

# Chapter 55

## STABILIZERS

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## **55 STABILIZERS**

### **55-00 GENERAL**

The horizontal stabilizer is a one piece assembly hinged on the aft bulkhead of the fuselage. The horizontal stabilizer is a secondary flight control, being a trimable surface. The vertical stabilizer is also mounted to the aft fuselage.

There is a fixed dorsal fin mounted ahead of the vertical stabilizer.

#### **55-00-10 Bearing Replacement**

To replace either a rudder or elevator bearing, the flight controls must first be removed. See Chapter 27-20 or 27-30 as applicable.

Note: Bearings must be pulled, or pressed. They must not ever be removed or installed by means of percussion under any circumstances.

- Step 1. Install Bearing Puller tool and remove Bearing.
- Step 2. Inspect bearing orifice for signs of corrosion or galling.
- Step 3. Offer up new bearing and use bearing installation tool to insert bearing.
- Step 4. Re-install flight control per applicable chapter and carry out a deflection check.

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FBA-2C4, FBA-2C3T, FBA-2C4T

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## **55-10 HORIZONTAL STABILIZER**

See Chapter 27-40 for details and removal and installation information.

The horizontal stabilizer is an all metal riveted assembly which consists of two identical assemblies left and right joined to a central box. There are two forward spars, which are joined by a forward mid spar.

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## **55-20 ELEVATORS**

See Chapter 27-30 for details and removal and installation information.

The elevators are an all metal riveted assembly. Each elevator has a forward spar, a rear spar, seven rib positions, an upper and lower skin and stringers, doublers, brackets etc.

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## **55-30 VERTICAL STABILIZER**

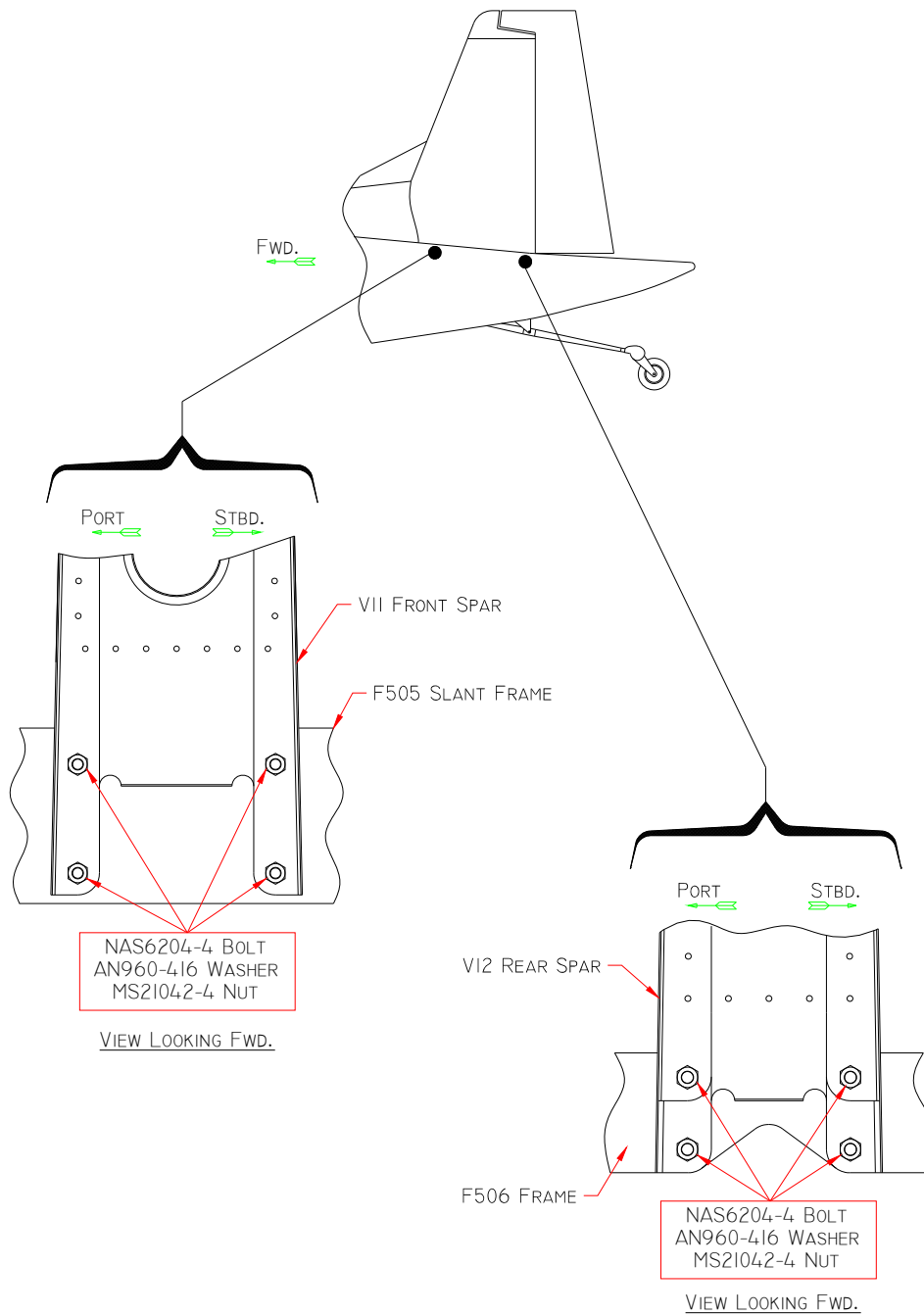
The vertical stabilizer is an all metal riveted assembly. Its area and basic configuration is identical to one side of the stabilizer.

