

Chapter 53

FUSELAGE

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

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53 FUSELAGE

53-00 GENERAL

The 2C1 / 2C2 fuselage is comprised of two major assemblies, a forward section and an aft section. The forward section is made of square steel tubing which is welded together and covered with aluminum skins. The aft fuselage is a semi monocoque design which is attached by both removable fasteners and solid rivets to the forward section.

The 2C3 / 2C4 fuselage is comprised of two major assemblies, a forward section and an aft section. The forward section is made of square steel tubing which is welded together and covered with carbon fibre shells. The aft fuselage is a semi monocoque design which is attached by both removable fasteners and solid rivets to the forward section.

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53-10 MAIN FRAME

53-10-10 Forward Section - General

The forward frame section of the fuselage is constructed of square and round 4130 steel tube of various wall thicknesses and various attachment brackets. The forward section begins at the firewall and extends aft to Arm 76. This effectively encloses the entire flight compartment and passenger area in a steel cage. The forward section is covered on the exterior by aluminium or carbon fiber panels which are fastened to frames and brackets integral to the frame. The main landing gear and wing are attached to the forward fuselage.

53-10-11 Corrosion Protection

The interior of the steel frame is protected at manufacture by a coating of ACF-50, Corrosion X, LPS3 or boiled linseed oil. See Chapter 5 for re-treatment schedule. If a repair is carried out to the steel frame which requires welding then corrosion inhibiting shall be carried out in the area of the repair.

The exterior of the steel frame is protected by a coating of epoxy primer and a topcoat of gray urethane paint. Any repairs to the steel frame will require that any repair material, or any parent material, which was stripped of Epoxy primer and paint to affect the repair, must have a coat of epoxy primer and urethane paint reapplied at the completion of the repair.

53-10-20 Aft Section General

The aft section of the fuselage is constructed of stressed aluminum skins riveted to a framework of aluminum formers, longerons, and stringers. The tail wheel, vertical stabilizer, dorsal fin and horizontal stabilizer are attached to the aft fuselage.

53-10-21 Corrosion Protection

All aluminum components of the aft fuselage have received a Phosphoric Acid conversion surface coating and Epoxy primer at manufacture. Any repairs which are carried out to the aft fuselage must ensure that repair material and parent material has conversion surface coating and Epoxy primer applied to all areas as required.

Aft Fuselage Section Removal and Installation

Removal and installation of the aft fuselage section should not be undertaken unless complete replacement is necessary. Re-assembly of the two sections must be done in a fixture. If complete replacement is necessary contact the manufacturer for instructions.

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53-20 FLOORS

The floors in the flight, passenger and cargo compartments are constructed of end grain balsa core bonded between fiberglass top and bottom skins. This provides a very strong lightweight floor. Each of the four floor pieces may be removed individually.

53-20-01 Flight Compartment Floor Removal and Installation

See Figure 53-20-01.

Removal

- Step 1. Remove the appropriate seat for the floor section to be removed. See Chapter 25-13.
- Step 2. Remove the two seat rails by removing the fasteners.
- Step 3. Remove and retain floor panel fasteners and washers.
- Step 4. Lift the floor panel clear of the aircraft taking care not to damage the edges or corners of the panel.

Installation

- Step 1. Ensure that the floor support structure is clean.
- Step 2. Inspect floor panel(s), seat rails and fasteners for general condition and corrosion, Replace as required.
- Step 3. Lay floor panel(s) in place taking care not to damage the edges or corners of the panel.
- Step 4. Install floor panel fasteners and washers
- Step 5. Install seat rails and fasteners.
- Step 6. Install seat(s). See Chapter 25.

