

Bell Helicopter **TEXTRON**

Bell Helicopter Textron Inc.
A Subsidiary of Textron Inc.

Post Office Box 482
Fort Worth, Texas 76101
(817) 280-3548

07 May 1999

To: All Model 430 Operators

From: Product Support Engineering

Enclosed is ASB 430-99-11. ASB number 430-99-10 is reserved and will be released at a later date.

ALERT SERVICE BULLETIN

Bell Helicopter **TEXTRON**
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NO. 430-99-11
DATE 05-07-99
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DATE

REV

MODEL AFFECTED: 430

SUBJECT: AUTOPILOT RESOLVER INSTALLATION,
IMPROVEMENT OF

HELICOPTERS AFFECTED: Model 430 S/N 49001 through 49018, 49020 through 49043 and 49045 through 49051

[Helicopter S/N 49052 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

COMPLIANCE: At the next 150 hour scheduled inspection but not later than December 31, 1999.

DESCRIPTION:

A model 430 operator reported the yaw control channel jammed during freedom of control checks following maintenance. Subsequent investigation revealed that the screw which clamps the control arm to the yaw syncro resolver shaft was loose allowing the control arm to separate from the shaft. The separated control arm became jammed against an airframe stringer resulting in a yaw channel control jam.

This bulletin introduces a higher torque alloy steel screw to replace the existing control arm clamp screw for the yaw, roll, pitch and collective syncro resolvers. In addition a guard bracket is being installed on the yaw, roll, pitch and collective syncro resolvers to prevent the control arm from separating in case of a loss of torque of the clamping screw.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada approved.

MANPOWER:

Approximately 6.0 man-hours are required to accomplish this bulletin. Man-hours are based on hands-on time and may vary with personnel and facilities available.

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WARRANTY:

Owners/operators of 430 helicopters who comply with the instructions outlined in this bulletin are eligible for a special 100% warranty credit toward the purchase of the parts in the "REQUIRED MATERIAL" section of this bulletin.

To receive this credit:

- Customers must order the replacement parts from an approved BHTI supply source.
- Comply with the instructions outlined in this bulletin no later than December 31, 1999.
- Send a completed malfunction Report (MR) to BHT warranty Administration. A copy of the invoice referencing parts used to accomplish this bulletin must be attached to the Malfunction Report.

-NOTE-

Customers who fail to comply with the instruction in this bulletin after December 31, 1999 are not eligible for the special warranty credit provisions listed above.

MATERIALS:

Required Material:

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
430-001-201-101	Guard	3
430-001-202-101	Guard	1
MS20426AD3-4	Rivet	2
MS21042L04	Nut	4
MS35265-13	Screw	12
NAS620A4L	Washer	32
NAS1352-04-8P	Screw	4

Consumable Material:

The following material is required to accomplish the bulletin, however this material is considered consumable (bench stock) material and may not require ordering depending on the operators consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Reference</u>
AS100026	Lockwire (0.020 inch)	C-508

SPECIAL TOOLS:

None

WEIGHT AND BALANCE:

No change

ELECTRICAL LOAD DATA:

No change

REFERENCES:

BHT-ALL-SPM
BHT-430-MM-2
BHT-430-MM-3

PUBLICATIONS AFFECTED:

BHT-430-MM-3

ACCOMPLISHMENT INSTRUCTIONS:

1. Prepare the helicopter for maintenance.
2. Insure all electrical power is removed from the helicopter.
3. Remove the forward transmission cowling to gain access to the cyclic and collective flight controls synchro resolvers (BHT-430-MM-2, Chapter 12 and BHT-430-MM-3, Chapter 22).
4. Remove the lower center fuselage access panel to gain access to the yaw control synchro resolver (BHT-430-MM-2, Chapter 12 and BHT-430-MM-3).

5. At the yaw control synchro resolver, remove the screw, nut and washer securing the yaw control position synchro arm, P/N 430-001-070-103, to the shaft of the yaw control position resolver. (Figure 1 and 2).
6. Move the arm, P/N 430-001-070-103, to allow the removal of the yaw control position resolver.
7. Remove the four screws and eight washers securing the yaw control position resolver to the mounting bracket, and remove the resolver. (Figure 2).
8. Locate the yaw control position synchro arm on the shaft of the yaw control position resolver, and the new guard, P/N 430-001-201-101, in position on the yaw control position synchro mounting bracket.

CAUTION

Be very careful when securing the control position synchro and guard to the mounting bracket, to ensure the mounting screw, P/N MS35265-13, does not bottom out.

-NOTE-

It is permissible to install up to qty 4 washer, P/N NAS620A4L, under each screw, P/N MS35265-13, if the screw bottoms out.

