TO: ALL HOLDERS OF AUTOTHROTTLE SPRAG CLUTCH ASSEMBLY COMPONENT MAINTENANCE MANUAL 22–32–44

REVISION NO. 7 DATED JUL 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 on the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
101–102	Added D-5916NS as optional lube. Page 101
REPAIR 2-1 601	Added reference of bearing (125) to REPAIR 2-1 to clarify intent of task.
REPAIR 4-1 601	Revised REPAIR 4-1 Fig. 601 to delete reference to bracket (25, 130) because this action is covered in REPAIR 2-1 in Fig. 601.
701	Added note to secure bracket (25) to restrain for shipping and to prevent migration of bracket assembly.

BOEING

COMPONENT
MAINTENANCE MANUAL

AUTOTHROTTLE SPRAG CLUTCH PACK ASSEMBLY

PART NUMBER 253T7204-1,-2

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

C76037

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
22-0073			OCT 01/93
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PAGE	DATE	CODE
22-32-44		
TITLE PAGE		
1	MAR 01/99	01.1
2	BLANK	
REVISION RECORD		
1	OCT 01/93	01
2	BLANK	
TR & SB RECORD		
1	MAR 01/95	01.1
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LIST OF EFFECTIVE PAGES		
*1	JUL 01/04	01
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1	SEP 01/94	01.1
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*101	JUL 01/04	01.1
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*701	JUL 01/04	01.1
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703	OCT 01/93	01
704	BLANK	
FITS AND CLEARANCES		
801	MAR 01/00	01.1
802	MAR 01/00	01.1
803	OCT 01/93	01
804	BLANK	

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PAGE	DATE	CODE
ILLUSTRATED PARTS LIST		
1001	OCT 01/93	01
1002	MAR 01/99	01.1
1003	MAR 01/99	01.1
1004	NOV 01/03	01.1
1005	NOV 01/03	01.101
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1007	NOV 01/03	01.1
1008	NOV 01/03	01.1
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PAGE	DATE	CODE

* = 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.

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:

AUTOTHROTTLE SPRAG CLUTCH PACK ASSEMBLY

DESCRIPTION AND OPERATION

1. The clutch pack assembly consists of three concentric clutch members, support bracket assemblies and a shaft. The three clutch members consist of an input, output and control. The input member is driven by the autothrottle servo motor, the output member is linked to the engine control cables, and the control member is linked to the thrust lever. The clutch contains four pairs of sprags. The inner end of each sprag is set in a socket in the output member and each sprag is able to pivot within its socket. A compression spring, installed between the two sprags, normally holds both sprags in contact with the input member. The control member and the output member are coupled through the neutralizer spring. The shaft translates the reduced speed from the gearbox/servo assembly to the clutch assemblies.

2. The clutch pack assembly rotates either clockwise or counterclockwise according to the difference between the set speed and the actual airspeed, when the autothrottle assembly is engaged. Override of the autothrottle assembly is accomplished by applying a slight force to the thrust levers to disengage the clutch assemblies.

3. Leading Particulars (approximate)

   Width -- 8 inches
   Height -- 10 inches
   Length -- 12 inches
   Weight -- 8 pounds

TESTING AND TROUBLE SHOOTING

1. Test Equipment and Materials

NOTE: Equivalent substitutes may be used.

A. Component Maintenance Equipment -- A22003-22

B. D-5263NS, (D5916NS optional) Aircraft Cable Lube and Rust Preventative, Zip Chem Products (V6L856), 1893 Dobbin Drive, San Jose, CA 95133

2. Test

A. Centering Test

(1) Rotate the output member (65) clockwise relative to the control member (75, 80) as far as it will go and release it.

(2) Measure the distance between the right side of output member (65) and the right side of the cutout in control member (75, 80) (Fig. 101). Record this measurement (an optional method is to install and zero a dial indicator on control member (75, 80) as shown in Fig. 101).

(3) Rotate the output member (65) counterclockwise relative to the control member (75, 80) as far as it will go and release it.

(4) Measure the distance between the right side of the output member (65) and the right side of the cutout in the control member (75, 80) (Fig. 101). Record this measurement (an optional method is to install and zero a dial indicator on control member (75, 80) as shown in Fig. 101).

(5) Subtract the measurement obtained in step (4) from the measurement obtained in step (2). The difference should not exceed .014 inch.

(6) If the difference measured exceeds .014 inch, replace the clutch pack assembly.

B. Slip Test

(1) Mount the clutch pack on Component Maintenance Equipment A22003-22 (an optional method would be to mount the clutch pack on a 0.5520-0.5620 shaft and hold a wrench on the head of the clutch pack shaft (135) to fix the input member).

(2) Insert a bolt through bearing (67) on the output member (65). See Fig. 102.

(3) Wrap safety wire around each end of the bolt to provide a loop.

(4) Hook a 0-100 pound spring scale on the safety wire.

(5) Pull on the spring scale at an angle that is perpendicular to the output member (65) to measure the trip point of the torque limiter. Do not touch the control member (75, 80).

(6) The torque limiter must jump to the next position at a force of 49-60 pounds in both directions. If the torque limiter fails to jump to the next position at a force of 49-60 pounds, verify correct test setup and procedure and repeat step (5). If torque limiter still fails to jump to the next position at a force of 49-60 pounds, replace the clutch assembly.

(7) If the clutch moves smoothly with force applied only to the output member (65), the sprags are slipping. Lubricate the clutch as specified in steps below.

NOTE: Lubrication of clutch is not normally required for overhaul. Lubricate clutch only if sprags are slipping.

(a) Remove the lockwire from screw (60) and bolt (50) in the control member (75, 80) (4 places). Do not disturb the lockwire on output member (65).

(b) Remove screws (60) (4 places). These screws plug the access holes that are provided for lubrication.

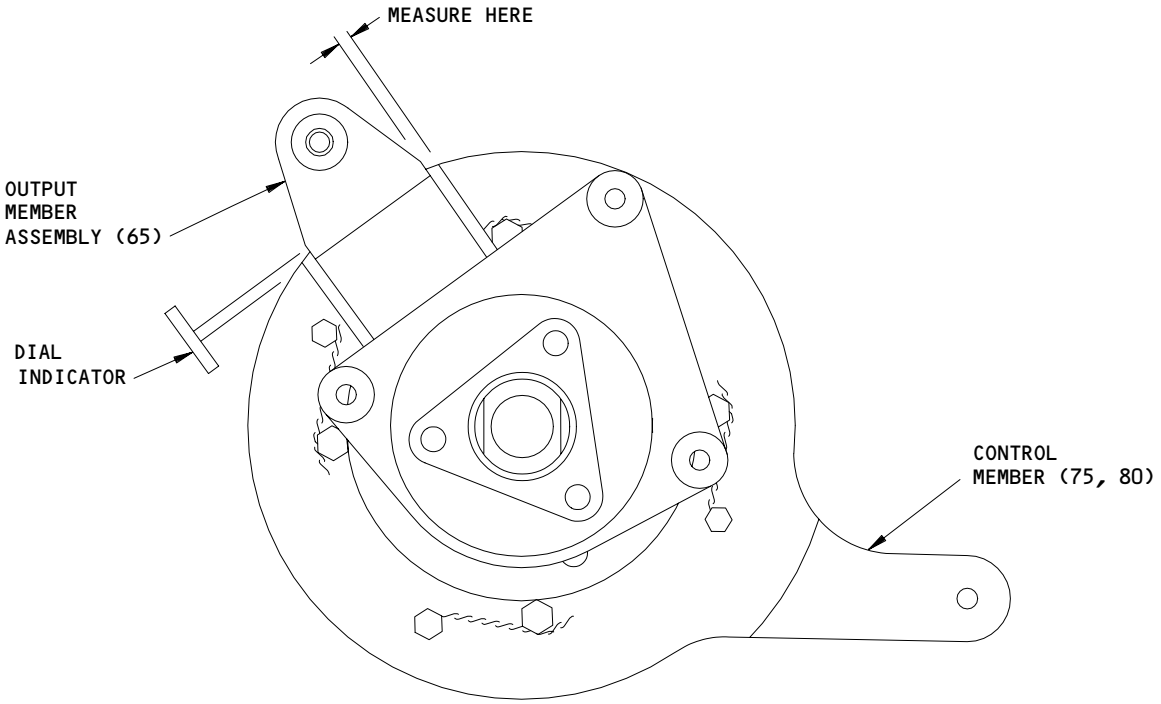
(c) Add approximately 1.25 cubic centimeters of D-5263NS (D-5916NS optional) Aircraft Cable Lube and Rust Preventative compound through each access hole in the clutch assembly.