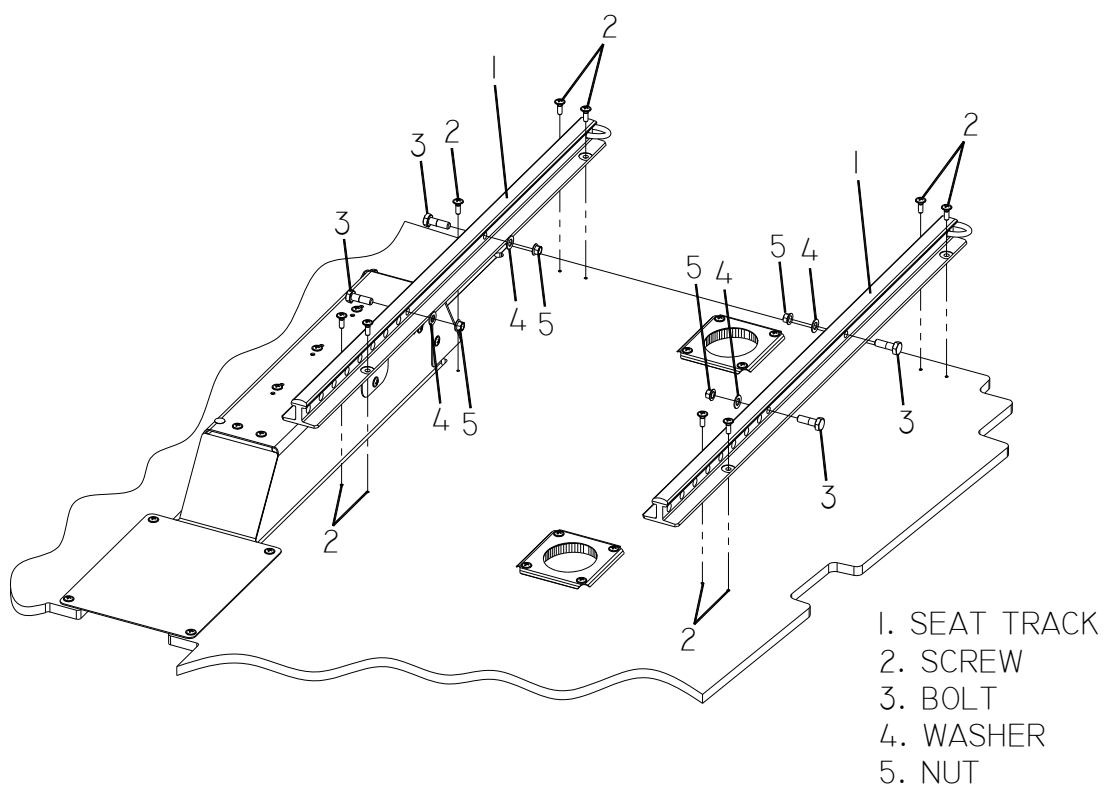


Figure 53-20-01: Flight Compartment Floor Removal and Installation.

53-20-02 Passenger Cabin Floor Removal and Installation

See Figure 53-20-02 (2C1 & 2C2) or Figure 53-20-03 (2C3 & 2C4)

Removal

Note: Seat track removal is not necessary to remove floor.

- Step 1. Remove aft seats, See Chapter 25.
- Step 2. For 2C1 & 2C2 remove the aft door sills.
- Step 3. Remove and retain floor panel fasteners.
- Step 4. Lift the floor panel clear of the aircraft taking care not to damage the edges or corners of the panel.

Installation

- Step 1. Ensure that the floor support structure is clean.
- Step 2. Inspect floor panel and fasteners for general condition and corrosion, Replace as required.
- Step 3. Lay floor panel in place taking care not to damage the edges or corners of the panel.
- Step 4. Install floor panel fasteners and washers
- Step 5. Install seats. See Chapter 25
- Step 7. For 2C1 & 2C2 install aft door sills.

