TO: ALL HOLDERS OF AUTOTHROTTLE CLUTCH PACK ASSEMBLY COMPONENT MAINTENANCE MANUAL 22-32-41

REVISION NO. 13 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
REPAIR-GEN 601 REPAIR 2-1 601 REPAIR 5-1 601 1007	Edited without technical change.
704	Updated flagnotes.

BOEING

COMPONENT
MAINTENANCE MANUAL

AUTOTHROTTLE CLUTCH PACK ASSEMBLY

PART NUMBER 253T7200-4 THRU -9

COCOMPENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

19033

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		PRR B10924 PRR 52262-61 PRR B11758	OCT 10/83 JAN 10/87 OCT 01/88 JUL 01/93

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22-32-41		
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1	JUL 10/83	01
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TR & SB RECORD		
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*1	MAR 01/04	01
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* = REVISED, ADDED OR DELETED

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1013	JUL 01/93	01.101
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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	June 22/82
Assembly	June 22/82

AUTOTHROTTLE CLUTCH PACK ASSEMBLY

DESCRIPTION AND OPERATION

1. The clutch pack assembly consists of two clutch assemblies, support bracket assemblies and a shaft. Release arms of the clutch assemblies are connected to the thrust levers via control rod assemblies. 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 air speed, 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

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. Nut (60, IPL Fig. 1)

2. Disassembly (IPL Fig. 1)

   A. Remove bolts (8, 16), washers (12, 20) and bracket assembly (5) from clutch assembly (153).

      NOTE: Do not remove bearing (24) from bracket (29) unless necessary for repair or replacement.

   B. Remove bolts (36, 44) washers (40, 48) and bracket assembly (33) from clutch assembly (149).

      NOTE: Do not remove bearing (52) from bracket (57) unless necessary for repair or replacement.

   C. Remove nuts (60) using torque rack A22003-23 and adapter A22003-7, washers (62) and bracket assemblies (68, 88 or 104, 120).

      NOTE: Do not remove bearing (72 or 108) from bracket support (84 or 116) unless necessary for repair or replacement.

   D. Remove bearing (132) from shaft (64).

   E. Remove shaft (64) and spacers (136, 140, 144). Separate clutch assemblies (149, 153).

      NOTE: For repair details of clutch assemblies (148A, 152A), refer to 22-32-51.

CLEANING

1. Clean all parts except bearings using standard industry practices (Ref 20-30-03).

2. Clean all teflon-sealed bearings (24, 52, 72, 108, 132, IPL Fig. 1) per manufacturer's instructions.

CHECK

1. Check all parts for obvious defects in accordance with standard industry practices. Refer to FITS AND CLEARANCES for design dimensions and wear limits.

2. Magnetic particle check per 20-20-01 -- Bracket (29, 57, IPL Fig. 1), shaft (64), and spacers (136, 140, 144).

3. Penetrant check per 20-20-02 -- Bracket (84, 100, 116, 128).

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
253T7219	BRACKET	1-1
253T7425	BRACKET	2-1
253T7215	SHAFT	3-1
- - -	MISC PARTS REFINISH	4-1
254N1211	BRACKET	5-1

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
   20-60-02 Finishing Materials
   20-60-04 Miscellaneous Materials

3. Materials

   NOTE: Equivalent substitutes may be used.

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

   B. Sealant -- BMS 5-95, (SOPM 20-20-04)

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
⊥ 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 RELATIVE 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
⌯ 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 RELATIVE 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

(NOTE THAT ⌓ A 0.020 MAY ALSO APPEAR AS ⌓ 0.020 A)

True Position Dimensioning Symbols
Figure 601

BRACKET ASSEMBLY - REPAIR 1-1

253T7219-7, -8

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)

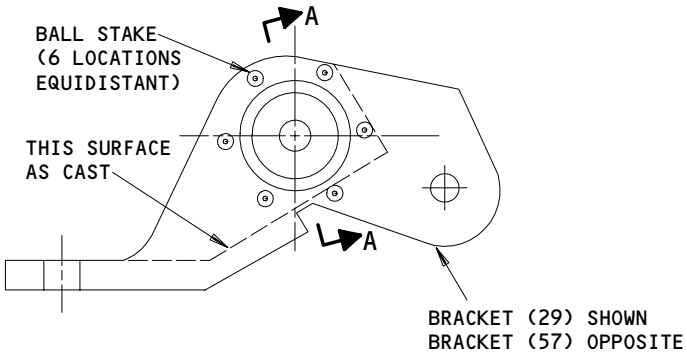
   A. Remove bearing (24 or 52)

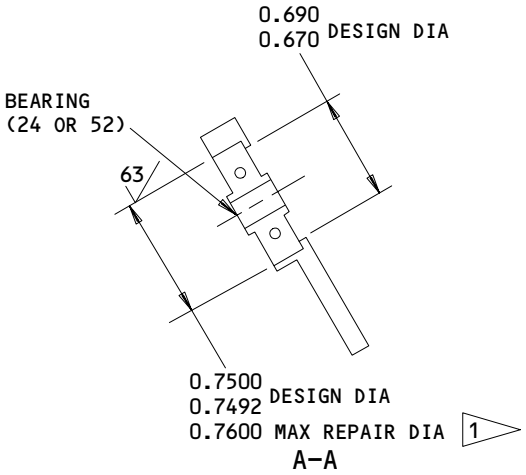
   B. Install new bearing and ball stake housing 6 places per 20-50-03.

2. Repair (Fig. 601)

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

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





REFINISH

BRACKET (29,57) -- PASSIVATE (F-17.09)

REPAIR

1 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

MATERIAL: 17-4PH CRES, 180 KSI MINIMUM

ALL DIMENSIONS ARE IN INCHES

Bracket Assembly - Repair
Figure 601

19038

BRACKET ASSEMBLY - REPAIR 2-1

253T7425-1, -5

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 (72) from bracket assembly (68) or bearing (108) from bracket assembly (104,104B).

