TO: ALL HOLDERS OF CF6-80 THRUST REVERSER STRUT CONTROL BOX ASSEMBLY COMPONENT MAINTENANCE MANUAL 78-34-51

REVISION NO. 22 DATED MAR 01/04

HIGHLIGHTS

Pages which have been added or revised are outlined below together with the highlights of the revision. Remove and insert the affected pages as listed and enter Revision No. and date to the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
704	Added slider block functionality check to the assembly section.

COMPONENT
MAINTENANCE MANUAL

CF6-80 THRUST REVERSER STRUT CONTROL BOX ASSEMBLY

PART NUMBER 315T1016-2,-3,-4,-7 THRU -10
315T2011-3,-4
015T0376-19 THRU -22

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

2366

REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY

REVISION NUMBER	REVISION DATE	DATE FILED	BY

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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767-76-7			APR 10/86
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767-76-0018		PRR B11485	APR 01/91
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PAGE	DATE	CODE
78-34-51		
TITLE PAGE		
1	APR 01/91	01.1
2	BLANK	
REVISION RECORD		
1	APR 01/91	01.1
2	BLANK	
TR & SB RECORD		
1	JUN 01/96	01.1
2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	MAR 01/04	01
THRU LAST PAGE		
CONTENTS		
1	APR 01/91	01.1
2	BLANK	
INTRODUCTION		
1	APR 01/91	01.1
2	BLANK	
DESCRIPTION & OPERATION		
1	APR 01/91	01.1
2	BLANK	
DISASSEMBLY		
301	APR 01/91	01.1
302	SEP 01/94	01.1
CHECK		
501	APR 01/91	01.1
502	BLANK	
REPAIR-GENERAL		
601	APR 01/91	01.1
602	SEP 01/94	01.1
603	APR 01/91	01.1

PAGE	DATE	CODE
REPAIR-GENERAL		CONT.
604	BLANK	
REPAIR 1-1		
601	APR 01/91	01.1
602	APR 01/91	01.1
REPAIR 2-1		
601	APR 01/91	01.1
602	APR 01/91	01.1
REPAIR 3-1		
601	APR 01/91	01.1
602	APR 01/91	01.1
603	APR 01/91	01.1
604	BLANK	
REPAIR 4-1		
601	MAR 01/97	01.1
602	MAR 01/97	01.1
603	MAR 01/97	01.1
604	BLANK	
REPAIR 5-1		
601	APR 01/91	01.1
602	APR 01/91	01.1
REPAIR 6-1		
601	APR 01/91	01.1
602	APR 01/91	01.1
REPAIR 7-1		
601	APR 01/91	01.1
602	BLANK	
REPAIR 8-1		
601	APR 01/91	01.1
602	SEP 01/94	01.1
ASSEMBLY		
701	MAR 01/96	01.1
702	MAR 01/96	01.1
703	MAR 01/96	01.1

* = REVISED, ADDED OR DELETED

PAGE	DATE	CODE
ASSEMBLY		CONT.
*704	MAR 01/04	01.1
705	JUL 01/03	01.1
706	BLANK	
FITS AND CLEARANCES		
801	DEC 01/96	01.1
802	APR 01/91	01.1
803	APR 01/91	01.1
804	DEC 01/96	01.1
805	APR 01/91	01.1
806	BLANK	
ILLUSTRATED PARTS LIST		
1001	APR 01/91	01.1
1002	APR 01/91	01.1
1003	APR 01/91	01.1
1004	APR 01/91	01.1
1005	SEP 01/94	01.1
1006	SEP 01/94	01.1
1007	SEP 01/94	01.101
1008	SEP 01/94	01.1
1009	SEP 01/94	01.1
1010	JUL 01/91	01.1
1011	SEP 01/94	01.1
1012	SEP 01/94	01.1
1013	JUN 01/96	01.1
1014	JUN 01/96	01.1
1015	APR 01/91	01.1
1016	APR 01/91	01.1
1017	SEP 01/94	01.1
1018	SEP 01/94	01.1
1019	APR 01/91	01.1
1020	APR 01/91	01.1
1021	APR 01/91	01.1
1022	APR 01/91	01.1
1023	SEP 01/94	01.1
1024	SEP 01/94	01.1
1025	SEP 01/94	01.1
1026	SEP 01/94	01.101

PAGE	DATE	CODE

* = REVISED, ADDED OR DELETED

TABLE OF CONTENTS

*[1] Special instructions not required. Testing to verify correct assembly is included in assembly instructions.

*[2] Special instructions not required. Use standard industry practices.

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop-type repair.

This manual is divided into separate sections:

1. Title Page
2. Record of Revisions
3. Temporary Revision & Service Bulletin Record
4. List of Effective Pages
5. Table of Contents
6. Introduction
7. Procedures & IPL Sections

Refer to the Table of Contents for the page location of applicable sections. An asterisked flagnote *[ ] in place of the page number indicates that no special instructions are provided since the function can be performed using standard industry practices.

The beginning of the REPAIR section includes a list of the separate repairs, a list of applicable standard Boeing practices, and an explanation of the True Position Dimensioning symbols used.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements used in the manual are in English units, unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

Verification:

Disassembly
Assembly

STRUT THRUST REVERSER CONTROL BOX ASSEMBLY

DESCRIPTION AND OPERATION

1. The strut thrust reverser control box assembly controls the reverse thrust power schedule for deploy and stow cycles and drives the throttle to idle in the event of noncommanded deploy or stow. The control box provides thrust reverser directional control valve input and thrust reverser feedback interlock on some assemblies.

2. Gear racks, gear/cam assemblies and a lever arm that pivot on two shafts (CF6-80 assemblies only) are contained in a covered housing and are actuated by a cable driven quadrant. Rotation of the cable quadrant moves a cam and gear. The gear moves a rack to drive an engine fuel control cable. The cam actuates a lever to position the thrust reverser directional control valve. Feedback cables from the right-hand and left-hand reverser sleeve mechanism each drive a rack and gear/cam on CF6-80 assemblies only. The cam section of the gear/cam limits throttle movement during thrust reverser deploy and stow cycles.

3. Leading Particulars (Approximate)

   Length -- 11 inches
   Width -- 12 inches
   Height -- 6 inches
   Weight -- 3 pounds

DISASSEMBLY

1. Disassembly (IPL Fig. 1)

   A. Remove nut (80), washer (85) and quadrant assembly (100A) from control box assembly. Remove washer (153) from shaft (155).

      NOTE: Do not remove inserts (105) from quadrant (110A) unless repair or replacement is necessary.

   B. Remove access hole cover (235) with washer (245) and screw (240) from cover assembly (255). Remove coverplate (185) with washer (195) and screw (190A).

   C. Remove screws (50), washers (55), retainers (45), spring (60) and plunger assembly (65A) from control box assembly.

      NOTE: Do not remove cap (75) from plunger (70).

   D. Remove nut (160), washers (165, 170), shim (175), and lift feedback shaft (180) from control box assembly.

   E. Remove screw (215), spacer (220), washer (225), and nut (230).

   F. Remove bolts (260), washers (265), nuts (270), and cover assembly (255) from control box assembly.

      NOTE: Do not remove bearing housing (305) or bushings (295) from cover (310) unless repair or replacement is required.

   G. Remove gear/cam assembly (370) from housing assembly (315).

      NOTE: Do not remove bushings (375), rivets (385) and preload pad (380) from gear/cam (390, 390A) unless repair or replacement is required.

   H. Remove lever assembly (445) from housing assembly (315) (315T1016-2, -3, -4, -7, -8, -9, -10, 015T0376-19, -20, -21, -22 only).

      NOTE: Do not remove bearing (450A) or bushings (460) from lever (465) unless repair or replacement is required.

   I. Remove nut (90), washer (95), and shaft (155) with cam and gear (490, 490A) attached, from housing assembly (315).

   J. Remove bolts (420), washers (425), nuts (430), bearings (440) and bushings (435) from lever assembly (445) (315T1016-2, -3, -4, -7, -8, -9, -10, 015T0376-19, -20, -21, -22 only).

K. Remove gear/cam assembly (395) from housing assembly (315).

NOTE: Do not remove preload pad (405), rivets (410) and bushings (400) from gear/cam (415) unless repair or replacement is necessary.

L. Remove bearing (150), spacer (145A), laminated washer (140), and cam and gear (490) from shaft (155).

M. Note thickness of laminated washer (140) for reference during assembly.

N. Remove bolts (470A), washers (475), nuts (480), and bearings (485) from cam and gear (490).

O. Remove retainer plate (125), screws (115), washers (120) and bearing (135) from housing assembly (315).

P. Remove nuts (205), bearings (210C), washers (207), or slider (213) if used, and pins (200) from housing assembly (315).

Q. Remove racks (350), sleeves (360, 365), and jamnuts (250).

R. Remove retainer (25), screw (30), washer (35), washers (40A), covers (313), screw (10), washers (15), retainer (5), washers (20), and sleeves (355) from housing assembly (315).

NOTE: Do not remove bearing housing (130), inserts (320, 325), pins (335), or bushing (340) from housing (345) unless repair or replacement is necessary.

CHECK

1. Check all parts for obvious defects in accordance with standard industry practices. Refer to Fits and Clearances for design limits.

2. Magnetic particle examine per 20-20-01 -- Feedback shaft (180), gear/cam (390, 415), quadrant shaft (155), cam and gear (490), and racks (350).

3. Penetrant examine per 20-20-02 -- Quadrant (110A), plunger (70A), cover (310), lever (465), pin (200), sleeve (360), sleeve (365), sleeves (355), and housing (345).

4. Check spring (60). Apply a compressive load to the spring. Load should be 13-17 pounds at 0.80 inch spring length.

REPAIR - GENERAL

1. Content

   A. Repair, refinish and replacement procedures are included in separate repair sections as follows:

P/N	NAME	REPAIR
315T1020	HOUSING	1-1
315T1021	COVER	2-1
315T3024	QUADRANT	3-1
315T3029	LEVER	4-1
315T1030	GEAR/CAM	5-1
315T3031	FEEDBACK SHAFT	6-1
315T1023	GEAR/CAM	7-1
- -	MISCELLANEOUS PARTS REFINISH	8-1

2. Standard Practices

   A. Refer to the following standard practices as applicable for details of procedures in REPAIRS 1-1 thru 8-1.

   20-10-01 Repair and Refinish of High Strength Steels
   20-10-03 Shot-Peening
   20-10-04 Grinding of Chrome Plated Parts
   20-30-02 Stripping of Protective Finishes
   20-30-03 General Cleaning Procedures
   20-41-01 Decoding Table for Boeing Finish Codes
   20-42-03 Hard Chrome Plating
   20-42-05 Bright Cadmium Plating
   20-50-03 Bearing Installation and Retention
   20-50-08 Application of Dry Lubricant

3. Materials

   NOTE: Equivalent substitutes may be used.

   A. Primer -- BMS 10-11, type 1 (Ref 20-60-02)

B. Solid Film Lubricant -- Sermalube, type 20 (Ref 20-60-03) Teceram, 520 (Ref 20-60-03)

C. Solid Film Lubricant -- BMS 3-8 (Ref 20-60-03)

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in Fig. 601.

—	STRAIGHTNESS
▱	FLATNESS
⊥	PERPENDICULARITY (OR SQUARENESS)
//	PARALLELISM
○	ROUNDNESS
⌭	CYLINDRICITY
⌒	PROFILE OF A LINE
⌓	PROFILE OF A SURFACE
◎	CONCENTRICITY
⌯	SYMMETRY
∠	ANGULARITY
↗	RUNOUT
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
∅	DIAMETER
BASIC (BSC) OR [DIM]	A THEORETICALLY EXACT DIMENSION USED TO DESCRIBE SIZE, SHAPE OR LOCATION OF A FEATURE FROM WHICH PERMISSIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.
[-A-]	DATUM
Ⓜ	MAXIMUM MATERIAL CONDITION (MMC)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE

EXAMPLES

[— | 0.002]	STRAIGHT WITHIN 0.002
[⊥ | B | 0.002]	PERPENDICULAR TO B WITHIN 0.002
[// | A | 0.002]	PARALLEL TO A WITHIN 0.002
[○ | 0.002]	ROUND WITHIN 0.002
[⌭ | 0.010]	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
[⌒ | A | 0.006]	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART IN RELATION TO DATUM PLANE A
[⌓ | A | 0.020]	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
[◎ | C | ∅ 0.0005]	CONCENTRIC TO C WITHIN 0.0005 DIAMETER (FULL INDICATOR MOVEMENT)
[⌯ | A | 0.010]	SYMMETRICAL WITH A WITHIN 0.010
[∠ | A | 0.005]	ANGULAR TOLERANCE 0.005 WITH A
[⌖ | B | ∅ 0.002 Ⓢ]	LOCATED AT TRUE POSITION WITHIN 0.002 DIA IN RELATION TO DATUM B, REGARDLESS OF FEATURE SIZE
[⊥ | A | ∅ 0.010 Ⓜ] [0.510 Ⓟ]	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010-INCH DIAMETER, PERPENDICULAR TO, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols
Figure 601

