CHAPTER

49

AUXILIARY POWER



CHAPTER 49 AUXILIARY POWER

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PART NUMBER: A49001-3, -17, -73, -78, -83, -84

NAME: CRADLE - AUXILIARY POWER UNIT (APU)

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: YES

USAGE & DESCRIPTION:

Three A49001-17 ballast assemblies, one A49001-83 jack equipment and one A49001-84 hoist equipment are used on all 767 airplanes. A49001-3 ballast assembly, A49001-73 jack equipment and A49001-78 hoist are noted for use on 767-200/-300 airplanes. The A49001 cradle equipment is used for installation and removal of the auxiliary power unit (APU) by means of two, customer-furnished, fishpole hoists or jacking equipment. The APU rests in an A49001-85 cradle when using A49001-83 or -84 equipment. The APU rests in an A49001-71 (or optional, A49001-80) cradle when using A4900-73 or -78 equipment. The APU can be transported when mounted on an A49001 hoisting or jacking cradle by using a customer-furnished A49003 transportation dolly. If an APU is to be removed with hoists, A49001-78 or -84 hoist equipment is used, which includes A49001-69 and -70 arm assemblies. Also required are two customer-furnished, fish pole hoists. If an APU is to be removed with jacking equipment, A49001-73 or -83 jack equipment is used (the A49001-69 and -70 arm assemblies are not required), along with a customer-furnished J20009 jacking equipment or a customer-furnished, modified minimum 1000 lb capacity, transmission jack. When an APU is removed or installed with the generator removed, three A49001-17 ballast assemblies are installed for balance of the A49001 hoisting or jacking cradle assembly. The A49001-3 ballast assembly consists of three A49001-17 ballast assemblies contained in a storage box. The A49001-17 consists of 26 lbs of lead or steel ballast and attaching hardware. The required three A49001-17 ballast assemblies may be purchased separately, without the storage box furnished with the A49001-3 ballast assembly. Refer to AMM 49-11-01 and current A49001 drawing for additional usage instructions. The APU cradle equipment consists of:

A49001–3				
QUANTITY NOMENCLATURE		PART NUMBER		
3	BALLAST ASSEMBLY	A49001-17		
1	STORAGE BOX	F70313-2		

A49001–73			
QUANTITY NOMENCLATURE PART		PART NUMBER	
1	ASSEMBLY	A49001-52	
1	CRADLE ASSEMBLY	A49001-72	



A49001–78				
QUANTITY NOMENCLATURE PART N		PART NUMBER		
1	ARM ASSEMBLY	A49001-69		
1	ARM ASSEMBLY	A49001-70		
1	BEAM ASSEMBLY	A49001-75		
1	CRADLE ASSEMBLY	A49001-71 OR -80		

A49001–83			
QUANTITY NOMENCLATURE PART NUMBER			
1	ASSEMBLY	A49001-52	
1	CRADLE ASSEMBLY	A49001-85	

A49001–84			
QUANTITY NOMENCLATURE PART NUMBER			
1	ARM ASSEMBLY	A49001-69	
1	ARM ASSEMBLY	A49001-70	
1	BEAM ASSEMBLY	A49001-75	
1	CRADLE ASSEMBLY	A49001-85	

WEIGHT: A49003-3 - 81 lbs (37 kg)

A49003-17 - 27 lbs (12 kg) A49003-69 - 3 lbs (1.4 kg) A49003-70 - 3 lbs (1.4 kg) A49003-74 - 3 lbs (1.4 kg) A49003-85 - 213 lbs (97 kg)

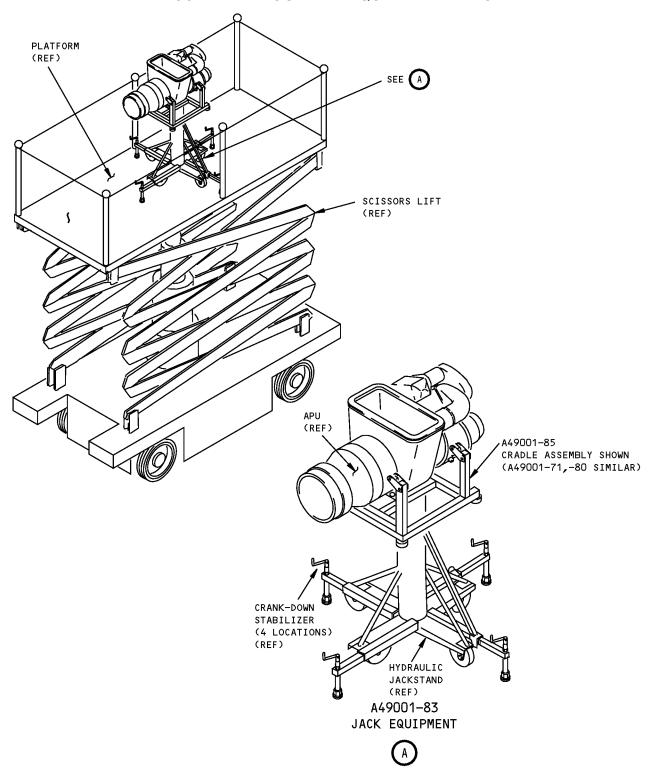
DIMENSIONS: 18 x 35 x 38 inches (457 x 889 x 965 mm)

NOTE: A49001-84 replaces A49001-78 for future procurement.

A49001-83 replaces A49001-73 for future procurement.

