CHAPTER

54

NACELLES/ PYLONS

CHAPTER 54
NACELLES/PYLONS

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

54-EFFECTIVE PAGES

CHAPTER 54
NACELLES/PYLONS

54-CONTENTS

PART NUMBER: C54013-1

NAME: ALIGNMENT EQUIPMENT - ECCENTRIC

AIRPLANE MAINTENANCE: YES

AMM 54-51-05

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: C54013-1 alignment equipment is used on 737-600 thru -900 airplanes.

C54013 is used:

1) To determine and fix the center-to-center distance between the CFM56-7 engine strut side link spherical bearings.

2) To transfer this distance to the side link fittings.

3) To locate and install an eccentric bushing in the side link fittings.

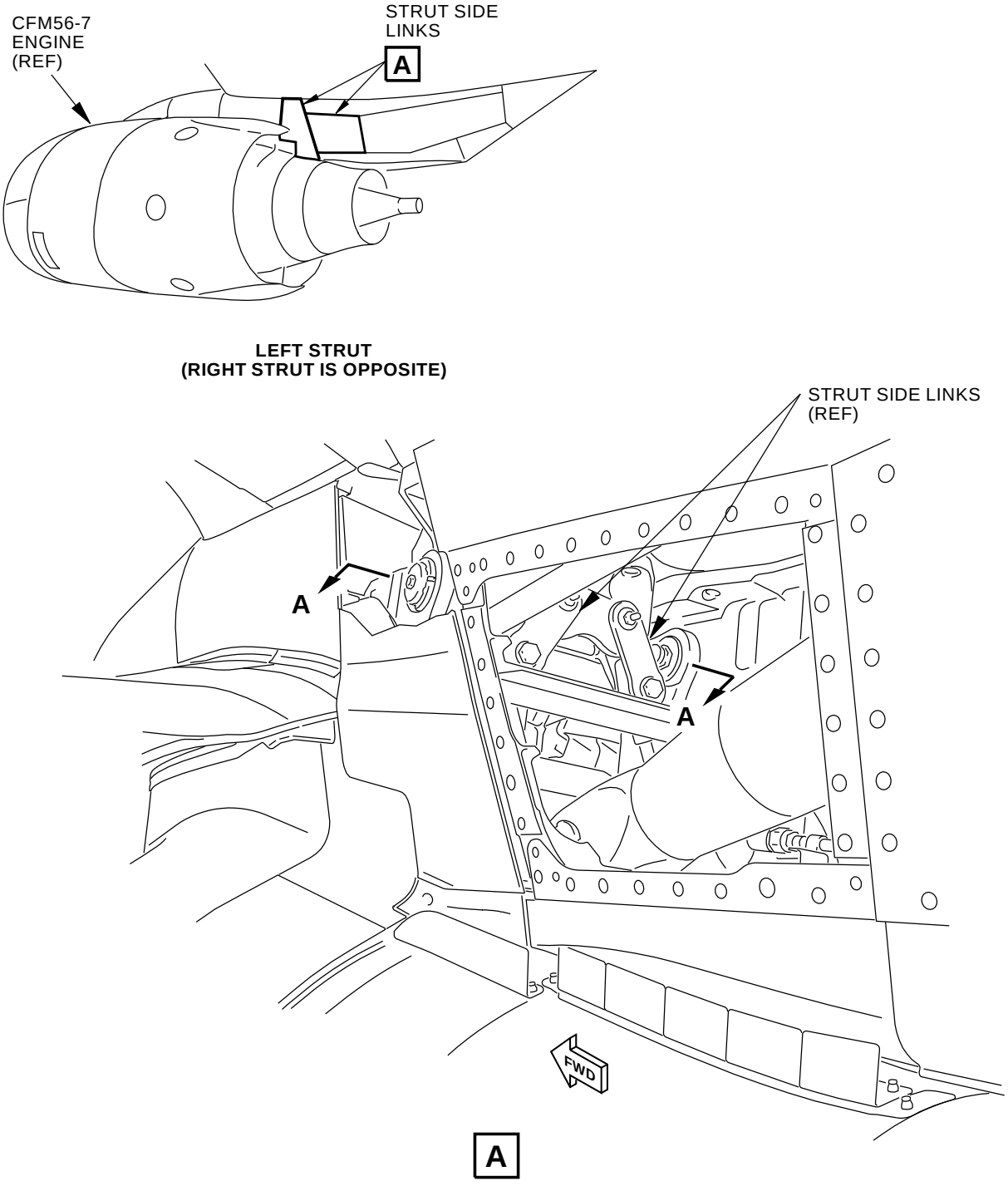
Refer to AMM 54-51-05 and the current C54013 drawing for complete usage instructions.

C54013-1 consists of:

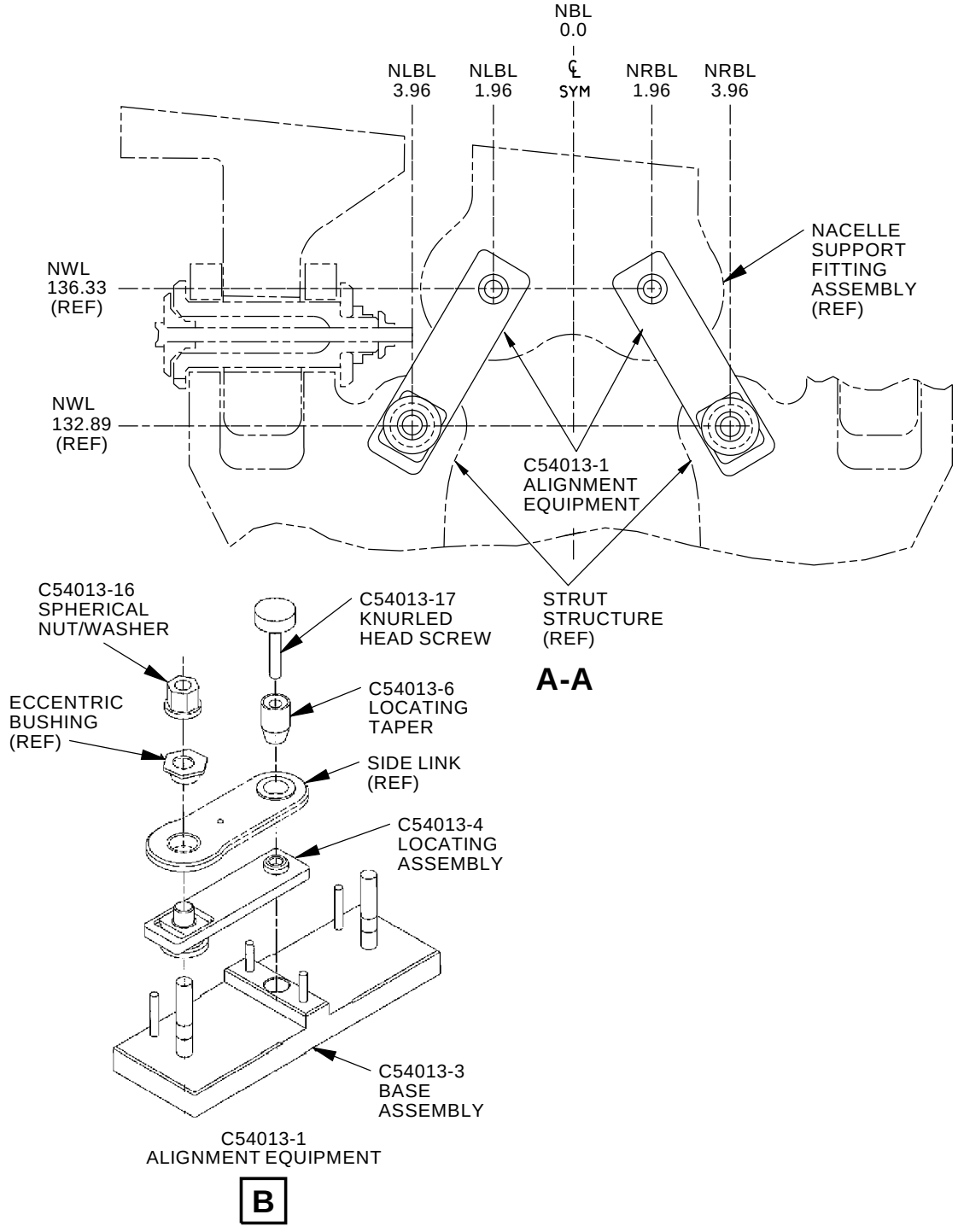
C54013-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	BASE ASSEMBLY	C54013-3
1	LOCATING ASSEMBLY	C54013-4
1	LOCATING TAPER	C54013-6
1	SPHERICAL NUT/WASHER (CL-3-SNW)	C54013-16
1	KNURLED HEAD SCREW (CL-11-KHS)	C54013-17
1	STORAGE BOX	

WEIGHT: 5.5 lbs (2.5 kg)

DIMENSIONS: 8 x 8 x 13 inches (203 x 203 x 330 mm)



Strut Assembly and Side Link Location
Figure 1



K11534 S0006832094_V4

Strut Assembly and Alignment Equipment
Figure 2

PART NUMBER: B71044-10, -28

NAME: ADAPTER EQUIPMENT - LOAD TEST, PRESSURE RELIEF DOOR LATCH

AIRPLANE MAINTENANCE: YES

AMM 54-52-02, AMM 71-11-06

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The B71044-10 (option) or -28 (preferred) adapter equipment is used on 737-300 thru -900 airplanes equipped with CFM56-3 or CFM56-7 engines.

B71044 is used along with a customer-furnished torque wrench to apply a test load on pressure relief door latches.

The B71044-10 is only applicable to pressure relief door latches attached with removable fasteners. B71044-10 adapter equipment is mounted onto the outside of the pressure relief door latches by removing two fasteners that match with the cap screws included in the B71044-27 adapter assembly.

The B71044-28 is used on pressure relief door latches installed with removable or permanent fasteners. B71044-28 uses the B71044-27 adapter assembly method as noted in B71044-10 and also includes a B71044-30 torque adapter. The B71044-30 torque adapter is used with a customer-furnished torque wrench for use in direct leverage on pressure door relief latches mounted with permanent fasteners.

Refer to AMM 54-52-02 and AMM 71-11-06 for complete usage instructions.

The B71044-10 and -28 adapter equipment consists of:

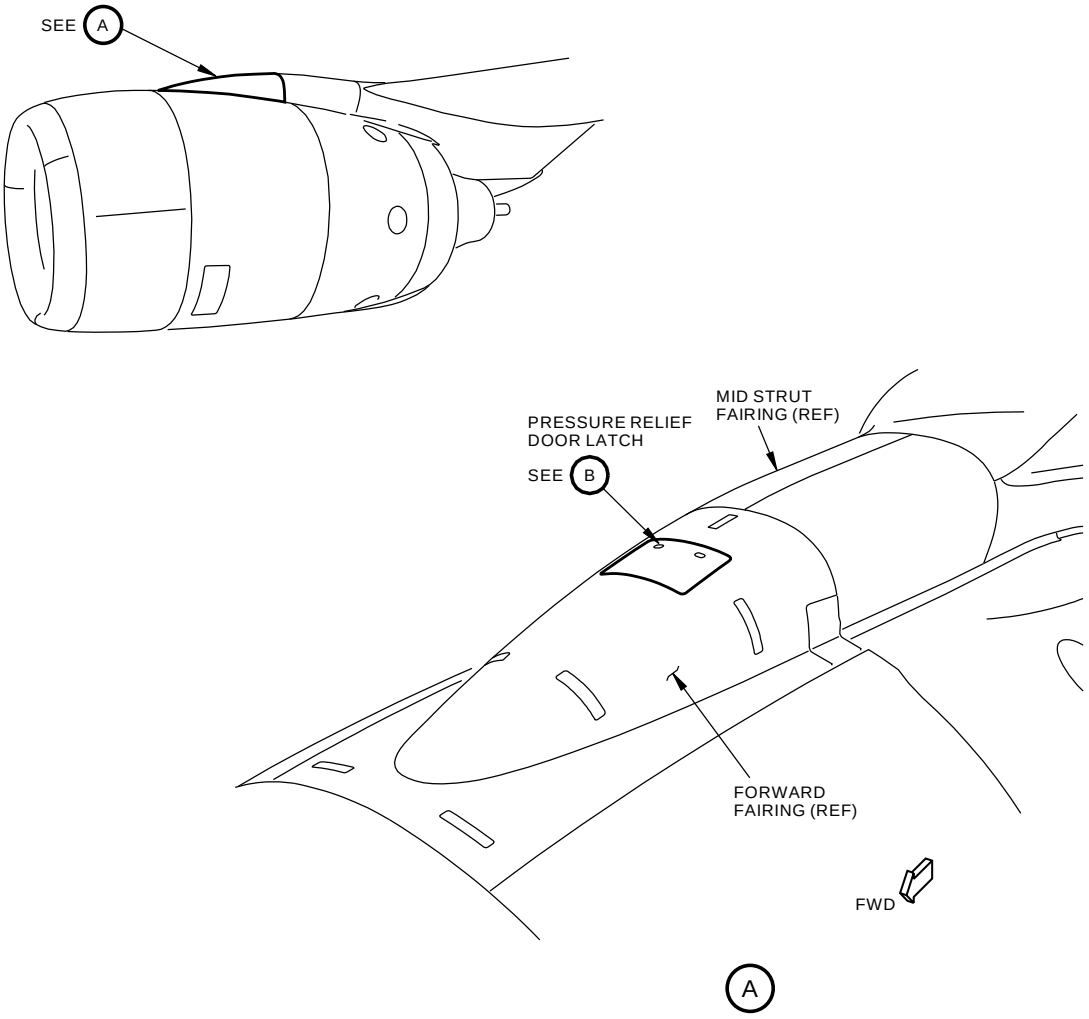
B71044-10		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	ADAPTER ASSEMBLY	B71044-27
1	PIVOT SUPPORT ASSEMBLY	B71044-11
1	STORAGE BOX	

B71044-28		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	ADAPTER ASSEMBLY	B71044-27
1	PIVOT SUPPORT ASSEMBLY	B71044-11
1	TORQUE ADAPTER	B71044-30
1	STORAGE BOX	

WEIGHT: 2 lbs (0.9 kg)

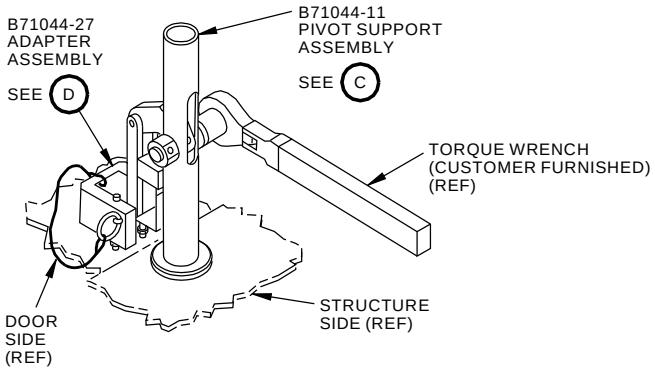
DIMENSIONS: 11 x 6 x 3 inches (279 x 152 x 76 mm)

NOTE: B71044-28 replaces B71044-10 for future procurement.
B71044 supersedes MIT65B90315.



