COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

AILERON CONTROL TRANSFER MECHANISM ASSEMBLY

PART NUMBER 251A1817–1, –2, –3

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COMPONENT MAINTENANCE MANUAL

Revision No. 7
Jul 01/2009

To: All holders of AILERON CONTROL TRANSFER MECHANISM ASSEMBLY 27-16-08.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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COMPONENT MAINTENANCE MANUAL

A = Added, R = Revised, D = Deleted, O = Overflow

Subject/Page	Date	Subject/Page	Date	Subject/Page	Date
27-16-08 ILLUSTRATED PARTS LIST (cont)					
1027	Mar 01/2006				
1028	Mar 01/2006				
1029	Mar 01/2006				
1030	Mar 01/2006				

A = Added, R = Revised, D = Deleted, O = Overflow

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COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 38050	JUL 01/03
		PRR 38060-20	JUL 01/03

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Revision		Filed	
Number	Date	Date	Initials

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INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

AILERON CONTROL TRANSFER MECHANISM ASSEMBLY - DESCRIPTION AND OPERATION

1. Description and Operation

A. The aileron control transfer mechanism located at the base of the first officer's control column incorporates a transfer mechanism and a lost motion device. The transfer portion consists basically of a preloaded torsion spring whose ends are held against two similar halves of a spring container. The lost motion device consists of an arm on the bottom portion of the transfer mechanism assembly.

B. Rotation of either the captain's or first officer's control wheel results in rotational movement of the aileron control bus drum. The spoiler control drum is floating and normally rotates only by feedback through the attached cables or, in case of a jammed aileron system, through action of the lost motion device. Control wheel rotational motion is transmitted between the lost motion device and the aileron control bus drum through the preloaded torsion spring.

C. If the aileron cable system becomes jammed, the first officer must exert sufficient rotational force on his control wheel to overcome the spring preload and maintain lateral control through operation of the spoiler control system. The first officer's control wheel will turn through the range of lost motion before movement is picked up by the spoiler control drum through the lost motion device.

D. If the spoiler cable system becomes jammed, the captain must likewise exert sufficient rotational force on his control wheel to overcome the spring preload and maintain lateral control through operation of the aileron control system.

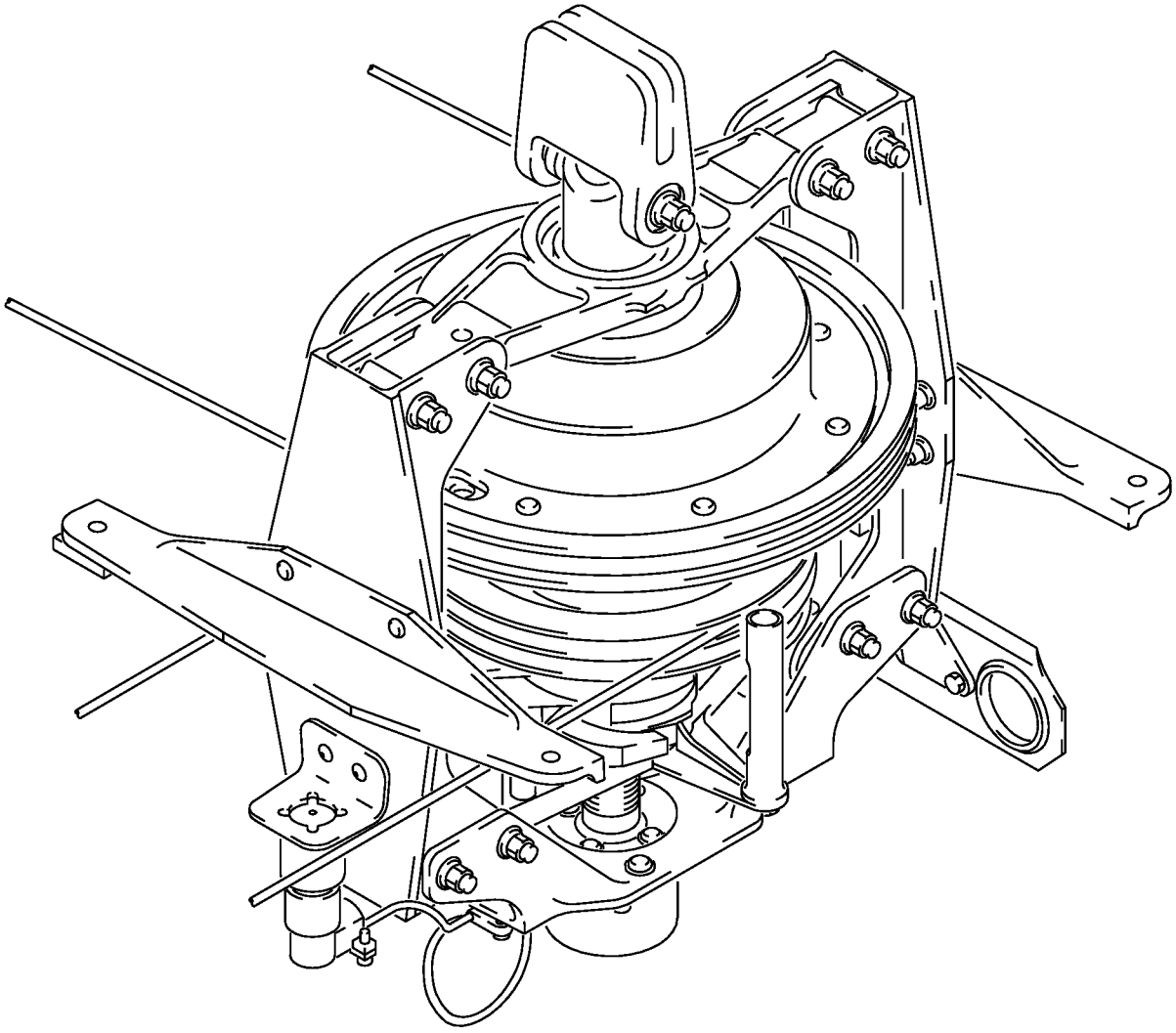
2. Leading Particulars (Approximate)

A. Length – 13 inches

B. Width – 10 inches

C. Height – 12 inches

D. Weight – 14.2 pounds



Aileron Control Transfer Mechanism Assembly
Figure 1

TESTING AND FAULT ISOLATION

1. General

A. This procedure has the data necessary to do a test of the aileron control transfer mechanism assembly after an overhaul or for fault isolation.

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Preparation for Test

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5434	Test Bench Assembly, Transfer Mechanism Aileron Control, Functional Test (Part #: F80220-1, Supplier: 81205)

B. Procedure

(1) Install the transfer mechanism assembly vertically in Test Bench Assembly, SPL-5434.

NOTE: Use F80220-1 Test Bench Assembly, SPL-5434 to hold the transfer mechanism assembly with shaft (195) vertical. Mounting holes in forward and aft beams (80, 85) to hold assembly to test rig (TESTING AND FAULT ISOLATION, Figure 101).

3. Functional Test (IPL Figure 1)

CAUTION: DO ALL STEPS SLOWLY AND CAREFULLY. TOO FAST A RELEASE OF SPRING LOAD CAN DAMAGE COMPONENTS OF THE ASSEMBLY.

NOTE: If you use a spring scale to apply rotational forces during bus drum torque tests, attach the spring scale to one cable and do all tests requiring rotation in one direction; then attach the scale to the other cable and do the tests again in the opposite direction.

NOTE: Spring scale that can accurately measure 0-250 pounds of tension, or torque wrench with range of 0-1000 pound-inches.

A. Shaft Torque Test

CAUTION: HOLD THE PIN OR BOLT TO KEEP THE DRUM STOPPED. DO NOT USE A PIN OR BOLT LONGER THAN 3.375 INCHES OR DAMAGE TO PARTS CAN OCCUR.

(1) Put a 5/16-inch diameter by 3.375-inch long pin or bolt through the rig pin holes in housings (300, 495) and drum (300).

(2) Apply torque to the fork end of shaft (520) and turn the shaft gradually to 75 degrees from starting point in both clockwise and counterclockwise directions.

(3) Make sure the torque values at the spring breakout are 256-400 pound-inches and are not more than 600 pound-inches at the 75-degree position.

(4) Do TESTING AND FAULT ISOLATION, Paragraph 3.A.(2) and TESTING AND FAULT ISOLATION, Paragraph 3.A.(3) six times. During the operation, make sure parts move freely.

(5) After the test, make sure the fork (70) slot centerline is 89-91 degrees compared to the rig pin hole centerlines in drum (435) and housings (300, 495) aligned within 0.015 inch as shown in TESTING AND FAULT ISOLATION, Figure 102.

(6) Remove the rig pin.

B. Bus Drum Torque, Null Shift, Travel Tests

(1) Hold shaft (520) stopped with a locking device applied to either the shaft or fork (70).

(2) Install the MS21251B5S turnbuckles on cables (10, 15).

(3) Attach a spring scale to the turnbuckle on cable assembly (15).

NOTE: The spring is not necessary if the test fixture lets you use a torque wrench as shown in TESTING AND FAULT ISOLATION, Figure 101.

(4) Apply tension to the spring scale or bus drum (435). Make sure the breakout torque is 256-400 pound-inches (64.5-100.5-pound cable tension). Increase the force gradually until bus drum (435) turns 75 degrees from the starting position. Make sure the torque is not more than 600 pound-inches (150.8-pound cable tension).

(5) Increase the force until the drum turns through 130 degrees from the starting position and make sure the torque is not more than 710 pound-inches (178-pound cable tension). During the test, make sure there is no interference between the end of the rig pin or bolt with the parts.

(6) Do TESTING AND FAULT ISOLATION, Paragraph 3.B.(4) and TESTING AND FAULT ISOLATION, Paragraph 3.B.(5) again a minimum of five times.

(7) Turn bus drum (435) clockwise through the total travel to the internal stop. Make sure the total travel from the starting position is a minimum of 138 degrees.

(8) Put bus drum (435) back to the neutral position. Make a note of the radial location of the free drum relative to rib (335).

(9) Do TESTING AND FAULT ISOLATION, Paragraph 3.B.(7) again in the counterclockwise direction.

(10) Put the bus drum back to the neutral position. Make sure the null shift from the position noted in TESTING AND FAULT ISOLATION, Paragraph 3.B.(8) is not more than 1 degree, and that the free play of the bus drum (at neutral position) is not more than 1 degree.

(11) If you used the spring scale, remove the scale from cable (15) and install the scale on cable (10).

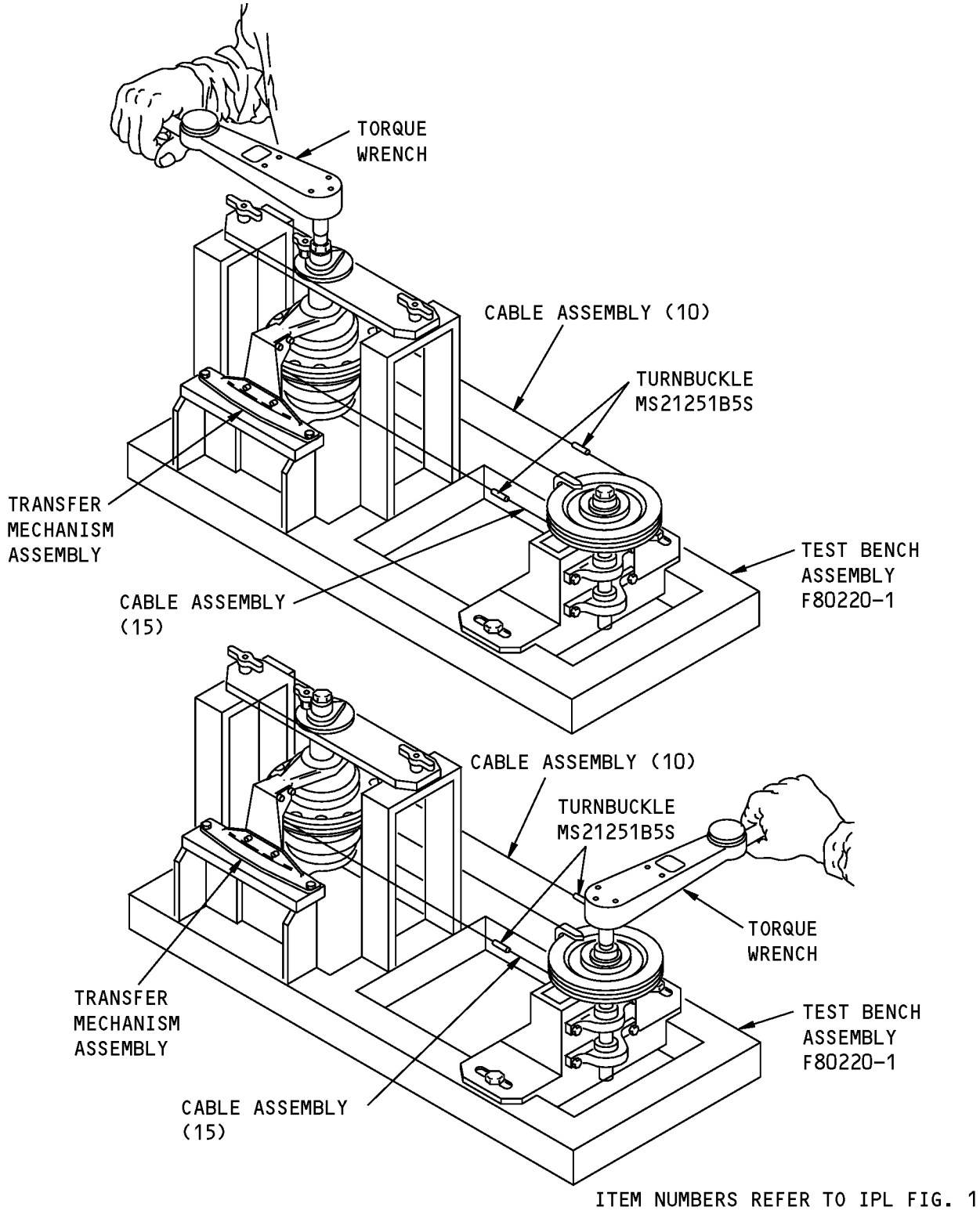
(12) Do TESTING AND FAULT ISOLATION, Paragraph 3.B.(4) and TESTING AND FAULT ISOLATION, Paragraph 3.B.(5) again in the counterclockwise direction.

(13) Do TESTING AND FAULT ISOLATION, Paragraph 3.B.(12) again a minimum of five times.

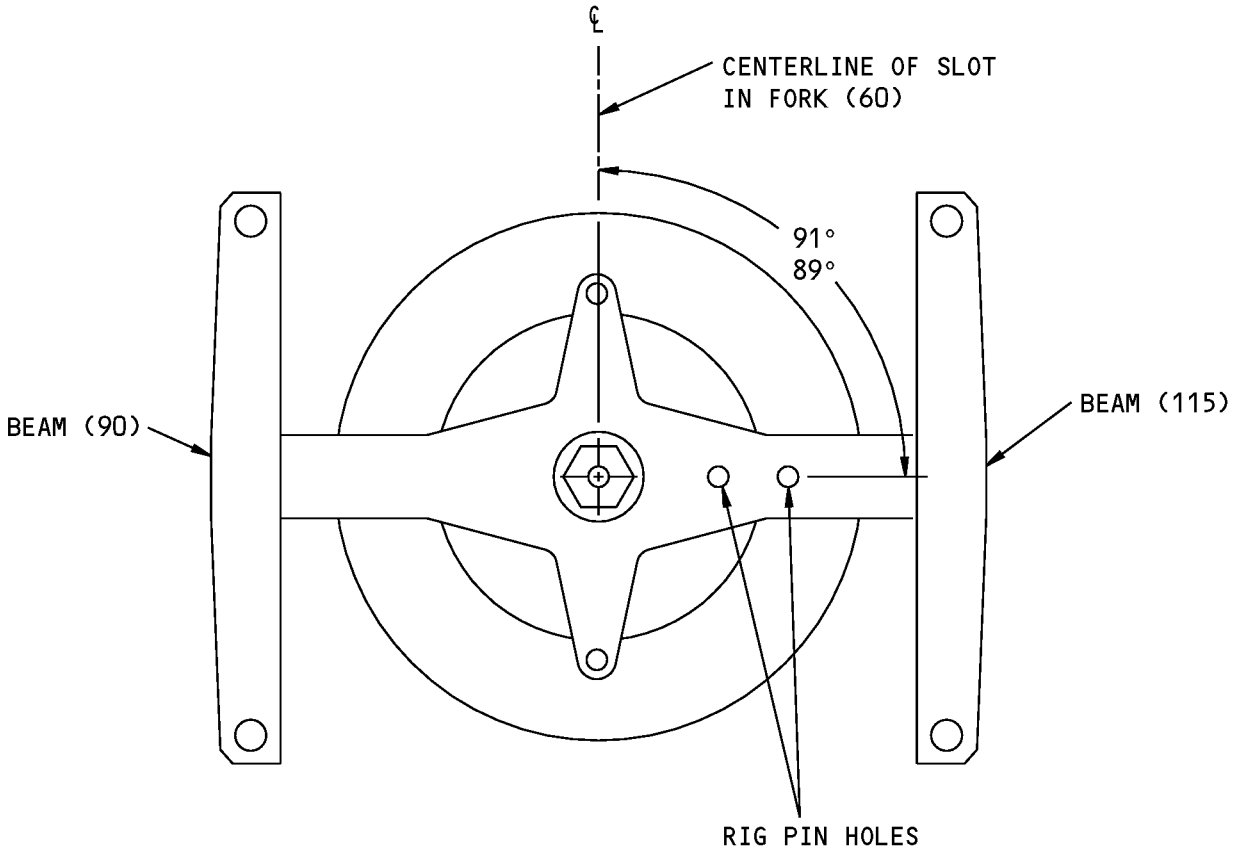
C. Spoiler Drum Free Travel Test

(1) Hold fork (70), and turn spoiler drum (305) in the clockwise and counterclockwise directions through the 11-13 degree travel range between the stops. Make sure the drum turns freely.

