COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

SPEED BRAKE MECHANISM ASSEMBLY

PART NUMBER 251A1911–3, –4, –5

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COMPONENT MAINTENANCE MANUAL

Revision No. 9
Jul 01/2009

To: All holders of SPEED BRAKE MECHANISM ASSEMBLY 27-67-10.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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Subject/Page	Date
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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 38156	NOV 01/98
	27-46	PRR 38610-1	JUL 01/06

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

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Temporary Revision		Inserted		Removed	
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Temporary Revision		Inserted		Removed	
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Date	Initials	Number	Date	Date	Initials

INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

SPEEDBRAKE MECHANISM ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The speedbrake mechanism assembly consists of a link assembly, a lever assembly, a syncro transmitter, box assembly, brake assembly, quadrant assembly, and control cables.

2. Operation

A. The speedbrake mechanism assembly is connected by control cables to a speedbrake control system. The speedbrake control system actuates flight and ground spoilers on the wing.

3. Leading Particulars (Approximate)

A. Length – 10.65 inches

B. Width – 9.93 inches

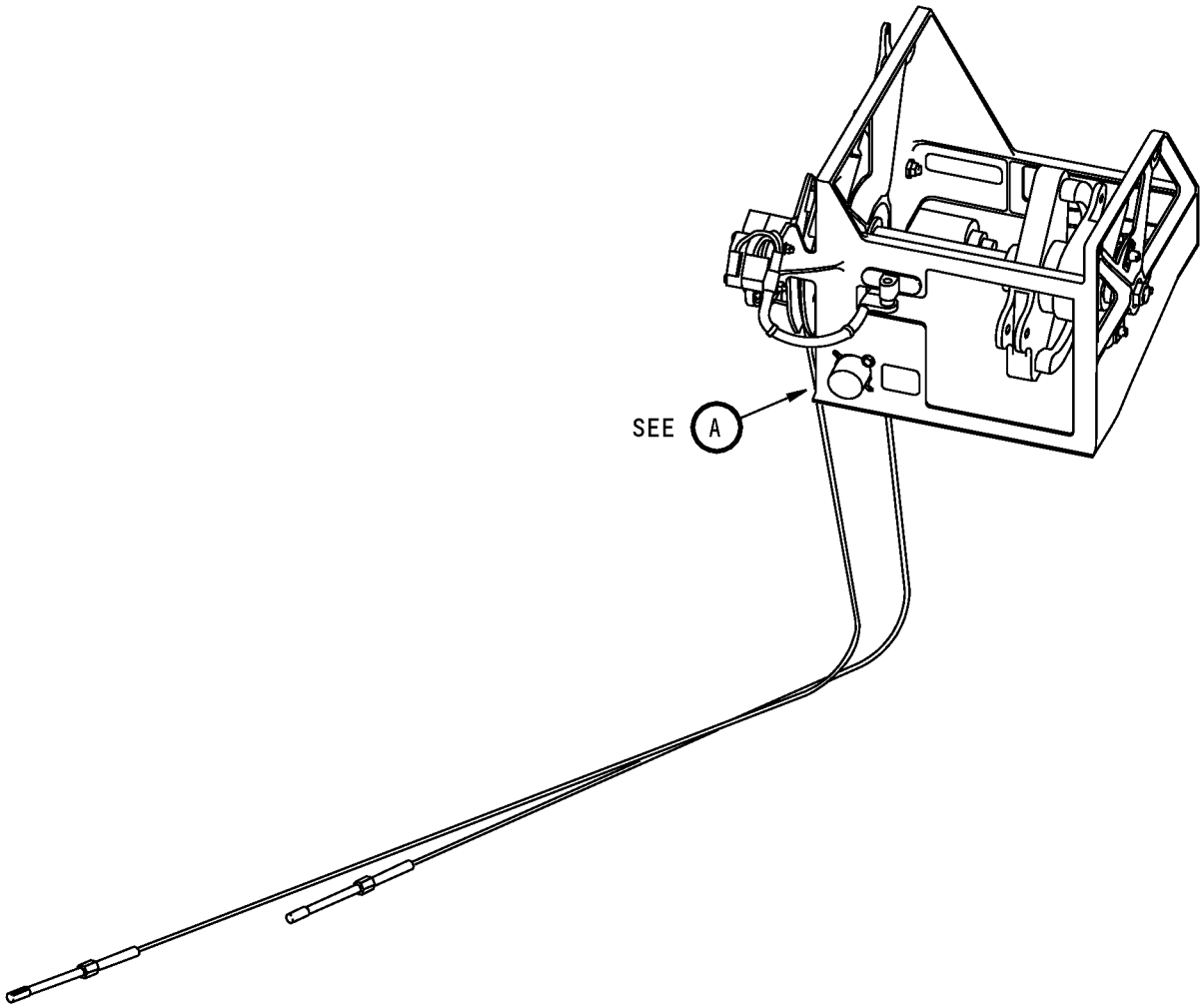
C. Height – 8.90 inches

D. Weight –

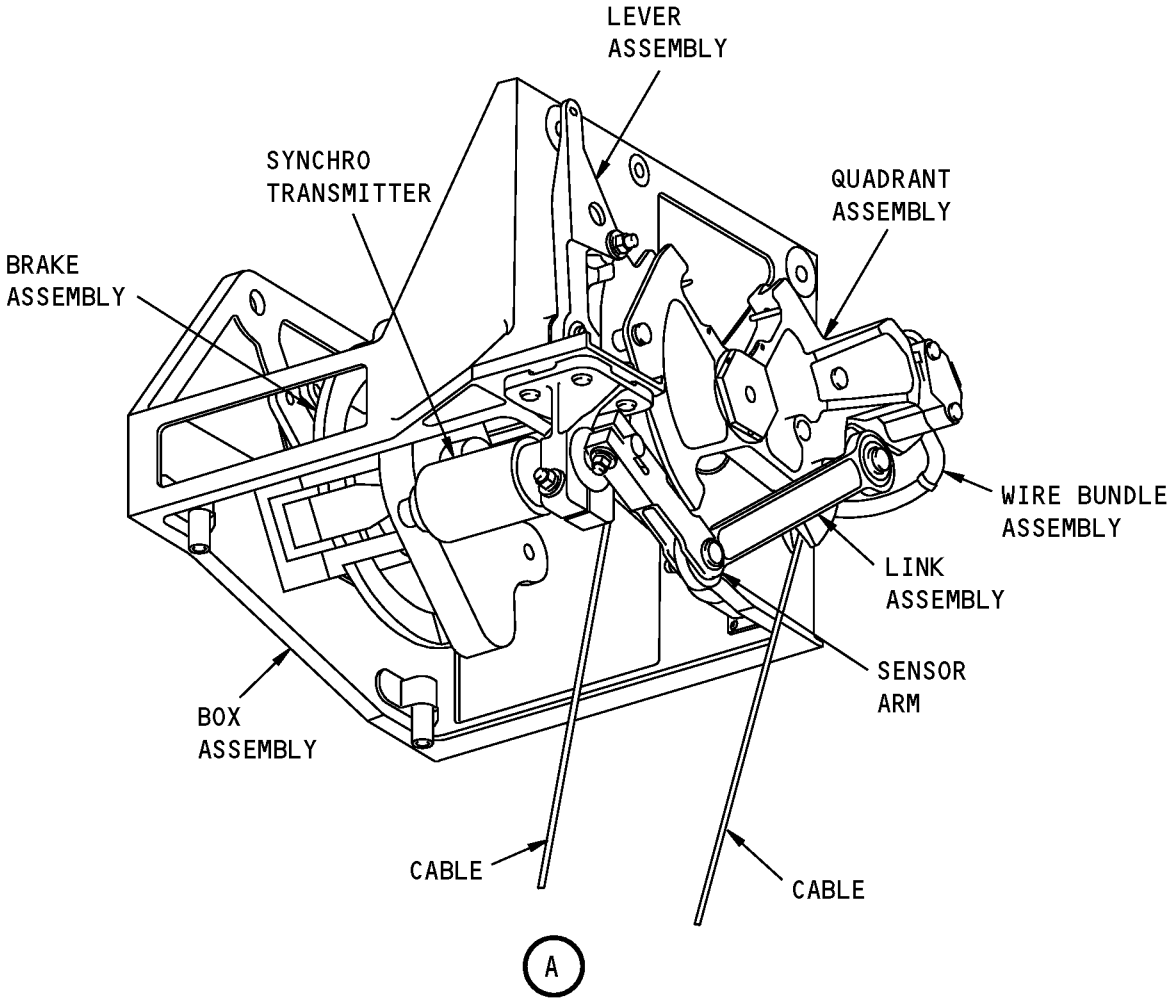
(1) 251A1911-3 – 7.22 pounds

(2) 251A1911-4 – 7.27 pounds

(3) 251A1911-5 – 7.84 pounds



Speedbrake Mechanism Assembly
Figure 1 (Sheet 1 of 2)



Speedbrake Mechanism Assembly
Figure 1 (Sheet 2 of 2)

TESTING AND FAULT ISOLATION

1. General

A. This procedure has the data necessary to do a test of the mechanism after an overhaul or for fault isolation.

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 and IPL Figure for item numbers.

2. Testing and Fault Isolation

NOTE: For disassembly, refer to DISASSEMBLY. For assembly, refer to ASSEMBLY.

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
COM-1688	Indicator - Angle Position (Part #: 2623CC-44HCL/488-26, Supplier: 17755) (Part #: 8810-S3128, Supplier: 0VGU1) (Part #: 8810-S3204, Supplier: 0VGU1) (Part #: 8810A, Supplier: 0VGU1)
STD-5499	Power Supply - 26 v ac (400 Hz), adjustable, stabilized (5-10 W output)

B. Mechanical Acceptance Requirements

(1) Verify that quadrant motion is free and smooth without excessive friction throughout its range of motion (56 degrees clockwise from the rig pin location).

C. Speedbrake Position Sensor

(1) Connect the syncro transmitter (85) to the Power Supply, STD-5499 and the angle position indicator, COM-1688 test equipment as shown in TESTING AND FAULT ISOLATION, Figure 101.

(2) Turn the quadrant (IPL Figure 1, 260A ; IPL Figure , 375) until the rig pin hole lines up with the rig pin hole in the speedbrake frame and install a suitable rig pin.

(3) Loosen the bolt (60) to allow the sensor (85) adjustment in its sensor bracket (90).

(4) Turn the syncro transmitter (85) in its bracket (90) until the angle position indicator, COM-1688 reads 0.00 ±0.25 degrees. Tighten the bolt (60) to firmly clamp the syncro transmitter (85) and verify that the API still reads 0.00 ±0.25 degrees.

D. Speedbrake Switches

(1) Connect the syncro transmitter (85) to the Power Supply, STD-5499 and the angle position indicator, COM-1688 test equipment as shown in TESTING AND FAULT ISOLATION, Figure 101.

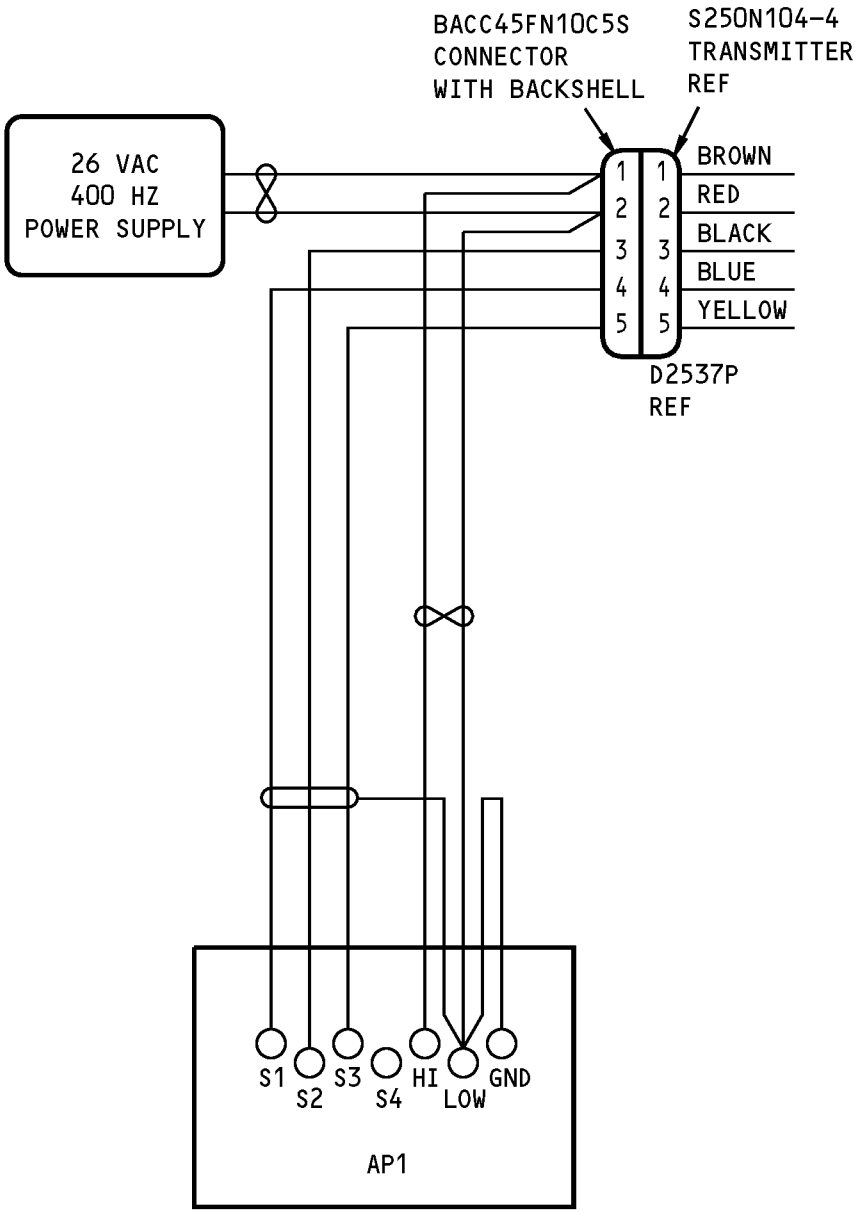
(2) Adjust switch (IPL Figure 1, 215; IPL Figure , 310) to change state at a syncro angle between 1.00 and 1.74 degrees. Loosen the two screws and turn the switch assembly (IPL Figure 1, 215; IPL Figure , 310) to adjust angle.

NOTE: The switch (IPL Figure 1, 215; IPL Figure , 310) must change from an open to closed and closed to open circuit within the above listed syncro angle range. (This corresponds to a quadrant turn angle of 1.13 to 2.00 degrees from rig position).

(3) Adjust switch (IPL Figure 1, 210; IPL Figure , 305) to change state at a syncro angle between 5.85 and 6.63 degrees. Loosen the two screws (IPL Figure 1, 140; IPL Figure , 235) and turn the switch (IPL Figure 1, 210; IPL Figure , 305) to adjust angle.

NOTE: The switch (IPL Figure 1, 210; IPL Figure , 305) must change from an open to closed and closed to open circuit within the above listed syncro angle range. (This corresponds to a quadrant turn angle of 6.63 to 7.50 degrees from rig position).

(4) Verify the circuit conditions exist between the noted pins at the API range of readings in TESTING AND FAULT ISOLATION, Figure 101, (Sheet 2). Turn the quadrant as required to obtain the listed range of API readings.



Test Equipment Hook-up Diagram
Figure 101 (Sheet 1 of 2)

API READINGS	CONNECTOR	PINS	CONDITION	SWITCH (REF)
0.00-1.00	IPL FIG. 1; 205 IPL FIG. 2; 300	8 and 2	Open	IPL FIG. 1; 215 IPL FIG. 2; 310
0.00-1.00	IPL FIG. 1; 205 IPL FIG. 2; 300	8 and 9	Closed	IPL FIG. 1; 215 IPL FIG. 2; 310
1.74-47.10	IPL FIG. 1; 205 IPL FIG. 2; 300	8 and 2	Closed	IPL FIG. 1; 215 IPL FIG. 2; 310
1.74-47.10	IPL FIG. 1; 205 IPL FIG. 2; 300	8 and 9	Open	IPL FIG. 1; 215 IPL FIG. 2; 310
0.00-1.00	IPL FIG. 1; 205 IPL FIG. 2; 300	7 and 5	Open	IPL FIG. 1; 215 IPL FIG. 2; 310
0.00-1.00	IPL FIG. 1; 205 IPL FIG. 2; 300	7 and 6	Closed	IPL FIG. 1; 215 IPL FIG. 2; 310
1.74-47.10	IPL FIG. 1; 205 IPL FIG. 2; 300	7 and 5	Closed	IPL FIG. 1; 215 IPL FIG. 2; 310
1.74-47.10	IPL FIG. 1; 205 IPL FIG. 2; 300	7 and 6	Open	IPL FIG. 1; 215 IPL FIG. 2; 310
0.00-5.85	IPL FIG. 1; 205 IPL FIG. 2; 300	11 and 10	Open	IPL FIG. 1; 210 IPL FIG. 2; 305
0.00-5.85	IPL FIG. 1; 205 IPL FIG. 2; 300	11 and 12	Closed	IPL FIG. 1; 210 IPL FIG. 2; 305
6.63-47.10	IPL FIG. 1; 205 IPL FIG. 2; 300	11 and 10	CLosed	IPL FIG. 1; 210 IPL FIG. 2; 305
6.63-47.10	IPL FIG. 1; 205 IPL FIG. 2; 300	11 and 12	Open	IPL FIG. 1; 210 IPL FIG. 2; 305

Test Equipment Hook-up Diagram
Figure 101 (Sheet 2 of 2)

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the speedbrake mechanism assembly (1B).

B. Disassemble this component sufficiently to isolate the defects, do the necessary repairs, and put the component back to a serviceable condition.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

D. Refer to IPL Figure 1 and IPL Figure for item numbers.

2. Disassembly

A. Procedure

(1) Use standard industry procedures and the steps shown below to disassemble the speedbrake mechanism assembly, 251A1911-3, -4. Refer to IPL Figure 1.

(a) Remove the bolts (10, 15), the washers (20), the nuts (25), and the sensor arm (30) from the link assembly (35) as shown in DISASSEMBLY, Figure 301, section B-B and C-C.

(b) Remove the bolt (5), the washers (20), the link assembly (35), and the bushing (55) from the quadrant assembly (245A) as shown in DISASSEMBLY, Figure 301, section C-C.

(c) Do not disassemble the link assembly (35) unless replacement of sleeve (40) or bearing (45) is necessary.

(d) Remove the bolt (60), the washer (65), the nut (70), and the syncro transmitter (85) from the sensor bracket (90) as shown in DISASSEMBLY, Figure 301, section D-D.

(e) Remove the bolts (75), the collars (80), and the sensor bracket (90) from the box assembly (305).

(f) Remove the bolt (95), the washers (100), the nut (105), and the lever assembly (110) from the box assembly (305) as shown in DISASSEMBLY, Figure 301, section B-B.

(g) Do not disassemble the lever assembly (110) unless replacement of the bearing (130) or the cam follower bearing (135) is necessary.

(h) Remove the bolts (140), the washers (145), and the nuts (150) from the wire bundle assembly (195) and the box assembly (305).

(i) Remove the bolt (155), the screw (185), the washer (160A), the nut (165), and the clamps (190) from the wire bundle assembly (195) and the box assembly (305) as shown in DISASSEMBLY, Figure 301, section A-A and B-B.

(j) Remove the screws (170), the washers (175), the nuts (180), and the wire bundle assembly (195) from the box assembly (305) as shown in DISASSEMBLY, Figure 301, section A-A.

(k) Do not disassembly wire bundle assembly (195) unless replacement of the switches (210, 215) or the connector (205) is necessary.

(l) Remove the bolts (265), the spacers (270), the pins (275), and the cables (220, 225) from the quadrant assembly (245A) as shown in DISASSEMBLY, Figure 301, section B-B.

(m) Remove the lockwire from the bolt (230) and the quadrant assembly (245A).

(n) Remove the bolt (230), the washer (235), the nut (240), and the quadrant assembly (245A) from the brake assembly (285) as shown in DISASSEMBLY, Figure 301, section E-E.

(o) Do not disassemble the quadrant assembly (245A) unless replacement of the inserts (250, 255) is necessary.

(p) Remove the bearing (280) and the brake assembly (285) from the box assembly (305).

(q) Refer to vendor component maintenance manual for repair of brake assembly (285).

(r) Remove the bolts (290), the plate (295), and the bearing (300) from the box assembly (305).

(s) Do not disassemble the box assembly (305) unless replacement of the nutplates (315, 320, 330, 335) is necessary.

(2) Use standard industry procedures and the steps shown below to disassemble the speedbrake mechanism assembly, 251A1911-5. Refer to IPL Figure .

(a) Remove the bolts (10, 15), the washers (20), the nuts (25), and the sensor arm (30) from the link assembly (35) as shown in DISASSEMBLY, Figure 302, section B-B and C-C.

(b) Remove the bolt (5), the washers (20), the link assembly (35), and the bushing (55) from the quadrant assembly (355) as shown in DISASSEMBLY, Figure 302, section C-C.

(c) Do not disassemble the link assembly (35) unless replacement of sleeve (40) or bearing (45) is necessary.

(d) Remove the bolt (60), the washer (65), the nut (70), and the syncro transmitter (85) from the sensor bracket (90) as shown in DISASSEMBLY, Figure 302, section D-D.

(e) Remove the bolts (75), the collars (80), and the sensor bracket (90) from the box assembly (405).

(f) Remove the bolt (190), the washers (195), the nut (200), and the lever assembly (205) from the box assembly (405) as shown in DISASSEMBLY, Figure 302, section B-B.

(g) Do not disassemble the lever assembly (205) unless replacement of the bearing (225) or the cam follower bearing (220) is necessary.

(h) Remove the bolts (235), the washers (240), and the nuts (245) from the wire bundle assembly (290) and the box assembly (405).

(i) Remove the bolt (205), the screw (280), the washer (255), the nut (260), and the clamps (285) from the wire bundle assembly (290) and the box assembly (405) as shown in DISASSEMBLY, Figure 302, section A-A and B-B.

(j) Remove the screws (265), the washers (270), the nuts (275), and the wire bundle assembly (290) from the box assembly (405) as shown in DISASSEMBLY, Figure 302, section A-A.

(k) Do not disassembly wire bundle assembly (290) unless replacement of the switches (305, 310) or the connector (300) is necessary.

(l) Remove the pins (100, 105), the washers (110), the cotter pins (95) and the link (115) from the solenoid (135) and the crank (150) as shown in DISASSEMBLY, Figure 302, section D-D.

(m) Remove the bolts (120), the washers (125) and the nuts (130) from the solenoid (135) and the bow assembly (405) as shown in DISASSEMBLY, Figure 302, section A-A.

(n) Remove the nuts (140) and the washers (145) from the stop shaft (175) to remove the crank (150) as shown in DISASSEMBLY, Figure 302, section F-F.

(o) Remove the bolts (120), the washers (125), the nuts (130), the bearing retainer (155), the bearing housing assembly (160), the bearing housing (185) and the stop shaft (175) from the box assembly (405) as shown in DISASSEMBLY, Figure 302, section F-F.

(p) Do not disassemble the bearing housing assembly (160) unless replacement of the bearing (165) 0r refinish of the housing (170) is necessary.

(q) Remove the bolts (340), the spacers (345), the pins (350), and the cables (315, 320) from the quadrant assembly (355) as shown in DISASSEMBLY, Figure 302, section B-B.

(r) Remove the lockwire from the bolt (325) and the quadrant assembly (355).

(s) Remove the bolt (325), the washer (330), the nut (335), and the quadrant assembly (355) from the brake assembly (385) as shown in DISASSEMBLY, Figure 302, section E-E.

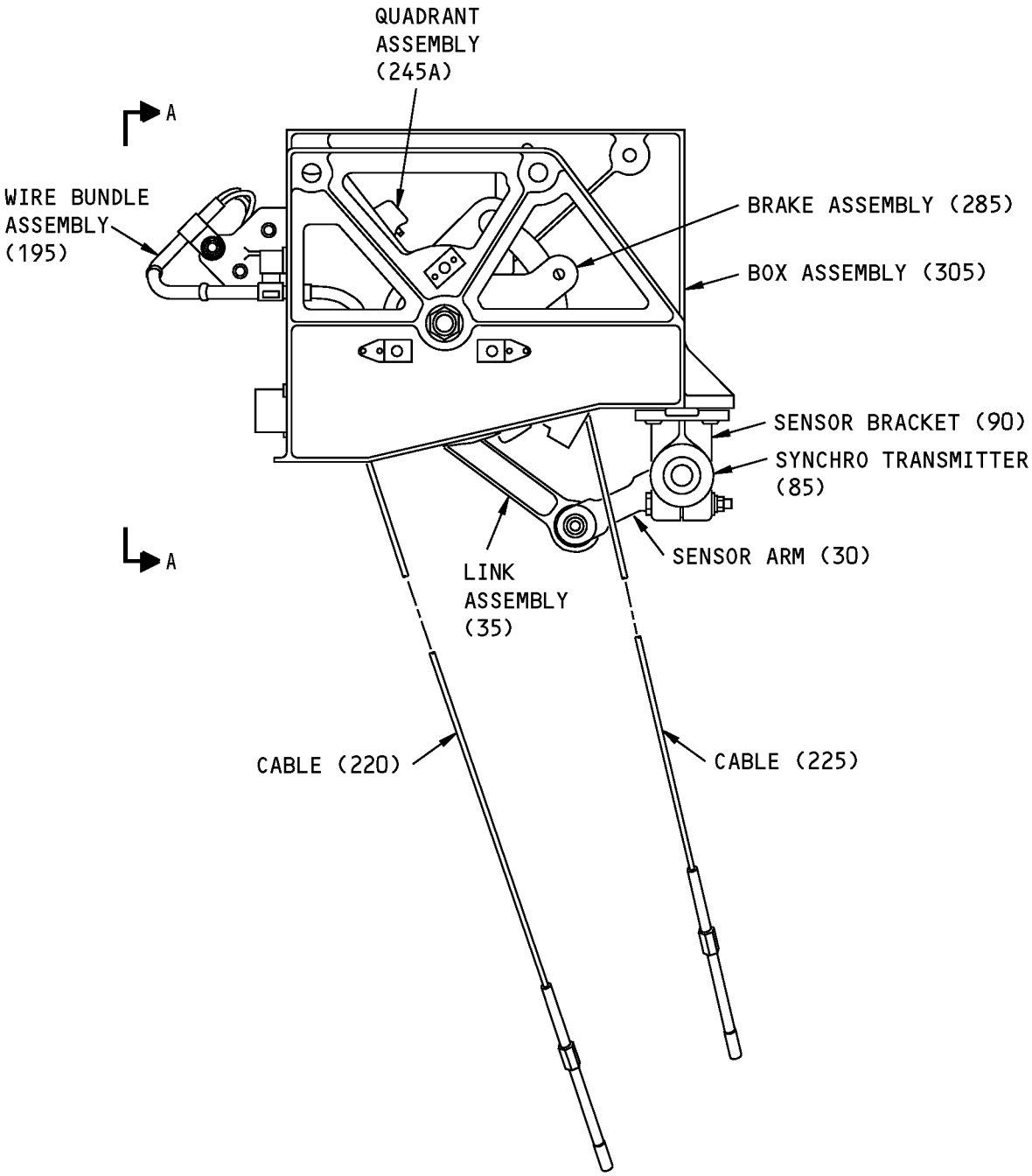
(t) Do not disassemble the quadrant assembly (355) unless replacement of the inserts (360, 365) or the stop button (370) is necessary.

(u) Remove the bearing (380) and the brake assembly (385) from the box assembly (405).

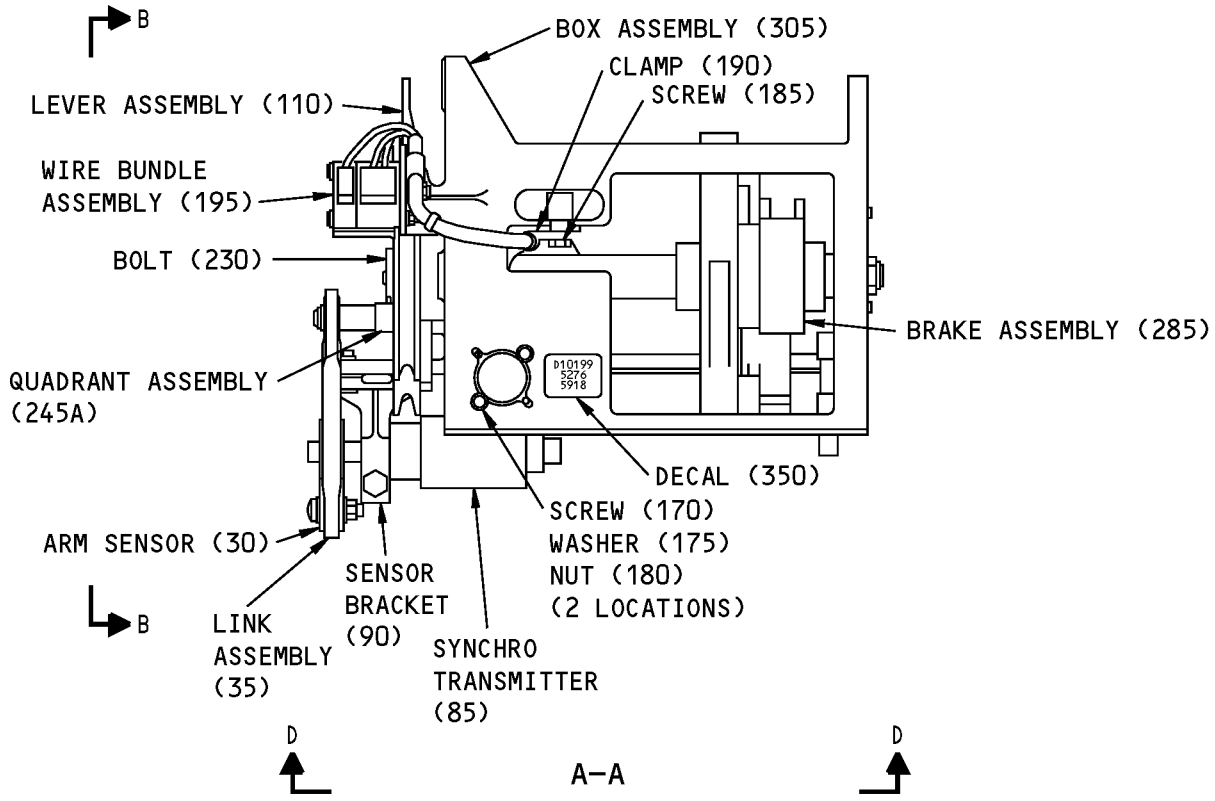
(v) Refer to vendor component maintenance manual for repair of brake assembly (385).

(w) Remove the bolts (390), the plate (395), and the bearing (400) from the box assembly (405).

(x) Do not disassemble the box assembly (405) unless replacement of the nutplates (415, 420, 430, 435) is necessary.



