COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

AUTOTHROTTLE ASSEMBLY

PART NUMBER 254A1110–1, –2, –3, –4, –5, –6, –7, –8

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA
A DIVISION OF THE BOEING COMPANY
PAGE DATE: Jul 01/2009

BOEING®

COMPONENT MAINTENANCE MANUAL

Revision No. 9
Jul 01/2009

To: All holders of AUTOTHROTTLE ASSEMBLY 22-32-24.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

Pages replaced or made obsolete by this revision should be removed and destroyed.

ATTENTION

IF YOU RECEIVE PRINTED REVISIONS, PLEASE VERIFY THAT YOU HAVE RECEIVED AND FILED THE PREVIOUS REVISION. BOEING MUST BE NOTIFIED WITHIN 30 DAYS IF YOU HAVE NOT RECEIVED THE PREVIOUS REVISION. REQUESTS FOR REVISIONS OTHER THAN THE PREVIOUS REVISION WILL REQUIRE A COMPLETE MANUAL REPRINT SUBJECT TO REPRINT CHARGES SHOWN IN THE DATA AND SERVICES CATALOG.

Location of Change	Description of Change
22-32-24 SPECIAL TOOLS FIXTURES AND EQUIPMENT	Changed the data in the Tool Supplier Information table.

BOEING®

COMPONENT MAINTENANCE MANUAL

A = Added, R = Revised, D = Deleted, O = Overflow

Subject/Page	Date	Subject/Page	Date	Subject/Page	Date
22-32-24 ILLUSTRATED PARTS LIST (cont)					
1041	Mar 01/2008				
1042	Mar 01/2008				
1043	Mar 01/2008				
1044	Mar 01/2008				
1045	Mar 01/2008				
1046	Mar 01/2008				
1047	Mar 01/2008				
1048	Mar 01/2008				
1049	Mar 01/2008				
1050	Mar 01/2008				
1051	Mar 01/2008				
1052	Mar 01/2008				
1053	Mar 01/2008				
1054	Mar 01/2008				
1055	Mar 01/2008				
1056	Mar 01/2008				
1057	Mar 01/2008				
1058	BLANK				

A = Added, R = Revised, D = Deleted, O = Overflow

TABLE OF CONTENTS

BOEING®

COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 38340	MAR 01/05

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	
Number	Date	Date	Initials

Revision		Filed	
Number	Date	Date	Initials

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

BOEING®

COMPONENT MAINTENANCE MANUAL

All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing.
When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
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.

AUTO THROTTLE ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The autothrottle assembly consists of two gearbox/servo assemblies, two switch pack assemblies, two friction brake assemblies, and two resolver assemblies.

(1) Each gearbox/servo assembly consists of a servo motor, gearbox assembly, and anti-backlash friction brake. The servo motor connects to the gearbox, which transmits power to the resolver assembly and friction brake to move the throttle levers.

(2) The friction brakes translate power from the servo motor/gearbox into moving the thrust levers, and also act as a clutch for the gearbox. The resolver assemblies monitor the position of the friction brakes.

(3) The switch pack assembly monitors thrust lever position via rods connected to the resolver assemblies. Refer to CMM 22-32-34 for details of the switch pack assembly.

(4) There are two roller guides for interfacing of flap cables. These roller guides do not impact the operation of the auto throttle system, but are physically attached to the auto throttle assembly.

2. Operation

A. The auto throttle assembly provides full range auto throttle control during takeoff, climb, cruise, descent, holding, approach, and landing. When the auto throttle assembly is engaged, the digital flight control system compares the difference between the target speed and the actual airplane speed, and commands the servo motors to rotate either clockwise or counterclockwise, which then moves the thrust levers.

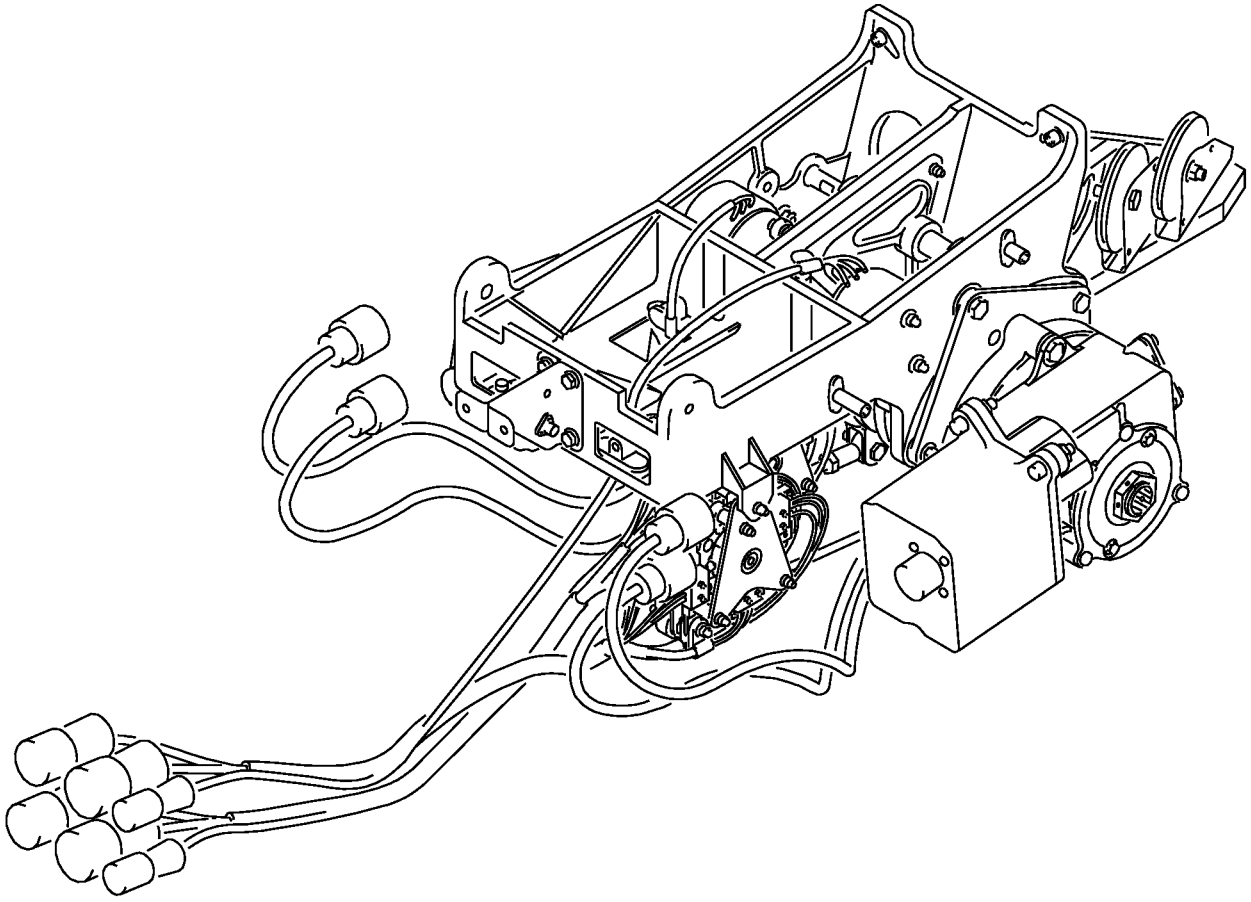
3. Leading Particulars (Approximate)

A. Length – 16 inches

B. Width – 18 inches

C. Height – 12 inches

D. Weight – 40 pounds



Autothrottle Assembly
Figure 1

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 2 for item numbers.

2. Testing and Fault Isolation

NOTE: All tests may be optionally performed with test equipment autothrottle test stand, SPL-9121. Refer to TESTING AND FAULT ISOLATION, Figure 104 for setup information.

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
COM-4231	Generator, Function (Part #: 33250A, Supplier: 1LQK8) (Part #: HP3325B, Supplier: 0RJM3) (Opt Part #: HP33120A, Supplier: 14376)
COM-4354	Indicator - Angle Position (Part #: 8810A, Supplier: 0VGU1)
COM-8286	Counter - Frequency, 0 To 1300 MHZ (Replaces 5221B , 5328A and OP31) (Part #: 5328B, Supplier: 28480)
SPL-7075	Card - Interface, 30301-5 ARINC 429
SPL-7243	Voltmeter - Digital, Fluke
SPL-9121	Stand - Autothrottle, Test (Part #: TSF254A1110-5, Supplier: 81205)
STD-1256	Supply - Electrical, 28VDC

B. References

Reference	Title
CMM 22-32-34	AUTOTHROTTLE SWITCHPACK ASSEMBLY

C. Mechanical Acceptance Requirements

(1) Verify the rotation of the left brake is free and without roughness or excessive friction. Refer to TESTING AND FAULT ISOLATION, Figure 101 for mechanism rotations.

(2) Connect a digital voltmeter, SPL-7243, a function generator, COM-4231, a counter, COM-8286, and an angle position indicator, COM-4354 to the left thrust resolver as shown in TESTING AND FAULT ISOLATION, Figure 102.

(3) Supply power to the left interlock solenoid with an electrical power supply (28VDC), STD-1256.

(4) Lift the interlock latch and verify that the brake rotates smoothly from reverse stop pin at 5 - 7 degrees to full forward stop pin at 83 - 85 degrees.

(5) Repeat steps 1 thru 4 for right brake and right thrust resolver.

D. Reverse Thurst Interlock Solenoid

(1) Connect a digital voltmeter, SPL-7243, a function generator, COM-4231, a counter, COM-8286, and an angle position indicator, COM-4354 to the left thrust resolver as shown in TESTING AND FAULT ISOLATION, Figure 102.

(2) Supply power to the left interlock solenoid with an electrical power supply (28VDC), STD-1256.

(3) Rotate the left brake assembly to decrease the API value until the stop pin is reached. Verify the interlock is lifted to allow full travel.

(4) Remove power to the left interlock solenoid.

(5) Rotate the left brake assembly to increase the API value to approximately 36 degrees. Verify the interlock does not prevent rotation of the brake.

(6) Rotate the left brake assembly to decrease the API value until the brake lug contacts the interlock. Verify the API value is between 24 and 28 degrees. Rotate the left brake assembly back to 36 degrees.

(7) Repeat steps 1 thru 6 for the right thrust resolver and right interlock solenoid. Refer to TESTING AND FAULT ISOLATION, Figure 103 for test equipment setup.

E. Switch Packs

NOTE: If switch adjustment is required, refer to CMM 22-32-34 for adjustment procedures.

(1) Mechanically restrain the left interlock solenoid. Ensure the rotation of the brake housing is not limited.

(2) Connect a digital voltmeter, SPL-7243, a function generator, COM-4231, a counter, COM-8286, and an angle position indicator, COM-4354 to the left thrust resolver as shown in TESTING AND FAULT ISOLATION, Figure 102.

(3) Verify the following circuit conditions exist between the noted pins in the API range. Rotate the brake housing as required to obtain the required API readings.

Left Switch Pack Circuit Conditions

API Readings	Connector	Pins	Condition	Switch (REF)
Minimum - 42	D11128P	1 & 2	Open	S1
Minimum - 42	D11128P	2 & 3	Closed	S1
46 - Maximum	D11128P	2 & 3	Open	S1
46 - Maximum	D11128P	1 & 2	Closed	S1
Minimum - 42	D11130P	1 & 2	Open	S2
Minimum - 42	D11130P	2 & 3	Closed	S2
46 - Maximum	D11130P	2 & 3	Open	S2
46 - Maximum	D11130P	1 & 2	Closed	S2
Minimum - 42	D11130P	4 & 5	Open	S3
Minimum - 42	D11130P	5 & 6	Closed	S3
46 - Maximum	D11130P	5 & 6	Open	S3
46 - Maximum	D11130P	4 & 5	Closed	S3

Left Switch Pack Circuit Conditions (Continued)

API Readings	Connector	Pins	Condition	Switch (REF)
Minimum - 30	D11128P	14 & 7	Closed	S4
Minimum - 30	D11128P	7 & 8	Open	S4
34 - Maximum	D11128P	7 & 8	Closed	S4
34 - Maximum	D11128P	14 & 7	Open	S4
Minimum - 30	D11130P	7 & 8	Closed	S5
Minimum - 30	D11130P	8 & 9	Open	S5
34 - Maximum	D11130P	8 & 9	Closed	S5
34 - Maximum	D11130P	7 & 8	Open	S5
Minimum - 30	D11130P	13 & 14	Closed	S6
Minimum - 30	D11130P	14 & 15	Open	S6
34 - Maximum	D11130P	14 & 15	Closed	S6
34 - Maximum	D11130P	13 & 14	Open	S6
Minimum - 58	D11128P	10 & 11	Open	S7
Minimum - 58	D11128P	11 & 12	Closed	S7
62 - Maximum	D11128P	11 & 12	Open	S7
62 - Maximum	D11128P	10 & 11	Closed	S7
Minimum - 51	D11128P	16 & 17	Open	S8
Minimum - 51	D11128P	17 & 18	Closed	S8
55 - Maximum	D11128P	17 & 18	Open	S8
55 - Maximum	D11128P	16 & 17	Closed	S8
Minimum - 62	D11128P	22 & 23	Open	S9
Minimum - 62	D11128P	23 & 24	Closed	S9
66 - Maximum	D11128P	23 & 24	Open	S9
66 - Maximum	D11128P	22 & 23	Closed	S9

(4) Mechanically restrain the right interlock solenoid. Ensure the rotation of the brake housing is not limited.

(5) Connect a digital voltmeter, SPL-7243, a function generator, COM-4231, a counter, COM-8286, and an angle position indicator, COM-4354 to the right thrust resolver as shown in TESTING AND FAULT ISOLATION, Figure 102.

(6) Verify the following circuit conditions exist between the noted pins in the API range. Rotate the brake housing as required to obtain the required API readings.

Left Switch Pack Circuit Conditions

API Readings	Connector	Pins	Condition	Switch (REF)
Minimum - 42	D11132P	1 & 2	Open	S1
Minimum - 42	D11132P	2 & 3	Closed	S1
46 - Maximum	D11132P	2 & 3	Open	S1
46 - Maximum	D11132P	1 & 2	Closed	S1
Minimum - 42	D11134P	1 & 2	Open	S2
Minimum - 42	D11134P	2 & 3	Closed	S2
46 - Maximum	D11134P	2 & 3	Open	S2
46 - Maximum	D11134P	1 & 2	Closed	S2
Minimum - 42	D11134P	4 & 5	Open	S3
Minimum - 42	D11134P	5 & 6	Closed	S3
46 - Maximum	D11134P	5 & 6	Open	S3
46 - Maximum	D11134P	4 & 5	Closed	S3
Minimum - 30	D11132P	14 & 7	Closed	S4
Minimum - 30	D11132P	7 & 8	Open	S4
34 - Maximum	D11132P	7 & 8	Closed	S4
34 - Maximum	D11132P	14 & 7	Open	S4
Minimum - 30	D11134P	7 & 8	Closed	S5
Minimum - 30	D11134P	8 & 9	Open	S5
34 - Maximum	D11134P	8 & 9	Closed	S5
34 - Maximum	D11134P	7 & 8	Open	S5
Minimum - 30	D11134P	13 & 14	Closed	S6
Minimum - 30	D11134P	14 & 15	Open	S6
34 - Maximum	D11134P	14 & 15	Closed	S6
34 - Maximum	D11134P	13 & 14	Open	S6
Minimum - 58	D11132P	10 & 11	Open	S7
Minimum - 58	D11132P	11 & 12	Closed	S7
62 - Maximum	D11132P	11 & 12	Open	S7
62 - Maximum	D11132P	10 & 11	Closed	S7
Minimum - 51	D11132P	16 & 17	Open	S8
Minimum - 51	D11132P	17 & 18	Closed	S8
55 - Maximum	D11132P	17 & 18	Open	S8
55 - Maximum	D11132P	16 & 17	Closed	S8
Minimum - 62	D11132P	22 & 23	Open	S9

Left Switch Pack Circuit Conditions (Continued)

API Readings	Connector	Pins	Condition	Switch (REF)
Minimum - 62	D11132P	23 & 24	Closed	S9
66 - Maximum	D11132P	23 & 24	Open	S9
66 - Maximum	D11132P	22 & 23	Closed	S9

F. Autothrottle Servo Motors

(1) Apply power and ground to the left servo motor connector as follows:

Pin 05	Ground	Left configuration pin
Pin 03	Ground	Motor ground
Pin 06	Ground	Logic ground
Pin 09	Power	Motor power
Pin 14	Power	Logic power

(2) Connect a digital voltmeter, SPL-7243, a function generator, COM-4231, a counter, COM-8286, and an angle position indicator, COM-4354 to the left thrust resolver as shown in TESTING AND FAULT ISOLATION, Figure 102. Rotate the roller brake until the API reads approximately 36 degrees (engine idle position).

(3) Connect a 30301-5 ARINC 429 Interface Card, SPL-7075 to the left servo motor with Pin 07 to Input A and Pin 08 to Input B.

(4) Drive the resolver to full forward with the following ARINC-429 signal, using odd parity and label 123:

	Sign Status Matrix	Sign	Rate	Enable	Spare	SDI
Bit Number	31,30	29	28–18	17	16–11	10,9
Bit Value	1,1	0	1	1	0	0,1

Verify the API reading changes from 36 degrees (engine idle position) to 84 ± 1 degrees (full thrust forward stop) in less than 5 seconds. Verify operation is smooth and free of binding or chattering.

(5) Drive the resolver to full aft with the following ARINC-429 signal, using odd parity and label 123:

	Sign Status Matrix	Sign	Rate	Enable	Spare	SDI
Bit Number	31,30	29	28–18	17	16–11	10,9
Bit Value	1,1	1	1	1	0	0,1

Verify the API reading changes from 84 ± 1 degrees (full thrust forward stop) to 26 ± 2 degrees (reverse interlock position) in less than 5 seconds. Verify operation is smooth and free of binding or chattering.

(6) Apply power and ground to the right servo motor connector as follows:

Pin 11	Ground	Right configuration pin
Pin 03	Ground	Motor ground
Pin 06	Ground	Logic ground
Pin 09	Power	Motor power
Pin 14	Power	Logic power

(7) Connect a digital voltmeter, SPL-7243, a function generator, COM-4231, a counter, COM-8286, and an angle position indicator, COM-4354 to the right thrust resolver as shown in TESTING AND FAULT ISOLATION, Figure 102. Rotate the roller brake until the API reads approximately 36 degrees (engine idle position).

(8) Connect a 30301-5 ARINC 429 Interface Card, SPL-7075 to the right servo motor with Pin 07 to Input A and Pin 08 to Input B.

(9) Drive the resolver to full forward with the following ARINC-429 signal, using odd parity and label 123:

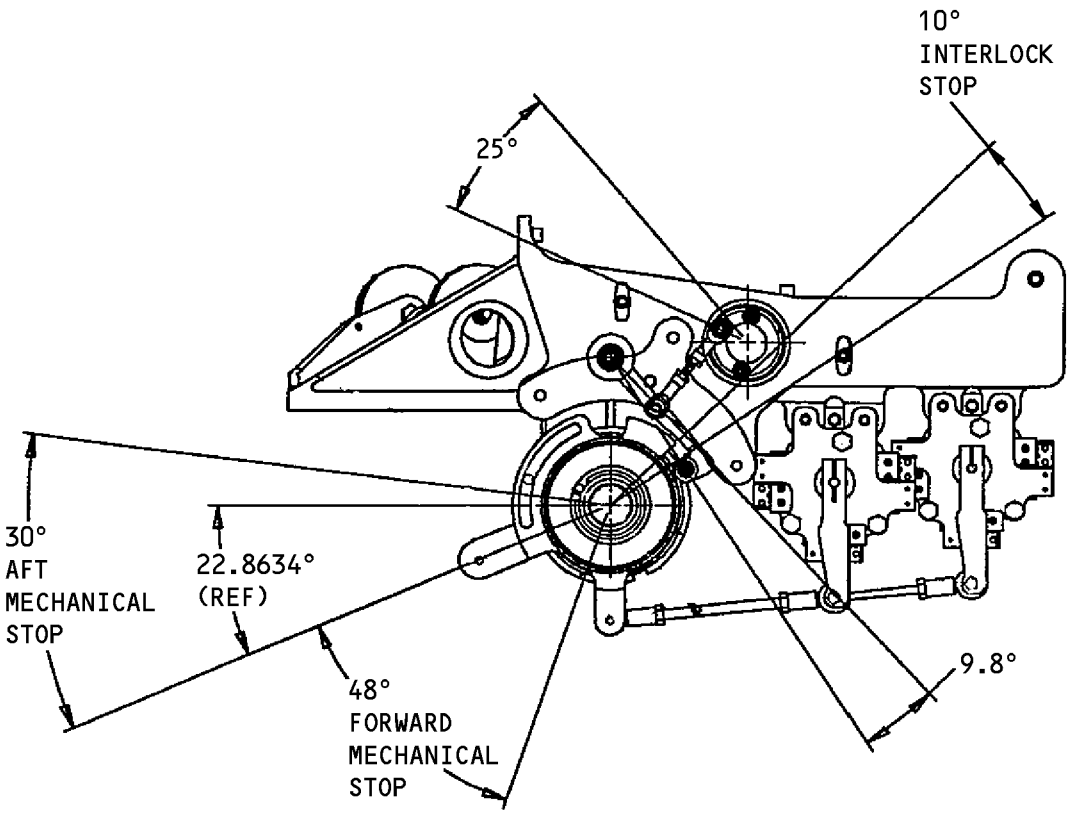
	Sign Status Matrix	Sign	Rate	Enable	Spare	SDI
Bit Number	31,30	29	28–18	17	16–11	10,9
Bit Value	1,1	0	1	1	0	0,1

Verify the API reading changes from 36 degrees (engine idle position) to 84 ± 1 degrees (full thrust forward stop) in less than 5 seconds. Verify operation is smooth and free of binding or chattering.