9. Secure the guard and the control position synchro to the mounting bracket, using qty 4 screws P/N MS35265-13, and qty 8 washers P/N NAS620A4L. Safety the screws, using lockwire (C-508). (Figure 2).
10. Secure the yaw control position synchro arm, P/N 430-001-070-103, to the shaft of the yaw control position resolver, using a screw, P/N NAS1352-04-8P, a washer, P/N NAS620A4L, and a nut, P/N MS21042L04. Torque the screw to a value of 4.5 to 5.5 inch pounds. (Figure 2).
11. At the pitch control synchro resolver, remove the screw, nut and washer securing the pitch control position synchro arm, P/N 430-001-070-105, to the shaft of the pitch control position resolver. (Figure 3 and 4).
12. Move the arm, P/N 430-001-070-105, to allow the removal of the pitch control position resolver. (Figure 4).
13. Remove the four screws and eight washers securing the pitch control position resolver to the mounting bracket, and remove the resolver. (Figure 4).

14. Locate the pitch control position synchro arm on the shaft of the pitch control position resolver, and the new guard, P/N 430-001-201-101, in position on the pitch control position synchro mounting bracket.

CAUTION

Be very careful when securing the control position synchro and guard to the mounting bracket, to ensure the mounting screw, P/N MS35265-13, does not bottom out.

-NOTE-

It is permissible to install up to qty 4 washer, P/N NAS620A4L, under each screw, P/N MS35265-13, if the screw bottoms out.

15. Secure the guard and the control position synchro to the mounting bracket, using qty 4 screws, P/N MS35265-13 and qty 8 washers, P/N NAS620A4L. Safety the screws, using lockwire (C-508). (Figure 4).
16. Secure the pitch control position synchro arm to the shaft of the pitch control position resolver, using a screw, P/N NAS1352-04-8P, a washer, P/N NAS620A4L, and a nut, P/N MS21042L04. Torque the screw to a value of 4.5 to 5.5 inch pounds. (Figure 4).
17. At the roll control synchro resolver, remove the screw, nut and washer securing the roll control position synchro arm, P/N 430-001-070-105, to the shaft of the roll control position resolver. (Figure 3 and 5).
18. Move the arm, P/N 430-001-070-105, to allow the removal of the roll control position resolver (Figure 5).
19. Remove the four screws and eight washers securing the roll control position resolver to the mounting bracket, and remove the resolver. (Figure 5).
20. Locate the roll control position synchro arm on the shaft of the roll control position resolver, and the new guard, P/N 430-001-201-101, in position on the roll control position synchro mounting bracket.

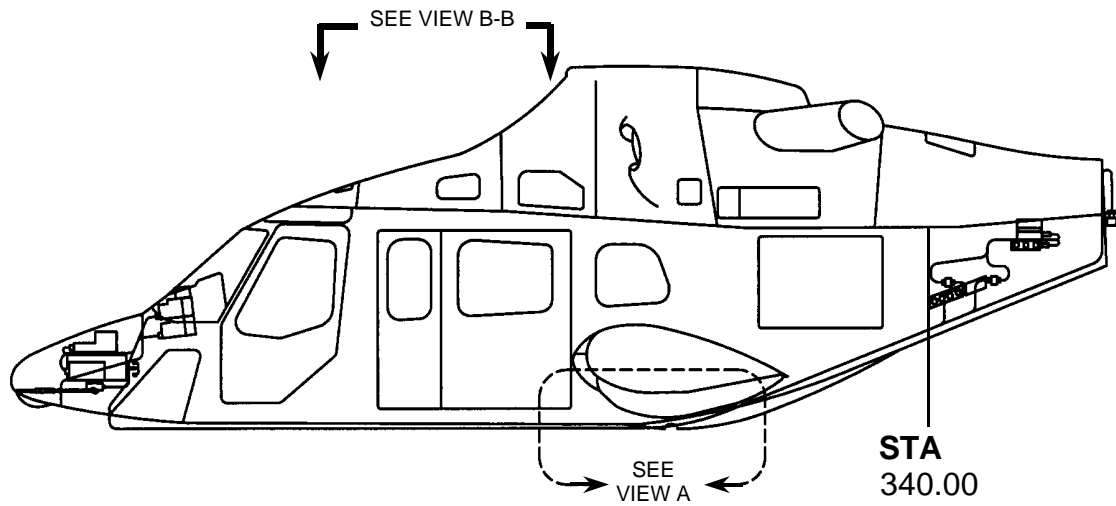
CAUTION

Be very careful when securing the control position synchro and guard to the mounting bracket, to ensure the mounting screw, P/N MS35265-13, does not bottom out.