(d) Replace the four screws (60) and tighten to 20-25 pound-inches.

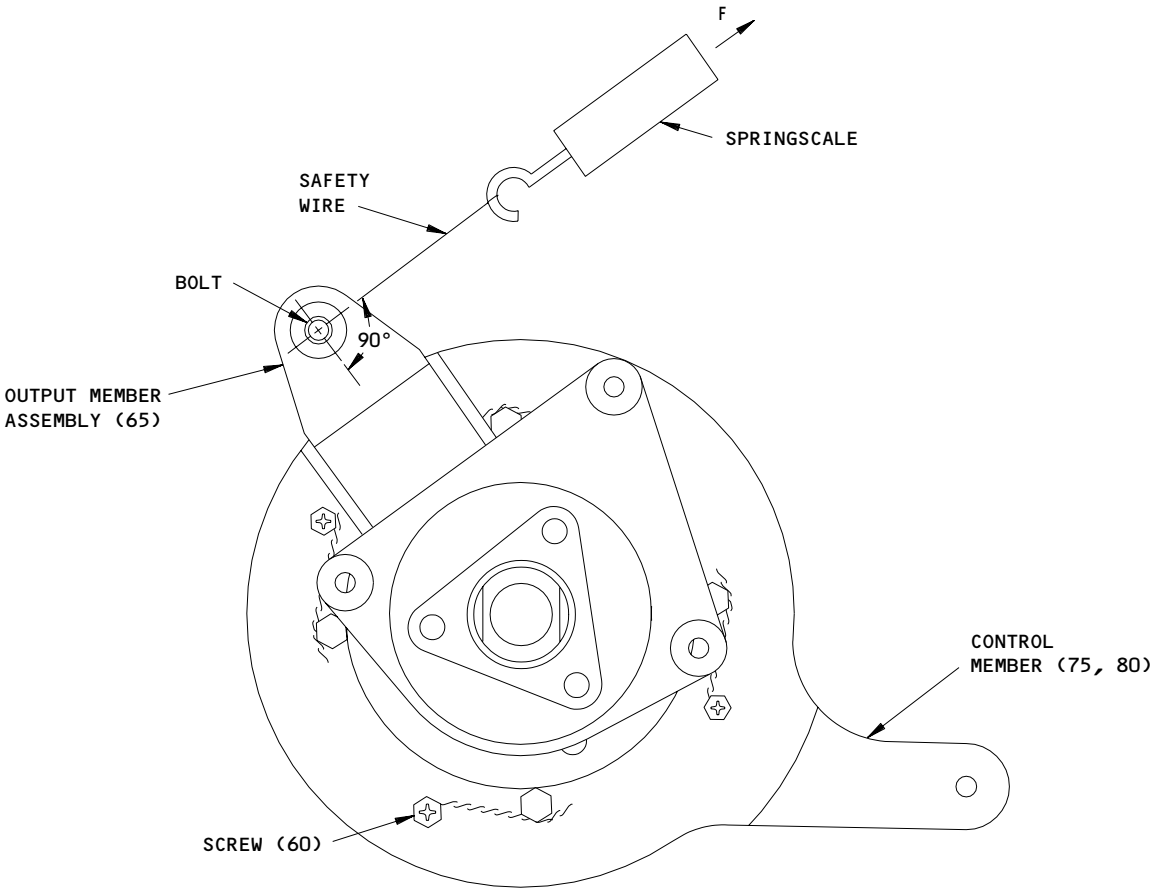
(e) Replace the lockwire between screws (60) an bolts (50) so that counterclockwise rotation is prevented (Fig. 102). (Refer to 20-50-02.)

(f) Repeat step (5).

(g) If the clutch moves smoothly with force applied only to the output member (65), the sprags are still slipping. Replace the clutch assembly.



Clutch Pack Centering Test
Figure 101



Clutch Pack Slip Test
Figure 102

E35082

DISASSEMBLY

NOTE: Disassemble this component only as necessary to complete fault isolation, determine the serviceability of parts, perform required repairs, and restore the unit to serviceable condition.

1. Parts Replacement

   NOTE: The following parts are recommended for replacement. Unless otherwise specified, actual replacement of parts may be based on in-service experience.

   A. Locknut (5, IPL Fig. 1)

2. Disassembly (IPL Fig. 1)

   A. Remove the locknut (5), spacers (10, 30), bracket assembly (20), and bearing (15) from the shaft (135).

   B. Remove the clutch assemblies (40, 45), spacers (35, 95), and bracket assembly (100) from the shaft (135).

   C. Remove the bolts (105A), washers (110), nuts (115) and bearing retainer (120) from the bracket (130).

      NOTE: Do not remove the bearing (125) from the bracket (130) unless necessary for repair or replacement.

   D. Remove the bolts (50), washers (55), screws (60), member assemblies (65), and release arm assemblies (75, 80) from the sprag clutches (70).

CLEANING

1. Clean all the parts except the bearings as specified by standard industry practices (SOPM 20-30-03).

2. Clean all the teflon-sealed bearings (15, 67, 125, IPL Fig. 1) as specified by manufacturer's instructions.

CHECK

1. Check all the parts for obvious defects as specified by standard industry practices. Refer to FITS AND CLEARANCES for design dimensions and wear limits.

2. Do a magnetic particle check (SOPM 20-20-01) of these parts -- Shaft (135, IPL Fig. 1) and spacers (10, 30, 35, 95).

3. Do a penetrant check (SOPM 20-20-02) of these parts -- Bracket (25, 66A, 85, 90, 130).

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
253T7229	MEMBER	1-1
253T7425	BRACKET	2-1
253T7225	SHAFT	3-1
- - -	MISC PARTS REFINISH	4-1

2. Standard Practices

   A. Refer to the following standard practices as applicable, for details of procedure 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
   20-43-01 Chromic Acid Anodizing
   20-50-03 Bearing Installation and Retention

3. Materials

   NOTE: Equivalent substitutes may be used.

