CHAPTER 21

AIR CONDITIONING

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

21-EFFECTIVE PAGES

CHAPTER 21
AIR CONDITIONING

21-CONTENTS

PART NUMBER: J21009-33, -48

NAME: AIR SAMPLER, AIRCRAFT PNEUMATIC SYSTEM

AIRPLANE MAINTENANCE: NO

COMPONENT MAINTENANCE: NO

OTHER MANUALS: YES

FIM 21-00-00

USAGE & DESCRIPTION: The J21009-33 air sampler is used on all 737 airplanes.

The J21009 is used in testing the airplane's pneumatic system for oil contaminates that have been released into the air.

The J21009 is used in testing the airplane's pneumatic system for oil contaminates. J21009 collects oil contamination on a J21009-38 filter of air samples taken from one of the high pressure pneumatic engine start connections. The filter is collected with the use of J21009-10 tongs and deposited in a J21009-9 jar for analysis.

The J21009-38 filter is analyzed by a customer-furnished, Fourier Transform Infrared (FTIR) spectrometer. The spectrometer determines the oil contamination composition. Knowing the oil contamination composition isolates which system (engine oil, APU oil, air conditioning pack, etc.) is supplying the contamination.

Refer to the Fault Isolation Manual (FIM) 21-00-00 and the current J21009 drawing and the for complete usage instructions.

J21009-33 and -44 consist of:

J21009-33		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	GROUND START CONNECTION ASSEMBLY	J21009-34
1	CANISTER ASSEMBLY	J21009-35
1	SCREEN ASSEMBLY	J21009-36
1	VALVE DEACTIVATOR	J21009-5
2	SUPPORT RING	J21009-37
1	FILTER	J21009-38
5	JAR	J21009-9
1	TONGS	J21009-10
1	PLUNGER	J21009-44
1	STORAGE BOX	

J21009-48		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	GROUND START CONNECTION ASSEMBLY	J21009-34

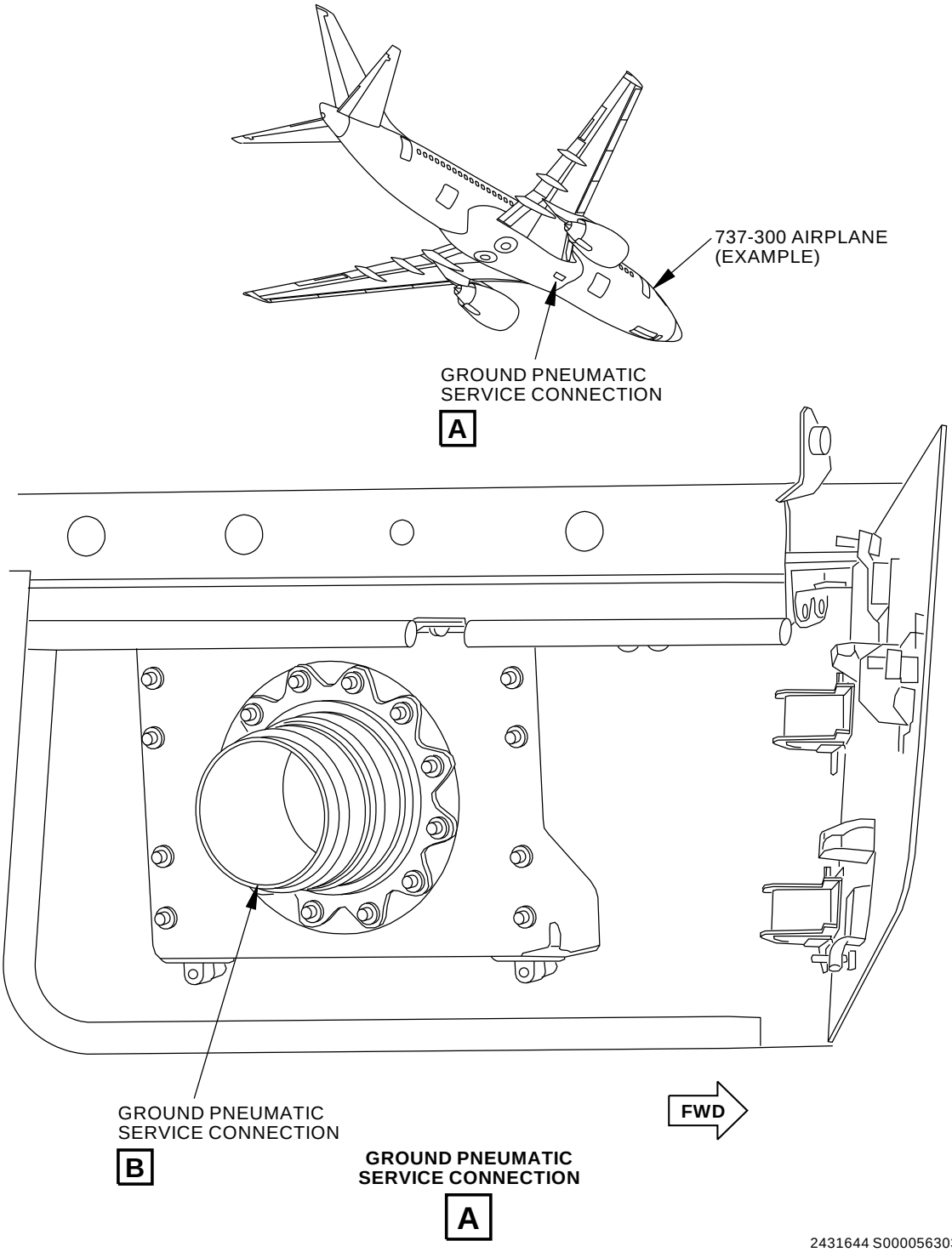
(Continued)

J21009-48		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	CANISTER ASSEMBLY	J21009-49
1	SCREEN ASSEMBLY	J21009-36
1	VALVE DEACTIVATOR	J21009-5
2	SUPPORT RING	J21009-37
1	FILTER	J21009-38
5	JAR	J21009-9
1	TONGS	J21009-10
1	PLUNGER	J21009-44
1	STORAGE BOX	

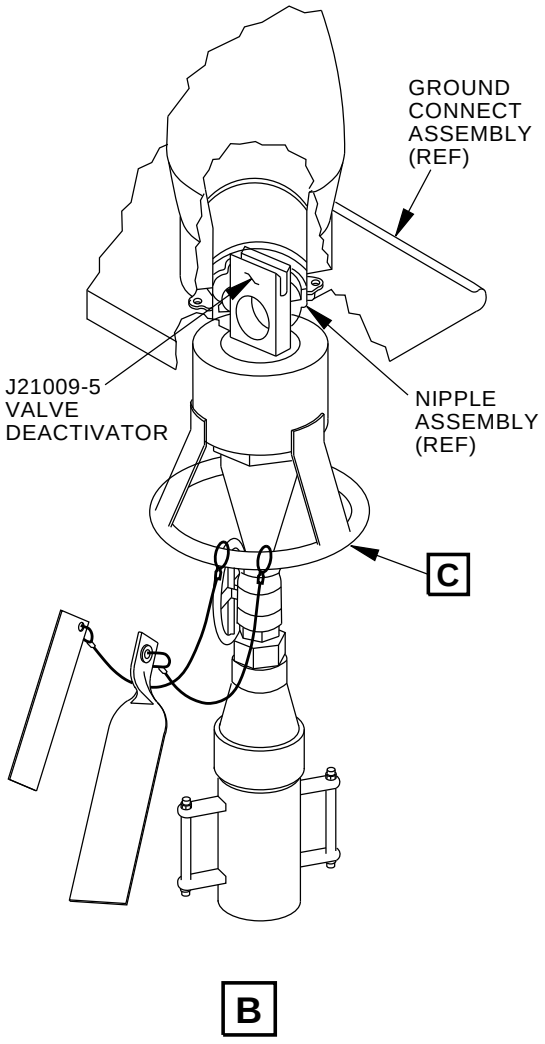
WEIGHT: 35 lbs (16 kg)

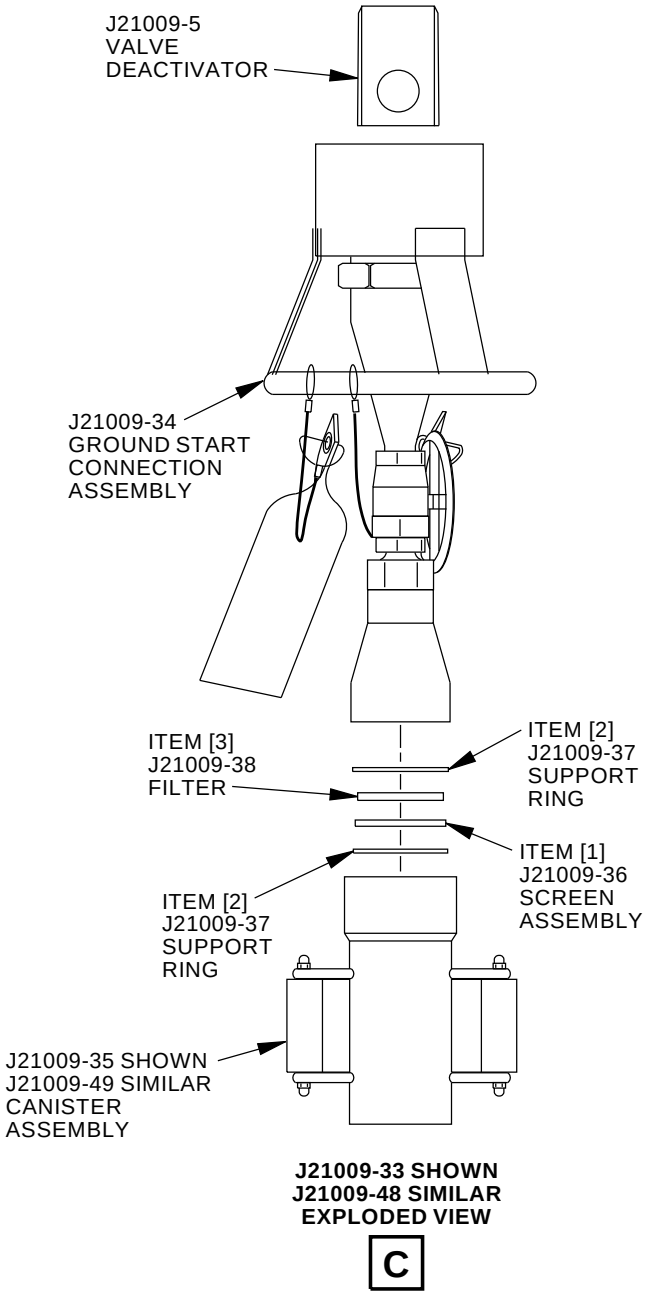
DIMENSIONS: 10 (diameter) x 32 inches (254 (diameter) x 813 mm)

NOTE: J21009-48 replaces J21009-33.
J21009-33 supersedes J21009-1.



Pneumatic Power Service Connection
Figure 1





1848600 S0000328828_V4

Airplane Pneumatic System Air Sampler
Figure 2

REPAIRABLE/REPLACEABLE PARTS			
ITEM NUMBER	**PART NUMBER**	**NOMENCLATURE**	**VENDOR CODE**
[1]	J21009-36	SCREEN ASSEMBLY	- - -
[2]	J21009-37	SUPPORT RING	- - -
[3]	J21009-38	FILTER	- - -
[4]	J21009-9 (NOT SHOWN)	JAR	- - -

PART NUMBER: A21015-8

NAME: DISPATCH EQUIPMENT - BLANK-OFF PLATE, TRIM AIR CHECK VALVE

AIRPLANE MAINTENANCE: YES

AMM 21-00-00

COMPONENT MAINTENANCE: NO

OTHER MANUALS: YES

737 Dispatch Deviation Guide 2.21-39

USAGE & DESCRIPTION: The A21015-8 dispatch equipment is used on all 737-400 and 737-800 thru -900 airplanes .

The A21015 blanking plate is used to isolate the trim air check valve. A21015 is installed on the downstream side of the trim air supply check valve.

Refer to AMM 21-00-00 and the current A21015 drawing for complete usage instructions.

NOTE: The fabrication of this dispatch tool, the conformance of the tool to the engineering specification, and the approval for use of the tool per the regulatory operations inspector is the responsibility of the operator. The approved use of the tool to dispatch the airplane must be documented in the operator's Minimum Equipment List (MEL) and the Dispatch Deviation Guide.

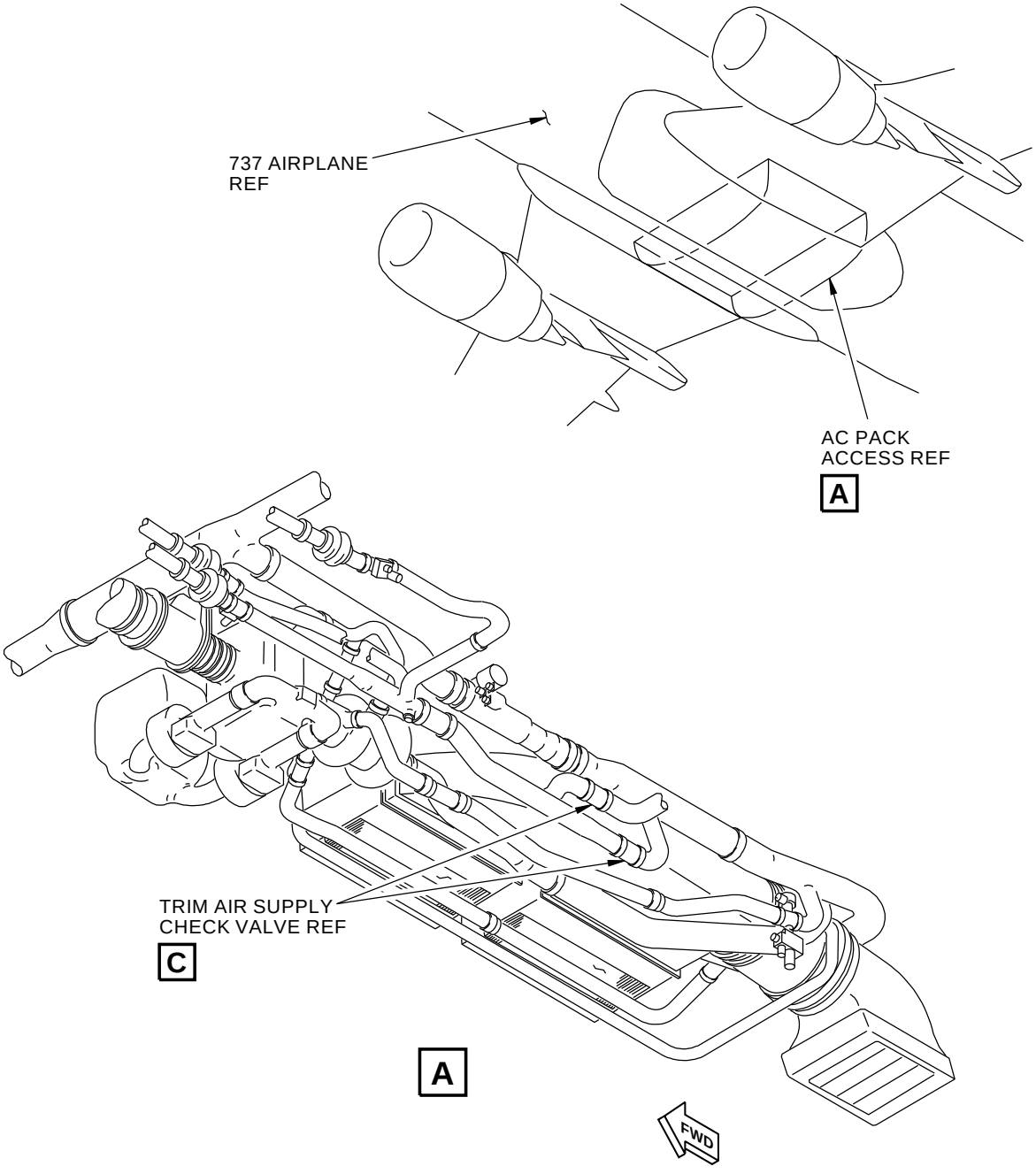
A21015-8 consists of:

A21015-8		
QUANTITY	**NOMENCLATURE**	**PART NO.**
1	BLANKING PLATE	A21015-9
1	STORAGE BOX	

WEIGHT: 1 lb (0.45 kg)

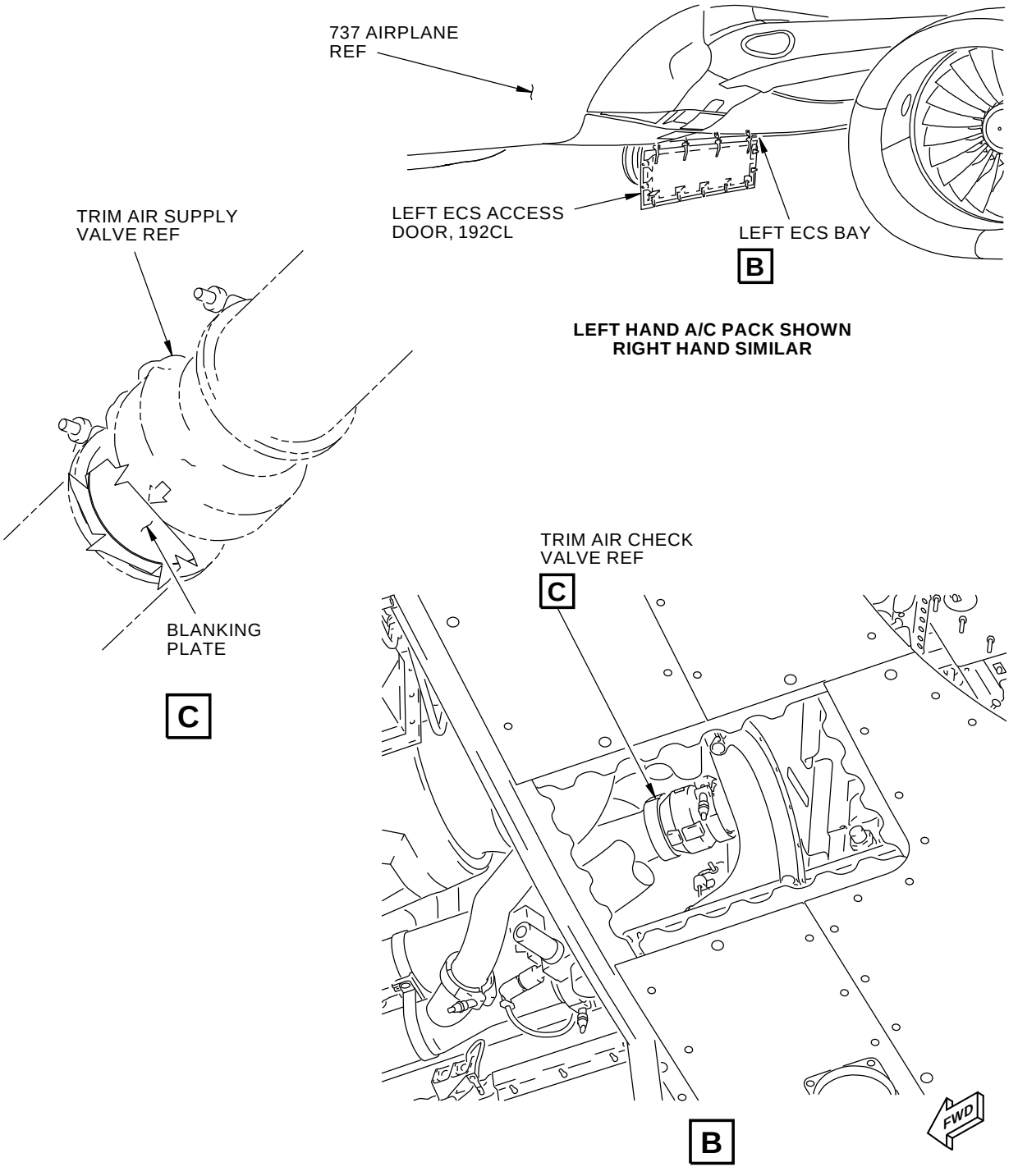
DIMENSIONS: 3.5 x 3.5 x 0.05 inches (89 x 89 x 2 mm)

I



2470727 S0000578080_V1

Trim Air Check Valve Blank-Off Plate Dispatch Equipment - 737-400 Usage
Figure 1



Trim Air Check Valve Blank-Off Plate Dispatch Equipment - 737-800/900 Usage
Figure 2

PART NUMBER: C21007-1

NAME: DIAGNOSTIC EQUIPMENT - AIR CONDITIONING SYSTEM, MIXED MANIFOLD

AIRPLANE MAINTENANCE: YES

AMM 21-21-00

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C21007-1 diagnostic equipment is used on all 737 airplanes, except 737-100 and -200 airplanes.

C21007 is used to check the health of the main distribution manifold system by measuring the system pressure, temperature and humidity.

Refer to AMM 21-21-00 and the current C21007 drawing for complete usage instructions.

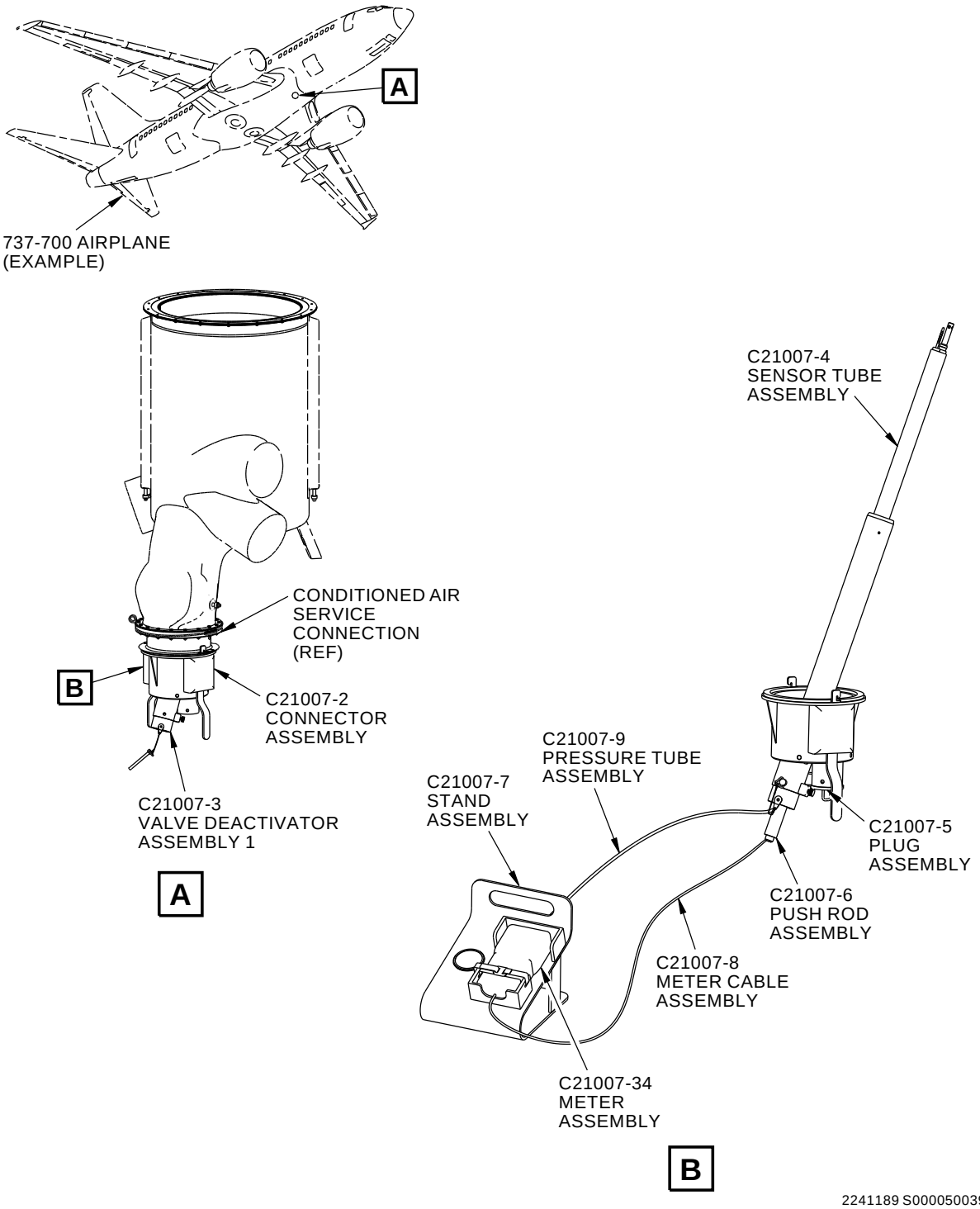
C21007-1 consists of:

C21007-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	CONNECTOR ASSEMBLY	C21007-2
1	VALVE DEACTIVATOR ASSEMBLY 1	C21007-3
1	SENSOR TUBE ASSEMBLY	C21007-4
1	PLUG ASSEMBLY	C21007-5
1	PUSH ROD ASSEMBLY	C21007-6
1	STAND ASSEMBLY	C21007-7
1	METER CABLE ASSEMBLY	C21007-8
1	PRESSURE TUBE ASSEMBLY	C21007-9
1	VALVE DEACTIVATOR ASSEMBLY 2	C21007-10*[1]
1	METER ASSEMBLY	C21007-34
1	STORAGE CASE	

*[1] C21007-10 IS NOT USED ON 737 AIRPLANES.

WEIGHT: 62 lbs (28 kg)

DIMENSIONS: 15 x 22 x 42 inches (381 x 559 x 1067 mm)



Mixed Manifold AC System Diagnostic Equipment
Figure 1

REPAIRABLE/REPLACEABLE PARTS			
ITEM NUMBER	**PART NUMBER**	**NOMENCLATURE**	**VENDOR CODE**
NOT SHOWN	C21007-26	LOCATING SCREW	- - -
NOT SHOWN	C21007-69	BATTERY	- - -

PART NUMBER: A21010-187, -188, -189, -190, -203

NAME: VACUUM TANK - PRESSURE RELIEF VALVE TEST

AIRPLANE MAINTENANCE: YES

AMM 21-32-01

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The A21010-187, -188, -189, -190 or -203 (preferred) vacuum tank is used on all 737-100 thru -900 airplanes.

A21010 simulates cabin-to-ambient differential pressures in a ground test to ensure the positive pressure relief valve functioning correctly in flight. A21010-187, -188, -190 and -203 share most of the same components and have a similar appearance. A21010-187, -188, -189, -190 and -203 vacuum tanks all have similar test functions. The A21010 vacuum tanks are operated on a clean dry, 60 to 105 psi air source.

Refer to AMM 21-32-01 and the current A21010 drawing for complete usage instructions.

A21010 generally consists of a tank assembly mounted on casters including a vacuum head assembly, two muffled vacuum pumps, pressure and vacuum rate gauges, valves, plumbing, connecting hardware and a storage box.

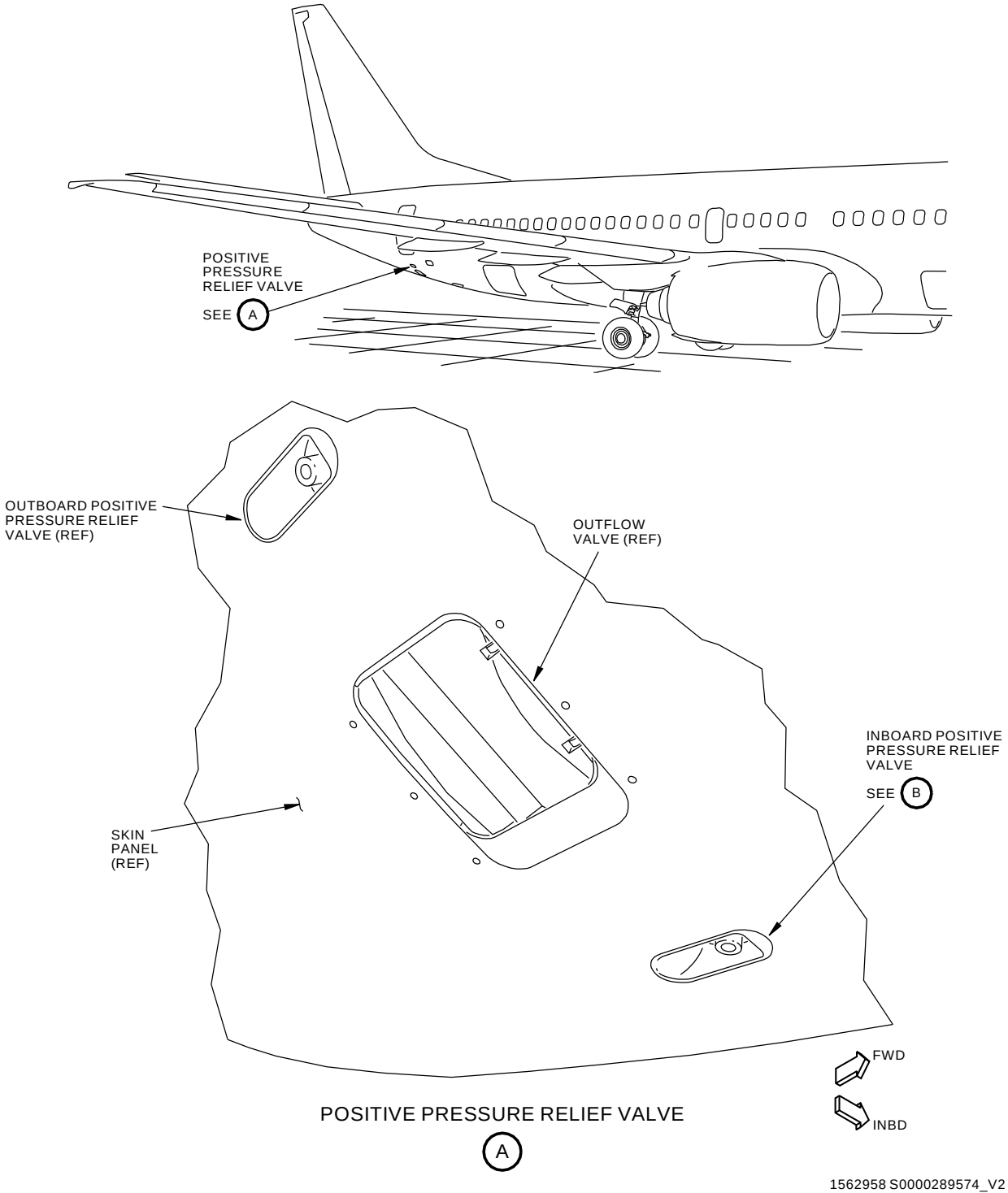
WEIGHT: 430 lbs (195 kg)

