

 **BOEING**
COMPONENT
MAINTENANCE MANUAL

TO: ALL HOLDERS OF AUXILIARY POWER UNIT ASSEMBLY COMPONENT MAINTENANCE MANUAL
49-11-13

REVISION NO. 7 DATED NOV 01/00

HIGHLIGHTS

Pages which have been added or revised are outlined below together with the highlights of the revision. Remove and insert the affected pages as listed and enter Revision No. and date on the Record of Revision Sheet.

CHAPTER/SECTION

AND PAGE NO.

302

501

DESCRIPTION OF CHANGE

Added visual check procedure for the bracket (80) and lifting pad (95).

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HIGHLIGHTS

01.1

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AUXILIARY POWER UNIT ASSEMBLY

PART NUMBERS 351N1101-1,-11,-12,-16,-20,
-21,-22,-24 THRU -53,
-55,-57 THRU -59

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

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TITLE PAGE

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REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY

1862

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REVISION RECORD

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BOEING
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 MAINTENANCE MANUAL
TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
SB 757-49-3		PRR N52323 PRR N52296 PRR N52245 PRR N52688 PRR VDC-N0106 MC N4916-001 PRR 53135-2 PRR 52001-95 PRR 53225 SL-49-1 PRR 53135-46 PRR 53430 PRR 53590-13 PRR 54072 PRR 54215 PRR 54295 PRR 54234 PRR 54659 PRR 54700-13 PRR 56066-13 PRR 54806 PRRB 12766	JUL 10/82 JUL 10/82 JUL 10/82 JAN 10/83 JAN 10/83 OCT 10/83 APR 10/84 APR 10/84 OCT 10/84 OCT 10/84 OCT 10/85 OCT 10/85 OCT 10/86 APR 01/92 APR 01/92 APR 01/92 APR 01/92 APR 01/92 JUN 01/95 NOV 01/99 NOV 01/99 NOV 01/99 NOV 01/99

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TR & SB RECORD

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			701	JUN 01/95	01.1
			702	JUN 01/95	01.1
TITLE PAGE			703	JUN 01/95	01.1
1	NOV 01/99	01.1	704	OCT 01/87	01
2	BLANK				
REVISION RECORD			FITS AND CLEARANCES		
1	OCT 01/87	01	801	JUN 01/95	01.1
2	BLANK		802	BLANK	
TR & SB RECORD			SPECIAL TOOLS		
1	NOV 01/99	01.1	901	OCT 01/87	01
2	BLANK		902	BLANK	
LIST OF EFFECTIVE PAGES			ILLUSTRATED PARTS LIST		
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1	OCT 01/87	01	1010	NOV 01/99	01.1
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*501	NOV 01/00	01.1	1016	NOV 01/99	01.1
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REPAIR-GENERAL			1018	NOV 01/99	01.1
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602	BLANK		1020	NOV 01/99	01.1
			1021	NOV 01/99	01.1
			1022	NOV 01/99	01.1
			1023	NOV 01/99	01.1
			1024	NOV 01/99	01.1
			1025	NOV 01/99	01.1
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			1027	NOV 01/99	01.1
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* = REVISED, ADDED OR DELETED

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INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop-type repair.

This manual is divided into separate sections:

- | | |
|--|------------------------------|
| 1. Title Page | 4. List of Effective Pages |
| 2. Record of Revisions | 5. Table of Contents |
| 3. Temporary Revision &
Service Bulletin Record | 6. Introduction |
| | 7. Procedures & IPL Sections |

Refer to the Table of Contents for the page location of applicable sections. An asterisked flagnote *[] in place of the page number indicates that no special instructions are provided since the function can be performed using standard industry practices.

The beginning of the REPAIR section includes a list of the separate repairs, a list of applicable standard Boeing practices, and an explanation of the True Position Dimensioning symbols used.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements used in the manual are in English units, unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

Verification:

Disassembly	Aug 24, 1983
Assembly	Aug 24, 1983

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INTRODUCTION

01

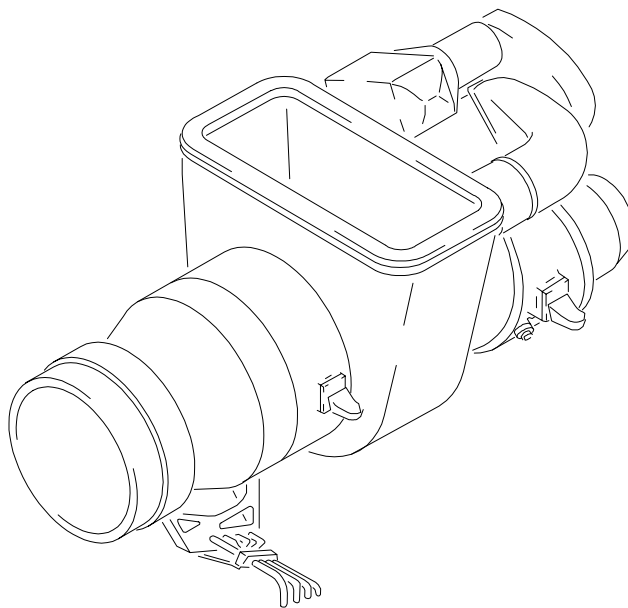
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AUXILIARY POWER UNIT ASSEMBLYDESCRIPTION AND OPERATION

1. The auxiliary power unit assembly (APU) consists of an air compressor and 90 KVA generator driven by a gas turbine engine. It is designed to operate while the aircraft is either on the ground or in flight. The APU supplies generator output for aircraft electrical requirements and compressed air for main engine starting and cabin environmental control.
2. Leading Particulars (approximate)

Length -- 70 in.
Width -- 25 in.
Height -- 25 in.
Weight -- 555 lbs.



Auxiliary Power Unit Assembly
Figure 1

DISASSEMBLY1. Equipment

NOTE: Equivalent substitutes may be used.

- A. APU Frame, B49001
- B. APU Maintenance Stand, B49002
- C. Lifting Eye, A49002
- D. Handling Sling, B49003

2. Parts Replacement (IPL Fig. 1)

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

- A. Packing (65, 117, 225)
- B. Seal (25)

3. Disassembly

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

A. Auxiliary Power Unit Assembly (IPL Fig. 1)

CAUTION: INSTALL A TEMPORARY COVER OVER AIR INLET TO PREVENT INTERNAL DAMAGE TO THE APU.

NOTE: The following disassembly procedures are to be accomplished with the APU mounted in APU frame, B49001.

- (1) Drain auxiliary power unit (APU) (230B) oil tank and replace drain plug. Tag APU to indicate oil has been drained.
- (2) Remove air inlet seal (25) by removing bolts (10) and washers (15).
- (3) Remove tube assys (160, 165, 170, 175, 180, 185, 188, 188C).
- (4) Remove drain mast assy (155), stiffener (210) and seal (190).

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- (5) For auxiliary power unit assys 351N1101-1, -12, -20, -25 -27, -29, -32, -34, -36, -38, -40, -42, -45, -46, -49, -51, -53 only: remove tank assy (135) by removing items (120, 125, 130).
- (6) Remove caps (105, 115), fittings (100, 110), packing (107, 117), and clip (215). Clip (215) is fastened by existing Garrett screw and nut. For auxiliary power unit assys 351N1101-46, -47, -48, -49 only; clip (215) is fastened by bolt (216), washer (217) and nut (218).

WARNING: GENERATOR (40) WEIGHS APPROXIMATELY 60 LBS AND SHOULD BE SUPPORTED USING LIFTING EYE A49002 DURING REMOVAL.

CAUTION: AVOID CONTACT WITH MOUNTING STUD THREADS DURING GENERATOR REMOVAL.

- (7) Remove generator by loosening nuts (30) and rotating generator until nuts (30, 35) slip through keyhole slots in generator flange.

