UPDATES to Revision 3, 9/99 **Date this document was printed: 12/20/02**

CAD drawings

80-DBT (01/01) update to (06/99) location of the hole for the fuel line through Flaperon Arm 8V4-7: the bottom edge of the hole is 10mm up from the center of the bottom rivet line.
8ZZ-2 (07/10/00) Drawing removed: Position of fuel selector between the front seats; Replaced by 8FE
8FE-1 and 8FE1.1 new drawing for the standard fuel tanks
8FR-1 04/24/01 bottom left diagram location of 8C5-19
8-DWT (01/01) location of the grommet for the auxiliary tanks.

TOOLS

a) Body file (Vixen) for a smooth finish on the fuselage skins.
b) #3 drill bit (.213") and ¼"-28 tap Ref. Photo FA2-11
c) Hand riveter with the flat nose piece for 3/32" rivets (for A3), Ref Photo E3-19
d) Angle drill #30 drill bit: to drill the Doubler 8F16-8 & 9 at the bottom of the cabin frame. Ref. Photo fa1-38
e) Fly cutter, to cut the hole in the fuel tank for the fuel sender units: drill a ¼" pilot hole, turn the fly-cutter by hand to avoid damage to the tank.
f) Unit bit to drill the windshield
g) Hole saw

Standard Aircraft Practice

a) Rivet lines: Almost without exceptions, every overlap of parts will constitute a rivet line: some example: rib flange with a skin, extrusion angle with a skin, bent angle (L angle) and skin

Nylon66 t=1/8": plastic fairlead material (NOTE: MISSING PHOTO FOR THE FAIRINGS)

8F2-8 Rear Rudder Cable Fairlead (Nylon66 t=1/8") qty=2 installed on the outside of the fuselage skin, the slot points towards the front. The Cable Outlet Fairing 8F2-7 rivets on top of 8F2-8
8C5-1 Forward Rudder Cable fairlead (Nylon66 t=1/8" qty =1 size 3-3/4"x6-3/8") *NOT USED* (replaced by 8C5-15)
8C5-5 Rear Rudder Cable Fairlead (Nylon66 t=1/8" Qty=2): Size30x35mm
8C5-6 Forward Elevator Cable Fairlead (Nylon66 t=1/8") PART SUPPLIED IN KIT *NOT USED*
8C5-7 Forward Stabilizer Cable Fairlead (Nylon66 t=1/8") qty=1, size 58x85mm
8C5-8 Rear Stabilizer Fairlead (Nylon66 t=1/8")qty=1, size 30x50mm
8V11-4 Nylon pad (2-1/4"x 2-1/4"), riveted on the underside of the Rear Wing Top Skin over the Fuel Sender Unit.
8C8-19 Flaperon Bellcrank Bearing t=1/4" replaced with 8C8-8, t=1/8" see CAD drawing 8CN-2

Parts

8F2-2A Fuselage Forward Side Skin, two pilot holes 42mm apart at the rear bottom corner of the skin: indicate the location of the slot for the rudder cables. 3xa5 in each flange (2 rear bottom holes, use a hole finder to locate the 2 holes in the bottom of the skin, add a third hole at the front in between the holes – front top hole is on the diagonal in between two existing holes).
8F3-3, Length = 400 t=.040, 12xA5 in each of the 200 legs
82-1, 7Xa5 along the front of the Gusset 8F3-3, 3xA5 along the inside edge of the Gusset 8F3-3

New Parts Number

.090" shim to fit between the Longerons for the tie down ring at the tail.

Elevator Assembly Section 1 (pages 1 to 14)

1) **Photo E1-6: CAD drawing 8H1-5 (11/30/00)** Location of the Spar on the Tip Rib 8H1-5, Overlay the Nose Rib 8H1-6 and the Rear Rib 8H1-7 on top of 8H1-5, line A-A is between the nose and rear rib. Drawing 8H1-5 also give the location of the 3 pre-drilled holes in the Tip Rib.

2) Photo E1-9: Position of the tip rib 8H1-5 to the spar: the reference line is the spar, set the distance from the top of the rib to the spar equal to the measured distance from the spar to the tip of Nose Rib 8H1-6
3) **Photo E1-13:** Location of the Outboard Hinge Pin 8H3-2, also refer to photo H3-18 Horizontal Tail Assembly, section 3, page 11 of 13. The 3 pivot attachment point of the elevator to the stabilizer are in line: straight line approximately ¼" off the front of the spar.
4) **Photo E1-15:** The Elevator Channel 8H2-14 is installed parallel to the Elevator Spar 8H2-12, distance from spar web (front surface) to channel web (front surface) is 105mm correctly shown in the text. Distance between rivet lines is 85mm. Change 95mm to 85mm

Elevator Assembly Section 2 (pages 1-12)

5) **Photo E2-3:** Bottom of the page: Wait until Section 3 page 5 of 16 to drill 8H2-14
   On page 4 of 12 (and other pages), the 5th bullet down it refers to '2' rivets holes in the center of the spar between the nose ribs. Mine only has one. I don't see an problem with this.
   I think the right thing to do here is when I measure the 40pitch holes across the spar line as directed on page 7 of 12, is to go all the way across the spar, including the center between nose ribs and mark for 40 pitch holes. Correct?
   Yes, bullet #6 is to rivet with flush countersunk rivet the rear skin to the spar where the Elevator Nose Skin 8H4-3 will overlap the rear skin. There is no overlap in the middle of the Elevator.
6) **Photo E2-5:** Change 185 to 180: The distance from the center of the radius to the aft edge of the top side of the Elevator Nose Skin 8H4-3
7) **Photo E2-6** : Change 185 to 180mm
8) **Photo E2-11:** Ref. See procedure E2-5 in section 2 page 5 of 12 photo E2-5
9) **Photo E2-14:** Grommet supplied in the pick list RP452-ND is not the same part number shown on the photo: Spaenaur RB-215. Grommet hole specification for RP452-ND: inside hole I/D =4.57mm to fit a 7.87mm hole in the rib (.31") NOTE: The exiting tooling hole in the Nose Rib 8H1-6 = .25" file the hole to make it slightly larger diameter for the grommet.
10) **Photo E2-14: text on right:** "Tape the ends of the wire to the inside of the top skin." It appears impossible to tape the wire to the inside of the skin because it is riveted to the ribs, and the inside is not accessible! Clarification: Once the nose skin is in place be careful not to pull out the wire! it may be a good idea to tuck the wire between the nose skin and the spar and to secure it in place with duct tape!
11) **Photo E2-15:** Add rivet pitch: A5 through 8H2-14, A5 through spar between the left and right nose skin, A4 through the ribs and nose skin.

Elevator Assembly Section 3 (pages 1 to 16)

12) **Photo E3-2** Distance between the inside edge of the right and left Elevator Nose Skin 8H4-3 is 170mm (minimum distance = 170mm) – the length of each Nose Skin is 1197mm.
13) **Photo E3-6:** Lower Elevator Horn 8H5-2, photo shows more overhang past the extrusion, Overhand of the Horn past the back end of the spar is 20mm (as shown) and 30mm past the front of the spar. (50mm overhand past the front of the spar to the front Upper Elevator Horn 8H5-1)
14) **Photo E3-6:** Last line of text at the bottom of the page, Rivet line through the Elevator Rear Skin 8H4-2 into the Elevator Channel 8H2-14: A5 pitch 40. Also, A5 pitch 40 through the middle portion of the Spar 8H2-12 not covered by the Nose Skin 8H4-3
15) **Photo E3-7:** taper the top and bottom edge of the flange (flange riveted to the Elevator Channel) – instead of leaving it square!

16) **Photo E3-8** One rivet at the top and bottom of the L angles through the top and bottom Horns 8H5-1 and 8H5-2. The rivet head is placed on the L angle.
17) **Photo E3-18:** Piano hinge spine goes on the top side of the trim tab.
18) **Photo E3-19:** Text in the note under the photo: The A3 already have a formed domed head, no special nose piece is required on the riveter: use the flat nose piece for 3/32" rivets (flat nose piece for the A3 is not supplied` with Zenith Aircraft riveter).
19) **Photo E3-21:** file a clearance notch (half moon shaped) in the Horn (rivets on the Trim tab) above the hole to made room for the trim tab horn (plastic fork) for trim tab in the up position.
20) **Photo E3-21:** file a clearance notch (half moon shaped) in the Horn (rivets on the Trim tab) above the hole.
21) **Photo E3-21:**Elevator Trim tab deflections: 15degrees up and 45 degrees down. With the 8A trim servo unit, the required deflections are obtained with the hole in the horn at 31mm from the surface of the trim tab. With the 4A trim servo unit, the height of the hole in the Horn is 16mm from the surface.
22) **Photo E3-32:** Trim Motor Cover Plate 8H4-6 t=.025" 95mm wide x 115mm long (fits on top of the cutout shown on E3-32: 65mm wide x 90mm long)

Horizontal Tail Assembly Section 1

23) **photo H1-3: Stabilizer,** only one 4ft length of L angle is required: cut 2 short pieces to join the end of the front Channel, with the Rib 8H1-2. two other short pieces are required on the elevator between the Channel 8H2-14 and the rib 8H1-7 photo E1 (Elevator Assembly section 1 page 5 of 14)
24) **Photo E3-19:**Front Brackets 8H2-10, part supplied with front bottom corner tapered: the tapered corner is on the flange that is riveted to the spar (tapered corner overhangs past the bottom of the spar) When bolted to the fuselage, the
25) **Photo H1-20:** It is not clear where the 165mm is pointing to, refer to CAD drawing 8H-294 (01/99) distance 165 is the location of the pre-drilled holes in the spar measured from the aircraft center line.

    The distance between the pre-drilled holes in the spar 8H2-1 for the brackets 8H2-10 measure 330mm. To maintain proper edge distance for the holes in the bracket 8H2-10 do not hesitate to increase the inside distance between the brackets from 294 to approximately 296 or 298.

    You may want to look ahead to photo "file stab 5" of the Aircraft Finishing - Attach Elevator & Stabilizer to the Fuselage, Section 1 page 6 of 9The Front Bracket 8H2-10 will fit on the outside of the Horizontal Tail Attachment Bracket 8F3-4 (The front bracket fit on the outside of the fuselage) 294 is the minimum distance with no spacer required.

26) **Photo H1-22:** The cutout in the Rear Bracket 8H2-11 (side flanges) is to make room for the elevator.

Horizontal Tail Assembly Section 2

27) **Photo H2-1:** The length of the cutout as marked on the skin at 215mm is correct (text in earlier edition did not agree with layout as marked).

Horizontal Tail Assembly Section 3

28) Photo 8H3-1, text on side of photo: Note, the CENTER HINGE BRACKET 8H3-3 is not symmetrical.
29) the three elevator hinge points (left, right, and center) all aligned and horizontal to the top of the stabilizer.

ELEVATOR OUTBOARD HINGE

Photo H3-10
The location of the horizontal line on the Stabilizer Tip Rib at 58mm from the top skin will correctly position the elevator pivot for the desired neutral position: the top surface of the elevator is in line with the top surface of the stabilizer (co-planar).

Photo H3-9 (ignore the 58mm**)**
Draw the horizontal line through the pre-drill hole for the elevator pivot at 90 degrees to the front edge of the Outboard Hinge plate 8H3-1 Note: the horizontal line may not be exactly through the middle of the part.

Photo H3-14
Shows the installation of 8H3-1 to 8H1-1 by overlaying the horizontal line: the horizontal line drawn on the Outboard Hinge Plate 8H3-1 (photo H3-9) is lined up with the 58mm horizontal line on 8H1-1 (photo H3-10).

ELEVATOR CENTER HINGE

Photo H1-22 and H1-23
The top edge of the Rear Bracket 8H2-11 is positioned 3mm below the top of the Spar. Check: that the pre-drilled along the top and bottom of the Rear Bracket 8H2-11 are in line with the rivet line through top and bottom Doublers riveted to the spar.

Photo H3-1 (**ignore the 58mm**)
Similar to photo H3-9, the pivot hole is not drilled. To draw the horizontal line locate the pivot hole at the front of the bracket with equal edge distance to the top and bottom edge of the bracket. The horizontal line is 90 degrees to the flange (spar).

Photo H3-2 **(58mm from the skin, not from the top edge of the Bracket 8H2-11)**
The horizontal line is set at the height of the elevator pivot. Note: the height of the Outboard pivot (left and right) is 58mm measured from the underside of the skin (top side – see H3-10). Use the same reference to layout the height of the center hinge pivot: 58mm to the underside of the skin (top surface).

Photo H3-3
Position 8H3-3 to 8H2-11 by Lining up horizontal lines.

