

 **BOEING**
COMPONENT
MAINTENANCE MANUAL

TO: ALL HOLDERS OF AUXILIARY POWER UNIT EXHAUST DUCT ASSEMBLY COMPONENT
MAINTENANCE MANUAL 49-13-03

REVISION NO. 1 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.

DESCRIPTION OF CHANGE

TITLE PAGE

Added top assemblies 354T0201-1 thru -8.

1

301

401

501

701

701,1003-1004,

1006-1008,1010-1012

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HIGHLIGHTS

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AUXILIARY POWER UNIT EXHAUST DUCT ASSEMBLY

PART NUMBERS 354T0201-1 THRU -8,-10

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

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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

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REVISION RECORD

01

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**BOEING**
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MAINTENANCE MANUALTEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRRB13210	NOV 01/99

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TR & SB RECORD

01

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			*701	NOV 01/00	01.1
			702	NOV 01/99	01
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402	BLANK				
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502	BLANK				

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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.

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:

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INTRODUCTION

01

Page 1

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AUXILIARY POWER UNIT EXHAUST DUCT ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

- A. The auxiliary power unit (APU) exhaust duct assembly has a bellows, four duct insulations, and a duct assembly.

2. Operation

- A. The auxiliary power unit (APU) exhaust duct assembly directs the APU turbine exhaust to the outside of the airplane.

3. Leading Particulars (Approximate)

- A. Length -- 54 inches
B. Width -- 17 inches
C. Height -- 32 inches
D. Weight -- 75 pounds

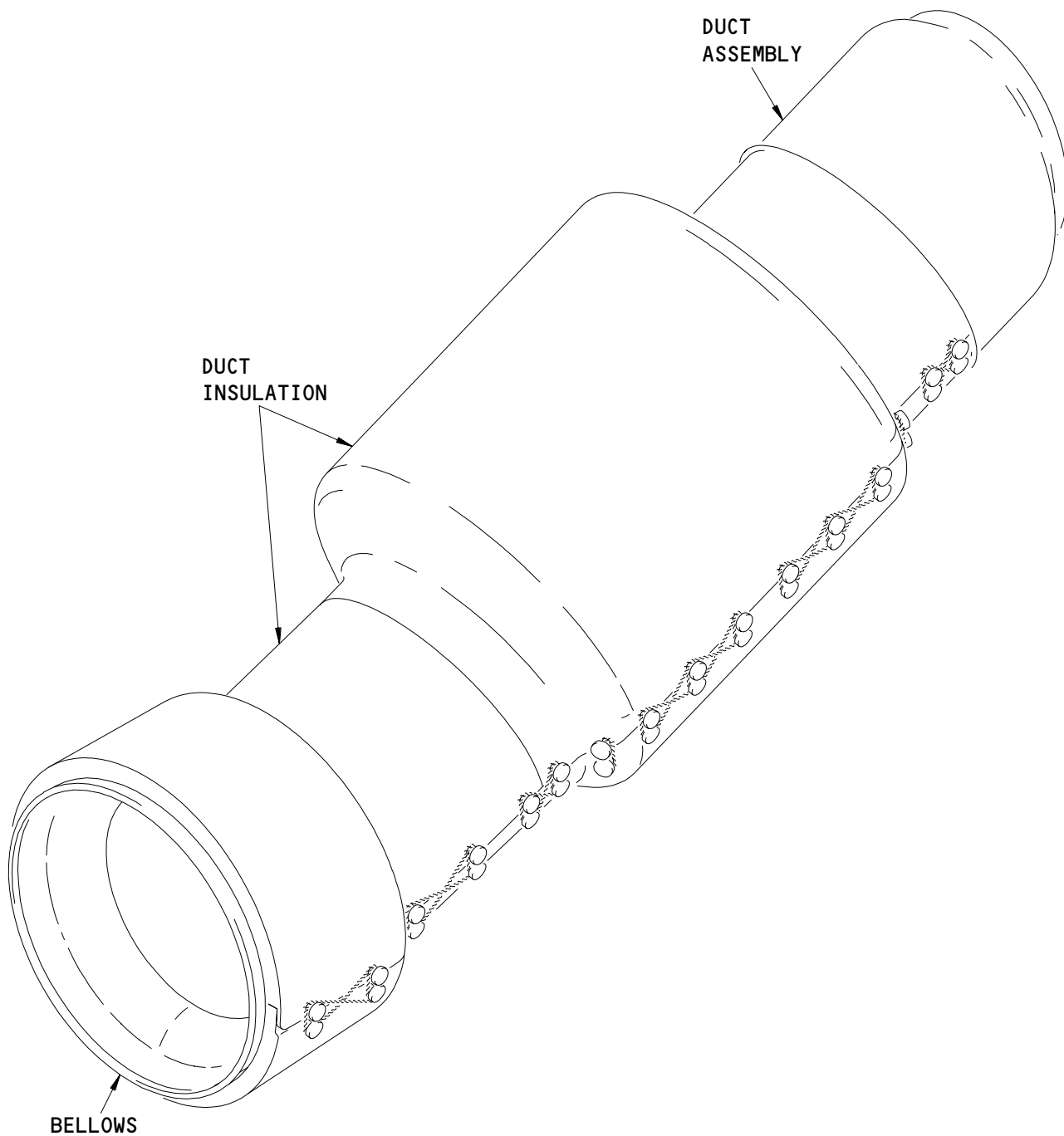
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DESCRIPTION & OPERATION