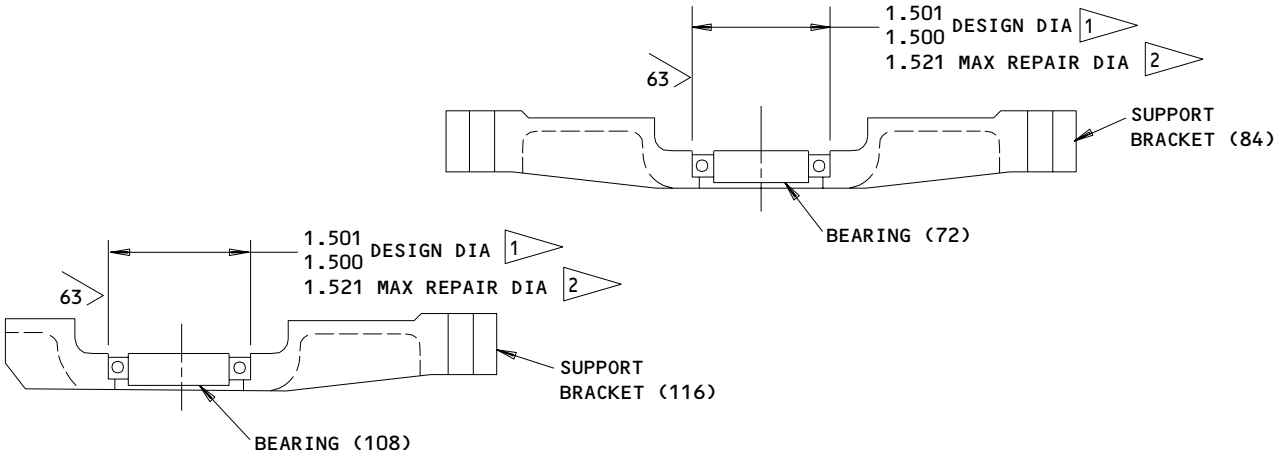
   B. Install new bearing per 20-50-03 except use BMS 10-11, type 1 primer.

   C. Roller swage housing per 20-50-03.

2. Repair (Fig. 601)

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

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



REFINISH

BRACKET (84 OR 116) -- CHROMIC ACID ANODIZE AND APPLY ONE COAT BMS 10-11, TYPE 1 PRIMER (F-18.13) EXCEPT AS NOTED

1 OMIT PRIMER

REPAIR

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

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Support Bracket Assembly - Repair
Figure 601

SHAFT - REPAIR 3-1

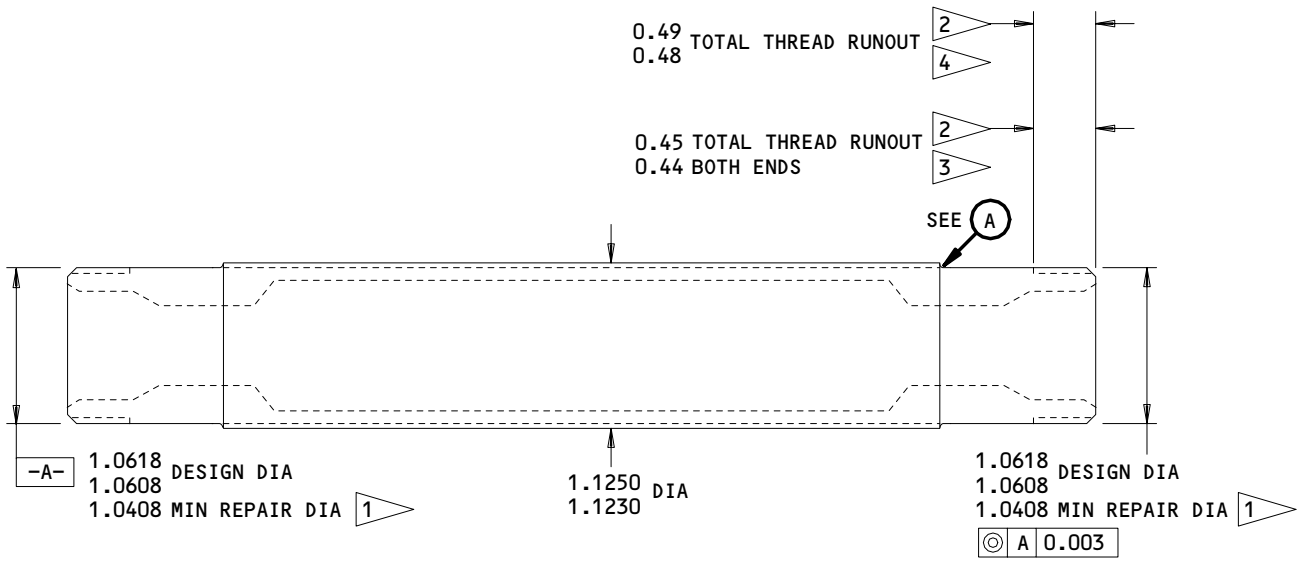
253T7215-1, -2

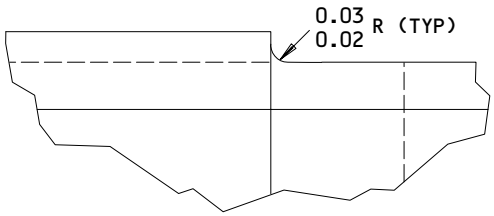
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instrucitons, Fig. 601.

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

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

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





A

REFINISH

PASSIVATE (F-17.09) ALL OVER

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

3 253T7215-1

4 253T7215-2

REPAIR

REF 1

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

ALL DIMENSIONS ARE IN INCHES

253T7215-1,-2
Shaft Repair
Figure 601

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		
Bracket (100,100A, 100B,128,128A)	Al alloy	Chromic acid anodize and apply one coat of BMS 10-11, type 1 primer (F-18.13) except omit primer on ID of 1.500-1.501 inch diameter hole.
Spacer (136,140, 144)	15-5PH CRES, 180-200 ksi	Passivate (F-17.09) all over.

Refinish Details
Figure 601

BRACKET ASSEMBLY - REPAIR 5-1

254N1211-1, -7, -11,

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 (72) from bracket assemblies (68A, 68B).

   B. Remove bearing (108) from bracket assembly (104A).

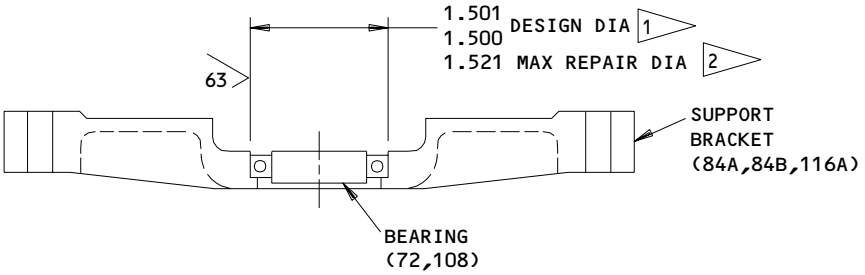
   C. Install new bearing per 20-50-03 using BMS 5-95 sealant.