Photo H3-4
Note: the top of the Center Hinge Bracket 8H3-3 may not be flush with the top of the Rear Bracket 8H2-11.

30) **Photo H3-2, H3-3, H3-6, H3-7:** in the photos there is a piece of metallic tape glued to 8H2-11 to cover up some misdrilled holes in the bracket, please ignore the tape, it is not required.
31) **Photo H3-2,** the 3mm offset line is to allow for the 2 washers between the Horn 8H3-3 and the Extrusion angle 8H5-3
32) **Photo H3-3:** Position the face of the Bracket 8H3-3 on the 3mm offset line. NOTE: the 3mm is to compensate for the thickness of the Horn Angle 8H5-3 Ref photo E3-3
33) **Photo H3-5:** t=.040”
34) **Photo H3-7:** Center Hinge Gusset 8H5-4, part is supplied with the long flange in the opposite direction to the two flanges (up), to allow better access and to prevent interference with the riveter tool (photo shows all 3 flanges bent in the same direction).
35) **Photo H3-14:** Don’t rivet yet. When is this riveted, need reference number.
36) **Photo H3-18:** Edge Distance for the 5/16” hole drilled in 8H3-3 is 3/8” (edge distance is measured from the center of the hole to the edge of the part).

Flaperon Assembly Section 2

37) Under Flaperon Assembly Section 2, page 11 of 15. Photo FR2-15 indicates that the splice plates are installed on the side of each centerline ribs. The manual does not indicate whether or not the rivets that attach the splice plates to the centerline ribs should be flush or dome head. It seems that they should be flush in order to create a smooth joint when inboard and outboard sections are joined. Please clarify.

Where the O/B and I/B ends meet: The plates are riveted to the side of the Flaperon ribs with 8 rivets A4, standard domed Avex rivets (in the O/B end as I/B end). On our demo, it does not appear that this is a high tolerance area, the gap at the top is approximately 5mm with the two plates bolted together at the bottom.

38) July 7/00 Photo FR2-17: The position of the Splice 8A2-2A to the rib is shown incorrect as going up instead of down. The bottom of the rib is flat, the Splice plate overhang below the rib. Position the aft edge of the splice place even with the aft end of the rib, the top edge is flush with the top of the rib.

Flaperon Assembly Section 3

REVSION 4.0 SEPT/2000 (SECTION 3A & 3B)
DRAWING FR3-6 (09/20/00)

39) Photo FR3-6: the shape of the Horn is shown incorrectly: the small side is at the bottom rear of the horn (as installed on aircraft)

40) Photo FR3-9: Hinge point = Root Hinge Pin 8A2-4

41) Photo FR3-11: Flaperon Neutral Position: measured on O/B section

42) Photo FR3-12: flaperon Neutral position, set at the outboard (O/B) section of the flaperon, set an 8mm gap between the trailing edge of the Flaperon and the top of the wing. CHECK: on the inboard (I/B) section, the gap from the trailing edge to the wing is 28mm. (8MM + 20MM BLOCK SHOWN ON PHOTO FR2-18)

43) Photo FR3-14: Replace photo: The control horn 8A2-5 is not parallel to the bottom of the End Rib 8A1-1, the 5/16" is not drilled into the L angle, the hole is approximately

44) Photo FR3-14 Part number for the Root Hinge Pin shown in the photo changed from 8A2-4 to 8A2-4A (conflict with the Doubler shown on FR3-23)

45) Photo FR3-15: Note, the bottom 2 rivets in the Root Hinge Pin 8A2-4 may interfere with the joggle flange in 8F2-6, if necessary trim the bottom edge of the Hinge Pin.

46) Photo FR3-16: Radius = 135mm from the Root Hinge Pin 8A2-4 to the 5/16" hole for the control connection in the Horn 8A2-5. photo FR3-16 shows a template to trace an arc of 135mm centered on the Root Hinge Pin 8A2-4, the 12mm from the bottom edge of the template up is not clear. Make the template from a strip 20mm side x approx. 155mm, mark a center line, drill a 3/16" hole at one end and a 1/8" hole at 135mm . Place the marker tip in the 1/8" hole and trace an arc as shown on photo FR3-17

47) Photo FR3-17: Flaperon control deflections: text at the bottom of the page: do not use the distances referenced from the top of the fuselage to set the control deflections, make a plywood template to sit on top of the wing to reference neutral, see control deflections sheet for distance in degrees.

48) Photo FR3-17: Wait to drill the 5/16" hole in the Horn 8A2-5, the hole is best determined by the location of the Flaperon Vertical Control Rod 8C9-2 with the Flaperon in the neutral position.

49) Photo FR3-18: The cutout is 1" wide, approx. 24mm wide, 12mm on each side of the arc traced in FR3-16 NOTE the Vertical Rod Upper Spacer 8C9-4 is ¾" inch diameter. Length of slot: Top and bottom, do not use the dimensions given under photo FR3-17 (page 11 of 17)

50) Photo FR3-23: Change part number for the Flaperon to 8A2-4B

51) Photo FR3-24: Replace photo: The bottom edge of the control horn 8A2-5 is not parallel to the bottom of the End Rib 8A1-1, the 5/16" hole is incorrectly shown drilled in the L angle,. WAIT TO DRILL THE 5/16" HOLE.

52) **Photo FR3-25:** Bushing 8A2-7 fits inside the Flaperon Arum 8V4-7 t=.125" (1/4" hole in the Arm 8V4-7) with one ¼" washer on each side of the Arm, One 3/16" washer under the head and two 3/16" washers under the nut. Use AN3-7A bolt

Wing SLATS Assembly Section 1 (pages 1-16)

53) Suggestion: trying to fit two identical parts together one inside the other, is very difficult. when building the slats on the ch801 build the short inboard sections first, then when building the outboard sections stick the inboard section inside the outboard section when it is still in the fixture to curl the trailing edge. this will allow you to close the section around the inboard slat for a perfect fit.

54) **Photo S1-1:** Distance between the rivet lines is 560mm, The center of the slot is 11.6mm offset to the rib center line.

55) **Photo S1-4:** photo showing the root end of the right I/B section

56) **Photo S1-6:** Drill #20 holes for the corner relief holes, trim by closing the snips on the corner relief hole.

57) **Photo S1-6**: 4L and 4R required

58) **Photo S1-9:** My slat supports have 6 holes. 4 will hit the tabs on the formed "L", 1 will be above the "L", and the 6th is just at the top edge of the formed "L"at the rear of the rib. Do I put A-5's in all those holes to complete the set?
the text under the photo should read 6 rivets A5

59) **Photo S1-11:** 8ft L angle, not the standard 4 ft length. Update photo and text.

60) **Photo S1-13:** top side of the skin is supplied pre-drilled with 3 pilot holes for each of the 3 slat ribs, distance between rivet lines is 560mm. Some skins were supplied with no pilot holes for the middle rib of the O/B section: add a rivet line.

61) **Photo S1-15:** Correct part numbers show in photo, change 8S1-2 to 8S1-2A (inboard) and 8S1-4 to 8S1-2B (outboard)

62) **Photo S1-18:** The Slat Ribs point outboard (the direction of the flanges point outboard).

Wing SLATS Assembly Section 2 (pages 1-14)

63) **Photo S2-9 :** Revision to the slat template to make the play wood jig, CAD drawing 8SO-1 (12/22/00) check the slat profile against the ribs 8S1-1 and the fiberglass tips.

Wing SLATS Assembly Section 3 (pages 1-15)

64) **Photo S4-15 :** To identify the I/B and O/B slat section: Shown on S4-15 is the left I/B slot (short distance from the edge of the Skin to the bracket is the I/B section).

65) **Photo S4-18 :** Slat position on the wing, new CAD drawing 8VV0 (12/22/00), reference line is the bottom of the wing, the front of the slat is level with the reference line, horizontal distance between the wing leading edge and the bottom aft corner of the slat is 130mm, distance from the slat trailing edge to the wing skin is 18mm

66) **Photo S4-19 :** Horizontal distance from the bottom corner of the slat to the main wing spar rivet line is approximately 410mm

WINGS ASSEMBLY

67) Pitot tube and tie down ring is shown on CAD drawing 8ZV-1 (there is reference in manual to this drawing)

WINGS ASSEMBLY Section 4 (pages 9-11)

68) The diagram section 4 page 3 shows the main strut attach bracket sticking out of the top of the wing! Correction: the struts are attached to the bottom of the wing.

69) **Photo V4-12:** The Strut Pick Up (1/4" Wing Strut Fitting) is attached with five AN3 bolts. Check: Measuring on the outboard side (underside of wing) of the Strut Pick Up: approximately 100mm from the skin to the end of the Strut Pick Up.

WINGS ASSEMBLY Section 5

70) I suggest that a note be put in the wing manual calling the builder's attention to the installation of the pitot tube before closing the nose skin on the left wing; reference CAD drawing 8ZV-1

71) Photo V5-4: Text on the right, change #7 to #1. Text under photo CHECK: distance from the end of the Channel to the first rivet line is 60mm. The Root rib 8V4-2 is at 90degree to the main spar, 295mm from RR#1 (along the main spar and along the Rear Channel). NOTE: the supplied Channel 8V6-2A has 10 columns of pilot holes between the root and RR#1, in the photo there are 11 columns, the supplied part is correct, UPDATE PHOTO. Ref. CAD 8V6-6A (10/99) and 8V6-2B (09/99)

72) Photo V5-5: Update photo, there should only by 10 columns of drilled holes between the root and RR#1. First line of text to the right of the photo, change "the second row of three" to "the first row of three" The rood rib is installed 60mm from the I/B end of the Channel (check 295mm from the root rib 8V4-2 to the first rear rib 8V1-2 at station 1)

73) Photo V5-7: photo out of sequence, it belongs to section 4 page 10 of 11

74) Photo V5-8: trim top an bottom flange of the Root Rib 8V4-2, photo V5-10 shows how the bottom of the rib is flush with the bottom of the spar, photo v5-9 shows the top cutout to make room for the top extrusion of the spar.

75) Photo V5-9: Remove the 2 middle AN3 bolts to install the Root Rib 8V4-2 295mm from RR#1

76) Photo V5-11 Says to open holes in the rear spar and spar doubler 8V4-5. I believe this should be the doubler 8V4-3 ? 8V4-5 is not a part number, change to 8V4-3

WINGS ASSEMBLY Section 6 (pages 1-11)

I now need instructions on the placement of the Jury strut attachment brackets (8V10-4). The wing manual does not illustrate their location along the wing lower skin. I would like to install them prior to closing the wing skin, or at least have the holes drilled for them. Please advise.

Please refer the building sequence title: Aircraft Finishing - Section 3, page 9 of 11 through page 11 of 11
From: Carlsondcarlson@aol.com

> The wing manual did not mention that we need to drill out several
> rivets in the bottom of rib #2 for the jury strut angle installation.

Drill out #1, 2, 22, 23, 24 (the first rivet is at the back - toward trailing edge -intersection of rear channel with Rear Rib RR2)

Ref. Aircraft Finishing - Attaching the wings to the Fuselage, section 3 page 10 of 11

There are 3 rivets in the front and rear Jury strut brackets:
FRONT bracket: the middle hole corresponds with the intersection of the rivet line through Rear Rib #2 with the rivet line through the Main spar. (rivet #23 above)

REAR bracket: the middle hole corresponds with the hole at the intersetion of the rivet line through RR#2 and the Rear Channel 8V6-2A (rivet #1 above)

77)

78) **Photo V6-11:** text to right, not to rivet 8V4-4 at this time. The reason is that it may be easier to install the Trailing edge 8V7-4 without the bracket, however, photo V11-8 shows the installation of the Trailing edge 8V7-4 with the bracket 8V4-4 already riveted to the Channel!

WINGS ASSEMBLY Section 7 (pages 1-11)

79) **Photo V7-13:** 6th bullet down: Remove A7 from text, "8V7-1 O/B over the rear bottom skin at the main spar and rib station #6"

80) **Photo V7-13:** Item #6 **,** On page 9 of 11, the builder is directed to re-install the nose skins and cleco in place. After which, the remainder of the holes in the spar rivet line are to be drilled (3/32). I found it necessary to replace the nose skins under the rear skins before drilling, since doing it as the manual directs covers the guide holes in the rear skin, and then place the nose skins on top after the holes were drilled.

81) **Photo V7-13** order of skin overlap
IB rear skin = 1 on spar
OB rear skin = 2 (overlaps on top of I/B skin)
IB nose skin = 3 (overlaps on top of rear skins)
OB nose skin = 4 (outer skin)

WINGS ASSEMBLY Section 8 (pages 1-11)

82) **Photo V8-1:** On photo V8-1, it is not clear why the Doubler 8V8-1A overhangs past the end of the 1/4" Strut Fitting: it would be much better to trim 8V8-1B flush with the end of the 1/4" Strut Fitting.