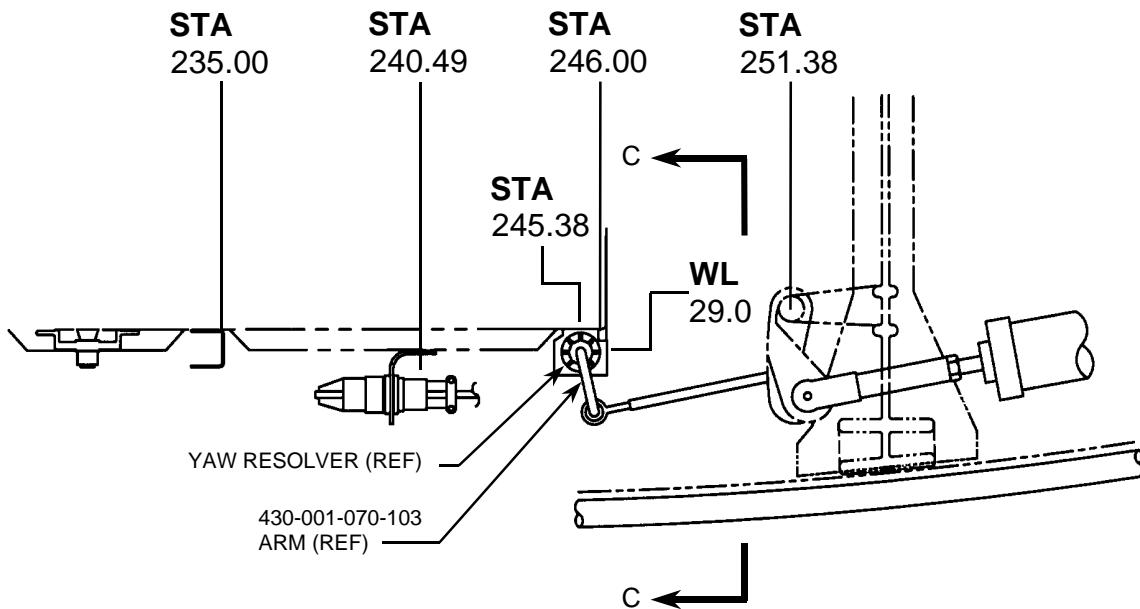
-NOTE-

It is permissible to install up to qty 4 washer, P/N NAS620A4L, under each screw, P/N MS35265-13, if the screw bottoms out.

21. Secure the guard and the control position synchro on the mounting bracket, using qty 4 screws, P/N MS35265-13 and qty 8 washers, P/N NAS620A4L. Safety the screws, using lockwire (C-508). (Figure 5).
22. Secure the roll control position synchro arm to the shaft of the roll control position resolver, using a screw, P/N NAS1352-04-8P, a washer, P/N NAS620A4L, and a nut, P/N MS21042L04. Torque the screw to a value of 4.5 to 5.5 inch pounds. (Figure 5).
23. At the collective control synchro resolver, remove the screw, nut and washer securing the collective control position synchro arm to the shaft of the collective control position resolver. (Figure 6).
24. Secure the collective control position synchro arm to the shaft of the collective control position resolver, using a screw, P/N NAS1352-04-8P, a washer, P/N NAS620A4L, and a nut, P/N MS21042L04. Torque the screw to a value of 4.5 to 5.5 inch pounds. (Figure 6, View J-J).
25. Locate the new collective control position synchro guard, P/N 430-001-202-101, in position on the support, P/N 222-031-302-227. Align the hole in the guard with the resolver shaft, maintaining a 0.030 inch minimum clearance. Using a #40 drill bit, drill qty 2 holes through the guard and support, allowing sufficient edge clearance. (Figure 6, View K-K).
26. Attach the guard to the beam using 2 rivets, P/N MS20426AD3-4. (Figure 6, View K-K).
27. Carry out the setup installation procedure for the pitch, roll, yaw and collective position synchros. (BHT-430-MM-3, Chapter 22).
28. Install the forward transmission cowling. (BHT-430-MM-2, Chapter 12).
29. Install the lower center fuselage access panel (BHT-430-MM-2, Chapter 12).
30. Annotate the helicopter records to reflect compliance with this bulletin.
31. Return the helicopter to flight status.

