

## WING STRUCTURE

### 1. DESCRIPTION

The wing is constructed in a conventional spar, rib, and shear section arrangement. The upper and lower skins are bonded to the spar, ribs, and aft shear web forming a torsion box that carries all of the wing bending and torsion loads. The rear shear webs are similar in construction but do not carry through the fuselage.

The wing spar is manufactured in one piece and is continuous from wing tip to wing tip. The wing spar passes under the fuselage below the two front seats and is attached to the fuselage in two locations. Lift and landing loads are carried by the single carry-through spar, plus a pair of rear shear webs (one on each wing) attached to the fuselage. The wing spar is laminated epoxy/glass fiber (*Serials 0002 thru 2437*) or laminated epoxy/carbon fiber (*Serials 2438 & subs*) in a C-section, with a belly closeout panel bonded (*Serials 0002 thru 0820*) or bolted (*Serials 0821 & subs*) onto the fuselage structure after wing attachment.

## 2. MAINTENANCE PRACTICES

### A. Wing Assembly

- (1) Removal - Wing Assembly
  - (a) Switch BAT 1, BAT 2, and AVIONICS master switches to OFF position.
  - (b) Pull all circuit breakers.
  - (c) Ensure parking brake is in OFF position and wheels are blocked.
  - (d) Remove engine cowling. (Refer to 71-10)
  - (e) Disconnect battery 1. (Refer to 24-30)
  - (f) Set fuel selector valve to OFF position.
  - (g) De-fuel airplane. (Refer to 12-10)
  - (h) Remove ailerons. (Refer to 57-50)
  - (i) Remove flaps. (Refer to 57-50)
  - (j) Perform Inspection/Check - Tip-to-Tip Measurement. Retain obtained values for comparison following reassembly. (Refer to 57-10)
  - (k) Perform Inspection/Check - Wing Angle of Incidence and Decalage Measurement. Retain obtained values for comparison following reassembly. (Refer to 57-10)
  - (l) Remove main gear fairings. (Refer to 32-10)
  - (m) Remove nose gear fairing. (Refer to 32-20)

**CAUTION:** Ensure hands are clean while working with interior components.

- (n) Remove crew and passenger seats. (Refer to 25-10)
- (o) Remove cabin floor covering. (Refer to 25-10)
- (p) Remove access panels CF2L, CF2R, CF3R, CF3C, CF3L, and CF5. (Refer to 06-00)
- (q) Remove screws securing circuit breaker panel closed.
- (r) *Serials 0142 thru 0820 w/ Century HSI:* Disconnect HSI gyro slaving amplifier. (Refer to 34-50)
  - 1 Disconnect HSI gyro slaving amplifier wire from gyro slaving amplifier mounted to access panel CF2R.
  - 2 Stow HSI gyro slaving amplifier wire forward.
- (s) Remove kick plates. (Refer to 25-10)
- (t) Remove cabin trim panels from spar tunnel forward. (Refer to 25-10)
- (u) Drain brake hydraulic fluids. (Refer to 12-10)
- (v) *Serials 0334 & subs w/ Ice Protection System:* Drain Ice Protection System. (Refer to 12-10)
- (w) Remove wing root fairings. (Refer to 53-50)
- (x) Disassemble aileron connections. (Refer to 27-10)
  - 1 At access hole CF4C, disconnect aft aileron cable turnbuckle.
  - 2 At access hole CF4C, remove cotter pin, washer, and cable retainer clevis pin from LH and RH kickout pulley assembly and remove cable from pulley.

**Note:** *Serials 0002 thru 2437:* To facilitate re-installation, mark location of interconnect bungee clamps on RH aileron cable.

  - 3 *Serials 0002 thru 2437:* At access hole CF3C, disconnect rudder/aileron interconnect bungee from RH aileron cable at forward and aft locations. (Refer to 27-20)
  - 4 At access hole CF3C, disconnect forward LH and RH aileron turnbuckles.
  - 5 Stow disconnected cables to wing and forward of wing spar tunnel.
- (y) Disassemble rudder connections. (Refer to 27-20)

- 1 At access hole CF5, disconnect LH and RH rudder cable turnbuckles.

**Note:** *Serials 0002 thru 2437:* To facilitate re-installation, mark location of interconnect bungee clamps on RH rudder cable.

- 2 *Serials 0002 thru 2437:* At access hole CF3C, disconnect rudder/aileron interconnect bungee from RH rudder cable. (Refer to 27-20)
- 3 Stow disconnected cables aft and forward of wing spar tunnel.
- (z) Disassemble elevator connections. (Refer to 27-30) (Refer to 27-30)
  - 1 At access hole CF5, disconnect LH and RH elevator cable turnbuckles.
  - 2 Stow disconnected cables aft and forward of wing spar tunnel.
- (aa) Remove flap torque tubes. (Refer to 27-50)
  - 1 At access hole CF4C, remove bolt, washers, spacer, and nut securing torque tubes to torque tube coupler.
  - 2 At wing root, remove bolt, washers, spacer, and nut securing thrust collar and torque tube end fitting to torque tube. Repeat on opposite side.
  - 3 Remove LH and RH torque tubes.
- (ab) *Serials 0002 thru 2437:* Disconnect aft fuselage wiring harness.

**CAUTION:** Label all wires and pins before disconnecting to facilitate re-installation.

- 1 At access hole CF2R, disconnect J666, J667, and J697.
- 2 At access hole CF2R, locate ground wire PG650-12N terminal ring and remove attaching hardware.
- 3 *Serials 0002 thru 0820:* At access holes CF2R and CF3R, use a mirror to locate and remove adel clamps and cable ties securing aft fuselage wiring harness forward and aft of the wing spar tunnel.
- 4 Stow disconnected wires forward and aft of the wing spar tunnel.
- (ac) *Serials 2438 & subs:* Disconnect aft fuselage wiring harness.

**CAUTION:** Label all wires and pins before disconnecting to facilitate re-installation.

- 1 At access hole CF3R, disconnect J666, J667, and J1049.
- 2 At access hole CF3R, locate ground wire PG650-12N terminal ring and remove attaching hardware.
- 3 Stow disconnected wires forward and aft of the wing spar tunnel.
- (ad) *Serials 0435 thru 0820 w/ PFD:* Disconnect magnetometer cable.
  - 1 At access hole CF3R, disconnect jack J729 for magnetometer cabling and remove cable ties.
  - 2 De-pin plug P729 to enable magnetometer cabling to pass forward through spar tunnel bulkhead connector.
  - 3 De-pin jack J729 to enable magnetometer cabling to pass aft through fuselage bulkhead connector.
  - 4 Stow disconnected wires forward of the wing spar tunnel and at wing.
- (ae) *Serials 0821 & subs:* Disconnect magnetometer cable.
  - 1 At access hole CF3R, disconnect jack J729 for magnetometer cabling and remove cable ties.
  - 2 Route plug P729 on magnetometer cabling forward of wing spar tunnel.
  - 3 Remove backshell from jack J729 to enable magnetometer cabling to pass aft through fuselage bulkhead connector.
  - 4 Stow disconnected wires forward of the wing spar tunnel and at wing.

- (af) *Serials 1602, 1840, 1863 & subs w/ Air Conditioning:* Disconnect wiring harness W930.
  - 1 At access hole CF3R, disconnect plug P1005 for condenser cabling and remove cable ties.
  - 2 Remove backshell from plug P1005 to enable condenser cabling to pass forward through spar tunnel bulkhead connector.
  - 3 Stow disconnected wires forward and aft of the wing spar tunnel.
- (ag) *Serials 0334 thru 2437 w/ Ice Protection System:* Disconnect wiring harness W891 or W893.

**CAUTION:** Label all wires and pins before disconnecting to facilitate re-installation.

- 1 At access hole CF2R, disconnect jack J707 for pump wiring and remove cable ties.
  - 2 At access hole CF2R, de-pin plug J707 to enable pump wiring to pass through spar tunnel bulkhead connector.
  - 3 Stow disconnected wires aft and forward of the wing spar tunnel.
- (ah) *Serials 2438 & subs w/ Ice Protection System:* Disconnect wiring harness W894.

**CAUTION:** Label all wires and pins before disconnecting to facilitate re-installation.

- 1 At access hole CF3R, disconnect jack J707 for pump wiring and remove cable ties.
  - 2 Stow disconnected wires aft and forward of the wing spar tunnel.
- (ai) *Serials 0002 thru 2437:* Disconnect wiring harnesses W301 and W401.

**CAUTION:** Label all wires and pins before disconnecting to facilitate re-installation.

- 1 At access hole CF4L, disconnect J300 from connector on LH longeron and remove cable ties.
  - 2 At access hole CF4R, disconnect J400 from connector on RH longeron and remove cable ties.
  - 3 De-pin J300 and J400 to enable wires to pass through fuselage bulkhead connector.
  - 4 Stow disconnected wires at each wing and forward of the wing spar tunnel.
- (aj) *Serials 2438 & subs:* Disconnect wiring harnesses W320 and W420.

**CAUTION:** Label all wires and pins before disconnecting to facilitate re-installation.

- 1 At access hole CF2L, disconnect J300 from connector and remove cable ties.
  - 2 At access hole CF2R, disconnect J400 from connector and remove cable ties.
  - 3 De-pin J300 and J400 to enable wires to pass through fuselage bulkhead connector.
  - 4 Stow disconnected wires at each wing and forward of the wing spar tunnel.
- (ak) *Serials 0002 & subs w/ Stormscope System:* Disconnect wiring harness W800, W801 or W802.

**Note:** Depending on airplane effectivity, the Stormscope wire harness may be labeled W800 or W801 or W802.

- 1 At access hole CF2R, disconnect J668 and remove cable ties.
- 2 *Serials 0435 thru 0820 w/o PFD:* At access hole CF2R, disconnect J557 and remove cable ties.
- 3 *Serials 0435 thru 0820 w/o PFD:* At access hole CF2R, disconnect P698 and remove cable ties.
- 4 Stow disconnected wires aft and forward of the wing spar tunnel.

- (al) Disassemble Pitot-Static System. [\(Refer to 34-10\)](#)
  - 1 Remove fittings on pitot-static lines to enable lines to pass through fuselage grommet.
  - 2 At access hole CF3L, disconnect Pitot-Static System lines.
  - 3 Stow pitot line aft of wing spar tunnel and to wing.
  - 4 Stow static line aft of wing spar tunnel.
- (am) *Serials 0002 thru 2437*: Disconnect ELT remote control panel indicator connection.
  - 1 On circuit breaker panel, disconnect ELT remote control panel indicator connector and grounding terminal ring. [\(Refer to 25-60\)](#)
  - 2 Remove cable ties and stow ELT remote control panel indicator cable aft of wing spar tunnel.
- (an) *Serials 0002 thru 2437*: Disconnect battery 2.
  - 1 On circuit breaker panel, disconnect battery 2 power cable. [\(Refer to 24-30\)](#)
  - 2 On RH side of forward longerons, disconnect battery 2 ground wire from P602 connector secured to firewall. [\(Refer to 24-30\)](#)
  - 3 Remove cable ties and stow battery 2 power cable and ground wire aft of wing spar tunnel.
- (ao) *Serials 2438 & subs*: Disconnect battery 2.
  - 1 At access panel CF3R, disconnect jack J847 for battery 2 and remove cable ties.
  - 2 At access panel CF3R, de-pin jack J847 to enable battery 2 wiring to pass through spar tunnel bulkhead connector.
  - 3 Stow disconnected wires aft and forward of the wing spar tunnel.
- (ap) *Serials 0002 thru 2437*: Disconnect marker beacon antenna.
  - 1 Below radio rack, disconnect marker beacon antenna cable. [\(Refer to 34-30\)](#)
  - 2 Remove cable ties and stow marker beacon antenna cable aft of wing spar tunnel.
- (aq) *Serials 0002 thru 2437*: Disconnect COM2 antenna.
  - 1 At access panel CF5, disconnect COM 2 antenna cable from COM 2 antenna. [\(Refer to 34-50\)](#)
  - 2 Remove cable ties and stow COM 2 antenna cable forward of wing spar tunnel.
- (ar) *Serials 0002 thru 2437*: Disconnect VOR/LOC antenna.
  - Note:** Ensure VOR/LOC antenna cable is retained above tail when removing antenna.
  - 1 Remove VOR/LOC antenna. [\(Refer to 34-50\)](#)
  - 2 Tie string to VOR/LOC antenna cable and route down tail. Tie upper end of string to upper tail. Untie string at RH empennage access panel and stow in area to facilitate re-installation of antenna cable.
  - 3 Remove cable ties and stow VOR/LOC antenna cable forward of wing spar tunnel.
- (as) Center-aft of main wing spar, disconnect fuel supply and return lines. [\(Refer to 28-20\)](#)
- (at) Disassemble Stall Warning System connections. [\(Refer to 27-31\)](#)
  - 1 At access hole CF2R, disconnect stall warning line to wing.
  - 2 Remove fitting on stall warning line to enable line to pass through fuselage bulkhead connector.
  - 3 Remove cable ties and stow stall warning line into the wing.
- (au) *Serials 0334 thru 2437 w/ Ice Protection System*: Disassemble Ice Protection System connections. [\(Refer to 30-05\)](#)
  - 1 At access holes CF2L and CF2R, disconnect LH and RH supply lines from tee to wing.

- 2 Remove fittings on the LH and RH Ice Protection System lines to enable lines to pass through fuselage bulkhead connectors.
  - 3 At access hole CF2L, disconnect line running aft, to metering pump, from tee.
  - 4 Remove cable ties and stow disconnected lines into wings and aft of the wing spar tunnel.
- (av) *Serials 2438 & subs w/ Ice Protection System:* Disassemble Ice Protection System connections. (Refer to 30-05)
- 1 At access hole CF2L, disconnect lines from proportioning unit running to RH and LH wing porous panels.
  - 2 At access hole CF2L, disconnect line from proportioning unit running aft to metering pump.
  - 3 At wing access panel LW2, disconnect lines from fluid tank and fluid tank strainer.
  - 4 Remove cable ties and stow disconnected lines into wings and aft of the wing spar tunnel.
- (aw) *Serials 0002 thru 2437:* Disconnect environmental ducts. (Refer to 21-20)
- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Putty Knife	-	Any Source	Prying
Utility Knife	-	Any Source	Cutting

- 2 *Serials 0002 thru 1601, 1603 thru 1820, 1822 thru 1839, 1841 thru 1862:* Adjacent to CF2L and CF2R access holes, pry and remove adhesive securing environmental duct to fresh air inlet tee on LH and RH fuselage wall.
  - 3 *Serials 0002 thru 1601, 1603 thru 1820, 1822 thru 1839, 1841 thru 1862:* Disconnect environmental ducts from fresh air inlet tee(s).
  - 4 *Serials 1602, 1821, 1840, 1863 & subs:* Adjacent to CF2R access hole, pry and remove adhesive securing environmental duct to RH fuselage wall.
- (ax) *Serials 0142 thru 0820 w/ Sandel HSI:* Disconnect HSI remote gyro. (Refer to 34-50)
- 1 At access hole CF3R, disconnect P548 connector from HSI remote gyro.
  - 2 At access hole CF3R, de-pin P548 connector.
  - 3 Stow W642 forward and to wing.
- (ay) *Serials 0002 thru 0820:* Remove belly closeout panel. (See Figure 57-101)
- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Chalk Snap Line	-	Any Source	Locate Cut Lines
Die Grinder	-	Any Source	Cutting
Metal Cut-Off Wheel and Arbor	2.0 inches (5.1 cm)	Any Source	Cutting
Magnet	-	Any Source	Locate Hardware
Blunt-Edged Chisel	-	Any Source	Cutting
Sandpaper	400-grit	Any Source	Abrasion

- 2 From beneath the airplane looking up through the gap between LH wing root and fuselage, determine where the forward and aft plane of the wing spar intersects with the belly closeout panel and mark. Repeat on RH side.
- 3 To prevent possible damage to main spar, offset forward mark 0.25 inch (0.64 cm) forward, and aft cut line 0.25 inch (0.64 cm) aft.
- 4 At offset marks, use chalk snap line to locate cut lines across width of belly closeout panel.