83) **Photo V8-10:** Front Strut Doubler 8V8-1B, the shorter 85mm side goes towards the front, the longer side 100mm is towards the rear (the strut attachment is on the front side of the spar).

84) **Photo V8-12:** Texts calls for 5 rivets when joining 8v8-1a and 1b. the photo v8-12 shows 6 holes. Use 5x A5 rivets

85) **Photo V8-13:** No washer under the nut of the bottom bolt, the washer is under the bolt: This is a special case where the wench hold the nuts, turn the bolt to tighten.

WINGS ASSEMBLY Section 9 (pages 1-15)

86) **Photo V9-1:** Extending the line may case some error, Best to wait until the skin is strapped down and to extend the rivet line of the rear rib, photo V10-3 (02/2002)

87) **Photo V9-15**: The wing tip is square (90degrees) with the main spar, Mark the end of the spar on the skin 8V9-2O/B us a square to trace and cut the edge of the skin square to the spar.

WINGS ASSEMBLY Section 10 (page 1-11)

88) **Photo V10-1:** lay a long 2x4 board between the skin and the straps (parallel to the aft edge of the skin), push down on the 2x4 to uniformly bring the skin over the nose ribs., then tighten the strap. push the skin down over the ribs by pressing

89) **Photo V10-3:** Check that the leading edge of the skin is over the ribs. SUGGESTION: place the 2x4 (or 1x2" board) just aft of the cutout for the slots, this will assure uniform pressure of the skin over the nose ribs.

90) **Photo V10-12:** The Slot in the skin for the Bracket 8V4-5 is approx. 130mm long.

91) **Photo V10-14:** Slat support 8V4-5 is shown riveted to the side of the nose ribs, the suggested sequence is to wait to rivet the slat support to the side of the nose ribs until after the aft edge of the nose skin is drilled to the main spar.

WINGS ASSEMBLY Section 11 (pages 1-5)

92) **Mark the location of the Jury Strut Attachment 8V10-4A and 8V10-4B on the bottom side of the wing, see Aircraft Finishing – Attaching the wings to the fuselage – Section 3 page 10-11 photo:**

wing-attach7b. Wait to rivet the rivet at the intersection of wing Rib #2 with the Main spar and rear spar.

WINGS ASSEMBLY Section 12 (page 1-13)

93) Photo V11-17: Trimming the root end of the Trailing Edge 8V7-4: tapered cut - draw a line square with the inboard end of the Rear I/B Channel 8V6-2A to the trailing edge of 8V7-4, set a line at 20mm inboard of the square line (measured parallel to the trailing edge) connect to the root end of the Channel 8V6-2A (the taper corresponds to the fuselage being more narrow at the tack and wider at the front).

WINGS ASSEMBLY Section 13 (page 1-16)

94) On drawing 8-WT-0 which I am using to position the VDO sender on the fuel tank, it shown mounted 65 mm from the edge of the tank. Also, it doesn't say which way to point the float. I would like to point the float forward so that it's swing travels the tank from the bottom to its highest point. I also think it would be less sensitive to poor readings during banks if positioned in the center of the tank. Positioned 65mm from the edge means it will read near empty on a bank.

In the orientation of the float we want to be certain that the sender will read empty when the tank is empty. In general we've installed the sender span wise (left to right) rather than from front to back, however, the orientation of the float will not affect the effectiveness of the unit.

Originally, when the senders were countersunk, they were positioned at the front near the center. In understand the need to put them further aft to get the 22 mm clearance, but why to the edge?

I suppose it could be moved more in the middle instead of 65mmm from the O/B end.

95) Section 13 – Page 1 of 16; boxed text at the bottom of the page: there is no separate manual for the extended range (auxiliary) fuel tanks; The tank is installed exactly like the inboard tank, refer to CAD drawing 8-DWT (01/01) for the location of the grommets.

We will be installing the extended range tanks. On the front of Section 13, of the STOL CH 801 Wing Assembly, it states to consult the manual for the extended range fuel tank option first. Where do I find this section of the manual? Are you referring to drawing 8-DWT?

Sorry for the confusion, actually, the same instructions also apply for the auxiliary wing tanks. Please refer to CAD drawing 8-DWT (01/01), this drawings show the location of the tank between Rear Ribs #2 and #3, it also shows the location of the fuel line routing through the Flaperon Arm 8V4-7

96) The cork supplied with our 801 wing fuel tank has an adhesive backing. Is this sufficient for application to the tank and support brackets or is the 3M 847 gasket adhesive still required? If the 3M adhesive is still suggested, should that be applied over the existing adhesive backing?

Additional adhesive should not be required

97) What material do you recommend to use to seal the threads on the fuel system fittings. Drwg. 8-WT-6 calls out "thread seal". What material is this?

There are a number of different products, these can be found in the Aircraft Spruce catalog: look up the following name in the index.Sealube and Permatex.

98) Electric Fuel sender unit, center terminal of the fuel gauge sending unit sticks up. Zenith ships a nylon patch that is supposed to protect and insulate the skin - Wondering how others have solved the problem.

Reference: VDO 226-002

To increase the clearance between the fuel sender unit and the wing skin; remove the small screw (above the 5/16" nut) and cut off the threaded portion. Take a 5/16" ring terminal, crimp it to the signal wire, remove the 5/16" nut and reinstall with the ring terminal underneath the 5/16" locking washer.

99) I'm presently working on the right wing and getting to the fuel tank, I have some questions: In the manual, section 13 page 15, the fuel tank shows the fuel sending unit installation on the leading edge of the tank, recessed. On the CAD drawing however, it shows the unit installed 280 mm aft of the leading edge. Which is the correct installation? I did not find a wiring diagram for the fuel sending unit. Is the large terminal for the hot wire and the small one for ground? Which is the correct way to install the ball float of the fuel sending unit, pointing forward, aft, inboard or outboard?

Ref fuel tanks as shown on photo V14-1 page 3 section 13

The tanks as supplied does not have a mounting flange as shown in the photo sequences.

IMPORTANT: the location of the sender unit on the tanks as shown on the CAD drawings is to have maximum distance between the top of the tanks and the wing (the tanks has a flat top and the wing rib has a curvature) The correct installation of the sender unit is the 280mm.

Electrical connection:
Ground the tank to the airframe (wing), also ground the sender unit.
The terminal at the top of the sender unit it connected to the S terminal on the back of the fuel gauge. (there is only one wire from the sender unit to the fuel gauge)

There are 3 terminals on the fuel gauge: S goes to the sender unit,
a ground and a hot (+) to the bus bar (positive terminal on battery).

We have generally installed the float arm on the sender unit span-wise (parallel to the main wing spar). The float would be inboard of the mounting plate (to get a more accurate reading of when the tank is empty).

100) Photo V13-4 photo out of sequence, this is the same photo as V11-8. Replace V13-14 by V10-14. Photo V10-14 shows the Slat support 8V4-5 (and L angles) riveted to the side of the nose rib with the aft edge of the skin Clecoed to the Spar. Ready to drill the skin into the L angle along the slots for the Slat Support.

101) Photo V14-18 3M Rubber and Gasket Adhesive: 847 Bush application 1qt. Can, part number 7509A66 Available from McMaster Carr 630-833-0300 www.mcmaster.com

WINGS ASSEMBLY Section 14 (page 1-17)

102) Photo V12-23 Wait to rivet the Wing Root Skin 8V9-3 until after the wing is bolted to the fuselage.

103) Text at top of page 16 of 17 Reads: "Re-install the skin and rivet in place", replacement text: do not rivet the Root skin 8V9-3, wait to rivet until after the wings are fitted to the fuselage.

104) photos v15-13 through v15-15Does the fibreglass wingtip protrude outboard somewhat at its leading edge? If I sight down the bottom edge of the wingtip from rear to front, that line turns outboard several degrees beginning at the main spar. This is what the "best fit" of the fibreglass to the nose skin gave me. If the bottom edge of the wing tip is meant to be nearly

strait from front to rear, I'm in trouble. Due to to the position of the wing I didn't notice this untill after I had all 3/32 holes drilled.

It is normal and desirable to have some the fiberglass extend outboard beyond the edge of the wing skin; the radius corners of the fiberglass will make a smooth transition from the skin to the wing tip. Also, the overhang does not have to be even on the top and bottom side, please refer to attached photo.

WINGS ASSEMBLY Section 15 (page 1-14)

105) Title block: Builders Manual, Wing assembly, Secion 15, Page 1 of 14, the last subject statement, "Drill and Rivet Leading Edge Skins to Rib/Slat Stiffeners" I can find no reference or photos regarding this operation in Section 15.

4 RIVETS A4 in the I/B and O/B Leading Edge Skin 8V7-1A and 8V7-1B in the bent L angle riveted to nose ribs at stations 1, 3 5 and 7 (rivet line on the I/B side of the Slat Bracket 8V4-5)

Forward Fuselage Assembly Section 1a

106) Photo FF1-1, The stainless steel rivets AS5 can be used instead of the A5 to rivet the stiffeners and angle to the firewall, place the head on the engine side.

107) Photo FF1-4, Remove the text to the right of the photo, #30 holes are only for pilot holes, all rivets are A5 (the note is confusing!)

108) Photo FF1-4, Text under photo: Layout the vertical center line = aircraft center line, layout the rivet line on the top flange of 8F7-1 20mm from the top edge (20mm offset line from the edge).

Forward Fuselage Assembly Section 1b (pages 1-12)

109) Photo FF1-12, 8F7-8 is clamped to the bottom flange of the firewall, fits on the inside of the firewall (cabin side)

110) Photo FF1-20, Slot in the firewall for the Steering Rods is measured from the bottom of the Firewall.

111) Photo FF1-21, Second line of text, change A5 to AS5, stainless steel rivets.

112) Photo FF1-21, No rivet zone at the top of 8F7-5 is for 8F14-1, the other 5 “no rivet zone” are for the engine mount.

113) Photo FF1-25, Text to right of photo, the rivet line is drilled in the front flange of 8F7-7

114) In the manual where it instructs not to do something it would be good if this info were in BOLD print. Suggest adding the following after "Don't rivet this line,...these holes will be used to align the support for the engine brackets in sect 3c.

115) Photo FF1-26 Is there a minimum distance from the strut hole to the bolt holes? The picture shows 4 bolt hole but does not indicate where they should be located. I can see approximately from the picture...but not sure if there anything that could cause interference if the bolts are placed wrong. A hole pattern jig/drawing would be helpful, or measurements from the font/sides to the hole centerlines of the bearing surface.

Ref 8F7-4 NOSE GEAR UPPER BEARING
dimension of the bearing are 95mm x 75mm. along the long side (positioned span - wise) the distance between the bolts is 60mm (30mm from center line)
55mm between the front and aft bolt
BOLTS = AN3-5A qty=4

116)

Forward Fuselage Assembly Section 2a (pages 1-11)

117) **photo ff2-7** is so poor is almost impossible to interpret. Light and contrast are very important here as would the use of a higher quality digital camera. In photo ff2-7 how far forward in mm should the bend extend?

118) Photo FF2-9, This template is not used to set the width of the fuselage, it is cut undersize. The bottom width of the fuselage is set by the position of the cabin side to the Forward Fuselage Cabin Floor 8F8-7 (from the aircraft center line to the front inside edge of the cutout is 491 + 22 for the cutout shown on photo ff2-5, the total distance across the bottom is 1026mm). The distance across the top is

set first by clamping 8F7-7 (Upper Horizontal "Z" Rear) to the front of the extrusion of the extrusion (distance across the front of the extrusions is 928mm , this is also the width of the Firewall), Also position and Clamp 8F11-1 to the angle on the Cabin Side (the distance across the top flange of 8F11-1 is 1020mm), measured from outside to outside of the cabin frame along the front of 8F11-1 is approximately 1065mm. Clamp the forward template to hold the cabin sides.

119) **Photo FF2-10,** Part number for the Cabin Side Assembly is 8F9-S/A
120) **Photo ff2-16**, 8F11-1 Front Channel (front seat) is already supplied with the ends cut on an angle, no additional trimming is required. Distance across the top is 1020 and 1035 along the bottom. 8F11-11 Rear Channel (front seat) is already supplied with the ends cut on an angle, the only trimming is at the bottom to clear the .090" angle solid riveted to the cabin sides. Distance across the top is 1128 and 1142 along the bottom.

