FINAL AIRCRAFT ASSEMBLY

FIGURE 34

AIRCRAFT ASSEMBLY - AILERON CONTROLS

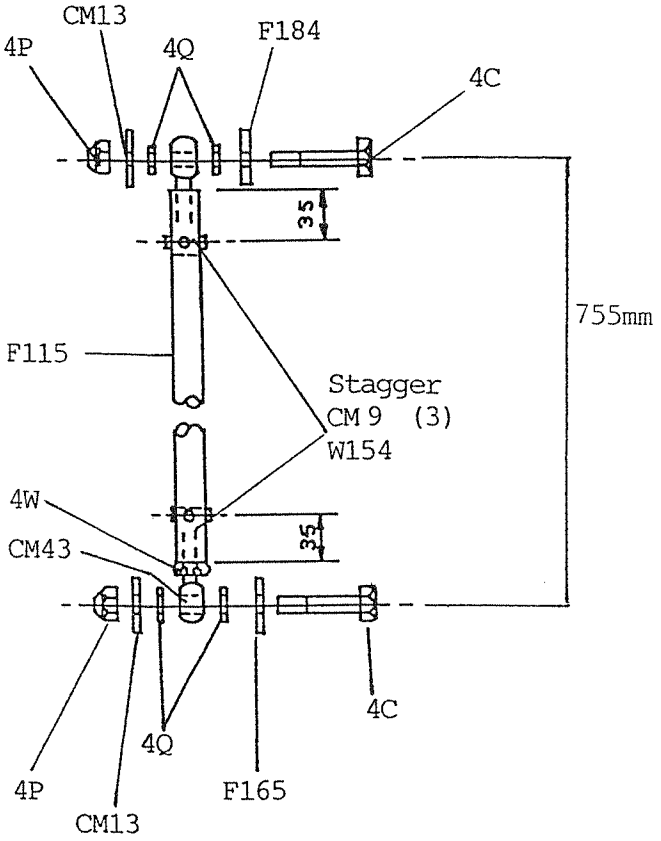
PART NO.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
F260	1	Bearing Housing Jackshaft		
F182	1	Tube Jackshaft		
F183	1	Horn Jackshaft		
F184	1	Horn Jackshaft		
F252	2	Bearing Jackshaft	GREASE	
F121	1	Bracket Jackshaft		
F115	1	Conn. Tube Aileron		
W154	2	Insert Aileron Tube	LOCTITE	4.1

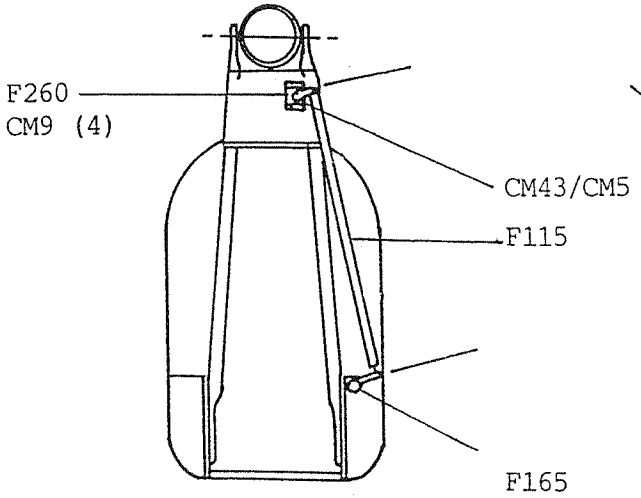
Assemble Connect Tube F115 with W154 inserts.
Rivet the Bearing and Bearing Housing, F260 and F252, in place with the Jackshaft F182 in position to ensure alignment.
Make sure the hole in the Hanger Gusset for the Bearing Housing does not tighten the Bearing.
Put the Control Stick to NEUTRAL position as illustrated and install the rod ends, the uppermost one with LOCTITE, fully home.

Check that the Control Stick is still in the neutral position, and drill F183, Jackshaft Horn, at the VERTICAL.

Install Air Speed Indicator as shown.

FIGURE 34 A





(Rear view)

Distance between Rod Ends, CM43, is 755mm with:-
1. Horn F183 VERTICAL
2. Control Stick NEUTRAL.