251A1911-3,-4 Speedbrake Mechanism Assmebly - Disassembly
Figure 301 (Sheet 1 of 6)



251A1911-3,-4 Speedbrake Mechanism Assmebly - Disassembly
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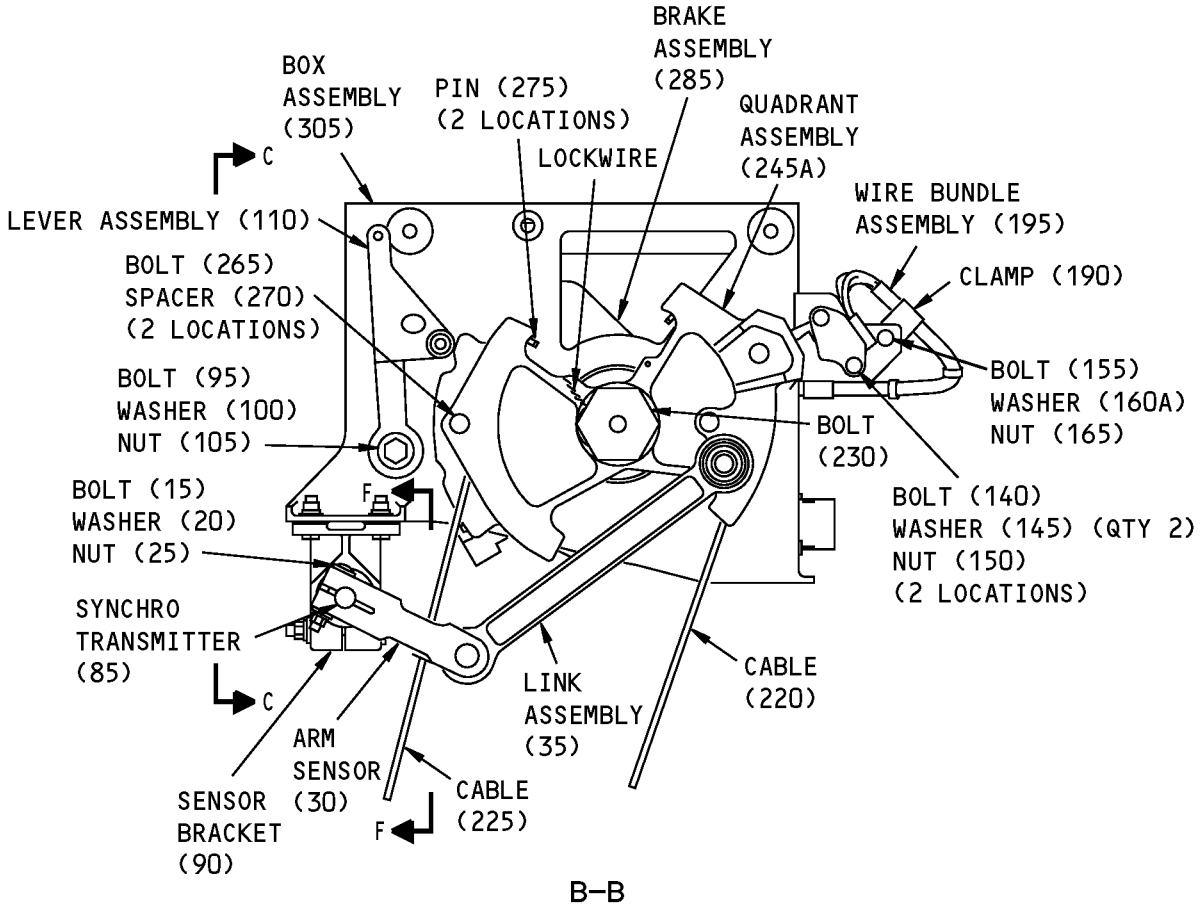
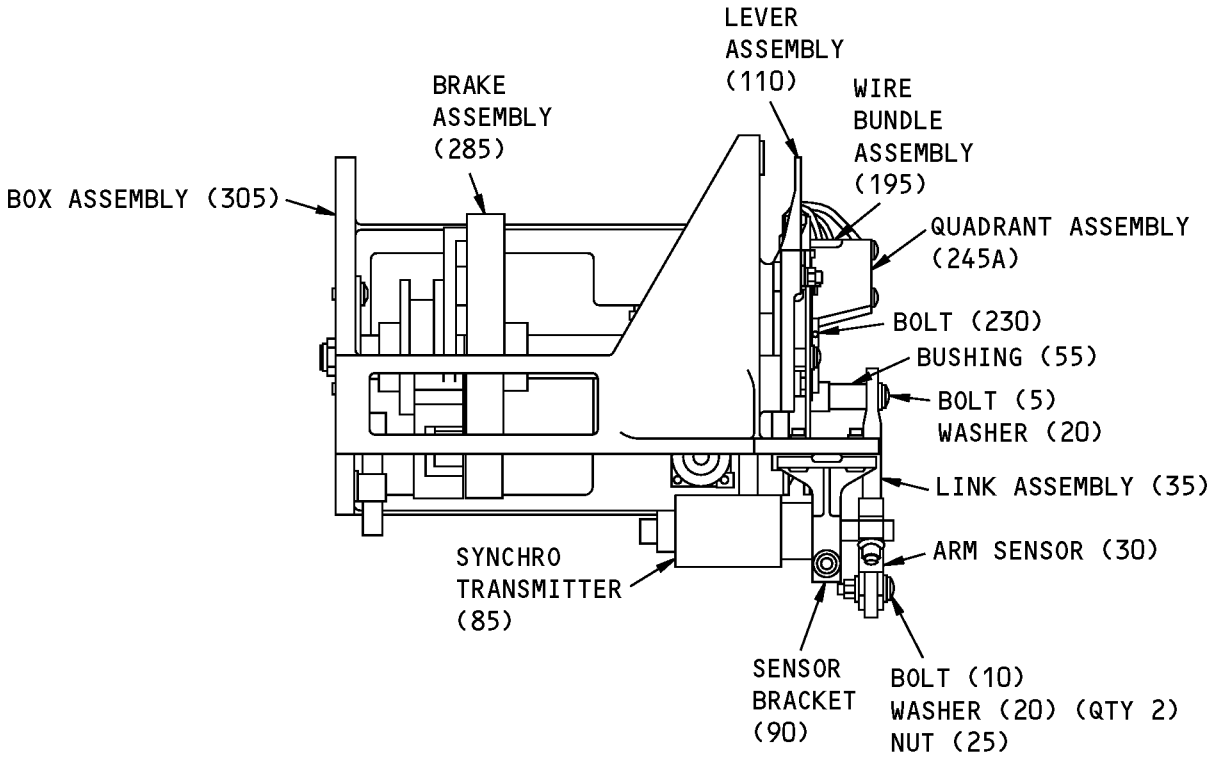
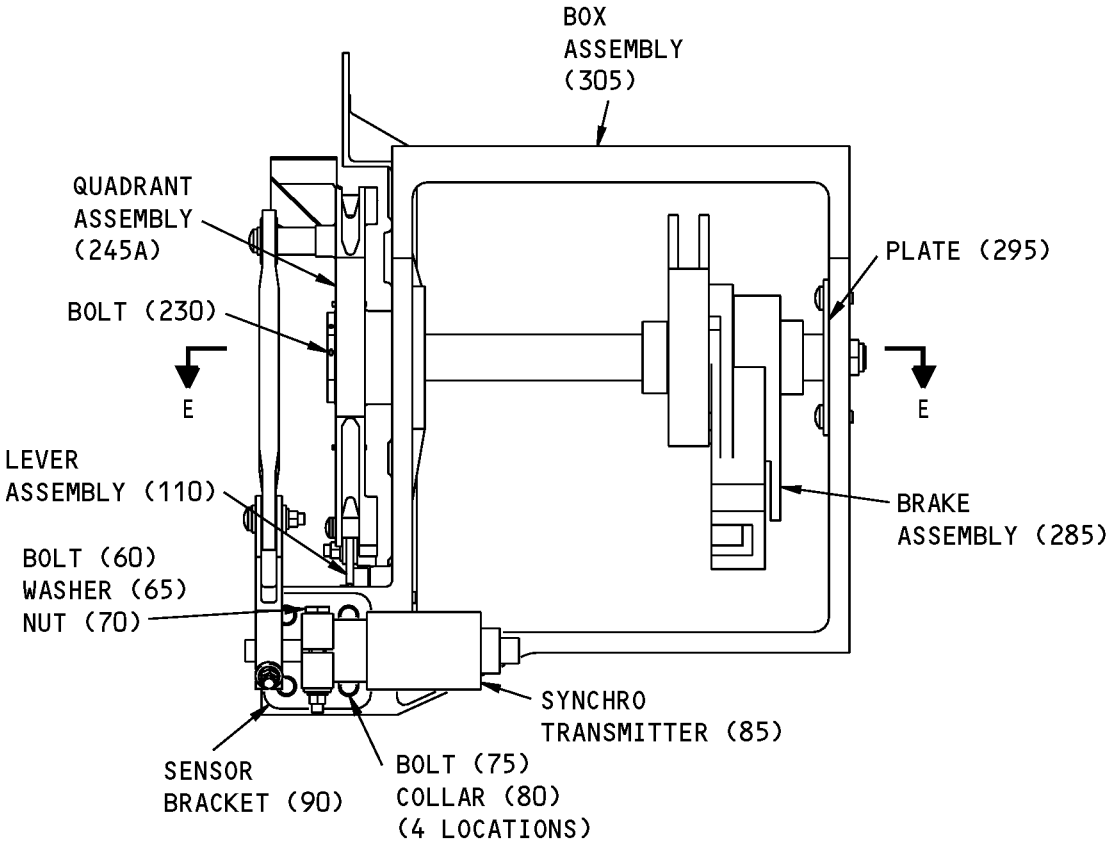


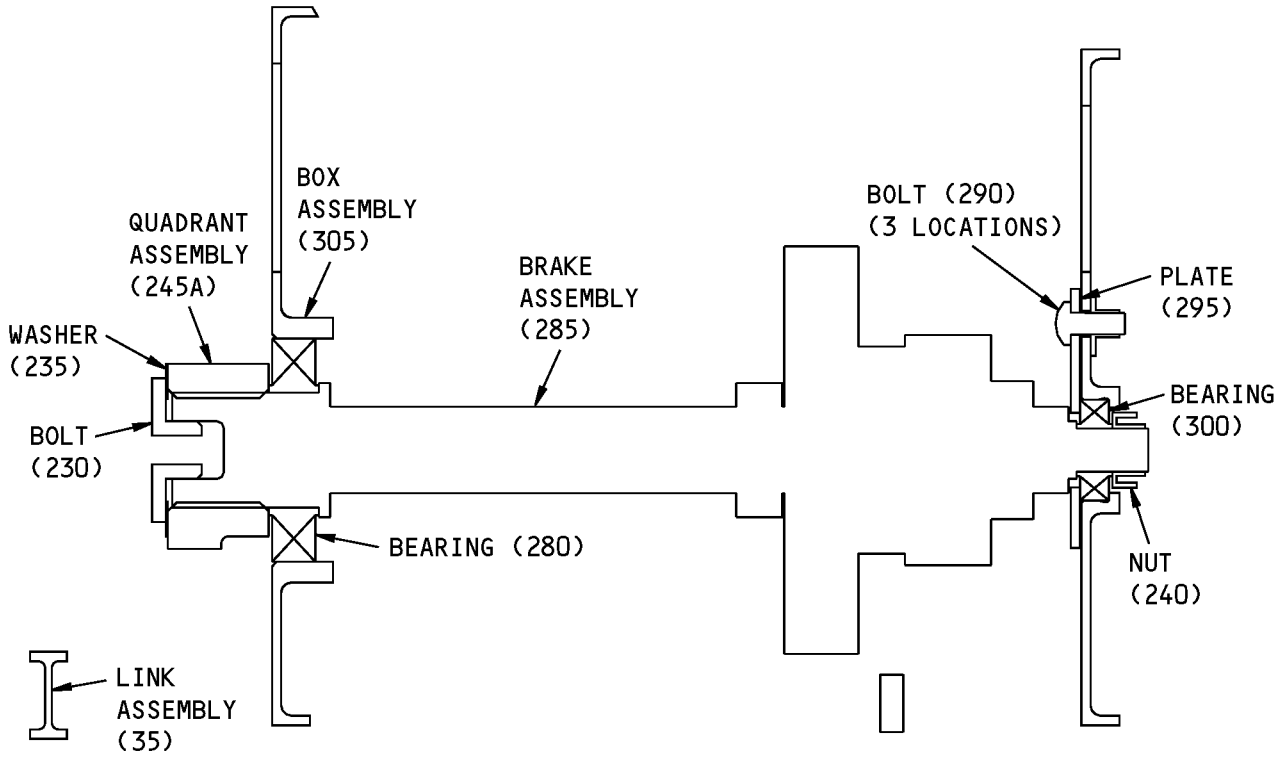
251A1911-3,-4 Speedbrake Mechanism Assmebly - Disassembly
Figure 301 (Sheet 3 of 6)



251A1911-3,-4 Speedbrake Mechanism Assmebly - Disassembly
Figure 301 (Sheet 4 of 6)



251A1911-3,-4 Speedbrake Mechanism Assmebly - Disassembly
Figure 301 (Sheet 5 of 6)



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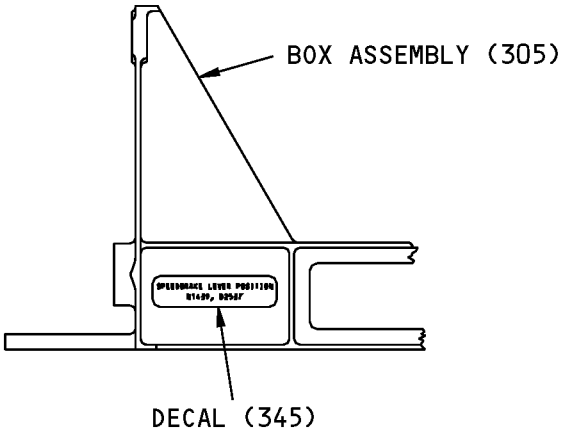
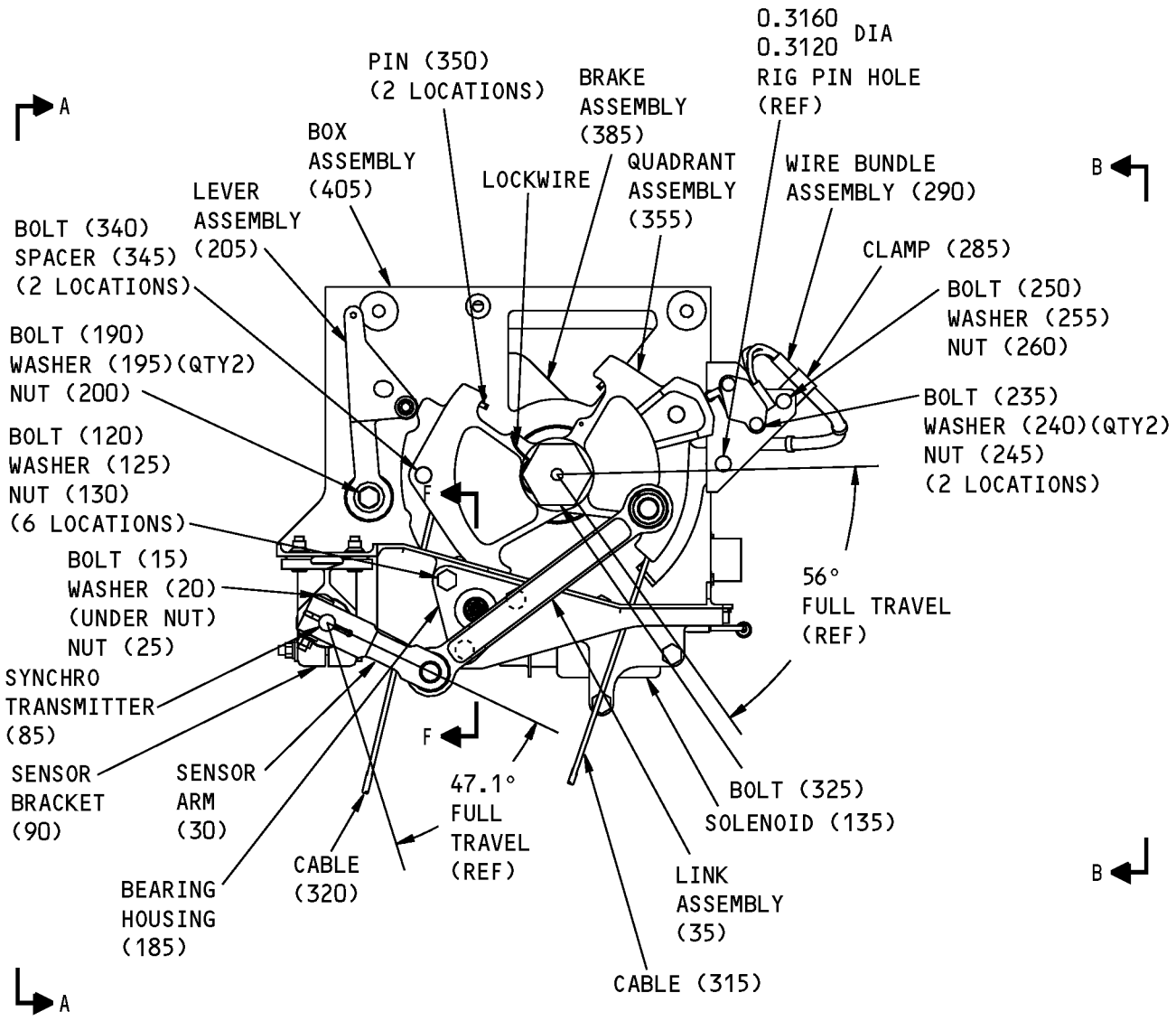


F–F

ITEM NUMBERS REFER TO IPL FIG. 1

251A1911-3,-4 Speedbrake Mechanism Assmebly - Disassembly
Figure 301 (Sheet 6 of 6)



251A1911-5 Speedbrake Mechanism Disassembly
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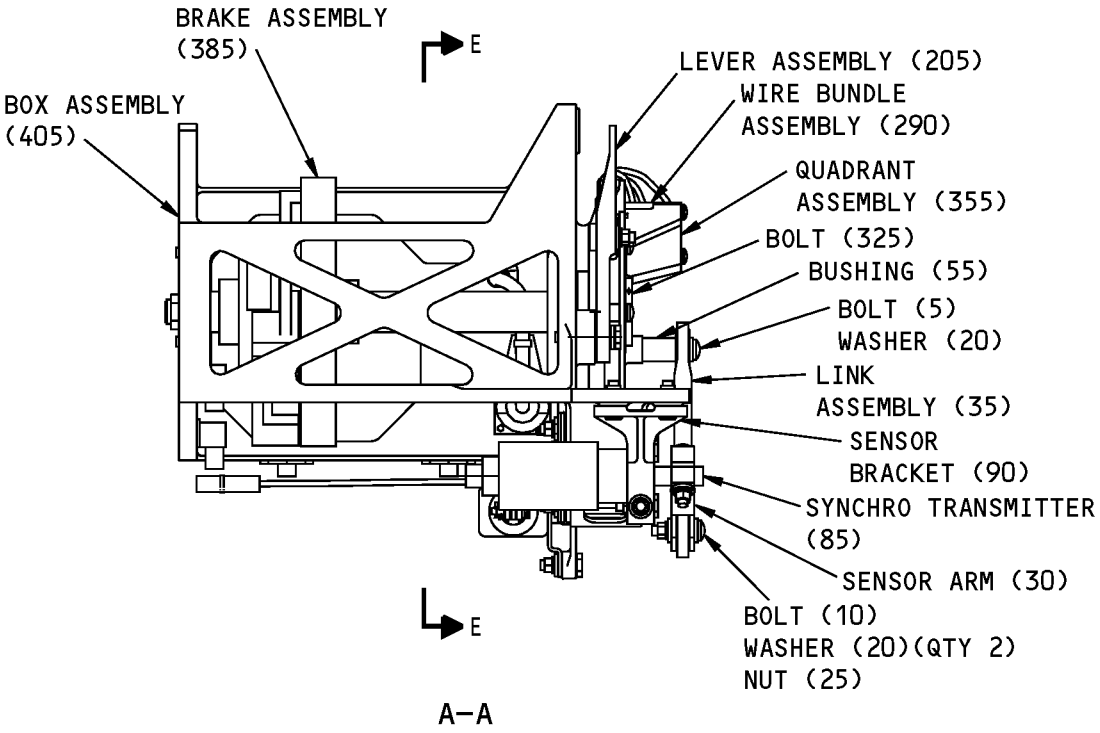
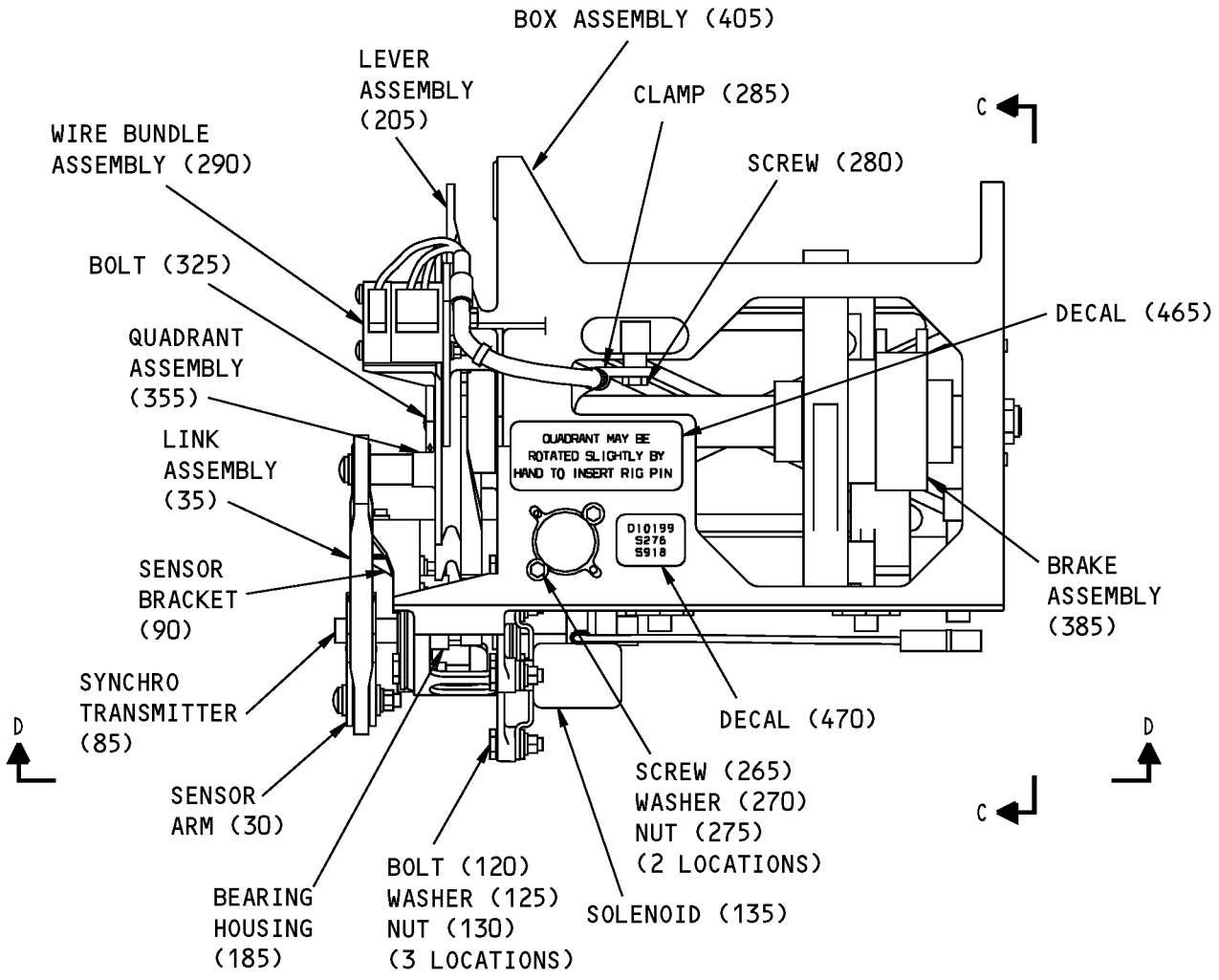


251A1911-5 Speedbrake Mechanism Disassembly
Figure 302 (Sheet 2 of 7)



251A1911-5 Speedbrake Mechanism Disassembly
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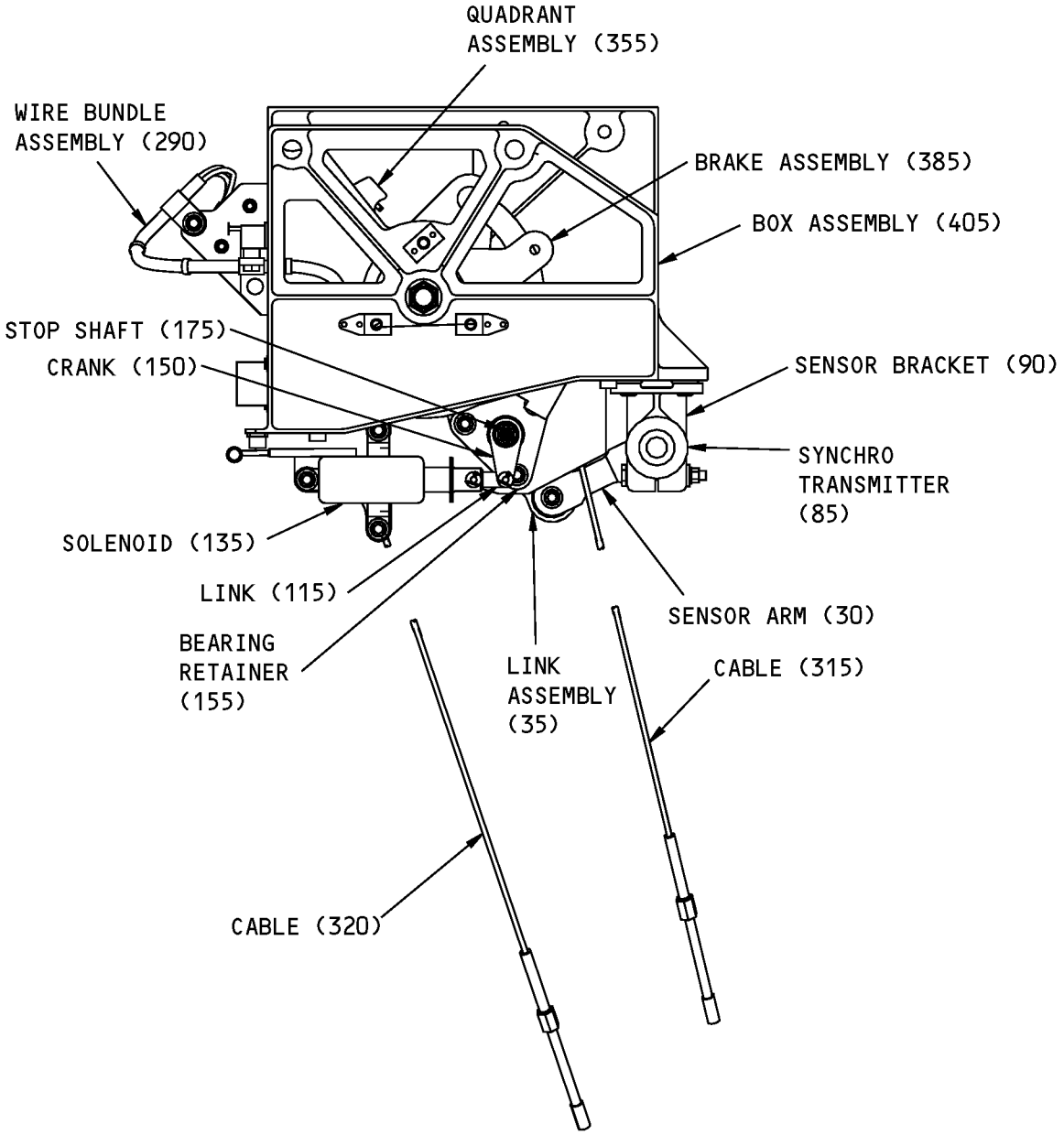
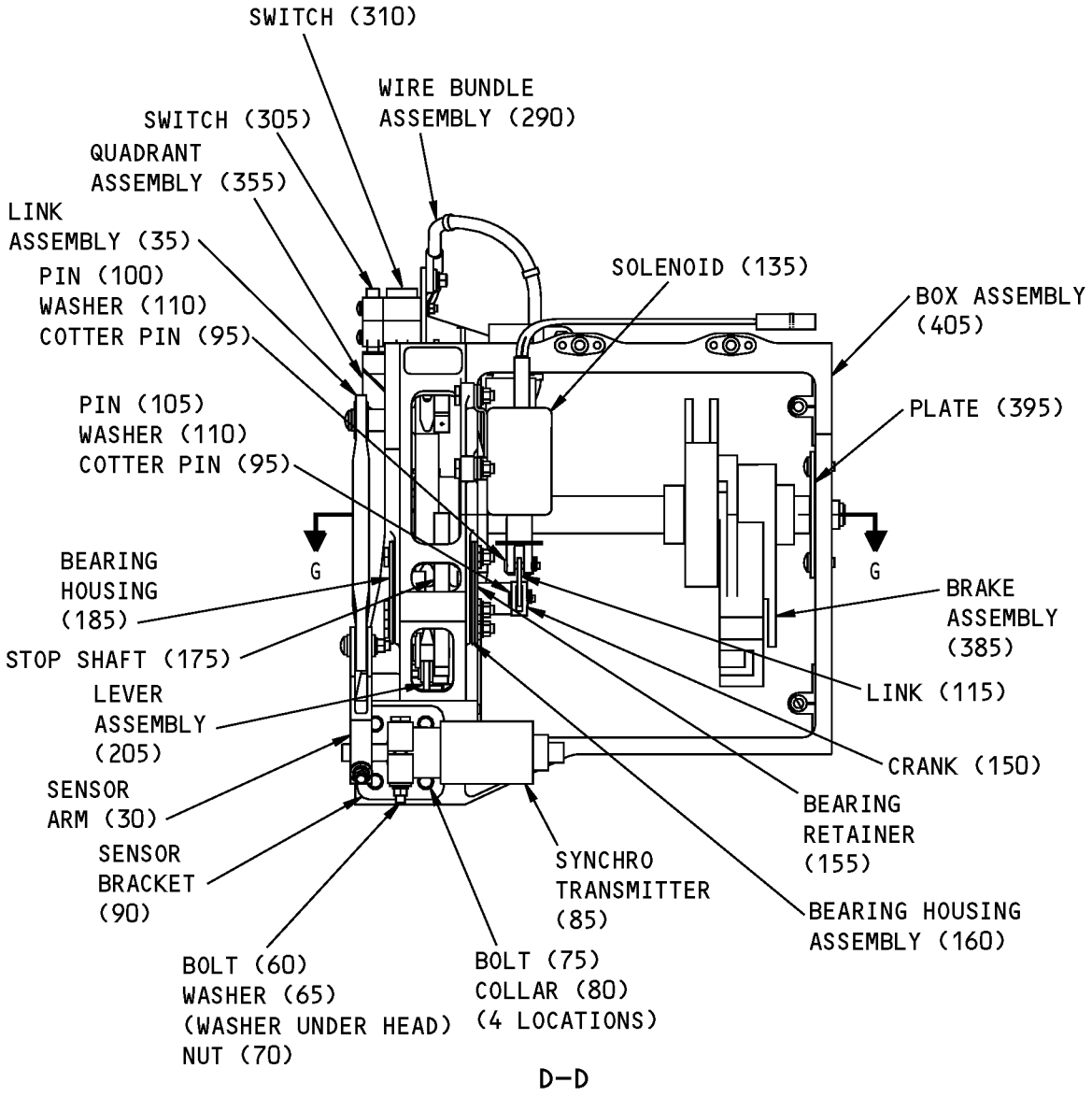


251A1911-5 Speedbrake Mechanism Disassembly
Figure 302 (Sheet 4 of 7)



251A1911-5 Speedbrake Mechanism Disassembly
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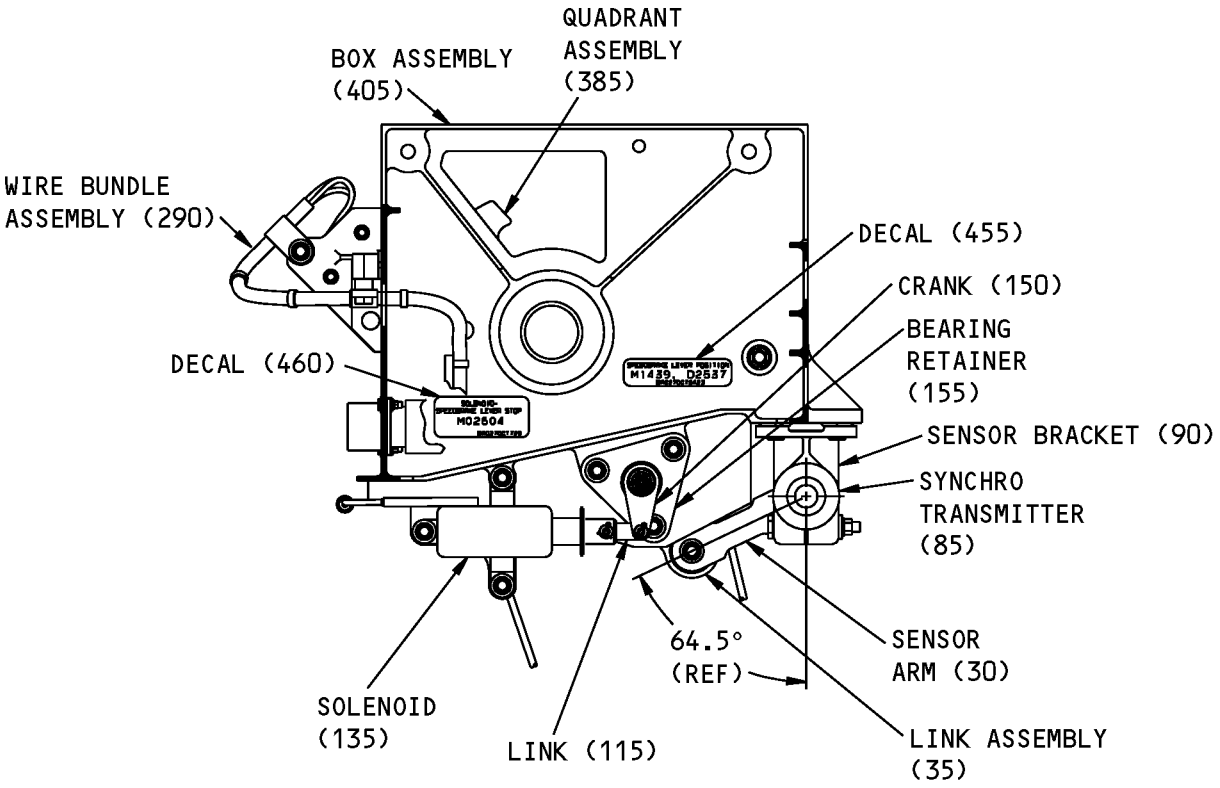
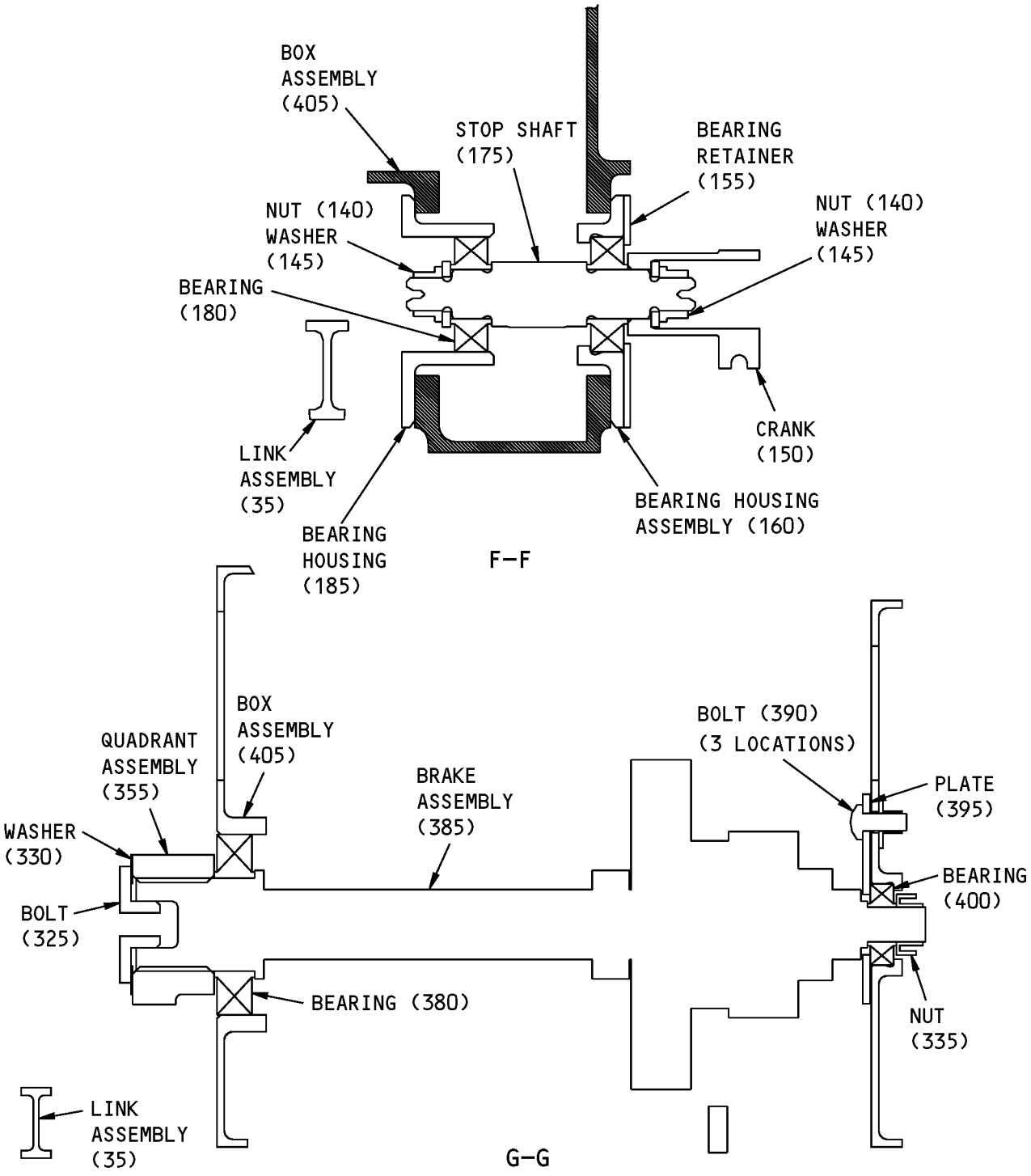


251A1911-5 Speedbrake Mechanism Disassembly
Figure 302 (Sheet 6 of 7)



251A1911-5 Speedbrake Mechanism Disassembly
Figure 302 (Sheet 7 of 7)

CLEANING

1. General

A. This procedure has the data necessary to clean the speedbrake mechanism assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 andIPL Figure for item numbers.