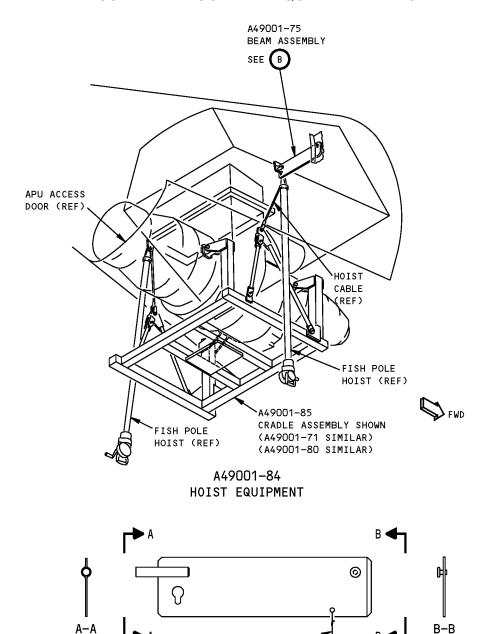
A49001-78 supersedes A49001-77.





Auxiliary Power Unit Cradle Figure 1 (Sheet 1 of 3)



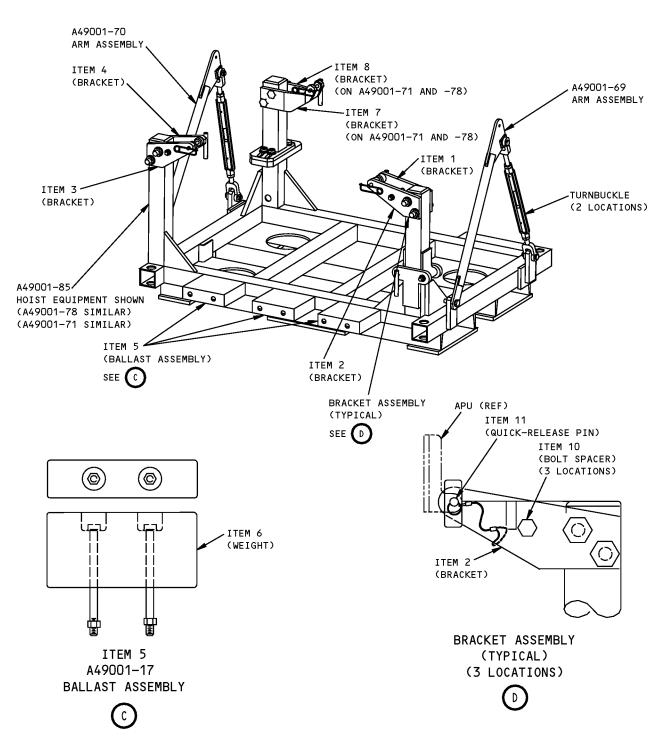


Auxiliary Power Unit Cradle Figure 1 (Sheet 2 of 3)

ITEM 9 (LANYARD)

A49001-75 BEAM ASSEMBLY





Auxiliary Power Unit Cradle Figure 1 (Sheet 3 of 3)



	REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE	
1	A49001-67	BRACKET ASSEMBLY		
2	A49001-68	BRACKET ASSEMBLY (OPPOSITE A49001-67)		
3	A49001-62	BRACKET ASSEMBLY		
4	A49001-63	BRACKET ASSEMBLY (OPPOSITE A49001-62)		
5	A49001-17	BALLAST ASSEMBLY		
6	A49001-43	BALLAST WEIGHT		
6	A49001-82	BALLAST ASSEMBLY (OPTIONAL)		
7	A49001-65	BRACKET ASSEMBLY		
8	A49001-66	BRACKET ASSEMBLY (OPPOSITE A49001-65)		
9	CL-23-KA-10.0LR	LANYARD	V99862	
10	NAS43HT6-128	BOLT SPACER		
10	A49001-107	BOLT SPACER (OPTIONAL)		
11	NAS1335C231D	QUICK BELEASE PIN		

PART NUMBER: A49003-1, -12

NAME: TRANSPORTATION DOLLY - AUXILIARY POWER UNIT (APU)

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: This tool is used with the A49001 APU cradle for storing and transporting the

APU. This transportation dolly is a welded structure with both towing and forklift provisions. The -1 dolly is used for 767-200 and -300 airplanes. The -12 dolly is used form all 767 airplanes. Refer to AMM 49-11-01 for further usage instructions. The transportation dolly consists of a welded steel frame assembly, a tow bar, casters and 4 shock isolator mounting points for the

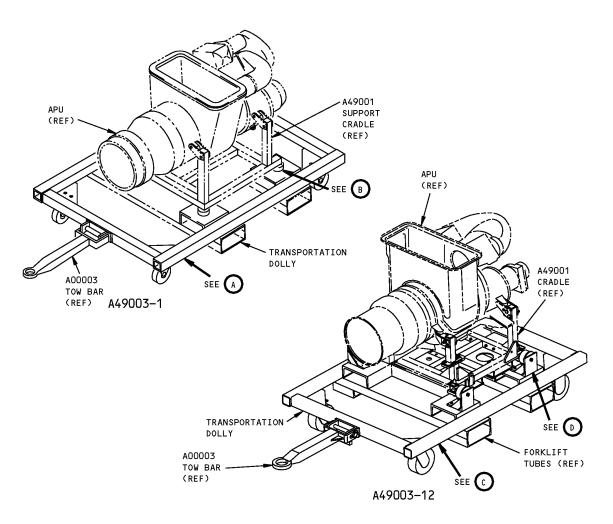
APU.