**CAUTION:** Ensure all cabling, wires, and tubes routed through wing spar are removed before cutting into belly closeout panel.

Damage to the main spar may render the wing unusable. Do not cut into the wing spar, wing spar tunnel, or bonding flanges.

If spar is damaged, contact Cirrus Design Customer Service for disposition.

- 5 Using die grinder, cut belly closeout panel at marked lines.

**Note:** If screws are embedded in adhesive, it may be necessary to cut screws and drill them out.

- 6 Use magnet to locate mounting hardware and chisel to expose screw heads.
- 7 At determined screw head locations, sand paint and bodywork off.
- 8 Remove hardware fastening belly closeout panel to fuselage.

**CAUTION:** Do not damage underlying laminate.

- 9 Using chisel, remove remaining portion of belly closeout panel from fuselage.

(az) *Serials 0821 & subs:* Remove belly closeout panel. (See Figure 57-101)

- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Blunt-Edged Chisel	-	Any Source	Cutting
Die Grinder	-	Any Source	Cutting
Metal Cut-Off Wheel and Arbor	2.0 inches (5.1 cm)	Any Source	Cutting
Sandpaper	80-grit	Any Source	Abrasion

**Note:** The two middle mounting screws on the forward and aft sides of belly closeout panel are covered by a strip of expanded metal mesh (EMM) for lightning protection. The screw heads must be located and exposed prior to belly closeout panel removal.

- 2 At forward and aft belly closeout panel seam, sand at seam along row of installation screws to locate adjacent screws covered by EMM.
- 3 Mark cut lines on EMM where EMM overlaps the space between belly closeout panel and fuselage.

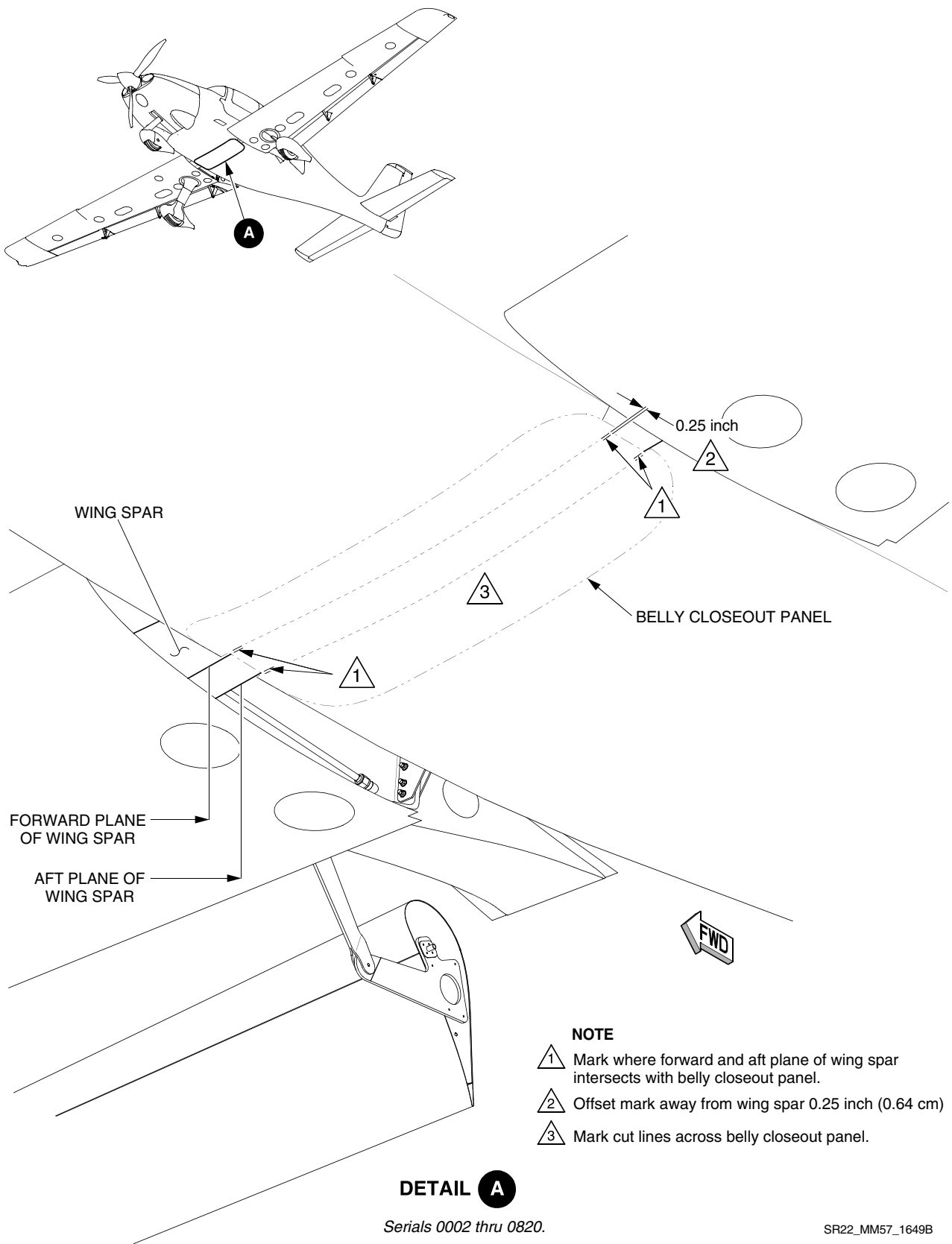
**CAUTION:** Ensure all cabling, wires, and tubes routed through wing spar are removed before cutting through EMM.

Damage to the main spar may render the wing unusable. Do not cut into the wing spar, wing spar tunnel, or bonding flanges.

If spar is damaged, contact Cirrus Design Customer Service for disposition.

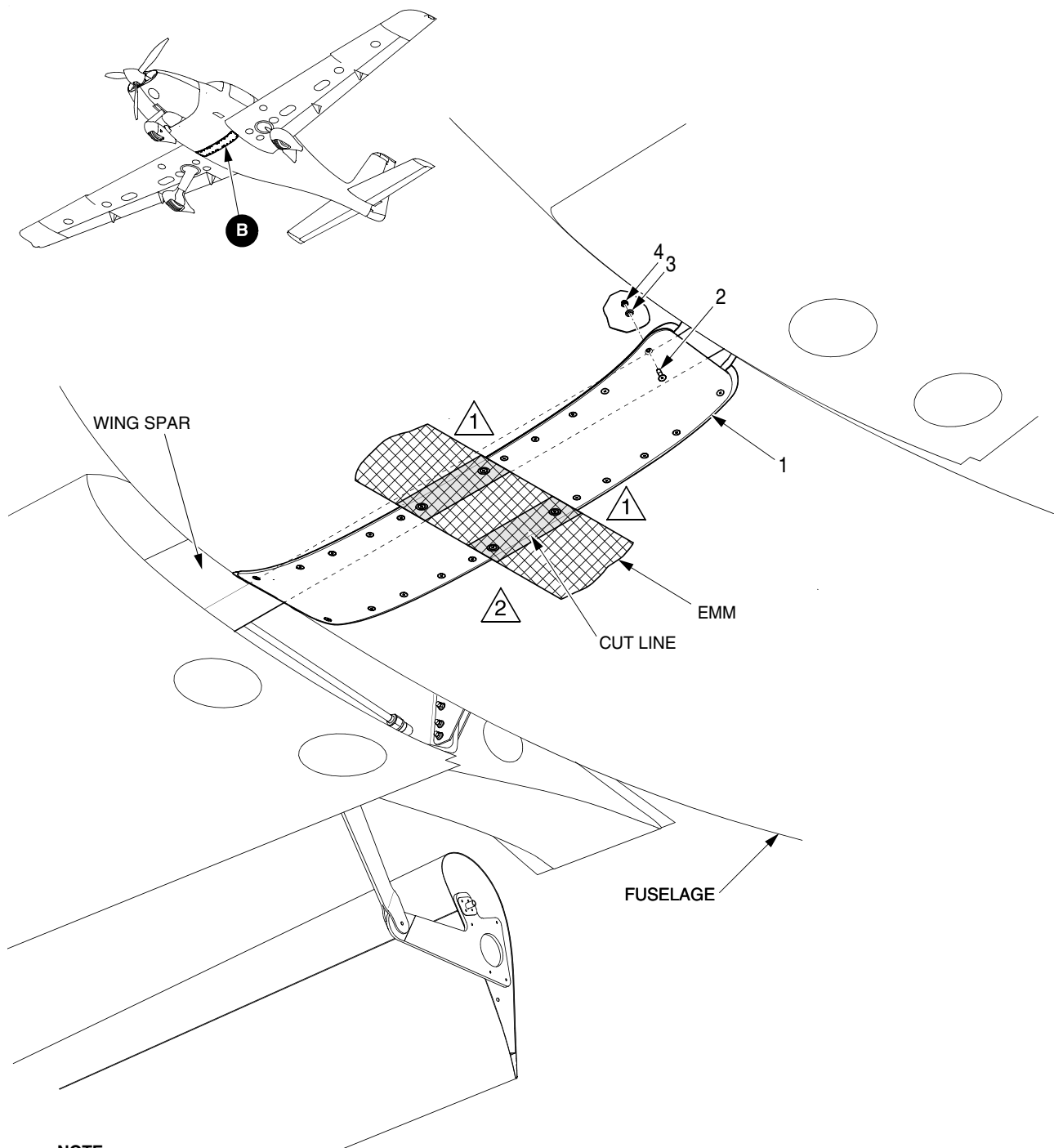
- 4 Using die grinder, carefully cut through EMM at marked lines.
- 5 Remove screws, washers, and nuts securing belly closeout panel to fuselage.





**Figure 57-101**  
**Belly Closeout Panel Removal - Serials 0002 thru 0820 (Sheet 1 of 2)**

**EFFECTIVITY:**  
 Serials 0002 thru 0820



**NOTE**

- 1 Sand at belly closeout panel seam along row of installation screws to locate adjacent screws covered by EMM.
- 2 Mark cut lines where EMM overlaps space between belly closeout panel and fuselage.

**LEGEND**

- 1. Belly Closeout Panel
- 2. Screw
- 3. Washer
- 4. Nut

**DETAIL B**

SR22\_MM57\_1856A

**Figure 57-101**  
**Belly Closeout Panel Removal - Serials 0821 & subs (Sheet 2 of 2)**

(ba) Support wing and fuselage. (See Figure 57-102)

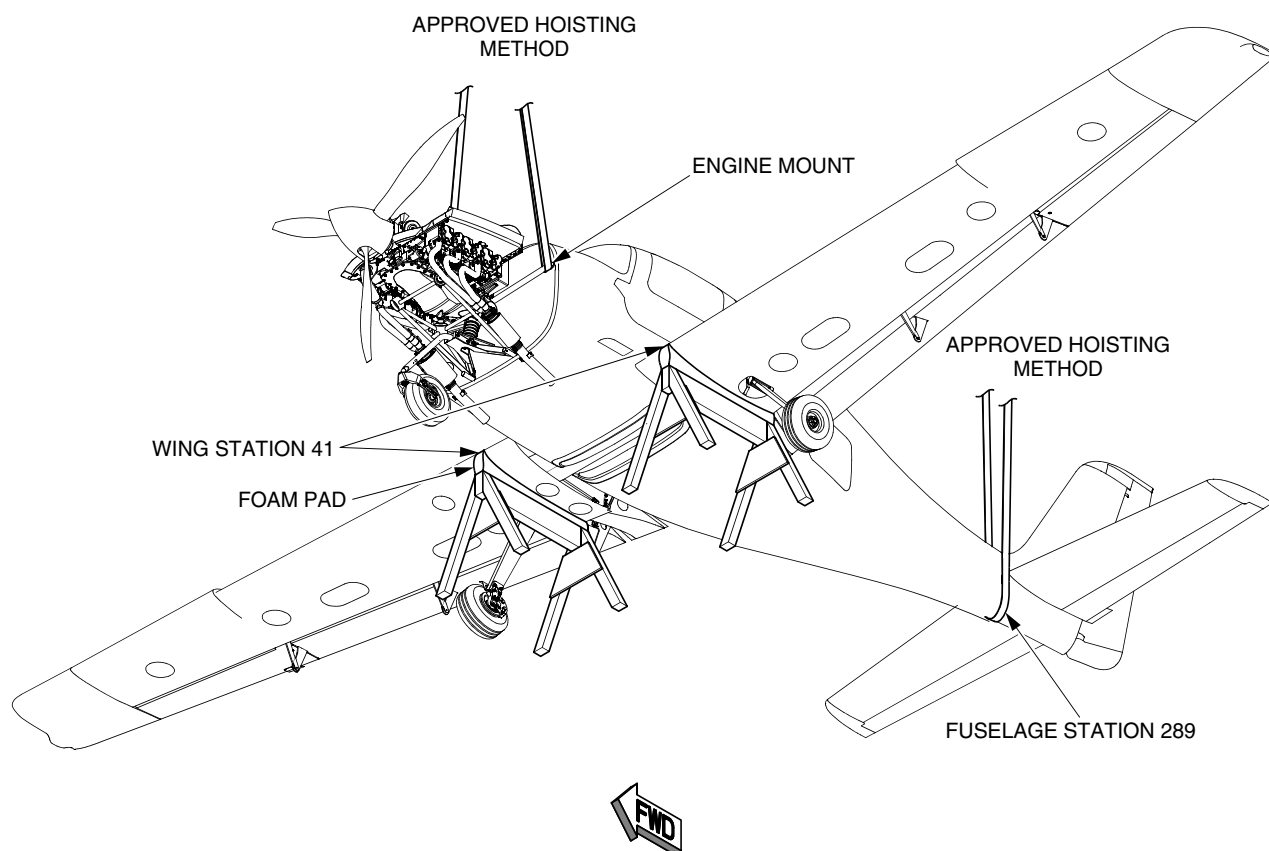
- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Saw Horses	-	Any Source	Support
High Density Foam Padding	-	Any Source	Protection

- 2 Prepare airplane for hoisting. (Refer to 07-20)

**CAUTION:** To assure stability and safety during hoisting operations, raise airplane slowly.

- 3 Raise airplane enough to place saw horses with foam padding at LH and RH wing support locations.