(10) Drive the resolver to full aft with the following ARINC-429 signal, using odd parity and label 123:

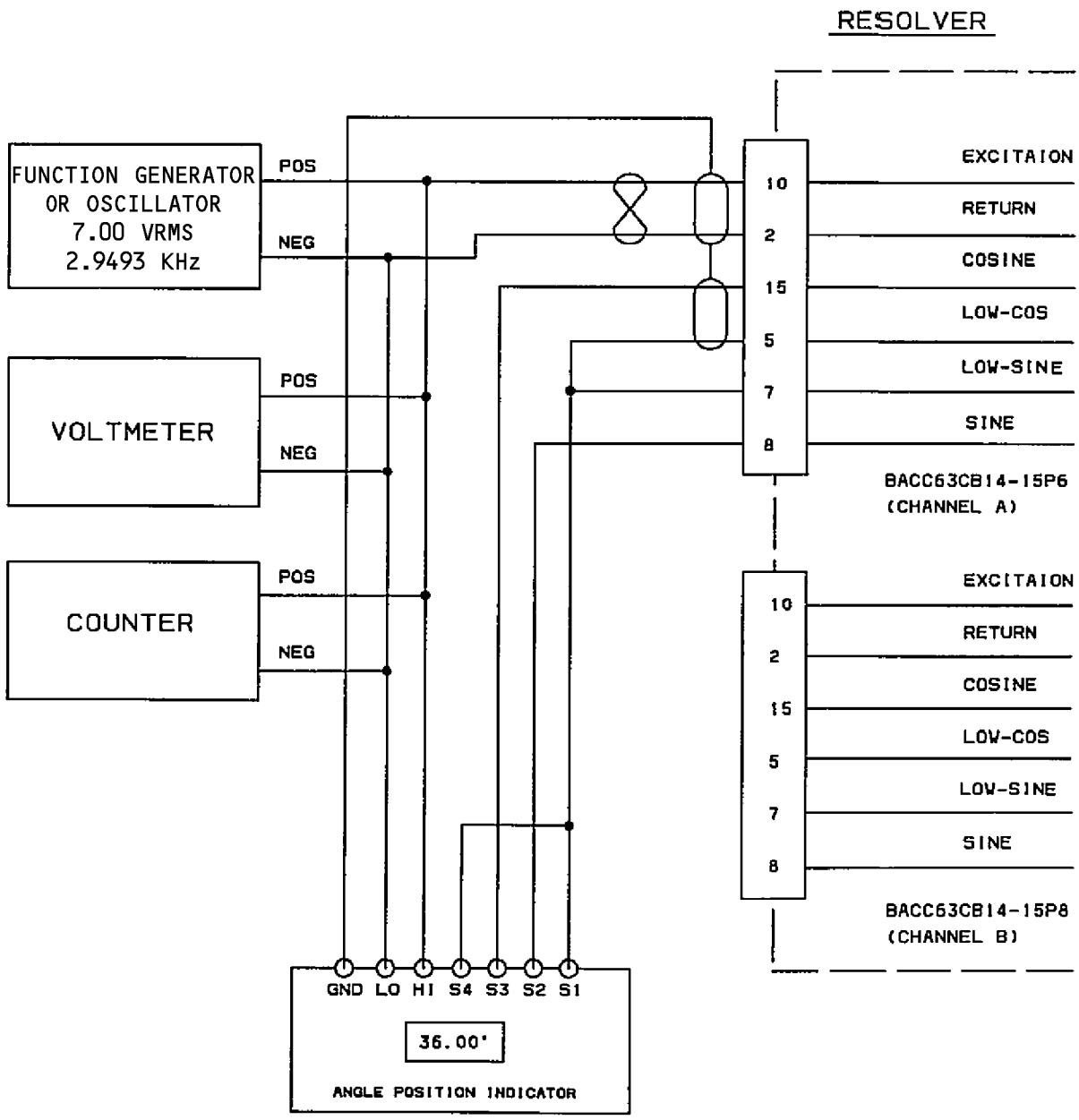
	Sign Status Matrix	Sign	Rate	Enable	Spare	SDI
Bit Number	31,30	29	28–18	17	16–11	10,9
Bit Value	1,1	1	1	1	0	0,1

Verify the API reading changes from 84 ± 1 degrees (full thrust forward stop) to 26 ± 2 degrees (reverse interlock position) in less than 5 seconds. Verify operation is smooth and free of binding or chattering.



1506535 S0000272868_V1

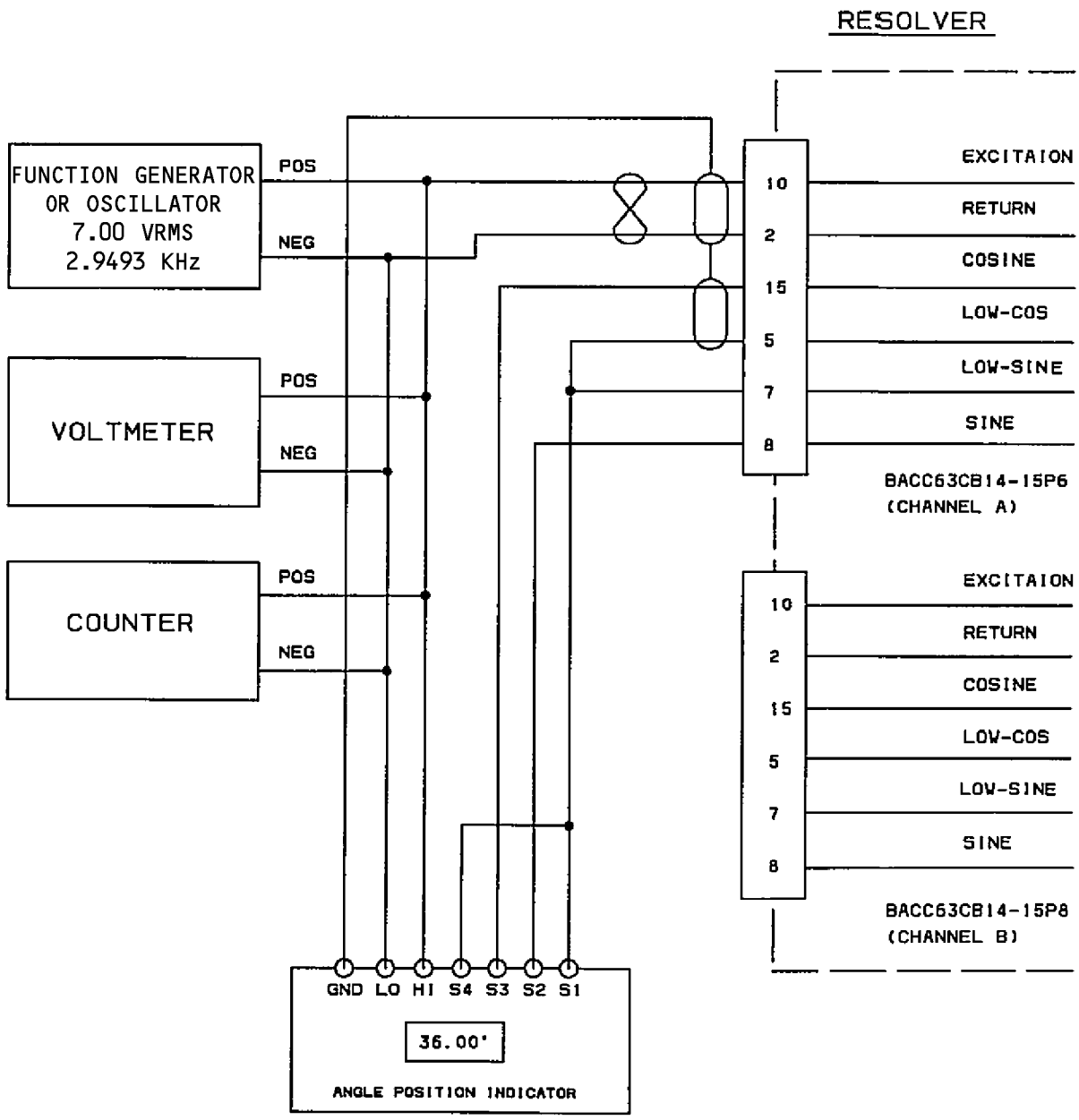
Autothrottle Mechanism Travels
Figure 101



LEFT THRUST RESOLVER SETUP

1506541 S0000272869_V1

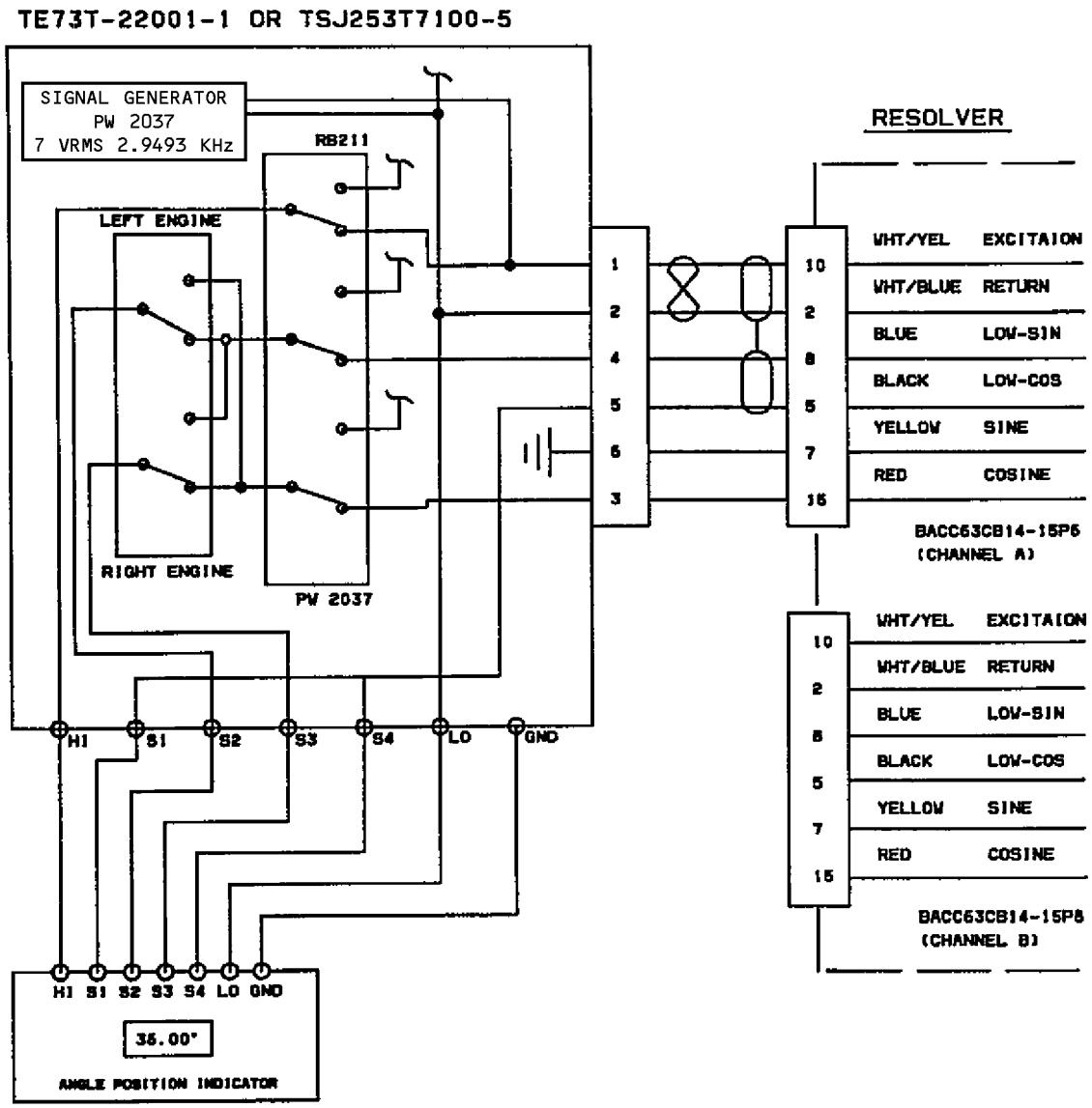
Left Thrust Resolver Setup
Figure 102



RIGHT THRUST RESOLVER SETUP

1506544 S0000272871_V1

Right Thrust Resolver Setup
Figure 103



RESOLVER TEST TOOL SETUP

1506547 S0000272872_V1

Resolver Test Tool Setup
Figure 104

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the autothrottle assembly.

B. Disassemble this component only as necessary to complete fault isolation, determine the serviceability of parts, perform required repairs, and restore the unit 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 2 for item numbers.

2. Part Replacement

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

A. Cotter pin (515, IPL Figure 2)

3. Disassembly

A. References

Reference	Title
CMM 22-32-34	AUTOTHROTTLE SWITCHPACK ASSEMBLY
CMM 22-35-02	CONTROL STAND AUTOTHROTTLE GEARBOX ASSEMBLY
CMM 22-35-03	AUTOTHROTTLE BRAKE ASSEMBLY

B. Disassembly of 254A1110-1 thru -8 (1, 5 IPL Figure 1)

(1) Refer to IPL Figure 1 for item numbers.

(2) Remove nuts (15), washers (10), bolts (5, 7) servo motors (20B), and guards (17) from mechanism assemblies (245, 250).

(3) Remove bolts (570), washers (575), and pulley brackets (580, 630) from frame assembly (590).

(4) Remove screws (540), washers (545), and bracket assembly (535) from frame assembly (690).

(5) Remove rod assemblies (50, 55).

(a) Remove bolt (25), bushing (30), washer (35) and nut (45) from friction brake assembly (420, 425 IPL Figure 2).

(b) Remove bolt (25), washer (40), and nut (45) from switchpack assembly (305, 310).

(6) Remove bolts (290), washers (295), nuts (300), and switchpack assembly (305, 310). Refer to CMM 22-32-34 for details of switchpack assembly.

(7) Remove bolts (200, 225), washers (205, 230), nut (240), and mechanism assembly (245, 250) from frame assembly (690).

(8) Remove bolts (90), washers (95), spacers (97), and rod assembly (105, 130) from latch assembly (135, 140) and solenoid (280, 285).

(9) Remove nuts (265), washers (270), spacer (275), and solenoid (280, 285) from frame assembly (690).

(10) Remove shaft (185), latch assembly (135, 140), bearings (197), bushing (190), and washer (195) from frame assembly (690).

(11) Remove nut (220), washer (215), and diamond pins (210) from frame assembly (690).

C. Disassembly of 254A1140-1 thru -6 (245, 250 IPL Figure 1, 1, 5 IPL Figure 2)

(1) Refer to IPL Figure 2 for item numbers.

(2) Remove screw (350), washer (355), and ramp plug (360) from gearbox assembly (35).

(3) Remove bolts (10, 20, 25), washers (15, 30), and gearbox assembly (35) from bracket (320, 335). Refer to CMM 22-35-02 for details of gearbox assembly.

(4) Remove bolts (300, 303, 310), washers (305, 315), and bracket (320, 335) from resolver (520).

(5) Remove nut (365), spacer (370), washers (380), screws (375), retainer plate (385), and bearing (390) from resolver (520).

(6) Remove spacer (510), brake assembly (420, 425), spacer (415), bearing (410), and shaft (395) from resolver (520). Refer to CMM 22-35-03 for details of brake assembly.

(7) Remove cotter pin (515) from resolver (520).

(8) Remove nut (500) and seal (505) from resolver (520).

CLEANING

1. **General**
   A. This procedure has the data necessary to clean the autothrottle assembly.
   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 2 for item numbers.
2. **Cleaning**
   A. Procedure
      (1) Use standard industry procedures (SOPM 20-30-03) to clean all parts except the bearings (145, 170, 172, 197 IPL Figure 1 and 390, 410 IPL Figure 2).
      (2) Use manufacturer's instructions to clean teflon sealed bearings (145, 170, 172, 197 IPL Figure 1 and 390, 410 IPL Figure 2) as specified in SOPM 20-30-01.

CHECK

1. General

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

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 2 for item numbers.

2. Procedure

A. References

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

B. Use standard industry procedures to do a visual check of all the parts for defects. Check detail parts for 254A1110-1 thru -8 (IPL Figure 1).

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

(a) Rod (130A)

(b) Shaft (185)

(c) Pin (210)

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

(a) Spacer (275)

(b) Frame (770)

C. Check detail parts for 254A1140-1 thru -6 (IPL Figure 2).

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

(a) Plate (385)

(b) Shaft (405)

(c) Spacer (415)

(d) Seal Nut (500)

(e) Spacer (510)

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

(a) Bracket Assembly (320, 335)

(b) Ramp Plug (360)

(c) Spacer (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

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in REPAIR-GENERAL, Figure 601, (Sheet 1).

—	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)
Ø	DIAMETER
S Ø	SPHERICAL DIAMETER
R	RADIUS
SR	SPHERICAL RADIUS
()	REFERENCE
BASIC (BSC) OR [DIM]	A THEORETICALLY EXACT DIMENSION USED TO DESCRIBE SIZE, SHAPE OR LOCATION OF A FEATURE FROM WHICH PERMISSIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.
[-A-]	DATUM
Ⓜ	MAXIMUM MATERIAL CONDITION (MMC)
Ⓛ	LEAST MATERIAL CONDITION (LMC)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE
FIM	FULL INDICATOR MOVEMENT
TIR	TOTAL INDICATOR READING

EXAMPLES

[— | 0.002]	STRAIGHT WITHIN 0.002
[⊥ | 0.002 | B]	PERPENDICULAR TO B WITHIN 0.002
[// | 0.002 | A]	PARALLEL TO A WITHIN 0.002
[○ | 0.002]	ROUND WITHIN 0.002
[⌭ | 0.010]	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
[⌒ | 0.006 | A]	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM PLANE A
[⌓ | 0.020 | A]	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
[◎ | Ø 0.0005 | C]	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
[⌯ | 0.010 | A]	SYMMETRICAL WITH A WITHIN 0.010
[∠ | 0.005 | A]	ANGULAR TOLERANCE 0.005 WITH A
[⌖ | Ø 0.002 Ⓢ | B]	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
[⊥ | Ø 0.010 Ⓜ | A] [0.510 Ⓟ]	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010-INCH DIAMETER, PERPENDICULAR TO, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

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

True Position Dimensioning Symbols
Figure 601

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 2 for item numbers.

2. Refinish of Other Parts

A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

B. General

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

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. 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 refinish details.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Guard (17)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply BMS 10–11, Type I primer (F-20.02).
Rod (80, 85)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply BMS 10–11, Type I primer (F-20.02).
Rod (130)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31).
Rod (130A)	15-5 PH CRES, 180-200 KSI	Cadmium plate (F-16.06).
Latch (140, 180)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply two layers BMS 10–11, Type I primer (F-20.03). Omit primer in bushing holes.
Shaft (185)	15-5 PH, 180-200 KSI	Passivate (F-17.25), except cadmium plate (F-16.06) inside and outside of countersunk end.

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Pin (210)	15-5 PH, 150-170 KSI	Cadmium Plate (F-15.06).
Spacer (275)	Aluminum alloy	Chemical treat (F-17.08) and apply two layers BMS 10-11, Type 1 primer (F-20.55).
Spacer (275A)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply two layers BMS 10–11, Type I primer (F-20.03).
Bracket (560, 565)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply BMS 10–11, Type I primer (F-20.02).
Bracket (625, 685)	Aluminum alloy	Chemical treat or chromic acid anodize and apply BMS 10-11, Type 1 primer (F-18.05) and apply BMW 10-11, Type 2 enamel (F-21.03).
Doubler (760)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply BMS 10–11, Type I primer (F-20.02).
Frame (770)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply BMS 10–11, Type I primer (F-20.02).
IPL Fig. 2		
Bracket (330, 345)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply BMS 10–11, Type I primer (F-20.02). Omit primer from holes.
Support (333)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply two layers BMS 10–11, Type I primer (F-20.03)
Spacer (370)	Aluminum alloy	Anodize (F-17.05) and apply BMS 10–11, Type I primer (F-20.02).
Plate (385)	15-5 PH CRES, 180-200 KSI	Cadmium Plate (F-15.06).
Shaft (405)	15-5 PH CRES, 180-200 KSI	Passivate (F-17.25).
Spacer (415, 510)	15-5 PH CRES, 180-200 KSI	Passivate (F-17.25).
Nut (500)	15-5 PH, 180-200 KSI	Cadmium Plate (F-15.06).

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the autothrottle assembly.

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 2 for item numbers.

2. Assembly Procedure

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
COM-4354	Indicator - Angle Position (Part #: 8810A, Supplier: 0VGU1)
SPL-9119	Jig - Autothrottle, Assembly (Part #: MIT254A1110-3, Supplier: 81205)

B. References

Reference	Title
BAC 5009	Bolt and Nut Installation
BAC 5152	Identification of Electric Wire and Wire Bundles
CMM 22-35-02	CONTROL STAND AUTOTHROTTLE GEARBOX ASSEMBLY
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. General

(1) Use the autothrottle assembly jig, SPL-9119 to assemble the autothrottle assembly.

(2) Install cotter pins per SOPM 20-50-02. If a cotter pin was removed during disassembly, then a new cotter must be used during assembly.

(3) For bearing installation, refer to SOPM 20-50-03. For bolt and nut installation, refer to SOPM 20-50-01. For finishing materials, refer to SOPM 20-60-02. For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

D. Assembly of 254A1140-1 thru -6 (ASSEMBLY, Figure 701, (Sheet 1), ASSEMBLY, Figure 702, (Sheet 1))

(1) Refer to IPL Figure 2 for item numbers.

(2) Install seal (505) and nut (500) into resolver (520). Torque nut 0-40 in-lbs above run on to align slot in nut with hole in resolver.

(3) Install cotter pin (515) into resolver (520).

(4) Install shaft (395), bearing (410), spacer (415), brake assembly (420, 425) and spacer (510) into resolver (520).

(5) Install bearing (390), retainer plate (385), screws (375), washers (380), spacer (370) and nut (365) into resolver (520). Torque nut 200-220 in-lbs above run-on torque (BAC 5009).

(6) Attach bracket (320, 335) to resolver (520) with bolts (300, 303, 310) and washers (305, 315).

(7) Attach gearbox assembly (35) to bracket (320, 335) with bolts (10, 20, 25) and washers (15, 30). Refer to CMM 22-35-02 for details of gearbox assembly.

(8) Install ramp plug (360), washer (355), and screw (350) into gearbox assembly. Torque screw to 25–35 in-lbs above run-on torque (BAC 5009).

E. Assembly of 254A1110-1 thru -8 (ASSEMBLY, Figure 703, (Sheet 1), ASSEMBLY, Figure 704, (Sheet 1), ASSEMBLY, Figure 705, (Sheet 1), ASSEMBLY, Figure 706, (Sheet 1))

(1) Refer toIPL Figure 1 for item numbers.

(2) Install diamond pins (210) on frame assembly (690) using washer (215) and nut (220). Ensure flat on pin is rotated 45 degrees pointing at rear most hole for mounting mechanism assembly (245, 250). Torque nut to 50-80 in-lbs.

(3) Install washer (195), bushing (190), bearings (197), latch assembly (135, 140), and shaft (185) into frame assembly (690). Torque shafts to 40-50 in-lbs above run-on torque (BAC 5009).

(4) Connect rod assembly (105, 130) to solenoid (280, 285) with spacer (97), washer (95), and nut (100). Torque nut to 20-25 in-lbs.