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Auxiliary Power Unit Exhaust Duct Assembly
Figure 1

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DESCRIPTION & OPERATION

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DISASSEMBLY1. General

- A. This procedure has the data necessary to disassemble the APU exhaust duct assembly (1A thru 1H).
- B. Disassemble this component sufficiently to isolate the defects, do the necessary repairs, and put the component back to a serviceable condition.
- C. Refer to the Standard Overhaul Practices Manual (SOPM) for details of the SOPM chapters identified in this procedure.

2. Disassembly

A. Procedure

- (1) Use standard industry procedures and the steps shown below to disassemble this component.
- (2) Remove all the lockwire from the capstans on the duct insulations (IPL Fig. 1 and 2; 5, 10, 15, 20).
- (3) Remove the duct insulations (IPL Fig. 1 and 2; 5, 10, 15, 20).
- (4) Remove the nuts (35), washers (IPL Fig. 1; 30, IPL Fig. 2; 25, 30), and bolts (IPL Fig. 1; 25, IPL Fig. 2; 20) from the duct assembly (45).
- (5) Remove the bellows (40) from the duct assembly (45).

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CLEANING1. General

- A. This procedure has the data necessary to clean the APU exhaust duct assembly (1A thru 1H).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for details of the SOPM chapters identified in this procedure.
- C. Refer to IPL Fig. 1 for item numbers.

2. Cleaning

A. References

- (1) SOPM 20-30-03, General Cleaning Procedures

B. Procedure

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

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CHECK1. General

- A. This procedure has the data necessary to find defects in the material of the specified parts.
- B. Refer to FITS AND CLEARANCES for the design dimension and wear limits.
- C. Refer to the Standard Overhaul Practices Manual (SOPM) for details of the SOPM chapters identified in this procedure.
- D. Refer to IPL Fig. 1 for item numbers.

2. Check

A. References

- (1) SOPM 20-20-02, Penetrant Methods of Inspection

B. Procedure

- (1) Do a visual check:

- (a) Use standard industry procedures to examine the APU exhaust duct assembly (1A thru 1H) for all possible damage and/or cracks.

- (b) If you find damage and/or cracks when you do the visual check, do the penetrant check, as applicable.

- (2) Do a penetrant check on these parts which show possible damage and/or cracks by a visual check:

- (a) Bellows (40)

- (b) Duct assy (45)

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ASSEMBLY

1. General

- A. This procedure has the data necessary to assemble the APU exhaust duct assembly (1A thru 1H).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for details of the SOPM chapters identified in this procedure.

2. Assembly

A. References

- (1) SOPM 20-50-01, Bolt and Nut Installation

B. Procedure

- (1) Use standard industry procedures and the steps shown below to assemble this component.
- (2) Install the bellows (40) on the duct assembly (45) with bolts (IPL Fig. 1; 25, IPL Fig. 2; 20), washers (IPL Fig. 1; 30, IPL Fig. 2; 25, 30), and nuts (35). Use one washer under bolt head and one washer under the nut.

