verified with the blades installed, remove those blades and inspect bushings for movement.

(2). Using a bright light, inspect slippage marks on the root fitting bushings to ensure there has been no movement of the bushings. If bushings have moved, replace main rotor blade before next flight. Return those main rotor blades where bushing movement has occurred to MDHI for possible rework.

**CAUTION**

- If broken or cracked lugs are noted in main rotor blade upper and lower root fittings, replace main rotor blade before further flight (Ref. Main Rotor Blade Removal).
- If broken or cracked lugs are noted in main rotor lead–lag links, replace main rotor hub (Ref. Sec. 62–20) (Ref. **NOTE:** below).
- If cracking is suspected in either the rotor blade or hub lead–lag link attach lugs, perform dye penetrant (CM805) inspection of lugs per MIL–I–25135. If cracking is noted, replace main rotor blade (Ref. Main Rotor Blade Removal) or replace or repair main rotor hub assembly (Ref. Sec. 62–20), before further flight (Ref. **NOTE:** below).

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

### 6. Main Rotor Blade Upper and Lower Root Fitting, Attach Lug and Lead–Lag Link Attach Lug Inspection (100 Hour)

(Ref. Figure 604 and Figure 605) The following procedure pertains to helicopters equipped with 369D21100–BSC thru –523, 369D21120–501, 369D21102–BSC thru –523 and 369D21121–501 main rotor blades and/or 369H1203–BSC, –11, –21 and –31 lead–lag link assemblies.

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

| Item | Nomenclature |
|---|---|
| CM217 | Isopropyl alcohol |
| CM318 | Primer |
| CM420 | Sealant |
| CM805 | Dye penetrant kit |

(1). Remove affected main rotor blades (Ref. Main Rotor Blade Removal).

**CAUTION**

- If cracked or broken lug is noted in main rotor blade upper and lower root fittings, replace main rotor blade (Ref. Main Rotor Blade Removal) before further flight.
- If cracked or broken lug is noted in main rotor lead–lag links, replace or repair main rotor hub before further flight (Ref. Sec. 62–20) (Ref. **NOTE:** below).
- If a crack is suspected in either the rotor blade or lead–lag link attach lug, perform dye penetrant (CM805) inspection per MIL–I–25135 of lug. If a crack in noted, replace main rotor blade (Ref. Main Rotor Blade Removal) or replace or repair main rotor hub assembly (Ref. Sec. 62–20) (Ref. **NOTE:** below).

**NOTE:** Do not remove bushings or corrosion inhibiting sealer.

(2). Using bright light and 5X magnifying glass, visually inspect the attach lugs of all main rotor blade upper and lower root fitting and main rotor lead–lag links for broken or cracked lugs, corrosion or other damage to the lug areas.

**NOTE:**

- Pay particular attention to area around attach pin hole bushings in the lugs.
- Pay particular attention to the cross–hatched areas.

(3). If slippage marks have already been applied, inspect the root fitting for any indication of movement of the bushings; no movement is allowed. Return main rotor blades that have root fitting bushing movement to MDHI for

# MAIN ROTOR BLADE
# REPAIRS

## 1. Main Rotor Blade Repair (Nicks, Scratches and Wear Spots)

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

| Item | Nomenclature |
|---|---|
| CM206 | Chemical coating |
| CM801 | Abrasive paper, silicon carbide |

(Ref. Figure 601)

**CAUTION** Do not use chemical paint remover to remove paint from abrasion strip. Chemicals can attack the abrasion strip to blade bonding agent.

(1). Using abrasive paper (CM801), not coarser than grade 320, remove nicks, scratches and wear spots from upper and lower root fittings, and from blade skin.

(2). Use finer grade of paper, as necessary to restore surface roughness to original finish.

(3). Remove material in such a manner that no abrupt changes occur in surface contours.

(4). Apply chemical film surface treatment (CM206) to repaired surface(s) (Ref. Sec. 20–30).

## 2. Main Rotor Blade Repair (Dents, Depressions and Erosion)

(Ref. Figure 602)

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

| Item | Nomenclature |
|---|---|
| CM220 | Naphtha aliphatic |
| CM229 | Paint remover |
| CM234 | Solvent, dry-cleaning |
| CM304 | Enamel, epoxy |
| CM507 | Resin, filler |
| CM508 | Resin, filler |
| CM708 | Tape |
| CM801 | Abrasive paper, silicon carbide |

**CAUTION**

- Repair only those damaged areas that are within repairable limits specified.
- Do not use chemical paint remover to remove paint from abrasion strip. Chemicals can attack the abrasion strip to blade bonding agent.

(1). Using abrasive paper (CM801), not coarser than grade 320, remove paint from surface area to be repaired.

(2). Clean abraded area with clean cloth dampened by solvent (CM234). Allow to dry for minimum of 15 minutes.

(3). Mask edges of repair areas with one layer of tape (CM708).

**CAUTION** Do not cut tape after it is applied to blade.

(4). Mix filler (CM507), three parts ”A” and two parts ”B” by weight. Mix thoroughly until mixture is dark red in color. An alternate filler (CM508) may be used if equal parts ”A” and ”B” by weight are mixed.

(5). Allow filler to cure for minimum of 24 hours at room temperature.

(6). Smooth filler area with grade 400 abrasive paper (CM801). Limit smoothing to masked area.

(7). Remove the tape and inspect alclad coating of area around repair. Penetration of coating is cause for blade replacement.

(8). Clean repaired area with a cloth dampened by solvent (CM220).

(9). Apply chemical film treatment to repaired surface (Ref. Sec. 20–30–00).

(10). Touch–up reworked area with paint (CM304) as required.

### 3. Trim Tab Damage Repair

(Ref. Figure 802)

| Consumable Materials (Ref. Section 91–00–00) | |
|---|---|
| Item | Nomenclature |
| CM206 | Chemical coating |
| CM220 | Naphtha aliphatic |
| CM234 | Solvent, dry-cleaning |
| CM304 | Enamel, epoxy |
| CM318 | Primer |

**CAUTION** Provide protective surface and/or covering to prevent scratching, nicking or other damage to blade during rework. Position blade on work bench or equivalent.

**NOTE:** No minimum length of trim tab is required. In addition, the entire trim tab, or portion of the trim tab, may be removed if required. Removal of entire trim tab eliminates adjustment of blade tracking capability for that blade. Main rotor blades with and without trim tabs are 100% interchangeable, individually and in ship sets.

(1). Remove main rotor blade with damaged trim tab.

(2). Wipe away dirt on and around trim tab area with clean cloth dampened with dry cleaning solvent (CM234).

(3). Mask edges of blade area around trim tab area with tape; do **NOT** cut tape after it has been applied to blade.

(4). Remove damaged area of trim tab by making V-type cut with 45° sides joined by a 0.25 inch (6.35 mm) radius at the bottom of the V. Maximum V-cut depth is 0.35 inch (8.89 mm); do not cut past trim tab area into main portion of blade.

(5). If damage occurs within 1 inch (2.54 cm) of either or both ends of trim tab, remove tab end(s) and restore contour as shown.

(6). If excessive damage requires full or partial removal of trim tab from blade, perform the following (no minimum length of trim tab is required):

(a). Position blade on workbench so that a straight edge is provided for cutting or filing off trim tab.

**CAUTION** Cutting, grinding or filing to remove trim tab, and deburring of reworked blade trailing edge, are to be performed in a **SPANWISE** direction only. Do **NOT** use shears or clippers to remove trim tab.

(b). Use metal cutting saw or equivalent to remove the 0.38 inch (9.65 mm) wide trim tab per dimensions shown Ref. Figure 802, View A-A). Deburr edges in a **SPANWISE** direction only.

(7). Peel and remove tape from blade and inspect area around repair; clean repaired area with cloth dampened in naptha (CM220).

(8). Apply chemical film treatment (CM206) to reworked area of blade trailing edge or trim tab; apply a thin film of primer (CM318) and paint (CM304) lightly.

(9). Reinstall main rotor blade and perform track and balance (Ref. Sec. 18-10).

**NOTE:** Removal of entire trim tab eliminates adjustment of blade tracking capability for that blade.

### 4. Forward Tip Cap Threaded Insert Repair

| Consumable Materials (Ref. Section 91–00–00) | |
|---|---|
| Item | Nomenclature |
| CM318 | Primer |

Replace a loose or stripped insert. Use self-locking insert of correct size and install with wet primer (CM318). Comply with replacement requirements of applicable NAS standard.

(11). Inspect all parts of main rotor hub for cracks, breaks, scratches and nicks. (Refer all questionable damage to MDHI for disposition.)

(12). Inspect lower shoe scissors attach bearings for binding, looseness in bore and wear. Maximum wear limits are 0.010 inch (0.254 mm) radial and 0.020 inch (0.508 mm) axial.

(13). Inspect each of six main rotor retention strap packs (Ref. Main Rotor Strap Pack Lamination Inspection) at specified intervals (Ref. Section 05-10).

### 3. Lead–Lag Bolt Inspection

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

| Item | Nomenclature |
|---|---|
| CM318 | Primer |
| CM425 | Sealing compound |

(1). Inspect interiors of lead-lag bolts using bright light and 5X glass for cracks or corrosion.

(a). Remove cotter pin securing nut to lower end of lead-lag bolt. Do not disturb torque on nut or remove nut.

(b). Remove screw, nut, washers and balance hardware, if installed, from lead-lag bolt.

(c). Inspect bolt interior. Treat minor surface corrosion if noted (Ref. Lead-Lag Bolt Corrosion Control). If corrosion pitting or cracks are noted remove and replace hub.

(d). Swab entire ID of bolt with primer (CM318).

(e). Reinstall screw, nut, washers and balance hardware removed in step 2. Ensure hardware is installed exactly as removed. Torque MS21042L08 locknut on screw to **20 - 35 inch-pounds (2.26 - 2.82 Nm)**. Torque MS21042L3 locknut on screw to **30 - 60 inch-pounds (3.39 - 6.78 Nm)**. Coat exposed screw threads, washers and nut with sealant (CM425).

**NOTE:** Excessive amount of sealant can unbalance rotor system. Apply light but thorough coat of sealant.

(f). Install new cotter pin to secure nut to lead-lag bolt.

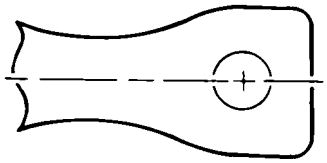
### 4. Main Rotor Strap Pack Lamination Inspection

**CAUTION**

- Figure 601 and Figure 602 depict the main rotor hub and strap pack assembly disassembled for clarity of location and area to be inspected for cracks. Under no circumstances should the strap pack or main rotor hub assembly ever be disassembled in the field. MDHI and MDHI Approved Licensees are the only approved repair stations for main rotor hub assembly overhaul.
- If a hub assembly or strap pack assembly (other than new parts in storage) are subjected to extended periods of non-use, whether installed on the helicopter or not, the strap assembly should be inspected critically for corrosion and pitting before return to service. If corrosion is found on the strap pack assemblies, contact MDHI for disposition.
- It is acceptable to operate a helicopter with a hub assembly having a strap pack with one failed laminate in any one leg of the strap assembly. When a laminate in the strap assembly fails, the remaining laminates pick up and carry the load. This increased load causes slightly more elongation in the remaining laminates of that leg thus shifting the mass of the rotor system. Any time a vibration develops or there is an increase in vibration level over a short period of time, the main rotor strap pack assembly should be inspected for cracked or failed laminates.

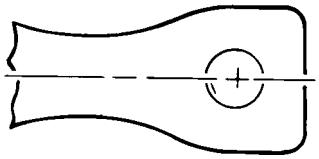
**NOTE:** Conduct inspection indoors, if possible, or in a shaded area to eliminate glare of sun or bright outdoor light. To facilitate inspection, field fabricate and use plastic inspection tool and wooden probe (Ref Figure 602).