(2) Remove the turnbuckles and the rig pins, and remove the assembly from the fixture.



Transfer Mechanism Functional Test
Figure 101



BOTTOM VIEW

ITEM NUMBERS REFER TO IPL FIG. 1

Test Diagram
Figure 102

4. **Trouble Shooting (IPL Figure 1)**

A. Refer to TESTING AND FAULT ISOLATION, Table 101 to do fault isolation with the test results.

Table 101: Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTION
Shaft (520) will not turn easily or freely.	Incorrect assembly Defective bearings, flexible coupling (465) tightened too much	Disassemble and assemble correctly. Replace bearings. Replace spring; retighten the coupling.
Interference as bus drum is rotated counterclock- wise TESTING AND FAULT ISOLATION, Paragraph 3.B.(4).	Rig pin is in too far into spoiler drum (305)	Remove the rig pin and install it correctly.
Breakout out torque or maximum torque not within specified limits, TESTING AND FAULT ISOLATION, Paragraph 3.B.(6) and TESTING AND FAULT ISOLATION, Paragraph 3.B.(13).	Defective spring	Replace spring.
Bus drum (435) does not turn freely, TESTING AND FAULT ISOLATION, Paragraph 3.B.(6) and TESTING AND FAULT ISOLATION, Paragraph 3.B.(13).	Incorrect assembly Flexible coupling (465) tightened too much	Disassemble and assemble correctly. Replace bearings; retighten coupling.

DISASSEMBLY

1. **General**
   A. This procedure contains the data necessary to disassemble the Mechanism Assembly.
   B. Refer to TESTING AND FAULT ISOLATION to find the condition of the component or possible cause of its malfunction. This is to see how much disassembly is necessary without complete disassembly and assembly.
   C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.
   D. Refer to IPL Figure 1 for item numbers.
2. **Parts Replacement (IPL Figure 1)**

   NOTE: These parts are recommended for replacement. Unless shown differently, replacement of other parts can be by in-service experience.

   A. Bearings (50, 65, 305, 370, 405, 500)
   B. Cotter pins (5)
   C. Bolts (20)
3. **Disassembly (IPL Figure 1)**
   A. Remove cotter pins (5), bolts (20), and cable assemblies (10, 15, 20, 25).
   B. Remove nut (45), washer (40) and bolt (30).
   C. Remove fork assembly (60), spacers (55), and bushing (515) from shaft (520).
   D. Remove bearing (50) from fork (70).
   E. Remove nuts (320), washers (315), and bushings (325), bolts (310), and bracket assembly (340).
   F. Remove nuts (295), washers (290) and bolts (285) and disconnect forward rib (330) and aft rib (335) from bearing housings (300, 495).
   G. Remove the screws (145, 160 or 165), washers (150, 170 or 175), clamp (185), and plug (180). Remove the bolts (190 or 195), washers (200, 205), and nuts (210), as applicable. Remove the transmitter assembly (215) from the plate assembly.
   H. Remove the screws (220) and washers (225), then remove the plate (335) and transmitter (270) from the clamp ring assembly (235) or clamp ring (255).
   I. Remove nuts (130), washers (125), bolts (120), and cable guide (140) from forward rib (330).

      NOTE: Do not remove grommets (135) unless replacement is necessary.

   J. Remove bearing housing (300) from upper end of shaft (520).
   K. Remove bolts (360) and collars (365) from upper drum (375).
   L. Remove upper drum (375) from shaft (520).

   WARNING: SPRING (420) IS HELD BY RETENTION PLATE (415) AND RETAINER (400). DO NOT REMOVE RETAINER (400) UNLESS YOU HOLD PLATE (415) OR INJURY TO PERSONNEL CAN OCCUR.

   M. Remove nut (395), washers (385, 390), bolt (380) and retainer (400) from upper portion of shaft (520).
   N. Remove bearings (405), spacer (410), retention plate (415), spacer (425) and spring (420) from the upper portion of shaft (520).

O. Remove flexible coupling (465) and washer (470) from shaft (520).

P. Remove bearing housing (495) and remaining washer (470) from shaft (520).

Q. Remove nuts (485), washers (480), screws (475) and three cable guards (490) from housing (495).

R. Remove arm (505) from shaft (520).

S. Remove spacers (430, 440, 445), bearings (405), lower drum (435) and spoiler drum assembly (450) from shaft (520).

NOTE: Do not remove marker (530) from lower drum (435) unless replacement is necessary.

T. Remove retainer (400), bearings (405), spacer (410), retention plate (415) and spacer (425) from the lower portion of shaft (520).

U. Remove bearings (405) and spacer (445) from spoiler drum assembly (450).

CLEANING

1. General

A. This procedure contains the data necessary to clean special parts.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Cleaning

A. References

Reference	Title
SOPM 20-30-01	CLEANING AND RELUBRICATING BEARINGS
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Clean all parts but bearings by standard industry practices and the instructions in SOPM 20-30-03.

(2) Clean bearings by the instructions in SOPM 20-30-01.

CHECK

1. General

A. This procedure contains the data necessary to find defects in the material of specified parts.

B. Refer to FITS AND CLEARANCES for the design dimension and wear limits.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Check

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION

B. Procedure

(1) Examine all parts for defects by standard industry practices.

(2) Do a magnetic particle check (SOPM 20-20-01) of these parts:

(a) Fork (70)

(3) Do a penetrant check (SOPM 20-20-02) on these parts:

(a) Ribs (330, 335)

(b) Cable guard (490)

(c) Housings (300, 495)

(d) Retention plate (415) and retainer (400)

(e) Spacers (410, 430, 440, 445)

(f) Drums (375, 435, 450)

(g) Arm (505)

REPAIR

1. Content

A. Instructions for repair, refinish, and replacement of the specified subassembly parts are included in each REPAIR when applicable:

Table 601:

P/N	NAME	REPAIR
65-55476	BEARING HOUSING	1-1
65C37032	UPPER DRUM	2-1
65C37033	LOWER DRUM	3-1
6-60428	FORK ASSEMBLY	4-1
65C37035	SHAFT ASSEMBLY	5-1
- - - -	MISCELLANEOUS PARTS REFINISH	6-1

2. Standard Practices

A. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in the individual procedures.

- SOPM 20-10-01 Repair and Refinish of High Strength Steel Parts
- SOPM 20-30-02 Stripping of Protective Finishes
- SOPM 20-41-01 Decoding Table for Boeing Finish Codes
- SOPM 20-60-02 Finishing Materials
- SOPM 20-60-03 Lubricants
- SOPM 20-60-04 Miscellaneous Materials

3. Materials

NOTE: Equivalent substitutes can be used.

A. primer, C00259 – BMS 10-11, type 1

B. Enamel coating, C00260 – BMS 10-11, type 2

C. sealant, A00247 – BMS 5-95

D. lubricant, D00113 – Solid Film, BMS 3-8

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in SOPM 20-00-00.

BEARING HOUSING - REPAIR 1-1

65-55476–14, –15

1. General

A. This procedure has the data necessary to refinish the bearing housing (IPL Figure 1, 300,495).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identifies in this procedure.

D. Refer to IPL Figure 1 for item numbers.

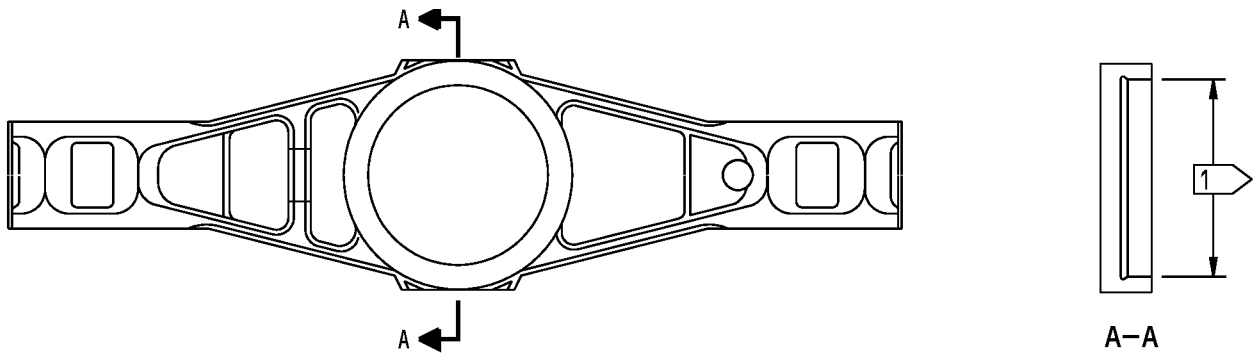
2. Bearing Replacement

A. Remove the old bearings (305, 500) from bearing housing (300, 495).

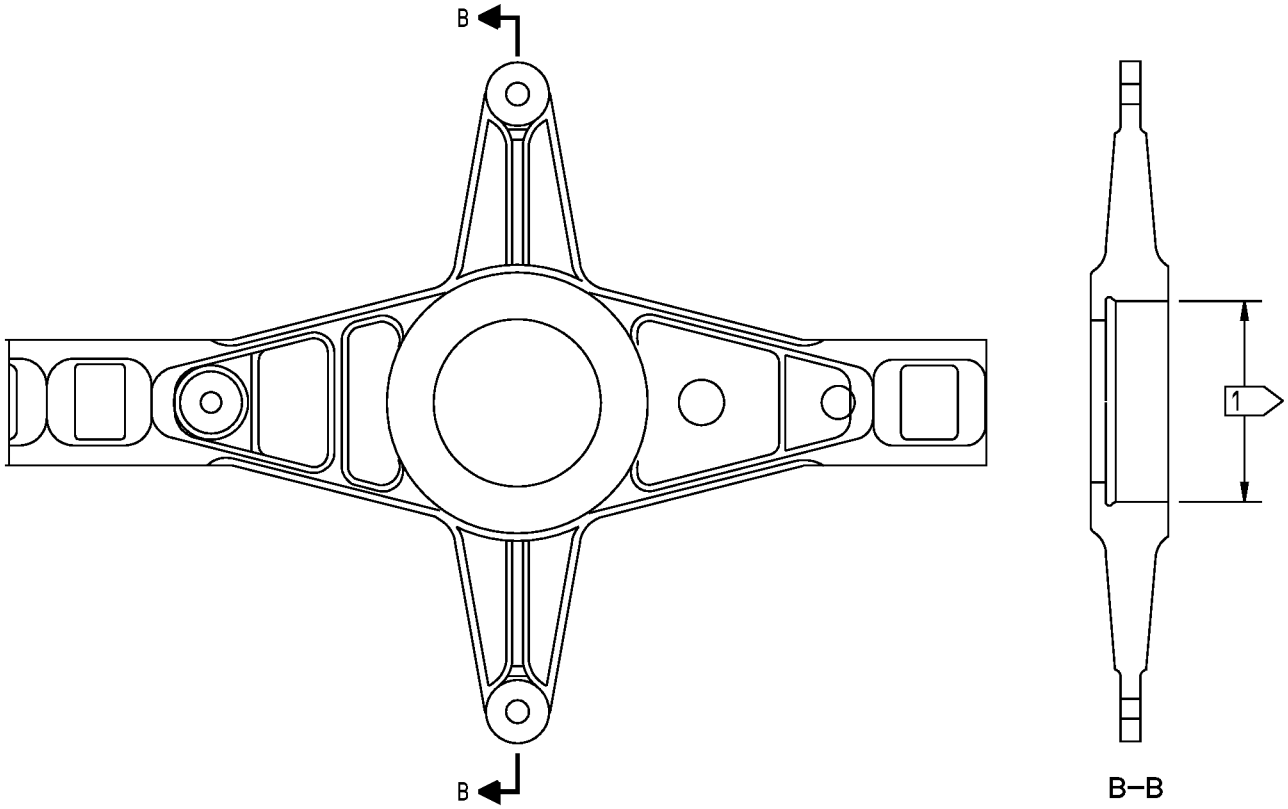
B. Install replacement bearings with sealant, A00247 and roller swage them (SOPM 20-50-03).

3. Refinish

A. For the repair of surfaces which is only the replacement of the original finish , refer to REFINISH instructions on REPAIR 1-1, Figure 601.



65–55476–14



65–55476–15

REFINISH

CHROMIC ACID ANODIZE AND APPLY PRIMER BMS 10–11, TYPE 1 (F–20.02) UNLESS SHOWN DIFFERENTLY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 NO PRIMER THIS SURFACE

65-55476-14,-15 Bearing Housing Repair
Figure 601

UPPER DRUM - REPAIR 2-1

65C37032–1

1. General

A. This procedure has the data necessary to refinish the upper drum (IPL Figure 1, 375).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identifies in this procedure.

D. Refer to IPL Figure 1 for item numbers.

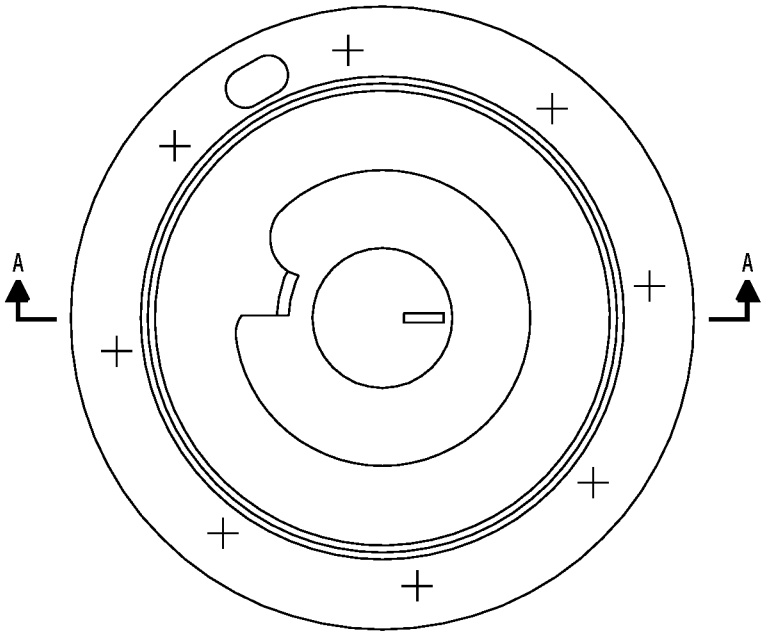
2. Bearing Replacement

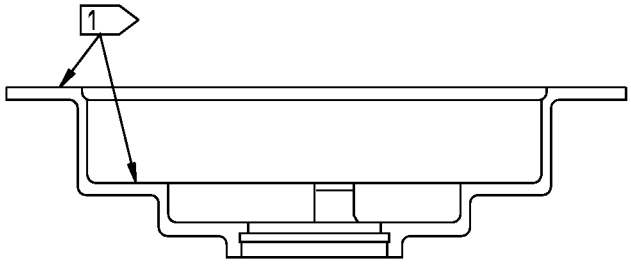
A. Remove the old bearing (370) from upper drum (375).

B. Install a replacement bearing with sealant, A00247 and roller swage it (SOPM 20-50-03).

3. Refinish

A. For the repair of surfaces which is only the replacement of the original finish , refer to REFINISH instructions on REPAIR 2-1, Figure 601.





A–A

REFINISH

CHROMIC ACID ANODIZE AND APPLY PRIMER BMS 10–11, TYPE 1 (F–20.02) UNLESS SHOWN DIFFERENTLY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 NO PRIMER ON THIS SURFACE

65C37032-1 Upper Drum Repair
Figure 601

LOWER DRUM - REPAIR 3-1

65C37033–1

1. General

A. This procedure has the data necessary to refinish the upper drum (IPL Figure 1, 435).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identifies in this procedure.