SR22\_MM57\_1648B

**Figure 57-102**  
**Fuselage Hoist and Wing Support Stands**

- (bb) Detach wing assembly. (See Figure 57-104)

**CAUTION:** Verify all components routed underneath wing main spar have been disconnected and removed.

- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Tailstand	300 pounds (136 kg) minimum weight	Any Source	Support
Fuselage Cradle	2000 pounds (907 kg) capacity	Any Source	Support
Casters	-	Any Source	Mobility
High Density Foam Padding	-	Any Source	Protection

- 2 *Serials 0002 thru 1601, 1603 thru 1820, 1822 thru 1839, 1841 thru 1862 w/ SKY-WATCH:* Remove SKYWATCH cover panel. (Refer to 34-40)
- 3 *Serials 1863 & subs w/o Fan:* Remove bolts and washers securing vent assembly cover to fuselage. (Refer to 21-20)
- 4 *Serials 1821, 1863 & subs w/ Fan:* Remove bolts and washers securing fan assembly cover and fan assembly to fuselage. Position fan assembly as required to permit access to attach fittings. (Refer to 21-20)
- 5 *Serials 1602, 1840, 1863 & subs w/ Air Conditioning:* Remove bolts and washers securing evaporator cover and evaporator to fuselage. Position evaporator as required to permit access to attach fittings. (Refer to 21-50)
- 6 At aft attach fittings, remove bolt, washers, nut, and cotter pin securing wing to fuselage.
- 7 At forward attach fittings, remove bolt, washers, spacer, and nut securing wing to fuselage. Discard bolt.

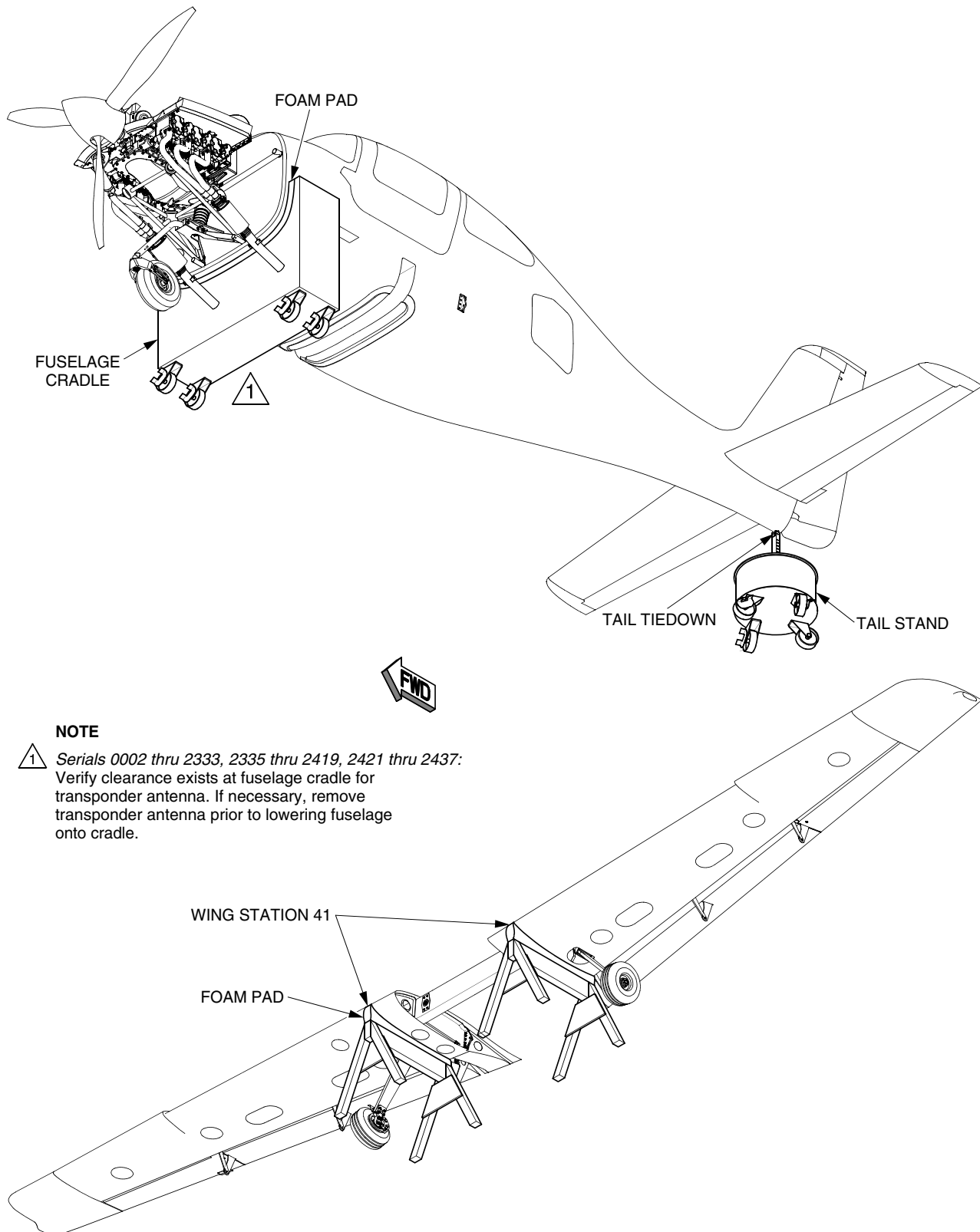
**CAUTION:** When raising fuselage, align wing and fuselage at bolt locations so as to take tension off bolts and facilitate the wing sliding off smoothly.

While separating wing from fuselage, observe and assist in routing of wiring and tubing between wing and fuselage.

- 8 Slowly raise hoist to detach fuselage from wing structure assembly. (See Figure 57-103)
- 9 Cover fuselage cradle with foam padding to protect the fuselage surface.

**CAUTION:** Verify clearance exists at fuselage cradle for transponder antenna prior to lowering fuselage onto cradle.

- 10 If necessary for fuselage cradle clearance, remove transponder antenna. (Refer to 34-50)
- 11 Lower fuselage onto fuselage cradle and tailstand.
- 12 Secure tailstand to aft tail tiedown. (Refer to 07-10)



SR22\_MM57\_1690A

**Figure 57-103**  
**Fuselage and Wing Separation**

## (2) Installation - Wing Assembly (See Figure 57-104)

**WARNING:** Installation of the wing assembly requires a test flight performed by a Cirrus Design certified test pilot. Contact Cirrus Design prior to performing maintenance to schedule test flight.

- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Wing Attach Guide Pins	T6859-1	Cirrus Design	Alignment
Bolts, Forward Wing Attach	MS20014-46 <i>alternate for</i> NAS6614D46	Any Source	Replacement

- (b) Position wing assembly under fuselage.

**CAUTION:** While lowering fuselage, verify clearance and route wiring and tubing from wing through fuselage bulkhead fittings. (See Figure 57-105)

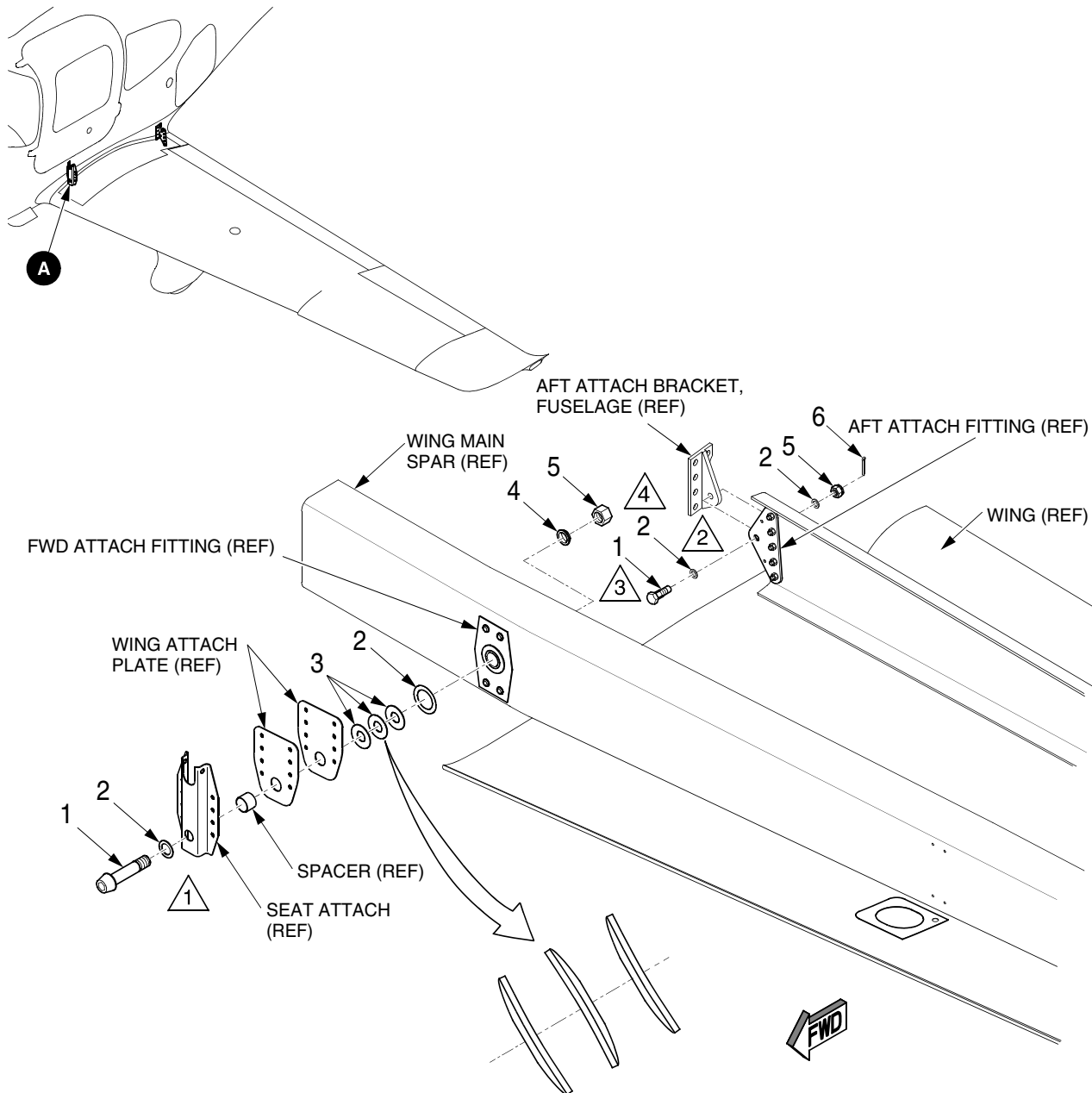
- (c) Lower fuselage onto wing assembly.  
 (d) Install wing attach guide pins at the forward wing attach location to facilitate alignment of wing and fuselage attach points.  
 (e) Secure forward wing attach hardware.

**CAUTION:** Ensure Belleville washers are installed in correct orientation. Position washer next to bolt head with beveled cut towards bolt head.

- 1 Remove wing attach guide pins.
  - 2 Install new bolts with existing washers, spacers, and nuts securing wing to fuselage.
  - 3 Tighten nut to 400 - 500 in-lb (45 - 56 Nm).
  - 4 Verify bolt shows at least one thread past end of nut when installed.
  - 5 *Serials 0002 thru 1601, 1603 thru 1820, 1822 thru 1839, 1841 thru 1862 w/ SKY-WATCH:* Install SKYWATCH cover panel. (Refer to 34-40)
  - 6 *Serials 1863 & subs w/o Fan:* Install bolts and washers securing vent assembly cover to fuselage. (Refer to 21-20)
  - 7 *Serials 1821, 1863 & subs w/ Fan:* Install bolts and washers securing fan assembly cover and fan assembly to fuselage. (Refer to 21-20)
  - 8 *Serials 1602, 1840, 1863 & subs w/ Air Conditioning:* Install bolts and washers securing evaporator cover and evaporator to fuselage. (Refer to 21-50)
- (f) Secure aft wing attach hardware.

**CAUTION:** Hard contact between aft wing attach fitting and bracket is not allowed on forward side of bracket. Do not compress aft wing attach fittings by over-tightening.

- 1 Install bolts, washers, and nuts securing wing to fuselage.
- 2 Tighten nut until snug then loosen nut enough to install new cotter pin.
- 3 Verify gap under bolt head or nut does not exceed 0.01 inch (0.25 mm).

**NOTE**

- ① Position washer with beveled cut towards bolt head.
- ② Hard contact between attach fitting and bracket not allowed on forward side of bracket. Do not compress attach fittings.
- ③ Verify gap under bolt head or nut does not exceed 0.01 inch (0.25 mm).
- ④ *Serials 0002 thru 0168:* Washer installation optional.  
*Serials 0169 & subs:* Washer installation required.