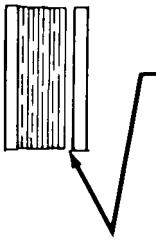
(1). Remove main rotor blades.



ALL LAMINATES STRAIGHT,
NO GAPS.

DETAIL 1 **ACCEPTABLE**

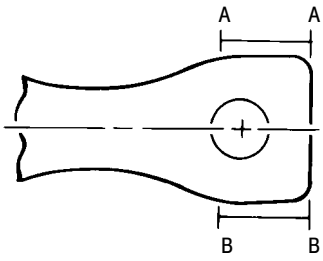


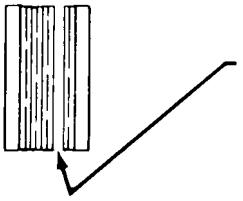


ALL LAMINATES STRAIGHT. SINGLE GAP
EXISTING ADJACENT TO EITHER SHOE.

DETAIL 2 **ACCEPTABLE**

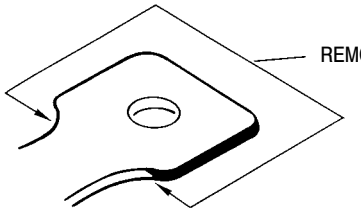
**NOTE:**
WHILE TEFLON MAY APPEAR WRINKLED AND EXTEND PAST END OF LAMINATES, PREVENTING CLEAR VIEW OF LAMINATES. WHEN THIS OCCURS, LOOK ALONG EITHER SIDE IN AREA A-A OR B-B (DETAIL 3).



ALL LAMINATES STRAIGHT. SINGLE GAP
EXISTING ANYPLACE WITHIN LAMINATES.

DETAIL 3 **ACCEPTABLE**



REMOVE EXCESS TEFLON IN THIS AREA

6G62–078–1

**Figure 602. Strap Pack Lamination Inspection (Sheet 1 of 2)**

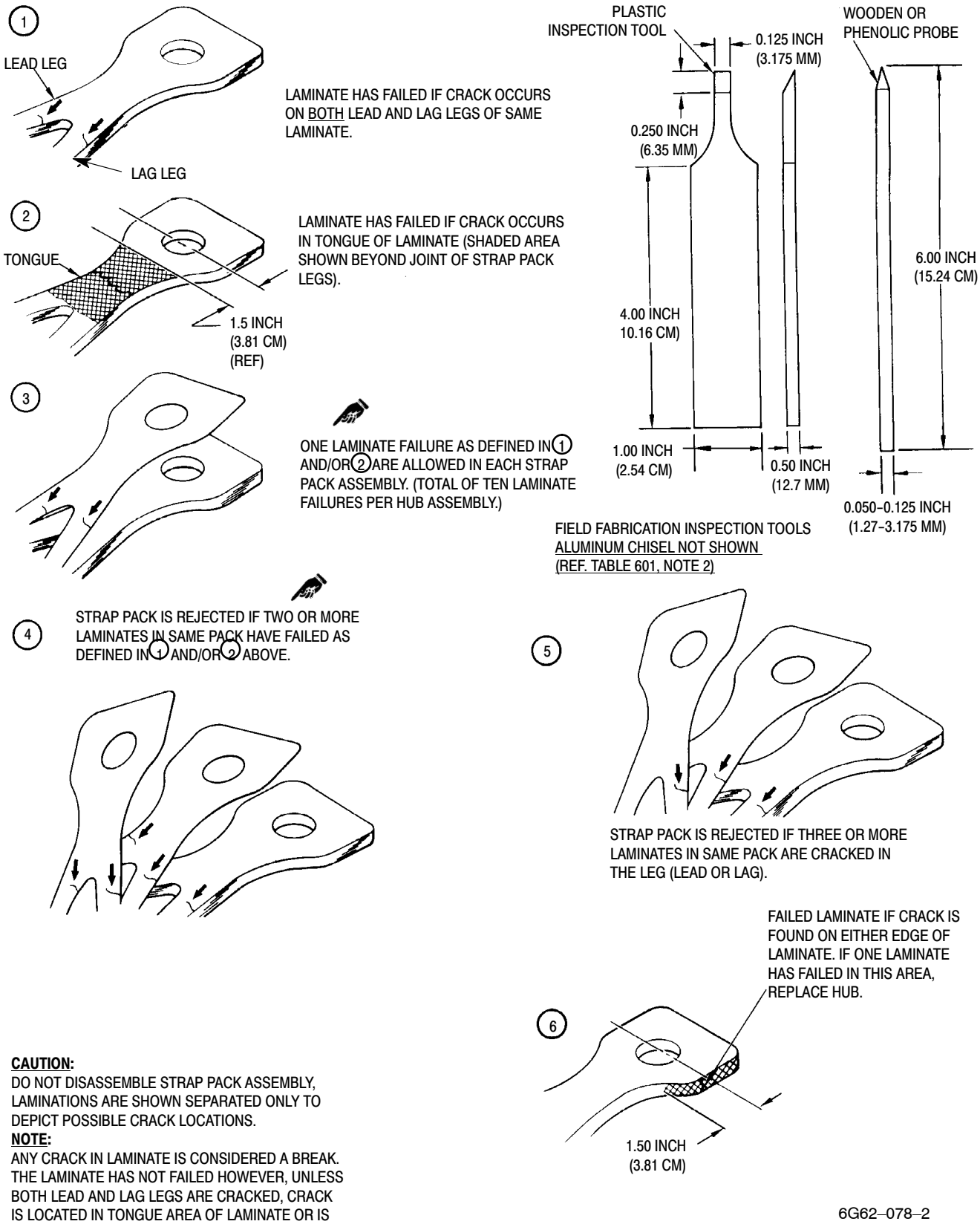



**Figure 602. Strap Pack Lamination Inspection (Sheet 2 of 2)**

**Table 601. Strap Pack Inspection**

| Inspect | Procedure (1) | For | Acceptable | Replace or Return Hub for Overhaul |
|---|---|---|---|---|
| Outboard end. | Visually. Use blunt nosed wooden or phenolic probe (Figure 602). Probe at upper and lower end of pack. Failed laminate in lead or lag leg will move away from other laminates. | Failed laminates (3). | One or less per pack. | Two or more laminate failures in one pack. |
| | Visually. | Gaps between laminates. | Single straight gap not exceeding 0.03 inch (0.762 mm) within pack or next to either upper or lower outer shoe. | More than one gap found; gap exceeds acceptable limit. |
| | Visually using light and mirror (2). | Cracks or breaks. | None. | Cracks or breaks are noted. |
| In area of and within pitch housing assemblies. | Visually with light and mirror (2). | Cracks or breaks. | One or less laminate failures per strap pack (2). | Two or more laminate failures (2) in a pack; two or more laminates in pack with crack in same leg (lead or lag). |
| Cushioning laminates at each of two attach points. | Visually with light and mirror. | Crack or break. | None | Cracks or breaks are noted. |

**NOTES:**

(1) Conduct visual inspections indoors or in shaded area to eliminate glare of sun or bright outdoor light.

(2) Removal of teflon covering is required for visual inspection of laminate edges. Use aluminum chisel, fabricated from stock 0.025 x 6.00 x 0.100 (6.35 x 152.4 x 25.4 mm) to carefully scrape excess interlaminate teflon sheets from both sides of strap pack between top and bottom shoes at outboard attachment bolt of all six strap packs. Remove excess teflon from a point 0.50 inch (12.7 mm) outboard of bolt centerline to 1.50 inches (38.1 mm) inboard of bolt centerline. Field fabricate and use plastic tool (Ref. Figure 602). Run plastic tool in both directions along each laminate feeling for cracked laminate. Use of plastic tool will ensure that shreds of teflon still hanging free does not obscure small cracks.

(3) Laminate has failed if crack is found in tongue area or if crack is found in both legs (lead and lag).

(2). If required, trim teflon from edges of laminates using a aluminum chisel. Fabricate chisel from stock, 0.250 x 6.00 x 0.100 inch (6.35 x 152.4 x 25.4 mm). Carefully scrape excess interlaminate teflon sheets from both sides of strap pack between top and bottom shoes at outboard attachment bolt of all six strap packs.

**NOTE:**

- Do not pry at strap pack assemblies with sharp or hard edged tools. If edges become nicked or laminates get scratched, additional cracking can occur thus causing hub replacement.
- Where accessible, ends of acceptable cracked or broken laminates should be taped to prevent scratching and damaging of adjacent laminates.

(3). (Ref. Figure 602 for field fabricate plastic tool) Run plastic inspection tool in both directions along each laminate, feeling for a "catch" from a crack on a single laminate. Use the wooden or phenolic probe and probe at upper and lower end of pack. Failed laminate in lead or lag will move away from the other laminates. If the adjacent upper and lower laminates remain in tension under the probing operation, no laminate failures have occurred.

(4). Using a light and mirror, visually inspect each of the main rotor strap pack assemblies for evidence of cracks or breaks in strap pack laminates in the areas of the outboard shoes and pitch housing assemblies.

(5). Using a 10X magnifying glass, visually inspect the edge of strap pack laminates on both sides at outboard end of blade pitch housing (area between outboard shoes).

(6). Use the following as acceptance/rejection criteria for laminate inspection:

(a). A **laminate** has failed if cracked in tongue area or in lead and lag legs of the same laminate.

(b). Reject **strap pack** and return hub for overhaul when:

1). Two or more laminates in a single strap pack have failed.

2). Two or more laminates in a single strap pack are cracked in the same lead or lag leg.

3). One laminate is cracked at the outboard end in the area between outboard shoes (Ref. Figure 602).

4). There are two or more gaps in the same strap pack. A single gap in any one strap pack assembly is allowed.

(7). Visually inspect strap pack assemblies for evidence of corrosion. If corrosion is found on strap pack laminates contact MDHI service department for disposition.

(8). Inspect upper, lower and center cushioning laminates for cracks and breaks (Ref. Figure 601).

**NOTE:** Cracks, breaks or other noticeable damage to the cushioning laminates require main rotor hub overhaul/replacement.

(9). Record location of all cracked/broken laminates in Helicopter Log Book including strap serial number, blade color, leg (lead or lag) and laminate position, if possible, numbering from the top down.

(10). Install main rotor blades.

### 5. Main Rotor Hub Droop Angle Check

(Ref. Figure 805) Whenever new or replacement main rotor hub is installed or whenever excessive droop angle is suspected, measure static droop angle of all six rotor blades. Droop angle must be 5.5 ±0.5 degrees.

**Special Tools**
**(Ref. Section 91–00–00)**

| Item | Nomenclature |
|---|---|
| ST206 | Prop protractor |
| Left–Hand Command: | |
| ST501 | Collective rigging fixture (LH command) |
| ST504 | Longitudinal rigging fixture (LH command) |
| ST506 | Lateral rigging fixture (LH command) |
| Right–Hand Command | |
| ST502 | Collective rigging fixture (RH command) |
| ST505 | Longitudinal rigging fixture (RH command) |
| ST507 | Lateral rigging fixture (RH command) |

(1). Install cyclic lateral rigging fixture (ST506 or ST507), cyclic longitudinal rigging fixture (ST504 or ST505), and collective rigging fixture (ST501 or ST502).

(2). Rotate main rotor to position one blade over tailboom.

(3). Raise and support other five blades until five corresponding droop stop rollers no longer contact their striker plates.

(4). Place accurate prop protractor (ST206) on top of main rotor drive shaft. Adjust protractor to zero setting.

(5). Place protractor on machined surface of outboard end of blade pitch housing, alongside lead–lag bolthead. Measure and record static droop angle.

(6). Repeat (2). thru (5). above for remaining blades.