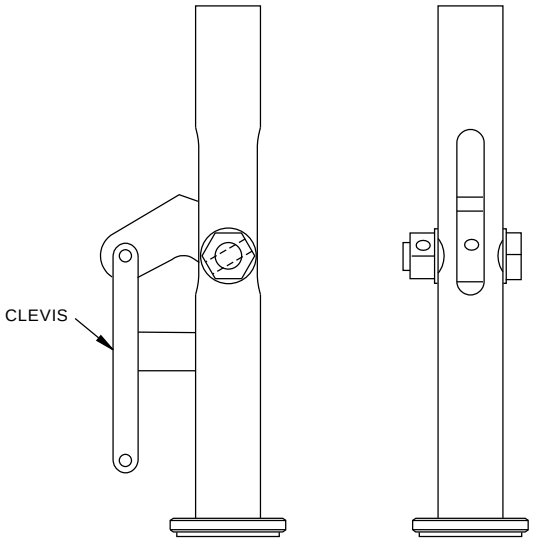
1566415 S0000290684_V1

Pressure Relief Door Latch Load Test Adapter, CFM56-7 Engine
Figure 1 (Sheet 1 of 3)



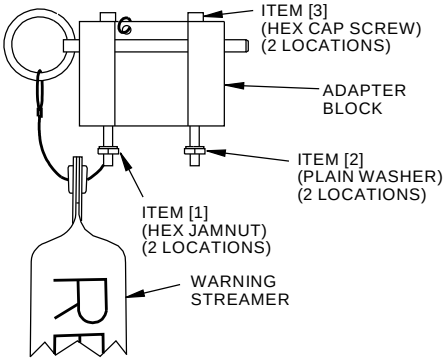
PRESSURE RELIEF DOOR LATCH

B



B71044-11
PIVOT SUPPORT ASSEMBLY

C

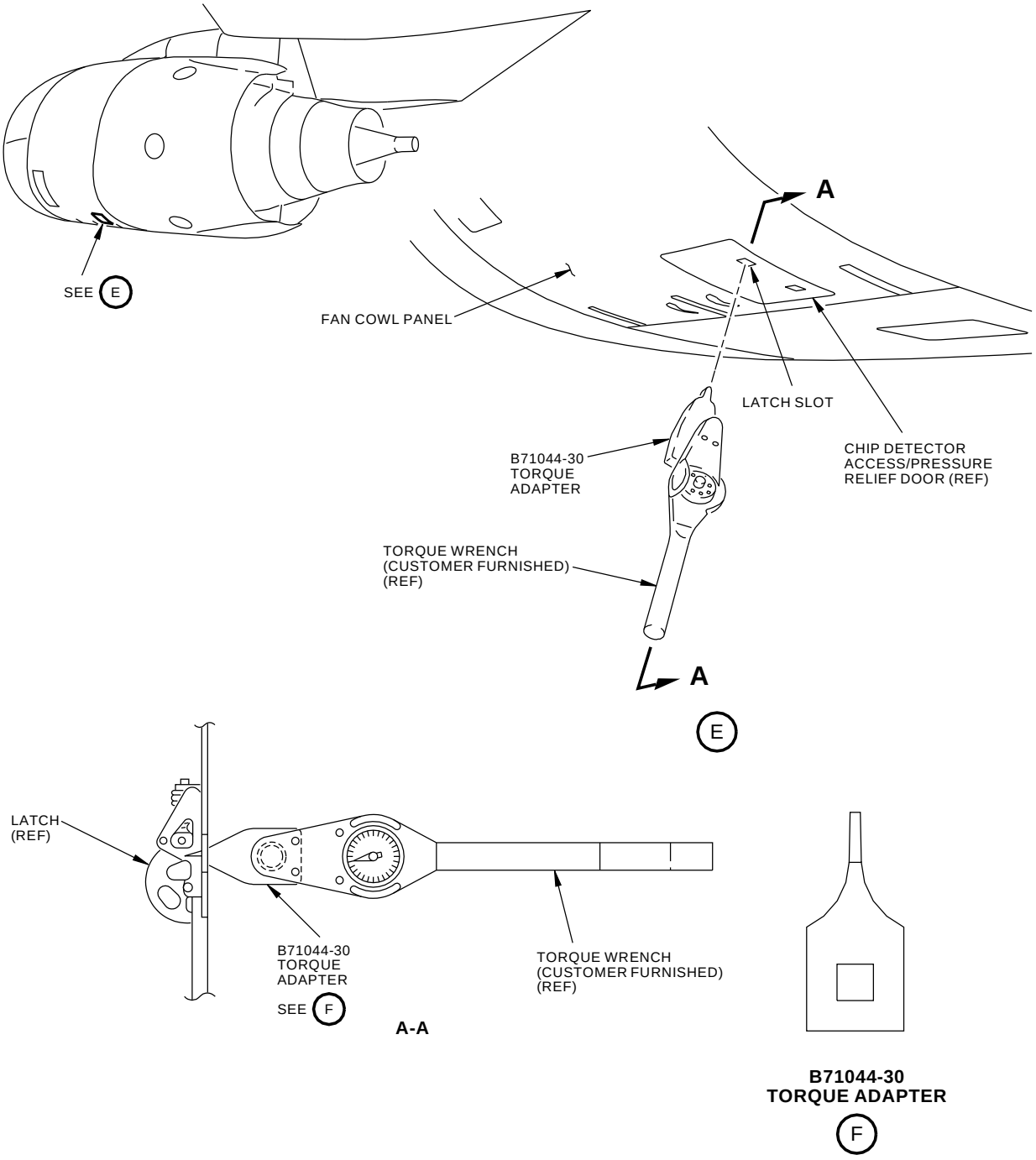


B71044-27
ADAPTER ASSEMBLY

D

G79444 S0006832097_V3

Pressure Relief Door Latch Load Test Adapter, CFM56-7 Engine
Figure 1 (Sheet 2 of 3)



1559030 S0000287775_V1

Pressure Relief Door Latch Load Test Adapter, CFM56-7 Engine
Figure 1 (Sheet 3 of 3)

REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	**PART NO.**	**NOMENCLATURE**	**VENDOR CODE**
[1]	B71044-5	HEX JAM NUT	- - -
[2]	B71044-6	PLAIN WASHER	- - -
[3]	B71044-7	HEX SOCKET HEAD CAP SCREW	- - -

PART NUMBER: C54010-26, -29

NAME: SLING EQUIPMENT - FUSE PIN REMOVAL/INSTALLATION, CFM56-7 (CE)

AIRPLANE MAINTENANCE: YES

AMM 54-51-01

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C54010-26 (option, non-CE qualified) or C54010-29 (preferred, CE qualified) sling equipment is used on 737-600 thru -900 airplanes.

C54010 is used in conjunction with a customer-furnished overhead lift and J71046 specification load cell equipment. C54010 is used to provide preload to the strut (loaded with the engine) for the removal or installation of the CFM56-7 engine fuse pins.

Refer to AMM 54-51-01 and the current C54010 drawing for complete usage instructions.

C54010-26 and -29 consist of:

C54010-26		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
2	ENGINE FITTING ASSEMBLY	C54010-27
1	SLING ASSEMBLY	C54010-4
2	C-BEAM ASSEMBLY	C54010-5
2	CHAIN HOIST (8265-7-11)	C54010-30
2	DYNAMOMETER (30006-0076)	C54010-40
1	STORAGE BOX	

C54010-29		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
2	ENGINE FITTING ASSEMBLY	C54010-27
1	SLING ASSEMBLY	C54010-43
2	C-BEAM ASSEMBLY	C54010-5
1	CHAIN HOIST (8265-7-11)	C54010-30
1	STORAGE BOX	

WEIGHT: 150 lbs (68 kg)

DIMENSIONS: 12 x 36 x 36 inches (305 x 914 x 914 mm)

NOTE: C54010-26 supersedes C54010-1.

C54010-29 replaces C54010-26 for future procurement.

DECLARATION OF CONFORMITY: C54010-29 requires a written Declaration of Conformity from the C54010-29 fabricator if it is to be used in the European Union. The design of C54010-29 meets the European requirements of Machinery Directive 2006/42/EC including its amendments. When used within the European Union, the fabricator of C54010-29 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 C54010-29 is to be used within the European Union and the Declaration of Conformity is missing, contact the fabricator of C54010-29 for a replacement Declaration of Conformity.

OPERATING INSTRUCTIONS: Refer to the current C54010 drawing and AMM 54-51-01 maintenance 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.

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.

Lever Hoists: Lubricate and clean appropriate parts of the hoists as stated in the maintenance service manual by the manufacturer.

Slings, Chain: Maintenance and inspection of chain shall be performed in accordance with EN 1492-1, Section 6, Section Annex B and ASME B-30.9, Chapter 9-1.

Structural and Mechanical Lifting Devices, (supporting lifters, spreader bars):

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 C54020-29 sling equipment shall be performed per the current C54010 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 C54010 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

Lever Hoists:

1. Visually inspect the hardware for any physical damage, wear and corrosion.
2. Missing or damaged parts should be replaced.
3. If an inspection reveals a defect in the condition, remove the unit from service.
4. See Standard EN 13157.

Slings, General: Prior to use, all new, altered, modified or repaired slings shall be inspected by a designated person to verify compliance with the applicable provisions of EN 1492-1, Section 6, Section Annex B and ASME B-30.9

Slings, Chain:

1. Visual inspection for damage shall be performed by the user or other designated person each day or shift the sling is used.
2. Conditions such as those listed in ASME B-30.9, para. 9-1.9.4 or any other conditions that may result in hazard shall cause the sling to be removed from service.
3. Slings shall not be returned to service until approved by a qualified person.

Structural and Mechanical Lifting Devices (supporting lifters, spreader bars):

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.

Lever Hoists: Periodic inspection shall be done as recommended by the manufacturer. See Standard EN 13157.

Slings, General:

1. A complete inspection for damage to the sling shall be periodically performed by a designated person.
2. Each sling and component shall be examined individually, taking care to expose and examine all surfaces.
3. The sling shall be examined for the conditions noted in the frequent inspection and in ASME B-30.9 or any other conditions that may result in a hazard shall cause the sling to be removed from service.
4. Slings shall not be returned to service until approved by a qualified person.
5. A written record of the most recent periodic inspection shall be maintained and shall include the condition of the sling.

Slings, Chain:

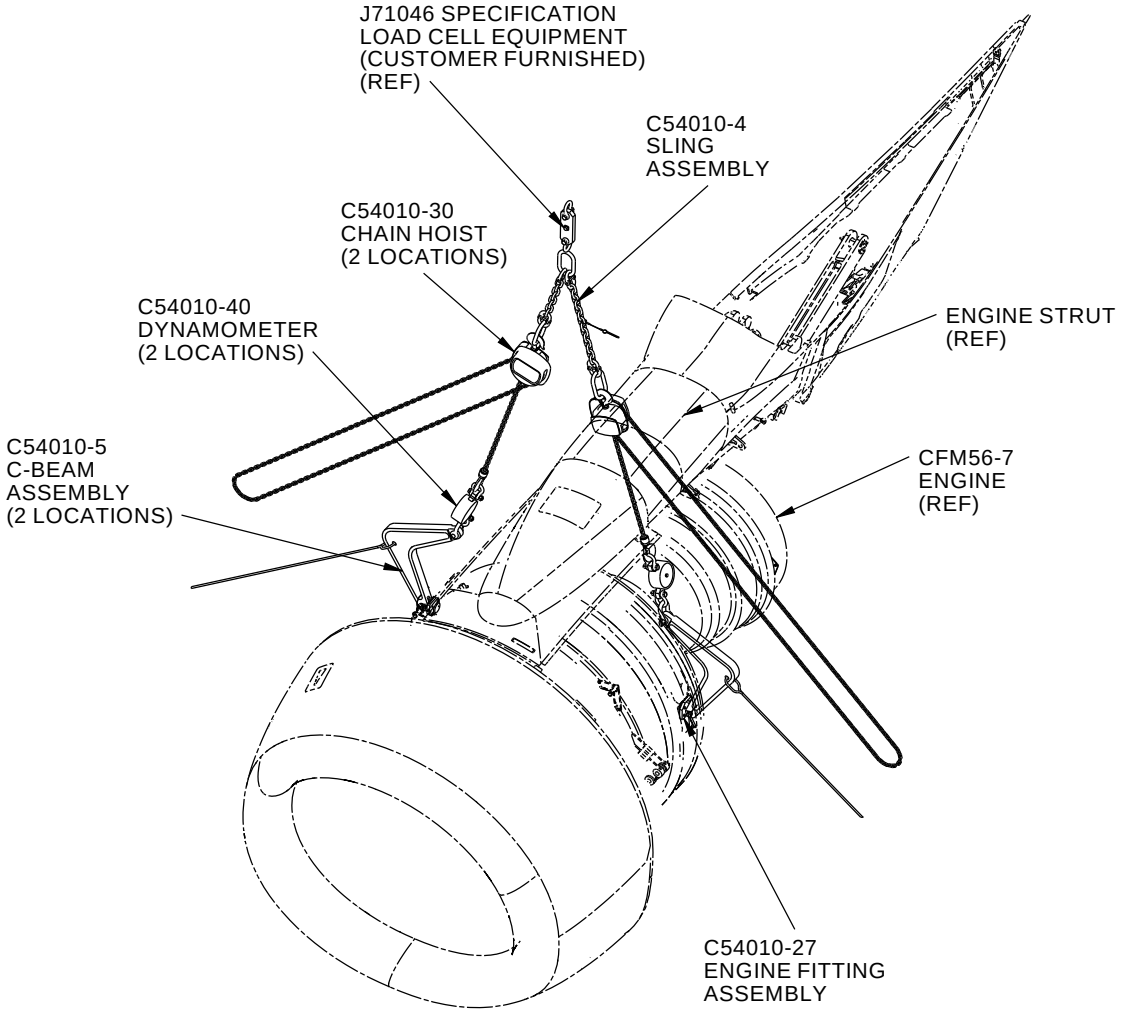
1. Each link and component shall be examined individually, taking care to expose and examine all surfaces, including the inner link surfaces.
2. Chain inspection shall be examined for conditions listed in ASME B-30.9, para. 9-1.9.4.
3. Deficiencies found during the inspection are analyzed and the chain shall not be used, if deficiencies are determined to be hazardous.

