



## Fit Vertical Fin Extension

**Reference:** Drawing  
Photos

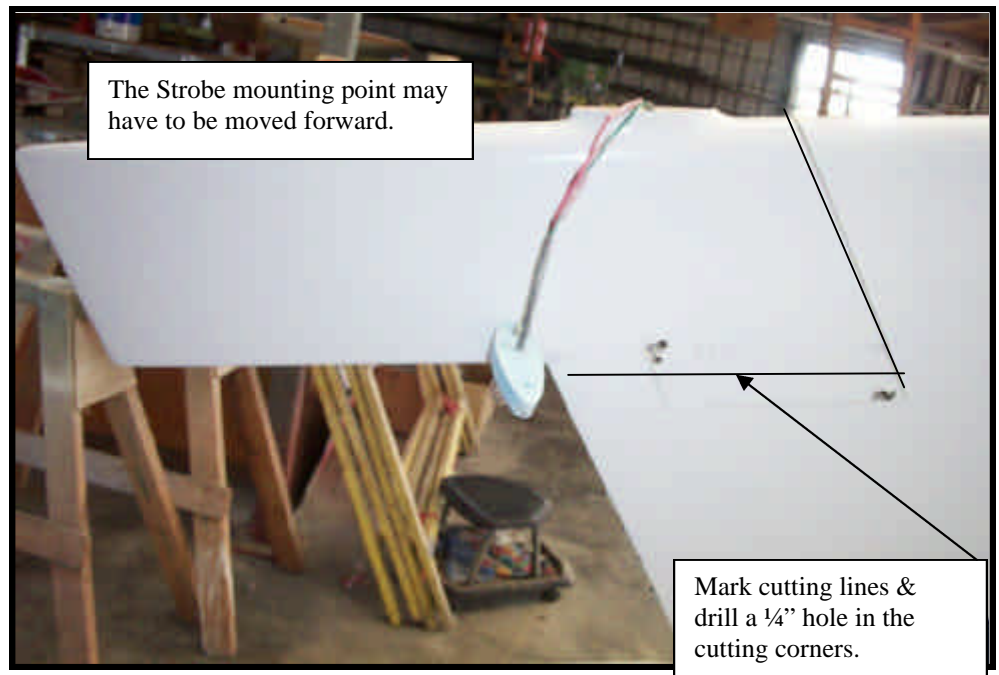
### Parts Required:

**Materials Required:** 3 Layer Plate  
Fibreglass, Resin, 5min Araldite, flock

### Procedure:

1. Mark cutting area on Vertical Fin as per drawing & photos.
2. Make a ¼" hole in the corner where the vertical & horizontal lines meet.

*Please note: Do not cut the top of the vertical fin spar or the top of the VHF aerial.*



3. Use a Jigsaw or a hand hacksaw & cut along pre marked lines.
4. Repeat marking & cutting procedure for left hand side.
5. Remove vertical fin section.
6. Trial fit rudder to make sure you have clearance between the top vertical fin & the rudder is level with the top of the vertical fin.
7. Trim vertical fin pre mould section to fit into cut-out section.
8. Sand vertical to prepare for bonding.
9. Using some 3 layer fibreglass plate, (this can be laid up on a flat bench out of the spare AF303 cloth that has been supplied in the kit) cut two strips for the vertical & horizontal section to cover void in vertical.
10. Tack the 3 layer plate into position when happy with rudder fit.
11. Fill any voids with five minute Araldite & Flock.
12. Sand Area until smooth & ensure Gellcoat has been removed.
13. Mix about 4oz of Epoxy Resin & lay 3 layers of glass evenly over join.
14. Let Cure over night before sanding & filling.

15. When cured sand bonding area & fill with body filler then paint. Ensure Rudder does not bind with vertical in the full deflection when the filler has been applied.