(7). Maximum allowable static droop angle is six degrees. If measured droop angle exceeds six degrees, inspect striker plate and roller for excessive wear and adjust droop angle (Ref. Main Rotor Hub Droop Angle Adjustment).

### 6. Main Rotor Damper and Attachments Inspection

**CAUTION** Excessive lead–lag load applied to the main rotor blades during ground handling can result in damage to the elastomeric damper buns and failure of the damper assembly. Operators and maintenance personnel should use extra caution to avoid lead–lag loads in excess of **35 pounds (155.68 N)** at the tip of the main rotor blades.

(1). Inspect bearing in rotor blade and bearing in the pitch housing for looseness around outer race. No degree of radial or axial play is permitted.

(2). Inspect pitch housing and blade bearings for binding, galling, or scoring in bore and for wear. No radial play is permitted. Maximum allowable axial play is 0.015 inch (0.381 mm).

(3). Inspect clevis bushings for wear and looseness.

(4). Inspect damper flange bushing for wear and play.

(5). Inspect lower bolt hole in damper flange for wear.

(6). Inspect damper housing (including flanges) for damage.

(7). Inspect damper turnbuckle, jamnuts and safetywire for security. No end play is permitted when manually tested.

**NOTE:** When performing lead–lag of main rotor blades, apply rotor brake (if installed) or have assistant hold main rotor hub from moving. A second assistant is recommended to measure approximate damper extension and compression.

(8). Lead–lag each main rotor blade in turn to provide approximately 0.10 inch (2.54 mm) extension and compression of the damper elastomer.

# TABLE OF CONTENTS (Cont.)

# TABLE OF CONTENTS (Cont.)

| Para/Figure/Table | Title | Page |
|---|---|---|

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### 3. Fan Transmission Inspection

(1). Check transmission for leaks, cracks, and corrosion. To evaluate oil leakage refer to Component Fluid Leak Analysis (Ref. Sec. 12-00-00). For further inspection criteria, please contact MDHC Customer Support Department.

### 4. Tube Support Inspection

(1). Inspect mount bolts for security and corrosion, lockwire intact.

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

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

(4). If step is evident:

(a). Measure between splines using 0.0864 in. (2.19456 mm) diameter pins.

(b). Maximum measurement between pins is 0.390 in. (9.906 mm).

### 5. Fan Transmission Parts Replacement

(Ref. Figure 202)

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

| Item | Nomenclature |
|---|---|
| CM114 | Petrolatum |
| CM222 | 1,1,1-Trichloroethane |
| CM311 | Coating, logo white / Thinner |
| CM702 | Lockwire CRES |

**NOTE:** Replace liquid level plug, chip detector, and breather assy using torque values in the following paragraphs. Lubricate O-rings with petrolatum (CM114) to prevent damage to O-rings. Repair other components or replace transmission oil seals if required (Ref. COM).

(1). Chip Detector Torque valve body (large hex) to **50 - 60 inch pounds (5.65 - 6.78 Nm)** or **40 - 50 inch pounds (4.52 - 5.65 Nm)** (smaller hex).

(2). Liquid Level Plug Torque liquid level plug to **50 - 60 inch pounds (5.65 - 6.78 Nm)**. If level lines and lettering of liquid level plug cannot are not parallel with axis of transmission output shaft when torqued within **50 - 60 inch pound (5.65 - 6.78 Nm)** range, clean glass by firmly rubbing with soft cloth, then mix white coating (CM311) with equal amount of thinner and apply lines and lettering. Safety with lockwire (CM702).

(3). Oil Breather Assy Torque breather assy to **45 - 55 inch pounds (5.08 - 6.21 Nm)**. Ensure breather hole is facing up. Safety with lockwire (CM702).

**NOTE:** If oil breather assy becomes clogged, use light air pressure, approximately 5 psig (34 kPa) or a 0.125 inch (3.175 mm) dia. rod applied into the threaded end to dislodge debris. Ultrasonically clean breather in solvent (CM222) for ten minutes.

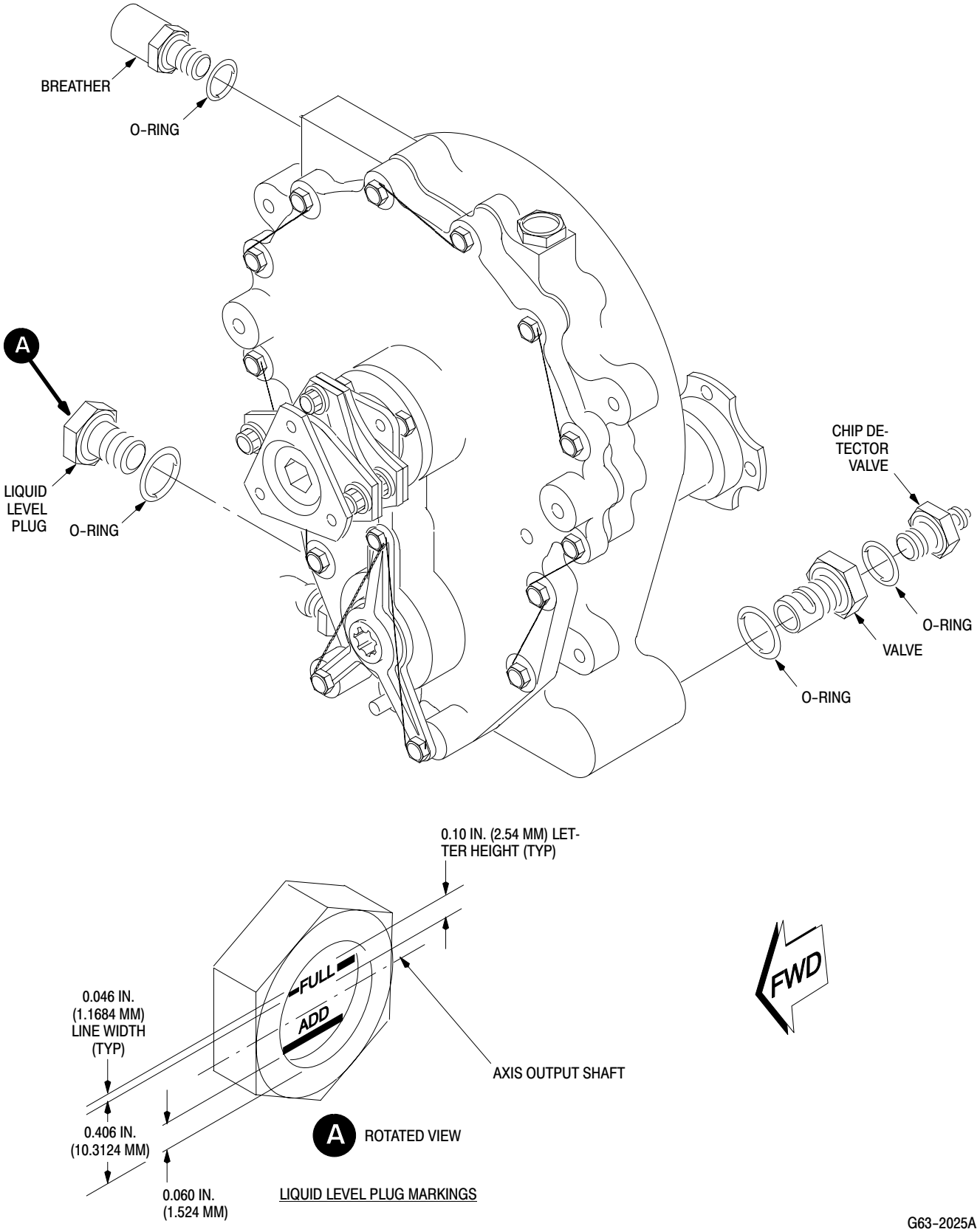



**Figure 202. Fan Transmission Parts Replacement**

# ANTI–TORQUE FAN

# REMOVAL/INSTALLATION

## 1. Anti–Torque Fan Assembly

The purpose of the fan is to provide anti-torque control using a variable flow of air, across variable pitch blades, down the tailboom. The anti-torque fan liner, felt metal seal, provides a controlled gap between the fan and the felt metal seal for optimum efficiency of the fan during flight.

**NOTE:** The NOTAR® anti-torque control system must be re-rigged immediately after replacement of any component, control rods, or linkages, and if helicopter operation reveals a rigging deficiency.

## 2. Anti–Torque Fan Replacement

(Ref. Figure 401 and Figure 402)

**Special Tools (Ref. Section 91–00–00)**

| Item | Nomenclature |
|---|---|
| ST605 | Fan nut socket |

### A. Anti–Torque Fan Removal

(1). Remove tailboom (Ref. Sec. 53-40-30).

(2). Remove nut and lock washer from aft tube assembly.

(3). Remove fan pitch control tube (Ref. Sec. 67-20-30, Fan Pitch Control Tube Removal).

(4). Remove six bolts, washers and pitch control housing from fan.

(5). Remove lock washer from nut and shaft by releasing the holding tangs from lock nut and pull locking ring from support shaft knurl.

(6). Remove locknut in a counter-clockwise direction, using coupling socket (ST605) and coupling holding fixture tool.

(7). Remove washer from shaft.

(8). Remove fan from helicopter.

### B. Anti–Torque Fan Installation

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

| Item | Nomenclature |
|---|---|
| CM702 | Lockwire CRES |

(1). Align and install fan assembly on support shaft.

(2). Install washer on shaft.

(3). Install locknut and torque nut to **40 - 42 foot-pounds (54 - 57 Nm)**. Install lock washer.

(4). Install pitch bearing housing using six bolts and washers, Torque bolts to **80 - 100 inch-pounds (9.04 - 11.30 Nm) and lockwire** (CM702).

(5). Install fan pitch control tube (Ref. Sec. 67-20-30, Fan Pitch Control Tube Installation).

(6). Install tailboom (Ref. Sec. 53-40-30).

## 3. Anti–Torque Fan Blade Replacement

(Ref. Figure 401)

**NOTE:** When a blade needs replacement for any reason, whether it be service related or at overhaul, replace the associated retention pin.