Structural and Mechanical Lifting Devices (supporting lifters, spreader bars):

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: C54010-29 shall be stored clean, dry, and free of exposure to fumes or corrosive elements, indoors and in the furnished storage box.

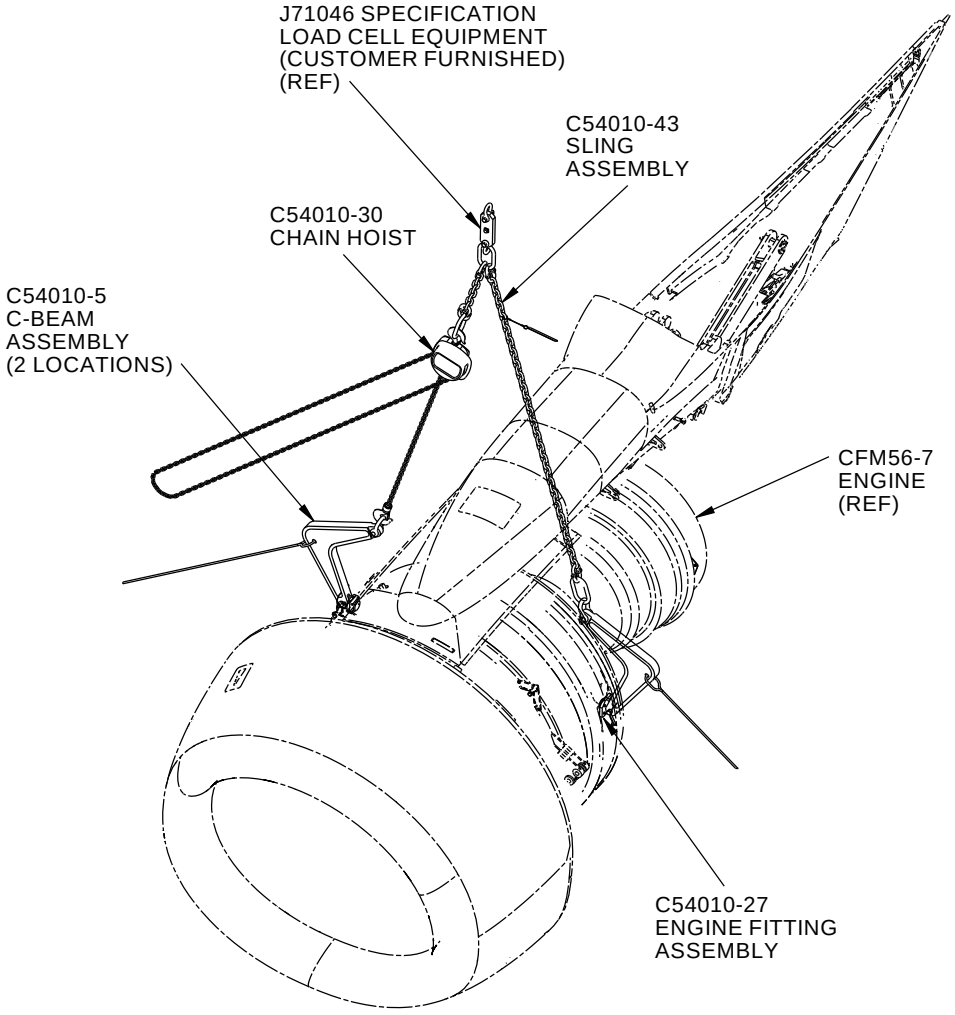
DECOMMISSIONING: Part and assemblies of this equipment, including chain components, shall be permanently altered to prevent their unauthorized reuse. Recycling is the preferred manner of disposal for those materials where that option is available.



C54010-26 SLING EQUIPMENT USAGE

H41576 S0006832099_V4

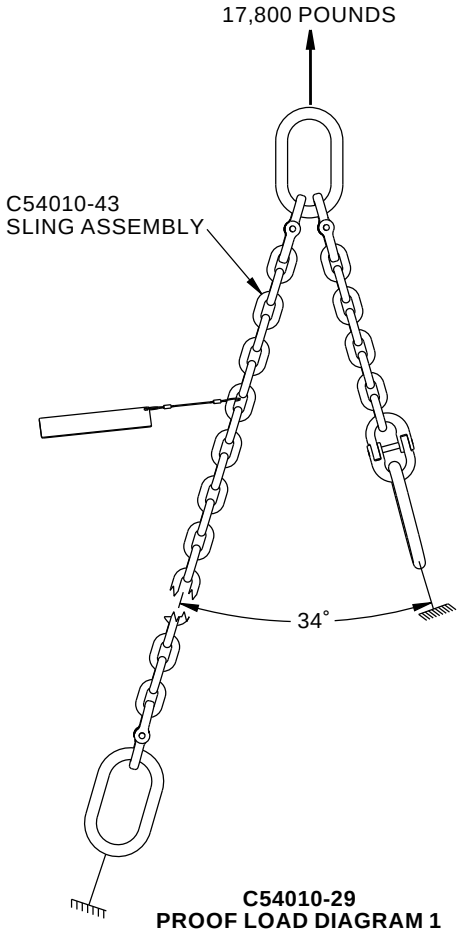
CFM56-7 Fuse Pin Removal/Installation Sling Equipment
Figure 1 (Sheet 1 of 2)



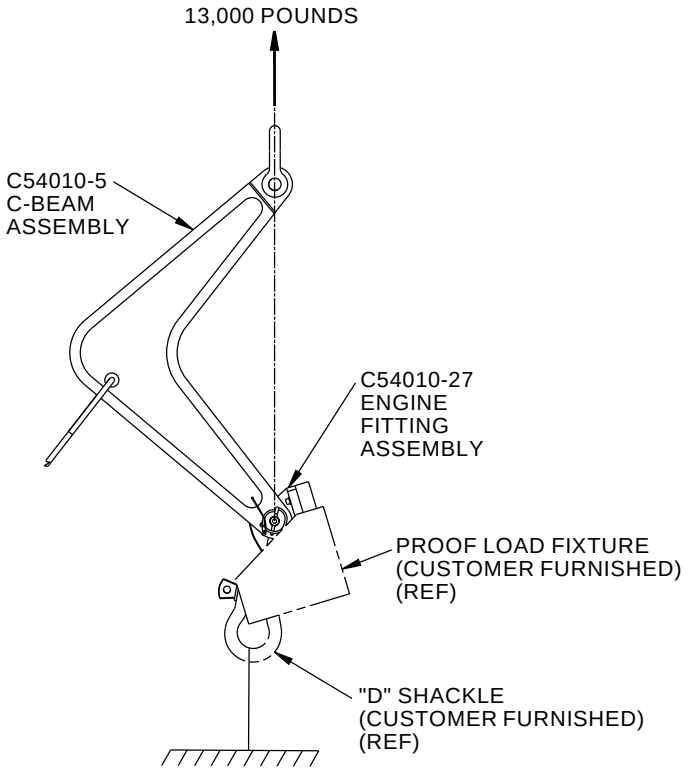
C54010-29 SLING EQUIPMENT USAGE

H41581 S0006832100_V4

CFM56-7 Fuse Pin Removal/Installation Sling Equipment
Figure 1 (Sheet 2 of 2)



C54010-29
PROOF LOAD DIAGRAM 1
(EXAMPLE)



C54010-29
PROOF LOAD DIAGRAM 2
(EXAMPLE)

2426950 S0000561490_V1

C54010-29 Proof Load Diagram (Example)
Figure 2

PART NUMBER: C54009-27

NAME: REMOVAL/INSTALLATION KIT - FUSE PIN

AIRPLANE MAINTENANCE: YES

AMM 54-51-02

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C54009-27 removal and installation kit is used on all 737-600 thru -900 airplanes.

C54009 is used for removal/installation of the engine strut fuse pins. C54009 is used in conjunction with a customer-furnished C54010 fuse pin sling equipment and a crane (to provide preload to the strut, which is loaded with the engine).

Refer to AMM 54-51-02 and the current C54009 tool drawing for complete usage instructions.

C54009-27 consists of:

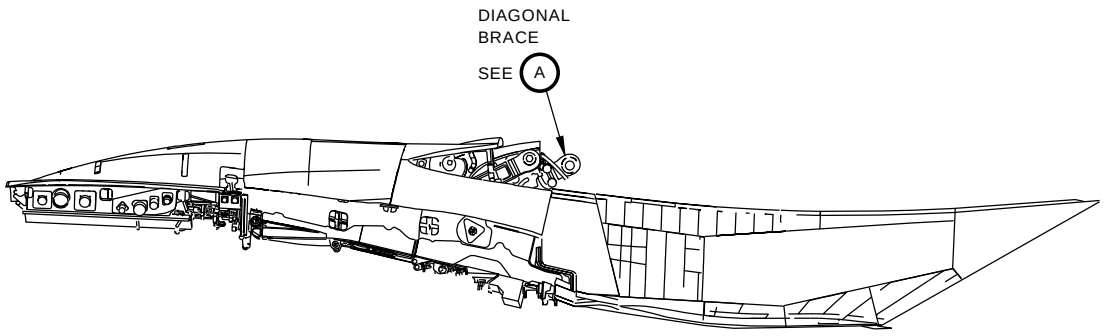
C54009-27		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	PULLER ASSEMBLY	C54009-3
1	ADAPTER ASSEMBLY	C54009-4
1	ADAPTER ASSEMBLY	C54009-5
1	MID-SPAR PLUG	C54009-6
1	THREAD PROTECTOR	C54009-7
1	SLUG	C54009-8
1	THREAD PROTECTOR	C54009-9
1	SLUG	C54009-10
1	THREAD PROTECTOR	C54009-11
1	SLUG	C54009-12
1	THREAD PROTECTOR	C54009-13
1	SLUG	C54009-14
1	FLANGE NUT	C54009-15*[1]
1	WRENCH	C54009-29
1	SLIDE SCREW	C54009-31 (CG240-8)
1	SLIDE HAMMER	C54009-32 (CG240-9)
1	STORAGE BOX	

*[1] CL-126 IS OPTIONAL TO C54009-15.

WEIGHT: 38 lbs (18 kg)

DIMENSIONS: 4 x 7 x 14 inches (102 x 178 x 356 mm)

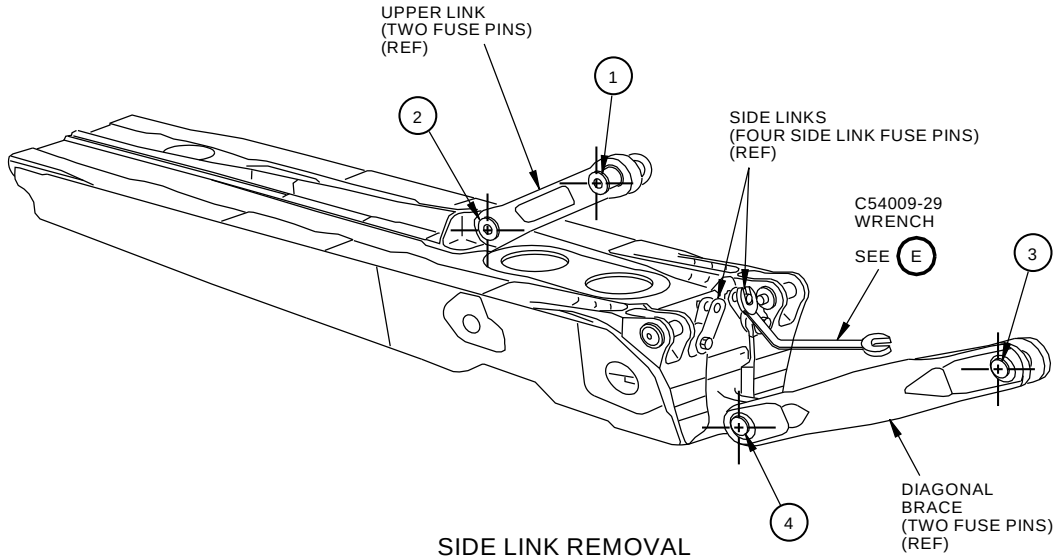
NOTE: C54009-27 supersedes C54009-1.



