TO: ALL HOLDERS OF NOSE WHEEL STEERING CABLE COMPENSATOR ASSEMBLY COMPONENT MAINTENANCE MANUAL 32-51-20

REVISION NO. 3 DATED JUL 01/93

HIGHLIGHTS

All data formerly in manual 32-51-21 is included in this manual 32-51-20.

NOTE: Highlight page issued on July 01/91 should have been identified as Rev No. 1 dated July 01/91, not Rev No. 0 dated Oct 01/87.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
TITLE PAGE 1	Added compensator assembly 257T4316-3 with changed details on housing per PRR B12040-233.
TR & SB RECORD 1	
REPAIR 5-1 601-602 1007-1008	
REPAIR-GEN 602	Changed the standard location of the datum letters.
REPAIR 4-1 601-603 1010-1011	Added link 65B82754-3 with enamel finish. Made optional the 65B82754-1 link.

BOEING

COMPONENT
MAINTENANCE MANUAL

NOSE WHEEL STEERING CABLE COMPENSATOR ASSEMBLY

PART NUMBERS 257T4316-2,-3

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

14288

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

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR B12140-233	JUL 01/93

PAGE	DATE	CODE
32-51-20		
TITLE PAGE		
*1	JUL 01/93	01.1
2	BLANK	
REVISION RECORD		
1	OCT 01/87	01
2	BLANK	
TR & SB RECORD		
*1	JUL 01/93	01.1
2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	JUL 01/93	01
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1	OCT 01/87	01
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1	JUL 01/91	01.1
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601	OCT 01/87	01
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REPAIR 1-1		
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*602	JUL 01/93	01.1
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706	BLANK	

* = REVISED, ADDED OR DELETED

PAGE	DATE	CODE
FITS AND CLEARANCES		
801	OCT 01/87	01
802	OCT 01/87	01
803	OCT 01/87	01
804	BLANK	
ILLUSTRATED PARTS LIST		
1001	OCT 01/87	01
1002	OCT 01/87	01
1003	OCT 01/87	01
1004	OCT 01/87	01
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1006	JAN 01/92	01.1
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*1011	JUL 01/93	01.1
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* = REVISED, ADDED OR DELETED

TABLE OF CONTENTS

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	Feb 22/83
Assembly	Feb 22/83

NOSE WHEEL STEERING CABLE COMPENSATOR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. The nose wheel steering cable compensator assembly consists of an aluminum housing containing support brackets, drums, links, a CRES cam, steel guard pin, and roller bearings.

2. Operation

   A. The cable compensator acts as two drums locked to a shaft, with each drum carrying a steering cable. If one cable breaks, tension from the other cable pulls a roller bearing out of a nested position in the cam. This allows both drums to rotate independently of the shaft until the cam contacts the stop, and absorbs the impulse energy released. Steering is retained opposite the direction of turn when the breakage occurs.

3. Leading Particulars (approximate)

   Length -- 10 inches
   Width -- 6 inches
   Height -- 6 inches
   Weight -- 5 pounds

DISASSEMBLY

1. Parts Replacement (IPL Fig. 1)

   A. Cotter pins (35)

   B. Collar (135)

2. Disassembly

   NOTE: Do not remove heli-coil inserts, roller swaged or press fit bearings, or plug (250) unless repair or replacement makes it necessary.

   A. Remove bolts (10), washers (15) and support (5).

      NOTE: Do not remove rivets (25) unless repair or replacement makes it necessary.

   B. Remove nut (55), washer (50), guard pin (45), cotter pins (35) and pins (40).

   C. Remove nut (60) and washer (65). Remove shaft (245) by pressing the threaded end into the assembly and pulling the splined end out of the assembly.

      NOTE: Parts inside housing (70) will fall loose. Exercise care not to lose them.

   D. Remove spacers (110, 240), cam (210), and drums (140, 215) with links (165, 185) attached.

   E. Remove bearing (105), bolts (90), washers (95), retainer (85), bearing (230), and seal (100).

   F. Remove nuts (125), washers (120), and bolts (115).

   G. Remove collar (135), bolt (130), washers (184) if applicable, and bearing (138) from links (165, 185).

CLEANING

1. Clean all parts except bearings using standard industry practices and the information contained in 20-30-03.

CAUTION: BEARINGS (105, 138, 145, 155, 175, 195, 200, 220, 230) HAVE SEALS AND SHALL BE CLEANED ONLY PER MANUFACTURER'S INSTRUCTIONS.

2. Clean bearings (105, 138, 145, 155, 175, 195, 200, 220, 230) per manufacturer's instructions.

CHECK

1. Check all parts for obvious defects in accordance with standard industry practices.

2. Refer to Fits and Clearances for design and wear limits.

3. Magnetic particle check per 20-20-01 the following listed items:

   A. Shaft (255)

   B. Cam (210)

   C. Guard Pin (45)

4. Penetrant check per 20-20-02 the following listed items:

   A. Housing (80)

   B. Links (180, 205)

   C. Drums (150, 225)

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
65B82744	LINK	1-1
65B82750	DRUM	2-1
65B82751	DRUM	3-1
65B82754	LINK	4-1
257T4315	SUPPORT HOUSING	5-1
257T4323	SHAFT	6-1
- -	MISC PARTS REFINISH	7-1

2. Standard Practices

   A. Refer to the following standard practices, as applicable, for details of procedures in individual repairs.

   20-30-02 Stripping of Protective Finishes
   20-30-03 General Cleaning Procedures
   20-41-01 Decoding Table for Boeing Finish Codes
   20-42-05 Bright Cadmium Plating
   20-43-01 Chromic Acid Anodizing
   20-44-02 Temporary Protective Coatings
   20-50-03 Bearing Installation and Retention
   20-50-12 Applicable of Adhesives

3. Materials

   NOTE: Equivalent substitutes may be used.

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

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

   C. Adhesive -- Type 38 (Ref 20-50-12)

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

14290

LINK ASSEMBLY - REPAIR 1-1

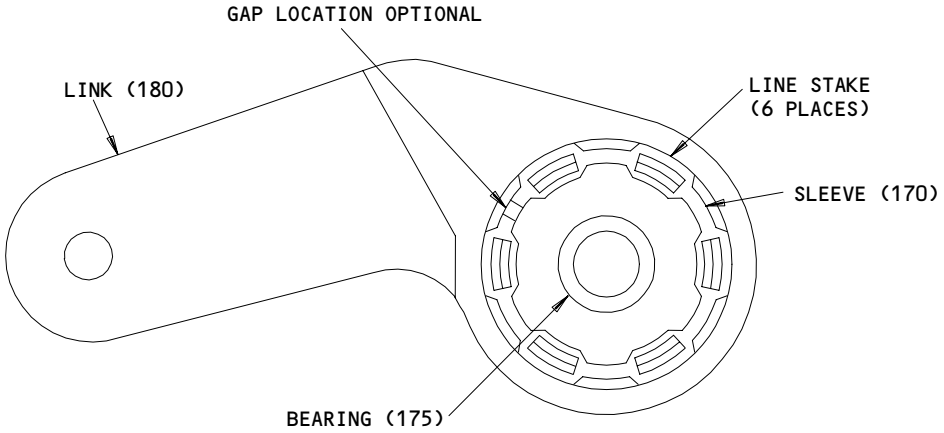
65B82744-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, Fig. 602.

