# CHAPTER 54

# NACELLES / PYLONS

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# CHAPTER 54

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## EASTERN AIR LINES, INC.





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# Chapter 54

## ALPHABETICAL INDEX





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## GENERAL - DESCRIPTION AND OPERATION

### 1. Description

A. The pylons are located on each side of the aft fuselage. These structures mount the engines and house fuel, electrical, hydraulic, heating, ice protection and control lines to and from the engines. The engine is housed by two cowl doors and a pylon apron. These items are covered in Chapter 71.

B. The pylon consists of a main frame, auxiliary structures and attach fittings. The main frame is the area of the pylon between the front and rear spar and is permanently attached to the fuselage. Auxiliary structures are the leading and trailing edges between the fuselage and pylon apron. Each engine is mounted through two sets of attach fittings. The pylon skin is titanium, except for a small section of the
R removable trailing edge. Drain holes are located on the lower
R surface of the removable leading edge and removable trailing
R edge to prevent entrapment of fluids.

C. The pylon is constructed to provide maximum fire protection. A firewall within the pylon follows an irregular path and extends from the leading edge to the fiberglas trailing edge. The firewall is constructed of titanium and all lines passing through it are provided with metal connectors. In addition to the firewall, a fire resistant barrier constructed of laminated phenolic fabric material and capable of withstanding maximum temperatures of 3000°F (1649°C) is bolted to the firewall in the center portion of the main frame area. (Further prctection is provided by the skin of the fuselage, adjacent to the pylon, which is constructed of titanium material and forms a fireseal.)



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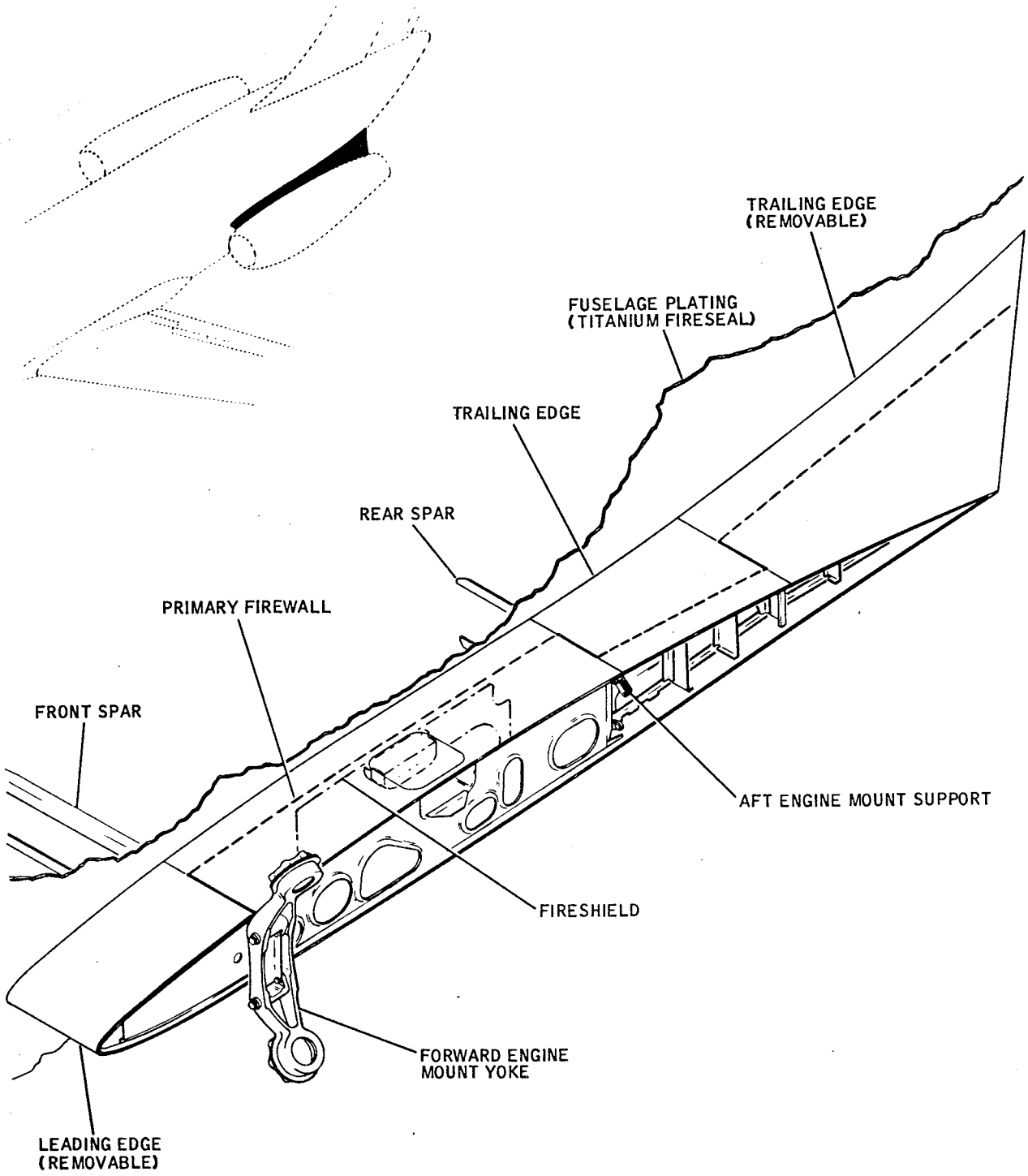