NOTE: Make sure the drain hole on the bellows (40) is at the bottom position as shown in Fig. 701.

- (3) Install the duct insulations (5, 10, 15, 20) on the bellows (40) and the duct assembly (45). See Fig. 701 for position requirement of the duct insulations (5, 10).

CAUTION: DO NOT USE THE LOCKWIRE TO PULL THE DUCT INSULATIONS INTO PLACE. THIS WILL CAUSE THE CAPSTANS TO BREAK FROM THE DUCT INSULATION.

- (4) Install the lockwire on the duct insulations (5, 10, 15, 20) as shown in Fig. 701:

- (a) Make sure the flaps of the duct insulations are snug.

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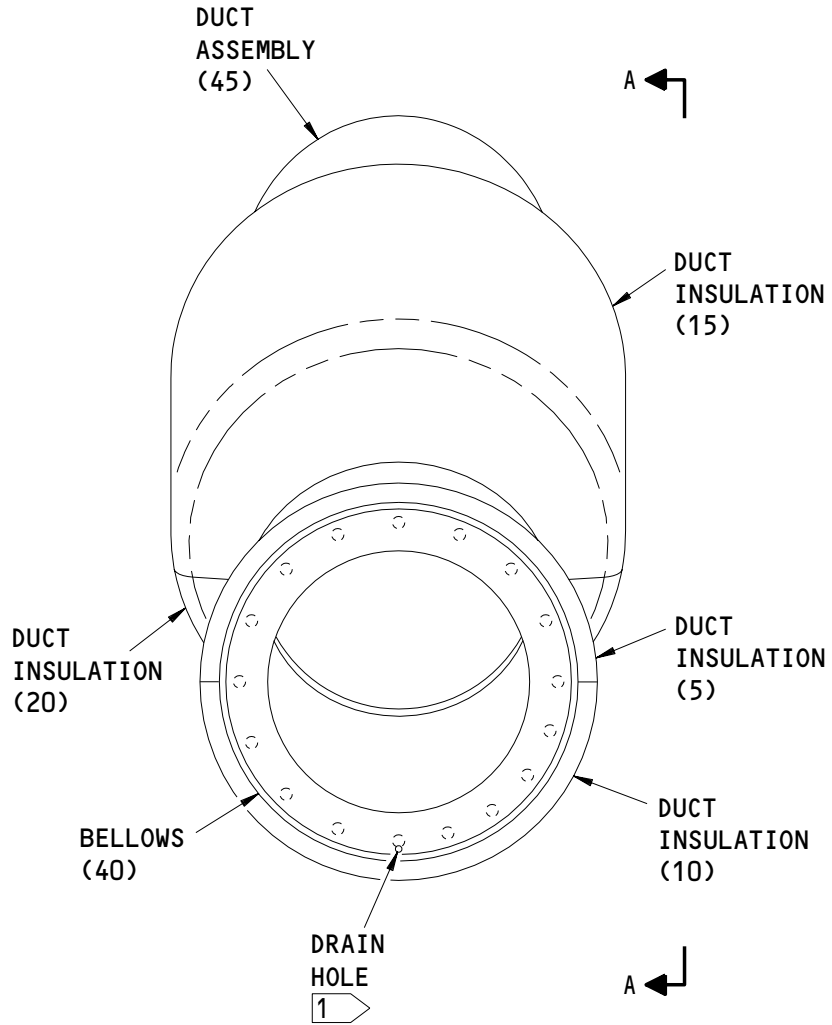
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- (b) Install the lockwire on the capstans of the duct insulation (5, 10, 15, 20). Make sure to wrap a minimum of one complete turn around the capstan each time the lockwire passes the capstan. Do not connect the lockwire to more than three pairs of capstans.

