

 **BOEING**
COMPONENT
MAINTENANCE MANUAL

TO: ALL HOLDERS OF CONTROL STAND SPEED BRAKE MECHANISM ASSEMBLY COMPONENT
MAINTENANCE MANUAL 27-62-23

REVISION NO. 1 DATED MAR 01/00

HIGHLIGHTS

Add data formerly in manual 27-62-21 is included in this manual 27-62-23.

CHAPTER/SECTION

AND PAGE NO.

101

DESCRIPTION OF CHANGE

Added AMM 27-61-10 reference to the Testing section.

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HIGHLIGHTS

01.1

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Mar 01/00



CONTROL STAND SPEED BRAKE
MECHANISM ASSEMBLY
PART NUMBER 253T1200-3,-5

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

27-62-23

TITLE PAGE

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01



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


BOEING
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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR B10195 PRR VDC-T0076 PRR B10501 PRR B11405	OCT 10/81 APR 10/82 APR 10/82 JAN 10/86

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TR & SB RECORD

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*[1] Special instructions not required. Use standard industry practices and information contained in 20-30-03.

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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:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Title Page 2. Record of Revisions 3. Temporary Revision &
Service Bulletin Record | <ol style="list-style-type: none"> 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:

Testing/Troubleshooting	Mar 31/82
Disassembly	Mar 31/82
Assembly	Mar 31/82

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INTRODUCTION

01

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CONTROL STAND SPEED BRAKE MECHANISM ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

A. The speed brake mechanism assembly consists of a shaft and clutch (no back) assembly, automatic ground speed brake actuator, and three linear transducer assemblies.

2. Operation

A. The speed brake mechanism assembly provides command signals for the speed brake electronic control system. Movement of the speed brake control lever by the pilot provides a mechanical input to the transducer assemblies via the shaft and clutch (no back) assembly. Output signals from the transducers are fed to the spoiler electronics control modules for speed brake operation. In automatic mode, the system and the speed brake lever are driven by the actuator through the no back assembly, which allows pilot manual override at any time.

3. Leading Particulars (Approximate)

Length -- 10 inches

Height -- 9 inches

Width -- 8 inches

Weight -- 10 lbs.

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DESCRIPTION & OPERATION

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TESTING AND TROUBLE SHOOTING1. Test Equipment

NOTE: Equivalent substitutes may be used.

A. Multimeter: Simpson Model 260

2. Test

NOTE: Complete functional testing, including checkout of switches, transducers, actuator, and other mechanism components, requires installation of the unit on a control stand assembly. See AMM 27-61-10 for the transducer test.

A. Deleted.

B. Check electrical components.

- (1) Use multimeter to check switch operation and wiring continuity.
- (2) Check connector pin assignments per electrical schematic diagram, Fig. 701.

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DISASSEMBLY

NOTE: The following parts are recommended for replacement. Unless otherwise specified, actual replacement of parts may be based on in-service experience (Ref IPL Fig. 1).

Nut (55, 87, 130, 200, 310)

NOTE: Do not remove inserts (95, 280, 345, 350) unless replacement is necessary (Ref IPL Fig. 1).

1. Remove Plate Assembly (90)

- A. Remove spring (110A) from bracket (105) and lever assembly (135A).
- B. Remove nut (5) and spacer (7A) from plate side of actuator mechanism assembly, then remove screws (15), washers (20), and bearing retainer plate (10).
- C. Remove nut (55), washer (50), and bolt (45).
- D. Remove bolts (25, 30, 60), washers (50, 65), spacer (67), and bracket (105) and separate plate assembly (90) from housing assembly (340).
- E. Remove switches (70, 75) and attaching parts (80 thru 87) from plate assembly.
- F. Remove bearing (290).

2. Remove Transducer Assemblies (205A, 365A, 395A)

- A. Remove screws (235), nuts (240), and retainer clips (225, 230).
- B. Remove parts (180 thru 200) to release rod ends of transducer assemblies (205A, 365A, 395A).
- C. Remove bolts (35, 40), washers (50) and bolt retainer clip (265) to separate bracket assembly (275) and attached parts from housing assembly (340).
- D. Remove bolt (165), bushings (170, 175), washers (167, 172, 177), and nut (200) to release transducer assemblies. Note location and quantity of phenolic washers (172) to facilitate assembly.

NOTE: Do not disassemble transducer assemblies or adjust length unless replacement is necessary.

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DISASSEMBLY

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- E. Remove parts (115 thru 130) and remove lever assembly (135A) from bracket.

NOTE: Do not disassemble lever assembly unless repair or replacement is necessary.

3. Remove Actuator (270A)

- A. Remove parts (245 thru 260) and remove actuator (270A).

4. Remove Shaft/Clutch Assembly (295A)

- A. Remove parts (300 thru 310).
- B. Remove nut (5) and spacer (8) and pull shaft assembly (315) out of no back assembly (335A). Remove no back assembly from housing assembly.

NOTE: Do not disassemble shaft assembly unless necessary for repair or replacement. Refer to manufacturer's instructions for servicing of no-back assembly.

- C. Remove bearing (290).

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CHECK

1. Check all parts for obvious defects in accordance with standard industry practices.
2. Magnetic particle check per 20-20-01 -- Spring (110A), cam (320), shaft (330) (Ref IPL Fig. 1).
3. Penetrant check per 20-20-02 -- Plate (100), brackets (105, 285), lever (160A), housing (355) (Ref IPL Fig. 1).
4. Check spring (110A, IPL Fig. 1).
 - A. Extend spring to 5.65-5.71 in. and check that load is 26.8-32.8 lbs.
 - B. Extend spring to 5.97-6.03 in. and check that load is 35.1-42.9 lbs.

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CHECK
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REPAIR – GENERAL1. Content

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

<u>P/N</u>	<u>NAME</u>	<u>REPAIR</u>
253T1211	HOUSING	1-1
253T1218	LEVER	2-1
253T1222	SHAFT AND CLUTCH	3-1
- - -	MISC PARTS REFINISH	4-1

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
 20-41-01 Decoding Table for Boeing Finish Codes
 20-41-02 Application of Chemical and Solvent Resistant Finishes
 20-42-05 Bright Cadmium Plating
 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. Enamel -- BMS 10-11, type 2, black gloss (Ref 20-60-02)
 C. Sealer -- Scotchlite 700 (Ref 20-60-04)
 D. Sealant -- BMS 5-95 (Ref 20-60-04)

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REPAIR-GENERAL

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4. Dimensioning Symbols

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

—	STRAIGHTNESS	\oplus	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
\square	FLATNESS	\varnothing	DIAMETER
\perp	PERPENDICULARITY (OR SQUARENESS)	S \varnothing	SPHERICAL DIAMETER
//	PARALLELISM	R	RADIUS
\bigcirc	ROUNDNESS	SR	SPHERICAL RADIUS
\bigcirc	CYLINDRICITY	()	REFERENCE
\frown	PROFILE OF A LINE	BASIC (BSC) OR	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.
\triangle	PROFILE OF A SURFACE	DIM	
\odot	CONCENTRICITY	-A-	DATUM
\equiv	SYMMETRY	\textcircled{M}	MAXIMUM MATERIAL CONDITION (MMC)
\sphericalangle	ANGULARITY	\textcircled{L}	LEAST MATERIAL CONDITION (LMC)
\nearrow	RUNOUT	\textcircled{S}	REGARDLESS OF FEATURE SIZE (RFS)
\nearrow	TOTAL RUNOUT	\textcircled{P}	PROJECTED TOLERANCE ZONE
\sqsubset	COUNTERBORE OR SPOTFACE	FIM	FULL INDICATOR MOVEMENT
\sphericalangle	COUNTERSINK		

EXAMPLES

$\text{—} \quad 0.002$	STRAIGHT WITHIN 0.002	$\textcircled{\ominus} \text{ C } \varnothing \quad 0.0005$	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
$\perp \text{ B } \quad 0.002$	PERPENDICULAR TO B WITHIN 0.002	$\equiv \text{ A } \quad 0.010$	SYMMETRICAL WITH A WITHIN 0.010
$// \text{ A } \quad 0.002$	PARALLEL TO A WITHIN 0.002	$\sphericalangle \text{ A } \quad 0.005$	ANGULAR TOLERANCE 0.005 WITH A
$\bigcirc \quad 0.002$	ROUND WITHIN 0.002	$\oplus \text{ B } \varnothing \quad 0.002 \text{ (S)}$	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
$\bigcirc \quad 0.010$	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER	$\perp \text{ A } \varnothing \quad 0.010 \text{ (M)}$ 0.510 (P)	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010-INCH DIAMETER, PERPENDICULAR TO, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
$\frown \text{ A } \quad 0.006$	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	2.000	EXACT DIMENSION IS 2.000
$\triangle \text{ A } \quad 0.020$	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE	OR 2.000 BSC	
(NOTE THAT $\triangle \text{ A } \quad 0.020$ MAY ALSO APPEAR AS $\triangle \quad 0.020 \text{ A}$)			