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# MAIN FRAME - DESCRIPTION AND OPERATION

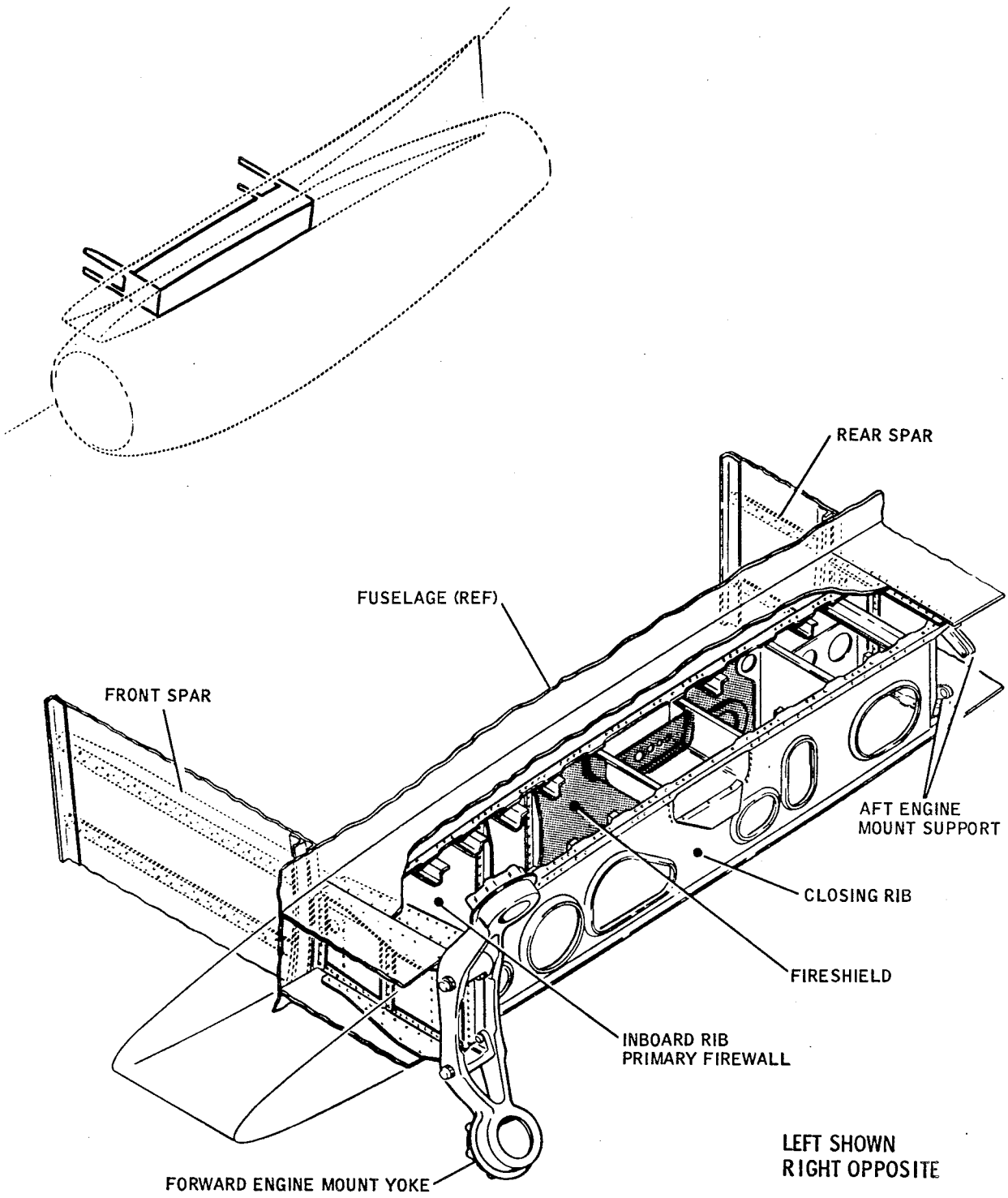
## 1. General

A. The main frame of the pylon is of two-spar box construction and is permanently attached to the aft fuselage. The spars extend into the aft fuselage and attach to fuselage bulkheads with lockbolts and collars. Materials used in construction of the pylon are fire resistant except for nonstructural fairings.

B. The front spar is constructed of angles of 4140 steel, reinforced with strap corrosion-resistant 17-7PH steel, and capped with forged steel support fittings. The forward engine mount is attached to the support fittings. The rear spar is constructed of strap 4140 steel and has bearings in the outboard end for mounting the aft engine mount. The front and rear spar webs, stiffeners, and doublers are titanium and provide firewall protection within the pylon.

C. There are two vertical ribs of titanium between the front and rear spars. These two ribs run parallel to the engine centerline and the inboard rib forms a firewall.

D. Access to disconnect engine fuel, pneumatic, and electrical system components is through the lower panel load-carrying access doors. High-shear, quick-action type fasteners are used to secure the doors. Access to the hydraulic systems component lines is through an access door, installed with flush screws, in the upper panel.

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Pylon Main Box
Figure 1



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# AUXILIARY STRUCTURE - DESCRIPTION AND OPERATION

## 1. General

A. The auxiliary structure of the pylons, leading and trailing edges, completes the airfoil profile that supports the engine. The leading edge closing rib, skin, and stiffeners are titanium and other ribs are aluminum alloy. The closing rib is the primary firewall in the leading edge. The leading edge is removable for inspection and maintenance and attaches to the front spar, fuselage-to-pylon, former and closing rib with flush screws.

B. The trailing edge is in two sections. The forward section skin and stiffeners are constructed of titanium. The removable aft section is constructed of aluminium alloy. A trailing edge
R strip is installed cn the aft end of the removable trailing
R edge. A rib of titanium extends through the aft section for the primary firewall. The forward section has a quick-opening access door to provide access to the engine thrust reverser lines and aft engine isolator mount bolts.



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# AUXILIARY STRUCTURE - MAINTENANCE PRACTICES

## 1. General

A. The removal and installation procedures for the left and right pylon auxiliary structure are identical.

B. Access door 8115 in the left pylon or 8216 in the right pylon must be removed to remove and install the trailing edge section.