2374

HOUSING ASSEMBLY - REPAIR 1-1

315T1020-1, -5, -6

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

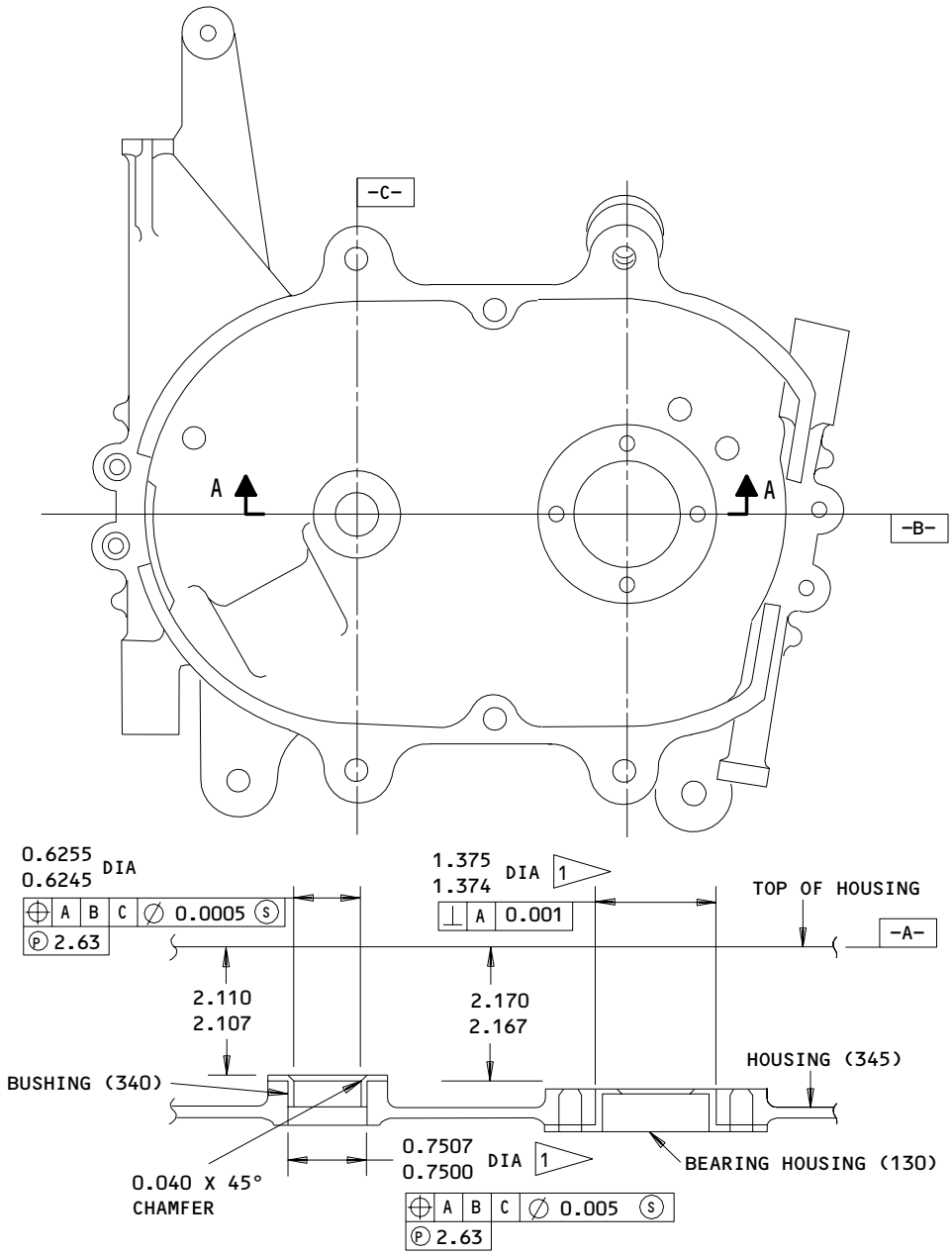
1. Bushing Replacement (Fig. 601)

   A. Remove bushing and bearing housing (130, IPL Fig. 1). Bearing housing, part of the control box assembly, is shown here for repair simplicity.

   B. Install bearing housing (130) in housing. Use shrink-fit method per 20-50-03.

   C. Install bushing (340) in housing. Use shrink-fit method with wet primer BMS 10-11, type 1 on faying surfaces per 20-50-03. Wipe off excess primer.

   D. Machine bushing (340) to obtain dimension shown.



A-A

REFINISH

HOUSING (345):

CHROMIC ACID OR SULFURIC ACID ANODIZE (F-17.05) APPLY ONE COAT OF PRIMER BMS 10-11 TYPE 1 (F-20.02) EXCEPT AS NOTED.

1 OMIT PRIMER ON THESE SURFACES

63 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK ALL SHARP EDGES APPROXIMATELY 0.008 IN.

MATERIAL: AL ALLOY 356-T6

ALL DIMENSIONS ARE IN INCHES

315T1020-1 (SHOWN)
315T1020-5, -6

Housing Bushing Replacement
Figure 601

COVER ASSEMBLY - REPAIR 2-1

315T1021-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

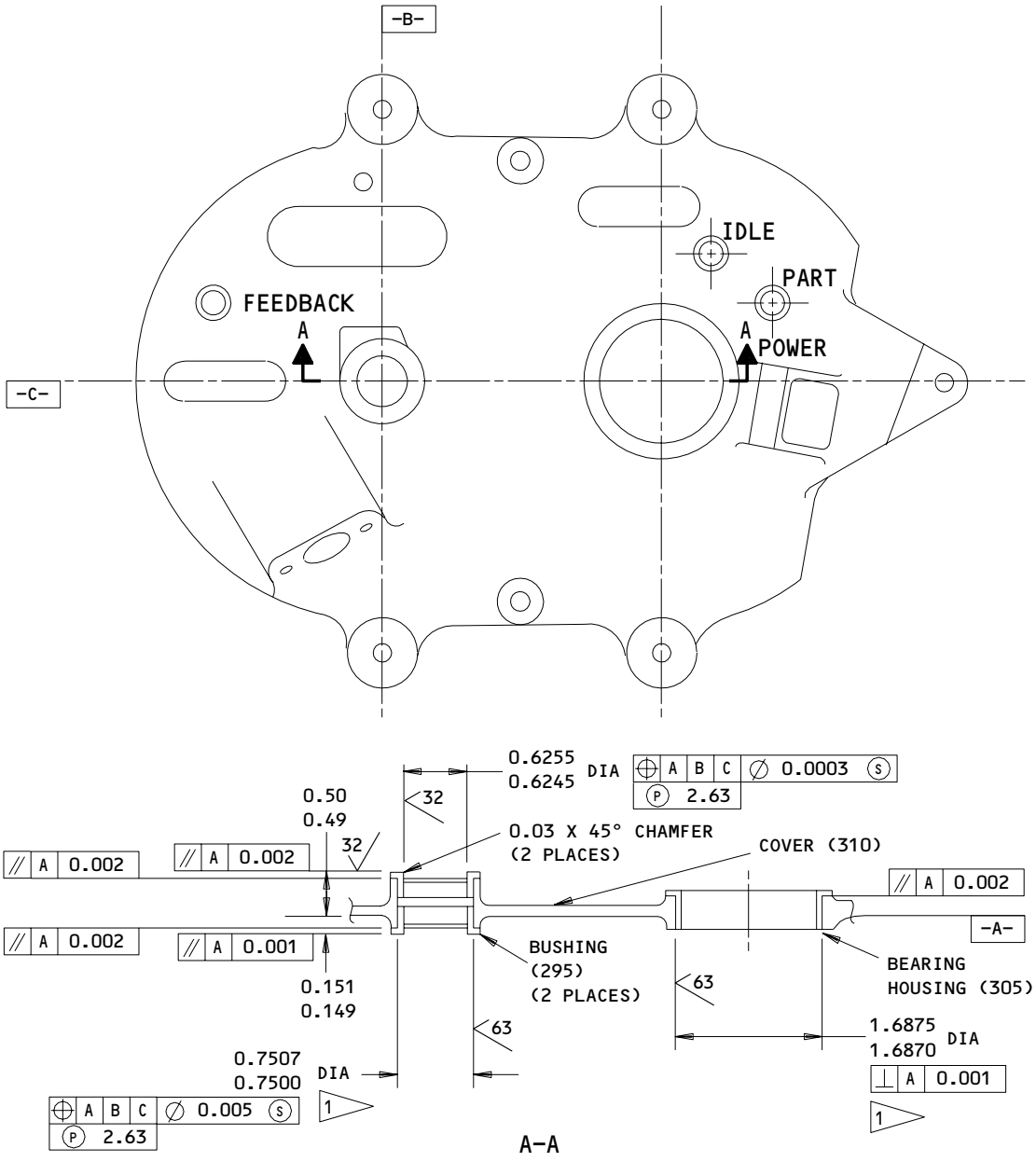
1. Bushing Replacement (Fig. 601)

   A. Remove bushings and bearing housing (305, IPL Fig. 1).

   B. Install bearing housing (305) in cover. Use shrink-fit method per 20-50-03.

   C. Install bushings (295) in cover. Use shrink-fit method with wet primer BMS 10-11, type 1 on faying surfaces per 20-50-03. Wipe off excess primer.

   D. Machine bushings (295) to obtain dimension shown.



REFINISH

COVER (310):

CHROMIC OR SULFURIC ACID ANODIZE (F-17.05)
APPLY ONE COAT OF PRIMER BMS 10-11 TYPE I
(F-20.02) EXCEPT AS NOTED

1 OMIT PRIMER ON THESE SURFACES

63 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK ALL SHARP EDGES APPROXIMATELY 0.008 IN.

MATERIAL: AL ALLOY 356-T6

ALL DIMENSIONS ARE IN INCHES

315T1021-1
Cover Assembly Repair
Figure 601

QUADRANT SHAFT - REPAIR 3-1

315T3024-1

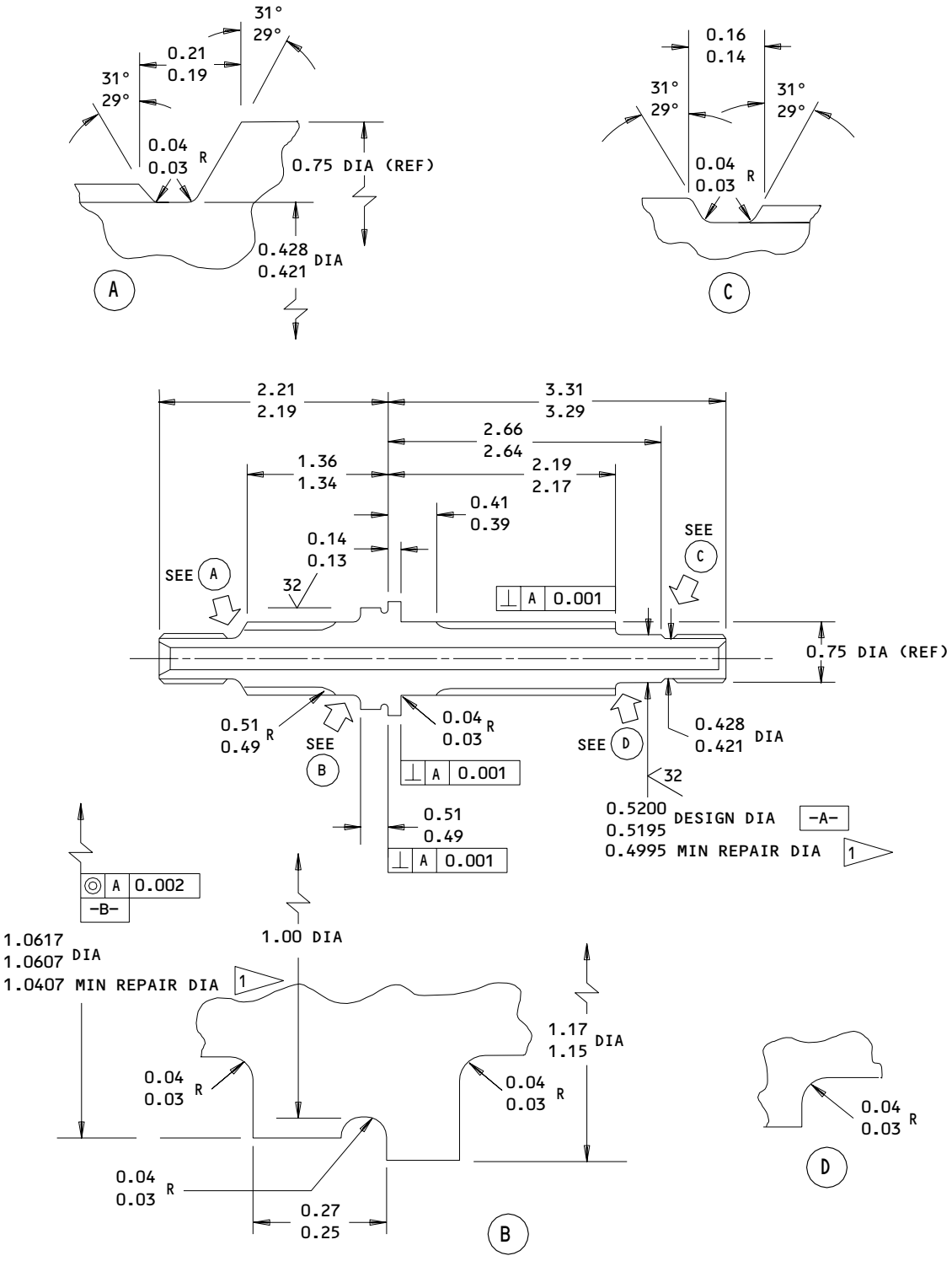
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bearing Lands - Diameters A and B (Fig. 601)

   A. Machine, as required, within repair limits to remove defects.

2. Relief Grooves (Fig. 601)

   A. Machine, as required, within repair limits to remove defects.



315T3024-1

Shaft - Quadrant Repair
Figure 601 (Sheet 1)

2493

REFINISH

PASSIVATE (F-17.09)

REPAIR

REF 1

63 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES APPROXIMATELY 0.008

SHOTPEEN 0.017-0.046 SHOT SIZE
0.016 A2 INTENSITY

MATERIAL: 15-5 PH CRES (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

1 BUILD UP WITH CHROME PLATE AND GRIND TO DIMENSIONS SHOWN.
OBSERVE 0.08 PLATING RUNOUT AT EDGES, HOLES AND RELIEFS.
DO NOT PLATE RELIEF RADII.

Shaft Quadrant Repair
Figure 601 (Sheet 2)

LEVER ASSEMBLY - REPAIR 4-1

315T3029-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (Fig. 601)

   A. Remove bushings.

   B. Install bushings (460, IPL Fig. 1) on lever (465). Use shrink-fit method with wet primer BMS 10-11, type 1 on faying surfaces per 20-50-03. Wipe off excess primer.