   D. Roller swage housing per 20-50-03.

2. Repair (Fig. 601)

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

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



REFINISH

BRACKET (84A),(84B),(116A)
-- CHROMIC ACID ANODIZE AND APPLY ONE COAT BMS 10-11, TYPE 1 PRIMER (F-18.13) EXCEPT AS NOTED

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

REF 2

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Support Bracket Assembly - Repair
Figure 601

ASSEMBLY

1. Materials, Parts and Equipments

NOTE: Equivalent substitutes may be used.

A. Grease -- BMS 3-24, (Optional BMS 3-33) (Ref 20-60-03)

B. Deleted.

C. Nut (60) -- BR9247-1718 or SL2778-2 (See parts list)

D. Torque Rack -- A22003-23

E. Spindle -- A22003-16

F. Adapter -- A22003-7

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

NOTE: Use new nut (60) whenever possible. Nut (60) running torque for used nut is less than that for new nut (60). See par. 2.H and 2.J.

A. Install bracket assembly (5) on clutch assembly (153) with bolt (8) and washer (12) installed finger-tight to hold mating surfaces flush. Install bolt (16) and washer (20) and tighten bolts (8, 16).

B. Install bracket assembly (33) on clutch assembly (149) with bolt (36) and washer (40) installed finger-tight to hold mating surfaces flush. Install bolt (44) and washer (48) and tighten bolts (36, 48).

C. Install clutch assembly (153) on shaft (64). Mate splines.

D. Install spacer (136) and support bracket assembly (68 or 104) on shaft (64). Install new nut (60); tighten nut (60) using torque rack A22003-23 and adapter A22003-7 until 0.00-0.03 in. clearance is obtained.

E. Install spacer (144), clutch assembly (149), spacer (140), and bearing (132) on shaft. Mate splines. Install bearing (132) per 20-50-03 using a small amount of grease.

CAUTION: KEEP SUPPORT BRACKET ASSEMBLY (88 OR 120) UPWARD OR IT MAY SLIDE OUT OF BEARING (132). IT IS PERMISSIBLE TO SLIDE IN AGAINST CLUTCH ASSEMBLY (149).

F. Install support bracket assembly (88 or 120) on bearing (132) using a small amount of grease.

G. Place unit on torque rack A22003-23 with spindle A22003-16.

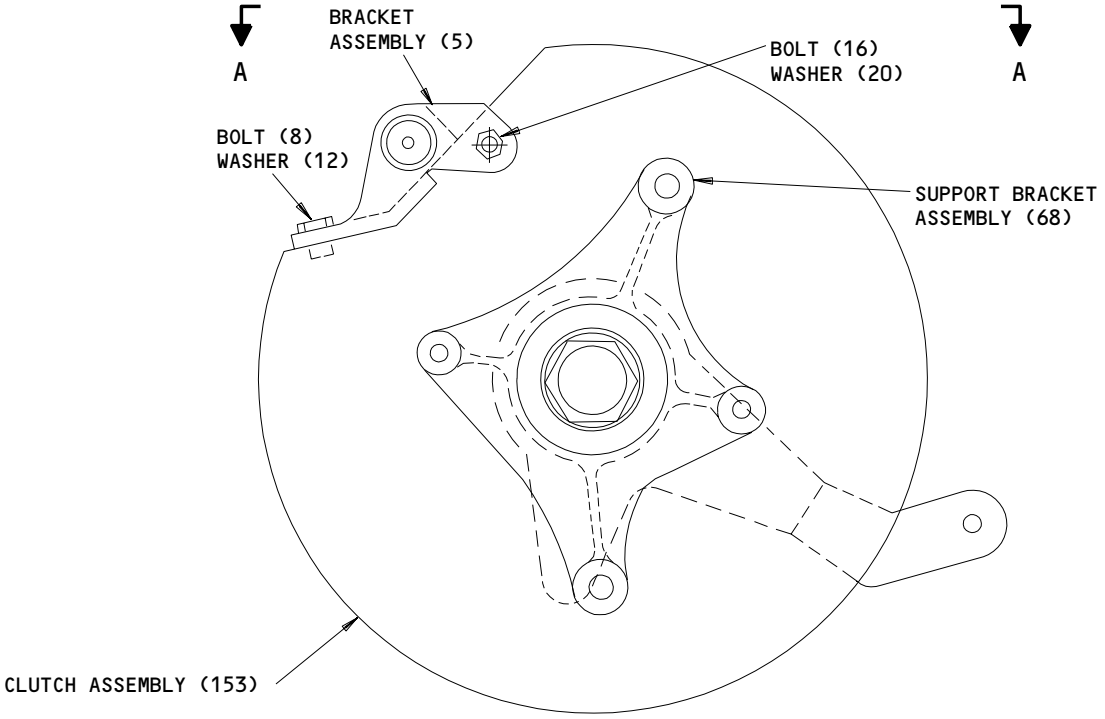
H. Install washers (62) and new nut (60); tighten nut (60) to 200-220 lb-in. above running torque using adapter A22003-7 (total torque will be approximately 300-320 lb-in. for new nut (60) and less for used one).