True Position Dimensioning Symbols
Figure 601

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REPAIR-GENERAL

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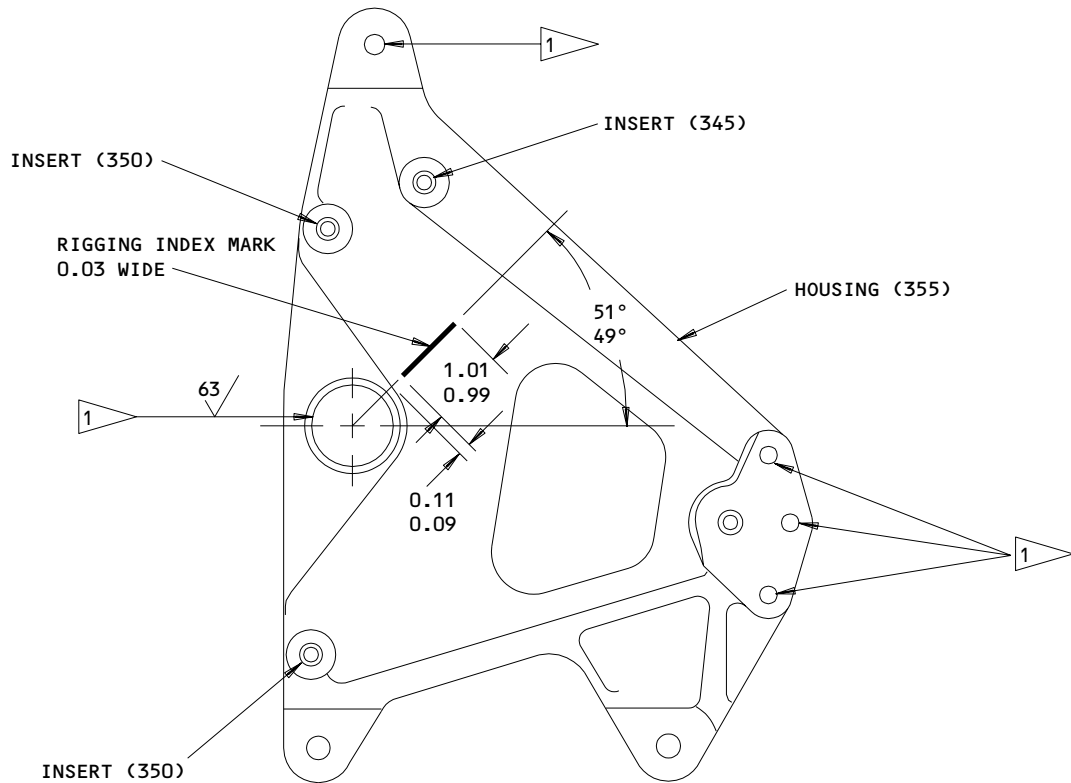
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HOUSING ASSEMBLY - REPAIR 1-1

253T1211-4

1. Plating Repair

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



REFINISH

CHROMIC ACID OR SULFURIC ACID ANODIZE (F-17.05) AND ONE COAT OF PRIMER BMS 10-11, TYPE 1 (F-20.02) EXCEPT AS NOTED. APPLY VINYL DECAL (360) INDEX MARK AS SHOWN. APPLY SCOTCHLITE 700 SEALER TO DECAL. OPTIONAL: APPLY BLACK GLOSS ENAMEL (SRF-14.905-701) IN PLACE OF DECAL.

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 NO PRIMER ON THIS SURFACE

Housing Assy - Refinish
 Figure 601

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REPAIR 1-1

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LEVER ASSEMBLY - REPAIR 2-1

253T1218-3

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

1. Bearing (140) Replacement (Ref IPL Fig. 1)

- A. Remove washer (150), rivet (145), and bearing (140).
- B. Install replacement bearing with new rivet and washer. Use wet sealant, BMS 5-95, for installation.
- C. Check that bearing turns freely after installation.

2. Bearing (155) Replacement (Ref IPL Fig. 1)

- A. Remove bearing (155).
- B. Install replacement bearing with wet primer and roller swage both sides.

3. Refinish (Ref IPL Fig. 1)

- A. Lever (160A) -- Chromic acid anodize and apply one coat of primer (F-18.13), except omit primer in 0.6238-0.6243 and 0.1875-0.1890 inch dia. holes. Material: Aluminum alloy.

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REPAIR 2-1

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SHAFT AND CLUTCH ASSEMBLY – REPAIR 3-1

253T1222-3

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

1. Cam Replacement (Ref IPL Fig. 1)

- A. Remove rivets (325) and detach cam (320) from shaft (330).
- B. Install replacement cam with rivets per Fig. 601.

2. Shaft Assembly Replacement (Ref IPL Fig. 1)

- A. Position cam on replacement shaft per Fig. 601 and drill holes for rivets using cam holes as a pattern. Attach cam with rivets as above.
- B. Insert shaft assembly (315) in no back assembly (335B) and position per Fig. 602.
- C. Drill bolt holes in replacement shaft as shown, using existing holes in no back assembly as pattern.

NOTE: Parts need not be bolted together until assembly.

3. No Back Assembly Replacement (Ref IPL Fig. 1)

- A. Remove lockwire and fasteners and separate output lever assemblies (Ref Fig. 602) from both existing and replacement no back assemblies (335C).
- B. Re-assemble replacement no back with existing output lever.

NOTE: Existing output lever with holes drilled to match shaft assembly (315) is re-used to ensure proper fit and alignment in crossbolt pattern, and to minimize backlash between no back and shaft.

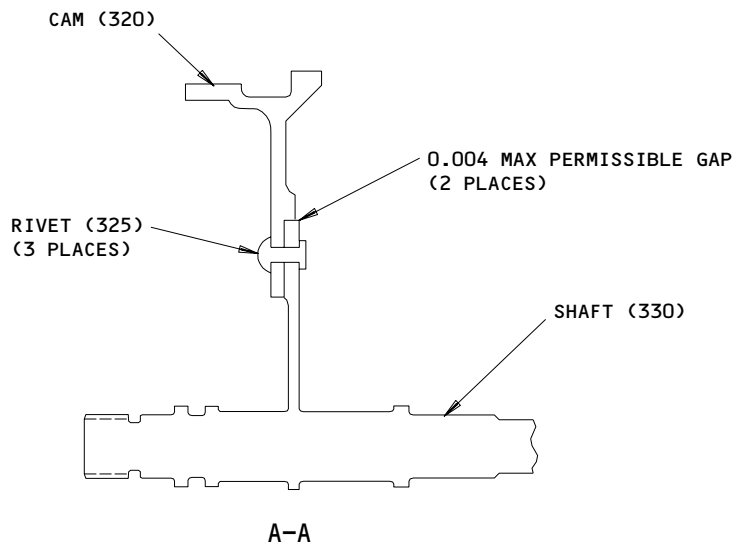
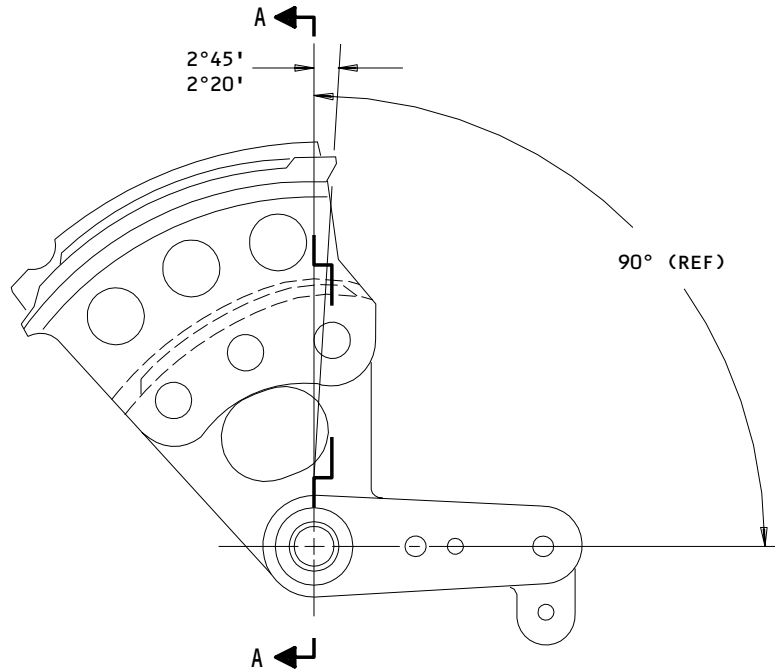
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REPAIR 3-1