### *Vertical Stabilizer Removal and Installation*

The vertical stabilizer may be removed with the rudder either installed or removed. The instructions below detail removal with the rudder installed. See Chapter 27-21 for rudder removal and installation. If the rudder is already removed disregard the applicable steps.

- Step 1. Placard aircraft as required to ensure that rudder is not moved during removal or installation as personnel injury can occur if hands are caught in moving parts.
- Step 2. Disconnect rudder actuator arm.
- Step 3. Disconnect strobe light connections at the power pack located in the aft fuselage.
- Step 4. Remove the four fasteners from the bottom of the aft spar.
- Step 5. Remove rivets which attach vertical stabilizer to the dorsal fin.
- Step 6. Ensure that the vertical stabilizer is supported in such a manner that further disconnection will not damage the vertical stabilizer.
- Step 7. Remove the four fasteners from the bottom of the front spar. See Figure 55-30-01.
- Step 8. Move the top of the vertical stabilizer aft about three inches and lift clear of the aircraft taking care that the spars clear all structure and the vertical stabilizer clears the dorsal fin.
- Step 9. Place vertical stabilizer on a flat surface of sufficient size to ensure its safety. Never place vertical stabilizer in the vertical position unless the lower surface is padded and a tie off is used to prevent the vertical stabilizer from falling.

To install the vertical stabilizer reverse above steps. Carry out rudder deflection check.



**Figure 55-30-01: Vertical Stabilizer Installation**

## **55-40 RUDDER**

The rudder is an all metal riveted assembly. The rudder has a forward spar, a rear spar, seven rib positions, two skins and stringers, doubler, brackets etc.  
See Chapter 27-20 for details.

FBA-2C1, FBA-2C2, FBA-2C3  
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## **55-50 ATTACHMENT FITTINGS**

### **55-50-10 Horizontal Stabilizer**

The horizontal stabilizer has two hinge/pivot bracket locations, with each location having two separate aluminum hinge brackets, on the front mid spar which serve as both a mounting means and a pivot for the stabilizer. Each of these brackets is an aluminum angle which is fastened directly to the front mid spar with bolts. See Figure 27-80-13.

There are five elevator hinge locations, with each location having two separate aluminum hinge brackets, for the elevators. Two Port, two Starboard and a shared hinge position on the aircraft centerline. Each of the hinge positions is an aluminum angle which is fastened directly to the rear spar with rivets. See Figure 27-80-10.

### **55-50-11 Pivot Fitting Replacement**

To replace any or all fittings the horizontal stabilizer must first be removed, see Chapter 27-40 for instructions,

- Step 1. Remove the three bolts which secure the bracket to the forward mid spar.
- Step 2. Position new bracket and install the three bolts. Do not tighten the bolts.
- Step 3. Ensure that the pivot hole in the bracket is aligned with its matching bracket. Tighten the three bolts.

### **55-50-12 Elevator Hinge Fittings**

To replace any or all fittings the elevator(s) must first be removed, see Chapter 27-30 for instructions. Then carry out instructions below.

- Step 1. Remove the desired hinge bracket by drilling out bearing block and spar attaching rivets using standard practices.
- Step 2. Position new bracket.
- Step 3. Ensure that the bearing hole in the bracket is aligned with its matching bracket and other hinge locations. This may be accomplished by inserting a line through the center of at least three hinge locations (including the one being replaced) and ensuring there is no excessive binding.
- Step 4. When alignment is determined to be correct bracket may be riveted in place using same type rivets as were removed.

### **55-50-20 Vertical Stabilizer**

There are three rudder hinge locations, with each location having two hinge brackets. Each of the hinge brackets is an aluminum angle which is fastened directly to the rear spar with rivets.

### **55-50-31 Rudder Hinge Fittings**

To replace any or all fittings the rudder must first be removed, see Chapter 27-20 for instructions. Then carry out instructions below.

- Step 1. Remove the desired hinge bracket by drilling out bearing block and spar attaching rivets using standard practices.
- Step 2. Position new bracket.
- Step 3. Ensure that the bearing hole in the bracket is aligned with its matching bracket and other hinge locations. This may be accomplished by inserting a tube of correct diameter through at least three hinge locations (including the one being replaced) and ensuring there is no excessive binding.
- Step 4. When alignment is determined to be correct bracket may be riveted in place using same type rivets as were removed.

## **55-60 AUXILIARY STABILIZERS**

### **55-60-10 Dorsal Fin (2C1 & 2C2)**

There is a dorsal fin mounted on the upper aft fuselage. It is secured with solid rivets and does not need to be removed for normal maintenance or inspections.

In the event that the dorsal fin needs to be removed it must be de-riveted using standard practices, and installed with the same type rivets.

### **55-60-20 Dorsal Fin (2C3 & 2C4)**

There is a composite dorsal fin mounted on the upper aft fuselage. It is secured with screws and does not need to be removed for normal maintenance or inspections.

In the event that the dorsal fin needs to be removed, use standard aviation practices.

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