(5) Slide spacer (275) over solenoid (280, 285) and attach to frame assembly (690) with washers (270) and nuts (265).

(6) Attach rod assembly (105, 130) to latch assembly (135, 140) with spacer (97), washer (95), and bolt (90). Torque bolt (90) finger tight.

(7) Route and clamp solenoid wires using clamps (260, 261, 262) and screws (255, 256, 257). Install clip nuts (242, 243).

(8) Slide mechanism assembly (245, 250) into frame assembly (690).

NOTE: It may be necessary to lift latch (175, 180) so friction brake assembly clears.

(9) Line up adaptor plate with pin (210). Adjust gap between latch (135, 140) and friction brake assembly (420, 425 IPL Figure 2) to be 0.0682 in. by adjusting length of rod assembly (105, 130). Tighten bolts (90). Tighten jam nuts (115, 120) finger tight plus 15-30 degrees.

(10) Install bolt (225). Slide mechanism assembly (245, 250) remainder of way onto pin (210) and tighten with bolts (200) and washers (205). Install washer (230) and nut (240) onto bolt (225).

(11) Install switch pack assembly (305, 310) with bolts (290), washers (295), and nuts (300).

(12) Connect rod assembly (50, 55) to switch pack assembly (305, 310) with bolt (25), washer (40), and nut (45). Connect other end to friction brake assembly (420, 425 IPL Figure 2) with bolt (250), bushing (30), washer (35), and nut (45).

(13) Attach bracket assembly (535) to frame assembly (690) with washers (545) and screws (540).

(14) Loosely install pulley brackets (580, 630) with washers (575) and bolts (570).

(15) Attach guard (17) and servo motor (20) to mechanism assembly (245, 250) with bolts (5, 7), washers (10) and nuts (15). Add mates with information to the connectors (BAC 5152).

(16) Rod Adjustment

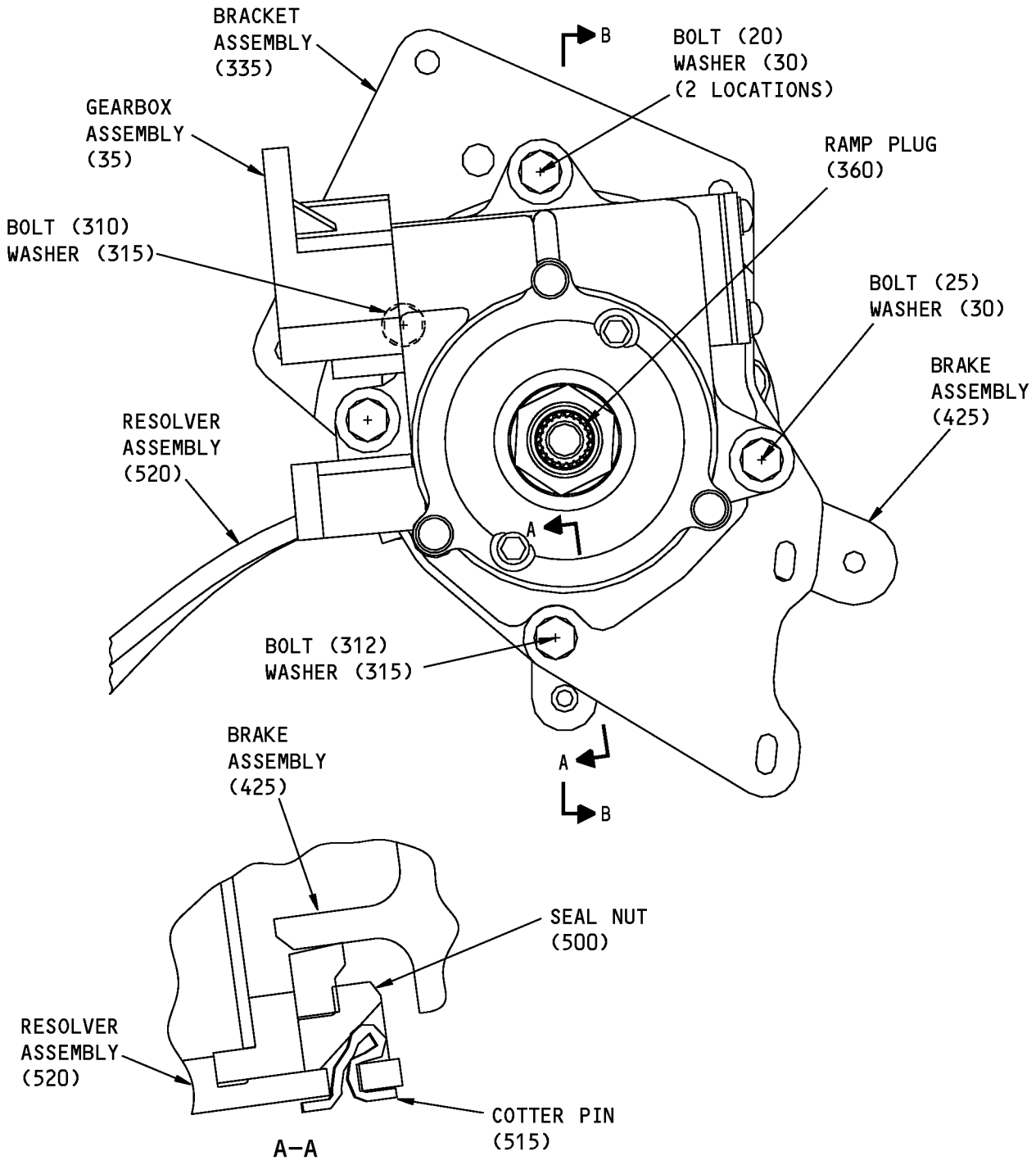
(a) Connect angle position indicator, COM-4354 to channel ''A'' of left resolver (520) and pins 7 (normally open) and 8 (common) of connector D11130P.

(b) Adjust rod assembly (55) so that switch S5 changes from open to closed at an angle position indicator reading of 31.5 to 32.0 degrees. Torque jam nut to 25-30 in-lbs.

(c) Connect angle position indicator, COM-4354 to channel ''A'' of right resolver (520) and pins 7 (normally open) and 8 (common) of connector D11134P.

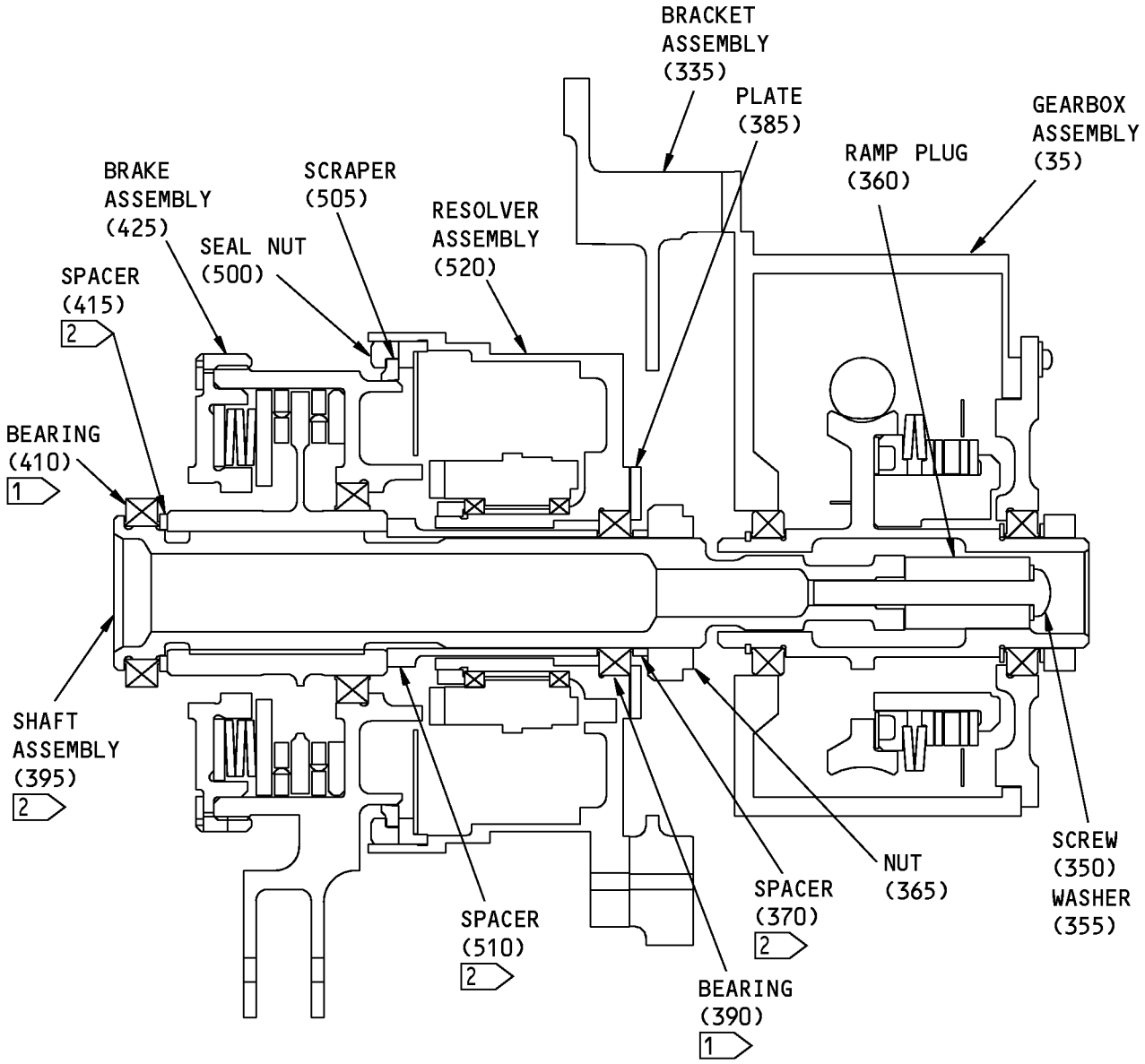
(d) Adjust rod assembly (50) so that switch S5 changes from open to closed at an angle position indicator reading of 31.5 to 32.0 degrees. Torque jam nut to 25-30 in-lbs.

(17) Perform functional test per TESTING AND FAULT ISOLATION.



1506494 S0000274720_V1

Autothrottle Mechanism Assembly
Figure 701

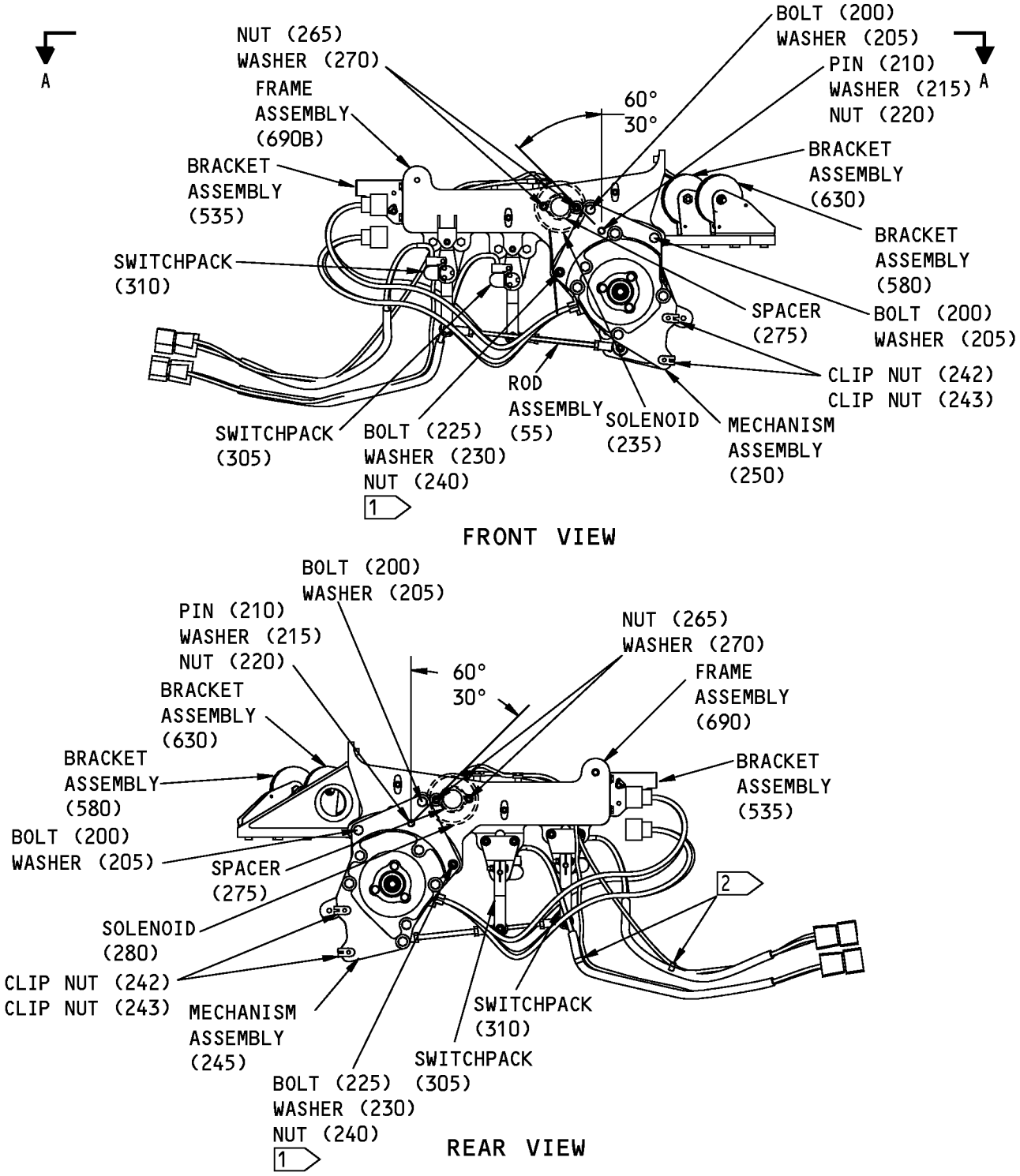


1 INSTALL BEARING WITH GREASE

2 COAT ALL MATING SURFACES WITH BMS 3-33 GREASE PRIOR TO ASSEMBLY

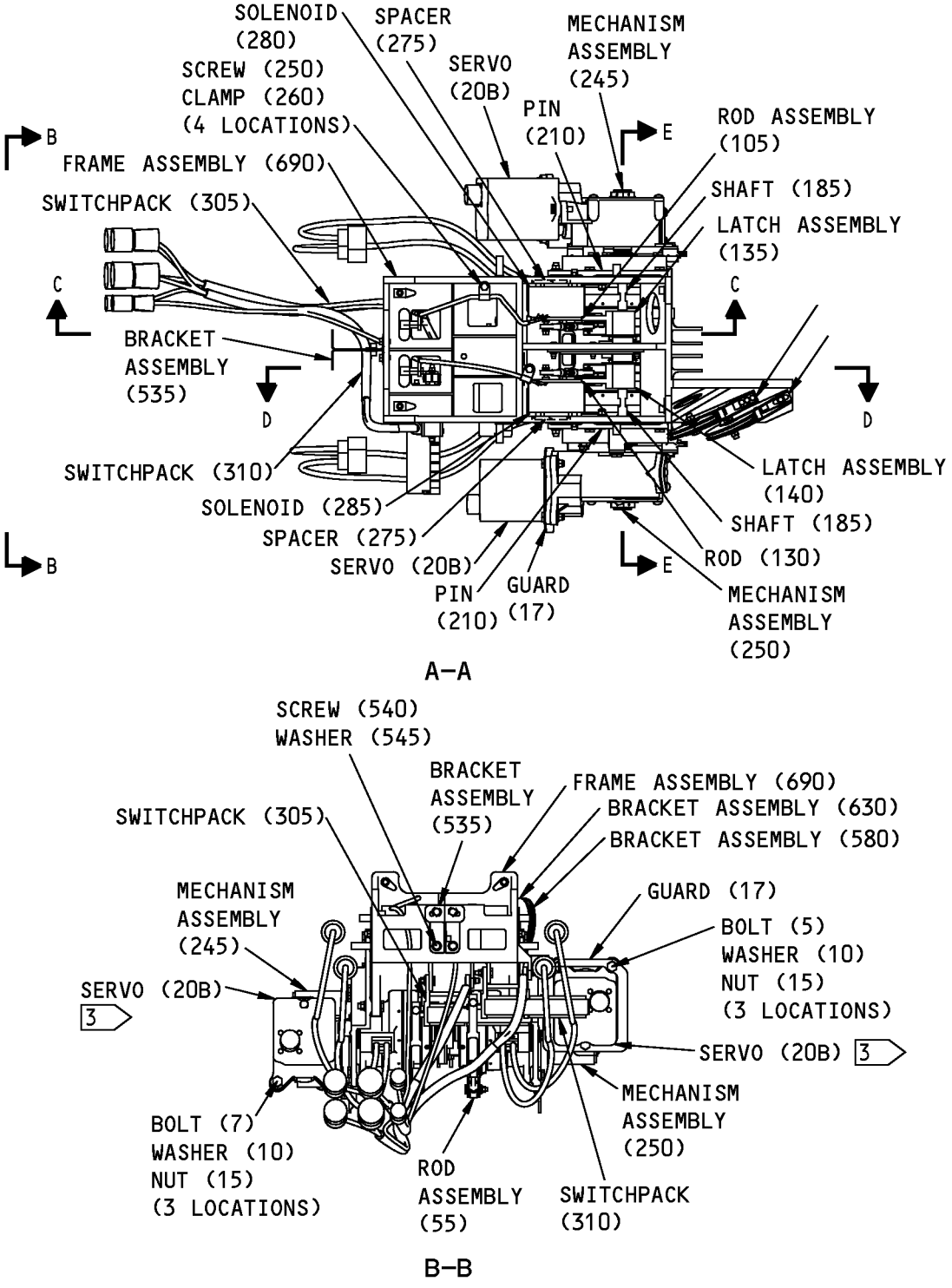
1506502 S0000274721_V1

Autothrottle Mechanism Assembly
Figure 702



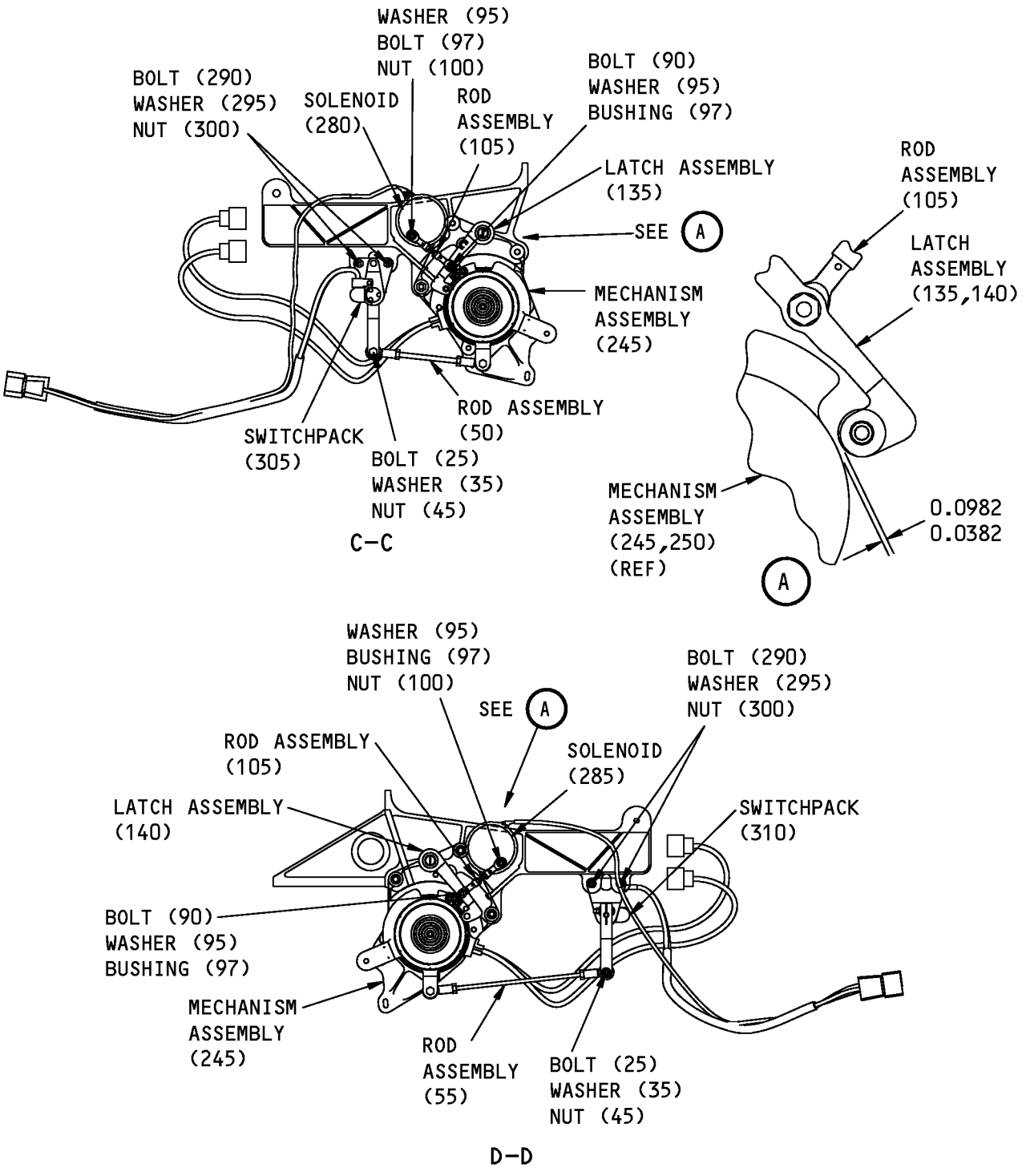
1506207 S0000274117_V1

Autothrottle Assembly
Figure 703



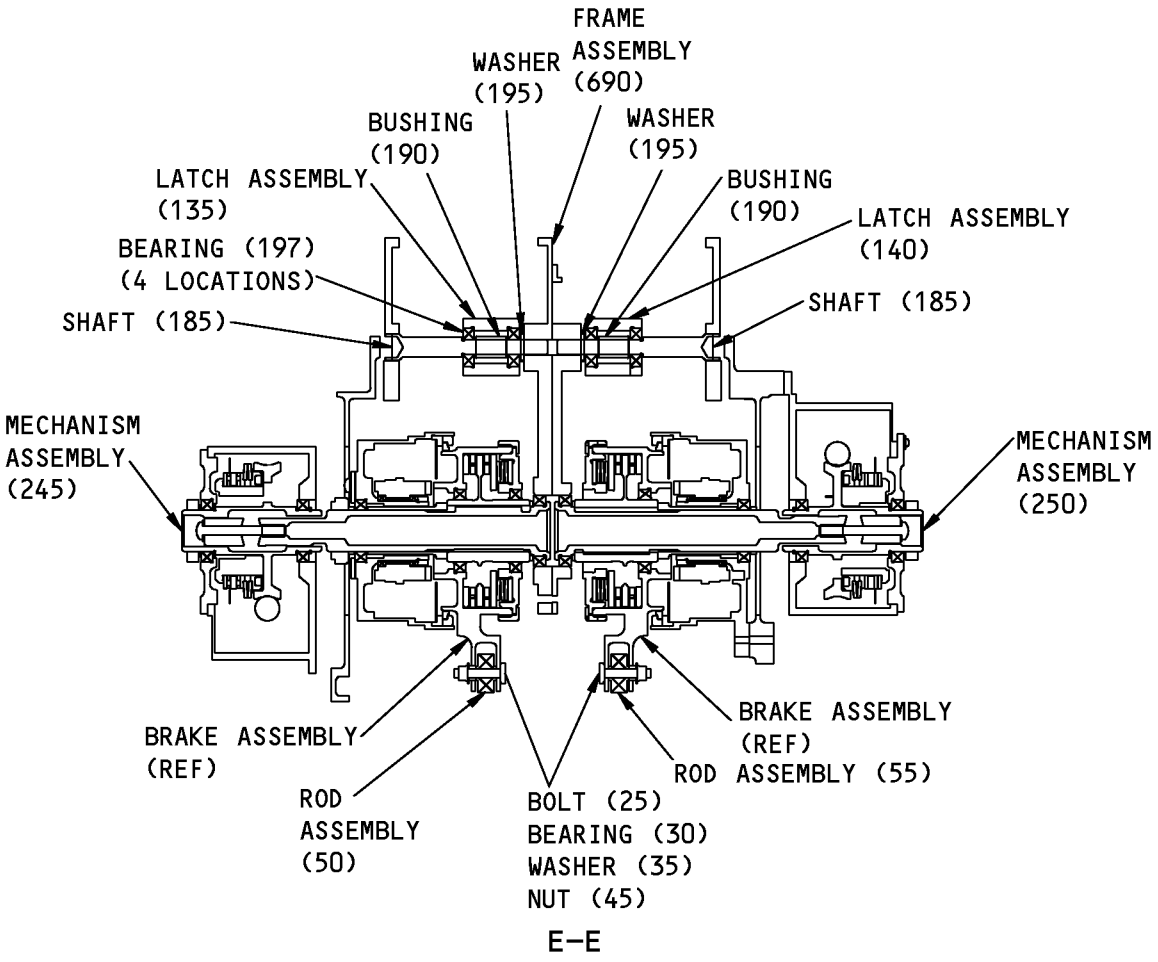
1506286 S0000274524_V1

Autothrottle Assembly
Figure 704



1506368 S0000274525_V1

Autothrottle Assembly
Figure 705



1 > INSTALL BOLT THIS LOCATION FIRST

2 > LOCKSTITCH AS SHOWN AND ALONG EACH PIGTAIL AT 3 INCH INTERVALS

3 > CAREFULLY INSTALL SERVO MAKING SURE SPLINES LINE UP DURING INSTALLATION

1506432 S0000274526_V1

Autothrottle Assembly
Figure 706

(NOT APPLICABLE)

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.