**LEGEND**

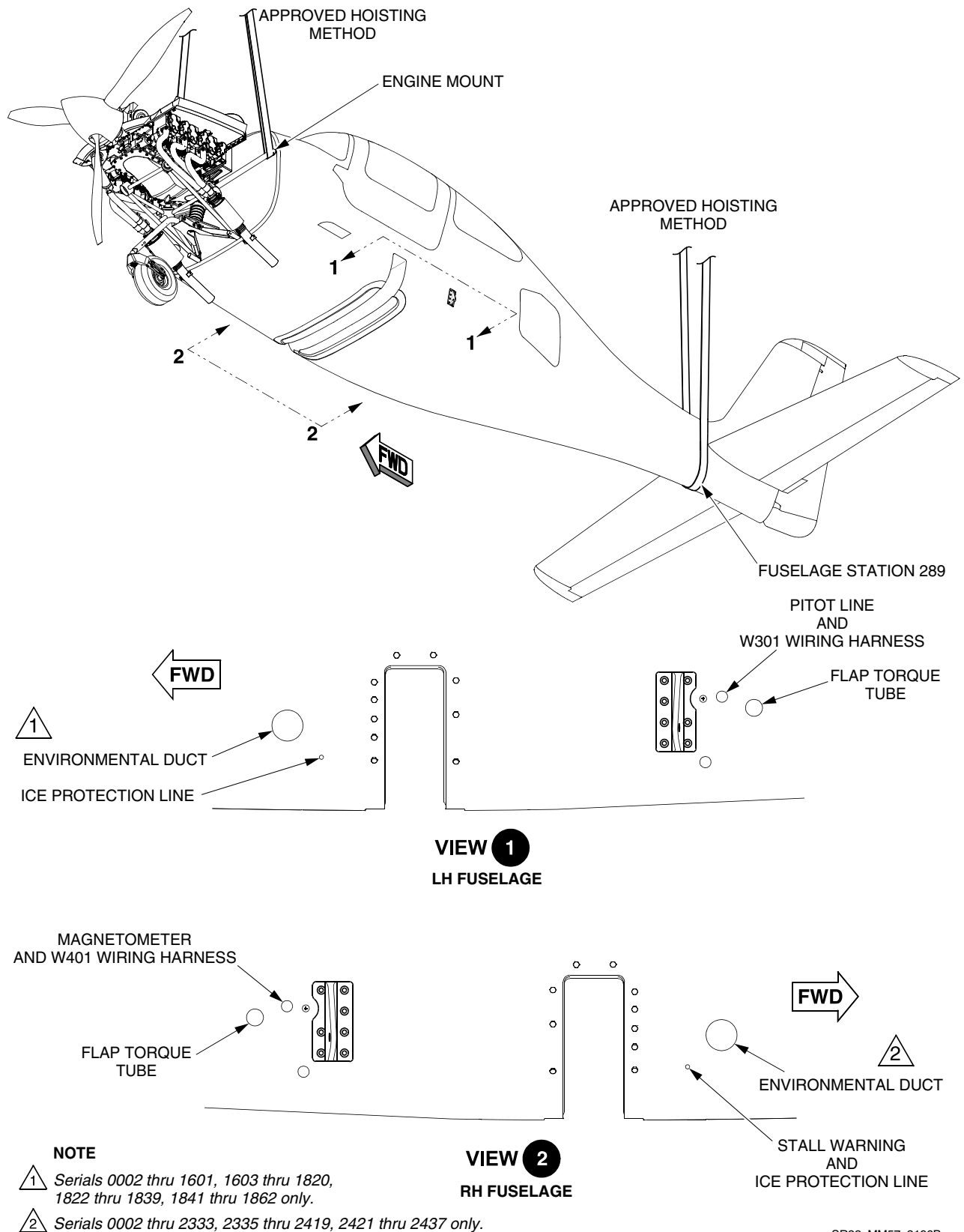
- 1. Bolt
- 2. Washer
- 3. Belleville Washer
- 4. Spacer
- 5. Nut
- 6. Cotter Pin

**DETAIL A**

SR22\_MM57\_1489D

**Figure 57-104  
Wing Attach**EFFECTIVITY:  
All





SR22\_MM57\_2196B

**Figure 57-105**  
**Fuselage to Wing Connectivity**

**EFFECTIVITY:**  
All

- (g) Remove wing supports and hoisting straps.
- (h) Perform Inspection/Check - Tip-to-Tip Measurement. Compare with values obtained previously. (Refer to 57-10)
- (i) Perform Inspection/Check - Wing Angle of Incidence and Decalage Measurement. Compare with values obtained previously. (Refer to 57-10)
- (j) *Serials 0142 thru 0820 w/ Sandel HSI:* Connect HSI remote gyro. (Refer to 34-50)
  - 1 Route W642 aft and from wing to access hole CF3R.
  - 2 At access hole CF3R, re-pin P548 connector and connect to HSI remote gyro.
- (k) *Serials 0002 thru 2437:* Connect environmental ducts. (Refer to 21-20)
  - 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Caulking Gun	-	Any Source	Application
Latex Caulk <i>alternative for</i> RTV Sealant	151-8273	Sherwin Williams Company Ashland, KY 41101 606-324-3179	Sealing
	736 RTV	Dow Corning Corporation Midlands, MI 48686 517-496-6000	

- 2 *Serials 0002 thru 1601, 1603 thru 1820, 1822 thru 1839, 1841 thru 1862:* Adjacent to CF2L and CF2R, connect environmental ducts to LH and RH fresh air inlet tee.
- 3 *Serials 1602, 1821, 1840, 1863 thru 2437:* Adjacent to CF2R, connect environmental duct to RH fuselage wall.
- 4 Secure ducts and tees to fuselage wall with latex caulk or RTV sealant.
- (l) *Serials 0334 thru 2437 w/ Ice Protection System:* Assemble Ice Protection System connections. (Refer to 30-05)
  - 1 Route LH and RH wing supply lines to access holes CF2L and CF2R.
  - 2 Route metering pump line to access hole CF2L.
  - 3 At access holes CF2L and CF2R, install fittings and connect LH and RH wing supply lines to tee.
  - 4 At access hole CF2L, install fitting and connect metering pump line to tee.
  - 5 Secure lines with cable ties as required.
- (m) *Serials 2438 & subs w/ Ice Protection System:* Assemble Ice Protection System connections. (Refer to 30-05)
  - 1 At access hole CF2L, connect lines from proportioning unit running to RH and LH wing porous panels.
  - 2 At access hole CF2L, connect line from proportioning unit running aft to metering pump.
  - 3 At wing access panel LW2, connect lines from fluid tank and fluid tank strainer.
  - 4 Remove cable ties and stow disconnected lines into wings and aft of the wing spar tunnel.
- (n) Assemble Stall Warning System connections. (Refer to 27-31)
  - 1 Route Stall Warning System line to access hole CF2R from right wing.
  - 2 At access hole CF2R, install fitting and connect wing stall warning line.
  - 3 Secure lines with cable ties as required.
- (o) Center-aft of main wing spar, connect fuel supply and return lines. (Refer to 28-20)

- (p) *Serials 0002 thru 2437:* Connect VOR/LOC antenna.
  - 1 Route VOR/LOC antenna cable aft of wing spar tunnel.
  - 2 Replace cable ties for line as required.
  - 3 Tie lower string end stowed in empennage to VOR/LOC antenna cable. Carefully pull upper string end to route VOR/LOC antenna cable up tail.
  - 4 Connect antenna cable to VOR/LOC antenna and discard string. Install VOR/LOC antenna. (Refer to 34-50)
- (q) *Serials 0002 thru 2437:* Connect COM2 antenna.
  - 1 Route COM 2 antenna cable aft of wing spar tunnel.
  - 2 Replace cable ties for line as required.
  - 3 At COM 2 antenna, connect COM 2 antenna connector. (Refer to 34-50)
- (r) *Serials 0002 thru 2437:* Connect marker beacon antenna.
  - 1 Route marker beacon antenna cable forward of wing spar tunnel.
  - 2 Replace cable ties for line as required.
  - 3 Below radio rack, connect marker beacon antenna cable. (Refer to 34-30)
- (s) *Serials 0002 thru 2437:* Connect battery 2.
  - 1 Route battery 2 cable forward of wing spar tunnel.
  - 2 Replace cable ties for lines as required.
  - 3 On circuit breaker panel, connect battery 2 power cable. (Refer to 24-30)
  - 4 On RH side of forward longerons, connect secondary battery ground wire to P602 connector secured to firewall. (Refer to 24-30)
- (t) *Serials 2438 & subs:* Connect battery 2.
  - 1 Route secondary battery power/ground forward of wing spar tunnel.
  - 2 Replace cable ties for lines as required.
  - 3 At access panel CF3R, re-pin jack J847 to enable battery 2 wiring to pass through spar tunnel bulkhead connector.
  - 4 At access panel CF3R, connect jack J847 for battery 2.
- (u) *Serials 0002 thru 2437:* Connect ELT remote control panel indicator connection.
  - 1 Route ELT remote control panel indicator cable forward of wing spar tunnel.
  - 2 On circuit breaker panel, connect ELT remote control panel indicator connector and grounding terminal ring. (Refer to 25-60)
  - 3 Replace cable ties for line as required.
- (v) Assemble Pitot-Static System. (Refer to 34-10)
  - 1 Route pitot line from left wing and forward to access hole CF3L.
  - 2 Route static line forward to access hole CF3L.
  - 3 At access hole CF3L, install fittings and connect Pitot-Static lines.
  - 4 Secure lines with cable ties as required.
- (w) *Serials 0002 & subs w/ Stormscope System:* Assemble wiring harness W800 or W801 or W802.
 

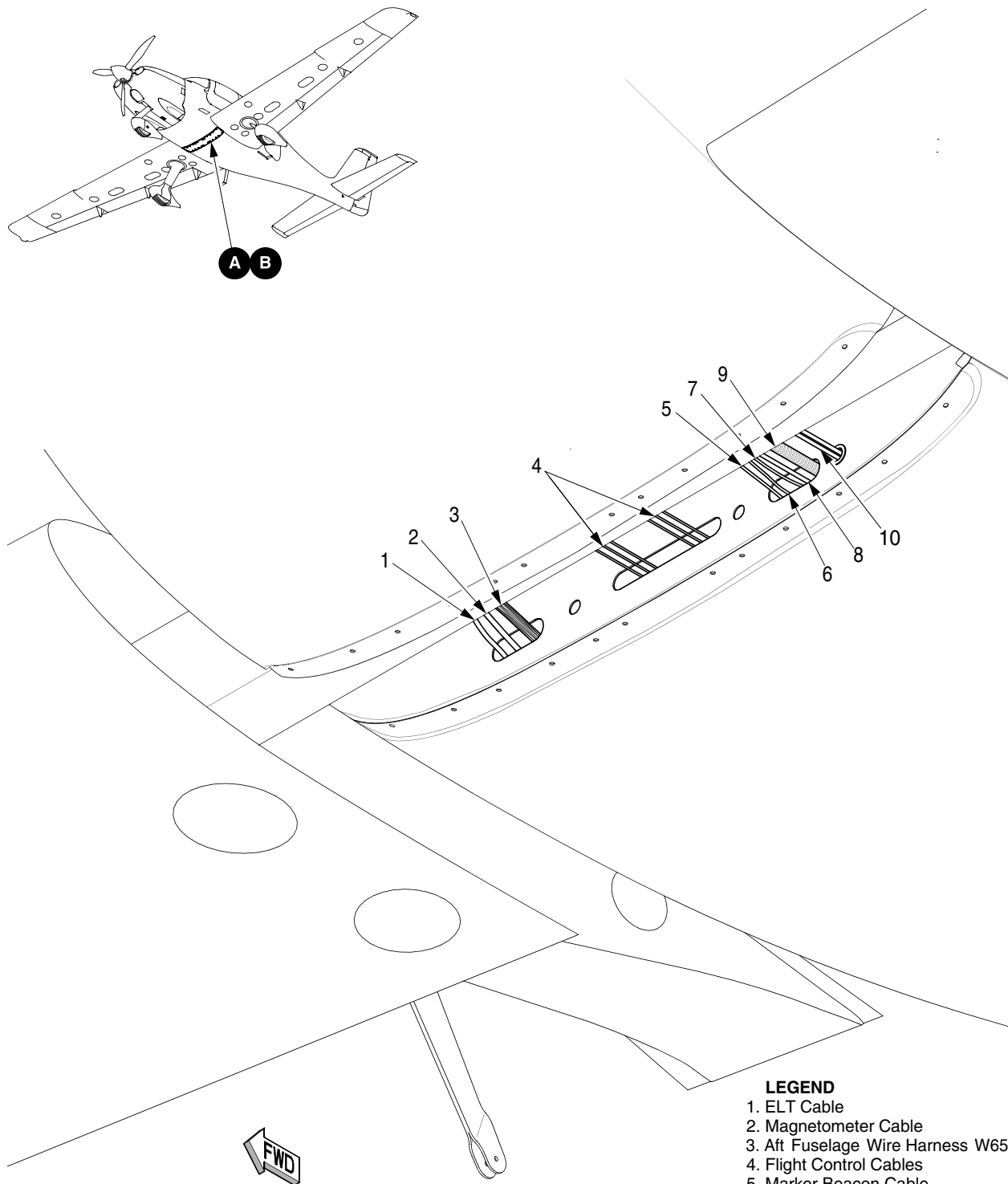
**Note:** Depending on airplane effectivity, the Stormscope wire harness may be labeled W800 or W801 or W802.

  - 1 Route W800, W801, or W802 wires to access hole CF2R.
  - 2 At access hole CF2R, connect J668.
  - 3 *Serials 0435 thru 0820 w/o PFD:* At access hole CF2R, connect J557 and P698.
  - 4 Secure wire harnesses with cable ties as required.
- (x) *Serials 0002 thru 2437:* Assemble wiring harnesses W301 and W401.
  - 1 Route W301 from wing to access hole CF4L.

- 2 Route W401 from wing to access hole CF4R.
  - 3 Re-pin J300 and J400.
  - 4 At access hole CF4L, connect J300 to connector on LH longeron.
  - 5 At access hole CF4R, connect J400 to connector on RH longeron.
  - 6 Secure wire harnesses with cable ties as required.
- (y) *Serials 2438 & subs:* Assemble wiring harnesses W320 and W420.
- 1 At access hole CF2L, connect J300 connector.
  - 2 At access hole CF2R, connect J400 connector.
  - 3 Secure wire harnesses with cable ties as required.
- (z) *Serials 0334 thru 2437 w/ Ice Protection System:* Assemble wiring harness W891 or W893, or W894.
- 1 Route W891 or W893 through spar tunnel bulkhead connector to access hole CF2R.
  - 2 At access hole CF2R, re-pin J707.
  - 3 At access hole CF2R, connect plug J707 to P707.
  - 4 Secure wire harnesses with cable ties as required.
- (aa) *Serials 2438 & subs w/ Ice Protection System:* Assemble wiring harness W894.
- 1 Route W894 through spar tunnel bulkhead connector to access hole CF2R.
  - 2 At access hole CF3R, connect jack J707 to P707.
  - 3 Secure wire harnesses with cable ties as required.
- (ab) *Serials 1602, 1840, 1863 & subs w/ Air Conditioning:* Connect wiring harness W930.
- 1 Route condenser cabling forward to access hole CF3R.
  - 2 Assemble P1005 connector.
  - 3 At access hole CF3R, connect plug P1005 for condenser cabling.
  - 4 Secure wire harnesses with cable ties as required.
- (ac) *Serials 0435 thru 0820 w/ PFD:* Assemble magnetometer cable.
- 1 Route magnetometer cables to access hole CF3R.
  - 2 At access hole CF3R, re-pin J729 and P729.
  - 3 Connect J729 to P729.
- (ad) *Serials 0821 & subs:* Assemble magnetometer cable.
- 1 Route magnetometer cables to access hole CF3R.
  - 2 At access hole CF3R, install backshell onto J729.
  - 3 Connect J729 to P729.
- (ae) *Serials 0002 thru 2437:* Assemble aft fuselage wiring harness.
- 1 Route aft fuselage wiring harness to access hole CF2R.
  - 2 At access hole CF2R, secure ground wire PG650-12N terminal ring with attaching hardware and cover with heatshrink material.
  - 3 At access hole CF2R, connect J666, J667, and J697.
- CAUTION:** Only secure wiring bundles with adel clamps. Ensure control cables for rudder, elevator, and aileron are not secured by adel clamps.
- 4 *Serials 0002 thru 0820:* Install adel clamps and cable ties securing aft fuselage wiring harness forward and aft of the wing spar tunnel.
- (af) *Serials 2438 & subs:* Assemble aft fuselage wiring harness.
- 1 Route aft fuselage wiring harness to access hole CF3R.
  - 2 At access hole CF3R, secure ground wire PG650-12N terminal ring with attaching hardware and cover with heatshrink material.
  - 3 At access hole CF3R, connect J666, J667, and J1049.