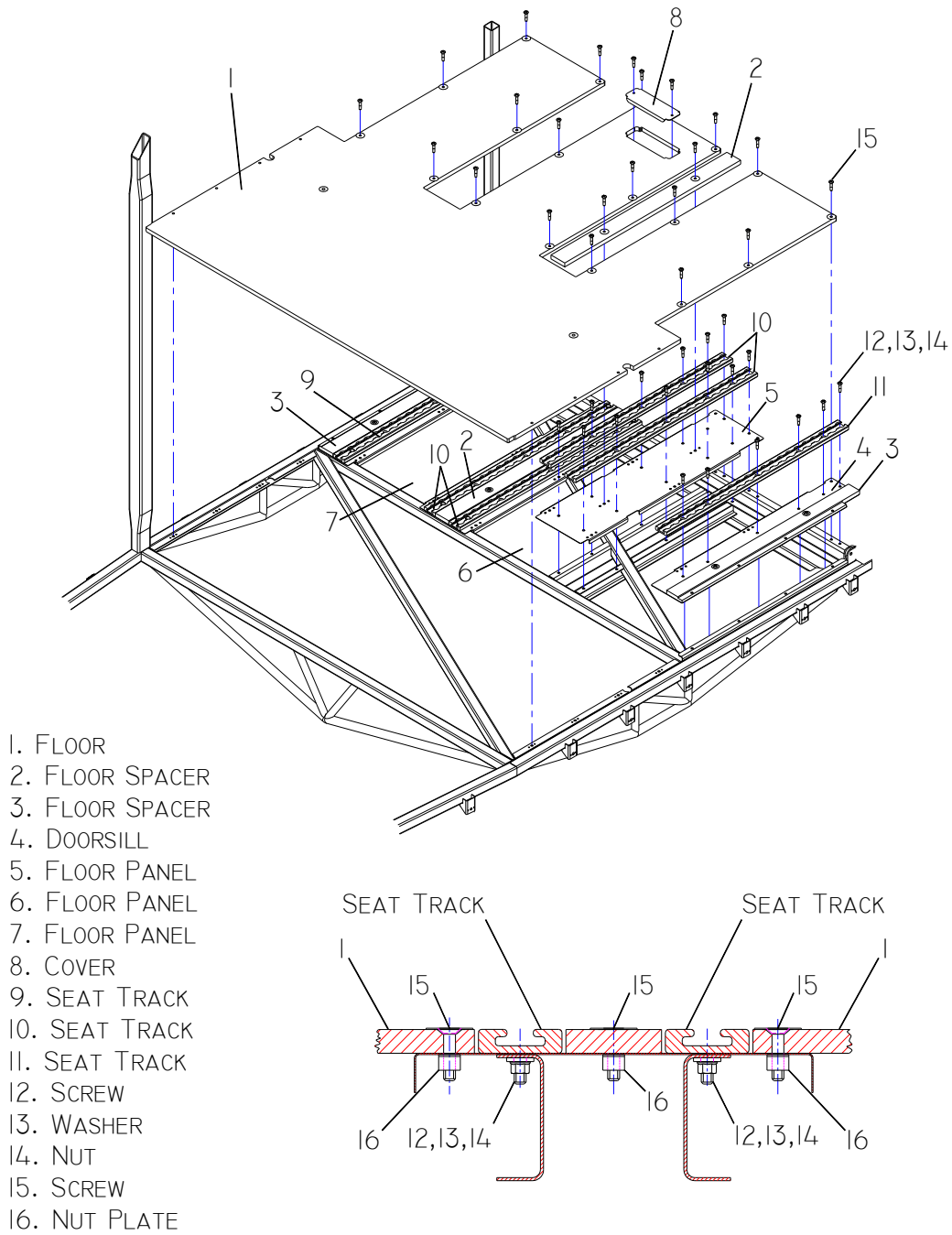
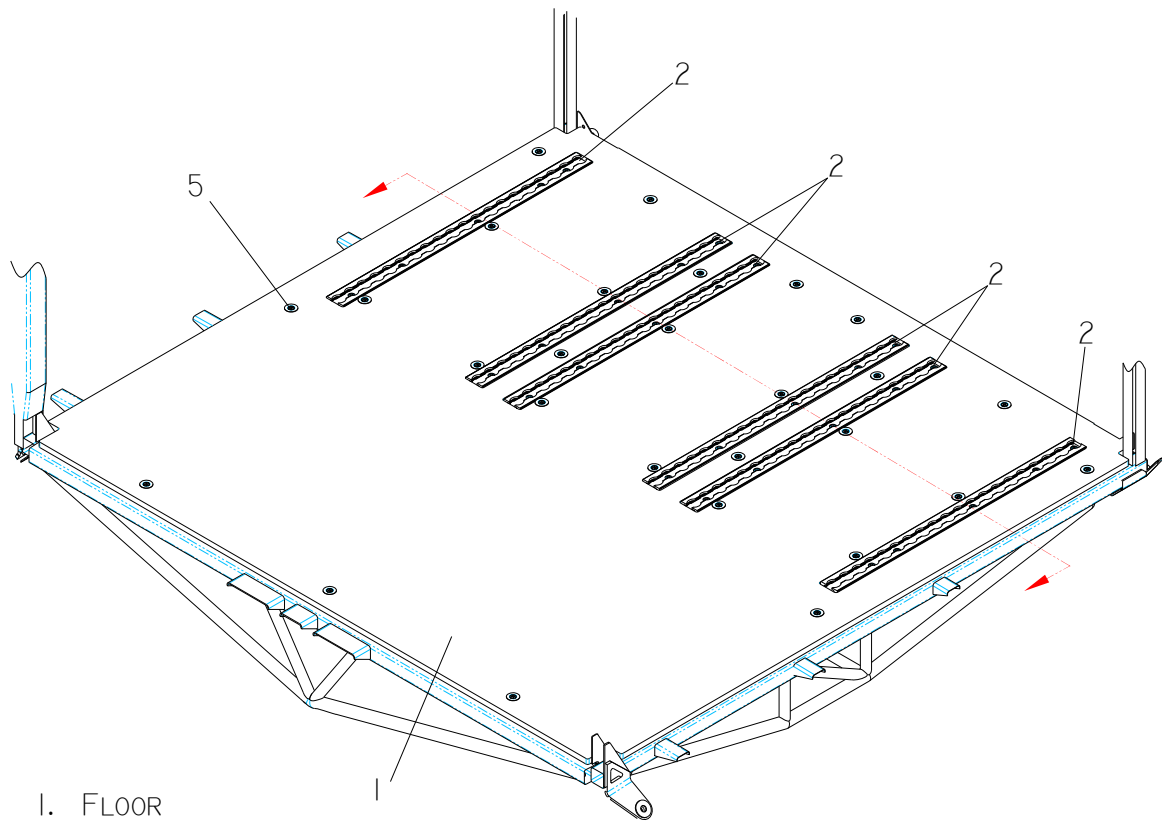