DIMENSIONS: 22 x 39 x 66 inches (559 x 991 x 1676 mm)

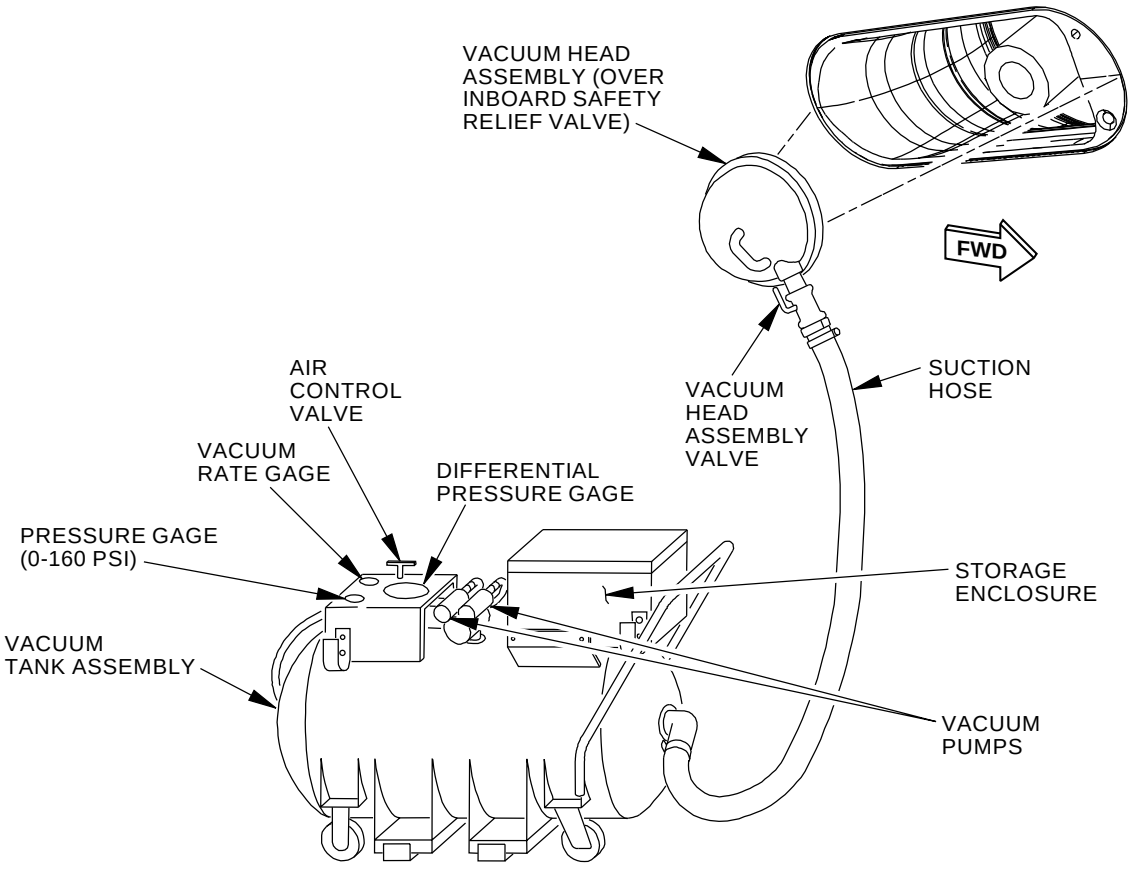
NOTE: A21010-187, -188, -189 and -190 supersede A21010-152, -153, -154 and -155 respectively.

A21010-190 replaces A21010-187, -188 and -189 for future procurement.

A21010-203 replaces A21010-190 for future procurement.



Pressure Relief Valve Test Equipment Usage Location
Figure 1



A21010-188
VACUUM TANK ASSEMBLY SHOWN
A21010-187,-189,-190, AND -203 SIMILAR

B

H48803 S0006831410_V6

Pressure Relief Valve Test Equipment
Figure 2

PART NUMBER: C21008-1

NAME: EXTENSION CABLE - OUTFLOW VALVE INSTALLATION, AFT FUSELAGE

AIRPLANE MAINTENANCE: YES

AMM 21-31-03

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C21008-1 extension cable is used on 737-600 thru -900 airplanes.

C21008 is used to connect the airplane power connector D10730 and the manual DC motor connector (J5) located on the outflow valve to facilitate positioning the forward and aft gates prior to installing the aft outflow valve in the airplane fuselage.

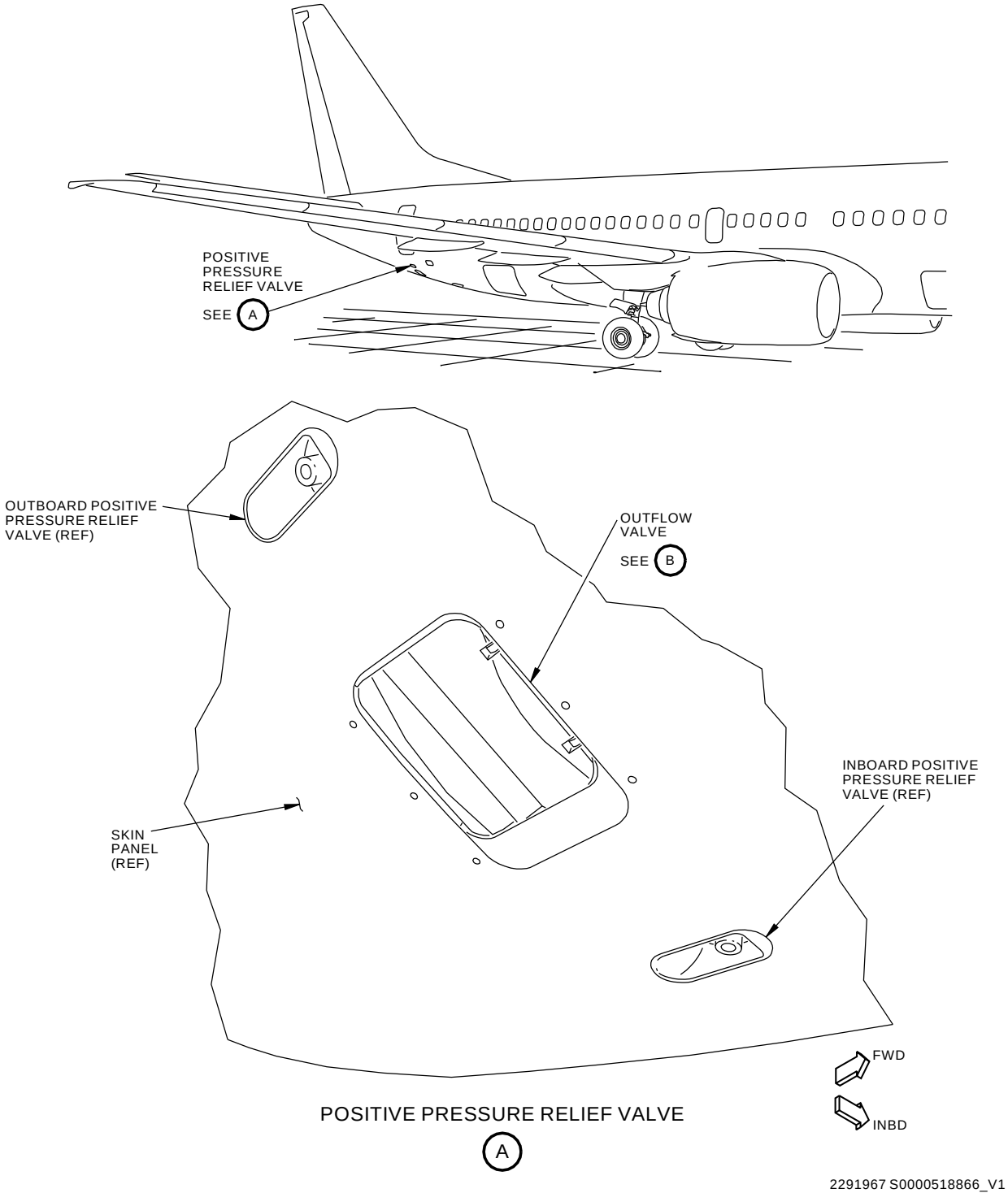
Refer to AMM 21-31-03 and the current C21008 drawing for complete usage instructions.

C21008-1 consists of:

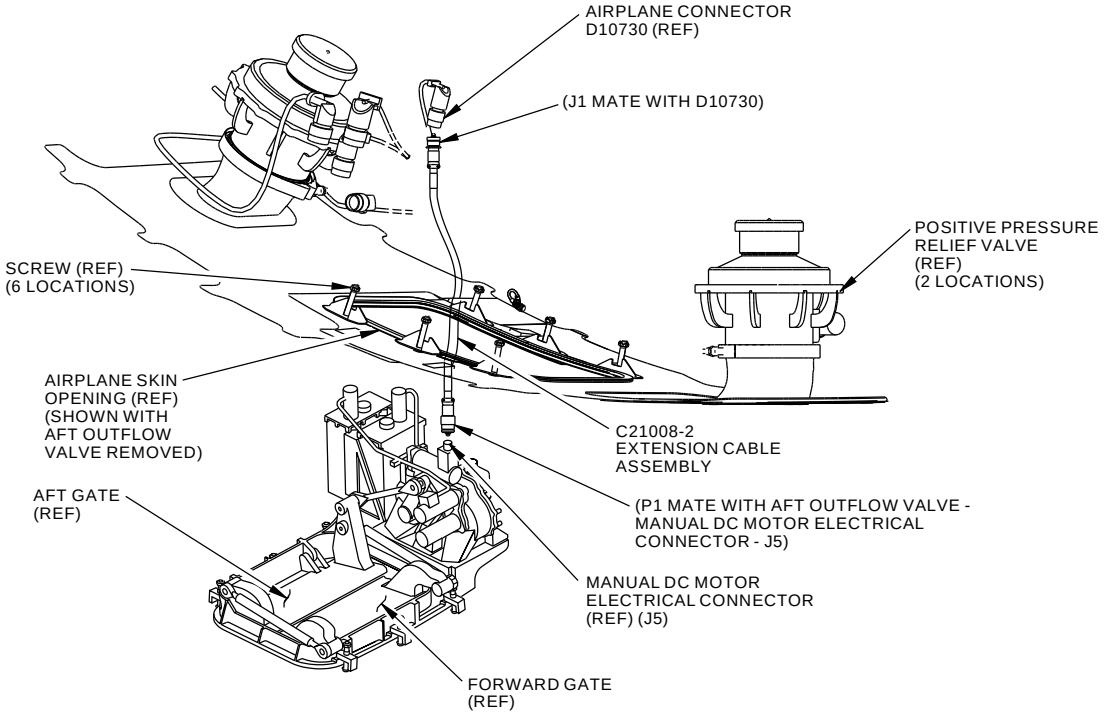
C21008-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	EXTENSION CABLE ASSEMBLY	C21008-2
1	STORAGE CASE	

WEIGHT: 3 lbs (1.4 kg)

DIMENSIONS: 11 x 10 x 7 inches (279 x 254 x 178 mm)



Outflow Valve Installation Aft Fuselage Extension Cable
Figure 1 (Sheet 1 of 2)



AFT OUTFLOW VALVE (OFV)

B

2291976 S0000518867_V1

Outflow Valve Installation Aft Fuselage Extension Cable
Figure 1 (Sheet 2 of 2)

PART NUMBER: C21004-1 WAS DELETED

PART NUMBER: C21003-80, -81, -82, -133, -134, -135

NAME: BACKFLUSH EQUIPMENT - AIR CONDITIONING PACK HEAT EXCHANGER

AIRPLANE MAINTENANCE: YES

AMM 21-51-03

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C21003-80 (option), -81 (option) or -133 (preferred) backflush equipment is used on all 737 airplanes, except the 737-100 thru -500 airplanes. C21003-80, -81 and -133 all include a 3/4-inch (water supply open/close) and 3-inch (air supply open/ close) ball valve installed on the C21003-78 control assembly.

The C21003-82 (option), or -134 (preferred) backflush equipment is used on all 737 airplanes, except the 737-100 thru -500 airplanes. C21003-82 and -134 do not include water or air supply open/close ball valves on the C21003-79 control assembly.

C21003-133 (includes a water supply and air supply ball valve) is optional to C21003-134 (does not include a water supply and air supply ball valve).

C21003-135 (optional) hose equipment may be used on all 737 airplanes, except the 737-100 thru -500 airplanes. C21003-135 allows connection to the airplane's pneumatic ground connector (along with a customer-furnished C21006 check valve deactivator). C21003-135 allows the use of the APU as an air source when a customer-furnished ground start power unit, air source is not available.

C21003-80, -81, -82, -133 or -134 is used to backflush and clean the heat exchangers of the air conditioning pack. A customer-furnished air start cart or the APU (along with C21003-135 and a customer-furnished C21006 check valve deactivator) are required for a pressurized air source. C21003-80, -81, -82, -133 or -134 also require a customer-furnished water source.

Refer to AMM 21-51-03 and the current C21003 drawing for complete usage instructions.