   C. Machine bushings (460) to obtain dimensions shown.

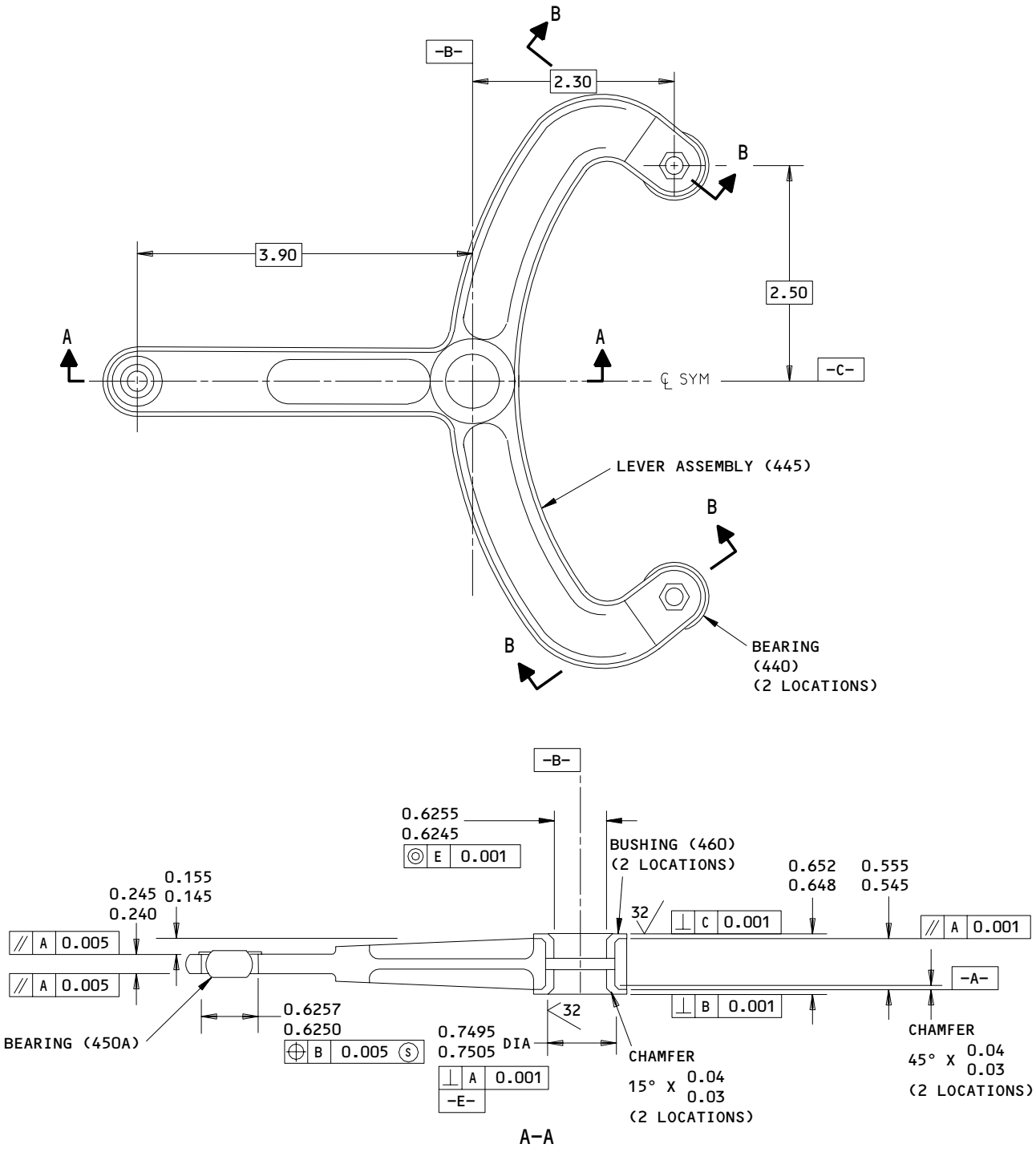
   D. Install bushing (435) in lever assembly (445). Use shrink-fit method per 20-50-03, except install with bearing (440) in place and fasten with bolt (420), washer (425) and nut (430).

      NOTE: Machining of bushings (435) is not required since the bushings are premachined to the installation dimensions. There will be a gap under the bushing flanges following installation.

2. Bearing Replacement

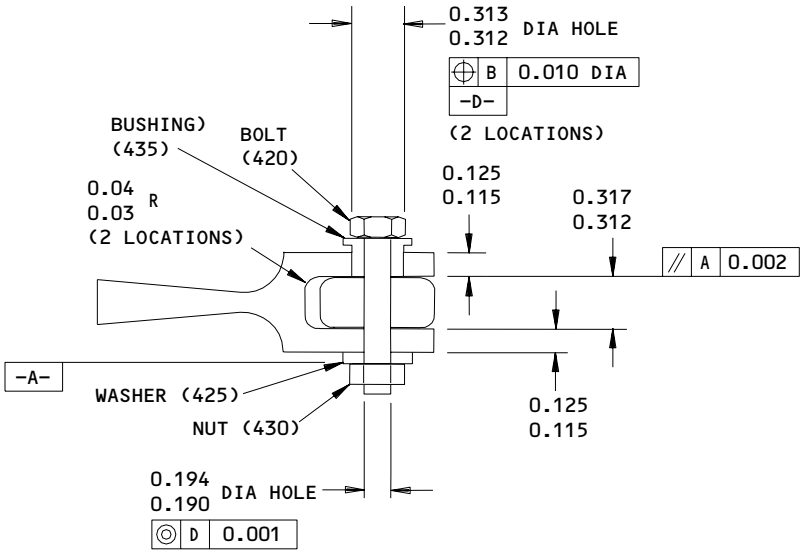
   A. Remove bearing.

   B. Install bearing (450A) in lever (465) with wet primer BMS 10-11, type 1 on faying surfaces and roller swage per 20-50-03. Wipe off excess primer.



315T3029-1
Lever Assembly Bushing - Bearing Replacement
Figure 601 (Sheet 1)

2377



B-B

REFINISH

CHROMIC ACID ANODIZE AND APPLY ONE COAT OF BMS 10-11 TYPE I (F-18.13) PER 20-41-02. DO NOT APPLY PRIMER IN BUSHING HOLES

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES APPROXIMATELY 0.008

MATERIAL: AL ALLOY 7075-T73

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

315T3029-1
Lever Assembly Bushing - Bearing Replacement
Figure 601 (Sheet 2)

GEAR/CAM ASSEMBLY - REPAIR 5-1

315T1030-1, -2, -6, -7

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Fig. 601 for gear/cam (390) and to REPAIR 8-1 for bushings (375) and preload pad (380).

1. Bushing Replacement (Fig. 601)

   A. Remove bushings.

   B. Install bushings (375, IPL Fig. 1) on gear/cam (390) and bushings (420) on gear/cam (415). Use shrink-fit method per 20-50-03.

   C. Machine bushings to obtain dimensions shown.

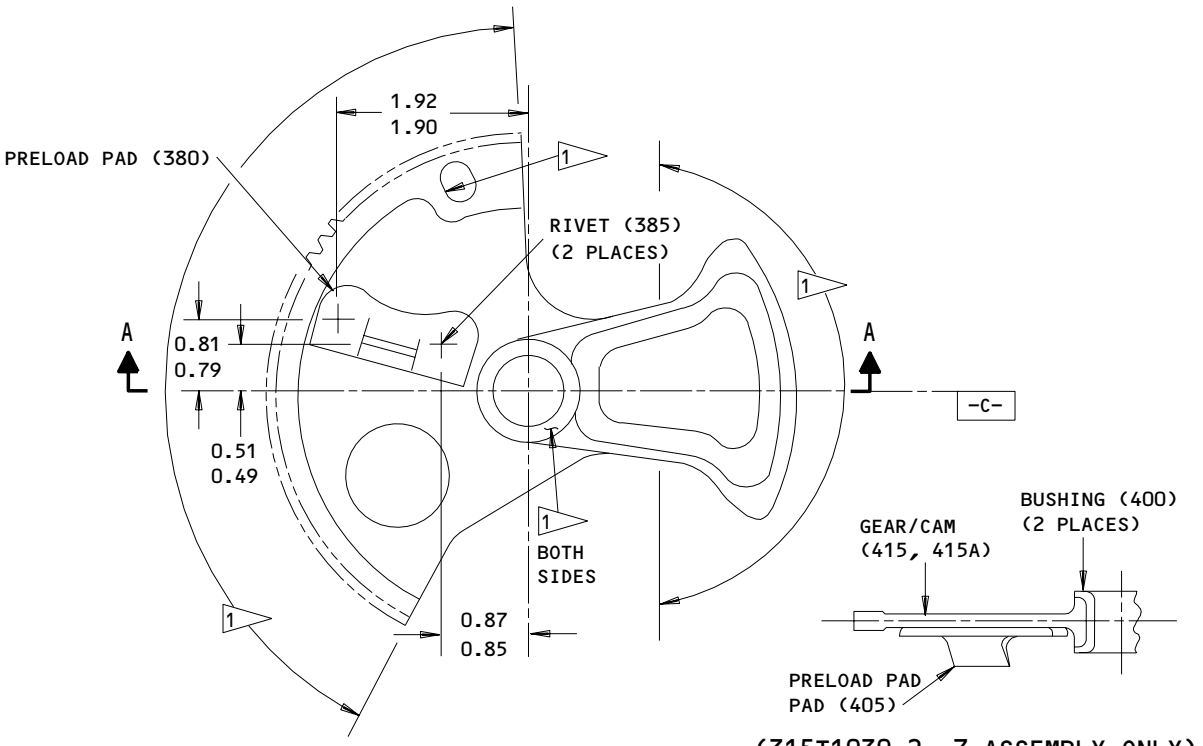
2. Gear/Cam Replacement (Fig. 601)

   A. Remove preload pad from gear/cam by removing attaching rivets.

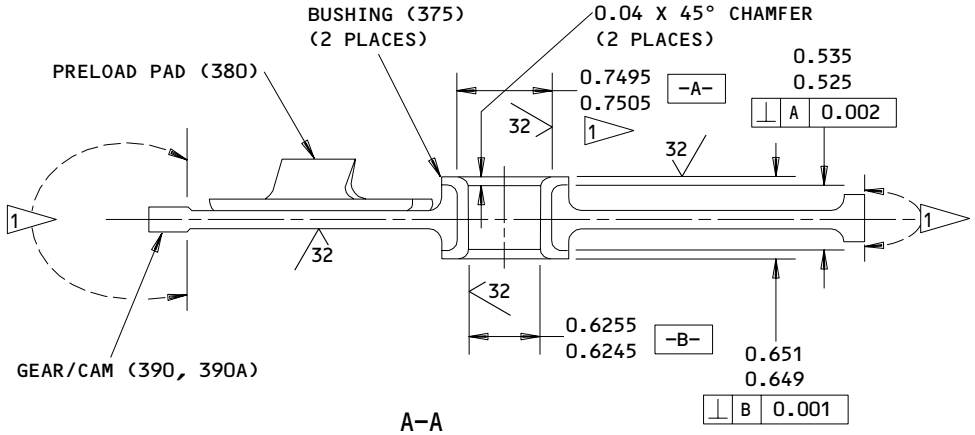
   B. Drill two #20 (0.159-0.171 inch diameter) holes in replacement gear to match preload pad (380 or 405). Locate as shown on Fig. 601.

   C. Install preload pad on witness mark side of gear/cam (390) or on side opposite witness marks of gear/cam (415) with rivets (385, 410) as shown in Fig. 601.

   D. Install bushings (375 or 400) in replacement gear/cam. Use shrink-fit method per 20-50-03.



(315T1030-2,-7 ASSEMBLY ONLY)



A-A

REFINISH

PASSIVATE (F-17.13) GEAR/CAM (390,390A) ALL OVER. APPLY TWO COATS BMS 10-11, TYPE I, PRIMER TO GEAR/CAM (390A) ONLY EXCEPT ON AREAS NOTED. APPLY SERMETEL (TYPE 20), TELEFLEX CORP., P.O. BOX 218, NORTHWALES, PA 19454 OR BMS 3-8 TO GEAR TEETH AFTER PASSIVATING AND NITRIDING PER 20-50-08.

1 GEAR/CAM (390A) ONLY. NO PRIMER THIS SURFACE

63 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK ALL SHARP EDGES APPROXIMATELY 0.008

MATERIAL: 17-4PH CRES (130-150 KSI) NITRIDED GEAR TEETH MALCOMIZED (CASE HARDENED) 0.002-0.005 IN.

ALL DIMENSIONS ARE IN INCHES

315T1030-1,-7 SHOWN
315T1030-2,-6
Gear/Cam Assembly Repair
Figure 601

2380

FEEDBACK SHAFT - REPAIR 6-1

315T3031-1,-2

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

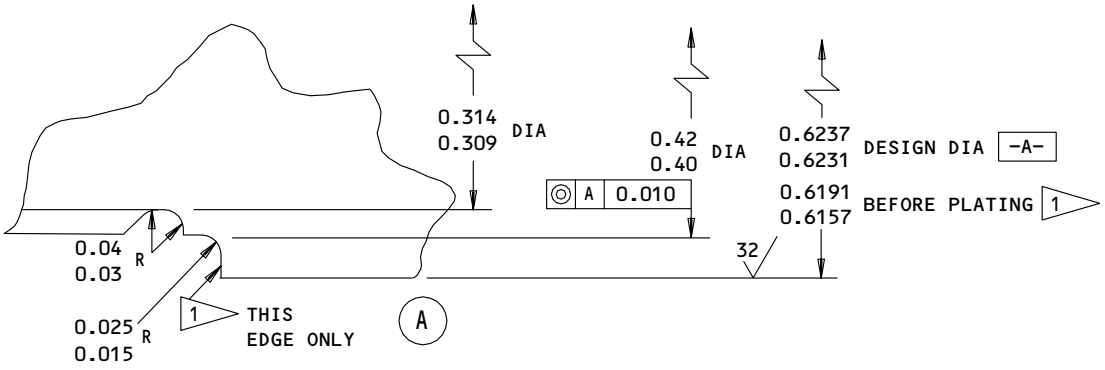
1. Shank Repair - Diameter A (Fig. 601)

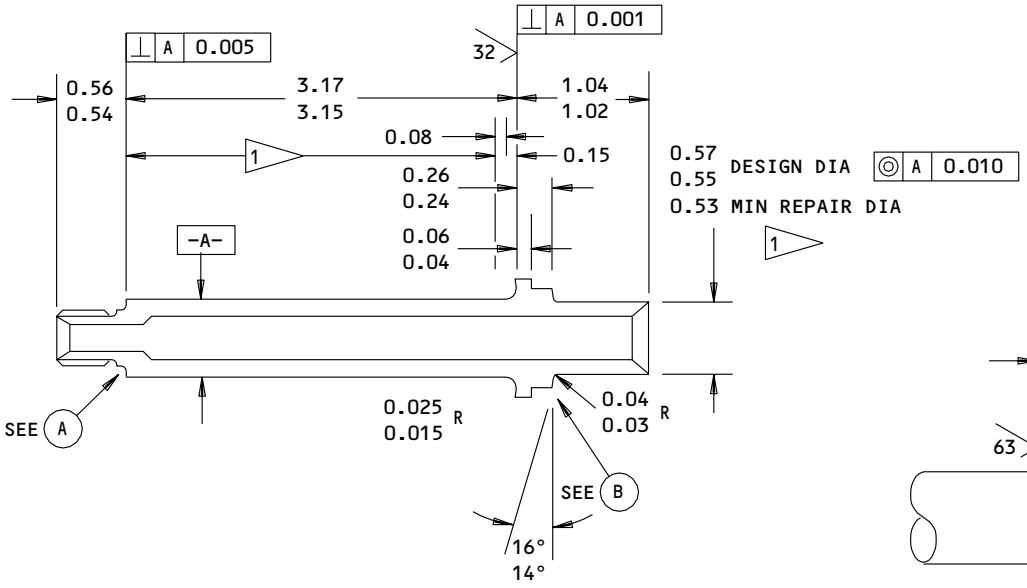
   A. Machine, as required, within repair limits to remove defects.