WEIGHT: 500 lbs (227 kg)

DIMENSIONS: 18 x 53 x 132 inches (457 x 1346 x 3353 mm)

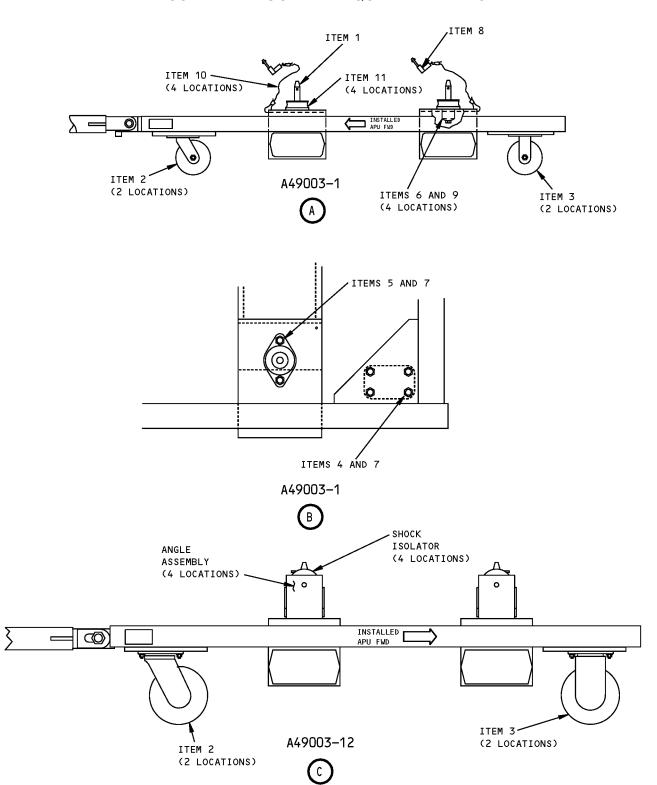
NOTE: A49003-12 replaces A49003-1 for future procurement.





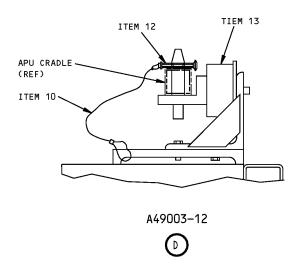
Auxiliary Power Unit Transportation Dolly Figure 1 (Sheet 1 of 3)





Auxiliary Power Unit Transportation Dolly Figure 1 (Sheet 2 of 3)





Auxiliary Power Unit Transportation Dolly Figure 1 (Sheet 3 of 3)

5				
REPAIRABLE/REPLACEABLE PARTS				
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE	
1	A49003-3	LOCATOR PIN		
2	A49003-10	SWIVEL CASTER		
3	A49003-11	RIGID CASTER		
4	AN8-12A	BOLT		
5	AN8-14A	BOLT		
6	NAS1021C12	NUT		
7	NAS1021N8	NUT		
8	NAS1336C5C20D	BALL LOCK PIN		
9	MS35338-51	LOCK WASHER		
10	CL-22-KA-12.0LR	LANYARD	V99862	
11	512-4-N-S	ISOLATOR	V81860	
11	512-4-R-S	ISOLATOR (OPTIONAL)	V81860	
12	28-02	SNAPPER PIN	V96652	
13	J-18101-7	SHOCK ISOLATOR	V30676	



PART NUMBER: A49004-1

NAME: SUPPORT EQUIPMENT - AUXILIARY POWER UNIT

AIRPLANE MAINTENANCE: YES

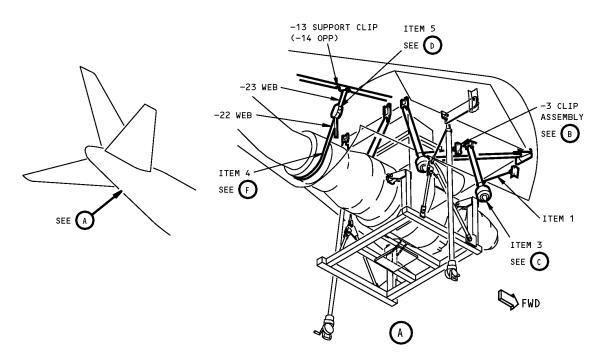
COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: This tool is a support-sling apparatus used with A49001-1,-2,-3 APU cradle to

facilitate removal/installation of the APU. The -2 saddle assembly supports the exhaust duct, while the -3 clip assembly with -4 and -5 ropes hold the APU supports clear of the inlet flange. The APU mount studs are covered by the -6 thread protectors. Refer to AMM 49-11-01 for further usage instructions.

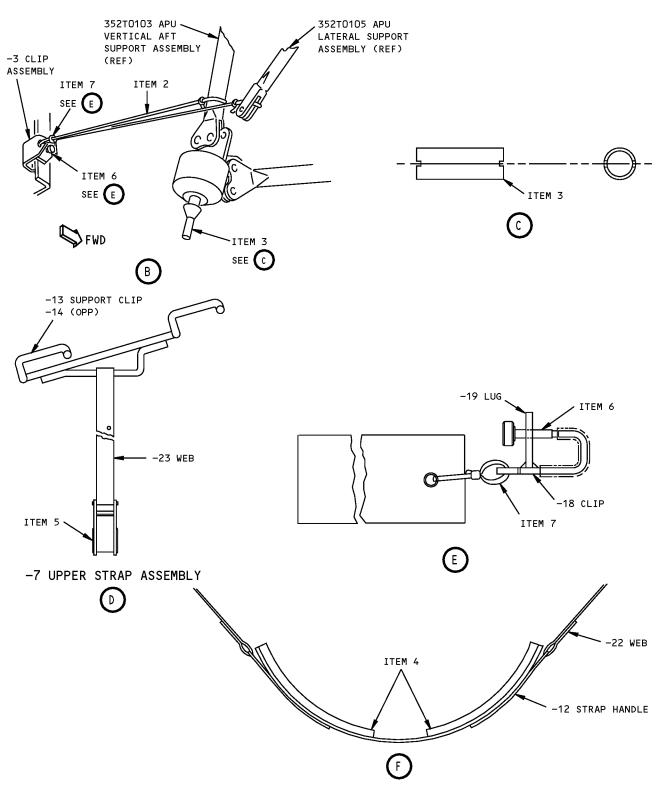
WEIGHT: 11 lbs (5 kg)