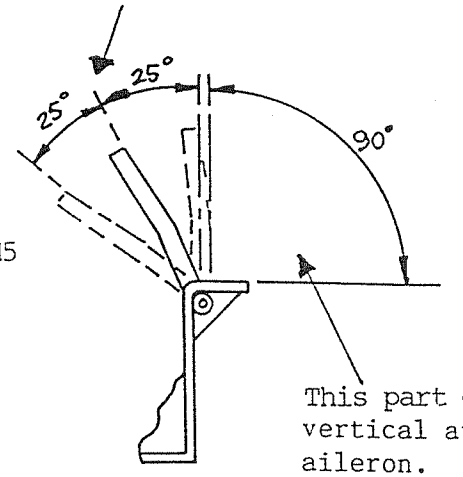


FIGURE 34

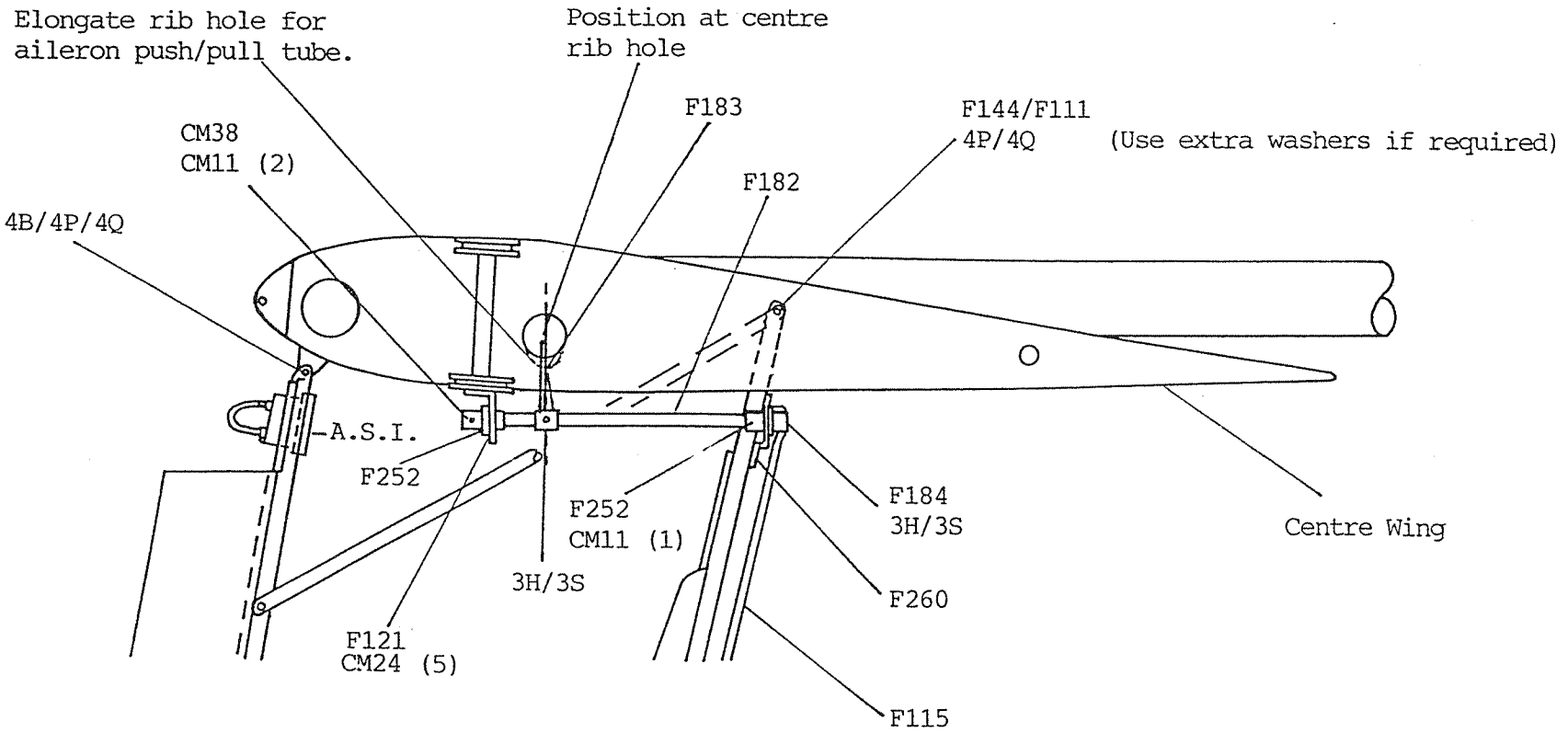

Elongate rib hole for aileron push/pull tube.
Position at centre rib hole
F183
F144/F111
4P/4Q
(Use extra washers if required)
CM38
CM11 (2)
F182
4B/4P/4Q
A.S.I.
F252
F252
CM11 (1)
F184
3H/3S
Centre Wing
3H/3S
F260
F121
CM24 (5)
F115

FIGURE 35

AIRCRAFT ASSEMBLY - CENTRE WING COMPONENTS

AILERON TUBES
PYLON SIDES AND FAIRING
HINGE - REAR CANOPY
BRACKET SAIL ATTACH

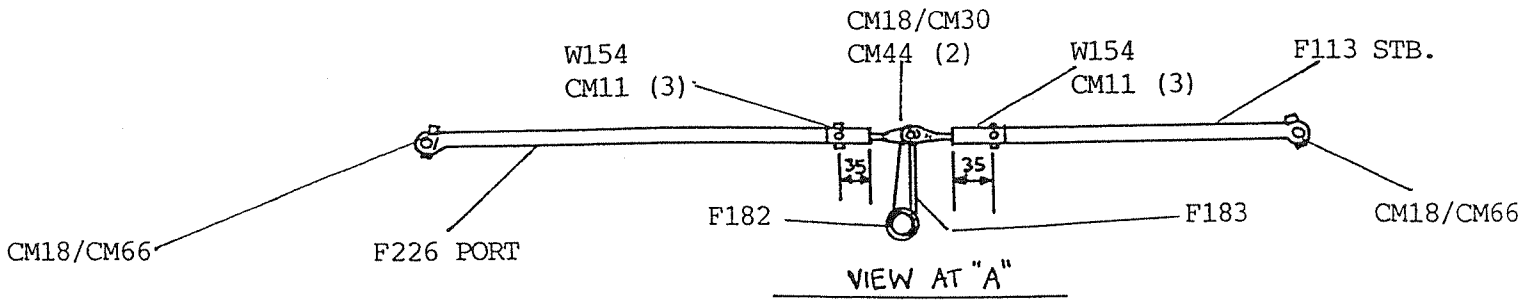
PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
F174	2	Pylon Side		
F212	1	Bracket Sail Attach		
W154	2	Insert Aileron Tube		
F113	1	Tube Aileron STB.		
F226	1	Tube Aileron PORT		
F243	2	Hinge - Rear Canopy		

Assemble Aileron linkage. When the aircraft is completed and the ailerons finally adjusted, the Forks - CM44, are retained in position by LOCTITE. The aileron tube connect end is in the VERTICAL PLANE.

Fit the pylon sides and front fairing and trim to allow at least 1mm clearance between them and the centre section to prevent 'chaffing'. Remove and PAINT.

When dry, fit and rivet on the rear Canopy Hinge making sure the hinge fits to the back of the front seat and allow an overlap of 1/2" beyond the rear seat back.

FIGURE 35


CM18/CM30
CM44 (2)
W154
CM11 (3)
W154
CM11 (3)
F113 STB.
35
35
CM18/CM66
F226 PORT
F182
F183
CM18/CM66
VIEW AT "A"