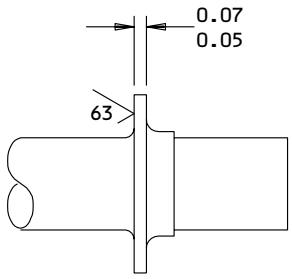
   B. Shot-peen, chrome plate and grind to design dimensions.

2. Relief Grooves

   A. Machine, as required, within repair limits to remove defects.







315T3031-2 ONLY

B

REFINISH

CHROME PLATE (F-15.03) DIA -A- SINGLE PLATE THICKNESS 0.002 MIN. AFTER GRINDING

1 BUILDUP WITH CHROME PLATE AND GRIND TO DIMENSIONS SHOWN. OBSERVE 0.08 PLATING RUNOUT AT EDGE. DO NOT PLATE RELIEF RADII.

REPAIR

REF 1

63 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES APPROXIMATELY 0.008

SHOTPEEN 0.017 - 0.046 SHOT SIZE, 0.016A2 INTENSITY

MATERIAL: 15-5PH CRES (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

315T3031-1,-2
Shaft - Feedback Repair
Figure 601

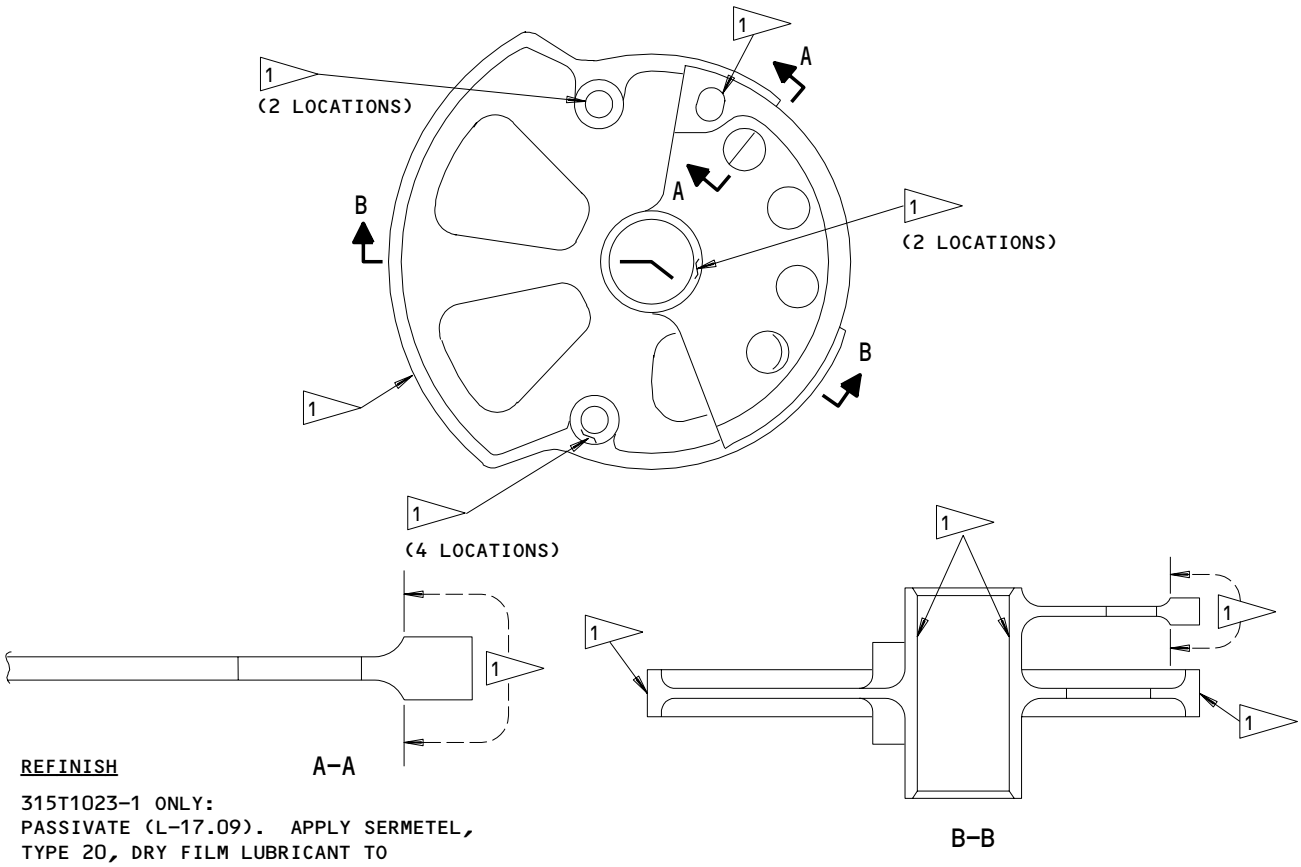
2381

GEAR/CAM - REPAIR 7-1

315T1023-1,-3, -5, -6

1. Plating Repair

NOTE: Repair consists of restoration of original finish. Refer to REPAIR-GEN for list of applicable standard practices and to refinish instructions, Fig. 601.



REFINISH

315T1023-1 ONLY:
PASSIVATE (L-17.09). APPLY SERMETEL, TYPE 20, DRY FILM LUBRICANT TO GEAR TEETH FOLLOWING PASSIVATION.

315T023-3,-5,-6 ONLY:

PASSIVATE (F-17.09) AND APPLY TWO COATS OF BMS 10-11, TYPE 1, PRIMER (F-20.03) EXCEPT WHERE NOTED. APPLY SERMETEL, TYPE 20, DRY FILM LUBRICANT TO GEAR TEETH FOLLOWING PASSIVATION

MATERIAL: 17-4PH CRES, 130-150 KSI

1 NO PRIMER THIS SURFACE

315T1023-1,-3,-5,-6
Gear/Cam Refinish
Figure 601

119406

MISCELLANEOUS PARTS REFINISH - REPAIR 8-1

1. Repair of parts listed in Fig. 601 consists of restoration of the original finish.

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Retainer (5,25,45)	Al alloy	Alodize followed by one coat primer, BMS 10-11, type 1 (F-18.06).
Spring (60)	Steel wire	Cadmium plate followed by one coat primer, BMS 10-11, type 1 (F-16.03).
Plunger (70A)	321/347 CRES	Cadmium plate (F-15.06).
Quadrant (110A)	Al alloy	Sulfuric acid anodize (F-17.03) followed by one coat primer, BMS 10-11, type 1 (F-20.02) except no primer on spline.
Retaining plate (125)	301 CRES	Passivate (F-17.09).
Washer (140)	301/321 CRES	Cadmium plate (F-15.06).
Spacer (145A)	321/347 CRES	Passivate (F-17.09).
Washer (170)	17-7PH CRES, 150-175 ksi	Passivate (F-17.09).
Pin (200)	304 CRES	Passivate (F-17.09).
Coverplate (235)	Al alloy	Alodize followed by one coat primer, BMS 10-11, type 1 (F-18.06).
Bushing (295,340, 375,400,460),	Aluminum-Nickel-Bronze	Cadmium plate (F-15.06).
Bushing, flange (305)	304 CRES	Cadmium plate (0.0002 to 0.0004 inch) (F-15.25).

Refinish Details
Figure 601 (Sheet 1)

IPL FIG. & ITEM	MATERIAL	FINISH
Cover (313)	Al alloy	Chromic acid anodize and apply one coat BMS 10-11, type 1 primer (F-18.13).
Rack (350)	15-5PH CRES, 180-200 ksi	Passivate (F-17.09), hard chrome plate Armoloy (Armoloy of Phila., 1105 Miller Ave., Croydon, PA). Apply Sermetel (type 20) after Armoloy (Ref 20-50-08).
Sleeve (355,365)	321/347 CRES	Cadmium plate followed by one coat primer, BMS 10-11, type 1 (F-16.01).
Sleeve (360)	321/347 CRES	Cadmium plate followed by one coat primer, BMS 10-11, type 1 (F-16.01). No primer on threads.
Preload pad (380,405)	Al alloy	Anodize followed by one coat primer, BMS 10-11, type 1 except canted surface (F-18.04).
Cam and gear (490)	17-4PH CRES, 130-150 ksi	Passivate (F-17.09) and apply Sermalube (type 20), or BMS 3-8 lubricant to gear teeth (Ref 20-50-08)
Bracket (510A)	Al alloy	Chromic acid anodize and apply one coat BMS 10-11, type 1 primer (F-18.13).

Refinish Details
Figure 601 (Sheet 2)

ASSEMBLY

1. Materials

   NOTE: Equivalent substitutes may be used.

   A. Corrosion Preventive Compound -- MIL-C-16173, Grade 2 (Ref 20-60-02)

   B. Corrosion Preventive Compound -- MIL-C-11796, Class 3 (Ref 20-60-02)

   C. Lockwire -- MS20995C20, (MS20995C32 OPTIONAL)

   D. Corrosion Inhibiting Compound -- BMS 3-23, Type 2 (Ref 20-60-04)

   E. Grease -- BMS 3-24 (Ref 20-60-03)

2. Equipment

   A. Rig pin 0.311-0.312 inch diameter

3. Lubrication (IPL Fig. 1)

   A. Fill splines and voids of quadrant shaft (155), cam and gear (490), and quadrant assembly (100) with corrosion preventive compound, MIL-C-11796, Class 3.

   B. Apply a light coat of corrosion preventive compound MIL-C-16173, Grade 2 to fastener threads before installation.

   C. For control box assembly 315T1016-2, 015T0376-19 only:

      (1) After bearing installation, pack outside of bearing and any crevices with grease.

      (2) Spray surface of rack (350) and gear/cam (375, 415, 490) and internal surfaces of control box with BMS 3-23 compound.

4. Assembly (IPL Fig. 1)

   A. Install sleeves (355) in housing assembly (315) with washers (40A), retainer (25), washers (20), retainer (5), washers (15, 35), and screws (10, 30).

      NOTE: Install sleeves (355) retained by retainer (5) with long end inside housing.

   B. Install sleeves (360, 365) with jamnuts (250) toward housing assembly (315, 315A).

C. Install racks (350), pins (200), bearings (210C), washers (207) if used, and nuts (205). Apply corrosion preventive compound MIL-C-11796, Class 3 to hole and then install pins. Leave nuts (205) loose so that racks (350) are free to move during adjustment procedure.

D. Install bearing (135) with retainer plate (125), washers (120), and screws (115) in housing assembly (315) in accordance with 20-50-03.

E. Install gear/cam assembly (395) in housing assembly (315). Align witness marks on gear/cam assembly (395) and rack (350) as shown in Fig. 701.

NOTE: A pilot shaft, drill rod or equivalent, approximately 0.600 inch in diameter, may be inserted through housing assembly (315). The pilot shaft will assist in alignment of housing (315), gear/cams (395), lever (445), and cover (255).

F. Install bearings (485) with bolts (470), washers (475) and nuts (480) on cam and gear (490).

G. Fill shaft (155) splines and voids with corrosion preventive compound MIL-C-11796, Class 3.

H. Install cam and gear (490), washer (140) and spacer (145A) on shaft (155).

I. Install bearing (150) on shaft (155) and install shaft (155) with cam and gear attached in housing assembly (315). Align witness marks on cam and gear (490) and rack (350) as shown in Fig. 701.

J. Adjust thickness of washer (140) by removing laminations to obtain alignment of gear (490) centerline and rack (350) centerline within 0.015.

K. Apply corrosion preventive compound MIL-C-16173, Grade 2 to threads on shaft (155) and nut (90).

L. Install washer (95) and nut (90) on shaft (155). Tighten nut to 100-150 pound-inches.

M. Install bearings (440), bolts (420), washers (425), nuts (430) on lever assembly (445). Apply corrosion preventive compound MIL-C-11796, Class 3 to holes, then install bolts (315T1016-2, -3, -4, -7, -8, -9 only).

N. Install lever assembly (445) in housing assembly (315) (315T1016-2, -3, -4, -7, -8, -9, -10, 015T0376-19, -20, -21, -22 only).

O. Install spacer (467) in lieu of lever assembly (445) (315T2011-2, 015T0376-19 only).

P. Install gear/cam assembly (370) in housing assembly (315).

Q. Install cover assembly (255) with bolts (260), washers (265) and nuts (270) on housing assembly (315). Apply corrosion preventive compound MIL-C-11796, Class 3 to holes, then install bolts. Leave cover bolts loose until feedback shaft (180) is installed.

R. Install feedback shaft (180) through cover assembly (255) pushing the pilot shaft out through the housing.

S. Install shim (175), washers (165, 170) and nut (160) on feedback shaft (180).

T. Tighten cover bolts (260).

U. Install access hole cover (235) with screw (240) and washer (245) and spacer (220) with screw (215), washer (225) and nut (230) on cover assembly (255). Install coverplate (185) with screw (190) and washer (195).

V. Install plunger assemblies (65A), springs (60) and retainer (45) with screws (50) and washers (55) in housing assembly (315) and cover assembly (255).

W. Install cover (313) using screws (311) and washers (312).

X. Fill splines of quadrant shaft (155) with corrosion preventive compound MIL-C-11796, Class 3 and coat threads with corrosion preventive compound MIL-C-16173, Class 3. Install washer (153) on shaft (155).

Y. Orient quadrant assy (100A) so that missing spline space on quadrant is aligned with missing spline tooth on shaft (155). Install quadrant assembly (100A) with washer (85) and nut (80).

NOTE: Tighten nut (80) by hand. Attach a tag to nut (80) which reads: "Tighten nut to 100-150 pound-inches on installation of cable."

Z. Adjust rack (350) to gears, three places, by turning eccentric pins (200) to obtain minimum backlash between racks and gears.