NOTE: Nuts (30, 35) remain on generator mounting studs. If necessary to completely remove nut (30), first loosen three turns with a wrench, then tap lightly to release internal locking mechanism.

- (8) Remove seal plate (50) by removing screws (45).

- (9) Remove oil quantity transmitter (55) and packing (225).

NOTE: Some residual oil may drain from APU during removal of transmitter (55).

- (10) Remove union (60) and packing (65) from fuel control unit.

NOTE: The items listed in the following steps are used for lifting and support of the APU. Remove only if they are damaged and require repair or replacement.

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CHECK

1. Check all parts for obvious defects in accordance with standard industry practices.
2. Examine seal (25) for deterioration.
3. Visually check the bracket (80) and the lifting pad (95) for obvious wear and/or defects. If bracket (80) and/or lifting pad (95) is damaged, do the non-destructive inspection as shown below.
4. Penetrant check per 20-20-02 -- Lifting pad (95) and welds on drain tank assy (135).
5. Magnetic particle check per 20-20-01 -- Bracket (80).
6. Visually check seal plate (50) for cracks and deterioration of rubber inserts.

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REPAIR – GENERAL1. Content

- A. Repair of Boeing proprietary parts consists of restoration of original finish (Fig. 601). For repair of source controlled parts (45, 55, 70, 80, 165), see appropriate vendor manual.

2. Standard Practices

- A. Refer to the following standard practices, as applicable, for details of repair procedures.

20-41-01 Decoding Table for Boeing Finish Codes
 20-41-02 Application of Chemical and Solvent Resistant Finishes
 20-43-01 Chromic Acid Anodizing
 20-50-05 Application of Aluminum Foil and Other Markers
 20-50-08 Application of Dry Lubricant

3. Materials

NOTE: Equivalent substitutes may be used.

- A. Primer -- BMS 10-11, type 1 (Ref 20-60-02)
 B. Lubricant -- BMS 3-8 (Ref 20-60-03)

IPL FIG. & ITEM	MATERIAL	FINISH
<u>FIG. 1</u> Bracket (80)	17-4PH CRES 180 KSI MIN	Apply two coats BMS 10-11, type 1, primer (F-20.03). Apply BMS 3-8 solid film lubricant to hole for ground support equip. interface (F-19.10).
Pad (95)	AL ALLOY	Chromic acid anodize (F-17.04) and apply two coats BMS 10-11, type 1, primer (F-20.03).

Refinish Details
 Figure 601

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REPAIR-GENERAL

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ASSEMBLY1. Material

NOTE: Equivalent substitutes may be used.

- A. Wire, safety -- MS20995C32 (Ref 20-50-02)
- B. Grease -- Aeroshell 16 (Ref 20-60-03)
- C. Lubricant -- Acryloid HF866 or HF825 (Ref 20-60-03)

2. Equipment

NOTE: Equivalent substitutes may be used.

- A. APU Frame, B49001
- B. APU Maintenance Stand, B49002
- C. Lifting Eye, A49002
- D. Handling Sling, B49003

3. Assembly

- A. Auxiliary Power Unit Assembly (IPL Fig. 1)

NOTE: Items listed in steps (1) and (2) below are used for lifting and supporting the APU. They must be installed prior to mounting the APU in APU support Cradle, A49001.

- (1) Attach lifting pad (95) to APU using items (85, 90). Tighten bolts (85) to 150-200 lb-in. If shorter bolts (85A, 85B) are used, tighten to 250-300 lb-in. Safety wire using double twist method per 20-50-02.

NOTE: Bolts (85B) require use of washer (87) under washer (90). Washer (90) is required under all bolt (85, 85A, 85B) heads.

- (2) Attach brackets (80) using items (70A, 75). Tighten bolts (70B) to 150-200 lb-in. If shorter bolts (70A) are used, tighten to 250-300 lb-in. Safety wire using double twist method per 20-50-02.

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- (3) For auxiliary power unit assembly (1A, 1B, 1D, 1G, 1K, 1M, 1P, 1S, 1T, 1W, 1X, 2, 2A, 2C, 2E, 2G, 2H, 2J), install oil quantity transmitter (55) and new seal (225). Remove Garrett supplied oil quantity switch if installed in same location.
- (4) Position drain pan to catch overflow of oil from APU generator drive pad area or generator when coverplates are removed.
- (5) If installed, remove coverplate from APU generator drive pad by removing (3) AN315C6R nuts and (3) AN960C16 washers. Do not reuse nuts or washers. Remove coverplate from generator. Retain coverplates. Remove and discard gasket.
- (6) Install seal plate (50), with countersunk holes outward, on generator flange using screws (45). Lubricate seal plate rubber with HF866 prior to installation.

WARNING: GENERATOR (40) WEIGHS APPROXIMATELY 60 LBS. SUPPORT USING LIFTING EYE A49002 WHILE INSTALLING.

CAUTION: AVOID CONTACT WITH MOUNTING STUD THREADS WHEN INSTALLING GENERATOR.

- (7) Remove and retain bolt from lifting boss as shown in Fig. 701 and install lifting eye A49002.
- (8) Install nuts (30) on APU generator drive pad studs so that at least 1 inch clearance exists between nuts and seal plate.
- (9) Install nuts (35) on studs to prevent unnecessary complete removal of nuts (30) during future generator removal.
- (10) Lubricate input spline shaft of generator with grease.

NOTE: Refer to Sundstrand generator component maintenance manual 24-22-03 for replacement of O-ring on generator shaft.

- (11) Install generator (40) over mounting studs and rotate to engine keyhole slots. Tighten nuts (30) to 260-320 lb-in max. Tighten nuts (35) until contact is made with stud shoulder and continue to tighten to 100 lb-in. maximum.
- (12) Remove lifting eye A49002 and install bolt retained in step 3.A.(7) above.
- (13) Install packing (65) and union (60) on fuel control unit.

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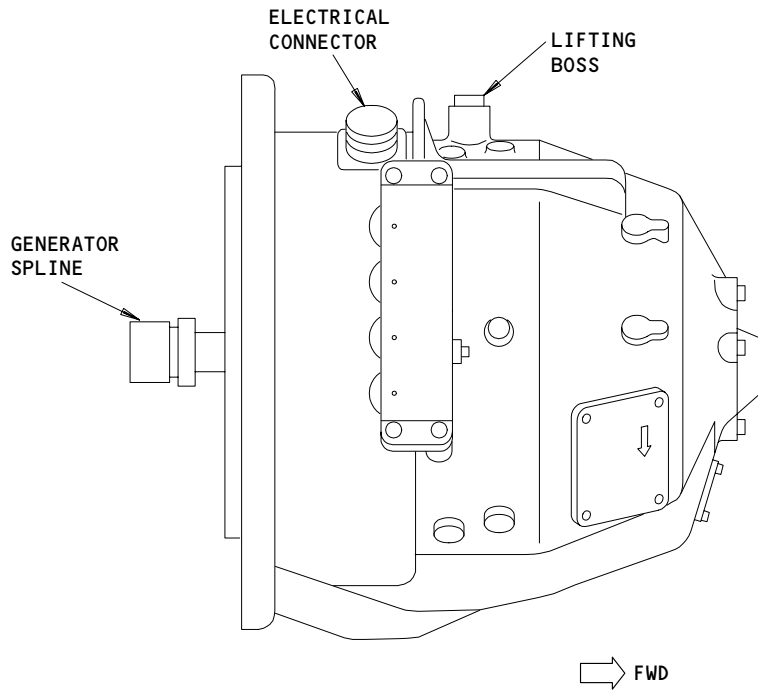
- (14) For auxiliary power unit assys 351N1101-1, -12, -20, -25, -27, -29, -32, -34, -36, -38, -40, -42, -45, -46, -49, -51, -53 only: install drain tank assy (135) using items (120, 125, 130).
- (15) Install drain mast assy (155), stiffener (210), and seal (190) using screw (140), washer (145), and nut (150).
- (16) If installed, remove Garrett tee and attached drain tube and install tube assys (160, 165, 170, 180, 185, 188, 188C) and union (220). Reuse nut from tee. Tube assys (180, 185) are installed in upper pair of holes in bulkhead. Reverse position of Garrett adapter at attachment point for tube assy (175), moving fitting upward in oval hole approximately 1/2 inch. If necessary rotate elbow 90° to horizontal for attachment of tube assy (160) to engine. Tighten 3/8 inch tube nuts to 100-125 lb.-in. and the 1/2 inch tube nut to 210-250 lb.-in.
- (17) Install fittings (100, 110), packing (107, 117), caps (105, 115), and clip (215). Smaller fitting (110) is installed in lower hole.