STRUT ASSEMBLY

H48274 S0006832102_V2

Fuse Pin Kit
Figure 1 (Sheet 1 of 2)

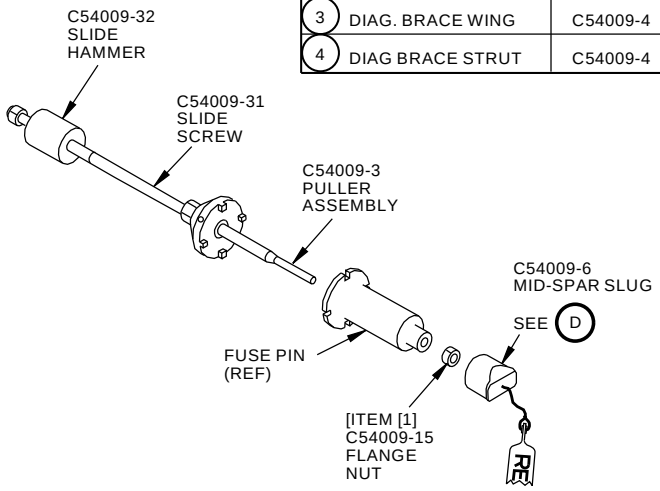


SIDE LINK REMOVAL

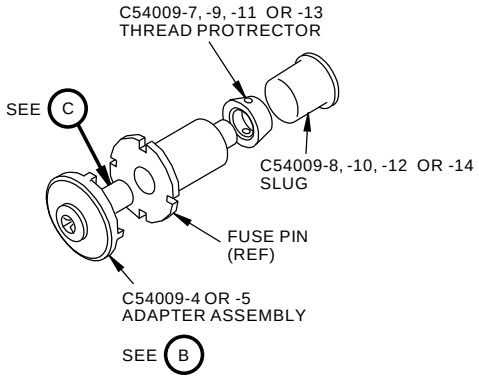
A

NON MID-SPAR USAGE

	USAGE LOCATION	ADAPTER ASSEMBLY	SLUG	THREAD PROTECTOR
1	UPPER LINK. WING	C54009-5	C54009-10	C54009-9
2	UPPER LINK. STRUT	C54009-4	C54009-8	C54009-7
3	DIAG. BRACE WING	C54009-4	C54009-12	C54009-11
4	DIAG BRACE STRUT	C54009-4	C54009-14	C54009-13



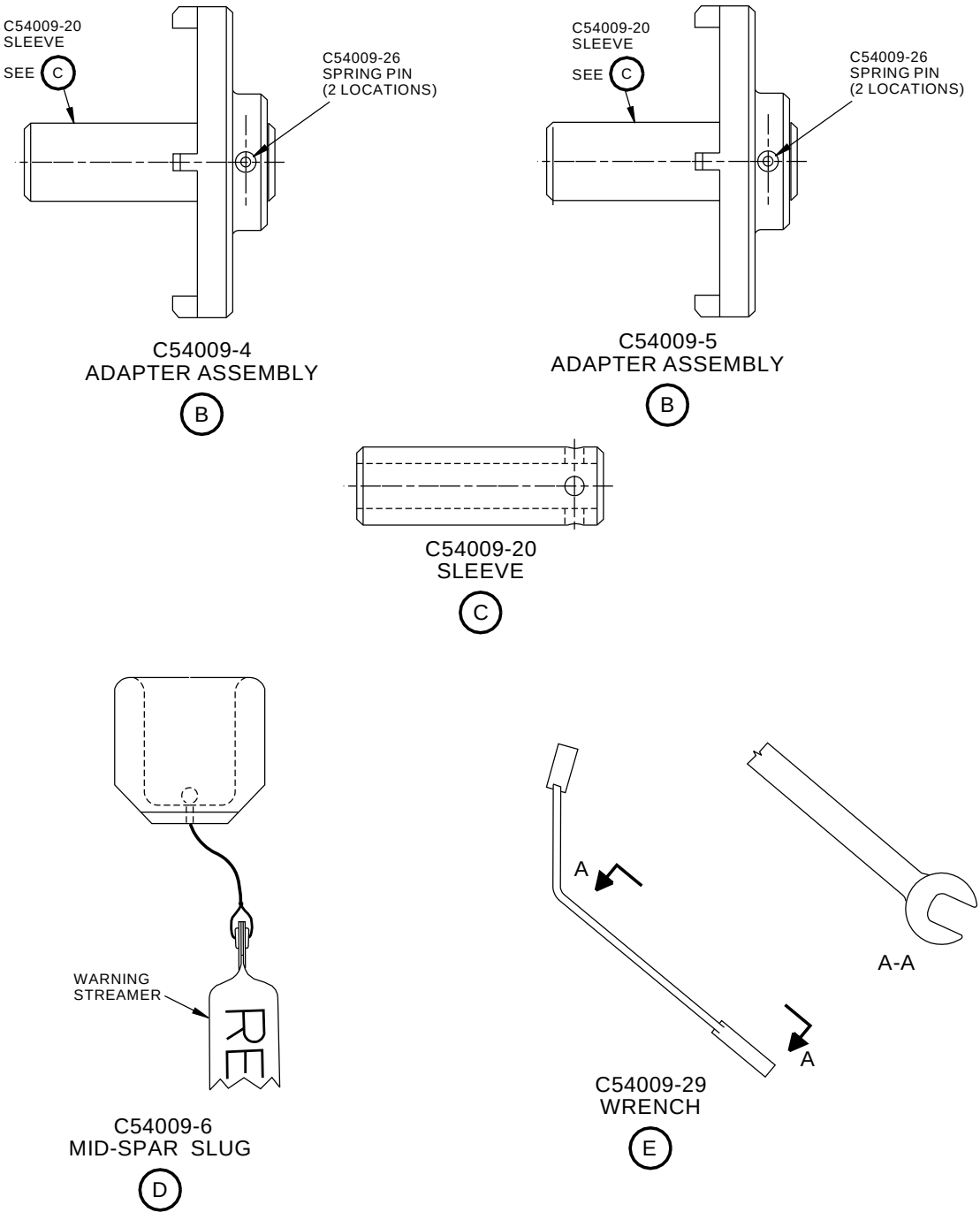
MID-SPAR USAGE
(SIDE LINK FUSE PIN REMOVAL)



NON-MIDSPAR USAGE
(UPPER LINK AND DIAGONAL BRACE
FUSE PIN REMOVAL)

H63477 S0006832103_V4

Fuse Pin Kit
Figure 1 (Sheet 2 of 2)



H48275 S0006832104_V3

Fuse Pin Removal/Installation Components
Figure 2

REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	**PART NO.**	**NOMENCLATURE**	**VENDOR CODE**
[1]	C54009-15	FLANGE NUT (5/16"-18 UNC-2B, HEX FLANGE NUT, CRES, PER ANSI/ASME B18.8.2)	- - -

PART NUMBER: C54008-1, -28, -53, -54

NAME: AFT FAIRING - REMOVAL AND INSTALLATION (CE)

AIRPLANE MAINTENANCE: YES

AMM 54-52-04

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C54008-1 (option, non-CE qualified) or C54008-53 (preferred, CE qualified) aft fairing removal and installation equipment is used on 737-600 thru -900 airplanes. Both C54008-1 and C54008-53 are used in conjunction with customer-furnished J20009 jacking equipment.

The C54008-28 (option, non-CE qualified) or C54008-54 (preferred, CE qualified) aft fairing removal and installation equipment is used on 737-600 thru -900 airplanes. Both C54008-28 and C54008-54 are used in conjunction with a customer-furnished C78026 boom hoist.

Any of the C54008-1, -28, -53 or -54 aft fairing tools are used for removal or installation of the aft strut fairing. C54008 has two different variations:

Either C54008-1 or C54008-53 are used in conjunction with a customer-furnished J20009 hydraulic jack assembly and a J20009 cradle adapter.

Either C54008-28 or C54008-54 are used in conjunction with a customer-furnished C78026 boom hoist.

Refer to AMM 54-52-04 and the current C54008 drawing for complete usage instructions.

C54008-1, -28, -53 and -54 consist of:

C54008-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	SUPPORT ASSEMBLY	C54008-2
1	FORWARD ASSEMBLY	C54008-37
1	RUBBER ASSEMBLY	C54008-42
1	STORAGE BOX	

C54008-28		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	SUPPORT ASSEMBLY	C54008-29
1	FORWARD ASSEMBLY	C54008-37
1	RUBBER ASSEMBLY	C54008-42
1	STORAGE BOX	

C54008-53		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	SUPPORT ASSEMBLY	C54008-55
1	FORWARD ASSEMBLY	C54008-37
1	RUBBER ASSEMBLY	C54008-42
1	STORAGE BOX	

C54008-54		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	SUPPORT ASSEMBLY	C54008-56
1	FORWARD ASSEMBLY	C54008-37
1	RUBBER ASSEMBLY	C54008-42
1	STORAGE BOX	

WEIGHT: 60 lbs (27 kg)

DIMENSIONS: 23 x 27 x 69 inches (584 x 686 x 1753 mm)

NOTE: C54008-53 and -54 replace C54008-1 and -28 respectively for future procurement.

DECLARATION OF CONFORMITY: C54008-53 or C54008-54 require a written Declaration of Conformity from the C54008-53 or C54008-54 fabricator if it is to be used in the European Union. The design of C54008-53 or C54008-54 meet the European requirements of Machinery Directive 2006/42/EC including its amendments. When used within the European Union, the fabricator of C54008-53 or C54008-54 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 C54008-53 or C54008-54 is to be used within the European Union and the Declaration of Conformity is missing, contact the fabricator of C54008-53 or C54008-54 for a replacement Declaration of Conformity.

OPERATING INSTRUCTIONS: Refer to the current C54008 drawing and AMM 54-52-04 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.

C54008 adapter equipment 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 lifter):

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 C54008-53 or -54, aft fairing removal and installation equipment shall be performed per the current C54008 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 C54008 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 lifter):

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:

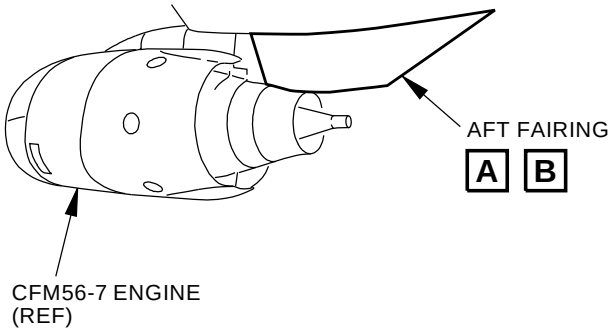
1. Magnetic particle or dye penetrant inspection for all welds, after all proof load tests.
2. Inspect and evaluate per GSE Welding Document A00001 Inspection Requirements Tables 1 & 2, and Acceptance Criteria Table 3.
3. Reject cracked or deformed parts.

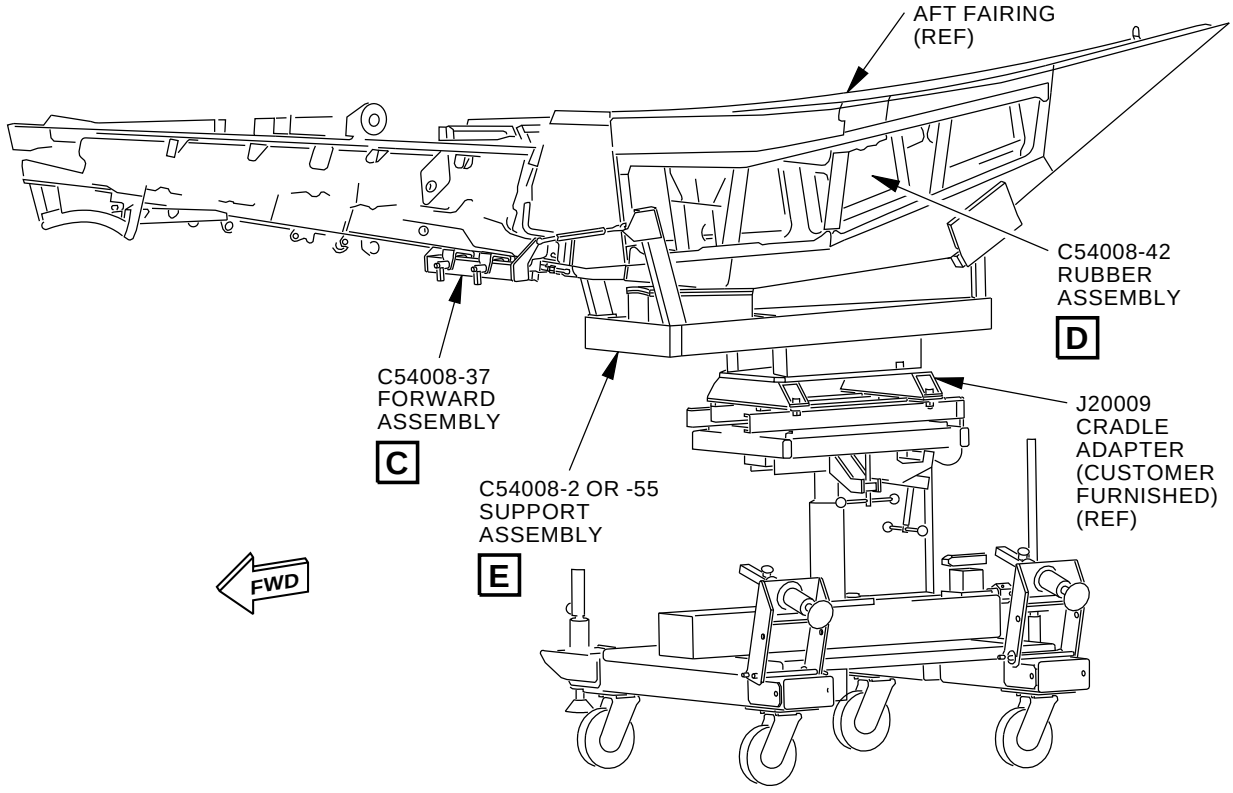
Structural and Mechanical Lifting Devices (supporting lifter):

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: C54008-53 or C54008-54 shall be stored clean, dry, and free of exposure to fumes or corrosive elements, indoors and in the furnished storage box.

DECOMMISSIONING: Parts 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.