Forward Fuselage Assembly Section 2b (pages 1-11)

121) **Photo FF2-21,** Add part numbers, 8F16-6L and 8F16-6R go on the second rivet line from the aircraft center line. Mark the flange center lie (rivet line) on 8F11-1 and 8F11-11
122) **Photo FF2-22,** Last line of text under photo, the part is supplied cut, delete photo
123) **Photo FF2-30,** Seat Attachment Bracket 8F16-4, taper and radius the front top flange of the extrusion
124) **Photo FF2-32,** Drill a 3/16" hole in the Bracket (extrusion)8F16-4 in line with 8F10-9 for the Seat Lock Rod 8F16-4
125) **Photo FF2-34,** No rivet zone (Do not Drill Now) for the Center Seat Belt Attachment 8F16-3. Ref CAD 8ZZ-1 (05/10/00)
126) **Photo ff2-35,** hole in 8F16-1, #20 drill bit for A5

Forward Fuselage Assembly Section 2c (pages 1-14)

127) **Photo FF2-37,** change first line under photo from "On either side of the assembly, install a 60mm" to "On each side of the assembly, install a 180mm"
128) **Photo ff2-38,** Rivet pitch 5xA5, (Add 3 holes between the Cleco
129) **Photo ff2-39 also see photo ff2-39c,** L angles rivet to the side of the Channel 8F16-5 with 2x A5 and 5xA5 in the Front Seat Front Panel 8F11-1 (at the front) and with 5xA5 in the Front Seat Rear Panel 8F11-11 (at the Rear)
130) **Photo ff2-39b,** Rivet an L angle at the front and back of 8F16-6L and 8F16-6R into 8F11-1 and 8F11-11, Rivets, 5xA5 in each flange. L angles go on the inside corner.
131) **Photo ff2-40,** A5 pitch 30
132) **Photo ff2-43,** text above photo replace with: Turn the assembly on its side to expose it's bottom. Open the 3/32" pilot holes with a #20 drill bit through the seat channels: 8F11-1, 8F11-11, 8F 16-6L and 8F16-6R
133) **Photo ff2-44** Wait to install the Lower Longerons 8F10-3 until after the front and rear fuselage section are joined, this will make it easier to fit the curvature of the longer with the curvature of the fuselage. Need new photo. Also see ff3-74
134) **Photo ff2-45,** File a notch in Motor Vertical Mount Bracket 8C8-13, to avoid interference with the actuator.
135) **Photo ff2-47** Use 8C8-13 as a template to check the 108mm distance to the top of 8F16-11. The joggle in 8F16-11 goes towards the front where it overlaps the vertical L angles installed in photo ff2-39b
136) **Photo ff2-46,** Channels 8F16-10 are flush with the edge of the rectangular cutout, 2 rows of 5xA5 each in each Channel, total 10xA5
137) **Photo ff2-49,** Location of the5/16" hole, 66mm from the back edge of 8F16-6L, check the height with 8C8-13
138) **Photo ff2-50,** Use bushing 8C8-14 to set the 48mm spacing between8c8-13 and 8F16-6L

139) Photo ff2-51, delete text on right, instead of using the Steering Rod 8L1-2 use the bolt AN5-24A NOTE: in the photo 8C8-13 does not have the 7/8"" hole for the fuel line. COMMENT: the fuel selector value is no longer position between the two front seats.

140) Phoo ff2-51. 8c8-13

My part no. 8c8-13 is not like the picture. It is
> rectangular in shape, it has a 7/8" hole in it, it' 4mm wider than
> part no.8f16-6L and I have no idea how to shape it to look like the
> picture. Can you send me a drawing of a finished part? Thanks.

The part is supplied with one punched hole, 10mm from the edge and up 20mm from the bottom flange.

The center of the cutout is up 30mm from the punched hole, depth = 5mm
The Motor vert. Mount Bracket 8C8-13 is made from 4130N steel, use a half round file to file a notch to clear the flap actuator, Final Assembly section 3b page 9 of 12 (photo fa3-28)

141) Photo ff2-53, NOTE: THE HOLE IS ONLY DRILLED IF THE FUEL SELECTOR IS POSITIONED BETWEEN THE SEATS, SUGGESTION, REFER TO DRAWING 8FE-1 FOR THE POSITION OF THE FUEL SELECTOR. a 7/8" hole for the 5/8" I/D grommet through 8F16-6L & 8F16-10, 85mm from the top and 35mm back from the front (located on the forward side of the 5/16" bolt for the actuator bolt)

142) Photo ff2-54, change 8C8-1-3 to 8C8-13

143) Photo ff2-55, RIVETING: 3 and 4th line of text under photo: Do not rivet the Front Seat Front Panel 8F11-1, this part must be removed to install the Elevator Control Rod 8C8-16, see CAD drawing 8ZZ-5 (once the front fuselage is joined to the rear fuselage it will not be necessary to remove the Seat Panel 8F16-1)

144) Photo ff2-55, change 8C8-1-3 to 8C8-13

145) Photo ff2-55 In section 2c pg 12 of 14 the manual instructs DO NOT INSTALL longerons or 8F8-1, in checking thru the manual I have been unable to find when and where 8F8-1 is replaced and riveted to the floor.

By not riveting the Longerons 8F10-3 and the Center Forward Floor Stiffener 8F8-1 it will easier to align and fit the forward fuselage assembly to the rear fuselage: Ref. final assembly section 1a page 5 of 12 (Contrary to the instruction, the stiffener and Longeron have already been installed on photo fa1-1, note how the rear fuselage has to be raised).
If you are going to turn the Fuselage on its side as shown on photo fa1-45 (final assembly section 1c) then I would recommend to install the Longeron and channel at this time.

Forward Fuselage Assembly Section 3a (pages 1-12)

146) Photo ff3-1, Location of 8C4-5, centered over the 2 rivet lines, (the first rivet line is at 180mm from front edge of the skin 8F8-7) Check: distance from the front edge of the skin to the front flange of 8C4-5 is 168mm

147) Photo ff3-4, #20 holes for A5 Rivets through 8C8-C

148) Photo ff3-4, Correction to part label, change 8C8-3 to **8F8-3,** also in text under photo, the correct part number for the FORWARD FLOOR STIFFENER is 8F8-3, (8C8-3 is the Rear Torque Tube). Also make correction on photo ff3-5

149) Photo ff3-5, #20 holes for A5

150) Photo ff3-6, Drill a hole in the center of 8C4-6 for 8C4-2, open to 3/16"

151) Photo ff3-7, Bolt AN3-15A, qty=3

152) Photo ff3-8 Outboard Pedal Bearing 8C4-3 are bolts with two AN3 bolts to the Lower Longerons 8F10-3 (left and right sides)

153) Photo ff3-9, Installation of 8C4-4, 2x A5 rivets pulled from the outside (head on the floor skin).

154) Photo ff3-9, Replace photo to show the shorter Channel 8C4-5 and the relocation of the left 8C4-4

155) Photo ff3-12, Cotter pin AN380-2-2

156) Photo ff3-14 and ff3-15, New part number, change 8C4-5 to 8C4-5A, new part number 8C4-5B t=.040", channel 95mm wide to support the left bracket 8C4-4

157) Photo ff3-14 This states NOT to install 8C4-5,8C4-6,8C8-3,8C4-2,8L1-1 at this time. I have check thru the entire manual and can find NO instructions as to when or how these parts are to be installed. I also believe the supports 8C4-4 may need to have the hydraulic cylinder supports opened up to accept an AN3 bolt to hold the lower cylinder portion of the brake cylinder. There are NO INSTRUCTIONS regarding the installation of the hydraulic brake cylinders, lines or the attachment to the brake pedals. In fact there are no instructions as to when to install the rudder pedals after attaching the brake pedals to the rudder pedals.

Forward Fuselage Assembly Section 3b (pages 1-10)

158) FF3-17 Forward Fuselage Assembly, Section 3b - page 2 of 10 (photo ff3-17) Floor Skin
Position of firewall on bottom skin, the bottom of the firewall
overhangs 2 to 3mm past the front edge of the bottom skin (the front edge of the bottom overlaps to the bend tangent lone of the bottom flange of the firewall)

> > this means that the face of the firewall is forward of the edge of the floor skin by 3mm.

Forward Fuselage Assembly, Section 3c - page 9 of 10 (photo ff3-46) Side Skins

Forward Fuselage Assembly, Section 3b - page 9 of 10 (photo ff3-61) Top Skin

> > the side and top skins overhang 3mm forward of the firewall.
Photo ff3-45 (section 3c page 8) and photo ff3-70 (section 3e page 5) show how the overhang skin is hammer around the radius of the firewall flange.

159)

160) Photo ff3-23, Wait to do the final trimming to the Side Skin 8F14-3, along the back edge, trim up the step back to clear the cabin sides, the longer diagonal is trimmed later after the cabin frame is in drilled.

161) Part 8F14-3 (Q.) The wedge shape cut area is bent 90 degrees to fit the cabin side skin, how far forward and at what angle should this bend be made to allow the side skin to fit the cabin skin and still transition smoothly and conform the the rounded shape arriving at the firewall?

As short as possible, bend with the as the cabin side for a good match. Photo ff3-29 shows how the sides of the floor skin (also rolled) will overlap the side skin: the transition is from the 90 degree of the cabin side to the curvature of the firewall.

Forward Fuselage Assembly Section 3c (pages 1-10)

162) Photo ff3-36, Bolts AN3-5A qty=6 (3 in each engine mount bracket 8F7-12)

163) Photo ff3-36, Shim, add a shim between the Engine Mount Bracket 8F7-12 and the floor skin

164) Photo ff3-39, Angle between 8F7-7 and the firewall is approx. 104.5 degree, angle between the floor skin and the firewall is 75.5 degree

165) Photo ff3-40, Bolts AN3-4A qty=6

166) Photo ff3-40, Stainless Steel Rivets AS5 qty=10 each side, Riveting the ends of 8F7-7 into the cabin side extrusions.

167) Photo ff3-45, I'm confused about part no.8f 14-2 (cowl support bracket, Is the bend in it supposed to be toward the inside or the outside?

The joggle bend is towards the inside. The support bracket will be on the inside of the cowl, the cowl strip will overlap on the inside of the bracket.

Forward Fuselage Assembly Section 3d (pages 1-11)

168) Photo ff3-47, Change 43" to 41"

a) The firewall is installed at 75.5 degrees to the floor skin
b) The Instrument panel is positioned on top of 8F14-8 (photo ff3-51), approximately 21-1/4" from the floor skin as shown on template ff3-16
c) Template ff3-47 fits along the front of template ff3-16, the width of the fuselage measured along the floor skin (inside the cabin side angle) is approximately 1000mm
c) Note: the width of the template is not critical, the purpose of the template is to hold the instrument panel level to the floor skin at 20-1/4" inches.
D) Note: the notch underneath the instrument panel (triangular cutout approx. 38x38mm

169) plywood template: distance across the bottom, change 43" to 1020mm or 40-1/4" Change the dimensions of the slot from 1x7-1/2" to 20mmx184mm, distance across the bottom of the template is 980mm, 540 to the underside of the instrument panel is good. Corner cut out underneath the instrument panel change from 1-1/2" to 38x38 triangle cutout. Distance across the bottom of the panel is 1022, the top curvature of the template is approx. 15mm smaller than the instrument panel.

170) Photo ff3-48, last line of text "using screws through the tooling holes", instrument panel is supplied with no tooling holes

171) Photo ff3-52 I'm trying to figure out how long 8F14-8 is supposed to be. My kit has these parts 600mm long and square cut on both ends. Photo ff3-52 shows this part angled on the aft end and protruding some undefined distance aft of the instrument panel template. The 600mm length of my parts protrudes much farther aft. I need to know how far these should extend aft of the instrument panel, and how the ends are to be trimmed.

Front: the front of the extrusion overlaps on top of the firewall flange cut the extrusion on an angle parallel to the firewall web, somewhat visible on photo ff3-40

Rear: The aft angle is parallel to the aft edge of the side skin, 20mm in from the end of the skin to make room for the 3/4" tube welded on the cabin frame assembly: Final Assembly, section 1b, page 11 of 12 photo fa1-33

45mm from the face of the instrument panel to the aft end of the top flange of the extrusion, the side flange is cut parallel to aft edge of the side skin.

172) Photo ff3-60, Rivets in the Instrument Panel Top Skin 8F14-4, A5 pitch 30 along the bottom edge into the Front Side Skin 8F14-3 and the Extrusion (Forward Side skin Longeron 8F14-8), A5 pitch 40 into the firewall 8F1-1, A4 pitch 40 in the Instrument Panel 8F1-2

173) Photo ff3-64, Text under photo, reference to the holes in the instrument panel is not to the tooling holes shown on photo ff3-48, in the two lines of text it is not clear what holes are being transferred: First drill Gusset 8F15-2 (photo ff3-65 and ff3-66), then install 8F15-1.