NOTE: Clip (215) is attached by existing Garret fasteners.

For auxiliary power unit assys 351N1101-46, -47, -48, -49, -50, -51, -52, -53 only; clip (215) is attached by bolt (216), washer (217) and nut (218).

- (18) Install seal (25) using items (10, 15).
- (19) Refill auxiliary power unit (230) with oil. Refer to appropriate maintenance manual.
- (20) If necessary, install caution decal (235A, 235B) on left side of APU (230D thru 230J) and decal (237) on generator (40) cap per 20-50-05.

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APU Assembly Details
Figure 701

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FITS AND CLEARANCES

1. Refer to Fig. 801 for special torque requirements.

REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	30	Nut	175-200	
1	35	Nut	100 MAX	
1	70A,85A, 85B,85E	BOLT	250-300	
1	70B,85C	BOLT	150-200	

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

Torque Table
Figure 801

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SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes may be used for listed items.

1. APU Frame -- B49001
2. APU Maintenance Stand -- B49002
3. Handling Sling -- B49003
4. Lifting Eye -- A49002

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SPECIAL TOOLS

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ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

Assembly

Detail Parts for Assembly

Subassembly

Attaching Parts for Subassembly

Detail Parts for Subassembly

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

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are used on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part is the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXX and POST SB XXXX.

A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

Optional
(OPT)

The parts are optional to and interchangeable with other parts having the same item number.

Supersedes, Superseded By
(SUPSDS, SUPSD BY)

The part supersedes and is not interchangeable with the original part.

Replaces, Replaced By
(REPLS, REPLD BY)

The part replaces and is interchangeable with, or is an alternate to, the original part.

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VENDORS

K0667 AP PRECISION HYDRAULICS
PO BOX 1 SHAW ROAD
SPEKE, LIVERPOOL, L24 9JY ENGLAND

01673 AIRDROME PARTS CO
3251 AIRPORT WAY PO BOX 1867
LONG BEACH, CALIFORNIA 90801

08199 SIERRACIN-HARRISON
3020 EMPIRE AVENUE
BURBANK, CALIFORNIA 91504-3109

11328 AEROQUIP CORP LINAIR DIV
651 WEST KNOX STREET
GARDENA, CALIFORNIA 90248-4409

14798 DEUTSCH CO METAL COMPONENTS DIV
14800 SOUTH FIGUEROA STREET
GARDENA, CALIFORNIA 90248-1719

16632 FLEXFAB, INCORPORATED
1843 GUN LAKE ROAD
HASTINGS, MICHIGAN 49058-9275

30974 AEROFIT PRODUCTS INC
8531 WHITAKER STREET
BUENA PARK, CALIFORNIA 90621-3129

81349 MILITARY SPECIFICATIONS PROMULGATED BY MILITARY
DEPARTMENTS/AGENCIES UNDER AUTHORITY OF DEFENSE
STANDARDIZATION MANUAL 4120 3-M

95272 SARGENT IND INC STILLMAN SEAL DIV
6020 AVENDIDA ENCINAS PO BOX 2000
CARLSBAD, CALIFORNIA 92008-4407

97424 AMETEK AEROSPACE PRODUCTS INC
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS 01887

99167 SUNDSTRAND AVIATION DIVISION OF SUNDSTRAND CORPORATION
4747 HARRISON AVENUE PO BOX 7002
ROCKFORD, ILLINOIS 61125

99193 ALLIEDSIGNAL AUXILIARY POWER
2739 EAST WASHINGTON STREET
PHOENIX, ARIZONA 85010-9979

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VENDORS

99321 SHAW AERO DEVICES, INCORPORATED
PO BOX 80
WAINSCOTT, NEW YORK 11975

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AFP175V06		1	157G	1
		1	157G	1
		1	186	6
		1	186A	5
		1	186G	3
AFP175V08		1	156G	1
		1	15	34
AN960C10L		1	125	2
		1	145	2
AN960C616L		1	87	3
		1	157G	1
		1	186	6
		1	186A	5
		1	186G	3
AP2097-06H		1	156G	1
		1	10B	34
AP2097-08H		1	35	12
		1	130	2
BACB30LK3U2		1	150	2
		1	45	3
BACN10GW4AS		1	157G	1
		1	186	6
BACN10JC3C		1	186A	5
		1	186G	3
BACS12GM3-8		1	156G	1
		1	10B	34
BACS13BX06H		1	35	12
		1	130	2
BACS13BX08H		1	150	2
		1	45	3
BACT11SD2F		1	157G	1
		1	186	6
BACW10BP6AC		1	186A	5
		1	186G	3
BAC27NAP0014		1	156G	1
		1	188	6
BAC27NAP0018		1	188C	5
		1	245	1
BAC27TAP0043		1	75	12
		1	90	3
BAC27TAP0044		1	235A	1
		1	244	1
BOE2036		1	242	1
		1	237	1
BOE2036-0004		1	25	1
		1	25	1
DA8980-6		1	25	1
		1	50	1
DBOS13BX06H		1	157G	1
		1	186	6
DBOS13BX08H		1	186A	5
		1	186G	3
MS21042L3		1	156G	1
		1	218	1
MS21902J8		1	60	1
		1	157N	1
MS21921-6S		1	187	6
		1	187G	3

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
MS21921-8S		1	156N	1
MS21924-6S		1	220	1
MS28775-128		1	225	1
MS28778-6		1	107	1
MS28778-8		1	117	1
M83248-1-908		1	65	1
NAS1149C0332R		1	15A	34
		1	125A	2
		1	145A	2
		1	217	1
NAS1801-3-8		1	120	2
NAS1801-3-9		1	140	2
NAS1805-6P		1	30	12
NAS6703U2		1	216	1
NAS6703U3		1	10A	34
NAS6703U4		1	10	34
NAS6706HU3		1	85A	3
NAS6706HU4		1	70A	12
		1	85B	3
NAS6706HU5		1	70B	12
		1	85C	3
S281T001-37		1	40B	1
S351N101-1		1	55	1
S351T020-11		1	230D	1
S351T020-13		1	230E	1
S351T020-15		1	230F	1
S351T020-200		1	230H	1
S351T020-201		1	230G	1
S351T020-202		1	230J	1
S351T020-203		1	230K	1
S351T020-204		1	230M	1
S351T020-205		1	230Q	1
S351T020-206		1	230R	1
S351T020-7		1	230B	1
S351T020-9		1	230B	1
S351T030-1		1	25	1
S351T040-6		1	50	1
S351T040-8		1	50A	1
OMP2505-13S		1	105	1
OMP2505-2		1	100	1
OMP2506-13S		1	115	1
OMP2506-2		1	110	1
2-02903-06H		1	157G	1
		1	186	6
		1	186A	5
		1	186G	3