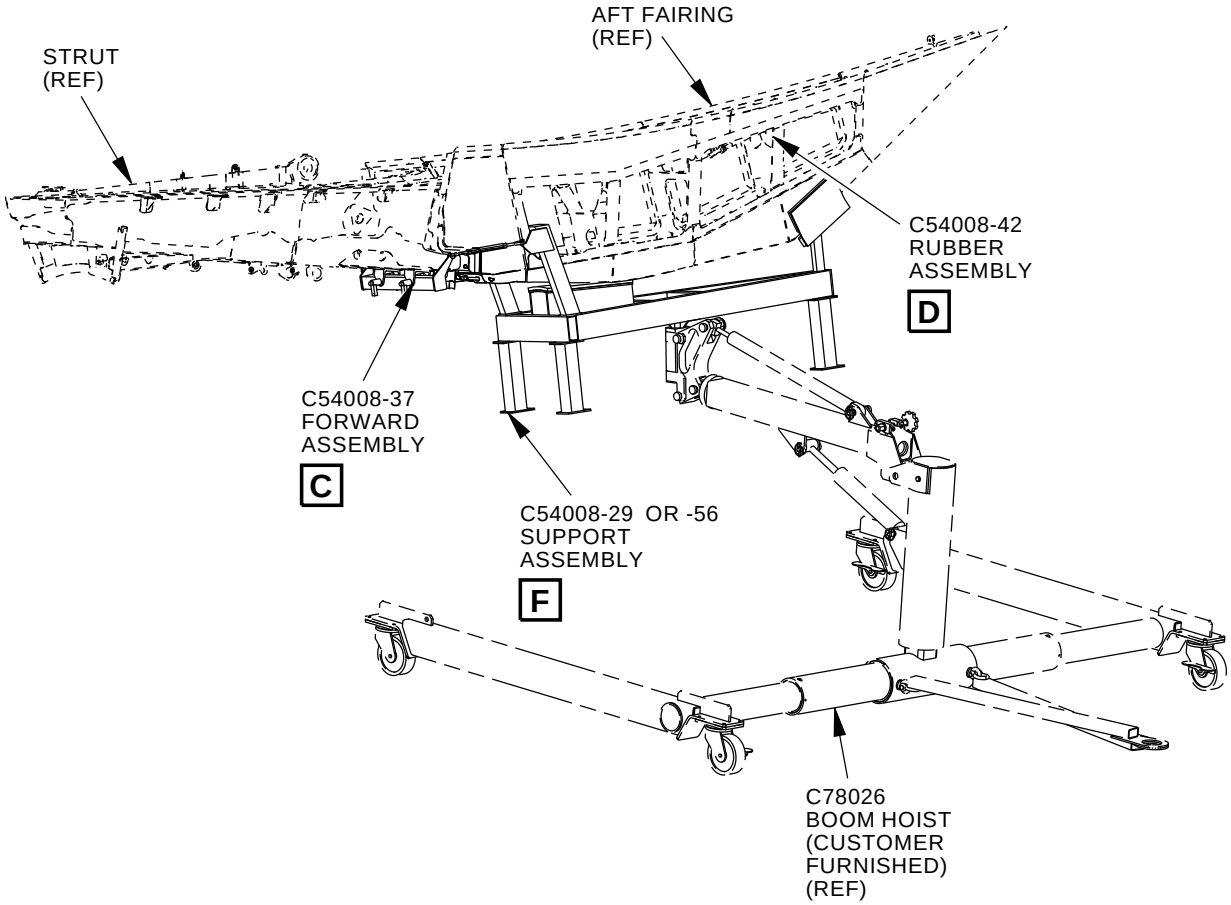


AFT FAIRING

A

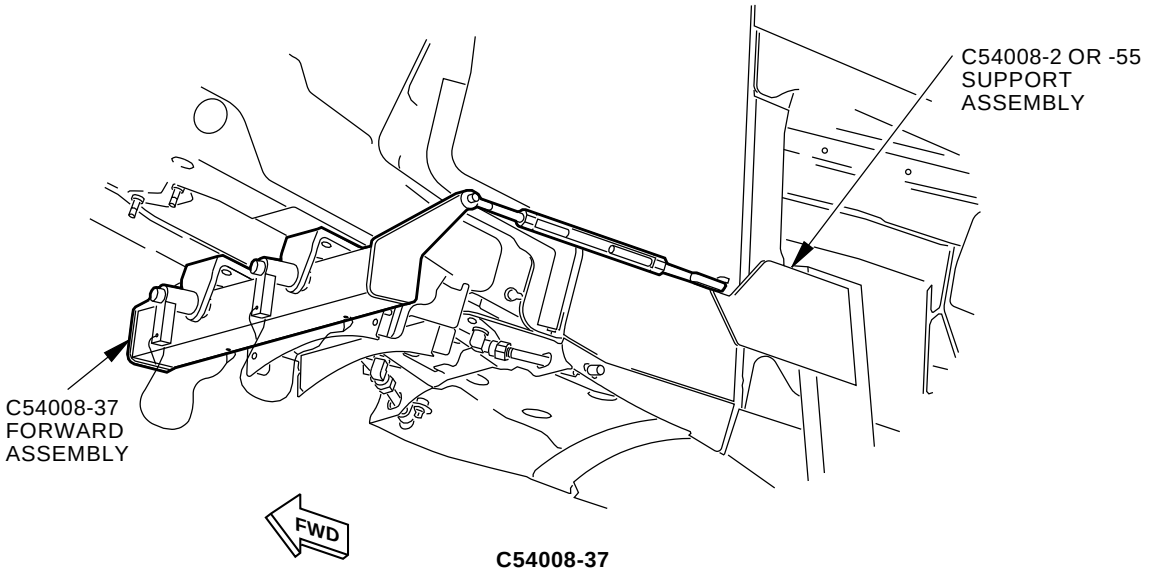
H58258 S0006832106_V6

Aft Fairing Removal and Installation Tool
Figure 1 (Sheet 1 of 4)



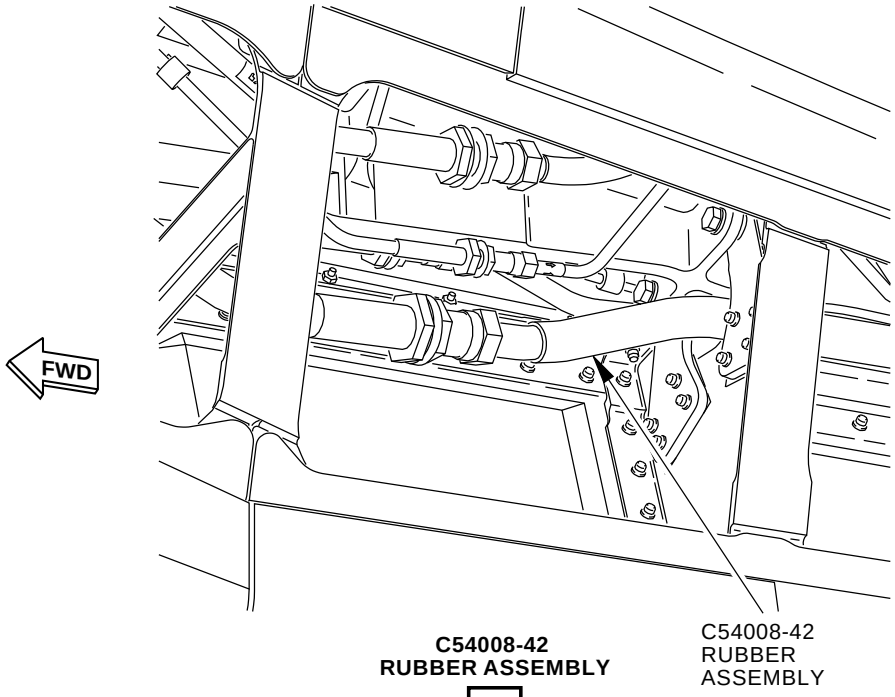
2065207 S0000425569_V3

Aft Fairing Removal and Installation Tool
Figure 1 (Sheet 2 of 4)



C54008-37
FORWARD ASSEMBLY

C

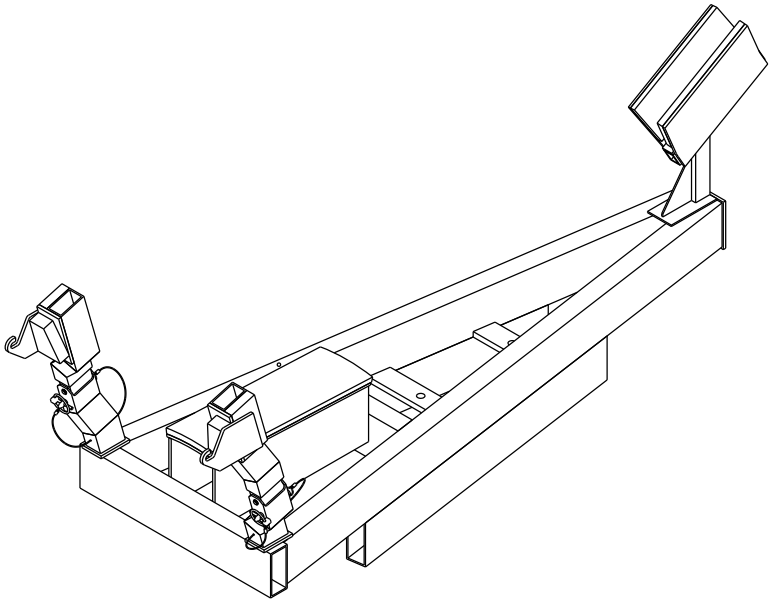


C54008-42
RUBBER ASSEMBLY

D

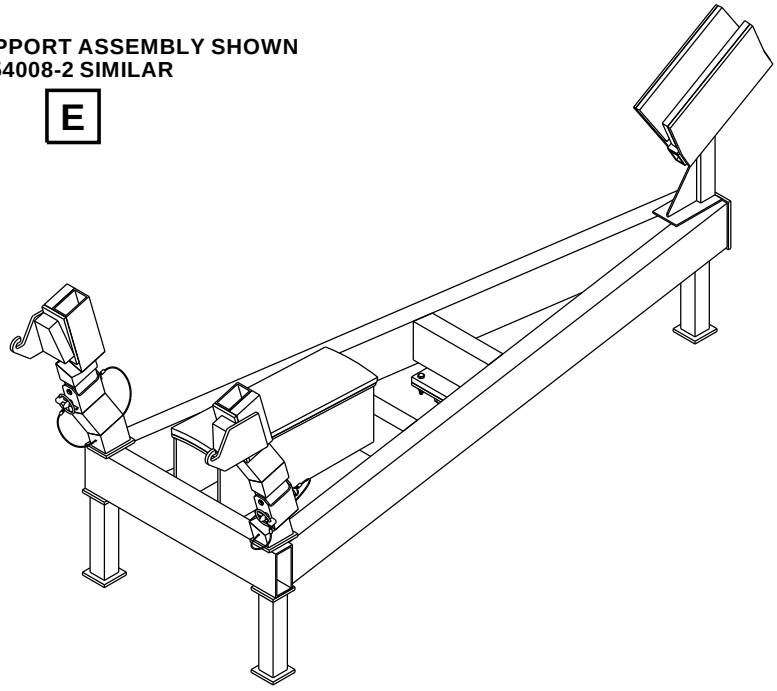
H58441 S0006832107_V6

Aft Fairing Removal and Installation Tool
Figure 1 (Sheet 3 of 4)



C54008-55 SUPPORT ASSEMBLY SHOWN
C54008-2 SIMILAR

E

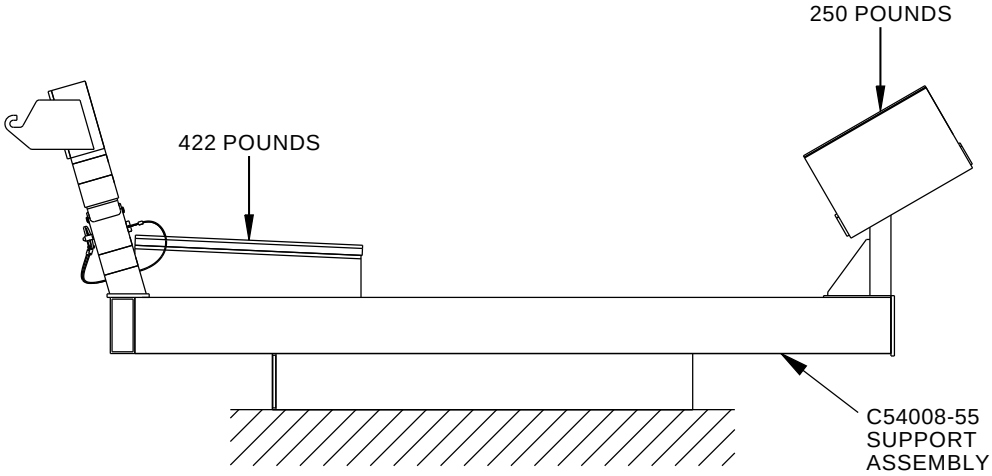


C54008-56 SUPPORT ASSEMBLY SHOWN
C54008-29 SIMILAR

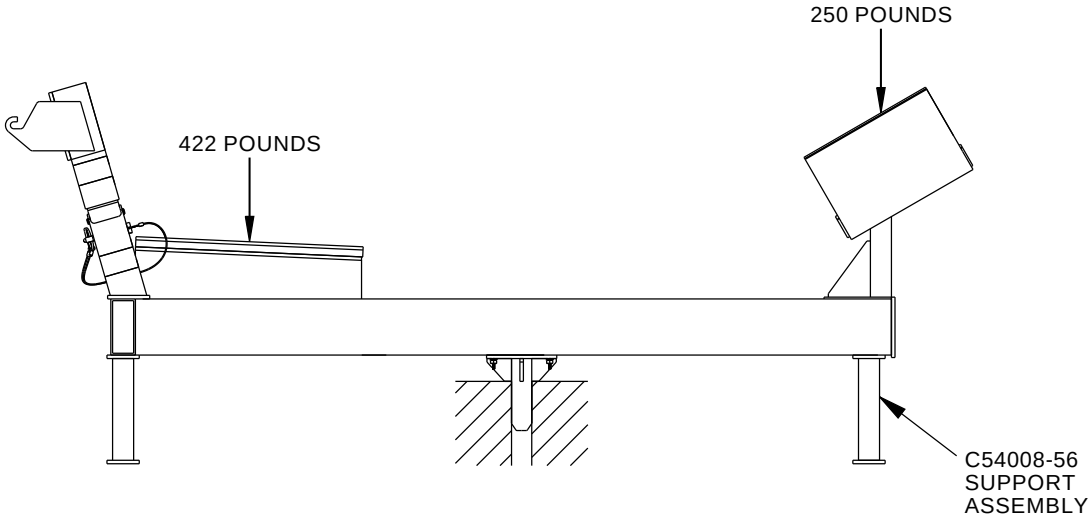
F

2165423 S0000472911_V2

Aft Fairing Removal and Installation Tool
Figure 1 (Sheet 4 of 4)



**C54008-53 PROOF LOAD DIAGRAM
(EXAMPLE)**



**C54008-54 PROOF LOAD DIAGRAM
(EXAMPLE)**

2430789 S0000562656_V1

**C54008-53 and C54008-54 Proof Load Diagrams (Examples)
Figure 2**

PART NUMBER: C54011-59

NAME: REMOVAL/INSTALLATION EQUIPMENT - ENGINE STRUT, CFM56-7 (CE)

AIRPLANE MAINTENANCE: YES

AMM 54-51-01

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C54011-59 (CE qualified) removal/installation equipment is used on 737-600 thru -900 airplanes.