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

   B. Grease -- MIL-G-23827

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
⌰	TOTAL RUNOUT
⌴	COUNTERBORE OR SPOTFACE
⌵	COUNTERSINK
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
∅	DIAMETER
S∅	SPHERICAL DIAMETER
R	RADIUS
SR	SPHERICAL RADIUS
()	REFERENCE
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)
Ⓛ	LEAST MATERIAL CONDITION (LMC)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE
FIM	FULL INDICATOR MOVEMENT

EXAMPLES

[— | 0.002]	STRAIGHT WITHIN 0.002
[⊥ | 0.002 | B]	PERPENDICULAR TO B WITHIN 0.002
[// | 0.002 | A]	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
[⌒ | 0.006 | A]	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM PLANE A
[⌓ | 0.020 | A]	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
[◎ | ∅ 0.0005 | C]	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
[⌯ | 0.010 | A]	SYMMETRICAL WITH A WITHIN 0.010
[∠ | 0.005 | A]	ANGULAR TOLERANCE 0.005 WITH A
[⌖ | ∅ 0.002 Ⓢ | B]	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
[⊥ | ∅ 0.010 Ⓜ | A] [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	THEORETICALLY EXACT DIMENSION IS 2.000

NOTE: DATUM MAY APPEAR AT EITHER SIDE OF TOLERANCE FRAME [0.020 | A] [A | 0.020]

True Position Dimensioning Symbols
Figure 601

C76040

MEMBER ASSEMBLY - REPAIR 1-1

253T7229-1

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 Replacement (IPL Fig. 1, Fig. 601)

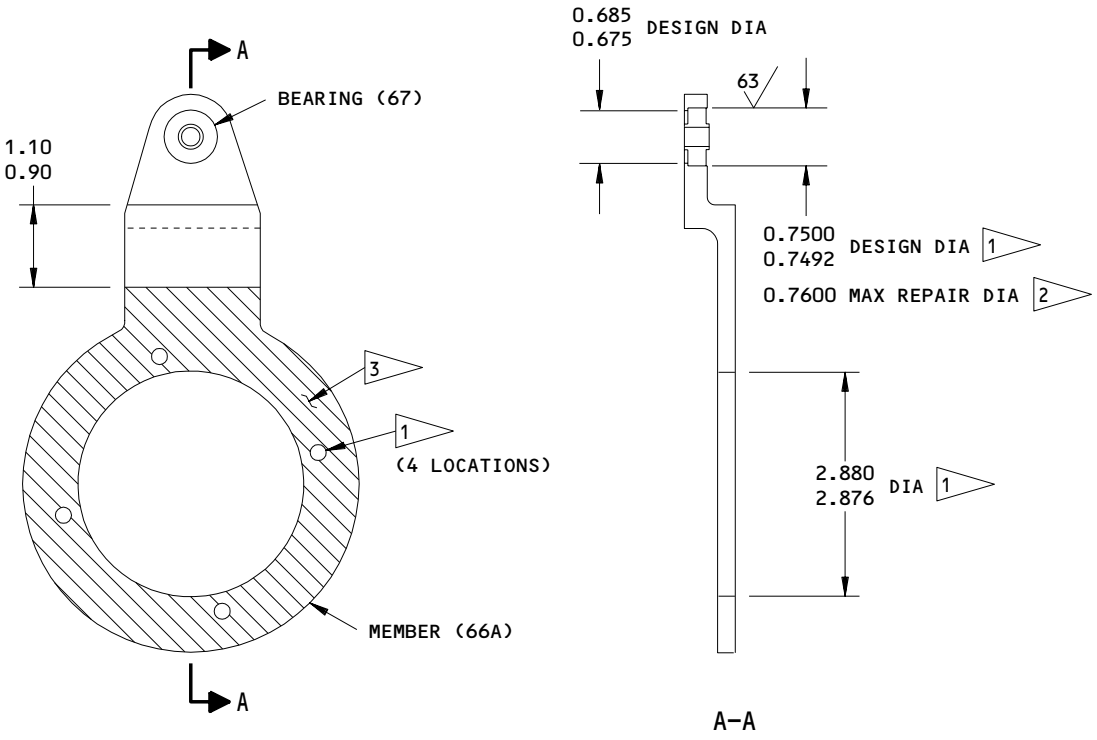
   A. Remove bearing (67).

   B. Install new bearing and roller swage (SOPM 20-50-03).

2. Repair (Fig. 601)

   A. Machine the bearing seat as required, within the repair limit shown to remove the defects.

   B. Build up the repair surface with chrome plate and grind to the dimension and finish shown.



REFINISH

MEMBER (66A) --
CHROMIC ACID ANODIZE AND APPLY ONE COAT
BMS 10-11, TYPE 1 PRIMER (F-18.13)
UNLESS SHOWN DIFFERENTLY.

1 OMIT PRIMER

2 BUILD UP WITH CHROME PLATE AND GRIND TO DESIGN DIMENSION AND FINISH SHOWN. CHROME PLATE RUNOUT 0.00-0.08. STOP CHROME PLATE 0.00-0.02 FROM FILLET RADIUS OR EDGE

3 OMIT PRIMER IN SHADED AREA THIS SIDE ONLY

REPAIR

MATERIAL: AL ALLOY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

253T7229-1
Member Assembly - Repair
Figure 601

C76098

BRACKET ASSEMBLY - REPAIR 2-1

253T7425-9, -12

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 (125) Replacement (IPL Fig. 1, Fig. 601)

   A. Remove the bearing (125) from the bracket assembly (100).

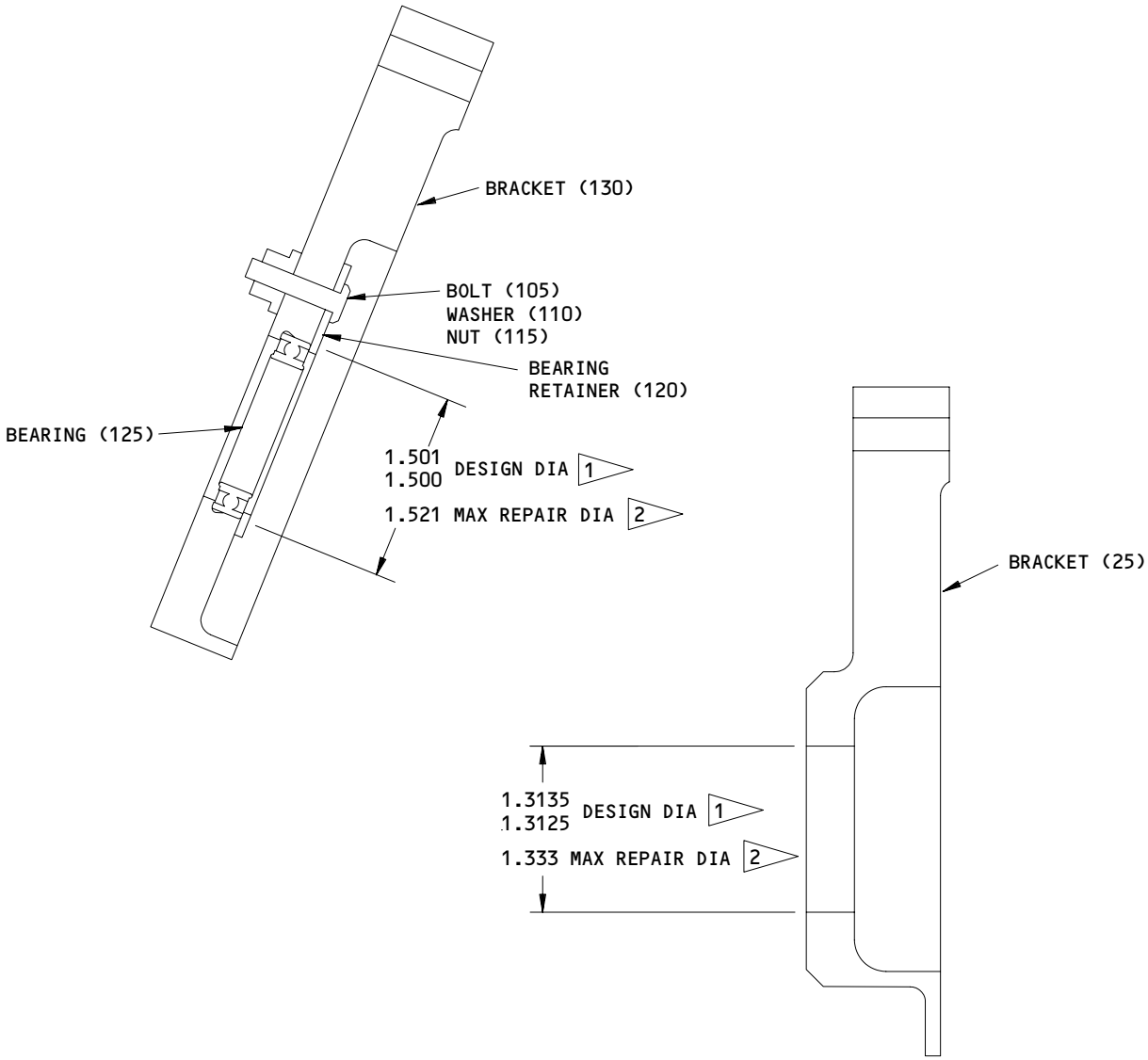
   B. Install the new bearing (125) with a light layer of MIL-G-23827 grease or dry installation (SOPM 20-50-03).