2. Cleaning

A. References

Reference	Title
SOPM 20-30-01	CLEANING AND RELUBRICATING BEARINGS
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Clean the bearings (IPL Figure 1, 45, 130, 135, 280, 300; IPL Figure , 45, 165, 180, 220, 225, 380, 400) as specified in SOPM 20-30-01.

(2) Use standard industry procedures and refer to SOPM 20-30-03 to clean all other parts.

CHECK

1. General

A. This procedure has the data necessary to find defects in the material of the specified parts.

B. Refer to FITS AND CLEARANCES for the design dimension and wear limits.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

D. Refer to IPL Figure 1 and IPL Figure for item numbers.

2. Check

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION

B. Procedure

(1) Use standard industry procedures to do a visual check of all the parts for defects. Do the penetrant or magnetic particle check if the visual check shows possible damage or if you suspect possible damage on the parts listed below:

(2) Do a penetrant check (SOPM 20-20-02) of these parts:

(a) Box (IPL Figure 1, 340, 340A; IPL Figure , 450)

(b) Bracket (IPL Figure 1, 90)

(c) Crank (IPL Figure , 150)

(d) Bearing housing (IPL Figure , 170, 185)

(e) Quadrant (IPL Figure 1, 260B; IPL Figure , 375)

(3) Do a magnetic particle check (SOPM 20-20-01)of these parts:

(a) Stop shaft (IPL Figure , 175)

(b) Stop button (IPL Figure , 370)

REPAIR

1. General

A. Instructions for repair, refinish, and replacement of the specified subassembly parts are included in each REPAIR when applicable:

Table 601:

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
251A1912	LEVER ASSEMBLY	2-1, 2-2
251A1918	LINK ASSEMBLY	3-1, 3-2

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in REPAIR-GENERAL, Figure 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 THIS FEATURE 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 DATUM B WITHIN 0.002
// | 0.002 | A	PARALLEL TO DATUM 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 A
⌓ | 0.020 | A	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ | ∅ 0.0005 | C	CONCENTRIC TO DATUM C WITHIN 0.0005 DIAMETER
⌯ | 0.010 | A	SYMMETRICAL WITH DATUM A WITHIN 0.010
∠ | 0.005 | A	ANGULAR TOLERANCE 0.005 WITH DATUM 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 DATUM A, AND EXTENDING 0.510 INCH ABOVE DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols
Figure 601

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

A. This procedure has the data necessary to refinish the parts which are not given in the specified repairs.

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 and IPL Figure for item numbers.

2. Refinish of Other Parts

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C50069	Coating - Enamel, Color 702 Gloss White	BMS10-11, Type II

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. General

(1) Instructions for the repair of the parts listed in REPAIR 1-1, Table 601 are for repair of the initial finish.

D. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

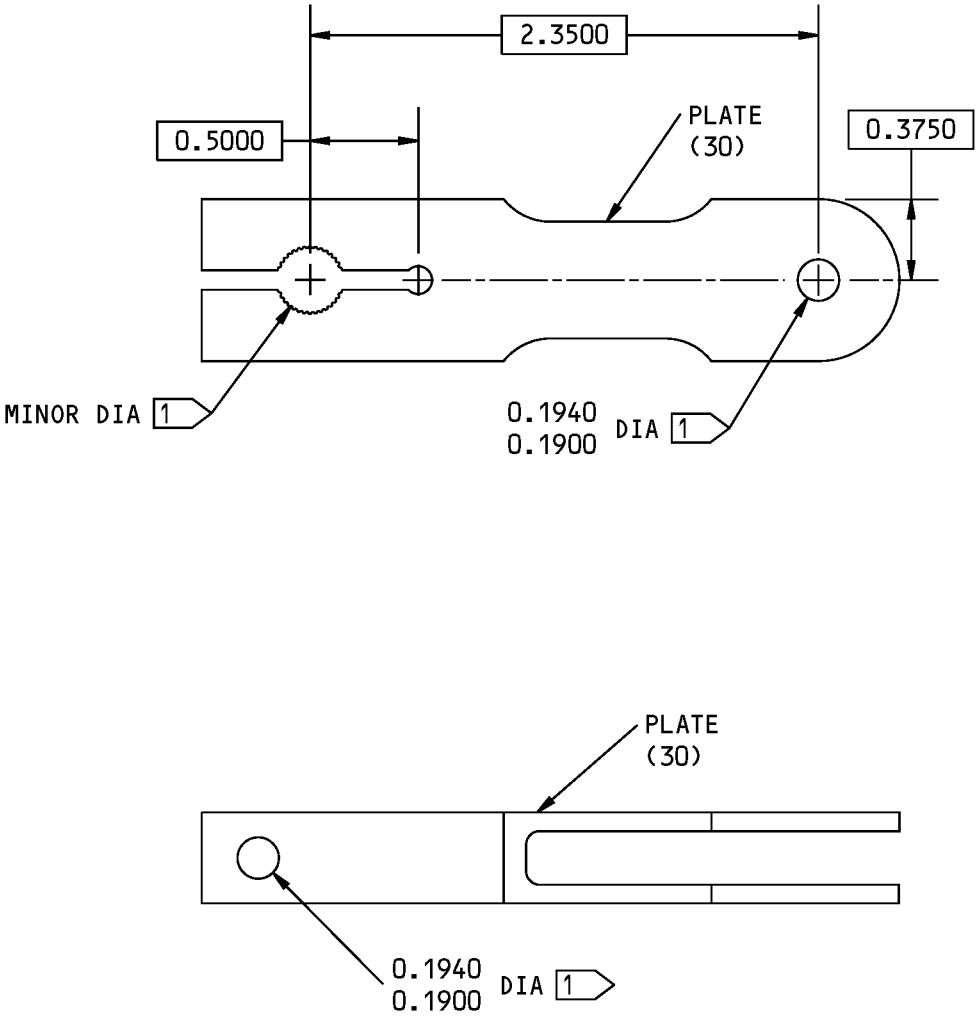
(1) Refer to REPAIR 1-1, Table 601 for the refinish of other parts.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Sensor Arm (IPL Fig. 1, 30; IPL Fig. 2, 30)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply primer, C00259 (F-20.02). Do not put primer in areas indicated by flagnote 1, REPAIR 1-1, Figure 601.
Bracket (IPL Fig. 1, 90; IPL Fig. 2, 90)	Aluminum alloy	Chromic acid anodize and apply primer, C00259 (F-18.13), and apply enamel coating, C50069 (F-21.03). Do not put primer in area indicated by flagnote 1, REPAIR 1-1, Figure 602.

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Quadrant bolt (IPL Fig. 1, 230; IPL Fig. 2, 325)	4130 steel, 125-145 psi	Cadmium plate (F-1.32)
Quadrant (IPL Fig. 1, 260A, 260B)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except as noted by flagnote 1,REPAIR 1-1, Figure 603.
Quadrant (IPL Fig. 2, 375)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except as noted by flagnote 1, REPAIR 1-1, Figure 604.
Plate (IPL Fig. 1, 295; IPL Fig. 2, 395)	Aluminum alloy	Chromic acid anodize (F-17.19) and apply primer, C00259 (F-20.02).
Box (IPL Fig. 1, 340, IPL Fig. 2, 450)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except do not put primer in holes.
Llink (IPL Fig. 2, 115)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except do not put primer in holes.
Crank (IPL Fig. 2, 150)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except as noted by flagnote 1, REPAIR 1-1, Figure 605.
Bearing retainer plate (IPL Fig. 2, 155)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except do not put primer in holes.
Bearing housing (IPL Fig. 2, 170, 185)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31). Apply primer, C00259 (F-20.02), except as noted by flagnote 1, REPAIR 1-1, Figure 606.
Stop shaft (IPL Fig. 2, 175)	15-5PH stainless steel 150-170 ksi	Passivate (F-17.25). Cadmium plate (F-15.36) or zinc-nickel alloy plate (F-15.401) as noted by flagnote 1, REPAIR 1-1, Figure 607.
Stop button (IPL Fig. 2, 370)	15-5 PH stainless steel 150-170 ksi	Zinc-nickel alloy plate (F-15.402) or cadmium plate (F-15.36).

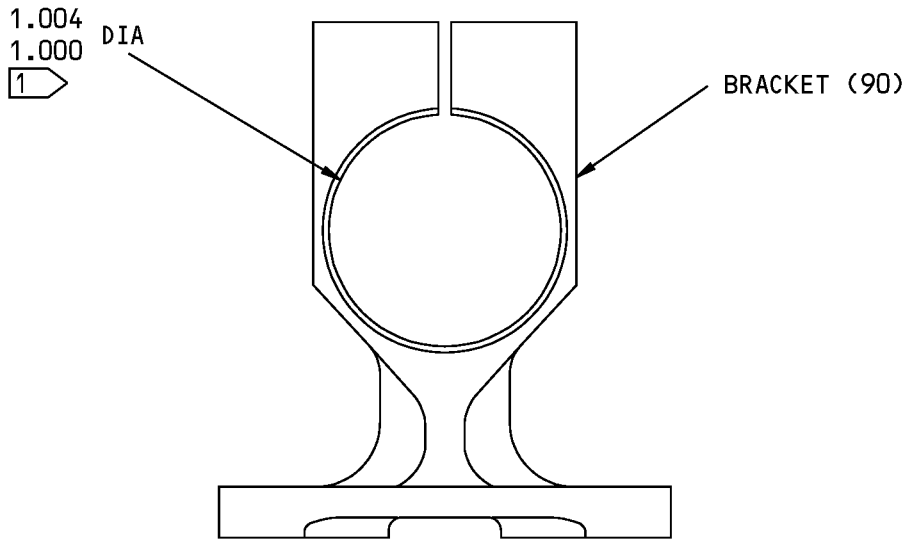


1 NO PRIMER ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1,2

ALL DIMENSIONS ARE IN INCHES

251A1917-1 Sensor Arm Refinish
Figure 601

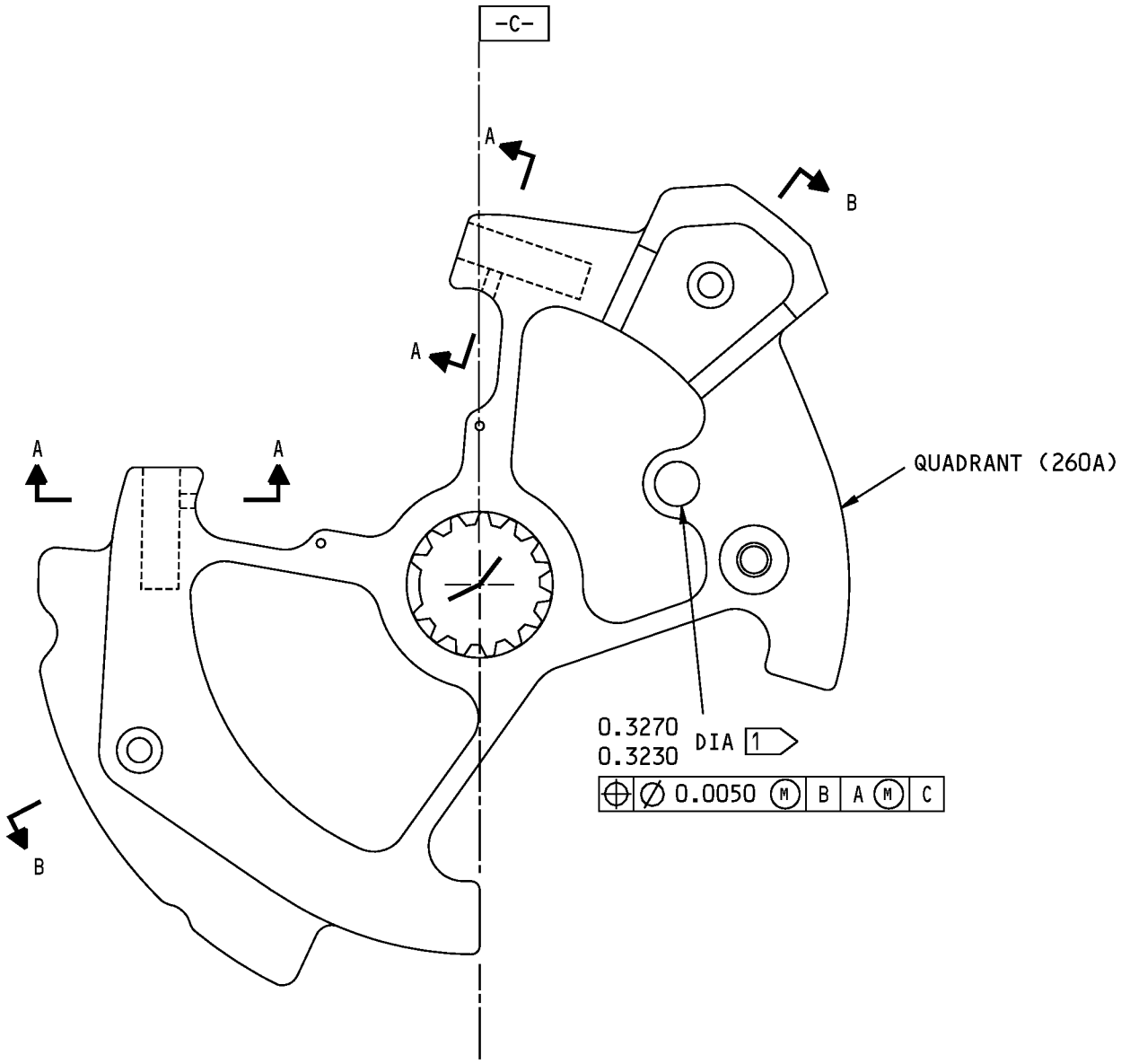


1 NO PRIMER ON THIS SURFACE.

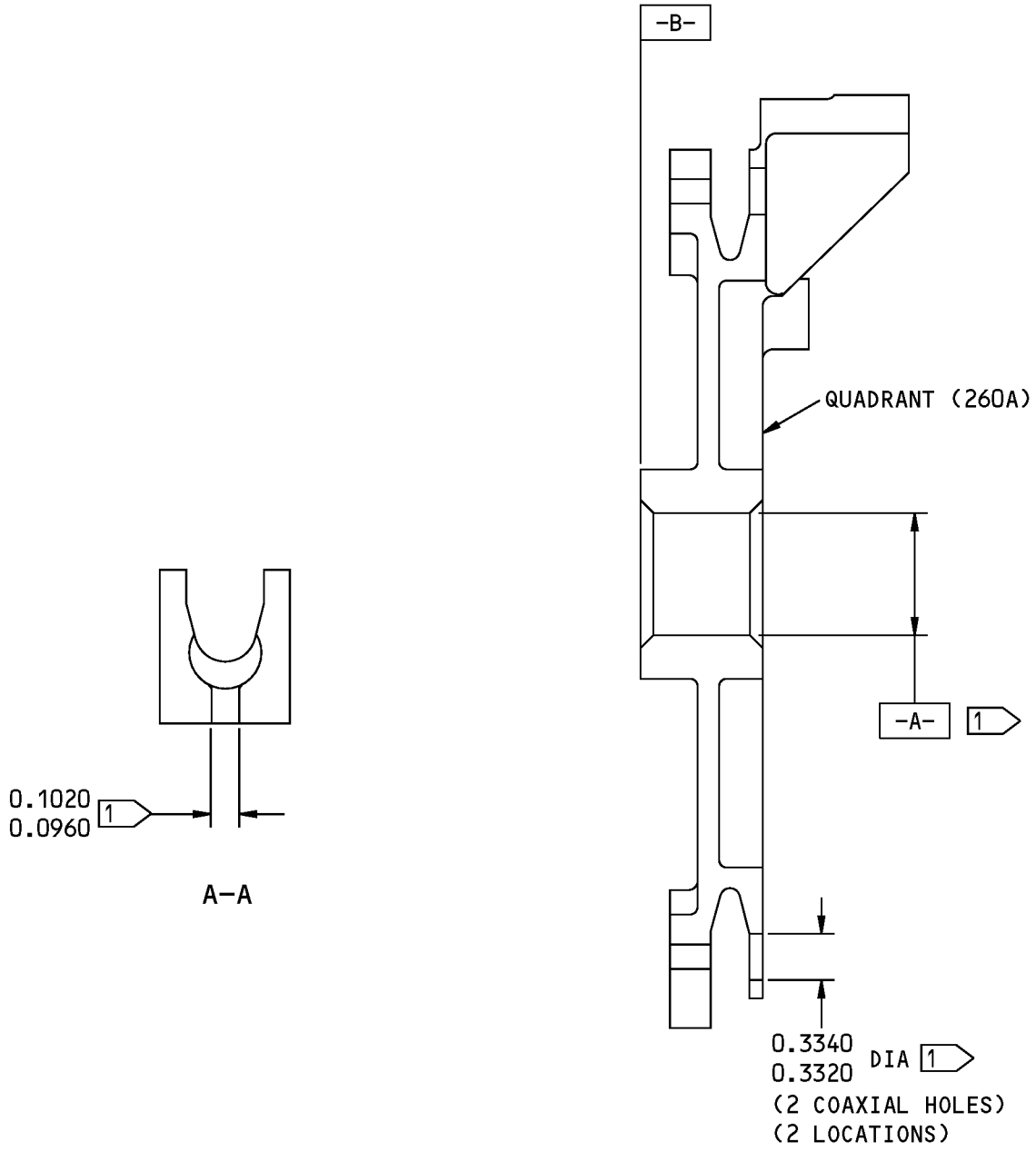
ITEM NUMBERS REFER TO IPL FIG. 1,2

ALL DIMENSIONS ARE IN INCHES

69-71019-2 Bracket Refinish
Figure 602



251A1914-4,-6 Quadrant Refinish
Figure 603 (Sheet 1 of 2)

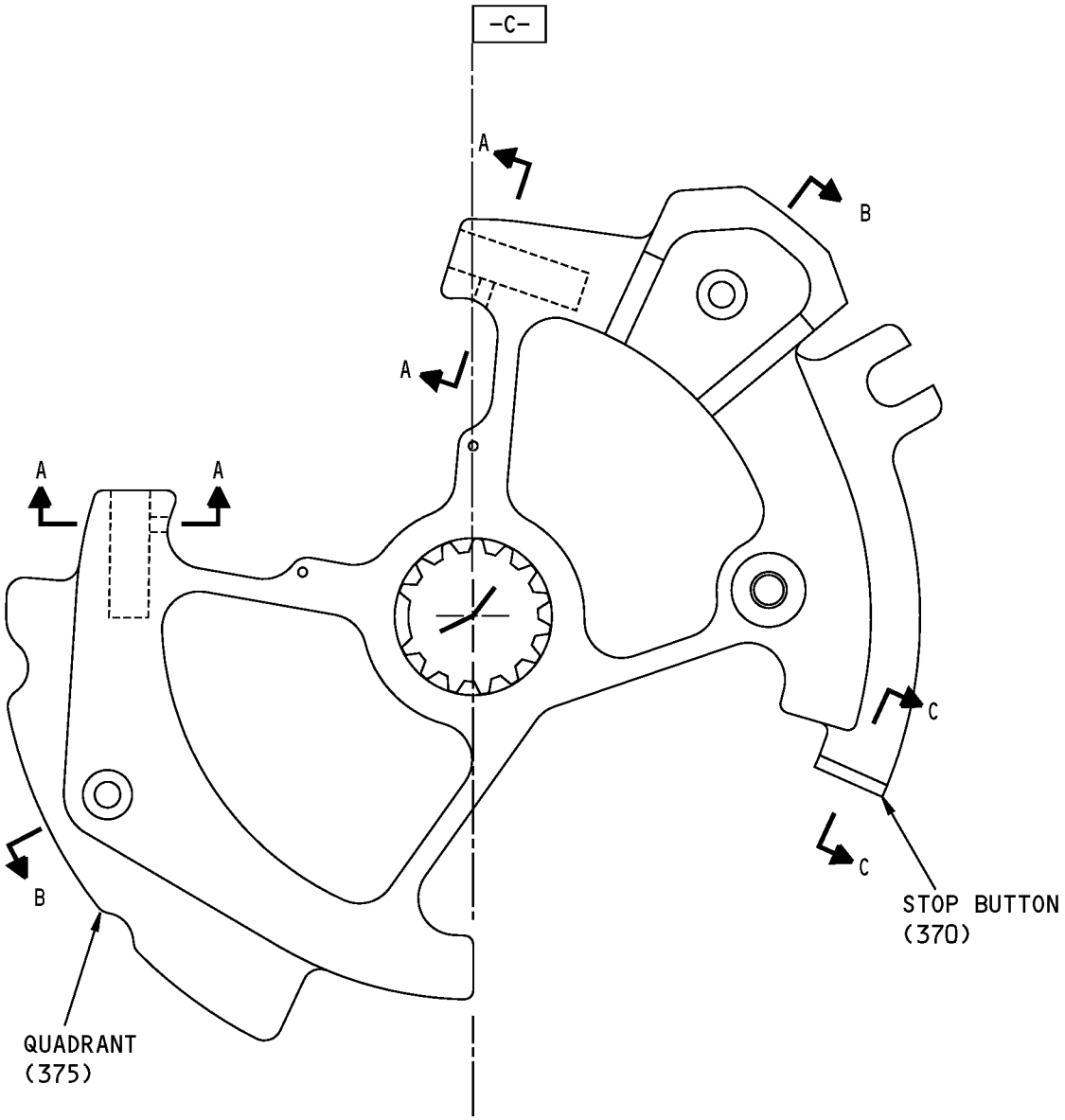


1 NO PRIMER ON THIS SURFACE.

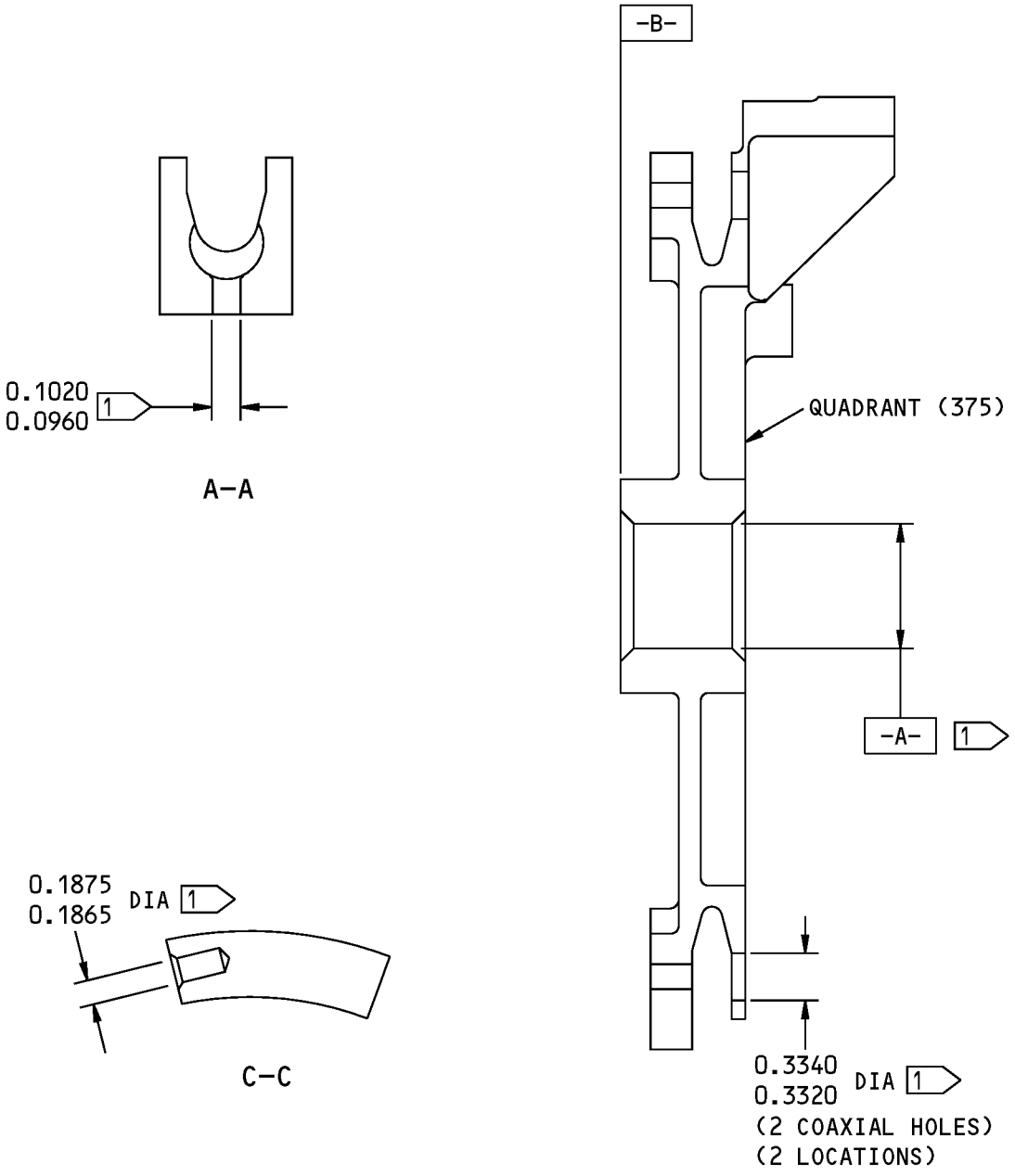
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

251A1914-4,-6 Quadrant Refinish
Figure 603 (Sheet 2 of 2)



251A1914-8 Quadrant Refinish
Figure 604 (Sheet 1 of 2)

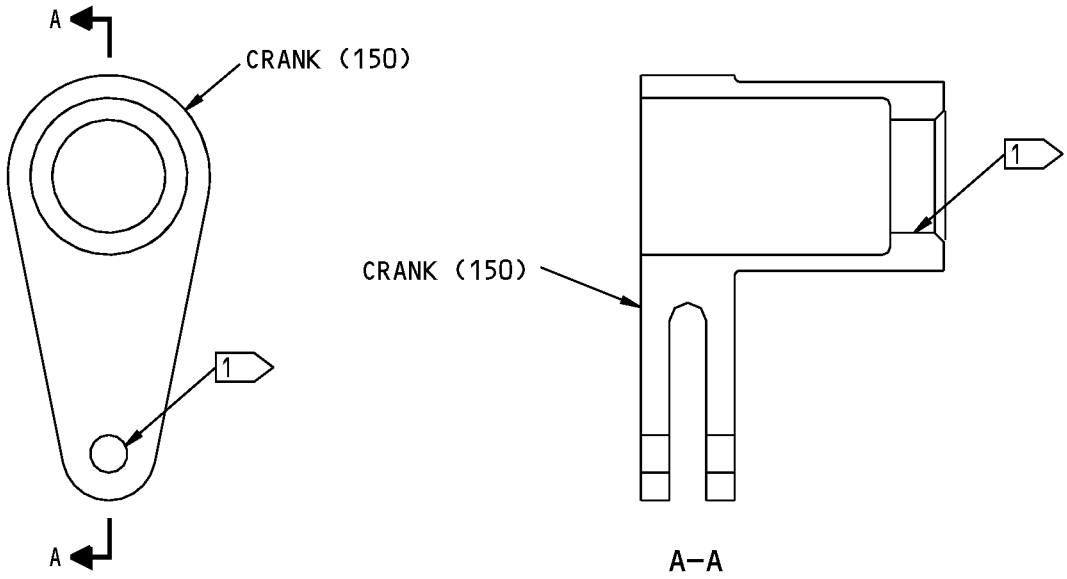


1 NO PRIMER ON THIS SURFACE.

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

251A1914-8 Quadrant Refinish
Figure 604 (Sheet 2 of 2)

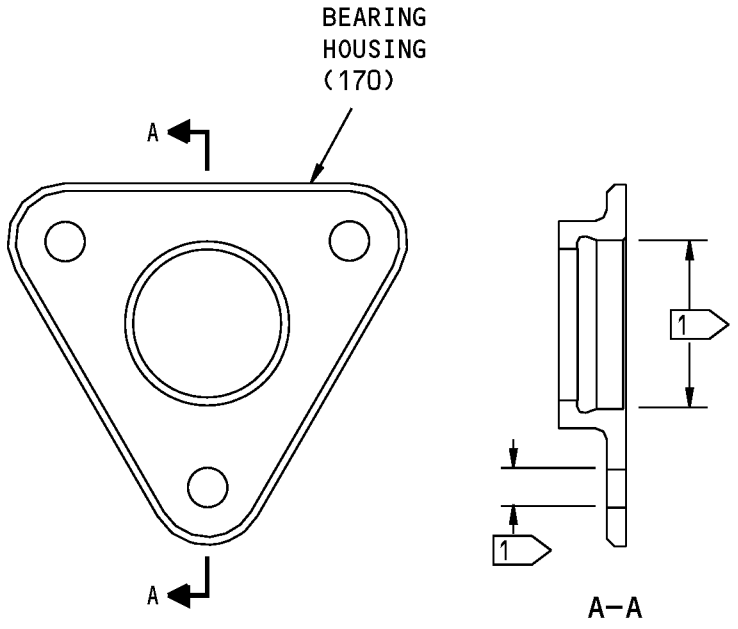


1 NO PRIMER ON THIS SURFACE.

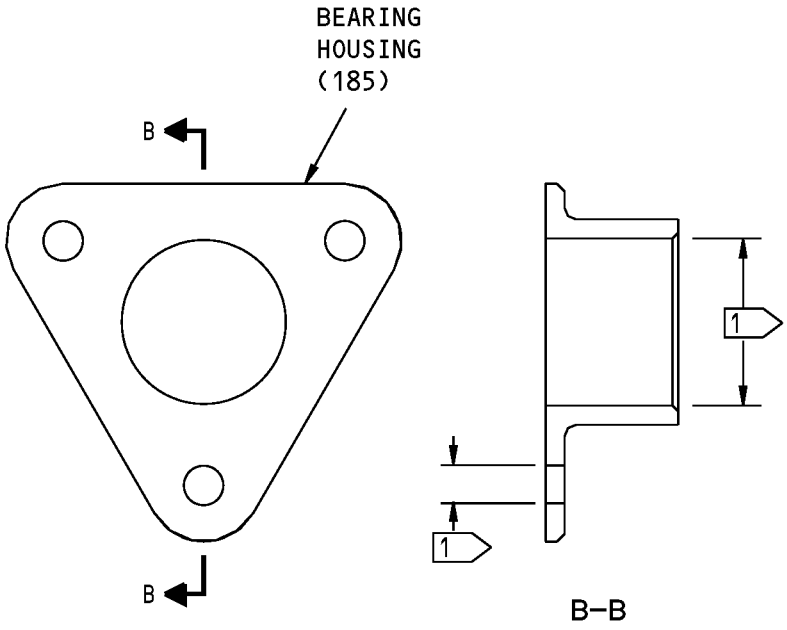
ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

251A1924-1 Crank Refinish
Figure 605



251A1923–2



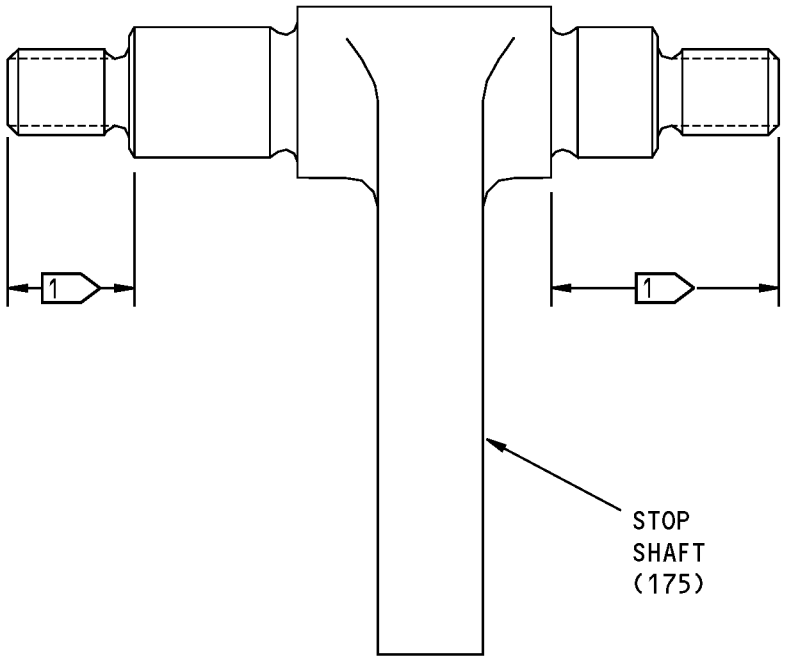
251A1923–2

1 NO PRIMER ON THIS SURFACE

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

251A1923-2 Bearing Housing Refinish
Figure 606



1 NO PRIMER ON THIS SURFACE.

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

251S1925-1 Stop Shaft Refinish
Figure 607

LEVER ASSEMBLY - REPAIR 2-1

251A1912–1

1. General

A. This procedure has the data necessary to repair the lever assembly (IPL Figure 1,110; IPL Figure , 205).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 and IPL Figure for item numbers.

2. Bearing Replacement

A. Procedure

(1) Remove the bearing (IPL Figure 1, 130; IPL Figure , 225) from the lever (IPL Figure 1, 125A IPL Figure , 230) as shown in REPAIR 2-1, Figure 601.

(2) Install bearing and roller swage to depth of 0.0025-0.0075 inch both sides as shown in SOPM 20-50-03.

(3) Install the new bearing (IPL Figure 1, 130; IPL Figure , 225) into the lever (IPL Figure 1, 125A; IPL Figure , 230) by the roller-swage procedure to a depth of 0.0025-0.0075 inch on both sides as shown in SOPM 20-50-03.

