

CALYPSO 60

by GREAT WALL MODEL
TECH CO., LTD. (CHINA)

CALYPSO INTRODUCTION

Champion again: Hanno Prettner, with his latest model "CALYPSO", won the F3A World Aerobatic Championship 1983-84.

Modelers all over the world know him for his outstanding flying skill and experience in designing.

The Calypso is surprisingly simple, and with its neat appearance, stable flying and high potential for the turn around maneuvers of today makes it a favorite for both competitors and sport flyers.

Model Tech is pleased to produce this magnificent champion model exclusively for World Engines, U.S.A..

Structure modification was needed enabling it to adapt either 2 cycle or 4 cycle engine, but the appearance is true to the original design. Now again, our high technique in construction assuring the essential ingredients precision, durability and lightweight of a good model plane is dedicated to the producing of this wonderful Calypso. Furthermore, to save the precious time which you cannot afford to build, we kit them **READY BUILT**:

CHARACTERISTICS

- * Top quality patternship which is also ideal for most sport fliers.
- * Specifically modified to adapt most engines: .40 .75 2 cycle, .60 .90 4 cycle.
- * Pressure molded fiberglass cowling.
- * Optional tune pipe channel structure.
- * Cut outs for retract version.
- * Foam wing epoxy-planked with balsa.
- * Tunnels in the foam wing core for outboard aileron servo cords.
- * One piece planked stabilizer.
- * Spring leaf tail gear set.
- * Wheel cups, landing gear brakes and tune pipe channels included.
- * All parts smoothly hand sanded.

PARTS LIST

Built up fuselage	1 pc		
Built up wing panel w / W8	1 pr		
Aileron stock	2 pcs		
Canopy	1 pc		
Fiberglass cowling	1 pc		
<u>Pcak 1</u>		<u>pack 3</u>	
Stabilizer	1 pc	F2A	1 pc
Elevator	2 pcs	F2b	2 pcs

Rudder	1 pc	F2C w / screw	1 pkg
Fin	1 pc	F2D	1 pc
		F3B	1 pc
		D8A	1 pc
<u>Pack 2</u>		D8B	2 pcs
Aileron Torque Rod	1 pr	W7 Dowel	12 pcs
Wing bolt	1 pr	W4 Brace	1 pc
Rudder horn	5 pcs	W12 Dowel	2 pcs
Fiberglass cloth	1 pkg	W5 brace	1 pc
Wheel cup	2 pcs	W9 Trailing Edge Fairing	2 pcs
Landing gear brake	2 pcs	Will Triangular Stock	2 pcs
Tune—pipe channel	2 pcs		
Tail Gear	1 set	<u>Pack 4</u>	
Engine Mount bolts	1 set	Decal	1 set
		Plan and Instruction	1 set
		Manual	1 set

The Parts List subject to rearrangement.

1. Before starting, consider the underlisted important points:
 - a. Engine 2 cycle or 4 cycle
 - b. Exhaust side exhaust or rear exhaust, Muffler or tune pipe
 - c. Engine displacement
 - d. Engine mounting Upright, side mount, inverted mount or 8 o'clock mount
 All these are optional.
 Read carefully the following instruction and plans.
2. We would like to introduce the original engine installation, that is the Super Tigre S 61 engine mounted as shown in Fig. 1.
 For the other 2 cycle type engine, try to readjust the angle slightly in order to place the engine header at the bottom center line.
3. For those who like simple construction or a 4 cycle engine may install the engine upright for easy handling and side mounting or inverted mounting for better appearance.
4. Firewall location for 2 cycle engine
 Fig. 1 shows the original firewall location for most 2 cycle 60 engine. In this case, a radical type mount such as Kraft, Dave Brown type engine mount is recommended.
 Drill holes for fuel line and throttle push rod on the firewall. Then epoxy glue firewall F2A and reinforcement F2B in place.
 Note that in order to provide the correct right and down thrust and to save the modeler complicated measurements, the fuselage bulkhead and back edge of the cowling are inten-