EFFECTIVITY:  
All

- 4 Only secure wiring bundles with adel clamps. Ensure control cables for rudder, elevator, and aileron are not secured by adel clamps.
- (ag) Assemble flap torque tubes. (Refer to 57-50)
- 1 Install LH and RH torque tubes.
  - 2 At wing root, position thrust collar and torque tube end fitting to torque tube and secure with bolt, washers, spacer, and nut. Repeat on opposite side
  - 3 At access hole CF4C, torque tubes to torque tube coupler and secure with bolt, washers, spacer, and nut.
- (ah) Install flaps. (Refer to 57-50)
- (ai) Assemble aileron connections. (Refer to 27-10)
- 1 Route disconnected cables stowed from wing to access hole CF3C.
  - 2 At access hole CF3C, connect LH and RH aileron cable turnbuckles.
  - 3 Route disconnected cables stowed in aft area to access hole CF4C.
  - 4 At access hole CF4C, connect aft aileron cable turnbuckle.
  - 5 *Serials 0002 thru 2437:* At access hole CF3C, connect rudder/aileron interconnect bungee to RH aileron cable at forward and aft locations. (Refer to 27-20)
  - 6 At access hole CF4C, install cable retainer pins, washers, and cotter pins to LH and RH kickout pulley assemblies.
- (aj) Install ailerons. (Refer to 57-50)
- (ak) Assemble elevator connections. (Refer to 27-30), (Refer to 27-30)
- 1 Route disconnected cables to access hole CF5.
  - 2 Connect LH and RH elevator cables turnbuckles.
- (al) Assemble rudder connections. (Refer to 27-20)
- 1 Route disconnected cables to access hole CF5.
  - 2 At access hole CF5, connect LH and RH elevator cable turnbuckles.
  - 3 *Serials 0002 thru 2437:* At access hole CF3C, connect rudder/aileron interconnect bungee to RH rudder cable. (Refer to 27-20)
- (am) Inspect fuel system for leaks. (Refer to 28-10)
- (an) Bleed brake system. (Refer to 32-42)
- (ao) Verify correct orientation of wiring harnesses, tubing, and flight control cables from belly closeout panel opening. (See Figure 57-106)



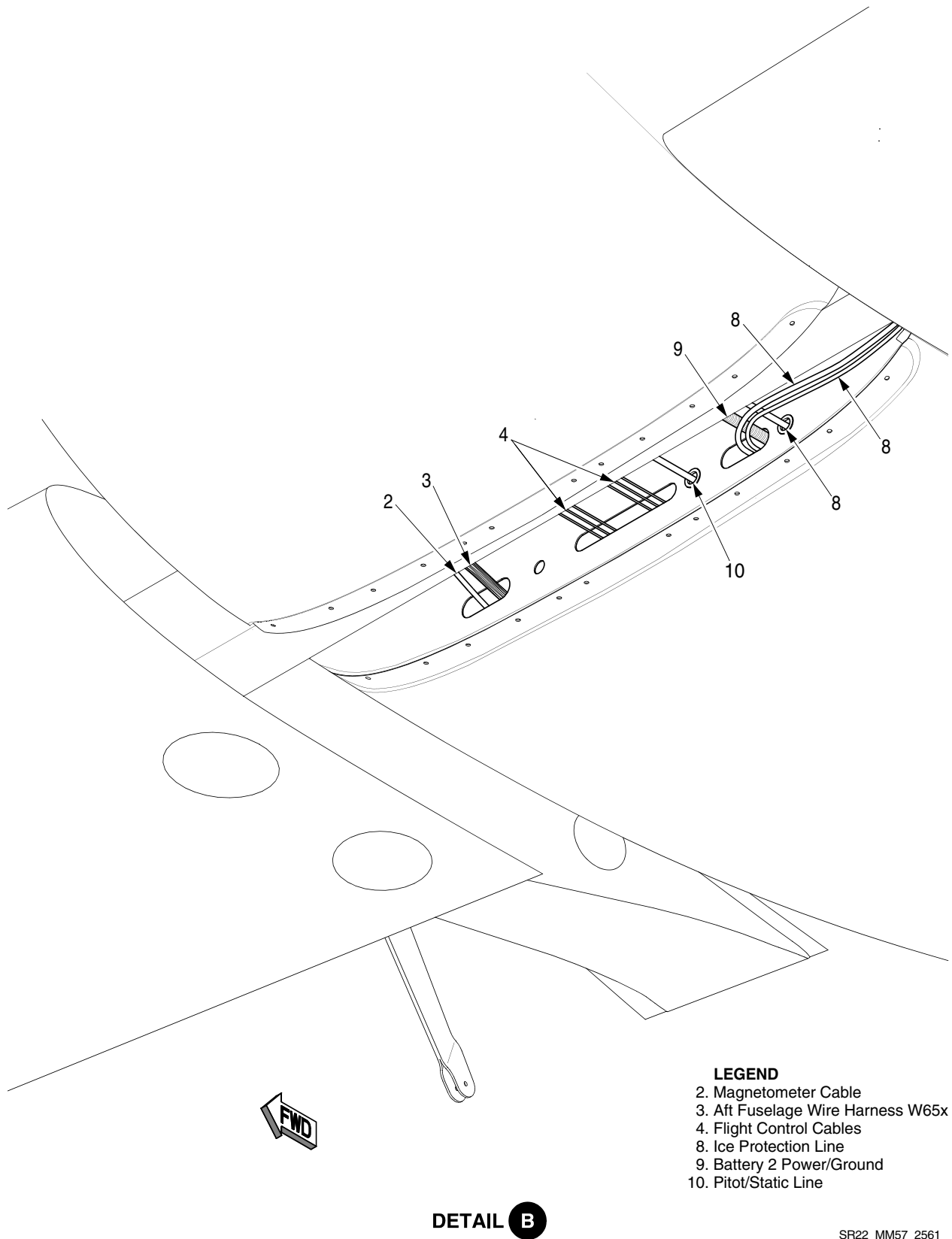
## DETAIL A

- LEGEND**
- 1. ELT Cable
  - 2. Magnetometer Cable
  - 3. Aft Fuselage Wire Harness W65x
  - 4. Flight Control Cables
  - 5. Marker Beacon Cable
  - 6. COM 2 Antenna Cable
  - 7. VOR/LOC Antenna Cable
  - 8. Ice Protection Line
  - 9. Battery 2 Power/Ground
  - 10. Pitot/Static Line

Serials 0002 thru 2333, 2335 thru 2419, 2420 thru 2437.

SR22\_MM57\_2194A

**Figure 57-106**  
**Fuselage Spar Tunnel Routing - Serials 0002 thru 2437**



SR22\_MM57\_2561

**Figure 57-107**  
**Fuselage Spar Tunnel Routing - Serials 2438 & subs**

**EFFECTIVITY:**  
Serials 2438 & subs

(ap) *Serials 0002 thru 0820:* Install belly closeout panel. (See Figure 57-108)

1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Drill Bit	0.25 inch (0.64 cm)	Any Source	Drilling
Countersunk Drill Bit	0.50 inch (1.27 cm)	Any Source	Drilling
Die Grinder	-	Any Source	Trimming
Drum Bit	0.5 inch (1.3 cm)	Any Source	Trimming
Sharpie®Permanent Fine Point Marker	30001 (Black)	Sanford Bellwood, IL 60104 800-323-0749	Marking
Compressed Air (contaminate free)	-	Any Source	Cleaning
Vacuum Cleaner	-	Any Source	Cleaning
Isopropyl Alcohol	TT-I-735 Grade A or Grade B	Any Source	Cleaning
Cotton Cloth (clean and lint free)	-	Any Source	Cleaning
V-Notch Trowel	0.4 × 0.4 inch (1.0 × 1.0 cm)	Any Source	Application
Caulk Gun	-	Any Source	Application
Structural Resin Repair System (Type 1, Class 1)	L418/418	MGS Kunstharzprodukte GmbH D-70309 Stuttgart +49-711-38 98 00-0	Adhere
Bottle Jacks (Two)	-	Any Source	Clamping
Concave Support	-	Any Source	Clamping

2 Sand and prepare fuselage offset and belly closeout panel perimeter for installation.  
(Refer to 51-20)

3 Fit belly closeout panel to fuselage belly opening.

4 If necessary, trim edges of belly closeout panel that do not fit flush.

5 Fit belly closeout panel into fuselage belly opening and observe exposed seam.

6 Ensure that exposed seam does not make hard contact with spar.

7 Carefully trim belly closeout panel edges with die grinder as necessary to correctly fit belly closeout panel into the fuselage belly opening.

8 Transfer location of mounting holes on fuselage belly opening to new belly closeout panel.

9 Mark location on belly closeout panel.



- 10 Using 0.25 inch (0.64 cm) bit, match drill holes in belly closeout panel.

**CAUTION:** Ensure outboard countersunk holes are drilled flush with belly closeout panel. Inboard countersunk holes may be drilled flush or up to 0.005 inch (0.013 cm) below flush.

- 11 Using 0.5 in (1.27 cm) countersunk bit, drill holes so installation screws will be flush with belly closeout panel. (Refer to 20-70)

**CAUTION:** Before applying epoxy, test that belly closeout panel attaches correctly without resin.

- 12 Fit belly closeout panel to fuselage belly opening.

- 13 If drilled holes are oversized, match with appropriate bolts.

- 14 Perform Adjustment/Test - Belly Closeout Panel Bondline Thickness Test (Refer to 57-10)

- 15 Prepare resin. (Refer to 51-30)

- 16 Add filler paste. (Refer to 51-20)

- 17 Apply resin.

**CAUTION:** Never pour isopropyl alcohol directly onto laminate. Moisten cloth with isopropyl alcohol.

- 18 Absorb moisture and contamination visible on laminated areas. Using a clean, wipe affected area with isopropyl alcohol.

- 19 Using vacuum cleaner and compressed air, clean installation area.

**CAUTION:** Prior to resin application, protect any area that should not come into contact with resin (fittings, bolts, exterior surfaces, etc.)

**CAUTION:** Resin application to fuselage belly opening and belly closeout panel should occur simultaneously to synchronize cure times.

- 20 Apply resin to installation areas on fuselage belly opening and belly closeout panel from edges to 5.5 inches (14.0 cm) inboard. (See Figure 57-108)

**CAUTION:** Use trowel perpendicular to surface to distribute resin at the sufficient depth. Angular trowel application will result in flatter distribution and a weaker bond.

- 21 Use trowel to apply resin uniformly.

- 22 Position belly closeout panel to fuselage belly opening.

**CAUTION:** Raise jacks on either side of belly closeout panel with a concave support surface in place. Failure to use a concave support surface will result in improper clamping that could cause structural damage from applying too much pressure at a single location.

- 23 Position and raise two jacks and a concave support surface under the belly closeout panel. (See Figure 57-108)

- 24 Torque bolts to 25 - 30 in-lb (3.0 - 3.4 Nm) to secure belly closeout panel underneath fuselage before the adhesive begins to set.

- 25 Complete curing procedure for belly closeout panel. (Refer to 51-20) (See Figure 57-108)

(aq) *Serials 0821 & subs w/ originally installed belly closeout panel:*

- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Sandpaper	80-grit	Any Source	Abrasion

- 2 To remove residual adhesive, carefully sand edges of belly closeout panel and mating surfaces of fuselage.

- 3 Position belly closeout panel to fuselage and secure with screws, washers, and nuts. (See Figure 57-108)

(ar) *Serials 0821 & subs w/ new belly closeout panel:* Install belly closeout panel.

- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Mylar Template	T10178 S/N 10716	Cirrus Design Duluth, MN 55811 218-727-2737	Transfer
Masking Tape	-	Any Source	Adhere
Spray Adhesive	50606-001	Unlimited Quality Products Mesa, AZ 85210 800-528-8219	Adhere
Drill Bit	0.25 inch (0.64 cm)	Any Source	Drilling
Countersunk Drill Bit	0.50 inch (1.27 cm)	Any Source	Drilling
Citrus Base Cleaner	51292-001	3M Company St. Paul, MN 55144 651-737-6501	Cleaning

- 2 To facilitate template alignment, backlight tooling holes of belly closeout panel.

- 3 Position template to belly closeout panel by aligning tooling hole markings on template with tooling holes on belly closeout panel.

- 4 Tape down one end of template to belly closeout panel.

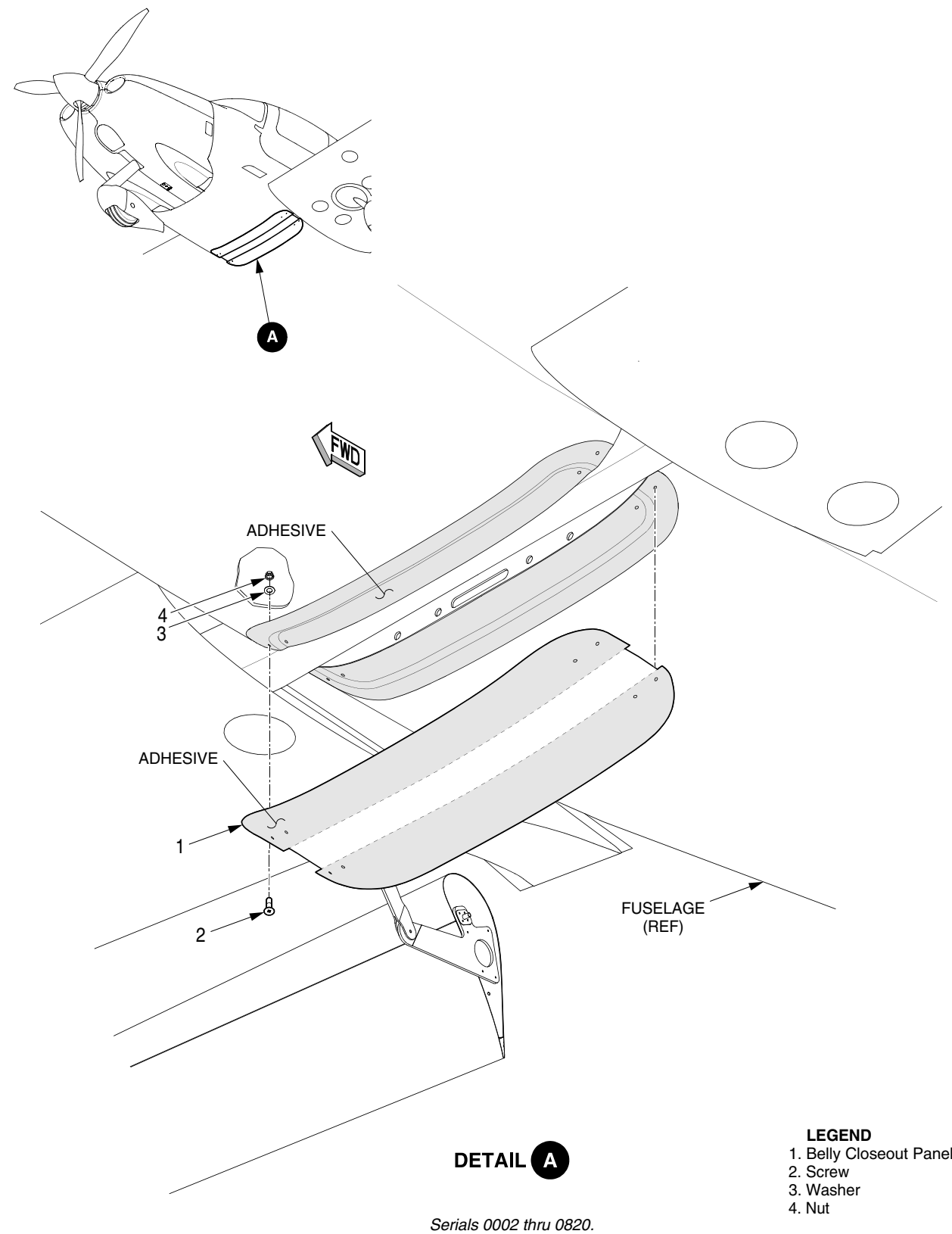
- 5 Lift up free end of template and evenly apply adhesive over surface of belly closeout panel.

