TO: ALL HOLDERS OF AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY OVERHAUL MANUAL, 49-13-01

REVISION NO. 16, DATED JUL 1/09

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D & O	D / Assy	Cleaning	Insp/Chk	Repair	Assy	F / C	Test	T / Shooting	S / Tools	Storage	IPL	L / Overhaul
Changed the part number of rivet (22)												X	

AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY

49-13-01

BOEING P/N 65-62575-1, -21, -22, -29, -31, -32, -33, -35, -45, -46
65C36935-6, -9, -10
65C36936-3, -6, -8
65C36937-10

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
49-1015, Rev 1		PRR 31887	Jun 10/71
		PRR 32410	Dec 25/74
49-1025			Dec 25/75
49-1026			Jul 5/76
		PRR 32457-R	Jul 5/76
49-1101		PRR 33890-99	Sep 5/93
49-1101, Rev 2			Mar 1/95

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision
F Indicates foldout pages - print one side only

	PAGE	DATE	PAGE	DATE	PAGE	DATE
	49-13-01					
	T-1	Mar 1/08				
	T-2	BLANK				
*	LEP-1	Jul 1/09				
	LEP-2	BLANK				
	T/C-1	Sep 5/93				
	T/C-2	BLANK				
	1	Sep 5/84				
	2	Jun 1/97				
	3	Mar 1/95				
	4	Mar 1/08				
	5	Mar 1/95				
	6	Mar 1/08				
	7	Sep 5/93				
	8	Sep 5/93				
	9	Jul 1/98				
	10	Mar 1/08				
	11	Mar 1/08				
	12	Mar 1/08				
	13	Mar 1/08				
*	14	Jul 1/09				
	15	Mar 1/08				
	16	Mar 1/08				
	17	Mar 1/08				
	18	BLANK				

TABLE OF CONTENTS

*[1] Special instructions not required. Use standard industry practices.

AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY

1. DESCRIPTION AND OPERATION

A. Description

(1) The APU exhaust duct muffler assembly is a cylindrical metal unit with a felt metal liner.

B. Operation

(1) The muffler is fitted inside the heat shield in such a way that a cylindrical air space exists between the muffler and the heat shield. A felt metal liner is installed on the inside surface of the muffler for reducing the sound level of the APU exhaust. The exhaust duct is air cooled by aspiration. The gas flow in the muffler develops negative pressure at the gap between the turbine exhaust flange and the forward end of the muffler. This draws the ambient cooling air through the air holes in the aft fairing. The cooling air passes between the inside surface of the heat shield and the outside surface of the muffler into the opening aft of the turbine exhaust port, where it mixes with the engines exhaust gases and is exhausted overboard.

2. 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.

3. CLEANING

A. Flush unit with approximately 1 gallon of MEK. Air dry.

B. Heat caustic alkali cleaning solution to 175°F and immerse muffler in solution. Leave muffler in solution for 5 minutes.

C. Agitate solution to wash muffler interior thoroughly, and lightly brush all over with bristle brush.

D. Remove muffler from cleaning solution and immerse in detergent solution heated to 175°F.

E. Agitate detergent solution and brush with bristle brush.

F. Remove muffler from detergent solution and stand it on one end to drain.

G. After draining, place muffler in a hot environment at 150°F for 5 hours.

H. Remove muffler from hot air environment and cool to room temperature.

I. Materials

(1) Solvent -- Methyl Elthyl Ketone (MEK) (Ref. 20-60-01).

(2) Cleaning solution, caustic alkali -- Heavy duty soak cleaner (Ref. 20-60-01). Mix one part of caustic compound with 35 parts water.

(3) Detergent solution -- Any commercially available detergent can be used (Ref. 20-60-01). Mix in ratio of 1.5 pounds to 35 gallons of water.

4. INSPECTION/CHECK

A. Check for foreign matter trapped inside muffler.

B. Visually check fusion welds.

C. Special Checks

(1) Allowable Wrinkles

(a) Maximum height - 0.25 inch

(b) Ratio height to 1/2 width - 1:4

(c) Length - No limit

(d) Form - Smooth contour; no sharp edges allowed

(e) Number - No limit

(2) Allowable Cracks (Fig. 2)

(a) Maximum length of crack - 2.0 inches except tube (16) and liner (19).

(b) Minimum space between cracks - Not less than 2 times length of crack.

(c) Total length of all cracks in any one panel not to exceed 10.0 inches.

(d) Cracks originating from rivet holes not to exceed 0.5 inch in length.

(e) Cracks originating from the following are not permissible.

1) Adjacent rivet holes.

2) Edge of material

3) Support brackets (1, 2 and 2A) and their attachment points.

(f) Maximum length of cracks in tube (16) and liner (19) is 3.0 inches.

5. REPAIR

A. Repair (Fig. 2)

(1) If liner (19) defects exceed limits in par. 4.C., and tube (16) is fractured, repair as follows:

(a) Trim damaged area per Fig. 1, Detail A. If damaged area exceeds 9 square inches, replace part.

(b) Insert cerafelt (Thermal Ceramics, 2102 Old Savannah Road, Augusta, Georgia 30903) 6-pound density (8-pound optional), 3/4 inch thick, through liner (19) (Fig. 1, Detail B).

(c) Patch with 0.040 THK 10 RAYLS nominal flow resistance 347 CRES porous metal sheet, feltmetal, FM 125 (Technetics, 1600 Industrial Drive, Deland, Florida 32724). Optional — Aircraft Porous Media, Specification PMS1507 (Pall Trinity Micro Corp, Micro Metallic Division, Route 281, Cortland, New York 13045) with doubler being 0.032 THK 321 or 347 CRES per MIL-S-6721 ANL (Fig. 1, Detail C).

NOTE: Do not attempt to remove liner (19) from muffler assembly to patch repair. Damage to liner may result. If fracture is in an inaccessible area, replace liner.

(d) Rivet with MS20604MP4W2-4 as required.