174) Photo ff3-67, Photo does not show the bend "cuff" at the back of the channel 6F15-1, the "cuff" point up and back. It is not riveted to anything else.

Forward Fuselage Assembly Section 3e (pages 1-9)

175) Photo ff3-68, Small flange crimp location: change 765 to 965. Large flange crimp location: change 50 to 60

176) Photo ff3-68, I'm having trouble understanding just how the cowl strip is supposed to be installed. I laid out the crimps just like the manual said but I can't understand why there are so many crimps so close together at the ends as there is almost no bend at that location on the firewall.

The length of the Cowl Attachment Strip 8F15-1 as supplied is 2150mm long. With the middle on the aircraft center line at the top of the firewall 1075mm will place the ends a little below the Cowl Support Bracket 8F14-2, please refer to section 3c photo ff3-45. As you point out, this area has little curvature and will not require many crimps.
The best way to determine the location of the crimps is to layout the rivet pitch 40 (photo ff3-71) and to add crimps in between the crimps as required. For the best curvature, it is best to have smaller crimps spaced closer than a few deeper crimps.

177) **Photo ff3-69,** The small flange is riveted to the firewall, photo ff3-71 shows the small flange riveted to the firewall, the crimps a bend up away from the firewall.
178) **Photo ff3-73, ff3-74,** Install the Lower Longerons 8F10-3

Rear Fuselage Assembly Section 3

179) **Photo F3-6** distance from the front of the top skin to the back edge of the Gusset 8F3-3 is 220 (change 188 to 220)
180) **Photo F3-7** (page 5 of 7) same change as photo F3-6 NOTE: Gusset 8F3-3 is 400mm long, 200 to the point C (Point C is 20mm back from the front edge of the Fuselage Top Skin 8F2-1, point C is also the top front corner of the Fuselage Forward Side Skin 8F2-2A)

Rear Fuselage Assembly Section 1a

181) **Photo F1-1,** Installing the 2 L angles behind the access hole: Vertical flange is on the front side of the horizontal flange.
182) **Photo F1-1,** Change in building sequence: Position the Longerons to the Side skin first instead of to the bottom skin. Ref. CAD 8FR-1 (07/03/00), 8FR-2 (06/15/00) , 8FR-3 (07/10/00)
183) **Photo F1-2,** Text to the right, the skins are not supplied with the joining rivet line pr-drilled.
184) **Photo F1-4,** The Fuselage Rear Bottom Skin 8F2-3B is supplied with no pre-drilled hole along the front edge. Line up the parts by aligning the aircraft center line, overlap is 20mm, total length = 3806mm. Reference CAD 8FR-2 (06/15/00)
185) **Photo F1-5,** Rear Bottom Longerons 6F3-1A How to determine the left and right sides: Top view the Longerons the Longerons point in towards the aircraft center line 21mm Side view, the Longerons bend up, 38mmI would recommend to follow the procedures in the CAD drawing 8FR-1
186) **Photo F1-8,** Clamp the Longeron flush with the edge of the skin, then drill.

Rear Fuselage Assembly Section 1b

187) **Photo F1-13,** if a piece of metal (aluminum block) is used to made for the joggling block, then the step is the thickness of the Longeron (.093").
188) **Photo F1-26, also see F1-27,** Cutout for the bottom access hole is flush and even with the Z at the front for the piano hinge, one rivet line through the Z and the piano hinge, NOTE: the spine on the piano hinge is on the outside, the access door overlaps on the outside of the fuselage skin.
189) **Photo F1-27,** To install the piano hinge, trim the edge of the skin flush with the aft edge of the Z angle (approximately 10mm edge distance to the predrilled holes)

Rear Fuselage Assembly Section 2

190) Text beside photo F2-2 specifies 17mm allowance for placement of part 8F5-4. CAD8FR-1 shows side plan trimmed flush with edge of skin and top flange at 90 degrees. Please clarify.

Sorry for the inconsistency. The preferred method is to position the Longerons to the sides skins and to trim the end of the Longerons flush with the front and aft edge of the skins, this is the method outlined in the CAD drawings.
However, the other methods outlines through the manual are also correct though not consistence with each other: photo F2-2 Rear Fuselage Assembly section 2 page 4 of 7 is different than what is shown on photo F5-12 and FS-13 Rear Fuselage Assembly Section 5a page 7 of 9 and 8 of 9

191) **Photo F2-5,** first bullet clarification: The gap is between the joggle and the side skin.

Rear Fuselage Assembly Section 3 (7 pages)

192) Photo F3-1, Add flanged lightening hole to rear top Skin 8F2-1, the top side of the skin is with the flanged lightening hole up.
193) Photo F3-6, Top side of the Skin is with the flanged lightening hole flanges pointing up, Ref see photo F4-19 section 4b

194) Photo F3-6 change 188 to 220, distance from the front edge of the skin 8F2-1 to the aft edge of the gusset 8F3-3
195) Photo F3-7 change 188 to 220, distance from the front edge of the skin 8F2-1 to the aft edge of the gusset 8F3-3

Rear Fuselage Assembly Section 4a (11 pages)

196) **Photo F4-9**, The placement of the 1/4" plywood jig will rest on the vertical "L" approx 840 mm aft of front edge of the floor skin and will clamp to the vertical "L". Check the dimensions at this point prior to cutting the jig to be sure your measurements match the jig. The sides of the fuselage taper towards the top and rear, side skins will be very floppy at this point and you may need some additional temporary support until the top skin is in place.

Rear Fuselage Assembly Section 4b

197) When installing the HT frames check carefully which direction the flanges are to face, fwd or aft before drilling be sure to double check the squareness of the fuselage, also check the distances fore and aft on the longerons to be sure they are also square and equal.
198) **Photo F4-19, duplicate photo number page 5 and page 6 of 11 section 4b**
199) **Photo F4-19,** Please confirm that parts 8F3-4 are attached to the rear fuselage by A5 rivets.
Section 4b page 5 of 11 rear fuselage assembly photo f4-19.
Correct, the Brackets 8F3-4 are each riveted on the outside of the fuselage with 9 rivets A5.
200) **Photo F4-19,** text at the top of the page, change “Use a #21 drill bit” to #20 drill bit. The tie down ring is not shown on the in picture. Bolts AN4-7A at the top through bushing 8F4-4, AN4-7A at the bottom through bushing 8F4-5
201) **Photo F4-21,** NOTE: The Rudder Spar is parallel with the aft edge of the fuselage skin.
202) **Photo F4-21,** Bolts AN3-5A qty=6
203) **Photo F4-22,** Correction to text under photo: change “Place the part in position on top of the upper longeron” to on top of the LOWER LONGERON.
204) **Photo F4-23,** Bolts AN3-5A qty=6
205) **Photo F4-25,** New part number for the bent L angle (45degrees) riveted at the end of the fuselage 8F4-3
I noticed in your notes, there is a new part for the std "L"s along the vertical rear edge of the rear fuselage side skins. Is this something you could send, or can you provide guidance on making them out of std "L".

There are two way to install the stiffener at the end of the Fuselage Rear Side Skin 8F2-2B: When using a standard L angle bent at 90 degrees, the vertical flange is installed towards the front. The above note refer to an L angles closed approximately 45 degrees, this stiffener would be be installed win the bend (vertical flange) along the aft edge of the fuselage side skin. The L angle bent at 90 degrees may actually be the preferred installation as it is sure not to interfere with the Rudder.

Rear Fuselage Assembly Section 5a (pages 1 – 9)

206) **Photo F5-4**: Joggle the bottom flange of 8F11-8 to overlap on top of the .093” extrusion
207) **Photo F5-4**: There is no gap between 8F11-8 and 8F5-9, they are riveted together with 4x A4 as shown on photo F5-7. The bottom skin is already pre-drilled with the bottom rivet line at 370 from the front edge: position 8F11-8 against 8F5-9 and drill together.
208) **Photo F5-10** Are the holes to be drilled for 8F11-7 A5 or A4 rivet holes?
A5 pitch 40
209) **Photo F5-12** When drilling the holes for 8F5-4, the bottom 1/3 of my side skin has no predrilled holes. Should I continue to drill and cleco or do not drill where there are no holes?
Do not drill the remaining holes, it will be easier to drill these holes through the Gear Strut fitting 8F17-1, please refer to photo fa1-53 Final Assembly, section 1d, page 5 of 12
210) **Photo F5-12** Read, check and review this drawing Before installing 8F5-4,8F5-3& 8F5-1 check carefully all measurements before cutting 8F5-3 check angles and be sure the 75 Degree angle is next to the skin or it won't fit.

211) Photo F5-13 The top Longeron should be cut flush with the edge of the fuselage side skin, in the photo is it shown to overhang.
212) Photo F5-13 On photo FS-13 Rear Fuselage Assembly, section 5a, page 8 of 9 the Gusset 8F5-4 is not shown installed, it appears that it was temporarily removed to installed the Channel 8F5-4. The Channel 8F5-4 overlaps on top of the Gusset, on our demo this area is visible: the joggle is squashed between the Channel and the Fuselage Side Skins.
213) Photo F5-18, Text under photo, change #30 to #20 for A5, (rivets in the bracket 8F5-1 are A5

Rear Fuselage Assembly Section 5b (page 1-10)

214) Photo F5-16, The Top Channel 8F5-3 is installed with the close angle on top, pictures shown incorrectly with the close angle on top: to front of the Channel is in line with the front edge of the fuselage side skins.
215) Photo F5-20, Wrong part number shown, change 8F11-12 to 8F11-10 Rear Seat Back.
216) Photo F5-24, Rivet pitch of the Seat Back 8F11-10 into 8F5-9, A4 pitch 40
217) Photo F5-25, 8F11-13, the top flange (no drilled holes) points towards the back, the bottom flange (pre-drilled with pilot holes) points forwards.

Rear Fuselage Assembly Section 5c (pages 1-8)

218) Photo F5-31, Wrong part number shown: change 8F11-12 to 8F11-10 Rear Seat Back
219) Photo F5-31, In the photo, change the 2 L angle to channels 8F11-16 Rear Seat Back Stiffener shown correctly in the photo F5-32.
220) Photo F5-31, 8F11-14 is installed parallel to 8F11-13, distance between 8F11-14 and 8F11-13 is 150mm (rivet line for 8F11-14 is not pre-drilled in 8F11-15)
221) Photo F5-32, Add a rivet line through 8F11-10 Rear Seat Back 8F11-16 Rear Seat Back Stiffener, the part is supplied with pre-drilled holes for the bottom stiffener only. A4 pitch 40
222) Photo F5-33, The position of the stiffener 8F11-16 on the Baggage Back Panel 8F11-13 is not give, from the bottom of 8F11-13 to the rivet line through 8F11-16 is 325mm A4 pitch 40
223) Photo F5-33 distance between the two stiffener channels 8F11-16 riveted on seat back 8F11-10 is 204mm, the top stiffener is shown on F5-32 in the corner between 8F11-15 and 8F11-10. Distance the bottom stiffener 6F11-16 to the and the rivet line in the seat back 8F11-10 for the seat bottom 8F11-9 (shown on F5-35) is 145mm. 8F11-10 is only drilled for the bottom stiffener, the top stiffener is not predrilled).
224) Photo F5-34, A4 pitch 40 for the L angles riveted to 8F11-14 and 11-15 to the side skin. A5 pitch 40 for the L angles to 8F11-7, 8F11-9, 8F5-9 to the side skin.
225) Photo F5-35, Channels 8F11-12, the channel closet to the side skin faces inboard, the next one faces outboard
226) Photo F5-36, Text on right, incorrect part number; change 8F11-2 to 8F11-12
227) Photo F5-38, Last line, correct part number, change 8F11-2 to 8F11-12. Seventh line from the top, change “shown in photo FS-38. Pitch 40” to “shown in photo F5-38. pitch 38”

Final Assembly Section 1b

228) Photo fa1-15 Length of the rear Longerons riveted to the Cabin Side 8F9-SA, when installed on the aircraft the aft end of the Longerons will be approximately 115mm down from the top of the Rear Seat Back 8F11-10, the length to the front edge of the fuselage side skin is approximately 750mm. If necessary it is acceptable to cut off more than 5mm in the length of the extrusion
229) Photo fa1-19: Photo shows 8 rivets across the middle of the Gusset 8F3-3 NOTE: The Gusset 8F3-3 is riveted to the airframe before the windshield (sky window) is installed.
230) Photo fa1-25: Cabin Side 8F18-1, cut the length of the tubes (top sides) to fit the Wing Pick-up Template.