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
2-02903-08H		1	156G	1
351N1101-1		1	1	RF
351N1101-11		1	1A	RF
351N1101-12		1	1B	RF
351N1101-13		1	180	1
351N1101-14		1	185	1
351N1101-16		1	1C	RF
351N1101-17		1	160A	1
351N1101-20		1	1D	RF
351N1101-21		1	1E	RF
351N1101-24		1	1H	RF
351N1101-25		1	1G	RF
351N1101-26		1	1J	RF
351N1101-27		1	1K	RF
351N1101-28		1	1L	RF
351N1101-29		1	1M	RF
351N1101-3		1	165	1
351N1101-31		1	1P	RF
351N1101-32		1	1Q	RF
351N1101-33		1	1R	RF
351N1101-34		1	1S	RF
351N1101-35		1	1T	RF
351N1101-36		1	1U	RF
351N1101-37		1	1V	RF
351N1101-38		1	1W	RF
351N1101-39		1	1X	RF
351N1101-4		1	170	1
351N1101-40		1	1Y	RF
351N1101-41		1	1Z	RF
351N1101-42		1	2	RF
351N1101-43		1	2A	RF
351N1101-44		1	2B	RF
351N1101-45		1	2C	RF
351N1101-46		1	2D	RF
351N1101-47		1	2E	RF
351N1101-48		1	2F	RF
351N1101-49		1	2G	RF
351N1101-5		1	175	1
351N1101-50		1	2H	RF
351N1101-51		1	2J	RF
351N1101-52		1	2K	RF
351N1101-53		1	2L	RF
351N1101-55		1	2M	RF
351N1101-57		1	2N	RF
351N1101-58		1	2P	RF

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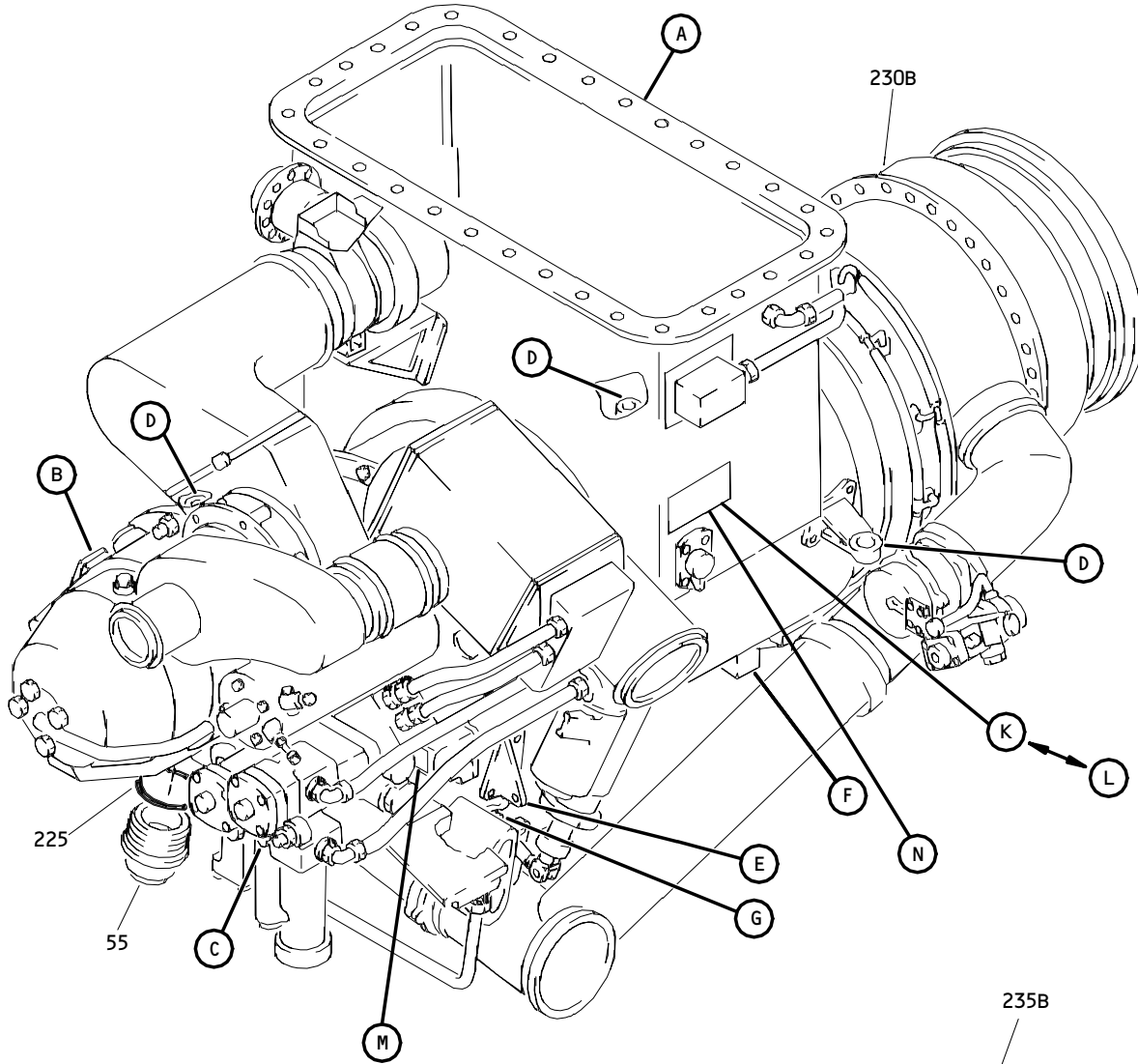
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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
351N1101-59		1	2Q	RF
351N1101-6		1	160	1
351N1102-1		1	215	1
351T0301-1		1	80	3
351T0302-1		1	95	1
35235V06		1	157G	1
		1	186	6
		1	186A	5
		1	186G	3
35235V08		1	156G	1
356N1002-1		1	190	1
356N1002-2		1	190A	1
356N1003-1		1	135	1
356N1006-1		1	158	1
		1	210	1
356N1006-2		1	158A	1
		1	210A	1
356N1010-11		1	155	1
356N1010-12		1	156	1
356N1010-13		1	157	1
356N1010-16		1	155A	1
356N1010-17		1	157A	1
3800298-1-1		1	230H	1
3800298-1-2		1	230G	1
3800298-1-3		1	230J	1
3800298-1-4		1	230K	1
3800298-1-5		1	230M	1
3800298-1-6		1	230Q	1
381326-2		1	230B	1
381326-2-1		1	230D	1
381326-2-2		1	230E	1
381326-2-3		1	230F	1
381326-2-4		1	230P	1
727810A		1	40	1
727810B		1	40A	1
727810C		1	40B	1
8TJ99GGE1		1	55	1
839		1	25	1
86-4252-1-1		1	110A	1
87-5023-1		1	100A	1
93-7764		1	115A	1
93-7766		1	105A	1

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(M)

CAUTION

IF APU HAS SHUT DOWN DUE TO LOW OIL PRESSURE OR HIGH OIL TEMPERATURE (AS INDICATED BY APU BITE PANEL), DO NOT ADD OIL BEFORE PERFORMING THE FOLLOWING CHECK:

1. REMOVE PLUG OR OIL TEMP. SWITCH, IF INSTALLED (R.H. SIDE APU BELOW GENERATOR PAD).
2. IF LESS THAN ONE CUP OF OIL DRAINS OUT, GENERATOR SCAVENGE PUMP IS OKAY AND OIL MAY BE ADDED TO APU AS REQUIRED.
3. IF MORE THAN ONE CUP OF OIL DRAINS OUT, GENERATOR SCAVENGE PUMP HAS FAILED, DO NOT ADD OIL, DO NOT RUN APU. REPLACE PUMP BEFORE SERVICING AND RUNNING APU. (REFER TO MAINTENANCE MANUAL FOR PUMP REPLACEMENT).