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REFINISH

PASSIVATE (F-17.09)

MATERIAL: CAM--15-5 PH CRES
 (150-170 KSI)
 SHAFT--AISI 630 CRES
 (180 KSI)

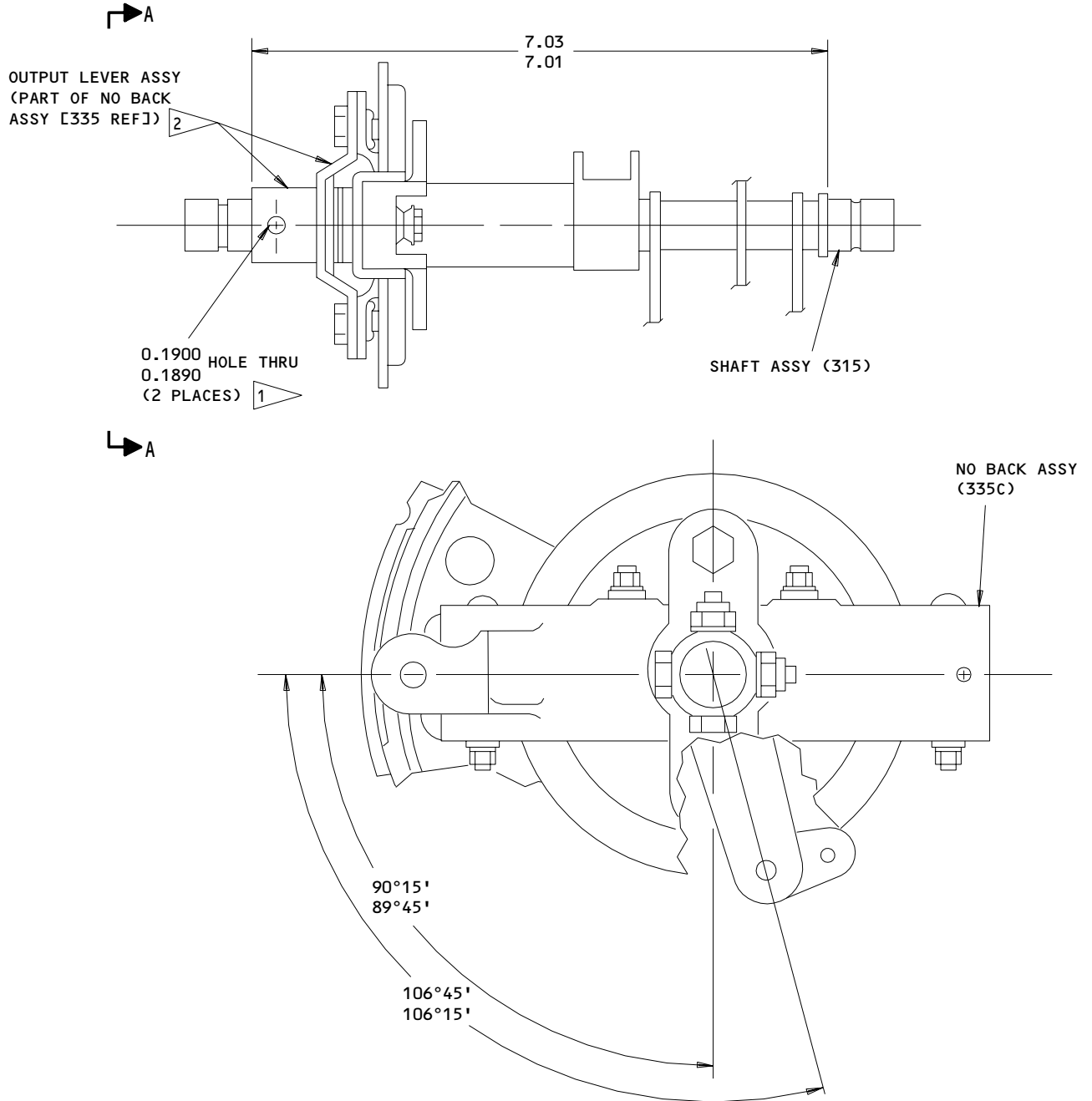
ALL DIMENSIONS ARE IN INCHES
 ITEM NOS. REFER TO IPL FIG. 1

253T1222-3
 Shaft and Clutch Assembly Repair
 Figure 601

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REPAIR 3-1
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1 FOR ASSEMBLY USING ALL NEW PARTS,
 DRILL THRU NO BACK ASSY (335C) AND
 SHAFT (330). USE PILOT HOLES IN
 NO BACK ASSY. FASTENERS OMITTED
 FOR CLARITY

2 REUSE WHEN REPLACING NO BACK ASSY

ALL DIMENSIONS ARE IN INCHES

253T1222-3
 Shaft and Clutch Assembly Repair
 Figure 602

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REPAIR 3-1

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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
<u>Fig. 1</u>		
Bearing retainer plate (10)	Al alloy	Chemical treat plus one coat primer (F-18.06).
Plate (100)	Al alloy	Chromic acid or sulfuric acid anodize (F-17.05) plus one coat primer (F-20.02) except no primer on 0.140-0.145, 0.190-0.194, and 1.0625-1.0635 in. dia. holes.
Spring support bracket (105)	Al alloy	Chromic acid or sulfuric acid anodize (F-17.05), plus one coat primer (F-20.02) except no primer on 0.218-0.229 and 0.250-0.256 in. dia. holes.
Spring (110A)	Steel (music wire)	Cadmium plate plus one coat of primer (F-16.03).
Bolt retainer clip (265)	304 CRES	Passivate (F-17.09).
Bracket (285)	Al alloy	Chromic acid or sulfuric acid anodize (F-17.05) plus one coat primer (F-20.02) except no primer in holes.

Refinish Details
 Figure 601

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REPAIR 4-1

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ASSEMBLY1. Materials

NOTE: Equivalent substitutes may be used.

- A. Primer -- BMS 10-11, type 1 (Ref 20-60-02)
- B. Lubricant -- Slip-A-Cone, Stock No. 59 30006001 (Dow-Corning Corp., 3901 S. Saginaw Rd., Midland, MI 48640)
- C. Release Agent/Dry Lubricant -- MS-122 (Miller-Stephenson Chemical Co., Inc., Geo. Washington Hwy, P.O. Box 950, Danbury, CT 06810)

2. Assembly (Ref IPL Fig. 1)

- A. Install bearings (290) in housing assembly (340) and plate assembly (90) using wet primer.
- B. Position no back assembly (335B) in housing assembly, then insert shaft assembly (315) into no back and through bearing in housing. Install spacer (8) and nut (5) and tighten finger-tight.
- C. Install parts (300 thru 310) to secure no back assembly to shaft assembly.

CAUTION: SUPPORT FREE END OF SHAFT ASSEMBLY TO AVOID EXCESSIVE BENDING MOMENT ON BEARING.

- D. Install actuator (270A) with parts (245 thru 260).
- E. Install lever assembly (135A) on bracket assembly (275) with parts (115 thru 130). Check that lever assembly pivots freely after installation.
- F. Install transducer assemblies (205A, 365A, 395A).
 - (1) Check shaft assembly and housing of each transducer assembly (205A, 365A, 395A) to ensure that serial numbers match.
 - (2) Adjust rod ends (215, 385, 415) per Fig. 701, as required.
 - (3) Install replacement connectors (207, 208, 370, 375, 400, 405) per wiring diagram, as required.
 - (4) Lightly lubricate shafts of transducers with Slip-A-Cone lubricant or MS-122 dry lubricant. Avoid contamination of adjacent surfaces.

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- (5) Install transducer assemblies (395A, 365A, 205A) on bracket assembly with bolt (165), bushings (170, 175), washers (167, 172, 177), and nut (200).

NOTE: Install phenolic washers (172) as required to reduce mounting gap to 0.005-0.020 inch.