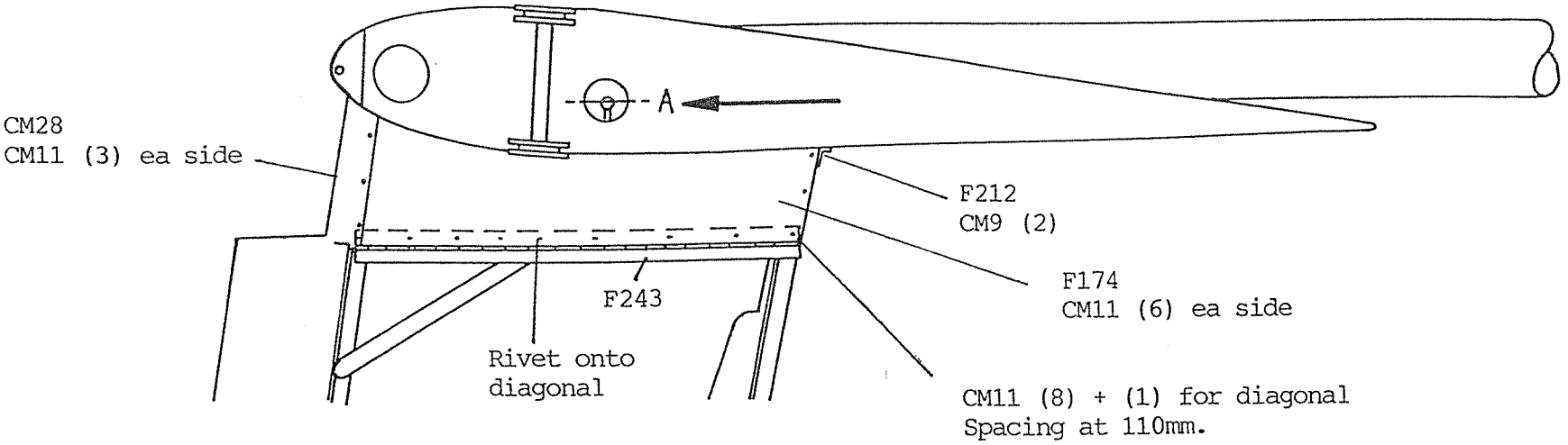

A
CM28
CM11 (3) ea side
F212
CM9 (2)
F174
CM11 (6) ea side
F243
Rivet onto
diagonal
CM11 (8) + (1) for diagonal
Spacing at 110mm.

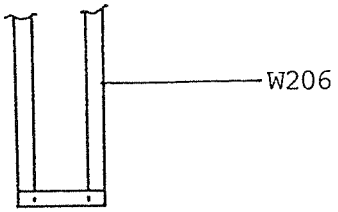
FIGURE 36

CENTRE WING COVERING SUPPORTS

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
W205	1	Panel Boom/Centre Wing	BOND	1.9
W206	3	Panel Pylon/Centre Wing	BOND	1.8

When cured, coat the upper foam panel, W205, with SAFE-TII-POXY resin to seal the foam against the BOSTIK No.1 adhesive when covering.

(Bond to under surface of centre section inner ribs against pylon sides)



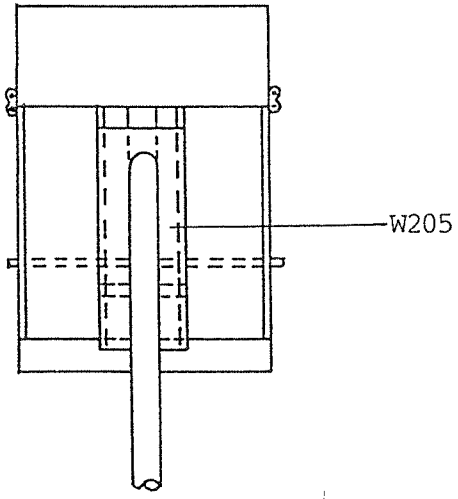


FIGURE 37

COVERING - CENTRE SECTION

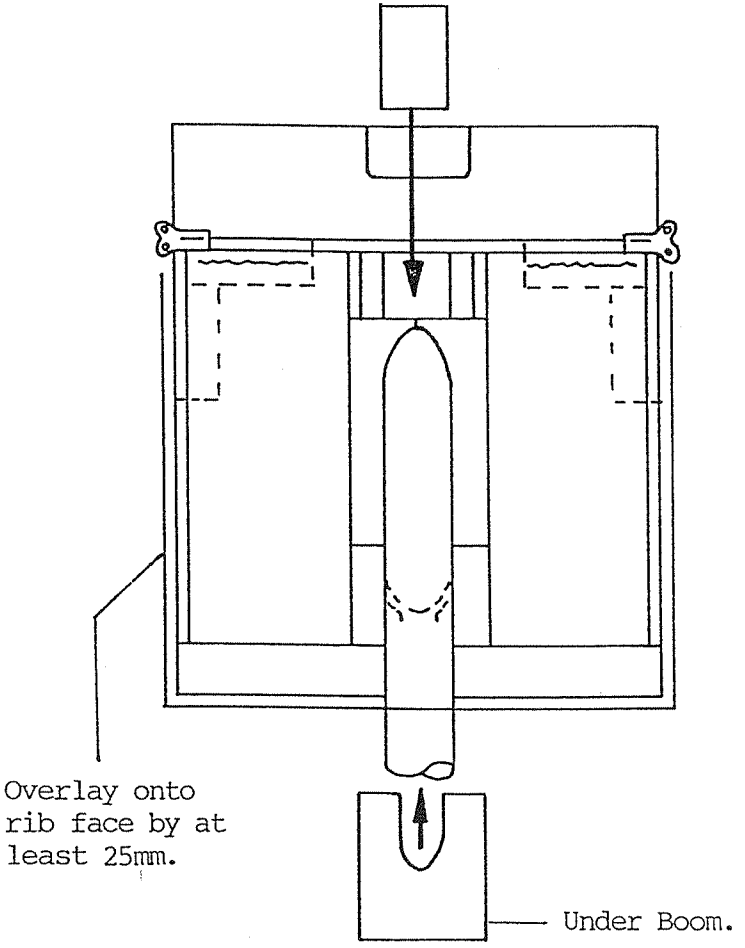
Prepare leading edges as per outer wings. Abrade back the paint around the boom where the fabric will overlay.

Trim fabric around boom, allowing for overlay onto the boom and position. Add the two panels, one in front of the boom and the other below the boom on the rear of the top surface.

Cut out slits in the undersurface of the covering for the flap horns and teleflex.

Cut out and fit 3 oblong patches in thick material (eg. self-adhesive dacron or fablon) and place around the teleflex and horns as a surround.

Sew zips onto strips of material and after the centre section covering has been doped, glue in place.