(L)

**Auxiliary Power System Auxiliary Power Unit Assembly
Figure 1 (Sheet 1)**

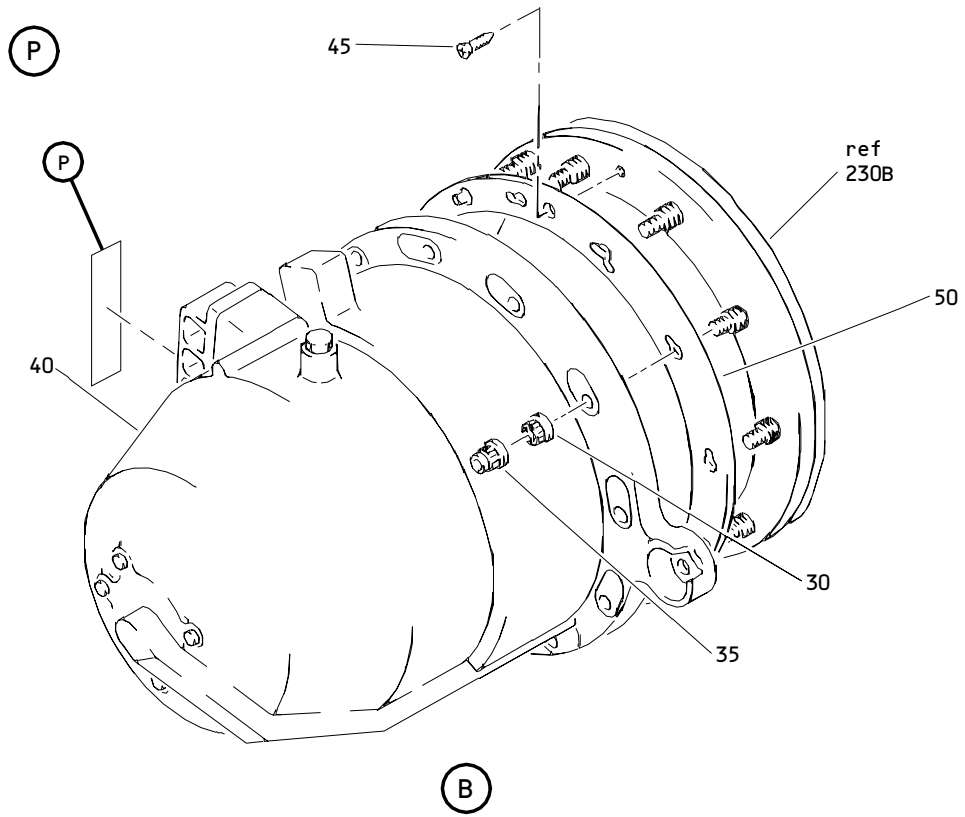
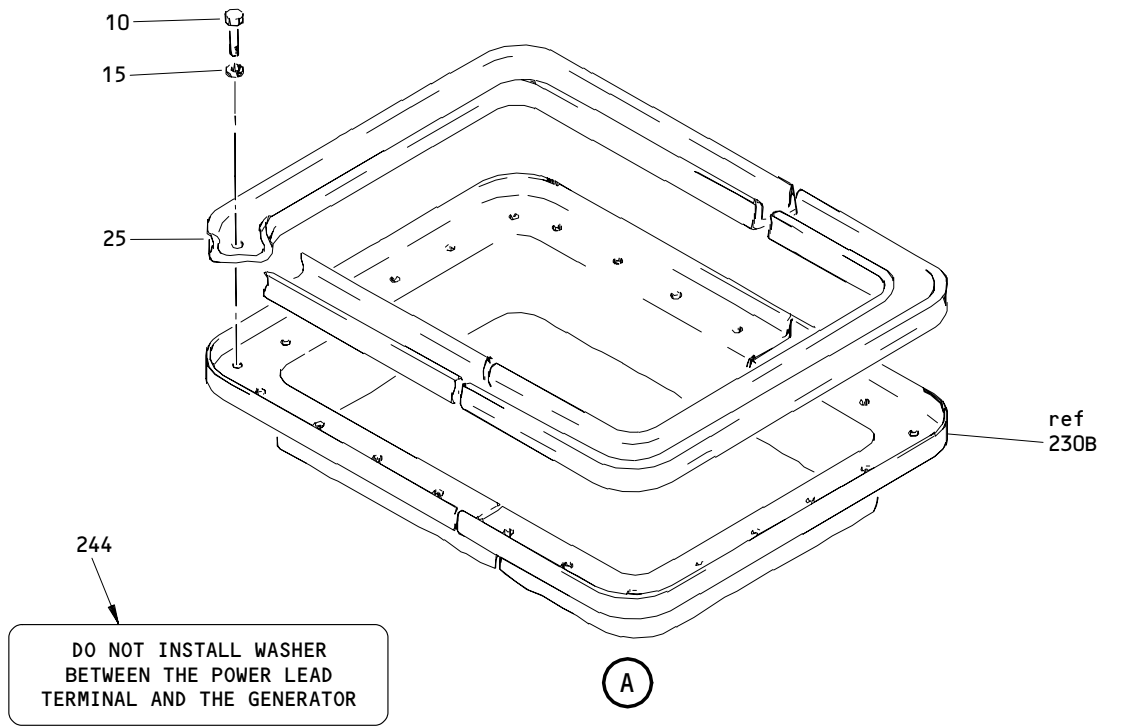
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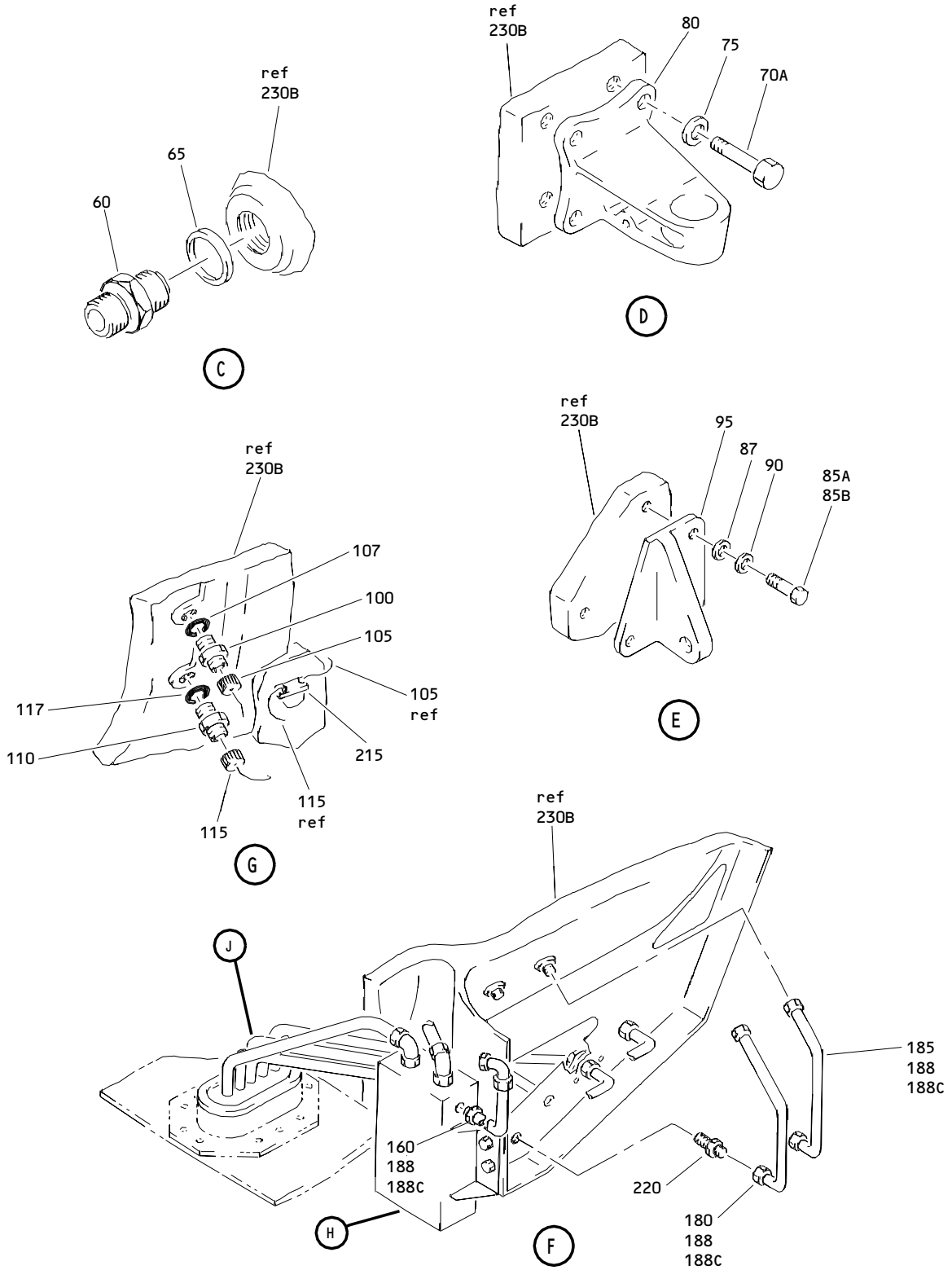
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Auxiliary Power System Auxiliary Power Unit Assembly
 Figure 1 (Sheet 2)