   C. Roller swage bearing (125) into the housing (SOPM 20-50-03).

2. Repair (Fig. 601)

   A. Machine the bearing seat as required, within the repair limit shown to remove the defects.

   B. Build up the repair surface with chrome plate and grind to the dimension and finish shown.



REFINISH

BRACKET (25 OR 130) -- CHROMIC ACID ANODIZE AND APPLY ONE COAT BMS 10-11, TYPE 1 PRIMER (F-18.13) UNLESS SHOWN DIFFERENTLY

1 OMIT PRIMER

2 BUILD UP WITH CHROME PLATE AND GRIND TO DIMENSION AND FINISH SHOWN. CHROME PLATE RUNOUT 0.00-0.08. STOP CHROME PLATE 0.00-0.02 FROM FILLET RADIUS OR EDGE

REPAIR

MATERIAL: AL ALLOY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Support Bracket Assembly - Repair
Figure 601

C76103

SHAFT - REPAIR 3-1

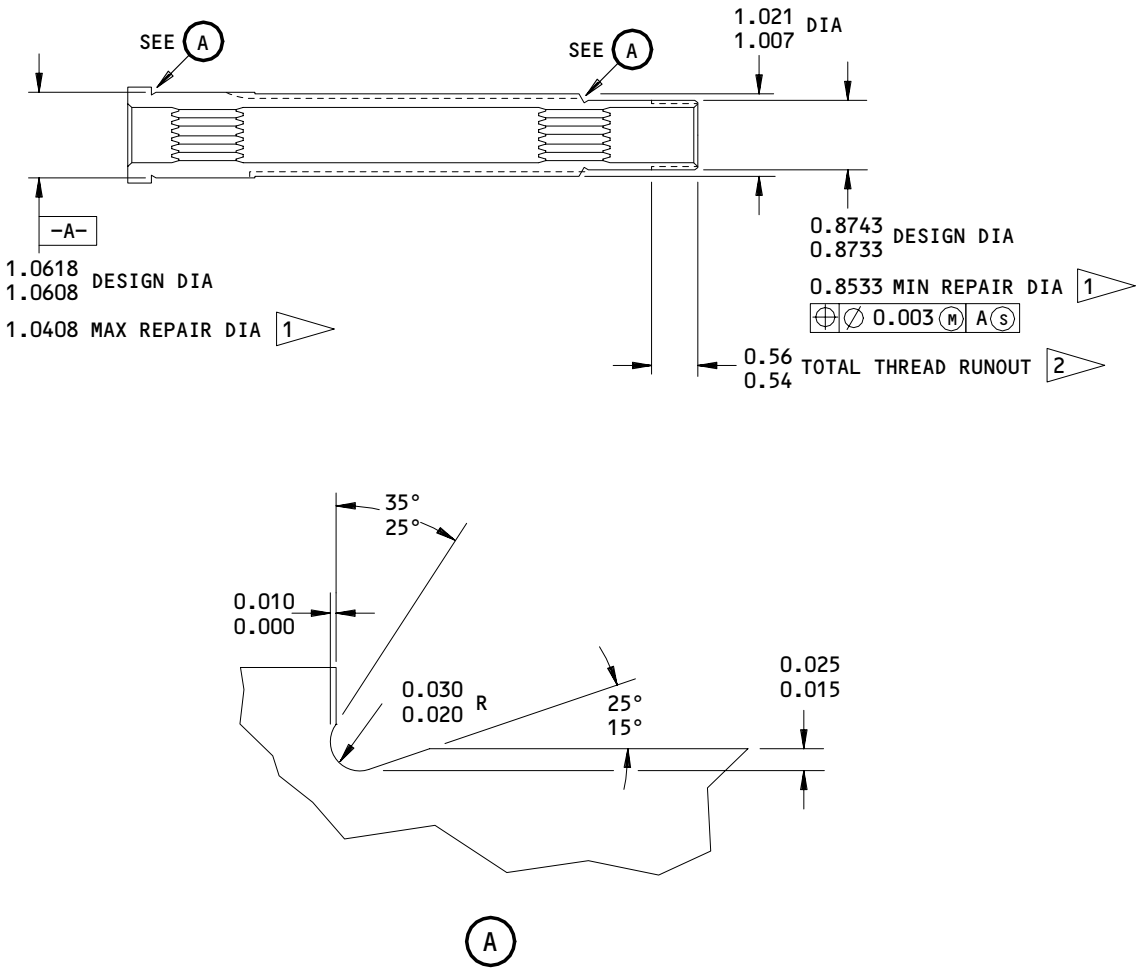
253T7225-1

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 instrucitons, Fig. 601.

1. Repair (IPL Fig. 1, Fig. 601)

   A. Machine the bearing seat as required, within the repair limit shown, to remove the defects.

   B. Build up the repair surface with chrome plate and grind to the dimension shown.



REFINISH

PASSIVATE (F-17.09) ALL OVER

REPAIR

REF 1

MATERIAL: 15-5PH CRES, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

1 BUILD UP WITH CHROME PLATE AND GRIND TO DIMENSION SHOWN. CHROME PLATE RUNOUT 0.00-0.08. STOP CHROME PLATE 0.00-0.02 FROM FILLET RADIUS OR EDGE

2 OMIT CHROME PLATE

253T7225-1
Shaft Repair
Figure 601

C76138

MISC PARTS REFINISH - REPAIR 4-1

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

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Arm (85,90)	Al alloy	Chromic acid anodize and apply one coat BMS 10-11, type 1 primer (F-18.13) except omit primer from all holes including the ID and bottom of the 6.665-6.645 inch diameter hole.
Spacer (10,30,35, 95)	15-5PH CRES, 180-200 ksi	Cadmium plate (0.0002 to 0.0004 inch) (F-15.02).

Refinish Details
Figure 601

ASSEMBLY

1. Materials, Parts and Equipment

NOTE: Equivalent materials can be used.

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

B. Locknut (10) -- SL7165C14C (See parts list)

2. Assembly (IPL Fig. 1, Fig. 701)

A. Assemble the clutch assemblies (40, 45).

(1) Install the release arm assemblies (75, 80), member assemblies (65), screws (60), washers (55), and bolts (50) on the sprag clutches (70).

(2) Tighten the screws (60) to 20-25 pound-inches.

(3) Tighten the bolts (50) to 30-35 pound-inches.

(4) Install the lockwire for the screws (60) and the bolts (50) as shown in Fig. 701 (SOPM 20-50-02).