C21003-80, -81, -82, -133, -134 and -135 consist of:

C21003-80		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BACKFLUSH UNIT ASSEMBLY	C21003-83
1	BACKFLUSH UNIT ASSEMBLY	C21003-84
1	CONTROL ASSEMBLY	C21003-78
1	PLUG ASSEMBLY	C21003-87
16	WASHER	C21003-91 (NAS1149F0332P)

(Continued)

C21003-80		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
10	SHORT SCREW	C21003-92 (NAS603-8P)
2	LONG SCREW	C21003-93 (NAS603-16P)
4	MEDIUM SCREW	C21003-94 (NAS603-12P)
1	STORAGE BOX	

C21003-81		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BACKFLUSH UNIT ASSEMBLY	C21003-85
1	BACKFLUSH UNIT ASSEMBLY	C21003-86
1	CONTROL ASSEMBLY	C21003-78
1	PLUG ASSEMBLY	C21003-87
1	STORAGE BOX	

C21003-82		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BACKFLUSH UNIT ASSEMBLY	C21003-85
1	BACKFLUSH UNIT ASSEMBLY	C21003-86
1	CONTROL ASSEMBLY	C21003-79
1	PLUG ASSEMBLY	C21003-87
1	STORAGE BOX	

C21003-133		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BACKFLUSH UNIT ASSEMBLY	C21003-136
1	BACKFLUSH UNIT ASSEMBLY	C21003-137
1	CONTROL ASSEMBLY	C21003-78
1	PLUG ASSEMBLY	C21003-87
1	STORAGE BOX	

C21003-134		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BACKFLUSH UNIT ASSEMBLY	C21003-136
1	BACKFLUSH UNIT ASSEMBLY	C21003-137
1	CONTROL ASSEMBLY	C21003-79
1	PLUG ASSEMBLY	C21003-87
1	STORAGE BOX	

C21003-135		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	HOSE ASSEMBLY	C21003-139
1	STORAGE BOX	

WEIGHT: C21003-80, -81, -82, -133 or -134 - 55 lbs (25 kg)

C21003-135 - 30 lbs (14 kg)

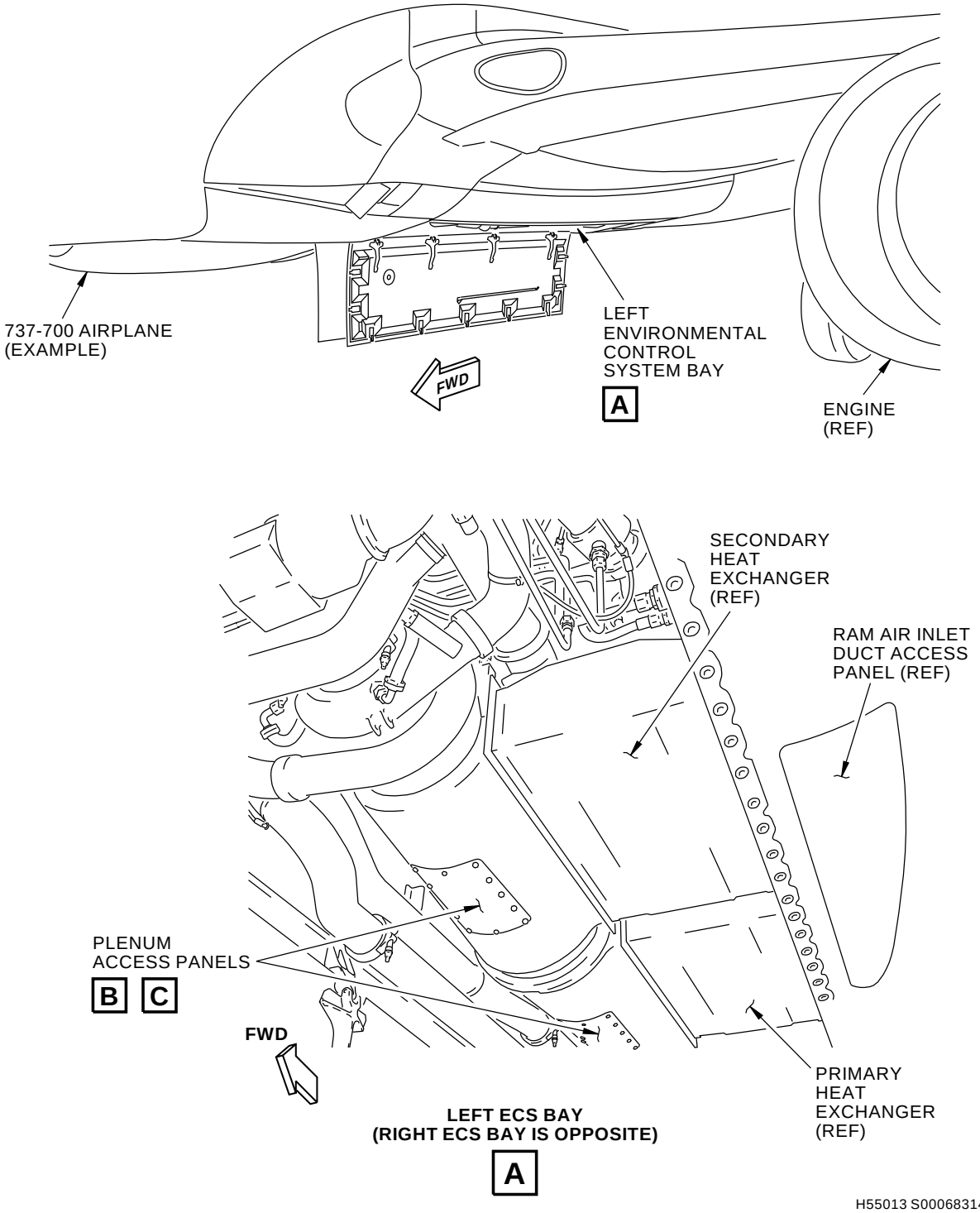
DIMENSIONS: C21003-80, -81, -82, -133 or -134 - 20 x 40 x 14 inches (508 x 1016 x 356 mm)

C21003-135 - 10 x 30 x 36 inches (254 x 762 x 914 mm)

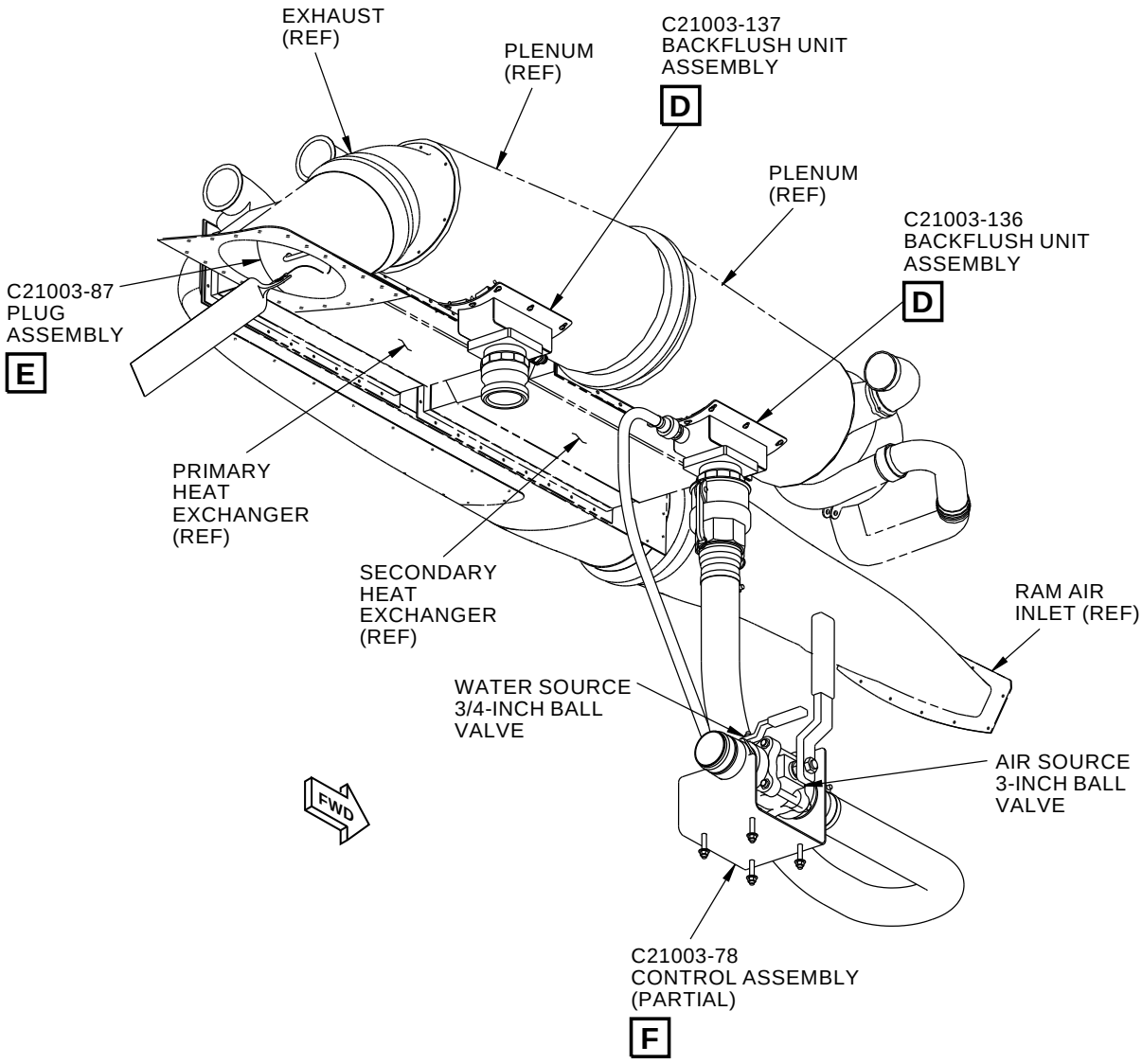
NOTE: C21003-133 and -134 replace C21003-81 and -82 respectively for future procurement.

C21003-81 or C21003-82 replaces C21003-80 for future procurement.

C21003-80, -81 and -82 supersede C21003-75, -76 and -77 respectively.



Backflush Equipment Location
Figure 1 (Sheet 1 of 7)

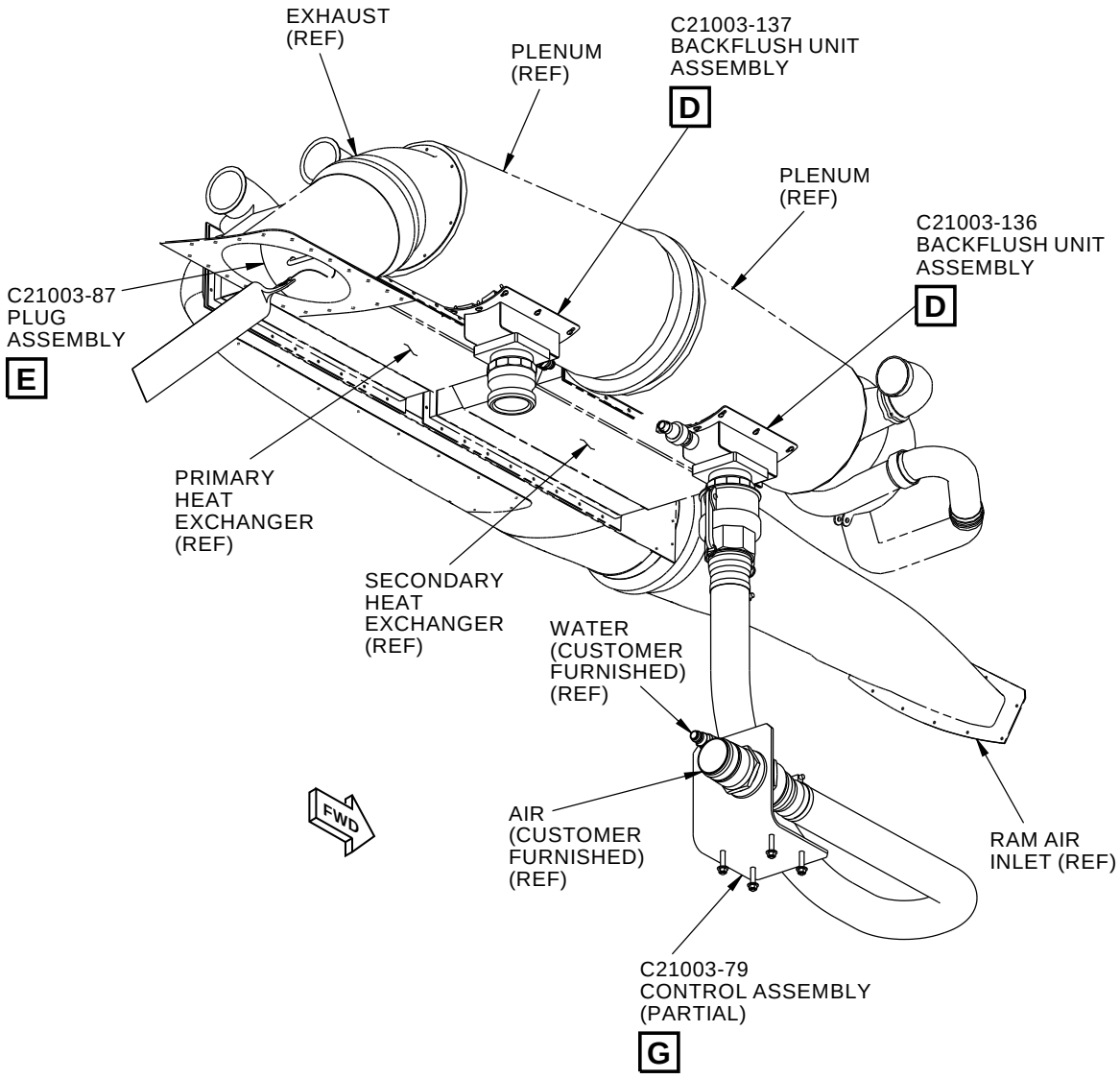


HEAT EXCHANGER BACKFLUSH
(C21003-80,-81 AND -133 USAGE)

B

2421370 S0000559349_V1

Backflush Equipment Location
Figure 1 (Sheet 2 of 7)

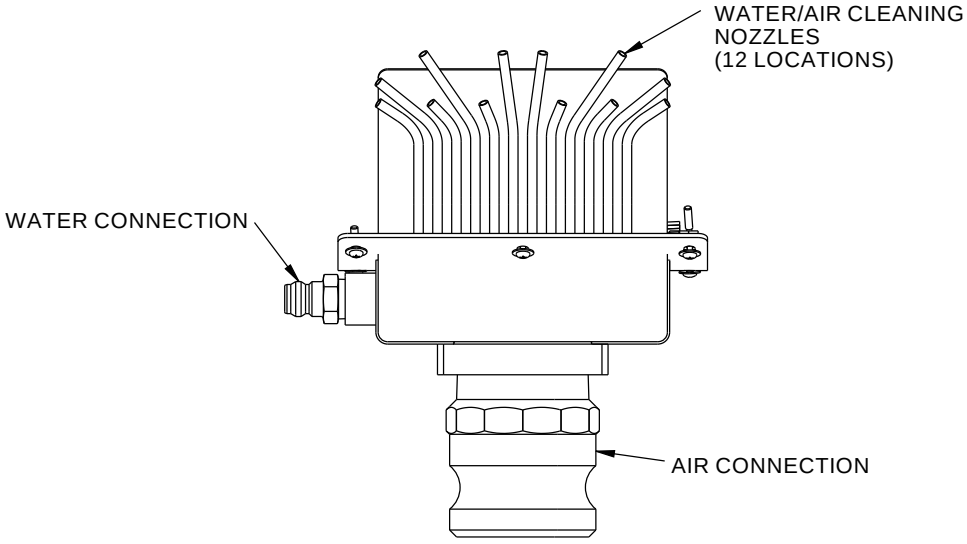


HEAT EXCHANGER BACKFLUSH
(C21003-82 AND -134 USAGE)