- G. Place washer (50) and bolt retainer clip (265) on bolt (40). Attach bracket assembly to housing assembly with bolts (35, 40) and washers (50). Check that retainer clip covers head of transducer mounting bolt (165) and unused hole in clip lines up with hole for plate attachment bolt (45).
- H. Attach rod ends of transducer assemblies to shaft assembly with parts (180 thru 200).
- I. Install parts (225 thru 240).
- J. Attach switches (70, 75) to plate assembly (90) with parts (80 thru 87).
- K. Attach plate assembly to housing assembly with bolts (25, 30, 60), washers (50, 65), spacer (67), and bracket (105).
- L. Install spacer (7A) and nut (5). Tighten nuts (5) on each end of shaft to 250-300 lb-in.
- M. Install spring (110A) between bracket (105) and lever assembly (135A).
- N. Check unit per TESTING AND TROUBLE SHOOTING.

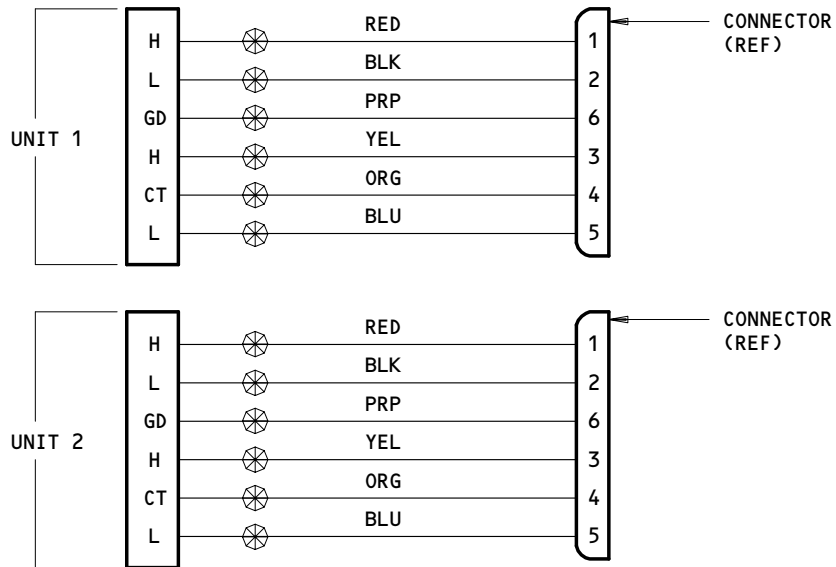
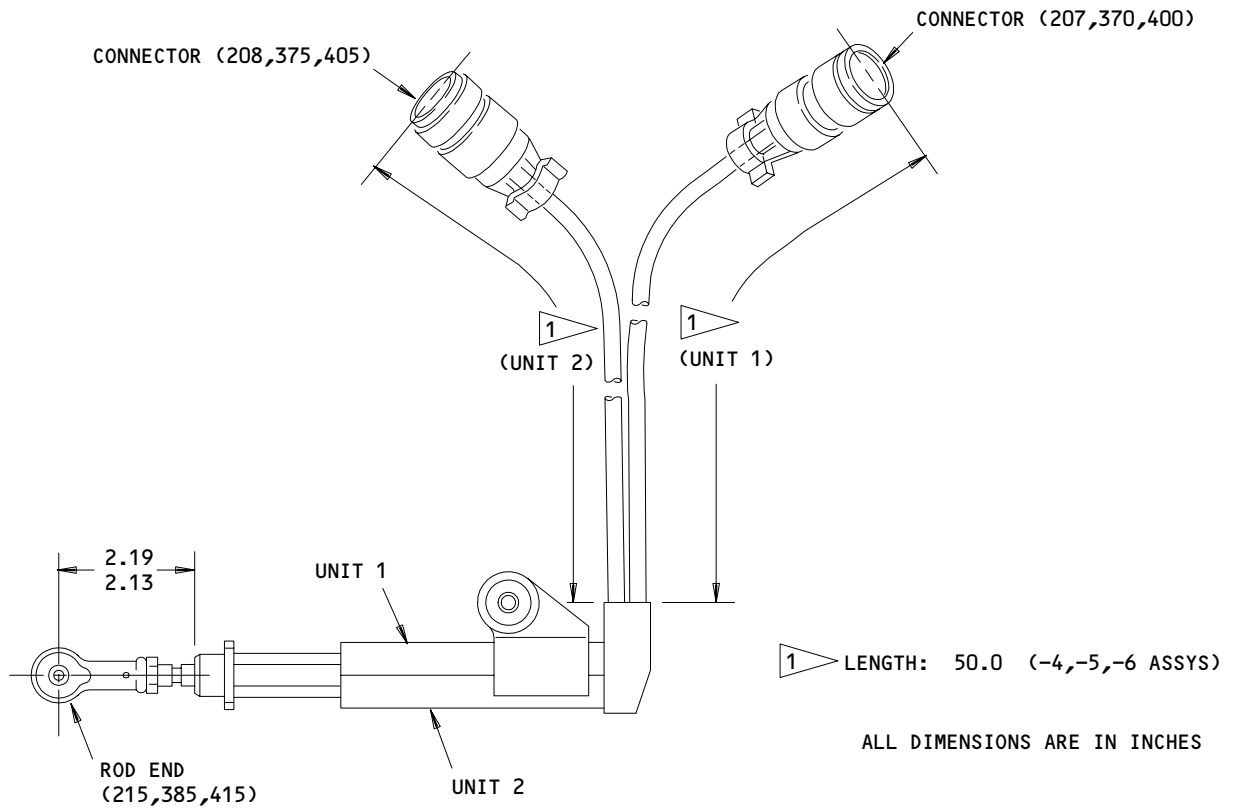
3. Storage

- A. Use standard industry practices and information in 20-44-02 to store this component.

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ELECTRICAL SCHEMATIC
 WIRING TYPICAL FOR ALL TRANSDUCER ASSEMBLIES

Transducer Assy and Wiring Details
 Figure 701

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ASSEMBLY
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FITS AND CLEARANCES

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
5	NUT	250 - 300	

Torque Table
Figure 801

27-62-23

FITS AND CLEARANCES
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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.

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VENDORS

02660 BUNKER-RAMO CORP AMPHENOL NORTH AMERICAN DIV
2801 SOUTH 25TH AVENUE
BROADVIEW, ILLINOIS 60153

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

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

13556 TRW CINCH MANUFACTURING CO
1015 SOUTH SIXTH STREET
MINNEAPOLIS, MINNESOTA 55415

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

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

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VENDORS

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

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

43991 FAG BEARING INCORPORATED
HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

49367 PYLE-NATIONAL CO SUB OF AKZONA INC
1334 NORTH KOSTNER AVENUE
CHICAGO, ILLINOIS 60651

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

56878 SPS TECHNOLOGIES INC
HIGHLAND AVENUE
JENKINTOWN, PENNSYLVANIA 19046

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

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

72121 EEMCO DIV OF DATRON SYSTEMS INC
4585 ELECTRONICS PLACE
LOS ANGELES, CALIFORNIA 90039

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

73197 HISHEAR CORPORATION
2600 SKYPARK DRIVE
TORRANCE, CALIFORNIA 90509

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VENDORS

80477 ADAMS RITE PRODUCTS INC
540 W CHEVY CHASE DRIVE
GLENDALE, CALIFORNIA 91209

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

81205 BOEING CO THE
PO BOX 3707
SEATTLE, WASHINGTON 98124

82647 TEXAS INSTRUMENT INC CONTROL PRODUCTS DIV
34 FOREST STREET MAIL 14-3
ATTLEBORO, MASSACHUSETTS 02703

83086 NEW HAMPSHIRE BALL BEARINGS, INCORPORATED
ROUTE 202
PETERBOROUGH, NEW HAMPSHIRE 03458

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

93190 SCHAEVITZ ENGINEERING
US ROUTE 130 & UNION AVE
PENNSAUKEN, NEW JERSEY 08110

94892 MASTER MACHINE PRODUCTS CORPORATION
2069 RANDOLPH STREET
HUNTINGTON PARK, CALIFORNIA 90255

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

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

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 COMPONENT
 MAINTENANCE MANUAL