I. Place unit upside down on torque rack A22003-23.

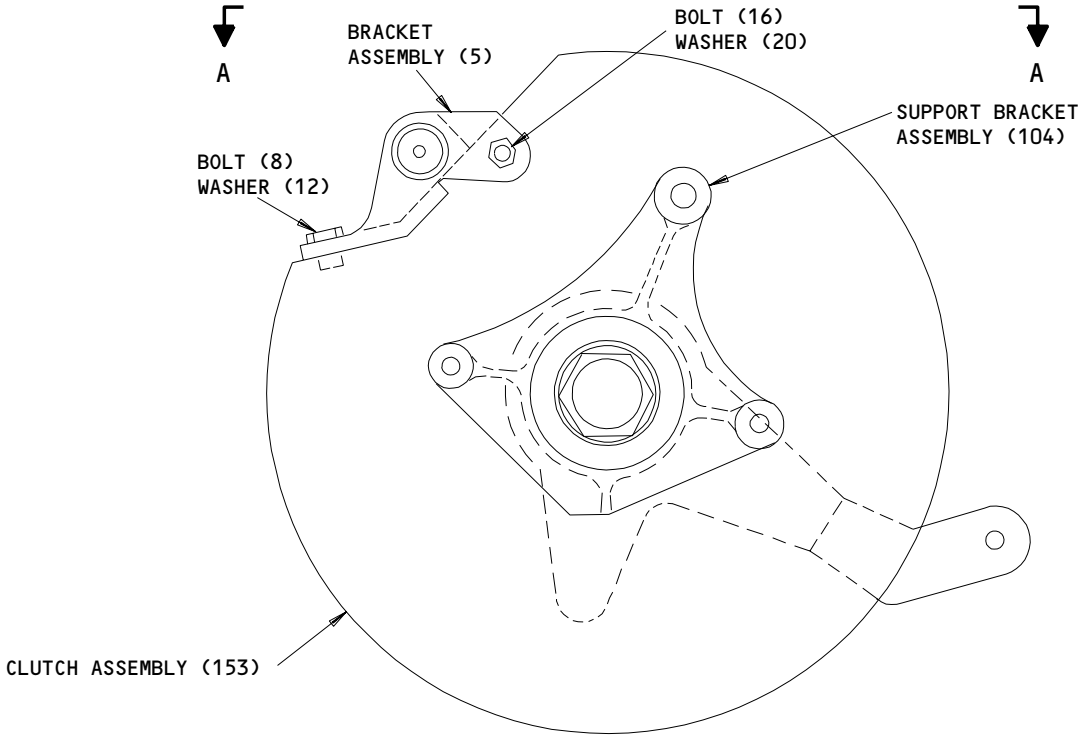
J. Check or tighten nut (60) to 200-220 lb-in. above running torque using adapter A22003-7. Check that clearance between nut (60) and support bracket assembly (68 or 104) is still 0.00-0.03 in.

K. Remove unit from torque rack A22003-23.

3. Prepare and store clutch pack assemblies in moisture proof bag. The bag shall contain the part number, desiccant, and the following instructions: "This assembly to be kept clean and dry. Do not contaiminate with grease, oil, water or cleaning solvent."

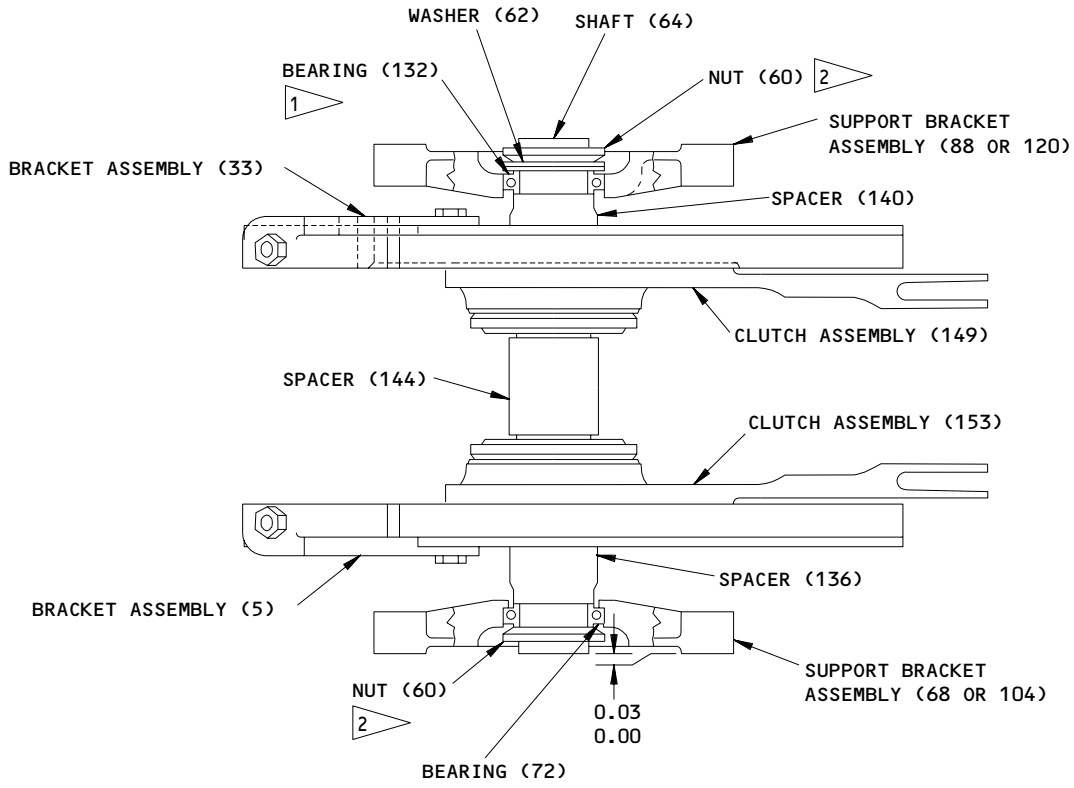


253T7200-5,-7,-9



253T7200-4,-6,-8

Clutch Pack Assembly
Figure 701 (Sheet 1)