D. Refer to IPL Figure 1 for item numbers.

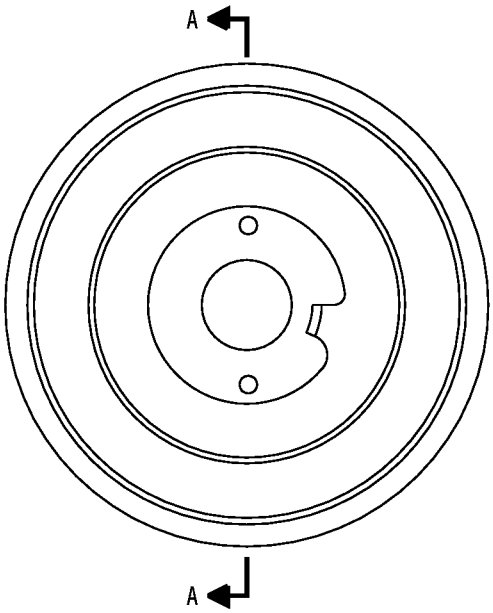
2. Bearing Replacement

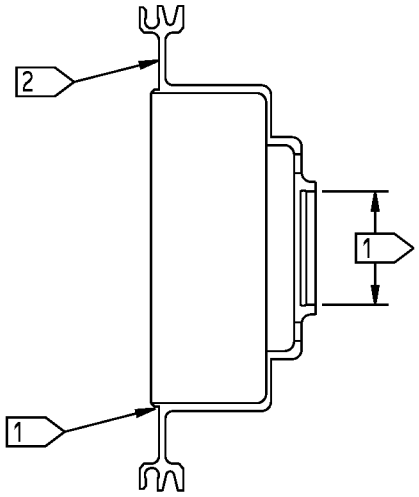
A. Remove the old bearing (370) from lower drum (435).

B. Install a replacement bearing with sealant, A00247 and roller swage it (SOPM 20-50-03).

3. Refinish

A. For the repair of surfaces which is only the replacement of the original finish , refer to REFINISH instructions on REPAIR 3-1, Figure 601.





A–A

REFINISH

CHROMIC ACID ANODIZE AND APPLY PRIMER BMS 10–11, TYPE 1 (F–20.02) UNLESS SHOWN DIFFERENTLY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 NO PRIMER ON THIS SURFACE

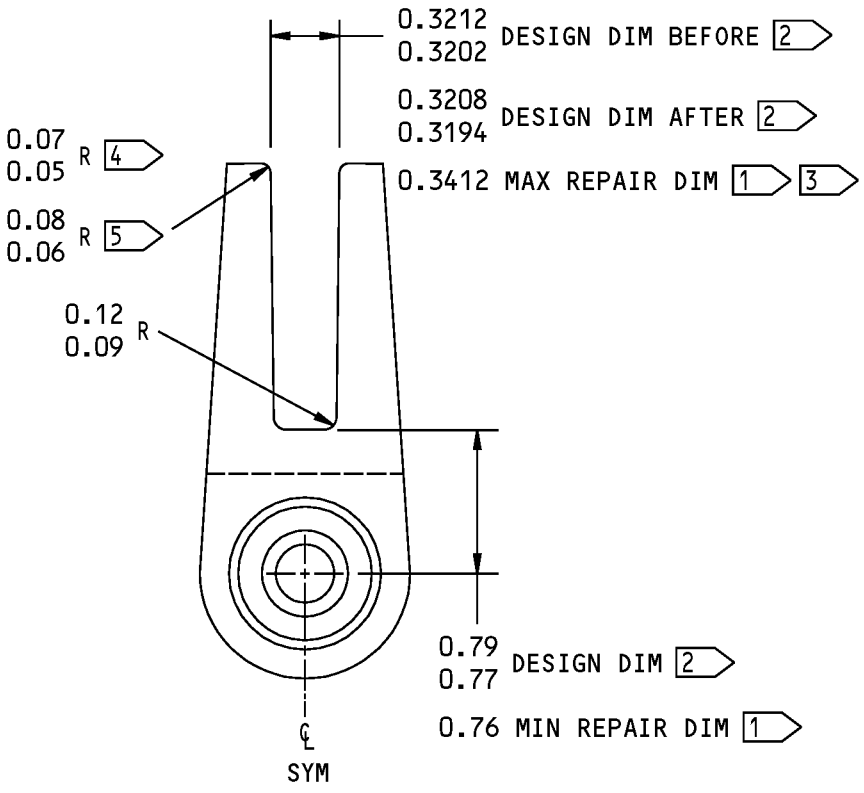
2 NO PRIMER ON THE AREA BETWEEN 5.52 DIAMETER LIP AND A 7.21–7.29 DIAMETER CIRCLE CONCENTRIC TO 5.52 DIAMETER LIP

65C37033-1 Lower Drum Repair
Figure 601

FORK ASSEMBLY - REPAIR 4-1

6-60428–2, –6

1. **General**
   A. This procedure has the data necessary to repair or refinish the fork (IPL Figure 1, 60).
   B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.
   C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identifies in this procedure.
   D. Refer to IPL Figure 1 for item numbers.
2. **Bearing Replacement**
   A. Remove the old bearing (65) from fork (70).
   B. Install a replacement bearing with sealant, A00247 and roller swage it (SOPM 20-50-03).
3. **Fork Repair (REPAIR 4-1, Figure 601)**
   A. Machine as required, within repair limits, to remove defects (SOPM 20-10-01).
   B. Do a magnetic particle check (SOPM 20-20-01).
   C. Stress relieve at 300-350°F for 2 hours. Air cool at 65-75°F.
   D. Build up the machined surfaces to design dimensions with nickel plate (SOPM 20-42-09).
   E. Apply solid film lubricant, D00113 to the inside flats.
4. **Fork Refinish**
   A. For the repair of surfaces which is only the replacement of the original finish , refer to REFINISH instructions on REPAIR 4-1, Figure 601.



REFINISH

CADMIUM PLATE (F-15.23) BUT NOT ON INSIDE FLATS OF FORK OR BEARING SURFACES. APPLY SOLID FILM LUBRICANT TO INSIDE OF FLATS. AS SHOWN BY 2.

1. LIMIT FOR NICKEL PLATE BUILDUP (SOPM 20-42-09) TO DESIGN DIMENSIONS SHOWN. PUT A 0.06 PLATING RUNOUT.
2. APPLY BMS 3-8 SOLID FILM LUBRICANT (F-19.10)
3. 0.010 MAXIMUM MATERIAL REMOVAL FROM EITHER SURFACE
4. 6-60428-2
5. 6-60428-6

REPAIR

REF 1 3

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL:
4620 OR 9310 CASE HARDENED STEEL
(CORE STRENGTH 150-210 KSI)

ALL DIMENSIONS ARE IN INCHES

6-60428-2,-6 Fork Assembly Repair and Refinish
Figure 601

SHAFT ASSEMBLY - REPAIR 5-1

65C37035–3

1. General

A. This procedure has the data necessary to repair or refinish the shaft assembly (IPL Figure 1, 510).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identifies in this procedure.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: Al Alloy

2. Bushing Replacement

A. Remove the old bushing (515) from shaft (520).

B. Install a replacement bushing with sealant, A00247 by the shrink-fit method (SOPM 20-50-03).

3. Refinish (IPL Figure 1)

A. Shaft (520)

(1) Sulfuric acid anodize (F-17.31).

(2) Apply primer, C00259 (F-20.02) to all interior surfaces.

MISCELLANEOUS PARTS REFINISH - REPAIR 6-1

1. General

A. This repair gives the data that is necessary to refinish parts not given in the specified repairs.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identifies in this procedure.

D. Refer to IPL Figure 1 for item numbers.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Spacer (55)	Al alloy	Chromic acid anodize (F-17.02) and apply primer, C00259 (F-20.02).
Cable guide (140), cable guard (490)	Al alloy	Chemical treat or chromic acid anodize and apply primer, C00259 (F-18.05).
Beam (90,115)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13). Apply enamel coating, C50069 (F-21.03).
Ribs (330, 335), retention plate (415)	Al alloy	Chromic acid anodize (F-17.19) and apply primer, C00259 (F-20.02).
Bolt (380)	A286 CRES	Cadmium plate (F-15.06).
Spacer (410,430, 440,445)	Al alloy	Chromic acid anodize (F-17.02).
Retainer (400)	Al alloy	Chromic acid anodize (F-17.19).
Spoiler drum (460)	Al alloy	Boric acid-sulfuric acid anodize (F-17.31). Apply primer, C00259 (F-20.02), but not in bores for bearings.
Arm (505)	Al alloy	Chromic acid anodize (F-17.19). Apply primer, C00259 (F-20.02), but not on splines.

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the aileron conrol transfer mechanism assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Assembly

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D00633	Grease - Aircraft General Purpose	BMS3-33

B. References

Reference	Title
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-07	LUBRICATION
SOPM 20-50-19	GENERAL SEALING
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure (ASSEMBLY, Figure 701, ASSEMBLY, Figure 702)

NOTE: For finishing materials, refer to SOPM 20-60-02. For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Install bolt (380), washers (385, 390), nut (395), and retainer (400) on the upper portion of shaft (520) as shown in ASSEMBLY, Figure 701, View A-A. Tighten the nut (395) to 12-15 pound-inches.

(2) Install a bearing (405) with sealant, A00247 by the press-fit method (SOPM 20-50-03) and spacer (410) in the upper retention plate (415) bore adjacent to upper retainer (400). Make sure the bearing (405) is down against the shoulder of the retention plate.

(3) Install a bearing (405) with grease, D00015 or grease, D00633 by the press-fit method (SOPM 20-50-03) in the opposite bore of retention plate (415).

(4) Turn shaft (520) over and install retention plate (415), spacer (425), and spring (420) on the upper portion of the shaft.

(5) Install a bearing (405) with grease, D00015 or grease, D00633 by the press-fit method (SOPM 20-50-03) in lower retention plate (415) bore adjacent to spacer (425).

(6) Install a bearing (405) with sealant, A00247 by the press-fit method (SOPM 20-50-03) and spacer (410) in opposite bore of lower retention plate (415). Make the sure bearing (405) is down against the shoulder of the retention plate.

WARNING: AFTER YOU TURN THE PLATE AND SPRING, BE SURE TO HOLD THEM IN POSITION UNTIL YOU ATTACH THE LOWER RETAINER.

(7) Turn retention plate (415) and spring (420) approximately 200 degrees until the retention plate lug engages the shaft tabs. Hold these parts in this position until you attach lower retainer (265) in ASSEMBLY, Paragraph 2.C.(9) below.

(8) Install spacer (425) and lower retention plate (415) on the lower portion of shaft (520).

(9) Install bolt (380), washers (385, 390), nut (395) and retainer (400) on the lower portion of shaft (520) as shown in ASSEMBLY, Figure 701, View B-B. Tighten the nut (395) to 12-15 pound-inches.

(10) Install spacer (430) on shaft (520).

(11) Apply fillet seal of sealant, A00247 (SOPM 20-50-19) to mating surfaces of lower drum (435) and upper drum (375) and install the drums on shaft (520). Put the upper drum (375) and lower drum (435) together and align the fastener holes.

(12) Turn the upper drum (375) and lower drum (435) to engage stops on retention plates (250).

(13) Install bolts (360) and collars (365).

(14) Install a bearing (405) with grease, D00015 or grease, D00633 by the press-fit method (SOPM 20-50-03) in the spoiler drum (450) bore that is adjacent to arm (505).

(15) Install spacer (445), then install the other bearing (405) with sealant, A00247by the press-fit method (SOPM 20-50-03) in the opposite bore of spoiler drum (450).

(16) Install spacer (440) and spoiler drum (450) on shaft (520).

(17) Install screws (475), washers (480), nuts (485) and cable guards (490) in housing (495).

(18) Install arm (505), washers (470), housing (495), and flexible coupling (465) on shaft (520). Tighten the coupling to 300-400 pound-inches.

(19) Install bearing housing (300) on shaft (520).

(20) Install nuts (130), washers (125), bolts (120) and cable guide (140) on forward rib (330).

(21) Attach forward rib (330) and aft rib (335) to bearing housings (300, 495) with nuts (295), washers (290), and bolts (285).

(22) Put the bracket assembly (340) in position at the bottom of the drum shaft assembly, and attach it to the rib assemblies (330, 335) with the bolts (310), bushings (325), washers (315), and nuts (320). Tighten all of the nuts (320) to complete the assembly.

(23) Install the transmitter assembly (215) on the bracket assembly (340).

(a) Attach the transmitter assembly (260) to the clamp ring assembly (235), or the clamp ring (255), with the plate (230), screws (220), and washers (225).

(b) Turn the drum shaft assembly (510) to the center of its range of travel. Look in the hole in the bottom of the flex coupling (465) to find the position of the flat in the coupling. Make a mark with a pencil on the bottom flange of the bracket assembly (340) to show the position of the center of the flat.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(c) Apply corrosion inhibiting compound, C00913 to the input shaft of the transmitter (270), then put the transmitter assembly (215) in the flex coupling (465) on the drum shaft assembly (510). Install the bolts (190 or 195), washers (200, 205), and nuts (210), as applicable, to hold the transmitter assembly (215). Do not tighten the bolts (190 or 195) fully until the transmitter zero position is set in the steps that follow.

(d) Turn the transmitter (270) until the zero mark on the transmitter body aligns with the pencil mark on the bracket assembly (340).

(e) Turn the drum shaft assembly (510) through its full range of travel to align the transmitter (270) with the drum shaft centerline. Make sure that the drum shaft turns freely.

(f) Move the drum shaft assembly back to the center of its range of travel. On assembly 251A1817-1, tighten the bolts (190) to 25-35 pound-inches to hold the transmitter at the zero positon. On assembly 251A1817-2, tighten the nuts (210) to hold the transmitter at the zero positon.

(g) Tighten the capscrew in the flex coupling (465) to 12-15 pound-inches.

(24) Put clamp (185) and plug (180) on the wire from the transmitter (355). Attach the clamp to the nutplates (350) on the plate assembly (340) with the screws (145, 160 or 165) and washers (150, 170, or 175), as shown in ASSEMBLY, Figure 702.

NOTE: The transmitter wire can point in a different direction from that shown in ASSEMBLY, Figure 702. If the wire is too long, make a loop with the wire and use the clamp (185) to hold the loop. If necessary, you can use the larger BACC10DK4 clamp (185A) to hold the loop.

(25) Install fork assembly (60), spacers (55), bearing (50), bolt (30), washer (40), and nut (45) on shaft (520).

(a) Install bolt (5) with grease, D00015 or grease, D00633, and put the head of the bolt inboard.

(b) Make sure the centerline of the fork (70) slot is 89-91 degrees from the rig pin hole centerlines in drum (435) and that housings (300, 495) are aligned within 0.015 inch as shown in TESTING AND FAULT ISOLATION, Figure 102.

(26) Install cable assembly (10) in the upper groove of the lower drum (435). Install cable assembly (15) in the lower groove of the lower drum. Install cotter pins (5) (SOPM 20-50-02) to hold the cable assemblies.

(27) Install cable assembly (25) in the upper groove of the spoiler drum (450). Install cable assembly (30) in the lower groove of the spoiler drum. Install bolts (20) to hold the cable assemblies.

(28) Apply a thin, smooth layer of grease, D00015 or grease, D00633 on the cable assemblies (SOPM 20-50-07).

3. Functional Test

A. Procedure

(1) Do the test on the assembled unit per TESTING AND FAULT ISOLATION.