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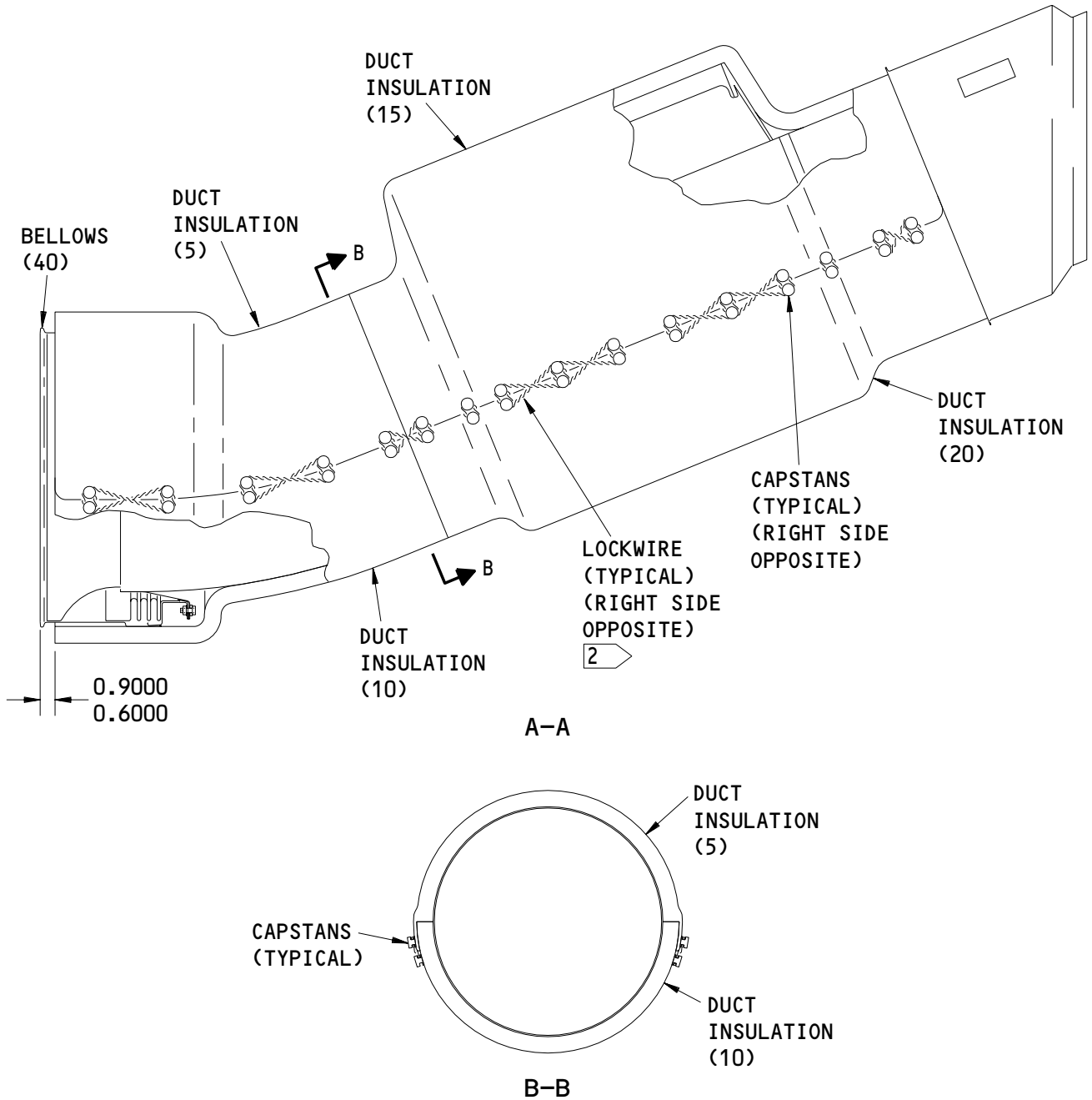
Auxiliary Power Unit Exhaust Duct Assembly
Figure 701 (Sheet 1)

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1 DRAIN HOLE MUST BE AT THE BOTTOM POSITION

2 LOCKWIRE OPTIONS: P/N MS20995C41
 P/N MS20995N32
 P/N MS20995N40

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

Auxiliary Power Unit Exhaust Duct Assembly
 Figure 701 (Sheet 2)

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ILLUSTRATED PARTS LIST

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

2. Indentures show parts relationships as follows:

Assembly

Detail Parts for Assembly

Subassembly

Attaching Parts for Subassembly

Detail Parts for Subassembly

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

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

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

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

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

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

6. Parts Interchangeability

Optional
(OPT)