C. The leading edges may be removed for inspection or repair by removing surface attaching screws.

D. Drain holes located in lower surface of leading edges should be kept open for water drainage.

## 2. Removal/Installation Auxiliary Structure

A. Remove Pylon Aft Trailing Edge

(1) Remove access door.

(2) Remove bolts that attach removable section firewall rib to forward section.

NOTE: Bolts are accessible through the access door.

(3) Remove auxiliary structure.

B. Install Pylon Aft Trailing Edge

(1) Install auxiliary structure.

(2) Install bolts that attach firewall rib to forward section.

(3) Install access door.

(4) Make certain that inboard and outboard drain holes in trailing edge, lower surface are open.



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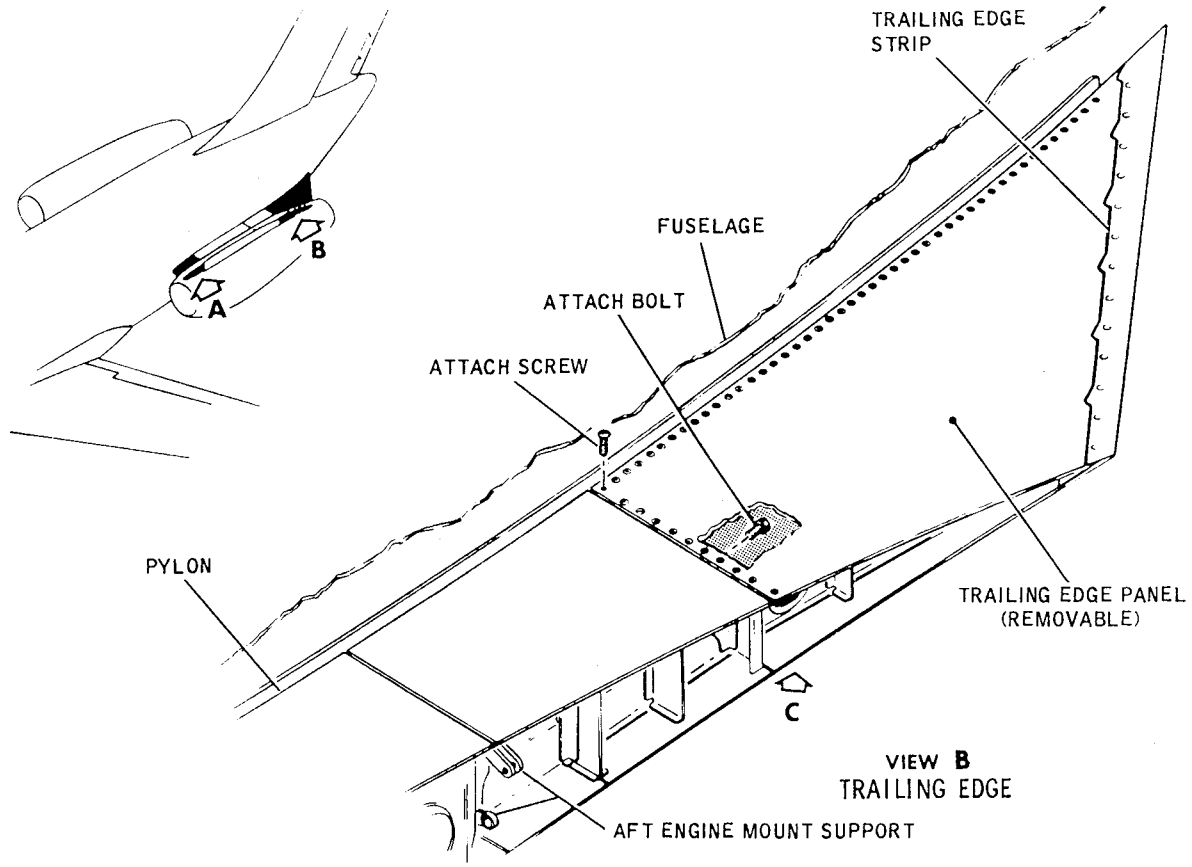
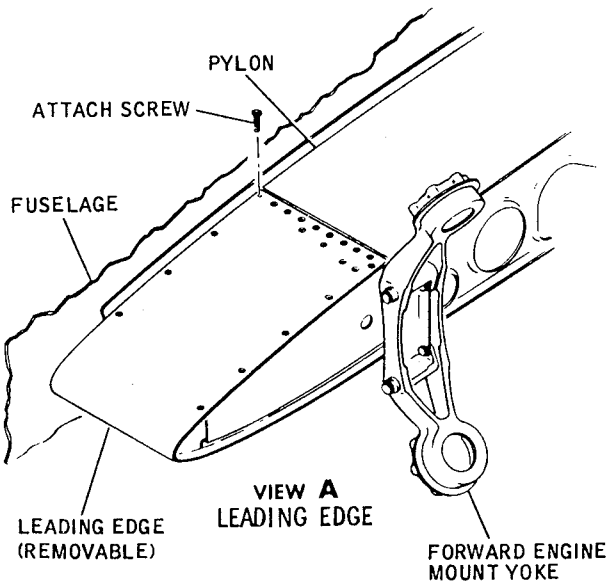
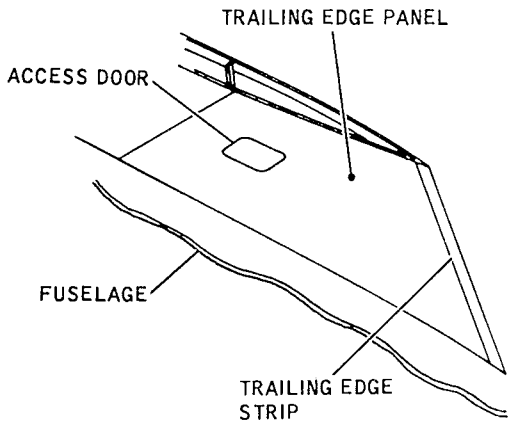