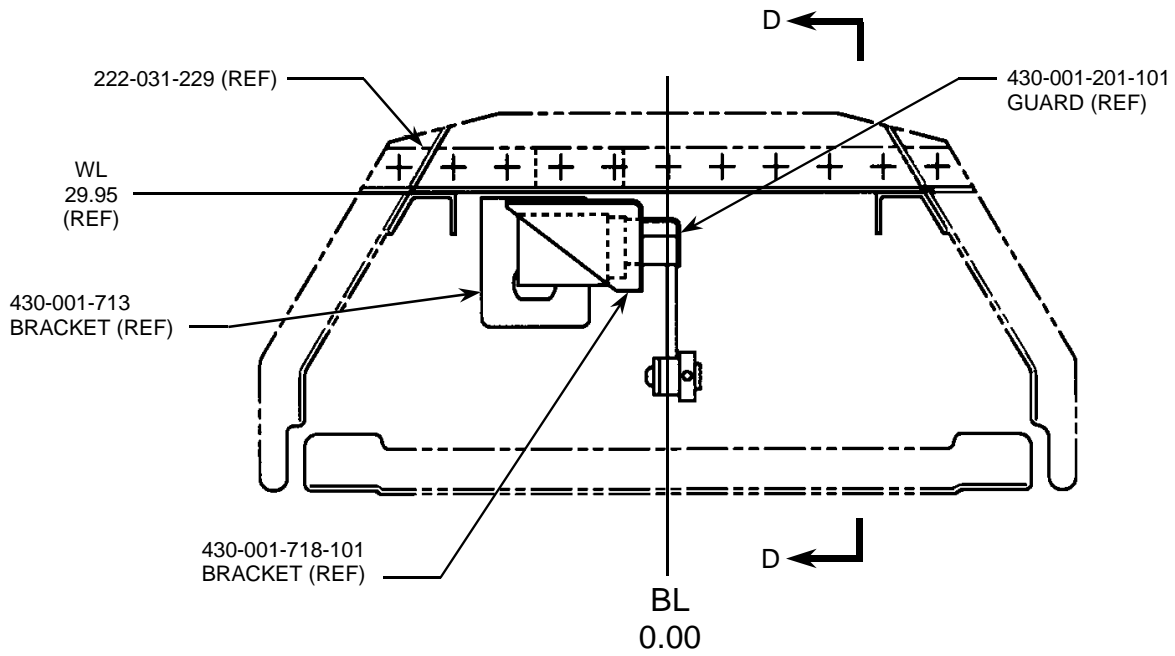


GENERAL VIEW



VIEW A

FIGURE 1
LOCATION OF YAW CONTROL
SYNCR RESOLVER



**VIEW C-C
 LOOKING FORWARD**

REMOVE: EXISTING SCREW (QTY 4)
 AND WASHER (QTY 8)

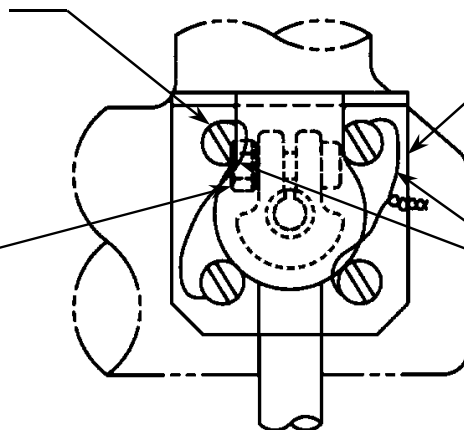
INSTALL: NAS620A4L WASHER (QTY 8)
 MS35265-13 SCREW (QTY 4)