- tionally not square to the fuselage datum line.
5. Firewall location for 4 cycle engine
Fig. 2 shows an O.S. FS 90 mounted in an inverted position. For the other type 4 cycle engine, carefully measure the firewall location in order to provide propeller clearance and to place the engine shaft at the center of cowling. Epoxy glue F2A and F2B to the bulkhead. The left side F2B plywood doubler may be cut to clear off engine mount or simply glue them behind the firewall F2A. Cut D6 and D8A if necessary to clear off engine cylinder.
 6. Cut on dotted line F2D and F3B for engine header and tune pipe. Epoxy glue them in proper position. Then glue the 5x5mm wood strips D8B in place. Trim the slightly oversize tune pipe channel before epoxy in place. Fig. 3 shows the actual size of F2D and F3B.
 7. If a tune pipe is unnecessary, simply glue the plywood F2D and F3B in place and cover balsa hatch D8A. Fig. 2
 8. Glue plywood pieces F2C onto the bulkhead. Different position according to different engine mounting system. Be sure the position is away from engine cylinder and exhaust pipe etc. Fig. 1, 2
 9. Fiber glass cowling
 Cut opening for cylinder, carburettor, muffler and needle valve extensions etc. by using a Dremel router or simply by an electric drill with 1/8" drill bit; they also work fine. Trim carefully the cutout edge to save your fingers from getting hurt. Bolt the cowling to F2C.
 10. Wing panel construction
 The amount of dihedral is 50mm (2") for expert and 80mm (3 1/8") for sport flier. See Fig. 4. Sand the panels and dihedral braces W4, W5 if necessary to match the proper dihedral.
 11. Cut channel on the bottom wing to clear off tune pipe. Cut the balsa skin and foam material roughly. Fig. 5. Cut dihedral braces W4, W5 as shown in Fig. 6
 12. Temporarily join the wing panels together with dihedral braces inserted with sellotape. Place the wing onto fuselage. Finally shape the wing channel to match fuselage. Sand paper glued on a cylindrical wood block or a roll of newspaper will do the job nicely.
 13. Omit step 11 and 12 if tune pipe is unnecessary.
 14. Disconnect wing panels, measure and cut cavities for retract and aileron servos. Fig. 5, 7.
 15. In case outboard aileron servos are desired, tunnels are pre cut for servo extension cords. Cut cavities on the bottom wing to install servos as shown in Fig. 7 & 12
 16. Trim plywood plate w8 to suit your retract gear. Make sure the length of the piano wire when extended would keep enough prop clearance from ground surface. Fig. 9
 17. Roughly sand the plastic wheel cups, then epoxy to the pre cut wells. Trim excess plastic off the wing surface. Fig. 7, 9
 18. Drill and cut tunnels for retract gear push rod. Fig. 9
 19. Cut foam material and balsa skin to clear off landing gear, piano wire and push rod for smooth operation. Fig. 7, 9
 20. Epoxy glue the plywood plate w8 and insert wood dowels w7 in place to form a simple but strong gear mount. Fig. 7
 21. Epoxy coat the exposed foam surface around the retract gear for additional strength. Fig. 9
 22. Glue balsa wood on the plywood plate w8 around retract gear, then sand to match airfoil