B. Assemble the bracket assembly (100).

(1) Install the bearing retainer (120), bolts (105A), washer (110), and nuts (115) on the bracket (130).

NOTE: The bearing (125) is already installed in the bracket (130).

C. Install the bracket assembly (100), spacers (95, 35, 30, 10), clutch assemblies (40, 45), bracket assembly (20), bearing (15), and locknut (5) on the shaft (135) as shown in Fig. 701.

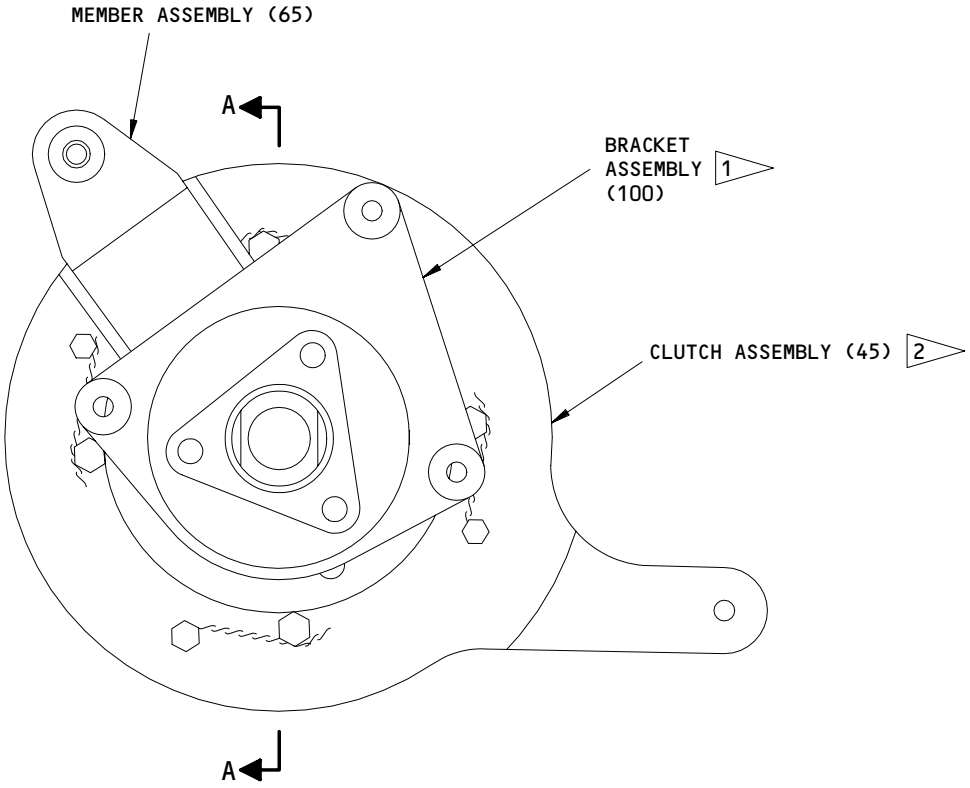
D. Tighten the locknut (5) to 200-220 pound-inches above runon.

3. Storage

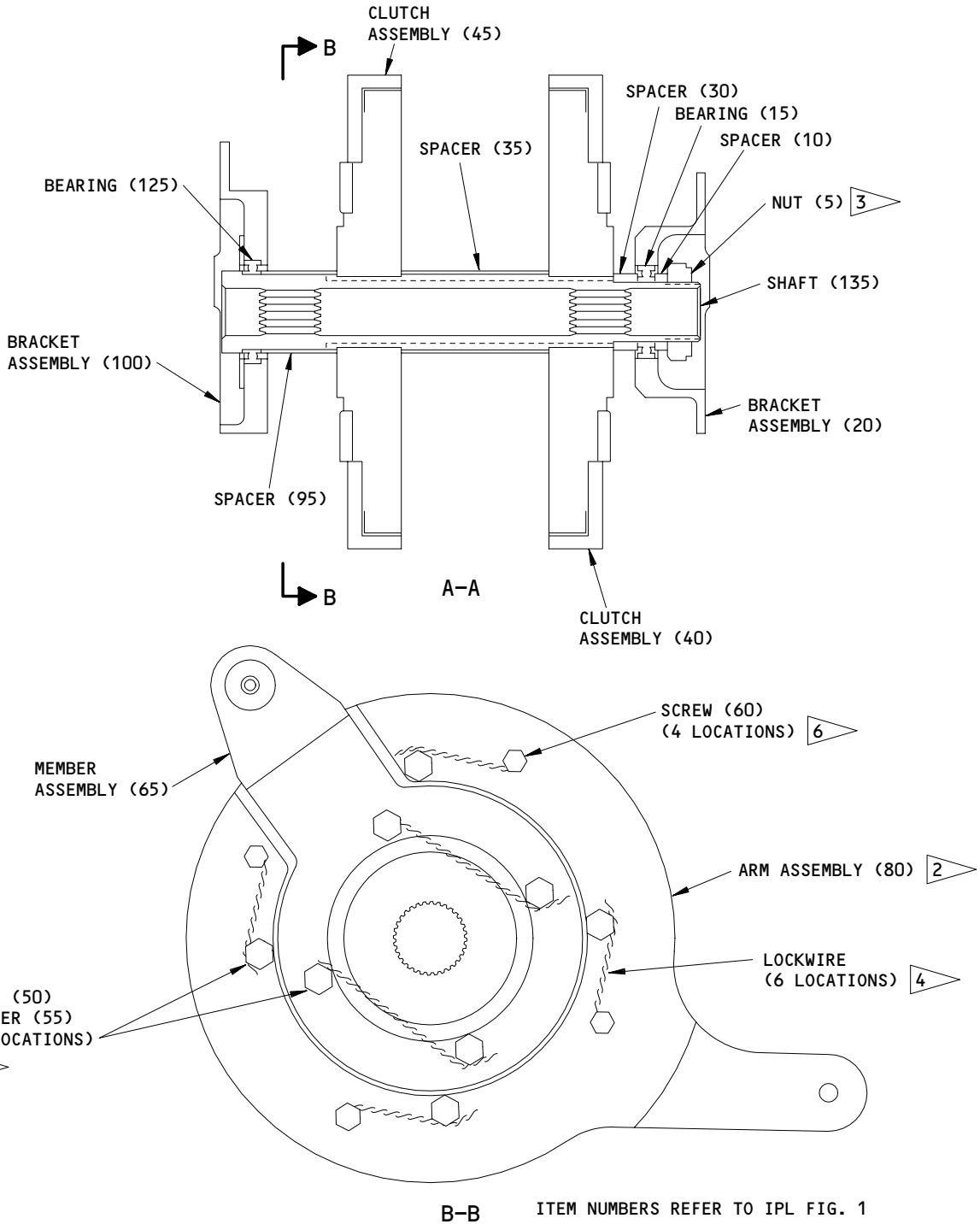
A. Prepare and store clutch pack assemblies in moistureproof bag.

NOTE: The bag shall contain the part number, desiccant, and the following instructions: "This assembly to be kept clean and dry. Do not contaminate with grease, oil, water or cleaning solvent".

NOTE: Bracket assembly (20) is installed as a slip fit over bearing (15). Bracket assembly may be restrained for shipping to prevent the migration of the bracket assembly on bearing (15).