REMOVE: EXISTING SCREW,
 WASHER AND NUT

INSTALL: NAS1352-04-8P SCREW
 NAS620A4L WASHER
 MS21042L04 NUT
 APPLY TORQUE OF
 4.5 TO 5.5 IN-LBS

INSTALL:
 430-001-201-101 GUARD

INSTALL:
 AS100026 LOCKWIRE



VIEW D-D

FIGURE 2

**MODIFICATION OF YAW CONTROL
 POSITION RESOLVER**

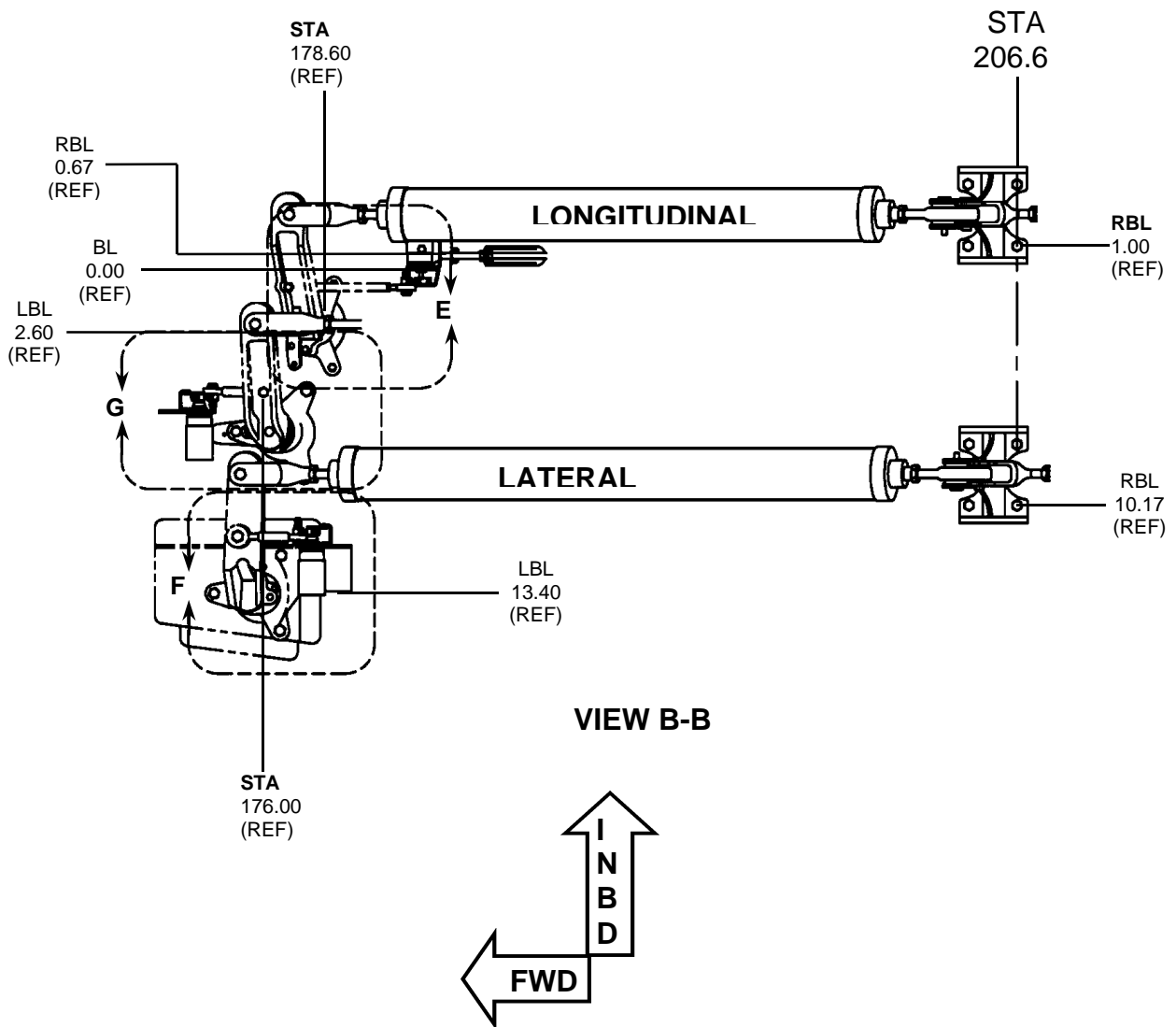
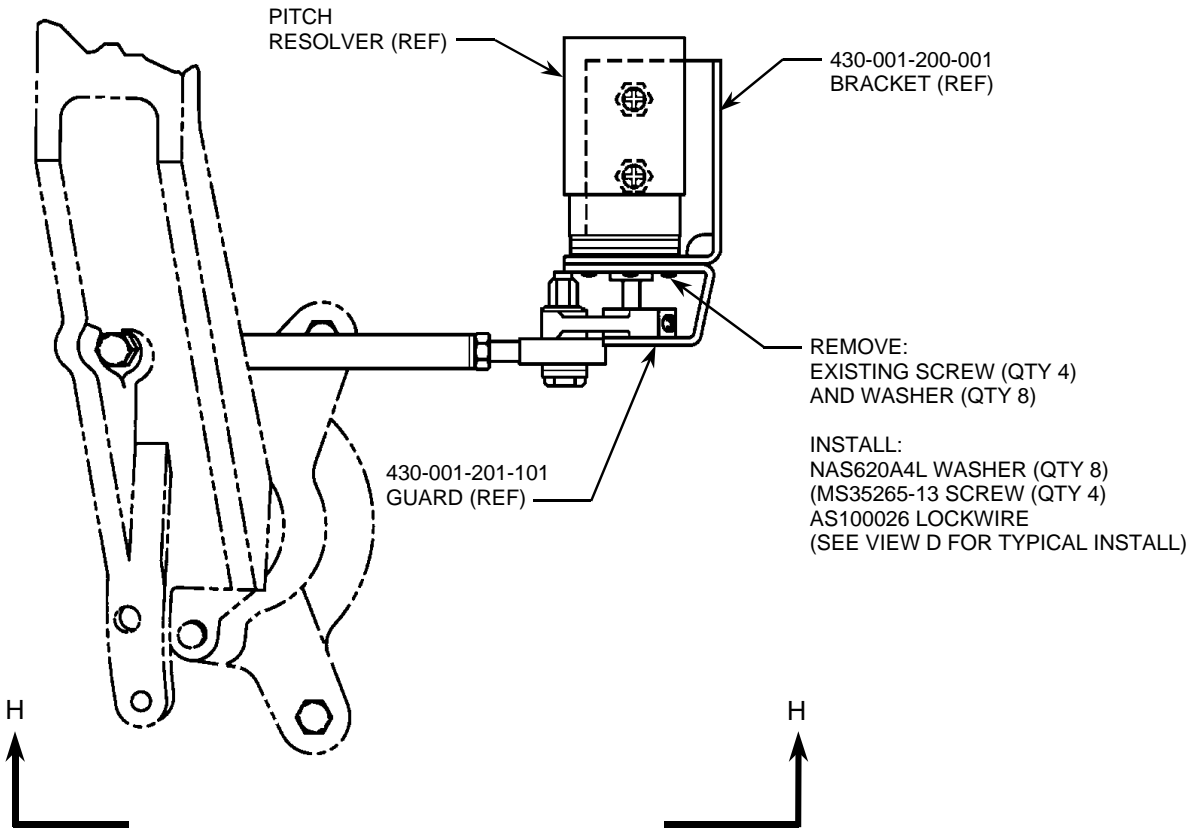