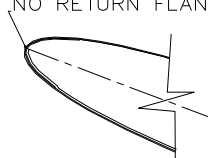
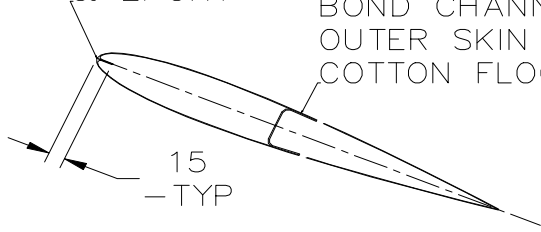




BOND RETURN FLANGES WITH COTTON FLOCK & EPOXY

BOND CHANNEL TO OUTER SKIN WITH COTTON FLOCK & EPOXY

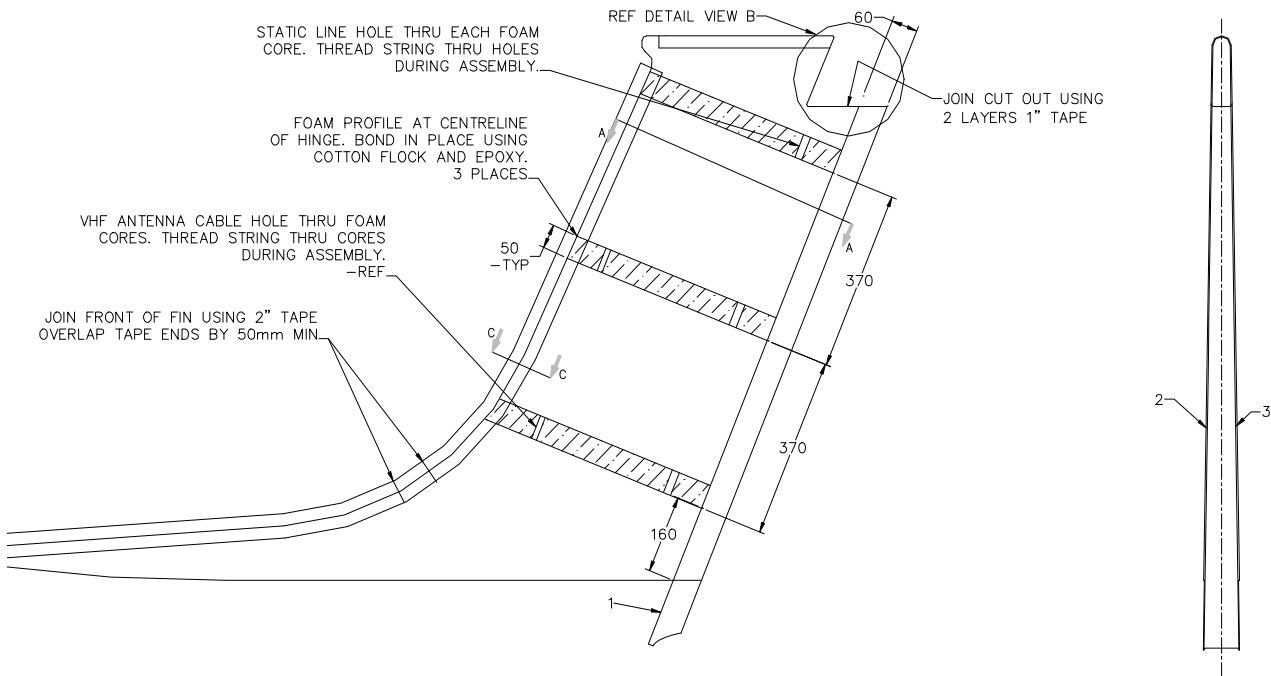
LEADING EDGE TO BE JOINED WITH 2 LAYERS 50mm CLOTH TAPE WHERE NO RETURN FLANGE IS MOULDED



SECTION CC  
SCALE 1:5

SECTION AA

AIRFOIL SECTION TO NACA0012 WITH CHORD LENGTH TO SUIT TAPER



STATIC LINE HOLE THRU EACH FOAM CORE. THREAD STRING THRU HOLES DURING ASSEMBLY.

FOAM PROFILE AT CENTRELINE OF HINGE. BOND IN PLACE USING COTTON FLOCK AND EPOXY. 3 PLACES

VHF ANTENNA CABLE HOLE THRU FOAM CORES. THREAD STRING THRU CORES DURING ASSEMBLY. -REF

JOIN FRONT OF FIN USING 2" TAPE OVERLAP TAPE ENDS BY 50mm MIN.