Special Tools

Reference	Description	Part Number	Supplier
SPL-7075	Card - Interface, 30301-5 ARINC 429		
SPL-7243	Voltmeter - Digital, Fluke		
SPL-9119	Jig - Autothrottle, Assembly	MIT254A1110-3	81205
SPL-9121	Stand - Autothrottle, Test	TSF254A1110-5	81205

Commercial Tools

Reference	Description	Part Number	Supplier
COM-4231	Generator, Function	33250A HP3325B Opt: HP33120A	1LQK8 0RJM3 14376
COM-4354	Indicator - Angle Position	8810A	0VGU1
COM-8286	Counter - Frequency, 0 To 1300 MHZ (Replaces 5221B , 5328A and OP31)	5328B	28480

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
0RJM3	HEWLETT-PACKARD COMPANY	3000 HANOVER ST. PALO ALTO, CA 94304-1185 Telephone: (650) 857-1501 Facsimile: (650)857-5518 www.hp.com
0VGU1	NORTH ATLANTIC INDUSTRIES, INC.	170 WILBUR PLACE BOHEMIA, NY 11716 Telephone: (631) 567-1100 Facsimile: (516) 567-1823 www.naii.com

Tool Supplier Information (Continued)

CAGE Code	Supplier Name	Supplier Address
14376	AGILENT TECHNOLOGIES INC	2850 CENTERVILLE RD ANALYTICAL BUSINESS CTR WILMINGTON, DE 19808-1610 Telephone: 408-553-2074 http://www.agilent.com
1LQK8	AGILENT TECHNOLOGIES, INC.	9780 S. MERIDIAN BLVD. ENGLEWOOD, CO 80155-0000 Telephone: 800-829-4444 Facsimile: 860-654-6905 www.agilent.com
28480	HEWLETT-PACKARD COMPANY	1421 S. MANHATTAN AVE. FULLERTON, CA 92831 Telephone: 714-758-5805 Facsimile: 714-758-7537
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

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
02886	DODGE-WASMUND MFG CO INC 9607 BEVERLY ROAD PICO RIVERA, CALIFORNIA 90660-2136
04169	WESTERN SKY INDUSTRIES A DIVISION OF ATLAS CORPORATION 1280 SAN LUIS OBISPO STREET HAYWARD, CALIFORNIA 94544-7916 FORMERLY WESTERN SKY IND VB0008
05088	KEARFOTT GUIDANCE AND NAVIGATION CORP ROUTE 70 BLACK MOUNTAIN, NORTH CAROLINA 28711
06144	INDUSTRIAL TECTONICS BEARING CORP 18301 SOUTH SANTA FE AVENUE RANCHO DOMINGUEZ, CALIFORNIA 90221 FORMERLY IN COMPTON, CALIFORNIA
06725	AIR INDUSTRIES CORPORATION 12570 KNOTT STREET GARDEN GROVE, CALIFORNIA 92641-3932 FORMERLY AIR INDUSTRIES OF CALIF IN GARDENA, CALIF.
07128	TETRAFLUOR INC 2051 EAST MAPLE AVENUE EL SEGUNDO, CALIFORNIA 90245-5009 FORMERLY ROYAL IND TETRAFLUOR DIV V0667B ENGLEWOOD CALIF

Code	Name
0PTK6	SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV 5195 W 4700 SALT LAKE CITY, UTAH 94118 SEE V56878 SPS TECHNOLOGIES INC
11815	CHERRY AEROSPACE FASTENERS DIV OF TEXTRON 1224 EAST WARNER AVENUE PO BOX 2157 SANTA ANA, CALIFORNIA 92707-0157 FORMERLY IN LOS ANGELES, CALIF , FORMERLY CHERRY FASTENERS TOWNSEND DIV OF TEXTRON INC V71087
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
22277	BELL-MEMPHIS INC 1650 CHANNEL AVENUE MEMPHIS, TENNESSEE 38113-0187 FORMERLY BELL,R.E. MFG CO V11097
25337	RALMARK CO 83 EAST LUZERNE AVENUE LARKSVILLE, PENNSYLVANIA 18704-1026

Code	Name
26303	GREENE TWEED IND INC ADVANTEC DIV 7101 PATTERSON DRIVE PO BOX 5037 GARDEN GROVE, CALIFORNIA 92645-5037 FORMERLY OHIO AIRCRAFT SUPPLIES INC IN INGLEWOOD, CALIFORNIA FORMERLY ADVANTEC DIV OF IFP INC, LOS ANGELES, CA V5P801
26879	CORONADO MFG INC 11069 PENROSE AVENUE SUN VALLEY, CALIFORNIA 90352-2722 FORMERLY CORONADO PLASTICS INC IN BURBANK, CALIFORNIA
29965	ARVAN INCORPORATED 14083 SOUTH NORMANDIE AVENUE PO BOX 1326 GARDENA, CALIFORNIA 90249 FORMERLY TANSEY AIRCRAFT IN EL MONTE, CA.
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
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

Code	Name
52828	REPUBLIC FASTENER MFG CORP 1300 RANCHO CONEJO BLVD NEWBURY PARK, CALIFORNIA 91320-1405 FORMERLY IN SYLMAR, CALIFORNIA
56644	AURORA BEARING CO 970 SOUTH LAKE STREET AURORA, ILLINOIS 60506-5929
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
77896	REXNORD INC BEARING OPERATION 2400 CURTIS STREET DOWNERS GROVE, ILLINOIS 60515-4005 FORMERLY SHAEFER BEARING DIV REX CHAINBELT FORMERLY REX CHAINBELT INC BEARING DIV.
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
81840	SAIA-BURGESS INC 801 SCHOLZ DR VANDALIA, OHIO 45377-0427 FORMERLY LUCAS LEDEX INC
83086	NEW HAMPSHIRE BALL BEARING, INC HITECH DIVISION 172 JAFFREY ROAD PETERBOROUGH, NEW HAMPSHIRE 03458
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102 FORMERLY VOI-SHAN IN CULVER CITY, CALIF
94878	RAYBESTOS-MANHATTAN INC PACIFIC COAST DIV FULLERTON, CALIFORNIA 92631 BUSINESS DISCONTINUED
97393	SHUR-LOK CORPORATION 2541 WHITE ROAD PO BOX 19584 IRVINE, CALIFORNIA 92623-9584 FORMERLY SHUR LOK CORP VB0060 FORMERLY IN SANTA ANA, CALIFORNIA 92714
97613	SARGENT CONTROLS & AEROSPACE/KAHR BEARING DIV 5675 W BURLINGAME RD TUCSON, ARIZONA 85743 FORMERLY AETNA STEEL PROD KAHR BEARING DIV V96579 FORMERLY SARGENT IND KAHR BEARING DIV, BURBANK, CALIFORNIA

Code	Name
K5294	SMITHS IND AEROSPACE AND DEFENCE SYS EVESHAM ROAD BISHOPS CLEEVE CHELTENHAM, GLOUCESTERSHIRE GL52 4SF ENGLAND FORMERLY VK0481 AND VK1455
K8455	RHP BEARINGS PLC RHP AEROSPACE OLDENDS LANE STONEHOUSE GL10 3RM UK

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
102F177-3		1	740	2
130123		1	242	2
		1	243	2
196298-001		1	280A	1
196299-001		1	285A	1
196393-001		1	280	1
196394-001		1	285	1
2140-32A		2	505	1
254A1110-1		1	1A	RF
254A1110-2		1	1B	RF
254A1110-3		1	1C	RF
254A1110-4		1	1D	RF
254A1110-5		1	1E	RF
254A1110-6		1	1F	RF
254A1110-7		1	1G	RF
254A1110-8		1	1H	RF
254A1112-1		1	210	2
254A1114-1		1	50	1
254A1114-2		1	80	1
254A1114-3		1	55	1
254A1114-4		1	85	1
254A1115-1		1	535	1
254A1116-1		1	560	1
254A1116-2		1	565	1
254A1121-1		1	690	1
254A1121-2		1	770	1
254A1121-4		1	690A	1
254A1121-5		1	770A	1
254A1121-6		1	690B	1
254A1124-1		1	760	1
254A1140-1		1	245	1
		2	1	RF
254A1140-2		1	250	1
		2	5	RF

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
254A1140-3		1	245A	1
		2	1A	RF
254A1140-4		1	250A	1
		2	5A	RF
254A1140-5		1	245B	1
		2	1B	RF
254A1140-6		1	250B	1
		2	5B	RF
254A1141-1		2	420	1
254A1141-2		2	425	1
254A1141-3		2	420A	1
254A1141-4		2	425A	1
254A1141-5		2	420B	1
254A1141-6		2	425B	1
254A1141-7		2	420C	1
254A1141-8		2	425C	1
254A1142-1		2	320	1
254A1142-2		2	335	1
254A1142-3		2	330	1
254A1142-4		2	345	1
254A1142-5		2	320A	1
254A1142-6		2	335A	1
254A1142-7		2	330A	1
254A1142-8		2	345A	1
254A1144-1		2	415	1
254A1145-1		2	395	1
254A1145-2		2	405	1
254A1147-1		2	35	1
		2	35B	1
254A1147-3		2	35A	1
254A1150-1		1	305	1
		1	305A	1
254A1150-10		1	310C	1
		1	310D	1
254A1150-11		1	305E	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
254A1150-12		1	310E	1
254A1150-2		1	310	1
		1	310A	1
254A1150-7		1	305B	1
254A1150-8		1	310B	1
254A1150-9		1	305C	1
		1	305D	1
254A1153-1		1	17	1
254A1155-1		2	333	1
254A1155-2		2	348	1
254A1162-1		1	135	1
254A1162-2		1	140	1
254A1162-3		1	175	1
254A1162-4		1	180	1
254A1162-5		1	137	1
254A1162-6		1	142	1
254A1162-7		1	177	1
254A1162-8		1	182	1
254A1163-1		1	275	2
254A1163-2		1	277	2
254A1165-1		1	185	2
254A1165-2		1	185A	2
254N1016-3		1	105	2
		1	105A	2
254N1016-4		1	130	1
254N1016-5		1	105B	2
		1	105C	2
254N1016-6		1	130A	1
254N1154-2		2	385	1
254N1155-1		2	500	1
254N1169-2		2	370	1
254W4105-1		2	510	1
254W4130-1		2	360	1
305RAA1		1	20B	2
50-3361-4021		1	620	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	680	2
69-37978-6		1	580	1
69-37978-7		1	625	1
69-37979-6		1	630	1
69-37979-7		1	685	1
69-37979-8		1	630A	1
69-37979-9		1	685A	1
ACMB540DDFS428		2	390A	1
		2	390A	1
ACMB541DDFS428		2	410B	1
		2	410B	1
ACMKP5AP510LY19		1	145	1
		1	197	4
AMB540DDRJC		2	390A	1
AMB541DDRJC		2	410B	1
AN960KD416L		1	590	1
		1	640	1
APM219-4		1	650A	1
AW3-5		1	125	1
AW3-7		1	110	1
BACB10AS14		2	390	1
BACB10AS17		2	410	1
BACB10FS05J		1	197B	4
BACB10FS5		1	145	1
		1	197	4
BACB10FT03LRJP		1	172	1
BACB10FT3LR		1	170	1
BACB10FU14RJ		2	390A	1
BACB10FU17RJ		2	410B	1
BACB28AK05-065		1	190A	2
BACB28Y3C010		1	97	4
BACB28Y3C014		1	30	2
		1	32	2
		1	160	1
BACB28Y3C022		1	700A	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB28Z5-095		1	190	2
BACB30LM4-14		2	25A	1
BACB30LM4-2		2	10B	3
		2	20B	2
BACB30LM4-5		2	300A	1
		2	303B	2
		2	310B	2
BACB30LM4-8		1	635A	1
BACB30LM4K11		1	225A	2
BACB30LM4K5		1	200A	4
BACB30LM4K7		1	7A	3
BACB30LM4K8		1	5C	3
BACB30NM3K10		1	25	2
		1	27	2
		1	28	2
BACB30NM3K4		1	90	2
BACB30NM3K5		1	90A	2
		1	290	4
BACB30NM4K11		1	225B	2
BACB30NM4K14		2	25B	1
BACB30NM4K2		2	10C	3
		2	20C	2
BACB30NM4K5		1	200B	4
		2	300B	1
		2	303C	2
		2	310C	2
BACB30NM4K7		1	7B	3
BACB30NM4K8		1	5D	3
BACB30VT5K		1	750A	6
BACB30VT6K6		1	695A	2
BACB30VU6K8		1	155	1
BACC10DK3		1	260	2
		1	261	1
		1	262	2
BACC30BL5		1	755	6

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACC30BL6		1	165	1
		1	705A	2
BACN10GH3A2		1	735	1
BACN10GH3A4		1	737	2
		1	739	2
BACN10JA3CD		1	740	2
BACN10JP3CCD		1	555	2
BACN10JP4A		1	610	1
		1	670	1
BACN10JP4BCD		1	730	2
BACN10TL3A10		1	710	2
BACN10TL3A6		1	715	2
BACN10YD4		1	242	2
		1	243	2
BACN10YF42		1	615	1
		1	675	1
BACN10YR3CD		1	45	2
		1	47	2
		1	48	2
		1	100	2
		1	265	4
		1	300	4
BACN10YR4CD		1	15	6
		1	220	2
		1	240	2
		1	265A	4
		1	645A	1
BACP18BC01C06P		2	515A	1
BACP30F4		1	650A	1
BACP30J4		1	600	1
		1	650	1
BACR15BA3D		1	617	4
		1	665	4
BACR15BA4AD		1	550	4
		1	655	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACR15BA4CD		1	605A	2
BACR15BB4AD		1	742A	8
BACR15BB4D		1	552	3
BACR15DR3		1	744A	8
BACR15DR4		1	744G	2
BACR15DR4P		1	741	4
		1	743	2
		1	743J	2
BACS12CK3-28		2	350A	1
BACS12CK3-5		2	375A	3
BACS12GU3K6		1	540	4
BACS12GU3K8		1	255	2
		1	256	1
		1	257	2
BACS12HL4A16		1	570C	4
BACS34A32A		2	505	1
BACW10BP5DP		1	195	2
BMP30F4		1	650A	1
BMP30J4		1	600	1
		1	650	1
BRC600-8G3		1	242	2
		1	243	2
BRF110C3D		1	740	2
BRF170C3D		1	740	2
BRM200A4		1	610	1
		1	670	1
CU09644003		2	520	1
		2	520A	1
CU09644005		2	520B	1
CWR76-32B		2	505	1
DW96801-32A		2	505	1
F51636-3		1	740	2
H52732-3CD		1	45	2
		1	47	2
		1	48	2

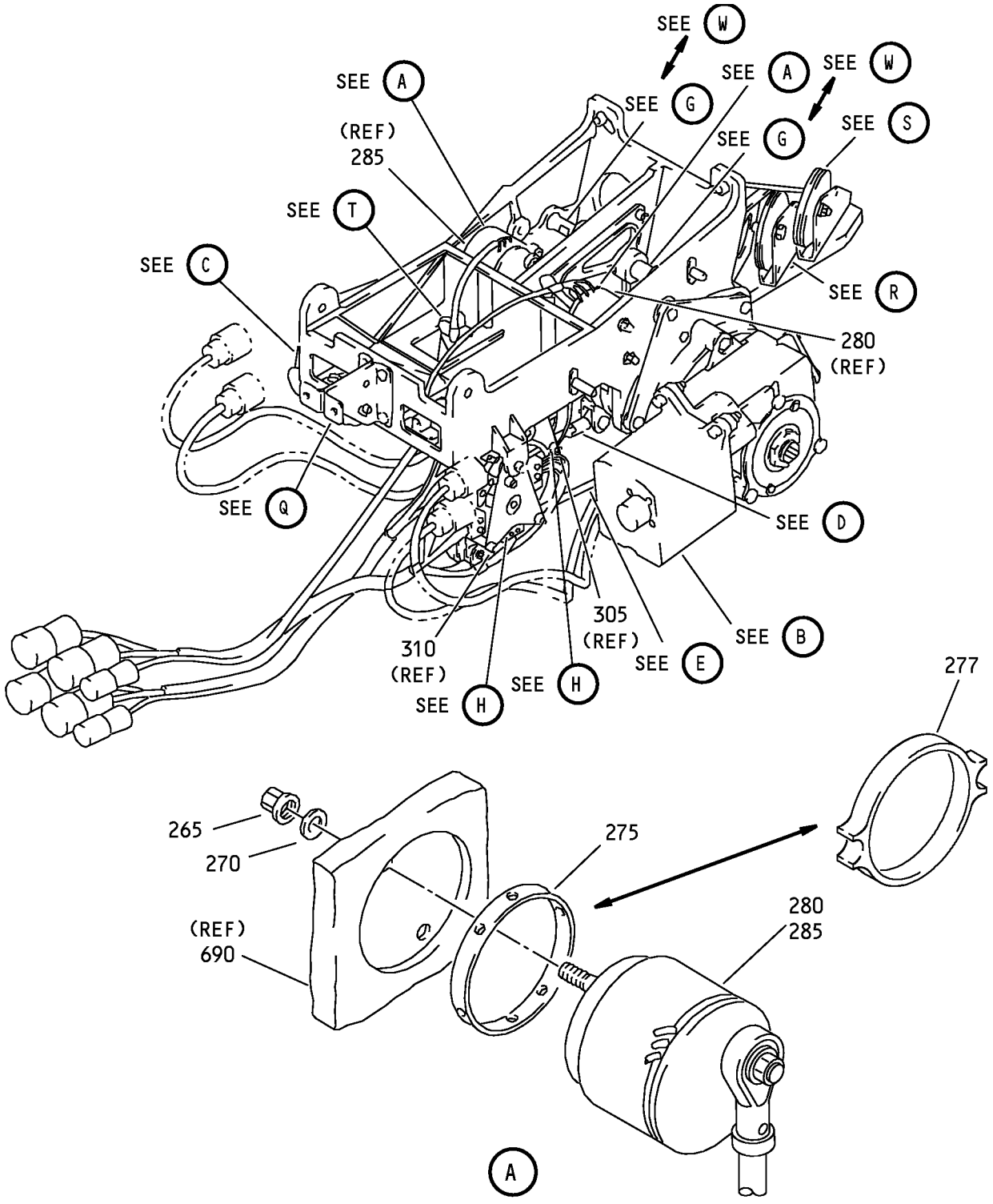
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	100	2
		1	265	4
		1	300	4
H52732-4CD		1	15	6
		1	220	2
		1	240	2
		1	265A	4
		1	645A	1
HST10AG6-6		1	695A	2
		1	695A	2
		1	695A	2
		1	695A	2
HST11AG6-8		1	155	1
		1	155	1
		1	155	1
		1	155	1
HST79-5		1	755	6
		1	755	6
		1	755	6
HST79-6		1	165	1
		1	165	1
		1	165	1
		1	705A	2
		1	705A	2
		1	705A	2
HST79CY5		1	755	6
HST79CY6		1	165	1
		1	705A	2
KBE3-103		1	110A	1
KBE3-61		1	125A	1
LLMB540		2	390	1
LLMB541		2	410	1
MB540-2TS		2	390	1
MB540DD		2	390	1
MB540DDFS428		2	390	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
MB540DDG20		2	390	1
MB540DDLY196		2	390	1
MB540DDNJC		2	390	1
MB540DDSD610		2	390	1
MB540TT		2	390	1
MB541-2TS		2	410	1
MB541DD		2	410	1
MB541DDFS428		2	410	1
MB541DDG20		2	410	1
MB541DDLY196		2	410	1
MB541DDNJC		2	410	1
MB541DDSD610		2	410	1
MB541TT		2	410	1
MF19058-4-2BAC		1	615	1
		1	675	1
MK1000-4BAC		1	610	1
		1	670	1
MS21042L4		1	595	1
		1	645	1
MS21209F1-10P		1	725	4
MS21209F1-15P		1	150	1
MS21209F1-25P		2	400	1
MS21209F4-15P		1	720	2
		2	325	3
		2	340	2
MS21209F5-15P		1	765	2
MS35649-204		1	115	1
MS35649-2252		1	70	1
MS35691-5		1	75	1
MT340E		2	390	1
MT341E		2	410	1
NAS1149C0563P		1	195A	2
NAS1149C0563R		1	195B	2
NAS1149D0332J		1	35B	2
		1	37	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	40A	2
		1	270A	4
		1	295	4
		1	545	4
		2	355	1
		2	380	3
NAS1149D0416J		1	640A	1
NAS1149D0432J		1	10A	6
		1	205	4
		1	215A	2
		1	230	4
		1	270B	4
		2	15	3
		2	30	3
		2	305	3
		2	315	2
NAS1351N4-16P		1	570B	4
NAS1398D4A		1	741A	4
		1	743A	2
		1	743K	2
NAS1399D4A		1	744H	2
NAS42DD4-32		1	607	2
		1	660	2
NAS42DD4-32FC		1	660A	2
NAS603-28P		2	350	1
NAS603-5P		2	375	3
NAS620A416L		1	575A	4
NAS620C10		1	95	4
NAS6604-11		1	225	2
NAS6604-14		2	25	1
NAS6604-2		2	10A	3
		2	20A	2
NAS6604-5		1	200	4
		2	300	1
		2	303A	2