A-A

1 INSTALL BEARING PER SOPM 20-50-03 USING A SMALL QUANITY OF GREASE

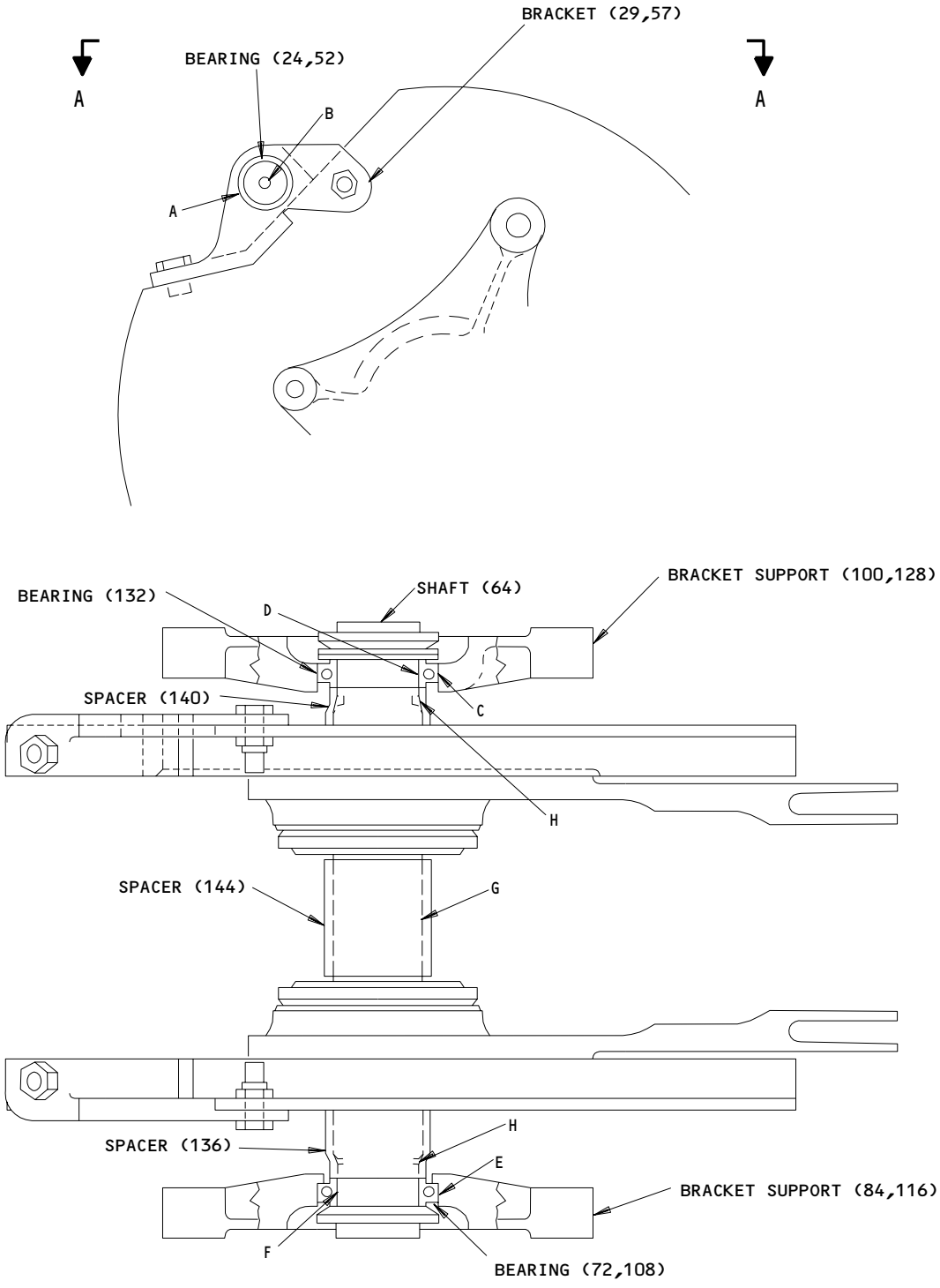
2 TIGHTEN TO 200-220 POUND-INCHES IN ADDITION TO RUNNING TORQUE

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Clutch Pack Assembly
Figure 701 (Sheet 2)

FITS AND CLEARANCES



A-A

Fits and Clearances
Figure 801 (Sheet 1)

57880

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 29,57 OD 24,52	0.7492 0.7495	0.7500 0.7500	-0.0008 *[1]	0.0005	0.7490	0.7510	0.002
B	ID 24,52	0.2495	0.2500					
C	ID 100,128 OD 132	1.5000 1.4990	1.501 1.5000	0.0000	0.0020	1.4980	1.503	0.0050
D	ID 132 OD 64	1.0618 1.0608	1.0632 1.0618	0.0000	0.0024	1.0588	1.0642	0.0054
E	ID 84,116 OD 72,108	1.5000 1.4990	1.5010 1.5000	0.0000	0.0020	1.4980	1.503	0.0050
F	ID 72,108 OD 64	1.0618 1.0608	1.0632 1.0618	0.0000	0.0024	1.0588	1.0642	0.0054
G	ID 144 OD 64	1.126 1.1230	1.130 1.1250	0.0010	0.0070	1.121	1.132	0.0110
H	ID 136,140 OD 64	1.068 1.0608	1.072 1.0618	0.0062	0.0112	1.0588	1.074	0.0152

*[1] NEGATIVE VALUES DENOTE INTERFERENCE FIT
ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 2)

59411

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
60	NUT	200 - 220 IN ADDITION TO NUT RUNNING TORQUE	

Torque Table
Figure 802

19338

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

NOTE: Equivalent substitutes may be used.

1. A22003-22 -- Autothrottle Clutch Component Maintenance Equipment

   A. A22003-23 -- Torque Rack Assembly

   B. A22003-7 -- Adapter

   C. A22003-16 -- Spindle

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 LAMSON AND SESSIONS CO THE VALLEY-TODECO
12975 BRADLEY AVENUE
SYLMAR, CALIFORNIA 91342-3830

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

06950 SCREWCORP VSI CORP AEROSPACE PRODUCTS DIV FAIRCHILD IND INC
13001 EAST TEMPLE AVE. PO BOX 730
CITY OF INDUSTRY, CALIFORNIA 91746-1417