Figure 53-20-02: Passenger Compartment Floor Removal and Installation (2C1 & 2C2).



- 1. FLOOR
- 2. SEAT TRACK
- 3. ALUMINUM PANEL
- 4. SHIM
- 5. SCREW
- 6. NUT PLATE

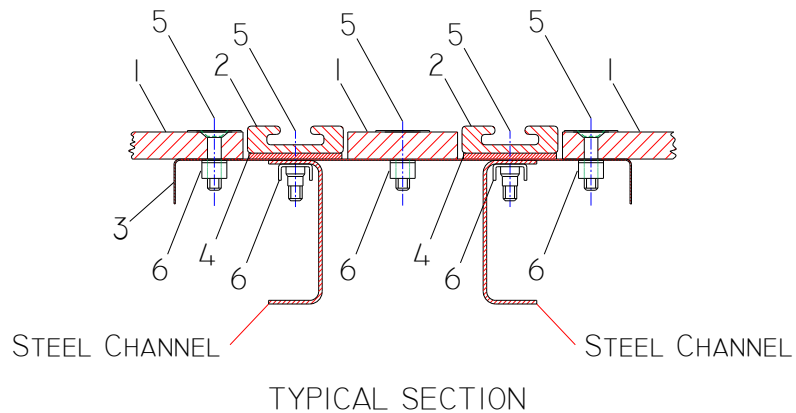


Figure 53-20-03: Passenger Compartment Floor Removal and Installation (2C3 & 2C4).