REF DETAIL VIEW B

JOIN CUT OUT USING 2 LAYERS 1" TAPE

LEFT SIDE: 145  
RIGHT SIDE: 150

LEFT SIDE: 170  
RIGHT SIDE: 165

DETAIL VIEW B  
CUT OUT DETAILS



## Fit Rudder Extension

**Reference:** Drawing  
Photos

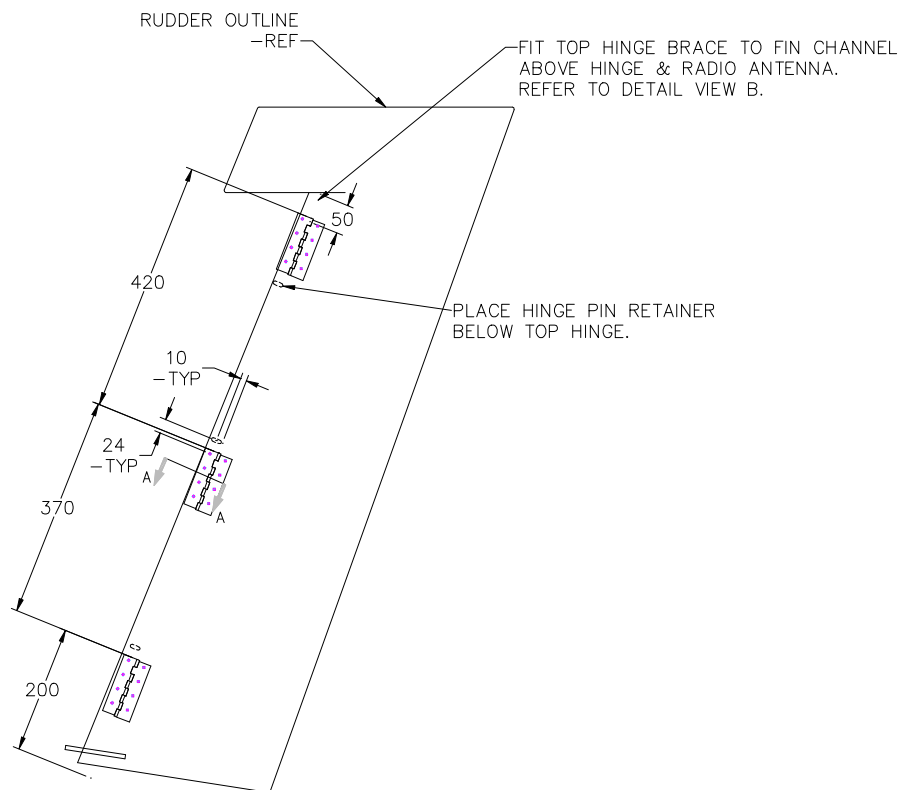
### Parts Required:

TAPK 6-6 Rivets x 8  
TAPK 3-3 Rivets x 2

Fibreglass, Resin,  
5min Araldite, flock

### Procedure:

1. Using the Top of the Vertical fin section that has just been removed, trial fit onto the top of the rudder.
2. Sand the top of the rudder with a straight edge to obtain a straight line. Also sand either side of the rudder 50mm down from the top to prepare for bonding.
3. Use a sanding block to make a straight line across the rudder extension.
4. But the rudder extension onto the top of the rudder. Using some 3 layer plate cut 4 small tabs (2 either side) & screw rudder extension to rudder using some self tapping screws.
5. Sand the inside of the vertical fin extension & the fibreglass strips & prepare for bonding.
6. The Vertical fin modification will have to be done at this stage to be able to fit the rudder.
7. When Vertical fin has been completed, trial fit Rudder onto vertical fin to ensure there is clearance between the rudder & the vertical fin. Trim any excess of vertical fin or rudder extension until there is clearance when you have full deflection to the left & right.
8. Remove Rudder & using some 3 layer plate cut to the same dimensions as the void where the vertical & horizontal cutting lines have been made.
9. Tack into position using some 5 min Araldite.
10. Trial fit Rudder to Vertical fin & ensure you are getting 98mm (20deg) travel to the left & the right without the extension binding. The 3layer plate may need to be altered to obtain clearance.