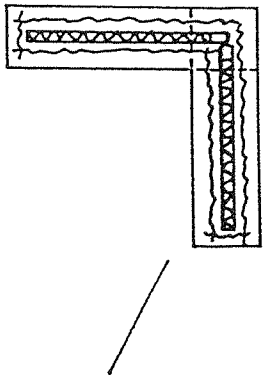


FIGURE 38

CANOPIES

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
F236	1	Hinge Front Canopy		
F231	1	Canopy Hoop Front		
F232	1	Canopy Hoop Front		
F233	2	Canopy Hoop Front		
F234	2	Gusset Canopy Front		
F235	2	Gusset Canopy Front		
SF103	1	Screen Front Canopy		
F238	2	Canopy Sides Rear		
F239	2	Canopy Sides Rear		
F240	2	Canopy Tubes Rear		
F241	2	Gusset Canopy Rear		
F242	2	Gusset Canopy Rear		
F244	2	Screen Rear Canopy		
F224	4	Spacer Canopy Latch		
F169	6	Handle Canopy Latch		
F170	2LH 2RH	Handle Canopy Latch		

THE POLYCARBONATE SCREENS SCRATCH EASILY - TAKE CARE WHEN HANDLING THEM.

It is recommended that the outer protection of polythene is left on, where possible, until completion of aircraft.

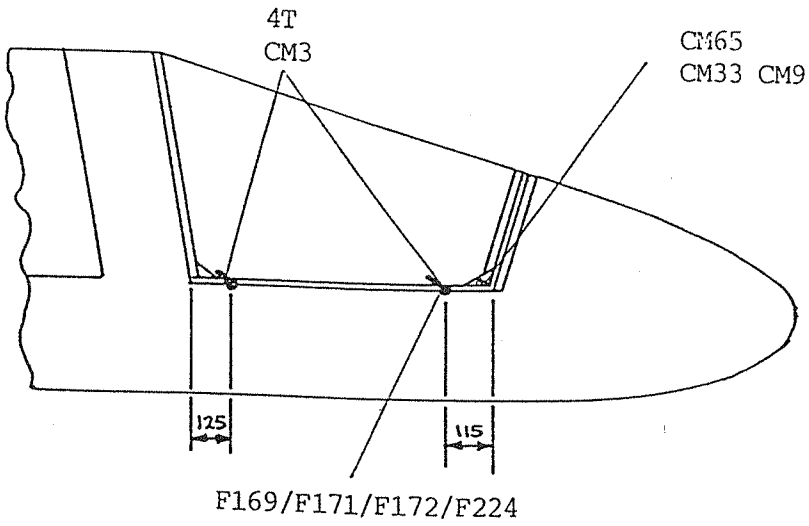
FIGURE 38

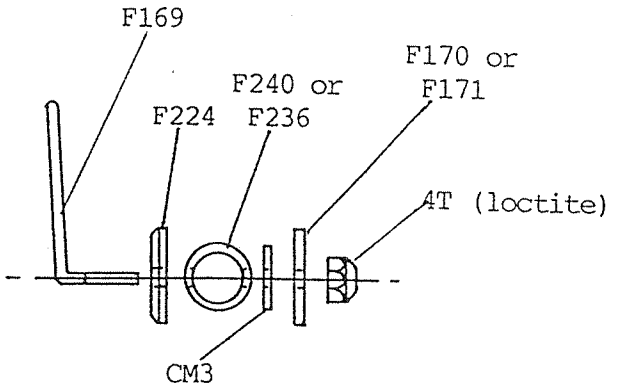
CANOPIES

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
F171	2	Handle Canopy Latch		
F172	6	Catch Plate - Canopy Latch		

If necessary, cut the hoops to length and form the framework for the canopies. Use a piece of wood/ply to stand-off the frame from the monocoque. Use clamps to hold the gussets in place while riveting.
Start the rivet pattern for the screens at the top centre of the screens and work out and down, using tape to hold the screen in position to prevent any buckling on the REAR screens.

For the front screen, start the rivet pattern from the top of each hoop, working down the sides. Avoid any buckling of the polycarbonate by holding it in position while rivetting.





TYPICAL LATCH

FIGURE 38

RIVET SPACING:

Polycarbonate - 100 - 120mm
Rear canopy Hinge - 90mm
Front canopy hinge 150mm, staggered alternatively across face of hinge. 11 rivets minimum.