DIMENSIONS: 4 x 6 x 22 inches (102 x 152 x 559 mm)



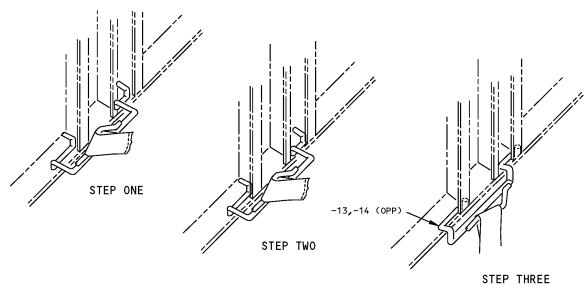
Auxiliary Power Unit Support Equipment Figure 1 (Sheet 1 of 3)





Auxiliary Power Unit Support Equipment Figure 1 (Sheet 2 of 3)





INSTALLATION OF -7 UPPER STRAP ASSEMBLY -8 (OPPOSITE)

Auxiliary Power Unit Support Equipment Figure 1 (Sheet 3 of 3)

REPAIRABLE/REPLACEABLE PARTS				
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE	
1	A49004-4	ROPE		
2	A49004-5	ROPE		
3	A49004-6	THREAD PROTECTOR		
4	A49004-10	PAD		
5	31104	BUCKLE	V00624	
6	ADB-52007	TOGGLE SCREW	V02064	
7	CL-22-KA-6.0LR	LANYARD	V99862	

PART NUMBER: A49005-1, -12

NAME: SLING - AUXILIARY POWER UNIT (APU) SHOP HANDLING

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: This tool is used to lift the APU with the generator on or off for shop handling.

For the -1 refer to AMM 49-11 for further usage instructions. For the -12 refer to AMM 49-13-03 for further usage instructions. The -1 is used on 767-200 and -300 airplanes. The -12 is used on 767-200, -300 and -400 airplanes. The -1 consists of a -2 sling assembly and related hardware. The -12 consists of a -13 sling assembly, 2 cable assemblies, a forward link assembly, an aft link assembly and related hardware. The -1 and -12 have a storage box

assembly. Each of -2 and -13 sling assemblies has a beam assembly with

welded attach points for lifting the Auxiliary Power Unit.

WEIGHT: A49005-1 - 26 lbs (12 kg)

A49005-12 - 28 lbs (13 kg)

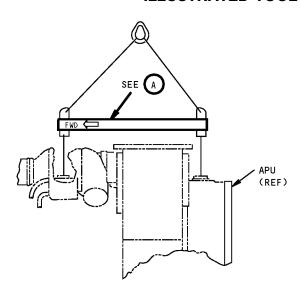
DIMENSIONS: A49005-1 - 6 x 25 x 30 inches (152 x 635 x 162 mm)

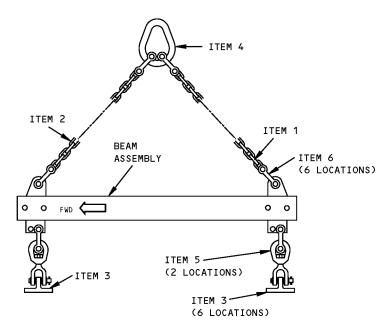
A49005-12 - 6 x 12 x 27 inches (152 x 305 x 686 mm)

NOTE: A49005-12 replaces A49005-1 for future procurement.



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ILLUSTRATED TOOL AND EQUIPMENT MANUAL

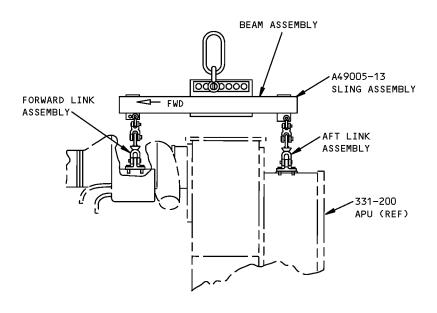


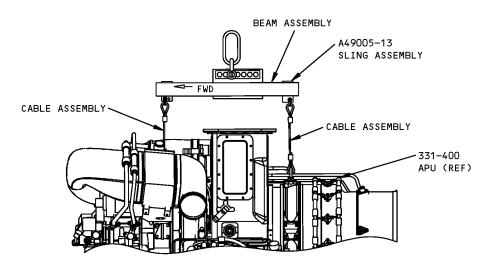


A49005-1
A49005-2 SLING ASSEMBLY

Auxiliary Power Unit Shop Handling Sling Figure 1 (Sheet 1 of 2)







A49005-12

Auxiliary Power Unit Shop Handling Sling Figure 1 (Sheet 2 of 2)



REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE
1	A49005-9	CHAIN	V75535
2	A49005-10	CHAIN	V75535
3	AN6-6	BOLT	
4	G-341-5/8	SLING LINK	V75535
5	G-403-3/8	JAW END SWIVEL	V75535
6	S247-1/4	DOUBLE CLEVIS LINK	V75535
	F70308-2	PROOF LOAD TAG	