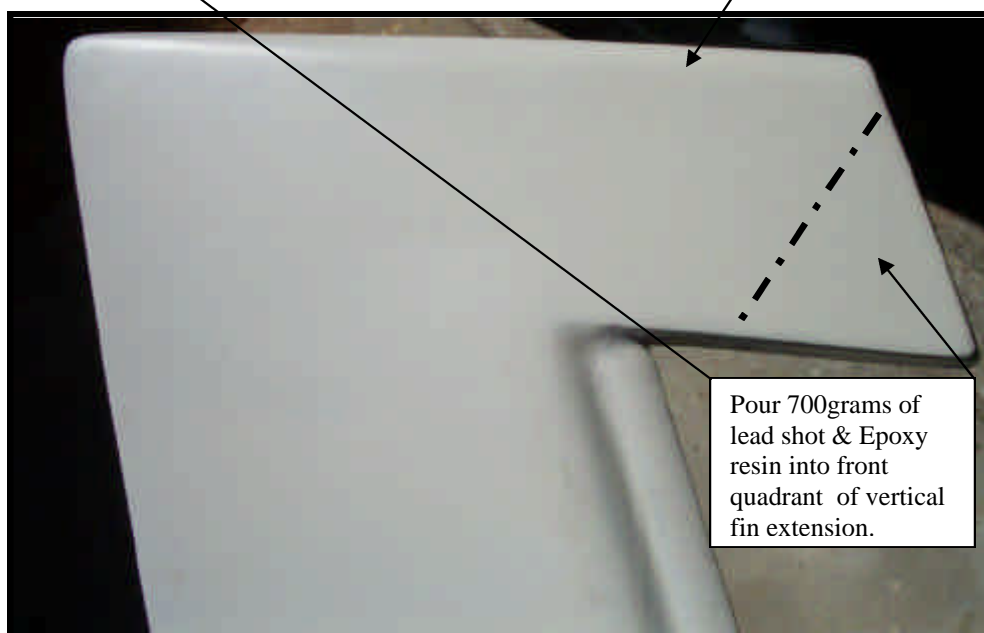




11. When happy with fit, sand all sharp edges to make a radius for the fiberglass to mould around.
12. Prepare all bonding surfaces on rudder by sanding gelcoat off 25mm either side of the join line.
13. Mix enough 5 min Araldite & flock to tack rudder & rudder extension together. Let cure. Sand excess of join or until smooth.
14. Mix about 4oz of Epoxy Resin & apply 3 layers of AF303 fiberglass onto either side of join line of the rudder & rudder extension. Also apply 3 layers of fiberglass over 3 layer plate that has been tacked with 5 min Araldite. Let Cure over night.
15. Sand Join line & vertical fin extension where fiberglass has been laid, fill with body filler then paint.
16. Drill a 3/4" hole into top of rudder & pour 650grams of Lead Shot & 50g of Epoxy or polyester resin, into Rudder as per drawing 2126023-1.
17. When resin has cured, sand around 3/4" hole & lay 3 layers of cloth over hole.



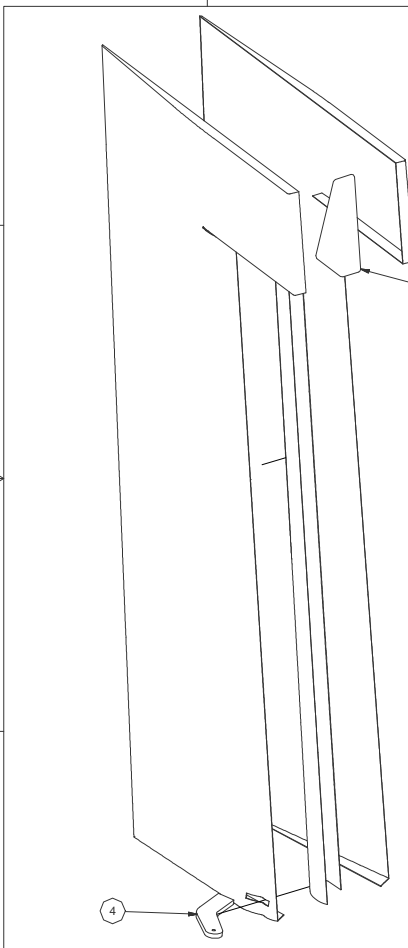
Drill a 3/4" access hole into the top of the vertical fin to pour resin & lead shot into.