53-20-03 Baggage Floor Removal and Installation

Removal

- Step 1. Remove the floor panel fasteners
- Step 2. Lift the floor panel, clear of the aircraft taking care not to damage the edges or corners of the panel.

Installation

- Step 1. Ensure that the floor support structure is clean.
- Step 2. Inspect baggage floor and fasteners for general condition and corrosion, Replace as required.
- Step 3. Lay floor panel in place taking care not to damage the edges or corners of the panel.
- Step 4. Reinstall fasteners.

53-30 SKINS

The 2C1 and 2C2 fuselage skins are composed of riveted 2024-T3 aluminum sheets. The front fuselage skins are riveted to various steel tabs/mounts integral to the steel tube space frame. The aft fuselage skins are riveted to frames, longerons and stringers.

The 2C3 and 2C4 skins are a mix of 2024-T3 aluminum sheet and carbon fiber reinforced plastic (CFRP). In particular, the aft fuselage skins are aluminum sheets riveted to frames, longerons and stringers. The forward fuselage skins are CFRP shells fastened to the steel tube space frame with corrosion resistant screws.

The aluminum skins can be replaced using standard practices such as AC43.13-1B.

Contact Found Aircraft Canada for instruction on CFRP shells replacement.

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53-40 ATTACH FITTINGS

53-40-10 Wing Fittings

There are ten wing attachment points in total, five on each side of the aircraft located:

- at the forward upper truss tube
- aft upper truss tube
- main spar pickup point
- fail safe link at the main spar
- forward spar.

The forward truss tube fitting is welded to the frame and can not be replaced in the field.

The aft upper truss tube fitting is welded into the forward truss tube. The fitting can not be replaced alone; the truss tube assembly must be replaced.

The aft upper truss tube must be removed to remove and install the wing assembly.

The main spar pickup is welded to the frame and cannot be replaced in the field without manufacturer instruction and approval.

53-40-11 Aft Upper Truss Tube Removal and Installation

Note: Unless wing is being removed, only one aft truss tube fitting is to be removed at a time.

Remove cabin trim as required to gain access to aft upper truss tube.

Remove aft bolt from the aft upper truss tube.

Remove forward bolt. Mark forward end of truss tube for reinstallation.

Raise aft end of tube high enough to clear the aft fitting and slide tube aft enough to clear the forward fitting.

To install aft truss tube reverse above steps. Ensure that end marked “forward” is installed forward. See Figure 53-40-01.

53-40-30 Engine Mount Fittings

There are four engine mount fittings located at the front of the forward fuselage steel frame. There are 6 additional fittings on 2C3 aircraft to accommodate nose gear structure. Engine mount fittings cannot be replaced in the field without manufacturer instruction and approval.

53-40-40 Vertical Stabilizer Fittings

The vertical stabilizer is attached to the rear fuselage at formers #5 & #6. The vertical stabilizer may be replaced as a unit in the field.

53-40-41 Horizontal Stabilizer Fittings

The horizontal stabilizer is connected to hinge fittings which are secured to the aft fuselage at former #6. The horizontal stabilizer hinge fittings may be replaced in the field.

Removal

Remove the horizontal stabilizer. See Chapter 27-40.

Remove the five fasteners which attach the attachment brackets to the fuselage.

Remove stabilizer hinge fittings by sliding the hinge fittings forward to clear former #6.

To install horizontal stabilizer fittings, inspect the fittings and fasteners for general condition and corrosion, replace as required, and install in reverse order. Carry out operational and functional check on horizontal stabilizer, trim system and elevators.

53-40-50 Seat Track Fittings

The forward and aft seat tracks are secured to fittings and attachments, which are integral parts of the welded fuselage. Seat track fittings and attachments cannot be replaced in the field without manufacturer instruction and approval.