VIEW **B**
TRAILING EDGE




VIEW **A**
LEADING EDGE




VIEW **C**
LOWER SURFACE

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Pylon Auxiliary Structure
Figure 201

# PLATES/SKIN - DESCRIPTION AND OPERATION

## 1. General

A. The pylon skin from the leading edge to the removable trailing edge is made of titanium with titanium stiffeners. The removable trailing edge is made of aluminum sheet with bonded aluminum doublers on the lower surface.

B. Access doors on the upper and lower surfaces of the pylon vary in size, type, attachment, and method of opening (see Figure 1). These doors provide access to pneumatic, electrical, and fuel system components. The component lines, ducts, or connectors for a specific system, are grouped for access through one of the access doors.

C. The access doors on the upper surface and trailing edge corner of the pylon are stressed openings and are fastened with flush screws. Stress access doors on the lower surface have quick-opening shear-carrying camloc fasteners.

D. A fabric-covered, high-temperature rubber seal is attached to the outboard edge of the pylon skin where the seal contacts the pylon apron. The seal (see Figure 2), is installed with flush screws.



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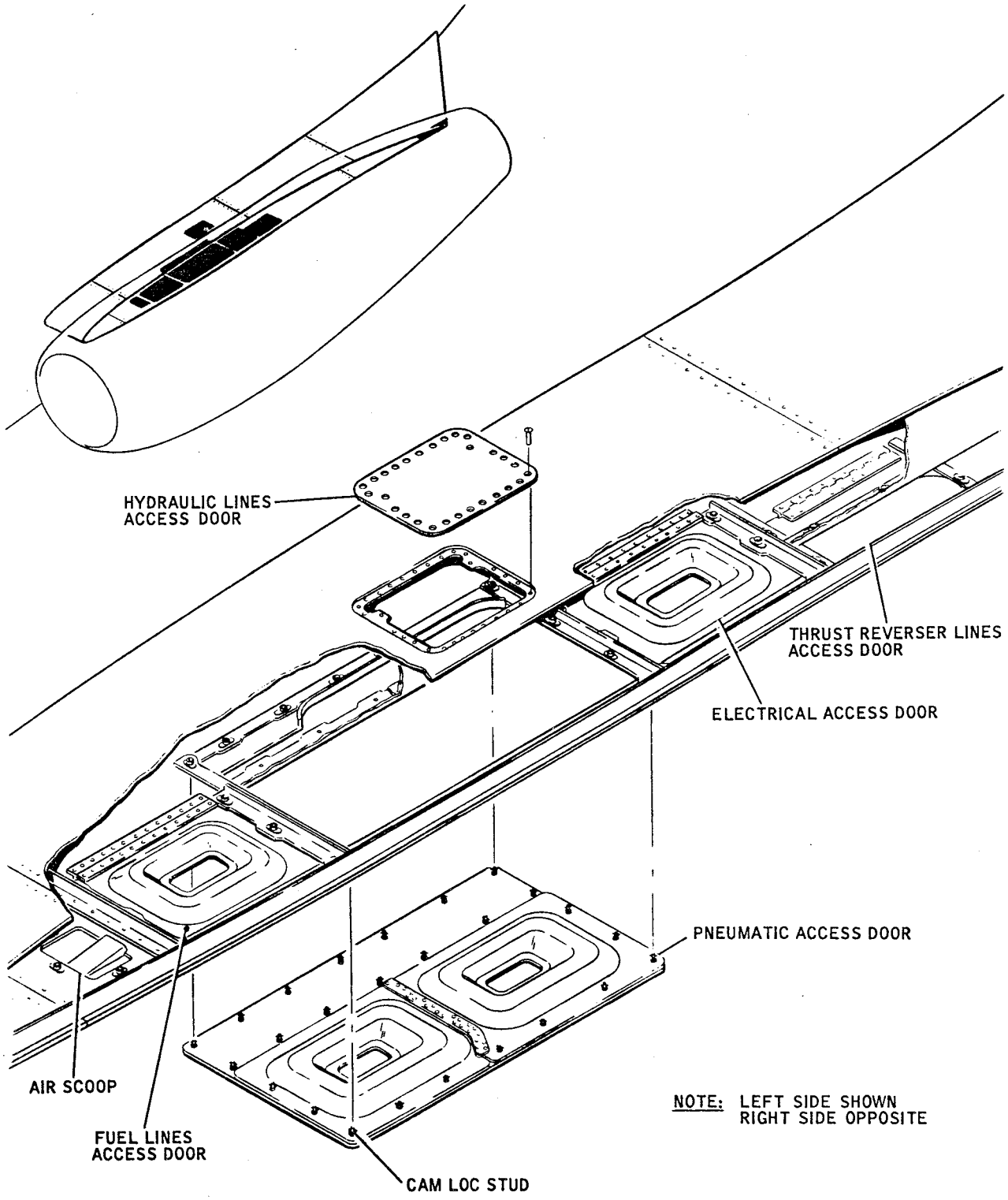


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Pylon Skins and Access Doors
Figure 1