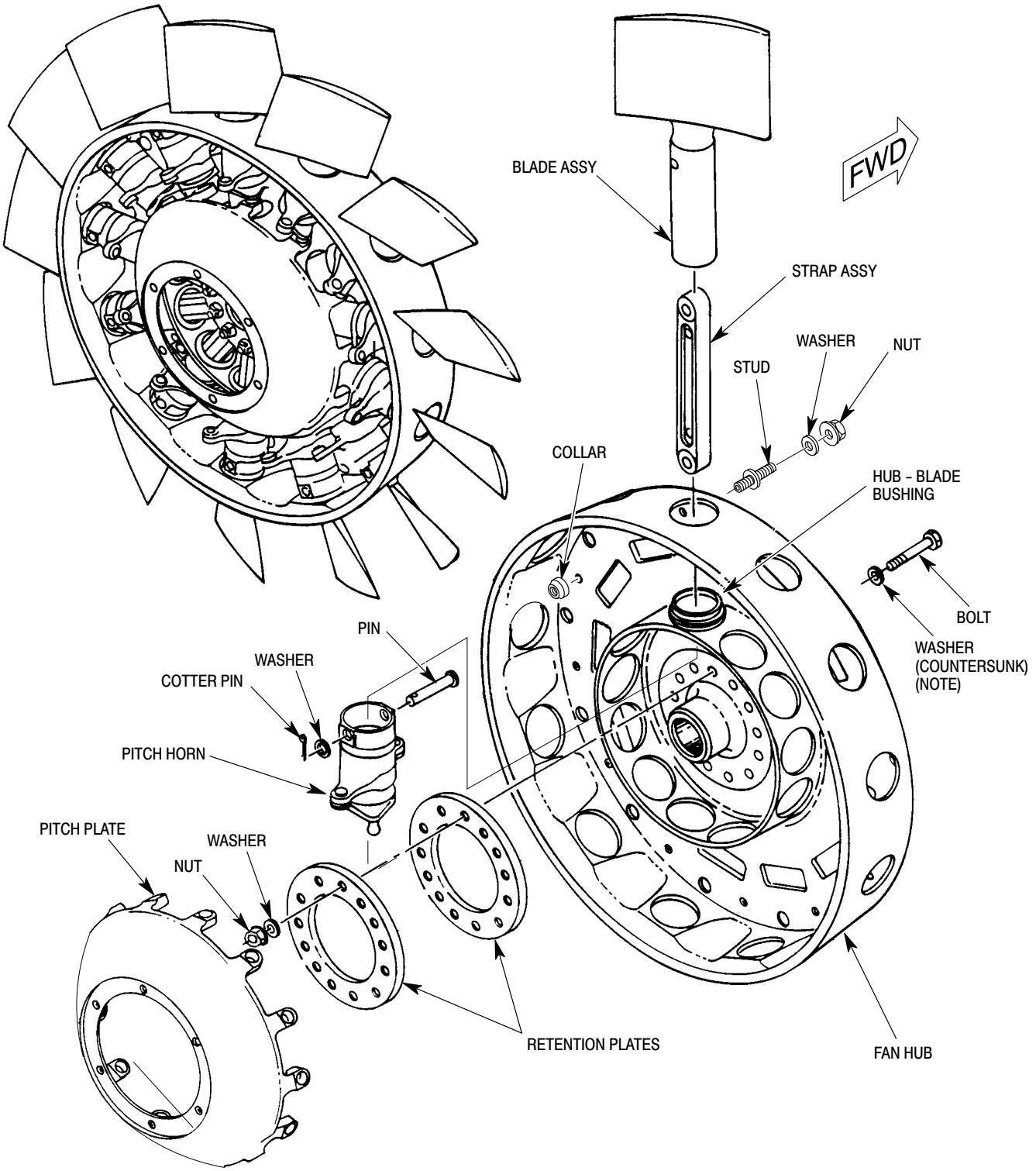
### A. Anti–Torque Fan Blade Removal

(1). Remove anti-torque fan from helicopter (Ref. Anti-Torque Fan Removal).

(2). Remove fan blade from strap assembly by removing cotter pin, washer and pin.

### B. Anti–Torque Fan Blade Installation

(1). Install fan blade and align retention hole with upper strap assembly retention hole.




**NOTE:**
INSTALL WASHER WITH COUNTERSINK AGAINST BOLT-HEAD.

G64-2005A

**Figure 401. Anti–Torque Fan**

# TABLE OF CONTENTS (Cont.)

# TABLE OF CONTENTS (Cont.)

# TABLE OF CONTENTS (Cont.)

# TABLE OF CONTENTS (Cont.)

| Para/Figure/Table | Title | Page |
|---|---|---|

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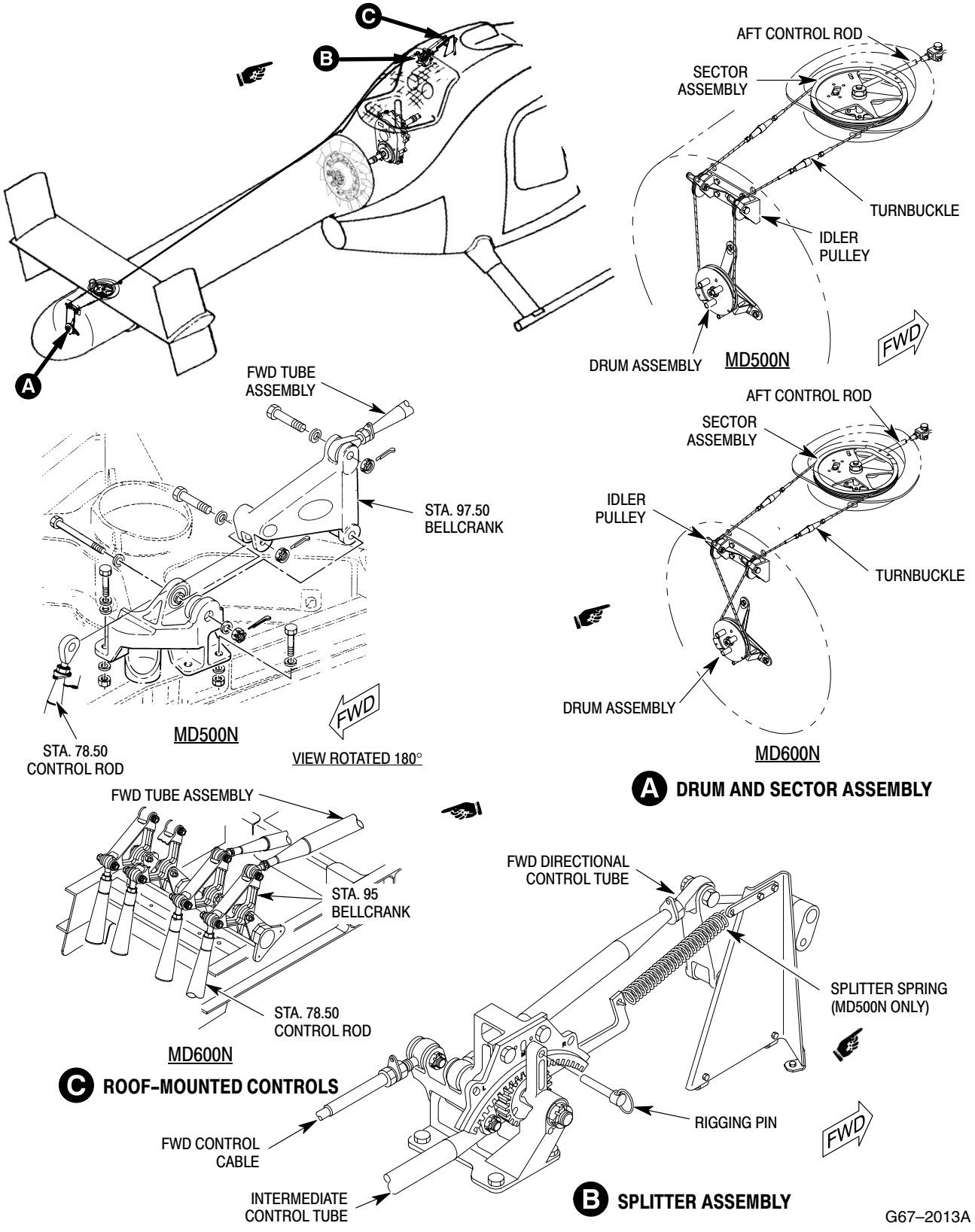



**Figure 401. Anti–Torque Control System**

### B. Intermediate Control Tube Installation

(1). Carefully feed intermediate control tube through boot if installed and forward air inlet to bellcrank at Sta. 137.50.

(2). Connect control tube and check that bushings are in place.

(3). Install impedance bolt as follows:

**NOTE:** Install bolt–head up, nut facing down.

(a). Depress pin in head of bolt to install bolt though clevis assembly.

**NOTE:** In the following step, pin is to remain depressed while nut is torqued.

(b). While pin is depressed, install nut and torque to **40 - 50 inch-pounds (4.52 - 5.65 Nm)**.

(c). Release pin and retorque nut to **75 - 90 inch-pounds (8.47 - 10.17 Nm)** to ensure engagement of locking balls with nut.

**NOTE:** Pin must be in the released position (flush with bolt head) and bolt must protrude past the nut for proper installation.

(d). Apply torque stripe.

(4). Install alternate NAS6204–11D bolt and MS17826–4 nut as follows:

(a). Install bolt, with one AN960KD416L washer through clevis assembly.

(b). Install AN960KD416L washer and nut and torque to **20 - 40 inch-pounds (2.26 - 4.52 Nm)**; install MS24665–134 cotter pin.

(5). Position rubber boot in place. Secure boot at support tube with nylon strap, then clamp directional control pedals in neutral, set free length of bellows portion of boot at approximately 5.5 inches (13.97 cm) and secure end to control tube with nylon strap.

(6). 500N Only: Install splitter bungee spring.

### 7. Station 137.50 Support Bracket and Bellcrank Replacement

(Ref. Figure 402)

### A. Station 137.50 Support Bracket and Bellcrank Removal

(1). Disconnect intermediate control tube from upper end of Sta. 137.50 bellcrank by depressing pin in head of bolt to disengage and release locking ball and removing nut. With pin still depressed, remove bolt.

(2). Disconnect link assembly at clevis, remove bolt in same manner as in previous step.

(3). Remove four support bracket assembly bolts from fan transmission support.

(4). Bellcrank and bracket assembly may be separated by removing bolt.

### B. Station 137.50 Support Bracket and Bellcrank Installation

**NOTE:** It is recommended to assemble link and bracket assembly to bellcrank before installing bracket assembly on fan transmission support bracket.

(1). Reassemble bellcrank and bracket assembly if necessary.

(2). Install impedance bolt as follows:

(a). Depress pin in head of bolt to install bolt through bracket and bellcrank.

**NOTE:** In the following step, pin is to remain depressed while nut is torqued.

(b). Install nut and torque to **100 - 120 inch-pounds (11.30 - 13.56 Nm)**.

(c). Release pin and torque nut to **200 - 225 inch-pounds (22.60 - 25.42 Nm)** to insure engagement of locking ball with nut.

**NOTE:** Pin must be in the released position (flush with bolt head) and bolt must protrude past the nut for proper installation.

(d). Apply torque stripe.

(3). Install alternate NAS6206–29D bolt and MS17826–6 nut as follows:

(a). Install bolt, with one AN960KD616L washer through clevis assembly.

(b). Install AN960KD616L washer and nut and torque to **95 - 110 inch-pounds (10.73 - 12.43 Nm)**; install MS24665–285 cotter pin.

(4). Install lower bolt at link assembly and bellcrank clevis, and upper bolt intermediate control tube Sta. 137.50 bellcrank bolts as follows:

**NOTE:** Install bolt–head up, nut facing down.

(a). Depress pin in head of bolt to install bolt through clevis end of bellcrank.

**NOTE:** In the following step, pin is to remain depressed while nut is torqued.

(b). While pin is depressed, install nut and torque to **40 - 50 inch-pounds (4.52 - 5.65 Nm)**.

(c). Release pin and retorque nut to **75 - 90 inch-pounds (8.47 - 10.17 Nm)** to ensure engagement of locking balls with nut.

**NOTE:** Pin must be in the released position (flush with bolt head) and bolt must protrude past the nut for proper installation.

(d). Apply torque stripe.

(5). Install alternate NAS6204–11D bolt and MS17826–4 nut as follows:

(a). Install bolt, with one AN960KD416L washer through clevis assembly.

(b). Install AN960KD416L washer and nut and torque to **20 - 40 inch-pounds (2.26 - 4.52 Nm)**; install MS24665–134 cotter pin.

(6). Install four support bracket assembly bolts and washers to fan transmission support. Torque bolts to **70 - 90 inch-pounds (7.91 - 10.17 Nm)**; safety wire bolts.

### 8. Fan Pitch Control Tube Replacement

#### A. Fan Pitch Control Tube Removal

(1). Remove tail boom fairing and tail boom.

(2). Remove bolt and clevis assembly at Sta. 137.50 bellcrank. Remove convoluted boot from fan gearbox.