Clutch Pack Assembly
Figure 701 (Sheet 1)



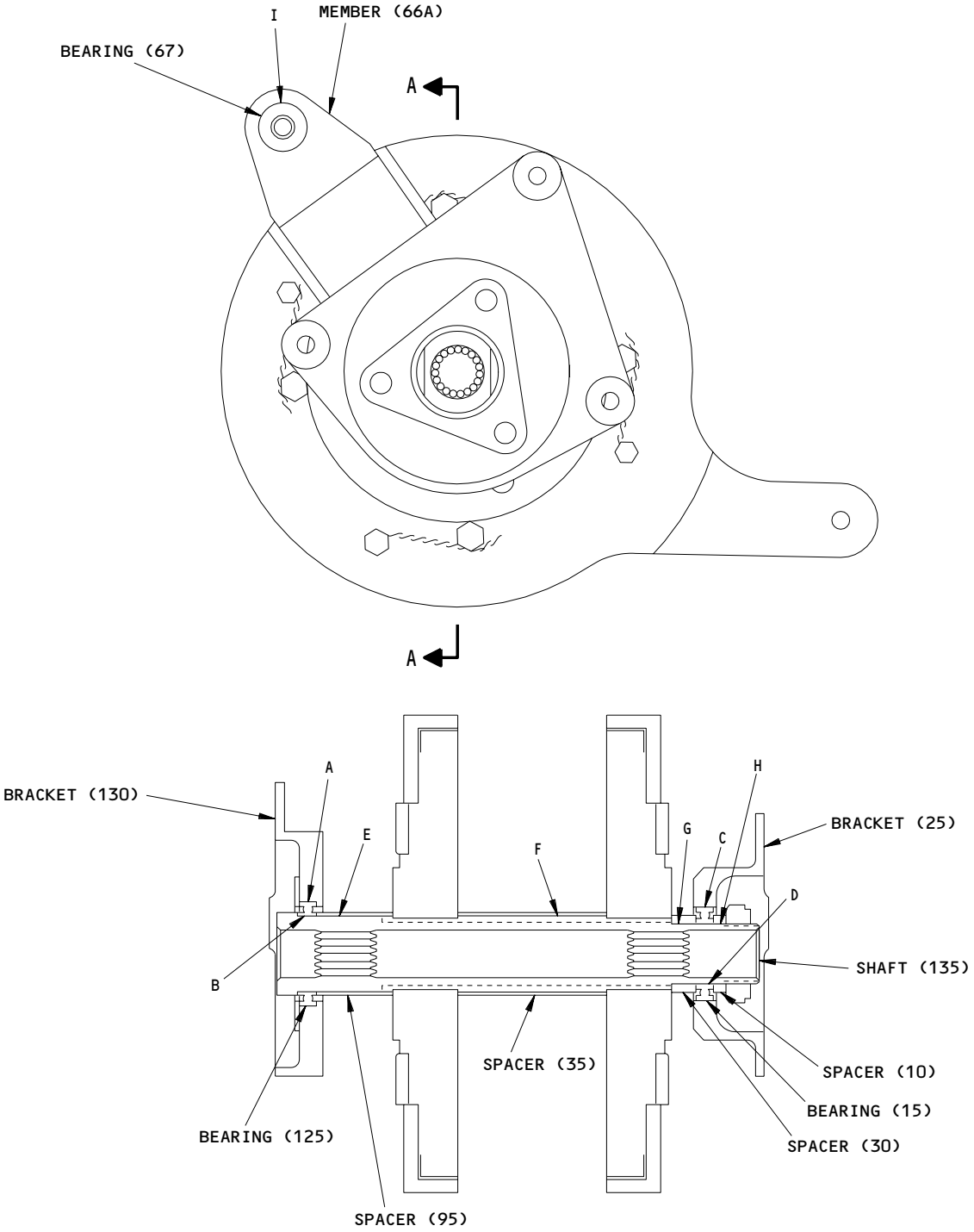
ITEM NUMBERS REFER TO IPL FIG. 1

1. BRACKET ASSEMBLY (20) NOT SHOWN
2. OPPOSITE ASSEMBLY NOT SHOWN
3. TIGHTEN TO 200–220 POUND-INCHES IN ADDITION TO RUN ON TORQUE
4. INSTALL AS SHOWN IN SOPM 20–50–02
5. TIGHTEN TO 30–35 POUND-INCHES
6. TIGHTEN TO 20–25 POUND-INCHES

Clutch Pack Assembly
Figure 701 (Sheet 2)

C76176

FITS AND CLEARANCES



A-A

Fits and Clearances
Figure 801 (Sheet 1)

C73556

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
A	ID 130 OD 125	1.5000 1.4990	1.5010 1.5000	0.0000	0.0020	1.497	1.503	0.003
B	ID 125 OD 135	1.0618 1.0608	1.0632 1.0618	0.0000	0.0024	1.0594	1.0642	0.0024
C	ID 25 OD 15	1.3125 1.3115	1.3135 1.3125	0.0000	0.0020	1.3095	1.3155	0.003
D	ID 15 OD 135	0.8743 0.8733	0.8757 0.8743	0.0000	0.0024	0.8719	0.8767	0.0024
E	ID 95 OD 135	1.064 1.0608	1.068 1.0618	0.002	0.007	1.054	1.0718	0.010
F	ID 35 OD 135	1.023 1.007	1.027 1.021	0.002	0.020	1  1.003	1.041	0.02
G	ID 30 OD 135	0.877 0.8733	0.883 0.8743	0.002	0.010	0.865	0.886	0.012
H	ID 10 OD 135	0.877 0.8733	0.883 0.8743	0.002	0.010	0.865	0.886	0.012
I	ID 66A OD 67	0.7492 0.7495	0.7500 0.7500	2  −0.0008	0.0005	0.7472	0.7520	0.002

* ALL DIMENSION ARE IN INCHES

1 SPLINE OD IS NOT REPAIRABLE

2 NEGATIVE VALUES DENOTE INTERFERENCE FIT

Fits and Clearances
Figure 801 (Sheet 2)

C76092

REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	10	LOCKNUT	IN ADDITION TO NUT RUNNING TORQUE	
1	50	BOLT	30-35	
1	60	SCREW	20-25	