3. Cam Follower Bearing Replacement

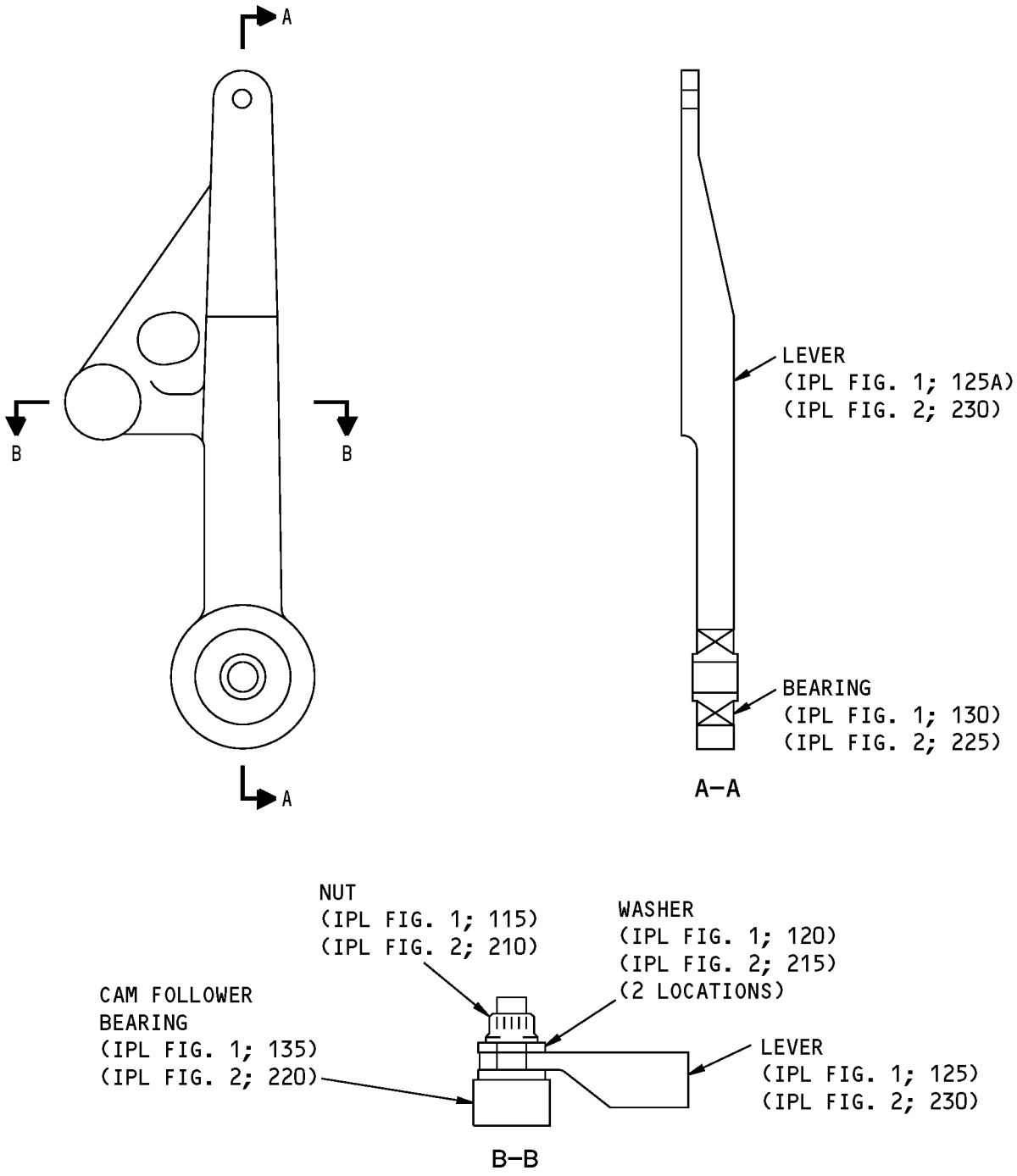
A. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION

B. Procedure

(1) Remove the nut (IPL Figure 1, 115; IPL Figure , 210), the washers (IPL Figure 1, 120; IPL Figure , 215) and the cam follower bearing (IPL Figure 1, 135; IPL Figure , 220) from the lever (IPL Figure 1, 125A; IPL Figure , 230) as shown in REPAIR 2-1, Figure 601.

(2) Install the replacement cam follower bearing (IPL Figure 1, 135; IPL Figure , 220) onto the lever (IPL Figure 1, 125A; IPL Figure , 230) with the washers (IPL Figure 1, 120; IPL Figure , 215) and the nut (IPL Figure 1, 115; IPL Figure , 210) (SOPM 20-50-01).



251A1912-1 Lever Assembly Repair
Figure 601

BOEING®

COMPONENT MAINTENANCE MANUAL

MECHANISM LEVER - REPAIR 2-2

69-69988–6

1. General

A. This procedure has the data necessary to refinish the mechanism lever (IPL Figure 1, 125A; IPL Figure , 230).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 and IPL Figure for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Mechanism Lever Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

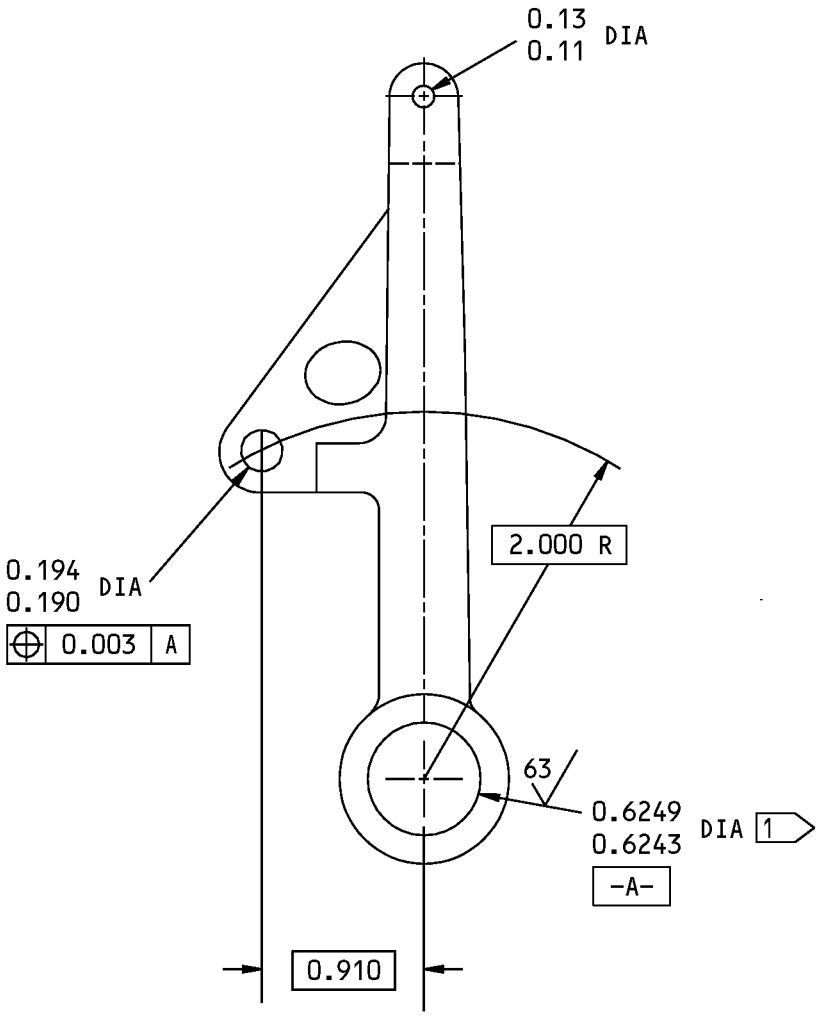
B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Chromic acid anodize (F-17.05) and apply primer, C00259 (F-20.02), except as indicated by flagnote 1 in REPAIR 2-2, Figure 601.



1 NO PRIMER ON THIS SURFACE

69-69988-6 Lever Refinish
Figure 601

LINK ASSEMBLY - REPAIR 3-1

251A1918–1

1. General

A. This procedure has the data necessary to repair and refinish the link assembly (35).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 andIPL Figure for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

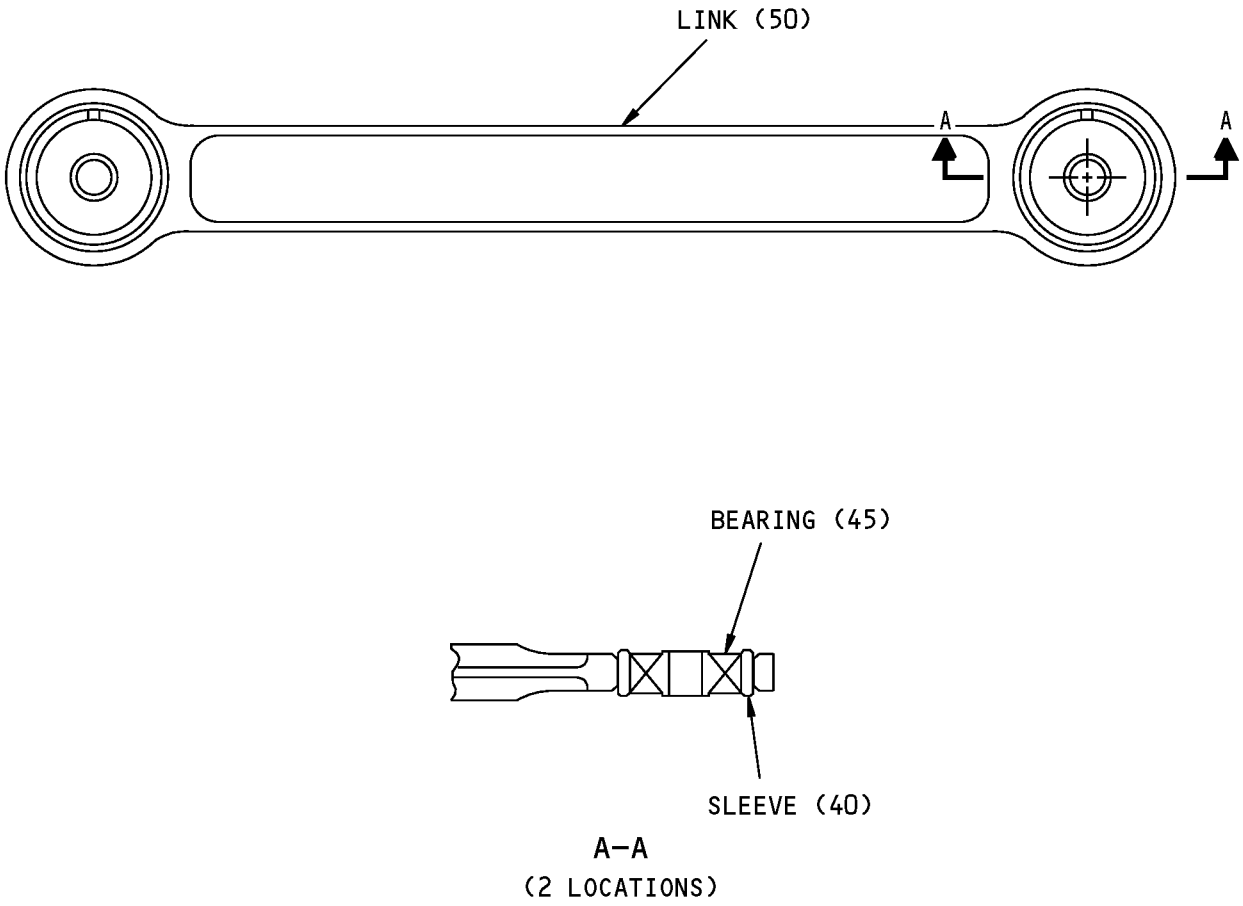
C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the bearing (45) from the sleeve (40) and the link (50).

(2) Apply grease, D00013 into the inside diameter of the replacement bearing (45).

(3) Install the replacement bearing (45) onto the sleeve (40) and the link (50). Roller-swage the sleeve (40) over the bearing (45) and the link (50) on both sides as shown in SOPM 20-50-03.



ITEM NUMBERS REFER TO IPL FIG. 1,2

251A1918-1 Link Assembly Repair
Figure 601

LINK REPAIR - REPAIR 3-2

251A1918–2

1. General

A. This procedure has the data necessary to refinish the link (50).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 andIPL Figure for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Link Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

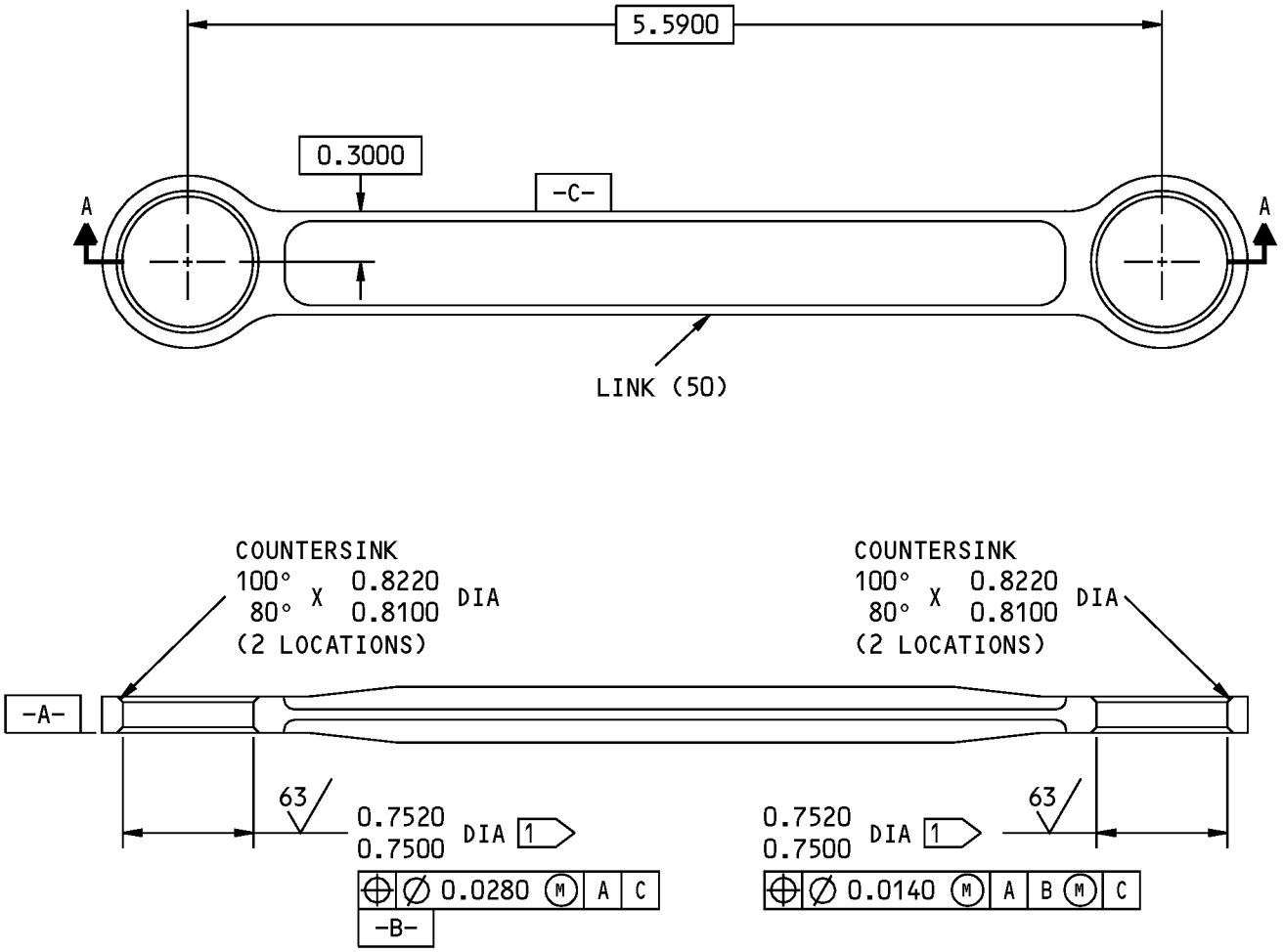
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31).

(2) Apply primer, C00259 (F-20.02), except as indicated by flagnote 1 in REPAIR 3-2, Figure 601.



A–A

1 NO PRIMER ON THIS SURFACE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1,2

ALL DIMENSIONS ARE IN INCHES

251A1918-2 Link Refinish
Figure 601

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the speedbrake mechanism assembly (IPL Figure 11B; IPL Figure , 1A).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 and IPL Figure for item numbers.

2. Assembly

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

B. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-05	APPLICATION OF ALUMINUM FOIL AND OTHER MARKERS
SOPM 20-50-07	LUBRICATION
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For lubricants, refer toSOPM 20-60-03

(1) Use standard industry procedures and the steps shown below to assemble the speedbrake mechanism assembly, 251A1911-3, -4. Refer to IPL Figure 1 for item numbers.

(a) If required, install the metal decals (345, 350, 355) onto the box assembly (305) as shown in SOPM 20-50-05 and ASSEMBLY, Figure 701, Section A-A and F-F.

(b) Apply grease, D00013 into the inside diameter of the bearings (280, 300) as shown in SOPM 20-50-07.

(c) Install the bearing (300) into the box assembly (305) with the bolts (290) and the plate (295) as showin in ASSEMBLY, Figure 701, Section C-C.

(d) Install the brake assembly (285) and the bearing (280) into the box assembly (305).

(e) Install the quadrant assembly (245A) onto the brake assembly (285) with the bolt (230), the washer (235), and the nut (240) (SOPM 20-50-01).

(f) Install the lockwire, G01048 onto the bolt (230) and the quadrant assembly (245A) by the double-twist procedure as shown in SOPM 20-50-02.

(g) Install the cables (220, 225) onto the quadrant assembly (245A) with the pins (275), the bolts (265), and the spacers (270) as shown in ASSEMBLY, Figure 701, Section B-B.

(h) Install the wire bundle assembly (195) onto the box assembly (305) with the screws (170), the washers (175), and the nuts (180) as shown in ASSEMBLY, Figure 701, Section A-A.

(i) Install the clamps (190) onto the wire bundle assembly (195) and the box assembly (305) with the bolt (155), the screw (185), the washer (160A), and the nut (165) as shown in ASSEMBLY, Figure 701, Section A-A and B-B.

(j) Install the bolts (140), the washers (145), and the nuts (150) onto the wire bundle assembly (195) and the box assembly (305) as shown in ASSEMBLY, Figure 701, Section B-B.

(k) Install the lever assembly (110) onto the box assembly (305) with the bolt (95), the washers (100), and the nut (105).

(l) Install the sensor bracket (90) onto the box assembly (305) with the bolts (75) and the collars (80) as shown in ASSEMBLY, Figure 701, Section D-D.

(m) Install the syncro transmitter (85) onto the sensor bracket (90) with the bolt (60), the washer (65), and the nut (70).

(n) Install the link assembly (35) onto the quadrant assembly (245A) with the bolt (5), the washers (20), and the bushing (55) as shown in ASSEMBLY, Figure 701, Section C-C.

(o) Install the sensor arm (30) onto the link assembly (35) and syncro transmitter (85) with the bolts (10, 15), the washers (20), and the nuts (25) as shown in DISASSEMBLY, Figure 301, Section B-B and C-C.

(p) Do TESTING AND FAULT ISOLATION, Paragraph 2.C. through TESTING AND FAULT ISOLATION, Paragraph 2.D..

(2) Use standard industry procedures and the steps shown below to assemble the speedbrake mechanism assembly, 251A1911-5. Refer to IPL Figure for item numbers.

(a) If required, install the metal decals (455, 460, 465, 470) onto the box assembly (405) as shown in SOPM 20-50-05 and ASSEMBLY, Figure 702, Section A-A and F-F.

(b) Apply grease, D00013 into the inside diameter of the bearings (380, 400) as shown in SOPM 20-50-07.

(c) Install the bearing (400) into the box assembly (405) with the bolts (390) and the plate (395) as showin in ASSEMBLY, Figure 702, Section C-C.

(d) Install the brake assembly (385) and the bearing (380) into the box assembly (405).

(e) Install the quadrant assembly (355) onto the brake assembly (385) with the bolt (325), the washer (330), and the nut (335) (SOPM 20-50-01).

(f) Install the lockwire, G01048 onto the bolt (325) and the quadrant assembly (355) by the double-twist procedure as shown in SOPM 20-50-02.

(g) Install the cables (315, 320) onto the quadrant assembly (355) with the pins (350), the bolts (340), and the spacers (345) as shown in ASSEMBLY, Figure 702, Section B-B.

(h) Install the bearing retainer (155), the bearing housing assembly (160), the bearing housing (185) and the stop shaft (175) into the box assembly (405) with the bolts (120), the washers (125) and the nuts (130) as shown in ASSEMBLY, Figure 702, Section F-F.

(i) Install the stop shaft (175) and the crank (150) into the box assembly (405) with the nuts (140) and the washers (145) as shown in ASSEMBLY, Figure 702, Section F-F

(j) Install the solenoid (135) onto the box assembly (405) with the bolts (120), the washers (125) and the nuts (130) as shown in ASSEMBLY, Figure 702, Section A-A.

(k) Install the link (115) onto the solenoid (135) and the crank (150) with the pins (100, 105), the washers (110) and the cotter pins (95) as shown in ASSEMBLY, Figure 702, Section D-D.

(l) Install the wire bundle assembly (290) onto the box assembly (405) with the screws (265), the washers (270), and the nuts (275) as shown in ASSEMBLY, Figure 702, Section A-A.

(m) Install the clamps (285) onto the wire bundle assembly (290) and the box assembly (405) with the bolt (250), the screw (280), the washer (255), and the nut (260) as shown in ASSEMBLY, Figure 702, Section A-A and B-B.

(n) Install the bolts (235), the washers (240), and the nuts (245) onto the wire bundle assembly (290) and the box assembly (405) as shown in ASSEMBLY, Figure 702, Section B-B.

(o) Install the lever assembly (205) onto the box assembly (405) with the bolt (190), the washers (195), and the nut (200).

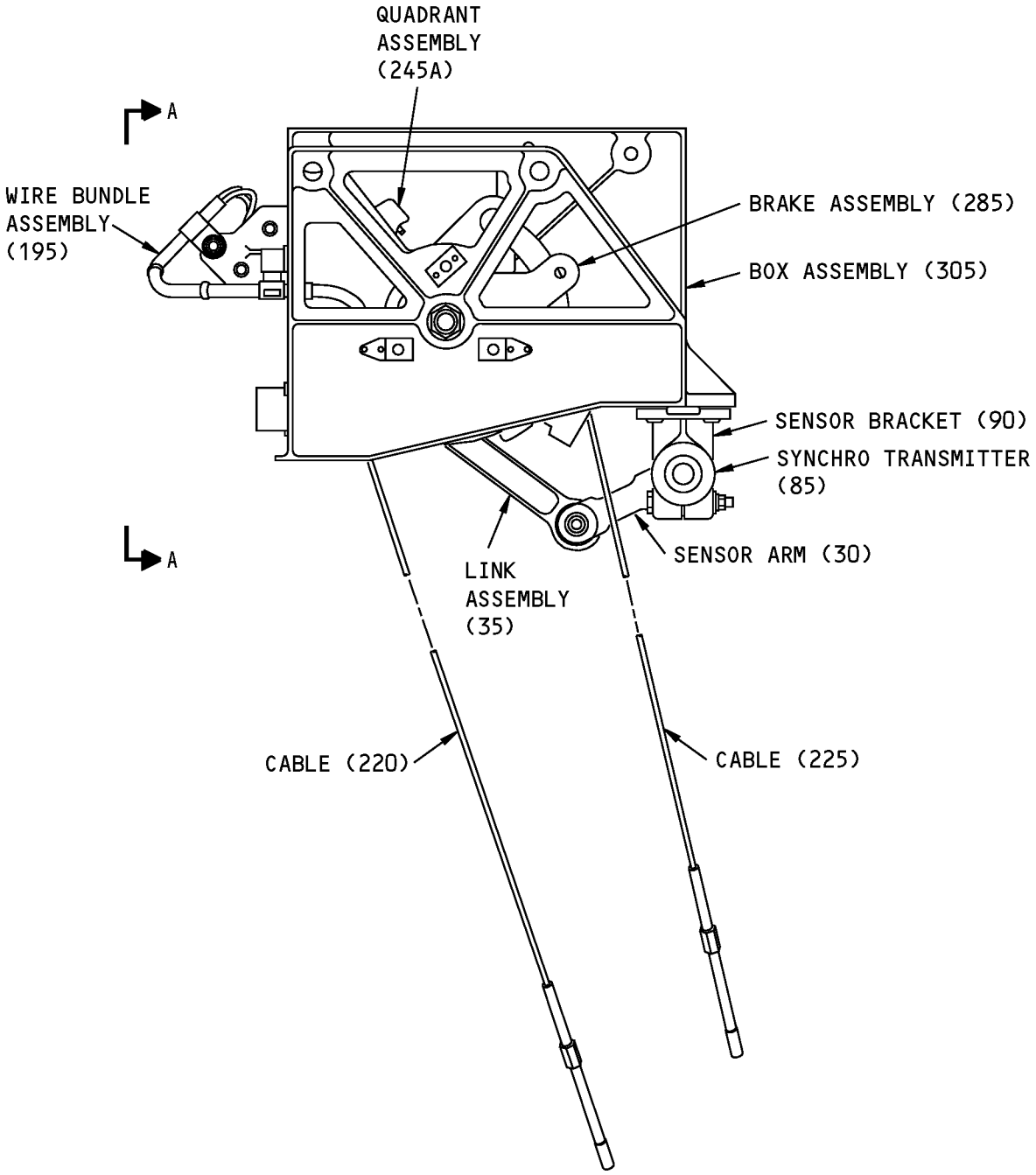
(p) Install the sensor bracket (90) onto the box assembly (405) with the bolts (75) and the collars (80) as shown in ASSEMBLY, Figure 702, Section D-D.

(q) Install the syncro transmitter (85) onto the sensor bracket (90) with the bolt (60), the washer (65), and the nut (70).

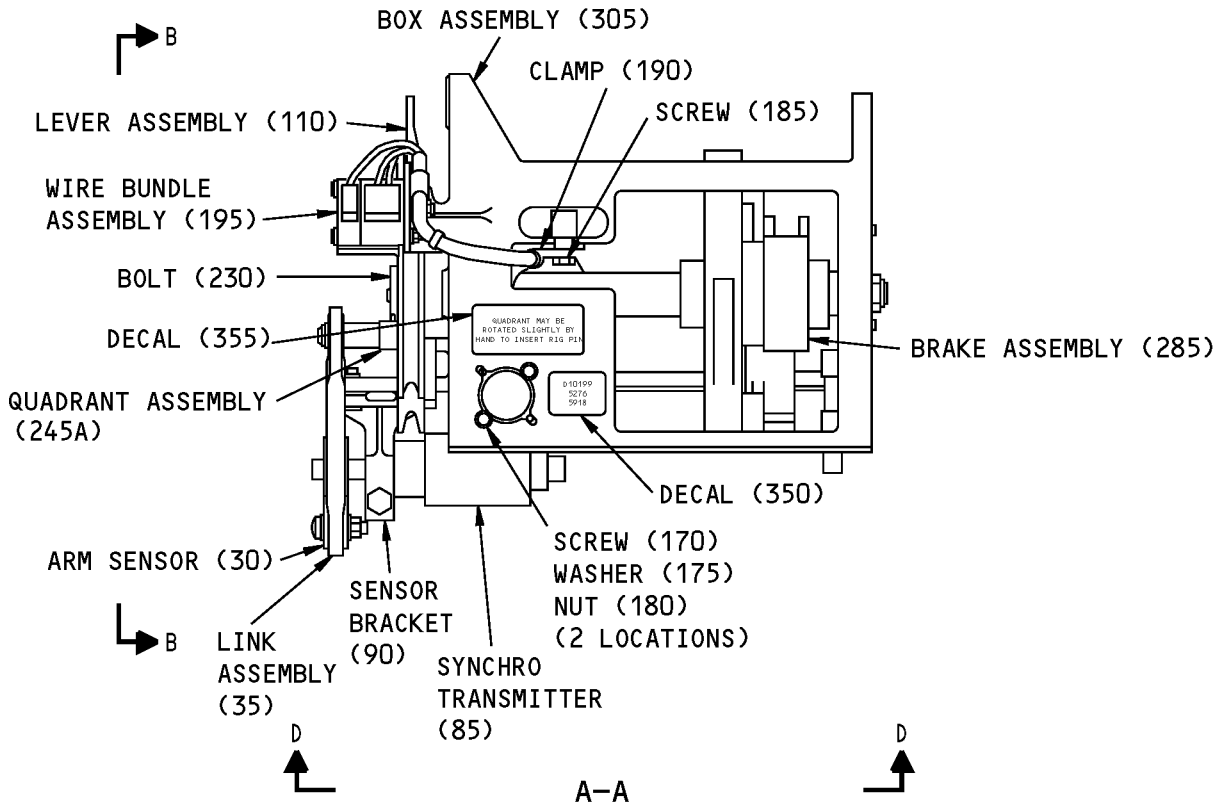
(r) Install the link assembly (35) onto the quadrant assembly (355) with the bolt (5), the washers (20), and the bushing (55) as shown in ASSEMBLY, Figure 702, Section C-C.

(s) Install the sensor arm (30) onto the link assembly (35) and syncro transmitter (85) with the bolts (10, 15), the washers (20), and the nuts (25) as shown in ASSEMBLY, Figure 702, Section B-B and C-C.

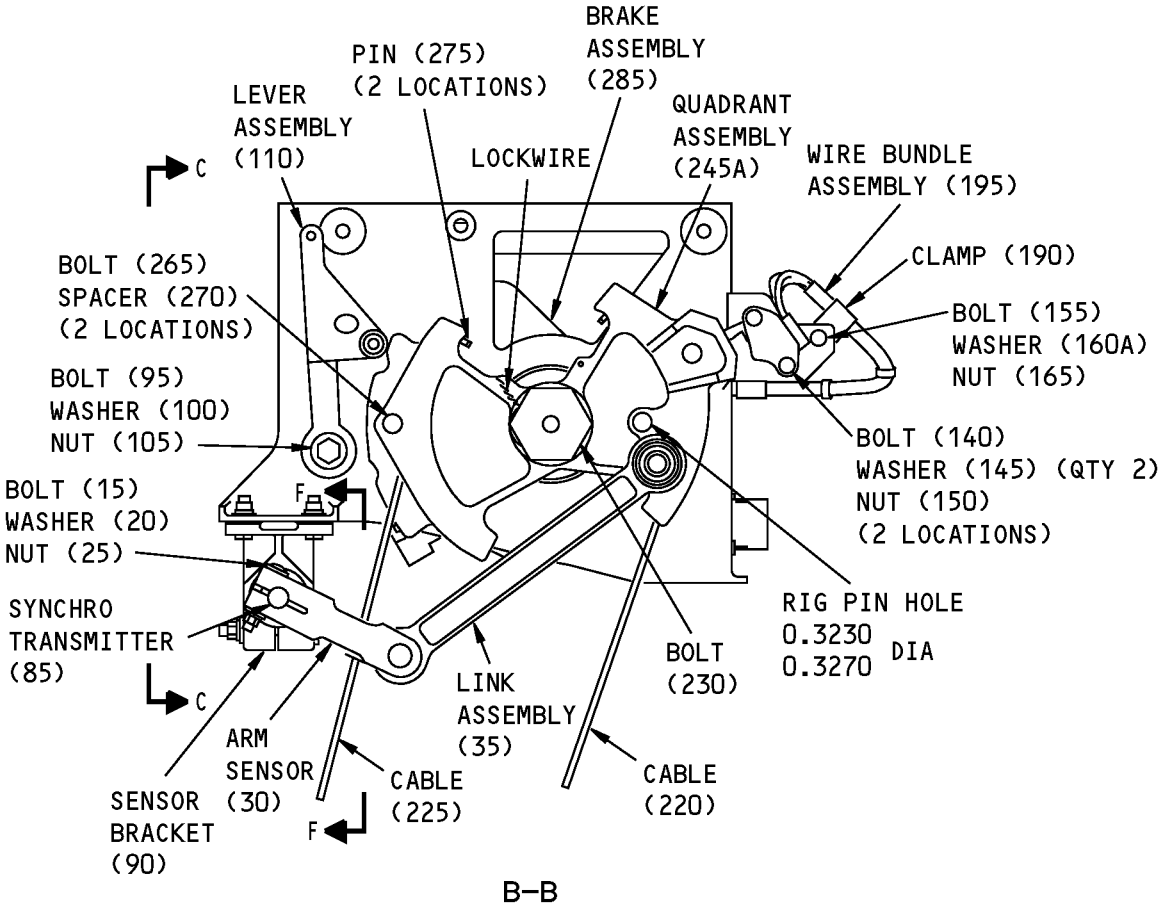
(t) Do TESTING AND FAULT ISOLATION, Paragraph 2.C. through TESTING AND FAULT ISOLATION, Paragraph 2.D..