**NOTE:**

- The Fan Pitch Control Tube can be removed in one of the following steps. The fan assembly pitch bearing slider, pitch bearing retainer, pitch plate bearings and bearing retainer nut with aft control tube can be removed as a unit or individually. Use extreme care do not damage parts.
- 1. Remove locking wire and remove nut and lock washer from fan pitch control tube. Remove locking wire and remove three bolts and washers from pitch bearing retainer housing. Pitch bearing slider, pitch plate bearings and, bearing retainer nut with aft control tube can be removed as a unit.
- 2. Remove locking wire and remove six pitch bearing housing assembly bolts. Remove pitch bearing retainer housing assembly as a unit.

#### B. Fan Pitch Control Tube Installation

**NOTE:**

- Refer to Fan Pitch Control Rigging during installation.
- Before installing fan pitch control tube, perform Fan Pitch Control Tube Inspection.

(1). Install the aft control tube.

(2). Install convoluted boot on fan gearbox or clevis.

(3). Install clevis assembly on aft control tube. Ensure that clevis has full thread engagement on control tube. Ensure locking washer tang tip is in slot. Tighten jam nut against locking washer and safety wire.

(4). Install lower bolt (Sta. 137.50 bellcrank) as follows:

(a). Depress pin in head of bolt to install bolt through clevis end of bellcrank.

**NOTE:** In the following step, pin is to remain depressed while nut is torqued.

(b). While pin is depressed, install nut and torque to **40 - 50 inch-pounds (4.52 - 5.65 Nm)**.

(c). Release pin and retorque nut to **75 - 90 inch-pounds (8.47 - 10.17 Nm)** to ensure engagement of locking balls with nut.

**NOTE:** Pin must be in the released position (flush with bolt head) and bolt must protrude past the nut for proper installation.

(d). Apply torque stripe.

(5). Install alternate NAS6204–11D bolt and MS17826–4 nut as follows:

(a). Install bolt, with one AN960KD416L washer through clevis assembly.

(b). Install AN960KD416L washer and nut and torque to **20 - 40 inch-pounds (2.26 - 4.52 Nm)**; install MS24665–134 cotter pin.

**NOTE:** Before installing fan pitch slider, perform Fan Pitch Slider Inspection.

(6). Install pitch bearing slider and bearing retainer per rigging instructions.

(7). Install pitch bearing and pitch bearing retainer housing using three bolts and washers. Torque bolts to **70 - 80 inch-pounds (7.91 - 9.04 Nm)**; safety wire bolts.

(8). Install lockwasher so that the face of the tang aligns with the tube assembly keyway, and the lockwasher aligns with one of the six slots in the face of the bearing retainer.

(9). Install jamnut on aft control tube.

(10). Torque nut to **95 -110 inch-pounds (10.73 - 12.43 Nm)** leaving a minimum of three threads protruding beyond the face of the jam nut.

(11). Install two lockwires on jamnut and lockwasher.

**NOTE:** After safety wiring nut and bolts, rotate fan and ensure that safety wires do not have interference with each other on rotation.

(12). Install tail boom (Ref. Sec. 53–40–30).

### 9. Forward Cable Assembly Replacement

(Ref. Figure 402)

#### A. Forward Cable Assembly Removal

**CAUTION** To prevent damage to the engine install F.O.D. cover over engine air inlet.

(1). Remove fairings, access doors and panels necessary to facilitate maintenance (Ref. Sec. 53–30–30).

(2). Remove tailboom fairing.

(3). Disconnect the aft end of the anti–torque control cable by turning outside collar sleeve counter–clockwise and back to expose the inner cable.

(4). Apply sufficient right pedal to expose inner cables.

(5). Without bending cable, slide male connector out of female connector.

(6). Disconnect cable assembly forward rodend from Sta. 113.00 splitter assembly outboard bellcrank clevis.

(7). Loosen jam nut at rodend and remove rodend from cable; remove jam nut.

(8). Remove safety wire, jam nuts and washers from cable assembly support bracket, remove by pulling or sliding cable assy. thru conduit and support bracket.

### B. Forward Cable Assembly Installation

| Consumable Materials (Ref. Section 91–00–00) | |
|---|---|
| Item | Nomenclature |
| CM702 | Lockwire CRES |

**CAUTION** Before installation of cable, inspect cable (Ref. Forward and Center Cable Assembly Inspection).

(1). Install one jam nut and washer on cable and insert cable assembly through support bracket and conduit.

(2). Install washer and one jam nut on cable forward side of support bracket.

(3). Ensure that the threaded portion is centered in the support bracket.

**NOTE:** When tightening cable jamnuts, ensure smooth action of cable and alignment of cable hex end into cable socket.

(4). Ensure cable hex end and cable socket are aligned to ensure smooth action.

(5). Slide cable in and out to ensure there is no binding and tighten jamnuts.

(6). Slide cable in and out again to ensure there is no binding. If cable slides smoothly, safety jamnuts (CM702).

(7). Install rodend bearing with locking device and jamnut.

(8). Ensure that threads protrude past witness hole. Tighten jamnut and safety wire nuts.

(9). Connect cable assembly forward rodend to Sta. 113.00 splitter assembly outboard bellcrank clevis.

(10). Torque nut and install cotter pin.

(11). Reconnect forward and center control cable couplings.

**WARNING** **Failure to properly connect thruster cables could result in uncoupling during flight and loss of anti-torque authority.**

(a). Apply sufficient right pedal to expose inner cable female connector.

(b). Without bending cable, insert inner male connector into inner female connector and ensure they are properly engaged together.

(c). Slide outside cable collar over forward cable to engage locking device and turn clockwise until fully locked.

(12). Verify rigging of cable assembly from Sta. 113.00 splitter assembly (Ref. Adjustment/Test).

(13). Install fairings, access doors and panels removed for installation.

## 10. Center Cable Assembly Replacement

(Ref. Figure 402)

### A. Center Cable Assembly Removal

(1). Remove rotating thruster cone (Ref. Sec. 53–40–30).

(2). Remove stationary thruster cone (Ref. Sec. 53–40–30).

(3). Remove cotter pin, nut, washers and bolt from clevis end of control rod double rodend.

(4). Disconnect cable assembly double rod end bearing from center tailboom bellcrank.

(5). Remove double rod end from cable assembly.

(6). Remove tailboom fairing.

(7). Disconnect the forward end of the anti–torque control cable by turning forward cable outside collar sleeve counter–clockwise and back to expose the inner cable.

(8). Apply sufficient right pedal to expose inner cables.

(9). Without bending cable, slide male connector out of female connector.

(10). Disconnect cable assembly forward rodend from Sta. 113.00 splitter assembly outboard bellcrank clevis.

(11). Remove safety wire and aft jamnut from cable assembly support bracket. Cable assembly can be removed by

sliding or pulling cable assembly through support bracket and conduit and through grommet.

### B. Center Cable Assembly Installation

**CAUTION** Before installation of cable, inspect cable (Ref. Forward and Center Cable Assembly Inspection).

(1). Install one jam nut and washer on cable and route cable assembly thru conduit of tailboom and thru support bracket.

(2). Install washer and jamnut on cable aft side of support bracket.

(3). Ensure that the threaded portion is centered in the support bracket.

**NOTE:** When tightening cable jamnuts, ensure smooth action of cable and alignment of cable hex end into cable socket.

(4). Ensure cable hex end and cable socket are aligned to ensure smooth action.

(5). Slide cable in and out to ensure there is no binding and tighten jamnuts.

(6). Slide cable in and out again to ensure there is no binding. If cable slides smoothly, safety jamnuts (CM702).

(7). Install double rodend bearing with locking device and jamnut.

(8). Ensure that threads protrude past witness hole. Tighten jamnut and safety wire nuts.

**NOTE:** The split bushing is installed at the top of bellcrank. A minimum of 0.010 inch (0.254 mm) and a maximum of 0.060 inch (1.524 mm) split bushing protrusion required above surface.

(9). Install double rodend bearing and forward bearing to bellcrank with bolt, washers and nut. Tighten nut and install cotter pin.

(10). Reconnect forward and center control cable couplings.

**WARNING** **Failure to properly connect thruster cables could result in uncoupling during flight and loss of anti-torque authority.**

(a). Apply sufficient right pedal to expose inner cable female connector.

(b). Without bending cable, insert inner male connector into inner female connector and ensure they are properly engaged together.

(c). Slide outside cable collar over forward cable to engage locking device and turn clockwise until fully locked.

(11). Verify rigging of cable assembly from Sta. 113.00 splitter assembly to vertical stabilizers is correct.

(12). Install stationary thruster cone.

(13). Install rotating thruster cone.

## 11. Aft Control Rod Assembly Replacement

(Ref. Figure 402)

### A. Aft Control Rod Assembly Removal

(1). Remove thruster cone (Ref. Sec. 53–40–30).

(2). Remove stationary thruster cone (Ref. Sec. 53–40–30).

(3). Remove cotter pin, nut and washer from sector input shaft.

(4). Remove pan cover.

(5). Remove cotter pin, nut, washers and bolt from clevis end of control rod at double rodend bearing of tailboom center cable assembly.

(6). Remove and discard lockwire and then remove control rod bolt from sector assembly.

(7). Remove control rod.

### B. Aft Control Rod Assembly Installation

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

| Item | Nomenclature |
|---|---|
| CM702 | Lockwire CRES |

**NOTE:** Split bushing is installed at the top, shoulder bushing is installed at bottom. A minimum of 0.010 inch (0.254 mm) and maximum of 0.060 inch (1.524 mm) split bushing protrusion required above surface.

(1). Connect thruster control rod clevis end to double rod end aft bearing of center cable assembly.

(2). Install washer and bushing on bolt and then insert through rod end into sector assembly.

(3). Torque bolt to **30 - 40 inch-pounds (3.39 - 4.52 Nm)** and install safety wire (CM702).

(4). Install bushings, bolt, washer and nut; Torque nut to **30 - 40 inch-pounds (3.39 - 4.52 Nm)** and install cotter pin.

(5). Install pan cover.

(6). Install washer and nut on sector input shaft; torque nut to **95 - 110 inch-pounds (10.73 - 12.43 Nm)** and install cotter pin.

(7). Install stationary thruster cone.

(8). Install rotating thruster cone.

### 12. Sector Assembly and Control Cable Replacement

(Ref. Figure 401)

#### A. Sector Assembly and Control Cable Removal

(1). Remove rotating thruster cone (Ref. Sec. 53–40–30).

**NOTE:** Removed safety clips from turnbuckles are not to be reused.

(2). Disconnect cables from turnbuckles in access hole provided (top of stationary cone).

(3). Remove cotter pin, nut and washers from sector input shaft.

(4). Remove pan cover.

(5). Remove washer and bushing under pan cover from sector bellcrank input shaft.

(6). Remove control rod bolt from sector assembly and lift sector assembly from shaft.

(7). Remove clevis pins from sector assembly and remove cables.

#### B. Sector Assembly and Control Cable Installation

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

| Item | Nomenclature |
|---|---|
| CM702 | Lockwire CRES |

(1). Position the cable assembly around thruster sector bellcrank, install cable clevis pins and cotter pins.

(2). Install sector bellcrank on input shaft.

(3). Connect sector assembly aft control rod to clevis.

(a). Install washer and bushing on bolt and then insert through rod end into sector assembly.

(b). Torque bolt to **30 - 40 inch-pounds (3.39 - 4.52 Nm)** and install safety wire (CM702).

(4). Install bushing, washer on sector input shaft.

(5). Install pan cover.

(6). Install washer and nut on sector input shaft; torque nut to **95 - 110 inch-pounds (10.73 - 12.43 Nm)** and install cotter pin.

(7). Install rotating thruster cone.

(8). Perform a rigging check.

### 13. Drum Assembly and Idler Pulley Replacement

(Ref. Figure 401)

#### A. Drum Assembly and Idler Pulley Removal

(1). Remove rotating thruster cone (Ref. Sec. 53–40–30).

**NOTE:** Removed safety clips from turnbuckles are not to be reused.

(2). Disconnect cables from turnbuckles in access hole provided (top of stationary cone).