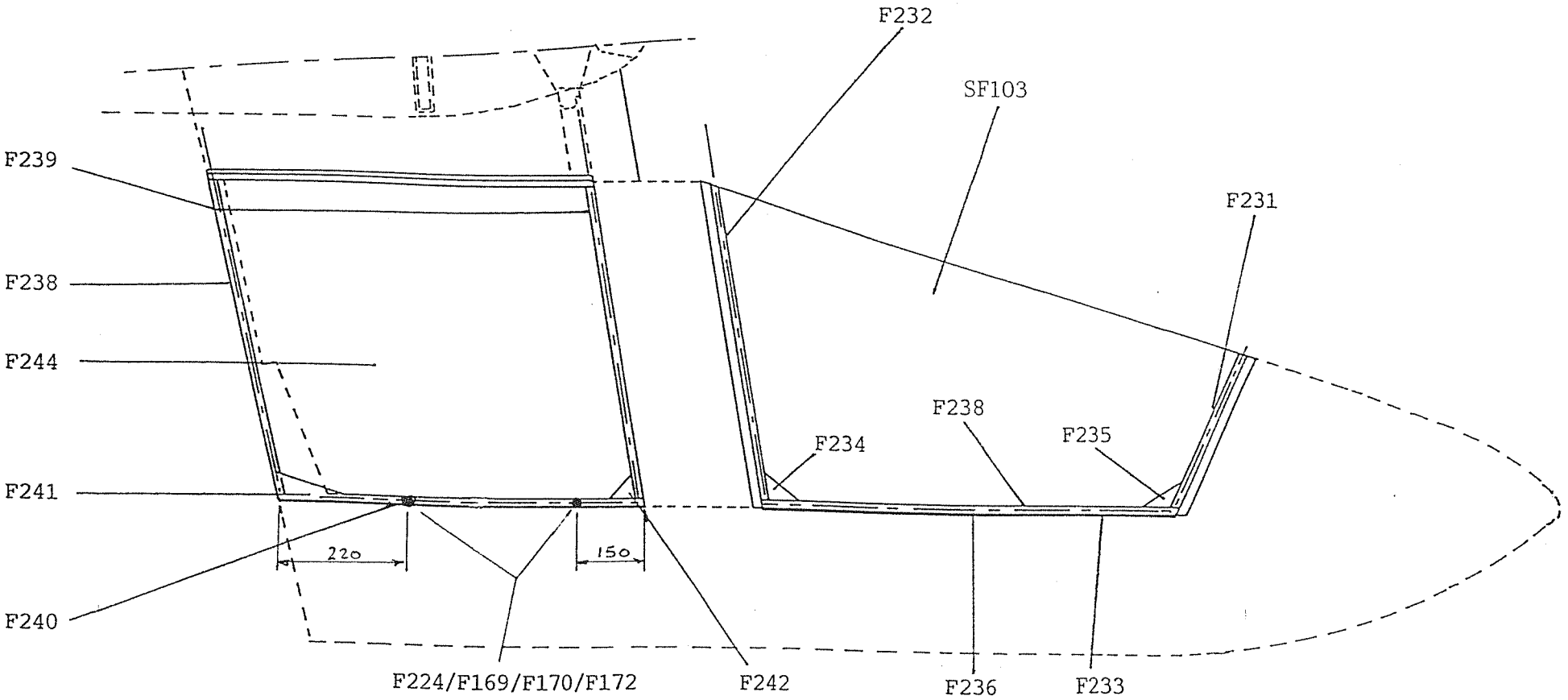


FIGURE 39

AIRCRAFT ASSEMBLY - WING STRUTS

WING STRUTS
TORQUE PLATE

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
W233	2	Tube Strut		
SW118	2	Insert Strut	BOND	1.2
SW117	2	Jaw Strut	BOND	1.2
W234	2	Spacer		
SW140	4	Bracket - Jury Strut		
W125	2	Torque Plate Wing	BOND	1.2
W235	1	Tension Bar	BOND	1.2
SW149	4	Tension Bar Plate	BOND	1.2

Immediately before rigging outer wings onto centre section, grease torque pin and tape foam rubber onto torque plate of centre section. Apply ARALDITE RAPID to the second Torque Plate to be located on the outer wing and 'hang' the Plate onto the Torque Pin. Rig the outer wing to the centre section. The second Torque Plate will have self-located onto the outer wing. N.B. Grease any other contact points such as the 'D' section edges, so that nothing else except for the Torque Plate can bond inadvertently. The sandwiched rubber piece's function is to ensure adequate contact pressure between the two plates for bonding.

Araldite SW118 into W233 and rivet.

Fit SW117 to tension bar on fuselage and strut to outer wing bracket.

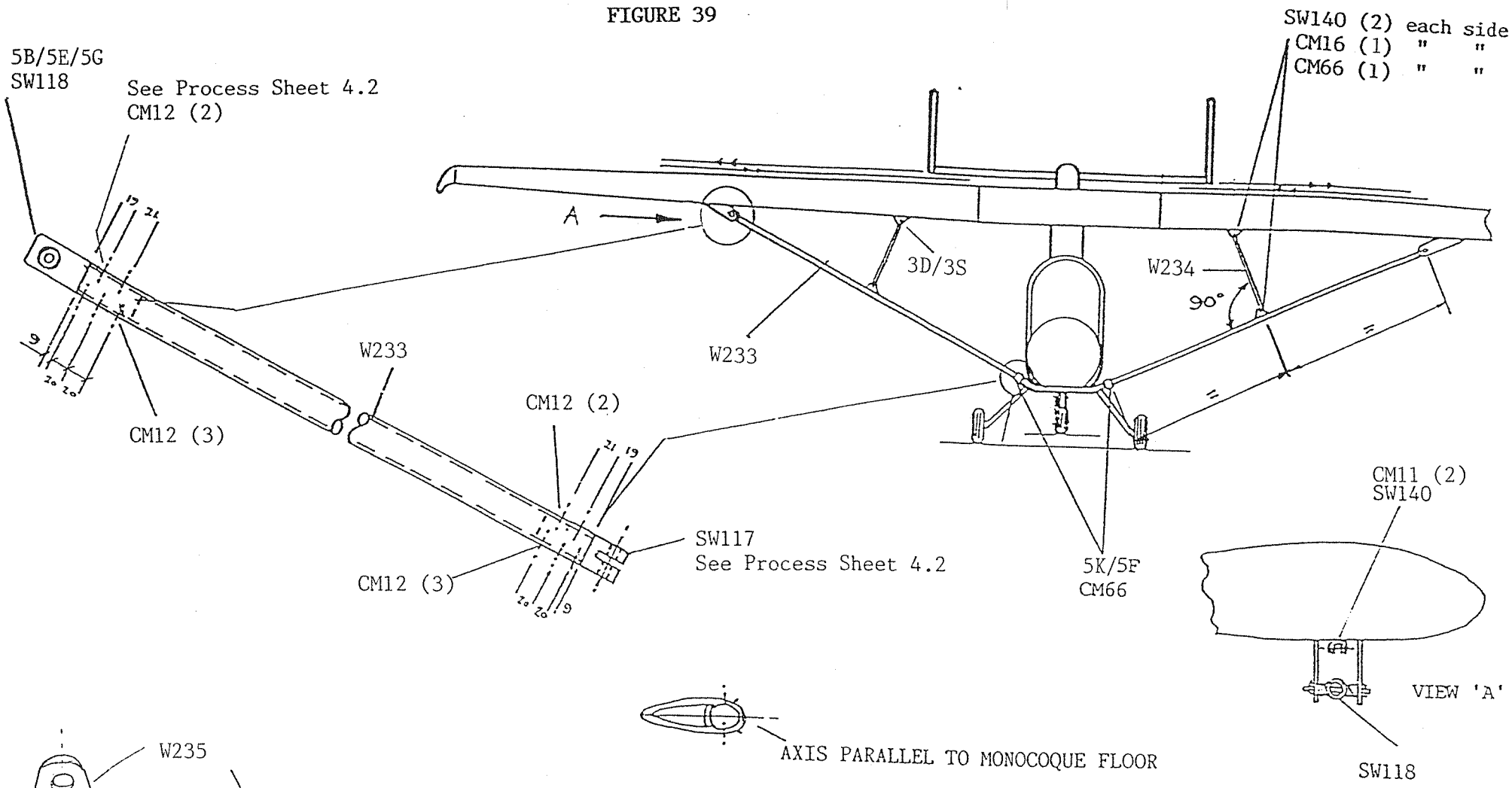
Determine strut length by aligning the TAILPLANE and CENTRE WING parallel to each other.