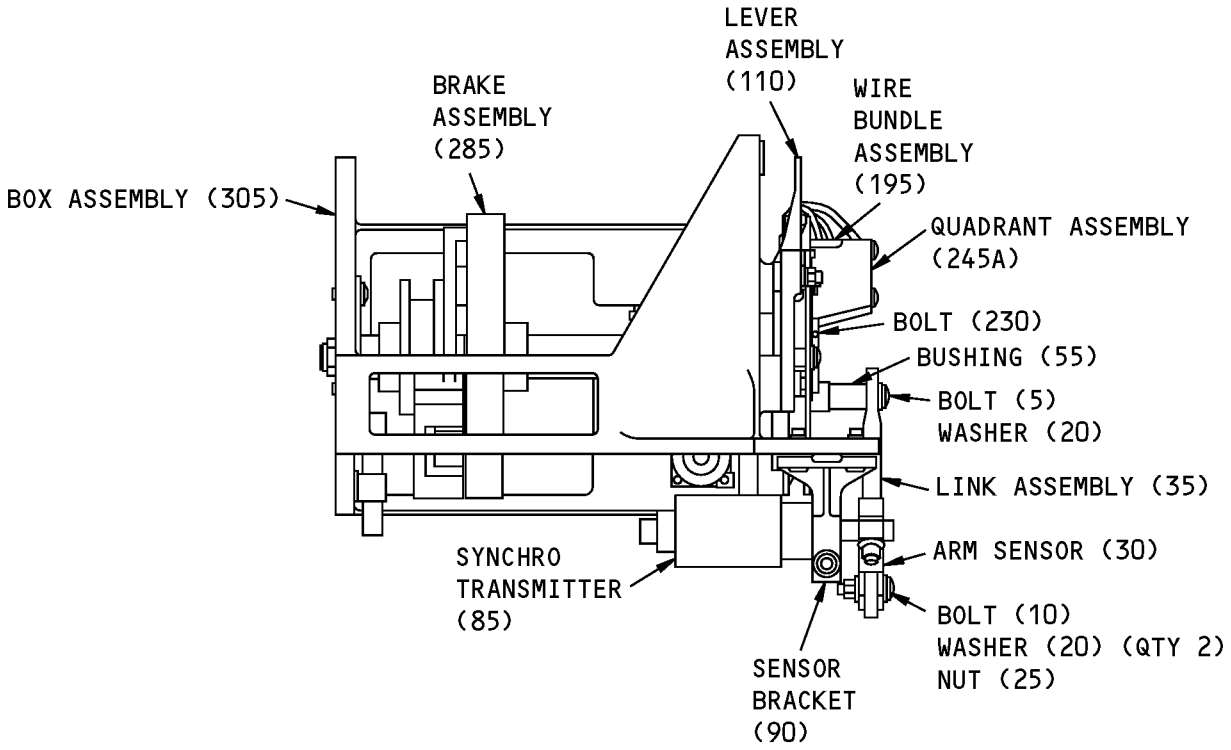
251A1911-3,-4 Assembly Details
Figure 701 (Sheet 1 of 6)



251A1911-3,-4 Assembly Details
Figure 701 (Sheet 2 of 6)

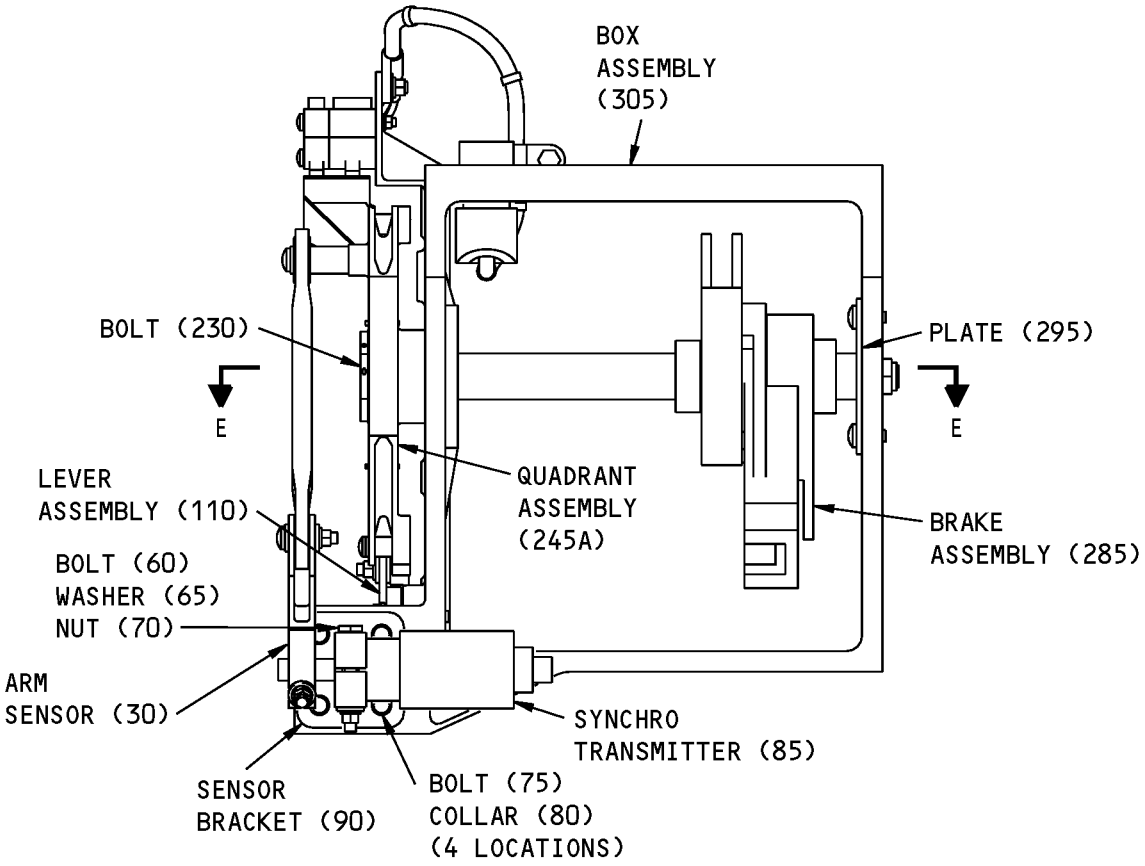


251A1911-3,-4 Assembly Details
Figure 701 (Sheet 3 of 6)



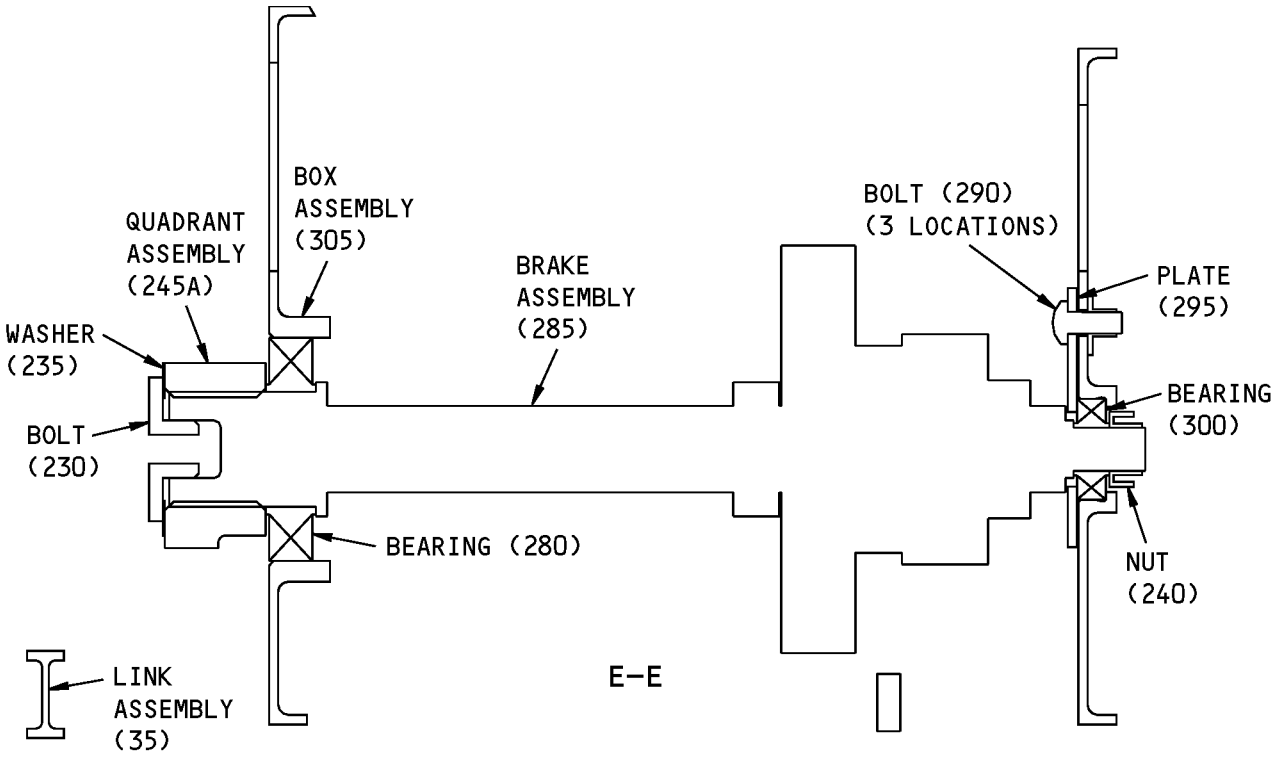
C–C

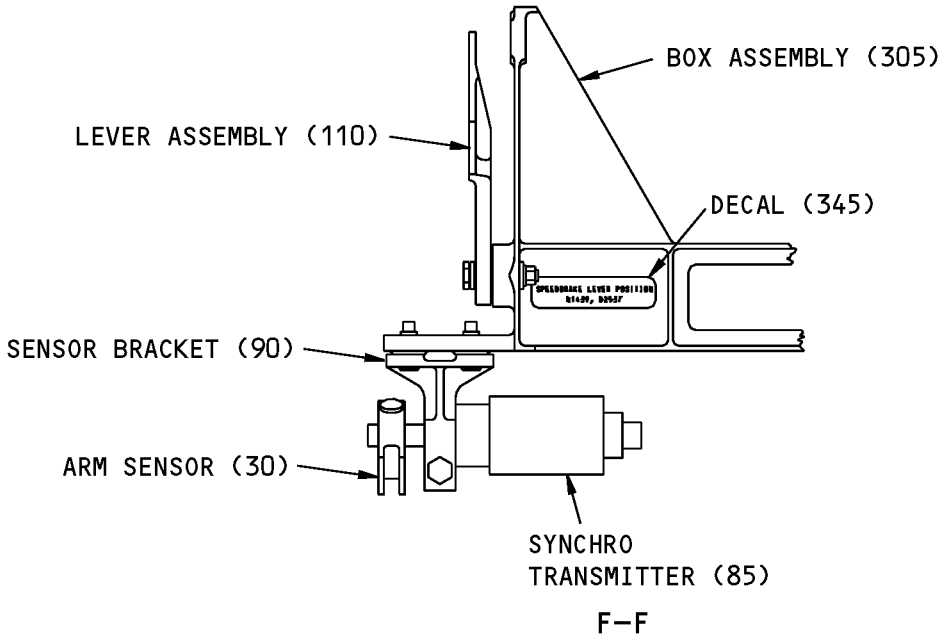
251A1911-3,-4 Assembly Details
Figure 701 (Sheet 4 of 6)



D–D

251A1911-3,-4 Assembly Details
Figure 701 (Sheet 5 of 6)

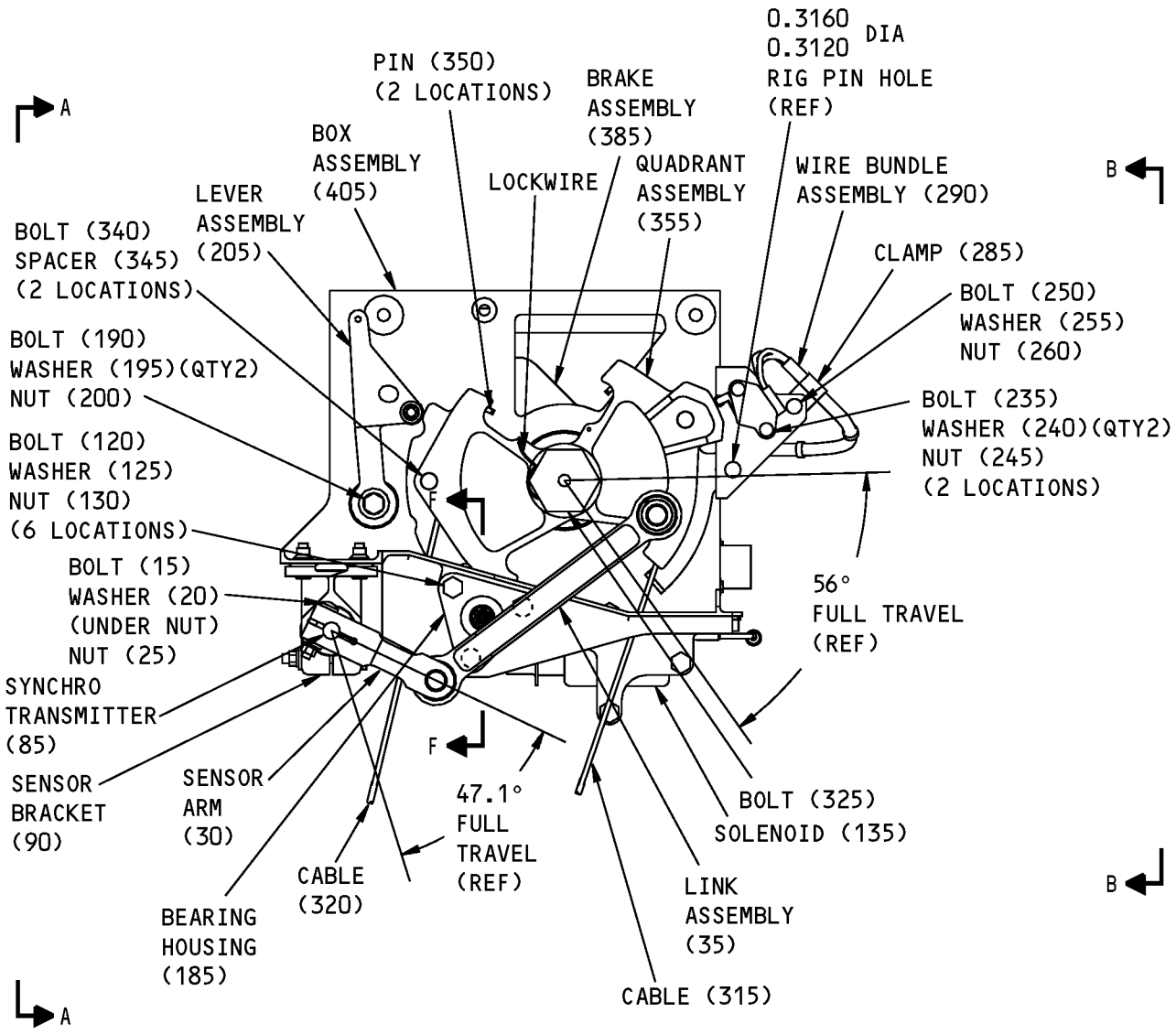




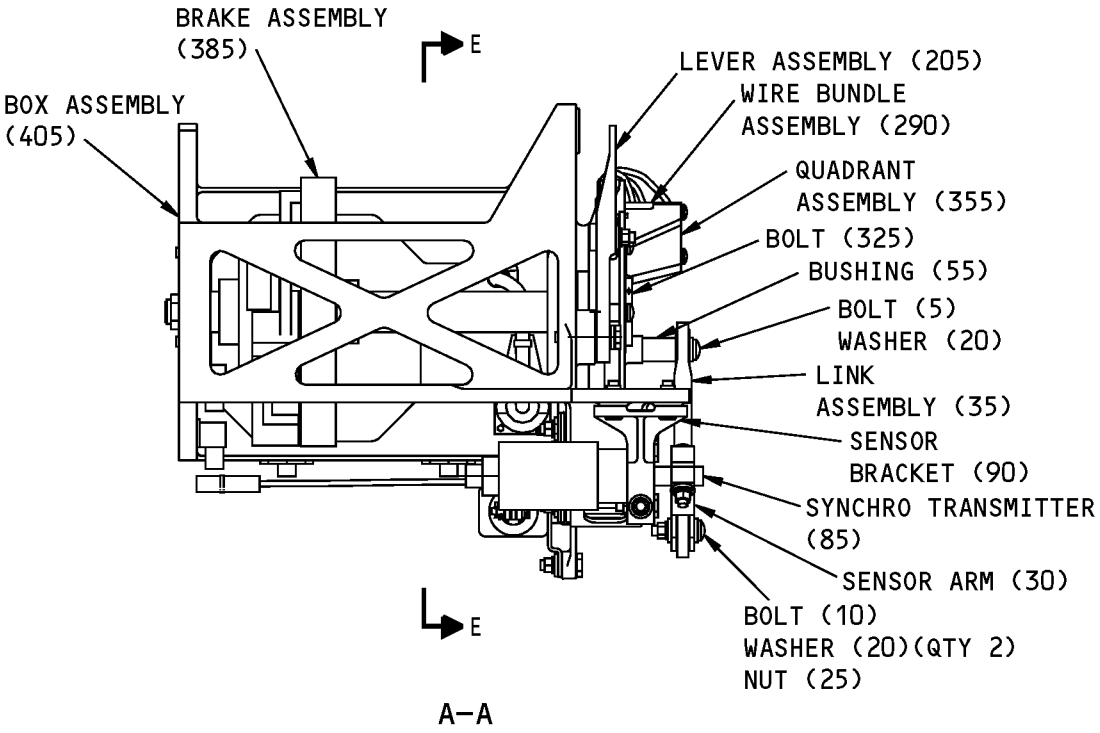
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

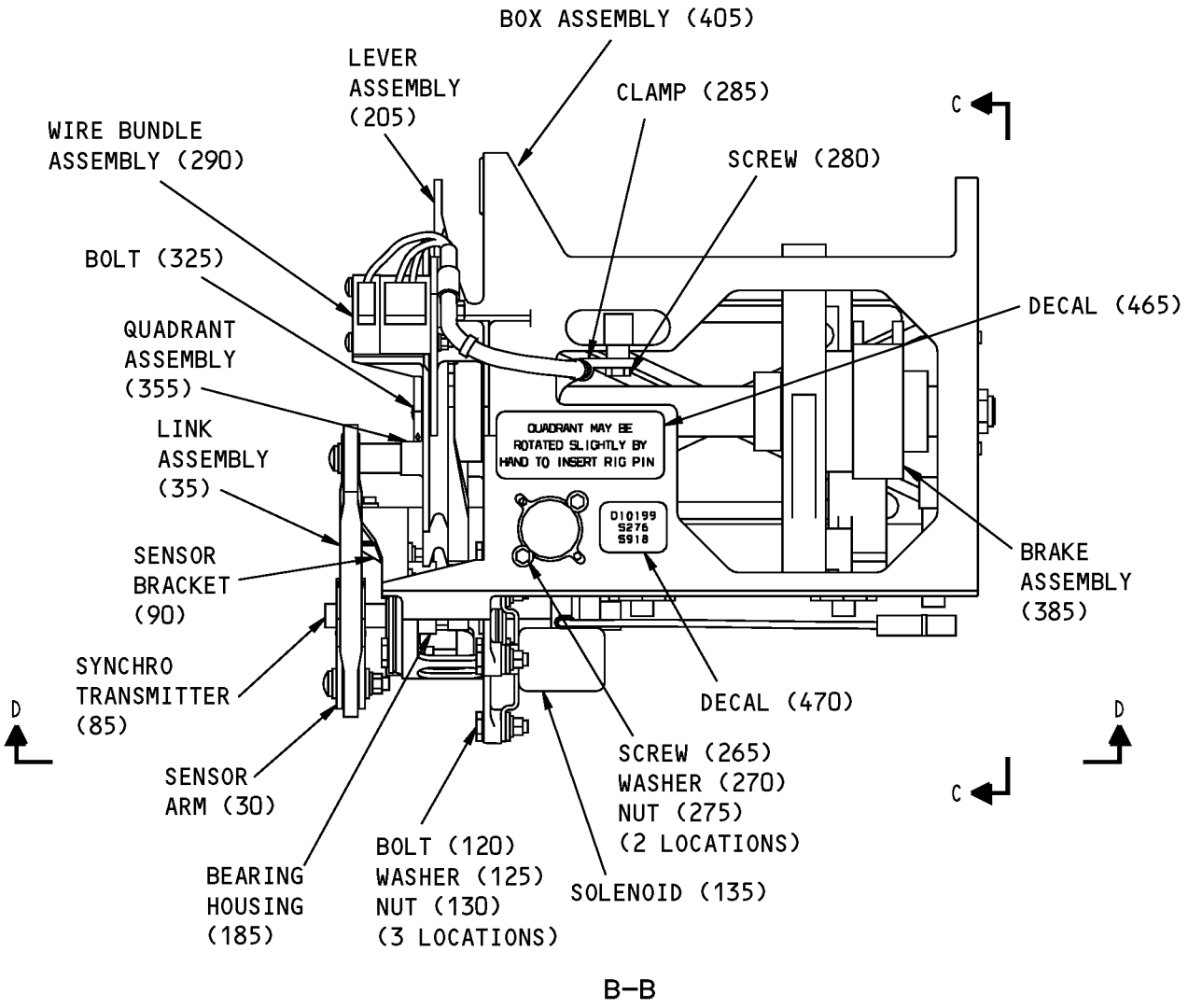
251A1911-3,-4 Assembly Details
Figure 701 (Sheet 6 of 6)



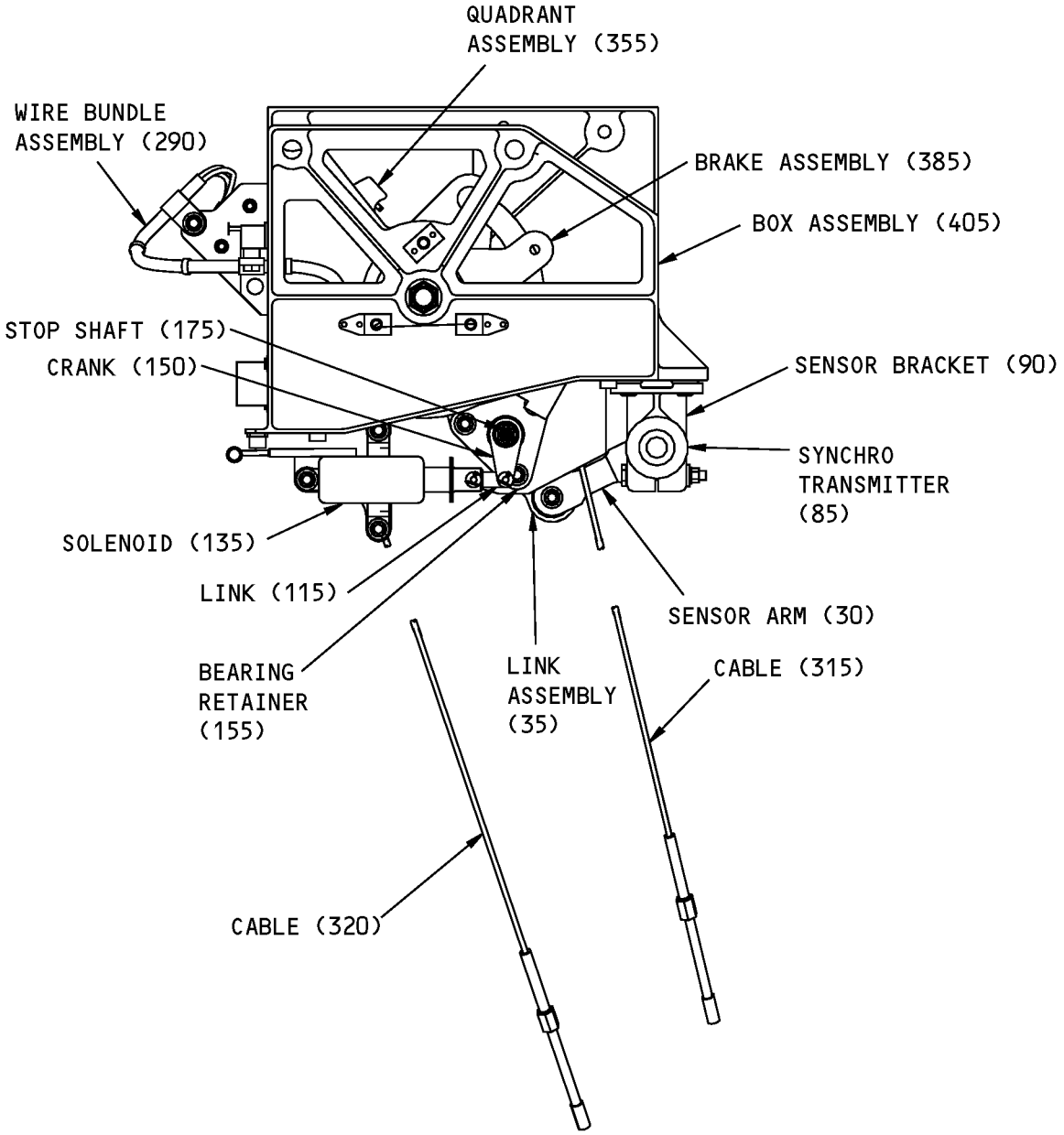
251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 1 of 7)



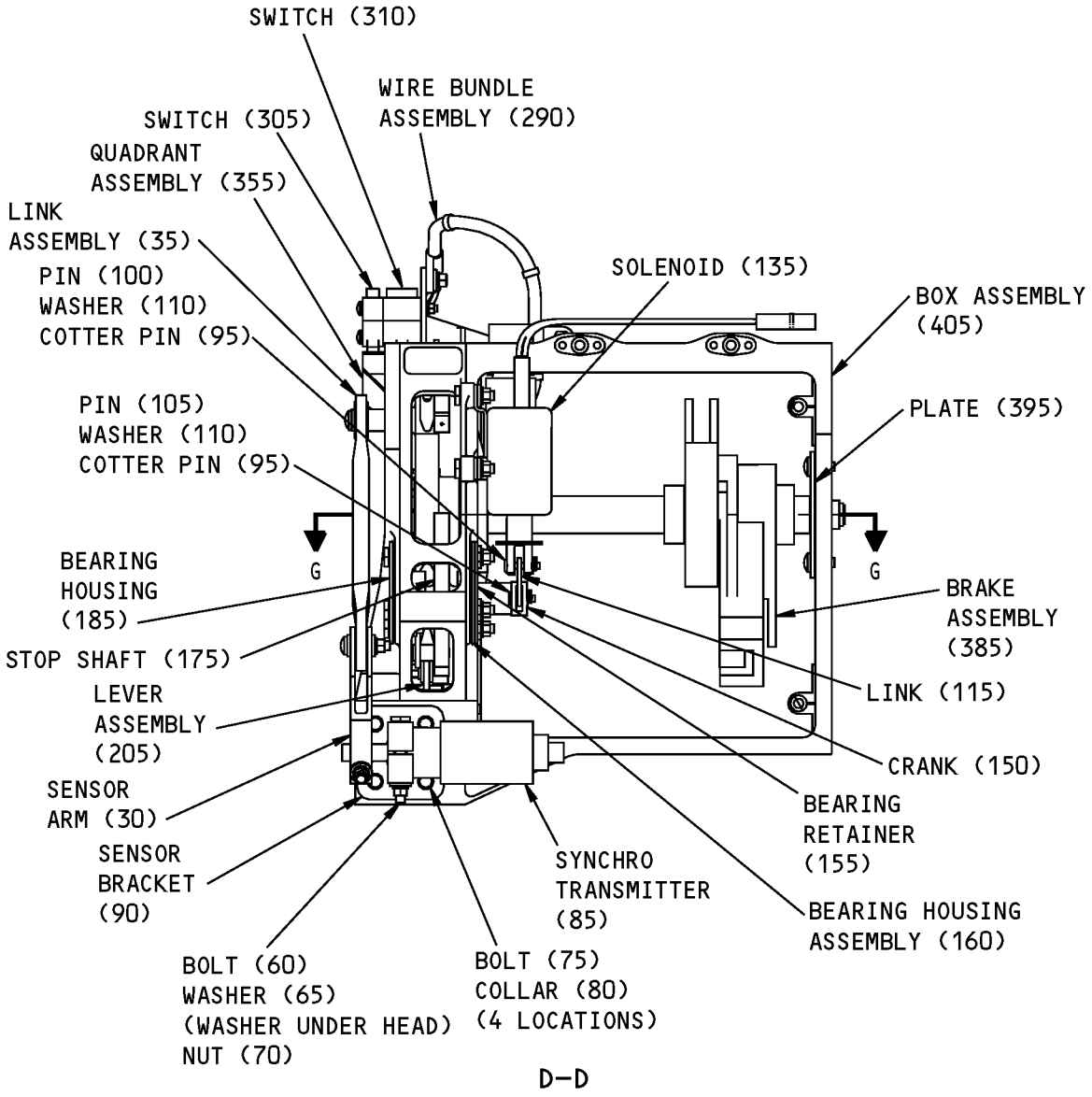
251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 2 of 7)



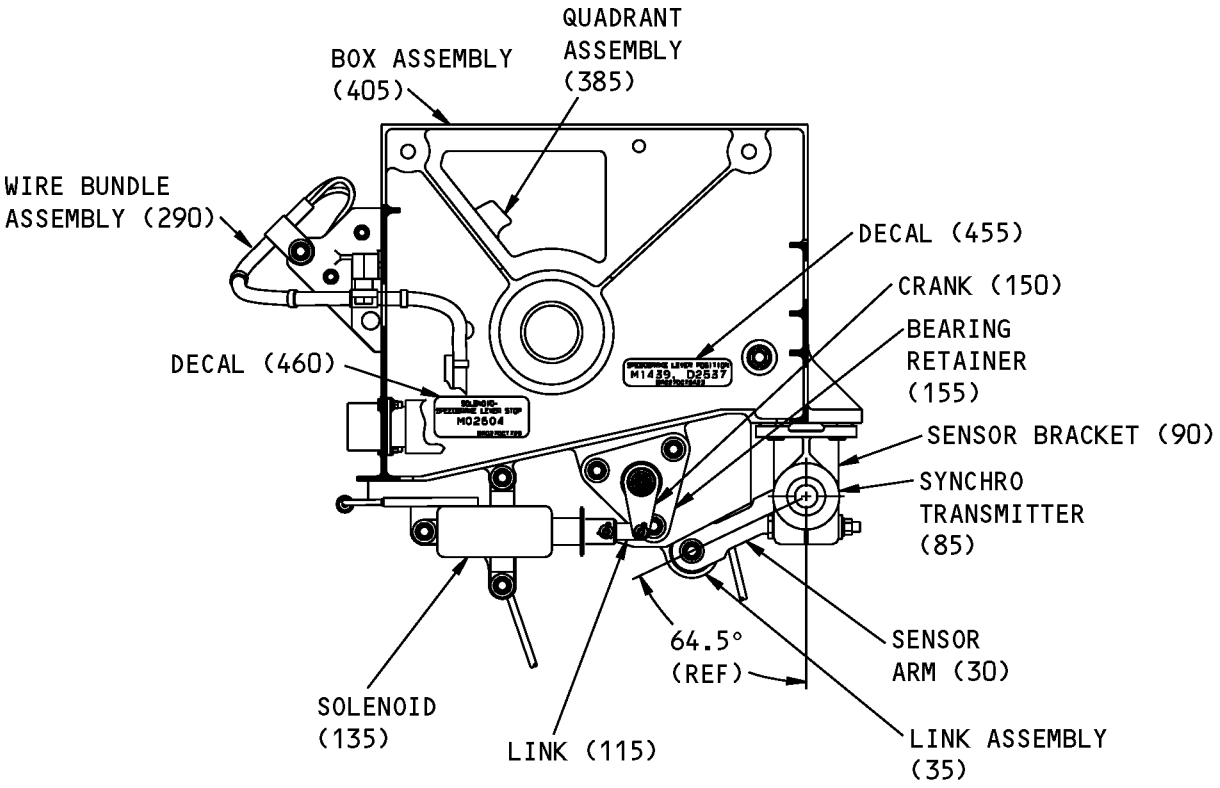
251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 3 of 7)



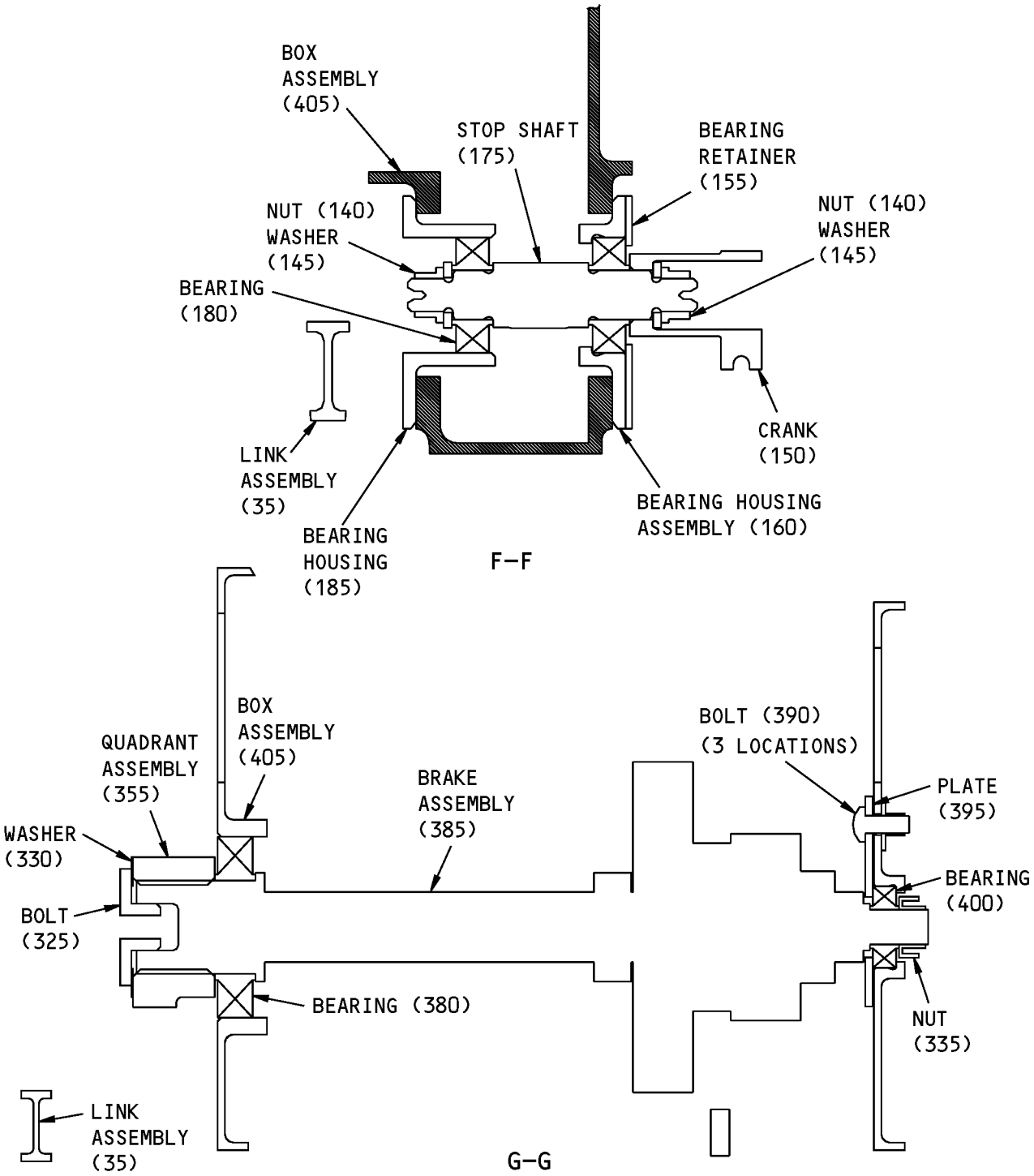
251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 4 of 7)