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

Supersedes, Superseded By
(SUPSDS, SUPSD BY)

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

Replaces, Replaced By
(REPLS, REPLD BY)

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

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VENDORS

06689 EXOTIC METALS FORMING COMPANY
5411 SOUTH 226TH STREET
KENT, WASHINGTON 98032
FORMERLY IN SEATTLE WASHINGTON V0350B

07649 SENIOR FLEXONICS METAL BELLOWS DIV
1075 PROVIDENCE HWY
SHARON, MASSACHUSETTS 02067
METAL BELLOWS SEE PARKER-HANNIFIN V92003

70628 VESPER CORP ARROWHEAD PRODUCTS
4411 KATELLA AVENUE
LOS ALAMITOS, CALIFORNIA 90720-3514
FORMERLY FEDERAL-MOGUL CORP RUBBER AND PLASTICS GROUP
AND ARROWHEAD PRODUCTS DIV OF INDIAN BAR CO

92003 PARKER-HANNIFIN CORPORATION
18321 JAMBOREE BOULEVARD PO BOX C-19510
IRVINE, CALIFORNIA 92713
FORMERLY PARKER AIRCRAFT CO HYDROULIC VALVE DIVN V02698
FORMERLY SCHULZ TOOL & MFG CO V82267 OR PARKER-BERTEA
AEROSPACE GROUP

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACB30LJ4U3		1	25	17
		2	20	17
BACN10JC4C		1	35	17
		2	35	17
NAS1149C0432R		2	25A	17
NAS1149C0463R		1	30	34
		2	25	17
		2	30	17
S354T010-1		2	5	1
S354T010-11		1	5A	1
S354T010-12		1	10A	1
S354T010-13		1	15A	1
S354T010-14		1	20A	1
S354T010-15		1	50	1
S354T010-17		1	40A	1
S354T010-2		2	10	1
S354T010-3		2	15	1
S354T010-4		2	5A	1
S354T010-5		2	10A	1
S354T010-6		2	15A	1
S354T010-7		2	10B	1
S354T010-8		2	15B	1
S354T010-9		2	5B	1
S354T020-1		2	40	1
S354T020-16		2	40A	1
10419-01		1	40A	1
10419-1		1	40B	1
10420-1		1	5A	1
10420-2		1	10A	1
10420-3		1	15A	1
10420-4		1	20A	1
10420-5		1	50	1
120015001		2	40A	1
200-169-5001		2	40A	1
354T0201-1		1	1B	RF
		2	1A	RF
354T0201-10		1	1A	RF
		2	1B	RF
354T0201-3		1	1D	RF
		2	1C	RF
354T0201-4		1	1E	RF
		2	1D	RF