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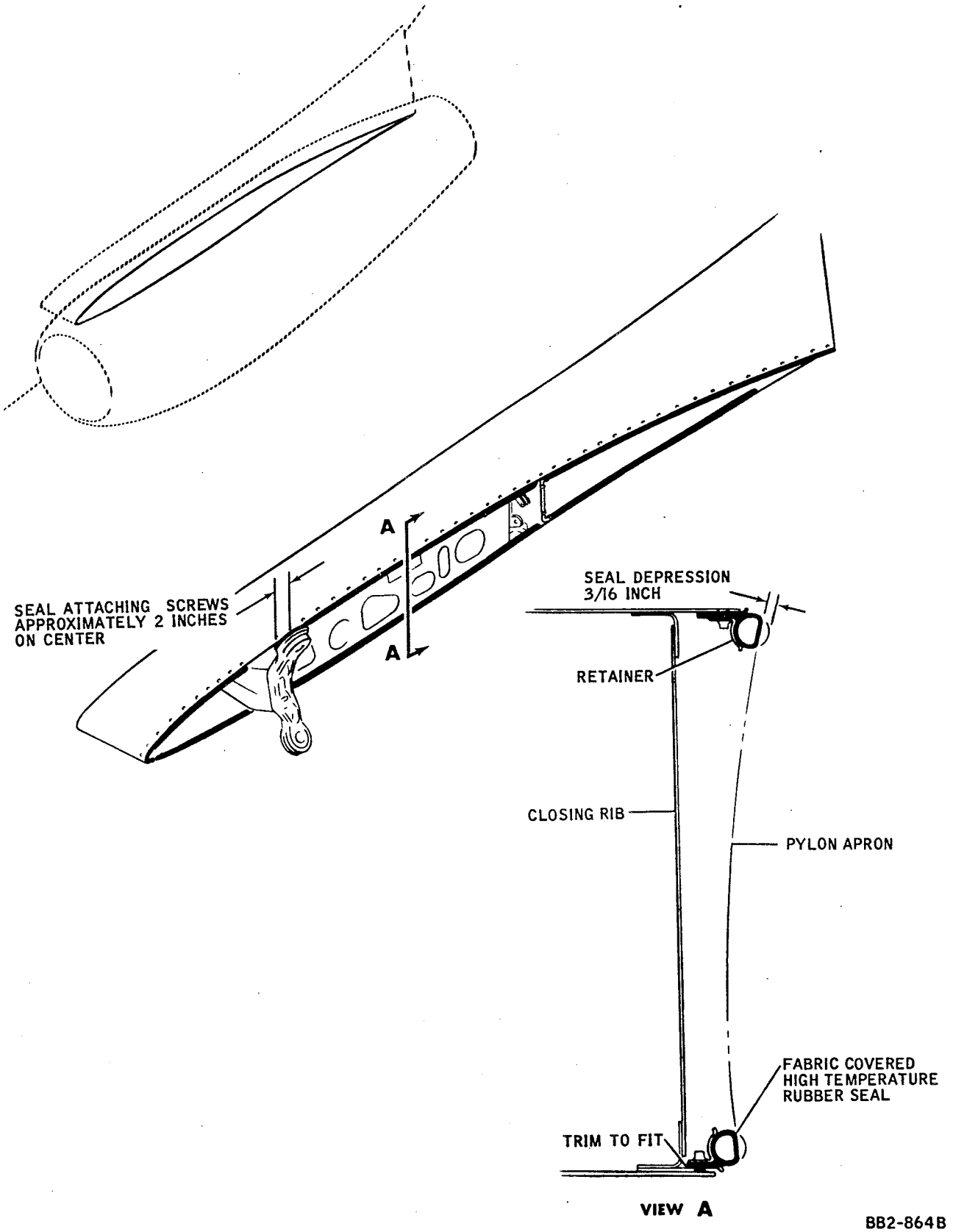


Pylon-to-Pylon Apron Seals
Figure 2

# ATTACH FITTINGS - DESCRIPTION AND OPERATION

## 1. General

A. The pylons are permanently attached to the aft fuselage structure with spars extending into the fuselage. Lockbolts and collars are used for this permanent installation.

B. The rear spar is constructed with steel bar straps, web and angles of titanium, and bearings in the outboard end of the spar caps to provide a mounting for the single-plane aft engine mount. The front spar is of the same construction with additional steel plate and a forged steel mounting support for the two-plane forward engine mount. Engine loads are transmitted directly through the vibration isolator into the engine mount and support pylon. Maintenance practices for the vibration isolators and the vibration absorbers are in Chapter 71.