C

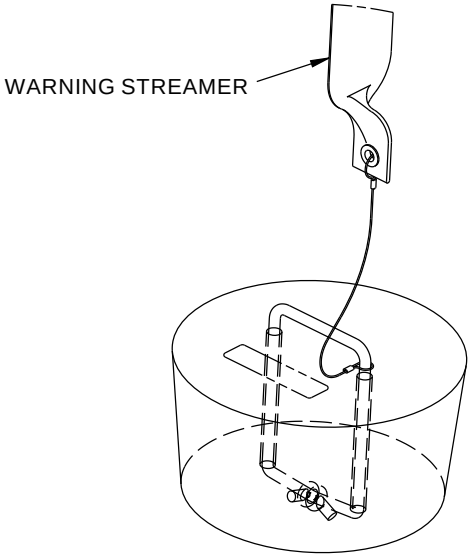
2421372 S0000559350_V1

Backflush Equipment Location
Figure 1 (Sheet 3 of 7)



C21003-136 BACKFLUSH UNIT ASSEMBLY SHOWN
C21003-85 SIMILAR
C21003-86,-137 OPPOSITE

D

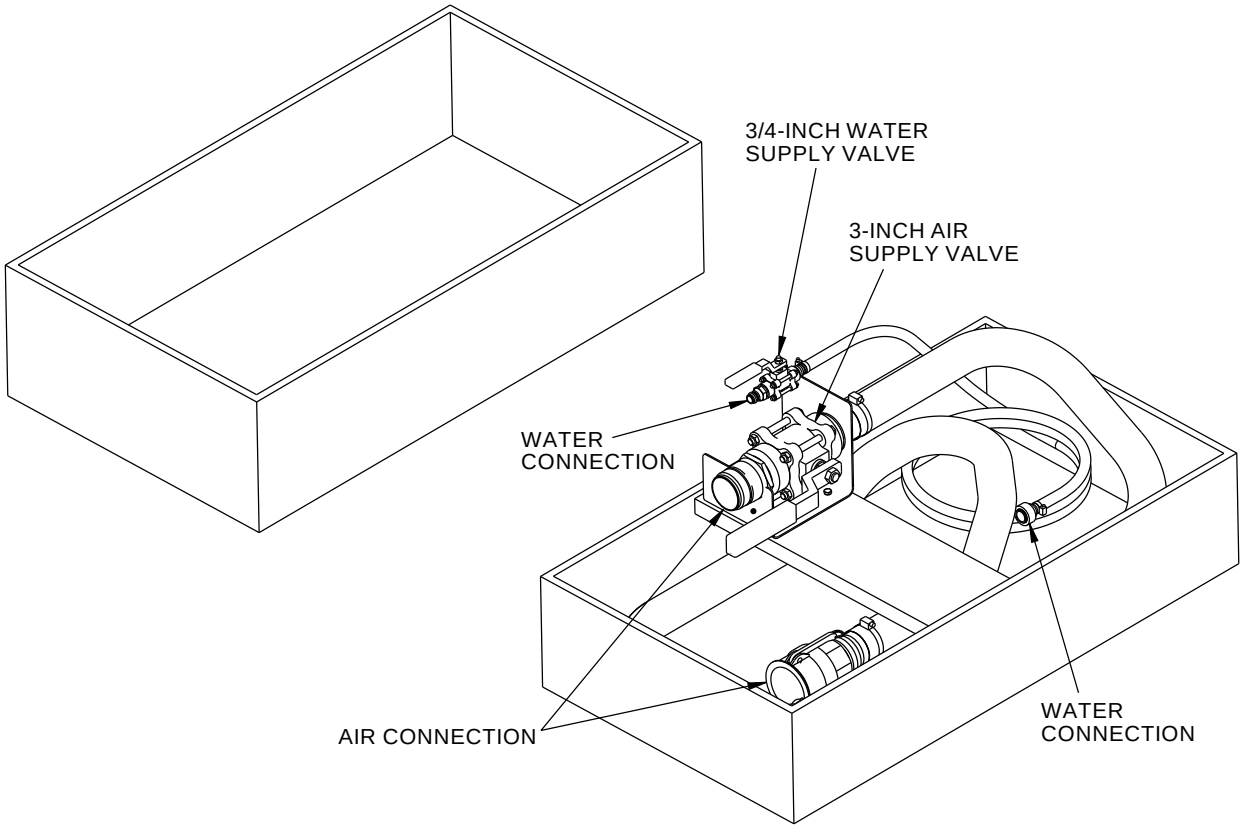


C21003-87 PLUG ASSEMBLY

E

2421373 S0000559351_V1

Backflush Equipment Location
Figure 1 (Sheet 4 of 7)

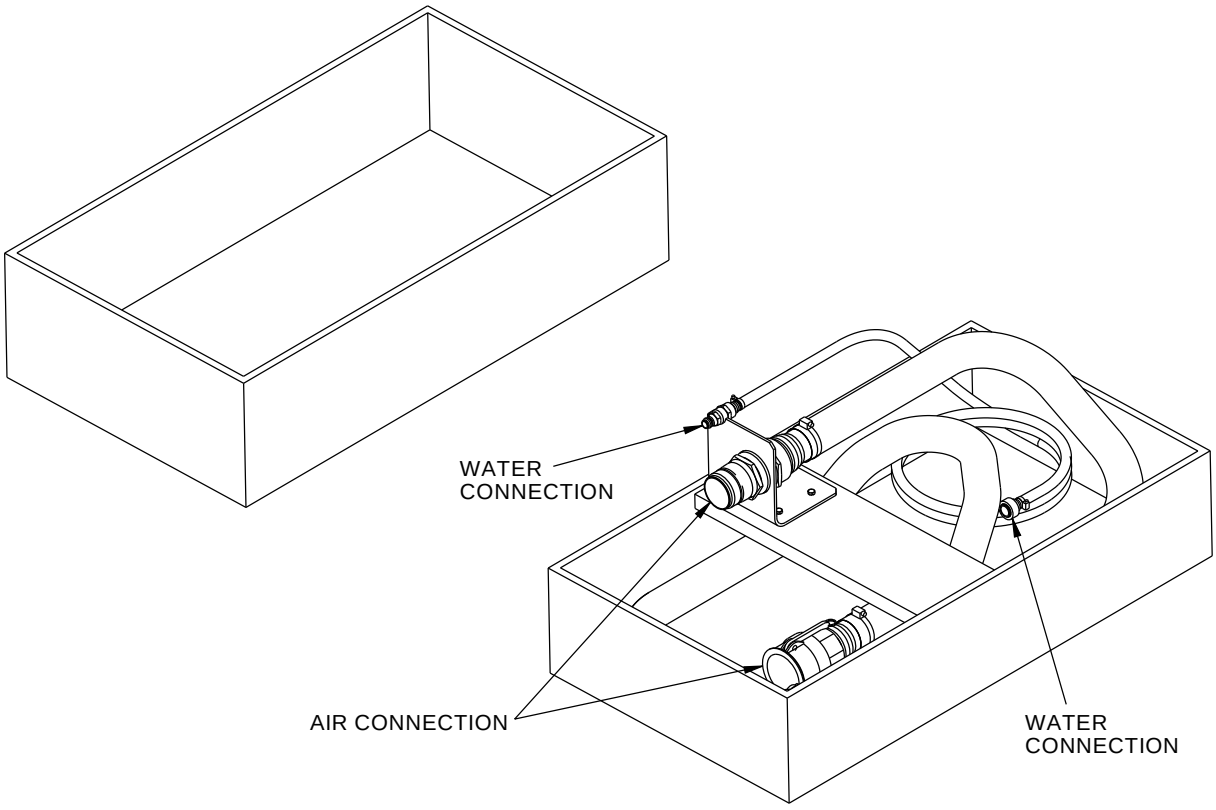


C21003-78 CONTROL ASSEMBLY

F

2421383 S0000559352_V1

Backflush Equipment Location
Figure 1 (Sheet 5 of 7)

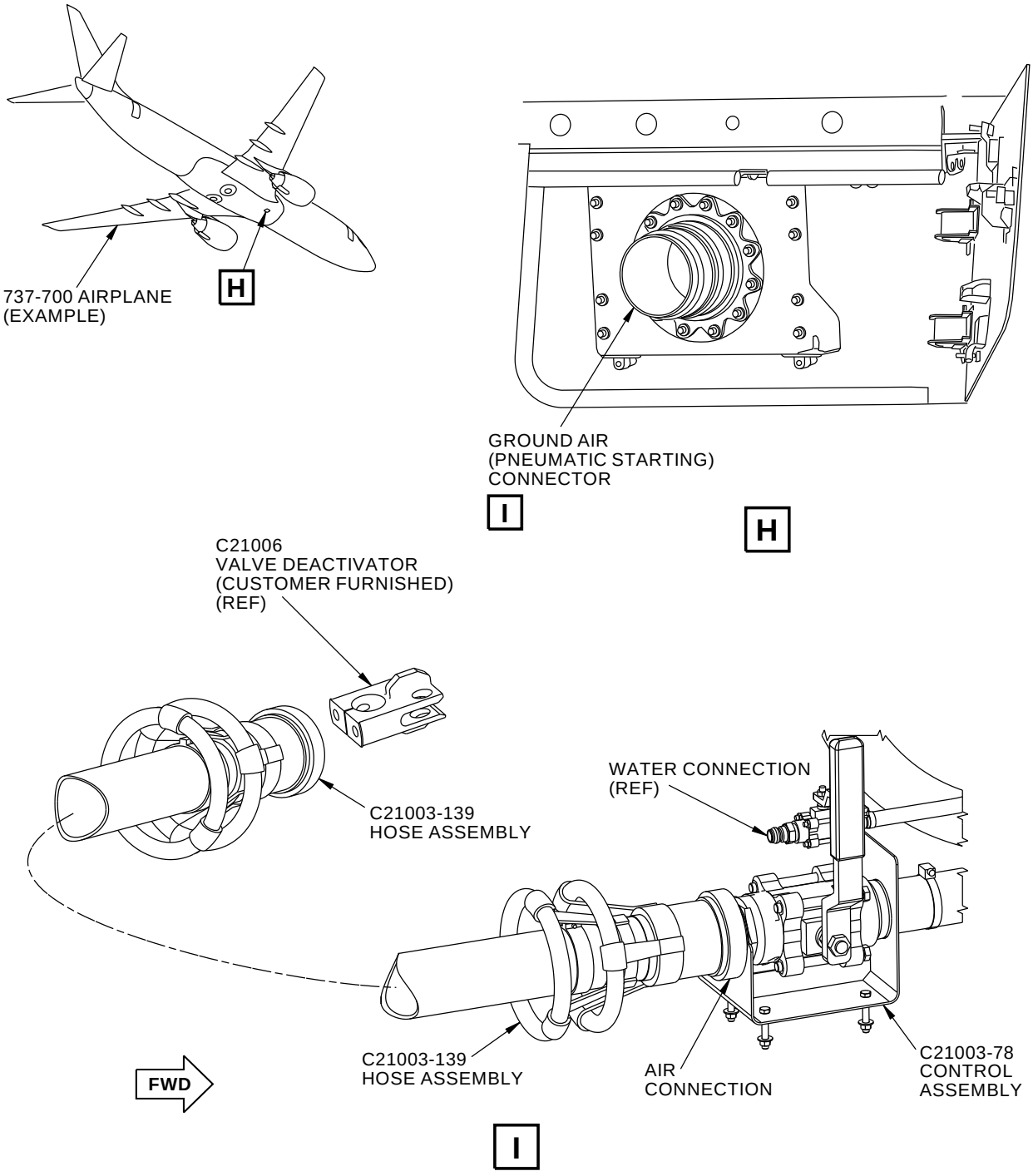


C21003-79 CONTROL ASSEMBLY

G

2421384 S0000559353_V1

Backflush Equipment Location
Figure 1 (Sheet 6 of 7)



Backflush Equipment Location
Figure 1 (Sheet 7 of 7)

REPAIRABLE/REPLACEABLE PARTS			
ITEM NUMBER	**PART NUMBER**	**NOMENCLATURE**	**VENDOR CODE**
[1]	C21003-93 (NAS602-16P)	LONG SCREW	- - -
[2]	C21003-91 (NAS1149F0332P)	WASHER	- - -
[3]	C21003-94 (NAS603-12P)	MEDIUM SCREW	- - -
[4]	C21003-92 (NAS603-8P)	SHORT SCREW	- - -

PART NUMBER: C21005-62, -70

NAME: HOIST ADAPTER - AIR CONDITIONING PACK (CE)

AIRPLANE MAINTENANCE: YES

AMM 21-51-03

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C21005-62 (option, CE qualified) or C21005-70 (preferred, CE qualified) hoist adapter is used on all 737-airplanes except -100 thru -500.

C21005 is used to adapt a customer-furnished A71015 lift fixture for removal or installation of the primary and secondary heat exchangers, plenums and air cycle machines as a unit.

Refer to AMM 21-51-03 and the current C21005 drawing for complete usage instructions.

C21005-62 and -72 consist of:

C21005-62		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	HOIST ADAPTER ASSEMBLY	C21005-63
1	STORAGE BOX	

C21005-70		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	HOIST ADAPTER ASSEMBLY	C21005-71
1	STORAGE BOX	

WEIGHT: 90 lbs (41 kg)

DIMENSIONS: 14 x 15 x 55 inches (356 x 381 x 1397 mm)

NOTE: C21005 supersedes C21004.

C21005-62 supersedes C21005-1.

C21005-70 replaces C21005-62 for future procurement.

DECLARATION OF CONFORMITY: C21005 requires a written Declaration of Conformity from the C21005 fabricator if it is to be used in the European Union. The design of C21005 meets the European requirements of Machinery Directive 2006/42/EC including its amendments. When used within the European Union, the fabricator of C21005 must also meet the requirements of that directive. At a minimum for the tool fabricator, this requires the retention of a technical file, a labeling of the equipment with the CE mark, and the completion of an EC Declaration of Conformity. If C21005 is to be used within the European Union and the Declaration of Conformity is missing, contact the fabricator of C21005 for a replacement Declaration of Conformity.

OPERATING INSTRUCTIONS: Refer to the current C21005 drawing and AMM 21-51-03 procedures for detailed instructions on the use of this equipment. This equipment shall only be used in conjunction with Boeing maintenance procedures to maintain Boeing airplanes.

Adapter equipment, the following safety messages shall be included in the information for use and follow the form as denoted on the engineering drawing (they should mimic decals on the drawing or notes on the usage placard):

- Study, understand, and follow all instructions before operating this device. This includes instructions furnished by the vendors for subcomponents of this equipment.
- Do not exceed rated capacity.
- Use only on hard level surfaces.
- Failure to heed these markings may result in personal injury and/or property damage.
- Do not use for general transportation of load.
- Use only attachments specifically identified by Boeing for use with this equipment.
- No alterations shall be made to this product unless shown in Boeing Tool Change Bulletin (TCB) application to the respective drawings.
- This equipment is only to be used in the support of Boeing aircraft.

MAINTENANCE: General Cleaning: Basic care of the equipment includes cleaning the equipment of dirt, corrosives, or contaminants. Wipe off all surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent, clean the components and wipe dry with a clean cloth. Hang the components freely to dry, but away from excessive heat or steam.