FIGURE 3

**LOCATION OF PITCH, ROLL, AND COLLECTIVE
CONTROL SYNCRO RESOLVERS**



VIEW E

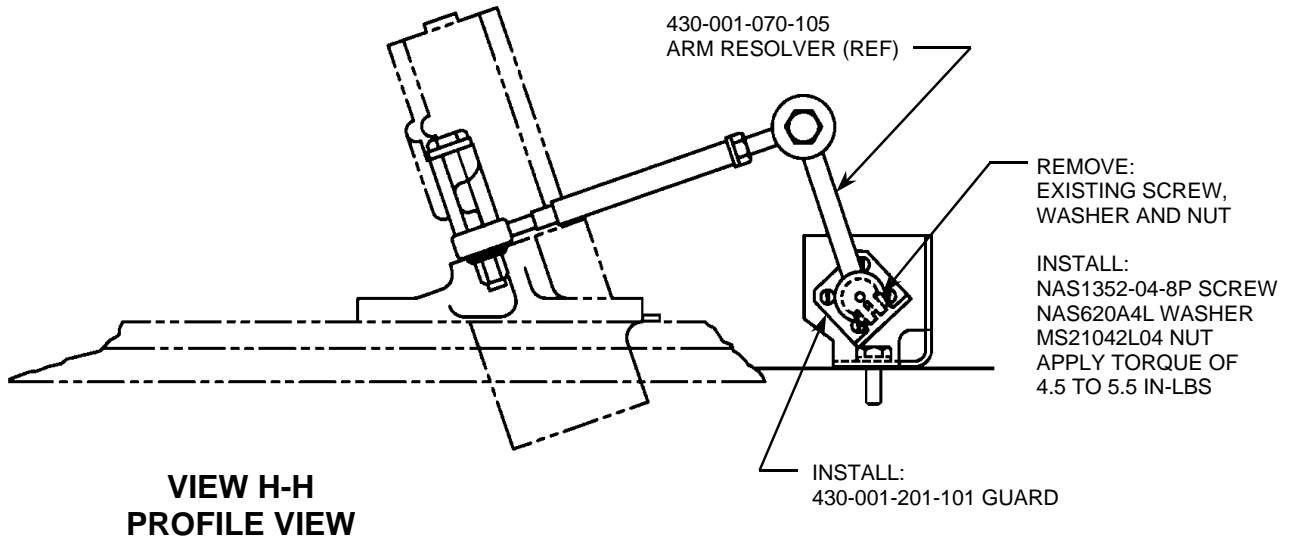


FIGURE 4

MODIFICATION OF PITCH CONTROL
 POSITION RESOLVER