NOTE: Maintain a parallel condition between rack and housing walls to elminate contact during adjustment. There should be no interference or binding when rack is moved through its total range of travel. Maintain an optimum smoothness of operation.

AA. Tighten nuts (205) to 25-50 pound-inches.

AB. Check gearbox assembly travel as follows:

(1) With control box in horizontal position, move racks through full travel. Operation shall be smooth through full stroke. Throttle rack shall have no noticeable binding and backup rollers shall rotate over stroke of rack. The force required to move the throttle rack shall be 4 ounces maximum; except, during that portion of the stroke in which lever (445) travels, the force to move the throttle rack shall not exceed 12 ounces. The force required to move the feedback rack shall be 8 ounces maximum.

AC. Check gearbox assembly rack for backlash. Backlash shall be 0.003 maximum when a 4-6 pound force is applied to the rack in either direction. Do not use rig pin for backlash check.

AD. Check slider block functionality:

(1) Mount box horizontally with the pulley on top.

(2) Arrange set-up that allows a 5-pound weight to be suspended from a cable attached to the end of the throttle rack. The cable should attach to the rack end and pass over a turning pulley. Maintain good alignment between the rack and the cable holding the 5-pound weight.

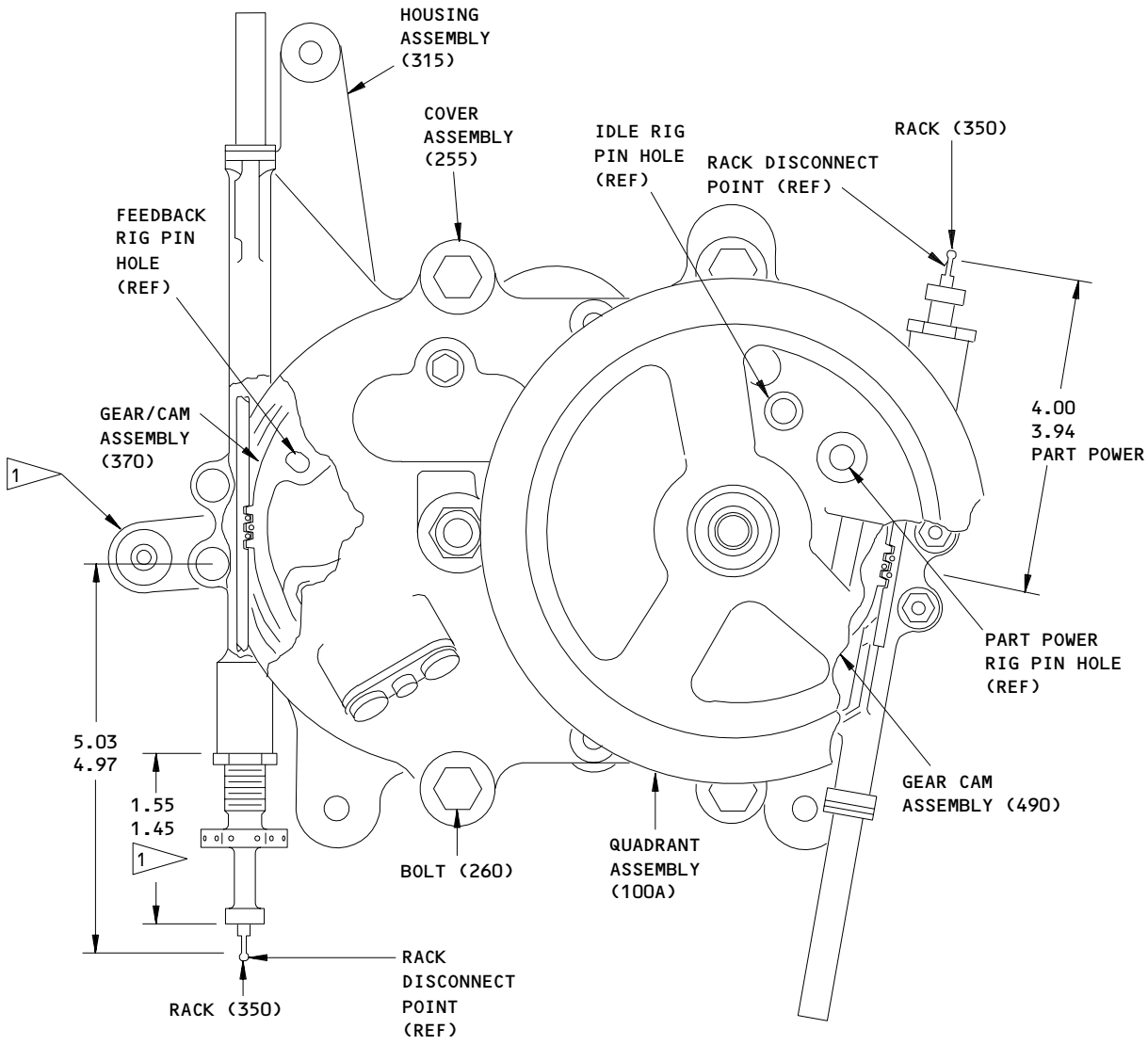
(3) Measure the force required to raise the weight, using a "free gauge". Pull tangential to the throttle box pulley. Force must not exceed 3.5 pounds.

(4) Readjust eccentric pins if force is exceeded.

AE. Lockwire nuts (205) using double-twist method.

AF. Verify correct assembly of throttle rack and gear by inserting a rig pin (0.311-0.312 inch diameter) in part power rig pin hole with gear in part power position. Rack disconnect point shall be 3.94 to 4.00 inch from centerline tangent point of rack and gear (Fig. 701).

AG. Verify correct assembly of thrust reverser feedback racks and gears by inserting a rig pin (0.311-0.312 inch diameter) in feedback rig pin hole with gear in forward thrust position. Rack disconnect point shall be 4.97 to 5.03 inch from centerline of roller axis (Fig. 701).



1 APPIES TO 315T1016 AND 015T0376 ASSEMBLIES ONLY WITH ADJUSTABLE RACK

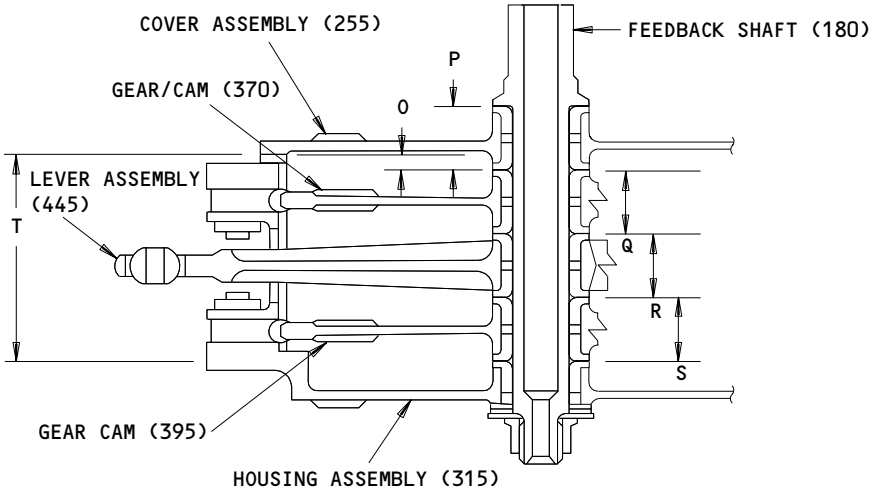
ITEM NUMBERS REFER TO IPL FIG. 1

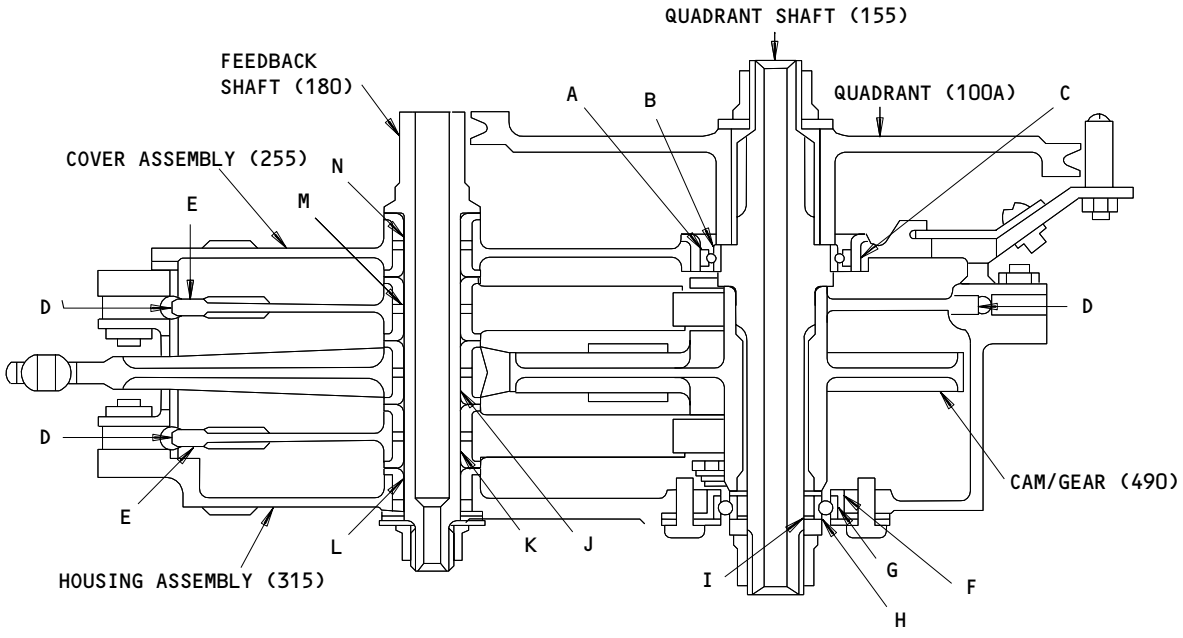
ALL DIMENSIONS ARE IN INCHES

015T0376-19,-20,-21,-22
315T1016-2,-3,-4,-7,-8,-9,-10
315T2011-3,-4

Gear and Rack Installation
Figure 701

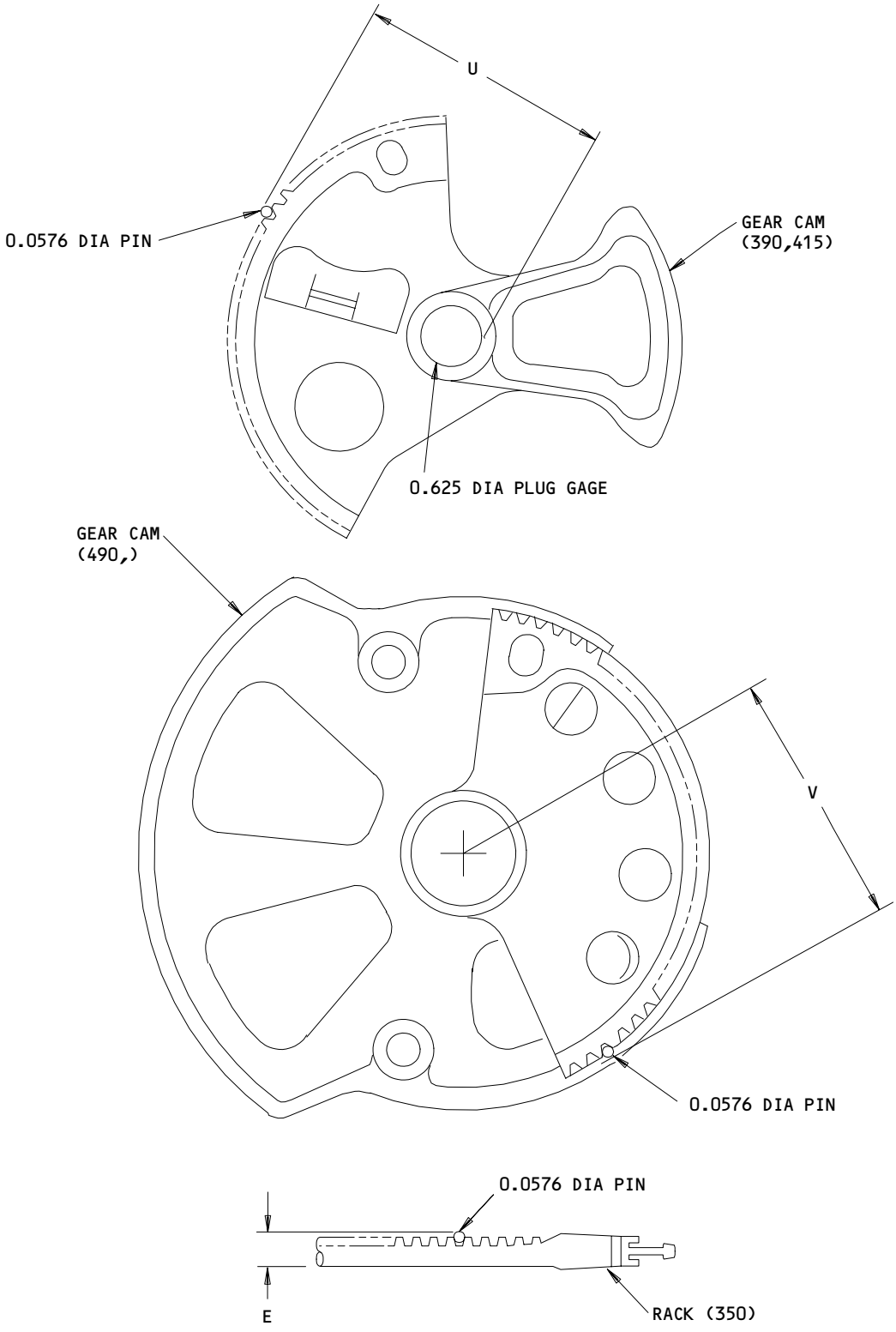
2382





Fits and Clearances
Figure 801 (Sheet 1)

2383



Fits and Clearances
Figure 801 (Sheet 2)