1. Bearing Replacement (Fig. 601)

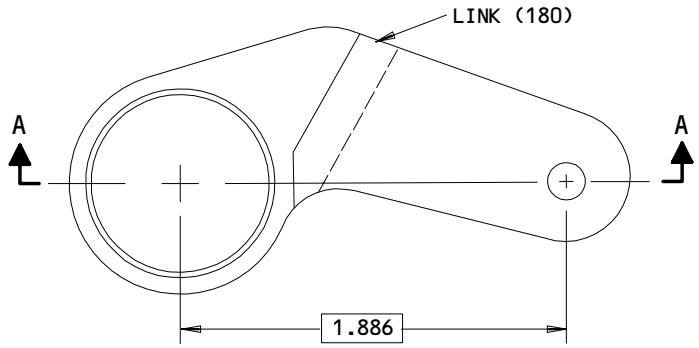
   A. Remove bearing and sleeve.

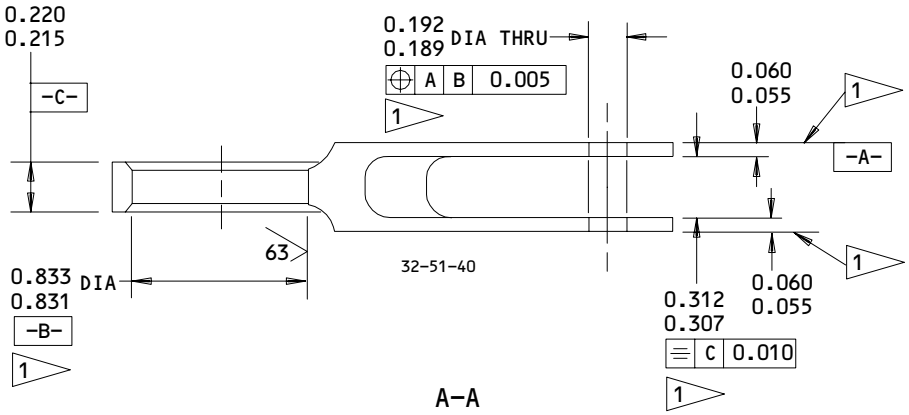
   B. Install replacement sleeve and bearing and secure by line staking sleeve six places each side.



Bearing Replacement
Figure 601

14291





A-A

REFINISH

CHROMIC ACID ANODIZE (F-17.02) ALL OVER. APPLY ONE COAT BMS 10-11, TYPE 1, PRIMER (F-20.02) ALL OVER, EXCEPT AS NOTED PER 1

MATERIAL: 7075 AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 NO PRIMER THIS SURFACE

65B82744-2

Link Refinish Details
Figure 602

DRUM ASSEMBLY, AFT - REPAIR 2-1

65B82750-5

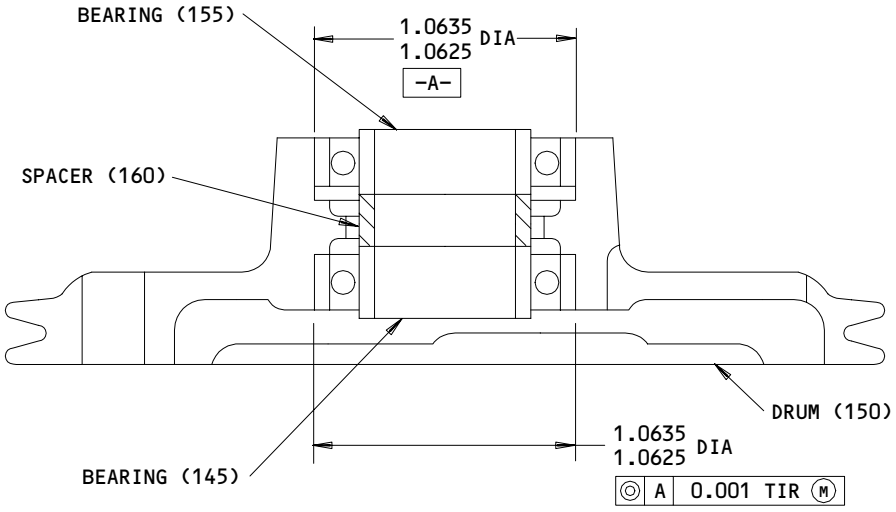
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, Fig. 602. Bearing (155) and spacer (160) are not part of this assembly. They have been included in this repair to facilitate maintenance.

1. Bearing Replacement (Fig. 601) (IPL Fig. 1)

   A. Remove bearings (145, 155) and spacer (160).

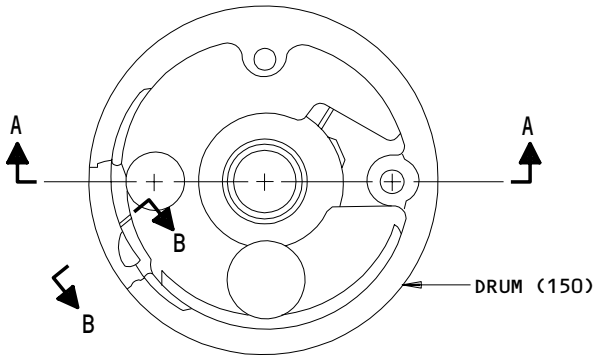
   B. Install bearing (145) per 20-50-03 except use wet primer in place of MIL-G-23827 grease and secure by roller swaging, type 1.

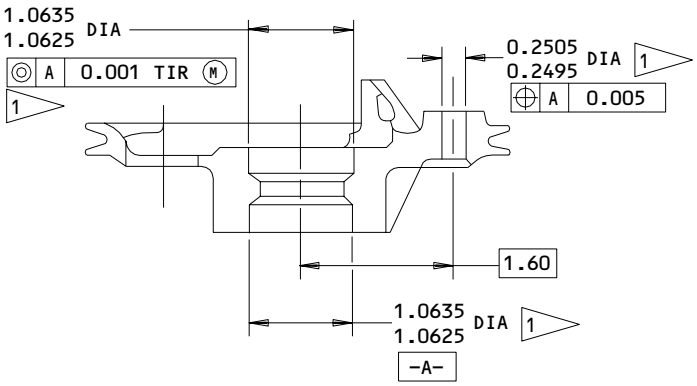
   C. Insert spacer (160). Install bearing (155) per 20-50-03 except use BMS 3-24 grease instead of MIL-G-23827 grease.



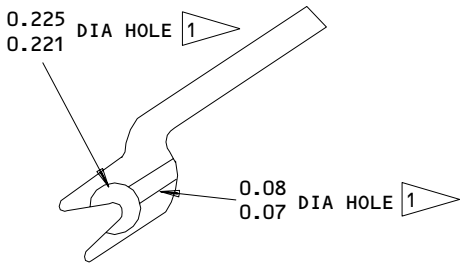
Bearing Replacement
Figure 601

14293





A–A



B–B

REFINISH

TREAT SURFACE FOR COLORED COATING OR CHROMIC ACID ANODIZE, AND APPLY ONE COAT BMS 10-11, TYPE 1, PRIMER (F-18.05) ALL OVER, EXCEPT AS NOTED PER 1.