C. Engine cowling doors are attached to a removable pylon apron and are described in Chapter 71.



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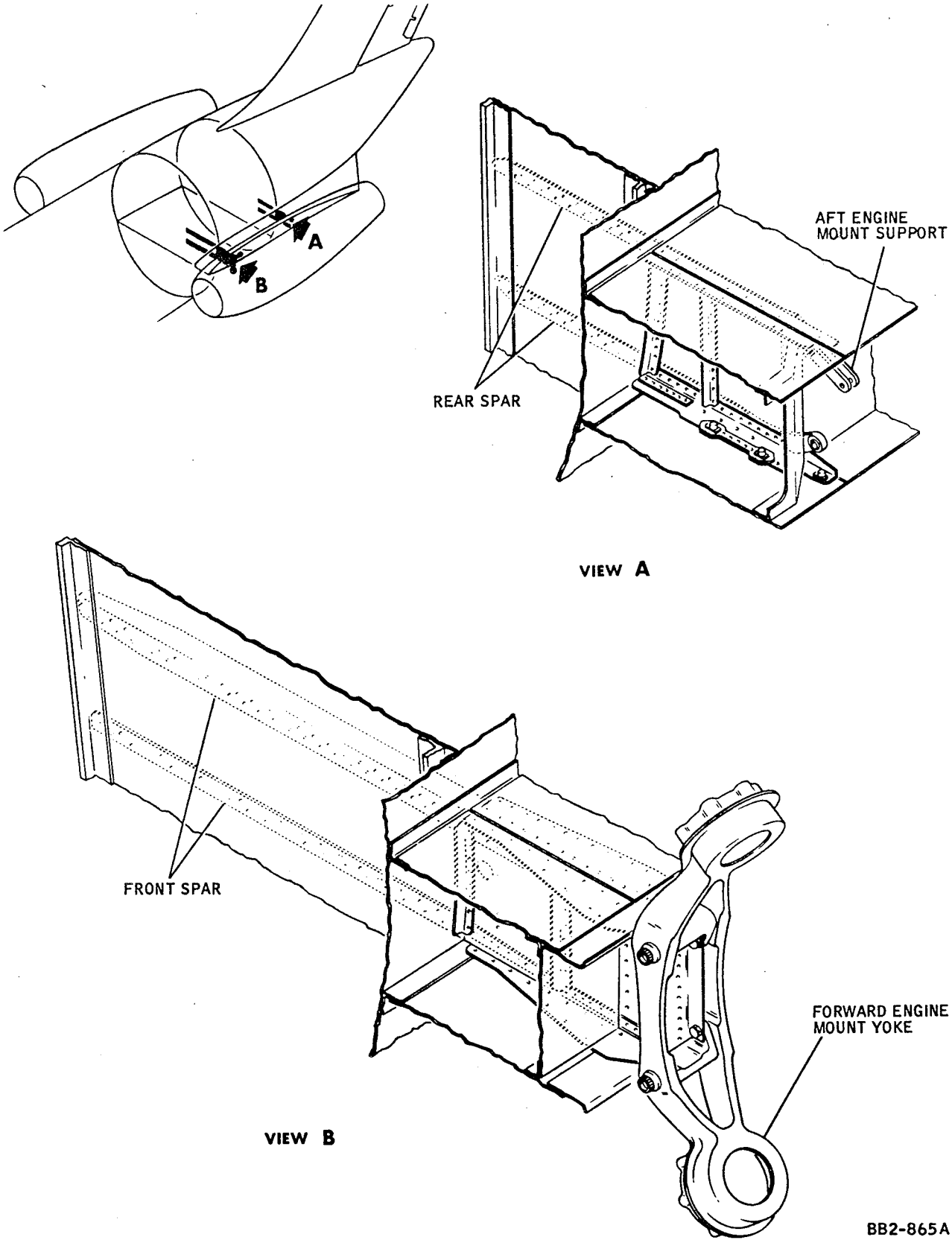




Pylon Attach Fittings
Figure 1



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