Ref Letter Fig.801	Mating Item No. IPL Fig.1	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 305 OD 150	1.5000 1.5000	1.5010 1.5010	0.001 (5)	0.001		1.5018	0.0028
B	ID 150 OD 155	1.0625 1.0607	1.0632 1.0617	0.0008	0.0025			
C	ID 310 OD 305	1.6870 1.6880	1.6875 1.6885	0.0005 (5)	0.0015 (5)			
D	350 390 415 490				0.003 (1)			0.016 (1)
E	350	0.1765 (2)	0.1750 (2)			0.153 (2)		
F	ID 345 OD 130	1.373 1.374	1.374 1.375	0.0002 (5)	0.000			
G	ID 130 OD 135	1.1875 1.1865	1.1885 1.1875	0.000	0.0020			
H	ID 135 OD 145	0.7493 0.7482	0.7570 0.7492	0.0001	0.0088			
I	ID 145 OD 155	0.5190 0.5195	0.5195 0.5200	0.001 (5)	0.000			
J	ID 460 OD 180	0.6245 0.6231	0.6255 0.6237	0.0008	0.0024	0.6191	0.6295	0.006
K	ID 400 OD 180	0.6245 0.6231	0.6255 0.6237	0.0008	0.0024	0.6191	0.6295	0.006
L	ID 340 OD 180	0.6245 0.6231	0.6255 0.6237	0.0008	0.0024	0.6191	0.6295	0.006
M	ID 375 OD 180	0.6245 0.6231	0.6255 0.6237	0.0008	0.0024	0.6191	0.6295	0.006

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 3)

2395

Ref Letter Fig.801	Mating Item No. IPL Fig.1	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
N	ID 295 OD 180	0.6245 0.6231	0.6255 0.6237	0.0008	0.0024	0.6191	0.6295	0.006
O	3 255	0.149	0.151					
P	4 255	0.640	0.650					
Q	4 370	0.649	0.651					
R	4 445	0.648	0.652					
S	4 395	0.649	0.651					
T	3 315	2.107	2.110					
U	390 415	2.9529 6	2.9556 6			2.9470 6		
V	490	2.046 7	2.049 7			2.0414 7		

ALL DIMENSIONS ARE IN INCHES

1 GEAR TEETH BACKLASH

2 DIMENSION OVER 0.0576 DIA PIN

3 BUSHING FLANGE FACE TO COVER HOUSING FAYING SURFACE

4 WIDTH BETWEEN BUSHING FLANGE FACES

5 INTERFERENCE FIT

6 DIMENSION OVER 0.0576 DIA PIN AND 0.625 PLUG GAGE

7 DIMENSION OVER 0.0576 DIA PIN AND TO CENTER OF HOLE FOR 315T3024-1 SHAFT

Fits and Clearances
Figure 801 (Sheet 4)

2396

FOR TORQUE VALUE OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
80, 90	NUT	100-150	
205	NUT	25-50	

Torque Table
Figure 802

ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

    Assembly
      Detail Parts for Assembly
      Subassembly
      Attaching Parts for Subassembly
        Detail Parts for Subassembly

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

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are used on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part is the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

    A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

    B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

Optional (OPT)	The parts are optional to and interchangeable with other parts having the same item number.
Supersedes, Superseded By (SUPSDS, SUPSD BY)	The part supersedes and is not interchangeable with the original part.
Replaces, Replaced By (REPLS, REPLD BY)	The part replaces and is interchangeable with, or is an alternate to, the original part.

VENDORS

02758 NETWORKS ELECTRONIC CORP U S BEARING DIV
9750 DESOTO AVENUE
CHATSWORTH, CALIFORNIA 91311

06710 VALLEY-TODECO INCORPORATED
12975 BRADLEY AVENUE
SYLMAR, CALIFORNIA 91342

09192 ALUMINUM COMPANY OF AMERICA VERNON WORKS
5151 ALCOA AVENUE
VERNON, CALIFORNIA 90058

10630 ANILLO INDUSTRIES, INCORPORATED
2090 NORTH GLASSELL
ORANGE, CALIFORNIA 92667

11815 TOWNSEND DIV OF TEXTRON INC CHERRY FASTENER UNIT
BOX 2157 1224 EAST WARNER AVENUE
SANTA ANA, CALIFORNIA 92707

15653 KAYNAR MICRODOT AEROSPACE FASTENING SYSTEM
800 SOUTH COLLEGE BLVD PO BOX 3001
FULLERTON, CALIFORNIA 92634

21335 TEXTRON INC FAFNIR BEARING DIVISION
37 BOOTH STREET
NEW BRITAIN, CONNECTICUT 06050

23294 AVALON MACHINE PRODUCTS INC
15337 ALLEN STREET
PARAMOUNT, CALIFORNIA 90723

30163 DAYRON CORP
333 MAGUIRE BLVD PO BOX 20394
ORLANDO, FLORIDA 32814

38443 TRW INC BEARING DIV
402 CHANDLER STREET
JAMESTOWN, NEW YORK 14701

39317 MC GILL MANUFACTURING COMPANY, INC.
909 NORTH LAFAYETTE STREET
VALPARAISO, INDIANA 46383

42838 NATIONAL RIVET AND MANUFACTURING COMPANY
1-21 EAST JEFFERSON STREET
WAUPUN, WISCONSIN 53963

VENDORS

43991 FAG BEARING INCORPORATED
HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

50632 KAMATICS CORP SUB OF KAMAN CORP
1335 BLUE HILLS ROAD
BLOOMFIELD, CONNECTICUT 06002

52828 REPUBLIC FASTENER MFG CORP
1300 RANCHO CONEJO BLVD
NEWBURY PARK, CALIFORNIA 91320

53551 ALLFAST FASTENING SYSTEMS INC
15200 DON JULIAN ROAD PO BOX 3166
CITY OF INDUSTRY, CALIFORNIA 91745

55231 TRIBON BEARING COMPANY
5581 WEST 164TH STREET
CLEVELAND, OHIO 44142

55580 BRILES RIVET CORP
2640 VISTA PACIFIC DRIVE
OCEANSIDE, CALIFORNIA 92056

57606 PSI BEARINGS INC
13291 PAXTON STREET
PACOIMA, CALIFORNIA 91331

60380 TORRINGTON CO BEARINGS DIV SUBSIDIARY OF INGERSOLL-RAND CORP
59 FIELD STREET
TORRINGTON, CONNECTICUT 06790

70265 ALL POWER MANUFACTURING COMPANY
13141 MOLETTE STREET
SANTE FE SPRINGS, CALIFORNIA 90670

71087 BOOTS ACFT NUT DIV TOWNSEND CO SEE TEXTRON INC CHERRY
FASTENER TOWNSEND DIV V11815

72962 ELASTIC STOP NUT A DIV OF HARTFORD INDUSTRIES INC
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083

80539 SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV
2701 SOUTH HARBOR BOULEVARD PO BOX 1259
SANTA ANA, CALIFORNIA 92702

VENDORS

92215 VOI-SHAN DIV OF VSI CORP SUB OF FAIRCHILD INDUSTRIAL INC
8463 HIGUERA STREET
CULVER CITY, CALIFORNIA 90230

92563 MCGILL MFG CO INC BEARINGS DIV
907 LAFAYETTE STREET
VALPARAISO, INDIANA 46383

94892 MASTER MACHINE PRODUCTS CORPORATION
1551 SOUTH PRIMROSE AVE
MONROVIA, CALIFORNIA 91016

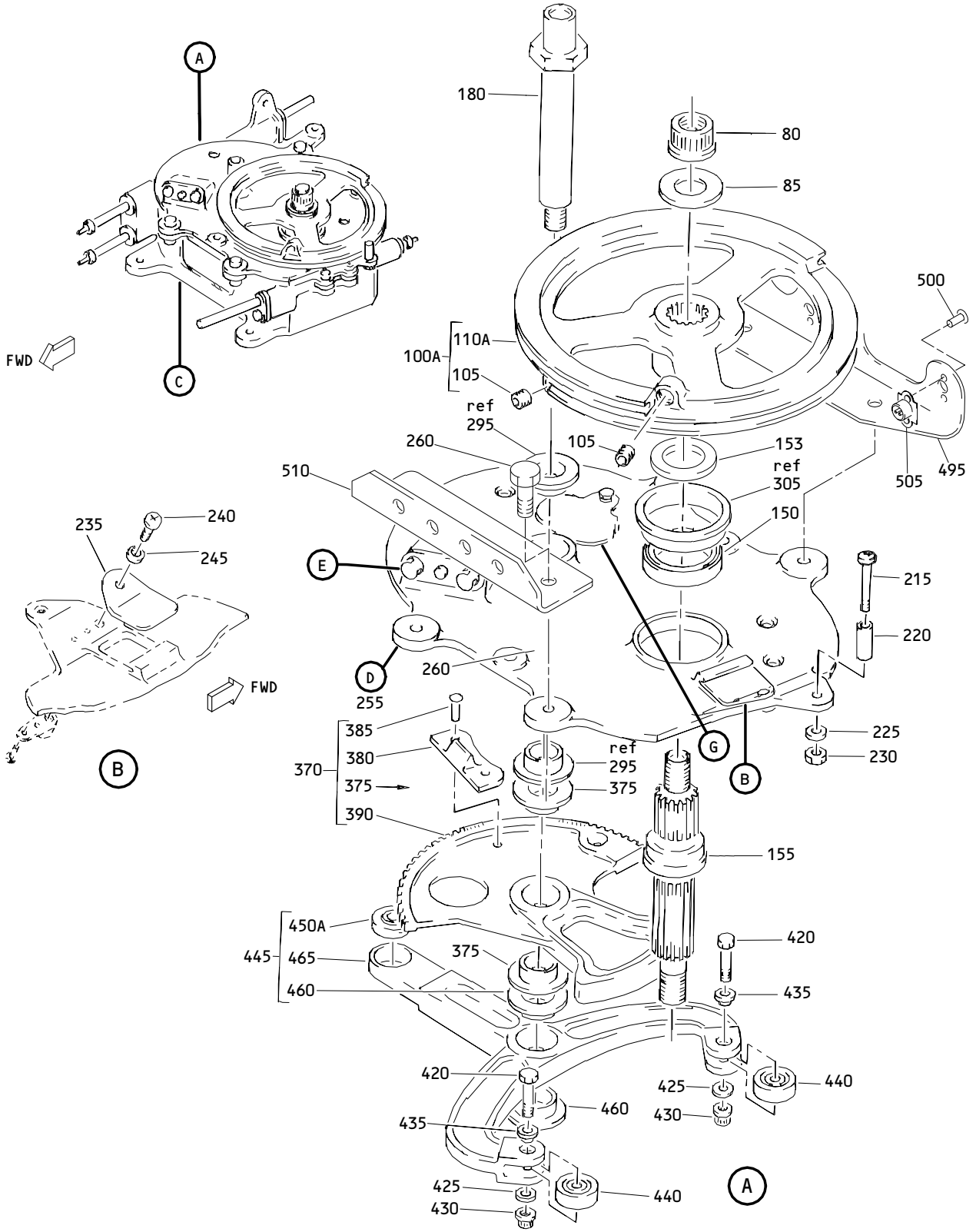
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960C10		1	357	
		1	40A	
		1	195A	
AN960C10L		1	120	4
		1	425	2
AN960C416L		1	475	2
AN960PD10		1	225	1
		1	245	1
AN960PD10L		1	15	1
		1	35	1
		1	55	4
		1	195	1
		1	312	2
AN960PD416		1	265	4
ATF3		1	440	2
ATF3LUBECODE93		1	440C	2
ATF4		1	485	4
ATF4LUBECODE93		1	485C	4
ATF4LUBECODE93		1	486A	2
BACB10CF12PP		1	135	1
		1	135C	1
BACB10CF17PP		1	150	1
		1	150C	1
BACB10ET03		1	440	2
BACB10ET04		1	485	4
BACB28X3E016		1	435	2
BACN10JC3		1	230	1
BACN10JC4M		1	480A	2
BACN10JN3CD		1	505	4
BACN10JP3A		1	275	1
BACN10JP3B		1	285	1
BACR15BA3AD		1	290	2
		1	500	8
BACR15BA3AD2		1	280	2
BACR15BB5D3R5		1	385	2
		1	410	2
BACW1BP12ACU		1	153	1
BACW10AT28		1	85	1
BACW10BP12ACU		1	153	1
BACW10P136AL		1	20	2
		1	40	2
BACW10P237S		1	182	
BACW10P74S		1	165	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BRFM20C3D		1	505	4
BRH10A3		1	230	1
BRM100A3		1	285	1
BRM200A3		1	275	1
BR1110C4M		1	480A	2
B539-2TS		1	135	1
B539DD		1	135	1
B539DDA3257		1	135A	1
		1	135B	1
		1	135D	1
B539DDFS428		1	135	1
B539SSG27		1	135	1
B541-2TS		1	150	1
B541DD		1	150	1
B541DDA3257		1	150A	1
		1	150B	1
		1	150D	1
B541DDFS428		1	150	1
B541SSG27		1	150	1
HSP4TL104		1	210D	6
H01-4BAC		1	480A	2
H10-3BAC		1	230	1
KJT115204B		1	213	3
KRP114804BT		1	210D	6
KRP133604VT		1	487	2
LA3628A		1	210C	6
MF51637-3		1	505	4
MK1000-3BAC		1	275	1
MK2000-3BAC		1	285	1
MS21042L3		1	230A	1
MS21209F1-15P		1	300	2
		1	320	8
MS21209F1-20P		1	105	2
MS21209F7-15P		1	325	1
MS21209F7-30P		1	330	2
MS21438-103G		1	440A	2
MS21438-104G		1	485A	4
NAS1423-7		1	250	2
NAS1801-3-7		1	115	4
		1	311	2
NAS1801-3-8		1	10	1
		1	30	1
		1	50	4
		1	190A	1
NAS1801-3-9		1	190	
NAS1805-3N		1	430	2

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
NAS1805-4N		1	270	4
		1	480	2
NAS1805-6N		1	160	1
NAS1805-8N		1	80	1
		1	90	1
NAS42DD6-48		1	220	1
NAS509-3C		1	205	6
NAS603-9		1	240	1
NAS607-4-4P		1	335	2
NAS623-3-15		1	215	1
NAS6703-10		1	420	2
NAS6703-8		1	420A	2
NAS6704-25		1	470A	2
NAS6704-26		1	470	
NAS6704-6		1	260	4
NAS6704-9		1	260A	1
NS103197-02		1	275	1
NS103198-02		1	285	1
NS20210SE048		1	480A	2
NS202101-02		1	230	1
NS202487-02		1	505	4
P21620		1	450A	1
RMA9207-3		1	285	1
RMLH9075-3W		1	230	1
S302T001-301		1	450	
S302T001-301A		1	450A	1
S315N166-1		1	210A	
S513N166-1		1	210D	6
TO COMB OF ITEMS		1	210C	6
T6C428JM		1	480A	2
T6S1032J		1	230	1
T8076S1032		1	275	1
		1	275	1
T8077S1032		1	285	1
VN201A1-02		1	285	1
VN202A1-02		1	275	1
VN303A02		1	230	1
VN303D048		1	480A	2
VTB04540		1	450A	1
015T0376-19		1	1M	RF
015T0376-20		1	1N	RF
015T0376-21		1	1P	RF
015T0376-22		1	1Q	RF
102F9201M3		1	505	4
10602-00		1	210D	6
109LH9075-4W		1	480A	2
2670324		1	210B	