Structural and Mechanical Lifting Devices, (supporting lifters):

1. Maintenance shall be done based on the recommendations made by the lifter manufacturer or qualified person.
2. Before adjustments and repairs are started on a lifter, the following precautions shall be taken:
   - All courses of power shall be disconnected, locked out, and tagged "Out of Service".
   - A lifter removed from service for repair shall be tagged "Out of Service".
3. Only a qualified person shall perform adjustments and tests when required.
4. Replacement parts shall be at least equal to the original manufacturer’s specifications.
5. After adjustments and repairs have been made, the lifter shall not be returned to service until it has been inspected according to ASME B-30.20, para. 20-1.3.4.

6. Dated records of repairs and replacements shall be made.
7. Adjustments and repairs. Any hazardous conditions disclosed by the inspection requirements of ASME B-30.20, para. 20-1.3.1 shall be corrected before normal operations of the lifter is resumed. Adjustments and repairs shall be done under the direction of , or by, a qualified person.

PROOF LOAD: Proof load testing for the C21005-62 hoist adapter shall be performed per the current C21005 drawing proof load diagrams (example Figure 3) and:

- In conjunction with initial fabrication
- Subsequent to modification of this equipment (equipment shall only be modified in accordance with the C21005 drawing).
- After repair of load carrying components.
- After replacement of load carrying components (except for load carrying components such as shackles and hoist rings that carry their own certification).
- Continuing integrity/safety of the device to be assured by inspection.

INSPECTION: FREQUENT

General Inspection (before use):

1. Missing fasteners
2. Notes, Cautions and Warnings are legible
3. Usage placards are legible

Structural and Mechanical Lifting Devices (supporting lifters):

1. Visual Inspection by the operator before and during each lift of the device. Records are not required. Inspect for:
   - Structural deformation, cracks or excessive wear of any parts of the lifting device.
   - Loose or missing guards, fasteners, covers, stops or nameplates.
   - All functional operational mechanisms and automatic hold and release mechanisms for misadjustments interfering with operation.

PERIODIC

Welding Inspection:

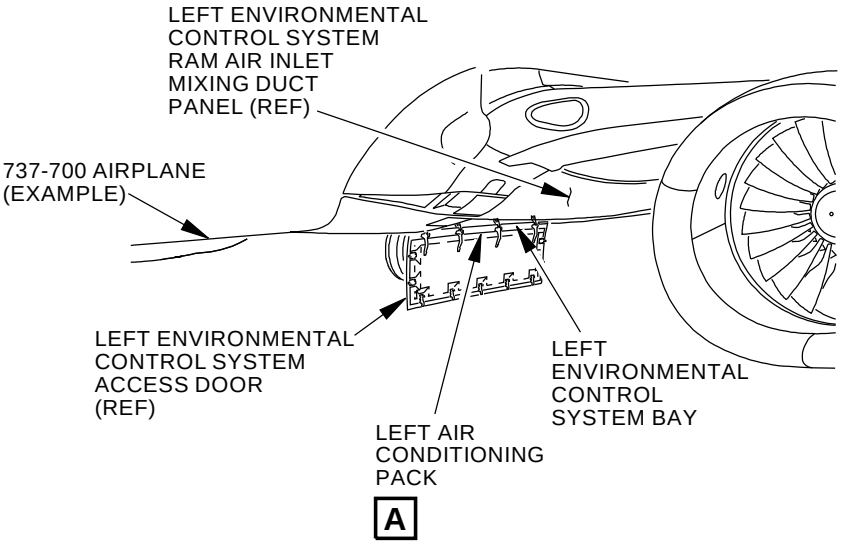
1. Magnetic particle or dye penetrant inspection for all welds, after all proof load tests.
2. Inspect and evaluate per GSE Welding Document A00001 Inspection Requirements Tables 1 & 2, and Acceptance Criteria Table 3.
3. Reject cracked or deformed parts.

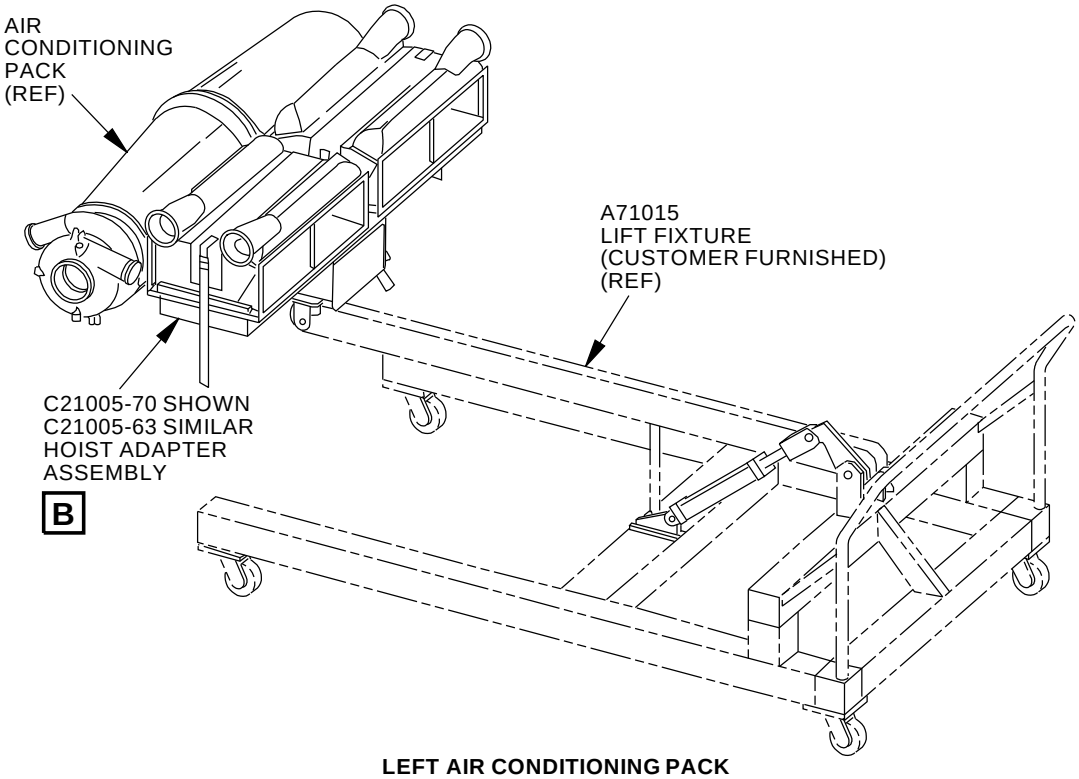
Structural and Mechanical Lifting Devices (supporting lifters):

1. A written record of a visual inspection, by a qualified person is required.
2. Inspection is made of external conditions for a continuing evaluation of the following factors:
   - Loose bolts or fasteners.
   - Excessive wear of linkages and other mechanical parts.
   - Excessive wear at hoist hooking points and load support clevises or pins.
   - Deficiencies found during the inspection are analyzed and the lifting device shall not be used, if deficiencies are determined to be hazardous.
   - The lifting device shall not be used until the hazardous deficiencies are corrected.

STORAGE: C21005 shall be stored clean, dry, and free of exposure to fumes or corrosive elements, indoors and in the furnished storage box.

DECOMMISSIONING: Part and assemblies of this equipment shall be permanently altered to prevent their unauthorized reuse. Recycling is the preferred manner of disposal for those materials where that option is available.



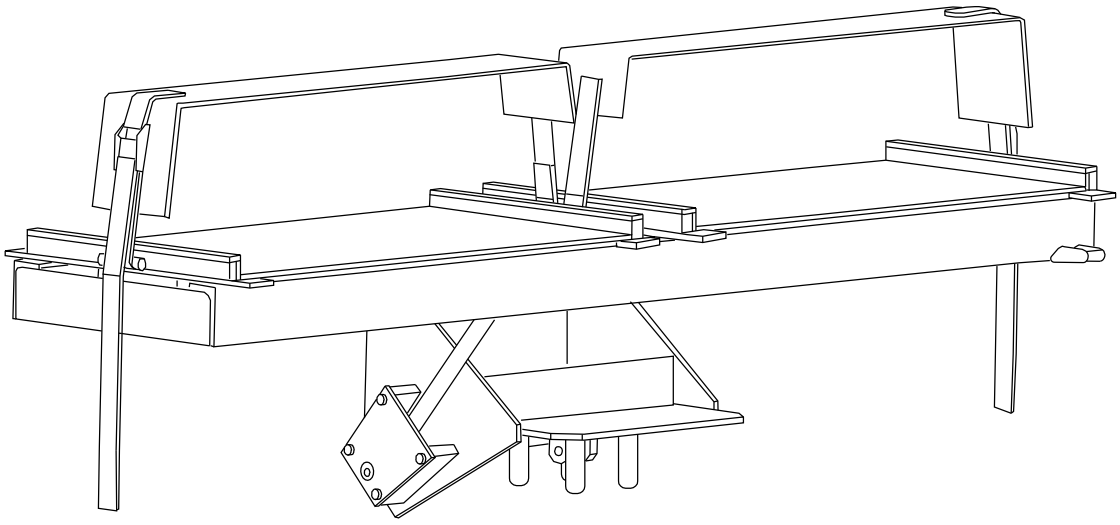


LEFT AIR CONDITIONING PACK

A

L40580 S0006831417_V5

Air Conditioning Pack Adapter Location and Usage
Figure 1

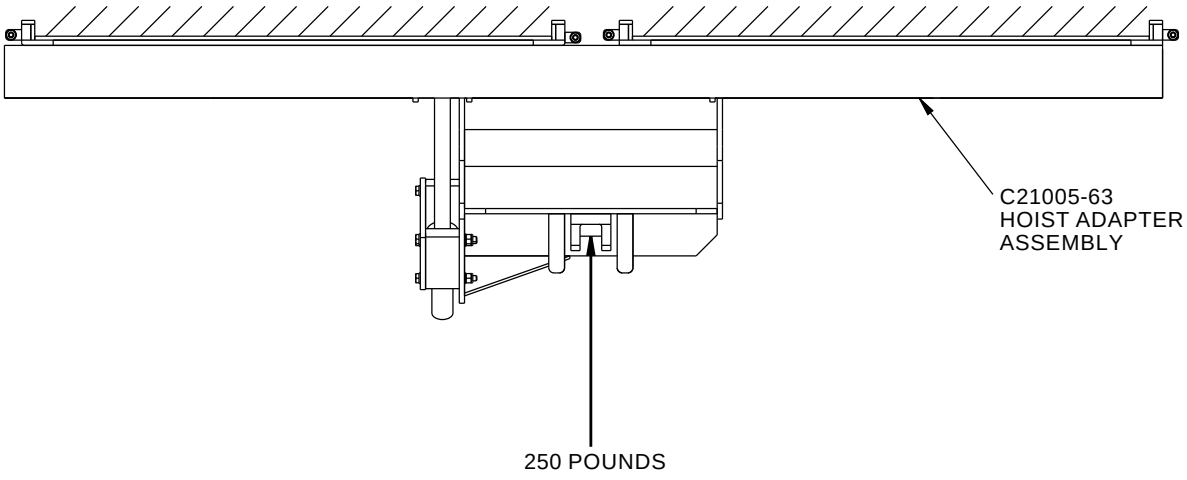


C21005-70 SHOWN
C21005-63 SIMILAR
HOIST ADAPTER ASSEMBLY

B

L40613 S0006831418_V5

Air Conditioning Pack Adapter Components
Figure 2



C21005
PROOF LOAD DIAGRAM
(EXAMPLE)

2425349 S0000561034_V1

C21005 Proof Load Diagram (Example)
Figure 3

PART NUMBER: A71015-108

NAME: LIFT FIXTURE - ENGINE ACCESSORY (CE)

AIRPLANE MAINTENANCE: YES

AMM 21-51-03

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The A71015-108 (CE qualified) lift fixture is used on all 737 airplanes except 737-100 thru -500 airplanes.

A71015 is used as a small crane to remove and install various components on several different airplane models. On the 737, A71015 is used in conjunction with a customer-furnished C21005 air conditioning pack installation and removal adaptor.

Refer to AMM 21-51-03 and the current A71015 drawing for complete usage instructions.

The major components of the A71015-108 engine accessory lift fixture consists of:

A71015-108		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BEAM ASSEMBLY	A71015-151
1	LINK ASSEMBLY	A71015-110
1	HEAD ASSEMBLY	A71015-94
1	CART ASSEMBLY	A71015-109
1	MODIFIED PUMP	A71015-57
1	HOSE ASSEMBLY	A71015-146
1	HYDRAULIC CYLINDER	A71015-125

WEIGHT: 400 lbs (182 kg)

DIMENSIONS: 30 x 50 x 90 inches (762 x 1270 x 2286 mm)

NOTE: A71015-108 supersedes A71015-107.

DECLARATION OF CONFORMITY: A71015 requires a written Declaration of Conformity from the A71015 fabricator if it is to be used in the European Union. The design of A71015 meets the European requirements of Machinery Directive 2006/42/EC including its amendments. When used within the European Union, the fabricator of A71015 must also meet the requirements of that directive. At a minimum for the tool fabricator, this requires the retention of a technical file, a labeling of the equipment with the CE mark, and the completion of an EC Declaration of Conformity. If A71015 is to be used within the European Union and the Declaration of Conformity is missing, contact the fabricator of A71015 for a replacement Declaration of Conformity.

OPERATING INSTRUCTIONS: Refer to the current A71015 drawing and AMM 21-51-03 procedures for detailed instructions on the use of this equipment. A71015 shall only be used in conjunction with Boeing maintenance procedures to maintain Boeing airplanes.

Jacking Equipment, the following safety messages shall be included in the information for use and follow the form as denoted on the engineering drawing (they should mimic decals on the drawing or notes on the usage placard):

- Study, understand, and follow all instructions before operating this device. This includes instructions furnished by the vendors for subcomponents of this equipment.
- Do not exceed rated capacity.
- Use only on hard level surfaces.
- Failure to heed these markings may result in personal injury and/or property damage.
- Do not use for general transportation of load.
- Use only attachments specifically identified by Boeing for use with this equipment.
- No alterations shall be made to this product unless shown in Boeing Tool Change Bulletin (TCB) application to the respective drawings.
- This equipment is only to be used in the support of Boeing aircraft.

MAINTENANCE: General Cleaning:

1. Basic care of the equipment includes cleaning the equipment of dirt, corrosives, or contaminants. Wipe off all surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent, clean the components and wipe dry with a clean cloth. Hang the components freely to dry, but away from excessive heat or steam.

Structural and Mechanical Lifting Devices: (supporting lifters):

1. Maintenance shall be done based on the recommendations made by the lifter manufacturer or qualified person.
2. Before adjustments and repairs are started on a lifter, the following precautions shall be taken:
   - All courses of power shall be disconnected, locked out, and tagged "Out of Service".
   - A lifter removed from service for repair shall be tagged "Out of Service".
3. Only a qualified person shall perform adjustments and tests when required.
4. Replacement parts shall be at least equal to the original manufacturer’s specifications.