section. Fig. 7

23. Epoxy the wing panels together with dihedral braces w4, w5 inserted. Re check amount of dihedral, tape and pin the panels. Be sure you have enough working time before epoxy cures.
24. Glue trailing edge fairings w9 to the trailing edges. Cut aileron stocks to size as shown in Fig. 7
25. If a single aileron servo is to be installed the traditional way, omit step 24. Cut trailing edge fairing w9 to 80mm (about 3 1/8"), install aileron horn and glue w9 in place. Fig. 5, 8
26. Roughly trim the slightly oversize tube pipe channel before epoxy to the wing. Sand it smoothly to match wing surface after epoxy has cured. Fig. 5
27. Lay up fiberglass cloth around the center position. Avoid any uncovered foam material dissolving from resin. Trim off excess cloth after resin has cured. Sand the cloth surface, place the wing to fuselage. The wing incidence is $+0.6^\circ$ or 3.5mm (9/64"). Refer to the datum line. Use silicone filler to seal any gap between fuselage fillet and wing after finishing. fig. 7, 10
28. Measure and drill two 6.5mm (1/4") holes and epoxy glue wing dowels w12 into the leading edge. Fig. 7
29. Install wing bolt mounts to the fuselage. Glue lock the 3mm bolts from vibration. Fig. 10
30. Measure and drill two 6.5mm (1/4") holes on the trailing edge fairing so that the nylon wing bolts can be screwed to the mounts smoothly. Fig. 7, 10
31. Glue triangular stock w11 at the tip, then sand to match the wing tip shape. Fig. 7
32. Cut aileron stocks to correct length according to your aileron control system. Then hinge to trailing edge. Fig. 7, 8, 12
33. Trim the fuselage stabilizer fillet in order to slip the stabilizer freely. The stabilizer incidence is $+0.4^\circ$ (1.1mm or 3/64"). Refer to the datum line. Check carefully to see whether stabilizer is parallel to the main wing and square to fuselage before epoxy glue it in place. Fig. 11
34. Epoxy vertical fin in place. Make sure it lies at the center and square to the stabilizer. The tail surfaces can be glued after covering for convenience.
35. Hinge elevators and rudder in place. Fig. 11
36. Finishing
Hot fuel proof the firewall area and fuel tank compartment.
37. We highly recommend plastic film covering to keep minimum weight. If painting is preferred, try to keep it as light as possible.
38. After completing your favorite cockpit detail, trim the canopy outline and glue it to the cockpit area using epoxy or silicone glue. Fig. 10
39. Assemble the tail gear as shown in Fig. 11 The tail shaft is located to the aluminum plate by a steering arm and collar. Adjust the tail wheel centering. Screw the aluminum plate to plywood block at fuselage tail. Also screw the bell crank to rudder. Connect two coil springs for steering.
40. Drill necessary holes for throttle push rod, engine mount and fuel tube.
41. Choose suitable size fuel tank. (Capacity up to 450cc) Then install into fuselage compartment.

42. Install engine according to your mounting system.
43. Install cowling, spinner, propeller and header etc..
44. Arrange distribution of receiver, Ni cd battery & servos to obtain the best balance.
We suggest to build a compartment at the rear cockpit to store battery so that less tail weight is required to balance a heavier 4 cycle engine.
45. The compartment, as mentioned above, may be handy to install larger servos if they are too close to aileron torque rod. Fig. 10
46. Install all servos and make sure they operate smoothly, especially the split elevator push rod.
47. Carefully transfer decals to the plane. See box label for original color scheme.
48. The CG point, measured from the leading edge, is 125mm (4 7 / 8") for the sport flyer or 145mm (5 11 / 16") for the expert. Fig. 10
49. Adjust suitable control movement according to personal taste.
50. Select a suitable propeller for the engine, ensure proper propeller clearance from ground surface.
51. Landing gear brake
There are two pieces of plastic shells provided in the kit. Trim the size and glue to the retract gear piano wire. We highly recommend silicone glue for its flexibility, Check the brakes carefully; when retracted, it should fold freely into the wing slot and free away from the push rod etc.. Fig. 9
52. Flying
Our prototype was tested with a Super Tigre S 61, and together with tune pipe, 5 channel receiver, 5 servos and monokote covering, only weighs 7 1 / 2 lbs. By applying slightly right rudder correction, it lifts off straight with ease. Flies as stable as a trainer, maneuvers smoothly. Vertical performance is excellent. Landing is very comfortable. And with brakes equipped, it lands SLOWLY.

HAPPY FLYING

Calypso Data

Engine: .40 .75 2 cycle

.60 .90 4 cycle

Wing span: 1620mm (64")

Fuselage length: 1440mm (56 $\frac{1}{2}$)"

Wing area: 47 dm²(730 sq.in.)

Weight, ready to fly: 3300 4000 g. (7.25 8.8 lb)

Wing loading: 70 85 g / dm²(23 28 oz / sq.ft.)