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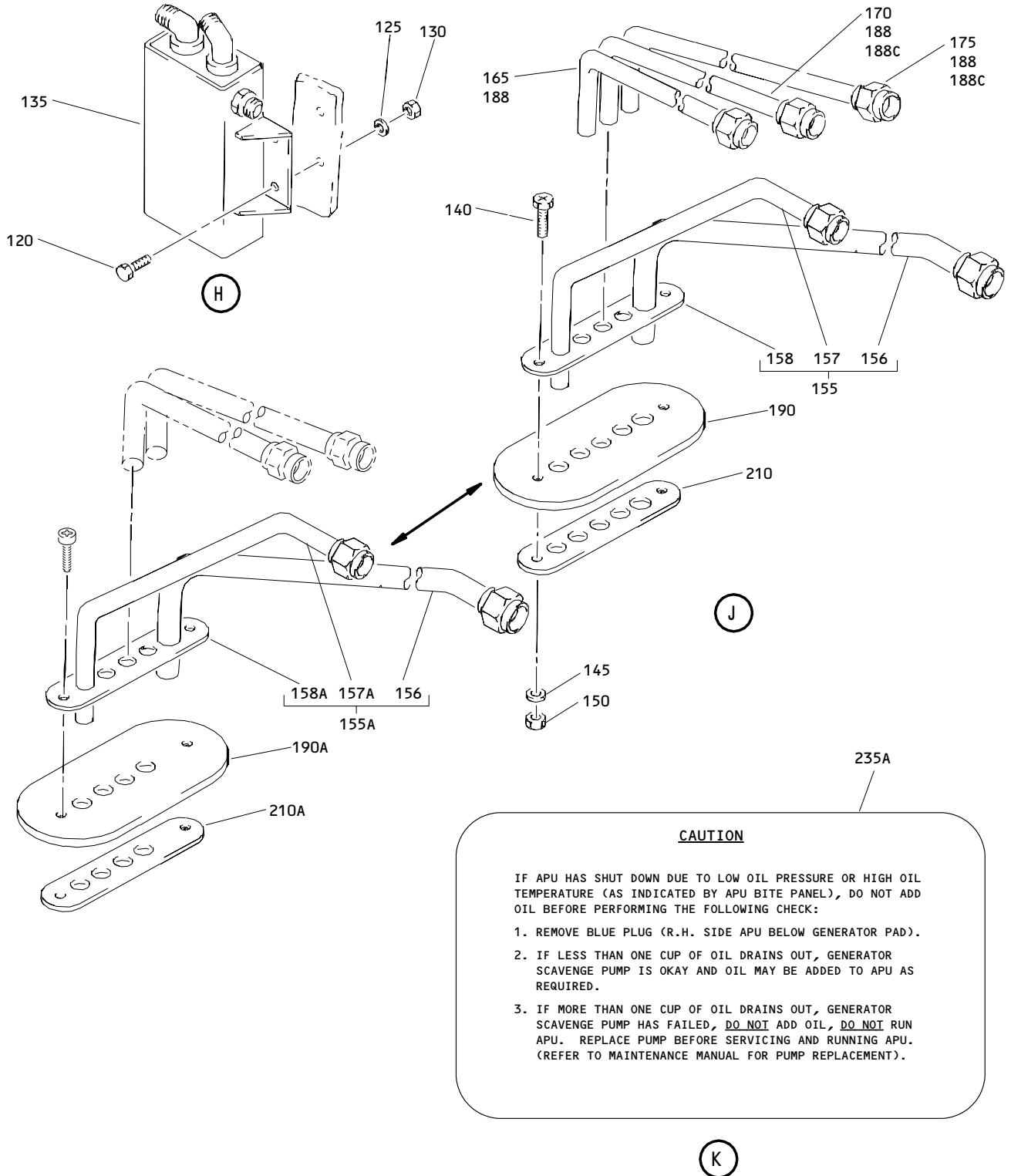
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Auxiliary Power System Auxiliary Power Unit Assembly
 Figure 1 (Sheet 3)

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Auxiliary Power System Auxiliary Power Unit Assembly
 Figure 1 (Sheet 4)

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CAUTION

IF APU HAS SHUT DOWN ON LOW OIL PRESSURE,
DO NOT ADD OIL BEFORE PERFORMING THE FOLLOWING:
SEE BOEING FAULT ISOLATION/MAINTENANCE MANUAL
SECTION 49-11-00 ON "AUTO SHUTDOWN - LOP ON BITE."

(N)

Auxiliary Power System Auxiliary Power Unit Assembly
Figure 1 (Sheet 5)

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
R 01- -1	351N1101-1		UNIT ASSY-AUX PWR, SYS AUX PWR	A	RF
R -1A	351N1101-11		UNIT ASSY-AUX PWR, SYS AUX PWR	B	RF
R -1B	351N1101-12		UNIT ASSY-AUX PWR, SYS AUX PWR	C	RF
R -1C	351N1101-16		UNIT ASSY-AUX PWR, SYS AUX PWR	D	RF
R -1D	351N1101-20		UNIT ASSY-AUX PWR, SYS AUX PWR	E	RF
R -1E	351N1101-21		UNIT ASSY-AUX PWR, SYS AUX PWR	F	RF
R -1G	351N1101-25		UNIT ASSY-AUX PWR, SYS AUX PWR	G	RF
R -1H	351N1101-24		UNIT ASSY-AUX PWR, SYS AUX PWR	H	RF
R -1J	351N1101-26		UNIT ASSY-AUX PWR, SYS AUX PWR	J	RF
R -1K	351N1101-27		UNIT ASSY-AUX PWR, SYS AUX PWR	K	RF
R -1L	351N1101-28		UNIT ASSY-AUX PWR, SYS AUX PWR	L	RF
R -1M	351N1101-29		UNIT ASSY-AUX PWR, SYS AUX PWR	M	RF
R -1P	351N1101-31		UNIT ASSY-AUX PWR, SYS AUX PWR	P	RF
R -1Q	351N1101-32		UNIT ASSY-AUX PWR, SYS AUX PWR	N	RF
R -1R	351N1101-33		UNIT ASSY-AUX PWR, SYS AUX PWR	Q	RF
R -1S	351N1101-34		UNIT ASSY-AUX PWR, SYS AUX PWR	R	RF
R -1T	351N1101-35		UNIT ASSY-AUX PWR, SYS AUX PWR	S	RF
R -1U	351N1101-36		UNIT ASSY-AUX PWR, SYS AUX PWR	T	RF
R -1V	351N1101-37		UNIT ASSY-AUX PWR, SYS AUX PWR	U	RF
R -1W	351N1101-38		UNIT ASSY-AUX PWR, SYS AUX PWR	V	RF
R -1X	351N1101-39		UNIT ASSY-AUX PWR, SYS AUX PWR	W	RF
R -1Y	351N1101-40		UNIT ASSY-AUX PWR, SYS AUX PWR	X	RF