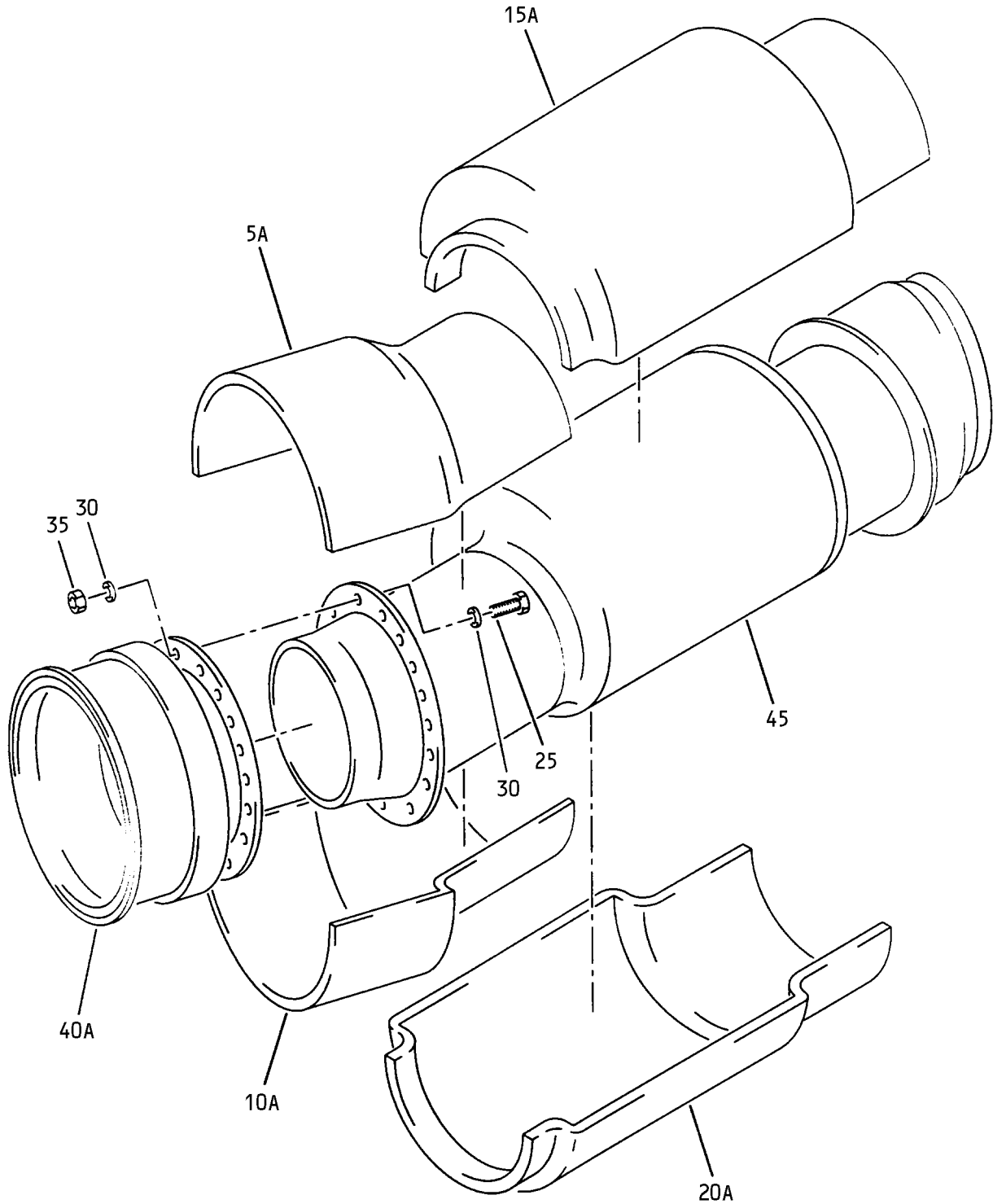
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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
354T0201-5		1	1F	RF
		2	1E	RF
354T0201-6		1	1G	RF
		2	1F	RF
354T0201-7		1	1H	RF
		2	1G	RF
354T0201-8		1	1J	RF
		2	1H	RF
354T0202-1		2	45	1
354T0202-7		1	45	1
400826-1		2	5	1
400826-2		2	10	1
400826-3		2	15	1
400832-4		2	5A	1
400832-5		2	10A	1
400832-6		2	15A	1
400832-7		2	10B	1
400832-8		2	15B	1
400832-9		2	5B	1
77134		2	40	1
77134-1		2	40A	1

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APU Exhaust Duct Assembly
Figure 1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1A	354T0201-10		DUCT ASSY-APU EXH	A	RF
-1B	354T0201-1		DUCT ASSY-APU EXH (FOR DETAILS SEE FIG. 2)	B	RF
-1C	354T0201-2		DUCT ASSY-APU EXH (FOR DETAILS SEE FIG. 2)	C	RF
-1D	354T0201-3		DUCT ASSY-APU EXH (FOR DETAILS SEE FIG. 2)	D	RF
-1E	354T0201-4		DUCT ASSY-APU EXH (REWORK) (FOR DETAILS SEE FIG. 2)	E	RF
-1F	354T0201-5		DUCT ASSY-APU EXH (FOR DETAILS SEE FIG. 2)	F	RF
-1G	354T0201-6		DUCT ASSY-APU EXH (FOR DETAILS SEE FIG. 2)	G	RF
-1H	354T0201-7		DUCT ASSY-APU EXH (REWORK) (FOR DETAILS SEE FIG. 2)	H	RF
-1J	354T0201-8		DUCT ASSY-APU EXH (FOR DETAILS SEE FIG. 2)	J	RF
5	S354T010-11		DELETED		
5A	10420-1		.INSULATION-DUCT (V06689) (SPEC S354T010-11)	A	1
10	S354T010-12		DELETED		
10A	10420-2		.INSULATION-DUCT (V06689) (SPEC S354T010-12)	A	1
15	S354T010-13		DELETED		
15A	10420-3		.INSULATION-DUCT (V06689) (SPEC S354T010-13)	A	1