PART NUMBER: B49001-35

NAME: FRAME - AUXILIARY POWER UNIT (APU) INSTALLATION AND REMOVAL

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: YES

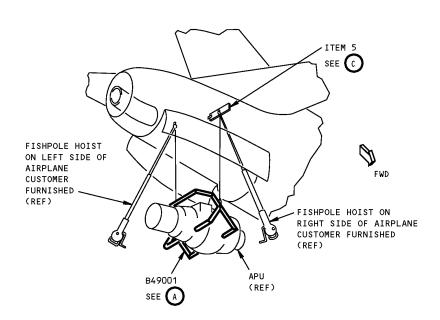
USAGE & DESCRIPTION: This tool is a structural frame unit that secures the APU during removal/

installation operations. This tool is used with two customer furnished fishpole hoists. The B49001-35 is used on both 757/767-200 and -300 aircraft except for 767-200C. Refer to AMM 49-11-01 and CMM 49-11-13 for further usage instructions. B49001-35 frame with B49002 stand is an alternate to the A49001 support cradle. This tool consists of a frame assembly and beam assembly.

WEIGHT: 55 lbs (25 kg)

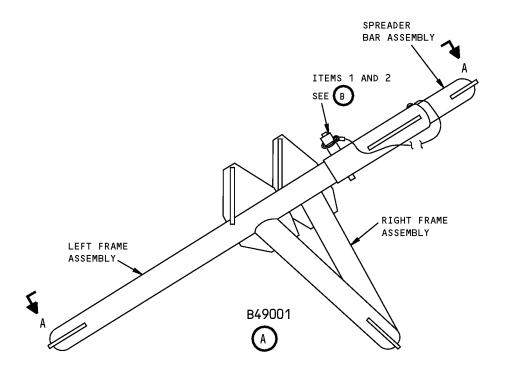
DIMENSIONS: 19 x 36 x 43 inches (483 x 914 x 1092 mm)

NOTE: B49001-35 supersedes B49001-34.



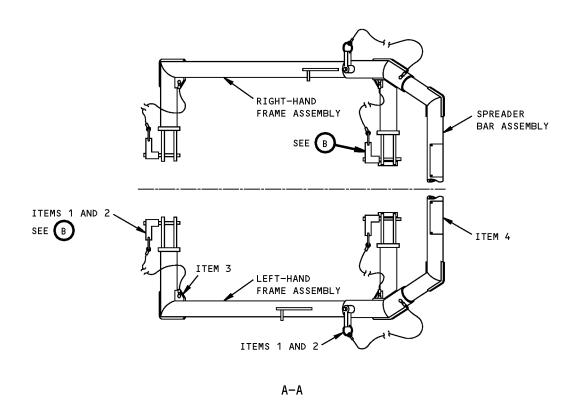
Auxiliary Power Unit Installation And Removal Frame Figure 1 (Sheet 1 of 4)





Auxiliary Power Unit Installation And Removal Frame Figure 1 (Sheet 2 of 4)



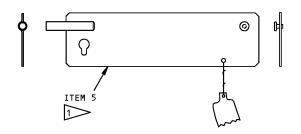




CABLE ASSEMBLY AND BALL LOCKPIN

Auxiliary Power Unit Installation And Removal Frame Figure 1 (Sheet 3 of 4)





BEAM ASSEMBLY



1 PART OF B49001-35, USED ON 767-200 AND -300 AIRPLANES

Auxiliary Power Unit Installation And Removal Frame Figure 1 (Sheet 4 of 4)

	REPAIRABLE/REPLACEABLE PARTS				
ITEM NO.					
1	CL-63-KA-12	CABLE ASSEMBLY	V99862		
2	NAS1335C5C2.0D	BALL LOCK PIN			
3	NAS600-3P	SCREW			
4	F70308-15	PROOF LOAD TAG			
5	B49001-36	BEAM ASSEMBLY			



PART NUMBER: B49002-64

NAME: STAND - AUXILIARY POWER UNIT (APU), MAINTENANCE AND

TRANSPORTATION

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: YES

USAGE & DESCRIPTION: This tool is used with the B49001 frame to support the APU for lifting,

transportation and storage operations. Lifting operations require the use of a customer-furnished, commercial transmission jack. This tool is used on 767-200 and 300 airplanes except for the 767-200C. The B49002 -64 stand together with the B49001 frame is an alternate to the A49001 support cradle. This tool consists of a frame assembly, three clamp assemblies, two B49002-18 cable

assemblies, two B49002-19 cable assemblies, two B49002-23 hinge assemblies, a B49002-24 hinge assembly, four casters and related hardware.

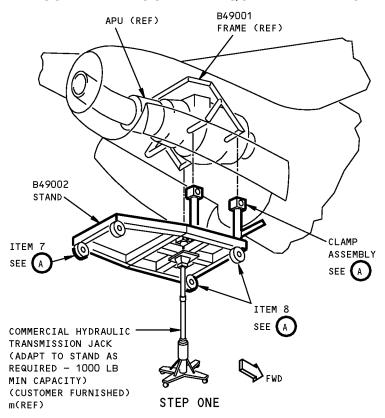
WEIGHT: 260 lbs (118 kg)

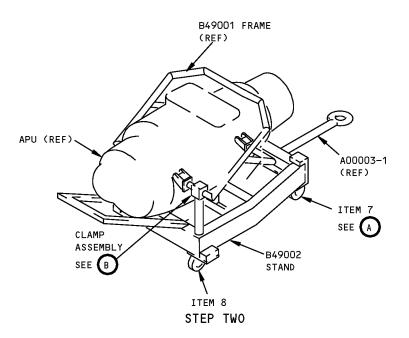
DIMENSIONS: 33 x 52 x 86 inches (838 x 1321 x 2184 mm)

NOTE: B49002-64 supersedes B49002-1.