(2) If cracks or holes exist in tube (16), liner (9 and 19), skin (7, 12 and 20), refer to par. 4.C. If repair is required proceed as follows:

(a) Trim damaged area per Fig. 1, Detail A.

(b) Patch - skin (7 and 12) or liner (9), patch with 0.032 THK 6AL-4V TI, MIL-T-9046 or AMS 4911, type III COMP C ANL; skin (20), patch with 0.032 THK 321 or 347 CRES per MIL-S-6721 ANL; tube (16) or liner (19), refer to par. 5.A.(1)(c).

(c) Patch skin (7, 12 and 20) on the outside of muffler. Patch liner (9) on the inside of muffler (Fig. 1, Detail C and D).

(d) Rivet

1) On skin (7 and 12), liner (9), skin (20) use rivets (22 thru 22H) as required (Fig. 1, Detail D).

2) On tube (16) or liner (19) use MS20604MP4W2-4 rivets as required (Fig. 1, Detail C).

B. Replacement (Fig. 2)

(1) Replace liner (9 and 19) as follows:

(a) Remove rivets (24) from liner (19), skin (20), and gasket (21) (Fig. 1, Detail E) (65-62575-1 only).

(b) Remove rivets attaching skin (12) and skin (7). Separate skin (12) from skin (7).

(c) Remove rivets attaching liner (9) and liner (19). Separate liner (9 and 19).

(d) Attach gasket (21) to skin (20) using rivets (24) countersunk both sides, using same rivet pattern (65-62575-1 only).

(e) Attach liner (19), sleeve (8B), spacer (8A), and shims (8, 8C) to inner baffle (18) with rivet (22F) (65C36936-3, -6, -8) (Fig. 1A).

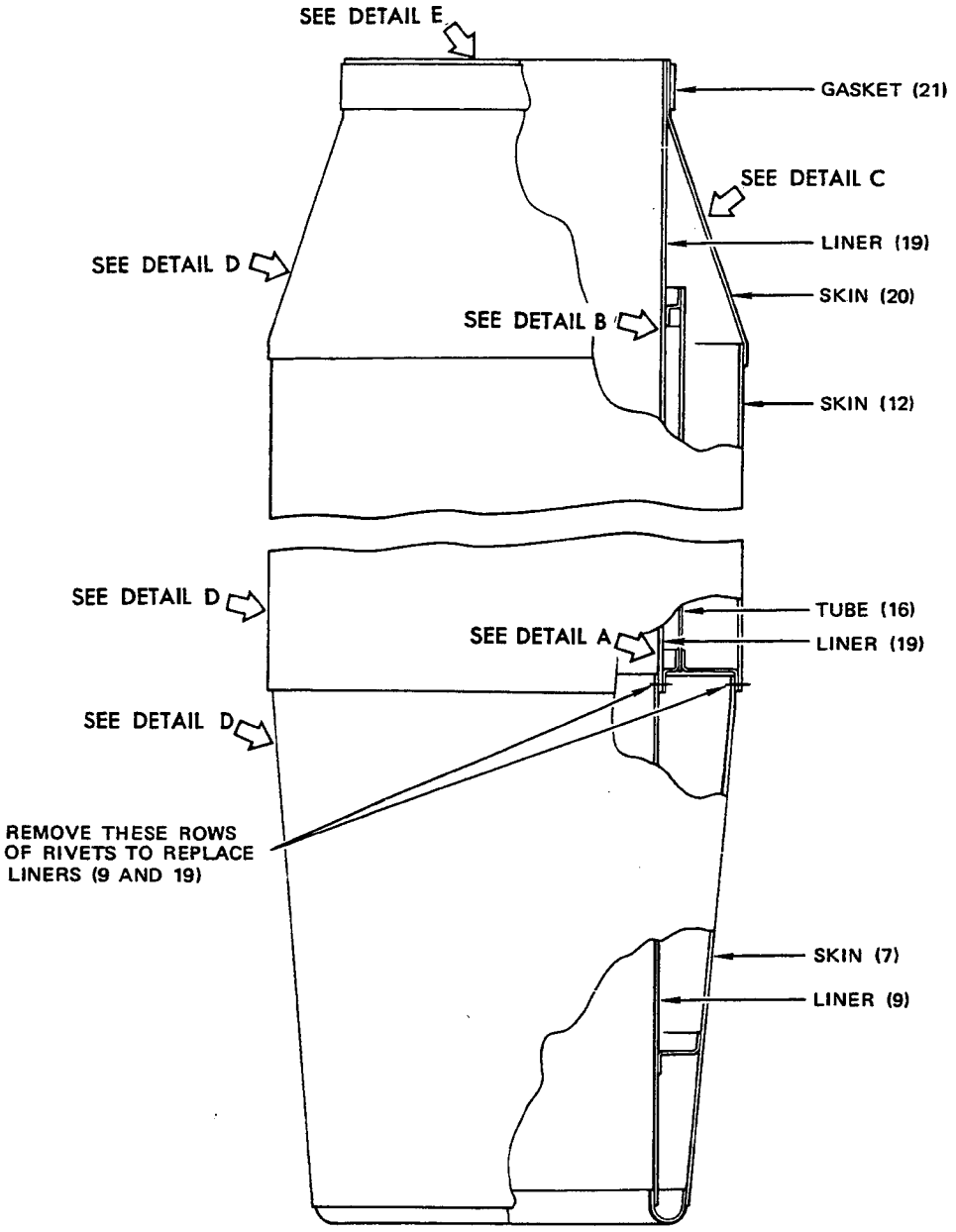
(f) Attach skin (7 and 12) and liner (9 and 19) using rivets (22 thru -22H).

C. Refinish

NOTE: Refer to SOPM 20-30-02 for stripping of protective finishes and to SOPM 20-41-01 for explanation of F and SRF finish codes.