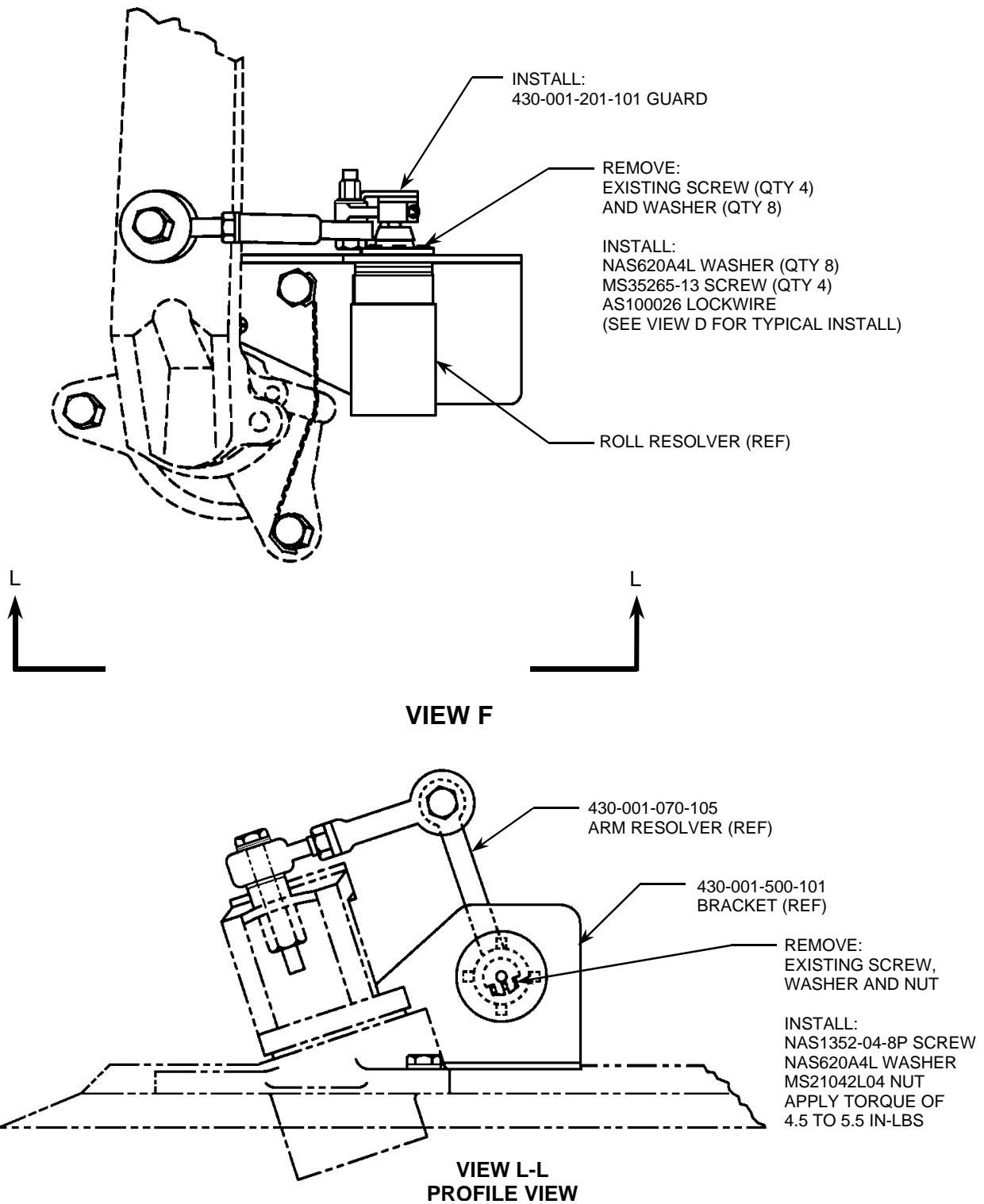


FIGURE 5
MODIFICATION OF ROLL CONTROL
POSITION RESOLVER

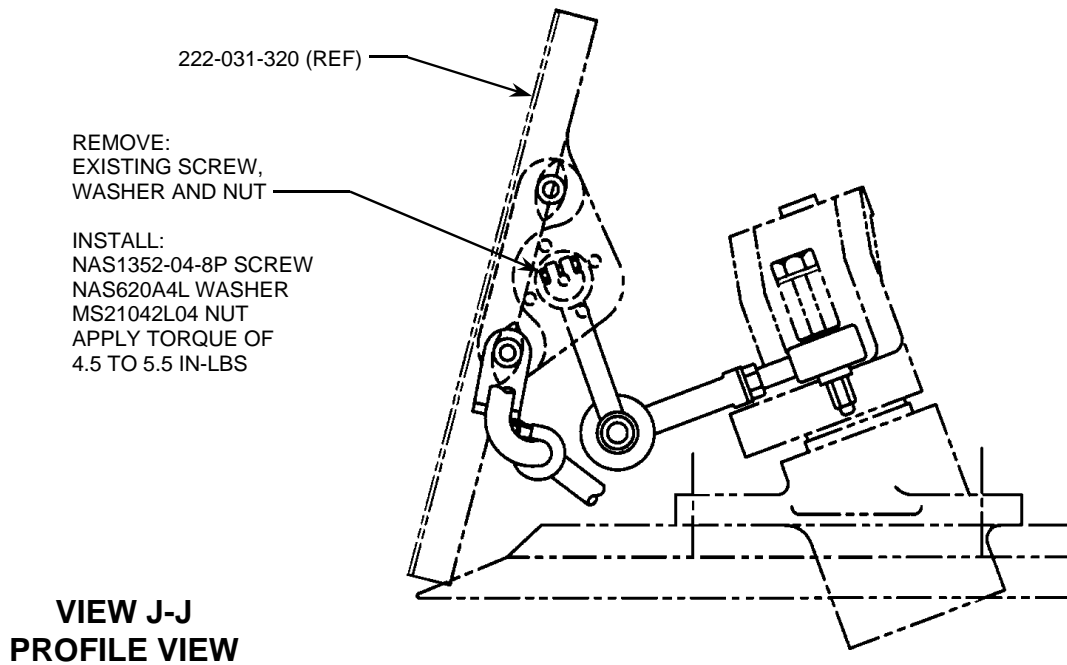
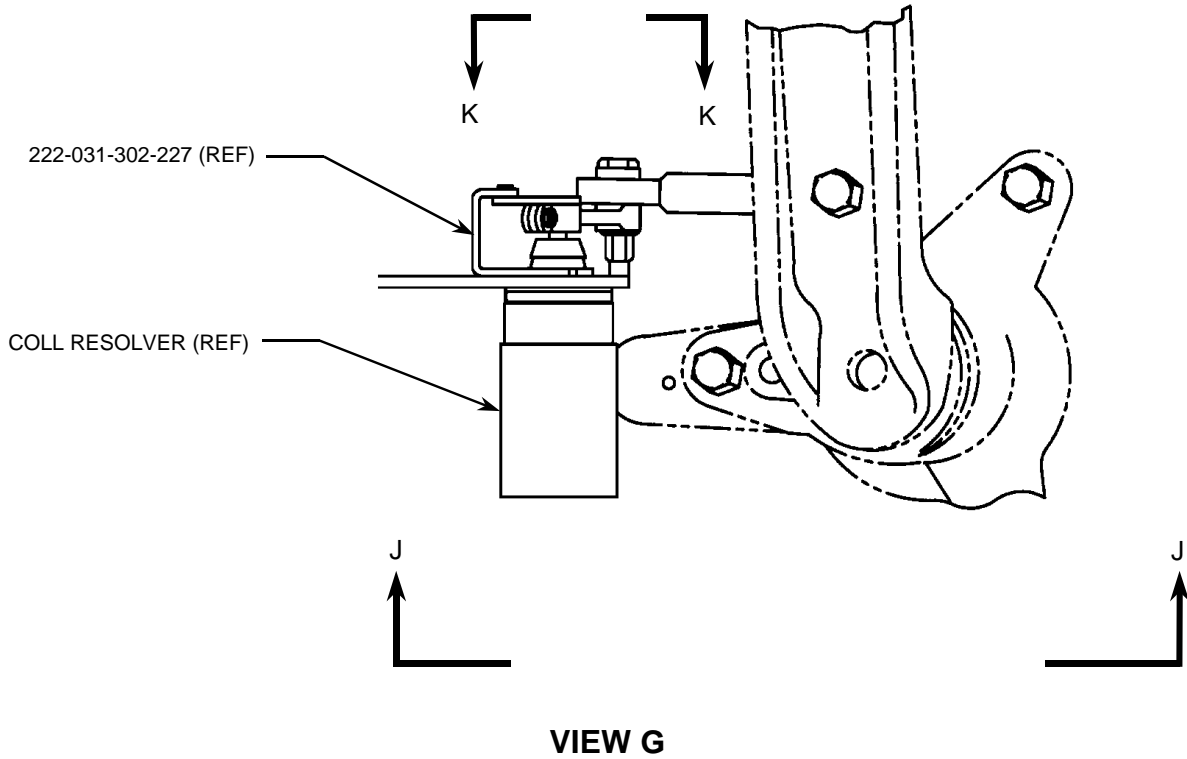