APPLY ONE ADDITIONAL COAT BMS 10-11, TYPE 1, PRIMER (F-20.02) TO GROOVE, EXCEPT AS NOTED PER 1

1 OMIT PRIMER FROM THESE SURFACES

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

65B2750-6
Refinish Details
Figure 602

14294

DRUM ASSEMBLY, FORWARD - REPAIR 3-1

65B82751-5

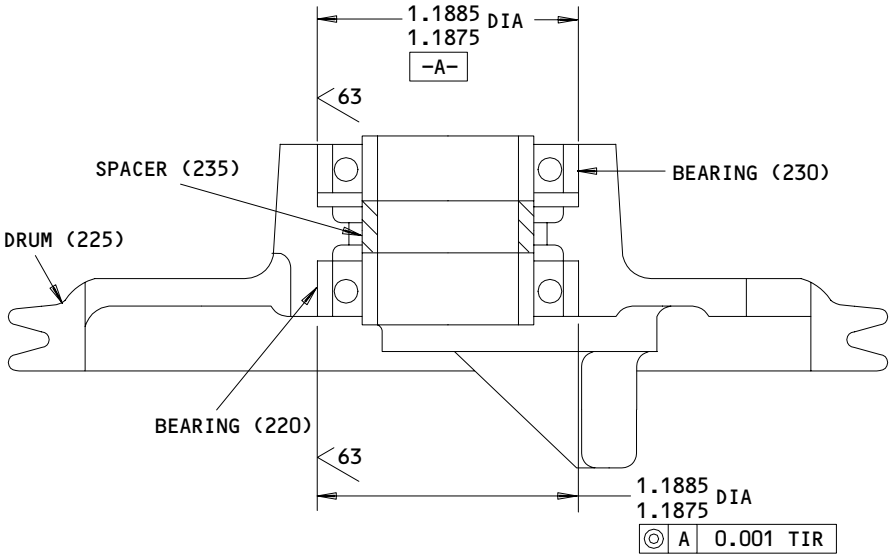
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, Fig. 602. Bearing (230) and spacer (235) are not part of this assembly; however, they have been included in this repair to facilitate maintenance.

1. Bearing Replacement (Fig. 601) (IPL Fig. 1)

   A. Remove bearings (220, 230) and spacer (235).

   B. Install bearing (220) per 20-50-03 except use wet primer instead of MIL-G-23827 grease and secure by roller swaging, type 1.

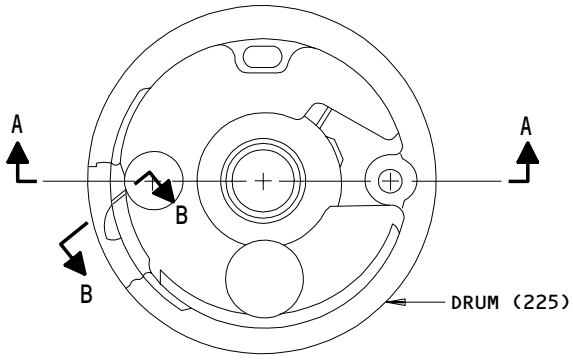
   C. Insert spacer (235). Install bearing (230) per 20-50-03 except use BMS 3-24 grease instead of MIL-G-23827 grease.

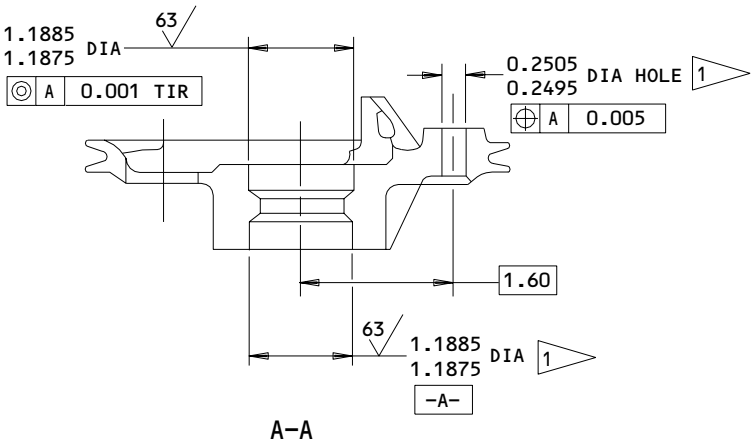


ALL DIMENSIONS ARE IN INCHES

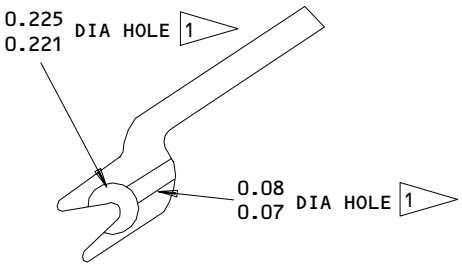
Bearing Replacement Details
Figure 601

14295





A–A



B–B

REFINISH

TREAT SURFACE FOR COLORED FILM OR CHROMIC ACID ANODIZE, AND APPLY ONE COAT BMS 10–11, TYPE 1, PRIMER (F–18.05) ALL OVER, EXCEPT AS NOTED PER 1.

APPLY ONE ADDITIONAL COAT BMS 10–11, TYPE 1, PRIMER (F–20.02) TO GROOVE, EXCEPT AS NOTED PER 1

1 OMIT PRIMER FROM THESE SURFACES

MATERIAL: 7075 AL ALLOY

ALL DIMENSIONS ARE IN INCHES

65B82751–6
Refinish Details
Figure 602

14296

LINK ASSEMBLY - REPAIR 4-1

65B82754-1, -3

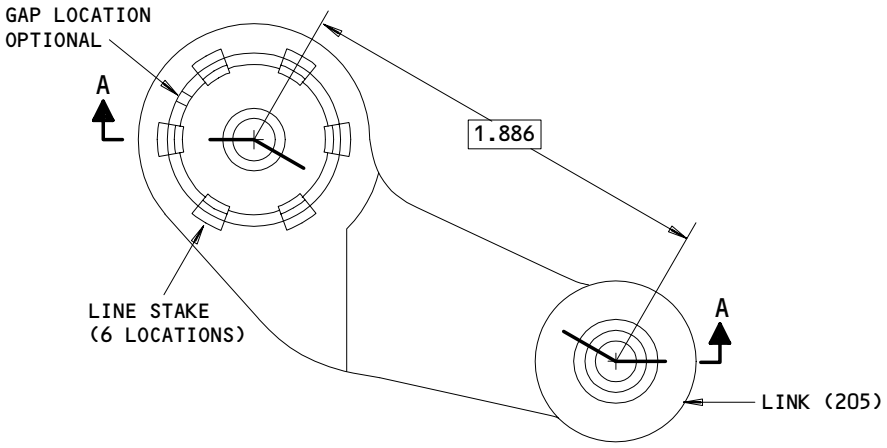
NOTE: Refer to REPAIR-GEN for a list of applicable standard practices. For repair of surfaces which is only restoration of the original finish, refer to Refinish instructions, Fig. 602.

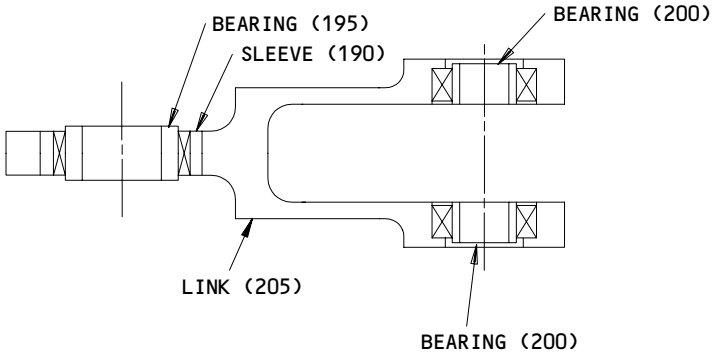
1. Bearing Replacement (Fig. 601)

   A. Remove bearings and sleeve.

   B. Install sleeve (190) and bearing (195) in diameter -A- per 20-50-03 except use wet primer instead of MIL-G-23827 grease and secure by staking sleeve six places each side.

   C. Install bearings (200) in Diameter -B- and Diameter -C- per 20-50-03 except use wet primer instead of MIL-G-23827 grease.