08524 DEUTSCH FASTENER CORP SEE CODE V97928

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

27624 PAUL R BRILES INC P.B. FASTENER DIV
1700 WEST 132ND STREET PO BOX 1157
GARDENA, CALIFORNIA 90249-2008

30163 VALENTEC DAYRON INC
333 MAGUIRE BLVD PO BOX 140394
ORLANDO, FLORIDA 32814-0394

38443 TRW INC BEARING DIV
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

72962 ELASTIC STOP NUT A DIV OF HARTFORD INDUSTRIES INC
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083-5038

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

VENDORS

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

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

93907 TEXTRON INC CAMCAR DIV
600 18TH AVENUE
ROCKFORD, ILLINOIS 61101

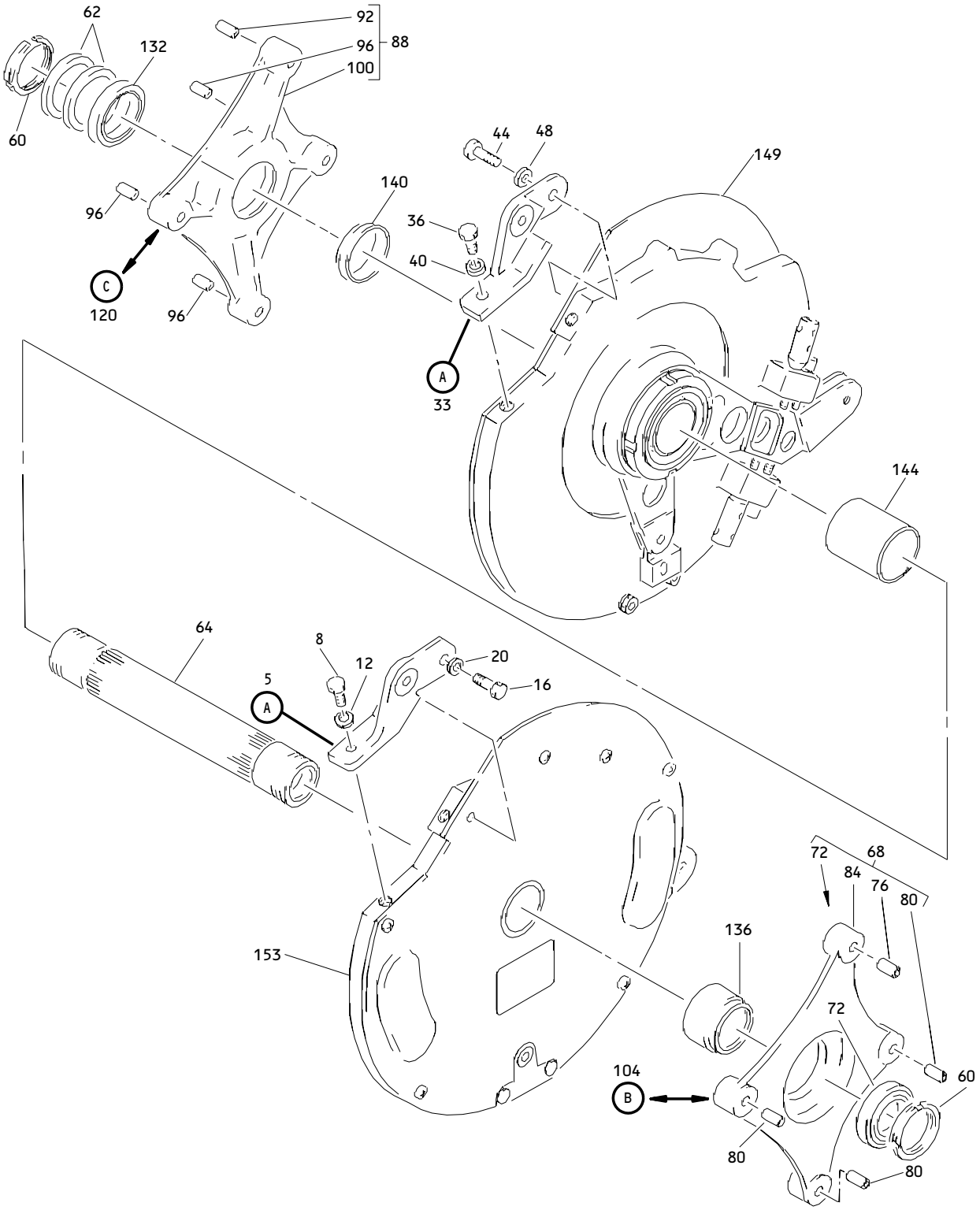
97393 SHUR-LOK CORPORATION
2541 WHITE ROAD PO BOX 19584
IRVINE, CALIFORNIA 92713

97928 DEUTSCH FASTENER CORP
3969 PARAMONT BOULEVARD
LAKEWOOD, CALIFORNIA 90712-4193

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960D10		1	20	1
		1	48	1
AN960PD416L		1	12	1
		1	40	1
BACB10AC4A		1	24	1
		1	52	1
BACB10CF17PP		1	72	1
		1	108	1
		1	132	1
BACB30NR4K4		1	8	1
		1	36	1
BACW10P210AL		1	62	2
BR9247-1718		1	60	2
B541-2TS		1	72	1
		1	108	1
		1	132	1
B541DD		1	72	1
		1	108	1
		1	132	1
B541DDFS428		1	72	1
		1	108	1
		1	132	1
B541SSG27		1	72	1
		1	108	1
		1	132	1
HHKSP4A		1	24	1
		1	52	1
KSP4A		1	24	1
		1	52	1
KSP4AE9440A		1	24	1
		1	52	1
KSP4AFS428		1	24	1
		1	52	1
KSP4AG27		1	24	1
		1	52	1
KSP4A2TS		1	24	1
		1	52	1
MS21209F4-15		1	80	3
		1	96	3
		1	112	3
		1	124	3
MS21209F6-15		1	76	1
		1	92	1
NAS6603-4		1	16	1
		1	44	1
SL2778-2		1	60A	2
253T7200-1		1	1	