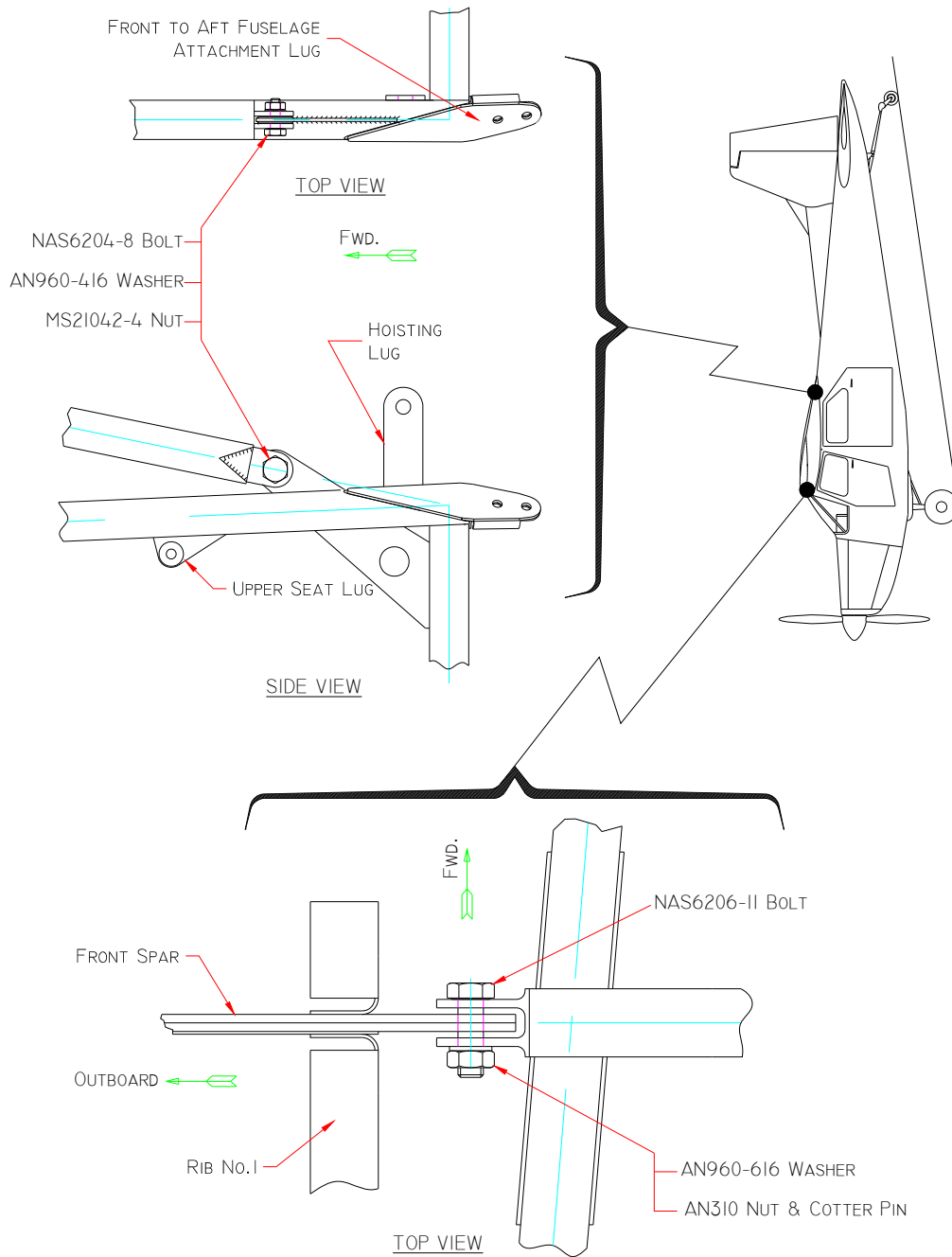


Figure 53-40-01: Wing Installation 1