A-A

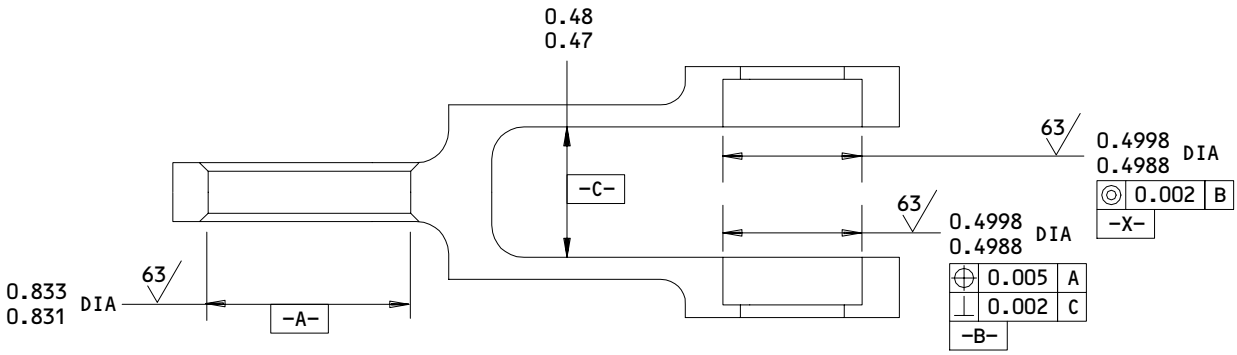
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

65B82754-1,-3

Link Bearing Replacement
Figure 601

14297



REFINISH

65B82754-2:
CHROMIC ACID ANODIZE (F-17.02). APPLY BMS 10-11, TYPE 1, PRIMER (F-20.02) ALL OVER, BUT NOT ON DIAMETERS -A-,-B-,-X-

65B82754-4:
CHROMIC ACID ANODIZE AND APPLY PRIMER BMS 10-11 TYPE 1 (F-18.13), AND THEN ENAMEL BMS 10-60 (SRF-14.9813), BUT NO PRIMER OR ENAMEL ON DIAMETERS -A-,-B-,-X-

REPAIR

SAME AS REFINISH

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

65B82754-2,-4

Link Refinish
Figure 602

SUPPORT HOUSING ASSEMBLY - REPAIR 5-1

257T4315-1, -4

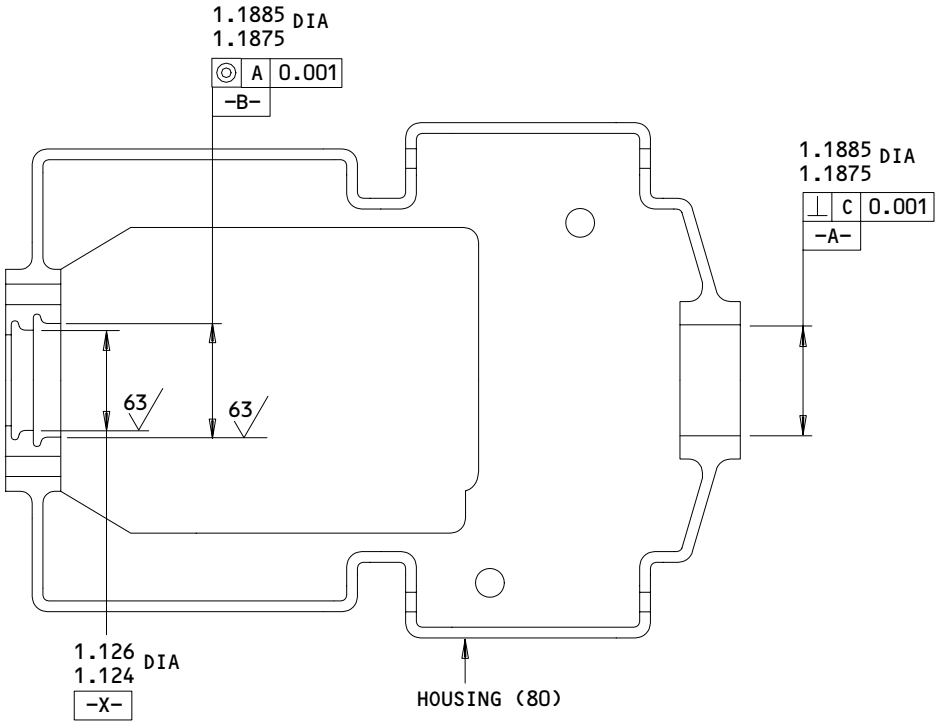
NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

1. Refinish (Fig. 601)

   A. Remove inserts (75).

   B. Anodize and apply primer.

   C. Install new inserts.



REFINISH

ANODIZE (F-17.05) AND APPLY
BMS 10-11, TYPE 1, PRIMER (F-20.02) ALL
OVER, BUT NOT ON DIAMETERS -A-,-B-,-X-

MATERIAL: 356 AL ALLOY
ALL DIMENSIONS ARE IN INCHES

257T4315-2,-5

Refinish Details
Figure 601

14299

SHAFT ASSEMBLY - REPAIR 6-1

257T4323-1

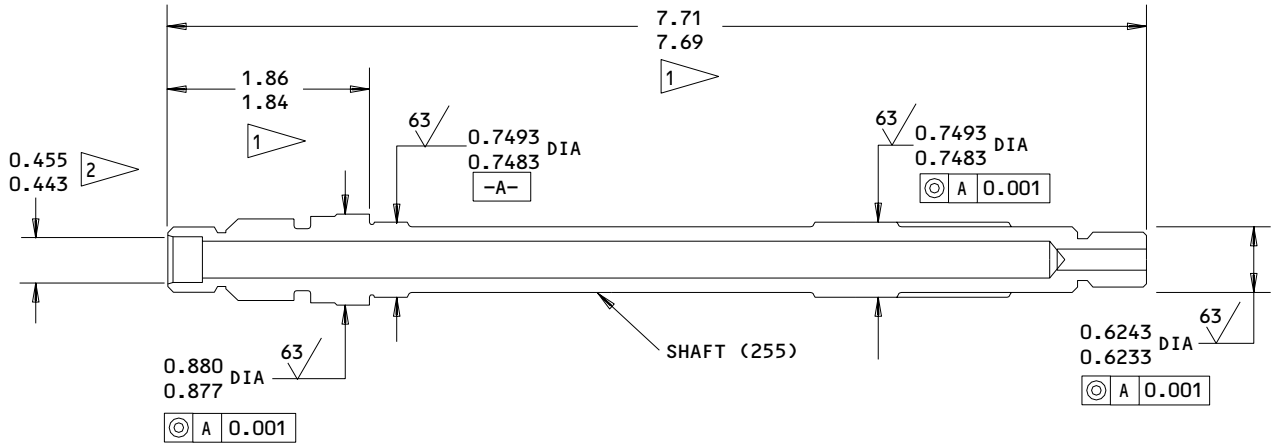
NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

1. Refinish (Fig. 601) (IPL Fig. 1)

   A. Remove plug (250).

   B. Cadmium plate and passivate.

   C. Install plug and bond per 20-50-12, type 38.



1 CADMIUM PLATE (F-15.02, 0.0002-0.0004 THICK) NOTED AREA

2 NO PLATING OR THROW-IN PERMISSIBLE THIS BORE

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

ALL DIMENSIONS ARE IN INCHES

Refinish Details
Figure 601

14300

MISCELLANEOUS PARTS REFINISH - REPAIR 7-1

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

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Angle (20) Retainer (85)	Al alloy	Treat surface for colored coating or chromic acid anodize and apply BMS 10-11, type 1 primer (F-18.05) all over.
Support tee (30)	Al alloy	Chromic acid anodize and apply BMS 10-11, type 1 primer (F-18.13) all over.
Pin (45)	4340 Steel, 150-170 ksi	Cadmium plate (F-15.06) all over.
Spacer (110,160, 235,240)	4130 Steel Tube 150-170 ksi	Cadmium plate all over and apply BMS 10-11, type 1 primer (F-20.02) on outside only. (Mask bore and both ends from primer).
Cam (210)	15-5PH CRES, 180-200 ksi	Passivate (F-17.09) all over.