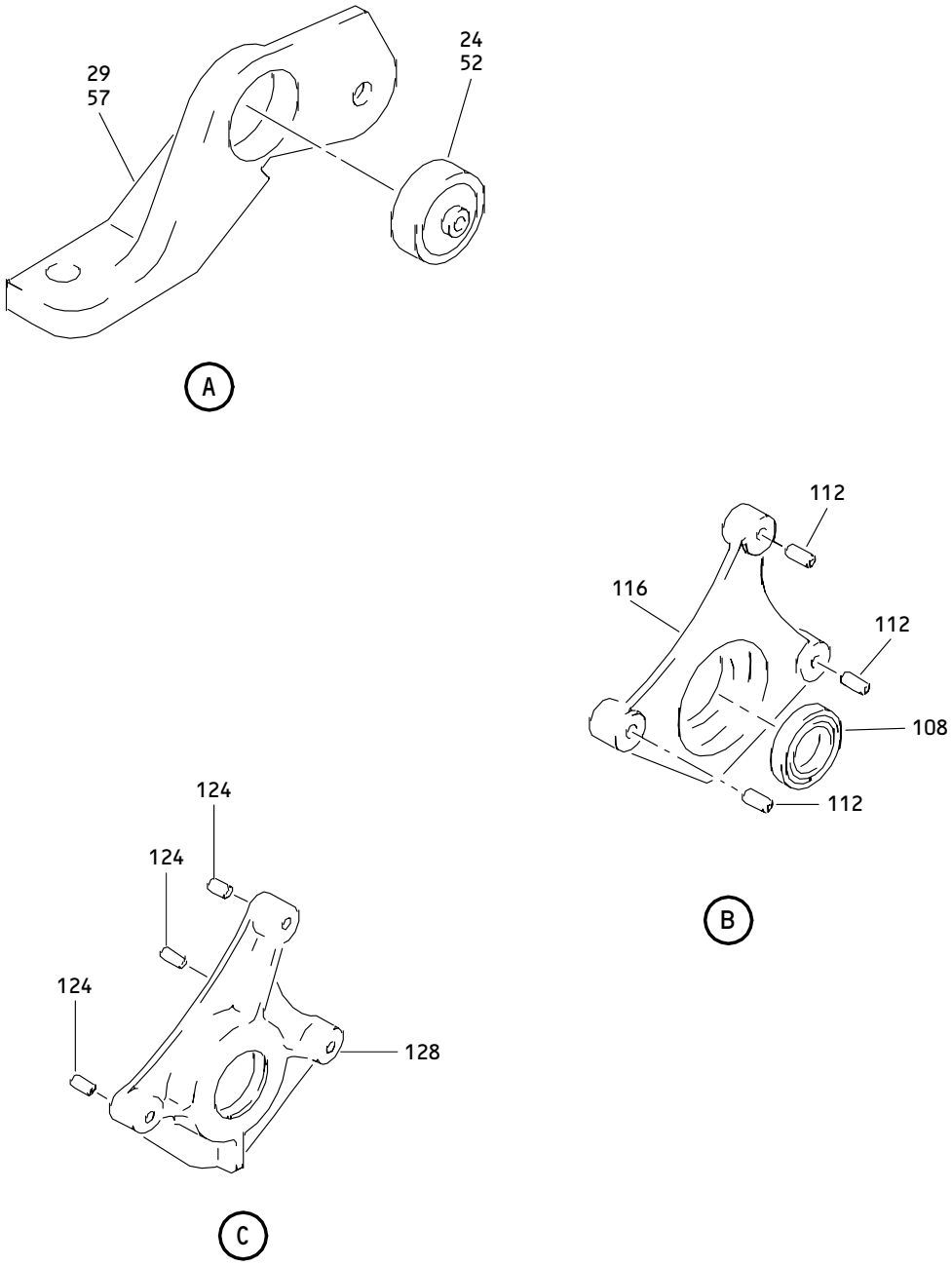
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
253T7200-2		1	2	
253T7200-4		1	2A	RF
253T7200-5		1	1A	RF
253T7200-6		1	2B	RF
253T7200-7		1	1B	RF
253T7200-8		1	2C	RF
253T7200-9		1	1C	RF
253T7201-1		1	148	
253T7201-11		1	149B	1
253T7201-12		1	153B	1
253T7201-13		1	149D	1
253T7201-14		1	153D	1
253T7201-2		1	152	
253T7201-5		1	149	1
		1	149C	1
253T7201-6		1	153	1
		1	153C	1
253T7201-7		1	149A	1
253T7201-8		1	153A	1
253T7214-1		1	144	1
253T7215-1		1	64	1
253T7215-2		1	64A	1
253T7219-1		1	4	
253T7219-10		1	57	1
253T7219-2		1	32	
253T7219-3		1	28	
253T7219-4		1	56	
253T7219-7		1	5	1
253T7219-8		1	33	1
253T7219-9		1	29	1
253T7220-1		1	136	1
253T7220-2		1	140	1
253T7425-1		1	68	1
253T7425-2		1	88	1
253T7425-3		1	84	1
253T7425-4		1	100	1
253T7425-5		1	104	1
		1	104B	1
253T7425-6		1	120	1
		1	120B	1
253T7425-7		1	116	1
253T7425-8		1	128	1
254N1211-1		1	68A	1
254N1211-10		1	128A	1
254N1211-11		1	68B	1
254N1211-12		1	88B	1
254N1211-13		1	84B	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
254N1211-14		1	100B	1
254N1211-2		1	88A	1
254N1211-3		1	84A	1
254N1211-4		1	100A	1
254N1211-7		1	104A	1
254N1211-8		1	120A	1
254N1211-9		1	116A	1



Autothrottle Clutch Pack Assembly
Figure 1 (Sheet 1)

T56407



Autothrottle Clutch Pack Assembly
Figure 1 (Sheet 2)

	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
	01-					
	-1	253T7200-1		DELETED		
	-1A	253T7200-5		PACK ASSY-AUTOTHROTTLE CLUTCH	C	RF
R	-1B	253T7200-7		PACK ASSY-AUTOTHROTTLE CLUTCH	A	RF
R	-1C	253T7200-9		PACK ASSY-AUTOTHROTTLE CLUTCH	F	RF
	-2	253T7200-2		DELETED		
	-2A	253T7200-4		PACK ASSY-AUTOTHROTTLE CLUTCH (PRE SB 22-0073) *[1]	B	RF
	-2B	253T7200-6		PACK ASSY-AUTOTHROTTLE CLUTCH (PRE SB 22-0073) *[1]	D	RF
R	-2C	253T7200-8		PACK ASSY-AUTOTHROTTLE CLUTCH (PRE SB 22-0073) *[1]	E	RF
	4	253T7219-1		DELETED		
	5	253T7219-7		.BRACKET ASSY ATTACHING PARTS		1
	8	BACB30NR4K4		.BOLT- (V06710) (SPEC BACB30NR4K4) (OPT BACB30NR4K4 (V06725)) (OPT BACB30NR4K4 (V06950)) (OPT BACB30NR4K4 (V08524)) (OPT BACB30NR4K4 (V27624)) (OPT BACB30NR4K4 (V56878)) (OPT BACB30NR4K4 (V73197)) (OPT BACB30NR4K4 (V80539)) (OPT BACB30NR4K4 (V92215)) (OPT BACB30NR4K4 (V93907)) (OPT BACB30NR4K4 (V97928))		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
12	AN960PD416L		.WASHER		1
16	NAS6603-4		.BOLT		1
20	AN960D10		.WASHER		1
			-------*-------		
24	KSP4A		..BEARING-		1
			(V38443)		
			(SPEC BACB10AC4A)		
			(OPT HHKSP4A		
			(V38443))		
			(OPT KSP4AE9440A		
			(V21335))		
			(OPT KSP4AFS428		
			(V21335))		
			(OPT KSP4A2TS		
			(V43991))		
			(OPT KSP4AG27		
			(V30163))		
28	253T7219-3		DELETED		
29	253T7219-9		..BRACKET		1
32	253T7219-2		DELETED		
33	253T7219-8		.BRACKET ASSY		1
			ATTACHING PARTS		
36	BACB30NR4K4		.BOLT-		1
			(V06710)		
			(SPEC BACB30NR4K4)		
			(OPT BACB30NR4K4		
			(V06725))		
			(OPT BACB30NR4K4		
			(V06950))		
			(OPT BACB30NR4K4		
			(V08524))		
			(OPT BACB30NR4K4		
			(V27624))		
			(OPT BACB30NR4K4		
			(V56878))		
			(OPT BACB30NR4K4		
			(V73197))		
			(OPT BACB30NR4K4		
			(V80539))		
			(OPT BACB30NR4K4		
			(V92215))		
			(OPT BACB30NR4K4		
			(V93907))		
			(OPT BACB30NR4K4		
			(V97928))		