Radio: 5 channel

Engine thrust: Right thrust 1.5 °

Down thrust 1 °

Main Wing incidence: +0.6 °

Stabilizer incidence: +0.4 °

CG point: 125-145mm (4 7 / 8"-5 11 / 16") from leading edge

PLAN I OF BULKHEAD (NOTE: SOME PARTS OMITTED FOR CLARITY)

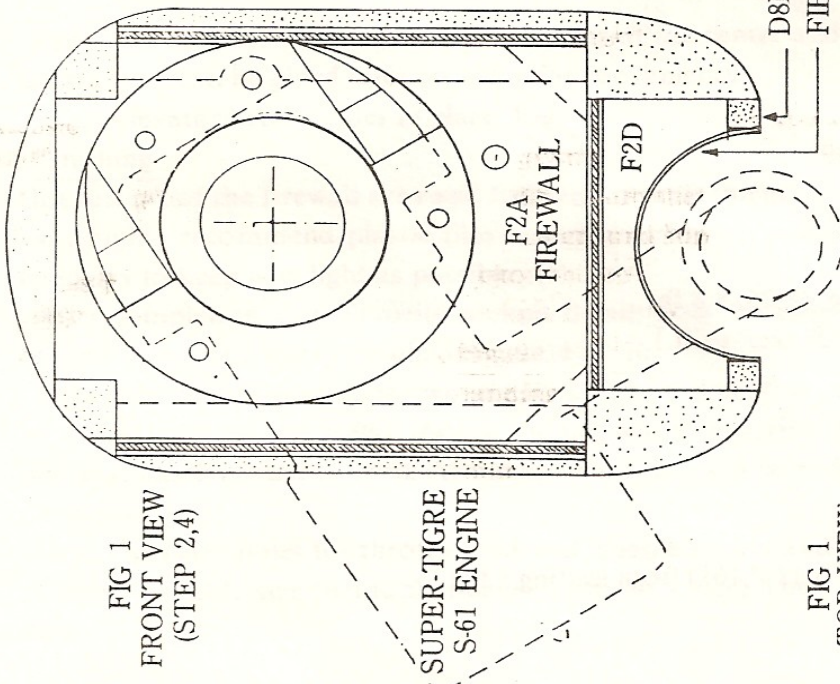


FIG 1 FRONT VIEW (STEP 2,4)

SUPER-TIGRE S-61 ENGINE

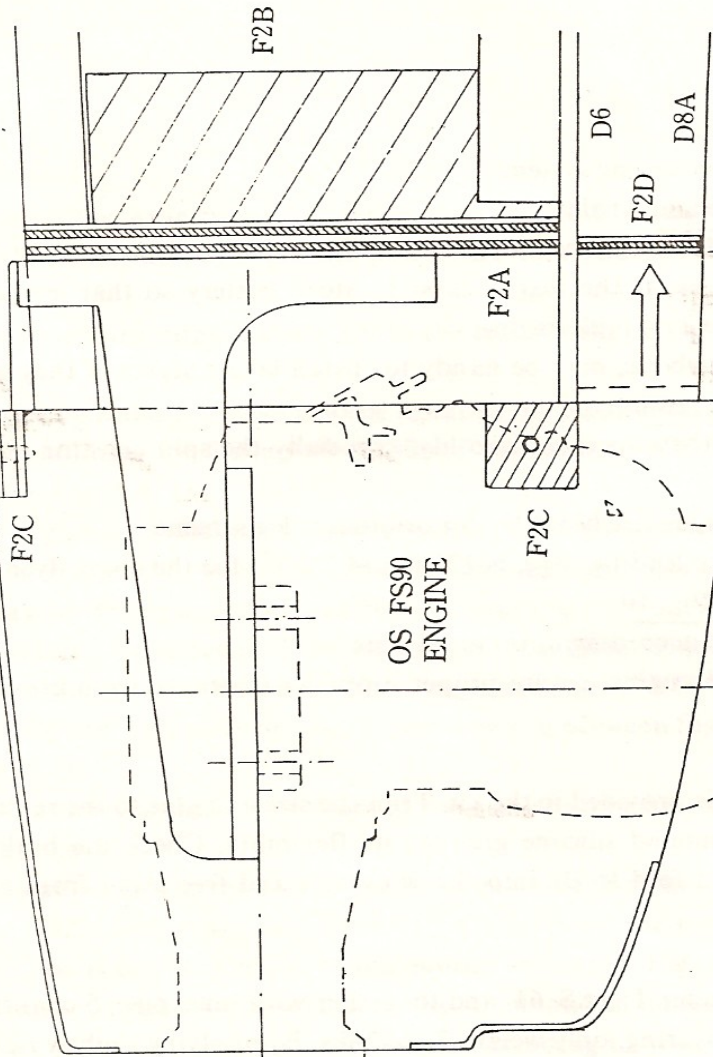
F2A FIREWALL

F2D

D7

D8B WOOD STRIP FIBREGLASS CHANNEL

FIG 2 SIDE VIEW (STEP 5,7)