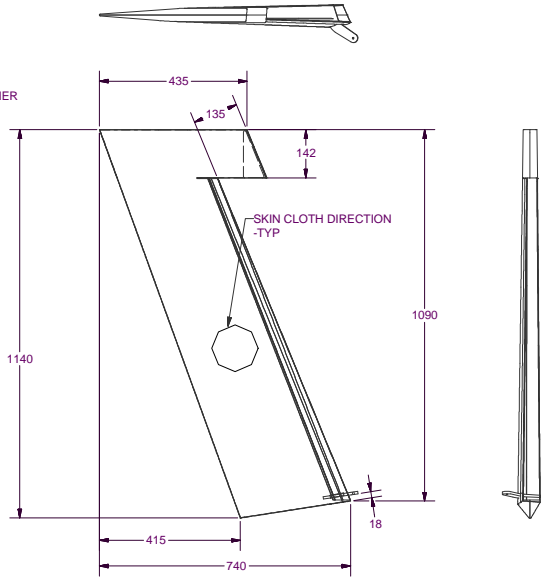
Pour 700grams of lead shot & Epoxy resin into front quadrant of vertical fin extension.



Parts List			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	212613N	RUDDER SKIN R.S. J SERIES.	1
2	212623N	RUDDER SKIN L.S. J SERIES.	1
3	212633N	MOULDED CHANNEL RUDDER. J SERIES	1
4	2078014	LUG RUDDER CONTROL CABLE (J SER)	1
5	212643N	RUDDER COUNTERWEIGHT (J SERIES)	1



MOULD COUNTERWEIGHT INTO RUDDER BY POURING A MIXTURE OF LC3800 EPOXY RESIN AND LEAD SHOT INTO THE FRONT LOWER CORNER & ALLOWING TO CURE. WEIGHT: 700g



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LIMITS UNLESS SPECIFIED OTHERWISE * +/-		DRAWN DS		TITLE <b>RUDDER ASSY (J SERIES)</b>	DWG. No. <b>2126023-1</b>		
MATERIAL AS DETAILED		APPR.		SHEET 1 OF 1			A3

## Fit Rudder hinges to Vertical Fin / Rudder

**Reference:** Drawing

Photos

**Parts Required:** TAPK 6-6 Rivets x 8

TAPK 3-3 Rivets x 2

1. Drill rivets out of Top Rudder Hinge with a 3/16" drill.
2. Using the pre-drilled holes as the template Raise Top Hinge position up by two holes worth, refer to photo. *Please note: When complete the hinge pin will have to be inserted from the bottom.*
3. Drill out the two un-drilled holes using the hinge leaf as your drilling template.