5. After adjustments and repairs have been made, the lifter shall not be returned to service until it has been inspected according to ASME B-30.20, para. 20-1.3.4.
6. Dated records of repairs and replacements shall be made.
7. Adjustments and repairs. Any hazardous conditions disclosed by the inspection requirements of ASME B30.20,.para. 20-1.3.1 shall be corrected before normal operations of the lifter is resumed. Adjustments and repairs shall be done under the direction of , or by, a qualified person.

Caster and Brakes: Lubricate all casters as recommended by the manufacturer. Normal conditions may warrant lubrication every six months, but monthly lubrication may be necessary for applications in wet or corrosive environments.

PROOF LOAD: Proof load testing for the A71015 Lift Fixture shall be performed per the current A71015 drawing proof load diagrams (example Figure 2), and:

- In conjunction with initial fabrication
- Subsequent to modification of this equipment (equipment shall only be modified in accordance with the A71015 drawing)
- After repair of load carrying components
- After replacement of load carrying components (except for load carrying components such as shackles and hoist rings that carry their own certification).
- Continuing integrity/safety of the device to be assured by inspection.

INSPECTION: FREQUENT

General Inspection (before use):

1. Missing fasteners
2. Notes, Cautions and Warnings are legible
3. Usage placards are legible

Jacking Equipment:

1. Inspect for physical damage, wear and corrosion
2. Missing or damaged parts
3. Hydraulic leakage from the cylinder, hydraulic hose or pump
4. Hydraulic fluid level
5. If defects are discovered, the unit shall be removed from service until repairs are made by a qualified person
6. The unit shall be repaired in compliance with the engineering drawing

Casters and Brakes:

1. Inspect the swivel assembly to see if excessive play exists due to wear. If swivel assembly is loose, it must be replaced.

2. If the caster has a king-bolt and nut, ensure that it is securely fastened.
3. If the swivel does not turn freely, check for corrosion or dirt binding the raceways. It may be necessary to replace the swivel assembly or the entire caster.
4. For rigid casters, ensure the horns are not bent or distorted.
5. Check caster brakes for proper function before each use. Apply brakes one-at-a-time and ensure the brakes are not slipping or loose.
6. If brakes are slipping or loose due to damage or wear, replace the brakes and/or casters immediately and retest the brakes.

PERIODIC

Welding Inspection:

1. Magnetic particle or dye penetrant inspection for all welds, after all proof load tests.
2. Inspect and evaluate per GSE Welding Document A00001 Inspection Requirements Tables 1 & 2, and Acceptance Criteria Table 3.
3. Reject cracked or deformed parts.

Jacking Equipment:

1. Inspect to ensure jack is in complete compliance with the engineering drawing.
2. Inspect structure and components for damage, excessive wear and corrosion.
3. Inspect safety markings and messages are in place and legible
4. Inspect for correct operation of relief valves

Casters and Brakes:

1. Inspect king-bolt, axle, swivel locks, brakes and wheel.

Structural and Mechanical Lifting Devices (supporting lifters):

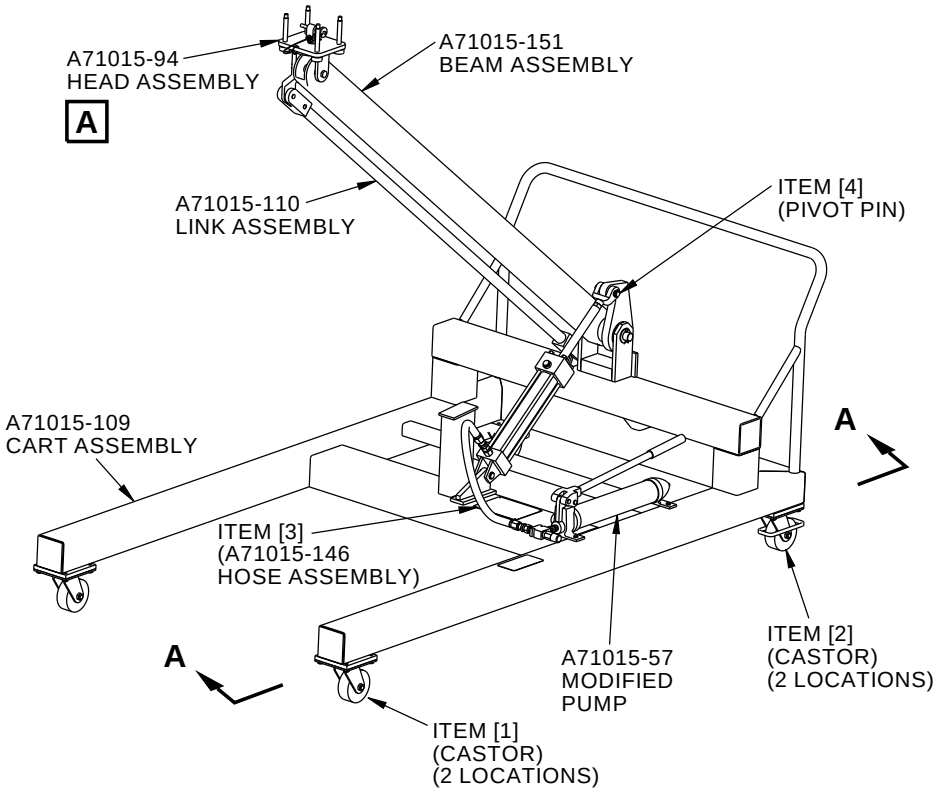
1. A written record of a visual inspection, by a qualified person is required.
2. Inspection is made of external conditions for a continuing evaluation of the following factors:
   - Loose bolts or fasteners
   - Cracked or worn gears, pulleys, sheaves, sprockets, bearings, chains and belts.
   - Excessive wear of linkages and other mechanical parts.
   - Excessive wear at hoist hooking points and load support clevises or pins.
   - Deficiencies found during the inspection are analyzed and the

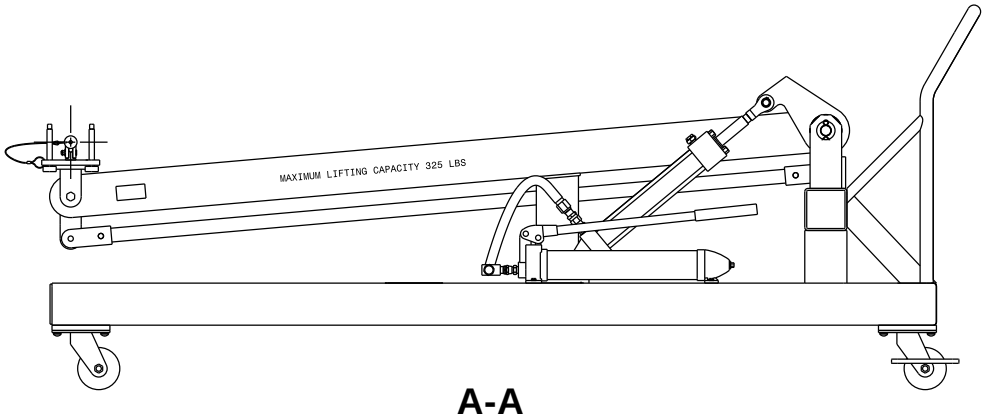
lifting device shall not be used, if deficiencies are determined to be hazardous.

- The lifting device shall not be used until the hazardous deficiencies are corrected.

STORAGE: A71015-108 shall be stored clean, dry, and free of exposure to fumes or corrosive elements, indoors.

DECOMMISSIONING: Part and assemblies of this equipment shall be permanently altered to prevent their unauthorized reuse. Recycling is the preferred manner of disposal for those materials where that option is available.



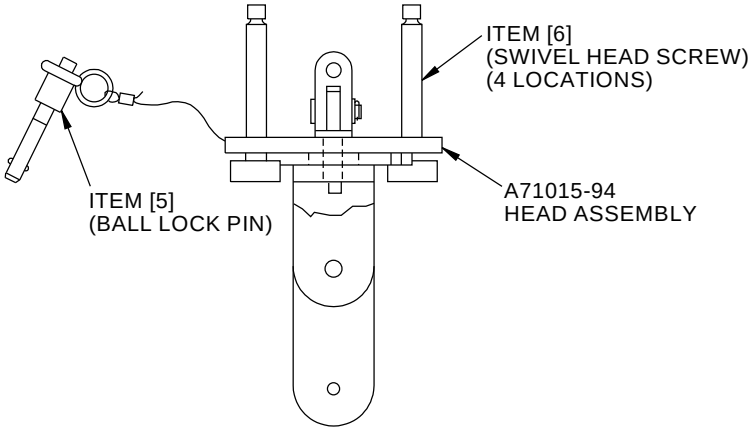


A-A

A71015-108
LIFT FIXTURE

2038079 S0000409126_V3

Engine Accessory Lift Fixture
Figure 1 (Sheet 1 of 2)

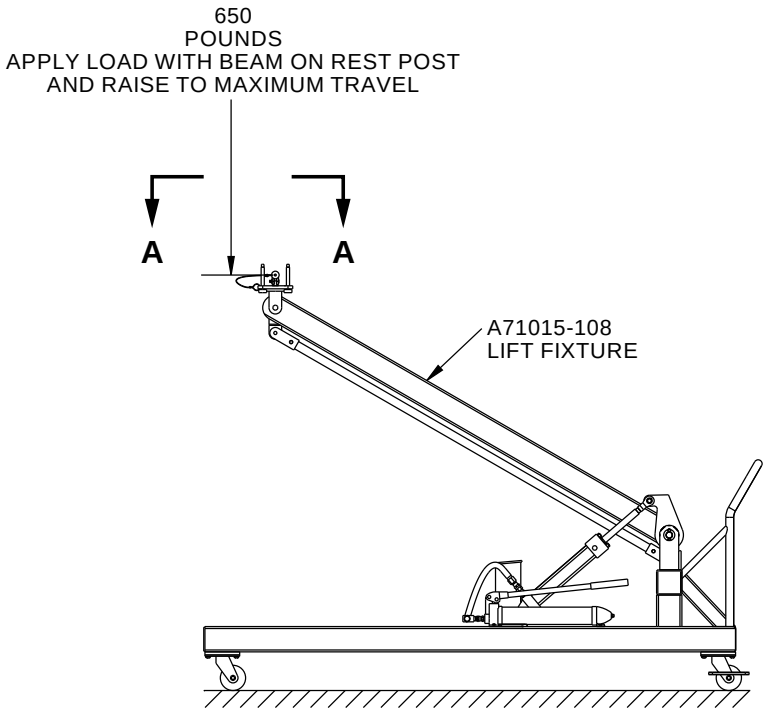


A71015-94
HEAD ASSEMBLY

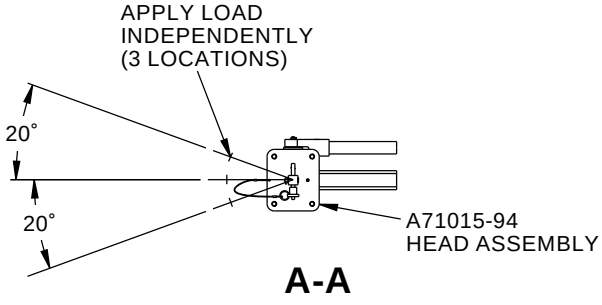
A

L68734 S0006831421_V6

Engine Accessory Lift Fixture
Figure 1 (Sheet 2 of 2)



A71015-108
PROOF LOAD DIAGRAM (EXAMPLE)



2296860 S0000520391_V2

A71015-108 Proof Load Diagram (Example)
Figure 2

REPAIRABLE/REPLACEABLE PARTS			
ITEM NUMBER	**PART NUMBER**	**NOMENCLATURE**	**VENDOR CODE**
[1]	A71015-128	CASTER	96266
[2]	A71015-127	CASTER	96266
[3]	A71015-146	HOSE ASSEMBLY	09523
[4]	A71015-130	PIVOT PIN	09990
[5]	A71015-138	BALL LOCK PIN	- - -
[6]	A71015-135	SWIVEL HEAD SCREW	99862

PART NUMBER: C21006-1, -7

NAME: DEACTIVATION TOOL - CHECK VALVE

AIRPLANE MAINTENANCE: YES

AMM 21-00-00, AMM 21-51-03, AMM 21-51-21

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C21006-1 (option) or C21006-7 (preferred) deactivation tool is used on all 737 airplanes.

C21006 is used to hold open the M913-1 and the 4663-8 check valves to allow APU pneumatic pressure to backflush the heat exchangers during heat exchanger and plenum/diffuser assembly cleaning. C21006 is used in conjunction with customer furnished C21003.

Refer to AMM 21-00-00, AMM 21-51-03, AMM 21-51-21 and the current C21006 tool drawing for complete usage instructions.

C21006-1 and -7 consist of:

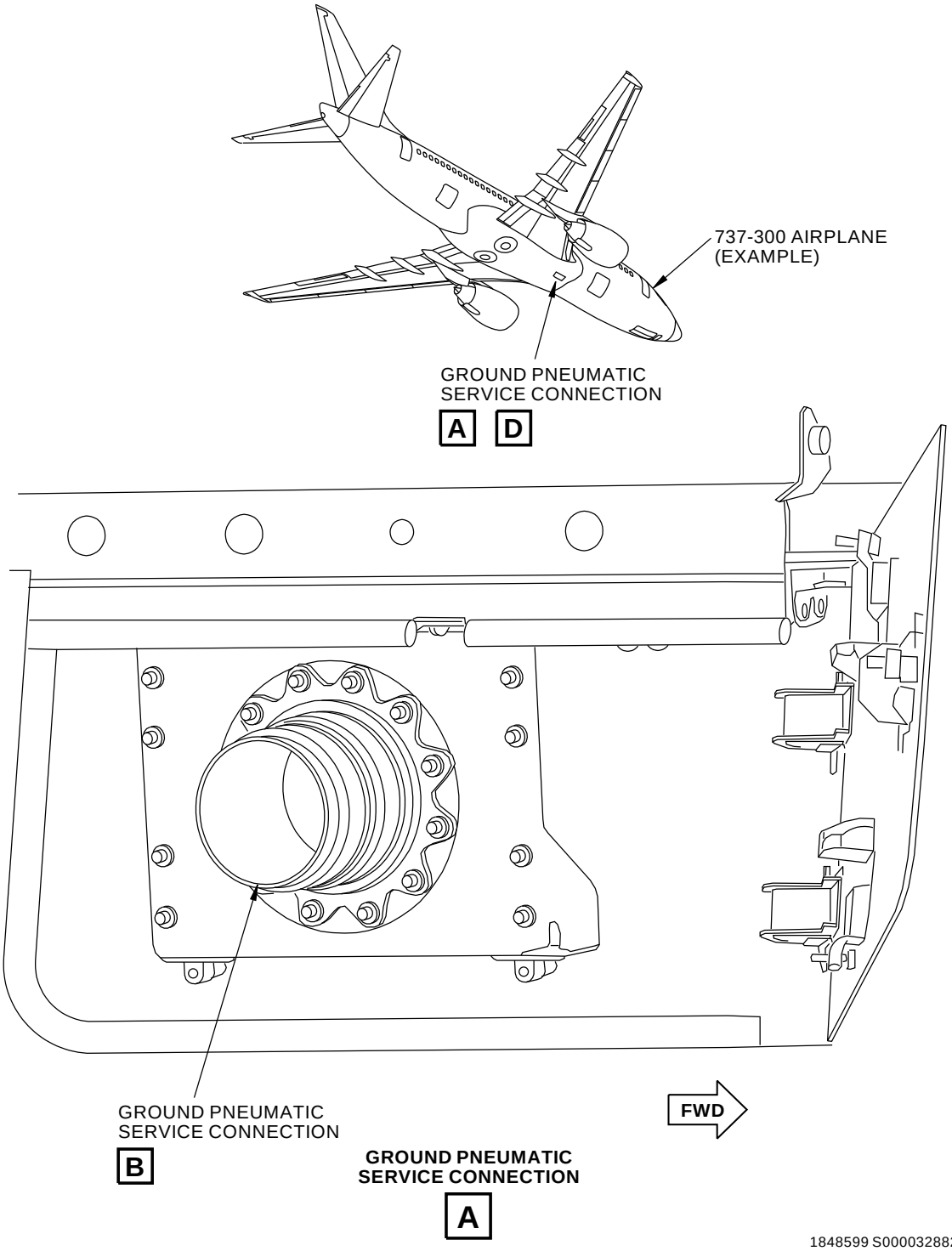
C21006-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	VALVE DEACTIVATOR	C21006-2
1	STORAGE BOX	