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960C10L		1	305A	1
AN960PD10		1	120	1
		1	177	1
AN960PD10L		1	20	3
		1	50	7
		1	167	2
		1	195	1
AN960PD416		1	255	2
AN960PD416L		1	65	2
AN960PD6L		1	85	4
BACB10AE1		1	215	1
		1	385	1
		1	415	1
BACB10AS10		1	290	2
BACB10BX3		1	155	1
BACB28AK04-035		1	250	1
BACB28Y3D020		1	175	1
BACB28Y3D022		1	190	1
BACB28Y3D024		1	125	1
BACB28Y3D032		1	185	2
BACB28Y3D049		1	170	2
BACB30LJ4C13		1	245	2
BACB30NM4K62		1	60	2
BACC45FT14C15P		1	208	1
BACC45FT14C15P6		1	375	1
BACC45FT14C15P7		1	405	1
BACC63BN12C12P		1	207	1
BACC63BN12C12P6		1	370	1
BACC63BN12C12P7		1	400	1
BACN10JC04		1	240	2
BACN10JC06		1	87	4
BACN10JC3		1	55	1
		1	130	1
		1	200	2
		1	310	2
BACN10JC4		1	260	2
BACN10RF10		1	5	2
BACS12CK04-5		1	235	2
BACS12CK06-19		1	80	2
BACR15DX5M		1	325A	3

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACS12CK06-20		1	83	2
BACW10P273L		1	172	2
BAC27ECT59		1	360	1
BRH10A04		1	240	2
BRH10A06		1	87	4
BRH10A3		1	55	1
		1	130	1
		1	200	2
		1	310	2
BRH10A4		1	260	2
BR9080-10		1	5	2
C0909A12-12P		1	207	1
C0909A12-12P6		1	370	1
C0909A12-12P7		1	400	1
C48-16R14-15P		1	208	1
C48-16R14-15P6		1	375	1
C48-16R14-15P7		1	405	1
HHREB3N1		1	215	1
		1	385	1
		1	415	1
H10-04BAC		1	240	2
H10-06BAC		1	87	4
H10-3BAC		1	55	1
		1	130	1
		1	200	2
		1	310	2
H10-4BAC		1	260	2
KP3A		1	155	1
KP3AFS428		1	155	1
KP3A2TS		1	155	1
LLKP3A		1	155	1
LLMB538		1	290	2
MB538-2TS		1	290	2
MB538DD		1	290	2
MB538DDFS428		1	290	2
MS21209F1-15		1	95	3
		1	280	4

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BOEING
 COMPONENT
 MAINTENANCE MANUAL

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
MS21209F1-20		1	345	1
MS21209F4-15		1	350	2
MS35691-5		1	210A	1
		1	380A	1
		1	410A	1
NAS42DD8-232		1	67	1
NAS43DD10-7		1	7	
NAS509-4		1	210	1
		1	380	1
		1	410	1
NAS603-6		1	15	3
NAS6603-11		1	115	1
NAS6603-13		1	300	2
NAS6603-30		1	40	1
NAS6603-33		1	165	1
NAS6603-34		1	35	1
NAS6603-35		1	180	1
NAS6603-5		1	30	2
NAS6603-55		1	45	1
NAS6603-62		1	25	1
NS202101-02		1	55	1
		1	130	1
		1	200	2
		1	310	2
NS202101-048		1	260	2
NS202101-40		1	240	2
REPB3NE9171		1	215	1
		1	385	1
		1	415	1
REPB3NE9171B		1	215	1
		1	385	1
		1	415	1
REPB3NFS428		1	215	1
		1	385	1
		1	415	1
REPB3N4		1	215	1
		1	385	1
		1	415	1
RMLH9075-3W		1	55	1
		1	130	1

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
RMLH9075-3W		1	200	2
		1	310	2
RMLH9075-4W		1	260	2
RMLH9075-40W		1	240	2
RMLH9075-62W		1	87	4
SL2822-10		1	5	2
S1106LL3EEK58		1	140	1
S253T402-1		1	270	
S253T403-1		1	335	
S253T403-2		1	335B	
		1	335C	1
S253T404-2		1	220	
		1	220A	1
		1	390	
		1	390A	1
		1	420	
		1	420A	1
T6S1032J		1	55	1
		1	130	1
		1	200	2
		1	310	2
T6S428J		1	260	2
T6S440J		1	240	2
T6S632J		1	87	4
VN303A02		1	55	1
		1	130	1
		1	200	2
		1	310	2
VN303A048		1	260	2
VN303A40		1	240	2
VN303A62		1	87	4
ZZWA1014-15P		1	208	1
ZZWA1014-15P6		1	375	1
ZZWA1014-15P7		1	405	1
03560411-000		1	220A	1
		1	390A	1
		1	420A	1
03560411-001		1	220B	1
		1	390B	1
		1	420B	1
10AT304-1		1	75	1

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BOEING
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 MAINTENANCE MANUAL

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
10AT97-3		1	70	1
253T1200-2		1	1	
253T1200-3		1	1A	RF
253T1200-5		1	1B	RF
253T1211-4		1	340	1
253T1211-5		1	355	1
253T1212-4		1	90	1
253T1212-5		1	100	1
253T1213-4		1	275	1
253T1213-5		1	285	1
253T1214-1		1	10	1
253T1215-1		1	225	1
253T1215-2		1	230	1
253T1216-3		1	105	1
253T1217-1		1	205	
253T1217-2		1	365	
253T1217-3		1	395	
253T1217-4		1	205A	1
253T1217-5		1	365A	1
253T1217-6		1	395A	1
253T1217-7		1	205B	1
253T1217-8		1	365B	1
253T1217-9		1	395B	1
253T1218-1		1	135	
253T1218-2		1	160	1
253T1218-3		1	135A	1
253T1218-4		1	160A	1
253T1219-1		1	320	1
253T1219-2		1	320A	1
253T1219-3		1	320B	1
253T1220-3		1	330	1
253T1221-1		1	265	1
253T1222-1		1	295	
253T1222-2		1	315	1
253T1222-3		1	295A	1
253T1226-1		1	110A	1
253T4006-5		1	7A	1
		1	8	1
253T5831-2		1	145	1
48-16R14-15P		1	208	1

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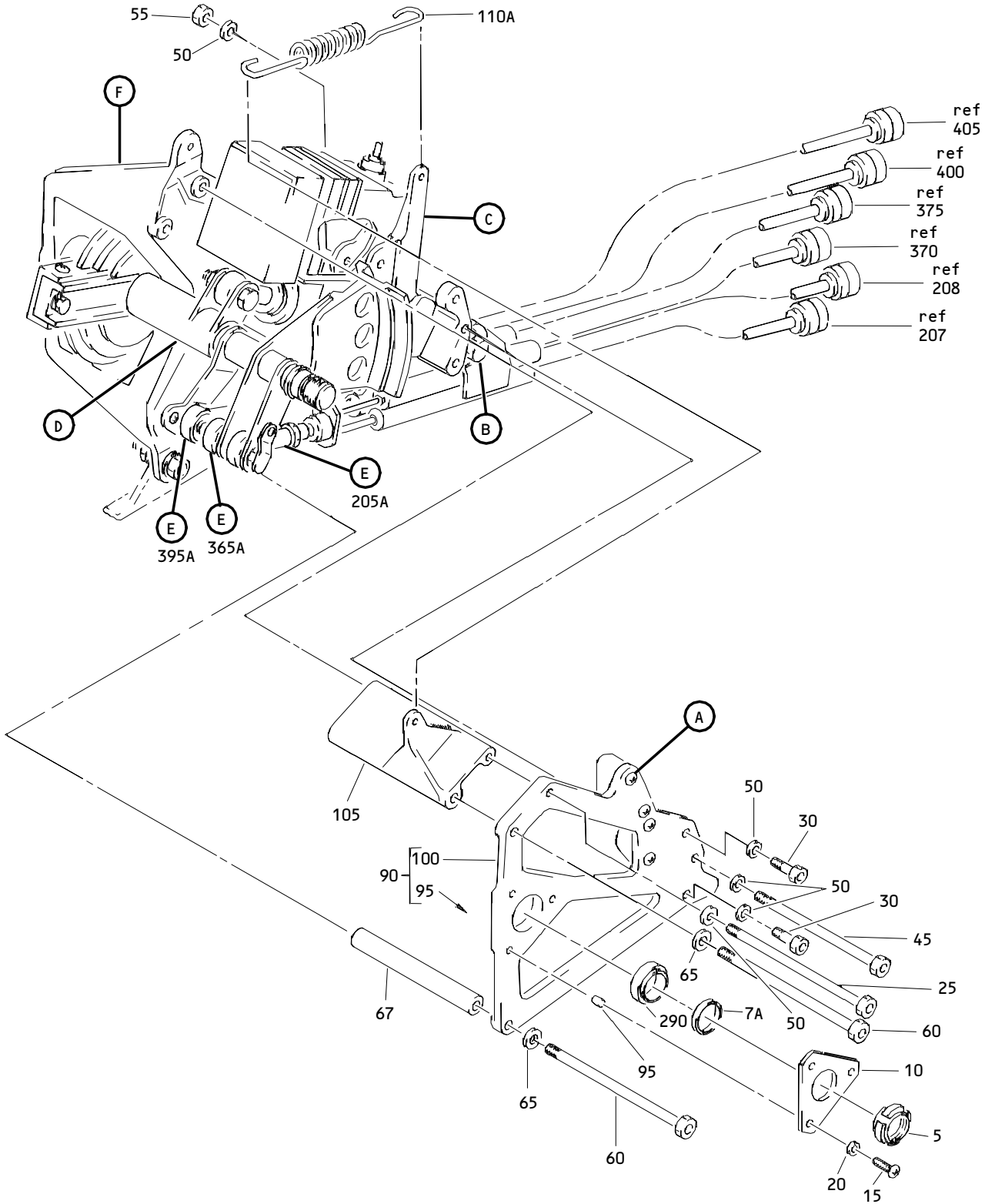
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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
48-16R14-15P6		1	375	1
48-16R14-15P7		1	405	1
53078		1	335A	
53078-3		1	335D	1
684D100-1		1	270A	1
684D100-7		1	270B	1
69B14373-3		1	150	1
69B81868-1		1	110	
96-02		1	55	1
		1	130	1
		1	200	2
		1	310	2
96-048		1	260	2
96-40		1	240	2
96-62		1	87	4