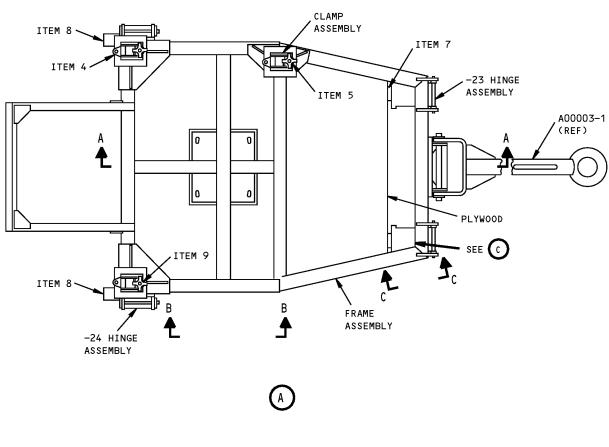
767
ILLUSTRATED TOOL AND EQUIPMENT MANUAL

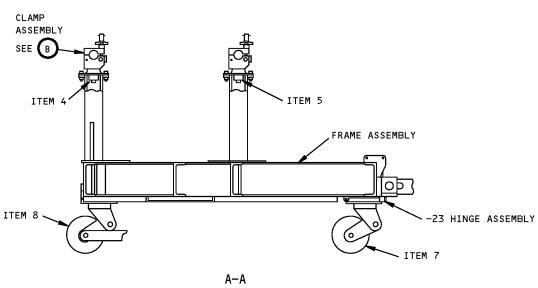




Auxiliary Power Unit Maintenance And Transportation Stand Figure 1 (Sheet 1 of 3)

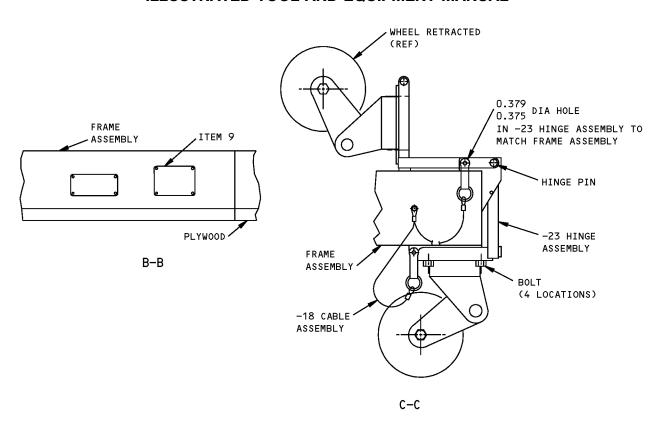


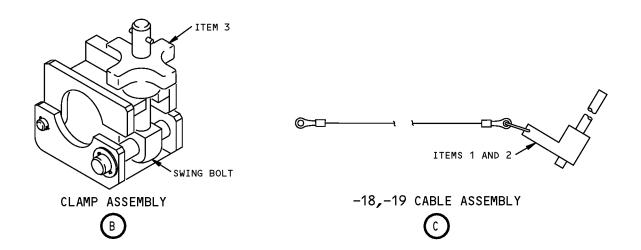




Auxiliary Power Unit Maintenance And Transportation Stand Figure 1 (Sheet 2 of 3)







Auxiliary Power Unit Maintenance And Transportation Stand Figure 1 (Sheet 3 of 3)



REPAIRABLE/REPLACEABLE PARTS						
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE			
1	NAS1335C5C5.0D	PIN				
2	NAS1335C5C1.0D	PIN				
3	CL-4-HK-4	KNOB	V99862			
4	507-1-N-S	SHOCK ISOLATOR	V13636			
5	508-5-N-S	SHOCK ISOLATOR	V13636			
6	508-3-N-S	SHOCK ISOLATOR	V13636			
7	33-10-S-6-20-185	CASTER	V01083			
8	33-10-R-6-20-185-WB22	CASTER	V01083			
9	F70308-2	PROOF LOAD TAG				



PART NUMBER: B49003-1, -10

NAME: SLING - AUXILIARY POWER UNIT (APU) HANDLING

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: YES

USAGE & DESCRIPTION: This tool is a beam and sling assembly that is used for off-airplane handling

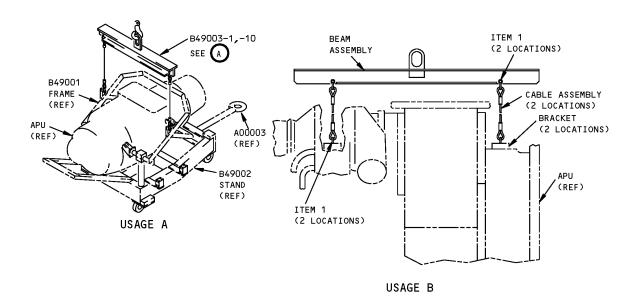
of the APU. It can be used to lift the APU mounted in the B49001 frame and B49002 stand (Usage A) or to support the bare APU for installation of the B49001 frame (Usage B). Refer to CMM 49-11-00 for complete usage

instructions.

WEIGHT: 25 lbs (11 kg)

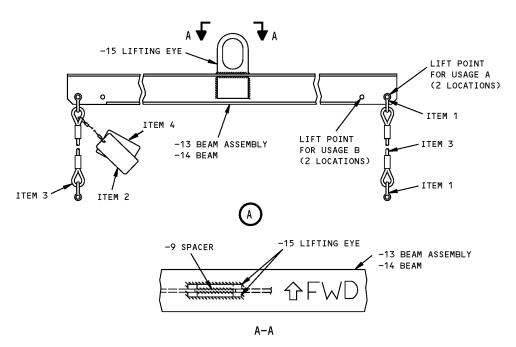
DIMENSIONS: 3 x 9 x 45 inches (76 x 229 x 1143 mm)

NOTE: B49003-10 replaces B49003-1 for future procurement.