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
R 01-1Z	351N1101-41		UNIT ASSY-AUX PWR, SYS AUX PWR	Y	RF
R -2	351N1101-42		UNIT ASSY-AUX PWR, SYS AUX PWR	Z	RF
R -2A	351N1101-43		UNIT ASSY-AUX PWR, SYS AUX PWR	AA	RF
R -2B	351N1101-44		UNIT ASSY-AUX PWR, SYS AUX PWR	AB	RF
R -2C	351N1101-45		UNIT ASSY-AUX PWR, SYS AUX PWR	AC	RF
R -2D	351N1101-46		UNIT ASSY-AUX PWR, SYS AUX PWR	AD	RF
R -2E	351N1101-47		UNIT ASSY-AUX PWR, SYS AUX PWR	AE	RF
R -2F	351N1101-48		UNIT ASSY-AUX PWR, SYS AUX PWR	AF	RF
R -2G	351N1101-49		UNIT ASSY-AUX PWR, SYS AUX PWR	AG	RF
R -2H	351N1101-50		UNIT ASSY-AUX PWR, SYS AUX PWR	AH	RF
R -2J	351N1101-51		UNIT ASSY-AUX PWR, SYS AUX PWR	AJ	RF
R -2K	351N1101-52		UNIT ASSY-AUX PWR, SYS AUX PWR	AK	RF
R -2L	351N1101-53		UNIT ASSY-AUX PWR, SYS AUX PWR	AL	RF
R -2M	351N1101-55		UNIT INSTL-AUX PWR, SYS AUX PWR	AM	RF
R -2N	351N1101-57		UNIT INSTL-AUX PWR, SYS AUX PWR	AN	RF
R -2P	351N1101-58		UNIT INSTL-AUX PWR, SYS AUX PWR	AP	RF
R -2Q	351N1101-59		UNIT INSTL-AUX PWR, SYS AUX PWR	AQ	RF

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
10	NAS6703U4		.BOLT	A	34
-10A	NAS6703U3		.BOLT	B-AL	34
R -10B	BACB30LK3U2		.BOLT- (OPT ITEM 10C)	AM-AQ	34
R -10C	NAS6703U3		.BOLT- (OPT ITEM 10B)	AM-AQ	34
15	AN960C10L		.WASHER	A-AG	34
R -15A	NAS1149C0332R		.WASHER	AH-AQ	34
25	BOE2036-0004		.SEAL-AIR INLET (V16632) (SPEC S351T030-1)		1
30	NAS1805-6P		.NUT		12
35	BACN10GW4AS		.NUT	A-AL	12
40	727810A		.GENERATOR- (V99167) (SPEC S281T001-6) (OPT 727810B (V99167)) (727810A 727810B AND 727810C ARE I/W EXCEPT FOR ETOPS WHERE 727810B AND 727810C ARE APPROVED AND 727810A IS NOT APPROVED UNTIL INSPECTED/MODIFIED PER SUNDSTRAND SERVICE BULLETIN 90EG01-24-6)	A-P	1
-40A	727810B		.GENERATOR- (V99167) (SPEC S281T001-6) (OPT 727810A (V99167)) (727810A 727810B AND 727810C ARE I/W EXCEPT FOR ETOPS WHERE 727810B AND 727810C ARE APPROVED AND 727810A IS NOT APPROVED UNTIL INSPECTED/MODIFIED PER SUNDSTRAND SERVICE BULLETIN 90EG01-24-6)	A-P	1

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ILLUSTRATED PARTS LIST

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -40B	727810C		.GENERATOR- (V99167) (SPEC S281T001-37) (727810A 727810B AND 727810C ARE I/W EXCEPT FOR ETOPS WHERE 727810B AND 727810C ARE APPROVED AND 727810A IS NOT APPROVED UNTIL INSPECTED/MODIFIED PER SUNDSTRAND SERVICE BULLETIN 90EG01-24-6)	Q-AQ	1
R 45 50	BACS12GM3-8 DA8980-6		.SCREW .PLATE-SEAL (V95272) (SPEC S351T040-6)	B,D-A Q	3 1
R -50A -50B	S351T040-8 DA8980-6		.PLATE-SEAL .PLATE-SEAL (REPLS ITEM 50C) (V95272) (SPEC S351T040-6)	A C	1 1
-50C	S351T040-8		.PLATE-SEAL (REPLD BY ITEM 50B)	C	1
55	8TJ99GGE1		.INDICATOR-OIL (V97424) (SPEC S351N101-1)	B,C,E ,G,K, M,P,R ,S,V, W Z,AA, AC,AE ,AG-A J	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
60	MS21902J8		.UNION		1
65	M83248-1-908		.PACKING- (V81349)		1
70A	NAS6706HU4		.BOLT	A,B, D-X,A A-AQ	12
-70B	NAS6706HU5		.BOLT	C	12
75	BACW10BP6AC		.WASHER		12
80	351T0301-1		.BRACKET		3
85A	NAS6706HU3		.BOLT- (ITEM 85B WITH ITEM 87 UNDER ITEM 90 MAY BE USED IN LIEU OF ITEM 85A)	A,E,G ,K, M-P,R ,T,V, X,Z,A C AD,A G-AL	3
85B	NAS6706HU4		.BOLT- (ITEM 85B WITH ITEM 87 UNDER ITEM 90 MAY BE USED IN LIEU OF ITEM 85A)	A,E,G ,K, M-P,R ,T,V, X,Z,A C AD,A G-AL	3
-85C	NAS6706HU5		.BOLT	C	3
-85E	NAS6706HU3		.BOLT	B,D,F ,H,J, L,Q,S ,U,W, Y,AA AB,AE ,AF,A M-AQ	3

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-87	AN960C616L		.WASHER- (ITEM 85B WITH ITEM 87 UNDER ITEM 90 MAY BE USED IN LIEU OF ITEM 85A)	A,E,G ,K, M-P,R ,T,V, X,Z,A C AD,AG	3
90	BACW10BP6AC		.WASHER- (ITEM 85B WITH ITEM 87 UNDER ITEM 90 MAY BE USED IN LIEU OF ITEM 85A)	A,E,G ,K, M-P,R ,T,V, X,Z,A C AD,A G-AL	3
-90A	BACW10BP6AC		.WASHER	B-D,F ,H,J, L,Q,S ,U,W, Y,AA AB,AE ,AF,A M-AQ	3
95	351T0302-1		.PAD-LIFTING		1
100	OMP2505-2		.FITTING- (VK0667) (OPT ITEM 100A)	A-AL	1
-100A	87-5023-1		.COUPLING- (V99321) (OPT ITEM 100)	A-AL	1
105	OMP2505-13S		.CAP- (VK0557) (OPT ITEM 105A)	A-AL	1
-105A	93-7766		.COVER-DUST (V99321) (OPT ITEM 105)	A-AL	1
107	MS28778-6		.PACKING	A-AL	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-110	OMP2506-2		.FITTING- (VK0667) (OPT ITEM 110A)	A-AL	1
-110A	86-4252-1-1		.COUPLING- (V99321) (OPT ITEM 110)	A-AL	1
115	OMP2506-13S		.CAP- (VK0667) (OPT ITEM 115A)	A-AL	1
-115A	93-7764		.COVER-DUST (V99321) (OPT ITEM 115)	A-AL	1
117	MS28778-8		.PACKING	A-AL	1
120	NAS1801-3-8		.SCREW	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	2
125	AN960C10L		.WASHER	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG	2
-125A	NAS1149C0332R		.WASHER	AJ,AL	2