DOWN THRUST 10°

OS FS90 ENGINE

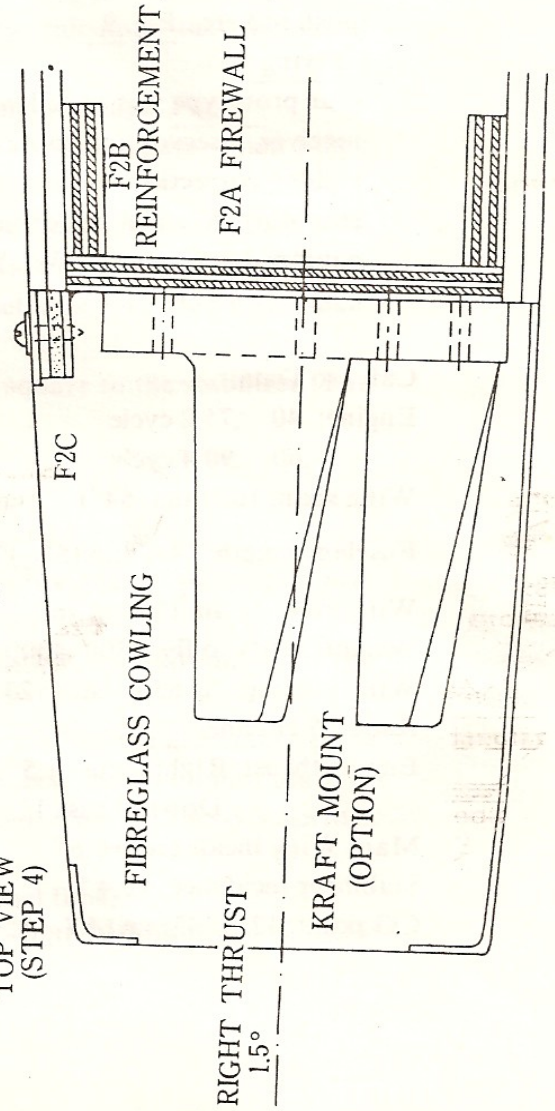
F2C

F2D

D6

D8A

FIG 1 TOP VIEW (STEP 4)



FIBREGLASS COWLING

F2C

FIBREGLASS REINFORCEMENT

F2A FIREWALL

F2B

RIGHT THRUST 1.5°

KRAFT MOUNT (OPTION)

FIG 2 BOTTOM VIEW (STEP 7)

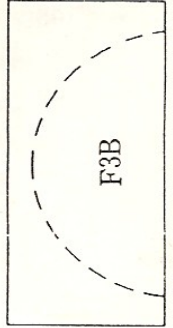
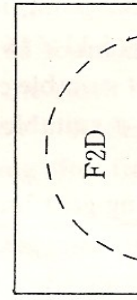
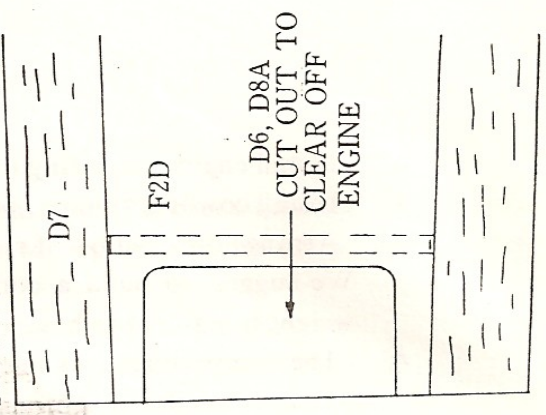


FIG 3 (STEP 6)