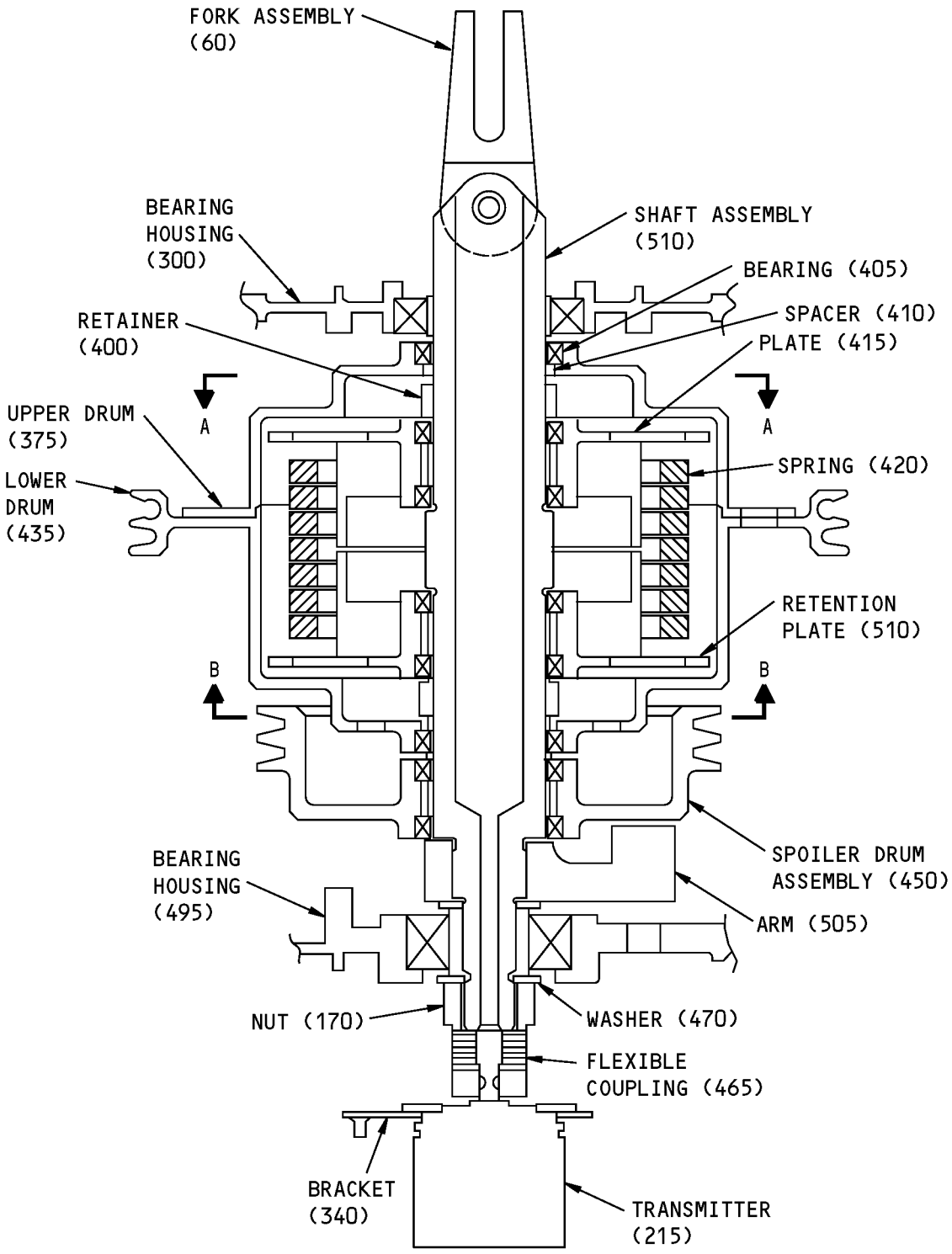
4. Storage

A. References

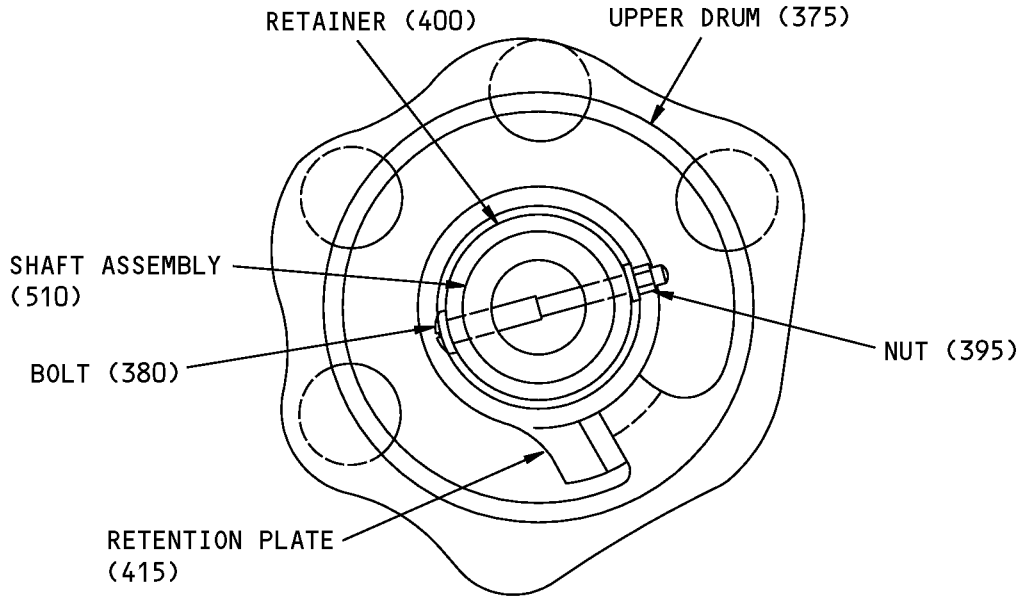
Reference	Title
SOPM 20-44-02	TEMPORARY PROTECTIVE COATINGS
SOPM 20-70-01	PROTECTION, STORAGE AND HANDLING OF AIRPLANE COMPONENTS

B. Procedure

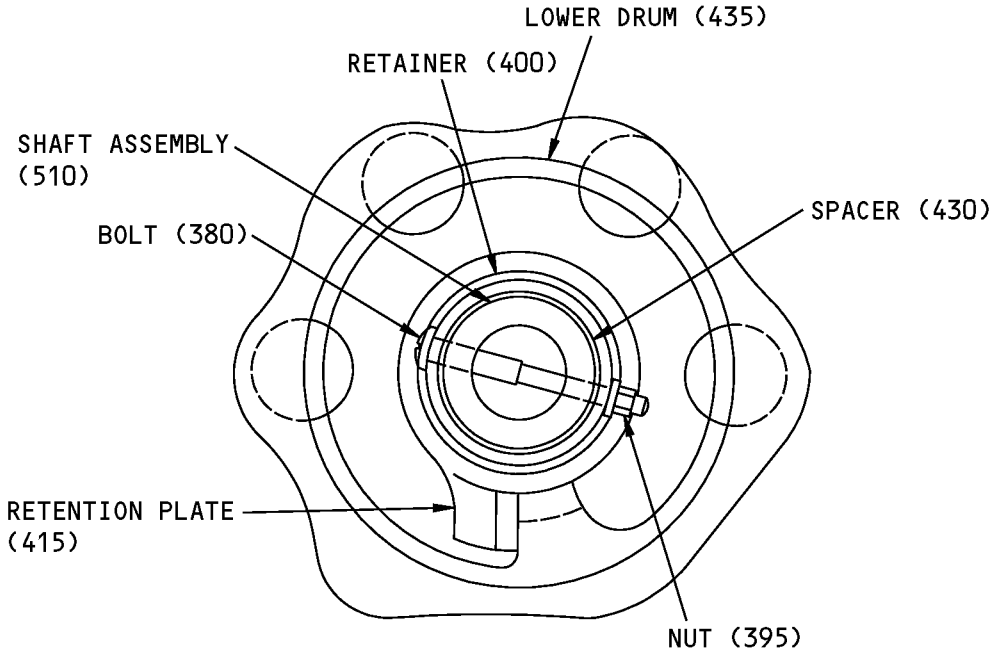
(1) Give protection to the unit and put it away by standard industry practices and the instructions in SOPM 20-44-02 and SOPM 20-70-01.



Assembly Details
Figure 701 (Sheet 1 of 2)

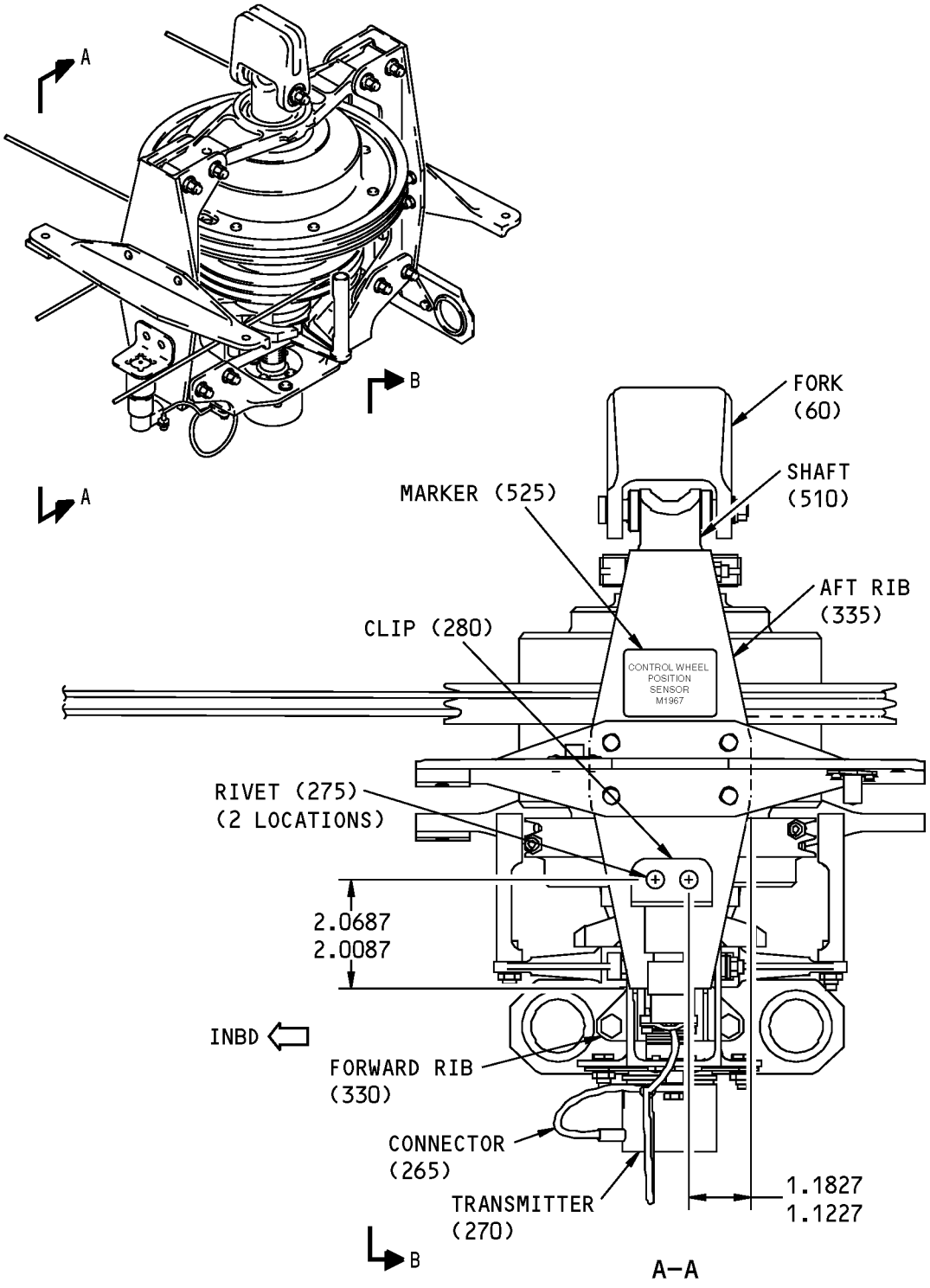


A–A

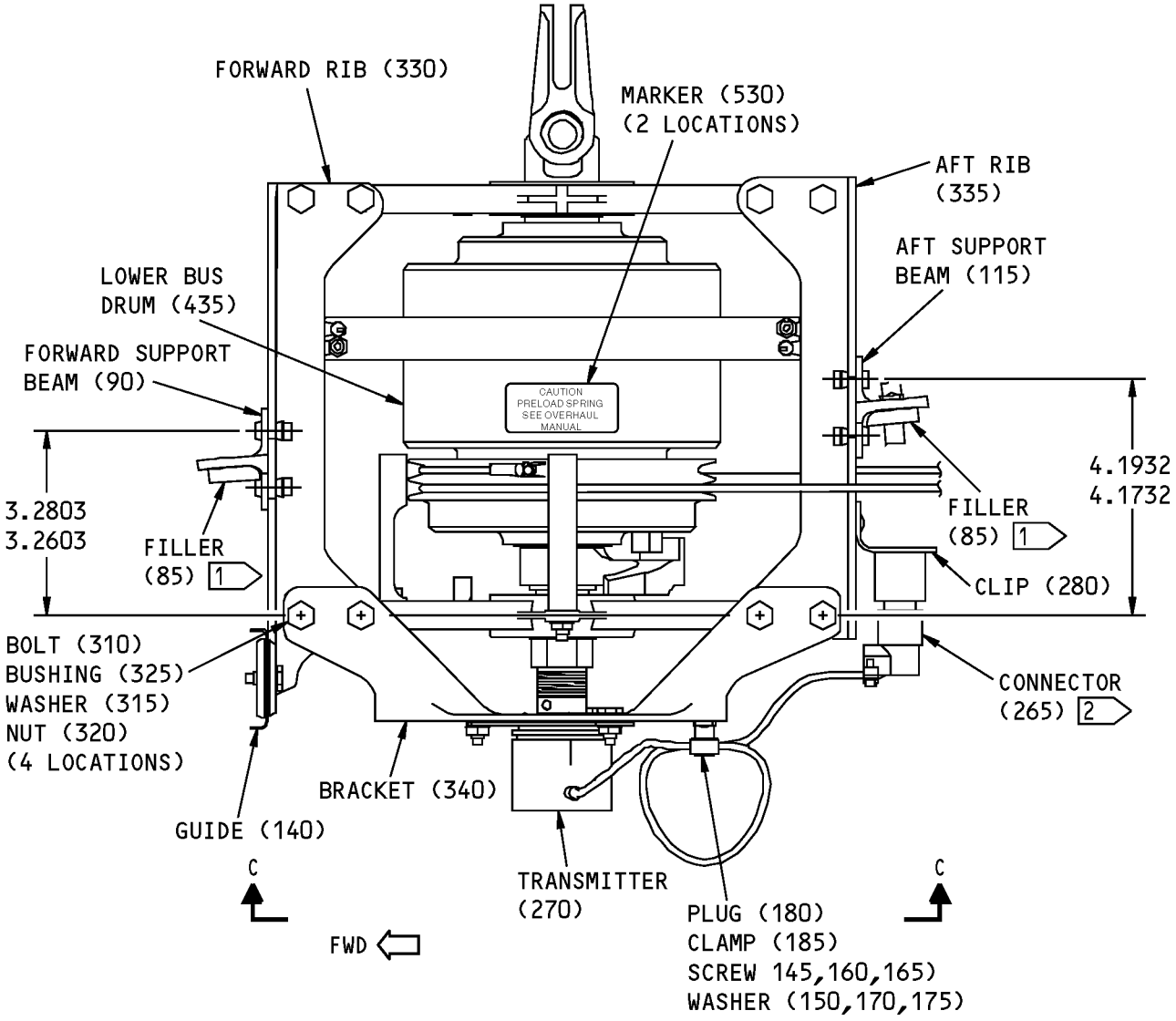


B–B

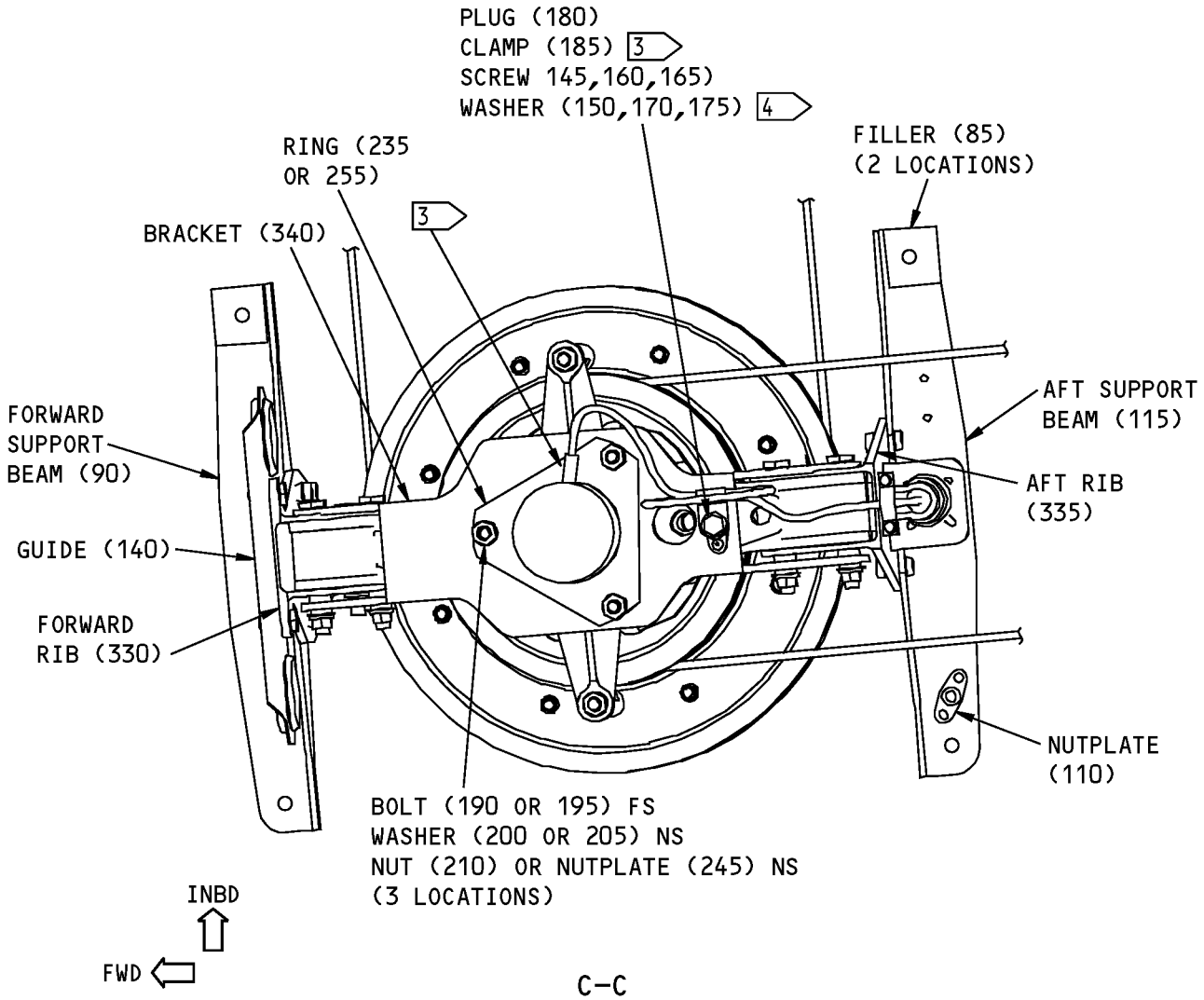
Assembly Details
Figure 701 (Sheet 2 of 2)