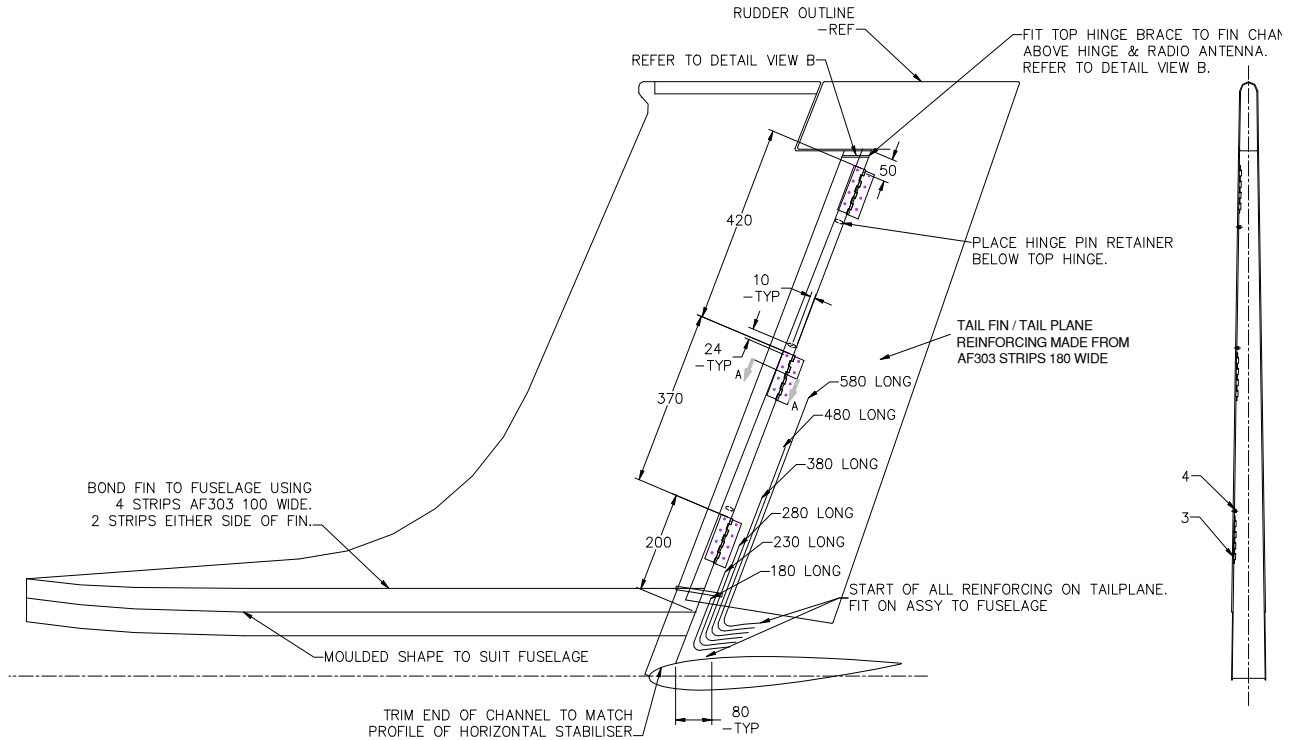


4. Repeat procedure for rudder.
5. Sand all bonding areas up with sand paper & rivet into position using TAPK 6-6 & bond into position with epoxy resin & flock.



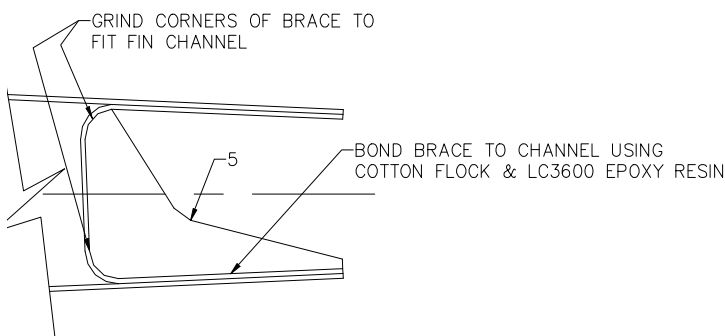


6. Re- position hinge pin retainer into position as per drawing & Rivet with TAPK 3-3.
7. As per detail view B & drawing below, cut a small gusset to fit into the channel at the top of the vertical fin (26 layer fibreglass plate or marine ply would be sufficient). This will stop any flexing between the two skins. *Ensure the rudder does not foul with the gusset with full*



*deflection to the right.*

8. Tack into position using some 5min Araldite & flock. When cured mix a small amount of Epoxy resin & flock. Apply to radius if gusset on the bottom & a small amount to the top. Allow to cure before sanding smooth.



DETAIL VIEW B  
TOP HINGE BRACE DETAILS