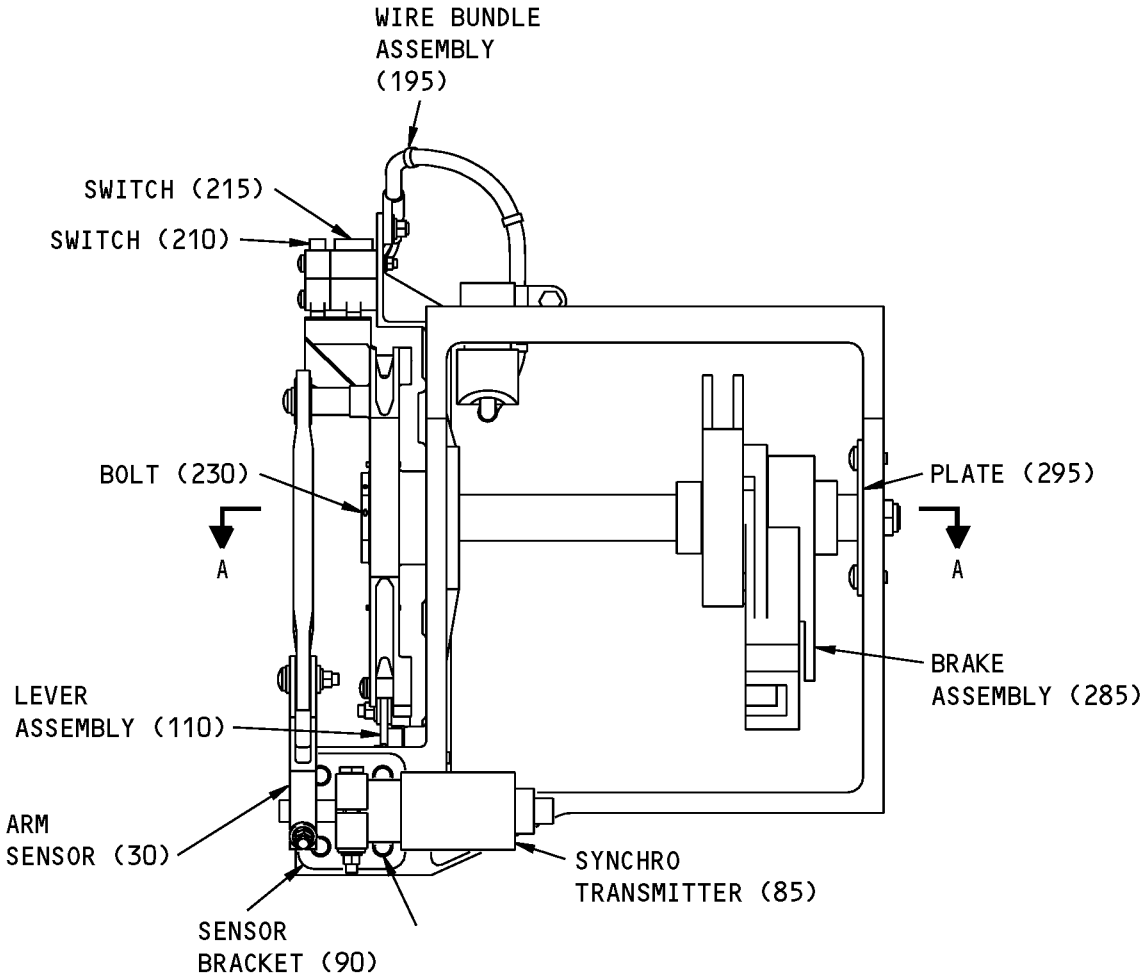
251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 5 of 7)



251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 6 of 7)

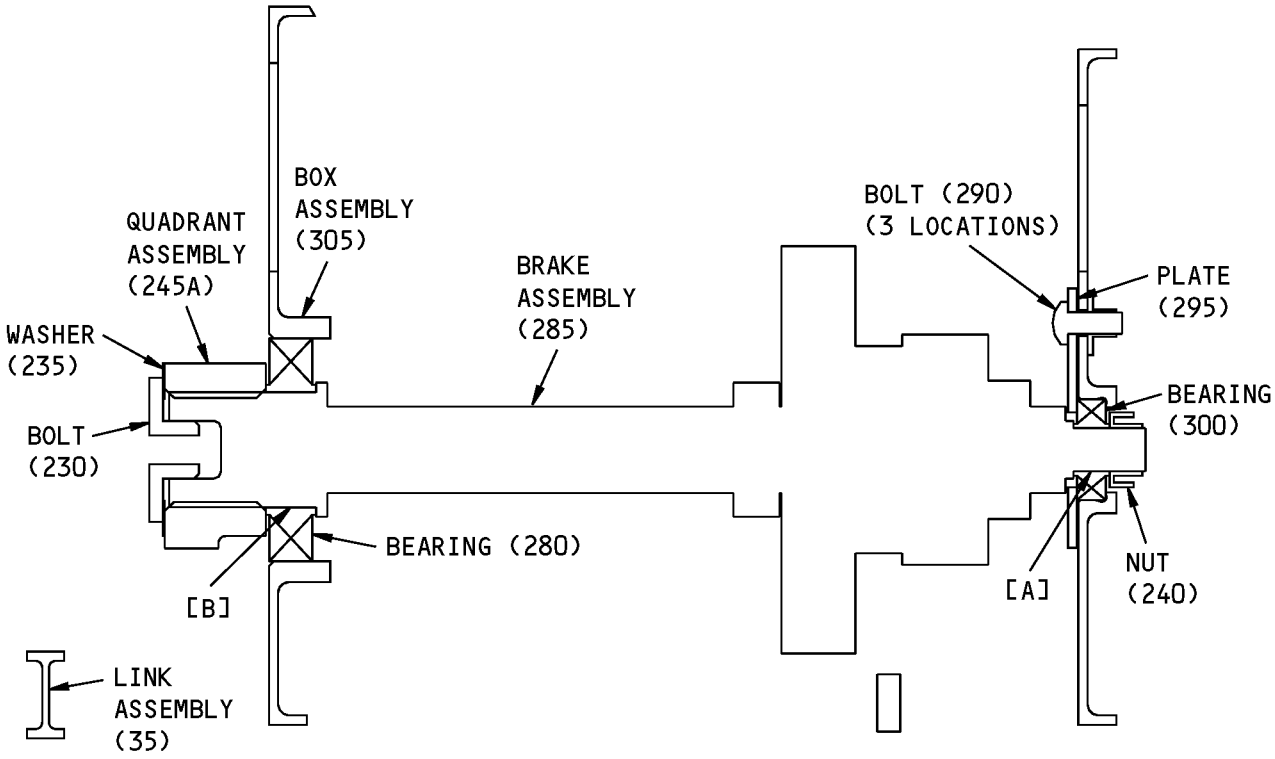


251A1911-5 Speedbrake Mechanism Assembly
Figure 702 (Sheet 7 of 7)



BOTTOM VIEW

251A1911-3,-4 Fits and Clearances
Figure 801 (Sheet 1 of 3)



A–A

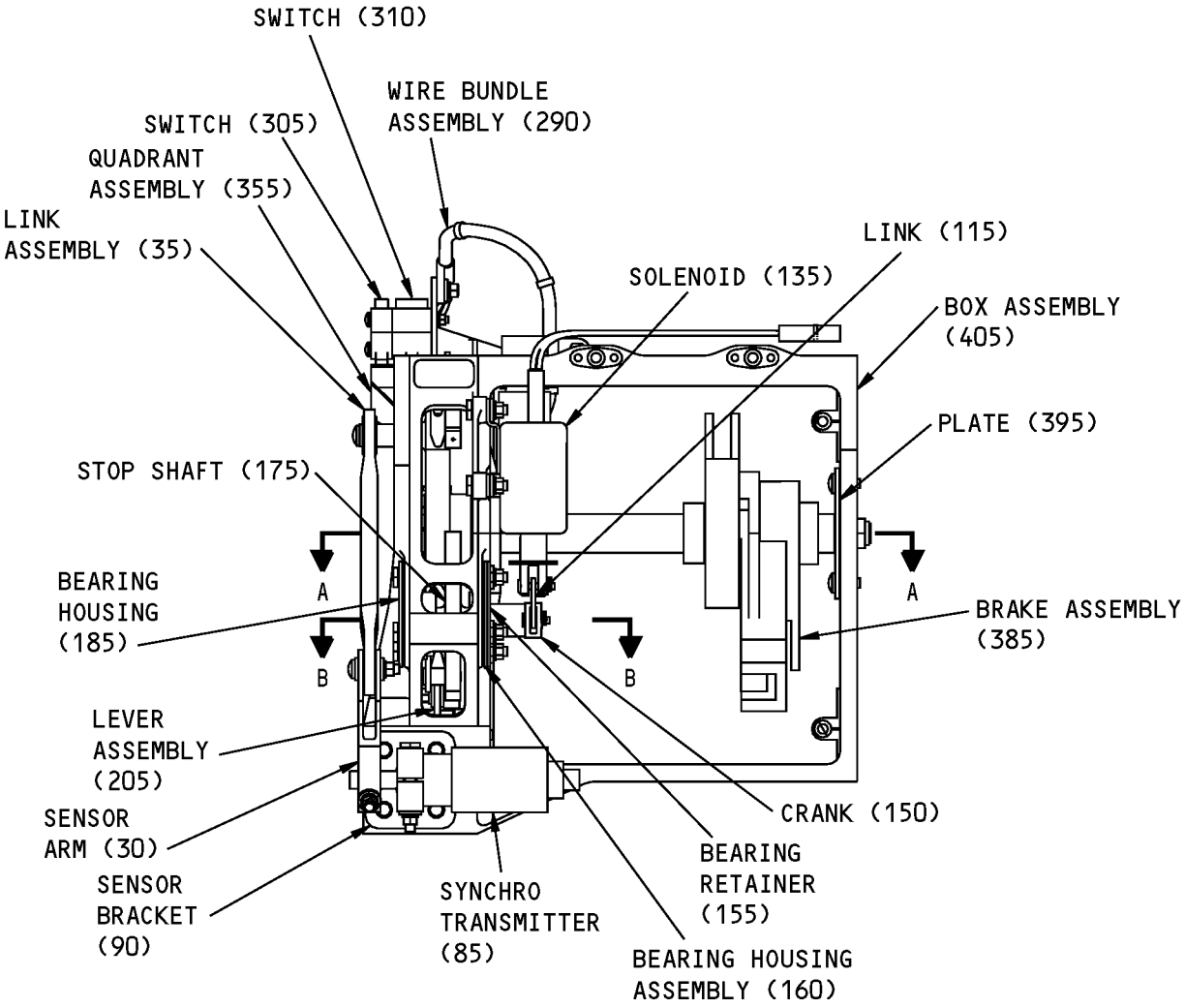
ITEM NUMBERS REFER TO IPL FIG. 1

251A1911-3,-4 Fits and Clearances
Figure 801 (Sheet 2 of 3)

REF	REFERENCE	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
	IPL ITEM NO. FIG. 1	DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 300 OD 285	0.3745 0.3735	0.3750 0.3745	0.0000	0.0015			
[B]	ID 280 OD 285	0.9995 0.9985	1.0000 0.9990	0.0005	0.0015			

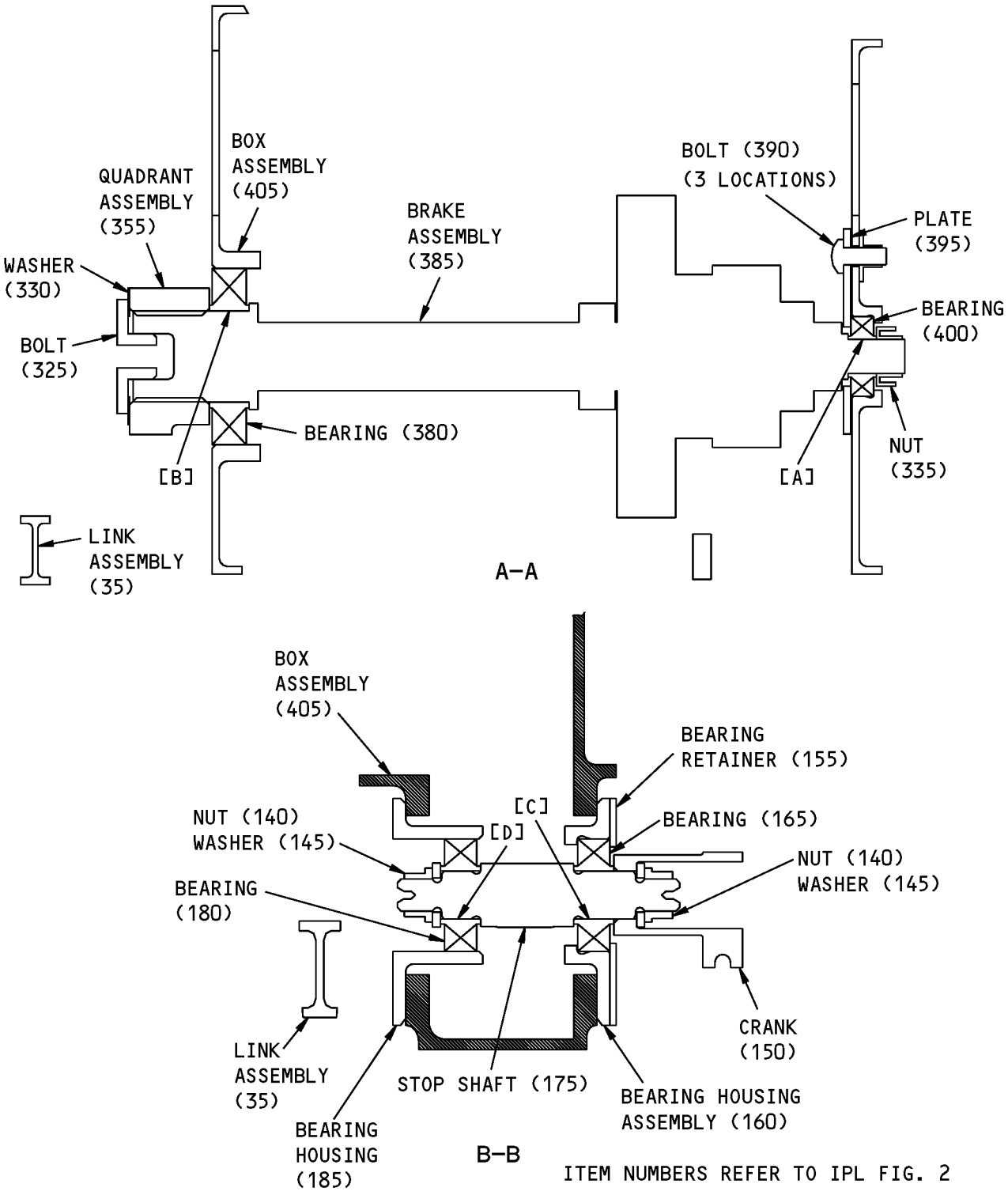
* ALL DIMENSIONS ARE IN INCHES

251A1911-3,-4 Fits and Clearances
Figure 801 (Sheet 3 of 3)



BOTTOM VIEW

251A1911-5 Fits and Clearances
Figure 802 (Sheet 1 of 3)



251A1911-5 Fits and Clearances
Figure 802 (Sheet 2 of 3)

REF	REFERENCE	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
	IPL ITEM NO. FIG. 2	DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 400 OD 385	0.3747 0.3735	0.3750 0.3745	0.0002	0.0015			
[B]	ID 380 OD 385	0.9995 0.9985	1.0000 0.9990	0.0005	0.0015			
[C]	ID 165 OD 175	0.3747 0.3740	0.3750 0.3745	0.0002	0.0010			
[D]	ID 180 OD 175	0.3747 0.3740	0.3750 0.3745	0.0002	0.0010			

* ALL DIMENSIONS ARE IN INCHES

251A1911-5 Fits and Clearances
Figure 802 (Sheet 3 of 3)

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Commercial Tools

Reference	Description	Part Number	Supplier
COM-1688	Indicator - Angle Position	2623CC-44HCL/488-26	17755
		8810-S3128	0VGU1
		8810-S3204	0VGU1
		8810A	0VGU1

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
0VGU1	NORTH ATLANTIC INDUSTRIES, INC.	170 WILBUR PLACE BOHEMIA, NY 11716 Telephone: (631) 567-1100 Facsimile: (516) 567-1823 www.naii.com
17755	TRANSMAGNETICS, INC.	170 WILBUR PLACE (MOVED FROM FARMINGDALE) BOHEMIA, NY 11716 Telephone: (516) 567-1100 Facsimile: (516) 567-1823

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

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

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

Code	Name
02005	HAYDON SWITCH AND INSTRUMENT, INCORPORATED 1500 MERIDEN ROAD WATERBURY, CONNECTICUT 06705-3910
02660	AMPHENOL CORP INDUSTRIAL TECHNOLOGY DIV 358 HALL AVENUE PO BOX 384 WALLINGFORD, CONNECTICUT 06492 FORMERLY BUNKER RAMO CORP, ELTRA CORP AMPHENOL AND AMPHENOL CORP COMM AND IND DIV
04169	WESTERN SKY INDUSTRIES A DIVISION OF ATLAS CORPORATION 1280 SAN LUIS OBISPO STREET HAYWARD, CALIFORNIA 94544-7916 FORMERLY WESTERN SKY IND VB0008
06144	INDUSTRIAL TECTONICS BEARING CORP 18301 SOUTH SANTA FE AVENUE RANCHO DOMINGUEZ, CALIFORNIA 90221 FORMERLY IN COMPTON, CALIFORNIA
06324	GLENAIR INC 1211 AIR WAY GLENDALE, CALIFORNIA 91201-2497
06725	AIR INDUSTRIES CORPORATION 12570 KNOTT STREET GARDEN GROVE, CALIFORNIA 92641-3932 FORMERLY AIR INDUSTRIES OF CALIF IN GARDENA, CALIF.

Code	Name
07418	JOSLYN SUNBANK CO LLC 1740 COMMERCE WAY PASO ROBLES, CALIFORNIA 93446-3620 FORMERLY SUNBANK ELECTRONICS
09922	SOURIAU USA INC 25 GRUMBACHER DR YORK, PENNSYLVANNIA 17402-9417 FORMERLY FRAMATOME CONNECTORS FRANCE FORMERLY V59610 IIIN VALENCIA, CALIFORNIA
0PTK6	SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV 5195 W 4700 SALT LAKE CITY, UTAH 94118 SEE V56878 SPS TECHNOLOGIES INC
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
21335	TIMKEN US CORPORATION DIV FAFNIR 336 MECHANIC STREET LEBANON, NH 03766-0267 FORMERLY FAFNIR BRG AND TEXTRON INC FAFNIR DIV IN NEW BRITAIN, CONNECTICUT ; FORMERLY TORRINGTON CO THE SPECIAL PRODUCTS DIV SUB OF THE INGERSOLL-RAND CO V8D210 FORMERLY TORRINGTON CO FAFNIR BEARING DIV IN TORRINGTON, CT
21760	SCHATZ BEARING CORP 10 FAIRVIEW AVENUE PO BOX 1191 POUGHKEEPSIE, NEW YORK 12601-1312 FORMERLY FEDERAL BRG CO AND SCHATZ MFG CO V53268 FORMERLY SCHATZ MFG CO
30163	VALENTEC DAYRON INC 333 MAGUIRE BLVD PO BOX 140394 ORLANDO, FLORIDA 32814-0394

Code	Name
33463	NOVATRONICS OF CANADA LTD 677 ERIE STREET STRATFORD, ONTARIO, CANADA N5A 6VA TELEPHONE 519-271-3880
38443	MRC BEARINGS 402 CHANDLER STREET JAMESTOWN, NEW YORK 14701-3802 FORMERLY MARLIN-ROCKWELL CORP DIV TRW AND TRW INC
40920	MPB MINIATURE PRECISION BEARING DIV PRECISION PARK PO BOX 547 KEENE, NEW HAMPSHIRE 03431 FORMERLY MPB CORP AND MINIATURE BRG DIV MPB CORP
43991	FAG BEARING INCORPORATED 118 HAMILTON AVENUE STAMFORD, CONNECTICUT 06904 FORMERLY NORMA-HOFFMAN BEARING CORPORATION FORMERLY NORMA FAG BEARINGS CORPORATION
49367	AMPHENOL CORP AMPHENOL AEROSPACE PYLE-NATIONAL CONNECTORS 40-60 DELAWARE AVE SIDNEY, NEW YORK 13838-1395
50294	NEW HAMPSHIRE BALL BEARINGS, INC PRECISION DIVISION 9700 INDEPENDENCE AVENUE CHATSWORTH, CALIFORNIA 91311 FORMERLY NIPPON MINATURE BEARING CORP V23589 AND NMB AMERICA INC AND NMB INC
51761	CDA INTERCORP 450 GOOLSBY BLVD DEERFIELD BEACH, FLORDIA 33442-3019 FORMERLY ASTTRO INSTRUMENTS CORP
52828	REPUBLIC FASTENER MFG CORP 1300 RANCHO CONEJO BLVD NEWBURY PARK, CALIFORNIA 91320-1405 FORMERLY IN SYLMAR, CALIFORNIA

Code	Name
55104	TRI-STAR ELECTRONICS INC 2201 ROSECRANS AVENUE EL SEGUNDO, CALIFORNIA 90245 FORMERLY IN VENICE, CA; FORMERLY V71771 CORY COMPONENTS
56878	SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV 301 HIGHLAND AVE JENKINTOWN, PENNSYLVANIA 19046 FORMERLY STANDARD PRESSED STEEL FORMERLY IN SALT LAKE, UTAH
5M902	ALCOA GLOBAL FASTENERS INC, DIV OF VOI-SHAN PRODUCTS 3000 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5103 FORMERLY FAIRCHILD INC INC FAIRCHILD AEROSPACE FASTENERS DIV
60119	MONADNOCK CO THE 18301 ARENTH AVENUE ROWLAND HEIGHTS, CALIFORNIA 91748-1288 FORMERLY UNITED CARR FASTENER CORP VB0051 VB0056 VB0076 FORMERLY TRW ELECTRONIC COMPONENTS CINCH-MONADNOCK DIV FORMERLY CINCH-MONADNOCK DIV OF TRW INC V76530 FORMERLY IN CITY OF INDUSTRY, CALIFORNIA
62554	SIMMONDS MECAERO FASTENERS INC 1734 SEQUOIA AVENUE ORANGE, CALIFORNIA 92668
72962	HARVARD INDUSTRIES INC 3 WERNER WAY SUITE 210 LEBANON, NEW JERSEY 08833 FORMERLY ESNA V7A079 FORMERLY ELASTIC STOP NUT IN UNION, NJ
73197	HI-SHEAR TECHNOLOGY CORP 2600 SKYPARK DRIVE TORRANCE, CALIFORNIA 90509

Code	Name
73949	GUARDIAN ELECTRIC MFG CO 1425 LAKE AVENUE WOODSTOCK, ILLINOIS 60098 FORMERLY IN CHICAGO, ILLINOIS
77820	ALLIED AMPHENOL PRODUCTS BENDIX CONNECTOR OPERATIONS 40-60 DELAWARE ST SIDNEY, NEW YORK 13838 FORMERLY BENDIX CORP THE SCINTILLA DIV AND ELECT COMP DIV FORMERLY BENDIX CORP ELECT CMPNT DIV SANTA ANA PLANT V12143
80477	ADAMS RITE AEROSPACE INC 4141 N PALM ST FULLERTON, CALIFORNIA 92835-1025 FORMERLY V00163 REID METAL PARTS; FORMERLY ADAMS RITE SABRE INTL IN GLENDALE, CA
80539	SPS TECHNOLOGIES INC DIV AERPSOACE - SANTA ANA 2701 SOUTH HARBOR BOULEVARD SANTA ANA, CALIFORNIA 92704-5803 FORMERLY NUTT-SHEL DIV OF SPC WESTERN CO V80539 AND STANDARD PRESSED STEEL WESTERN DIV V17279
82647	TEXAS INSTRUMENT INC CONTROL PRODUCTS DIV 34 FOREST STREET MAIL 12-33 ATTLEBORO, MASSACHUSETTS 02703-2454 FORMERLY METALS & CONTROLS INC FORMERLY IN MANSFIELD, MASSACHUSETTS FORMERLY METALS AND CONTROLS CORP IN ATTLEBORO, MA V80602
83086	NEW HAMPSHIRE BALL BEARING, INC HITECH DIVISION 172 JAFFREY ROAD PETERBOROUGH, NEW HAMPSHIRE 03458
92069	RELIABLE PATTERN WORKS AND FOUNDRY 106 STOCKTON AVE P O BOX 26040 SAN JOSE, CALIFORNIA 95159
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102 FORMERLY VOI-SHAN IN CULVER CITY, CALIF

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

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
10-60721-3		1	285	1
		1	285A	1
			385	1
			385A	1
102F9201M3		1	330	1
			430	1
102F9207P3		1	335	2
			435	2
10AT96-2		1	210	1
			305	1
10AT97-3		1	215	1
			310	1
248-136-1600S02			131	1
251A1911-2		1	195	1
			290	1
251A1911-3		1	1B	RF
251A1911-4		1	1C	RF
251A1911-5		1	1D	RF
			1A	RF
251A1912-1		1	110	1
			205	1
251A1914-3		1	245A	1
251A1914-4		1	260A	1
251A1914-5		1	245B	1
251A1914-6		1	260B	1
251A1914-7			355	1
251A1914-8			375	1
251A1915-1		1	305	1
251A1915-2		1	340	1
251A1915-4		1	305A	1
251A1915-5		1	340A	1
251A1915-6			405	1
251A1915-7			450	1
251A1916-1		1	295	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			395	1
251A1917-1		1	30	1
			30	1
251A1918-1		1	35	1
			35	1
251A1918-2		1	50	1
			50	1
251A1923-1			160	1
251A1923-2			170	1
251A1923-3			185	1
251A1924-1			150	1
251A1925-1			175	1
251A1926-1			370	1
251A1928-1			155	1
251A1928-2			115	1
293162		1	180	2
			275	2
417-1616-902			133	1
418-1616-902			131	1
457EA005C12		1	200	1
			295	1
48-1825-02			133	1
			133	1
48-7190-1			134	1
48-7191			132	1
50179-3		1	285	1
		1	285A	1
			385	1
			385A	1
50179-3A		1	285	1
		1	285A	1
			385	1
			385A	1
60B80061-2			135	1
63746-1		1	215A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			310A	1
63750-1		1	210A	1
			305A	1
66-14897-1		1	230	1
			325	1
66-26136-2		1	40	2
			40	2
69-69988-6		1	125A	1
			230	1
69-71019-2		1	90	1
			90	1
A420-062894-01			135	1
ACMKSP3LFS428		1	45A	2
			45A	2
ACMKSP6AFS428			165	1
			180	1
			400	1
AMKP16BSNJC			380	1
BAC27DCT0423		1	345	1
			455	1
BAC27DCT0543		1	350	1
			470	1
BAC27DCT703		1	355	1
			465	1
BAC27DCT749			460	1
BACB10AC3L		1	45	2
			45	2
BACB10AC6A		1	300	1
BACB10BX3		1	130	1
			225	1
BACB10EX16		1	280	1
BACB10FK3N3HS		1	135	1
			220	1
BACB10FP03LJ		1	45A	2
			45A	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB10FP06AJ			165	1
			180	1
			400	1
BACB10FV16J			380	1
BACB28Z3-063		1	55	1
			55	1
BACB30NM3K12		1	95	1
			190	1
BACB30NM3K20		1	60	1
			60	1
BACB30NM3K5			120	9
BACB30NT06K19		1	140	2
			235	2
BACB30NT2K6		1	265	2
			340	2
BACB30NT3K12		1	15	1
			15	1
BACB30NT3K14		1	5	1
			5	1
BACB30NT3K2		1	290	3
			390	3
BACB30NT3K8		1	10	1
			10	1
BACB30VF3K3		1	155	1
			250	1
BACB30VT10K3		1	332	1
BACB30VT6K6		1	75	4
			75	4
BACC10DK4		1	190	2
			285	2
BACC10JC12		1	200	1
			295	1
BACC2C4C00392FG		1	225	1
			320	1
BACC2C4C00450EG		1	220	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			315	1
BACC30BL10		1	333	1
BACC30BP6		1	80	4
			80	4
BACC45FN12D12P		1	205	1
			300	1
BACC47CN2			133	1
BACC47CP2T			131	1
BACI12AEC0815P			360	2
BACI12AEF1-15P			365	1
BACN10GH3A2		1	320	1
			420	1
BACN10GH3A4			415	2
BACN10GH3A6		1	315	2
BACN10JC6CD		1	240	1
			335	1
BACN10JN3CD		1	330	1
			430	1
BACN10KB3CFD		1	335	2
			435	2
BACN10NW1		1	180	2
			275	2
BACN10TL3-3			445	2
BACN10YR06CD		1	150	2
			245	2
BACN10YR3CD		1	25	2
		1	70	1
		1	105	1
		1	115	1
		1	165	1
			25	2
			70	1
			130	9
			200	1
			210	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			260	1
BACN10YR4CD			140	2
BACP18BC01A02P			95	2
BACP18BC03C04P		1	275	2
			350	2
BACP18BD1A11			105	1
BACP18BD1A17			100	1
BACR15BA3AD		1	325	6
BACR15BA3ADC			425	6
BACR15BB3ADC			440	4
BACR15BB4AD		1	310	6
BACR15BB4ADC			410	6
BACS12GU3K6		1	185	1
			280	1
BACS12HN04-6			265	2
BRF100C3D		1	335	2
			435	2
BRFM20C3D		1	330	1
			430	1
BRH10C6D		1	240	1
			335	1
CS203E		1	130	1
			225	1
F51604-3		1	335	2
			435	2
GTR21-12CD		1	200	1
			295	1
H505B		1	85	1
		1	85A	1
			85	1
			85A	1
H51650-6BAC		1	240	1
			335	1
H52732-06CD		1	150	2
			245	2

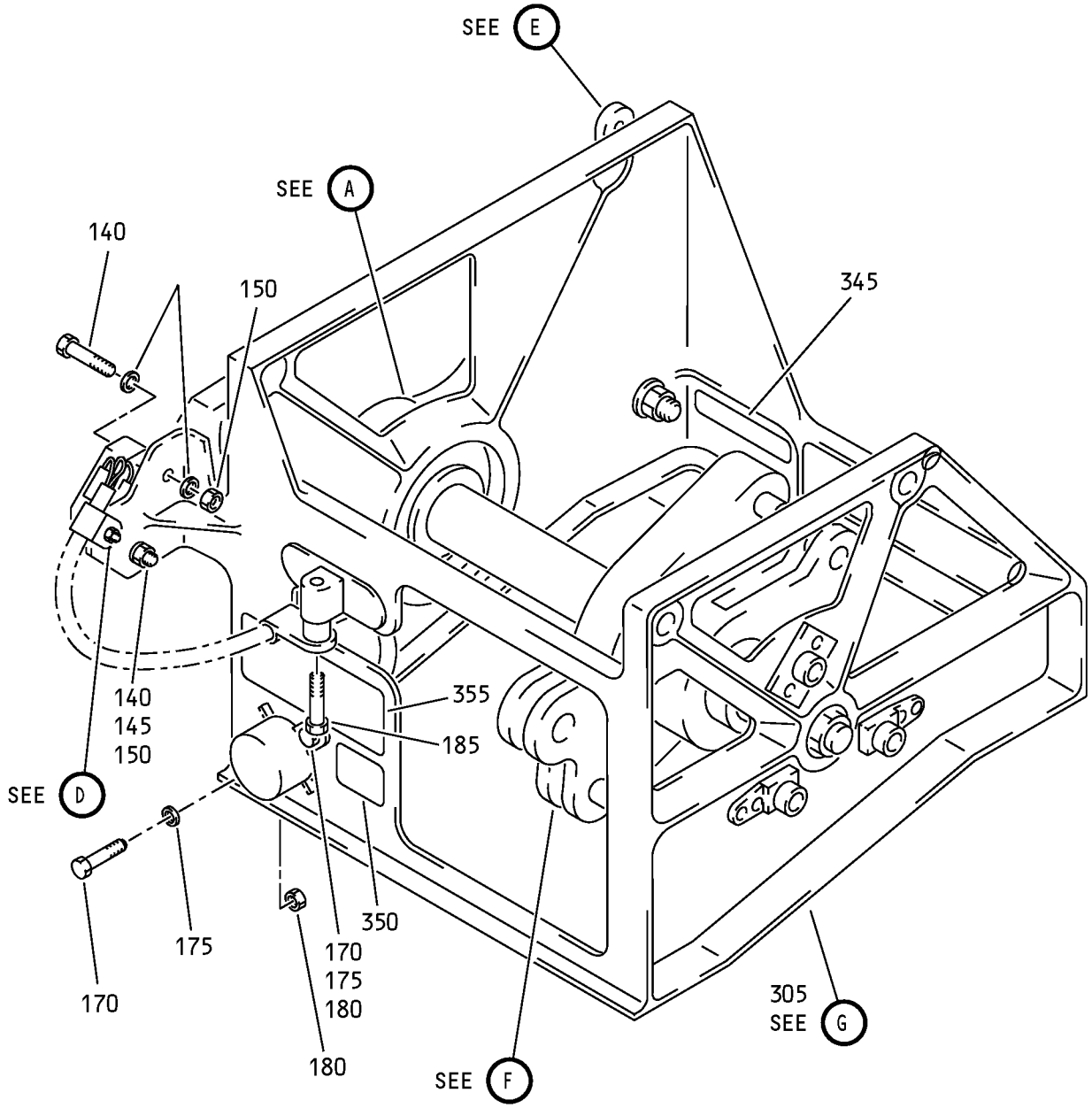
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
H52732-3CD		1	25	2
		1	70	1
		1	105	1
		1	115	1
		1	165	1
			25	2
			70	1
			130	9
			200	1
			210	1
			260	1
H52732-4CD			140	2
HHKSP3L		1	45	2
			45	2
HHKSP6A		1	300	1
HST10AG10-3		1	332	1
		1	332	1
		1	332	1
		1	332	1
HST10AG6-6		1	75	4
		1	75	4
		1	75	4
		1	75	4
			75	4
			75	4
			75	4
			75	4
HST771-6		1	80	4
			80	4
HST79-10		1	333	1
HST79CY10		1	333	1
		1	333	1
		1	333	1
K19798-04		1	180	2
			275	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
KP16BS		1	280	1
KP16BSFS428		1	280	1
KP16BSLY196		1	280	1
KP16BSNJC		1	280	1
KP16BSSD610		1	280	1
KP3A		1	130	1
		1	130	1
			225	1
			225	1
KP3A2TS		1	130	1
			225	1
KP3AFS428		1	130	1
			225	1
KP3AG27		1	130	1
			225	1
KP3ALY196		1	130	1
			225	1
KP3ANJC		1	130	1
			225	1
KP3ASD610		1	130	1
			225	1
KSP3L2TS		1	45	2
			45	2
KSP3LE9440A		1	45	2
			45	2
KSP3LFS428		1	45	2
			45	2
KSP3LG27		1	45	2
			45	2
KSP6A2TS		1	300	1
KSP6AE9440A		1	300	1
KSP6AFS428		1	300	1
KSP6AG27		1	300	1
KSP6ASD610		1	300	1
LLKP3A		1	130	1