Transmitter Installation
Figure 702 (Sheet 1 of 3)



Transmitter Installation
Figure 702 (Sheet 2 of 3)



1 BOND THE FILLER TO THE BEAM WITH TYPE 40 OR 38 ADHESIVE

2 TEMPORARILY ATTACH THE CONNECTOR TO THE CLIP WITH STRING OR RUBBER BAND UNTIL INSTALLATION IN THE AIRPLANE

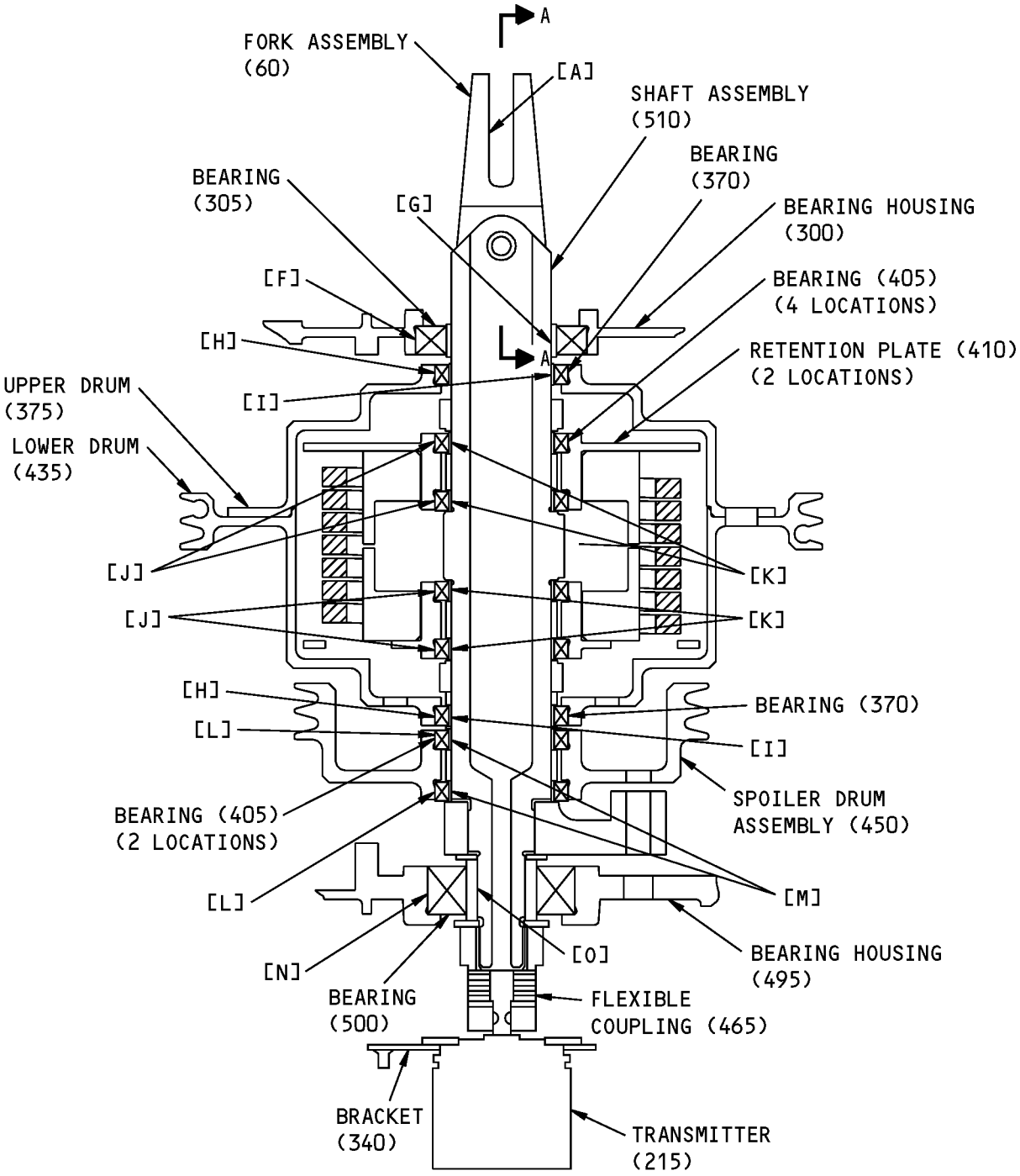
3 ANGULAR POSITON CAN BE DIFFERENT THAN AS SHOWN. IF NECESSARY YOU CAN PUT THE WIRE INTO A LOOP IF THE WIRE IS TOO LONG. YOU CAN USE CLAMP (185A) TO HOLD THE LOOP

4 INSTALL ONE WASHER BETWEEN CLAMP AND THE AFT RIB (335) AND ONE WASHER BETWEEN CLAMP AND SCREW HEAD. IF THERE IS A THIRD WASHER, INSTALL IT UNDER THE SCREW HEAD

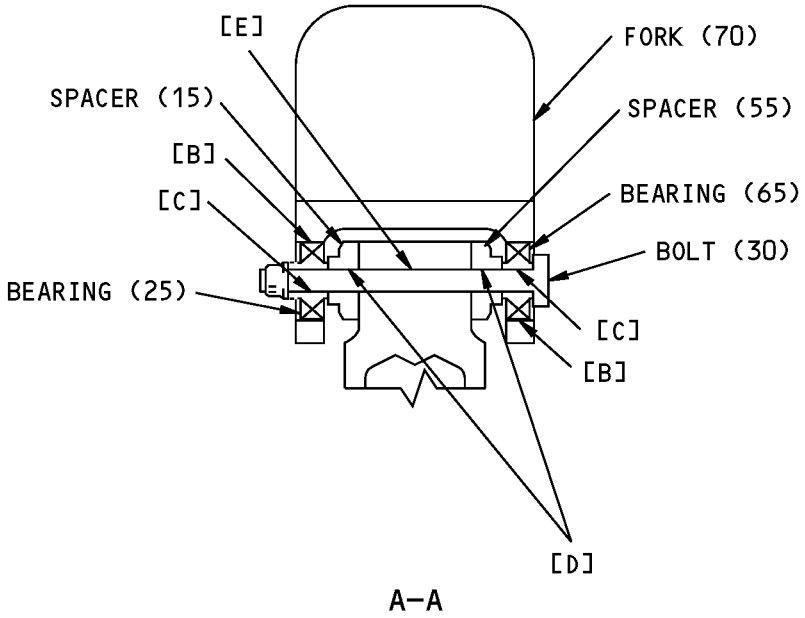
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Transmitter Installation
Figure 702 (Sheet 3 of 3)



Fits and Clearances
Figure 801 (Sheet 1 of 4)



ITEM NUMBERS REFER TO IPL FIG. 1

Fits and Clearances
Figure 801 (Sheet 2 of 4)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE 3		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 60 1 OD 2	0.3194 0.3184	0.3208 0.3193	0.0001	0.0024	0.3160	0.3249	0.0060
[B]	ID 70 OD 50,65	0.7498 0.7595	0.7503 0.7500	-0.0002	0.0008	0.7495	0.7503	0.0008
[C]	ID 50,65 OD 30	0.2495 0.2485	0.2500 0.2495	0.0000	0.0015	0.2485	0.2500	0.0015
[D]	ID 55 OD 30	0.2500 0.2485	0.2540 0.2495	0.0005	0.0055	0.2485	0.2540	0.0055
[E]	ID 510 OD 30	0.2495 0.2485	0.2505 0.2495	0.0000	0.0020	0.2485	0.2505	0.0020
[F]	ID 300 OD 305	2.2500 2.2490	2.2510 2.2500	0.0000	0.0020			
[G]	ID 305 OD 510	1.3120 1.3106	1.3125 1.3116	0.0004	0.0019			
[H]	ID 375,435 OD 370	1.7505 1.7490	1.7515 1.7500	0.0005	0.0025			
[I]	ID 370 OD 510	1.3118 1.3106	1.3132 1.3116	0.0002	0.0026			
[J]	ID 415 OD 405	1.7505 1.7495	1.7515 1.7500	0.0005	0.0020			
[K]	ID 405 OD 510	1.3120 1.3106	1.3125 1.3116	0.0004	0.0019			
[L]	ID 450 OD 405	1.7500 1.7495	1.7510 1.7500	0.0000	0.0015			

Fits and Clearances
Figure 801 (Sheet 3 of 4)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE 3		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[M]	ID 405	1.3120	1.3125	0.0004	0.0019			
	OD 510	1.3106	1.3116					
[N]	ID 495	1.9373	1.9378	-0.0002	0.0007			
	OD 500	1.9371	1.9375					
[O]	ID 500	0.6247	0.6250	-0.0001	0.0007			
	OD 510	0.6243	0.6248					

* ALL DIMENSIONS ARE IN INCHES

1 > WIDTH OF SLOT AFTER APPLICATION OF BMS 3-8 SOLID FILM LUBRICANT

2 > THICKNESS OF MATING PART 6-60429 AFTER APPLICATION OF BMS 3-8 SOLID FILM LUBRICANT

3 > NEGATIVE VALUES ARE AN INTERFERENCE FIT

Fits and Clearances
Figure 801 (Sheet 4 of 4)

REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	190	Bolt	25-35	
1	395	Nut	12-15	
1	465	Flexible Coupling	300-400	

* REFER TO SOPM 20-50-01 FOR TORQUE VALUES OF STANDARD FASTENERS.

Torque Table
Figure 802

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Special Tools

Reference	Description	Part Number	Supplier
SPL-5434	Test Bench Assembly, Transfer Mechanism Aileron Control, Functional Test	F80220-1	81205

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

Code	Name
04169	WESTERN SKY INDUSTRIES A DIVISION OF ATLAS CORPORATION 1280 SAN LUIS OBISPO STREET HAYWARD, CALIFORNIA 94544-7916 FORMERLY WESTERN SKY IND VB0008
06144	INDUSTRIAL TECTONICS BEARING CORP 18301 SOUTH SANTA FE AVENUE RANCHO DOMINGUEZ, CALIFORNIA 90221 FORMERLY IN COMPTON, CALIFORNIA
06725	AIR INDUSTRIES CORPORATION 12570 KNOTT STREET GARDEN GROVE, CALIFORNIA 92641-3932 FORMERLY AIR INDUSTRIES OF CALIF IN GARDENA, CALIF.
08524	Replaced: [V08524] DEUTSCH FASTENER CORP SEE CODE V97928 Replaced: [V97928] SEE V17446 HUCK INTL by Code: Name and Address below 17446: HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL Referenced in FORMERLY line below [17419] DEUTSCH COMPANY THE WELLS FARGO BANK BLDG 2444 WILSHIRE BLVD #600 SANTA MONICA, CALIFORNIA 90403 FORMERLY DEUTSCH FASTENER CORP V08524 FORMERLY IN LOS ANGELES

Code	Name
0PTK6	SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV 5195 W 4700 SALT LAKE CITY, UTAH 94118 SEE V56878 SPS TECHNOLOGIES INC
11815	CHERRY AEROSPACE FASTENERS DIV OF TEXTRON 1224 EAST WARNER AVENUE PO BOX 2157 SANTA ANA, CALIFORNIA 92707-0157 FORMERLY IN LOS ANGELES, CALIF , FORMERLY CHERRY FASTENERS TOWNSEND DIV OF TEXTRON INC V71087
13201	HELICAL PRODUCT CO 901 WEST MCCOY LANE PO BOX 1069 SANTA MARIA, CALIFORNIA 93456
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
17446	HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL
21335	TIMKEN US CORPORATION DIV FAFNIR 336 MECHANIC STREET LEBANON, NH 03766-0267 FORMERLY FAFNIR BRG AND TEXTRON INC FAFNIR DIV IN NEW BRITAIN, CONNECTICUT ; FORMERLY TORRINGTON CO THE SPECIAL PRODUCTS DIV SUB OF THE INGERSOLL-RAND CO V8D210 FORMERLY TORRINGTON CO FAFNIR BEARING DIV IN TORRINGTON, CT
21760	SCHATZ BEARING CORP 10 FAIRVIEW AVENUE PO BOX 1191 POUGHKEEPSIE, NEW YORK 12601-1312 FORMERLY FEDERAL BRG CO AND SCHATZ MFG CO V53268 FORMERLY SCHATZ MFG CO

Code	Name
30163	VALENTEC DAYRON INC 333 MAGUIRE BLVD PO BOX 140394 ORLANDO, FLORIDA 32814-0394
38443	MRC BEARINGS 402 CHANDLER STREET JAMESTOWN, NEW YORK 14701-3802 FORMERLY MARLIN-ROCKWELL CORP DIV TRW AND TRW INC
40920	MPB MINIATURE PRECISION BEARING DIV PRECISION PARK PO BOX 547 KEENE, NEW HAMPSHIRE 03431 FORMERLY MPB CORP AND MINIATURE BRG DIV MPB CORP
43991	FAG BEARING INCORPORATED 118 HAMILTON AVENUE STAMFORD, CONNECTICUT 06904 FORMERLY NORMA-HOFFMAN BEARING CORPORATION FORMERLY NORMA FAG BEARINGS CORPORATION
52828	REPUBLIC FASTENER MFG CORP 1300 RANCHO CONEJO BLVD NEWBURY PARK, CALIFORNIA 91320-1405 FORMERLY IN SYLMAR, CALIFORNIA
56878	SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV 301 HIGHLAND AVE JENKINTOWN, PENNSYLVANIA 19046 FORMERLY STANDARD PRESSED STEEL FORMERLY IN SALT LAKE, UTAH
5M902	ALCOA GLOBAL FASTENERS INC, DIV OF VOI-SHAN PRODUCTS 3000 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5103 FORMERLY FAIRCHILD INC INC FAIRCHILD AEROSPACE FASTENERS DIV
60516	WEST COAST AEROSPACE INC 812 MIRAFLORES STREET SAN PEDRO, CALIFORNIA 90731-1439

Code	Name
62554	SIMMONDS MECAERO FASTENERS INC 1734 SEQUOIA AVENUE ORANGE, CALIFORNIA 92668
72962	HARVARD INDUSTRIES INC 3 WERNER WAY SUITE 210 LEBANON, NEW JERSEY 08833 FORMERLY ESNA V7A079 FORMERLY ELASTIC STOP NUT IN UNION, NJ
73197	HI-SHEAR TECHNOLOGY CORP 2600 SKYPARK DRIVE TORRANCE, CALIFORNIA 90509
75345	KIRKHILL RUBBER CO 300 EAST CYPRESS STREET BREA, CALIFORNIA 92821-4097 FORMERLY L.A. STANDARD RUBBER CO V84914
80539	SPS TECHNOLOGIES INC DIV AERPSOACE - SANTA ANA 2701 SOUTH HARBOR BOULEVARD SANTA ANA, CALIFORNIA 92704-5803 FORMERLY NUTT-SHEL DIV OF SPC WESTERN CO V80539 AND STANDARD PRESSED STEEL WESTERN DIV V17279
82686	HORIZON AEROSPACE LLC DBA TRANSICOIL 2560 GENERAL ARMISTEAD AVE NORRISTOWN, PENNSYLVANIA 19403-5214 FORMERLY TRANSCOIL INC. COMPONENTS & CONTROLS
83086	NEW HAMPSHIRE BALL BEARING, INC HITECH DIVISION 172 JAFFREY ROAD PETERBOROUGH, NEW HAMPSHIRE 03458
84914	Replaced: [V84914] LOS ANGELES STD RUBBER CO by Code: Name and Address below 75345: KIRKHILL RUBBER CO 300 EAST CYPRESS STREET BREA, CALIFORNIA 92821-4097 FORMERLY L.A. STANDARD RUBBER CO V84914

Code	Name
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102 FORMERLY VOI-SHAN IN CULVER CITY, CALIF
95272	STILLMAN SEL CORP 6020 AVENIDA ENCINAS CARLSBAD, CALIFORNIA 92009-1001 FORMERLY SARGENT IND
97928	Replaced: [V97928] SEE V17446 HUCK INTL by Code: Name and Address below 17446: HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL
9N513	VOI SHAN/CHATSWORTH DIV OF VSI CORP SUB OF FAIRCHILD IND CHATSWORTH, CALIFORNIA 91311-5013 COMPANY NO LONGER WISHES TO BE CONSIDERED FOR FED CONTRCTG
K8455	RHP BEARINGS PLC RHP AEROSPACE OLDENDS LANE STONEHOUSE GL10 3RM UK