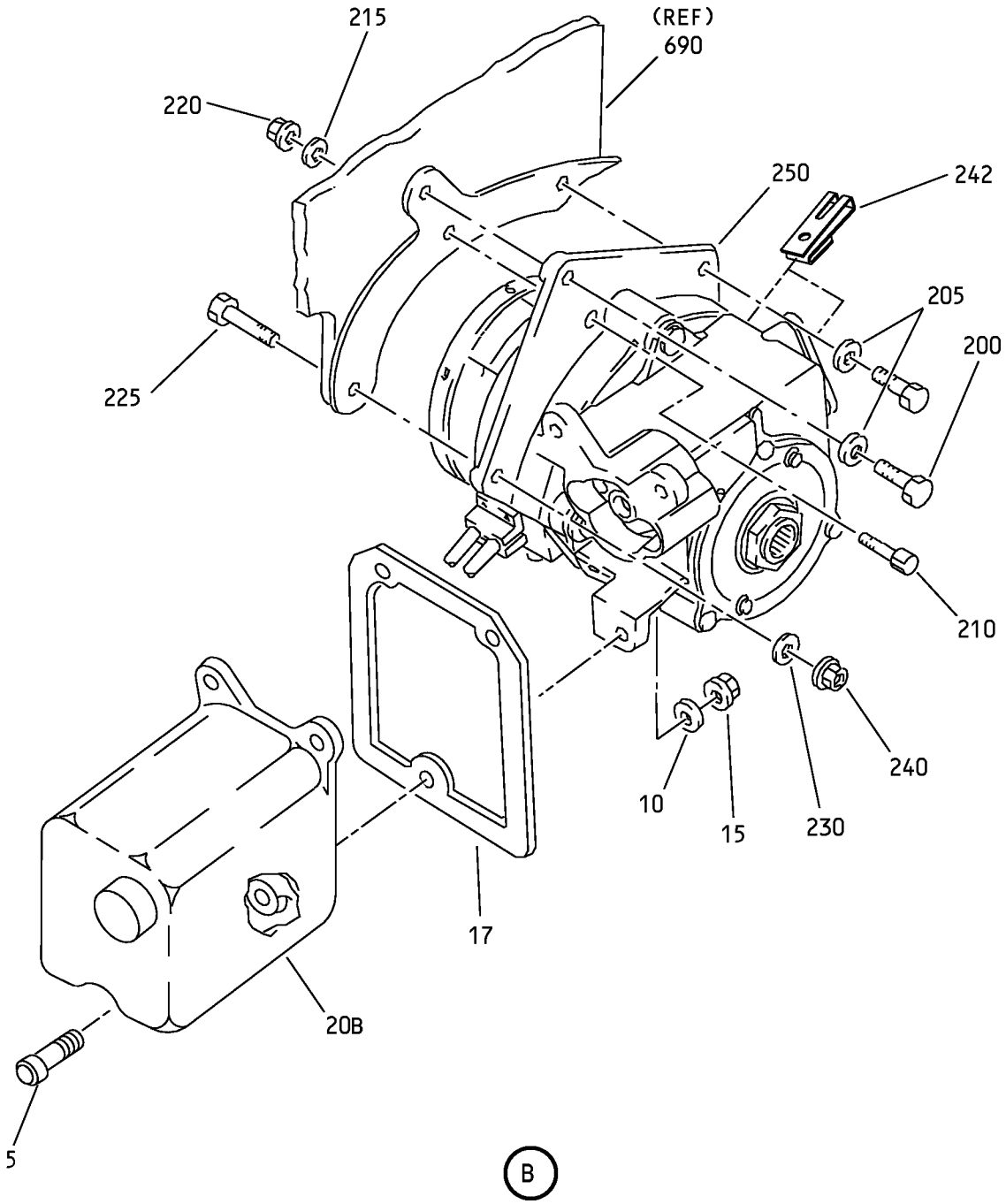
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
NAS6604-7		1	7	3
		2	303	2
		2	310A	2
NAS6604-8		1	5B	3
		1	585	1
		1	635	1
NAS671-10		1	120	1
NS103197-048		1	610	1
		1	670	1
NS202484-02		1	740	2
PACMKP05JAA3908		1	197B	4
PACMKP05JAFS428		1	197B	4
PACMKP5AA3908		1	145	1
		1	197	4
PACMKP5AFS428		1	145	1
		1	197	4
PLH53CD		1	45	2
		1	47	2
		1	48	2
		1	100	2
		1	265	4
		1	300	4
PLH54CD		1	15	6
		1	220	2
		1	240	2
		1	265A	4
		1	645A	1
R30F4		1	600	1
		1	650	1
		1	650A	1
RMA9201M4		1	610	1
		1	670	1
RMS34A32A		2	505	1
S254A114-1		1	20B	2
S254N101-4		2	520	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	520A	1
S254N101-6		2	520B	1
SF3-4A1-501		1	60	1
SF3-4A1-502		1	65	1
SL7165C14C		2	365A	1
SMS20219-4		1	650A	1
SSMB540DDSD629		2	390A	1
SSMB541DDSD629		2	410B	1
SSMKP05AP		1	197B	4
SSMKP05JAP		1	197B	4
SSMKP05JASD705		1	197B	4
SSMKP5AP		1	145	1
		1	197	4
SSMKP5ASD524		1	197B	4
SSMKP5ASD705		1	145	1
		1	197	4
T8076S428		1	610	1
		1	670	1
TF005-32A		2	505	1
VN202A1-048		1	610	1
		1	670	1
WS1-4A6		1	715	2
WS14A10		1	710	2



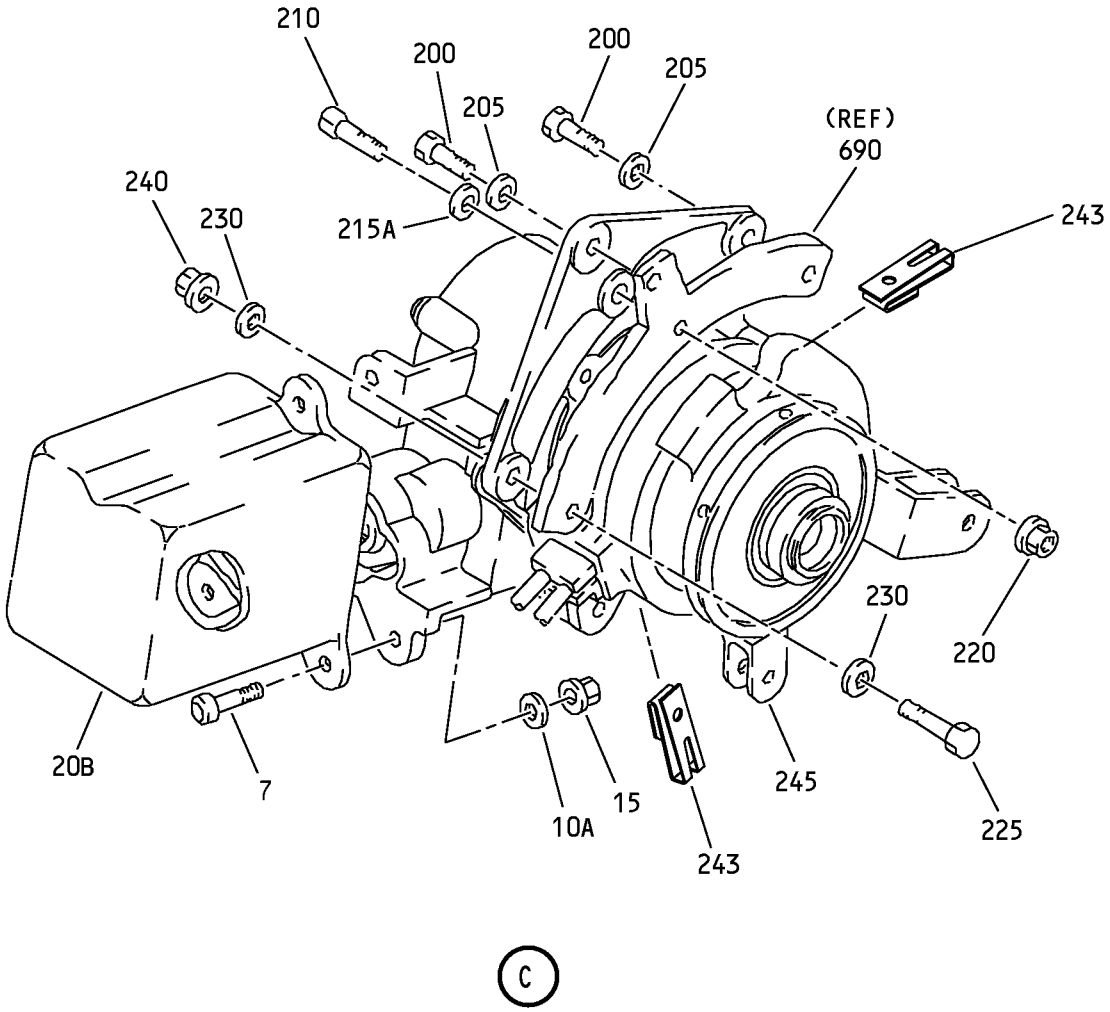
G02547 S0004988487_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 1 of 12)



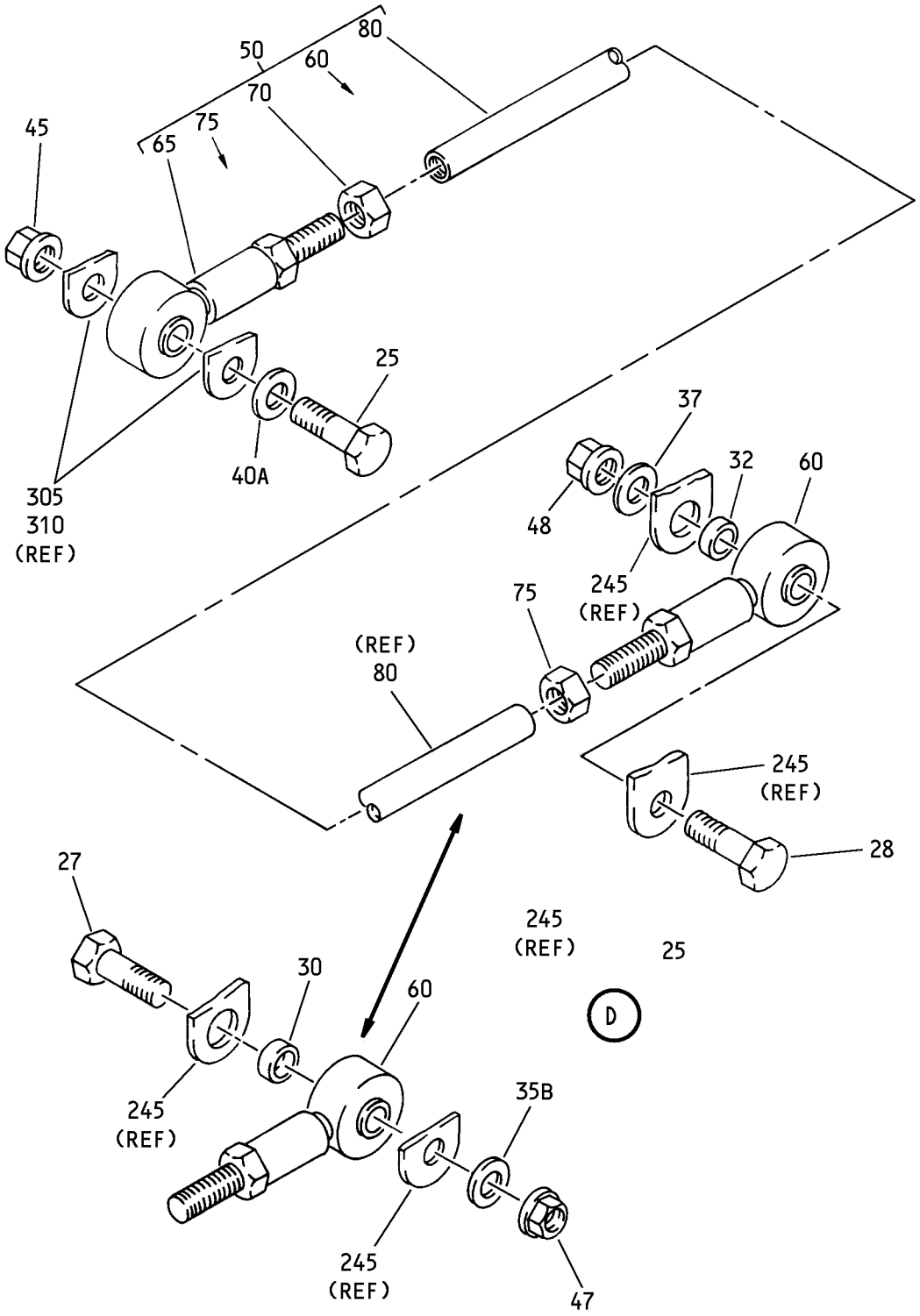
G02557 S0004988488_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 2 of 12)



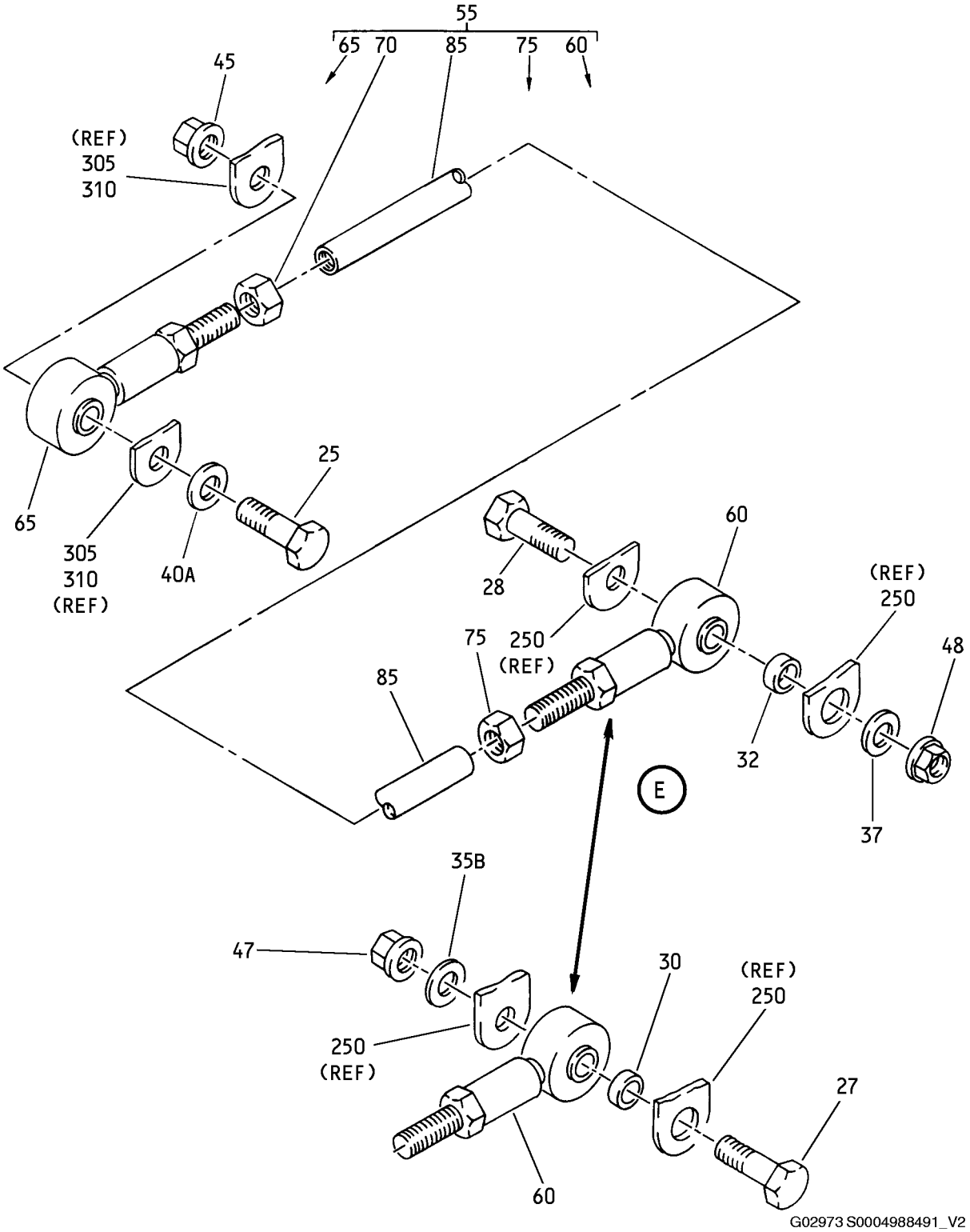
G02567 S0004988489_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 3 of 12)

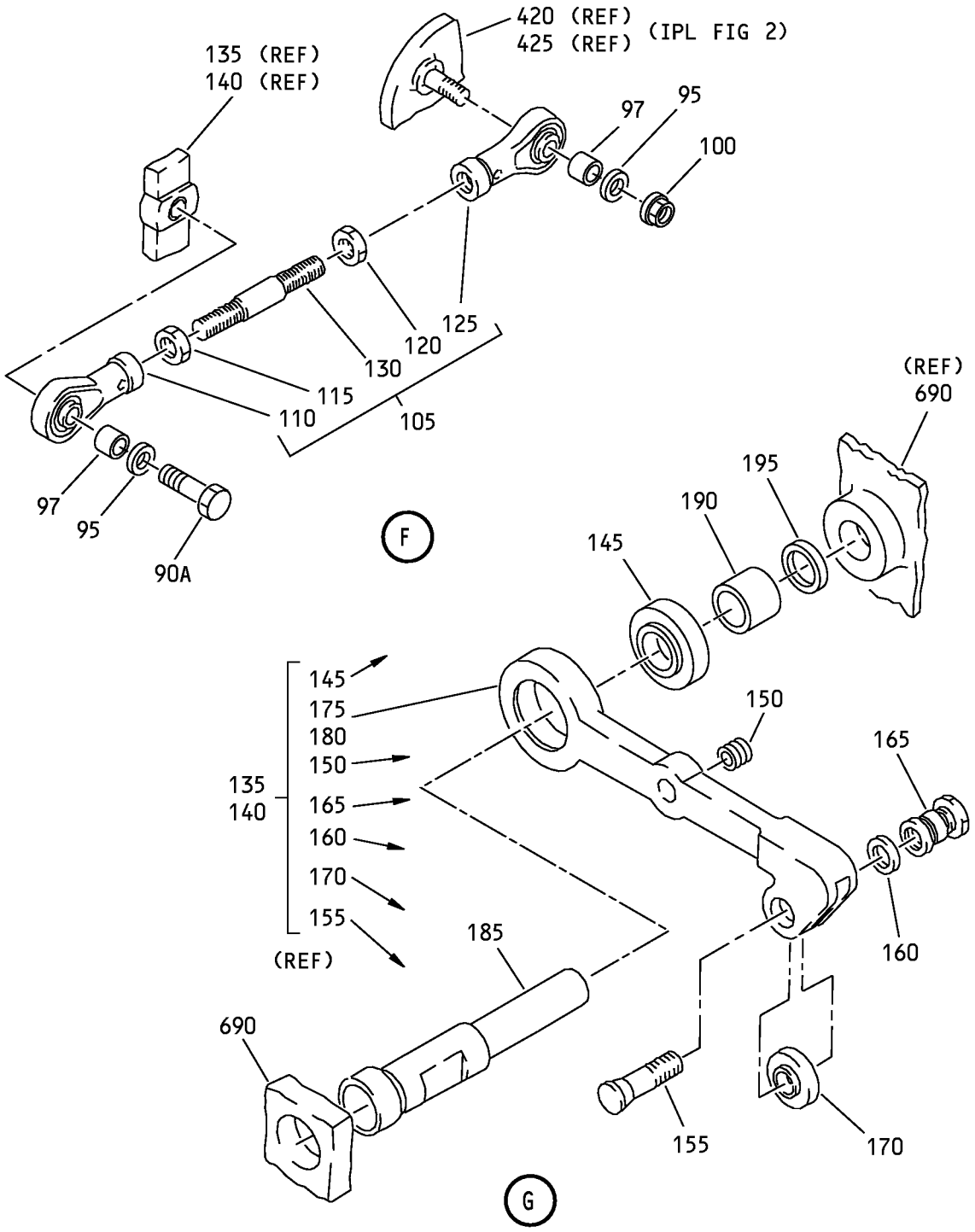


G02579 S0004988490_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 4 of 12)