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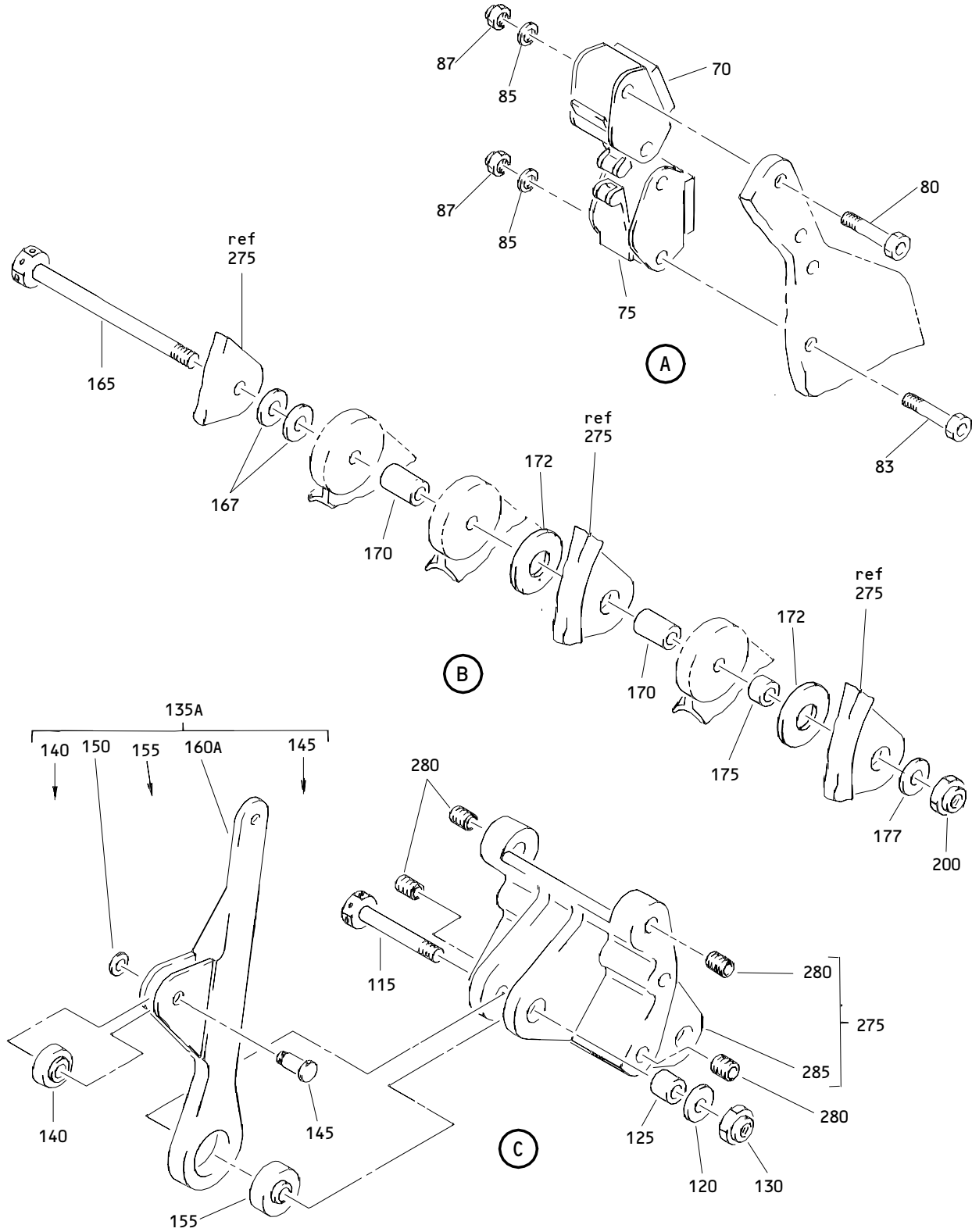
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Control Stand Speed Brake Mechanism Assembly
Figure 1 (Sheet 1)

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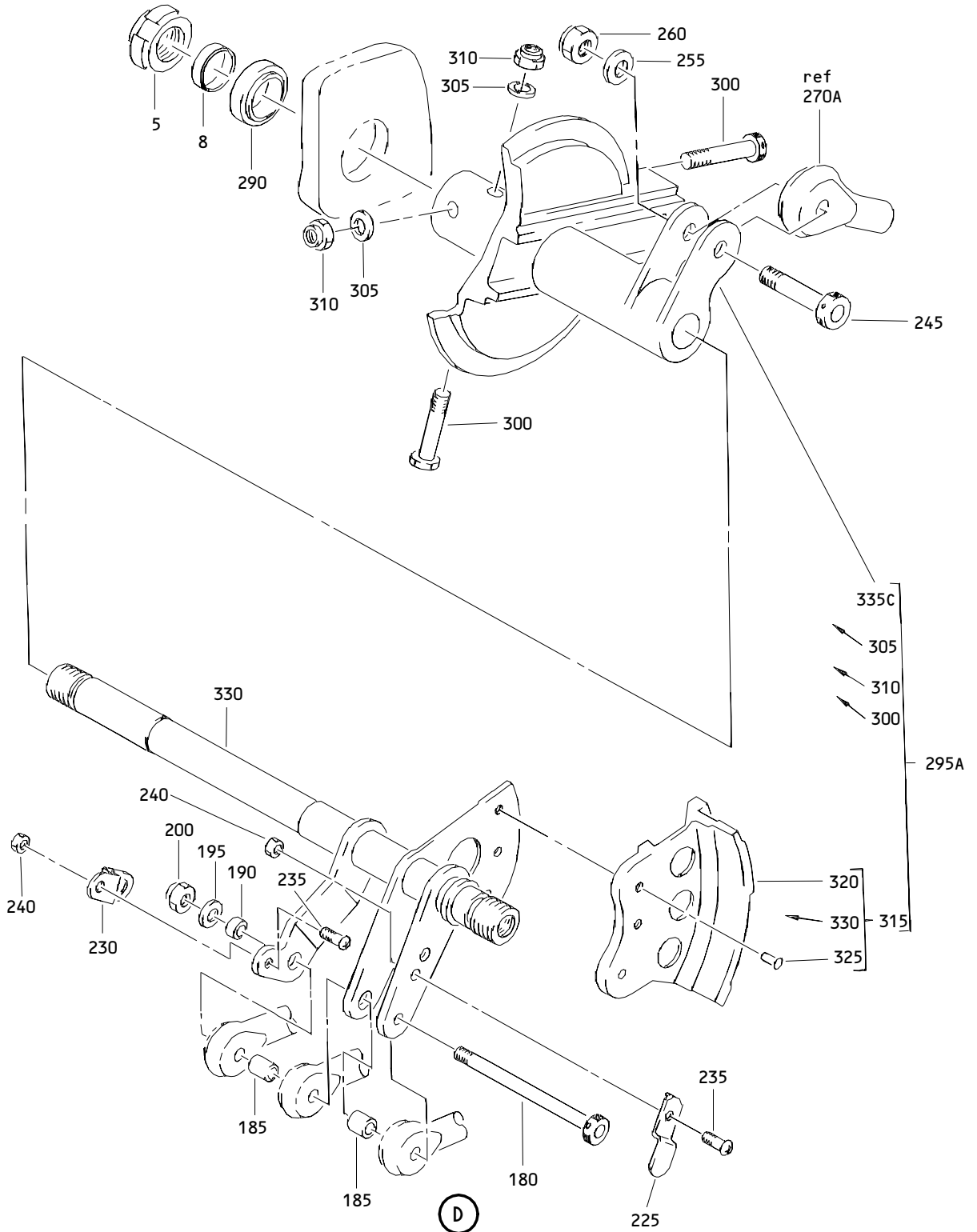
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**Control Stand Speed Brake Mechanism Assembly
 Figure 1 (Sheet 2)**