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
102LH9075-3W		1	210	3
109A9201M3		1	245	3
251A1806-1		1	215	1
251A1806-2		1	215A	1
251A1809-2		1	280	1
251A1811-1		1	230	1
251A1817-1		1	1A	RF
251A1817-2		1	1B	RF
251A1817-3		1	1C	RF
251A1817-4		1	155	1
251A1817-5		1	155A	1
251A1818-1		1	340	1
251A1818-2		1	355	1
251A1818-3		1	340A	1
251A1818-4		1	355A	1
251A1819-1		1	90	1
251A1819-2		1	115	1
253T4015-7		1	260	1
253U1116-3		1	235	1
253U1116-4		1	250	1
253U1116-5		1	255	1
2LPYT6-4		1	75	8
		1	75	8
4841		1	180	1
50-3361-4174		1	85	2
6-60428-2		1	60	1
6-60428-3		1	70	1
6-60428-6		1	60A	1
		1	60B	1
6-60428-7		1	70A	1
65-55476-14		1	300	1
65-55476-15		1	495	1
65C37031-3		1	450	1
65C37031-4		1	460	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
65C37032-1		1	375	1
65C37033-1		1	435	1
65C37034-1		1	505	1
65C37035-3		1	510	1
65C37035-4		1	520	1
65C37036-1		1	400	2
65C37037-1		1	420	1
65C37038-1		1	415	2
65C37039-1		1	425	2
65C37039-2		1	430	1
65C37039-3		1	440	1
65C37039-4		1	445	1
65C37039-5		1	410	2
66-24952-1		1	55	2
69-40961-2		1	35	1
69-41762-3		1	490	3
69-41789-1		1	140	1
69-41858-2		1	330	1
69-41858-3		1	330A	1
69-41859-2		1	335	1
69-78755-1		1	380	2
69308-6A3		1	190	3
7349-6-67MM		1	465	1
ACMB542DDP818LY		1	405	6
ACMKP21BSP510LY		1	305	1
ACMKSP10A3908		1	500	1
ACMKSP10FS428		1	500	1
B542-2TS		1	370	2
B542DD		1	370	2
B542DDFS101		1	370	2
B542DDFS428		1	370	2
B542DDNJC		1	370	2
B542DDP		1	370	2
B542FS101		1	370	2
B542SSG27		1	370	2

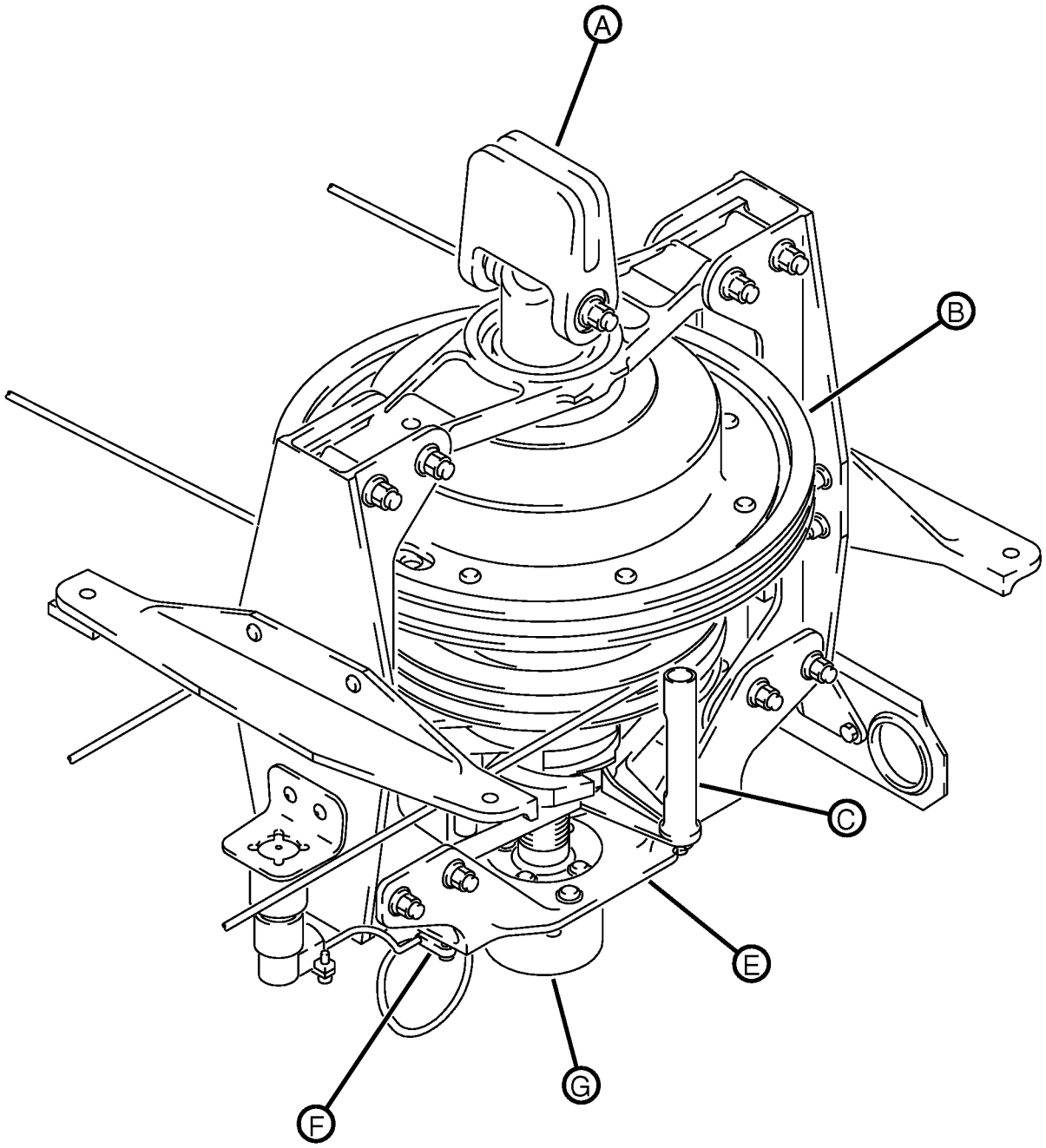
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BAC27DCT622		1	525	1
BACB10AC10		1	500A	1
BACB10BX4		1	50	1
		1	65	1
BACB10CF21PP		1	370	2
BACB10EX21		1	305A	1
BACB10FP10		1	500	1
BACB10FU21		1	405	6
BACB10FV21		1	305	1
BACB28Y4C034		1	325	4
BACB30DX6-4		1	75	8
BACB30MB6A3		1	190	3
BACB30VT6K4		1	360	8
BACC10DK3		1	185	1
BACC10DK4		1	185A	1
BACC2A4B00321CG		1	10	1
BACC2A4B00321DG		1	15	1
BACC2C4C00262EG		1	30	1
BACC2C4C00385FG		1	25	1
BACC30BL6		1	365	8
BACC63BN10B5P		1	265	1
BACM10S28M		1	530	1
BACN10JC3CD		1	210	3
BACN10JP3ACM		1	245	3
BACN10TL3-3		1	100	1
		1	350	1
BACN10TL3A6		1	110	1
BACN10YR08CD		1	395	2
BACN10YR3CD		1	130	2
		1	485	3
BACN10YR4CD		1	45	1
		1	295	4
		1	320	4
BACP20BA1		1	180	1
BACR15BA4AD7C		1	105	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACR15BB3AD5C		1	95	2
		1	345	2
BACR15BB5AD5C		1	275	2
BACR15DR3		1	240	6
BACS12BG04AP3		1	220	4
BACW10BP2NDP		1	390	2
BACW10BP3NDP		1	385	2
BRH10C3D		1	210	3
BRM200C3M		1	245	3
CS204E		1	50	1
		1	65	1
H51650-3BAC		1	210	3
H52732-08CD		1	395	2
H52732-3CD		1	130	2
		1	485	3
H52732-4CD		1	45	1
		1	295	4
		1	320	4
HHKSP10		1	500A	1
HL448UC6-3		1	190	3
		1	190	3
		1	190	3
		1	190	3
		1	190	3
		1	190	3
		1	190	3
HST10AG6-4		1	360	8
		1	360	8
		1	360	8
		1	360	8
HST79-6		1	365	8
HST79CY6		1	365	8
		1	365	8
		1	365	8
KP21BS		1	305A	1

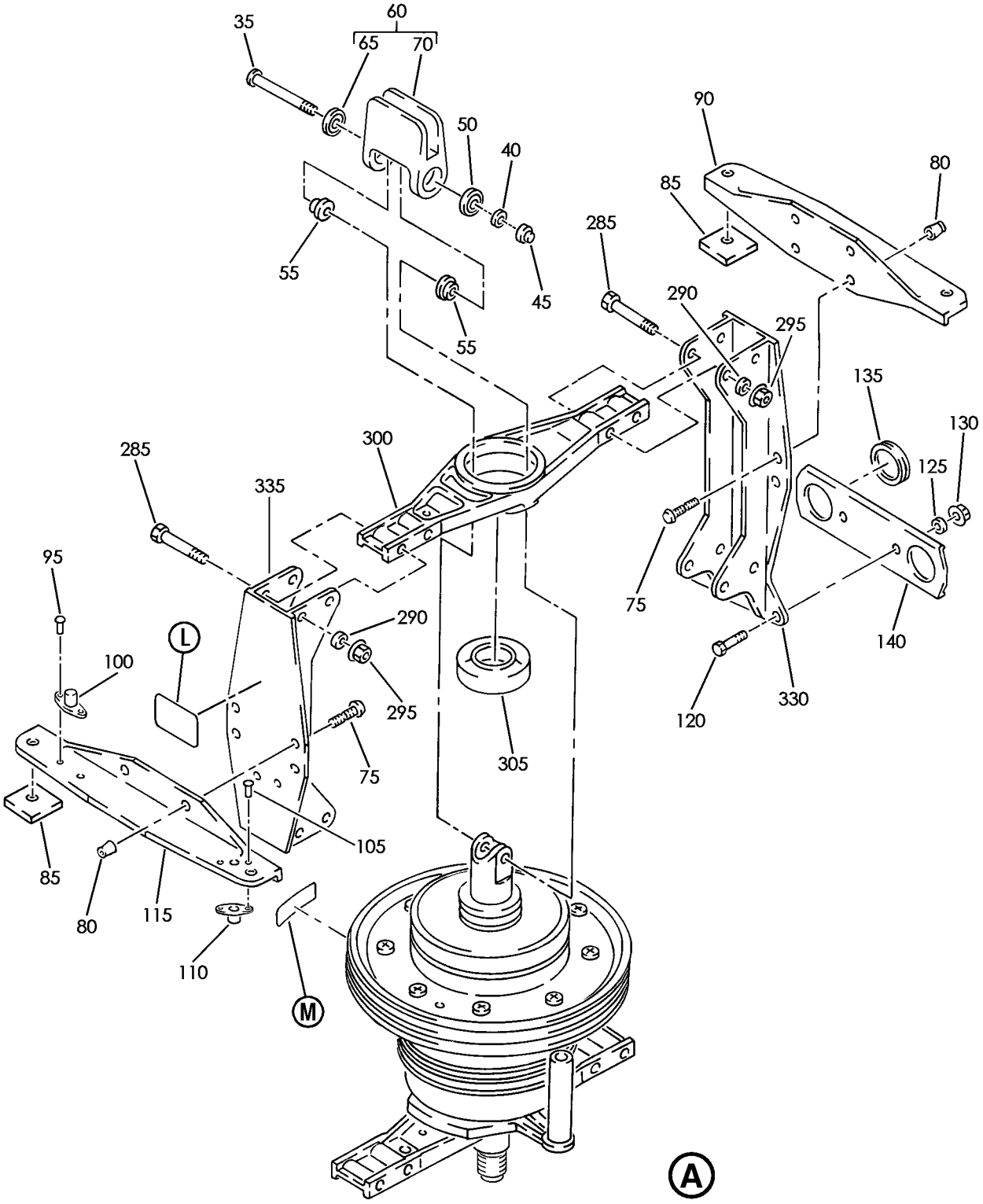
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
KP21BSFS428		1	305A	1
KP21BSLY196		1	305A	1
KP21BSNJC		1	305A	1
KP21BSSD610		1	305A	1
KP4A		1	50	1
		1	50	1
		1	65	1
		1	65	1
KP4A2TS		1	50	1
		1	65	1
KP4AFS428		1	50	1
		1	65	1
KP4AG27		1	50	1
		1	65	1
KP4ALY196		1	50	1
		1	65	1
KP4ANJC		1	50	1
		1	65	1
KP4ASD610		1	50	1
		1	65	1
KSP10		1	500A	1
KSP10-2TS		1	500A	1
KSP10E9440A		1	500A	1
KSP10FS428		1	500A	1
KSP10G27		1	500A	1
KSP10SD610		1	500A	1
LLKP4A		1	50	1
		1	65	1
MK1001-3BAC		1	245	3
MS21209C0415P		1	455	2
MS24665-132		1	5	2
N2088		1	180	1
NAS1080-06		1	80	8
NAS1149CN416R		1	225	4
NAS1149D0332J		1	125	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	480	3
NAS1149D0416J		1	40	1
		1	290	4
		1	315	4
NAS1149E0316P		1	150	1
		1	170	2
		1	200	3
		1	205	3
NAS1149E0363P		1	175	3
NAS1149F1063P		1	470	2
NAS1351N3-12P		1	475	3
NAS1352ND4-4P		1	20	2
NAS1368N16A		1	135	2
NAS1801-3-6		1	160	1
NAS1801-3-8		1	165	1
NAS623-3-3		1	145	1
NAS6603-3		1	120	2
NAS6604-22		1	285	4
NAS6604-28		1	310	4
NAS6703-3		1	195	3
		1	195A	3
NAS75-4-105		1	515	1
NS103197SE02		1	245	3
NS202486-02		1	210	3
PACMB542DDA3908		1	405	6
PACMB542DDFS428		1	405	6
PACMKP21BSA3908		1	305	1
PACMKP21BSFS428		1	305	1
PLH508CD		1	395	2
PLH53CD		1	130	2
		1	485	3
PLH54CD		1	45	1
		1	295	4
		1	320	4
SSMB542DDSD705		1	405	6

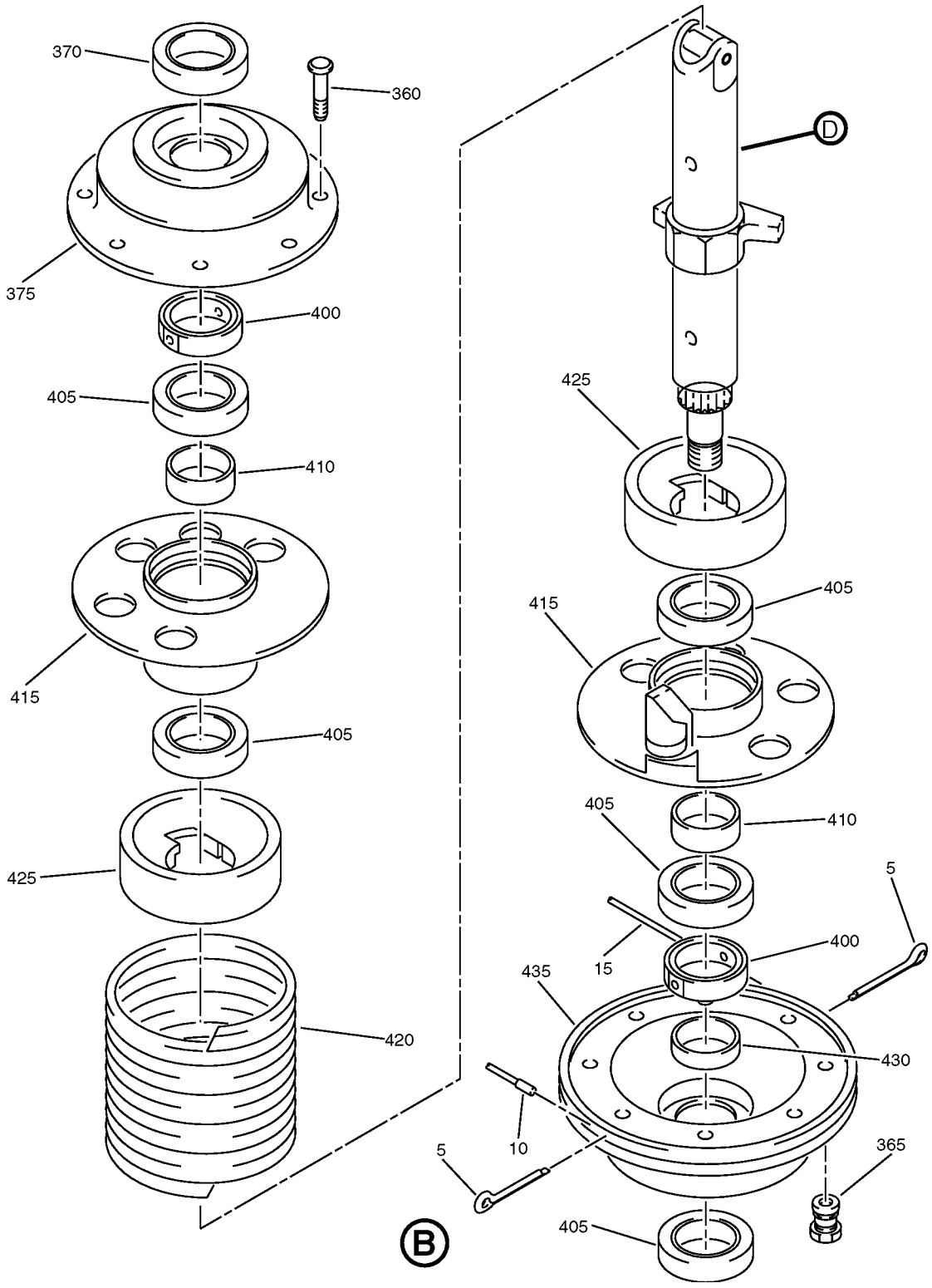
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
SSMKP21BSSD705		1	305	1
SSMKSP10SD705		1	500	1
SZ7105		1	180	1
T342E		1	370	2
T6C1032JCD		1	210	3
T8080C1032		1	245	3
U221557		1	270	1
VN202D1-02		1	245	3
WC4486-3		1	190	3
WS1-4A6		1	110	1
WSI4-3		1	100	1
		1	350	1