- 6 Carefully lay template down on belly closeout panel, aligning tooling hole markings with tooling holes on belly closeout panel.

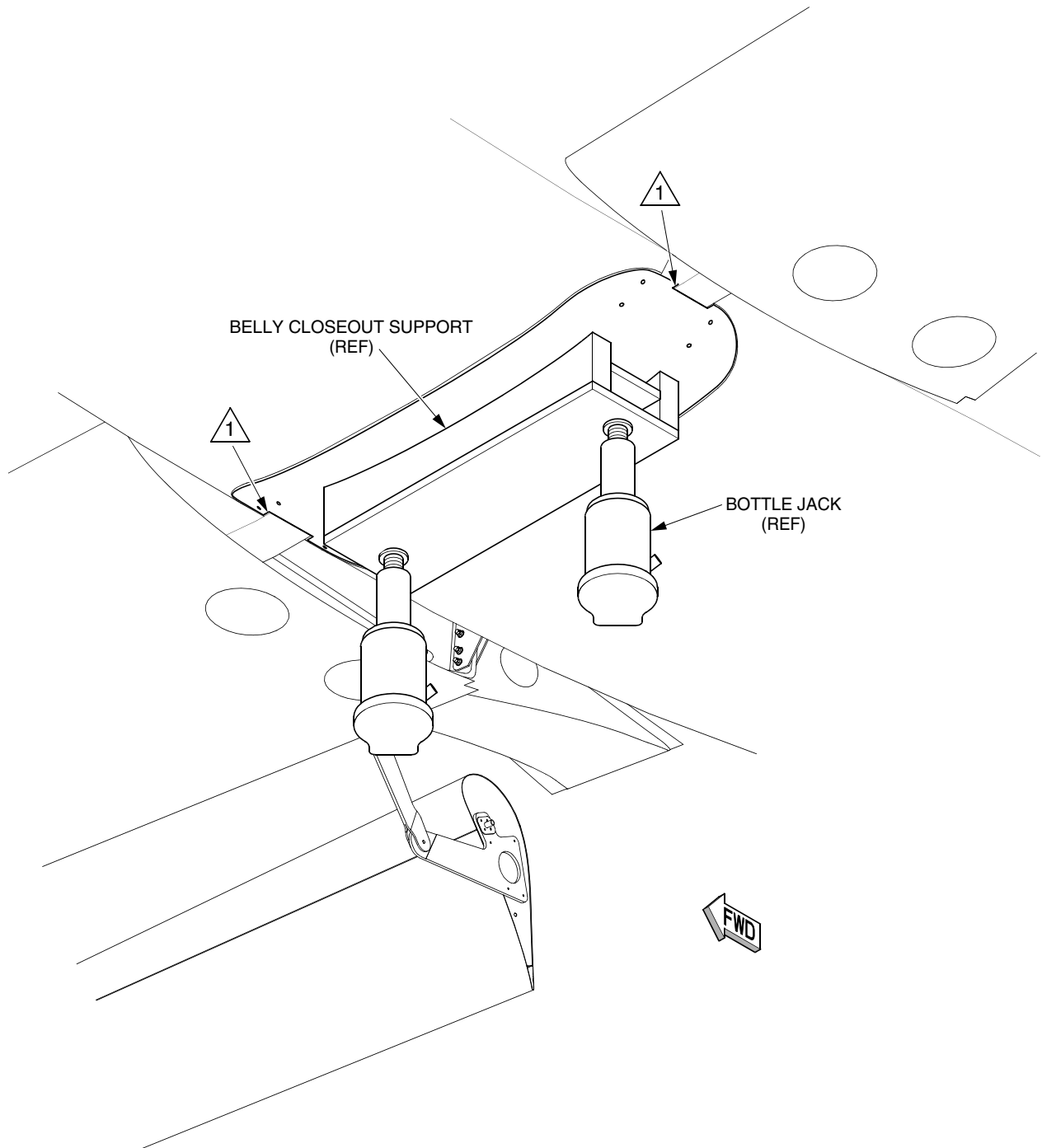
- 7 Using 0.25 inch (0.64 cm) bit, match drill installation holes from template to belly closeout panel.

**CAUTION:** Ensure countersunk holes are drilled flush with belly closeout panel.

- 8 Using 0.5 in (1.27 cm) countersunk bit, drill holes so installation screws will be flush with belly closeout panel. ([Refer to 20-70](#))
- 9 Remove template from belly closeout panel.
- 10 Solvent clean belly closeout panel to remove residual adhesive. ([Refer to 20-30](#))
- 11 Position belly closeout panel to fuselage and secure with screws, washers, and nuts.



**Figure 57-108**  
**Belly Closeout Panel Installation - Serials 0002 thru 0820 (Sheet 1 of 4)**



**NOTE**

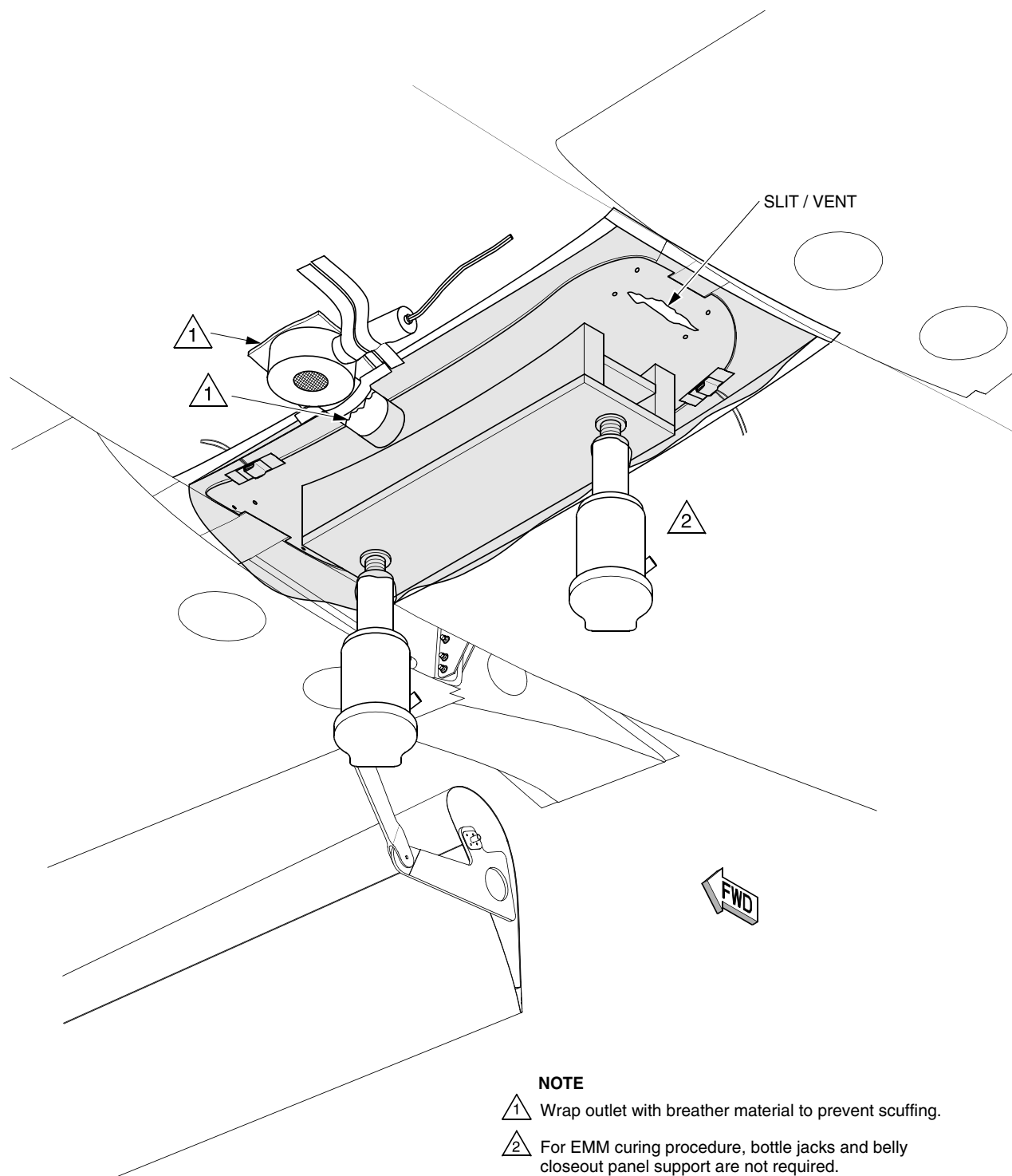
1 No hard contact with wing spar.

Serials 0002 thru 0820.

SR22\_MM57\_1650A

**Figure 57-108**  
**Belly Closeout Panel Installation - Serials 0002 thru 0820 (Sheet 2 of 4)**

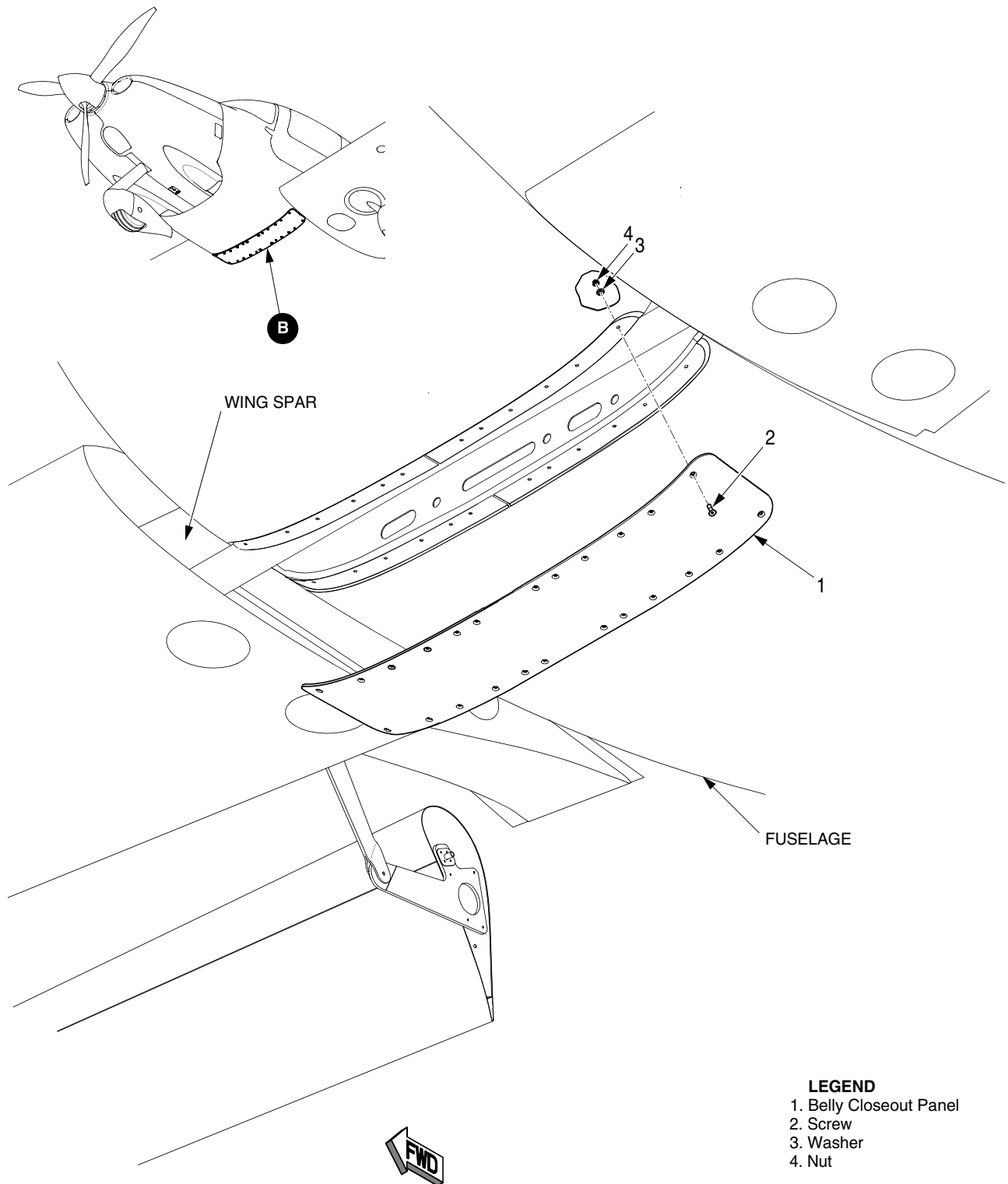
**EFFECTIVITY:**  
 Serials 0002 thru 0820



Serials 0002 thru 0820.

SR22\_MM57\_1651A

**Figure 57-108**  
**Belly Closeout Panel Installation - Serials 0002 thru 0820 (Sheet 3 of 4)**



## LEGEND

1. Belly Closeout Panel
2. Screw
3. Washer
4. Nut

DETAIL **B**

SR22\_MM57\_1889A

**Figure 57-108**

**Belly Closeout Panel Installation - Serials 0821 & subs (Sheet 4 of 4)**

**EFFECTIVITY:**  
Serials 0821 & subs

**57-10**  
Page 31  
15 Apr 2007

(as) Install Expanded Metal Mesh (EMM) lightning protection. (See Figure 57-109)

1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Sandpaper	80-grit	Any Source	Abrasion
Isopropyl Alcohol	-	Any Source	Cleaning
Cotton Cloth (clean and lint free)	-	Any Source	Cleaning
Vacuum	-	Any Source	Cleaning
Paint Brush	-	Any Source	Cleaning
Expanded Metal Mesh	AL060CX	Astro Seal, Inc. Riverside, CA 92507 909-787-6670	Protection
Structural Resin Repair System (Type 1, Class 1)	L418/418	MGS Kunstharzprodukte GmbH D-70309 Stuttgart +49-711-38 98 00-0	Adhere
Peel-Ply Tape	-	Any Source	Protection

2 *Serials 0002 thru 0820:* Sand installation area to remove residual adhesive.