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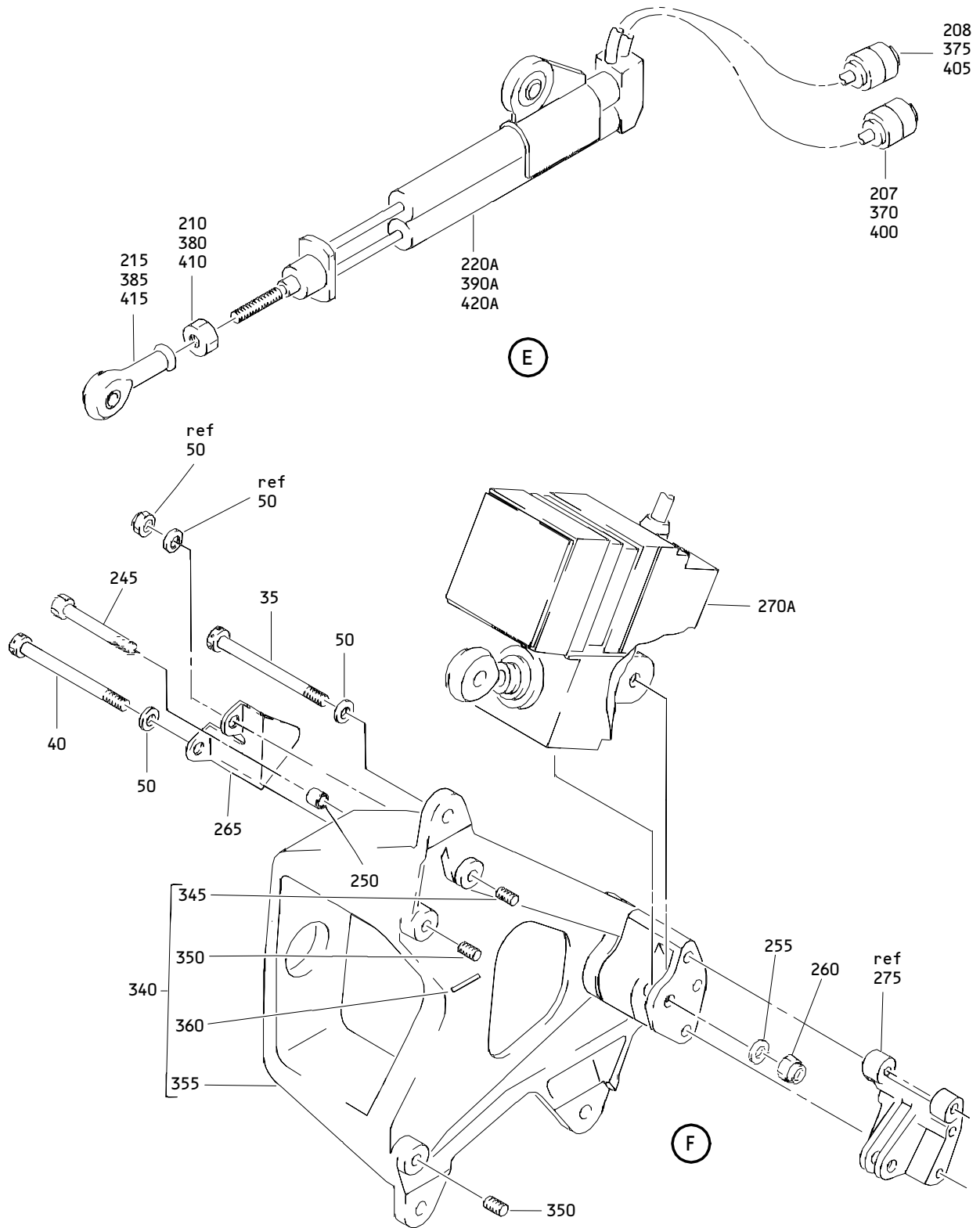
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Control Stand Speed Brake Mechanism Assembly
 Figure 1 (Sheet 3)

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Control Stand Speed Brake Mechanism Assembly
Figure 1 (Sheet 4)

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 COMPONENT
 MAINTENANCE MANUAL

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	253T1200-2		DELETED		RF
-1A	253T1200-3		MECHANISM ASSY-CONT STAND SPEED BRAKE	A	RF
-1B	253T1200-5		MECHANISM ASSY-CONT STAND SPEED BRAKE	B	RF
5	SL2822-10		.NUT- (V97393) (SPEC BACN10RF10) (OPT BR9080-10 (V72962))		2
7	NAS43DD10-7		DELETED		
7A	253T4006-5		.SPACER		1
8	253T4006-5		.SPACER		1
10	253T1214-1		.PLATE-BRG RETAINER		1
15	NAS603-6		.SCREW		3
20	AN960PD10L		.WASHER		3
25	NAS6603-62		.BOLT		1
30	NAS6603-5		.BOLT		2
35	NAS6603-34		.BOLT		1
40	NAS6603-30		.BOLT		1
45	NAS6603-55		.BOLT		1
50	AN960PD10L		.WASHER		7
55	BRH10A3		.NUT- (V52828) (SPEC BACN10JC3) (OPT H10-3BAC (V15653)) (OPT NS202101-02 (V80539)) (OPT RMLH9075-3W (V72962)) (OPT T6S1032J (V71087)) (OPT VN303A02 (V92215)) (OPT 96-02 (V80539))		1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-60	BACB30NM4K62		.BOLT- (V06710) (SPEC BACB30NM4K62) (V06725) (V06950) (V08524) (V27624) (V56878) (V73197) (V80539) (V92215) (V93907) (V97928)		2
65	AN96OPD416L		.WASHER		2
67	NAS42DD8-232		.SPACER		1
70	10AT97-3		.SWITCH-(SINGLE ROLLER) (V82647)		1
75	10AT304-1		.SWITCH-(DOUBLE ROLLER) (V82647)		1
80	BACS12CK06-19		.SCREW- (V06710) (SPEC BACS12CK06-19) (V06725) (V06950) (V17943) (V27624) (V80539) (V92215) (V97928)		2
83	BACS12CK06-20		.SCREW- (V06710) (SPEC BACS12CK06-20) (V06725) (V06950) (V17943) (V27624) (V80539) (V92215) (V97928)		2

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 COMPONENT
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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-85	AN960PD6L		.WASHER		4
87	BRH10A06		.NUT- (V52828) (SPEC BACN10JC06) (OPT H10-06BAC (V15653)) (OPT RMLH9075-62W (V72962)) (OPT T6S632J (V71087)) (OPT VN303A62 (V92215)) (OPT 96-62 (V80539))		4
90	253T1212-4		.PLATE ASSY		1
95	MS21209F1-15		..INSERT		3
100	253T1212-5		..PLATE		1
105	253T1216-3		.BRACKET-SPR SPRT		1
110	69B81868-1		DELETED		1
110A	253T1226-1		.SPRING		1
115	NAS6603-11		.BOLT		1
120	AN960PD10		.WASHER		1
125	BACB28Y3D024		.BUSHING- (V23294) (SPEC BACB28Y3D024) (V70265) (V94892)		1
130	BRH10A3		.NUT- (V52828) (SPEC BACN10JC3) (REFER TO ITEM 55 FOR OPTIONAL PARTS)		1
135	253T1218-1		DELETED		1
135A	253T1218-3		.LEVER ASSY		1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-140	S1106LL3EEK58		..BEARING- (V83086)		1
145	253T5831-2		..RIVET		1
150	69B14373-3		..WASHER		1
155	KP3A		..BEARING- (V38443) (SPEC BACB10BX3) (OPT KP3AFS428 (V21335)) (OPT KP3A2TS (V43991)) (OPT LLKP3A (V38443))		1
160	253T1218-2		DELETED		1
160A	253T1218-4		..LEVER		1
165	NAS6603-33		.BOLT		1
167	AN960PD10L		.WASHER		2
170	BACB28Y3D049		.BUSHING- (V23294) (SPEC BACB28Y3D049) (V70265) (V90255)		2
172	BACW10P273L		.WASHER- (V10630) (SPEC BACW10P273L) (V81205)		AR
175	BACB28Y3D020		.BUSHING- (V23294) (SPEC BACB28Y3D020) (V70265) (V90255)		1
177	AN960PD10		.WASHER		1
180	NAS6603-35		.BOLT		1
185	BACB28Y3D032		.BUSHING- (V23294) (SPEC BACB28Y3D032) (V70265) (V90255)		2