Refinish Details
Figure 601

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes may be used.

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

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

2. Assembly (IPL Fig. 1)

A. Install seal (100) with wet primer as shown (Fig. 701). Install bearing (230) per 20-50-03 except use BMS 3-24 grease instead of MIL-G-23827 grease. Install retainer (85) and secure with bolts (90) and washers (95) as shown.

B. Fit bearing (138) in fork of link (165) Coat bolt (130) with BMS 3-24 grease then install bolt (130) to fasten link (185), bearing (138), and link (165) together. Use washers (184) as necessary to eliminate free play between link (165) and bearings (200). After free play is eliminated, install collar (135) on bolt (130).

C. Coat splines of cam (210) with BMS 3-24 grease. Place cam (210) between drums (140, 215) and secure link (165) to drum (215) and link (185) to drum (140) using bolts (115), washers (120) and nuts (125). Coat bolts with BMS 3-24 grease (Fig. 702).

NOTE: Cam (210) will remain loose until shaft (245) is inserted in par. 2.E. Drums (140, 215) are configurations as assembled in REPAIR 2-1 and REPAIR 3-1 respectively.

D. Place drums (140, 215) with links attached per par. 2.B. and spacer (240) inside housing (70) and position as shown (Fig. 702).

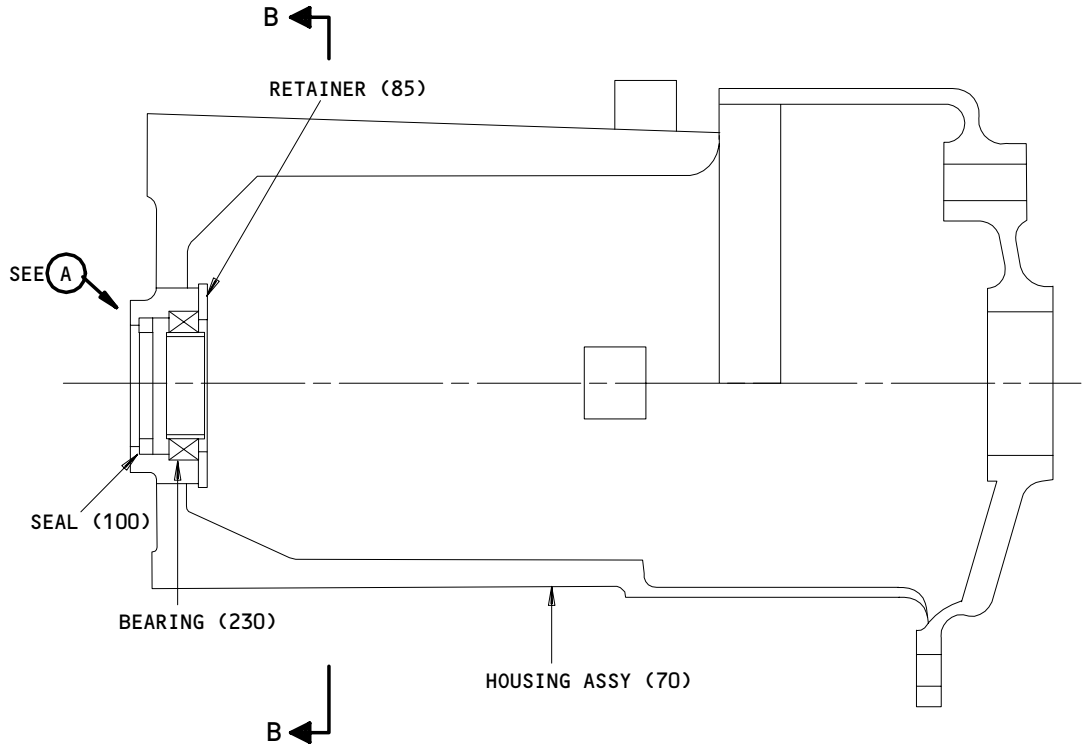
NOTE: Parts will remain loose until shaft (245) is inserted in following step E.

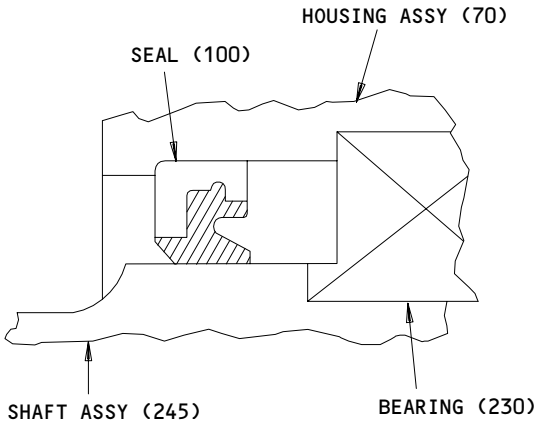
E. Insert open end of shaft (245) into housing (70) through seal (100) and bearing (230). Align spacer (240) and press shaft end into spacer. Align drums (140, 215) and cam (210) and press shaft through drum (215), cam (210), and drum (140). Place spacer (110) over threaded end of shaft. Install bearing (105) per 20-50-03 except use BMS 3-24 grease instead of MIL-G-23827 grease. Press shaft through bearing (105) and secure with washer (65) and nut (60). Tighten nut to 100-150 lb-in. (Fig. 703).

F. Install guard pin (45) and secure with washer (50) and nut (55). Install pins (40) and secure with cotter pins (35).

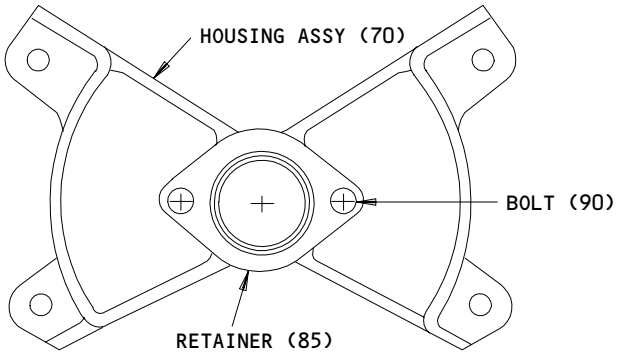
G. Attach support (5) to housing (70) using bolts (10) and washers (15).