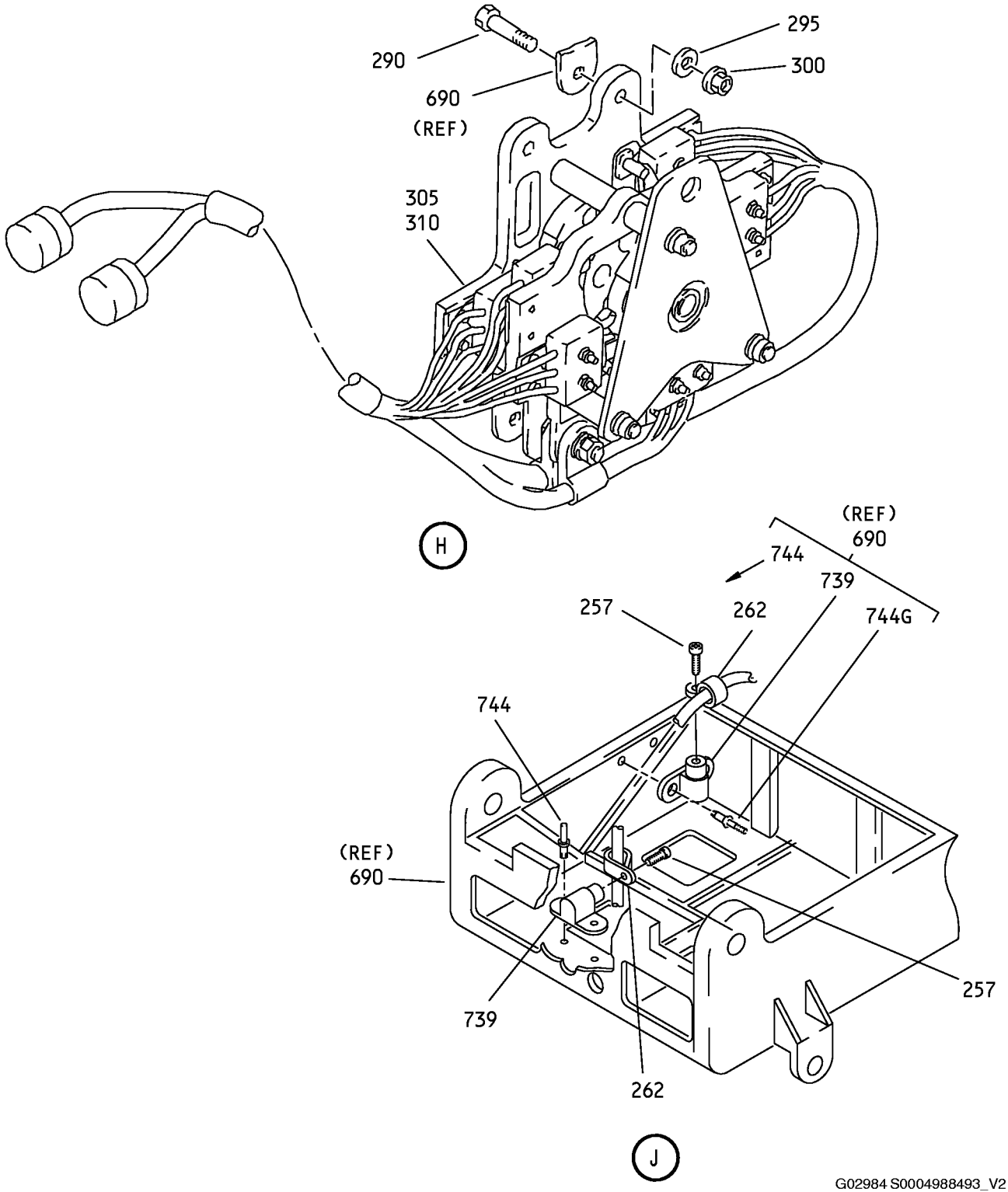


Autothrottle Assembly
IPL Figure 1 (Sheet 5 of 12)

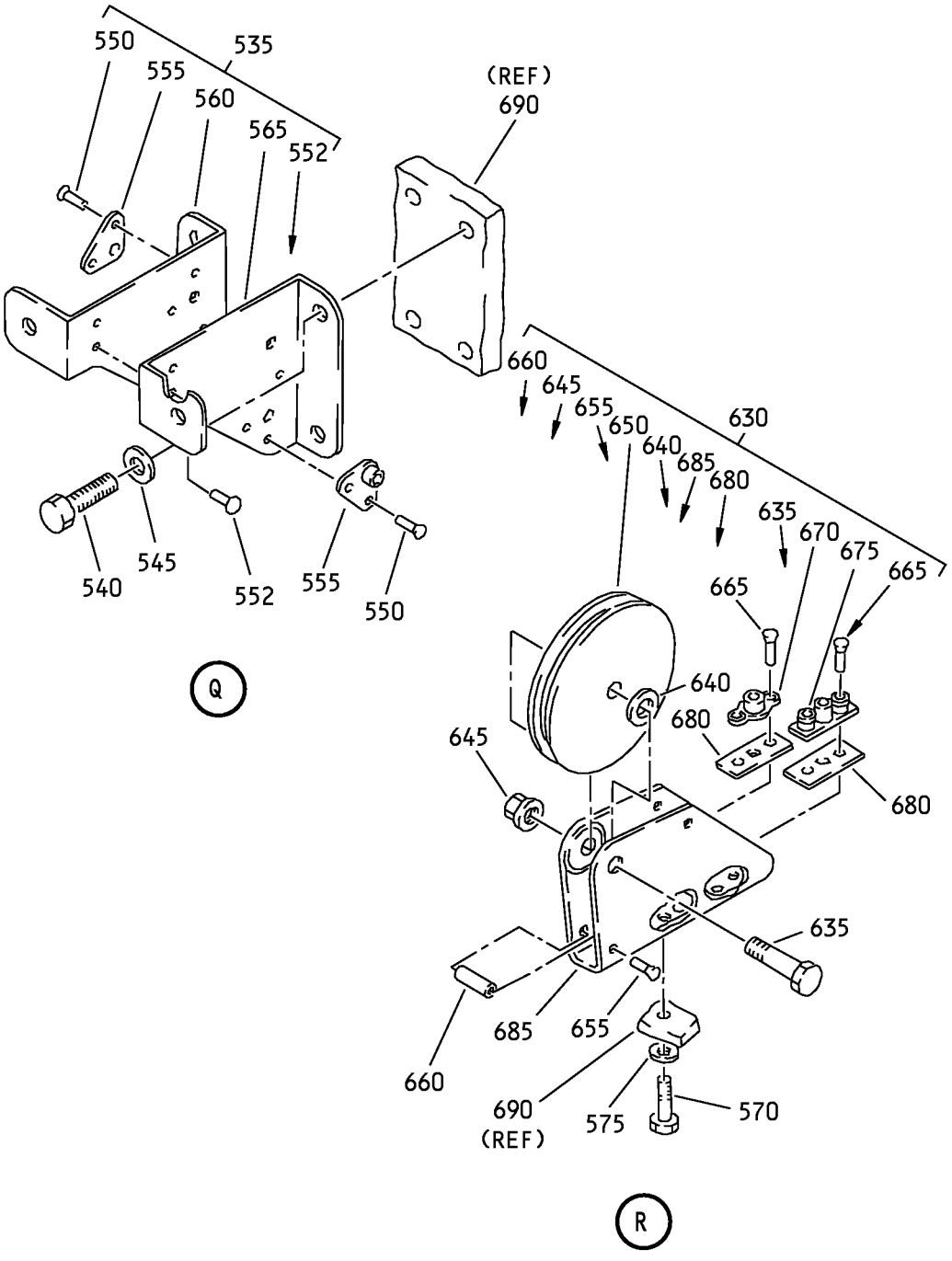


G02981 S0004988492_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 6 of 12)

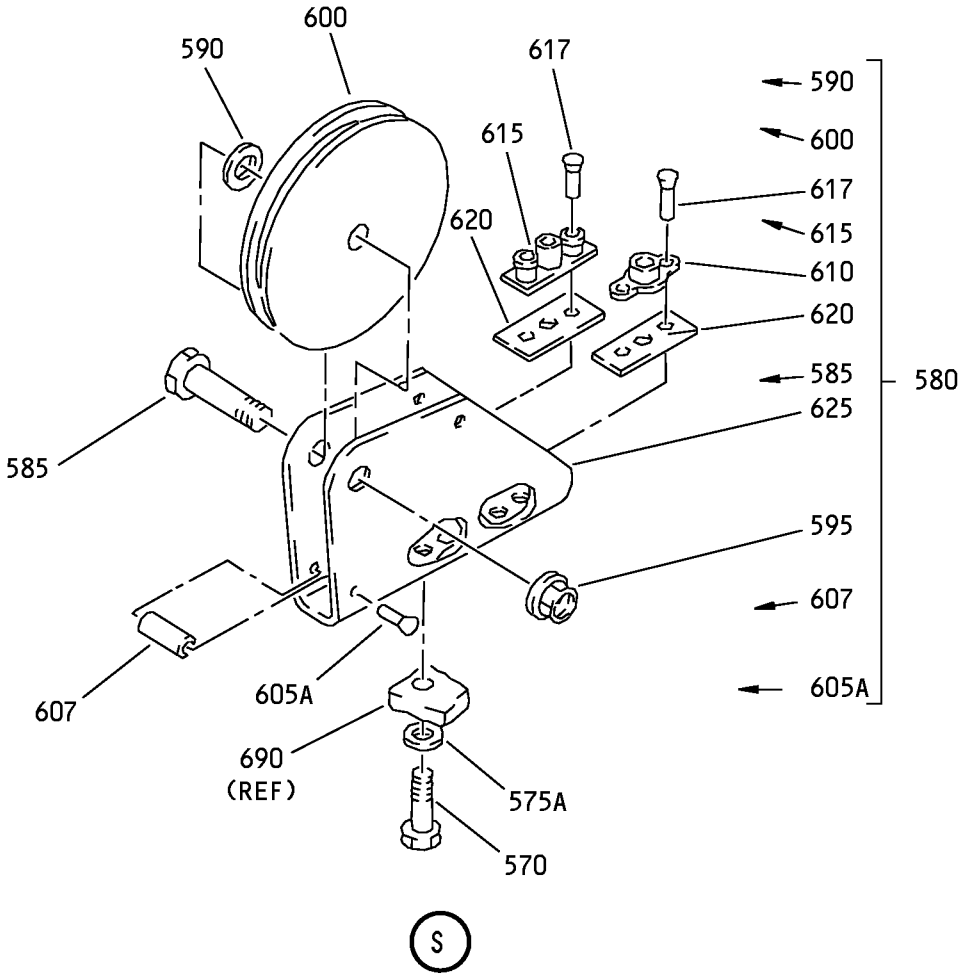


Autothrottle Assembly
IPL Figure 1 (Sheet 7 of 12)



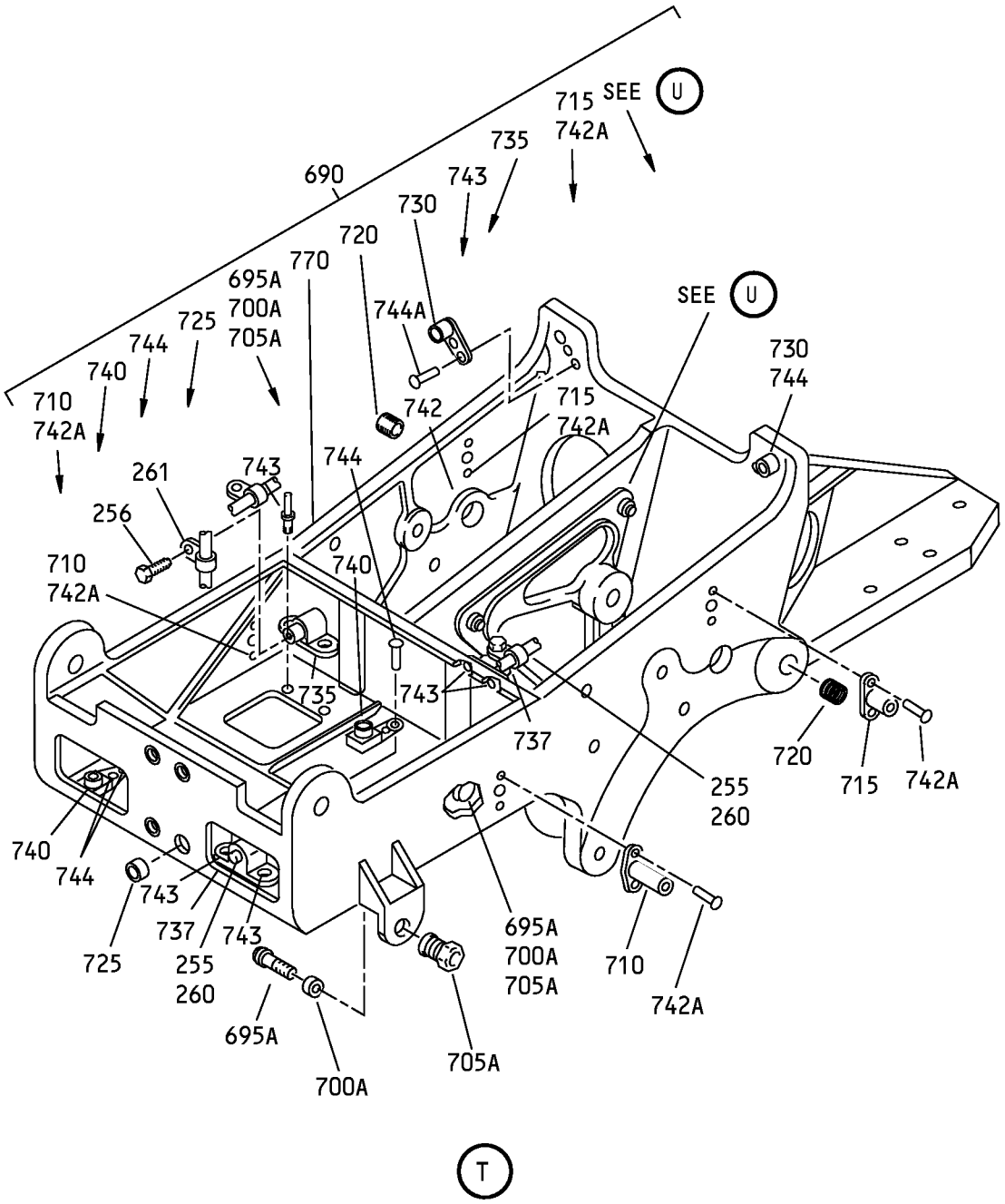
G02998 S0004988494_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 8 of 12)



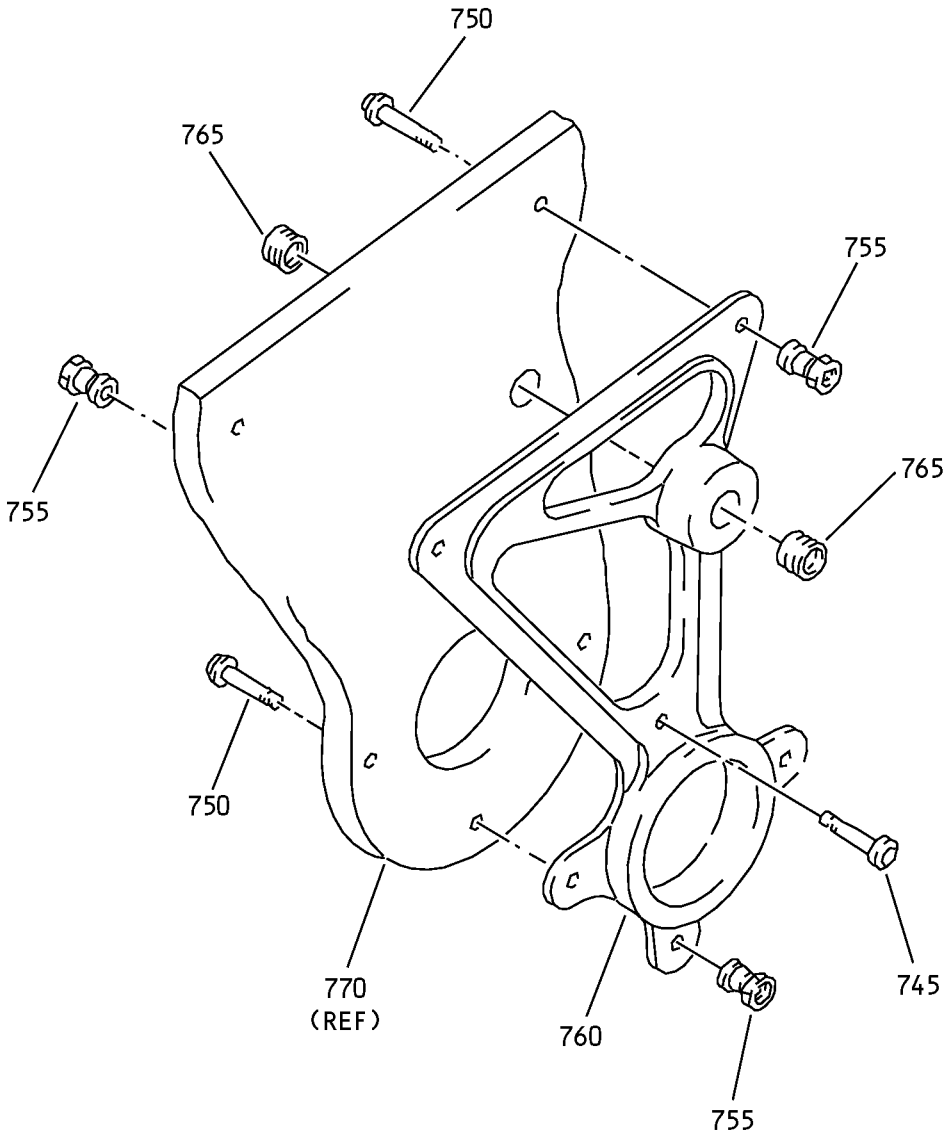
G03007 S0004988495_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 9 of 12)

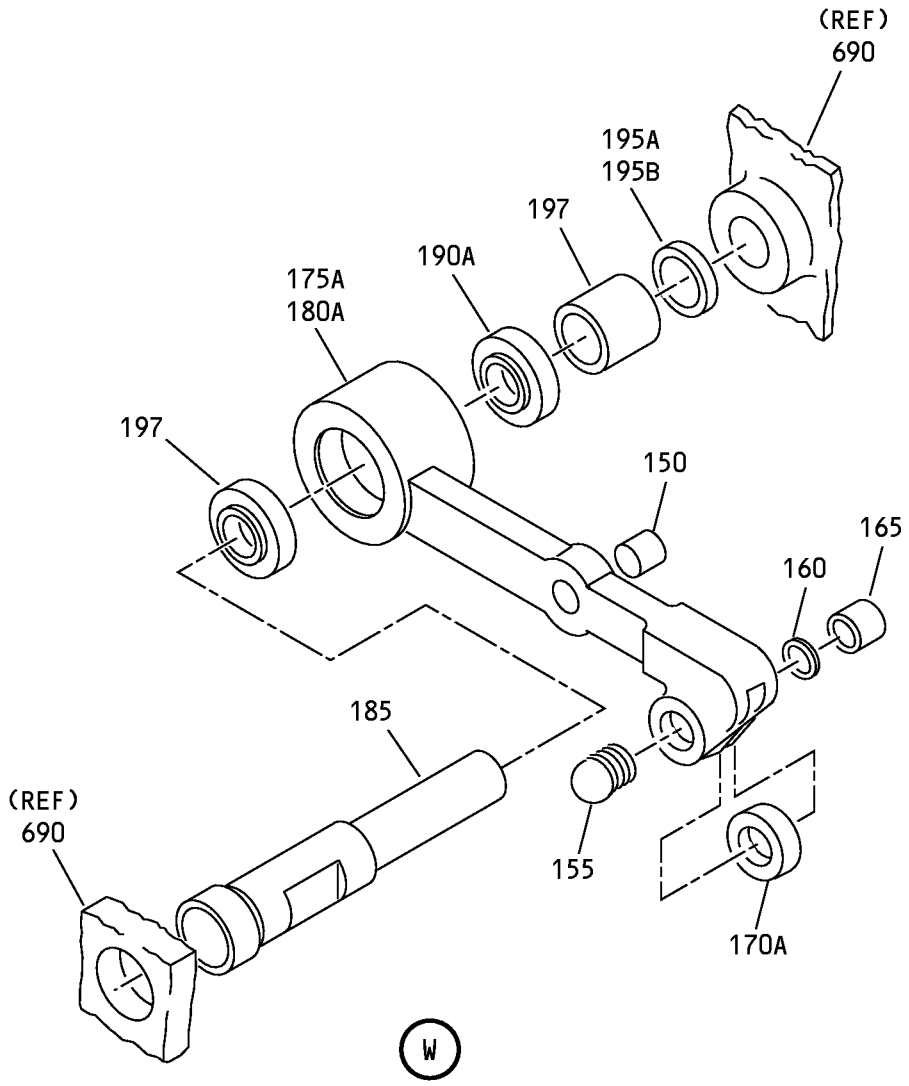


G03029 S0004988496_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 10 of 12)



Autothrottle Assembly
IPL Figure 1 (Sheet 11 of 12)