(3). Remove cotter pin, nut and two washers, remove drum assembly from shaft.

(4). Remove guard pins to remove cable assemblies.

**B. Drum Assembly and Idler Pulley Installation (500N)**

**NOTE:** The long cable is 23.07 inches (58.60 cm) and is installed on the aft cable guide of the drum, or right side, up and around the right idler pulley. The short cable is 22.82 inches (57.96 cm) long and is installed on the fwd cable guide of the drum, or left side, up and round the left idler pulley.

(1). Install cables on drum assembly.

(2). Install drum assembly on shaft and install guard pins.

(3). Install HS306–233H flat washer against the bearing.

(4). Install washer and nut; torque nut to **160 - 190 inch-pounds (18.08 - 21.47 Nm)** and install cotter pin.

(5). Install turnbuckles and cables.

(6). Perform a rigging check.

(7). Install rotating thruster cone.

**C. Drum Assembly and Idler Pulley Installation (600N)**

**NOTE:** The long cable is 23.76 inches (60.35 cm) long and is installed on the aft cable guide of the drum, or right side, over and around the left idler pulley. The short cable is 23.51 inches (59.72 cm) long and is installed on the fwd cable guide of the drum, or left side, over and round the right idler pulley.

(1). Install cables on drum assembly as follows:

(a). Install left cable on forward groove of drum and cross over to right pulley.

(b). Install right cable on aft groove of drum and cross over to left pulley.

(2). Install drum assembly on shaft and install guard pins.

(3). Install HS306–233H flat washer against the bearing.

(4). Install washer and nut; torque nut to **160 - 190 inch-pounds (18.08 - 21.47 Nm)** and install cotter pin.

(5). Install turnbuckles and cables.

(6). Perform a rigging check.

(7). Install rotating thruster cone.

**14. Anti–Torque Pedal Friction Replacement**

(Ref. Figure 403)

**A. Anti–Torque Pedal Friction Removal**

(1). Remove bolt, washer and bushing from console support bracket.

(2). Remove nut and washers, remove spring, retainer, spring and friction disc, and link.

(3). Remove brace and clamp arm assembly from anti–torque tube assembly.

**B. Anti–Torque Pedal Friction Installation**

(1). Using two pieces of wood and C–clamp or rope, secure pilot's pedals in mid position so they are aligned within 0.50 inch (1.27 cm) of each other.

(2). Install washer, bolt, bushing, and link assembly to bracket assembly on instrument console.

(3). Install brace and clamp arm assembly to anti–torque tube assembly.

(4). Install friction disc, link, retainer and spring, install washer (shim washers if required) and nut.

(5). Torque brace and arm assembly bolts **30 - 35 inch-pounds (3.39 - 3.95 Nm)**. Torque nut against washer to obtain a pedal friction of **5 - 8 pounds (2.27 - 3.63 kg)**.

**15. Anti–Torque Pedal Assembly Replacement**

(Ref. Figure 403)

**A. Anti–Torque Pedal Assembly Removal**

(1). Pull two hinge pins from pilot's compartment floor access door hinges and remove door.

# NOTAR® ANTI–TORQUE SYSTEM FLIGHT CONTROLS

# ADJUSTMENT/TEST

## 1. Directional Controls Rigging

**NOTE:**

- On the 500N, directional control rigging is to be accomplished with the (Sta. 113.00) spring on the splitter assembly disconnected.
- The NOTAR control system must be re-rigged after replacement of control rods, linkages, and components or if helicopter operation reveals a rigging deficiency.

## 2. Fan Pitch Control Rigging

(Ref. Figure 501)

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

| Item | Nomenclature |
|---|---|
| CM702 | Lockwire CRES |

**Special Tools (Ref. Section 91–00–00)**

| Item | Nomenclature |
|---|---|
| ST601 | Rigging pin |

**NOTE:** Fan Pitch Control Rigging shall be accomplished with the tailboom and engine air inlet fairings removed.

(1). Position Sta. 113.00 splitter assembly pinion gear so the rigging slot aligns with lower rigging hole in the bracket assembly; Insert the rigging pin (ST601) (View A).

(2). Adjust the bearing retainer so the flange of bearing retainer is screwed in on the tube assembly until it just touches the shoulder of the fan pitch-aft control tube (View B).

**NOTE:** A gap of 0.015–0.025 inch (0.381–0.635 mm) between pitch bearing housing and bearing retainer plate must exist to ensure proper clamp-up.

(3). Assemble the pitch plate control bearing into slider and attach the bearing retainer plate using three bolts and three washers.

(4). Torque bolts to **70 - 80 inch-pounds (7.91 - 9.04 Nm)** and safety (CM702).

**NOTE:** Every 60° turn on bearing retainer is equivalent to 0.6 degree change in fan pitch angle.

(5). Using the TICK marks on the fan blade assembly and on hub housing to determine blade pitch angle, adjust bearing retainer to obtain a fan blade pitch angle of 26 ±1° (View D).

**NOTE:**

- The aft control tube keyway should be installed at the 12 O'clock position for ease of installation.
- Ensure that one of the six slots in the face of the bearing retainer aligns with fan pitch–aft control tube key way (View C).

(6). Install lockwasher so that the face of the lockwasher aligns with one of six slots of the bearing retainer.

(7). Install jam nut, torque nut to **95 - 110 inch-pounds (10.73 - 12.43 Nm)** leaving a minimum of three threads protruding beyond the face of the jam nut.

(8). Check tick marks on fan blade assembly and hub housing, ensure that fan pitch angle is 26 ±1°. If blade pitch is 26 ±1°, proceed to step (9). If not, remove jamnut and lockwasher and return to steps (5).

(9). Safety wire (CM702) nut and lockwasher (2 places required).

(10). Rotate fan to ensure the safety wire does not interfere.

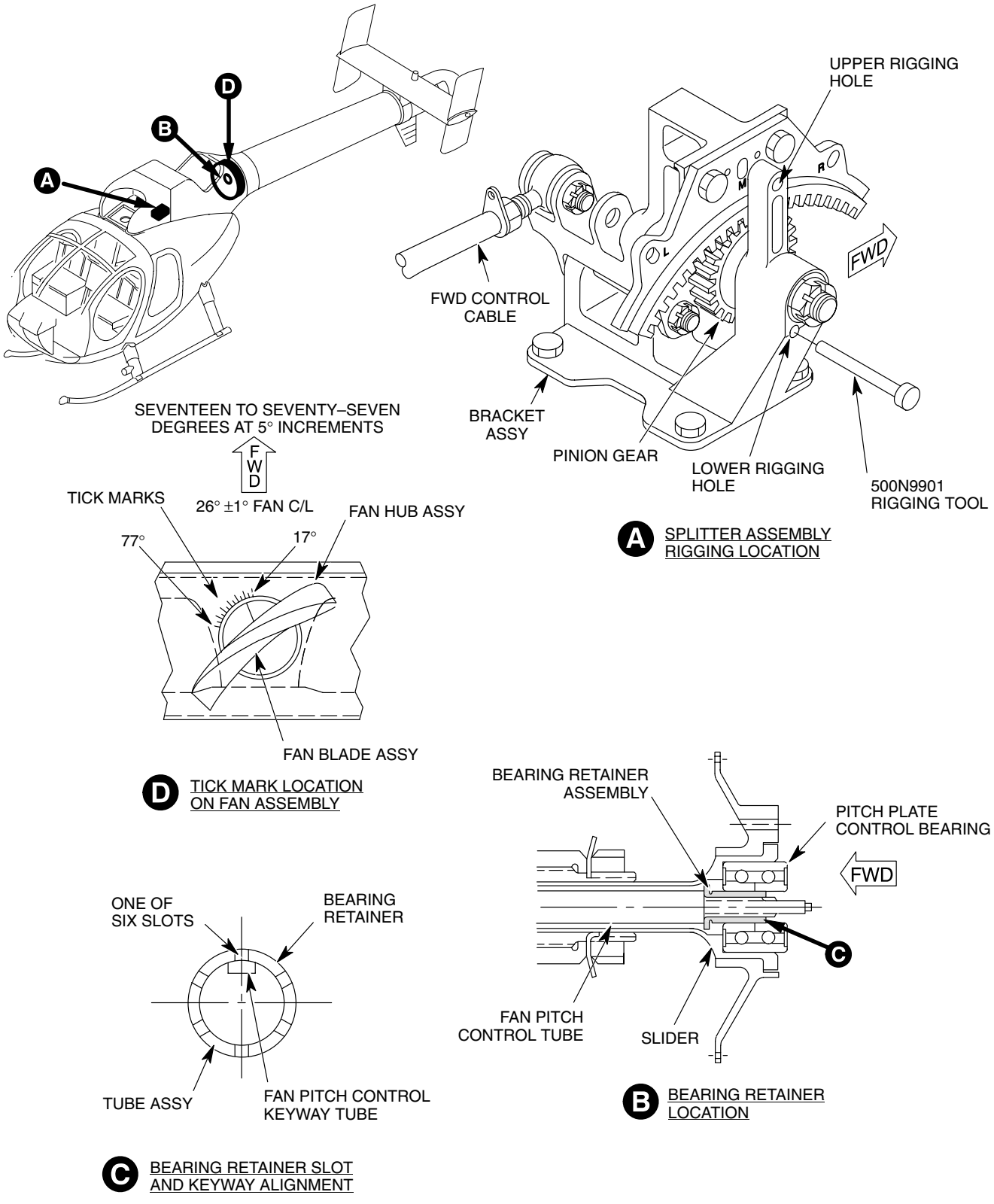



**Figure 501. Fan Pitch Control Rigging**

# 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 Directional Control Tube Inspection

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

(2). Inspect control rod for surface damage and wear. Inspect control rod 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). Inspect center cable hex end for wear beyond allowable tolerance (Ref. Figure 601).