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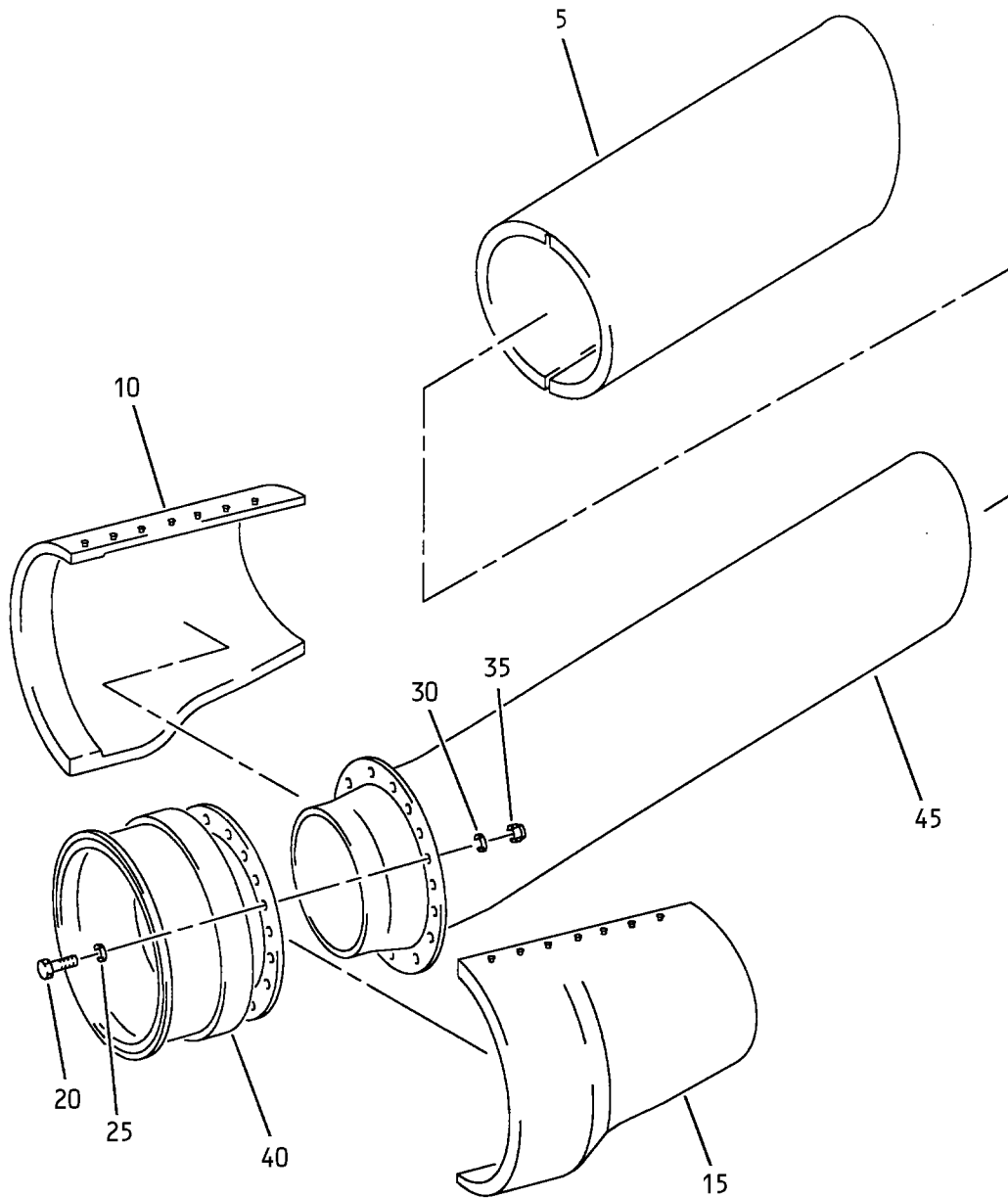
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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- 20 20A	S354T010-14 10420-4		DELETED .INSULATION-DUCT (V06689) (SPEC S354T010-14)	A	1
25 30 35 40 40A	BACB30LJ4U3 NAS1149C0463R BACN10JC4C S354T020-17 10419-01		.BOLT .WASHER .NUT DELETED .BELLOWS- (V06689) (SPEC S354T010-17) (OPT 10419-1 (V06689))	A A A A	17 34 17 1
-40B	10419-1		.BELLOWS- (V06689) (SPEC S354T010-17) (OPT 10419-01 (V06689))	A	1
45 50	354T0202-7 10420-5		.DUCT ASSY ..BLANKET-THRM INSULATION (V06689) (SPEC S354T010-15)	A A	1 1