Cut the strut to length and while fitted parallel to the aircraft floor, drill for 1/8" rivet to fit SW117 and SW118 where a 3/16" rivet will be positioned. Adjust, if necessary, the angle of tension bar W235 to suit jaw SW117 on the strut. When aligned correctly, fit SW149 (2) each side CM104(4) rivets. Do this both sides of tension bar.

Dismantle from aircraft, drill all 3/16" rivet holes, remove 1/8" rivet, bond and rivet each end.

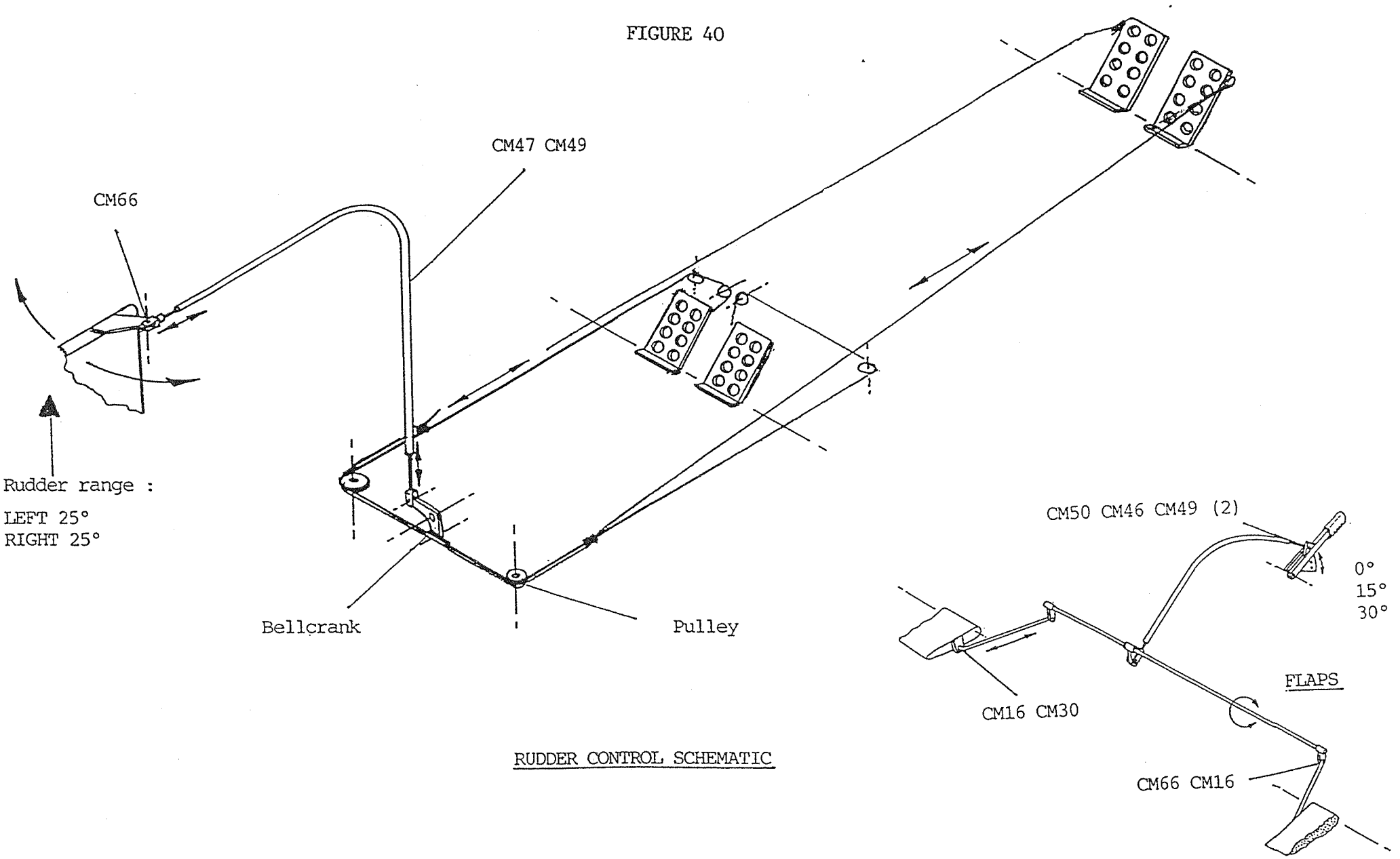
NOTE: IT IS IMPORTANT TO ATTAIN THE EXACT SYMMETRY OF THE TAILPLANE AND WING, TAKE GREAT CARE IN DETERMINING THE STRUT LENGTHS.

FIGURE 39



Bolt W235 temporarily in place on hull.
Adjust the angle to suit strut jaw.
Mark holes from SW149. Remove and fit (4) SW149.
Bolt/Bond W235 in place.