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

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

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

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

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

(13). 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. |

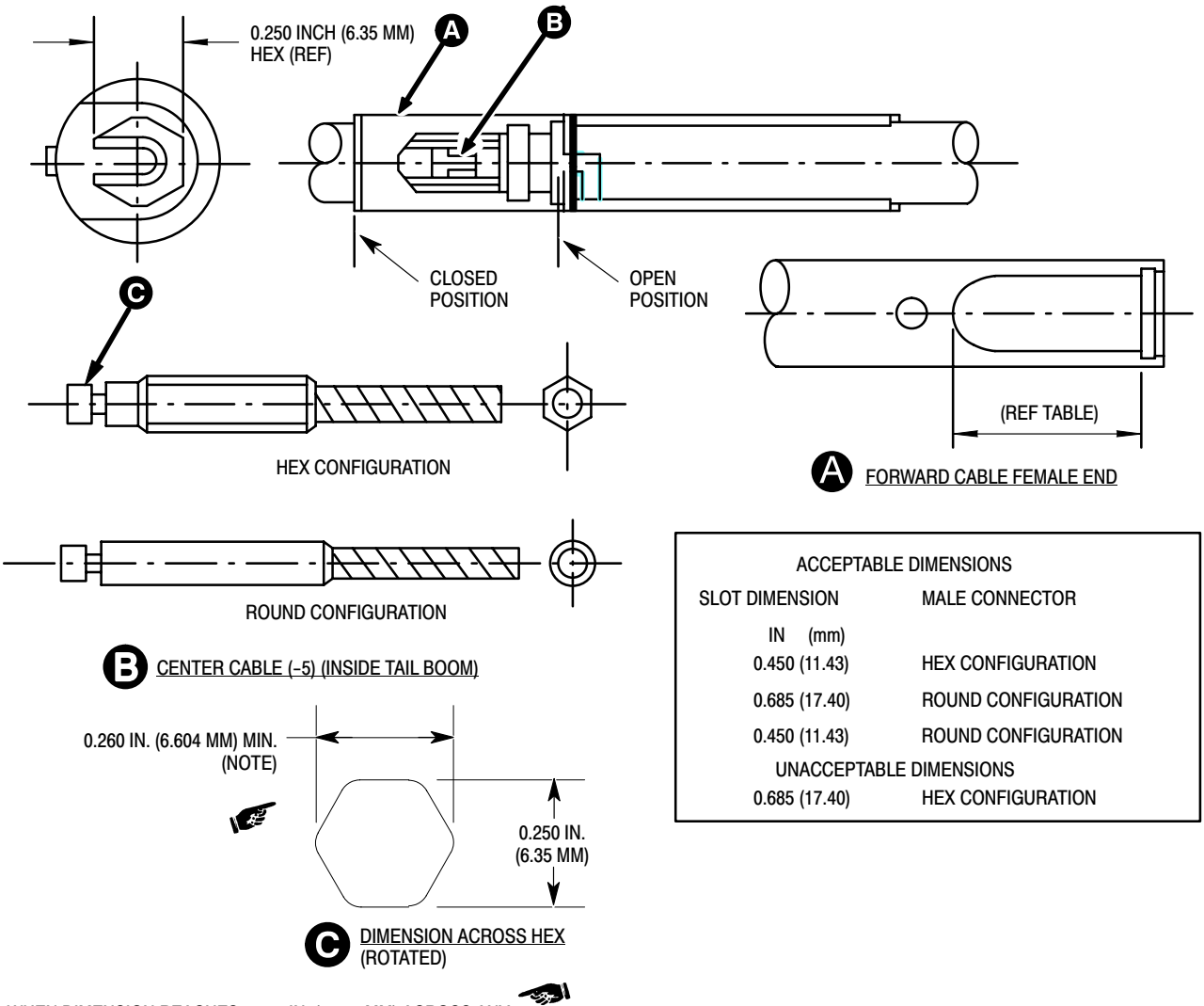



**Figure 601. Control Cable Coupling Inspection**

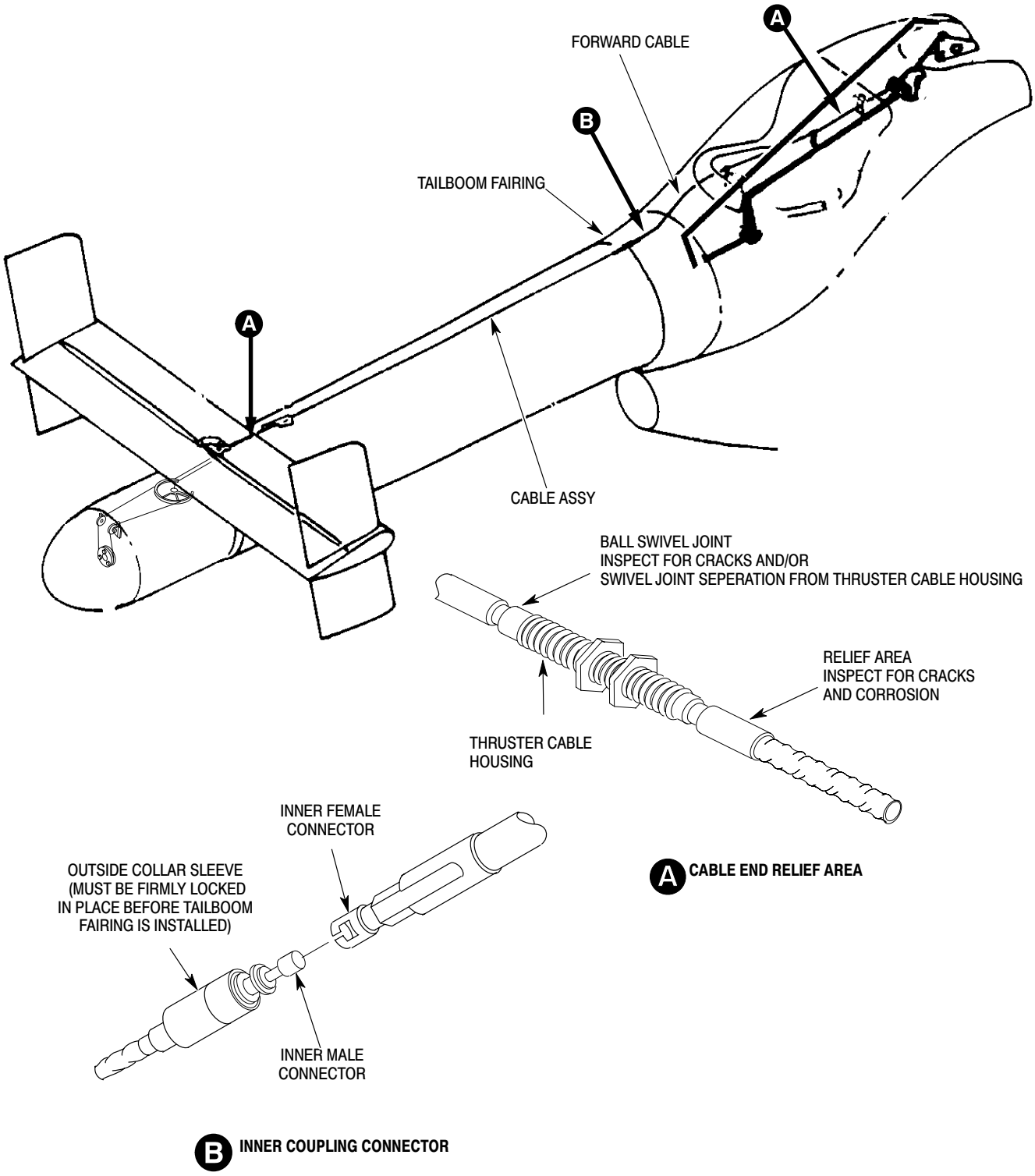



**Figure 602. Forward and Center Cable Relief Area Inspection**

from duct indicates that solenoid air valve has opened.

(5). Switch SCAV AIR circuit breaker OFF.

(6). Check that no scavenge air flows from outlet duct.

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

### 5. Air Pressure Sensing Switch Calibration Check

(1). Assemble test equipment (Ref. Figure 601).

(2). Attach pressure switch to test equipment. Connect a suitable vacuum source to pressure switch nipple and u–tube.

(3). Connect an ohmmeter or continuity tester to pressure switch electrical leads.

(4). Cycle switch from open to close several times with vacuum. Watch meter for indication of switch closure. Release vacuum.

(5). Slowly apply vacuum. Note u–tube water height differential in both legs of the tube relative to the switch closing point. The total of the differential heights of both legs of the u–tube is equal to switch actuation pressure.

(6). Switch closing pressures shall be per the applicable particle separator installation dash number shown (Ref. Figure 601).

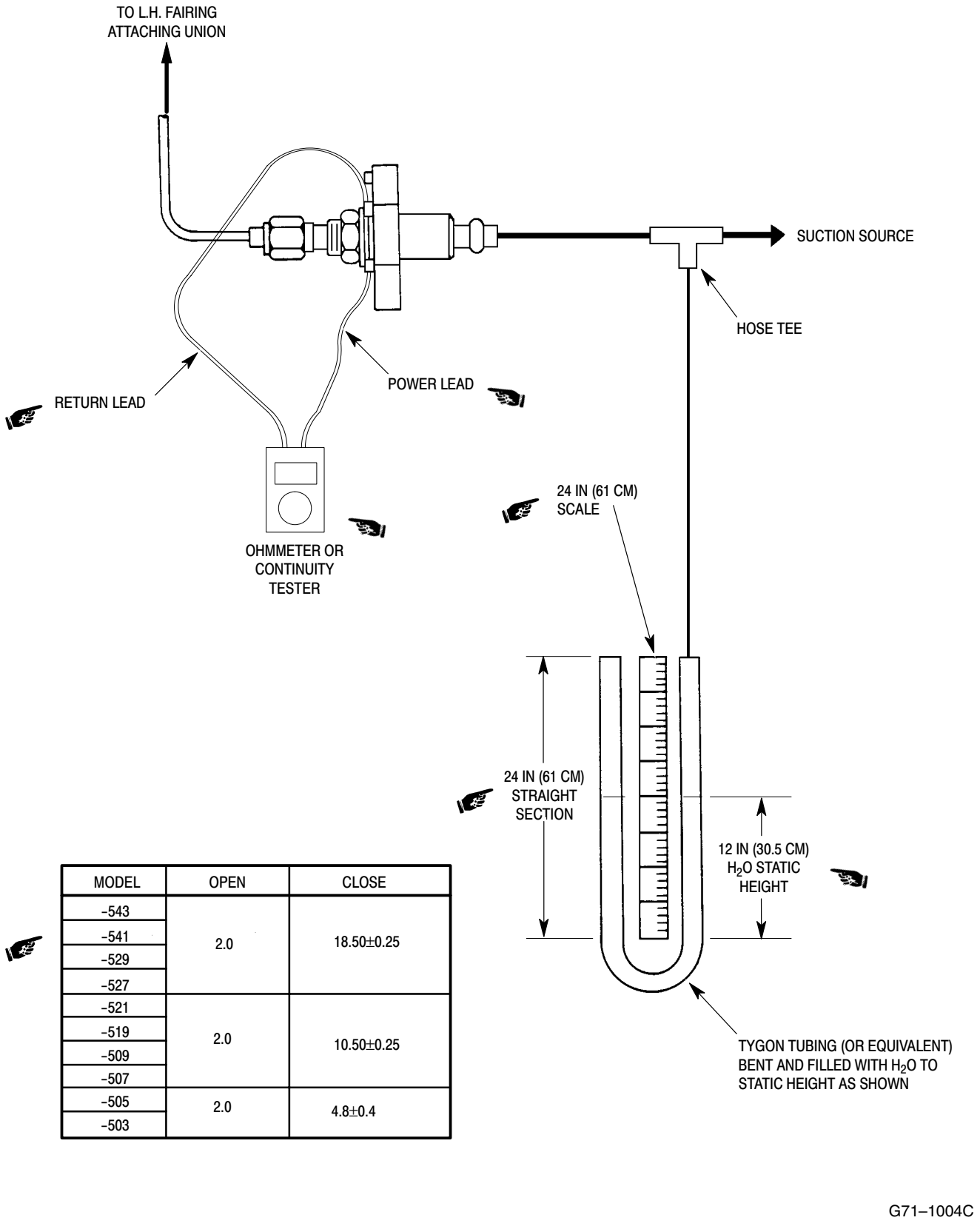
### 6. Mist Eliminator Inspection

(1). Check mist eliminator serial number for APM serial numbers 005 through 069. Remove the wire staples from a mist eliminator so identified.

(2). Inspect frame and screens for security and condition. Replace mist eliminator if screens are partially detached, or assembly distortion prevents joint seal contact with the particle separator.

(3). Inspect all nine bolts, where installed, for security in mist eliminator frame. Repair or replace bolts as required (Ref. Page 803).

(4). Examine outlet side of mist eliminator. Surface should be slightly oily but clean. Dirt on the outlet side signals the need to clean the assembly.




| MODEL | OPEN | CLOSE |
|---|---|---|
| –543 | 2.0 | 18.50±0.25 |
| –541 | | |
| –529 | | |
| –527 | | |
| –521 | 2.0 | 10.50±0.25 |
| –519 | | |
| –509 | | |
| –507 | | |
| –505 | 2.0 | 4.8±0.4 |
| –503 | | |

**Figure 601. Air Pressure Sensing Switch Calibration Check**

# ENGINE AIR PARTICLE SEPARATOR

# INSPECTION/CHECK

### 1. Engine Air Particle Separator Inspection

(1). Visually inspect particle separator for damage and security of installation.