C54011 is used in conjunction with a customer-furnished overhead lift and J71046 specification load cell equipment. C54011 is used for removal or installation of the engine strut and for the preload of the engine strut for fuse pin removal or installation.

Refer to AMM 54-51-01 and the current C54011 drawing for complete usage instructions.

C54011-59 consists of:

C54011-59		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	RIGHT HAND BRACE ASSEMBLY	C54011-3
1	LEFT HAND BRACE ASSEMBLY	C54011-60
1	AFT BEAM ASSEMBLY	C54011-5
1	FORWARD BEAM ASSEMBLY	C54011-6
1	SLING ASSEMBLY	C54011-61
1	PRELOAD BEAM ASSEMBLY	C54011-10
2	HAND CHAIN HOIST (8262-6-10)	C54011-68
2	DYNAMOMETER (30006-0035)	C54011-69
1	BRACE BEAM ASSEMBLY	C54011-7
1	CENTER BEAM ASSEMBLY	C54011-8
1	STORAGE BOX	

WEIGHT: 200 lbs (91 kg)

DIMENSIONS: 16 x 24 x 36 inches (406 x 610 x 914 mm)

NOTE: C54011-59 supersedes C54011-1.

DECLARATION OF CONFORMITY: C54011 requires a written Declaration of Conformity from the C54011 fabricator if it is to be used in the European Union. The design of C54011 meets the European requirements of Machinery Directive 2006/42/EC including its amendments. When used within the European Union, the fabricator of C54011 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 C54011 is to be used within the European Union and the Declaration of Conformity is missing, contact the fabricator of C54011 for a replacement Declaration of Conformity.

OPERATING INSTRUCTIONS: Refer to the current C54011 drawing and AMM 54-51-01 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.

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.

Lever Hoists: Lubricate and clean appropriate parts of the hoists as stated in the maintenance service manual by the manufacturer.

Slings, Chain: Maintenance and inspection of chain shall be performed in accordance with EN 1492-1, Section 6, Section Annex B and ASME B-30.9, Chapter 9-1.

Structural and Mechanical Lifting Devices, (supporting lifter):

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-30.2, 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-30.2, para. 21-1.3.1 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 C54011-59 removal/installation equipment shall be performed per the current C54011 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 C54011 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

Lever Hoists:

1. Visually inspect the hardware for any physical damage, wear and corrosion.
2. Missing or damaged parts should be replaced.
3. If an inspection reveals a defect in the condition, remove the unit from service.
4. See Standard EN 13157.

Slings, General: Prior to use, all new, altered, modified or repaired slings shall be inspected by a designated person to verify compliance with the applicable provisions of EN 1492-1, Section 6, Section Annex B and ASME B-30.9

Slings, Chain:

1. Visual inspection for damage shall be performed by the user or other designated person each day or shift the sling is used.
2. Conditions such as those listed in ASME B-30.9, para. 9-1.9.4 or any other conditions that may result in hazard shall cause the sling to be removed from service.
3. Slings shall not be returned to service until approved by a qualified person.

Structural and Mechanical Lifting Devices (supporting lifter):

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.

Lever Hoists: Periodic inspection shall be done as recommended by the manufacturer. See Standard EN 13157.

Slings, General:

1. A complete inspection for damage to the sling shall be periodically performed by a designated person.
2. Each sling and component shall be examined individually, taking care to expose and examine all surfaces.
3. The sling shall be examined for the conditions noted in the frequent inspection and in ASME B-30.9 or any other conditions that may result in a hazard shall cause the sling to be removed from service.
4. Slings shall not be returned to service until approved by a qualified person.
5. A written record of the most recent periodic inspection shall be maintained and shall include the condition of the sling.

Slings, Chain:

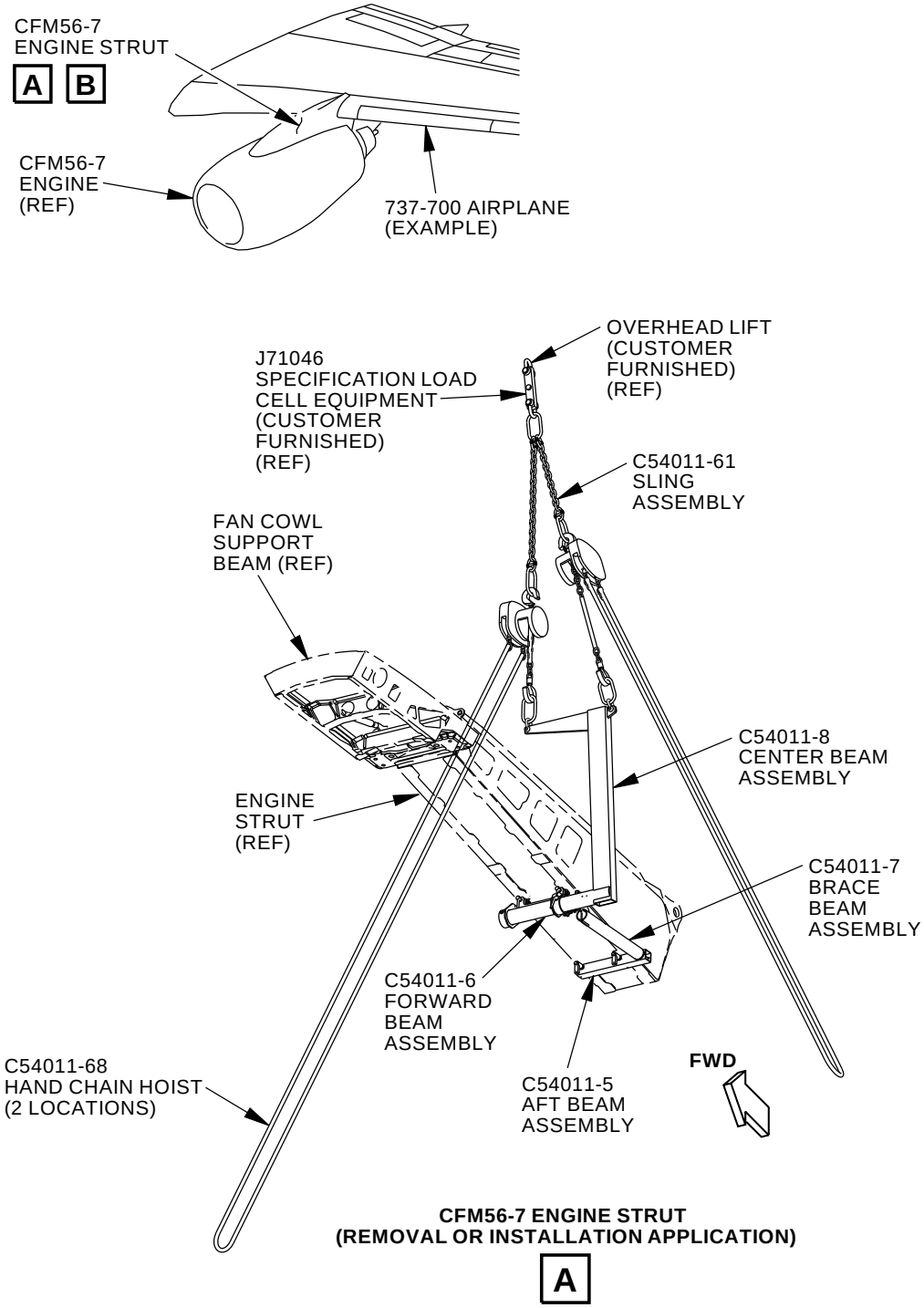
1. Each link and component shall be examined individually, taking care to expose and examine all surfaces, including the inner link surfaces.
2. Chain inspection shall be examined for conditions listed in ASME B-30.9, para. 9-1.9.4.
3. Deficiencies found during the inspection are analyzed and the chain shall not be used, if deficiencies are determined to be hazardous.

Structural and Mechanical Lifting Devices (supporting lifter):

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: C54011 shall be stored clean, dry, and free of exposure to fumes or corrosive elements, indoors and in the furnished storage box.

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

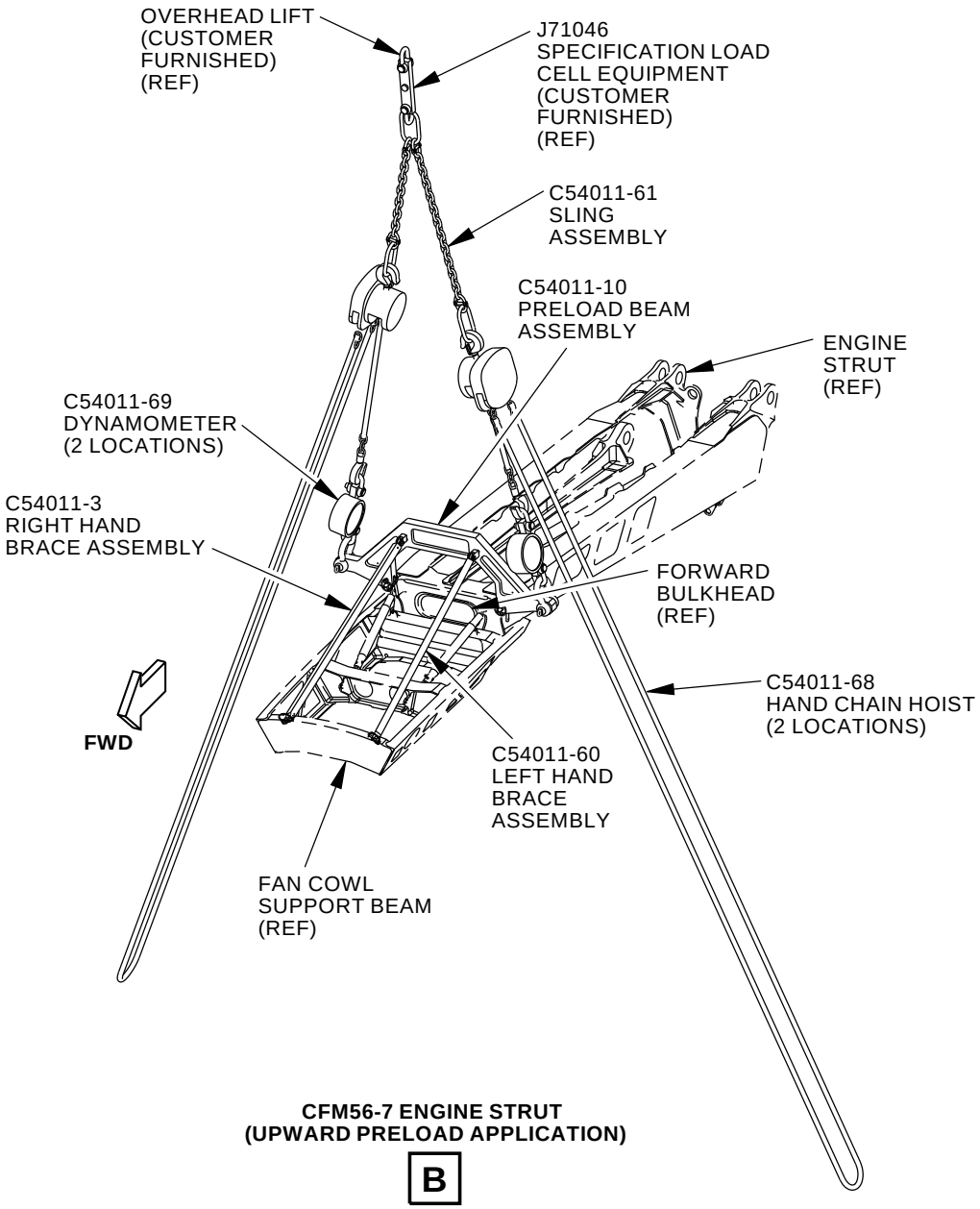


CFM56-7 ENGINE STRUT
(REMOVAL OR INSTALLATION APPLICATION)

A

K40860 S0006832110_V4

Strut Removal/Installation Equipment Usage
Figure 1 (Sheet 1 of 2)