3. Protect and store assembly using standard industry practices and the information contained in 20-44-02.



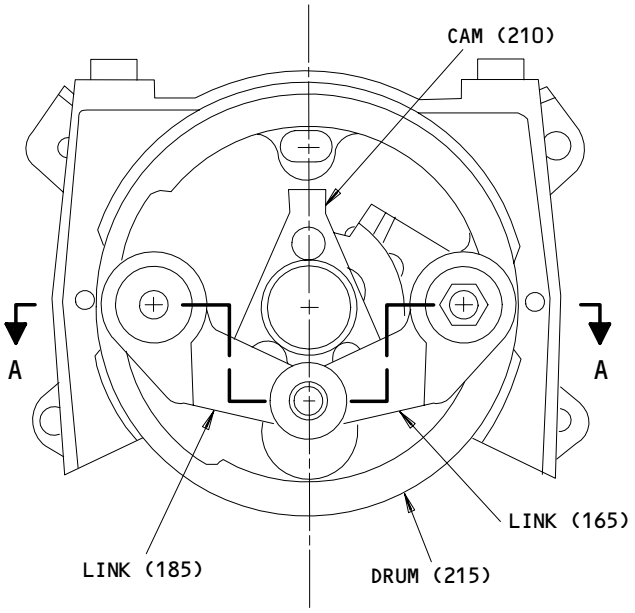


A

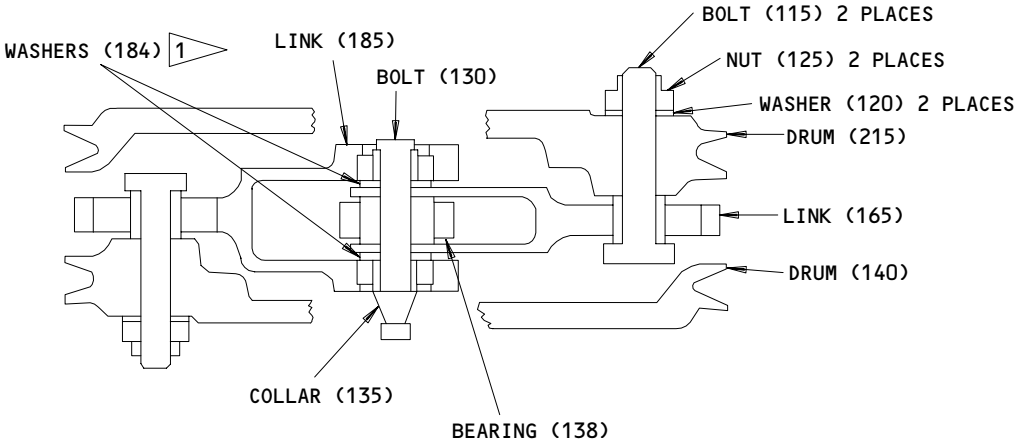


B–B

Seal Assembly Details
Figure 701



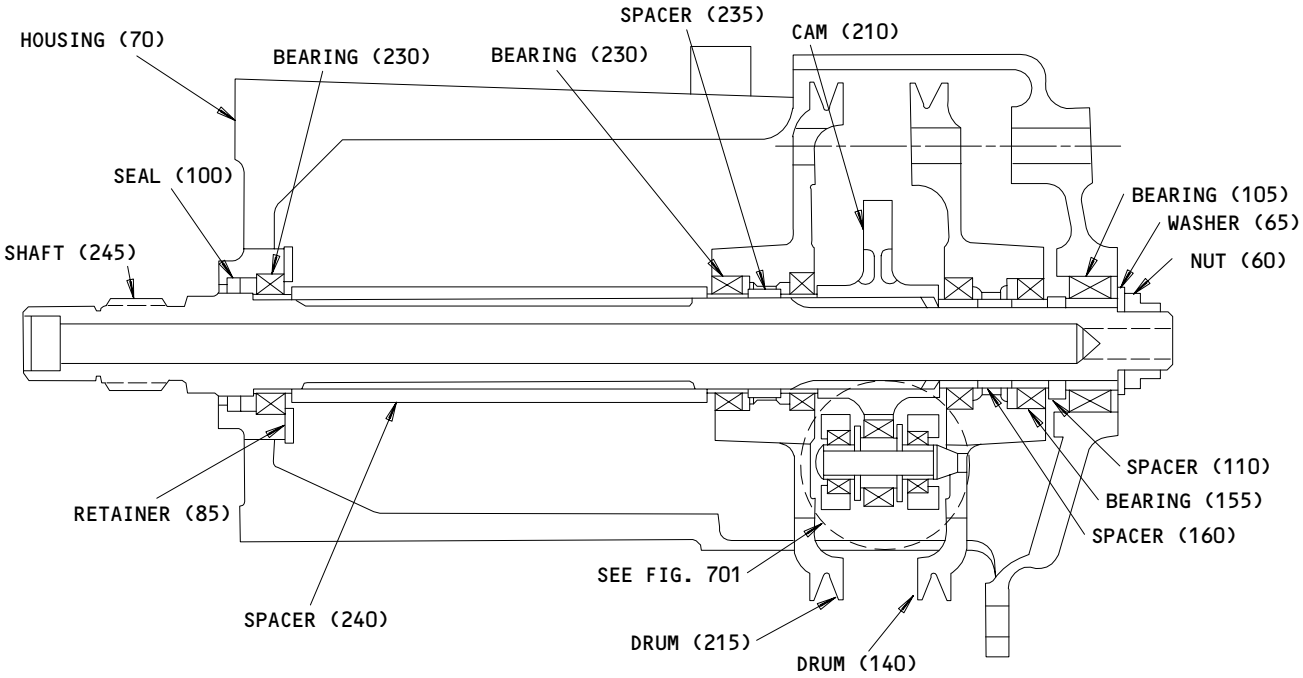
DRUM (140) OMITTED FOR CLARITY



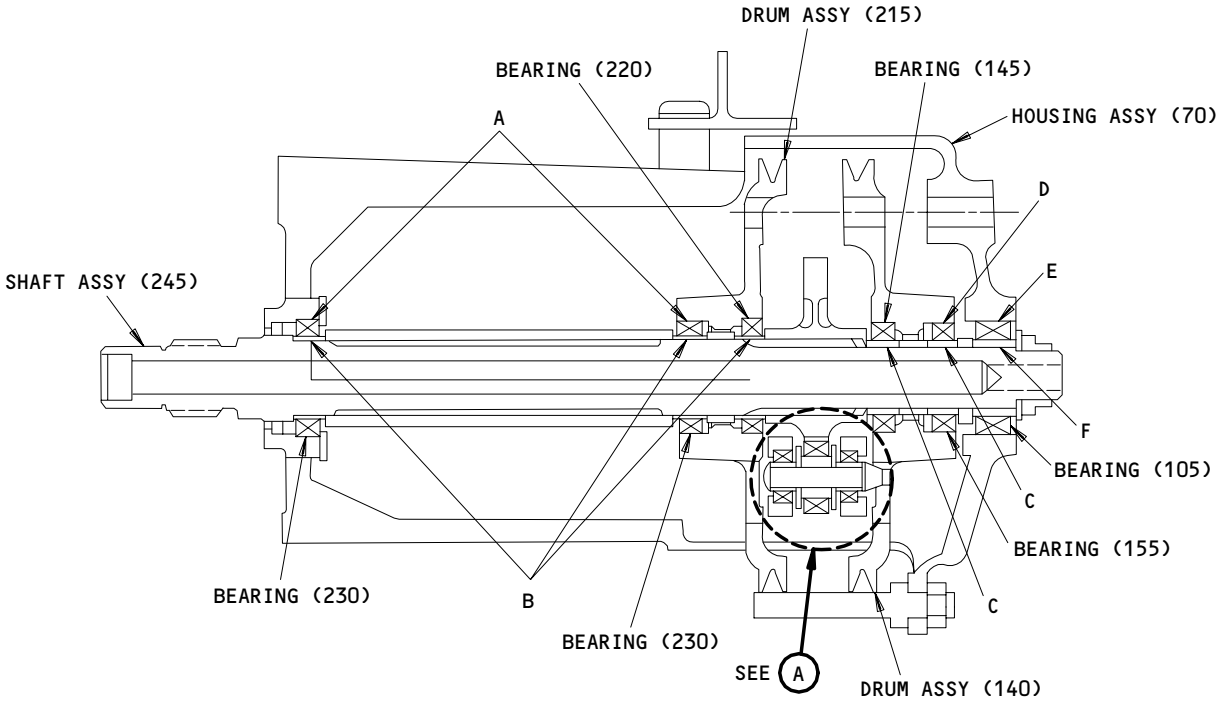
A-A

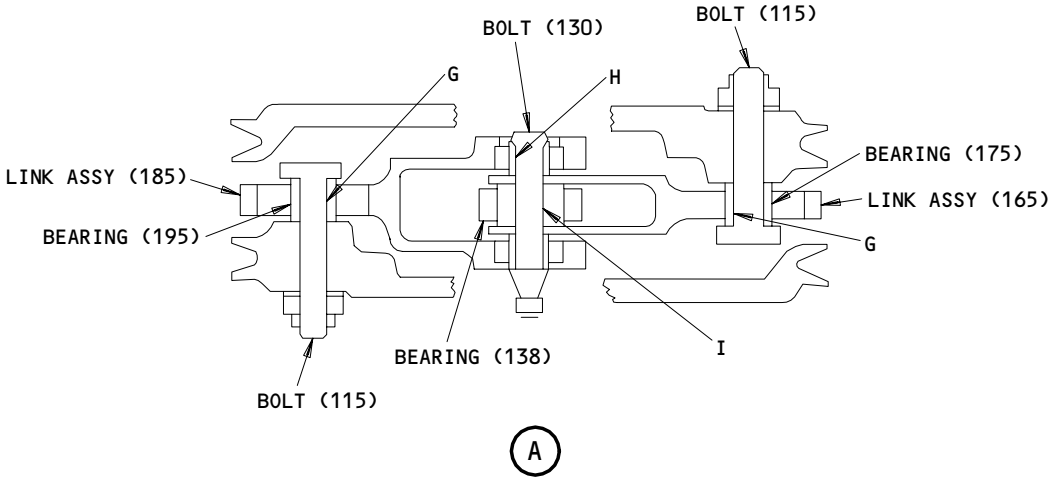
1 USE WASHERS (184) AS REQUIRED TO ELIMINATE AXIAL FREE PLAY BETWEEN LINK (165) AND BEARINGS (200)

Drum Alignment Details
Figure 702



Shaft Assembly Details
Figure 703





Fits and Clearances
Figure 801 (Sheet 1)

Ref Letter Fig.801	Mating Item No. IPL Fig.	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 70,215 OD 230	1.1875 1.1865	1.1885 1.1875	0.0000	0.0020			
B	ID 220,230 OD 245	0.7493 0.7483	0.7507 0.7493	0.0000	0.0024			
C	ID 145,155 OD 245	0.6243 0.6233	0.6257 0.6243	0.0000	0.0024			
D	ID 140 OD 155	1.0625 1.0615	1.0635 1.0625	0.0000	0.0020			
E	ID 70 OD 105	1.1875 1.1870	1.1885 1.1875	0.0000	0.0015			
F	ID 105 OD 245	0.6245 0.6233	0.6250 0.6243	0.0002	0.0017			
G	ID 175,195 OD 115	0.2495 0.2485	0.2500 0.2495	0.0000	0.0015			
H	ID 185 OD 130	0.1895 0.1873	0.1900 0.1887	0.0008	0.0027			
I	ID 138 OD 130	0.1893 0.1873	0.1900 0.1887	0.0006	0.0027			

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 2)

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
60	NUT	100 - 150	

Torque Table
Figure 802

80377

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

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