231) Photo fa1-26: Picture states 815 mm. **CHECK: measure the actual distance on the wing (the U brackets for the main spar are welded on an angle, 3 degrees for a positive angle of incident), *correct measurement is 819 mm***.

232) Photo fa1-34: Gusset 8F3-3 change 9xA5 to 12 x A5. Riveting Gusset 8F3-3 the cabin frame , Longer Gusset than show on photo fa1-57, from the back side of the Rear Wing Attachment Bracket 8F5-1 to the front edge of the Gusset is approx. 200mm.

Final Assembly Section 1c (pages 1 to 9)

233) Photo fa1-35: Cabin Side Rear Extrusion (part of the Cabin Sides 8F6S/A Ref. Photo fa1-14) are drilled to the Fuselage Forward Side Skin 8F2-2A, rivets A5 pitch 30 (drilled after the Cabin Sides are drilled to the Rear Fuselage).

234) Photo fa1-35: The Doubler Strip 8F16-7, t=.063" (shown in correctly on the packing list as t=.090")

235) Photo fa1-36: Pointing to the front end of the Doubler Strip 8F16-7, even with the front of the seat. The aft end of the Strip is shown in photo fa1-14 (add part number to identify the bent Strip), also shown on photo fa1-43 (add part number to help identify the bent Strip)

236) Photo fa1-38: Doublers 8F16-8 and 8F16-9 are supplied bent over a ¼" radius (update text under photo). The 5/32" holes are pilot holes, the Doublers are installed with 3xA5 in each leg.

237) Photo fa1-39: Working in confided space: there is not enough room for a drill to reach in to drill the Doublers 8F16-8 and 8F16-9 to the Cabin Frame!

238) Photo fa1-40: Doubler 8F16-14 supplied bent, legs are 95mm x 95mm

239) Photo fa1-40 page 4 of 9, photo fa1-40 "bend 8f16-14 60mm from one end, this is the end that will point down".
95mm legs, in 8F16-14 will allow to position the first rivet 50mm from the bend, the next two rivets are spaced 18mm apart with 9mm edge distance to the end.

240) Photo fa1-42: text under photo wrong part number **Extruded "L" 8F16-3** change to "Extrusion Doubler 8F16-13"

241) Photo fa1-42: Location of the Extrusion Doubler 8F16-13 on the back side of the Side Channel 8F5-4: 190mm from the bottom end of 8F5-4 (the middle of 8F16-13 falls on the extrusion of the Cabin side)

242) Photo fa1-43: Drilling: pre-drill #30 holes in the Extrusion Doubler 8F16-13, 20 holes = pitch 20, position in place and back drill 8F16-13 to 8F5-4 with #20 holes.

Final Assembly Section 1d (pages 1-12)

243) Photo fa1-54: AN3-5A + 2 washers, SUGGESTION: with a marker number the head of the bolts 13 bolts on the side.

244) Photo fa1-54: COMMENT: tighten the 4 bolts before the Dour Post Trim 8F5-11 is installed.

245) Photo fa1-60: Missing part number 8F5-4,

246) Photo fa1-60: NOTE: the cutout for the windows is approximately 30mm above the Cabin Side Rear Extrusion, the material is to attach the window.

247) Photo fa1-52: Bolts AN3-5A

248) Photo fa1-55: Bolts AN3-5A

249) July 17/00 Photo fa1-56: Bolts AN3-5A

250) Fa1-56 My question is on 8f5-11. Picture fa1-58 shows 8f5-11 fitting with the small flange against the fuselage side. I already have one cut and it fits just OK. It appears to fit better with the large flange against the fuselage side. Is my interpretation of the picture correct?

The long flange goes against the side skin, the purpose of the long flange is to reach the rivet line through the Side Channel 8F5-4.

On photo fa1-58 the short flange is towards the bottom of the photo, the long flange is not visible (the photo is take after the top had been trimmed to fit on the fuselage), on the left side of the photo the light is casting a show which may be confused with the long flange.

The cutout for the cabin side Longeron is the the bend with the Long flange (correctly shown in the photo)

Final Assembly Section 2a

251) Photo FA2-4: The Lower Bearing Support 8F8-4 is supplied with 10 pre-drilled holes 3/16" diameter. Text at the bottom of the page, change #30 to #12 hole for the AN3 bolts.

252) Photo FA2-4: Lower Bearing Support (part number) 8F8-4 is bent at 14.5 degrees (the angle between the firewall and the floor is 75.5 degree).

253) Photo FA2-5: The Lower bearing Support 8F8-4 is attached to the fuselage with 6 AN3 bolts, AN3-6A qty = 4 (the 4 rear bolts through the floor skin), AN3-6A qty=2 through the firewall.

254) Photo FA2-6: Bolt the two halves of the Lower Bearing Support 8F8-4 with AN3-42A qty=2 , total of 4 washers, 2 under the nut and 2 under the head. Use standard Self locking nuts. Also see photo FA2-25 and FA2-27

255) Photo FA2-10: Spot drill the center of the 3/16" pre-drill pilot hole in the Lower Bearing Support 8F 8-4 on the underside of the Lower Nose Gear Bearing 8F8-5 with a 3/16" drill bit. Remove the parts and open up the 3/16" hole to ¼" in 8F8-4

256) Photo FA2-11: 8F8-5 is attached to 8F8-4 with 4 AN4H-6A bolts. For a depth gauge, paint a mark on the drill bit at 18mm from the point. Use a #3 drill bit (0.213") and a ¼-28 tap for the AN4H-6A bolts.

257) Photo FA2-11: BOLT AN4H-6A change ¼" – 20 to ¼" –28

Final Assembly Section 2b (pages 1-12)

258) Photo FA2-17: Spacer 8L1-3A is not used with the Matco nose wheel, this spacer is only used with Cleveland wheels nose wheel (part deleted)

259) Photo FA2-17: Change 8L1-3C to 8L1-6 Spacer to fit over the ¾" axle 8L1-3A

260) Photo FA2-17: IMPROVEMENT (nose wheel axle) : Add a spacer inside the nose wheel between bearings to prevent the axle corroding in the middle. Will also allow axle to be removed easier at a later date. Also, prevents axle rotation in nosewheel fork as well as stopping side load on the wheel bearings.

261) Photo FA2-23: Bolt AN4-7A through Wheel Fork 8L2-4 and Nose Gear Strut 8L1-1

262) Photo FA2-23: text under photo: change 5/16" to ¼" holes for the AN4-7A to bolt the wheel fork 8L2-4 to the Gear Strut 8L1-1 with four AN4-7A

263) Photo FA2-25: Bolt the Steering 8L1-2 to the bolt (with drill shank) welded on the rudder pedals 8C4-1. Assembly sequence, one washer AN960-516, 1/8" plate welded on Steering Rod 8L1-2, One Washer AN960-516, Castle nut AN310-5, Cotter pin AN380-2-2 NOTE: no photo of the steering Rods bolts to the Rudder Pedals.

264) Photo FA2-26: 5/16"-24- Rod end, part number CW-5-12 with drilled 1/16" inspection hole. Qty=2 , with Jam Nut AN316-5R bolts at the end of the Steering Rods 8L1-2

265) Photo FA2=27: Add bushings 8C9-3 (Flap Control Rod Busing 3/8" O/D, length 2.5mm, qty=4) on each side of the Rod ends (one on top and one on the underside of the rod end). Sequence: Welded bolt on the Nose Gear Strut Assembly 8L1-1, bushing 8C9-3, Rod end CW-5-12, bushing 8C9-3, washer AN960-615, SL nut AN365-524. CHECK: roll the rod end between you fingers to check it is not binding. 2 thread showing past the end of the SL (self locking nut) AN365-524

266) Missing photos FA2-28, FA2-30,FA2-31,FA3-34

267) Photo FA2-30: AN5-22A (washer & SL nut) qty=8 Bolt the main wheel axle to the Main Gear Spring 8L2-1

268) Photo FA2-29: Part number for the Main Gear Spring 8L2-1

269) Photo FA2-32: Castle nut AN310-8
270) Photo FA2-34: AN310-10, install the gear, tighten the castle nut then drill the 3/32" hole in the bolt to install the cotter pin.

Final Assembly Section 3a

271) Photo fa3-7: Bearing overhang the bottom of the bracket by the thickness of the .093" extrusion (longerons)
272) Photo fa3-15: The Seat Panel 8F16-1 cannot be removed once the forward fuselage assembly is riveted to the Rear fuselage assembly. Photo fa3-25 shown the Seat Panel removed (for clarity!)
273) Photo fa3-17: The Elevator Control Rod 8C8-16 is not mounted on the aircraft center line, The hole through the Rear Seat Channel 8F11-8 is offset 5mm to the Right of CL
274) Photo fa3-19: For the hole to be more centered between the rudder cables, it is best to locate the 1-1/2 hole to the right of center line.

Final Assembly Section 3b (page 1-10)

275) Photo fa3-26: flap circuit CAD drawing FIGURE 1-2 (09/99)
There are 3 screw terminals on each of the limit micro switches, each is marked as ON, COM or NC
Part number for the Double pole switch MS35059-27

CHECK for electrical connection

top: 6 & 3 COM + RED (flap motor)
middle: 5 & 2 power supply (+ aircraft bus bar & ground)
bottom: 4 & 1 NC + BLACK (flap motor)

Note: the ON terminal on the micro switch is not connected.

276) Photo fa3-28: Change AN5-21A to AN5-24A
277) Photo fa3-32 setting the travel of the limit switches, refer to the following CAD drawing:
8ZZ-4 (09/15/00)
8ZZ-5 (10/30/00)
8ZZ-6 (09/15/00)

278) Photo fa3-33: Distances shown is not the best way to set the limits.
279) Photo fa3-39: Size of the cutout, shown larger on photo fa3-58 and fa3-46: the cutout is 270 long x 50wide.
280) Photo fa3-40: Wrong part number in text, change 8C8-12 to 8C8-16 (Elevator Control Rod)
281) Photo fa3-49: Size of the cutout is shown different than on fa3-39: length=270mm
282) Photo fa3-55: text under photo, part number correction, change 8F11-3 to 8F11-8 Rear Seat Support Channel
283) Photo fa3-55: Location of the ¾" holes in the Rear Seat Support Channel 8F11-8, CHECK: straight cable alignment between 8F11-3 Front Seat Frwd Bearing and 8F11-4 Rear Seat Frwd Bearing. Note: there is no bearing material around these holes. (37mm to left of center line, 43mm to right of center line)

Final Assembly Section 3d

284) Photo fa3-57: Cable Safety Bracket 8C1-5 is supplied bent, qty=2 UPDATE PHOTO to show actual part. Correctly shown around the pulley on photo fa3-61

285) Photo fa4-58: The Elevator Control Rod 8C8-16 is bolt on the right (co-pilot) side of the Bellcrank 8C1-1 (same side as the 1-1/2" drilled 5mm from center line, see fa3-17)

286) Photo fa3-61: Bracket 8C1-5, supplied Brackets the left and the right are both the same, in the photo the left bracket is wider than the right bracket.

Final Assembly Section 3c

287) Photo fa3-37: Bolt AN4-20A pivot of the Lower Control Stick 8C8-1A and the Forward Torque Tube 8C8-2, not shown is the bushing 8C8-1B (bushing fits inside the Lower Control Stick 8C8-1A NO PHOTO)

288) Photo fa3-40: Elevator Control Rod is part number 8C8-16, change 8C8-12 to 8C8-16

289) Photo fa3-46: Change 265 to 270 in photo (text on the side of the photo explains this discrepancy).

Final Assembly Section 3e (pages 1-15)

290) Photo fa3-67: the Bushing goes through the Flaperon Bellcrank 8C8-4 (1/2" hole), AN960-616 washer, AN310-6 Castle nut.

291) Photo fa3-74: Wait to rivet 8C5-17, it is riveted on top of the Seat Panel 8F16-1

292) Photo fa3-75: Wait to rivet 8C5-18, The O/B Seat Belt Attachment 8C5-18 have to be removed to install the Seat Panel 8F16-1

293) Photo fa3-80: tolerance shown under photo 010-105" is not clear. Bring the Bearing 8C8-17 up to the plastic bearing 8F11-4, a small gap is acceptable (clearance is 10-15 thousandths)

294) Photo fa3-80: Bolts AN3-16A Forward Torque Tube 8C8-2 to Bearing 8C8-17 (two 3/16" holes drilled at 90 degrees to each other).

295) Photo fa3-81: Bolts AN3-15A Forward Torque Tube 8C8-2 to the Rear Torque Tube 8C8-3 (two 3/16" holes drilled at 90 degrees to each other).