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 COMPONENT
 MAINTENANCE MANUAL

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-190	BACB28Y3D022		.BUSHING- (V23294) (SPEC BACB28Y3D022) (V70265) (V90255)		1
195	AN960PD10L		.WASHER		1
200	BRH10A3		.NUT- (V52828) (SPEC BACN10JC3) (REFER TO ITEM 55 FOR OPTIONAL PARTS)		2
205	253T1217-1		DELETED		1
205A	253T1217-4		.TRANSDUCER ASSY (OPT ITEM 205B)		1
-205B	253T1217-7		.TRANSDUCER ASSY (PREF)		1
207	C0909A12-12P		..CONNECTOR- (V13556) (SPEC BACC63BN12C12P)		1
208	C48-16R14-15P		..CONNECTOR- (V13556) (SPEC BACC45FT14C15P) (OPT ZZWA1014-15P (V49367)) (OPT 48-16R14-15P (V02660))		1
210	NAS509-4		..NUT (OPT ITEM 210A)		1
-210A	MS35691-5		..NUT (OPT ITEM 210)		1
215	REPB3NFS428		..ROD END- (V21335) (SPEC BACB10AE1) (OPT HHREB3N1 (V38443)) (OPT REPB3NE9171 (V21335)) (OPT REPB3NE9171B (V21335)) (OPT REPB3N4 (V38443))		1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
220	S253T404-2		DELETED		1
220A	03560411-000		..TRANSDUCER- (V93190) (SPEC S253T404-2) (USED ON ITEM 205A)		1
-220B	03560411-001		..TRANSDUCER- (V93190) (SPEC S253T404-4) (USED ON ITEM 205B)		1
225	253T1215-1		.CLIP-RETAINER		1
230	253T1215-2		.CLIP-RETAINER		1
235	BACS12CK04-5		.SCREW- (V06710) (SPEC BACS12CK04-5) (V06725) (V06950) (V17943) (V27624) (V80539) (V92215) (V97928)		2
240	BRH10A04		.NUT- (V52828) (SPEC BACN10JC04) (OPT H10-04BAC (V15653)) (OPT NS202101-40 (V80539)) (OPT RMLH9075-40W (V72962)) (OPT T6S440J (V71087)) (OPT VN303A40 (V92215)) (OPT 96-40 (V80539))		2

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BOEING
 COMPONENT
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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-245	BACB30LJ4C13		.BOLT- (V06710) (SPEC BACB30LJ4C13) (V06725) (V06950) (V08524) (V17943) (V80539) (V90249) (V92215) (V97928)		2
250	BACB28AK04-035		.BUSHING- (V23294) (SPEC BACB28AK04-035) (V70625) (V94892)		1
255	AN960PD416		.WASHER		2
260	BRH10A4		.NUT- (V52828) (SPEC BACN10JC4) (OPT H10-4BAC (V15653)) (OPT NS202101-048 (V80539)) (OPT RMLH9075-4W (V72962)) (OPT T6S428J (V71087)) (OPT VN303A048 (V92215)) (OPT 96-048 (V80539))		2

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
265	253T1221-1		.CLIP-BOLT RETAINER		1
270	S253T402-1		DELETED		1
270A	684D100-1		.ACTUATOR- (V72121) (SPEC S253T402-1)	A	1
-270B	684D100-7		.ACTUATOR- (V72121) (SPEC S253T402-3)	B	1
275	253T1213-4		.BRACKET ASSY		1
280	MS21209F1-15		..INSERT		4
285	253T1213-5		..BRACKET		1
290	MB538DD		.BEARING- (V38443) (SPEC BACB10AS10) (OPT LLMB538 (V38443)) (OPT MB538-2TS (V43991)) (OPT MB538DDFS428 (V21335)) (OPT MB538TT (V43991))		2
295	253T1222-1		DELETED		1
295A	253T1222-3		.SHAFT AND CLUTCH ASSY		1
300	NAS6603-13		..BOLT		2
305	AN960PD10		DELETED		
305A	AN960C10L		..WASHER		2
310	BRH10A3		..NUT- (V52828) (SPEC BACN10JC3) (REFER TO ITEM 55 FOR OPTIONAL PARTS)		2
315	253T1222-2		..SHAFT ASSY		1
320	253T1219-1		...CAM (OPT ITEM 320B)		1
-320A	253T1219-2		...CAM (OPT ITEM 320B)		1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -320B	253T1219-3		...CAM (PREFERRED)		1
325	MS20615-5M		DELETED		
325A	BACR15DX5M		...RIVET		3
330	253T1220-3		...SHAFT		1
335	S253T403-1		DELETED		1
335A	53078		DELETED		1
335B	S253T403-2		DELETED		1
335C	53078-2		DELETED		
335D	53078-3		..NO BACK ASSY- (V80477) (SPEC S253T403-2)		1
340	253T1211-4		..HOUSING ASSY		1
345	MS21209F1-20		..INSERT		1
350	MS21209F4-15		..INSERT		2
355	253T1211-5		..HOUSING		1
360	BAC27ECT59		..DECAL		1
365	253T1217-2		DELETED		1
365A	253T1217-5		..TRANSDUCER ASSY (OPT ITEM 365B)		1
-365B	253T1217-8		..TRANSDUCER ASSY- (PREF)		1
370	C0909A12-12P6		..CONNECTOR- (V13556) (SPEC BACC63BN12C12P6) (USED ON ITEM 395A)		1
-390B	03560411-001		..TRANSDUCER- (V93190) (SPEC S253T404-4) (USED ON ITEM 365B)		1
375	C48-16R14-15P6		..CONNECTOR- (V13556) (SPEC BACC45FT14C15P6) (OPT ZZWA1014-15P6 (V49367)) (OPT 48-16R14-15P6 (V02660))		1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-380	NAS509-4		..NUT (OPT ITEM 380A)		1
-380A	MS35691-5		..NUT (OPT ITEM 380)		1
385	REP3NFS428		..END-ROD (V21335) (SPEC BACB10AE1) (REFER TO ITEM 215 FOR OPTIONAL PARTS)		1
390	S253T404-2		DELETED		1
390A	03560411-000		..TRANSDUCER- (V93190) (SPEC S253T404-2) (USED ON ITEM 365A)		1
-390B	03560411-001		..TRANSDUCER- (V93190) (SPEC S253T404-4) (USED ON ITEM 365B)		1
395	253T1217-3		DELETED		1
395A	253T1217-6		.TRANSDUCER ASSY- (V13556) (OPT ITEM 395B)		1
-395B	253T1217-9		.TRANSDUCER ASSY- (PREF)		1
400	C0909A12-12P7		..CONNECTOR- (V13556) (SPEC BACC63BN12C12P7)		1
405	C48-16R14-15P7		..CONNECTOR- (V13556) (SPEC BACC45FT14C15P7) (OPT ZZWA1014-15P7 (V49367)) (OPT 48-16R14-15P7 (V02660))		1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-410	NAS509-4		..NUT (OPT ITEM 410A)		1
-410A	MS35691-5		..NUT (OPT ITEM 410)		1
415	REP3NFS428		..ROD END (V21335) (SPEC BACB10AE1) (REFER TO ITEM 215 FOR OPTIONAL PARTS)		1
420	S253T404-2		DELETED		1
420A	03560411-000		..TRANSDUCER- (V93190) (SPEC S253T404-2) (USED ON ITEM 395A)		1
-420B	03560411-001		..TRANSDUCER (V93190) (SPEC S253T404-4) (USED ON ITEM 395B)		1

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