(a). Inspect particle separator panel for damage to axial flow dust separator tubes. No damage allowed.

(b). Inspect particle separator for security of installation. Torque or replace loose or missing hardware.

(c). Open access panels and inspect bleed air tubes for security. Torque tube nuts.

(d). Inspect ejectors for security. Torque or replace loose or missing hardware.

(2). Visually inspect bypass door for damage and security of installation.

(a). Open bypass door and inspect seal for damage or leakage. None allowed.

(b). Inspect bypass door for security of installation. Torque or replace loose or missing hardware.

(3). Visually inspect air filter bypass switch for damage and security of installation.

(a). Inspect switch for security. Torque loose hardware.

(b). Inspect electrical wiring for chafing or cuts. None allowed. Ensure connections are secure.

(4). Visually inspect scavenge air solenoid valve for damage and security of installation.

(a). Inspect solenoid valve for security of installation. Torque or replace loose or missing hardware.

(b). Inspect electrical wiring for chafing or cuts. None allowed. Ensure connections are secure.

### 2. Bypass Door Inspection

(1). Visually inspect bypass door stop for damage to seals. Replace damaged seals.

(2). Inspect bypass door hinges for operation and security. Replace or repair as required.

### 3. Bypass Door Cable Inspection

(1). Visually inspect bypass door cable for operation and security. Replace inoperable cable. Torque or replace loose or missing hardware.

(2). Visually inspect linkage for cracks, deformation and security of hardware. Replace damaged linkage. Replace missing hardware.

### 4. Air Pressure Sensing Switch Calibration Check

(1). Assemble test equipment (Ref. Figure 601).

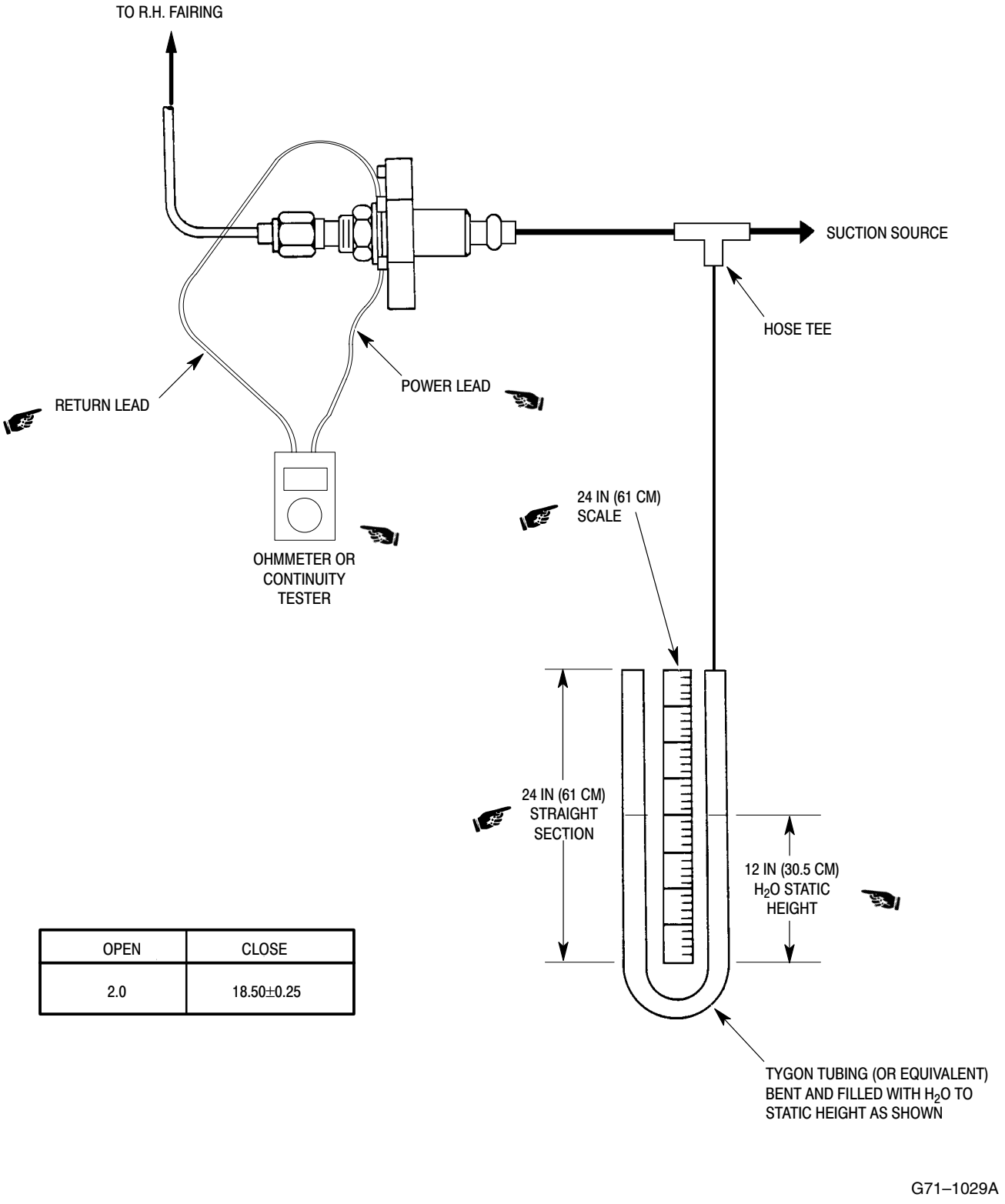
(2). Attach pressure switch to test equipment. Connect a suitable vacuum source to pressure switch nipple and u–tube.

(3). Connect an ohmmeter or continuity tester to pressure switch electrical leads.

(4). Cycle switch from open to close several times with vacuum. Watch meter for indication of switch closure. Release vacuum.

(5). Slowly apply vacuum. Note u–tube water height differential in both legs of the tube relative to the switch closing point. The total of the differential heights of both legs of the u–tube is equal to switch actuation pressure.

(6). Switch closing pressures shall be per the applicable particle separator installation dash number shown (Ref. Figure 601).




| OPEN | CLOSE |
|---|---|
| 2.0 | 18.50±0.25 |

**Figure 601. Air Pressure Sensing Switch Calibration Check**

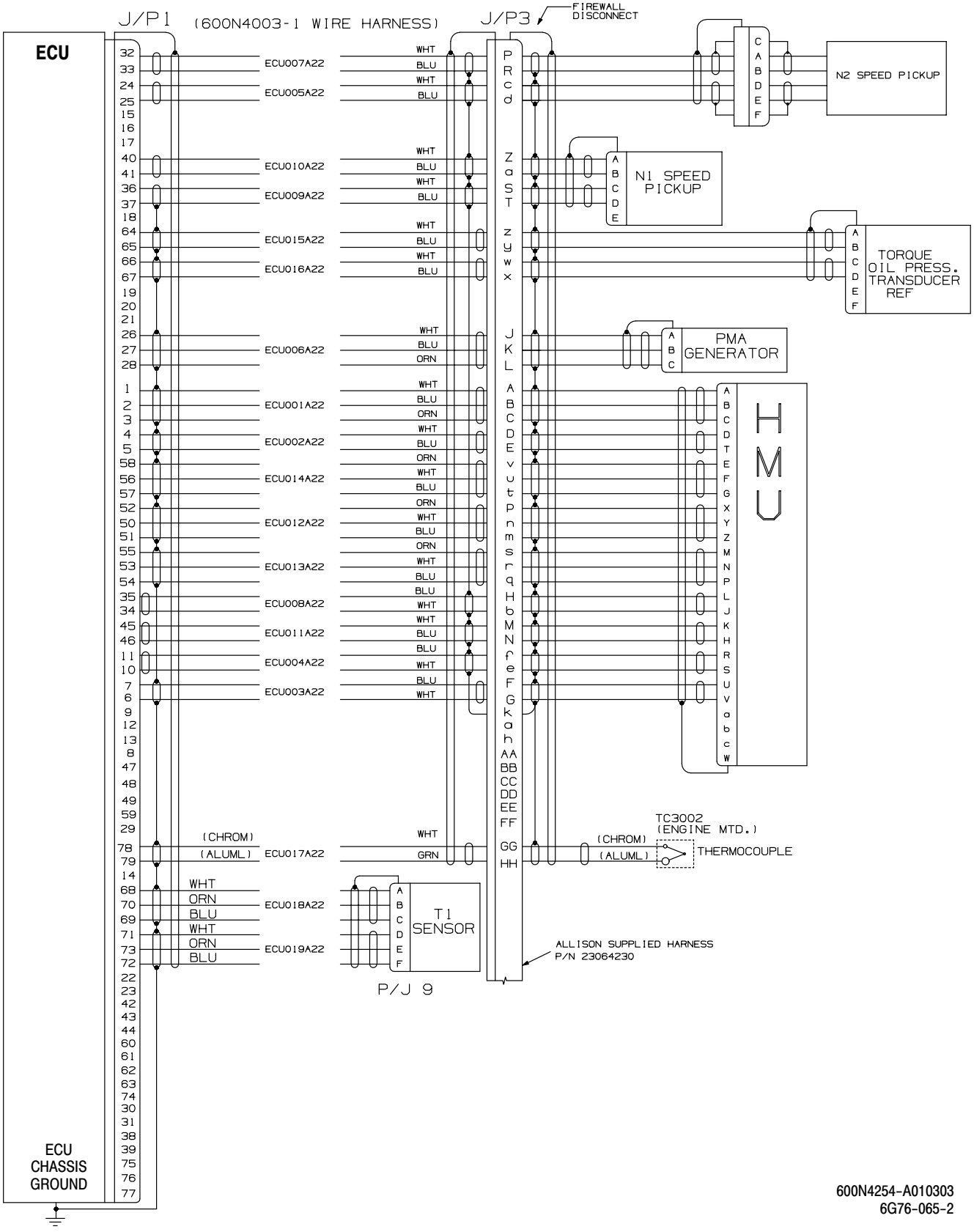



**Figure 201. Engine Control Unit Wiring Diagram (Sheet 2 of 2)**

### 4. ECU (Electronic Control Unit) Replacement

(Ref. Figure 202)

#### A. ECU Removal

(1). Detach engine harness and airframe harness connectors from ECU.

(2). Remove screw, lockwasher and washer and disconnect bonding jumper from ECU.

(3). Remove bolts, washers, large area washers and bushings and remove ECU from mounting bracket.

#### B. ECU Installation

(1). Install ECU on mounting bracket with bushings, large area washers, bolts and washers. Torque bolts to **36 - 46 inch pounds (4.06 - 5.19 Nm)**.

(2). Connect bonding jumper to ECU with screw, lockwasher and washer. Torque screw to **20 - 25 inch-pounds (2.25 - 2.82 Nm)**.

(3). Attach engine harness and airframe harness connectors to ECU.

### 5. Engine Control Potentiometer Replacement

(Ref. Figure 202)

#### A. Collective Potentiometer Removal

(1). Detach electrical connector from collective potentiometer.

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

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

#### B. Collective 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, Section 96-00-00).

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

(3). Rig potentiometer to collective stick.

(a). Place collective stick in full down position and connect an ohmmeter (ST1010) between pins 1 and 2. Turn potentiometer gear until resistance is between 1000 and 1175 ohms.
or
Attach electrical connector to potentiometer. Connect MT35 to the ECU and apply power to aircraft. Reading on MT35 should be 0.0% – 5.0%.

**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 collective in full up 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 450 ohms).

(e). If more adjustment is required, loosen pulley to bracket bolts on collective (view B) and rotate pulley to obtain desired resistance. Retorque bolts to **20 - 25 inch-pounds (2.25 - 2.82 Nm)**.

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

#### C. Directional Potentiometer Removal

(1). Detach electrical connector from directional potentiometer.

(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 collective stick.

(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).