D47248 S0004988498_V2

Autothrottle Assembly
IPL Figure 1 (Sheet 12 of 12)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	254A1110-1		AUTOTHROTTLE ASSY	A	RF
–1B	254A1110-2		AUTOTHROTTLE ASSY	B	RF
–1C	254A1110-3		AUTOTHROTTLE ASSY	C	RF
–1D	254A1110-4		AUTOTHROTTLE ASSY	D	RF
–1E	254A1110-5		AUTOTHROTTLE ASSY	E	RF
–1F	254A1110-6		AUTOTHROTTLE ASSY	F	RF
–1G	254A1110-7		AUTOTHROTTLE ASSY	G	RF
–1H	254A1110-8		AUTOTHROTTLE ASSY	H	RF
5	NAS1351N4-16P		DELETED		
–5A	NAS6604-7		DELETED		
–5B	NAS6604-8		. BOLT	A-D	3
–5C	BACB30LM4K8		. BOLT (OPT ITEM 5D)	E-H	3
–5D	BACB30NM4K8		. BOLT (OPT ITEM 5C)	E-H	3
7	NAS6604-7		. BOLT	A-D	3
–7A	BACB30LM4K7		. BOLT (OPT ITEM 7B)	E-H	3
–7B	BACB30NM4K7		. BOLT (OPT ITEM 7A)	E-H	3
10	NAS1149D0416J		DELETED		
–10A	NAS1149D0432J		. WASHER		6
15	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		6
17	254A1153-1		. GUARD		1
20	S254A114-1		DELETED		
–20A	2P305RAA1		DELETED		
–20B	305RAA1		. SERVO (VK5294) (SPEC S254A114-1)		2
25	BACB30NM3K10		. BOLT		2
27	BACB30NM3K10		. BOLT	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–					
28	BACB30NM3K10		. BOLT	C-H	2
30	BACB28Y3C014		. BEARING	A,B	2
32	BACB28Y3C014		. BEARING	C-H	2
35	NAS1149D0363JK		DELETED		
–35A	NAS1149D0363J		DELETED		
–35B	NAS1149D0332J		. WASHER	A,B	2
37	NAS1149D0332J		. WASHER	C-H	2
40	NAS1149D0316J		DELETED		
–40A	NAS1149D0332J		. WASHER		2
45	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))		2
47	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A,B	2
48	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	C-H	2
50	254A1114-1		. ROD ASSY		1
55	254A1114-3		. ROD ASSY		1
60	SF3-4A1-501		. . BEARING-ROD END (V77896)		1
65	SF3-4A1-502		. . BEARING-ROD END (V77896)		1
70	MS35649-2252		. . NUT		1
75	MS35691-5		. . NUT		1
80	254A1114-2		. . ROD (USED ON ITEM 50)		1
85	254A1114-4		. . ROD (USED ON ITEM 55)		1
90	BACB30NM3K4		. BOLT	A,B	2
–90A	BACB30NM3K5		. BOLT	C-H	2
95	NAS620C10		. WASHER		4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
97	BACB28Y3C010		. BUSHING	C-H	4
100	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))		2
105	254N1016-3		. ROD ASSY	A, B	2
–105A	254N1016-3		. ROD ASSY (OPT ITEM 105B)	C-F	2
–105B	254N1016-5		. ROD ASSY (OPT ITEM 105A)	C-F	2
–105C	254N1016-5		. ROD ASSY	G, H	2
110	AW3-7		. . BEARING-ROD END (V56644) (OPT ITEM 110A)		1
–110A	KBE3-103		. . BEARING-ROD END (V97613) (OPT ITEM 110)		1
115	MS35649-204		. . NUT		1
120	NAS671-10		. . NUT		1
125	AW3-5		. . BEARING-ROD END (V56644) (OPT ITEM 125A)		1
–125A	KBE3-61		. . BEARING-ROD END (V97613) (OPT ITEM 125)		1
130	254N1016-4		. . ROD (USED ON ITEMS 105, 105A)		1
–130A	254N1016-6		. . ROD (USED ON ITEMS 105B, 105C)		1
135	254A1162-1		. LATCH ASSY	A, B	1
137	254A1162-5		. LATCH ASSY	C-H	1
140	254A1162-2		. LATCH ASSY	A, B	1
142	254A1162-6		. LATCH ASSY	C-H	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–					
145	SSMKP5ASD705		. . BEARING (V83086) (SPEC BACB10FS5) (OPT ACMKP5AP510LY19 (V40920)) (OPT PACMKP5AA3908 (V21335)) (OPT PACMKP5AFS428 (V21335)) (OPT SSMKP5AP (V21760)) (USED ON ITEMS 135, 140)	A, B	1
150	MS21209F1-15P		. . INSERT		1
155	HST11AG6-8		. . BOLT (V06725) (SPEC BACB30VU6K8) (OPT HST11AG6-8 (V73197)) (OPT HST11AG6-8 (V56878)) (OPT HST11AG6-8 (V0PTK6))		1
160	BACB28Y3C014		. . BEARING		1
165	HST79CY6		. . COLLAR (V73197) (SPEC BACC30BL6) (OPT HST79-6 (V56878)) (OPT HST79-6 (V92215)) (OPT HST79-6 (V5M902))		1
170	BACB10FT3LR		. . BEARING (USED ON ITEMS 135, 140)		1
172	BACB10FT03LRJP		. BEARING (USED ON ITEMS 137, 142)		1
175	254A1162-3		. . LATCH (USED ON ITEM 135)		1
177	254A1162-7		. . LATCH (USED ON ITEM 137)		1
180	254A1162-4		. . LATCH (USED ON ITEM 140)		1
182	254A1162-8		. . LATCH (USED ON ITEM 142)		1
185	254A1165-1		. SHAFT (OPT ITEM 185A)		2
–185A	254A1165-2		. SHAFT (OPT ITEM 185)		2
190	BACB28Z5-095		. BUSHING	A, B	2
–190A	BACB28AK05-065		. BUSHING	C-H	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–					
195	BACW10BP5DP		. WASHER	A, B	2
–195A	NAS1149C0563P		. WASHER	C, D	2
–195B	NAS1149C0563R		. WASHER	E-H	2
197	SSMKP5ASD705		. BEARING (V83086) (SPEC BACB10FS5) (OPT ACMKP5AP510LY19 (V40920)) (OPT PACMKP5AA3908 (V21335)) (OPT PACMKP5AFS428 (V21335)) (OPT SSMKP5AP (V21760))	C	4
–197A	SSMKP5AP		DELETED		
–197B	SSMKP5ASD524		. BEARING (V50294) (SPEC BACB10FS05J) (OPT PACMKP05JAA3908 (V21335)) (OPT SSMKP05JASD705 (V83086)) (OPT SSMKP05JAP (V21760)) (OPT SSMKP05AP (V21760)) (OPT PACMKP05JAFS428 (V21335))	D-H	4
200	NAS6604-5		. BOLT	A-D	4
–200A	BACB30LM4K5		. BOLT (OPT ITEM 200B)	E-H	4
–200B	BACB30NM4K5		. BOLT (OPT ITEM 200A)	E-H	4
205	NAS1149D0432J		. WASHER		4
210	254A1112-1		. PIN		2
215	NAS1149D0436J		DELETED		
215A	NAS1149D0432J		. WASHER		2
220	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		2
225	NAS6604-11		. BOLT	A-D	2
–225A	BACB30LM4K11		. BOLT (OPT ITEM 225B)	E-H	2
–225B	BACB30NM4K11		. BOLT (OPT ITEM 225A)	E-H	2
230	NAS1149D0432J		. WASHER		4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
240	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		2
242	BRC600-8G3		. NUT (V52828) (SPEC BACN10YD4) (OPT 130123 (V60119))		2
243	BRC600-8G3		. NUT (V52828) (SPEC BACN10YD4) (OPT 130123 (V60119))	C-H	2
245	254A1140-1		. MECHANISM ASSY-L (FOR DETAILS SEE FIG. 2)	A	1
–245A	254A1140-3		. MECHANISM ASSY-L (FOR DETAILS SEE FIG. 2)	B	1
–245B	254A1140-5		. MECHANISM ASSY-L (FOR DETAILS SEE FIG. 2)	C-H	1
250	254A1140-2		. MECHANISM ASSY-R (FOR DETAILS SEE FIG. 2)	A	1
–250A	254A1140-4		. MECHANISM ASSY-R (FOR DETAILS SEE FIG. 2)	B	1
–250B	254A1140-6		. MECHANISM ASSY-R (FOR DETAILS SEE FIG. 2)	C-H	1
255	BACS12GU3K8		. SCREW		2
256	BACS12GU3K8		. SCREW	A-D	1
257	BACS12GU3K8		. SCREW	E-H	2
260	BACC10DK3		. CLAMP		2
261	BACC10DK3		. CLAMP	A-D	1
262	BACC10DK3		. CLAMP	E-H	2
265	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A,B	4
–265A	PLH54CD		. NUT (V62554) (SPEC BACN10YR4CD) (OPT H52732-4CD (V15653))	C-H	4
270	NAS1149D0332J		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–270A	NAS1149D0332J		. WASHER	A, B	4
–270B	NAS1149D0432J		. WASHER	C-H	4
275	254A1163-1		. SPACER	A, B	2
–275A	254A1163–2		DELETED		
277	254A1163-2		. SPACER	C-H	2
280	196393-001		. SOLENOID-ROTARY (V81840)	A, B	1
–280A	196298-001		. SOLENOID-ROTARY (V81840)	C-H	1
285	196394-001		. SOLENOID-ROTARY (V81840)	A, B	1
–285A	196299-001		. SOLENOID-ROTARY (V81840)	C-H	1
290	BACB30NM3K5		. BOLT		4
–290A	BACB30NM3K6		DELETED		
295	NAS1149D0332J		. WASHER		4
300	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))		4
305	254A1150-1		. SWITCHPACK ASSY (REF CMM 22-32-34)	A, B	1
–305A	254A1150-1		. SWITCHPACK ASSY (OPT ITEM 305B, 305C) (REF CMM 22-32-34)	C	1
–305B	254A1150-7		. SWITCHPACK ASSY (OPT ITEM 305A, 305C) (FOR SPARES PROCURE 254A1150-9) (REF CMM 22-32-34)	C	1
–305C	254A1150-9		. SWITCHPACK ASSY (OPT ITEM 305A, 305B) (REF CMM 22-32-34)	C	1
–305D	254A1150-9		. SWITCHPACK ASSY (REF CMM 22-32-34)	D-F	1
–305E	254A1150-11		. SWITCHPACK ASSY (REF CMM 22-32-34)	G, H	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–					
310	254A1150-2		. SWITCHPACK ASSY (REF CMM 22-32-34)	A, B	1
–310A	254A1150-2		. SWITCHPACK ASSY (OPT ITEM 310B, 310C) (REF CMM 22-32-34)	C	1
–310B	254A1150-8		. SWITCHPACK ASSY (OPT ITEM 310A, 310C) (FOR SPARES PROCURE 254A1150-10) (REF CMM 22-32-34)	C	1
–310C	254A1150-10		. SWITCHPACK ASSY (OPT ITEM 310A, 310B) (REF CMM 22-32-34)	C	1
–310D	254A1150-10		. SWITCHPACK ASSY (REF CMM 22-32-34)	D-F	1
–310E	254A1150-12		. SWITCHPACK ASSY (REF CMM 22-32-34)	G, H	1
315	NAS1352C02-3P		DELETED		
320	NAS620-2		DELETED		
325	254A1150-3		DELETED		
–325A	254A1150-5		DELETED		
330	BACC45FT16C24P		DELETED		
335	39SE8		DELETED		
340	39SE9		DELETED		
345	254A1150-4		DELETED		
–345A	254A1150-6		DELETED		
350	BACC45FT14C15P		DELETED		
355	39SE8		DELETED		
360	39SE9		DELETED		
365	NAS623-3-10		DELETED		
370	NAS1149D0316J		DELETED		
375	H52732-3CD		DELETED		
380	254A1154-1		DELETED		
385	HST10AG6-34		DELETED		
390	NAS43DD3-64FC		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
395	NAS43DD3-40FC		DELETED		
400	HST79-6		DELETED		
405	254A1151-1		DELETED		
410	BACB10FS5		DELETED		
415	MS21209C0210P		DELETED		
420	254A1151-4		DELETED		
425	254A1151-2		DELETED		
430	MS21209C0210P		DELETED		
435	254A1151-5		DELETED		
440	254A1151-3		DELETED		
445	BACB10FS5		DELETED		
450	254A1151-6		DELETED		
455	NAS1801-3-11		DELETED		
460	NAS620-10L		DELETED		
465	H52732-3CD		DELETED		
470	BACC10DK4		DELETED		
475	BACC10DK5		DELETED		
480	254A1152-1		DELETED		
485	BAC27DCT515		DELETED		
–485A	BAC27DCT516		DELETED		
490	BAC27TCT0012		DELETED		
495	BAC27TCT0013		DELETED		
500	BAC27TCT0014		DELETED		
505	BAC27TCT0015		DELETED		
510	BAC27TCT0016		DELETED		
515	BAC27TCT0017		DELETED		
520	BAC27TCT0031		DELETED		
525	BAC27TCT0032		DELETED		
530	BAC27TCT0033		DELETED		
535	254A1115-1		. BRACKET ASSY		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–					
			ATTACHING PARTS		
540	BACS12GU3K6		. SCREW		4
545	NAS1149D0332J		. WASHER		4
			- - - - - - - * - - - - - - -		
550	BACR15BA4AD		. . RIVET (SIZE DETERMINED ON INST)		4
552	BACR15BB4D		. . RIVET (SIZE DETERMINED ON INST)		3
555	BACN10JP3CCD		. . NUTPLATE		2
560	254A1116-1		. . BRACKET		1
565	254A1116-2		. . BRACKET		1
570	NAS6604H8		DELETED		
570A	NAS1351N4-8P		DELETED		
570B	NAS1351N4-16P		. SCREW	A-D	4
–570C	BACS12HL4A16		. SCREW	E-H	4
575	NAS1149D0416J		DELETED		
575A	NAS620A416L		. WASHER		4
580	69-37978-6		. BRACKET ASSY		1
585	NAS6604-8		. . BOLT		1
590	AN960KD416L		. . WASHER		1
595	MS21042L4		. . NUT		1
600	BMP30J4		. . PULLEY (V22277) (SPEC BACP30J4) (OPT R30F4 (V25337))		1
605	BACR15DM4		DELETED		
605A	BACR15BA4CD		. . RIVET (SIZE DETERMINED ON INST)		2
607	NAS42DD4-32		. . SPACER		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–					
610	BRM200A4		. . NUTPLATE (V52828) (SPEC BACN10JP4A) (OPT MK1000-4BAC (V15653)) (OPT NS103197-048 (V80539)) (OPT RMA9201M4 (V72962)) (OPT T8076S428 (V11815)) (OPT VN202A1-048 (V92215))		1
615	MF19058-4-2BAC		. . NUTPLATE (V15653) (SPEC BACN10YF42)		1
617	BACR15BA3D		. . RIVET (SIZE DETERMINED ON INST)		4
620	50-3361-4021		. . FILLER		2
625	69-37978-7		. . BRACKET		1
630	69-37979-6		. BRACKET ASSY	A-G	1
630A	69-37979-8		. BRACKET ASSY	H	1
635	NAS6604-8		. . BOLT	A-G	1
–635A	BACB30LM4-8		. . BOLT	H	1
640	AN960KD416L		. . WASHER	A-G	1
–640A	NAS1149D0416J		. . WASHER	H	1
645	MS21042L4		. . NUT	A-G	1
–645A	PLH54CD		. . NUT (V62554) (SPEC BACN10YR4CD) (OPT H52732-4CD (V15653))	H	1
650	BMP30J4		. . PULLEY (V22277) (SPEC BACP30J4) (OPT R30F4 (V25337))	A-G	1
–650A	APM219-4		. . PULLEY (V29965) (SPEC BACP30F4) (OPT R30F4 (V25337)) (OPT BMP30F4 (V22277)) (OPT SMS20219-4 (V29965))	H	1
655	BACR15BA4AD		. . RIVET (SIZE DETERMINED ON INST)		2
660	NAS42DD4-32		. . SPACER	A-G	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–					
–660A	NAS42DD4-32FC		. . SPACER	H	2
665	BACR15BA3D		. . RIVET (SIZE DETERMINED ON INST)		4
670	BRM200A4		. . NUTPLATE (V52828) (SPEC BACN10JP4A) (OPT MK1000-4BAC (V15653)) (OPT NS103197-048 (V80539)) (OPT RMA9201M4 (V72962)) (OPT T8076S428 (V11815)) (OPT VN202A1-048 (V92215))		1
675	MF19058-4-2BAC		. . NUTPLATE (V15653) (SPEC BACN10YF42)		1
680	50-3361-4021		. . FILLER		2
685	69-37979-7		. . BRACKET	A-G	1
–685A	69-37979-9		. . BRACKET	H	1
690	254A1121-1		. FRAME ASSY	A, B	1
–690A	254A1121-4		. FRAME ASSY	C, D	1
–690B	254A1121-6		. FRAME ASSY	E-H	1
695	BACB30VT3K3		DELETED		
695A	HST10AG6-6		. . BOLT (V0PTK6) (SPEC BACB30VT6K6) (OPT HST10AG6-6 (V06725)) (OPT HST10AG6-6 (V56878)) (OPT HST10AG6-6 (V73197))		2
700	BACB28Y3D022		DELETED		
700A	BACB28Y3C022		. . BUSHING		2
705	BACB30BL6		DELETED		
705A	HST79CY6		. . COLLAR (V73197) (SPEC BACC30BL6) (OPT HST79-6 (V56878)) (OPT HST79-6 (V92215)) (OPT HST79-6 (V5M902))		2
710	WS14A10		. . NUTPLATE (V04169) (SPEC BACN10TL3A10)		2

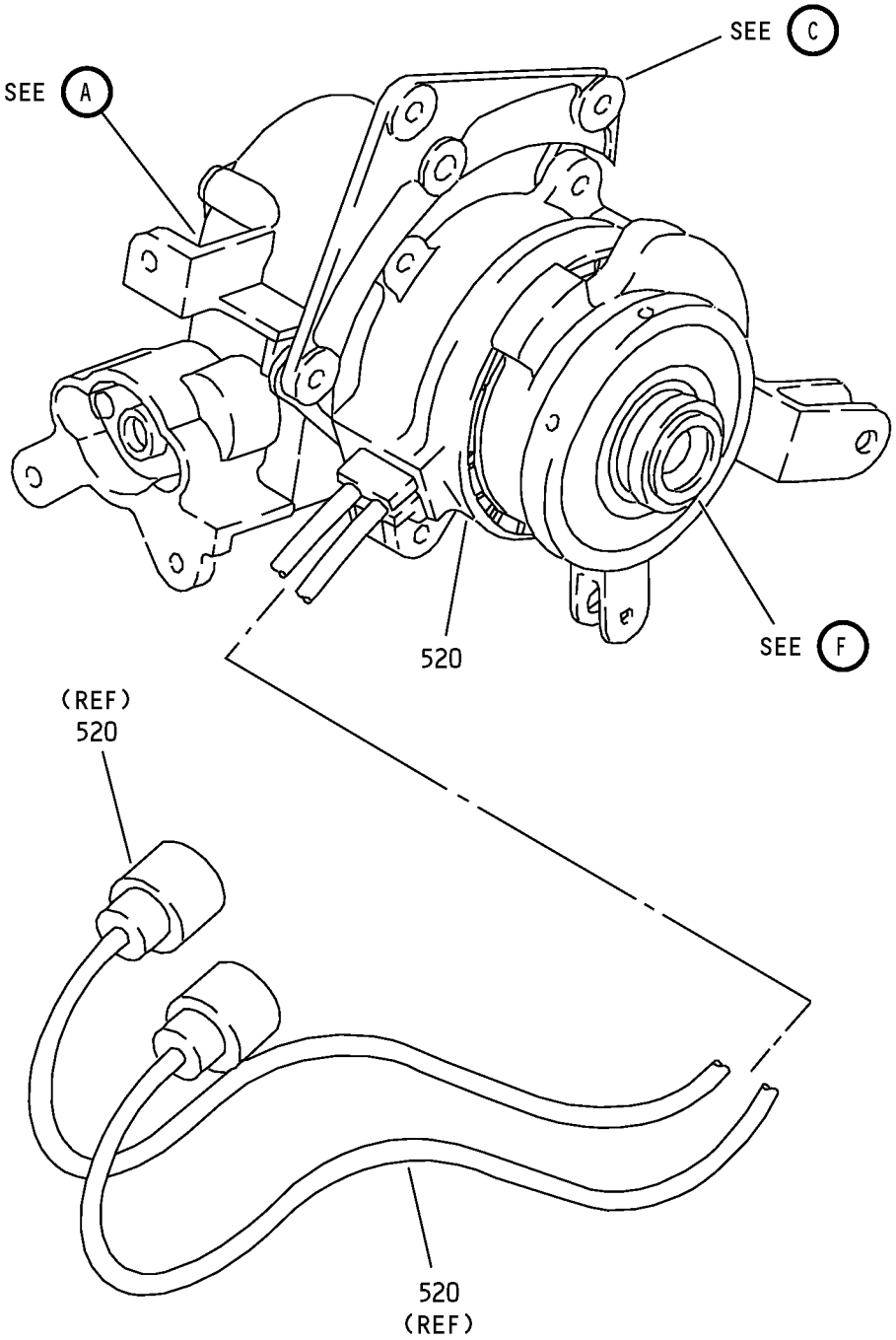
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
715	WS1-4A6		. . NUTPLATE (V04169) (SPEC BACN10TL3A6)		2
720	MS21209F4-15P		. . INSERT		2
725	MS21209F1-10P		. . INSERT		4
730	BACN10JP4BCD		. . NUTPLATE		2
735	BACN10GH3A2		. . NUT	A-D	1
737	BACN10GH3A4		. . NUTPLATE		2
739	BACN10GH3A4		. . NUTPLATE	E-H	2
740	F51636-3		. . NUTPLATE (V15653) (SPEC BACN10JA3CD) (OPT 102F177-3 (V72962)) (OPT BRF110C3D (V52828)) (OPT BRF170C3D (V52828)) (OPT NS202484-02 (V80539))		2
741	BACR15DR4P		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 743A)		4
–741A	NAS1398D4A		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 743)		4
742	BACR15BB4A		DELETED		
742A	BACR15BB4AD		. . RIVET (SIZE DETERMINED ON INST)		8
743	BACR15DR4P		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 743A)	A-D	2
–743A	NAS1398D4A		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 743)	A-D	2
743J	BACR15DR4P		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 743A)	E-H	2
–743K	NAS1398D4A		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 743)	E-H	2
–744	BACR15DR4P		DELETED		