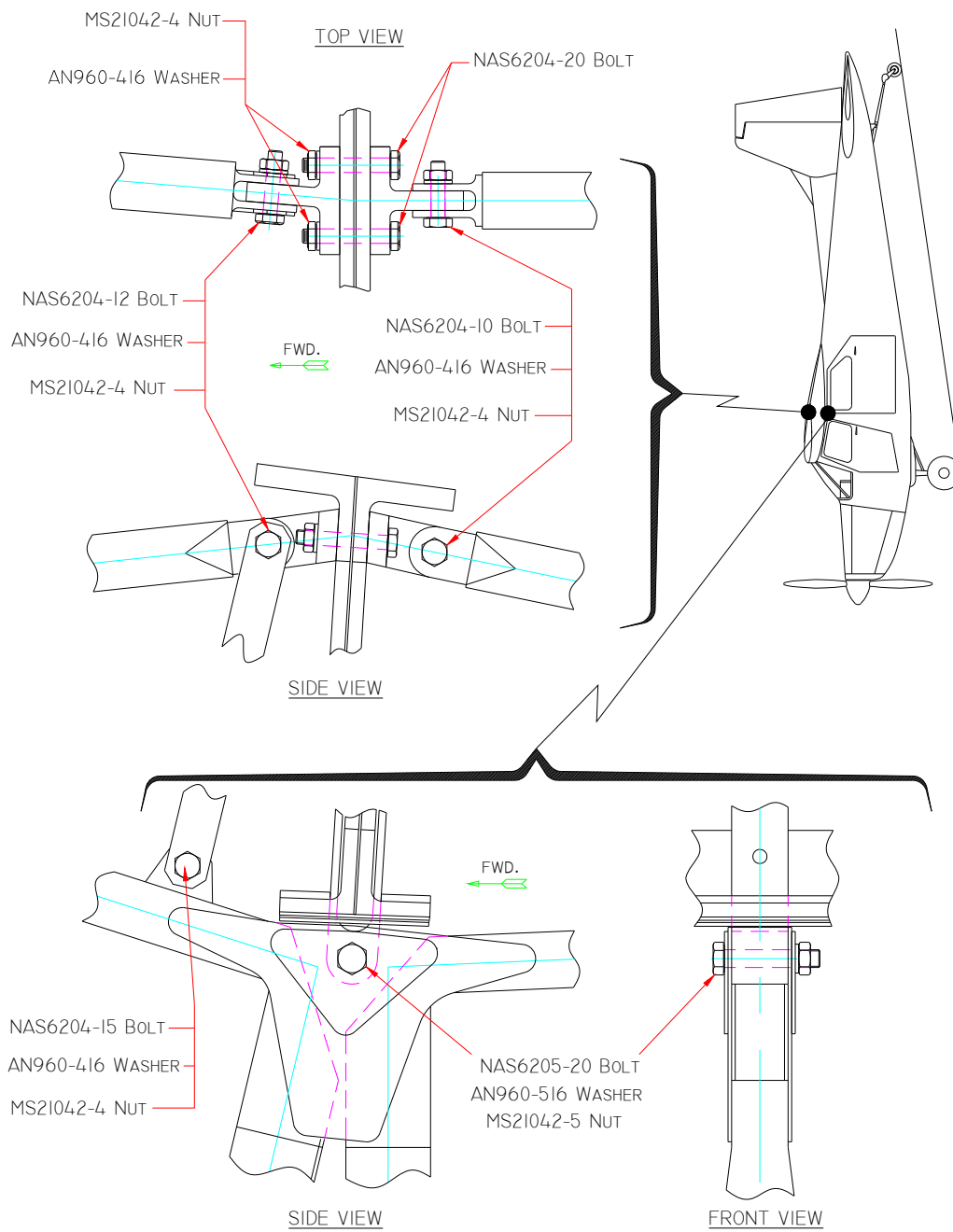


Figure 53-40-02: Wing Installation 2