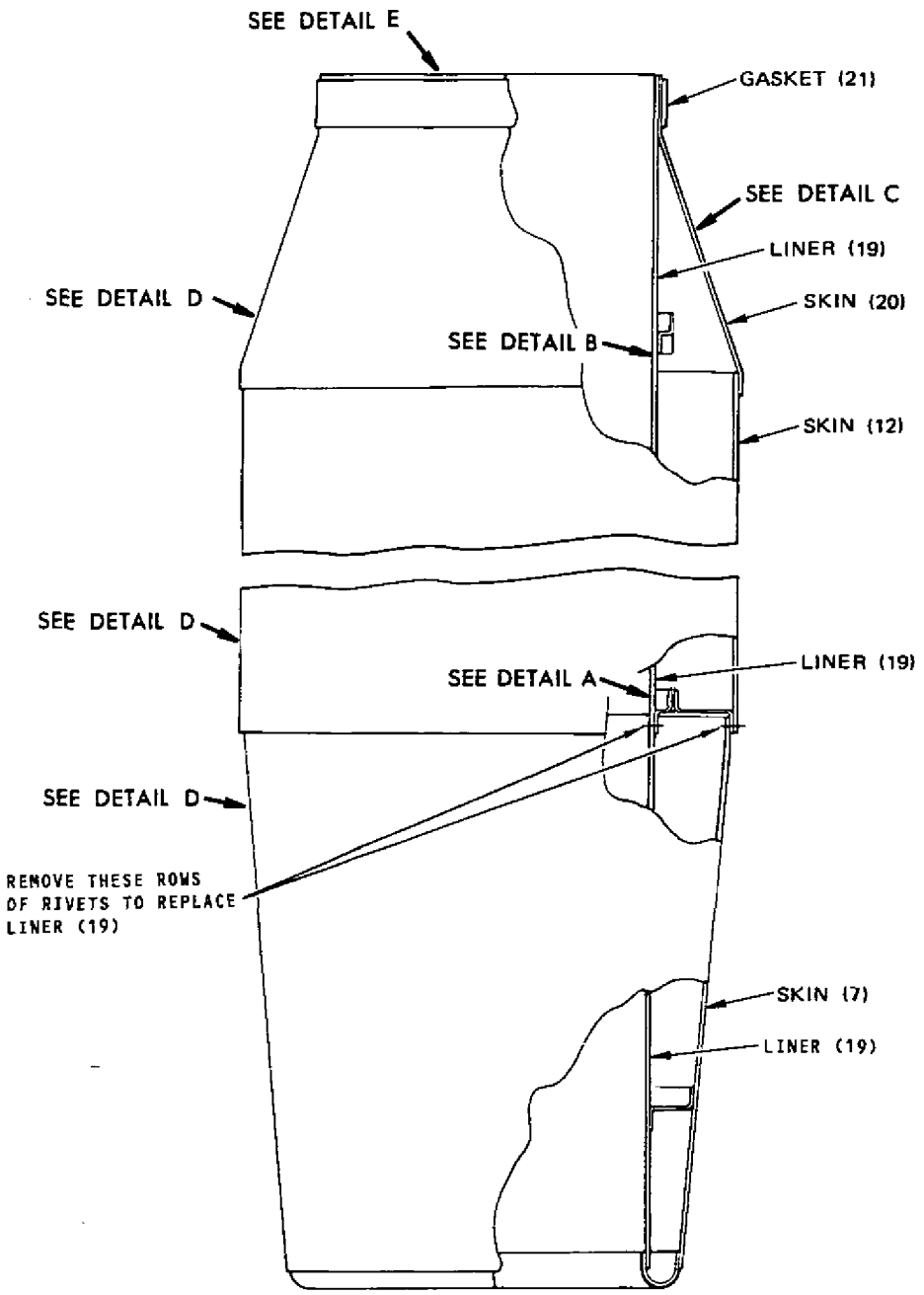
(1) Bracket 69-67533-3 (35, IPL Fig. 3) -- Passivate (F-8.07). Material: AISI 321/347 CRES (AISI 301 CRES OPT).

(2) Bracket 69-67533-7 (35, IPL Fig. 3) -- Passivate (F-17.25, which replaces F-17.09). Material: AISI 321/347 CRES (AISI 301 CRES OPT).



65-62575-1,-21,-22,-29,-31,-32,-45
65C36935-6,-9,-10
65C36936-3,-6,-8
65C36937-10

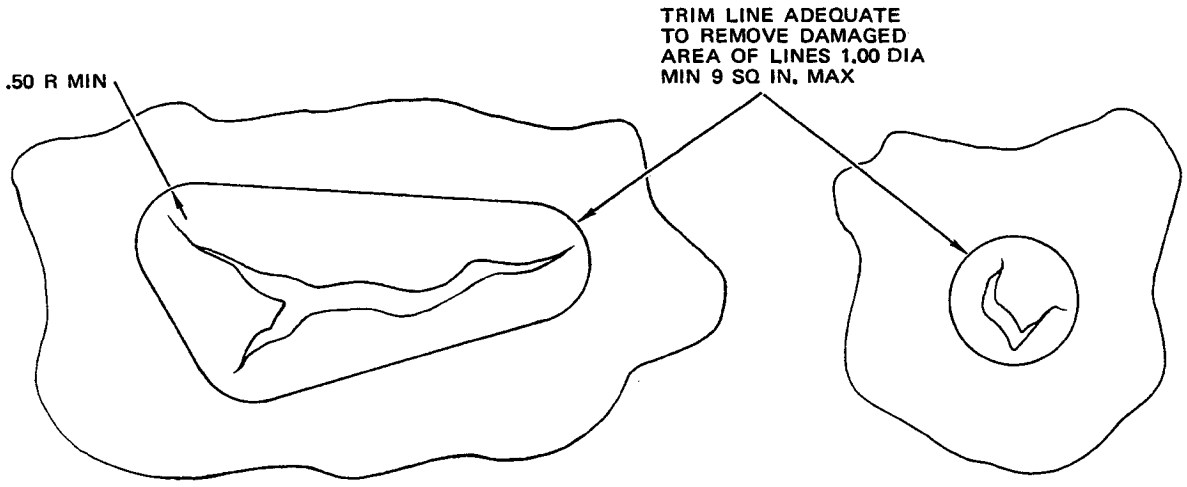
Muffler Repair and Replacement
Figure 1 (Sheet 1)