06725 AIR INDUSTRIES CORPORATION
12570 KNOTT STREET
GARDEN GROVE, CALIFORNIA 92641

06950 VSI CORP SCREWCORP DIV
13001 EAST TEMPLE AVENUE
CITY OF INDUSTRY, CALIFORNIA 91746

08524 DEUTSCH FASTENER CORPORATION
PO BOX 92925
7001 WEST IMPERIAL HIGHWAY
LOS ANGELES, CALIFORNIA 90045

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

15653 KAYNAR MFG COMPANY INC KAYLOCK DIV
PO BOX 3001 800 SOUTH STATE COLLEGE BLVD
FULLERTON, CALIFORNIA 92634

17943 FEDERAL MANUFACTURING CORPORATION
6910 FARMDALE AVENUE
NORTH HOLLYWOOD, CALIFORNIA 91605

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

21760 SCHATZ FEDERAL BEARINGS CO INC
FAIRVIEW AVENUE
POUGHKEEPSIE, NEW YORK 12602

27624 PAUL R. BRILES INC P. B. FASTENER DIV
1700 WEST 132ND STREET
PO BOX 1157
GARDENA, CALIFORNIA 90249

VENDORS

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

43991 FAG BEARING INCORPORATED
HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

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

56878 SPS TECHNOLOGIES INC
HIGHLAND AVENUE
JENKINTOWN, PENNSYLVANIA 19046

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

72962 ESNA DIV OF AMERACE CORP
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083

73197 HISHEAR CORPORATION
2600 SKYPARK DRIVE
TORRANCE, CALIFORNIA 90509

80201 CHICAGO RAWHIDE MFG CO CR INDUSTRIES
900 NORTH STATE STREET
ELGIN, ILLINOIS 60120

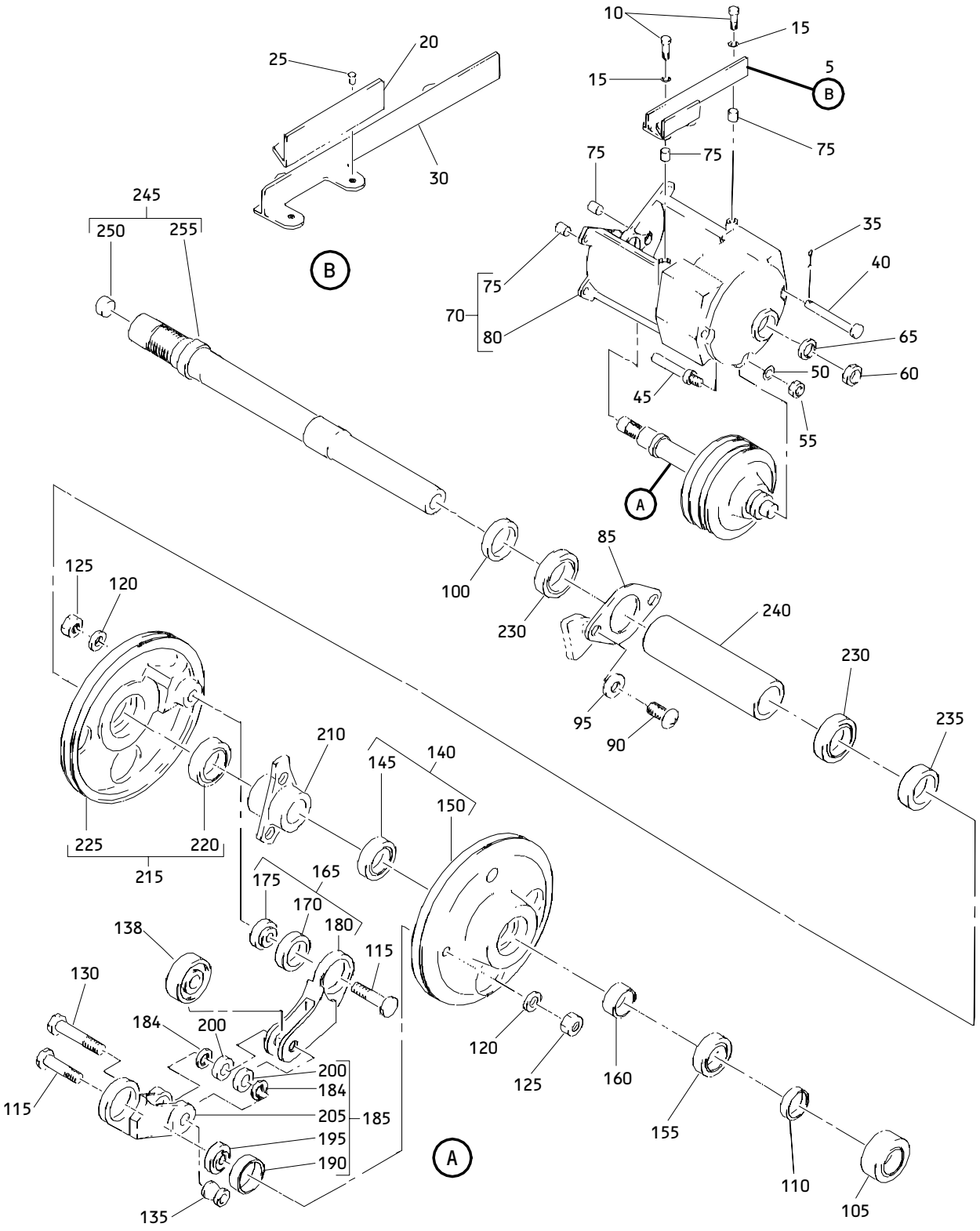
80539 SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV
2701 SOUTH HARBOR BOULEVARD
SANTA ANA, CALIFORNIA 92702