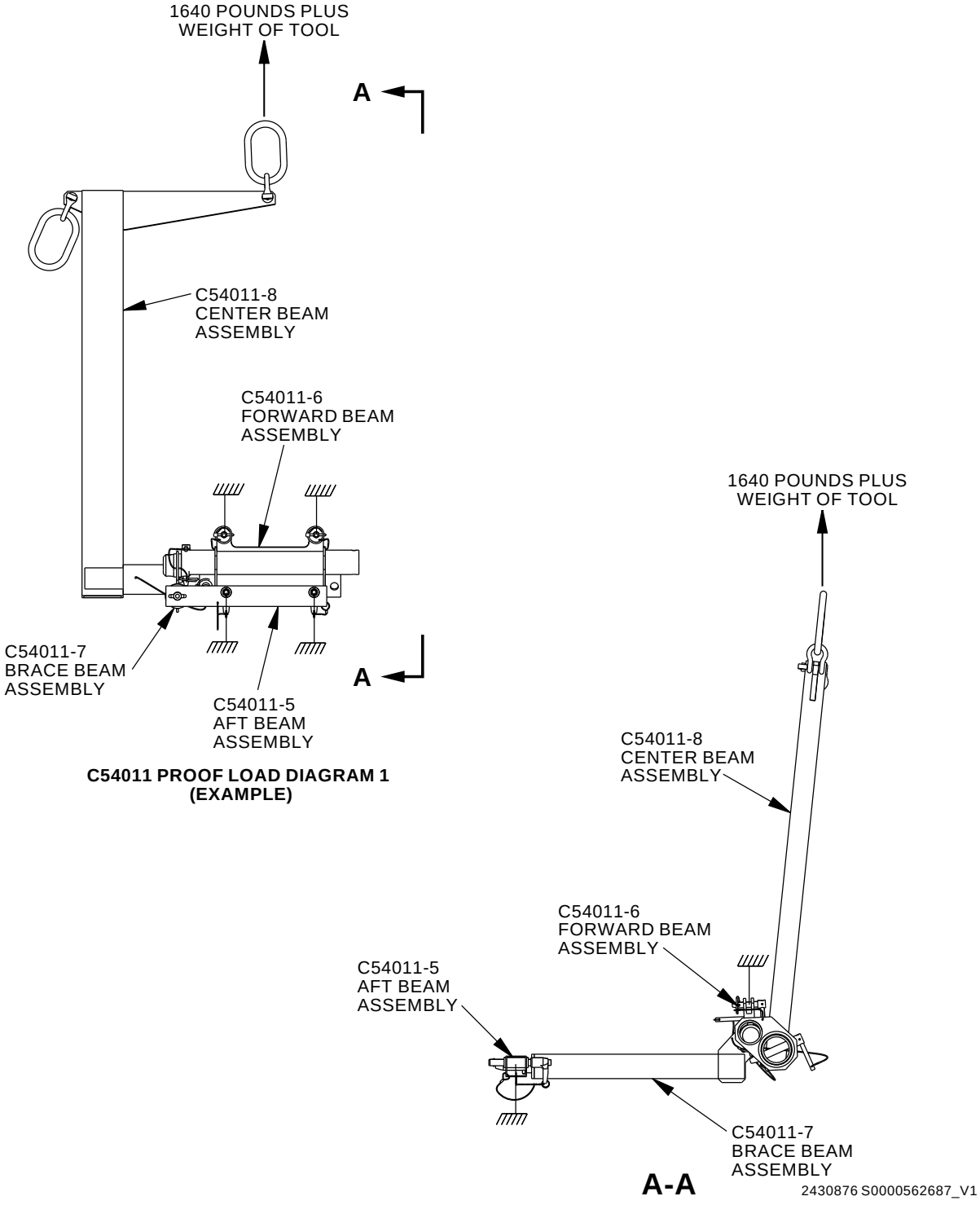


CFM56-7 ENGINE STRUT
(UPWARD PRELOAD APPLICATION)

B

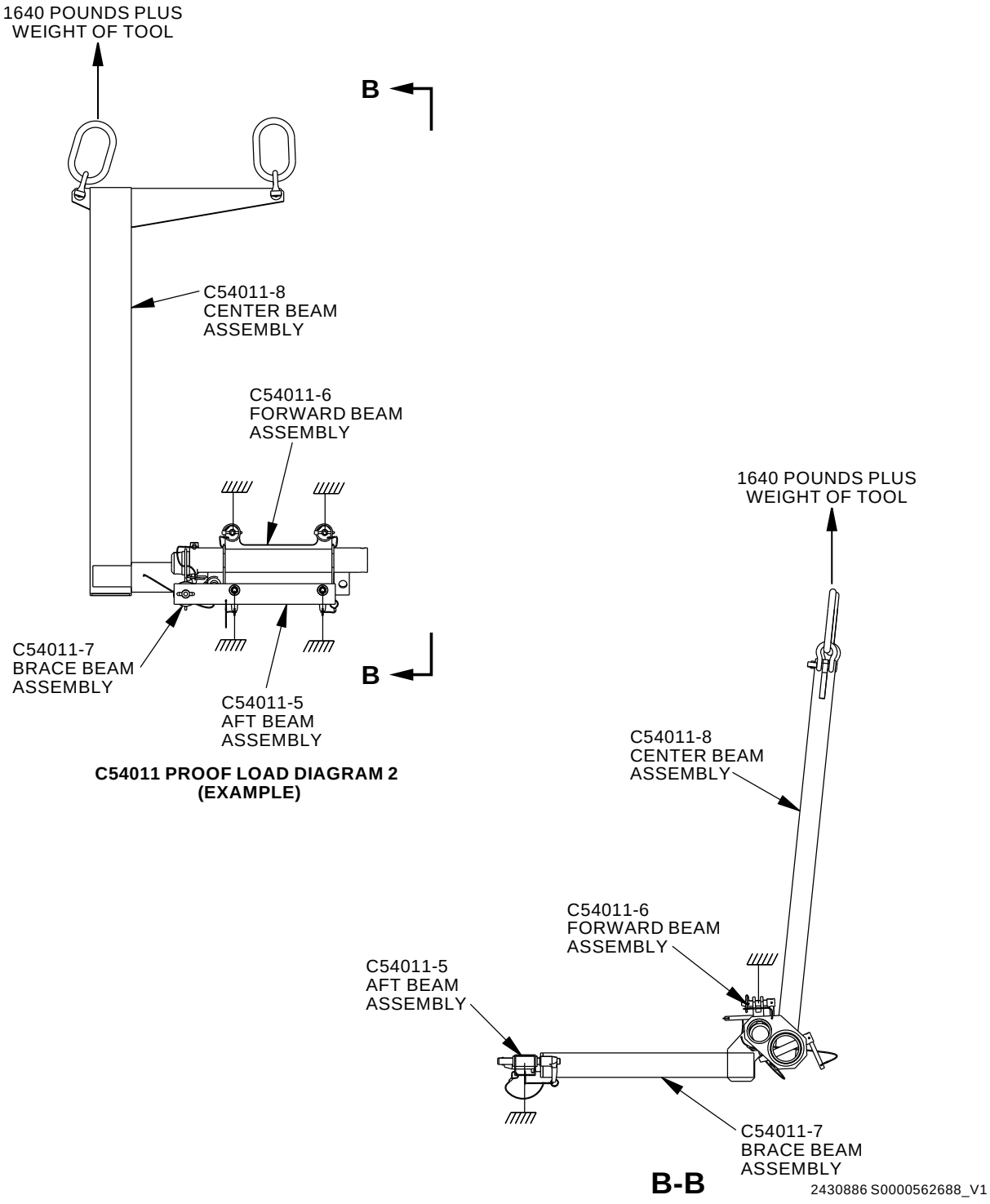
K40922 S0006832111_V4

Strut Removal/Installation Equipment Usage
Figure 1 (Sheet 2 of 2)



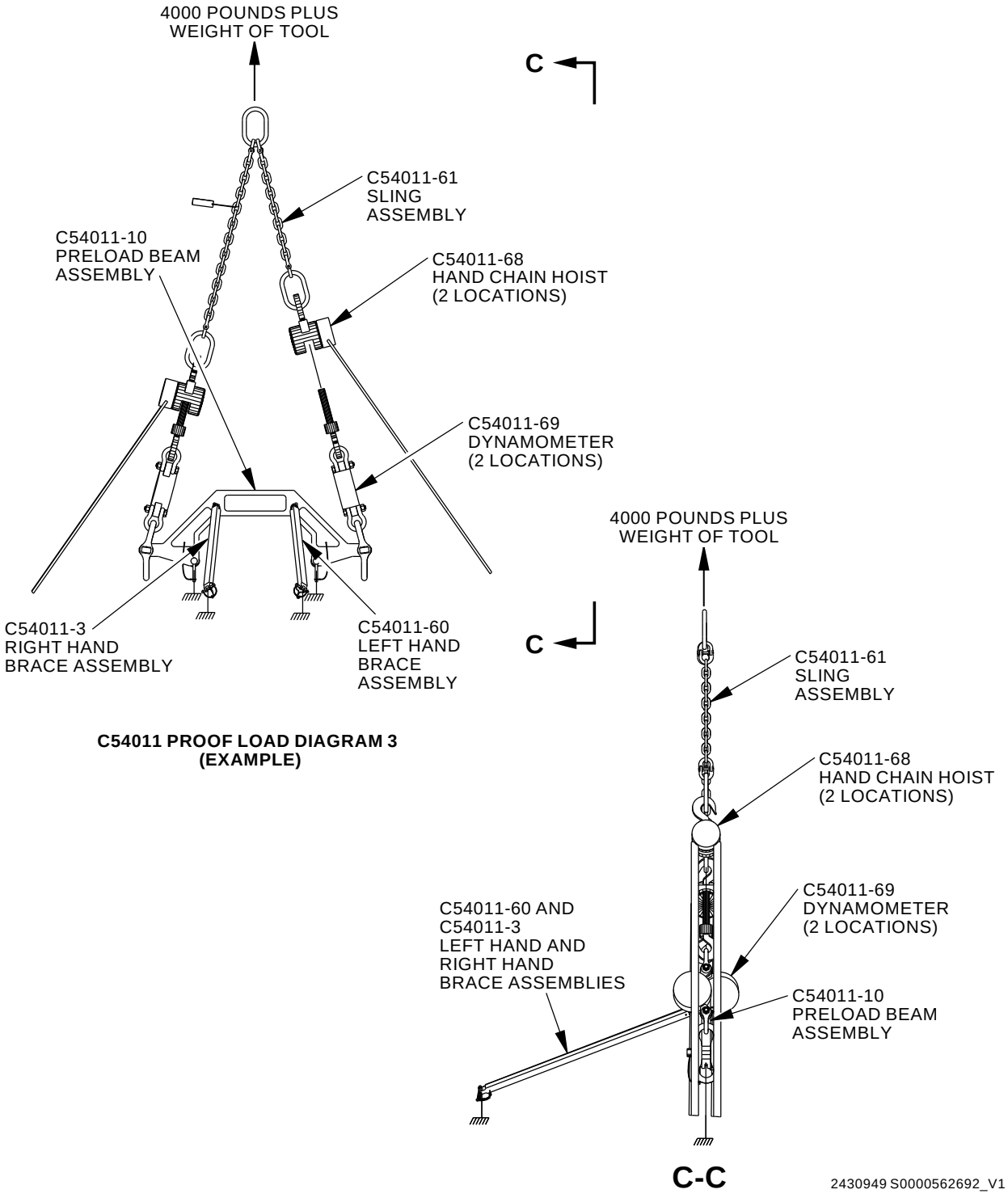
C54011 PROOF LOAD DIAGRAM 1 (EXAMPLE)

C54011 Proof Load Diagrams (Examples)
Figure 2 (Sheet 1 of 4)

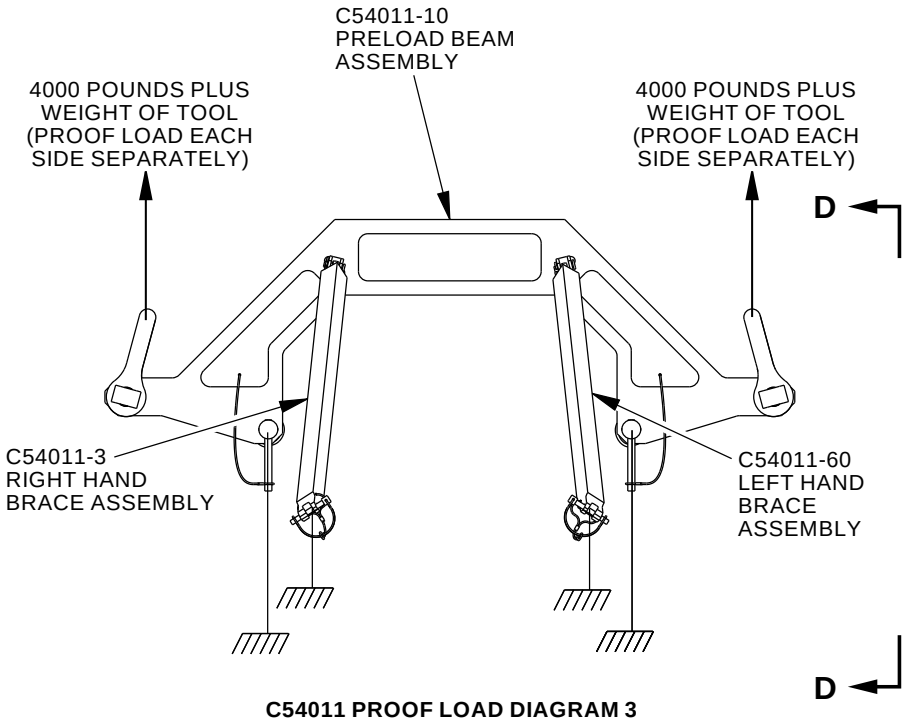


C54011 PROOF LOAD DIAGRAM 2 (EXAMPLE)

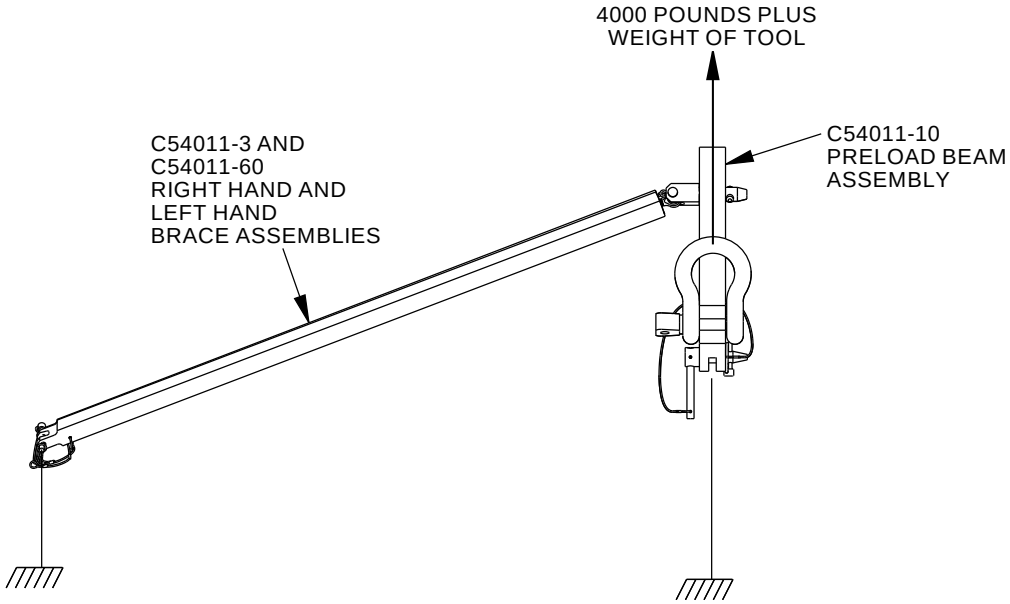
C54011 Proof Load Diagrams (Examples)
Figure 2 (Sheet 2 of 4)



C54011 Proof Load Diagrams (Examples)
Figure 2 (Sheet 3 of 4)



C54011 PROOF LOAD DIAGRAM 3
(EXAMPLE)



D-D

2430954 S0000562690_V1

C54011 Proof Load Diagrams (Examples)
Figure 2 (Sheet 4 of 4)

PART NUMBER: C54007-1

NAME: FEELER GAUGE - CFM56-7 STRUT TO WING

AIRPLANE MAINTENANCE: YES

AMM 54-51-02

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C54007-1 feeler gauge is used on 737-600 thru -900 airplanes.