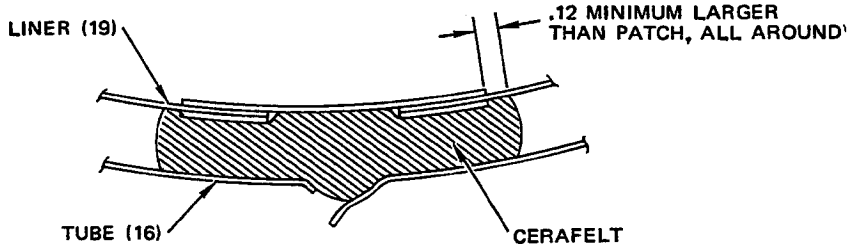
65-62575-33,-35,-46

Muffler Repair and Replacement
Figure 1 (Sheet 2)

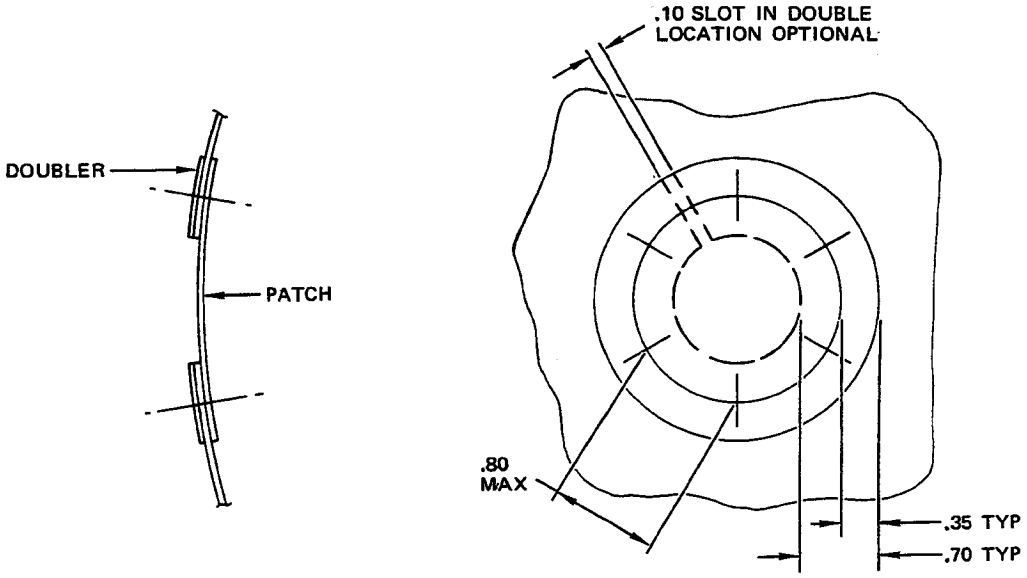
1508494



DETAIL A



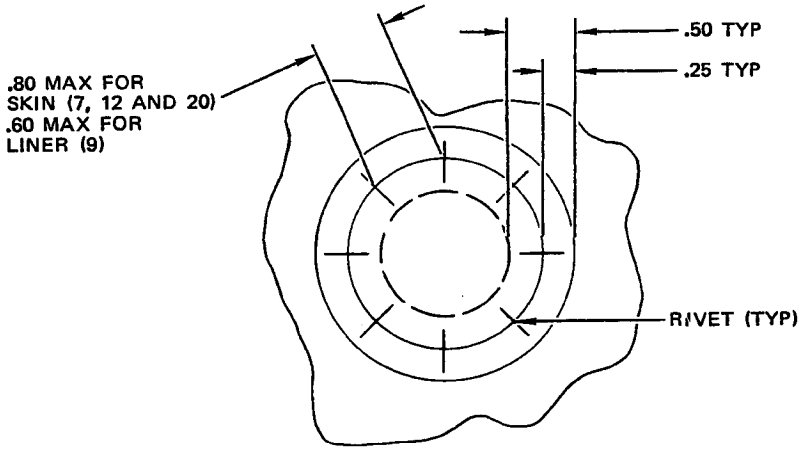
DETAIL B



REPAIR PATCH FOR TUBE (16) AND
LINER (19)