C21006-7		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	VALVE DEACTIVATOR ASSEMBLY	C21006-8
1	STORAGE BOX	

WEIGHT: C21006-1 - 0.35 lbs (0.16 kg)
C21006-7 - 0.75 (0.34 kg)

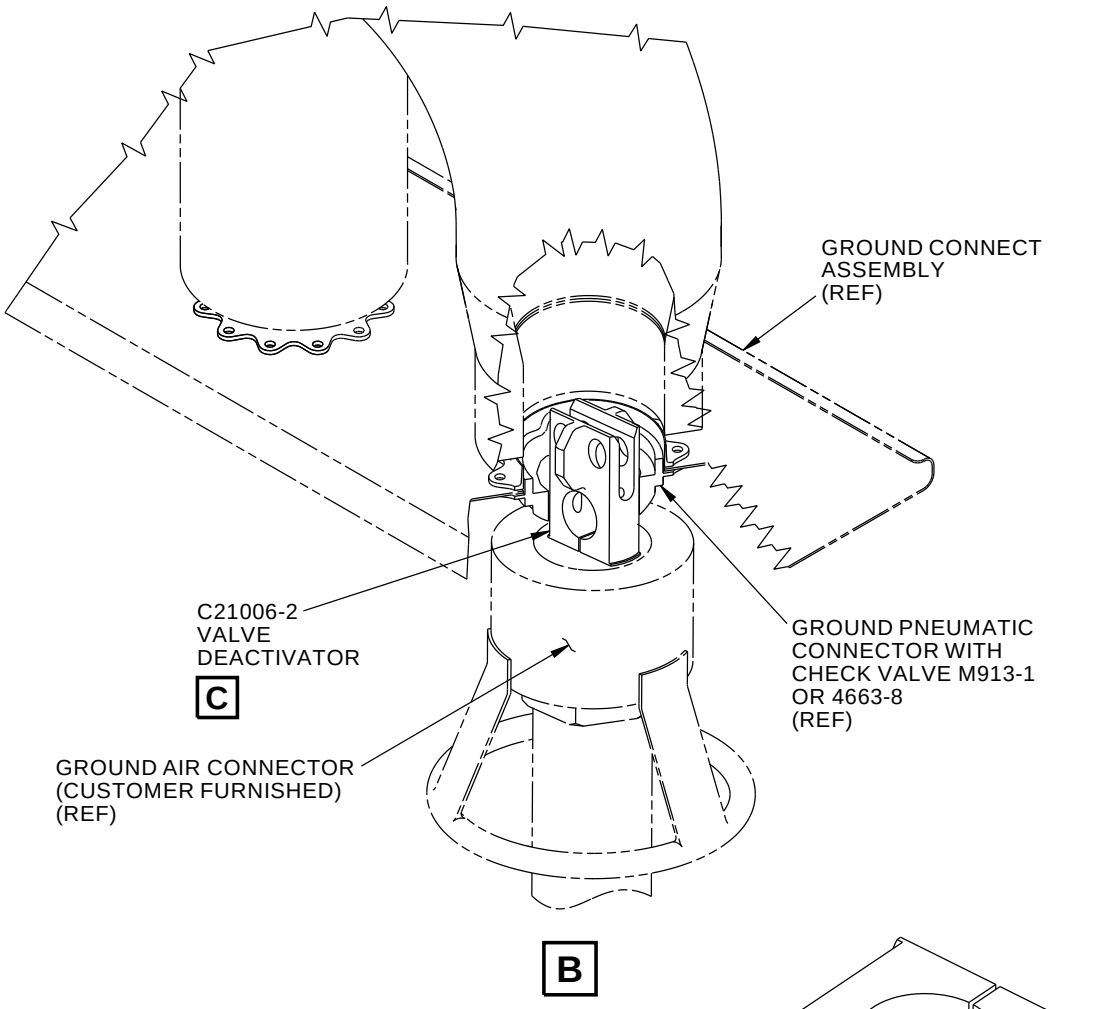
DIMENSIONS: C21006-1 - 3 x 3 x 5inches (76 x 76 x 127 mm)
C21006-7 - 4 x 4 x 5 inches (102 x 102 x 127 mm)

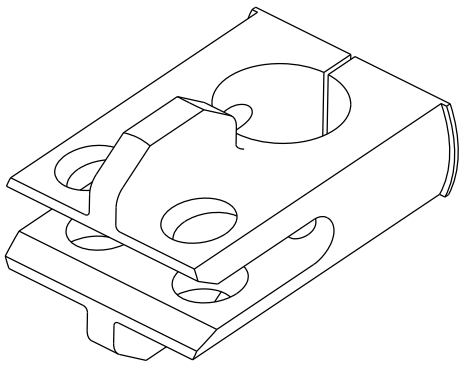
NOTE: C21006-7 replaces C21006-1 for future procurement.



1848599 S0000328826_V2

Pneumatic Power Service Connection
Figure 1 (Sheet 1 of 3)



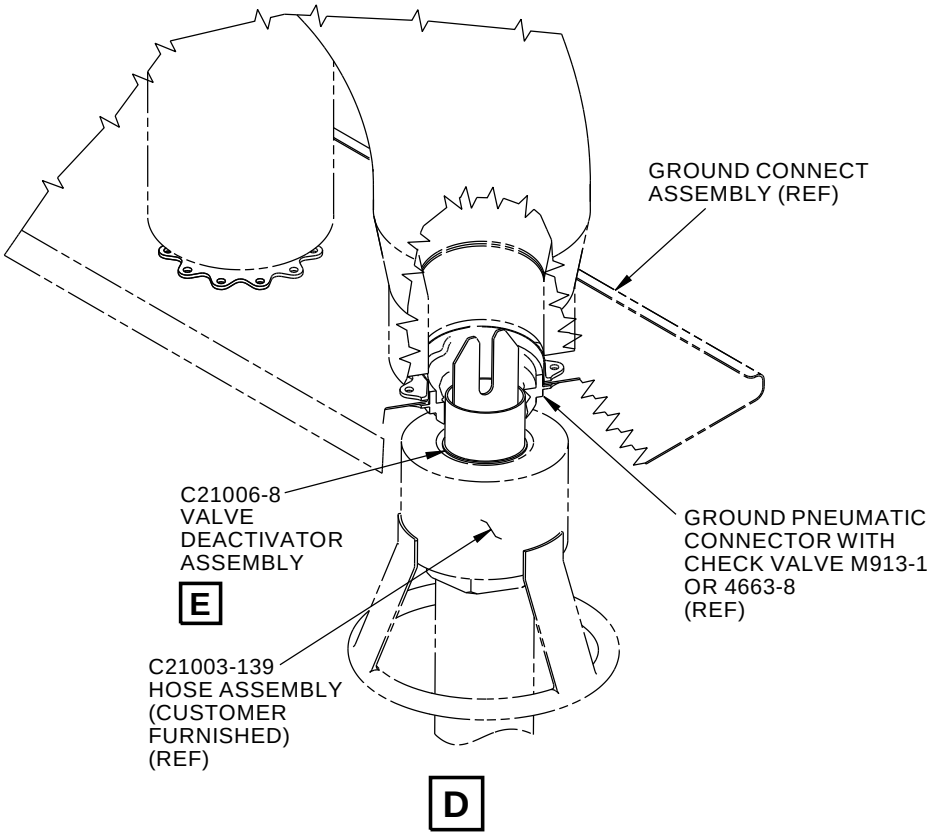


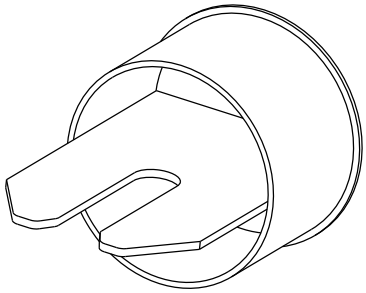
C21006-2
VALVE DEACTIVATOR

C

1934419 S0000363247_V2

Pneumatic Power Service Connection
Figure 1 (Sheet 2 of 3)





C21006-8
VALVE DEACTIVATOR ASSEMBLY

E

1934421 S0000363250_V2

Pneumatic Power Service Connection
Figure 1 (Sheet 3 of 3)

PART NUMBER: C21009-1

NAME: DISPATCH LINK - SRADA STOWAGE

AIRPLANE MAINTENANCE: YES

AMM 21-51-27

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C21009-1 dispatch link is used on all 737-600 thru -900 airplanes .

The C21009 link is used to connect the smart ram air door actuator (SRADA) rod end and the louver drive arm moved to the lock-out position.

Refer to AMM 21-52-27 and the current C21009 drawing for complete usage instructions.

NOTE: The fabrication of this dispatch tool, the conformance of the tool to the engineering specification, and the approval for use of the tool per the regulatory operations inspector is the responsibility of the operator. The approved use of the tool to dispatch the airplane must be documented in the operator's Minimum Equipment List (MEL) and the Dispatch Deviation Guide.

A21009-1 consists of:

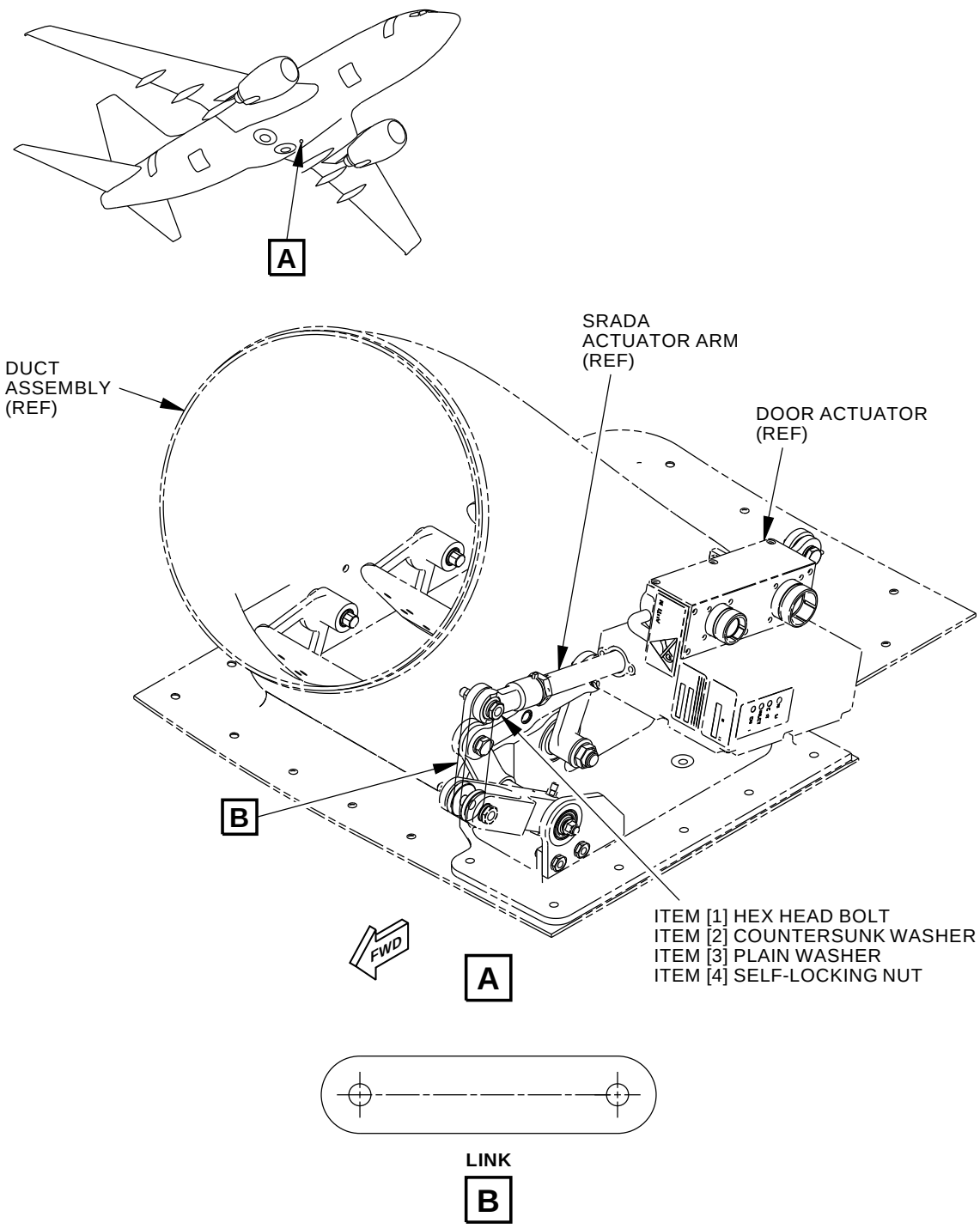
C21009-1		
QUANTITY	**NOMENCLATURE**	**PART NO.**
1	LINK ASSEMBLY	C21009-2*[1]
1	STORAGE BOX	

*[1] Bolt, washers and nut stowed on -2

WEIGHT: 1 lb (0.45 kg)

DIMENSIONS: .25 x 1 x 4 inches (6 x 25 x 102mm)

I



2475371 S0000578230_V1

Dispatch Link - Srada Stowage
Figure 1

REPAIRABLE/REPLACEABLE PARTS			
ITEM NUMBER	**PART NUMBER**	**NOMENCLATURE**	**VENDOR CODE**
[1]	C21009-4	HEX HEAD BOLT	- - -
[2]	C21009-5	COUNTERSUNK WASHER	
[3]	C21009-6	PLAIN WASHER	
[4]	C21009-7	SELF-LOCKING NUT	