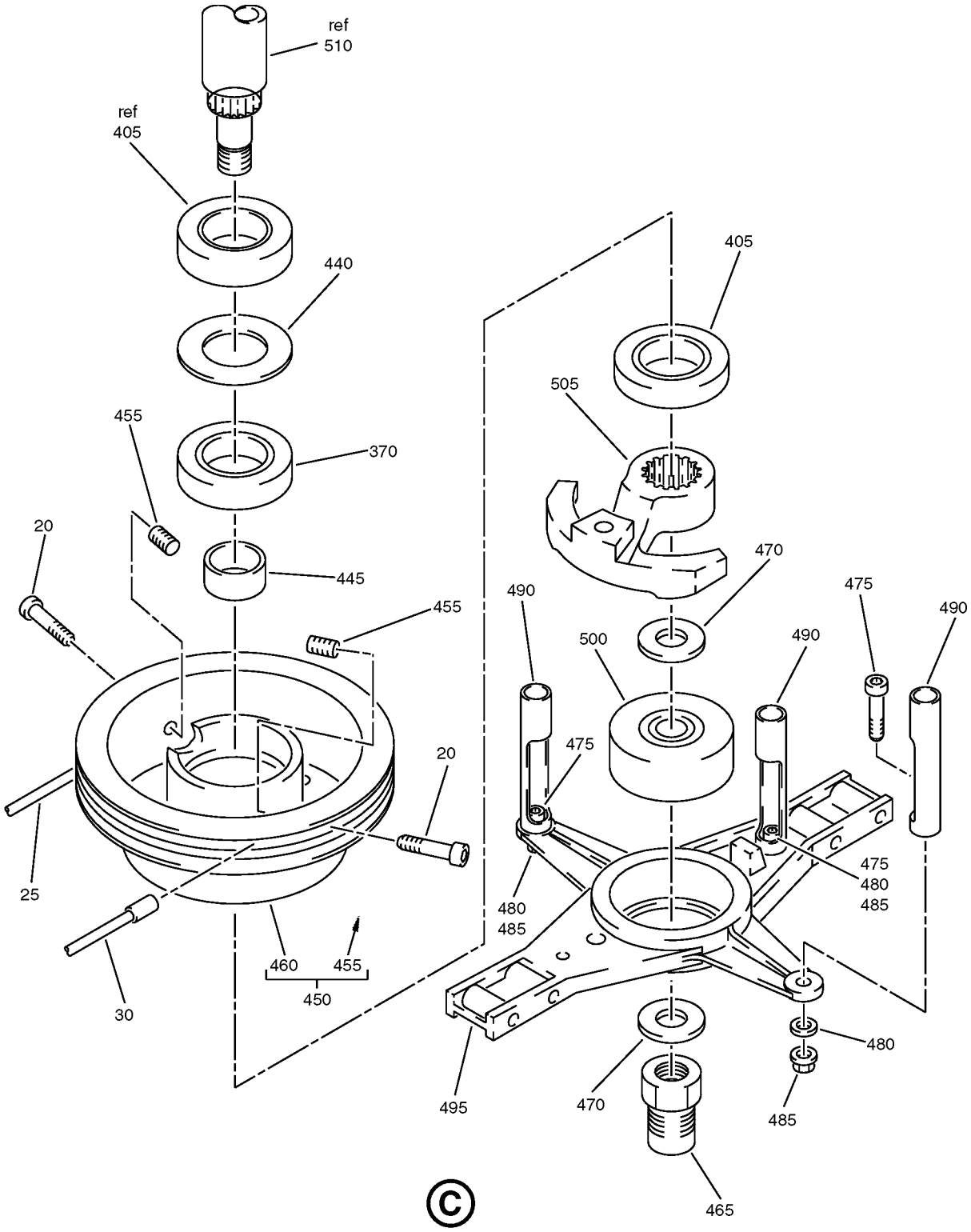
Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 1 of 9)



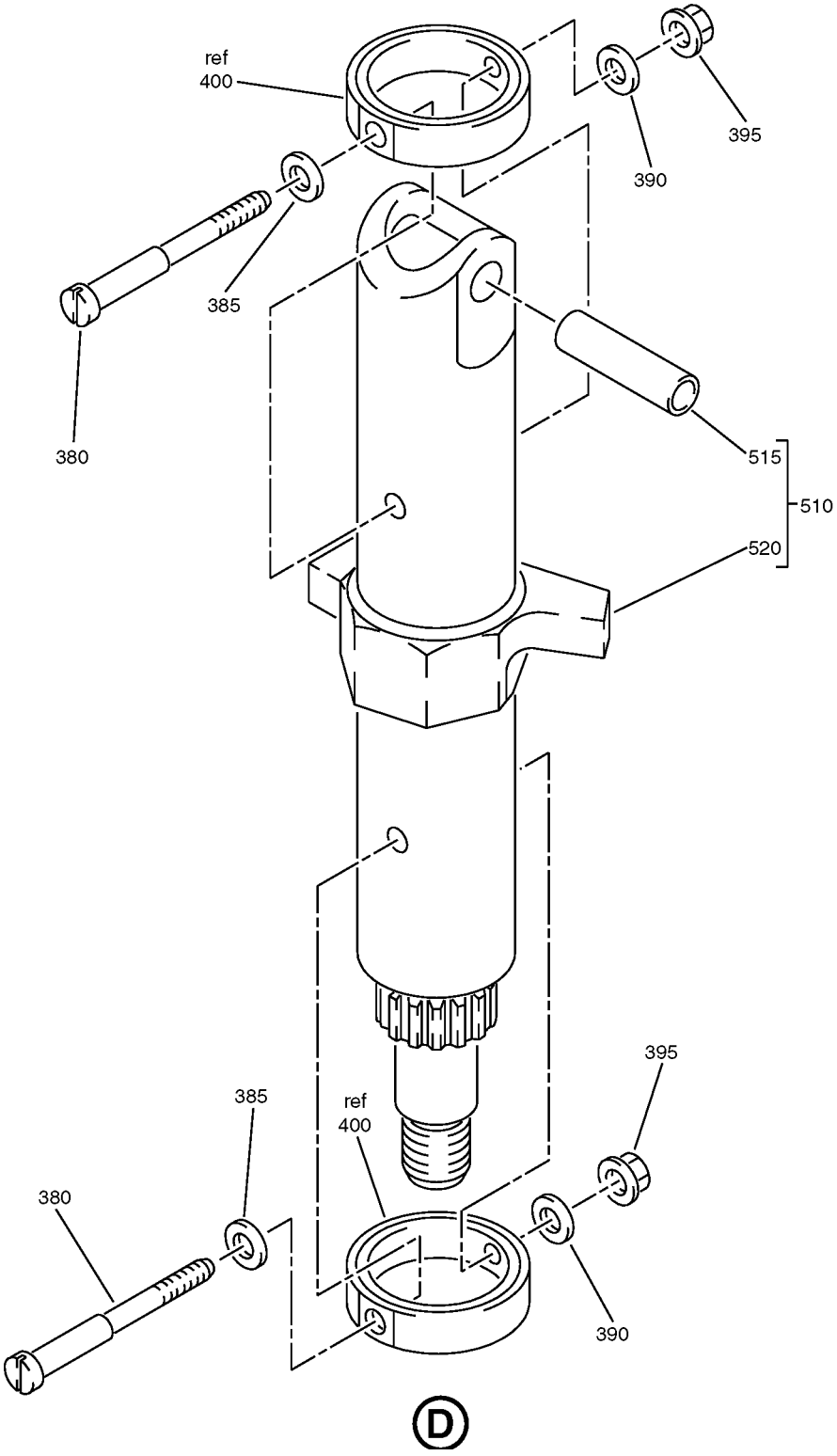
Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 2 of 9)



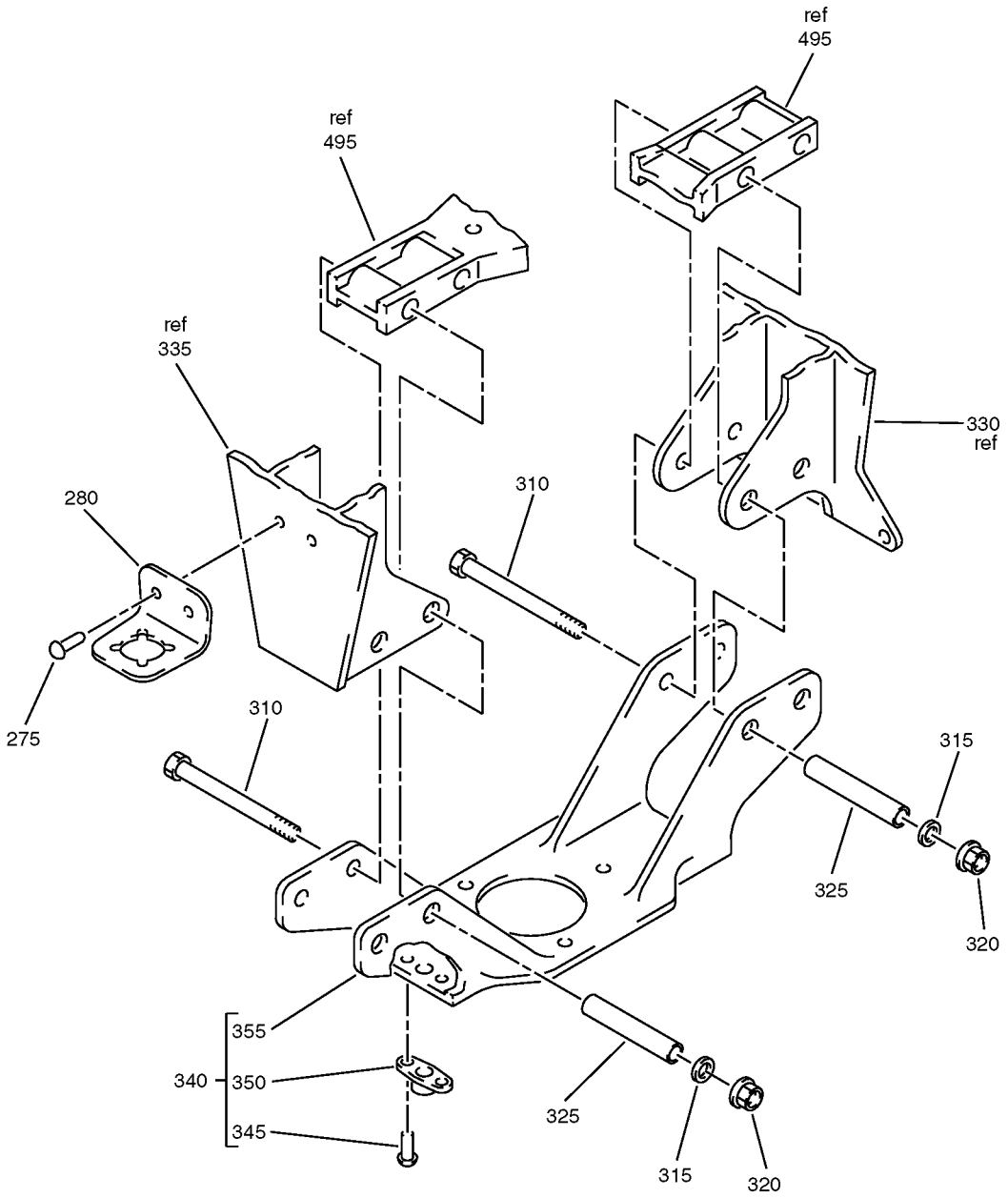
Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 3 of 9)



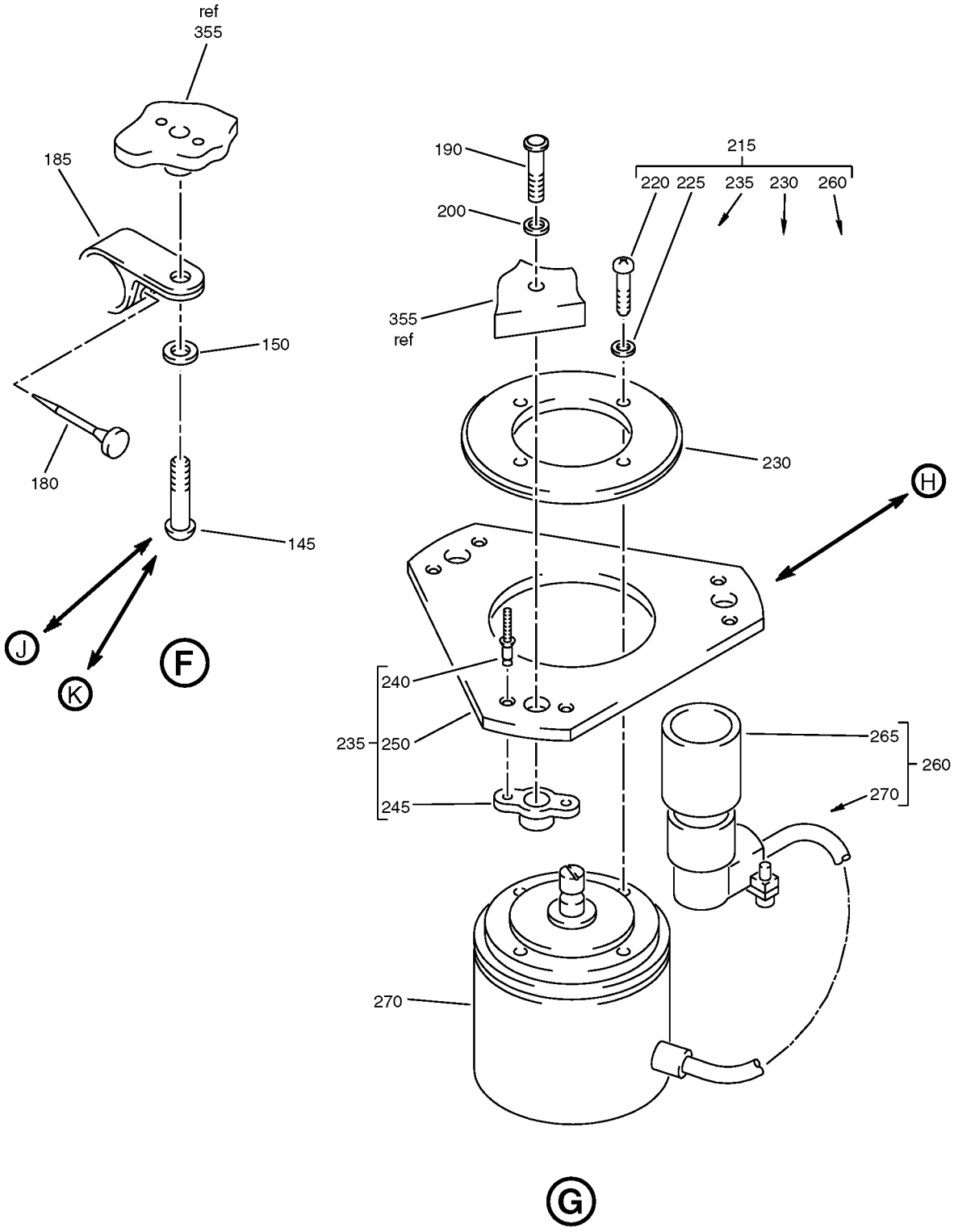
Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 4 of 9)