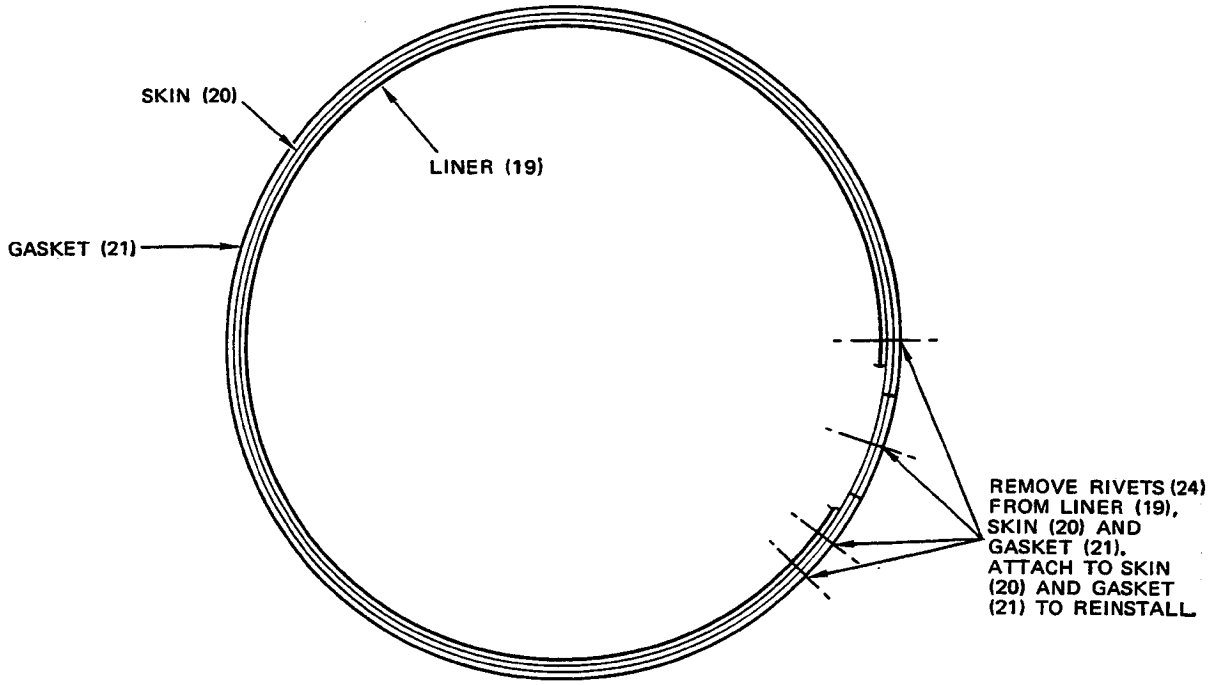
DETAIL C

Muffler Repair and Replacement
Figure 1 (Sheet 3)



REPAIR PATCH FOR SKIN (7, 12 AND 20) AND LINER (9).

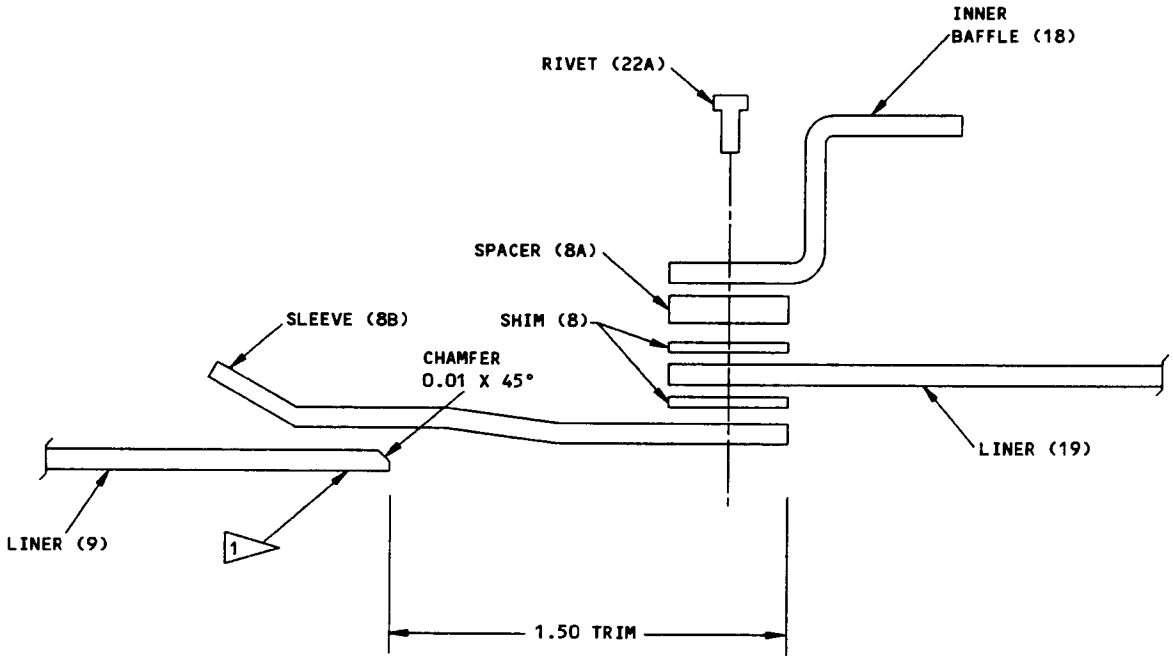
DETAIL D



ASSEMBLY 65-62575-1 ONLY

DETAIL E

Muffler Repair and Replacement
Figure 1 (Sheet 4)