Auxiliary Power Unit Handling Sling Figure 1 (Sheet 1 of 2)





Auxiliary Power Unit Handling Sling Figure 1 (Sheet 2 of 2)

REPAIRABLE/REPLACEABLE PARTS						
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE			
1	G-209-5/16	SHACKLE	V75535			
2	F70308-15	PROOF LOAD TAG				
3	B49003-6	CABLE ASSEMBLY				
4	F70308-16	IDENTIFICATION TAG				

PART NUMBER: J20009-38, -70, -78

NAME: JACKING EQUIPMENT - HYDRAULIC TELESCOPING

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The jacking equipment is used to remove and install airplane components in

applications where the assistance of a hydraulic jack is required. An adapter is used where a controlled interface with the jack is required. J20009-38 and -78 are hydraulic jack assemblies, J20009-78 is preferred. The J20009-70 is a cradle adapter that attaches to the A49001 APU cradle. See AMM 49-11-00 for

further usage instructions.

WEIGHT: J20009-38 OR -78. - 780 lbs (354 kg)

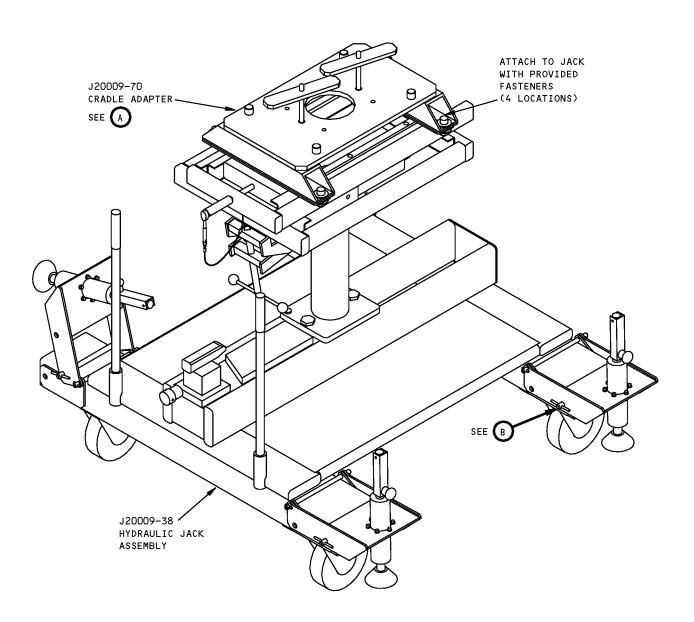
J20009-70. - 34 lbs (15 kg)

DIMENSIONS: J20009-38 OR -78. - 48 x 51 x 62 inches (1219 x 1295 x 1575 mm)

J20009-70. - 11 x 20 x 25 inches (279 x 508 x 635 mm)

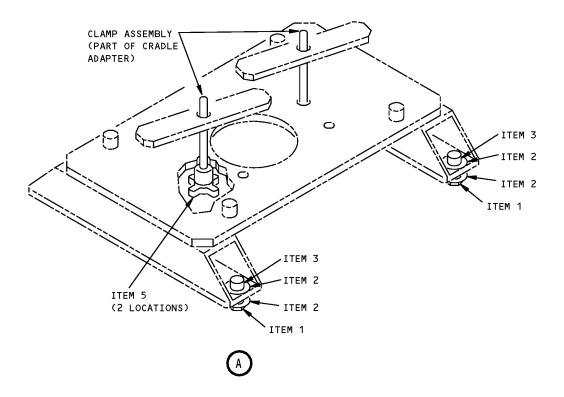
NOTE: J20009-78 replaces J20009-38 for future procurement.

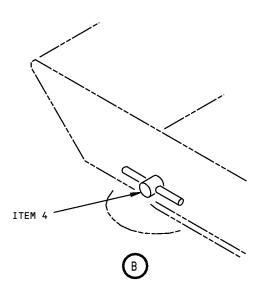




Hydraulic Telescoping Jacking Equipment Figure 1 (Sheet 1 of 2)







Hydraulic Telescoping Jacking Equipment Figure 1 (Sheet 2 of 2)



REPAIRABLE/REPLACEABLE PARTS						
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE			
1	J20009-15	HEX NUT				
2	J20009-16	WASHER				
3	J20009-17	SOCKET HEAD CAP SCREW				
4	63-01	LYNCH PIN	V7V765			
5	J20009-66	SCREW ASSEMBLY				

PART NUMBER: 833563-6

NAME: TESTER - AUXILIARY POWER UNIT (APU) FUEL MANIFOLD

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: NO

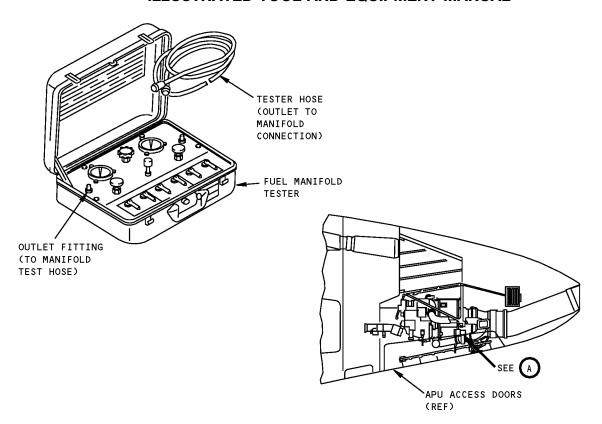
USAGE & DESCRIPTION: This tool is used to check flow through primary and secondary fuel manifold