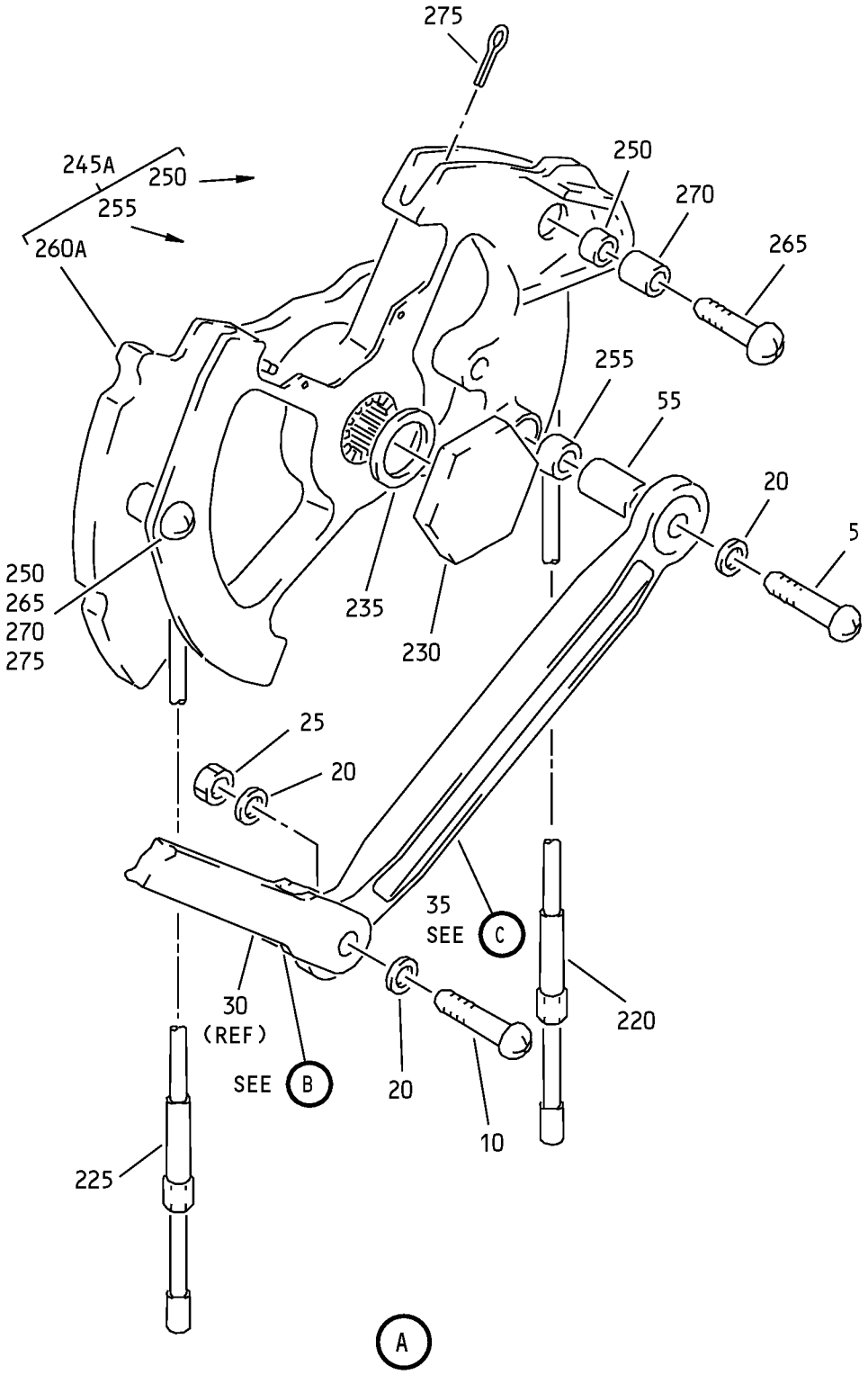
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			225	1
LRC16M15F74			131	1
LRM16M15F74			133	1
MF51637-3		1	330	1
			430	1
MF53050-3CD		1	330	1
			430	1
MS21209C0815P		1	250	2
MS21209F1-15P		1	255	1
NAS1149D0332J		1	160A	1
NAS1149D0363J		1	20	4
		1	65	1
		1	100	2
		1	120	2
			20	4
			65	1
			125	9
			195	2
			215	2
			255	1
NAS1149D0463J			145	2
NAS1149D1416J		1	235	1
			330	1
NAS1149DN416J		1	175	2
			110	2
			270	2
NAS1801-04-6		1	170	2
NAS1801-06-24		1	140A	2
NAS43DD3-27FC		1	270	2
			345	2
NAS620C6L		1	145	4
			240	4
NS202478-02		1	335	2
			435	2
NS202487-02		1	330	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			430	1
PACMKP16BSFS428			380	1
PLH506CD		1	150	2
			245	2
PLH53CD		1	25	2
		1	70	1
		1	105	1
		1	115	1
		1	165	1
			25	2
			70	1
			130	9
			200	1
			210	1
			260	1
PLH54CD			140	2
RMA4812-160-40		1	180	2
			275	2
S250N104-4		1	85	1
		1	85A	1
			85	1
			85A	1
S3642-12		1	200	1
			295	1
SSMKSP06AJSD705			165	1
			180	1
			400	1
SSMKSP3LJSD705		1	45A	2
			45A	2
SSMKSP3LSD529		1	45A	2
			45A	2
SSMKSP6ASD529			165	1
			180	1
			400	1
VLC771-6		1	80	4

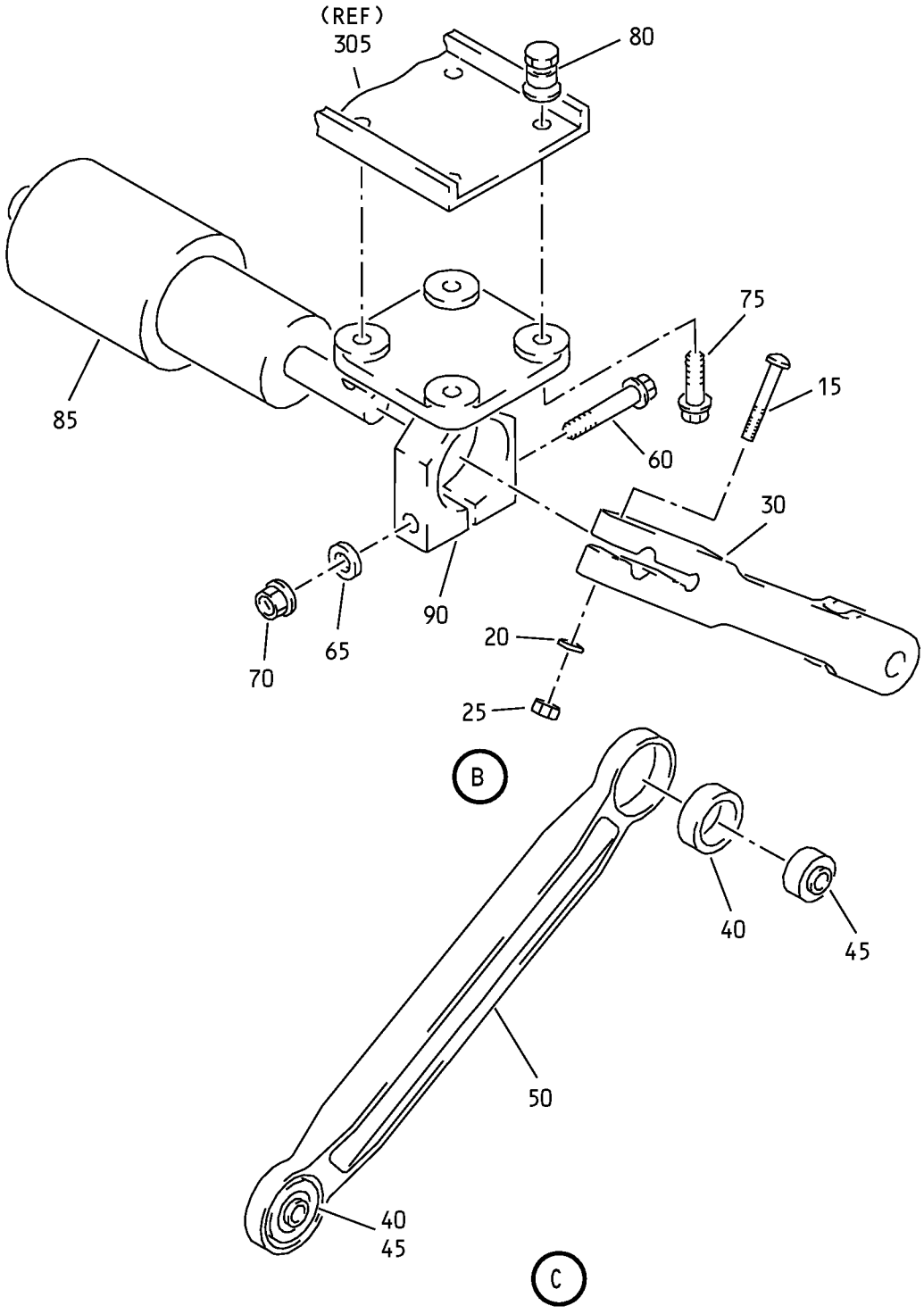
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
			80	4
WSI4-3			445	2
ZR1A		1	85	1
		1	85A	1
			85	1
			85A	1
ZZL4016-36LT			133	1
ZZL4116-36LT			131	1



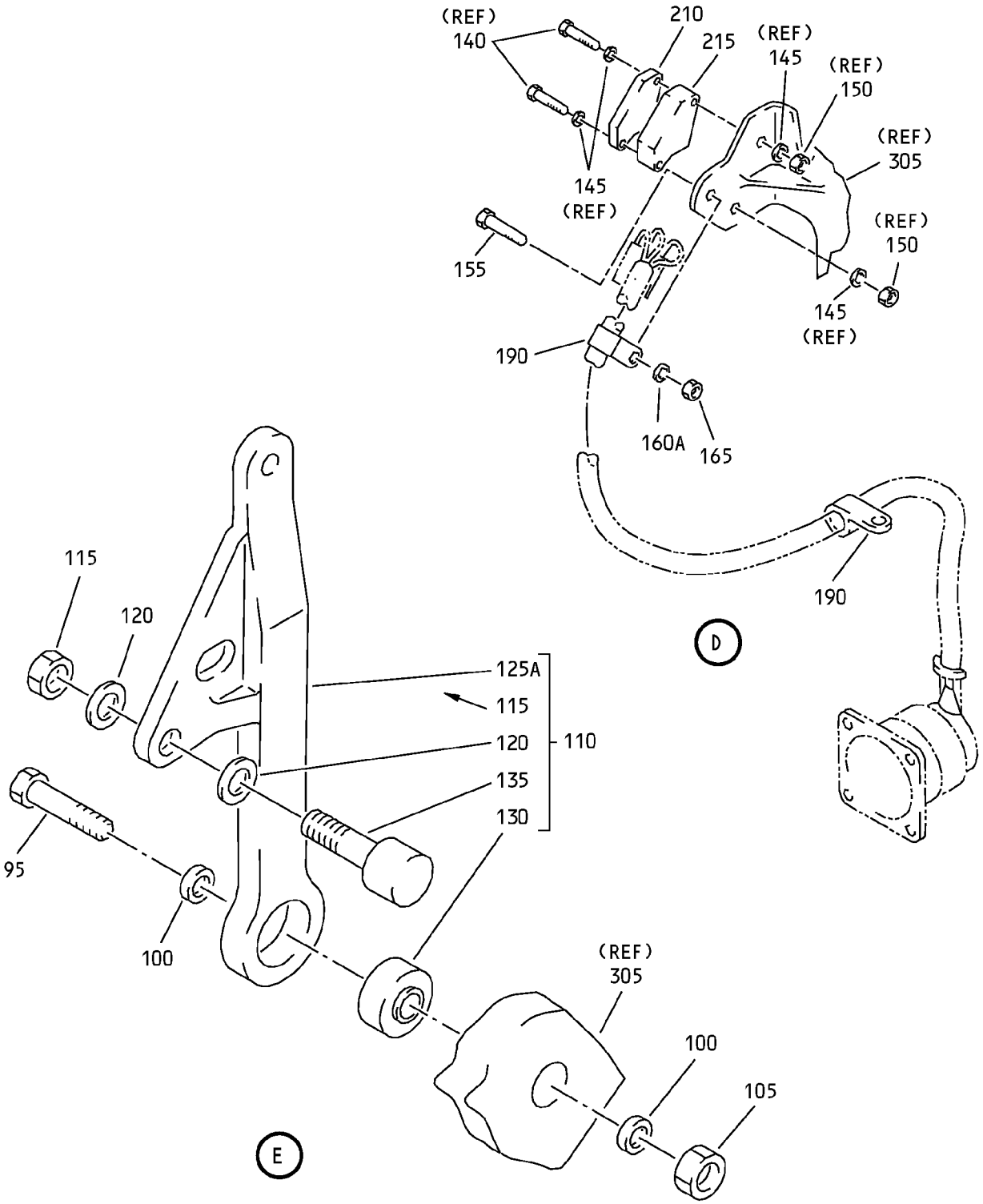
Speedbrake Mechanism Assembly
IPL Figure 1 (Sheet 1 of 6)



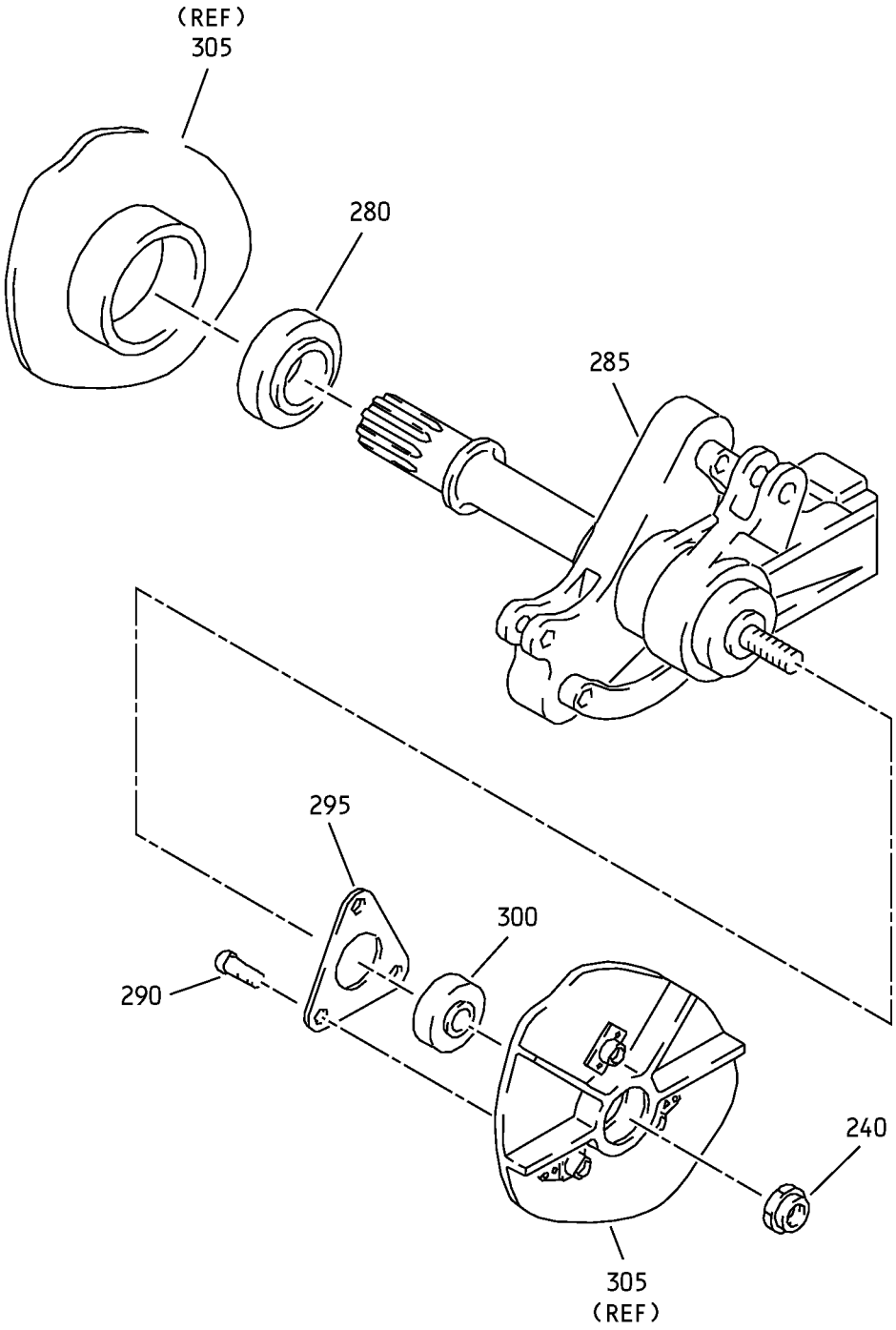
Speedbrake Mechanism Assembly
IPL Figure 1 (Sheet 2 of 6)



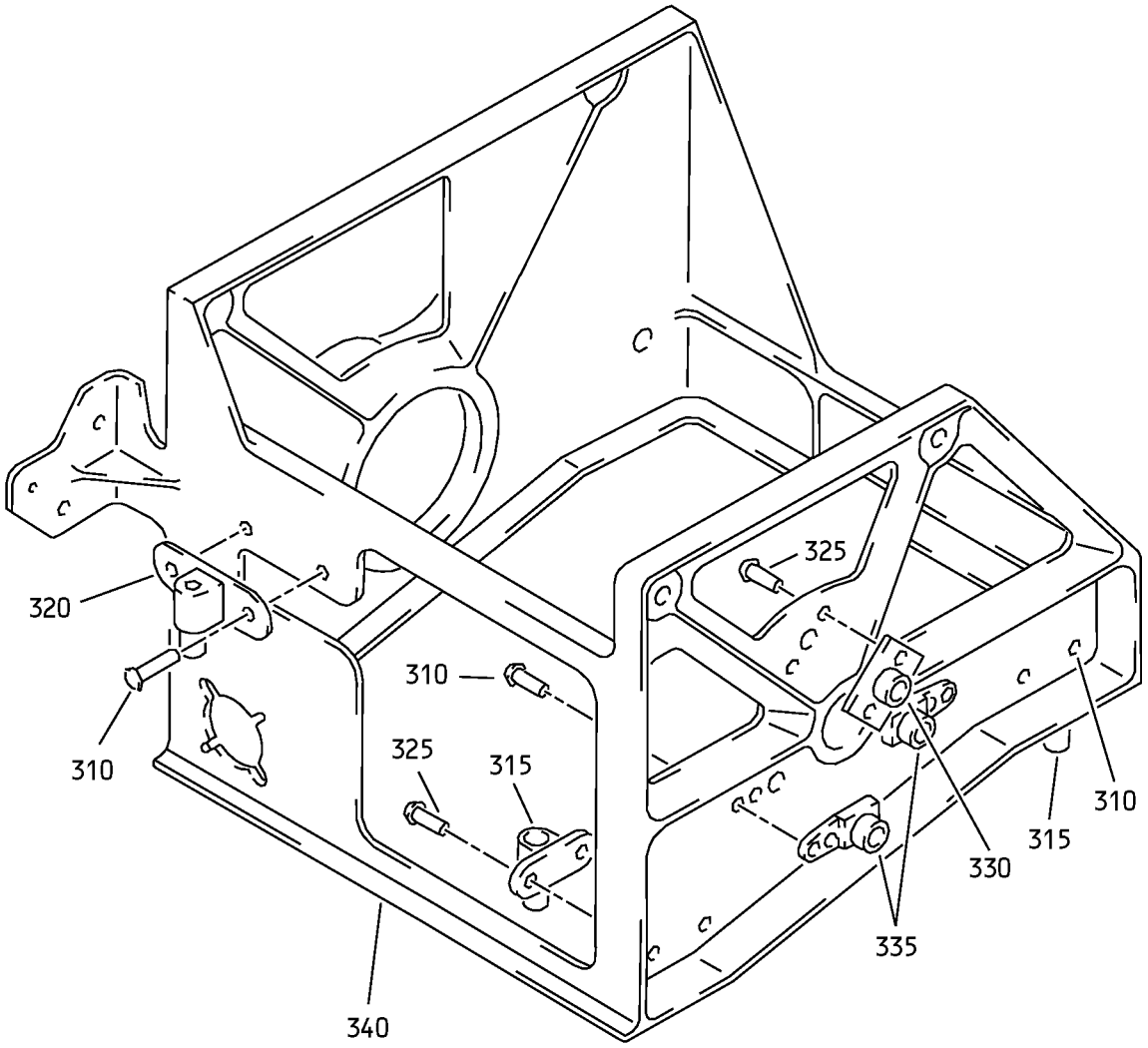
Speedbrake Mechanism Assembly
IPL Figure 1 (Sheet 3 of 6)



Speedbrake Mechanism Assembly
IPL Figure 1 (Sheet 4 of 6)



Speedbrake Mechanism Assembly
IPL Figure 1 (Sheet 5 of 6)



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Speedbrake Mechanism Assembly
IPL Figure 1 (Sheet 6 of 6)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	251A1911-1		DELETED		
–1B	251A1911-3		MECHANISM ASSY-SPEEDBRAKE	A	RF
–1C	251A1911-4		MECHANISM ASSY-SPEEDBRAKE	B	RF
–1D	251A1911-5		MECHANISM ASSY-SPEEDBRAKE (FOR DETAILS SEE FIG. 2)	C	RF
5	BACB30NT3K14		. BOLT	A, B	1
10	BACB30NT3K8		. BOLT	A, B	1
15	BACB30NT3K12		. BOLT	A, B	1
20	NAS1149D0363J		. WASHER	A, B	4
25	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	2
30	251A1917-1		. ARM-SENSOR	A, B	1
35	251A1918-1		. LINK ASSY	A, B	1
40	66-26136-2		. . SLEEVE	A, B	2
45	KSP3LFS428		. . BEARING (V21335) (SPEC BACB10AC3L) (OPT HHKSP3L (V38443)) (OPT KSP3LE9440A (V21335)) (OPT KSP3L2TS (V43991)) (OPT KSP3LG27 (V30163)) (OPT ITEM 45A)	A, B	2
–45A	ACMKSP3LFS428		. . BEARING (V21335) (SPEC BACB10FP03LJ) (OPT SSMKSP3LJSD705 (V83086)) (OPT SSMKSP3LSD529 (V50294)) (OPT ITEM 45)	A, B	2
50	251A1918-2		. . LINK	A, B	1
55	BACB28Z3-063		. BUSHING	A, B	1
60	BACB30NM3K20		. BOLT	A, B	1
65	NAS1149D0363J		. WASHER	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
70	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	1
75	HST10AG6-6		. BOLT (V0PTK6) (SPEC BACB30VT6K6) (OPT HST10AG6-6 (V06725)) (OPT HST10AG6-6 (V56878)) (OPT HST10AG6-6 (V73197))	A, B	4
80	VLC771-6		. COLLAR (V5M902) (SPEC BACC30BP6) (OPT HST771-6 (V73197))	A, B	4
85	H505B		. TRANSMITTER-SYNCRO (V33463) (SPEC S250N104-4) (OPT ZR1A (V51761))	A, B	1
–85A	ZR1A		. TRANSMITTER-SYNCRO (V51761) (SPEC S250N104-4) (OPT H505B (V33463))	A, B	1
90	69-71019-2		. BRACKET-POSITION SENSOR	A, B	1
95	BACB30NM3K12		. BOLT	A, B	1
100	NAS1149D0363J		. WASHER	A, B	2
105	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	1
110	251A1912-1		. LEVER ASSY	A, B	1
115	H52732-3CD		. . NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	1
120	NAS1149D0363J		. . WASHER	A, B	2
125	69-69989-6		DELETED		
125A	69-69988-6		. . LEVER	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
130	KP3ANJC		. . BEARING (V06144) (SPEC BACB10BX3) (OPT KP3AFS428 (V21335)) (OPT KP3A2TS (V43991)) (OPT LLKP3A (V38443)) (OPT KP3AG27 (V30163)) (OPT KP3A (V38443)) (OPT KP3ALY196 (V40920)) (OPT KP3ASD610 (V83086)) (OPT CS203E (VK8455)) (OPT KP3A (V21760))	A, B	1
135	BACB10FK3N3HS		. . BEARING	A, B	1
140	BACB30NT06K19		. BOLT (OPT ITEM 140A)	A, B	2
–140A	NAS1801-06-24		. BOLT (OPT ITEM 140)	A, B	2
145	NAS620C6L		. WASHER	A, B	4
150	H52732-06CD		. NUT (V15653) (SPEC BACN10YR06CD) (OPT PLH506CD (V62554))	A, B	2
155	BACB30VF3K3		. BOLT	A, B	1
160	NAS1149D0363J		DELETED		
160A	NAS1149D0332J		. WASHER	A, B	1
165	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	1
170	NAS1801-04-6		. SCREW	A, B	2
175	NAS1149DN416J		. WASHER	A, B	2
180	K19798-04		. NUT (V15653) (SPEC BACN10NW1) (OPT RMA4812-160-40 (V72962)) (OPT 293162 (V60119))	A, B	2
185	BACS12GU3K6		. SCREW	A, B	1
190	BACC10DK4		. CLAMP	A, B	2
–195	251A1911-2		. WIRE BUNDLE ASSY	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–200	457EA005C12		. . CLAMP (V06324) (SPEC BACC10JC12) (OPT GTR21-12CD (V06324)) (OPT S3642-12 (V07418))	A, B	1
–205	BACC45FN12D12P		. . CONNECTOR	A, B	1
210	10AT96-2		. . SWITCH (V82647)	A, B	1
–210A	63750-1		. . SWITCH (V82647)	A, B	1
215	10AT97-3		. . SWITCH (V82647)	A, B	1
–215A	63746-1		. . SWITCH (V02005)	A, B	1
220	BACC2C4C00450EG		. CABLE	A, B	1
225	BACC2C4C00392FG		. CABLE	A, B	1
230	66-14897-1		. BOLT-QUADRANT	A, B	1
235	NAS1149D1416J		. WASHER	A, B	1
240	BRH10C6D		. NUT (V52828) (SPEC BACN10JC6CD) (OPT H51650-6BAC (V15653))	A, B	1
245	251A1914-1		DELETED		
245A	251A1914-3		. QUADRANT ASSY	A	1
–245B	251A1914-5		. QUADRANT ASSY	B	1
250	MS21209C0815P		. . INSERT	A, B	2
255	MS21209F1-15P		. . INSERT	A, B	1
260	251A1914-2		DELETED		
260A	251A1914-4		. . QUADRANT	A	1
–260B	251A1914-6		. . QUADRANT	B	1
265	BACB30NT2K6		. BOLT	A, B	2
270	NAS43DD3-27FC		. SPACER	A, B	2
275	BACP18BC03C04P		. PIN-COTTER	A, B	2

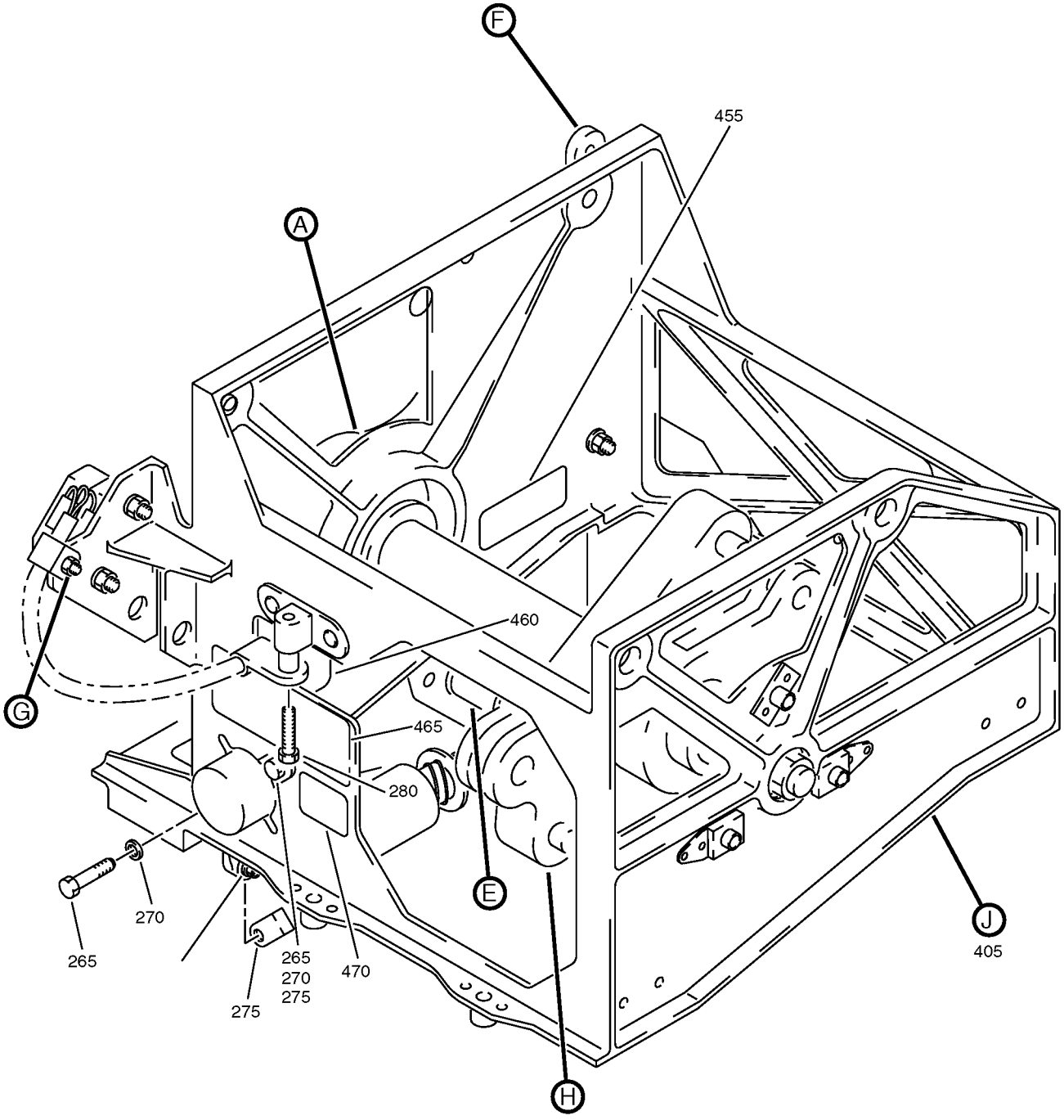
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
280	KP16BSNJC		. BEARING (V06144) (SPEC BACB10EX16) (OPT KP16BSSD610 (V83086)) (OPT KP16BS (V06144)) (OPT KP16BSFS428 (V21335)) (OPT KP16BSLY196 (V40920))	A, B	1
285	50179-3		. BRAKE ASSY (V80477) (SPEC 10-60721-3) (OPT 50179-3A (V80477))	A, B	1
–285A	50179-3A		. BRAKE ASSY (V80477) (SPEC 10-60721-3) (OPT 50179-3 (V80477))	A, B	1
290	BACB30NT3K2		. BOLT	A, B	3
295	251A1916-1		. PLATE	A, B	1
300	KSP6AFS428		. BEARING (V21335) (SPEC BACB10AC6A) (OPT HHKSP6A (V38443)) (OPT KSP6AE9440A (V21335)) (OPT KSP6A2TS (V43991)) (OPT KSP6AG27 (V30163)) (OPT KSP6ASD610 (V83086))	A, B	1
305	251A1915-1		. BOX ASSY	A	1
–305A	251A1915-4		. BOX ASSY	B	1
310	BACR15BB4AD		. . RIVET (SIZE DETERMINED ON INST)	A, B	6
315	BACN10GH3A6		. . NUT	A, B	2
320	BACN10GH3A2		. . NUT	A, B	1
325	BACR15BA3AD		. . RIVET (SIZE DETERMINED ON INST)	A, B	6
330	BRFM20C3D		. . NUTPLATE (V52828) (SPEC BACN10JN3CD) (OPT 102F9201M3 (V72962)) (OPT NS202487-02 (V80539)) (OPT MF51637-3 (V15653)) (OPT MF53050-3CD (V15653))	A, B	1

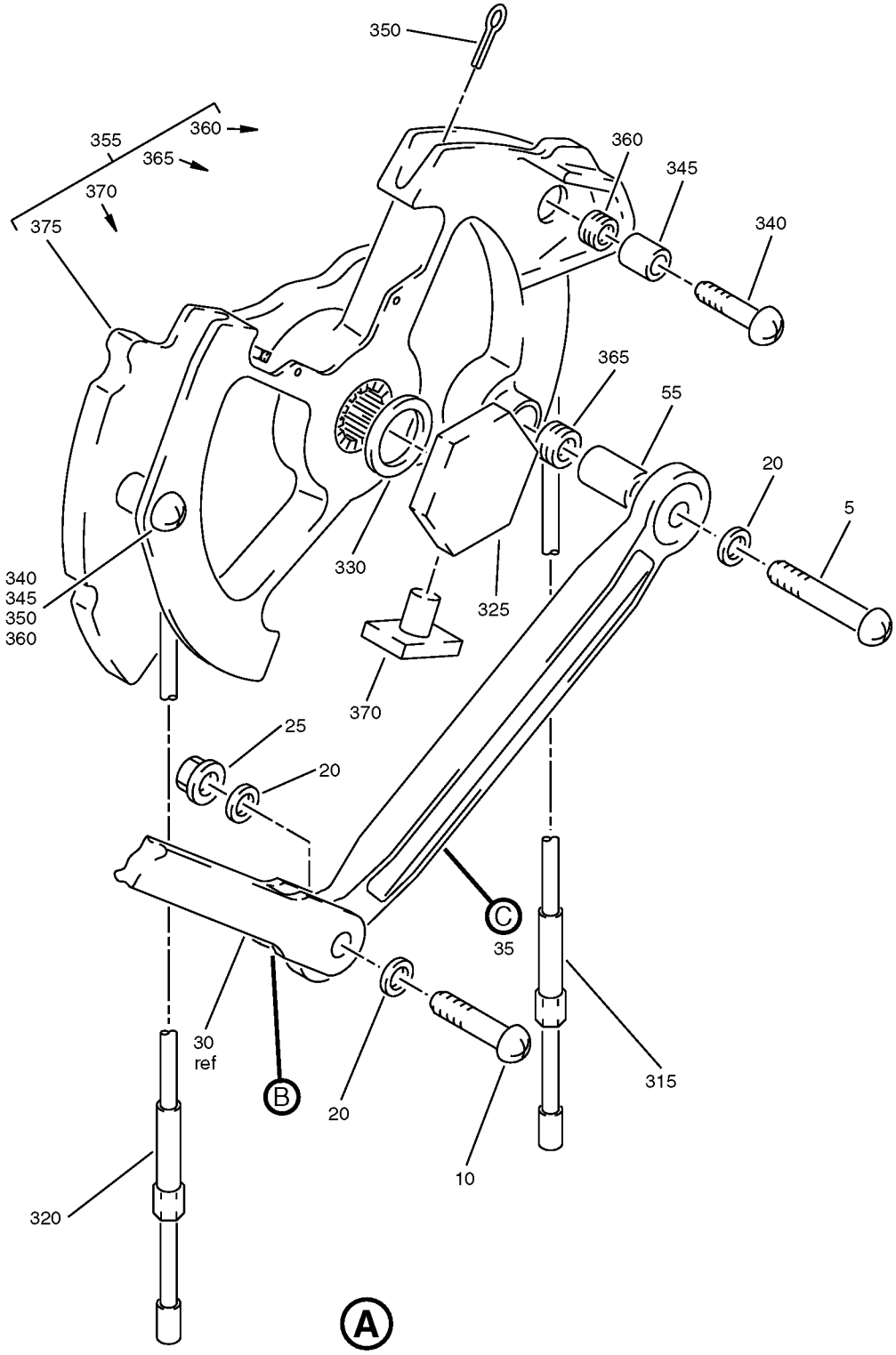
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
332	HST10AG10-3		. . BOLT (V73197) (SPEC BACB30VT10K3) (OPT HST10AG10-3 (V56878)) (OPT HST10AG10-3 (V06725)) (OPT HST10AG10-3 (V0PTK6))	B	1
333	HST79CY10		. . COLLAR (V73197) (SPEC BACC30BL10) (OPT HST79-10 (V92215)) (OPT HST79CY10 (V56878)) (OPT HST79CY10 (V5M902))	B	1
335	BRF100C3D		. . NUTPLATE (V52828) (SPEC BACN10KB3CFD) (OPT NS202478-02 (V80539)) (OPT 102F9207P3 (V72962)) (OPT F51604-3 (V15653))	A, B	2
340	251A1915-2		. . BOX	A	1
–340A	251A1915-5		. . BOX	B	1
345	BAC27DCT0423		. DECAL-SPEED BRAKE LEVER POSITION M1439, D2537	A, B	1
350	BAC27DCT0543		. DECAL-D10199 S276 S918	A, B	1
355	BAC27DCT703		. DECAL-QUADRANT MAY BE ROTATED SLIGHTLY BY HAND TO INSERT RIG PIN	A, B	1