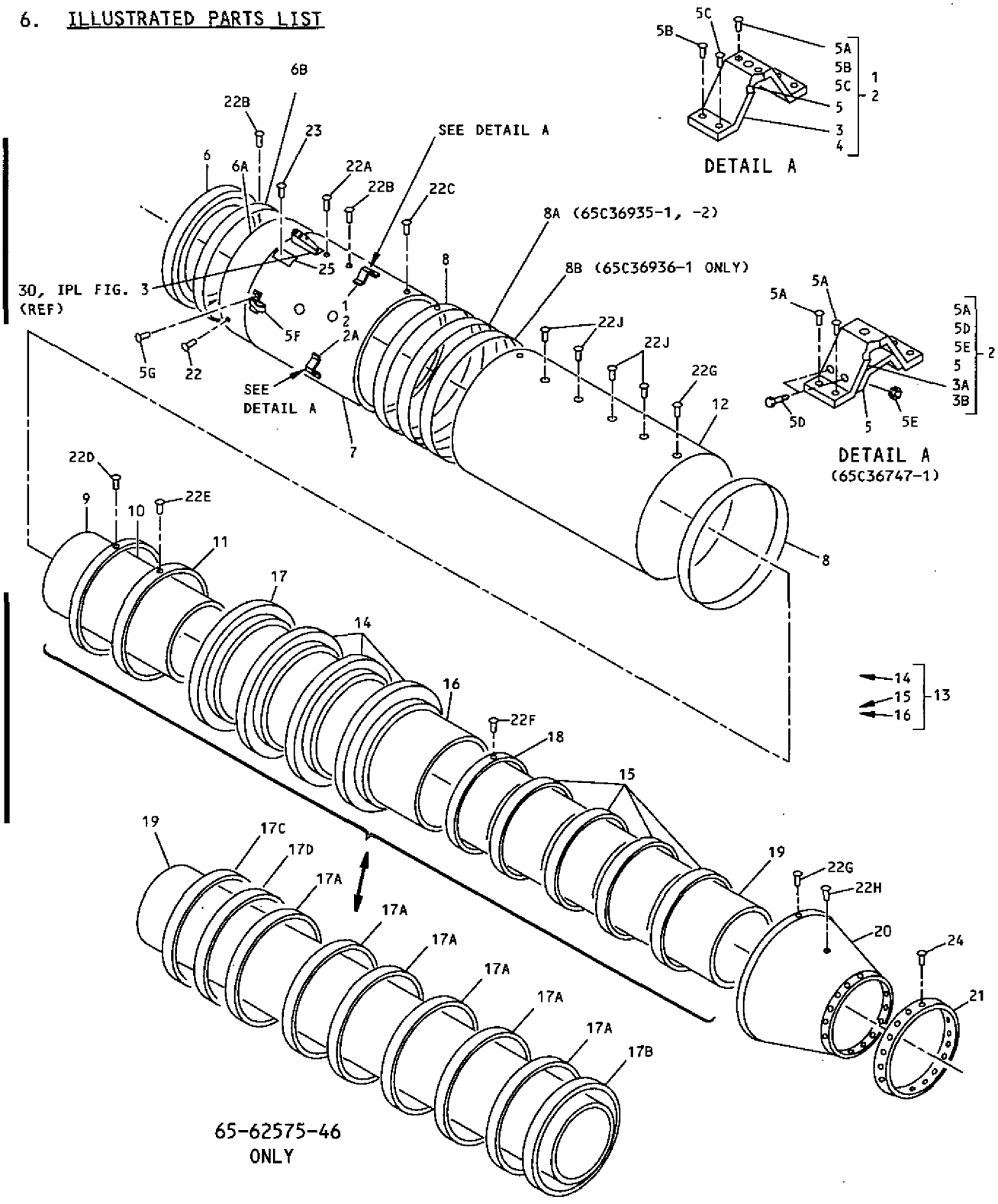


65C36936-1 MUFFLER ASSEMBLY

1 REWORK EXISTING FORWARD LINER (9) 65-62575-10 BY TRIMMING AND CHAMFERING AS SHOWN TO REWORK 65-62575-1,-21,-22,-29,-45 TO A 65C36936-3,-6 OR -8.

Repair and Replacement Diagram
Figure 1A

6. ILLUSTRATED PARTS LIST



Auxiliary Power Unit Exhaust Duct Muffler Assembly
Figure 2

C67457

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
2-					
	65-62575-1		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (PRE SB 49-1101, 49-1015)	A	RF
	*[1]		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1015) (PRE SB 49-1101)	A	RF
	65-62575-21		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (PRE SB 49-1025, 49-1101)	B	RF
	65-62575-22		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (PRE SB 49-1101)	C	RF
	65-62575-29		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1025) (PRE SB 49-1101)	D	RF
	65-62575-45		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (PRE SB 49-1101)	E	RF
	65-62575-46		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY	F	RF
	65C36935-6		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[9]	G	RF
	65C36936-3		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[9]	H	RF
	65C36935-9		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[10]	J	RF
	65C36936-6		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[10]	K	RF
	65C36937-10		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[10]	L	RF
	65C36935-10		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[10]	M	RF
	65C36936-8		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (POST SB 49-1101)*[10]	N	RF
	65-62575-31		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (FOR DETAILS SEE FIG. 3)	P	RF
	65-62575-32		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (FOR DETAILS SEE FIG. 3)	Q	RF
	65-62575-33		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (FOR DETAILS SEE IPL FIG. 3)	R	RF
	65-62575-35		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSY (FOR DETAILS SEE IPL FIG. 3)	S	RF