- Item Not Illustrated

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APU Exhaust Duct Assembly
Figure 2

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
-1A	354T0201-1		DUCT ASSY-APU EXH	B	RF
-1B	354T0201-2		DUCT ASSY-APU EXH	C	RF
-1C	354T0201-3		DUCT ASSY-APU EXH	D	RF
-1D	354T0201-4		DUCT ASSY-APU EXH (REWORK)	E	RF
-1E	354T0201-5		DUCT ASSY-APU EXH	F	RF
-1F	354T0201-6		DUCT ASSY-APU EXH	G	RF
-1G	354T0201-7		DUCT ASSY-APU EXH (REWORK)	H	RF
-1H	354T0201-8		DUCT ASSY-APU EXH	J	RF
5	400826-1		.INSULATION-DUCT (V70628)	B,D,E ,G,H	1
			(SPEC S354T010-1)		
-5A	400832-4		.INSULATION-DUCT (V70628)	C	1
			(SPEC S354T010-4)		
			(OPT ITEM 5B)		
-5B	400832-9		.INSULATION-DUCT (V70628)	C	1
			(SPEC S354T010-9)		
			(OPT ITEM 5A)		
-5C	400832-9		.INSULATION-DUCT (V70628)	F,J	1
			(SPEC S354T010-9)		
10	400826-2		.INSULATION-DUCT (V70628)	B,D,E ,G,H	1
			(SPEC S354T010-2)		
-10A	400832-5		.INSULATION-DUCT (V70628)	C	1
			(SPEC S354T010-5)		
			(OPT ITEM 10B)		
-10B	400832-7		.INSULATION-DUCT (V70628)	C	1
			(SPEC S354T010-7)		
			(OPT ITEM 10A)		
-10C	400832-7		.INSULATION-DUCT (V70628)	F,J	1
			(SPEC S354T010-7)		

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-15	400826-3		.INSULATION-DUCT (V70628) (SPEC S354T010-3)	B,D,E ,G,H	1
-15A	400832-6		.INSULATION-DUCT (V70628) (SPEC S354T010-6) (OPT ITEM 15B)	C	1
-15B	400832-8		.INSULATION-DUCT (V70628) (SPEC S354T010-8) (OPT ITEM 15A)	C	1
-15C	400832-8		.INSULATION-DUCT (V70628) (SPEC S354T010-8)	F,J	1
20	BACB30LJ4U3		.BOLT	B-J	17
25	NAS1149C0463R		.WASHER	B,D,E ,G,H	17
-25A	NAS1149C0432R		.WASHER	C,F,J	17
30	NAS1149C0463R		.WASHER	B-J	17
35	BACN10JC4C		.NUT	B-J	17
40	77134		.BELLOWS ASSY- (V92003) (SPEC S354T020-1)	B-F	1
-40A	200-169-5001		.BELLOWS ASSY- (V07649) (SPEC S354T020-16) (OPT 120015001 (V78769)) (OPT 77134-1 (V92003))	G-J	1
45	354T0202-1		.DUCT ASSY	B	1
-45A	354T0202-2		.DUCT ASSY	C	1
-45B	354T0202-3		.DUCT ASSY	D,G	1
-45C	354T0202-4		.DUCT ASSY	E,H	1
-45D	354T0202-5		.DUCT ASSY	F,J	1

- Item Not Illustrated

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