FIGURE 40



RUDDER CONTROL SCHEMATIC

FIGURE 40

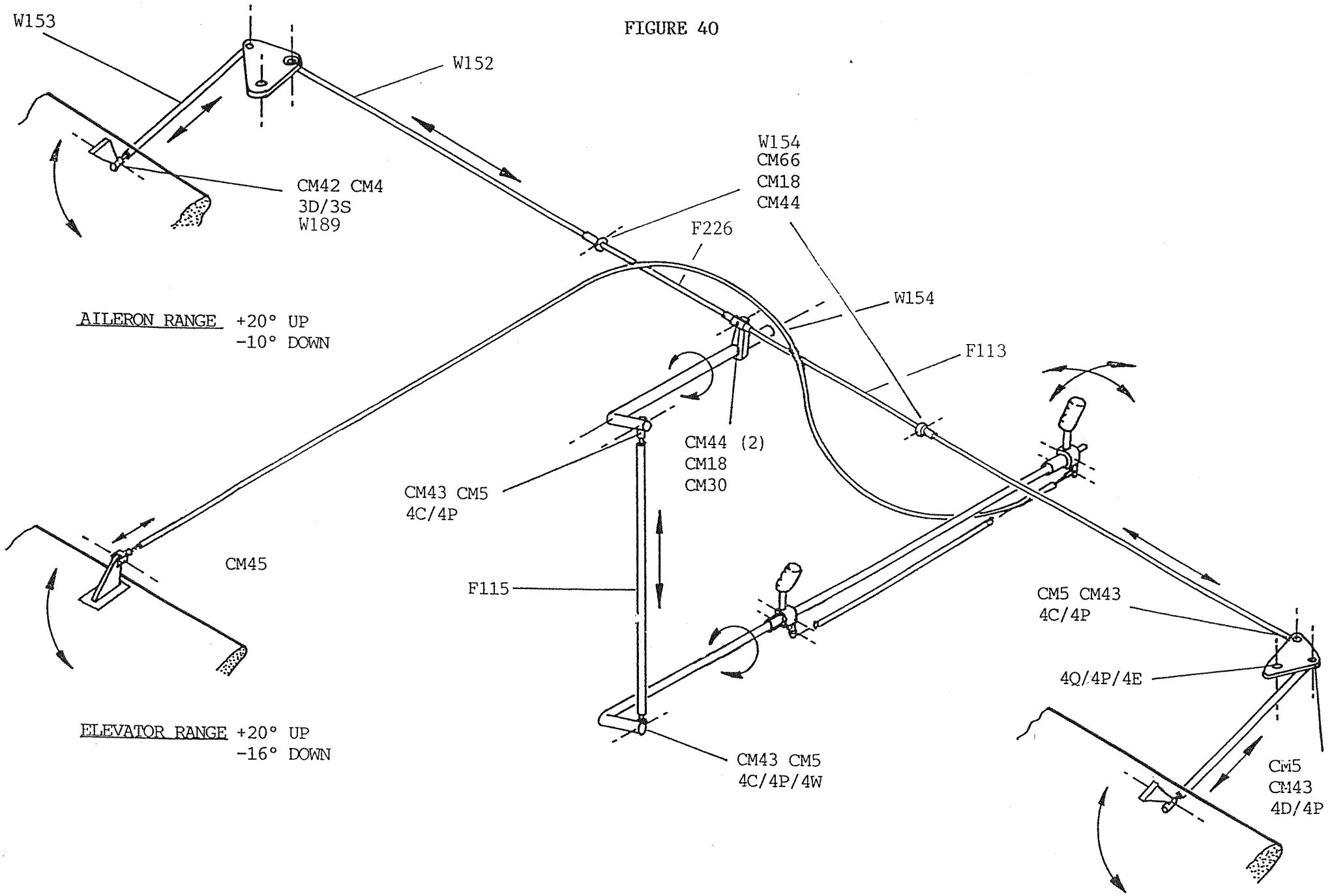

W153
W152
CM42 CM4
3D/3S
W189
W154
CM66
CM18
CM44
F226
W154
F113
AILERON RANGE +20° UP
-10° DOWN
CM44 (2)
CM18
CM30
CM43 CM5
4C/4P
CM45
F115
CM5 CM43
4C/4P
4Q/4P/4E
ELEVATOR RANGE +20° UP
-16° DOWN
CM43 CM5
4C/4P/4W
Cm5
CM43
4D/4P

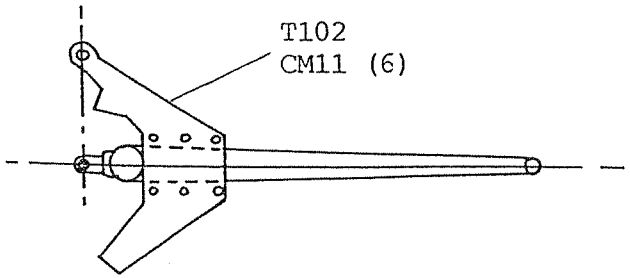
FIGURE 40

CONTROL SYSTEM - ELEVATOR AND RUDDER

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
T102	1	Horn - Elevator		
T169	1	Trim Tab Elevator		
T110	1	Horn - Rudder		

Adjust the teleflex control rods to achieve neutral position for both the elevator and the rudder control surface with the stick and rudder pedals in the neutral position.

NOTE: Lock the teleflex clevis joints with a stop/hex nut. Ensure that there is not less than 13mm (1/2") of thread engaged in the clevis joints.



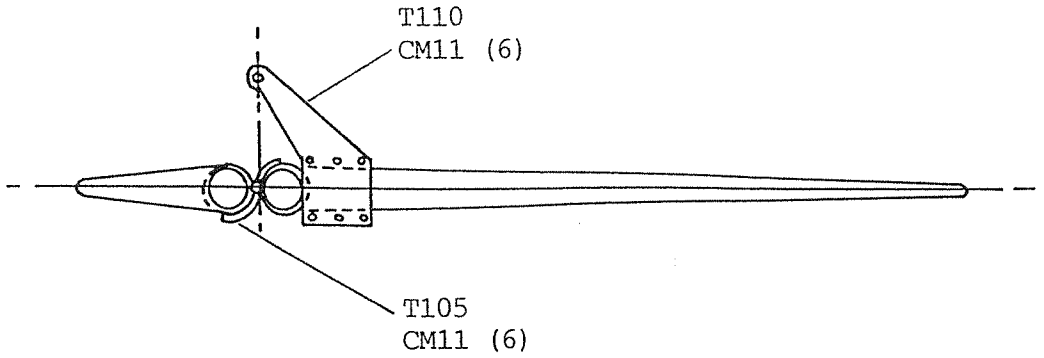


FIGURE 40

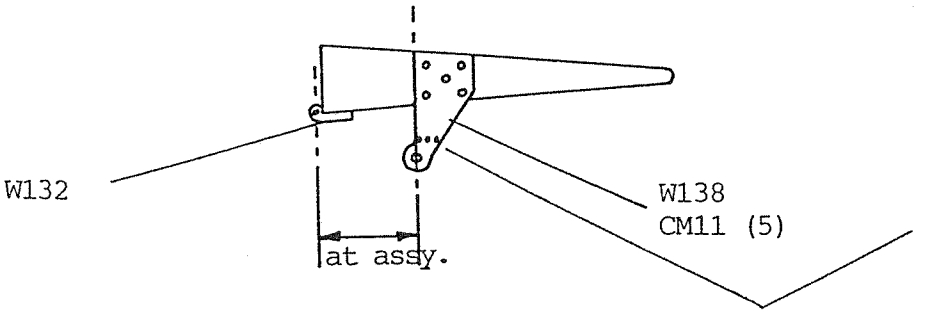
CONTROL SYSTEM - FLAP

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
W138	2	Horn - Flap		
W146	2	Conn. Rod - Flap		
W188	2	Flap Stop Pad	BOND	1.7

FLAP

Offer to wing noting clearances at ends and parallel to rear spar. Rivet Flap Hinges to Spar hard points and add W188, Flap Stop Pad with flaps fully UP adjusting Pad thickness to level T.E. - see 4-17.
Connect the flap teleflex and the Flap Connecting Rods, W146. Drill hole in Detent for 0 degrees flap and retain.
Check the flap is in the fully up position, mark Horn, W138, position and drill/rivet.