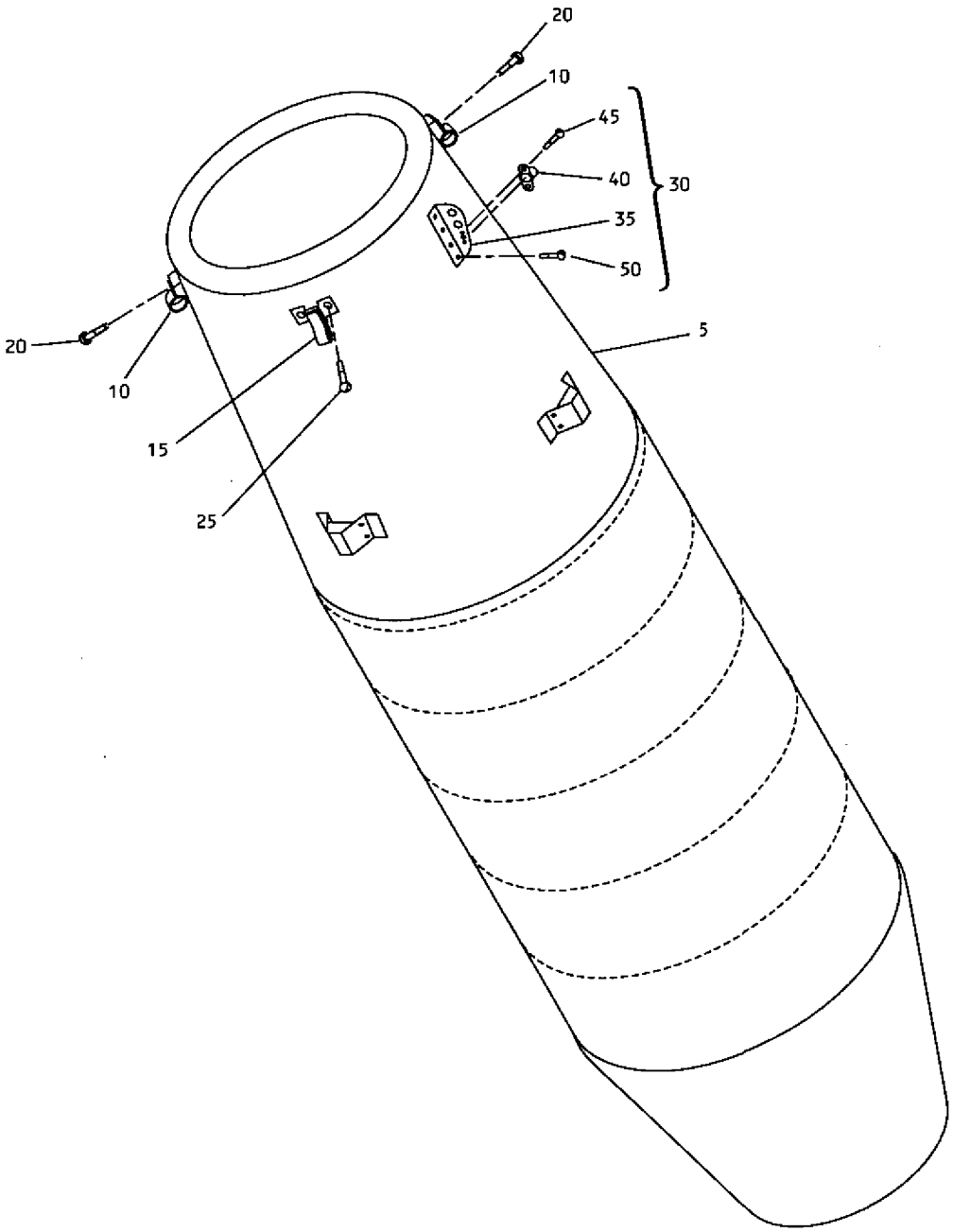
FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
2-					
1	69-50862-1		. BRACKET ASSY	A-E G-K	2
2	69-50862-2		. BRACKET ASSY	A-E G-K	2
2	65C36747-1		. BRACKET ASSY, SUPPORT	FL-N	4
3	69-50862-3		. . BRACKET (USED ON 69-50862-1)		1
3A	65C36747-2		. . BRACKET ASSY (USED ON 65C36747-1)		1
3A	65C36747-3		. . BRACKET ASSY, (USED ON 65C36747-1)		1
3B	65C36747-4		. . . BRACKET (USED ON 65C36747-2)		1
3B	65C36747-5		. . . BRACKET (USED ON 65C36747-3)		1
4	69-50862-4		. . BRACKET (USED ON 69-50862-2)		1
5	NAS680C4K		. . NUTPLATE (USED ON 69-50862-1,-2)		1
5	BACN10JR4CR		. . . NUTPLATE (USED ON 65C36747-2)		1
5	BACN10JR4CR		. . . NUTPLATE (USED ON 65C36747-3)		1
5A	NAS1398MS5-2		. RIVET	F	16
5A	NAS1398MS4-5		. RIVET	A-E G-K	8
5A	NAS1398M5-2		. RIVET	L-N	16
			ATTACHING PARTS		
5B	NAS1398MW5-2		. RIVET (OPT NAS1398C5-2)	A-E G-K	8
5B	NAS1398C5-2		. RIVET (OPT NAS1398MW5-2)	A-E G-K	8
5C	NAS1398MW5-1		. RIVET (OPT NAS1398C5-1)	A-E G-K	8
5C	NAS1398C5-1		. RIVET (OPT NAS1398MW5-1)	A-E G-K	8
5D	BACB30LK2U1		. . BOLT (USED ON 65C36747-1)	F	4
5E	BACN10JC08CM		. . NUT (USED ON 65C36747-1)	F	4
5F	TA12100004		. CLAMP	F	4
5F	TA5000BH08AT		DELETED		
5F	TA5000BH08AT		DELETED		
5F	TA5000BH14AT		DELETED		
5G	NAS1398M6-2		. RIVET	F	8
5G	NAS1398M6-2		DELETED		
5H	69-67533-1		DELETED		
5J	69-67533-3		DELETED		
5K	BACN10JP3ACM		DELETED		
5L	BACR15CE3M		DELETED		
5M	NAS1398M4-2		DELETED		
5M	NAS1398C4-2		DELETED		
			---------*---------		
6	65-62575-11		. LIP, FORWARD	ABG-N	1
6	65-62575-24		. LIP, FORWARD	CDE G-N	1
6	65-62575-36		. LIP, FORWARD	F	1
6A	65-62575-30		. DOUBLER (SB 49-1026)	DEG-N	1
6A	65-62575-44		. DOUBLER	F	1
6B	65-62575-40		. RING, SUPPORT	F	1
7	65-62575-9		. SKIN, FORWARD CONE	A-E G-N	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
2-					
7	65-62575-41		. SKIN, FORWARD	F	1
7A	ERT16AL4V		. FILLER METAL	F	1
8	65-62575-17		. SHIM		AR
8	65C36936-4		. SHIM	G-N	AR
8A	65C36935-5		. SPACER (OPT)	G-N	1
8A	10-62071-3		. SPACER (PREF)	G-N	1
8B	65C36936-2		. SLEEVE	HKN	1
9	65-62575-10		. LINER	A-E G-N	1
10	65-62575-13		. STIFFENER	ABG-N	1
10	65-62575-27		. STIFFENER	CDE G-N	1
11	65-62575-14		. STIFFENER	ABG-N	1
11	65-62575-26		. STIFFENER	CDE G-N	1
12	65-62575-7		. SKIN		1
13	65-62575-2		. WELD ASSY	ABG-N	1
13	65-62575-23		. WELD ASSY	CDE G-N	1
14	65-62575-4		. . BAFFLE, OUTER (USED ON 65-62575-2)		1
14	65-62575-28		. . BAFFLE, OUTER (USED ON 65-62575-23)		1
15	65-62575-5		. . BAFFLE, INNER		1
16	65-62575-18		. . TUBE (REPLD BY 65-62578-3) (USED ON 65-62575-2)		1
16	65-62575-3		. . TUBE (REPLS 65-62575-18) (USED ON 65-62575-2)		1
16	65-62575-3		. . TUBE (USED ON 65-62575-23)		1
17	65-62575-15		. BAFFLE, OUTER	ABG-N	3
17	65-62575-25		. BAFFLE, OUTER	CDE G-N	1
17A	65-62575-37		. BAFFLE	F	6
17B	65-62575-38		. BAFFLE	F	1
17C	65-62575-42		. BAFFLE	F	1
17D	65-62575-43		. BAFFLE	F	1
18	65-62575-16		. BAFFLE, INNER	A-E G-N	1
19	65-62575-6		. LINER (SUPERSEDES 65-62575-19)	A-E	1
19	65-62575-19		. LINER (SUPERSEDED BY 65-62575-6)	A-E	1
19	65-62575-39		. LINER (OPT TO 10-62064-1)	F	1
19	10-62064-1		. LINER	F	1
19	65C36935-2		. LINER (OPT TO 10-62071-1,10-62071-2	G-N	1
19	10-62071-2		. LINER (OPT TO 10-62071-1)	G-N	1
19	10-62071-1		. LINER (PREF)	G-N	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
2-					
19	65C36935-3		DELETED		
19	65C36935-6		DELETED		
20	65-62575-8		. SKIN, AFT CONE *[2]*[8]		1
21	65-62575-12		. GASKET (SUPERSEDES 65-62575-20) *[2]*[8]		1
21	65-62575-20		. GASKET (SUPERSEDED BY 65-62575-12)	AG-N	1
22	NAS1398MW4-2		. RIVET	A-D G-N	38
22	NAS1398M4-2		. RIVET	A-D G-N	38
22	NAS1738C4-2		. RIVET	E	38
22	NAS1398M4-2		. RIVET (OPT)	E	38
22	NAS1398C4-2		. RIVET	F	38
22A	NAS1398M4-1		. RIVET	A-E G-N	21
22A	NAS1398MW4-2		. RIVET (OPT)	A-E G-N	21
22A	NAS1398M4-2		. RIVET	F	21
22B	NAS1398M4-1		. RIVET	A-E G-N	23
22B	NAS1398MW4-1		. RIVET (OPT)	A-E G-N	23
22B	NAS1398M4-2		. RIVET	F	23
22C	NAS1398M4-2		. RIVET	A-E	24
22C	NAS1398MW4-2		. RIVET (OPT)	A-E	24
22C	NAS1398M4-1		. RIVET	FG-N	24
22C	NAS1398M5-1		. RIVET (OPT)	FG-N	24
22D	NAS1398M4-2		. RIVET	A-E G-N	19
22D	NAS1398MW4-2		. RIVET (OPT)	A-D G-N	19
22D	NAS1398C4-2		. RIVET (OPT)	EG-N	19
22E	NAS1398M4-2		. RIVET	A-E G-N	19
22E	NAS1398MW4-2		. RIVET (OPT)	A-D G-N	19
22E	NAS1398C4-2		. RIVET (OPT)	EG-N	19
22F	NAS1398M4-2		. RIVET	A-E	19
22F	NAS1398MW4-2		. RIVET (OPT)	A-D	19
22F	NAS1398C4-2		. RIVET (OPT)	EG-N	19
22F	NAS1398C5-2		. RIVET (OPT)	G-N	19
22G	NAS1398M4-2		. RIVET	A-E G-N	24
22G	NAS1398MW4-2		. RIVET (OPT)	A-E G-N	24