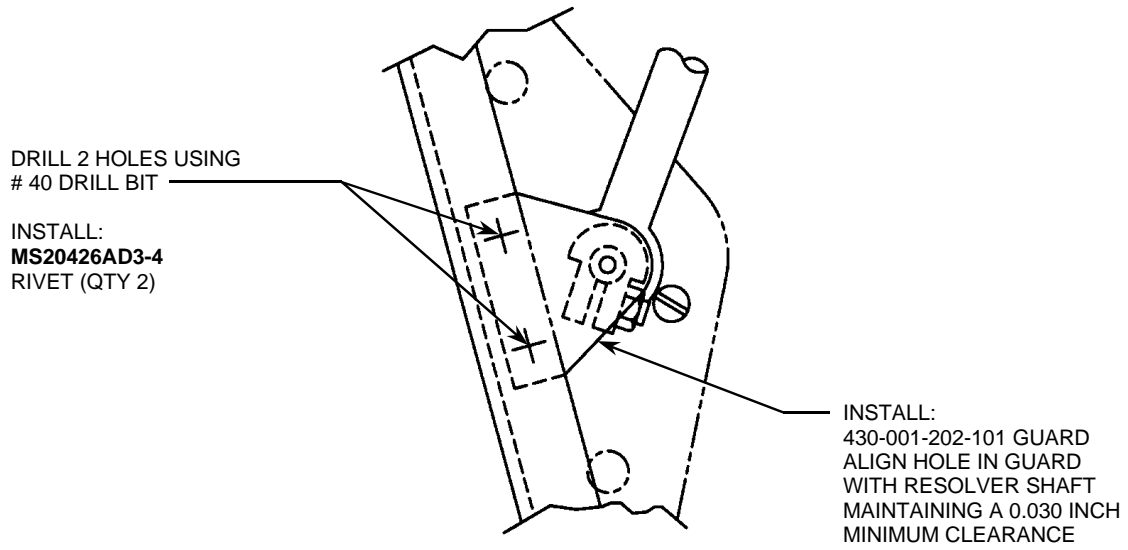


FIGURE 5
**MODIFICATION OF COLLECTIVE CONTROL
POSITION RESOLVER**



VIEW K-K

430ASB-98106-6

FIGURE 6
MODIFICATION OF COLLECTIVE CONTROL
POSITION RESOLVER