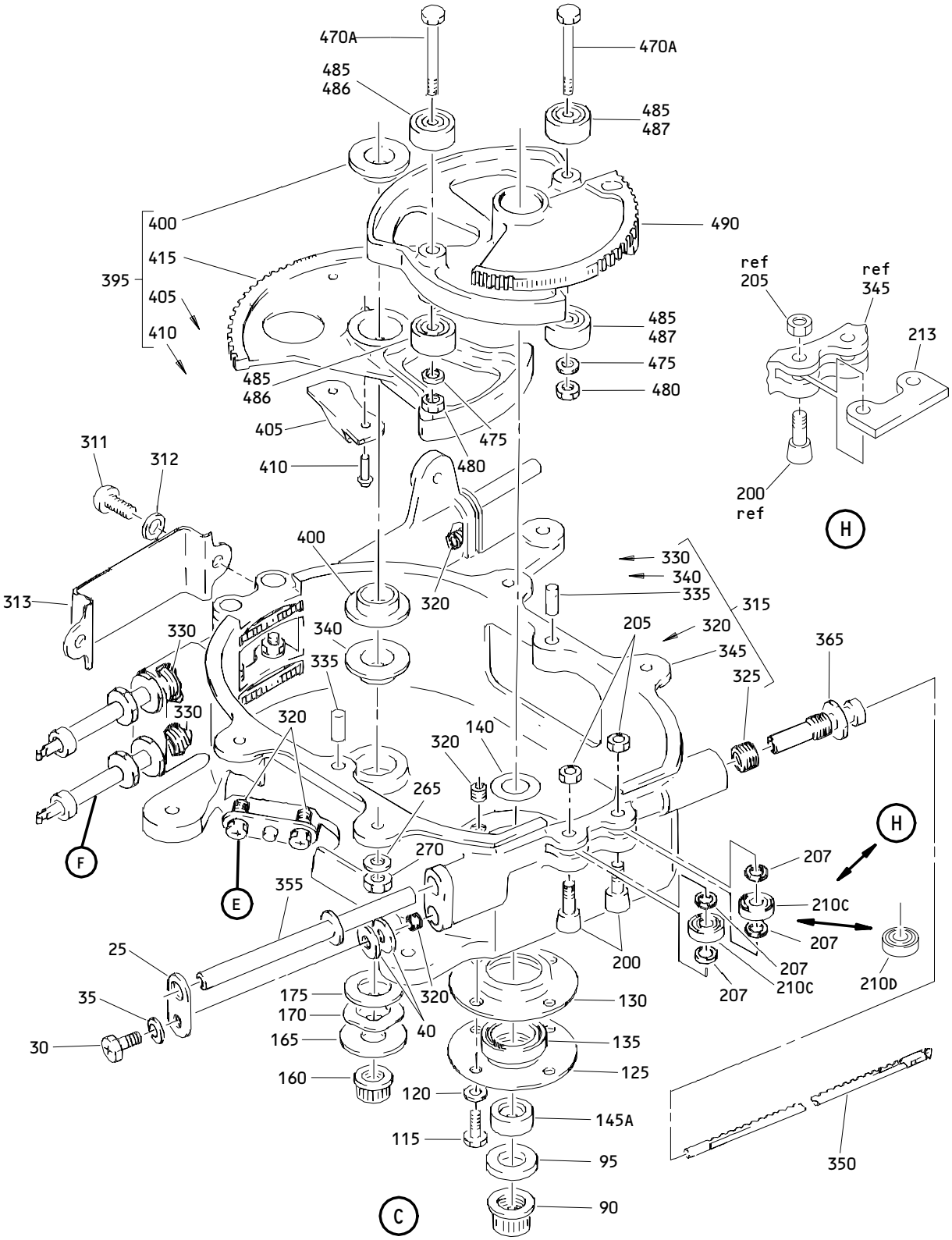
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
3AFC512		1	440	2
3AFC512LJ		1	440B	2
315T1016-10		1	1K	RF
315T1016-2		1	1	RF
315T1016-3		1	1D	RF
315T1016-4		1	1A	RF
315T1016-5		1	1B	
315T1016-6		1	1C	
315T1016-7		1	1E	RF
315T1016-8		1	1F	RF
315T1016-9		1	1G	RF
315T1020-1		1	315	1
315T1020-2		1	345	1
315T1020-4		1	345A	1
315T1020-5		1	315A	1
315T1020-6		1	315B	1
315T1020-7		1	345B	1
315T1021-1		1	255	1
315T1021-2		1	310	1
315T1022-1		1	185	1
315T1023-1		1	490	1
315T1023-3		1	490A	1
		1	490B	
		1	490E	1
315T1023-5		1	490C	1
315T1023-6		1	490D	1
		1	490F	1
315T1029-1		1	200	6
315T1030-1		1	370	1
315T1030-2		1	395	1
315T1030-3		1	390	1
		1	415	1
315T1030-6		1	370A	1
		1	370B	1
315T1030-7		1	395A	1
		1	395B	1
315T1030-8		1	390A	1
		1	415A	1
315T2011-2		1	1H	
315T2011-3		1	1J	RF
315T2011-4		1	1L	RF
315T2013-11		1	495	1
315T3022-1		1	100	
315T3022-2		1	110	
315T3022-4		1	110A	1
315T3022-5		1	100A	1
315T3024-1		1	155	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
315T3025-1		1	95	1
315T3026-1		1	65A	2
315T3026-2		1	65	
315T3027-1		1	60	2
315T3028-1		1	5	1
315T3028-2		1	25	1
315T3028-3		1	45	2
315T3029-1		1	445	1
315T3029-2		1	465	1
315T3031-1		1	180	1
315T3031-2		1	180A	1
315T3032-2		1	355	3
315T3038-1		1	235	1
315T3039-1		1	295	2
		1	340	1
		1	375	2
		1	400	2
		1	460	2
315T3043-1		1	380	1
		1	405	1
315T3044-1		1	70	
315T3044-2		1	70A	1
315T3045-1		1	75	1
315T3370-1		1	207	12
315T4001-1		1	145	
315T4001-2		1	145A	1
315T4002-1		1	170	1
315T4003-1		1	140	1
315T4005-2		1	365	1
315T4005-3		1	360	2
315T4011-1		1	350	3
315T4011-3		1	350A	
315U2001-10		1	313A	1
315U2001-4		1	313	1
4AFC614		1	485	4
4AFC614LJ		1	486	2
		1	485B	4
		1	485E	4
60B96210-1		1	210	6
		1	210C	6
66-27022-3		1	175	1
69B89033-1		1	130	1
69B89038-1		1	305	1
69B89044-1		1	125	1
96-02		1	230	1
97E48		1	480A	2



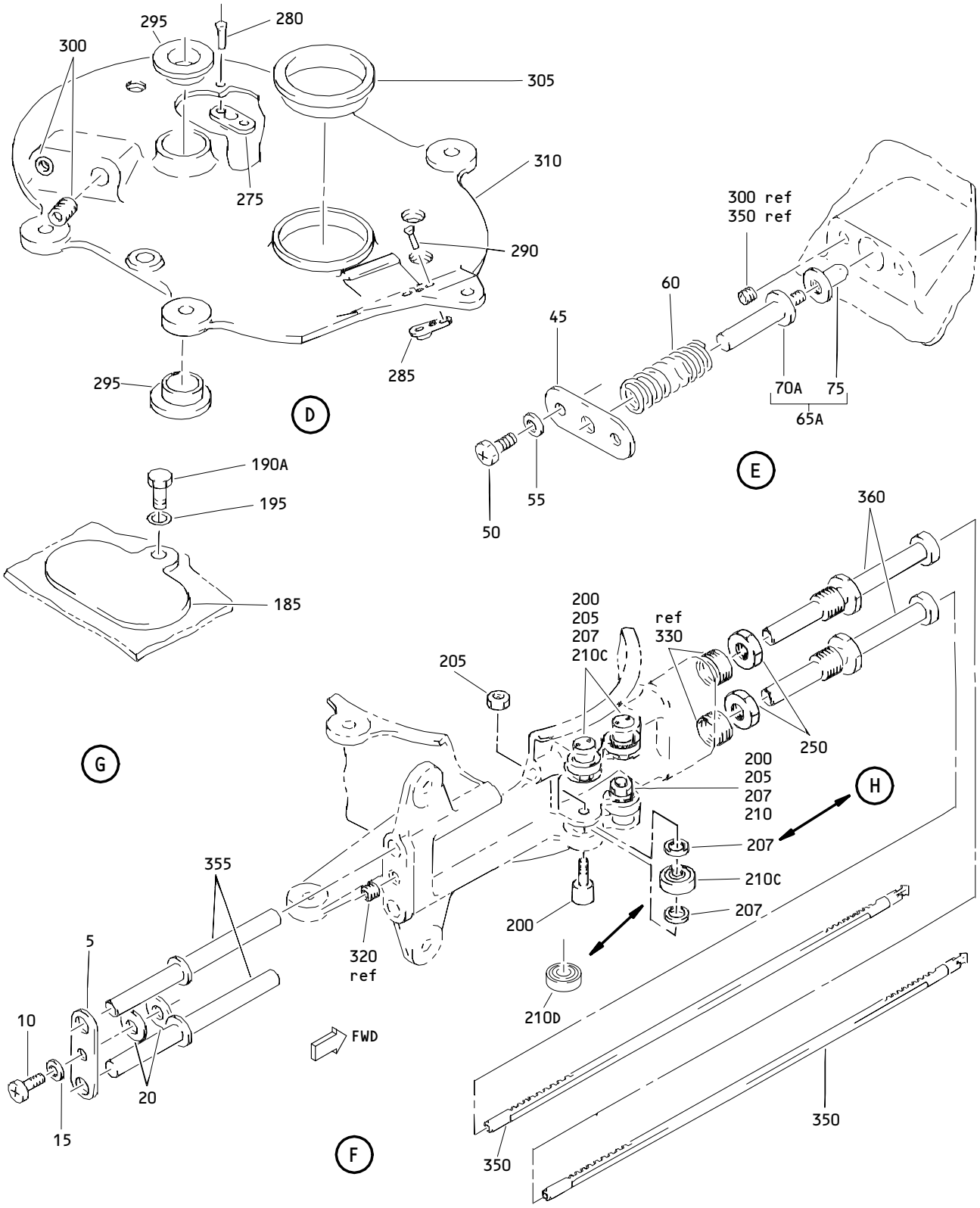
CF6-80 Thrust Reverser Strut Control Box Assembly
Figure 1 (Sheet 1)

T55260



CF6-80 Thrust Reverser Strut Control Box Assembly
Figure 1 (Sheet 2)

U15128



CF6-80 Thrust Reverser Strut Control Box Assembly
Figure 1 (Sheet 3)

T55305

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	315T1016-2		BOX ASSY-CF6-80 THRUST REVERSER STRUT CONT (PRE SB 767-76-4, 767-76-0018, 767-76-0018R2)	A	RF
-1A	315T1016-4		BOX ASSY-CF6-80 THRUST REVERSER STRUT CONT (PRE SB 767-76-4, 767-76-0018, 767-76-0018R2)	B	RF
-1B	315T1016-5		DELETED		
-1C	315T1016-6		DELETED		
-1D	315T1016-3		BOX ASSY-CF6-80 THRUST REVERSER STRUT CONT (PRE SB 767-76-4, 767-76-0018, 767-76-0018R2)	C	RF
-1E	315T1016-7		BOX ASSY-CF6-80 THRUST REVERSER STRUT CONT (POST SB 767-76-4) (PRE SB 767-76-0018) 767-76-0018R2)	D	RF
-1F	315T1016-8		BOX ASSY-CF6-80 THRUST REVERSER STRUT CONT (PRE SB 767-76-0018, 767-76-0018R2)	E	RF
-1G	315T1016-9		BOX ASSY-CF6-80 THRUST REVERSER STRUT CONT (PRE SB 767-76-0018, 767-76-0018R2)	F	RF
-1H	315T2011-2		DELETED		
-1J	315T2011-3		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (PRE SB 767-76-0018, 767-76-0018R2)	G	RF