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

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

VENDORS

97928 LITTON FASTENING SYSTEMS DIV OF LITTON SYSTEMS INC
3969 PARAMONT BOULEVARD
LAKEWOOD, CALIFORNIA 90712



Nose Wheel Steering Cable Compensator Assembly
Figure 1

U1633

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	257T4316-1		DELETED		
-1A	257T4316-2		COMPENSATOR ASSY-NOSE WHL STEERING CABLE	A	RF
-1B	257T4316-3		COMPENSATOR ASSY-NOSE WHL STEERING CABLE	B	RF
5	255T4291-1		.SUPPORT ASSY ATTACHING PARTS		1
10	NAS623-3-2		.BOLT		2
15	AN960PD10		.WASHER -------*-------		2
20	255T4291-3		..ANGLE ATTACHING PARTS		1
25	BACR15BB4AD		..RIVET -------*-------		2
30	255T4291-2		..SUPPORT TEE		1
35	MS24665-132		.PIN-COTTER		2
40	MS20392-2C83		.PIN-(OPT ITEM 40A)		2
-40A	MS20392-2C89		.PIN-(OPT ITEM 40)		2
45	69B82871-1		.PIN-GUARD		1
50	AN960PD416L		.WASHER		1
55	BRH10A4		.NUT- (V52828) (SPEC BACN10JC4) (OPT H10-4BAC (V15653)) (OPT NS202101-048 (V80539)) (OPT RMLH9075-4W (V72962)) (OPT T6S428J (V11815)) (OPT VN303A048 (V92215)) (OPT 96-048 (V80539))		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
60	H10-8BAC		.NUT-		1
			(V15653)		
			(SPEC BACN10JC8)		
			(OPT BMN4122AD3-8		
			(V08524))		
			(OPT BMN4122A8		
			(V08524))		
			(OPT RMLH9074-8		
			(V72962))		
			(OPT 48FT820		
			(V56878))		
65	AN960XC816		.WASHER		1
70	257T4315-1		.HOUSING ASSY	A	1
-70A	257T4315-4		.HOUSING ASSY	B	1
75	MS21209F1-20		..INSERT		4
80	257T4315-2		..HOUSING		1
			(USED ON ITEM 70)		
-80A	257T4315-5		..HOUSING		1
			(USED ON ITEM 70A)		
85	69B82872-1		.RETAINER		1
			ATTACHING PARTS		
90	NAS623-3-2		.BOLT		2
95	AN960PD10		.WASHER		2
			-------*-------		
100	8620		.SEAL-		1
			(V80201)		
105	P10K		.BEARING-		1
			(V38443)		
			(SPEC BACB10BG5S)		
			(OPT LLP10K		
			(V38443))		
			(OPT P10KE6531		
			(V21335))		
			(OPT P10KFS428		
			(V21335))		
			(OPT P10KTT		
			(V43991))		
			(OPT P10KT1C1-01		
			(V21760))		
110	69B82926-4		DELETED		
110A	69B82926-8		.SPACER		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- 115	BACB30NF4-12		.BOLT- (V06710) (SPEC BACB30NF4-12) (V06725, V06950, V08524, V17943, V27624, V56878, V80539, V92215, V97928)		2
120	AN960PD416L		.WASHER		2
125	BRH10-4		.NUT- (V52828) (SPEC BACN10JC4) (FOR OPTIONAL PARTS REFER TO ITEM 55)		2
130	HL18PB6-15		.BOLT- (V56878) (SPEC BACB30FM6-15) (OPT HL18PB6-15 (V73197, V92215, V97928)) (OPT 62550-6-15 (V56878))		1
135	HL79-6		.COLLAR- (V56878) (SPEC BACC30M6) (V73197,V92215, V56878)		1
138	ATF3		.BEARING- (V60380) (SPEC BACB10ET03) (OPT 3AFC512 (V92563))		1
140	65B82750-5		.DRUM ASSY		1
145	BACB10A27DDH		..BEARING- (OPT B538DDE6531 (V21335)) (OPT B538ZZ4 (V38443))		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
150	65B82750-6		..DRUM		1
155	B538DD		.BEARING- (V38443) (SPEC BACB10CF10PP) (OPT B538-2TS (V43991)) (OPT B538DDFS428 (V21335))		1
160	69B82926-3		DELETED		
160A	69B82926-7		.SPACER		1
165	65B82744-1		.LINK ASSY		1
170	65B82744-3		..SLEEVE		1
175	KSP4A		..BEARING- (V38443) (SPEC BACB10AC4A) (OPT HHKSP4A (V38443)) (OPT KSP4AE9440A (V21335)) (OPT KSP4AFS428 (V21335)) (OPT KSP4A2TS (V43991))		1
180	65B82744-2		..LINK		1
184	BACW10BP3NDP		.WASHER (V10630) (SPEC BACW10BP3NDP)		AR
185	65B82754-1		.LINK ASSY (OPT)		1
-185A	65B82754-3		.LINK ASSY		1
190	65B82744-3		..SLEEVE		1
195	KSP4A		..BEARING- (V38443) (SPEC BACB10AC4A) (FOR OPTIONAL PARTS REFER TO ITEM 175)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
200	BACB10A122		..BEARING- (OPT ITEM 200A) (OPT KP3AL (V21335,V38443))		2
-200A	BACB10A122H		..BEARING- (OPT KP3ALE6531 (V21335)) (OPT KP3AL1 (V38443)) (OPT ITEM 200)		2
205	65B82754-2		..LINK (USED ON ITEM 185)		1
-205A	65B82754-4		..LINK (USED ON ITEM 185A)		1
210	65B82752-2		.CAM		1
215	65B82751-5		.DRUM ASSY		1
220	BACB10A35DDH		..BEARING- (OPT B539ZZ4 (V38443))		1
225	65B82751-6		..DRUM		1
230	B539DD		.BEARING- (V38443) (SPEC BACB10CF12PP) (OPT TO ITEM 230A) (OPT B539-2TS (V43991)) (OPT B539DDFS428 (V21335))		2
-230A	BACB10FU12		.BEARING (OPT TO ITEM 230)		
235	69B82926-2		DELETED		
235A	69B82926-6		.SPACER		1
240	69B82926-5		DELETED		
240A	69B82926-9		.SPACER		1
245	257T4323-1		.SHAFT ASSY		1
250	257T4329-1		..PLUG		1
255	257T4323-2		..SHAFT		1