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

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

K8455 RHP BEARINGS PLC RHP AEROSPACE
OLDENDS LANE
STONEHOUSE GL10 3RM UK

06725 AIR INDUSTRIES CORPORATION
12570 KNOTT STREET
GARDEN GROVE, CALIFORNIA 92641-3932

15653 KAYNAR TECHNOLOGY KAYNAR DIV
800 SOUTH STATE COLLEGE BLVD PO BOX 3001
FULLERTON, CALIFORNIA 92634-3001

21335 TORRINGTON CO FAFNIR BEARING DIV
59 FIELD STREET
TORRINGTON, CONNECTICUT 06790-4942

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

43991 FAG BEARING INCORPORATED
118 HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

56878 SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV
HIGHLAND AVENUE
JENKINTOWN, PENNSYLVANIA 19046

62554 SIMMONDS MECAERO FASTENERS INC
1734 SEQUOIA AVENUE
ORANGE, CALIFORNIA 92668

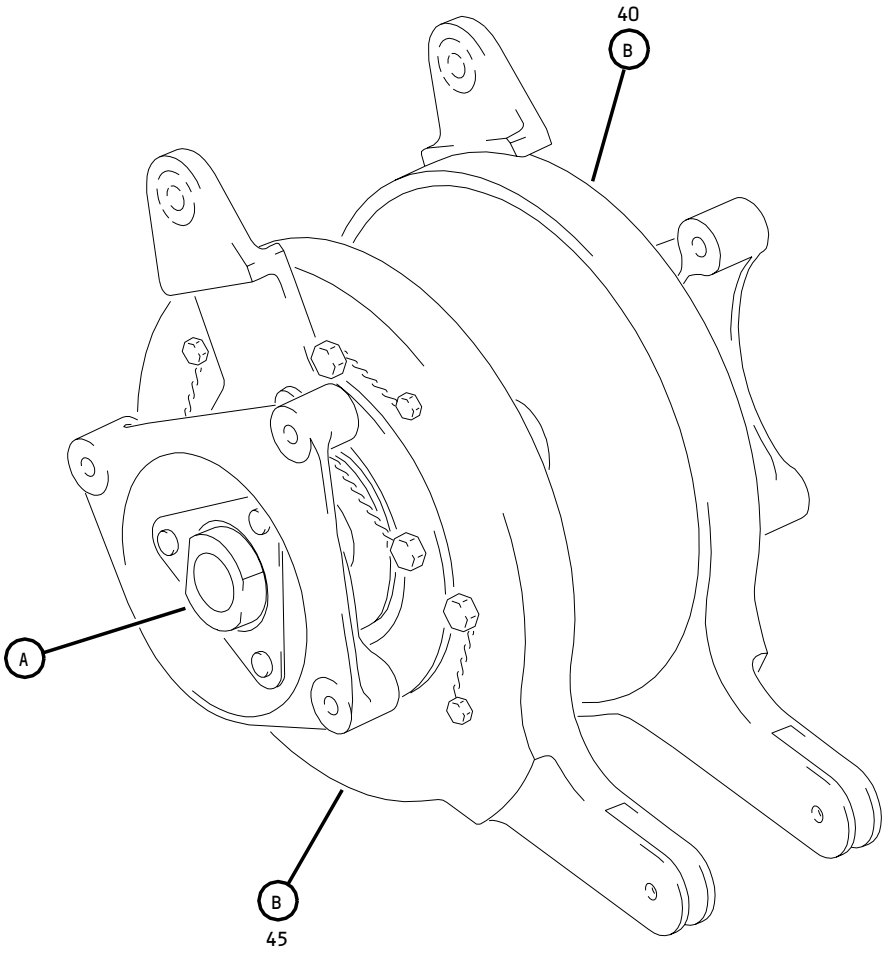
73197 HI-SHEAR TECHNOLOGY CORP
2600 SKYPARK DRIVE
TORRANCE, CALIFORNIA 90509

VENDORS

83326	SAFE FLIGHT INSTRUMENT CORPORATION NEW KING STREET PO BOX 550 WHITE PLAINS, NEW YORK 10602
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102
97393	SHUR-LOK CORPORATION 2541 WHITE ROAD PO BOX 19584 IRVINE, CALIFORNIA 92713
97928	DEUTSCH FASTENER CORP 3969 PARAMONT BOULEVARD LAKEWOOD, CALIFORNIA 90712-4193

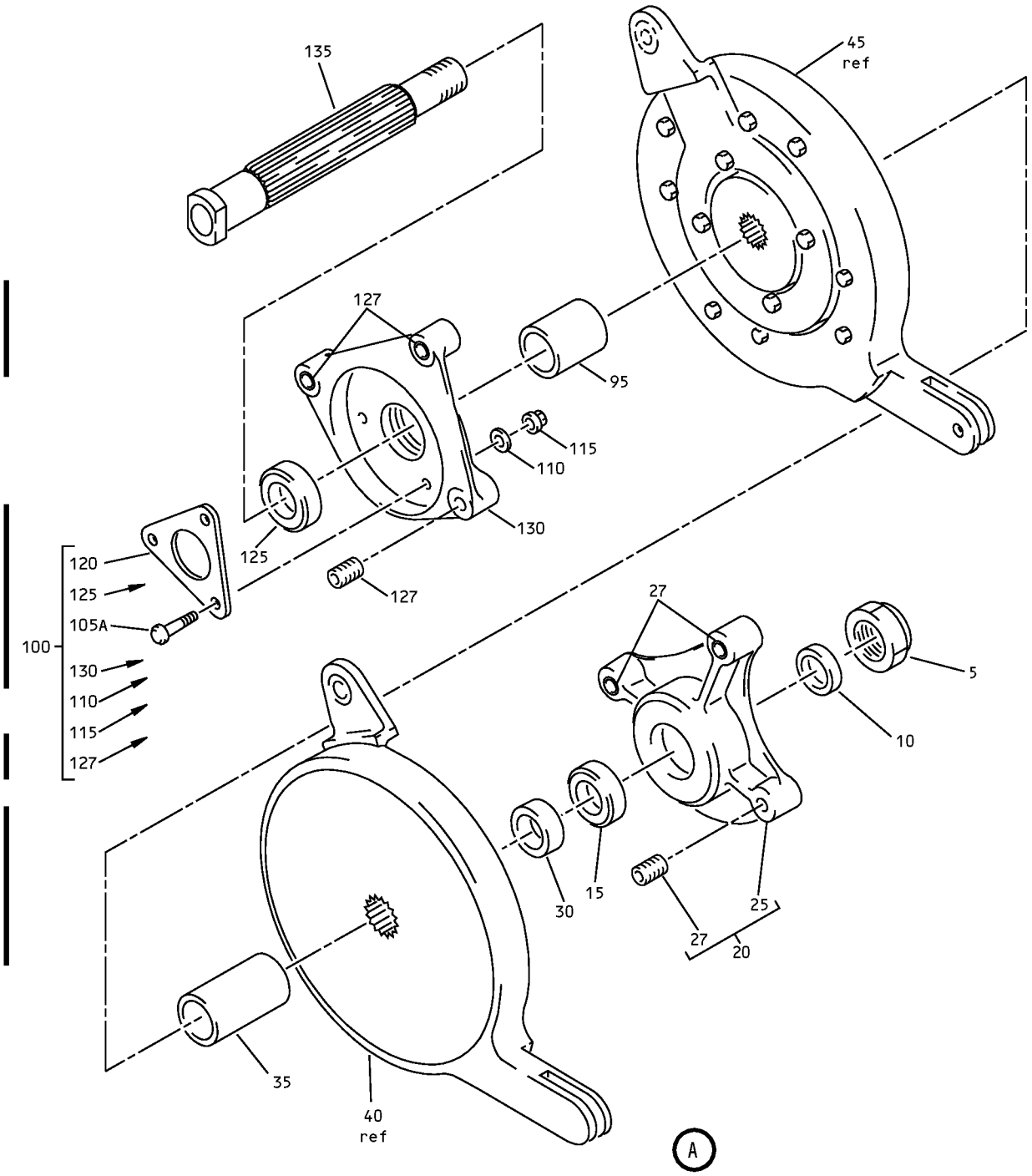
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960JD10		1	55	16
AN960JD8		1	110	3
BACB10AC4A		1	67	2
BACB10CF14PP		1	15	1
BACB10CF17PP		1	125	1
BACB30NX5K6		1	105A	3
BACN10YR08CD		1	115	3
B540-2TS		1	15	1
B540DD		1	15	1
B540DDFS428		1	15	1
B540SSG27		1	15	1
B541-2TS		1	125	1
B541DD		1	125	1
B541DDFS428		1	125	1
B541SSG27		1	125	1
C103018		1	70	2
HHKSP4A		1	67	2
HL12-6		1	105A	3
HL12VAZ5-6		1	105A	3
H52732-08CD		1	115	3
KSP4A		1	67	2
KSP4AE9440A		1	67	2
KSP4AFS428		1	67	2
KSP4AG27		1	67	2
KSP4A2TS		1	67	2
L802-5K6		1	105A	3
MS21209F1-10P		1	92	4
MS21209F4-15P		1	27	3
		1	127	3
NAS1801-3D3		1	60	8
NAS6603H3		1	50	16
PLH508CD		1	115	3
SL7165C14C		1	5	1
T340E		1	15	1
T341E		1	125	1
253T7204-1		1	1A	RF
253T7204-2		1	1B	RF
253T7223-1		1	45	1
253T7223-2		1	40	1
253T7224-1		1	120	1
253T7225-1		1	135	1
253T7226-1		1	95	1
253T7226-2		1	35	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
253T7226-3		1	30	1
253T7226-4		1	10	1
253T7226-5		1	95A	1
253T7226-6		1	35A	1
253T7228-1		1	80	1
253T7228-2		1	75	1
253T7228-3		1	90	1
253T7228-4		1	85	1
253T7229-1		1	65	2
		1	66	2
253T7229-2		1	66A	1
253T7425-10		1	20	1
253T7425-11		1	130	1
253T7425-12		1	25	1
253T7425-9		1	100	1