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-130	BACN10JC3C		.NUT	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	2
R 135	356N1003-1		.TANK ASSY-DRAIN	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1
140	NAS1801-3-9		.SCREW	A-AL	2
145	AN960C10L		.WASHER	A-AL	2
-145A	NAS1149C0332R		.WASHER	AJ,AL	2
150	BACN10JC3C		.NUT	A-AL	2
155	356N1010-11		.DRAIN ASSY-MAST	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1
155A	356N1010-16		.COVER ASSY	B,D,F ,H,J, L,P,Q ,S,U, W,Y AA,AB ,AE,A F,AH, AK	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- 156 -156G	356N1010-12 DB0S13BX08H		..TUBE ASSY ...SLEEVE- (V14798) (SPEC BACS13BX08H) (OPT 2-02903-08H (V11328)) (OPT 35235V08 (V08199)) (OPT AP2097-08H (V01673)) (OPT AFP175V08 (V30974)) (OPT AFP175V08 (V30974))	A-AL A-AL	1 1
-156N 157	MS21921-8S 356N1010-13		...NUT ..TUBE ASSY	A-AL A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1 1
157A	356N1010-17		..TUBE ASSY	B,D,F ,H,J, L,P,Q ,S,U, W,Y AA,AB ,AE,A F,AH, AK	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -157G	DB0S13BX06H		...SLEEVE- (V14798) (SPEC BACS13BX06H) (OPT 2-02903-06H (V11328)) (OPT 35235V06 (V08199)) (OPT AP2097-06H (V01673)) (OPT AFP175V06 (V30974)) (OPT AFP175V06 (V30974))	A-AL	1
-157N 158	MS21921-6S 356N1006-1		...NUT ..STIFFENER	A-AL A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1 1
158A	356N1006-2		..STIFFENER	B,D,F ,H,J, L,P,Q ,S,U, W,Y AA,AB ,AE,A F,AH, AK	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
R 01-160	351N1101-6		.TUBE ASSY	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1
-160A	351N1101-17		.TUBE ASSY	B,D,F ,H,J, L,P,Q ,S,U, W,Y AA,AB ,AE,A F,AH, AK	1
165	351N1101-3		.TUBE ASSY	A,C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1
170	351N1101-4		.TUBE ASSY	A-AL	1
175	351N1101-5		.TUBE ASSY	A-AL	1
180	351N1101-13		.TUBE ASSY	A-AG	1
185	351N1101-14		.TUBE ASSY	A-AG, AJ,AL	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -186	DB0S13BX06H		..SLEEVE- (V14798) (SPEC BACS13BX06H) (OPT 2-02903-06H (V11328)) (OPT 35235V06 (V08199)) (OPT AP2097-06H (V01673)) (OPT AFP175V06 (V30974)) (OPT AFP175V06 (V30974))	A,C,E ,G,K, M,N,R ,T,V, X,Y AC,AD ,AG,A J,AL	1
-186A	DB0S13BX06H		..SLEEVE- (V14798) (SPEC BACS13BX06H) (OPT 2-02903-06H (V11328)) (OPT 35235V06 (V08199)) (OPT AP2097-06H (V01673)) (OPT AFP175V06 (V30974)) (OPT AFP175V06 (V30974))	B,D,F ,H,J, L,P,Q ,S,U, W,Z AA,AB ,AE,A F,AH, AK	1
-186G	DB0S13BX06H		..SLEEVE- (V14798) (SPEC BACS13BX06H) (OPT 2-02903-06H (V11328)) (OPT 35235V06 (V08199)) (OPT AP2097-06H (V01673)) (OPT AFP175V06 (V30974)) (OPT AFP175V06 (V30974)) (USED ON ITEMS 160, 160A, 180, 185)	A-AN	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -187	MS21921-6S		..NUT	A,C,E ,G,K, M,N,R ,T,V, X,Y AC,AD ,AG,A J,AL A-AN	1
-187G	MS21921-6S		..NUT- (USED ON ITEMS 160, 160A, 180, 185)		1
188	BACT11SD2F		..TAPE-DRAIN	A,C,E ,G,K, M,N,R ,T,V, X,Y AC,AD ,AG,A J,AL	1
188C	BACT11SD2F		..TAPE-DRAIN	B,D,F ,H,J, L,P,Q ,S,U, W,Z AA,AB ,AE,A F,AH, AK	1
190	356N1002-1		.SEAL	A-C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-190A	356N1002-2		.SEAL	D,F,H ,J,L, P,Q,S ,U,W, Y AA,AB ,AE,A F,AH, AK	1
210	356N1006-1		.STIFFENER	A-C,E ,G,K, M,N,R ,T,V, X,Z AC,AD ,AG,A J,AL	1
210A	356N1006-2		.STIFFENER	D,F,H ,J,L, P,Q,S ,U,W, Y AA,AB ,AE,A F,AH, AK	1
215	351N1102-1		.CLIP	A-AL	1
-216	NAS6703U2		.BOLT	AD-AL	1
-217	NAS1149C0332R		.WASHER	AD-AL	1
-218	MS21042L3		.NUT	AD-AL	1
220	MS21924-6S		.UNION	A-AL	1
225	MS28775-128		.PACKING	B,C,E ,G,K, M-P,R ,S,U, W,Z AC,AD ,AG,A H,AJ	1
230B	381326-2		.POWER UNIT- (V99193) (SPEC S351T020-7) (SPEC S351T020-9)	C	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- -230D	381326-2-1		.POWER UNIT- (V99193) (SPEC S351T020-11)	A,D,E	1
-230E	381326-2-2		.POWER UNIT- (V99193) (SPEC S351T020-13)	F	1
-230F	381326-2-3		.POWER UNIT- (V99193) (SPEC S351T020-15) (OPT 381326-2-4 (V99193))	B,G,H	1
-230G	3800298-1-2		.POWER UNIT- (V99193) (SPEC S351T020-201)	J,K,N ,P-T	1
-230H	3800298-1-1		.POWER UNIT-AUX (V99193) (SPEC S351T020-200)	L,M	1
-230J	3800298-1-3		.POWER UNIT- (V99193) (SPEC S351T020-202)	U,V	1
-230K	3800298-1-4		.POWER UNIT- (V99193) (SPEC S351T020-203)	W,Y,Z	1
-230L	S351T020-204		DELETED		
-230M	3800298-1-5		.POWER UNIT- (V99193) (SPEC S351T020-204)	X,A A-AG	1
-230N	S315T020-205		DELETED		
R -230P	381326-2-4		.POWER UNIT- (V99193) (SPEC S351T020-15) (OPT 381326-2-3 (V99193))	B,G,H	1
R -230Q	3800298-1-6		.POWER UNIT- (V99193) (SPEC S351T020-205)	AH-AN	1
R -230R	S351T020-206		.POWER UNIT	AP,AQ	1
235A	BAC27NAP0014		.DECAL	A,C	1
235B	BAC27NAP0017		.DECAL	B,D-P ,R-T	1
-235C	BAC27NAP0017		.DECAL- (LIMITED)	Q,U,V	1
237	BAC27TAP0044		.DECAL- (LIMITED)	Q,U,V	1
-237A	BAC27TAP0044		.DECAL	W-AQ	1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE	EFF CODE	QTY PER ASSY
			1234567		
01- 242	BAC27TAP0043		.MARKER	T-AQ	1
244	BAC27NAP0018		.DECAL		1
-245	BACT11SD2F		.TAPE-DRAIN (INSTALL ON 356N1010-11, -16)	A-AL	1

- Item Not Illustrated

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