	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
	01-					
	40	AN960PD416L		.WASHER		1
	44	NAS6603-4		.BOLT		1
	48	AN960D10		.WASHER		1
				-------*-------		
	52	KSP4A		..BEARING-		1
				(V38443)		
				(SPEC BACB10AC4A)		
				(OPT HHKSP4A		
				(V38443))		
				(OPT KSP4AE9440A		
				(V21335))		
				(OPT KSP4AFS428		
				(V21335))		
				(OPT KSP4A2TS		
				(V43991))		
				(OPT KSP4AG27		
				(V30163))		
	56	253T7219-4		DELETED		
	57	253T7219-10		..BRACKET		1
	60	BR9247-1718		.NUT-		2
				(V72962)		
				(OPT ITEM 60A)		
R	-60A	SL2778-2		.NUT-		2
				(V97393)		
				(OPT ITEM 60)		
R	62	BACW10P210AL		.WASHER	F	2
R	64	253T7215-1		.SHAFT	A-E	1
R	-64A	253T7215-2		.SHAFT	F	1
R	68	253T7425-1		.BRACKET ASSY-SPRT	C	1
R	-68A	254N1211-1		.BRACKET ASSY-SPRT	A	1
R	-68B	254N1211-11		.BRACKET ASSY-SPRT	F	1
	72	B541DD		..BEARING-	A,C,F	1
				(V38443)		
				(SPEC BACB10CF17PP)		
				(OPT B541-2TS		
				(V43991))		
				(OPT B541DDFS428		
				(V21335))		
				(OPT B541SSG27		
				(V30163))		
	76	MS21209F6-15		..INSERT	A,C,F	1
	80	MS21209F4-15		..INSERT	A,C,F	3
	84	253T7425-3		..BRACKET	C	1
R	-84A	254N1211-3		..BRACKET	A	1
R	-84B	254N1211-13		..BRACKET	F	1

	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
	01-					
R	88	253T7425-2		.BRACKET ASSY-SPRT	C	1
R	-88A	254N1211-2		.BRACKET ASSY-SPRT	A	1
R	-88B	254N1211-12		.BRACKET ASSY-SPRT	F	1
	92	MS21209F6-15		..INSERT	A,C,F	1
	96	MS21209F4-15		..INSERT	A,C,F	3
	100	253T7425-4		..BRACKET	C	1
R	-100A	254N1211-4		..BRACKET	A	1
R	-100B	254N1211-14		..BRACKET	F	1
R	104	253T7425-5		.BRACKET ASSY-SPRT (OPT ITEM 104A)	D,E	1
R	-104A	254N1211-7		.BRACKET ASSY-SPRT (OPT ITEM 104)	D,E	1
	-104B	253T7425-5		.BRACKET ASSY-SPRT	B	1
	108	B541DD		..BEARING- (V38443) (SPEC BACB10CF17PP) (OPT B541-2TS (V43991)) (OPT B541DDFS428 (V21335)) (OPT B541SSG27 (V30163))	B,D,E	1
	112	MS21209F4-15		..INSERT	B,D,E	3
	116	253T7425-7		..BRACKET (USED ON ITEMS 104,104B)	B,D,E	1
	-116A	254N1211-9		..BRACKET (USED ON ITEM 104A)	D,E	1
R	120	253T7425-6		.BRACKET ASSY-SPRT (OPT ITEM 120A)	D,E	1
R	-120A	254N1211-8		.BRACKET ASSY-SPRT (OPT ITEM 120)	D,E	1
	-120B	253T7425-6		.BRACKET ASSY-SPRT	B	1

	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
	01-					
	124	MS21209F4-15		..INSERT	B,D,E	3
	128	253T7425-8		..BRACKET (USED ON ITEMS 120,120B)	B,D,E	1
	-128A	254N1211-10		..BRACKET (USED ON ITEM 120A)	D,E	1
	132	B541DD		.BEARING- (V38443) (SPEC BACB10CF17PP) (OPT B541-2TS (V43991)) (OPT B541DDFS428 (V21335)) (OPT B541SSG27 (V30163))		1
R	136	253T7220-1		.SPACER		1
R	140	253T7220-2		.SPACER		1
R	144	253T7214-1		.SPACER		1
	148	253T7201-1		DELETED		
R	149	253T7201-5		.CLUTCH ASSY- (OPT ITEM 149B) (REF CMM 22-32-51)	A,C,F	1
R	-149A	253T7201-7		.CLUTCH ASSY- (REF CMM 22-32-51)	D	1
R	-149B	253T7201-11		.CLUTCH ASSY- (OPT ITEM 149) (REF CMM 22-32-51)	A,C,F	1
R	-149C	253T7201-5		.CLUTCH ASSY- (REF CMM 22-32-51)	B	1
R	-149D	253T7201-13		.CLUTCH ASSY- (REF CMM 22-32-51)	E	1
	152	253T7201-2		DELETED		
R	153	253T7201-6		.CLUTCH ASSY- (OPT ITEM 153B) (REF CMM 22-32-51)	A,C,F	1
R	-153A	253T7201-8		.CLUTCH ASSY- (REF CMM 22-32-51)	D	1

	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
R	01-153B	253T7201-12		.CLUTCH ASSY- (OPT ITEM 153) (REF CMM 22-32-51)	A,C,F	1
R	-153C	253T7201-6		.CLUTCH ASSY- (REF CMM 22-32-51)	B	1
R	-153D	253T7201-14		.CLUTCH ASSY- (REF CMM 22-32-51)	E	1

*[1] POST SB-22-0073 PART NUMBER 253T7204-1 IS COVERED IN CMM 22-32-44