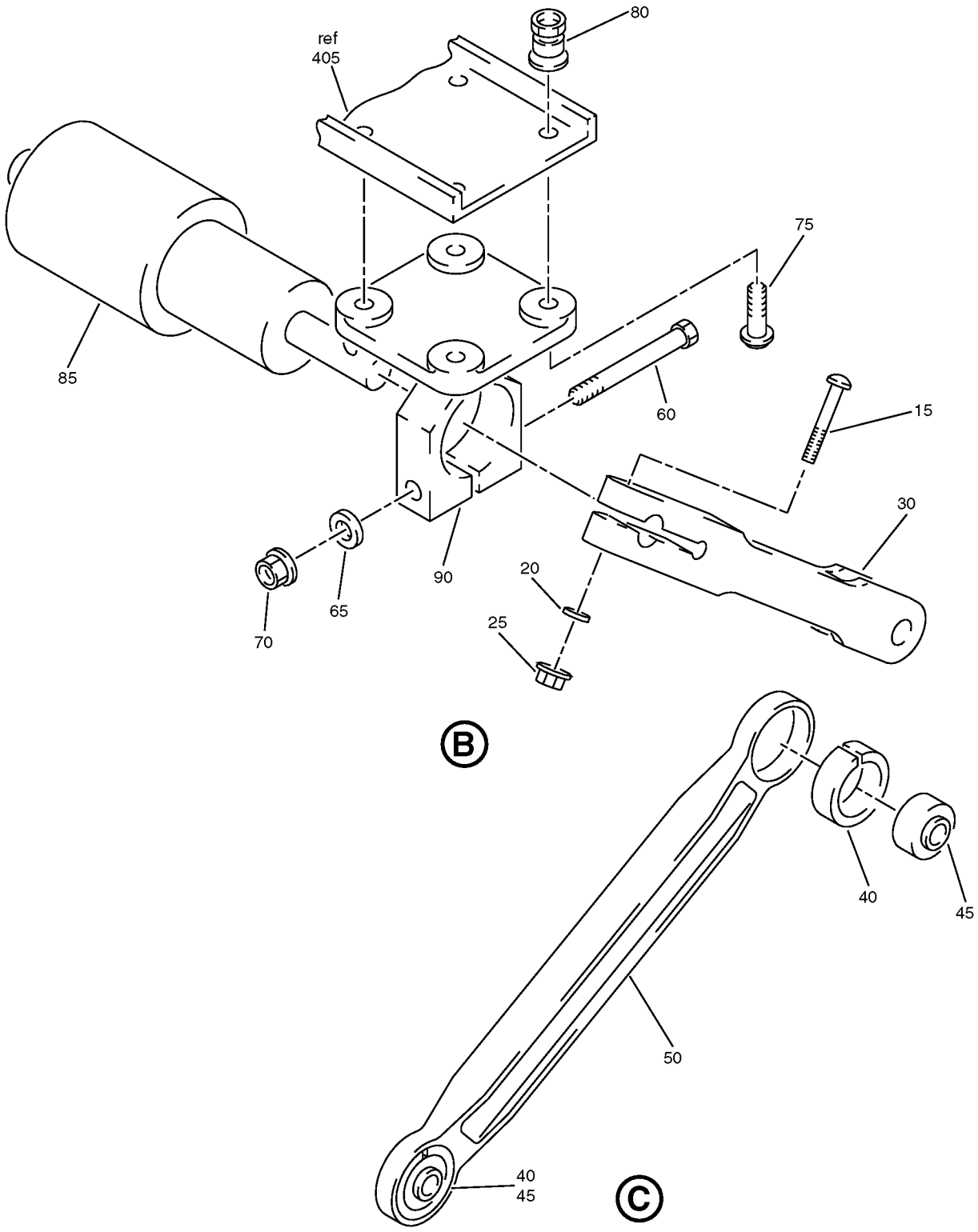
–Item not Illustrated



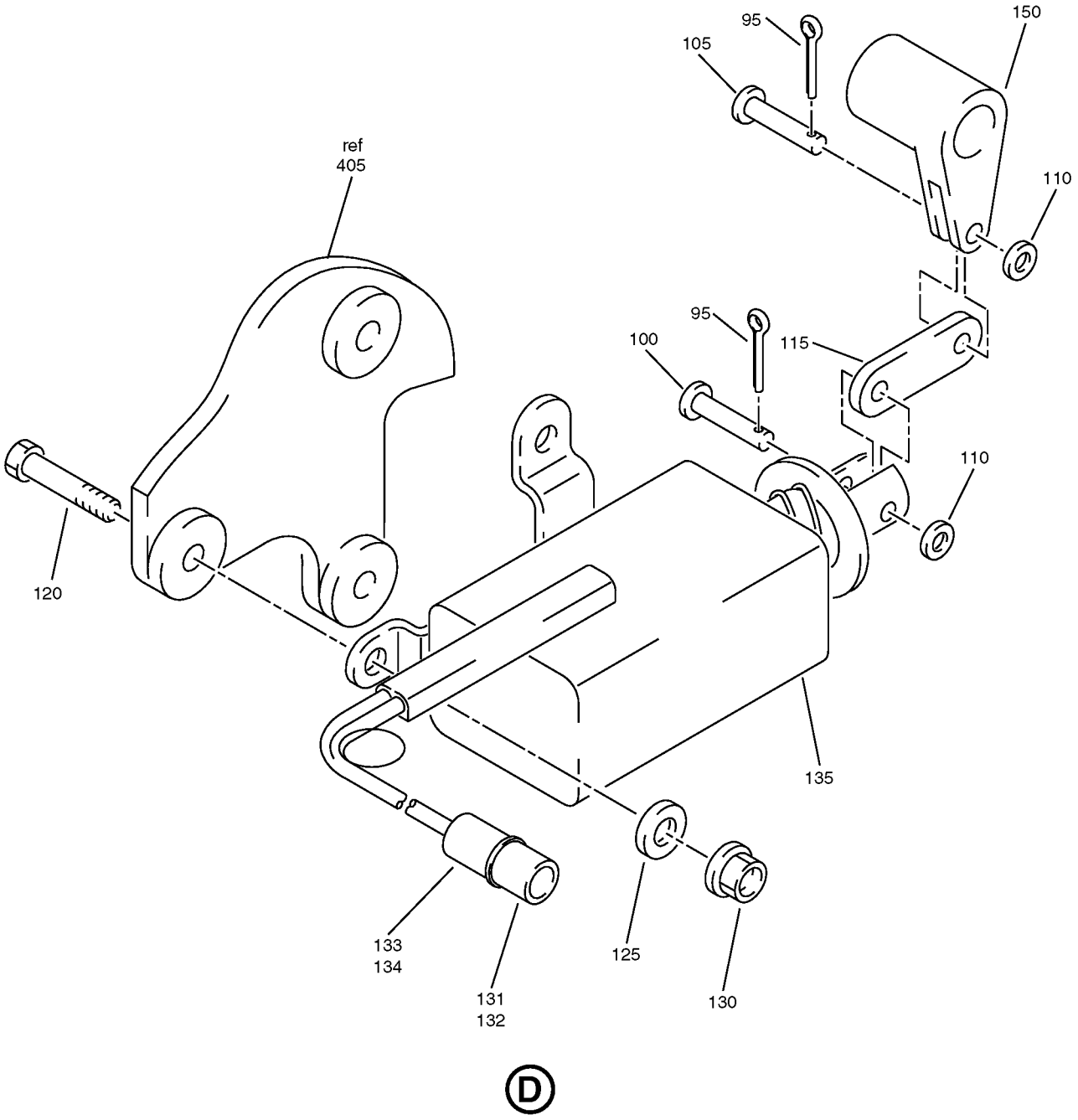
Speedbrake Mechanism Assembly
IPL Figure (Sheet 1 of 8)



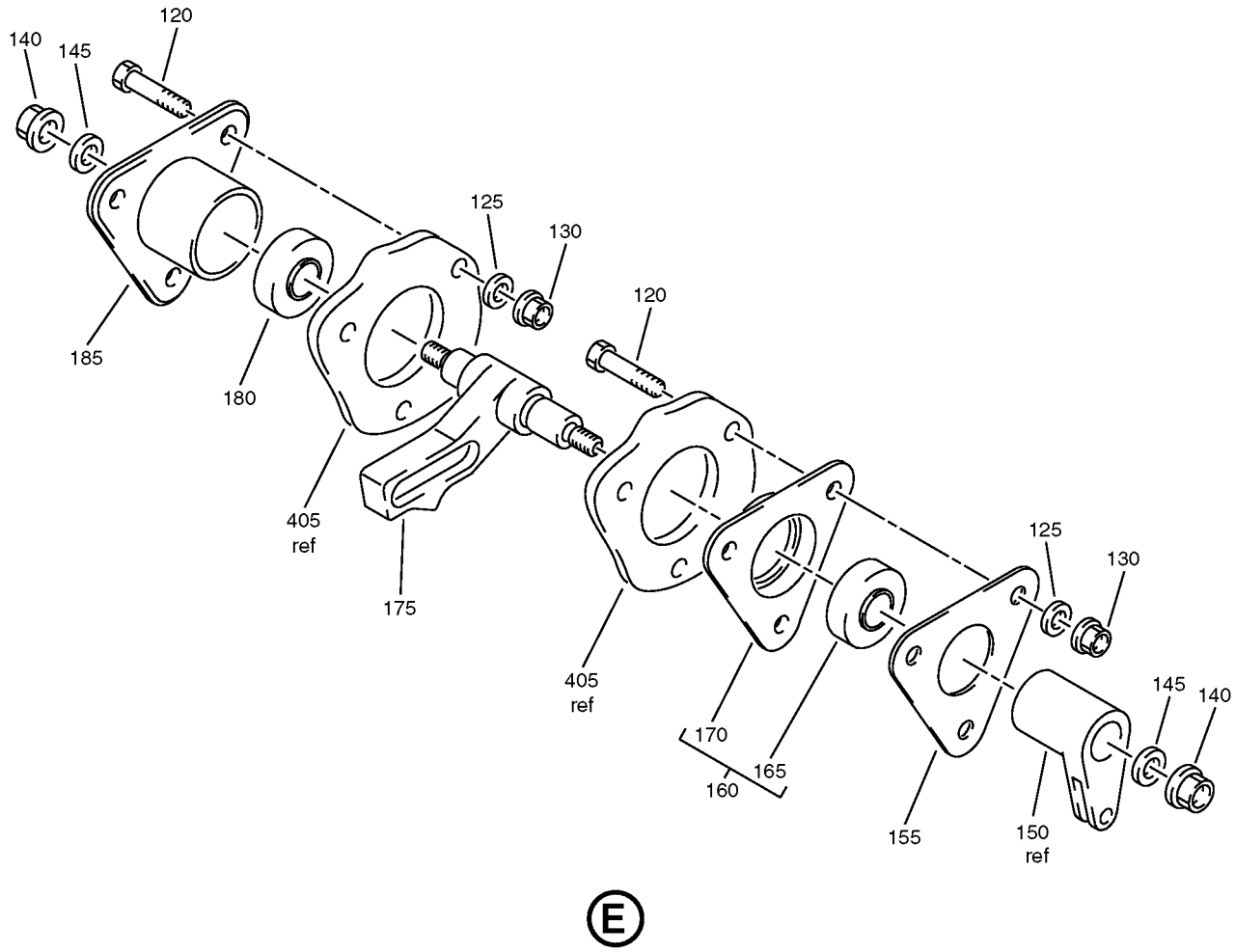
Speedbrake Mechanism Assembly
IPL Figure (Sheet 2 of 8)



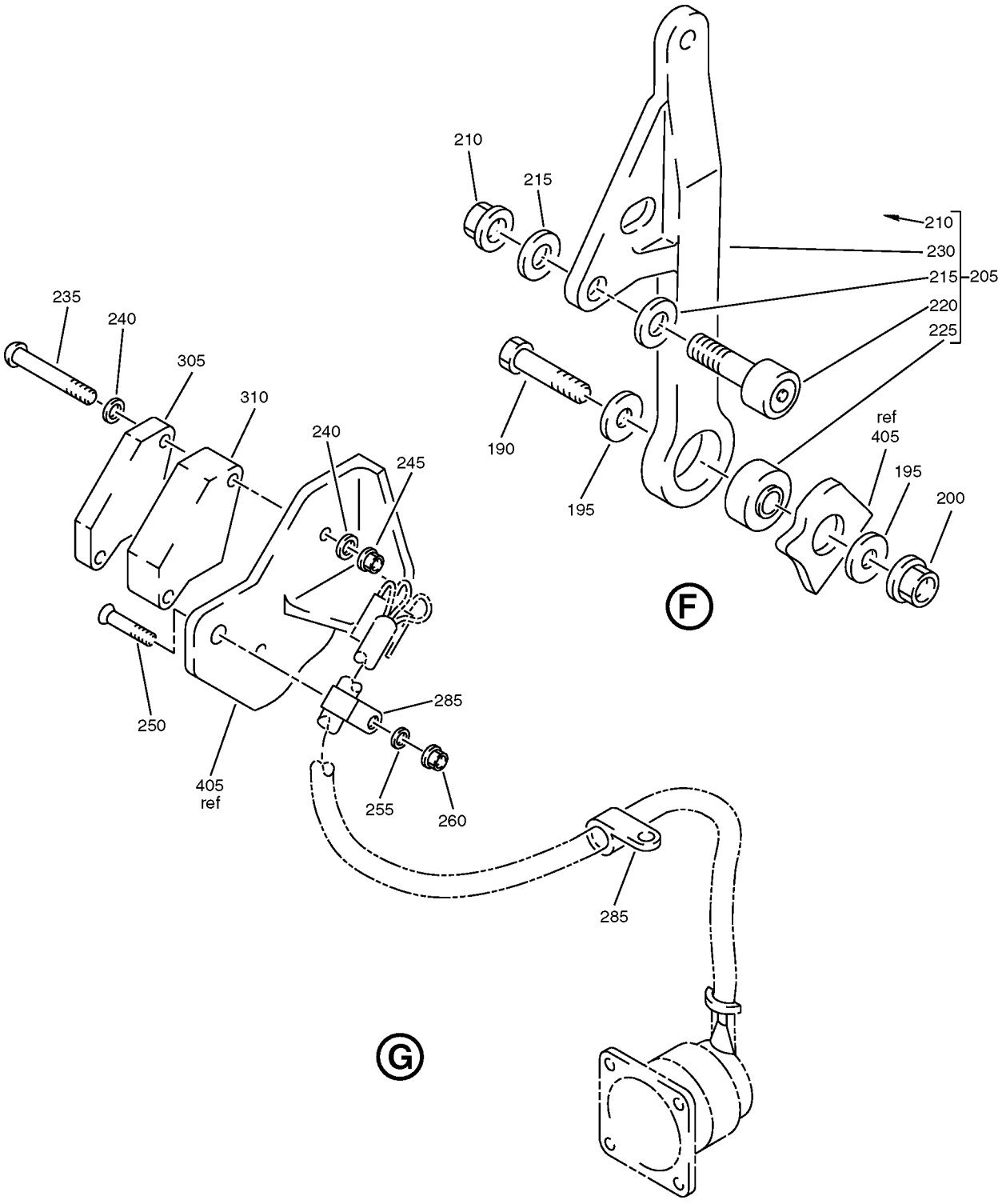
Speedbrake Mechanism Assembly
IPL Figure (Sheet 3 of 8)



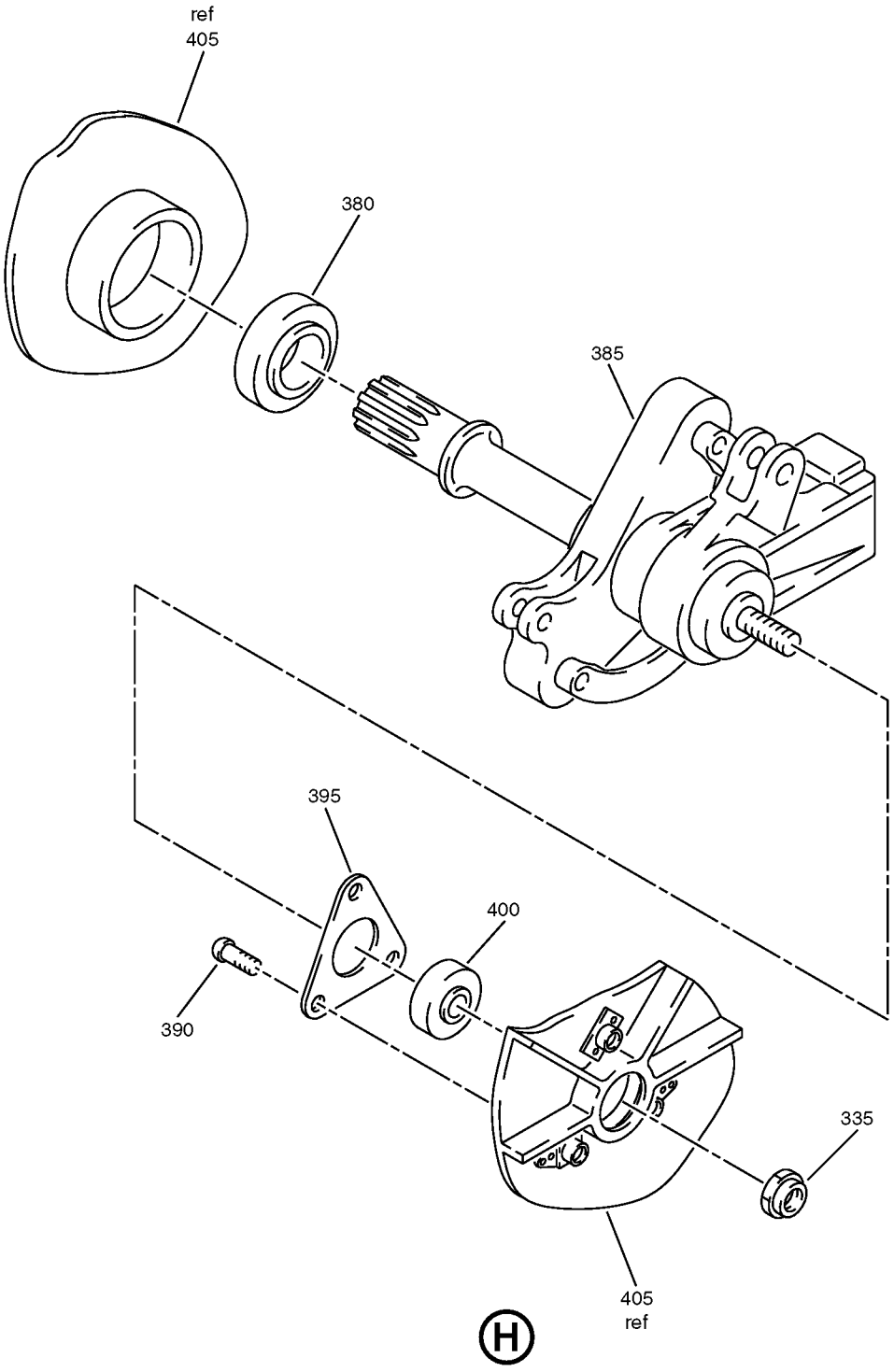
Speedbrake Mechanism Assembly
IPL Figure (Sheet 4 of 8)



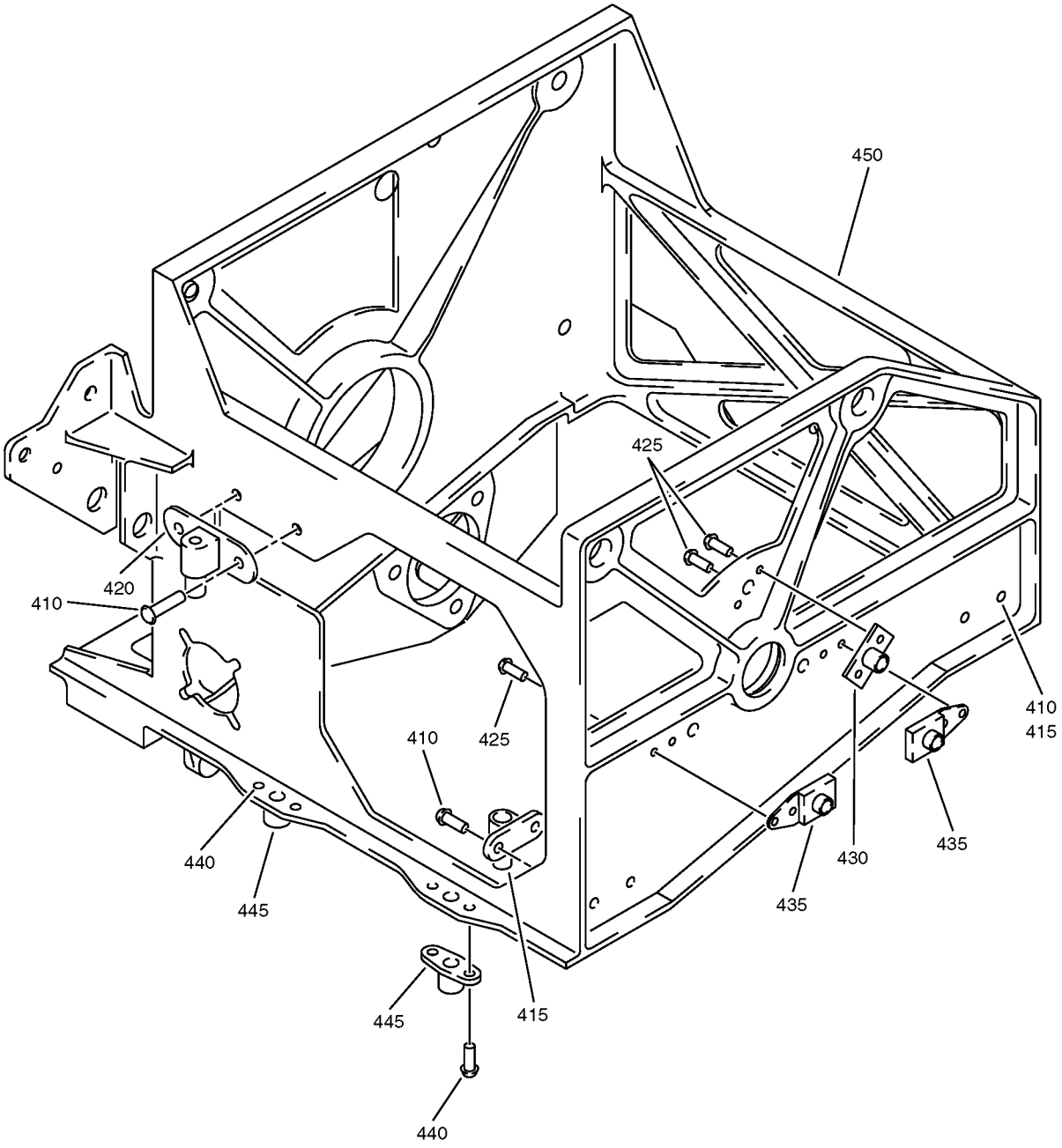
Speedbrake Mechanism Assembly
IPL Figure (Sheet 5 of 8)



Speedbrake Mechanism Assembly
IPL Figure (Sheet 6 of 8)



Speedbrake Mechanism Assembly
IPL Figure (Sheet 7 of 8)



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Speedbrake Mechanism Assembly
IPL Figure (Sheet 8 of 8)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
–1A	251A1911-5		MECHANISM ASSY-SPEEDBRAKE	C	RF
5	BACB30NT3K14		. BOLT	C	1
10	BACB30NT3K8		. BOLT	C	1
15	BACB30NT3K12		. BOLT	C	1
20	NAS1149D0363J		. WASHER	C	4
25	PLH53CD		. NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C	2
30	251A1917-1		. ARM-SENSOR	C	1
35	251A1918-1		. LINK ASSY	C	1
40	66-26136-2		. . SLEEVE	C	2
45	KSP3LFS428		. . BEARING (V21335) (SPEC BACB10AC3L) (OPT HHKSP3L (V38443)) (OPT KSP3LE9440A (V21335)) (OPT KSP3L2TS (V43991)) (OPT KSP3LG27 (V30163)) (OPT ITEM 45A)	C	2
–45A	ACMKSP3LFS428		. . BEARING (V21335) (SPEC BACB10FP03LJ) (OPT SSMKSP3LJSD705 (V83086)) (OPT SSMKSP3LSD529 (V50294)) (OPT ITEM 45)	C	2
50	251A1918-2		. . LINK	C	1
55	BACB28Z3-063		. BUSHING	C	1
60	BACB30NM3K20		. BOLT	C	1
65	NAS1149D0363J		. WASHER	C	1
70	PLH53CD		. NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
75	HST10AG6-6		. BOLT (V0PTK6) (SPEC BACB30VT6K6) (OPT HST10AG6-6 (V06725)) (OPT HST10AG6-6 (V56878)) (OPT HST10AG6-6 (V73197))	C	4
80	VLC771-6		. COLLAR (V5M902) (SPEC BACC30BP6) (OPT HST771-6 (V73197))	C	4
85	H505B		. TRANSMITTER-SYNCRO (V33463) (SPEC S250N104-4) (OPT ZR1A (V51761))	C	1
–85A	ZR1A		. TRANSMITTER-SYNCRO (V51761) (SPEC S250N104-4) (OPT H505B (V33463))	C	1
90	69-71019-2		. BRACKET-POSITION SENSOR	C	1
95	BACP18BC01A02P		. PIN-COTTER	C	2
100	BACP18BD1A17		. PIN-DRILLED SHANK	C	1
105	BACP18BD1A11		. PIN-DRILLED SHANK	C	1
110	NAS1149DN416J		. WASHER	C	2
115	251A1928-2		. LINK	C	1
120	BACB30NM3K5		. BOLT	C	9
125	NAS1149D0363J		. WASHER	C	9
130	PLH53CD		. NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C	9
131	418-1616-902		. CONTACT (V55104) (SPEC BACC47CP2T) (OPT ZZL4116-36LT (V49367)) (OPT 248-136-1600S02 (V77820)) (OPT LRC16M15F74 (V09922))	C	1
132	48-7191		. RECEPTACLE-CONN. (V77820)	C	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
133	48-1825-02		. CONTACT (V77820) (SPEC BACC47CN2) (OPT ZZL4016-36LT (V49367)) (OPT 48-1825-02 (V02660)) (OPT 417-1616-902 (V92069)) (OPT LRM16M15F74 (V09922))	C	1
134	48-7190-1		. PLUG-CONN. (V77820)	C	1
135	A420-062894-01		. SOLENOID (V73949) (SPEC 60B80061-2)	C	1
140	PLH54CD		. NUT (V62554) (SPEC BACN10YR4CD) (OPT H52732-4CD (V15653))	C	2
145	NAS1149D0463J		. WASHER	C	2
150	251A1924-1		. CRANK	C	1
155	251A1928-1		. RETAINER-BRG	C	1
160	251A1923-1		. HOUSING ASSY-BRG	C	1
165	ACMKSP6AFS428		. . BEARING (V21335) (SPEC BACB10FP06AJ) (OPT SSMKSP6ASD529 (V50294)) (OPT SSMKSP06AJSD705 (V83086))	C	1
170	251A1923-2		. . HOUSING	C	1
175	251A1925-1		. SHAFT-STOP	C	1
180	ACMKSP6AFS428		. BEARING (V21335) (SPEC BACB10FP06AJ) (OPT SSMKSP6ASD529 (V50294)) (OPT SSMKSP06AJSD705 (V83086))	C	1
185	251A1923-3		. HOUSING-BRG	C	1
190	BACB30NM3K12		. BOLT	C	1
195	NAS1149D0363J		. WASHER	C	2
200	PLH53CD		. NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
205	251A1912-1		. LEVER ASSY	C	1
210	PLH53CD		. . NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C	1
215	NAS1149D0363J		. . WASHER	C	2
220	BACB10FK3N3HS		. . BEARING	C	1
225	KP3ANJC		. . BEARING (V06144) (SPEC BACB10BX3) (OPT KP3AFS428 (V21335)) (OPT KP3A2TS (V43991)) (OPT LLKP3A (V38443)) (OPT KP3AG27 (V30163)) (OPT KP3A (V38443)) (OPT KP3ALY196 (V40920)) (OPT KP3ASD610 (V83086)) (OPT CS203E (VK8455)) (OPT KP3A (V21760))	C	1
230	69-69988-6		. . LEVER	C	1
235	BACB30NT06K19		. BOLT	C	2
240	NAS620C6L		. WASHER	C	4
245	PLH506CD		. NUT (V62554) (SPEC BACN10YR06CD) (OPT H52732-06CD (V15653))	C	2
250	BACB30VF3K3		. BOLT	C	1
255	NAS1149D0363J		. WASHER	C	1
260	PLH53CD		. NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C	1
265	BACS12HN04-6		. SCREW	C	2
270	NAS1149DN416J		. WASHER	C	2
275	K19798-04		. NUT (V15653) (SPEC BACN10NW1) (OPT RMA4812-160-40 (V72962)) (OPT 293162 (V60119))	C	2
280	BACS12GU3K6		. SCREW	C	1

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
285	BACC10DK4		. CLAMP	C	2
–290	251A1911-2		. WIRE BUNDLE ASSY	C	1
–295	457EA005C12		. . CLAMP (V06324) (SPEC BACC10JC12) (OPT GTR21-12CD (V06324)) (OPT S3642-12 (V07418))	C	1
–300	BACC45FN12D12P		. . CONNECTOR	C	1
305	10AT96-2		. . SWITCH (V82647)	C	1
–305A	63750-1		. . SWITCH (V82647)	C	1
310	10AT97-3		. . SWITCH (V82647)	C	1
–310A	63746-1		. . SWITCH (V02005)	C	1
315	BACC2C4C00450EG		. CABLE	C	1
320	BACC2C4C00392FG		. CABLE	C	1
325	66-14897-1		. BOLT-QUADRANT	C	1
330	NAS1149D1416J		. WASHER	C	1
335	BRH10C6D		. NUT (V52828) (SPEC BACN10JC6CD) (OPT H51650-6BAC (V15653))	C	1
340	BACB30NT2K6		. BOLT	C	2
345	NAS43DD3-27FC		. SPACER	C	2
350	BACP18BC03C04P		. PIN-COTTER	C	2
355	251A1914-7		. QUADRANT ASSY	C	1
360	BACI12AEC0815P		. . INSERT	C	2
365	BACI12AEF1-15P		. . INSERT	C	1
370	251A1926-1		. . BUTTON-STOP	C	1
375	251A1914-8		. . QUADRANT	C	1
380	PACMKP16BSF˜ S428		. BEARING (V21335) (SPEC BACB10FV16J) (OPT AMKP16BSNJC (V06144))	C	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
385	50179-3A		. BRAKE ASSY (V80477) (SPEC 10-60721-3) (OPT 50179-3 (V80477))	C	1
–385A	50179-3		. BRAKE ASSY (V80477) (SPEC 10-60721-3) (OPT 50179-3A (V80477))	C	1
390	BACB30NT3K2		. BOLT	C	3
395	251A1916-1		. PLATE	C	1
400	ACMKSP6AFS428		. BEARING (V21335) (SPEC BACB10FP06AJ) (OPT SSMKSP6ASD529 (V50294)) (OPT SSMKSP06AJSD705 (V83086))	C	1
405	251A1915-6		. BOX ASSY	C	1
410	BACR15BB4ADC		. . RIVET (SIZE DETERMINED ON INST)	C	6
415	BACN10GH3A4		. . NUTPLATE	C	2
420	BACN10GH3A2		. . NUT	C	1
425	BACR15BA3ADC		. . RIVET (SIZE DETERMINED ON INST)	C	6
430	MF53050-3CD		. . NUTPLATE (V15653) (SPEC BACN10JN3CD) (OPT BRFM20C3D (V52828)) (OPT 102F9201M3 (V72962)) (OPT NS202487-02 (V80539)) (OPT MF51637-3 (V15653))	C	1
435	BRF100C3D		. . NUTPLATE (V52828) (SPEC BACN10KB3CFD) (OPT NS202478-02 (V80539)) (OPT 102F9207P3 (V72962)) (OPT F51604-3 (V15653))	C	2
440	BACR15BB3ADC		. . RIVET (SIZE DETERMINED ON INST)	C	4
445	WSI4-3		. . NUTPLATE (V04169) (SPEC BACN10TL3-3)	C	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
–					
450	251A1915-7		. . BOX	C	1
455	BAC27DCT0423		. DECAL-SPEED BRAKE LEVER POSITION M1439, D2537	C	1
460	BAC27DCT749		. DECAL-SELENOID SPEED BRAKE LEVER STOP	C	1
465	BAC27DCT703		. DECAL-QUADRANT MAY BE ROTATED SLIGHTLY BY HAND TO INSERT RIG PIN	C	1
470	BAC27DCT0543		. DECAL-D10199 S276 S918	C	1

–Item not Illustrated