C54007 is used to verify the minimum gap required between the 112A7104 wing fitting lug and the 311A2005 midspar strut clevis. This applies to the inboard mid spar to wing and strut fittings only.

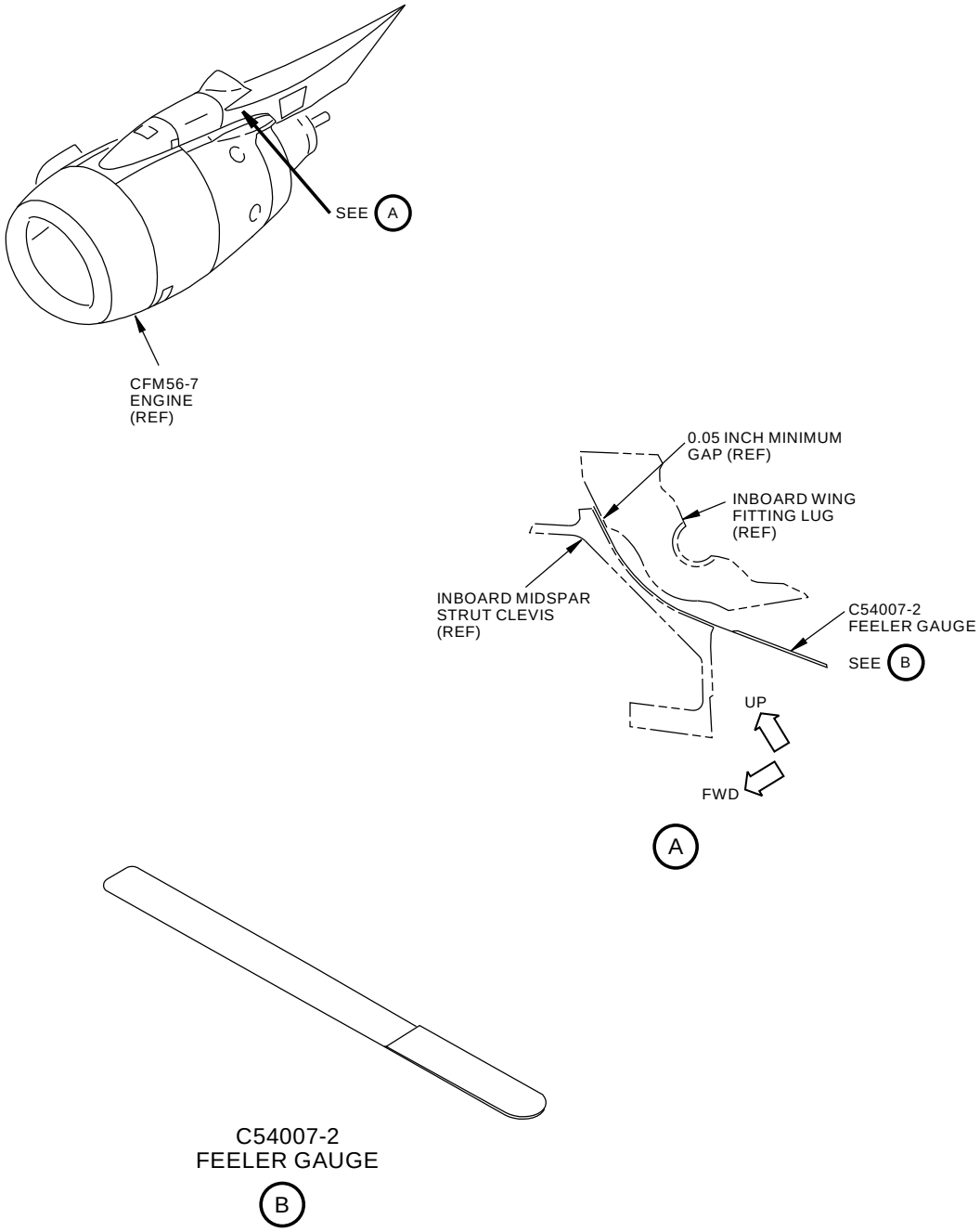
Refer to AMM 54-51-02 and the current C54007 drawing for complete usage instructions.

C54007-1 consists of:

C54007-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
1	FEELER GAUGE	C54007-2
1	STORAGE BOX	

WEIGHT: 0.1 lbs (0.04 kg)

DIMENSIONS: 1 x 1 x 13 inches (25 x 25 x 330 mm)



L41650 S0006832113_V3

Feeler Gauge Usage
Figure 1

PART NUMBER: C54015-1

NAME: SPANNER WRENCH - THRUST REVERSER HINGE FITTING

AIRPLANE MAINTENANCE: NO

COMPONENT MAINTENANCE: NO

OTHER MANUALS: YES

STANDARD OVERHAUL PRACTICES MANUAL 20-50-03

USAGE & DESCRIPTION: The C54015-1 spanner wrench is used on 737-600 thru -900 airplanes.

C54015 is used to hold and tighten a retaining ring on the S302T001-225 spherical bearing assembly.

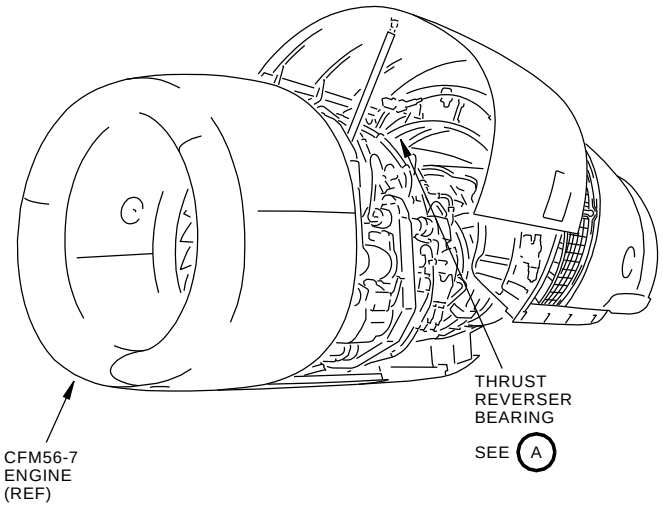
Refer to Standard Overhaul Practices Manual (SOPM) 20-50-03 and the current C54015 drawing for complete usage instructions.

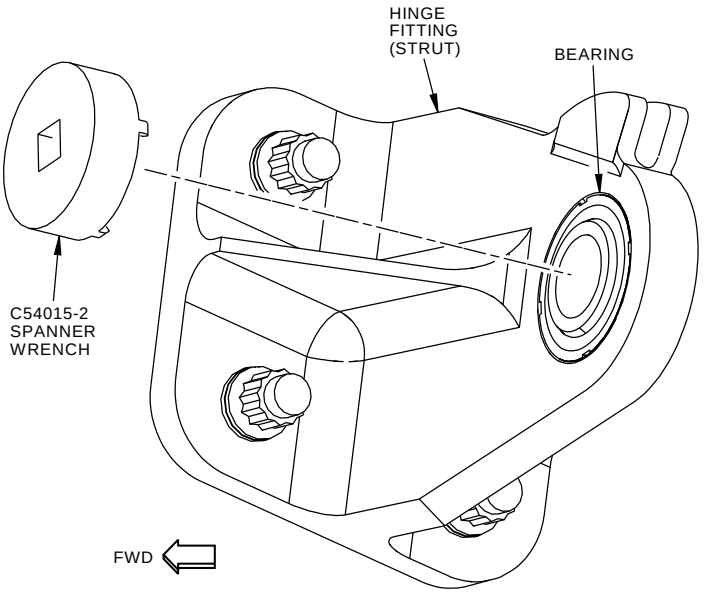
C54015-1 consists of:

C54015-1		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
2	SPANNER WRENCH	C54015-2
1	STORAGE BOX	

WEIGHT: 0.5 lbs (0.2 kg)

DIMENSIONS: 0.75 x 1.5 x 3 inches (19 x 38 x 76 mm)





A

W79785 S0006832115_V3

USAGE AND LOCATION
Figure 1

PART NUMBER: C54020-9

NAME: INSTALLATION EQUIPMENT - STRUT FIRE SEAL

AIRPLANE MAINTENANCE: YES

AMM 54-54-00

COMPONENT MAINTENANCE: NO

USAGE & DESCRIPTION: The C54020-9 installation equipment is used on all 737-600 thru -900 airplanes.

C54020 is used to assist in the installation of the CFM56-7 engine strut fire seal with the thrust reversers installed.

Refer to AMM 54-54-00 and the current C54020 drawing for complete usage instructions.

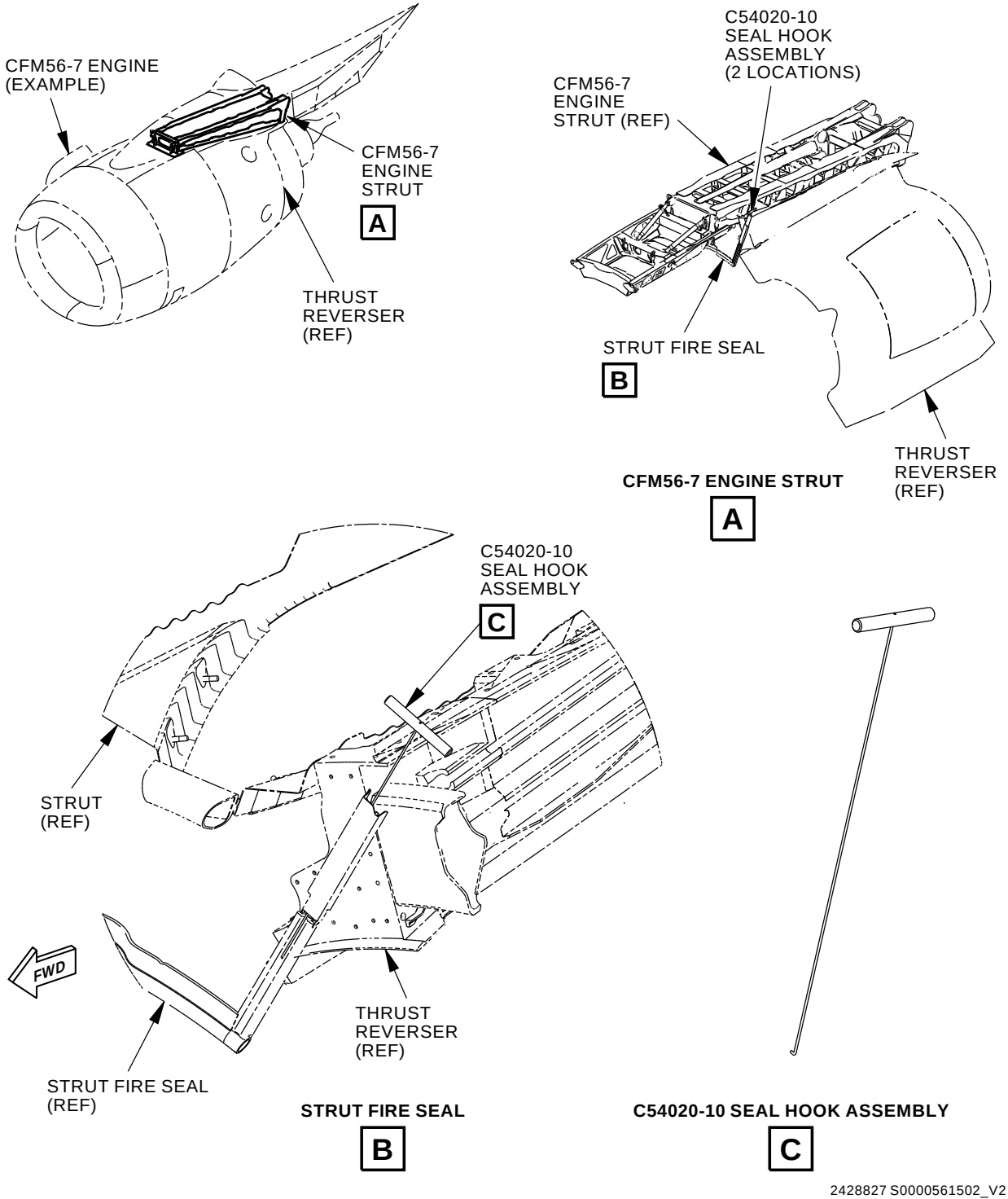
C54020-9 consists of:

C54020-9		
QUANTITY	**NOMENCLATURE**	**PART NUMBER**
2	SEAL HOOK ASSEMBLY	C54020-10
1	STORAGE BOX	

WEIGHT: 1 lb (0.45 kg)

DIMENSIONS: 1 x 4 x 19 inches (25 x 102 x 483 mm)

NOTE: C54020-9 supersedes C54020-1.



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Strut Fire Seal Installation Equipment
Figure 1