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
2-					
22G	NAS1398M4-1		. RIVET	F	24
22H	NAS1398M4-1		. RIVET	F	22
22J	NAS1398M4-1		. RIVET	F	96
23	NAS1398M4-2		. RIVET	A-E G-N	4
23	NAS1398M4-1		. RIVET	F	4
24	MS20427M3		. RIVET	A	19
25	65-56415-1		. NAMEPLATE		1

*[1] NO BOEING PART NUMBER ASSIGNED.
*[2] AFT CONE SKIN AND GASKET SPOTWELDED ON MUFFLER ASSYS 65-62575-21, -22, -29, -45, 65C36935-6 AND 65C36936-3.
*[3] DELETED
*[4] DELETED
*[5] DELETED
*[6] DELETED
*[7] DELETED
*[8] AFT CONE SKIN AND GASKET FUSION WELDED ON MUFFLER ASSEMBLY 65-62571-46
*[9] 65C36935-6 AND 65C36936-3 ARE REWORKED FROM 65-62575-1, -21, -22, -29 OR -45 PER SERVICE BULLETIN 737-49-1101.
*[10] 65C36935-9, 65C36936-6, 65C36937-10, 65C36935-10 AND 65C36936-8 ARE REWORKED FROM 65-62575-1, -21, -22, -29 OR -45 PER SERVICE BULLETIN 737-49-1101, REVISION 2.



Auxiliary Power Unit Exhaust Duct Muffler Assembly
Figure 3

1508293

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-					
	65-62575-31		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY	P	RF
	65-62575-32		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY	Q	RF
	65-62575-33		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY	R	RF
	65-62575-35		AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY	S	RF
5	65-62575-29		. AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY (SEE FIG. 2 FOR DETAILS)	PQ	1
5	65-62575-46		. AUXILIARY POWER UNIT EXHAUST DUCT MUFFLER ASSEMBLY (SEE FIG. 2 FOR DETAILS)	RS	1
10	TA5000BH08AT		. CLAMP	PQ	4
15	TA5000BH08AT		. CLAMP	P	1
15	TA5000BH14AT		. CLAMP	Q	1
15	TA12100004		. CLAMP	R	1
15	TA5000BH14AT		. CLAMP	S	1
15	TA5000BH14HB		. CLAMP (OPT)	S	1
20	NAS1398M6-2		. RIVET	PQ	8
25	NAS1398M6-2		. RIVET		2
30	69-67533-1		. BRACKET ASSEMBLY	P	1
30	69-67533-7		. BRACKET ASSEMBLY	R	1
35	69-67533-3		. . BRACKET (USED ON 69-67533-1)		1
35	69-67533-8		. . BRACKET (USED ON 69-67533-7)		1
40	BACN10JP3ACM		. . NUTPLATE		1
45	BACR15CE3M		. . RIVET		2
50	NAS1398M4-2		. RIVET	PQ	4