296) Photo fa3-83: Castle nuts AN310-5 + 1 washer to hold the rod end CW-5-12

297) Photo fa3-87 (photo fa3-76 page 14 of 15): Update photo number & photo, same pic as fa3-86, text on last bullet: Control tunnel panel installation, section not included in photo sequence. Refer to CAD drawing 8ZZ-1 (05/11/00)

Final Assembly Section 4a (pages 1-16)

298) Photo FA4-16: Build the door on the inside of the plywood template. Ref photo FA4-2 shows the inside of the door.

299) Photo FA4-14: Text at the bottom of the page, wrong part number, change 6F14-3 to 6F19-3 (The inside distance between 8F19-4 to 8F19-3 is 650mm).

Final Assembly Section 4b (pages 1-13)

300) Photo FA4-29 I am unable to find 8F19-13, 8F19-14 and 8F19-15 as shown in final assembly section 4b page 8 of 13. I found the bag with the rest of different than shown on the plans. I'm wondering if the above mentioned parts are still needed? I did not see any correction in the update section so I have assumed I need to install 8F19-13, 8F19-14 and 8F19-15. Can you help me out?

Sorry for the confusion, the supplied chrome door handle with key replaces the 4 parts shown on photo FA4-29, 8F19-13, 8F19-14, 8F19-15

Please also refer to exploded view 8XF-5

Note: do not drill the 1-1/8" hole in the outside skin. When the Chrome handle with key is used, drill a smaller hole.

Final Assembly Section 4c (pages 1-9)

301) Page 6, text between the two photos: 180mm is not right. Use the following to locate of the Door Clasp 8F19-20 on the wing and the Welded Door Retainer 8F19-21 on the door. With the door hinged on the fuselage, mark the intersection of the Bent Lower Tube 8F19-8 (see photo FA4-14 Final Assembly Section 4a) with the main spar. Also Mark the intersection of the Main spar on the 8F19-8 (bottom of door)

The Welded Door Retainer 8F19-21 is riveted with 2x A5 through the center of the Bent Lower Tube 8F19-8 (Rivets are centered up and down on the steel plate): position the center of 8F19-20 on the intersection line with the Main spar.

Connect the Door Clasp 8F19-20 to 8F19-21 as shown on the top photo on page 5 of 9 Final Assembly Section 4c.
8F19-20 is riveted to the underside of the wing with 2x A6 rivets, the aft rivet is through the center of the spar (in line with the spar rivet line). 8F19-20 fits in between the existing rivets in the spar rivet line.

302) After installation when the door is open, the window pull up the fuel drain from the inner tank! Why could this happen?

Due to the height of the Welded Door Retainer 8F19-21 could have been made taller to give more clearance for the fuel drawing between the underside of the wing and the door (especially the window).

Also the inner flaperon brackets stands on at the window. Do I to make a cut on this flaperon brackets to clear the doors?
If 8F19-21 is made taller, there would be less interference with the Flaperon Arm 8V4-7. On our demo we had to fine the front portion of the Arm to make room for the aft portion of the door. Please refer to the following pictures.

Final Assembly Section 5 (pages 1-8)

303) Suggestions for fin construction- Alert builders that they will have to take off the horizontal stab to install the fin (ie don't torque nuts nor safetywire cable connex yet, 'cause it will just have to all come back off). Check your measurement of 350 mm from rear of 8C6-4 for positioning the forward fin rib 8C6-7. We found that at the indicated position, it closed up the fin so much that the flanges didn't clear the lightning hole on the top fuselage skin. We have some decorative rivets> now, and moved the rib a few inches forward.

304) Photo "ZAC file photo" top of page: Change part number 8C6-5 to 8C6-5A

305) Straight line across the top of 8C6-5A and 8C6-4, 8C6-5A fits inside 8C6-4 approximately 20mm overlap. For a good fit some trimming may be necessary!

Aircarft Finishing – Windows Section 1

306) Photo w1-7: General cautionary advise on how to handle Plexiglas:

a) 3/16" should be large enough for the oversize holes in the plexi glass windows.
b) It should be worked in a warm place, the Plexi becomes more brittle when cold
c) Leave the protective tape on
d) First drill pilot holes with #40 drill bit, remove the from the airframe and open up the holes using a unibit.
e) clean with an up and down motion only to avoid "scouring."

307) Photo w1-24: Windows are riveted to the fuselage with A4 (pulled with a hand riveted), oversized holes in the Plexiglas, 3/16 to ¼"

Aircarft Finishing – Attach Elevator & Stabilizer (pages 1-9)

308) Photo Stab-5 (page 6 of 9)**:** Forward position of the Stabilizer, The Stabilizer Front Bracket 8H2-10 should completely overlap the Bracket 8F3-4: the aft edge of 8H2-10 is flush and even with the aft edge of 8F3-4. (In your photo it appears that you have lined up the aft edge of 8H2-11 with the aft edge of 8F3-4).

Aircarft Finishing - section 3– Attaching the wings to the fuselage (pages 5-11)

309) Photo "fine wing –attach2b" Could it be that the center of the hole in the front cabin frame is not exactly in the middle?

The Main Wing Spar slides 42mm inside the "U" bracket welded on the cabin Frame: 22mm from the root end of the Main spar to the center of the 3/8" hole .
Location of the 3/8" hole on the 'U' bracket: 20mm in from the outboard edge of the "U" bracket, 16.5mm up from the bottom of the "U' bracket. The 3/8" hole is centered on the spar.

310) Photo "fine wing –attach2b" 1) The Bottom Rear Skin 8V7-3, Join with a straight line the root of the Main spar to the root (inboard end) of the Rear I/B Channel 8V6-2A. On photo V10-14 page 9 of 11 Section 10 Wing Assembly, the Skin 8V7-3 is shown to extend beyond the root end of the Main spar.

2) Wing bolt attachment cutout on the underside of the wing. Cutout for the rear wing attachment Width of cutout is approximately 40mm from the root end of rear Channel. Length: front edge is approximately 60mm from the center line of the Rear Channel , the aft edge is approximately 60mm from the center line of the Rear Channel. Cutout for the front wing attachment (Main Spar). Width = approximately 40mm, aft edge = 60mm from the center line of the Main spar. Ref. Photo "file wing-attach3a" page 5 of 11 section 3, Aircraft Finishing – Attaching the Wing to the Fuselage.
Front edge = extend the line from the aft corner forward to intersect with the edge of the bottom Rear Skin 8V7-3.

3) Wing Root Skin 8V9-3, The outline traced on the supplied skin as shown on photo V12-6, page 6 of 17 section 14 Wings Assembly is quite good, on page 7 of 17, distance from the rivet line through Root Rib 8V4-2 to the inboard edge of the skin is approximately 160mm

4) Rear aft corner of 8V9-3, corner is tapered, measure approximately 80mm from the aft edge of the top window join to the edge of the fuselage. The tapered corner reduced tension on the top skin.

5) Trim Root Skin 8V9-3 to go around the windshield and front wing attachment, Ref photo "file w1-16" and "file w1-17" section 1 page 9 of 14 Aircraft Finishing – Wings, also photo "wing-attach2b" section 3 page 5 of 11 Aircraft finishing-Attaching the wing to the Fuselage.

311) file wing-attach 4-0 do I have to round up the corners from the wing strut (8V10-1, 8V10-2A)?
I checked on our demo, the corners were only slightly rounded. I would suggest to radius to remove the sharp corners!

do I have also to round the corners from the front corners from the cabin frame, where I bolt the wing to the frame?
1/8" radius to remove the sharp corner.

HARDWARE SUMMARY

312) Forward Fuselage / Gear & Wheels bolt hardware:

****ENGINE MOUNT FITTING**** Forward fuselage assembly section 3c
AN3-4A BOLT, WASHERS, SL NUT (photo ff3-40)
@ 8F7-11 upper engine mount fitting ---------- 6
AN3-5A BOLT, WASHERS, SL NUT (photo ff3-36)
@ 8F7-12 lower engine mount fitting ---------- 6

****GEAR STRUT FITTING** 8F17-1**** final assembly section 1d
AN3-5A BOLT, (2) WASHERS, SL NUT (photo fa1-52, fa1-54, fa1-56)
@ 8F17-1 to fuselage ---------- 46
AN310-8 CASTLE NUTS (photo FA2-32)
@ 8F17-1 & 8F17-2 gear support bolts---------- 4
AN960-816 WASHER ---------- 4
AN380-3-43/32" COTTER PIN @ 8F17-1---------- 4

****RUDDER PEDALS** 8L1-1****
AN3-5A BOLT, WASHERS, SL NUT
@ 8C4-3 outboard pedal bearing ---------- 4
AN3-5A BOLT, WASHERS, SL NUT
@ 8F7-4 nose gear upper bearing ---------- 4
AN3-15ABOLT, WASHERS, SL NUT
@ 8C4-2 central pedal bearing ---------- 3
AN380-2-2 1/16" COTTER PIN
(photo ff3-12, forward fuselage assembly section 3a)
@ 8L1-1 & 8L1-5 ---------- 4
*** **NOSE GEAR BEARINGS** *** final assembly section 2a, (photo FA2-1)
AN310-4 CASTLE NUT, WASHER (NO PHOTO)
@ 8L1-1 & 8L1-5 top plate ---------- 1
AN380-2-2 1/16" COTTER PIN @ 8L1-1 & 8L1-5 ---------- 1
AN3-5A BOLT,WASHER, SL NUT
(forward fuselage section 1b, photo FF1-27)
@ 8F7-4 & 8F7-1 Nose Gear Upper Bearing ---------- 4
AN3-42A BOLT,WASHER, SL NUT (photo FA2-6)
@ 8F8-5 bearing ---------- 2
AN3-6A BOLT,WASHER, SL NUT (photo FA2-5)
@ 8F8-4 bearing support in floor ---------- 4
AN3-7A BOLT, WASHER, SL NUT (photo FA2-5)
@ 8F8-4 in firewall ---------- 3
AN4H-6A BOLT (drilled head), WASHER (photo FA2-11)
@8F8-4 & 8F8-5 ---------- 4

*** **STEERING RODS** 8L1-2*** Final Assembly Section 2b, (photo FA2-25)

AN365-524 SL NUT, WASHER (photo FA2=2)
@ 8L1-1 & CW-5-12 ---------- 2
8C9-3 3/8"O/D BUSHING L=2.5mm
@ 8L1-1 & CW-5-12 ---------- 4
AN310-5 CASTLE NUT
@ 8C4-1 & 8L1-2 rudder pedals/steering rods ---------- 2
AN380-2-2 COTTER PIN @ 8C4-1 & 8L1-2---------- 2
AN960-516 WASHER @ 8C4-1 & 8L1-2 ---------- 4
CW-5-12 ROD END W/ DRILLED INSPECTION HOLE (photo FA2-26)
@8L7-12 ---------- 2
AN316-5R JAM NUT @8L1-2 ---------- 2

*** **NOSE WHEEL FORK & AXLE***** Final Assembly, section 2b,
AN4-7A BOLT, WASHER, SL NUT (photo FA2-23)
@ 8L1-1 & 8L2-4 wheel fork ---------- 4
AN310-10 CASTLE NUTS @ 8L1-3B axle ---------- 2
AN960-1016 WASHER @ 8L1-3B ---------- 2
AN380-4-5 1/8" COTTER PIN ---------- 2

*** **BUNGEE PIN** *** Final Assembly, section 2b
AN380-3-4 3/32" COTTER PIN (photo FA2-14, FA2-16)
@ 8L1-3B bungee pin ---------- 2
AN960-816 ¾" I/D WASHER ---------- 2

BRAKES / MASTER CYLINDER
AN3-7 BOLT, WASHERS, CASTLE NUT + COTTER PIN
@ 8C4-7 & MC-5 TOP of master cylinder ---------- 2
AN3-11 BOLT, WASHERS, CASTLE NUT + COTTER PIN
@ 8C4-7 & MC-5 BOTTOM of master cylinder ---------- 2
F468-4A STRAIGHT MALE FITTING, 1/8"NPT PIPE, ¼" O/D TUBE
@MC-5 master cylinder & caliper outlet ----------4
F469-4A 90DEG MALE FITTING, 1/8"NPT PIPE ¼" O/D TUBE
@ join dual calipers together ---------- 2
MS35489-6 GROMMET @for brake line through fuselage ----------8

MAIN WHEELS**
AN5-22A BOLT, WASHERS, SL NUT
@8L2-1 main wheel axle to gear spring ---------- 8

313) Rear Fuselage bolt hardware:

*** **Rudder to fuselage***** Rear Fuselage Assembly, section 4b

AN4-7A BOLT, SL NUT, 3 WASHER (photo F4-19)
@ 8R2-4 to 8F4-1 upper hinge ---------- 1

AN4-10A BOLT, SL NUT, 3 WASHER @ 8R2-4 to 8F4-1 upper hinge
When 8mm spacer is required
to alignment of the brackets ---------- 1

AN4-7A BOLT, SL NUT, 4 WASHER
@ 8R2-3 to 8F4-2A & 8F4-2B, lower Hinge ---------- 1

8F4-4 Upper Rudder Hinge Bushing 5/16" O/D length=10mm ---- 1

8F4-5 Lower Rudder Hinge Bushing 5/16" O/D length=8mm --------- 1

Stabilizer to Elevator** – center hinge
NOTE: HARDWARE SUPPLIED WITH TAIL KIT;
NOT INCLUDED IN THE HARDWARD BOX

AN4-6A BOLT, SL NUT, 3 WASHER
@8H5-3 to 8H3-3 Ref. Photo H3-17 ---------- 1

8H3-4 Elevator Bushing 5/16" O/D length=2.5mm ---------- 1

AN380-2-2 1/16" COTTER PIN
@8H3-1 to steel pin 8H3-2 Photo: H3-9 ---------- 2

AN960-10 3/16" WASHER (under cotter pin) Photo: H3-9 ---------- 4

Stabilizer to Fuselage
AN4-5A BOLT, SL NUT, WASHER
@8H2-10 front stab brackets
to H.T. Attachment Bracket 8F3-4 ---------- 2

AN4-10A BOLT, SL NUT, 3 WASHER
(when a 5mm spacer shim is used for alignment) ---------- 2

AN4-5A BOLT, SL. NUT, WASHER
@8H2-11 rear stab bracket
to H.T. Attachment Bracket 8F3 ---------- 2

Rudder Brackets to Fuselage
AN3-5A BOLT, SL NUT, WASHERS (photo F4-21)
@8F4-1, top bracket ---------- 6

AN3-5A BOLT, SL NUT , WASHERS (photo F4-23)
@8F4-2A & 8F4-2B, lower brackets ---------- 6

*** **Rear Access Cover** 8F2-4***
NOTE: HARDWARE SUPPLIED WITH FUSELAGE KIT;

NOT INCLUDED IN THE HARDWARD BOX

AN525-10R7 SCREWS + WASHERS
@8F2-4 ---------- 12
MS21075L3 10-32 FLOATING NUT PLATE----------12
A3 Rivets for nut plates ---------- 24

*** **Rear fuselage tie down ring******
94021 Tie down Ring, course thread SL. Nut + washer ---------- 1

314) FUSELAGE FUEL SYSTEM:

NOTE: NOT INCLUDED IN HARDWARD BOX

*** **Fuel selector valve******
210-CL 3 POSITION FUEL SELECTOR VALVE ----------1
F139-6B 90deg 3/8 Hose I/D BARRED FITTING w/ ¼"NPT pipe---------- 2
F140-6B 45deg 3/8 Hose I/D BARRED FITTING w/ ¼"NPT pipe ---------- 1
AN4-5A BOLT+WASHER+SL NUT (bolt valve to bracket 8E3-11 ---------2
8E3-11 FUEL SELECTOR MOUNTING BRACKET ---------- 1
8E3-12 FUEL VALVE EXTENSION HANDLE (welded assembly) ------- 1
AN380-2-2 1/16" COTTER PIN
@8E3-12 extension handle to valve -------- 1

Fuel Lines*
FLH-6-503/8" FUEL LINE ---------- 22ft
MS21919-DG12Adel padded clamp ---------- 20
A6 3/16" rivets for the Adel clamps. ---------- 20
F965-8 90deg 3/8" O/D ELBOW (barred fitting)---------- 8
F62606 7/8" HOSE CLAMPS ---------- 15
9600K36 GROMMET 5/8" I/D 1/16" GOOVE,
@8F11-7, 8F11-11, 8C8-14 ---------- 4
9307K67 GROMMET5/8"I/D ¼" GROOVE,
@8C11-3 through bearing ---------- 2

Gascolator *NOTE: INCLUDED WITH KITS ORDERED AFTER JUNE 2000*
A10580 Gascolator Assembly w/ welded attachment angles ---------- 1
F125-4A Straight nipple fitting 3/8" hose to 1/8" NPT pipe ---------- 1
F118-A 1/8"NPT plug (top of Gascolator) ---------- 1
F125-6B Straight 3/8 Hose I/D BARRED FITTING w/ ¼"NPT pipe---------- 1
F139-6B 90deg 3/8 Hose I/D BARRED FITTING w/ ¼"NPT pipe----------1
Firewall fitting

315) Wings/Slat/ Flaperons final assembly

FLAPERONS

AN3-7A BOLT+ 4 WASHERS+SL NUT (photo FR3-25)
@ 8V4-7 ---------- 8
8A2-7 BUSHING ---------- 8

SLATS

AN3-5A BOLT+ WASHERS+SL NUT, @ 8V4-5 ---------- 16

WINGS*

94021 Tie down ring + washer + coarse thread SL. Nut ---------- 2
AN6-12A BOLT+ WASHERS+SL NUT
(Front top: spar to cabin frame)---------- 2
AN5-6A BOLT+ WASHERS+SL NUT
(Rear top: Channel 8V6-2A and
Doubler 6V4-3 to Bracket 8F5-1)---------- 2
AN5-10A BOLT+ WASHERS+SL NUT (Top front strut) ---------- 2
AN5-7A BOLT+ WASHERS+SL NUT (Top rear strut)---------- 2
AN5-7A BOLT+ WASHERS+SL NUT (Lower strut gear fitting) -------- 4
AN3-5A BOLT+ WASHERS+SL NUT (Upper Jury Strut)---------- 4
AN3-16A BOLT+ WASHERS+SL NUT (Lower Jury Strut)----------4

WINDSHIELD;** 8F22-5

SNST-18P OVAL SCREWS (side front windshield) ---------- 10
SNW-2012FINISHING WASHERS ---------- 33
10RX3/4 OHATOP WINDSHIELD SCREW ----------23

316) Seat

AN960-416 ¼" WASHERS @8F20-3 seat back pivot ---------- 8
AN380-3-33/32"3/4" COTTER PINS @8F20-3 ---------- 4

317) CONTROL (photo fa3-25)

See drawing 8CN-2

***CONTROL STICK**; 8C8-1A ***

AN3-15A BOLT+ WASHERS+SL NUT, (NO PHOTO)
@ 8C8-1A to 8C8-1C lower to upper stick ---------- 1

AN4-20A BOLT+ (2) WASHERS+SL NUT (photo fa3-37)
@ 8C8-1B through pivot bushing ---------- 1
8C8-1B 5/16" O/D BUSHING
@8C8-1A & 8C8-2 stick pivot bushing ---------- 1
AN5-17A BOLT (grip length=1-1/2")+ WASHERS+SL NUT
@8C8-1A & 8C8-16 stick to control rod ---------- 1

*** **FORWARD TORQUE TUBE**; 8C8-2***
AN3-16A BOLT+ WASHERS+SL NUT (photo3-80)
@ 8C8-2 & 8C8-17 forward torque tube bearing ---------- 2

REAR TORQUE TUBE**; 8C8-3 Final assembly section 3e
AN365-524 5/16" self locking nut
(if hole is drilled in bolt use AN310-5 CASTLE NUT (photo fa3-70)
@ 8C9-1 to 9C8-3 ---------- 2
AN960-516 WASHER @ 8C9-1 to 9C8-3 ----------2
AN380-2-21/16" COTTER PIN ---------- 2
AN3-15A BOLT+ WASHERS+SL NUT (photo fa3-71)
@ 8C8-2 & 8C8-3 rear torque tube to forward torque tube ---- 2

**** **FLAP TORQUE TUBE** 8C8-5* ** Final Assembly section 3a
AN310-6 CASTLE NUT (photo fa3-68)
@8C8-5, 3/8" bolts welded on flap torque tube ---------- 2
AN380-3-3 COTTER PIN ---------- 2
AN970-6 PENNY WASHER
@ 8C8-5 (3/8" Bolt welded to torque tube)---------- 2
8C8-19 ½" BUSHING length=10mm (photo fa3-67)
@8C8-4 & 8c8-8 flaperon Bellcrank ----------2

***FORWARD FLAP ACTUATOR ROD**; 8C8-12**
CW-5-12 ROD END (photo fa3-31)
@8C8-12 (aft end) flap forward actuating rod ---------- 1
AN316-5R JAM NUT for rod end ---------- 1
AN5-12A BOLT+ WASHERS+SL NUT (photo fa3-27, fa4-41)
@8C8-12 & 8C8-5 flap torque tube ---------- 1

***ELEVATOR CONTROL ROD**; 8C8-16**
CW-5-12 ROD END
@8C8-16 to 8C1-1 elevator control rod to H.T. Bellcrank --- 1
AN316-5R JAM NUT for rod end ---------- 1
AN5-10A BOLT+ WASHERS+SL NUT

@8C8-16 & 8C1-1 flaperon rods to H.T. Bellcrank ----- 1

*** **FLAPERON HORZ. CONTROL ROD**; 8C9-1*** final assembly section 3e

CW-5-12 ROD END (photo fa3-66)
@ 8C9-1 flaperon Bellcrank (outboard end) ---------- 2
AN5-10A BOLT+ WASHERS+SL NUT
@8C9-1 & 8C8-4 H.T. Bellcrank ---------- 2
AN316-5R JAM NUT for END
@8C9-1 flaperon control to torque tube. ---------- 2

***FLAPERON VERT. CONTROL ROD** ; 8C9-2 ****final assembly section 3e

CW-5-12 ROD END
@8C9-2 flaperon control to torque tube. (top end) ---------- 2
AN316-5R JAM NUT for rod end ---------- 2
VERTICAL ROD UPPER SPACER
connection flaperon to flaperon horn ---------- 2
AN5-11A BOLT+ WASHERS+SL NUT
@8C9-2 & 8C8-4 rod end in Bellcrank BOTTOM ---------- 2
AN5-20A BOLT + WASHERS+ S.L. NUT
@8C9-4, 8C9-4 & 8A2-5 flaperon control horn TOP ---------- 2
8C9-3 3/8" O/D BUSHING length=2.5mm
@on each side of rod end & 8C8-4 Flaperon Bellcrank ------ 4

FLAP ACTUATOR; D145-0036-3 final assembly section 3b

AN5-24A BOLT+ (2) WASHERS+SL NUT (photo fa3-28)
@ rod end ---------- 1
8C8-14 3/8" O/D FLAP MOTOR INNER BUSHING (photo3-26)
length=48mm ---------- 1
8C8-15 ½" O/D FLAP MOTOR OUTER BUSHING length=22mm ----- 1

***RUDDER / ELEVATOR CABLE** ***

F-15-204 THIMBLE ---------- 12
AN115-21 CABLE SHACKLES ---------- 6
S-11-004 1/8" NICOPRESS SLEEVE ---------- 12
AN130 TURNBUCKLE ASSEMBLY: AN161-22RS FORK,
AN170-22LS EYE @ rudder horn ---------- 2
AN140 TURNBUCKLE ASSEMBLY: AN170-22LS EYE,
AN170-22RS EYE @ elevator cables ---------- 2

AN3-6 BOLT (DRILLED SHANK) + CASTLE NUTS
AN310-3+ WASHERS AN960-10+
COTTER PINS AN380-2-2
@shackles & turnbuckles fork end, see 8CN-1 ---------- 8

*** **RUDDER PULLEY**** final assembly; section 3d
MS20220-1 RUDDER CABLE PULLEY (photo fa3-57)----------2
AN380-3-6 3/32"X 1-1/2" COTTER PIN
@8C1-5 safety clip for cable over pulley ---------- 2
AN5-54A BOLT+ (3) WASHERS+SL NUT,
@8C1-2 long bolt through elevator pulleys ---------- 1
8C1-4 BUSHING MATERIAL ----------1

***SEAT BELTS; 6-7-SB ***
AN5-5A BOLT+ 2WASHERS+SL NUT (photo fa3-75)
(8C5-18, 8F16-2, 8F16-3) front seat ----------10
AN5-7A BOLT+ 2WASHERS+SL NUT
@8F6-1, rear seat middle ---------- 1
AN3-4A B0LT+ 2WASHERS+SL NUT (photo fa3-74)
@8F6-1 rear middle seat belt attach to 8C1-2, ----------2

***CABIN FRAME; 8F18-1 ***
AN4-6A BOLT + 2 WASHERS + SL NUTS (photo fa1-30)
Also through the engine mount ----------2