3 Sand forward and aft of the installation area to expose original edge of EMM.

4 Using 80-grit sandpaper or finer, burnish existing EMM until shiny. Frequently clean surface of contaminants using vacuum and paint brush to ensure EMM is not damaged.

5 Using 80-grit sandpaper or finer, burnish replacement EMM until shiny.

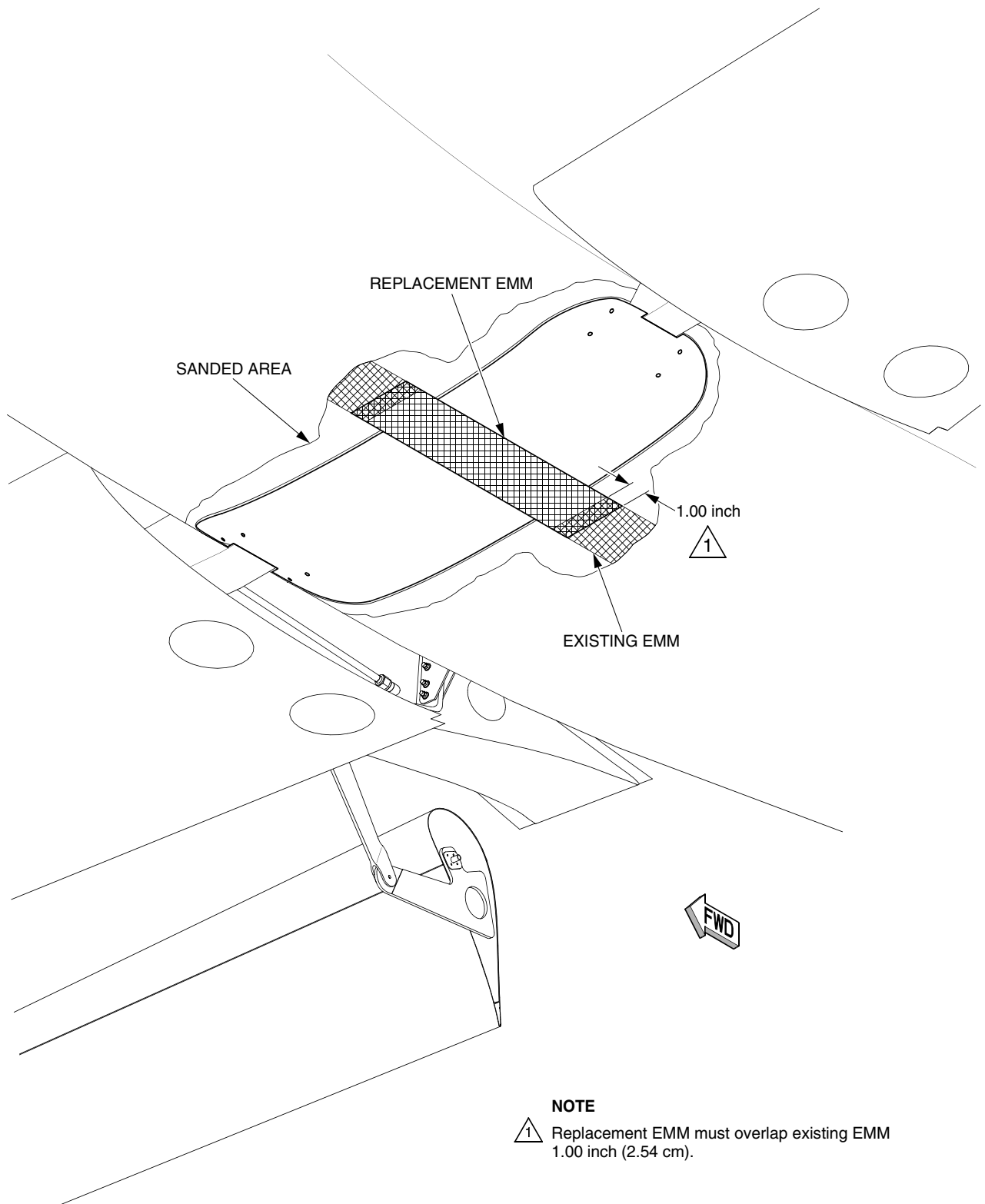
6 Vacuum repair area.

7 Solvent clean installation area with isopropyl alcohol. (Refer to 20-30)

**CAUTION:** Replacement EMM must overlap existing EMM by 1.0 inch (2.5 cm) and feature no breaks in continuity.

8 Prepare, apply, and cure Expanded Metal Mesh (EMM) repair system over forward and aft seam at belly closeout panel. (Refer to 51-20)



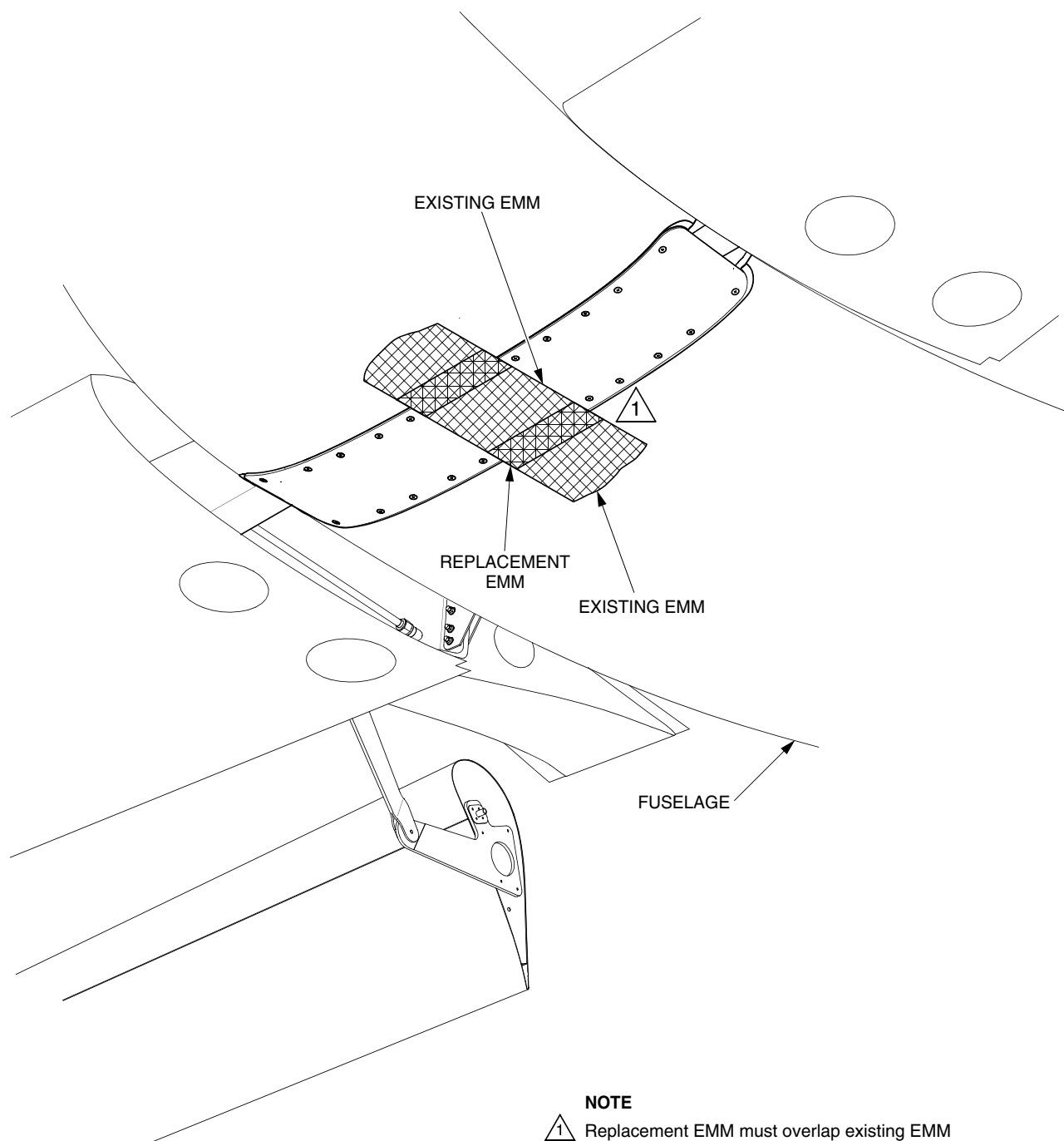


Serials 0002 thru 0820.

SR22\_MM57\_1691A

**Figure 57-109**  
**EMM Installation - Serials 0002 thru 0820 (Sheet 1 of 2)**

**EFFECTIVITY:**  
Serials 0002 thru 0820



SR22\_MM57\_1877

**Figure 57-109**  
**EMM Installation - Serials 0821 & subs (Sheet 2 of 2)**

- (at) Paint installation area. (Refer to 51-20)
- (au) Install wing root fairings. (Refer to 53-50)
- (av) Install main gear fairings. (Refer to 32-10)
- (aw) Install nose gear fairing. (Refer to 32-20)
- (ax) If removed for fuselage cradle clearance, install transponder antenna. (Refer to 34-50)
- (ay) Install kick plates. (Refer to 25-10)
- (az) *Serials 0142 thru 0820 w/ Century HSI:* Connect HSI gyro slaving amplifier. (Refer to 34-50)
  - 1 Route HSI gyro slaving amplifier wire aft to access hole CF2R.
  - 2 Connect HSI gyro slaving amplifier wire to gyro slaving amplifier mounted to access panel CF2R.
- (ba) Install access panels CF2L, CF2R, CF3R, CF3C, CF3L, and CF5. (Refer to 53-20)
- (bb) Install cabin floor covering. (Refer to 25-10)
- (bc) Install screws securing circuit breaker panel closed.
- (bd) Install cabin trim panels. (Refer to 25-10)
- (be) Install crew and passenger seats. (Refer to 25-10)
- (bf) Connect battery 1. (Refer to 24-30)
- (bg) Install engine cowlings. (Refer to 71-10)
- (bh) Reset all circuit breakers.
- (bi) *Serials 0334 & subs w/ Ice Protection System:* Fill de-icing fluid for Ice Protection System. (Refer to 12-10)
- (bj) Fuel airplane. (Refer to 12-10)
- (bk) Replenish brake system. (Refer to 12-10)
- (bl) *Serials 0002 thru 2437:* Perform Adjustment/Test - Flap Force Limitation. (Refer to 57-50)
- (bm) Perform Operational Inspection - Flap System. (Refer to 57-50)
- (bn) Perform Inspection/Check - Empennage Pulley Gang. (Refer to 27-20)
- (bo) *Serials 0002 thru 2437:* Perform Adjustment/Test - Rudder-Aileron Interconnect. (Refer to 27-20)
- (bp) Perform Functional Test - Static Plumbing System. (Refer to 34-10)
- (bq) Perform Functional Test - Pitot Plumbing System. (Refer to 34-10)
- (br) Perform Inspection/Check - Aileron Assembly. (Refer to 57-50)
- (bs) Perform Inspection/Check - Aileron System Rigging. (Refer to 27-10)
- (bt) Perform Inspection/Check - Rudder System Rigging. (Refer to 27-20), (Refer to 27-20)
- (bu) Perform Inspection/Check - Elevator System Rigging. (Refer to 27-30), (Refer to 27-30)
- (bv) Perform Inspection/Check - Roll Trim Cartridge (Refer to 27-10)
- (bw) Perform Inspection/Check - Torque Tube Gap Tolerance. (Refer to 27-20)
- (bx) Perform ELT functional inspection in accordance with 14 CFR 91.207.
- (by) *Serials 0334 & subs w/ Ice Protection System:* Perform Operational Check - Wing Porous Panels. (Refer to 30-10)

**WARNING:** The airplane may not be returned to service until a Cirrus Design certified test pilot has performed a flight test. Flight test may only be performed by Cirrus Design authorized personnel.

- (bz) Perform Cirrus Design-Authorized Flight Test.
- (3) Adjustment/Test - Belly Closeout Panel Bondline Thickness Test - *Serials 0002 thru 0820*  
This procedure is a test for bondline thickness that precedes the actual belly closeout panel installation. The resin is applied between plastic sheets, which provide a barrier for the installa-

tion surfaces. The belly closeout panel is installed and resin allowed to cure. The cured resin is measured to fall within an acceptable range.

**CAUTION:** Ensure that bonding and curing procedures are followed exactly as defined for actual belly closeout panel installation. Any variance in completing these procedures will result in testing failure.

- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Release Film	WL5200 (Red or Blue)	Airtech Int'l Inc. Huntington Beach, CA 92647 714-899-8100	Protection
Structural Resin Repair System (Type 1, Class 1)	L418/418	MGS Kunstharzprodukte GmbH D-70309 Stuttgart +49-711-38 98 00-0	Adhere
Compressed Air (Contaminate free)	-	Any Source	Cleaning
Vacuum Cleaner	-	Any Source	Cleaning
V-Notch Trowel	0.4 × 0.4 inch (1.0 × 1.0 cm)	Any Source	Application
Caliper	-	Any Source	Measure

- (b) Using vacuum cleaner and compressed air, clean installation area.  
(c) Apply release film to installation area for belly closeout panel.

**CAUTION:** Prior to resin application, protect any area that should not come into contact with resin (fittings, bolts, exterior surfaces, etc.)

- (d) Prepare resin. ([Refer to 51-30](#))  
(e) Add filler paste. ([Refer to 51-30](#))

**CAUTION:** Only apply resin to release film.

**CAUTION:** Use trowel perpendicular to surface to distribute resin at the sufficient depth. Angular trowel application will result in flatter distribution and a weaker bond.

- (f) Apply and trowel resin to belly closeout panel installation areas covered by release film.  
(g) Apply another release film to prevent resin from contacting the belly fuselage opening during installation.  
(h) Position belly closeout panel to fuselage belly opening.

**CAUTION:** Only raise jacks on either side of belly closeout panel with a concave support surface in place. Failure to use a concave support surface will result in improper clamping that could cause structural damage from applying too much pressure at a single location.

- (i) Position and raise two jacks and a concave support board under the belly closeout panel. (See Figure 57-108)
- (j) Torque bolts to 25 - 30 in-lb (3.0 - 3.4 Nm) to secure belly closeout panel underneath fuselage before the resin begins to set.
- (k) Complete curing procedure for belly closeout panel. (Refer to 51-20) (See Figure 57-108)
- (l) Lower jacks and disassemble belly closeout panel.
- (m) Remove belly closeout panel from belly fuselage opening.

**CAUTION:** Ensure that orientation of release film sheets is marked in some manner to correctly transfer locations of bondline to belly closeout panel.