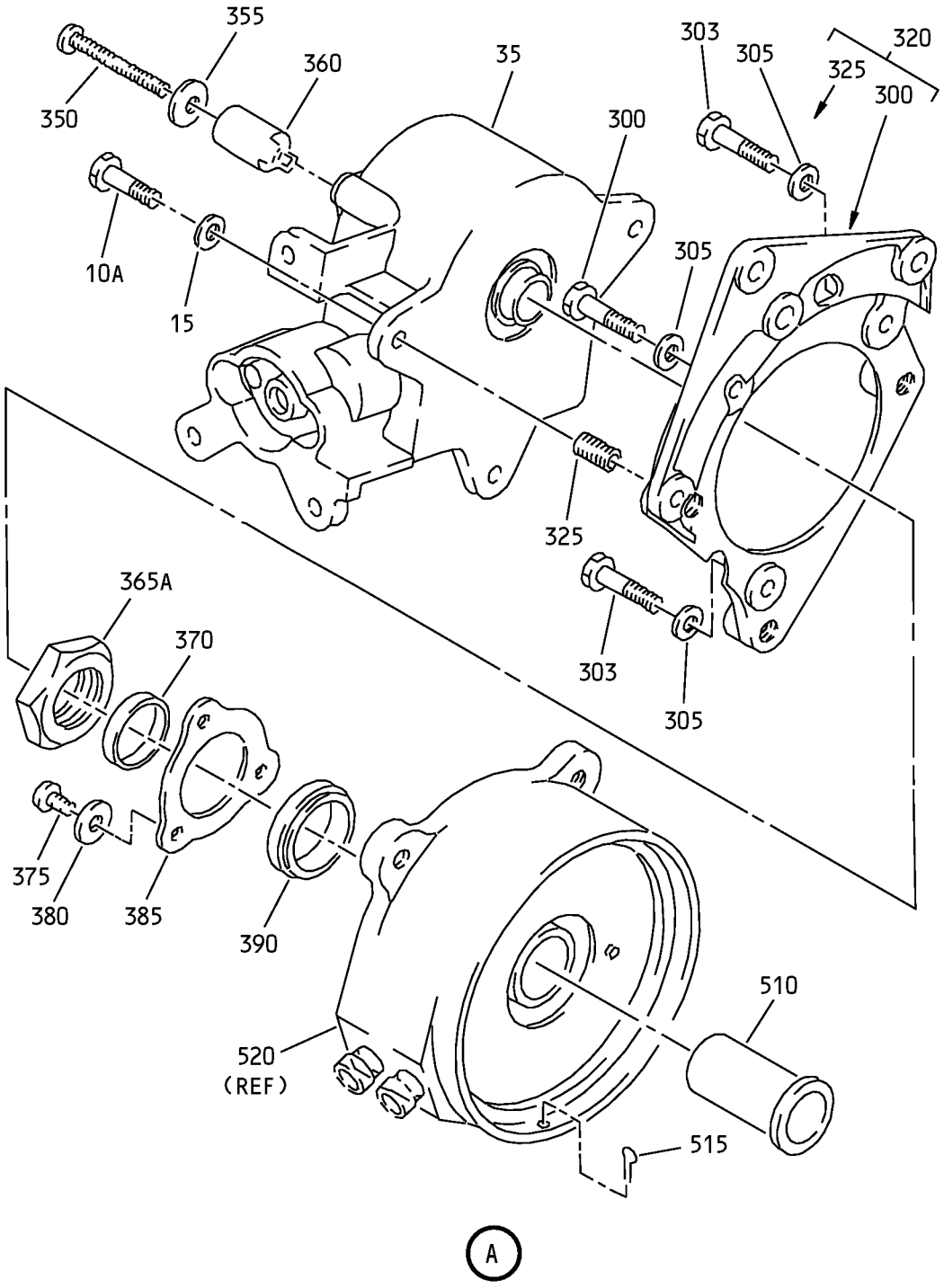
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
744A	BACR15DR3		. . RIVET (SIZE DETERMINED ON INST)		8
744G	BACR15DR4		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 744H)	E-H	2
–744H	NAS1399D4A		. . RIVET (SIZE DETERMINED ON INST) (OPT ITEM 744G)	E-H	2
–745	VL310AG5-5		DELETED		
–750	VL310AG5-7		DELETED		
750A	BACB30VT5K		. . BOLT (SIZE DETERMINED ON INST)		6
755	HST79CY5		. . COLLAR (V73197) (SPEC BACC30BL5) (OPT HST79-5 (V92215)) (OPT HST79-5 (V56878)) (OPT HST79-5 (V5M902))		6
760	254A1124-1		. . DOUBLER		1
765	MS21209F5-15P		. . INSERT		2
770	254A1121-2		. . FRAME	A, B	1
–770A	254A1121-5		. . FRAME	C-H	1

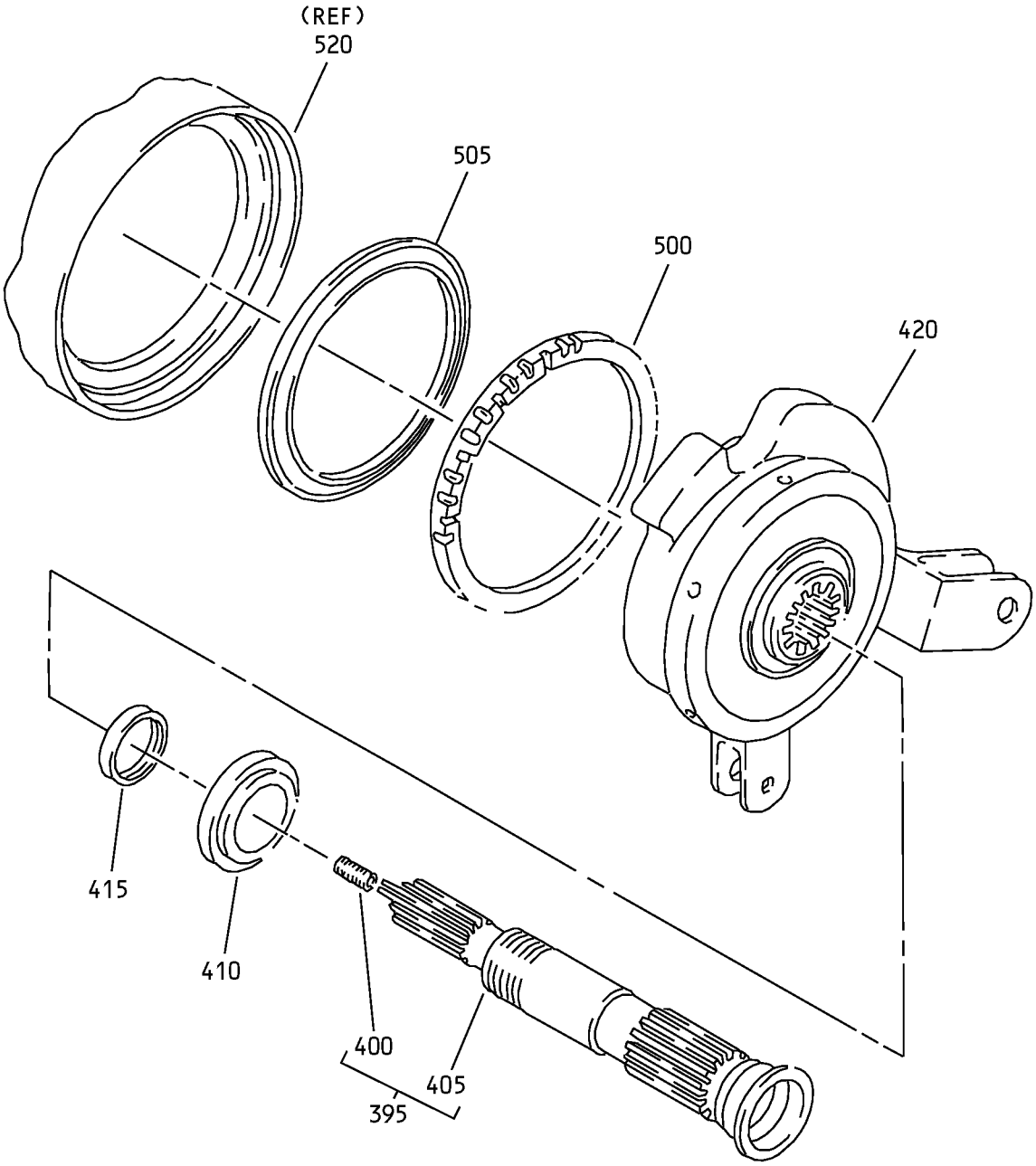
–Item not Illustrated



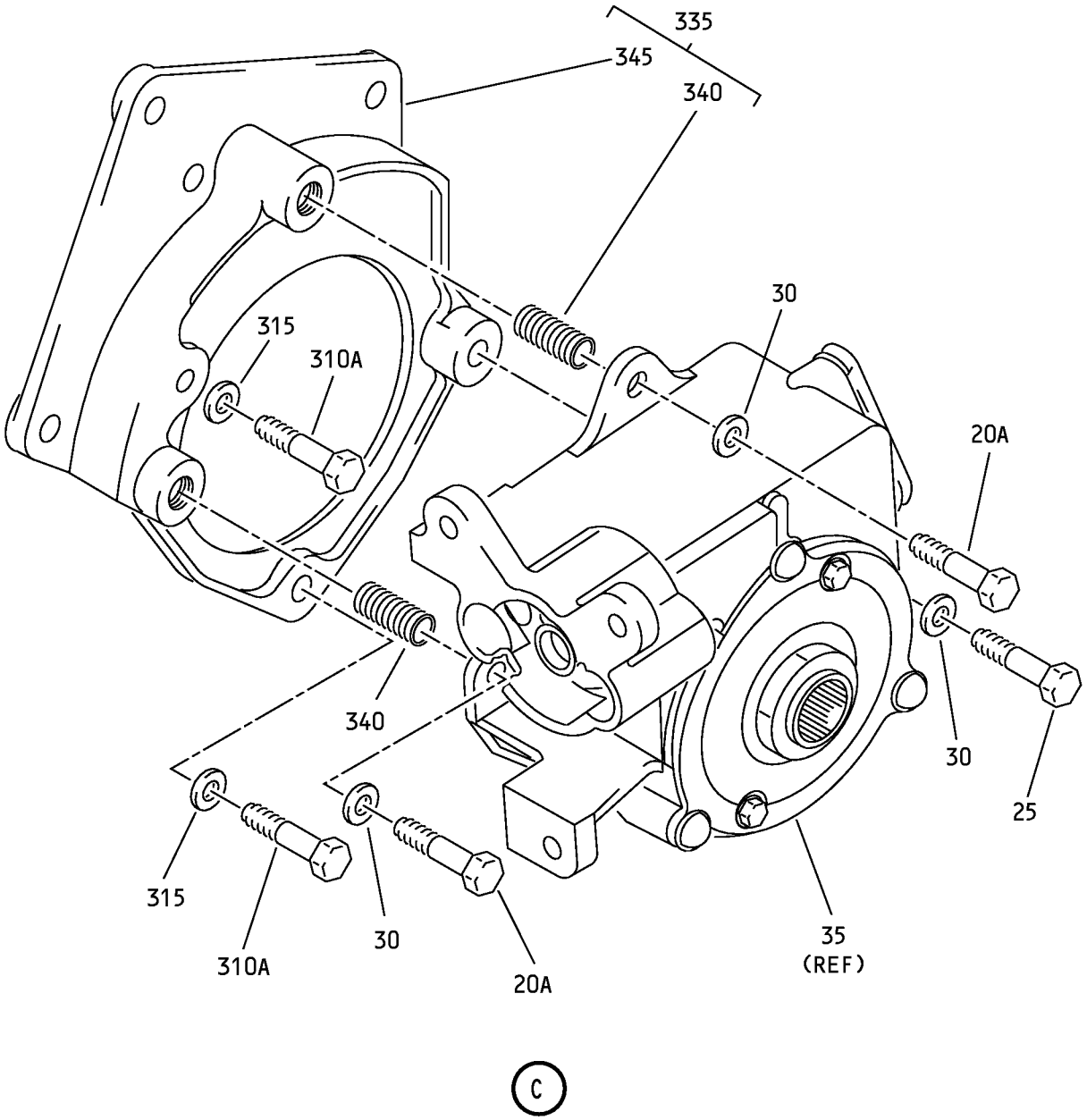
Autothrottle Mechanism Assembly
IPL Figure 2 (Sheet 1 of 4)



Autothrottle Mechanism Assembly
IPL Figure 2 (Sheet 2 of 4)



Autothrottle Mechanism Assembly
IPL Figure 2 (Sheet 3 of 4)



D41667 S0004988504_V2

Autothrottle Mechanism Assembly
IPL Figure 2 (Sheet 4 of 4)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–1	254A1140-1		MECHANISM ASSY-L	A	RF
–1A	254A1140-3		MECHANISM ASSY-L	B	RF
–1B	254A1140-5		MECHANISM ASSY-L	C-H	RF
–5	254A1140-2		MECHANISM ASSY-R	A	RF
–5A	254A1140-4		MECHANISM ASSY-R	B	RF
–5B	254A1140-6		MECHANISM ASSY-R	C-H	RF
–10	NAS6604-3		DELETED		
10A	NAS6604-2		. BOLT (USED ON ITEMS 1, 1A)		3
–10B	BACB30LM4-2		. BOLT (OPT ITEM 10C) (USED ON ITEM 1B)		3
–10C	BACB30NM4K2		. BOLT (OPT ITEM 10B) (USED ON ITEM 1B)		3
15	NAS1149D0432J		. WASHER (USED ON ITEMS 1, 1A, 1B)		3
–20	NAS6604-3		DELETED		
20A	NAS6604-2		. BOLT (USED ON ITEMS 5, 5A)		2
–20B	BACB30LM4-2		. BOLT (OPT ITEM 20C) (USED ON ITEM 5B)		2
–20C	BACB30NM4K2		. BOLT (OPT ITEM 20B) (USED ON ITEM 5B)		2
25	NAS6604-14		. BOLT (USED ON ITEMS 5, 5A)		1
–25A	BACB30LM4-14		. BOLT (OPT ITEM 25B) (USED ON ITEM 5B)		1
–25B	BACB30NM4K14		. BOLT (OPT ITEM 25A) (USED ON ITEM 5B)		1
30	NAS1149D0432J		. WASHER (USED ON ITEMS 5, 5A, 5B)		3

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
35	254A1147-1		. GEARBOX ASSY (OPT ITEM 35A) (REF CMM 22-35-02)	C-H	1
–35A	254A1147-3		. GEARBOX ASSY (OPT ITEM 35) (REF CMM 22-35-02)	C-H	1
–35B	254A1147-1		. GEARBOX ASSY (REF CMM 22-35-02)	A, B	1
–40	MS16562-1		DELETED		
–45	66-22132-1		DELETED		
–50	66-21146-1		DELETED		
–55	NAS1801-06-13		DELETED		
–60	NAS1149DN632J		DELETED		
–65	NAS603-8P		DELETED		
–70	NAS1149D0332J		DELETED		
–75	254W4142-1		DELETED		
–80	MB540DDSD610		DELETED		
–80A	MB54022		DELETED		
–85	254W4142-2		DELETED		
–90	BACB10AS14		DELETED		
–95	254A1147-2		DELETED		
–100	NAS1352N08-8P		DELETED		
–105	254W4141-1		DELETED		
–110	254A4144-1		DELETED		
–110A	254A4144-2		DELETED		
–110B	254A4144-3		DELETED		
–110C	254A4144-4		DELETED		
–115	254W4145-1		DELETED		
–120	254W1172-1		DELETED		
–122	254W4146-1		DELETED		
–125	254W4147-2		DELETED		
–130	254W4152-1		DELETED		
–135	254W4152-3		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–140	254W4152-2		DELETED		
–145	254A4148-2		DELETED		
–150	MS20615-4MP7		DELETED		
–155	NAS620C5		DELETED		
–160	254W4149-2		DELETED		
–165	254W4150-1		DELETED		
–170	MS206153MP3		DELETED		
–175	BACN10JP06ACD		DELETED		
–180	254W4150-2		DELETED		
–185	254W4151-2		DELETED		
–190	254W4143-1		DELETED		
–195	MS21209C0815		DELETED		
–200	254W4143-2		DELETED		
–205	MB540DDSD610		DELETED		
–210	MS16624-2087		DELETED		
–215	NAS514P832-7P		DELETED		
–220	253T7120-1		DELETED		
–225	33KDD5FS160		DELETED		
–230	253T7114-2		DELETED		
–235	BACR12Y75		DELETED		
–240	B538FS101		DELETED		
–245	253T7116-1		DELETED		
–250	NAS603-8P		DELETED		
–255	NAS1149D0332J		DELETED		
–260	273T7118-1		DELETED		
–265	253T7119-1		DELETED		
–270	NKX102TN		DELETED		
–270A	NKX10ZTN		DELETED		
–275	253T7115-1		DELETED		
–280	253T7117-5		DELETED		
–285	BACS13W2CN3		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–290	BACS13W2CN4		DELETED		
–295	253T7117-6		DELETED		
300	NAS6604-5		. BOLT (USED ON ITEMS 1, 1A)		1
–300A	BACB30LM4-5		. BOLT (OPT ITEM 300B) (USED ON ITEM 1B)		1
–300B	BACB30NM4K5		. BOLT (OPT ITEM 300A) (USED ON ITEM 1B)		1
303	NAS6604-7		. BOLT (USED ON ITEM 1)		2
–303A	NAS6604-5		. BOLT (USED ON ITEM 1A)		2
–303B	BACB30LM4-5		. BOLT (OPT ITEM 303C) (USED ON ITEM 1B)		2
–303C	BACB30NM4K5		. BOLT (OPT ITEM 303B) (USED ON ITEM 1B)		2
305	NAS1149D0432J		. WASHER (USED ON ITEMS 1, 1A, 1B)		3
–310	NAS6604-5		DELETED		
310A	NAS6604-7		. BOLT (USED ON ITEM 5, 5A)		2
–310B	BACB30LM4-5		. BOLT (OPT ITEM 310C) (USED ON ITEM 5B)		2
–310C	BACB30NM4K5		. BOLT (OPT ITEM 310B) (USED ON ITEM 5B)		2
315	NAS1149D0432J		. WASHER (USED ON ITEMS 5, 5A, 5B)		2
320	254A1142-1		. BRACKET ASSY (USED ON ITEM 1)		1
320A	254A1142-5		. BRACKET ASSY (USED ON ITEMS 1A, 1B)		1
325	MS21209F4-15P		. . INSERT		3

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
330	254A1142-3		. . BRACKET (USED ON ITEM 320)		1
330A	254A1142-7		. . BRACKET (USED ON ITEM 320A)		1
333	254A1155-1		. SUPPORT (USED ON ITEM 1)	A	1
335	254A1142-2		. BRACKET ASSY (USED ON ITEM 5)		1
335A	254A1142-6		. BRACKET ASSY (USED ON ITEMS 5A, 5B)		1
340	MS21209F4-15P		. . INSERT		2
345	254A1142-4		. . BRACKET (USED ON ITEM 335)		1
345A	254A1142-8		. . BRACKET (USED ON ITEM 335A)		1
348	254A1155-2		. SUPPORT (USED ON ITEM 5)	A	1
350	NAS603-28P		. SCREW	A, B	1
–350A	BACS12CK3-28		. SCREW	C-H	1
355	NAS1149D0332J		. WASHER		1
360	254W4130-1		. PLUG-RAMP		1
–365	SL165C14C		DELETED		
365A	SL7165C14C		. NUT (V97393)		1
370	254N1169-2		. SPACER		1
375	NAS603-5P		. SCREW	A, B	3
–375A	BACS12CK3-5		. SCREW	C-H	3
380	NAS1149D0332J		. WASHER		3
385	254N1154-2		. PLATE		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
390	MB540DDNJC		. BEARING (V06144) (SPEC BACB10AS14) (OPT LLMB540 (V38443)) (OPT MB540-2TS (V43991)) (OPT MB540DDFS428 (V21335)) (OPT MB540TT (V43991)) (OPT MB540DDG20 (V38443)) (OPT MT340E (VK8455)) (OPT MB540DDLY196 (V40920)) (OPT MB540DD (V06144)) (OPT MB540DDSD610 (V83086))	A-D	1
–390A	ACMB540DDFS428		. BEARING (V06144) (SPEC BACB10FU14RJ) (OPT SSMB540DDSD629 (V83086)) (OPT AMB540DDRJC (V06144)) (OPT ACMB540DDFS428 (V21335))	E-H	1
395	254A1145-1		. SHAFT ASSY		1
400	MS21209F1-25P		. . INSERT		1
405	254A1145-2		. . SHAFT		1
410	MB541DDNJC		. BEARING (V06144) (SPEC BACB10AS17) (OPT LLMB541 (V38443)) (OPT MB541-2TS (V43991)) (OPT MB541DDFS428 (V21335)) (OPT MB541TT (V43991)) (OPT MB541DDG20 (V38443)) (OPT MT341E (VK8455)) (OPT MB541DDLY196 (V40920)) (OPT MB541DD (V06144)) (OPT MB541DDSD610 (V83086))	A-D	1
–410A	BACB10FU14RJ		DELETED		
–410B	ACMB541DDFS428		. BEARING (V06144) (SPEC BACB10FU17RJ) (OPT SSMB541DDSD629 (V83086)) (OPT AMB541DDRJC (V06144)) (OPT ACMB541DDFS428 (V21335))	E-H	1
415	254A1144-1		. SPACER		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
420	254A1141-1		. BRAKE ASSY-L (USED ON ITEMS 1, 1A) (REF CMM 22-35-03)		1
–420A	254A1141-3		. BRAKE ASSY-L (USED ON ITEM 1B) (REF CMM 22-35-03) (OPT ITEM 420B, 420C)		1
–420B	254A1141-5		. BRAKE ASSY-L (USED ON ITEM 1B) (REF CMM 22-35-03) (OPT ITEM 420A, 420C)		1
–420C	254A1141-7		. BRAKE ASSY-L (USED ON ITEM 1B) (REF CMM 22-35-03) (OPT ITEM 420A, 420B)		1
–425	254A1141-2		. BRAKE ASSY-R (USED ON ITEMS 5, 5A) (REF CMM 22-35-03)		1
–425A	254A1141-4		. BRAKE ASSY-R (USED ON ITEM 5B) (REF CMM 22-35-03) (OPT ITEM 425B, 425C)		1
–425B	254A1141-6		. BRAKE ASSY-R (USED ON ITEM 5B) (REF CMM 22-35-03) (OPT ITEM 425A, 425C)		1
–425C	254A1141-8		. BRAKE ASSY-R (USED ON ITEM 5B) (REF CMM 22-35-03) (OPT ITEM 425A, 425B)		1
–430	254A1143-1		DELETED		
–431	253T7539-3		DELETED		
–435	MB542DDSD610		DELETED		
–440	253T7539-4		DELETED		
–445	273T7530-1		DELETED		
–445A	273T7530-2		DELETED		
–445B	273T7530-3		DELETED		
–445C	273T7530-4		DELETED		
–450	254N1161-1		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–455	253T7536-3		DELETED		
–460	90650		DELETED		
–465	253T7535-2		DELETED		
–470	254N1166-2		DELETED		
–475	254A1149-1		DELETED		
–480	254A1149-2		DELETED		
–485	MB542DDSD610		DELETED		
–490	254A1149-3		DELETED		
–495	254A1149-4		DELETED		
500	254N1155-1		. NUT-SEAL		1
505	2140-32A		. SCRAPER (V26303) (SPEC BACS34A32A) (OPT TF005-32A (V07128)) (OPT RMS34A32A (V94878)) (OPT DW96801-32A (V02886)) (OPT CWR76-32B (V26879))		1
510	254W4105-1		. SPACER		1
–515	BACP10BC01C06P		DELETED		
515A	BACP18BC01C06P		. PIN-COTTER		1
520	CU09644003		. RESOLVER ASSY (V05088) (SPEC S254N101-4)	A, B	1
–520A	CU09644003		. RESOLVER ASSY (V05088) (SPEC S254N101-4) (OPT ITEM 520B)	C-H	1
–520B	CU09644005		. RESOLVER ASSY (V05088) (SPEC S254N101-6) (OPT ITEM 520A)	C-H	1

–Item not Illustrated