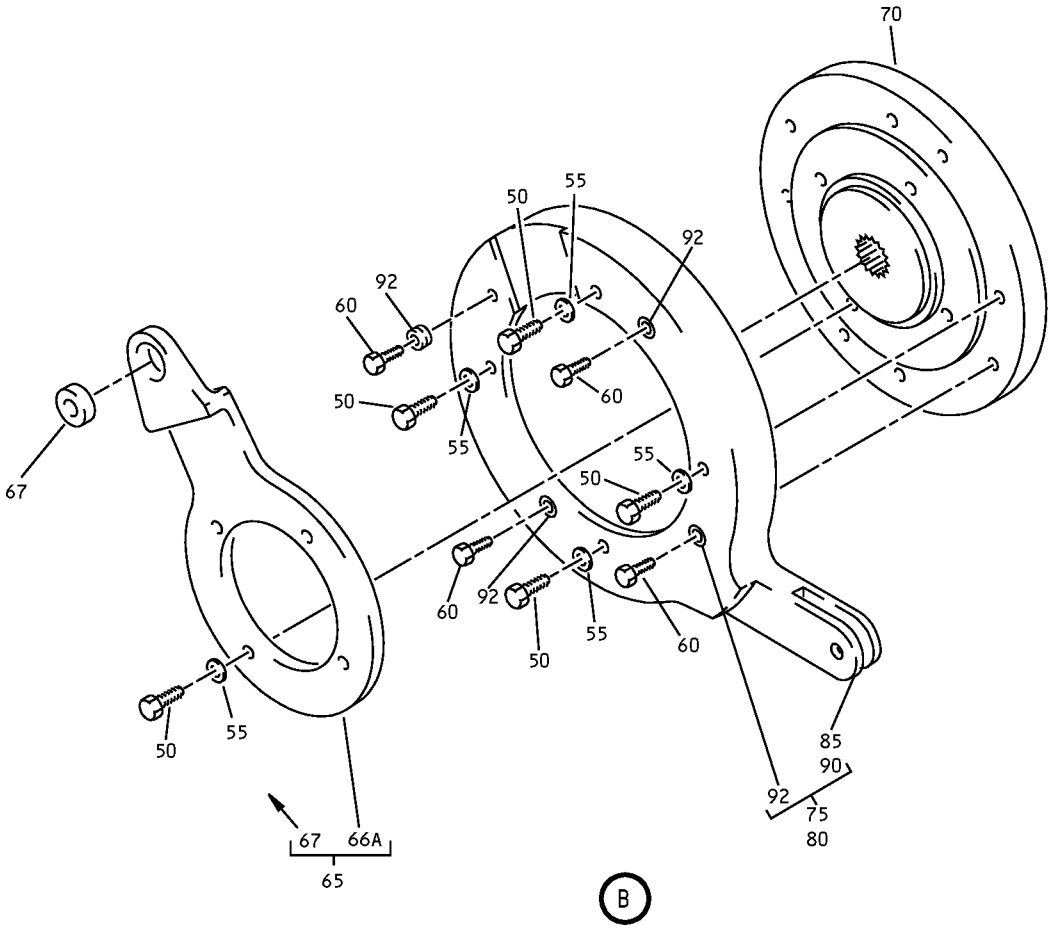
Autothrottle Sprag Clutch Pack Assembly
Figure 1 (Sheet 1)

C73301



Autothrottle Sprag Clutch Pack Assembly
Figure 1 (Sheet 2)

C73439



Autothrottle Sprag Clutch Pack Assembly
Figure 1 (Sheet 3)

C73583

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1A	253T7204-1		PACK ASSY-CLUTCH (POST SB 767-22-0073)	A	RF
-1B	253T7204-2		PACK ASSY-CLUTCH	B	RF
5	SL7165C14C		.NUT- (V97393)		1
10	253T7226-4		.SPACER		1
15	B540DD		.BEARING- (V38443) (SPEC BACB10CF14PP) (OPT B540-2TS (V43991)) (OPT B540DDFS428 (V21335)) (OPT B540SSG27 (V30163)) (OPT T340E (VK8455))		1
20	253T7425-10		.BRACKET ASSY-SUPPORT		1
25	253T7425-12		..BRACKET		1
27	MS21209F4-15P		..INSERT		3
30	253T7226-3		.SPACER		1
35	253T7226-2		.SPACER	A	1
-35A	253T7226-6		.SPACER	B	1
40	253T7223-2		.CLUTCH ASSY		1
45	253T7223-1		.CLUTCH ASSY		1
50	NAS6603H3		..BOLT		8
55	AN960JD10		..WASHER		8
60	NAS1801-3D3		..SCREW		4
65	253T7229-1		..MEMBER ASSY-OUTPUT		1
66	253T7229-1		DELETED		
66A	253T7229-2		...MEMBER ASSY-OUTPUT		1
67	KSP4A		...BEARING- (V38443) (SPEC BACB10AC4A) (OPT HHKSP4A (V38443)) (OPT KSP4AE9440A (V21335)) (OPT KSP4AFS428 (V21335)) (OPT KSP4A2TS (V43991)) (OPT KSP4AG27 (V30163))		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
70	C103018		..SPRAG CLUTCH- (V83326)		1
75	253T7228-2		..ARM ASSY-RELEASE (USED ON ITEM 40)		1
80	253T7228-1		..ARM ASSY-RELEASE (USED ON ITEM 45)		1
85	253T7228-4		...ARM- (USED ON ITEM 75)		1
90	253T7228-3		...ARM- (USED ON ITEM 80)		1
92	MS21209F1-10P		..INSERT		4
95	253T7226-1		.SPACER	A	1
-95A	253T7226-5		.SPACER	B	1
100	253T7425-9		.BRACKET ASSY-SUPPORT		1
105	HL12VAZ5-7		DELETED		
105A	HL12VAZ5-6		..BOLT- (V56878) (SPEC BACB30NX5K6) (OPT HL12VAZ5-6 (V73197)) (OPT HL12VAZ5-6 (V92215)) (OPT HL12VAZ5-6 (V97928)) (OPT L802-5K6 (V06725)) (OPT HL12-6 (V06725)) (OPT HL12VAZ5-6 (V97928))		3

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
110	AN960JD8		..WASHER		3
115	H52732-08CD		..NUT- (V15653) (SPEC BACN10YR08CD) (OPT PLH508CD (V62554))		3
120	253T7224-1		..BEARING RETAINER		1
125	B541DD		..BEARING- (V38443) (SPEC BACB10CF17PP) (OPT B541-2TS (V43991)) (OPT B541DDFS428 (V21335)) (OPT B541SSG27 (V30163)) (OPT T341E (VK8455))		1
127	MS21209F4-15P		..INSERT		3
130	253T7425-11		..BRACKET		1
135	253T7225-1		.SHAFT		1

- Item Not Illustrated