- (n) Remove release film with resin bondline cured within.
- (o) Cut release film near outline of bondline.
- (p) Inspect and record results bondline thickness at perimeter with caliper every few inches. Acceptable bondline thickness tolerance range is 0.005 - 0.080 inch (0.013 - 0.203 cm).
- (q) If bondline is below minimum requirements, install shims as required.
  - 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Compressed Air (Contaminate free)	-	Any Source	Cleaning
Vacuum Cleaner	-	Any Source	Cleaning
Glass Cloth Shim	7781-F16	Hexcel Anderson, SC 29622 864-225-7028	Shimming
Non-Structural Resin Repair System (Type 2, Class 1)	Epon 862/ Heloxy 68 & Teta 3234	Resolution Performance Products Houston, TX 77210-4500 877-859-2800	Adhere
Brush	2.0 inches (5.1 cm)	Any Source	Application

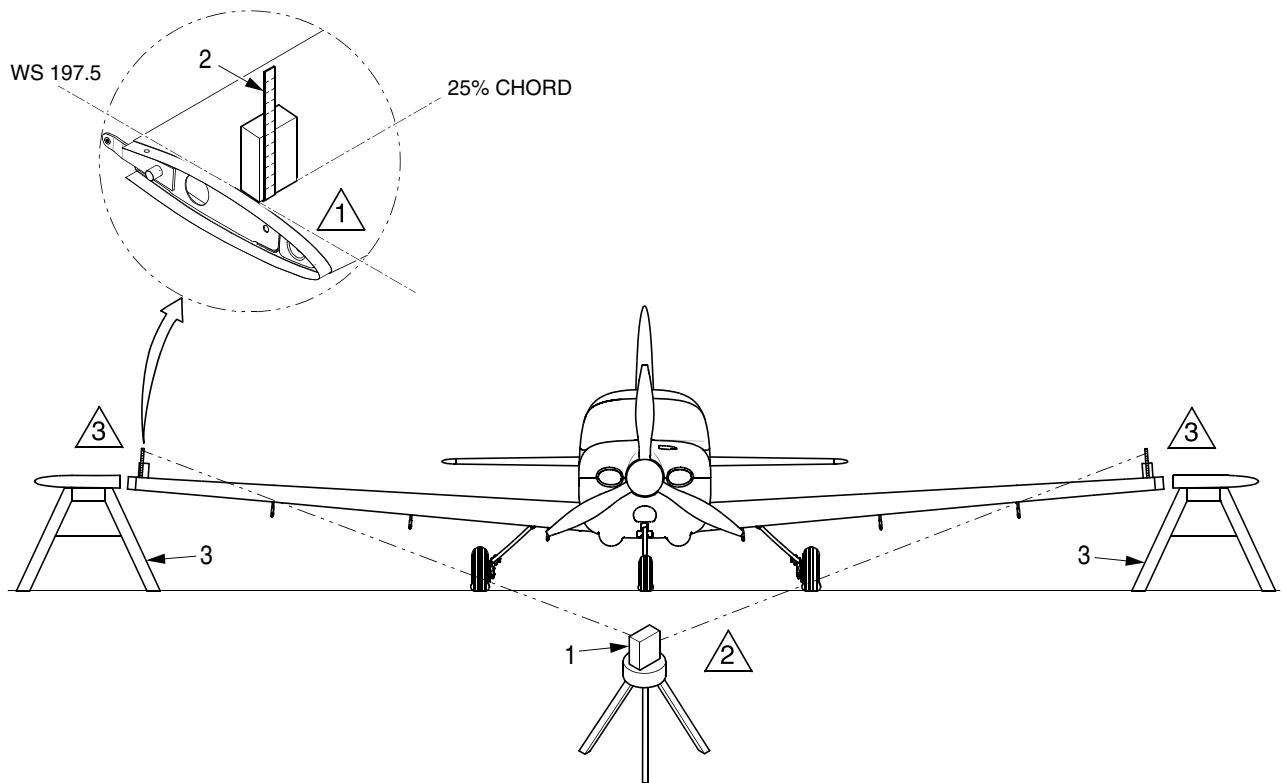
- 2 Using vacuum cleaner and compressed air, clean installation area.
  - 3 Identify bondline point above tolerance and transfer location to belly closeout panel.
  - 4 Determine height required to bring measurement into acceptable tolerance range.
  - 5 Apply shim and resin as required.
  - 6 Cure shims for one hour at 150° - 195° F (66° - 91° C).
  - 7 Complete curing procedure for shims. (Refer to 51-20)
  - 8 Allow belly closeout panel to cool to room temperature.
- (4) Adjustment/Test - Tip-to-Tip Measurement (See Figure 57-1010)
- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Ruler Gauges (Block), LH and RH	T6859-7	Cirrus Design Duluth, MN 55811 218-727-2737	Leveling
Transit Level	-	Any Source	Leveling

- (b) Level airplane laterally with digital level using engine mount weldment. (Refer to 08-10)
- (c) Locate 25% chord at WS 197.5 on both wings. (See Figure 06-003)
- (d) At LH and RH wing, position ruler gauge blocks on WS 197.5 with ruler edge aligned with 25% chord.
- (e) Position transit level approximately 10 feet (3 m) forward from propeller.
- (f) Using transit level, locate ruler gauge block. Note location on ruler at which crosshair intersects ruler measurement.
- (g) Repeat measurement location on opposite ruler gauge block.
- (h) Verify difference in measurement locations at LH and RH ruler gauge blocks is within tolerance of 2.0 inches (5.0 cm). Record obtained values.

LH 25% Chord	RH 25% Chord	Variance

If measurement difference is not within tolerance, contact Cirrus Design for disposition.



## NOTE

- ① Position ruler gauge block on WS 197.5 with ruler edge aligned with 25% chord.
- ② Position transit level approximately 10 feet (3 m) forward from propeller.
- ③ Verify difference in measurement location at LH and RH ruler gauge blocks is within tolerance of 2.0 inches (5.0 cm).

## LEGEND

- 1. Transit Level
- 2. Ruler Gauge (Block)
- 3. Saw Horse

SR22\_MM57\_2184

**Figure 57-1010**  
**Tip-to-Tip Measurement**

EFFECTIVITY:  
All

- (5) Adjustment/Test - Wing Angle of Incidence and Decalage Measurement - *Serials 0002 thru 2437*  
(See Figure 57-1011)

- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Masking Tape	-	Any Source	Protection
Horizontal Incidence Templates HS36, LH HS36, RH	T1835 T1836	Cirrus Design Duluth, MN 55811 218-727-2737	Measurement
Wing Incidence Templates WS41, LH WS197.5, LH WS41, RH WS197.5, RH	T0167 T0169 T0166 T0168	Cirrus Design Duluth, MN 55811 218-727-2737	Measurement
Digital Level, 0.25 Resolution	-	Any Source	Measurement

**CAUTION:** Apply masking tape to template feet to protect contact locations on wing surface.

- (b) At LH and RH sides of wing, identify wing incidence templates for WS197.5 and WS41 and position templates to wing as marked.  
(c) At LH and RH sides of horizontal stabilizer, identify horizontal incidence templates for HS36 and position templates to horizontal stabilizer as marked.

**Note:** To ensure consistent and accurate readings, position digital level so that the display faces one direction at all template locations (for example, outboard on RH side and inboard on LH side).

- (d) Position digital level at each template and measure angle of incidence.

**Note:** Negative readings indicate leading edge down. Positive readings indicate leading edge up.

- (e) Verify angle of incidence at all template locations is measured at  $0.25 \pm 0.20^\circ$ . Record obtained values.

LH WS 197.5	LH WS 41.0	RH WS 197.5	RH WS 41.0	LH HS 36.0	RH HS 36.0

- (f) Determine decalage by adding absolute value obtained at HS36 template to actual value obtained at WS41 template.

For example:

$$(|\text{LH HS36}|) + (\text{LH WS41}) = \text{Decalage}$$

$$(|-0.79|) + (0.20) = \text{Decalage}$$

$$0.79 + 0.20 = \text{Decalage}$$

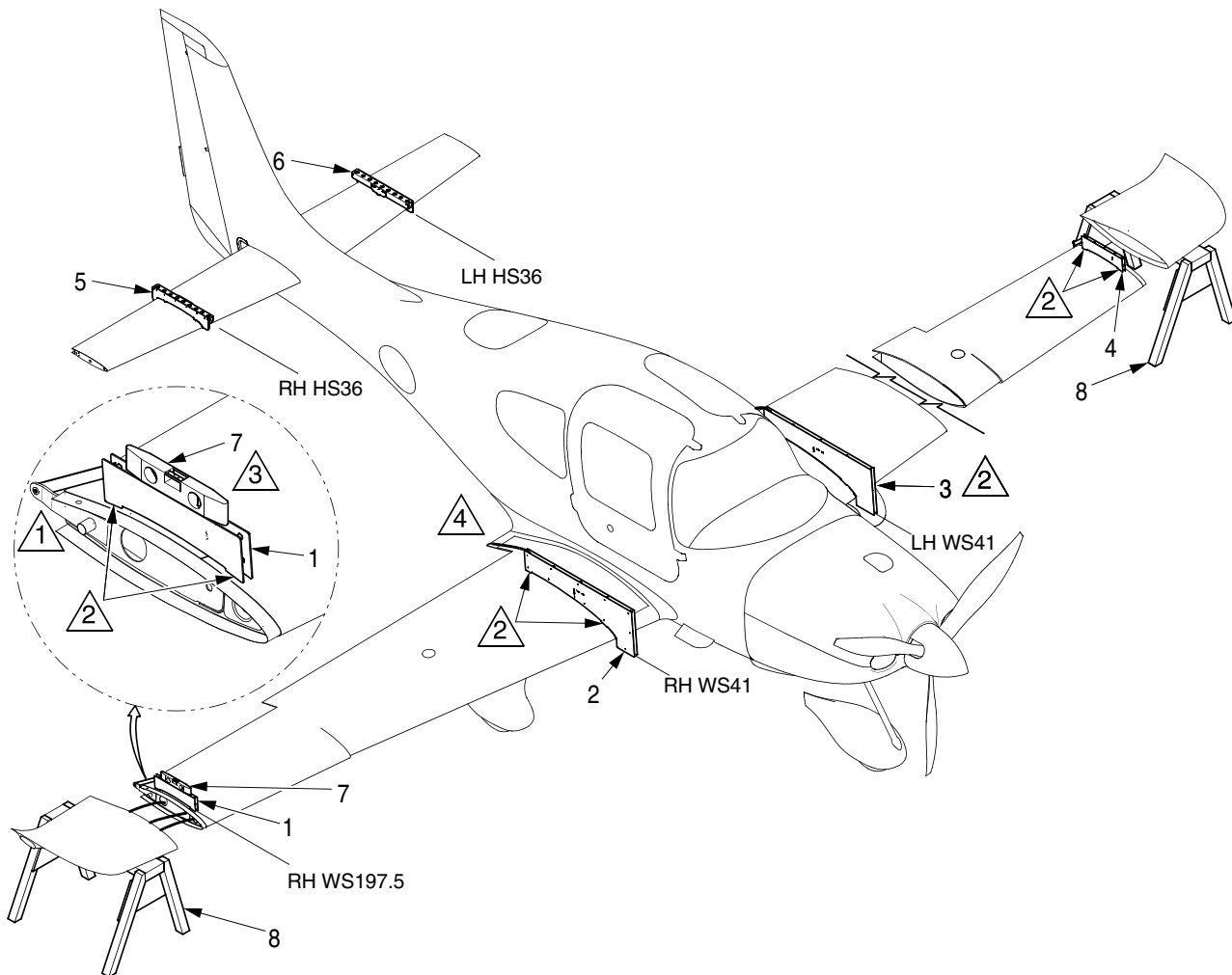
$$0.99 = \text{Decalage}$$



- (g) Verify decalage is within tolerance ( $0.85 \pm 0.4^\circ$ ). Record obtained values.

Decalage

If decalage is not within tolerance, contact Cirrus Design for disposition.

**NOTE**

- ① Install pin on WS197.5 template arm to outboard aileron hinge.
- ② Apply masking tape to template feet to protect contact locations on wing surface.
- ③ To ensure consistent and accurate readings, position digital level so that the display faces one direction at all template locations (for example, outboard on RH side and inboard on LH side).
- ④ Clip vinyl hook on WS41 template bungee cord to aft wing.

**LEGEND**

- 1. RH WS197.5 Template
- 2. RH WS41 Template
- 3. LH WS41 Template
- 4. LH WS197.5 Template
- 5. RH HS36 Template
- 6. LH HS36 Template
- 7. Digital Level
- 8. Saw Horse

Serials 0002 thru 2333, 2335 thru 2419, 2420 thru 2437.

SR22\_MM57\_2188A

**Figure 57-1011**  
**Wing Angle of Incidence and Decalage Measurement - Serials 0002 thru 2437**

- (6) Adjustment/Test - Wing Angle of Incidence and Decalage Measurement - *Serials 2438 & subs*  
(See Figure 57-1012)

- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Masking Tape	-	Any Source	Protection
Horizontal Incidence Templates HS36, LH HS36, RH	T10100 T10101	Cirrus Design Duluth, MN 55811 218-727-2737	Measurement
Wing Incidence Templates WS40, LH WS40, RH WS130, LH WS130, RH WS213, LH WS213, RH	T10072 T10073 T7508 T10007 T10145 T10146	Cirrus Design Duluth, MN 55811 218-727-2737	Measurement
Digital Level, 0.25 Resolution	-	Any Source	Measurement

**CAUTION:** Apply masking tape to template feet to protect contact locations on wing surface.

- (b) At LH and RH sides of wing, identify wing incidence templates for WS213, WS130, and WS40 and position templates to wing as marked.
- (c) At LH and RH sides of horizontal stabilizer, identify horizontal incidence templates for HS36 and position templates to horizontal stabilizer as marked.

**Note:** To ensure consistent and accurate readings, position digital level so that the display faces one direction at all template locations (for example, outboard on RH side and inboard on LH side).

- (d) Position digital level at each template and measure angle of incidence.

**Note:** Negative readings indicate leading edge down. Positive readings indicate leading edge up.

- (e) Verify angle of incidence at all template locations is measured at  $0.25 \pm 0.20^\circ$ . Record obtained values.

LH WS 213.0	LH WS 130.0	LH WS 40.0	RH WS 213.0	RH WS 130.0	RH WS 40.0	LH HS 36.0	RH HS 36.0

- (f) Determine decalage by adding absolute value obtained at HS36 template to actual value obtained at WS40 template.

For example:

$(|LH\ HS36|) + (LH\ WS40) = \text{Decalage}$

$(|-0.79|) + (0.20) = \text{Decalage}$

$0.79 + 0.20 = \text{Decalage}$

$0.99 = \text{Decalage}$

- (g) Record obtained values.

Decalage

There are no explicit requirements for decalage. The limits of wing and horizontal stabilizer incidence implicitly define the limits of decalage. If angle of incidence is not within tolerance, contact Cirrus Design for disposition.

RESERVED FOR SR22\_MM57\_2604

**Figure 57-1012**  
**Wing Angle of Incidence Measurement - Serials 2438 & subs**

EFFECTIVITY:  
Serials 2438 & subs

Intentionally Left Blank