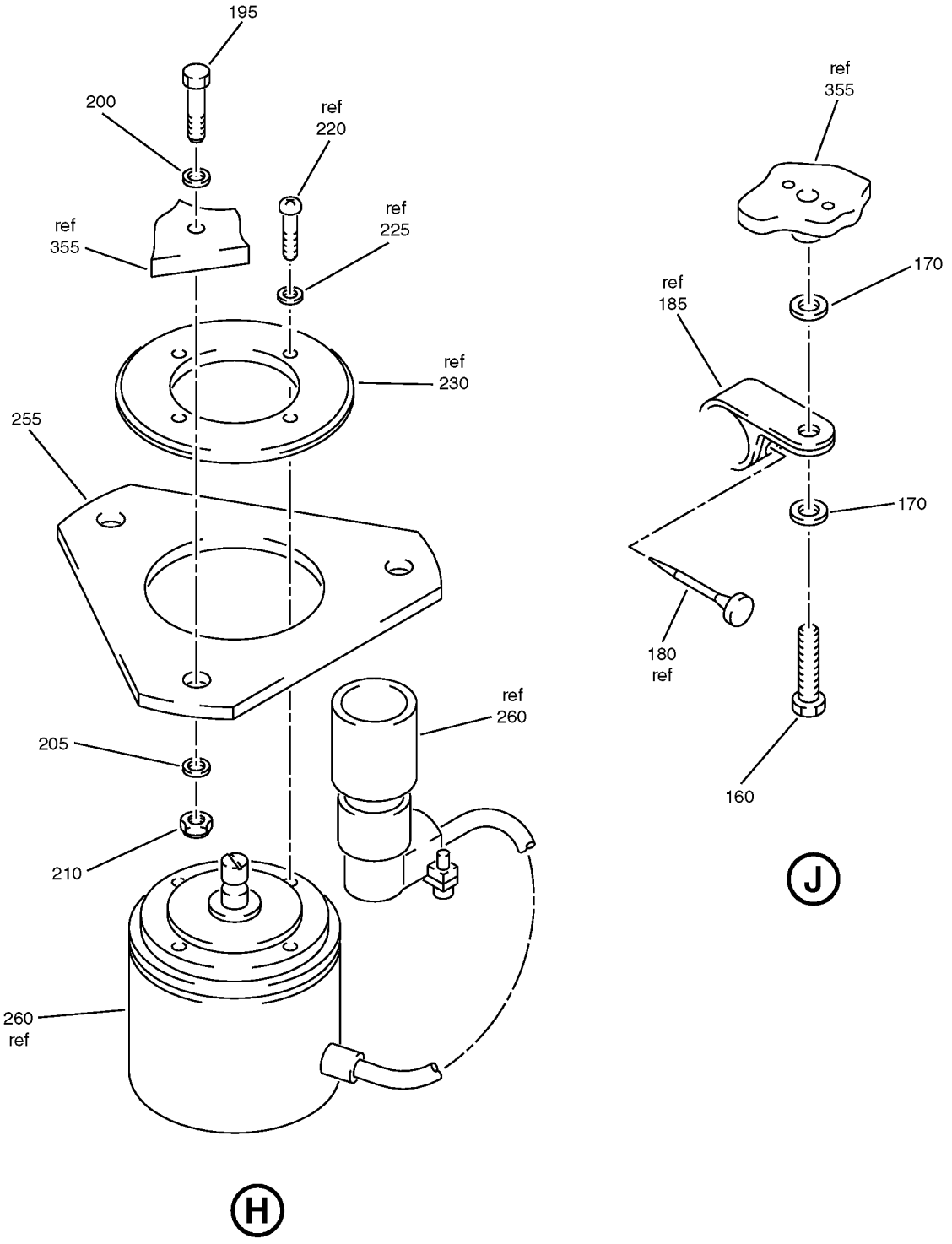
Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 5 of 9)



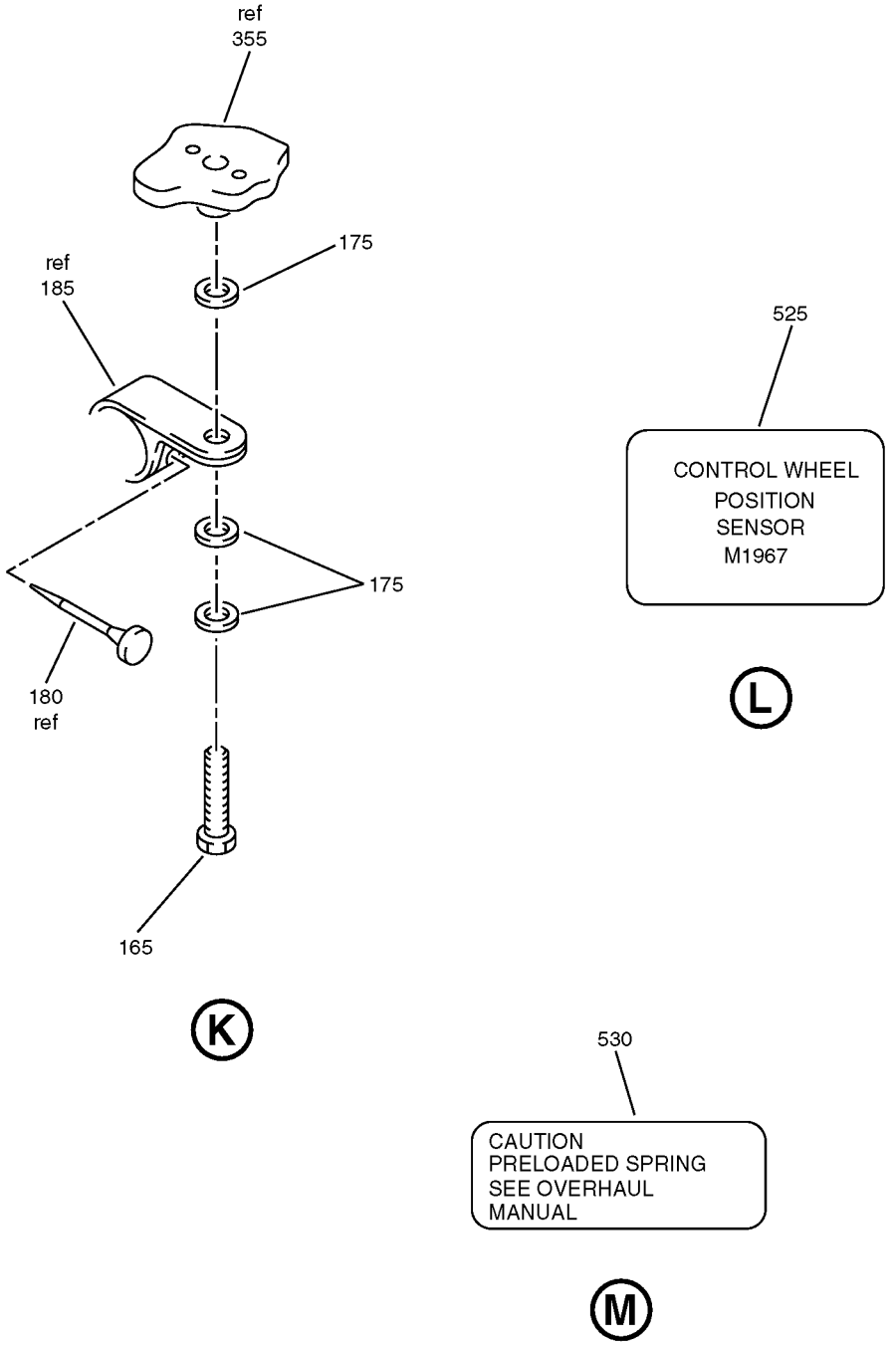
Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 6 of 9)



Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 7 of 9)



Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 8 of 9)



Aileron Control Transfer Mechanism Assembly
IPL Figure 1 (Sheet 9 of 9)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	251A1817-1		MECHANISM ASSY-AIL. CONT TRANSFER	A	RF
–1B	251A1817-2		MECHANISM ASSY-AIL. CONT TRANSFER	B	RF
–1C	251A1817-3		MECHANISM ASSY-AIL. CONT TRANSFER	C	RF
5	MS24665-132		. PIN-COTTER		2
10	BAC˜ C2A4B00321CG		. CABLE ASSY		1
15	BAC˜ C2A4B00321DG		. CABLE ASSY		1
20	NAS1352ND4-4P		. SCREW		2
25	BACC2C4C00385FG		. CABLE ASSY		1
30	BACC2C4C00262EG		. CABLE ASSY		1
35	69-40961-2		. BOLT		1
40	NAS1149D0416J		. WASHER		1
45	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		1
50	KP4ANJC		. BEARING (V06144) (SPEC BACB10BX4) (OPT KP4AFS428 (V21335)) (OPT KP4A2TS (V43991)) (OPT LLKP4A (V38443)) (OPT KP4AG27 (V30163)) (OPT KP4A (V38443)) (OPT KP4ALY196 (V40920)) (OPT KP4ASD610 (V83086)) (OPT CS204E (VK8455)) (OPT KP4A (V21760))		1
55	66-24952-1		. SPACER		2
60	6-60428-2		. FORK ASSY (OPT ITEM 60A)	A	1
–60A	6-60428-6		. FORK ASSY (OPT ITEM 60)	A	1
–60B	6-60428-6		. FORK ASSY	B, C	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
65	KP4ANJC		. . BEARING (V06144) (SPEC BACB10BX4) (OPT KP4AFS428 (V21335)) (OPT KP4A2TS (V43991)) (OPT LLKP4A (V38443)) (OPT KP4AG27 (V30163)) (OPT KP4A (V38443)) (OPT KP4ALY196 (V40920)) (OPT KP4ASD610 (V83086)) (OPT CS204E (VK8455)) (OPT KP4A (V21760))		1
70	6-60428-3		. . FORK (USED ON ITEM 60)	A	1
–70A	6-60428-7		. . FORK (USED ON ITEMS 60A, 60B)		1
75	2LPYT6-4		. BOLT (V11815) (SPEC BACB30DX6-4) (OPT 2LPYT6-4 (V17446))		8
80	NAS1080-06		. COLLAR		8
85	50-3361-4174		. FILLER		2
90	251A1819-1		. BEAM-FWD SPRT		1
95	BACR15BB3AD5C		. RIVET		2
100	WSI4-3		. NUTPLATE (V04169) (SPEC BACN10TL3-3)		1
105	BACR15BA4AD7C		. RIVET		2
110	WS1-4A6		. NUTPLATE (V04169) (SPEC BACN10TL3A6)		1
115	251A1819-2		. BEAM-AFT SPRT		1
120	NAS6603-3		. BOLT		2
125	NAS1149D0332J		. WASHER		2
130	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))		2
135	NAS1368N16A		. GROMMET		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
140	69-41789-1		. GUIDE		1
145	NAS623-3-3		. SCREW	A, B	1
150	NAS1149E0316P		. WASHER	A, B	1
–155	251A1817-4		. KIT ASSY-SUB (OPT ITEM 155A)	C	1
–155A	251A1817-5		. KIT ASSY-SUB (OPT ITEM 155)	C	1
160	NAS1801-3-6		. . SCREW (USED ON ITEM 155)	C	1
165	NAS1801-3-8		. . SCREW (USED ON ITEM 155A)	C	1
170	NAS1149E0316P		. . WASHER (USED ON ITEM 155)	C	2
175	NAS1149E0363P		. . WASHER (USED ON ITEM 155A)	C	3
180	N2088		. PLUG (V75345) (SPEC BACP20BA1) (OPT SZ7105 (V95272)) (OPT 4841 (V84914))		1
185	BACC10DK3		. CLAMP (OPT ITEM 185A)		1
–185A	BACC10DK4		. CLAMP (OPT ITEM 185)		1
190	HL448UC6-3		. BOLT (V56878) (SPEC BACB30MB6A3) (OPT HL448UC6-3 (V73197)) (OPT HL448UC6-3 (V92215)) (OPT HL448UC6-3 (V97928)) (OPT 69308-6A3 (V56878)) (OPT HL448UC6-3 (V80539)) (OPT HL448UC6-3 (V08524)) (OPT HL448UC6-3 (V9N513)) (OPT WC4486-3 (V60516)) (OPT ITEM 195)	A	3
195	NAS6703-3		. BOLT (OPT ITEM 190)	A	3
–195A	NAS6703-3		. BOLT	B, C	3
200	NAS1149E0316P		. WASHER	A	3

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
205	NAS1149E0316P		. WASHER	B, C	3
210	BRH10C3D		. NUT (V52828) (SPEC BACN10JC3CD) (OPT T6C1032JCD (V11815)) (OPT NS202486-02 (V80539)) (OPT 102LH9075-3W (V72962)) (OPT H51650-3BAC (V15653))	B, C	3
215	251A1806-1		. TRANSMITTER ASSY	A	1
–215A	251A1806-2		. TRANSMITTER ASSY	B, C	1
220	BACS12BG04AP3		. . SCREW		4
225	NAS1149CN416R		. . WASHER		4
230	251A1811-1		. . PLATE		1
235	253U1116-3		. . RING ASSY-CLAMP	A	1
240	BACR15DR3		. . . RIVET (SIZE DETERMINED ON INST)	A	6
245	BRM200C3M		. . . NUTPLATE (V52828) (SPEC BACN10JP3ACM) (OPT MK1001-3BAC (V15653)) (OPT NS103197SE02 (V80539)) (OPT VN202D1-02 (V92215)) (OPT 109A9201M3 (V72962)) (OPT T8080C1032 (V11815))	A	3
250	253U1116-4		. . . RING	A	1
255	253U1116-5		. . RING	B, C	1
260	253T4015-7		. . TRANSMITTER ASSY-CONT WHL POS		1
265	BACC63BN10B5P		. . . CONNECTOR		1
270	U221557		. . . TRANSMITTER (V82686)		1
275	BACR15BB5AD5C		. RIVET		2
280	251A1809-2		. CLIP		1
285	NAS6604-22		. BOLT		4
290	NAS1149D0416J		. WASHER		4
295	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
300	65-55476-14		. HOUSING-BEARING		1
305	PACMKP21BSF˜ S428		. BEARING (V21335) (SPEC BACB10FV21) (OPT ACMKP21BSP510LY (V40920)) (OPT SSMKP21BSSD705 (V83086)) (OPT PACMKP21BSA3908 (V21335)) (OPT ITEM 305A)		1
–305A	KP21BSNJC		. BEARING (V06144) (SPEC BACB10EX21) (OPT KP21BSSD610 (V83086)) (OPT KP21BS (V06144)) (OPT KP21BSFS428 (V21335)) (OPT KP21BSLY196 (V40920)) (OPT ITEM 305)		1
310	NAS6604-28		. BOLT		4
315	NAS1149D0416J		. WASHER		4
320	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		4
325	BACB28Y4C034		. BUSHING		4
330	69-41858-2		. RIB-FWD	A	1
–330A	69-41858-3		. RIB-FWD	B, C	1
335	69-41859-2		. RIB-AFT		1
340	251A1818-1		. BRACKET ASSY	A	1
–340A	251A1818-3		. BRACKET ASSY	B, C	1
345	BACR15BB3AD5C		. . RIVET		2
350	WSI4-3		. . NUTPLATE (V04169) (SPEC BACN10TL3-3)		1
355	251A1818-2		. . BRACKET	A	1
–355A	251A1818-4		. . BRACKET	B, C	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
360	HST10AG6-4		. BOLT (V06725) (SPEC BACB30VT6K4) (OPT HST10AG6-4 (V73197)) (OPT HST10AG6-4 (V56878)) (OPT HST10AG6-4 (V0PTK6))		8
365	HST79CY6		. COLLAR (V73197) (SPEC BACC30BL6) (OPT HST79-6 (V92215)) (OPT HST79CY6 (V56878)) (OPT HST79CY6 (V5M902))		8
370	B542DDNJC		. BEARING (V06144) (SPEC BACB10CF21PP) (OPT B542-2TS (V43991)) (OPT B542DDFS428 (V21335)) (OPT B542SSG27 (V30163)) (OPT T342E (VK8455)) (OPT B542DDFS101 (V06144)) (OPT B542DD (V38443)) (OPT B542FS101 (V06144)) (OPT B542DDP (V21760))		2
375	65C37032-1		. DRUM-BUS, UPR		1
380	69-78755-1		. BOLT		2
385	BACW10BP3NDP		. WASHER		2
390	BACW10BP2NDP		. WASHER		2
395	H52732-08CD		. NUT (V15653) (SPEC BACN10YR08CD) (OPT PLH508CD (V62554))		2
400	65C37036-1		. RETAINER-SPR		2
405	PACMB542DDF˜ S428		. BEARING (V21335) (SPEC BACB10FU21) (OPT SSMB542DDSD705 (V83086)) (OPT PACMB542DDA3908 (V21335)) (OPT ACMB542DDP818LY (V40920))		6
410	65C37039-5		. SPACER		2
415	65C37038-1		. PLATE-RETENTION		2
420	65C37037-1		. SPRING		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
425	65C37039-1		. SPACER		2
430	65C37039-2		. SPACER		1
435	65C37033-1		. DRUM-BUS, LWR		1
440	65C37039-3		. SPACER		1
445	65C37039-4		. SPACER		1
450	65C37031-3		. DRUM ASSY-SPOILER		1
455	MS21209C0415P		. . INSERT		2
460	65C37031-4		. . DRUM		1
465	7349-6-67MM		. COUPLING-FLEX (V13201)		1
470	NAS1149F1063P		. WASHER		2
475	NAS1351N3-12P		. SCREW		3
480	NAS1149D0332J		. WASHER		3
485	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))		3
490	69-41762-3		. GUARD-CABLE		3
495	65-55476-15		. HOUSING-BEARING		1
500	SSMKSP10SD705		. BEARING (V83086) (SPEC BACB10FP10) (OPT ACMKSP10A3908 (V21335)) (OPT ACMKSP10FS428 (V21335)) (OPT ITEM 500A)		1
–500A	KSP10FS428		. BEARING (V21335) (SPEC BACB10AC10) (OPT KSP10-2TS (V43991)) (OPT KSP10E9440A (V21335)) (OPT KSP10G27 (V30163)) (OPT HHKSP10 (V38443)) (OPT KSP10 (V38443)) (OPT KSP10SD610 (V83086)) (OPT ITEM 500)		1
505	65C37034-1		. ARM		1
510	65C37035-3		. SHAFT ASSY		1
515	NAS75-4-105		. . BUSHING		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
520	65C37035-4		. . SHAFT		1
525	BAC27DCT622		. MARKER-CONTROL WHEEL POSITION SENSOR M1967		1
530	BACM10S28M		. MARKER-CAUTION PRELOADED SPRING SEE OVERHAUL MANUAL		1

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