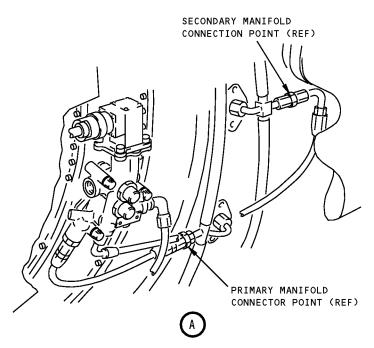
assemblies. The tool consists of encased instrumentation. 833563-6 tester is not a Boeing tool. 833563-6 is a supplier proprietary item that can only be obtained from Allied-Signal Aerospace Company, Garrett Airline Services Division, 4601 East Hilton Avenue, Phoenix, Arizona, 85034. This tool is used

on 767-200 and -300 airplanes except for 767-200C.

NOTE: 833563-6 supersedes 289544-6.







Auxiliary Power Unit Fuel Manifold Tester Figure 1



PART NUMBER: A49009-1

NAME: KIT - AUXILIARY POWER UNIT (APU) DEACTIVATION

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: NO

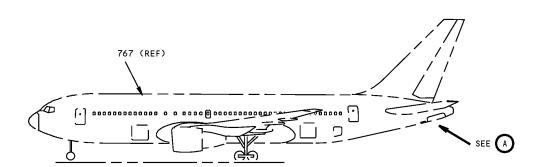
USAGE & DESCRIPTION: The A49009-1 kit is used on all 767 airplanes. The A49009-1 is a kit used to

deactivate APU systems for flight with the APU removed. An APU that does not work weighs 530 lbs. The A49009-1 weighs 6 lbs. Removal of the APU and replacing it with the A49009-1 kit reduces the weight of the airplane by 524 lbs. Refer to AMM 49-11-02 for complete usage instructions. A49009-1 consists of a A49009-2 support assembly for securing the APU mount structure, a A49009-3 plug assembly for the APU exhaust cone, a A49009-4 cap assembly for the APU pneumatic discharge port, a A49009-6 cap for the air supply duct, an AP1008S10 cap assembly for the fuel supply, three A49009-7 washers and three NAS6703HU12 bolts. All components are

contained in a storage box.

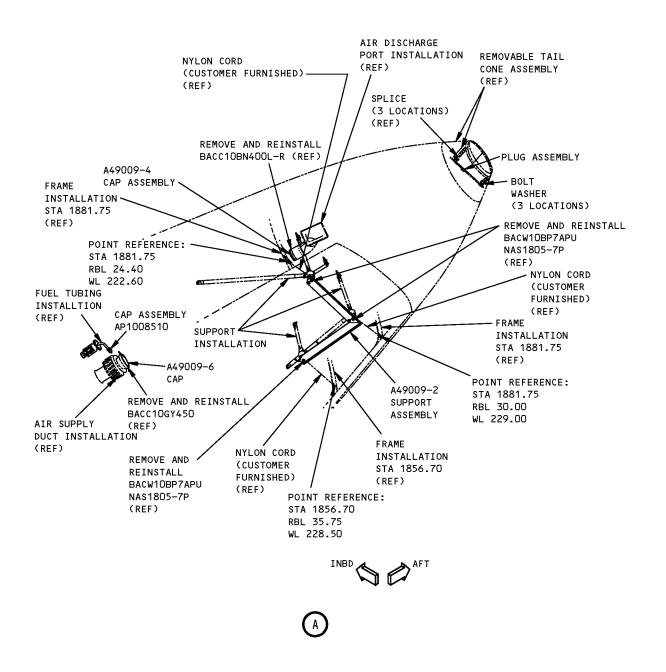
WEIGHT: 6 lbs (2.7 kg)

DIMENSIONS: 5 x 26 x 29 inches (127 x 660 x 737 mm)



Auxiliary Power Unit Deactivation Kit Figure 1 (Sheet 1 of 2)





Auxiliary Power Unit Deactivation Kit Figure 1 (Sheet 2 of 2)

49-10-02

PART NUMBER: 294864-1

NAME: WRENCH - AUXILIARY POWER UNIT (APU) TRANSDUCER REMOVAL

AIRPLANE MAINTENANCE: YES

COMPONENT MAINTENANCE: NO

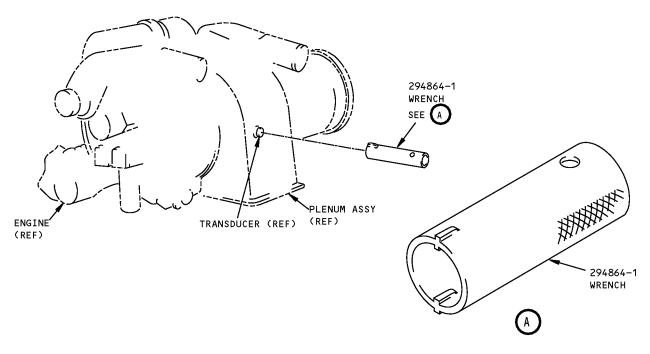
USAGE & DESCRIPTION: This tool is used to remove the 3876026-1 or -2 transducer from either side of

the plenum assembly, especially during normal operational use. The 294864-1 wrench is not a Boeing tool. 294864-1 wrench is a supplier proprietary item and can only be obtained from Garrett Corp., Air Research Manufacturing

Division, 2525 West 190th Street, Torrance, California 90509.

DIMENSIONS: 2 x 2 x 4 inches (51 x 51 x 102 mm)





Auxiliary Power Unit Transducer Removal Wrench Figure 1

49-50-01

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