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1K	315T1016-10		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (POST SB 767-76-0018, 767-76-0018R2)	H	RF
-1L	315T2011-4		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (POST SB 767-76-0018, 767-76-0018R2)	J	RF
-1M	015T0376-19		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (POST SB 767-76-0018, 767-76-0018R2)	K	RF
-1N	015T0376-20		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (POST SB 767-76-0018, 767-76-0018R2)	L	RF
-1P	015T0376-21		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (POST SB 767-76-0018, 767-76-0018R2)	M	RF
-1Q	015T0376-22		BOX ASSY-CF6-80C THRUST REVERSER STRUT CONT (POST SB 767-76-0018, 767-76-0018R2)	N	RF
5	315T3028-1		.RETAINER ATTACHING PARTS		1
10	NAS1801-3-8		.SCREW		1
15	AN960PD10L		.WASHER		1
20	BACW10P136AL		.WASHER- (V10630) (SPEC BACW10P136AL) -------*-------		2
25	315T3028-2		.RETAINER ATTACHING PARTS		1
30	NAS1801-3-8		.SCREW		1
35	AN960PD10L		.WASHER		1
40	BACW10P136AL		.WASHER- (V10630) (SPEC BACW10P136AL)		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-40A	AN960C10		DELETED		
			-------*-------		
45	315T3028-3		.RETAINER		2
			ATTACHING PARTS		
50	NAS1801-3-8		.SCREW		4
55	AN960PD10L		.WASHER		4
			-------*-------		
60	315T3027-1		.SPRING		2
-65	315T3026-2		DELETED		
65A	315T3026-1		.PLUNGER ASSY		2
-70	315T3044-1		DELETED		
70A	315T3044-2		..PLUNGER		1
75	315T3045-1		..CAP		1
80	NAS1805-8N		.NUT		1
85	BACW10AT28		.WASHER-		1
			(V10630)		
			(SPEC BACW10AT28)		
90	NAS1805-8N		.NUT		1
95	315T3025-1		.WASHER		1
-100	315T3022-1		DELETED		
100A	315T3022-5		.QUADRANT ASSY		1
105	MS21209F1-20P		..INSERT		2
-110	315T3022-2		DELETED		
110A	315T3022-4		..QUADRANT		1
115	NAS1801-3-7		.SCREW		4
120	AN960C10L		.WASHER		4
125	69B89044-1		.PLATE-RTNR		1
130	69B89033-1		.HOUSING-BRG		1
135	B539DD		.BEARING-	A-E	1
			(V38443)	K-N	
			(SPEC BACB10CF12PP)		
			(OPT B539-2TS		
			(V43991))		
			(OPT B539DDFS428		
			(V21335))		
			(OPT B539SSG27		
			(V30163))		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-135A	B539DDA3257		.BEARING- (V21335)	F	1
-135B	B539DDA3257		.BEARING- (V92563)	GJ	1
-135C	BACB10CF12PP		.BEARING- (OPT TO ITEM 135D)	H	1
-135D	B539DDA3257		.BEARING- (V21335) (OPT TO ITEM 135C)	H	1
140	315T4003-1		.WASHER		1
145	315T4001-1		DELETED		
145A	315T4001-2		.SPACER		1
150	B541DD		.BEARING- (V38443) (SPEC BACB10CF17PP) (OPT B541-2TS (V43991)) (OPT B541DDFS428 (V21335)) (OPT B541SSG27 (V30163))	A-E K-N	1
-150A	B541DDA3257		.BEARING- (V21335)	F	1
-150B	B541DDA3257		.BEARING- (V92563)	GJ	1
-150C	BACB10CF17PP		.BEARING- (OPT TO ITEM 150D)	H	1
-150D	B541DDA3257		.BEARING- (V21335) (OPT TO ITEM 150C)	H	1
153	BACW1BP12ACU		.WASHER- (V10630) (SPEC BACW10BP12ACU) (POST SB 767-76-7)	A-D K-N	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
155	315T3024-1		.SHAFT-THROT		1
160	NAS1805-6N		.NUT		1
165	BACW10P74S		.WASHER-		1
			(V10630)		
			(SPEC BACW10P74S)		
170	315T4002-1		.WASHER		1
175	66-27022-3		.SHIM		1
180	315T3031-1		.SHAFT-FEEDBACK	A-D K-N	1
180A	315T3031-2		.SHAFT-FEEDBACK	E-J	1
182	BACW10P237S		DELETED		
185	315T1022-1		.PLATE		1
			ATTACHING PARTS		
190	NAS1801-3-9		DELETED		
190A	NAS1801-3-8		.SCREW		1
195	AN960PD10L		.WASHER		1
-195A	AN960C10		DELETED		
			-------*-------		
200	315T1029-1		.PIN		6
205	NAS509-3C		.NUT		6
207	315T3370-1		.WASHER-SHIM	A-G	12
			(USED WITH ITEM 210C)		
210	60B96210-1		DELETED		
210A	S315N166-1		DELETED		
210B	2670324		DELETED		
210C	LA3628A		.ROLLER BEARING ASSY	A-G	6
			(V55231)		
			(SPEC 60B96210-1)		
			(OPT ITEM 210D)		
			(USED WITH ITEM 207)		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-210D	10602-00		.ROLLER BEARING ASSY (V55231) (SPEC S513N166-1) (OPT ITEM 210C WITH ITEM 207) (OPT KRP114804BT (V50632)) (OPT HSP4TL104 (V02758))	A-G	6
213	KJT115204B		.SLIDER BLOCK ASSY (V50632)	H-N	3
215	NAS623-3-15		.SCREW		1
220	NAS42DD6-48		.SPACER		1
225	AN960PD10		.WASHER		1
230	BRH10A3		.NUT- (V52828) (SPEC BACN10JC3) (OPT H10-3BAC (V15653)) (OPT NS202101-02 (V80539)) (OPT RMLH9075-3W (V72962)) (OPT T6S1032J (V71087)) (OPT VN303A02 (V92215)) (OPT 96-02 (V80539))	A-F HK-N	1
-230A	MS21042L3		.NUT	GJ	1
235	315T3038-1		.COVER ATTACHING PARTS		1
240	NAS603-9		.SCREW		1
245	AN960PD10		.WASHER -------*-------		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
250	NAS1423-7		.NUT	A-F HK-N	2
255	315T1021-1		.COVER ASSY		1
			ATTACHING PARTS		
260	NAS6704-6		.BOLT	A-F HK-N	4
-260A	NAS6704-9		.BOLT	GJ	1
265	AN960PD416		.WASHER		4
270	NAS1805-4N		.NUT		4
			-------*-------		
275	BRM200A3		..NUTPLATE-		1
			(V52828)		
			(SPEC BACN10JP3A)		
			(OPT MK1000-3BAC (V15653))		
			(OPT NS103197-02 (V80539))		
			(OPT T8076S1032 (V71087))		
			(OPT T8076S1032 (V11815))		
			(OPT VN202A1-02 (V92215))		
			ATTACHING PARTS		
280	BACR15BA3AD2		..RIVET-		2
			(V42838)		
			(SPEC BACR15BA3AD2)		
			(V09192)		
			(SPEC BACR15BA3AD2)		
			(OPT BACR15BA3AD2 (V53551))		
			(OPT BACR15BA3AD2 (V55580))		
			-------*-------		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
285	BRM100A3		..NUTPLATE-		1
			(V52828)		
			(SPEC BACN10JP3B)		
			(OPT MK2000-3BAC (V15653))		
			(OPT NS103198-02 (V80539))		
			(OPT RMA9207-3 (V72962))		
			(OPT T8077S1032 (V11815))		
			(OPT VN201A1-02 (V92215))		
			ATTACHING PARTS		
290	BACR15BA3AD		..RIVET-		2
			(SIZE DETERMINE ON INST)		
			-------*-------		
295	315T3039-1		..BUSHING		2
300	MS21209F1-15P		..INSERT		2
305	69B89038-1		..HOUSING-BRG		1
310	315T1021-2		..COVER		1
311	NAS1801-3-7		.SCREW	GJ	2
			ATTACHING PARTS		
312	AN960PD10L		.WASHER	GJ	2
313	315U2001-4		.COVER-CABLE GUARD CONTROL	G	1
-313A	315U2001-10		.COVER-CABLE GUARD CONTROL	J	1
			-------*-------		
315	315T1020-1		.HOUSING ASSY-(PRE SB 767-76-4)	A-C K-M	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-315A	315T1020-5		.HOUSING ASSY-(POST SB 767-76-4)	D-FHN	1
-315B	315T1020-6		.HOUSING ASSY	GJ	1
320	MS21209F1-15P		..INSERT		8
325	MS21209F7-15P		..INSERT		1
330	MS21209F7-30P		..INSERT		2
335	NAS607-4-4P		..PIN		2
340	315T3039-1		..BUSHING		1
345	315T1020-2		..HOUSING- (USED ON ITEM 315)		1
-345A	315T1020-4		..HOUSING- (USED ON ITEM 315A)		1
-345B	315T1020-7		..HOUSING- (USED ON ITEM 315B)		1
350	315T4011-1		.RACK		3
350A	315T4011-3		DELETED		
355	315T3032-2		.SLEEVE		3
357	AN960C10		DELETED		
360	315T4005-3		.SLEEVE	A-F HK-N	2
365	315T4005-2		.SLEEVE		1
370	315T1030-1		.GEAR/CAM ASSY- (PRE SB 767-76-4)	A-C K-M	1
-370A	315T1030-6		.GEAR/CAM ASSY- (POST SB 767-76-4)	D-F HN	1
-370B	315T1030-6		.GEAR/CAM ASSY	G-J	1
375	315T3039-1		..BUSHING		2
380	315T3043-1		..PAD-PRELOAD ATTACHING PARTS		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
385	BACR15BB5D3R5		..RIVET- (V42838) (SPEC BACR15BB5D3R5) (V09192) (SPEC BACR15BB5D3R5) (OPT BACR15BB5D3R5 (V53551)) (OPT BACR15BB5D3R5 (V55580)) -------*-------		2
390	315T1030-3		..GEAR/CAM- (USED ON ITEM 370)		1
-390A	315T1030-8		..GEAR/CAM- (USED ON ITEMS 370A, 370B)		1
395	315T1030-2		.GEAR/CAM ASSY- (PRE SB 767-76-4)	A-C K-M	1
395A	315T1030-7		.GEAR/CAM ASSY- (POST SB 767-76-4)	D-F HN	1
-395B	315T1030-7		.GEAR/CAM ASSY	G-J	1
400	315T3039-1		..BUSHING		2
405	315T3043-1		..PAD-PRELOAD ATTACHING PARTS		1
410	BACR15BB5D3R5		..RIVET- (V42838) (SPEC BACR15BB5D3R5) (V09192) (SPEC BACR15BB5D3R5) (OPT BACR15BB5D3R5 (V53551)) (OPT BACR15BB5D3R5 (V55580)) -------*-------		2
415	315T1030-3		..GEAR/CAM- (USED ON ITEM 395)		1
415A	315T1030-8		..GEAR/CAM- (USED ON ITEMS 395A, 395B)		1
420	NAS6703-10		.BOLT	H	2
-420A	NAS6703-8		.BOLT	A-F K-N	2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
425	AN960C10L		.WASHER	A-F HK-N	2
430	NAS1805-3N		.NUT	A-F HK-N	2
435	BACB28X3E016		.BUSHING- (V70265) (SPEC BACB28X3E016) (V23294) (SPEC BACB28X3E016) (OPT BACB28X3E016 (V94892))	A-F HK-N	2
440	ATF3		.ROLLER BEARING ASSY (V60380) (SPEC BACB10ET03) (OPT 3AFC512 (V92563)) (OPT ITEM 440A,440B, OR 440C) (PRE 767-SL-76-1-A)	A-F, H,K-N	2
-440A	MS21438-103G		.ROLLER BEARING ASSY (OPT TO ITEM 440) (PRE 767-SL-76-1-A)	A-F, HK-N	2
-440B	3AFC512LJ		.BEARING (V92563) (OPT ITEM 440,440A OR 440C) (POST 767-SL-76-1-A)	A-F, HK-N	2
-440C	ATF3LUBECODE93		.BEARING- (V60380) (OPT TO ITEM 440,440A, OR 440B) (POST 767-SL-76-1-A)	A-F, HK-N	2
-440D	BACB10ET03		DELETED		
-440E	ATF3LUBECODE93		DELETED		
-440F	3AFC512LJ		DELETED		
445	315T3029-1		.LEVER ASSY	A-F HK-N	1
450	S302T001-301		DELETED		1
450A	VTB04540		..BEARING- (V06710) (SPEC S302T001-301A) (OPT P21620 (V57606))		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
460	315T3039-1		..BUSHING		2
465	315T3029-2		..LEVER		1
-470	NAS6704-26		DELETED		
470A	NAS6704-25		.BOLT		2
475	AN960C416L		.WASHER	AK	2
480	NAS1805-4N		.NUT	AK	2
-480A	BR1110C4M		.NUT-	B-HJ	2
			(V52828)	L-N	
			(SPEC BACN10JC4M)		
			(OPT H01-4BAC (V15653))		
			(OPT NS2021OSE048 (V80539))		
			(OPT T6C428JM (V11815))		
			(OPT VN303D048 (V92215))		
			(OPT 109LH9075-4W (V72962))		
			(OPT 97E48 (V80539))		
485	ATF4		.ROLLER BEARING ASSY	A-F,	4
			(V60380)	HK-N	
			(SPEC BACB10ET04)		
			(OPT 4AFC614 (V92563))		
			(OPT ITEM 485A,485B, OR 485C)		
			(PRE 767-SL-76-1-A)		
-485A	MS21438-104G		.ROLLER BEARING ASSY	A-F,	4
			(OPT ITEM 485)	HK-N	
			(PRE 767-SL-76-1-A)		
-485B	4AFC614LJ		.ROLLER BEARING ASSY	A-F,	4
			(V92563)	HK-N	
			(OPT ITEM 485,485A OR 485C)		
			(POST 767-SL-76-1-A)		
-485C	ATF4LUBECODE93		.BEARING	A-F,	4
			(V60380)	HK-N	
			(OPT ITEM 485,485A, OR 485B)		
			(POST 767-SL-76-1-A)		
-485D	BACB10ET04		DELETED		
-485E	ATF4LUBECODE93		DELETED		
-485F	4AFC614LJ		DELETED		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-486	4AFC614LJ		.ROLLER BEARING ASSY (V92563) (OPT ITEM 486A,486C OR 486D)	GJL	2
-486A	ATF4LUBECODE93		.ROLLER BEARING ASSY (V60380) (OPT ITEM 486,486C OR 486D)	GJL	2
-486B	MS21438-104G		DELETED		
-486C	ATF4		.ROLLER BEARING ASSY (V60380) (SPEC BACB10ET04) (OPT 4AFC614LJ (V92563)) (OPT ITEM 486 OR 486A)	GJL	2
-486D	MS21438-104G		.ROLLER BEARING ASSY (OPT TO ITEM 486C)	GJL	2
487	KRP133604VT		.BEARING (V50632)	GJ	2
490	315T1023-1		.THROTTLE-CAM/GEAR (PRE SB 767-76-4)	A-C K-M	1
490A	315T1023-3		.THROTTLE-CAM/GEAR (POST SB 767-76-4) (OPT TO ITEM 490F)	D-FN	1
490B	315T1023-3		DELETED		
-490C	315T1023-5		.THROTTLE-CAM/GEAR	GJ	1
-490D	315T1023-6		.THROTTLE-CAM/GEAR (OPT TO ITEM 490E)	H	1
-490E	315T1023-3		.THROTTLE-CAM/GEAR (OPT TO ITEM 490D)	H	1
-490F	315T1023-6		.THROTTLE-CAM/GEAR (OPT TO ITEM 490A)	D-FN	1
495	315T2013-11		.BRACKET ASSY-SPRT	GJ	1
500	BACR15BA3AD		..RIVET- (SIZE DETERMINE ON INST)	GJ	8
505	102F9201M3		..NUTPLATE- (V72962) (SPEC BACN10JN3CD) (OPT BRFM20C3D (V52828)) (OPT NS202487-02 (V80539)) (OPT MF51637-3 (V15653))	GJ	4

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -510 510A	 315T2013-11 315T2013-5		 DELETED ..BRACKET ASSY	 GJ	 1