Set flap to 15 degrees down. Note the Detent Pin position on the Flap Selection Bracket in the front cockpit and mark and drill for Detent position. Select 30 degrees down and drill for Detent.



Bend with pliers the lower attach point on both W138 and W149 on centre wing to align for attachment of W146 - Connect Rod.

FIGURE 40

CONTROL SYSTEM - AILERON

PART No.	QTY.	PART DESCRIPTION	NOTE	PROCESS REF.
W208	4	Plate Aileron Stop		
F279	1	Control Stick Stop	BOND	1.2
W189	2	Insert Aileron Tube	LOCTITE	4.1

AILERON

With the wings rigged, offer up the aileron surfaces to the trailing edge, position and drill and rivet Aileron Hinge to the hard point brackets on the trailing edge.

With the Aileron Bellcrank in the NEUTRAL position (located by marks on the Aileron tube W152 at the outer wing inboard rib - ref. page 4-18) and the Jackshaft Horn F182 in the NEUTRAL position (ref. page 7-2).

1) Cut to length Aileron tube W152 and fit Fork End assembly F154, CM44, CM66, and CM18 and attach to Aileron Tubes F113 and F226 coming from the Jackshaft.

2) With the Aileron surfaces also in the neutral position, cut to length Aileron Rod W153 and fit assembly W189, CM42, 3D/3T and attach to Aileron Horn.

Check Aileron movement. At full UP position the aileron will hit the push/pull tube W153 against the Rear Spar and at full DOWN position the aileron hits the bolt heads of the aileron attach bracket. Adjust the Rod Ends CM42 to achieve this if necessary and when satisfied with aileron movement, 20 degrees up and 10 degrees down, LOCTITE - PROCESS SHEET 4.1 - Rod Ends, CM42 (2) and in the centre section, CM44 (4) and the CM43 Rod End on the F115 with no stop nut in final position. Drill and rivet in position the Aileron Plate Stops and Stop Webbing, CM61, as shown in Figure 40.

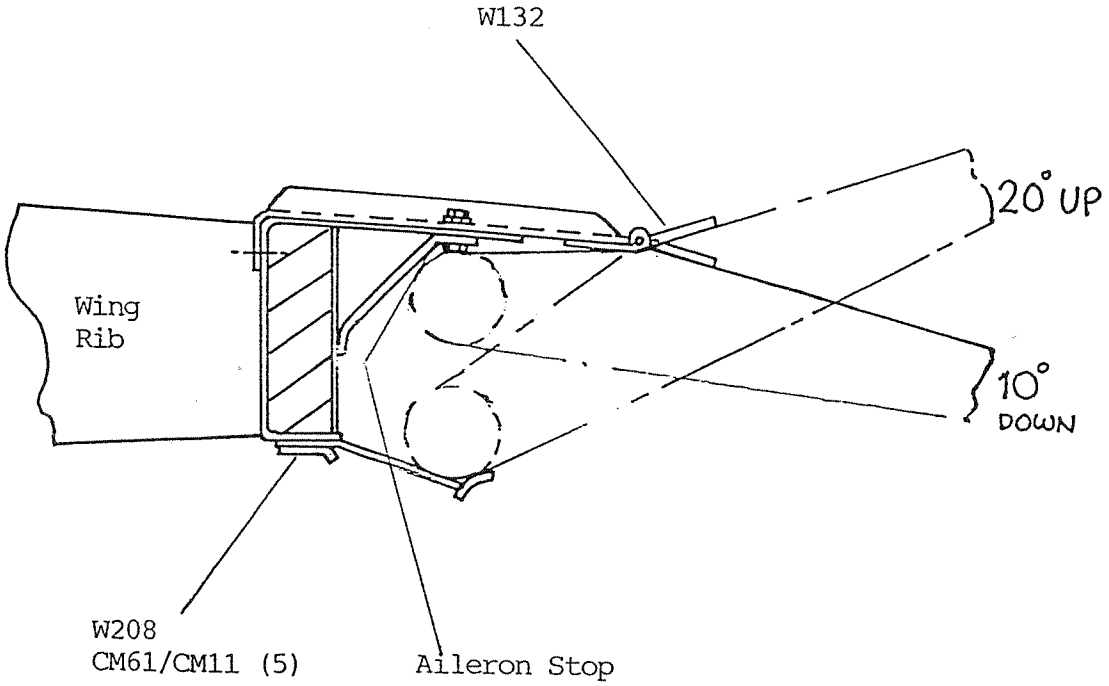
FRONT STICK

Offer Control Stick Stop, F279, to stick surround on hull side and locate and mark position of F279 for full PITCH movement. Mark onto plate the location of the locknut on the securing bolt for the stick. Remove the plate and rivet in place the bridge stop onto the plate with two rivets. (No stop on rear stick).

Bond on the plate to the hull in the marked position and adjust the aileron linkage torque tube rod at back rear of the hull to achieve FULL UP starboard aileron.

To achieve full PORT up aileron movement, file out plate surround for stick movement when cured.

FIGURE 40



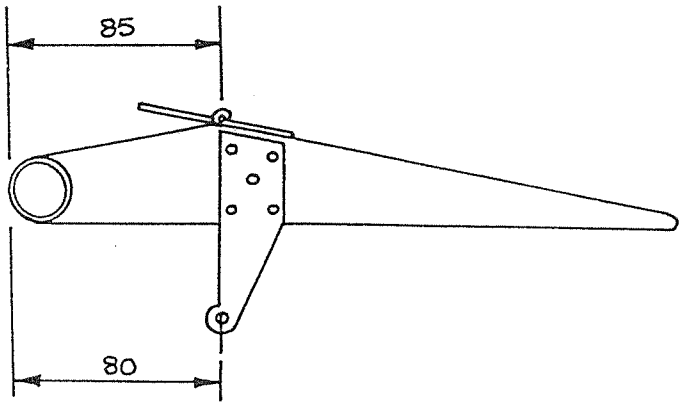


FIGURE 41

INSPECTION PANELS

These holes may be covered with self adhesive white fablon or other suitable material.