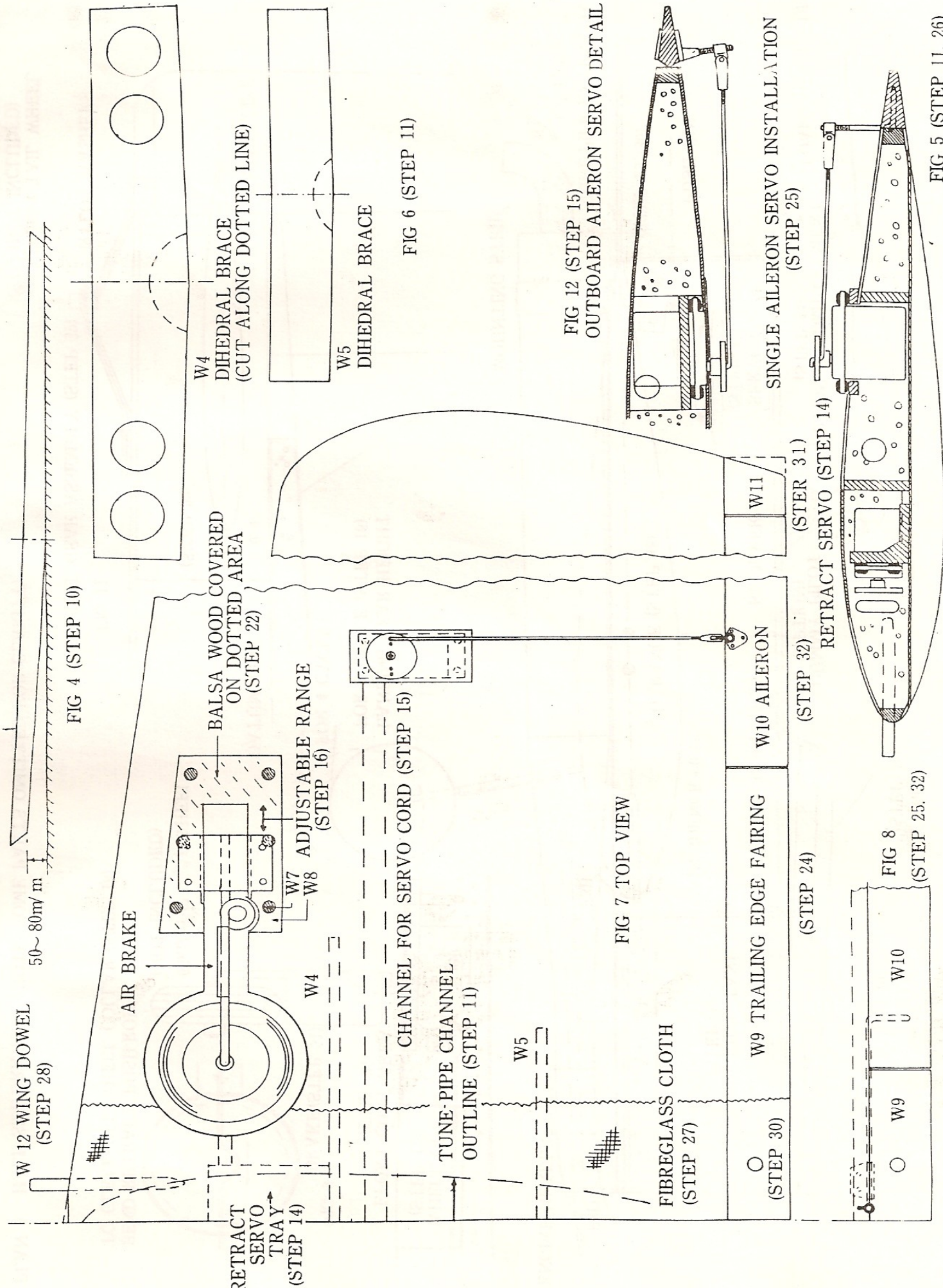


FIG 4 (STEP 10)

FIG 6 (STEP 11)

FIG 12 (STEP 15)
OUTBOARD AILERON SERVO DETAIL

SINGLE AILERON SERVO INSTALLATION
(STEP 25)

RETRACT SERVO (STEP 14)
(STEP 31)

FIG 8
(STEP 25, 32)

FIG 5 (STEP 11, 26)

FIG 7 TOP VIEW

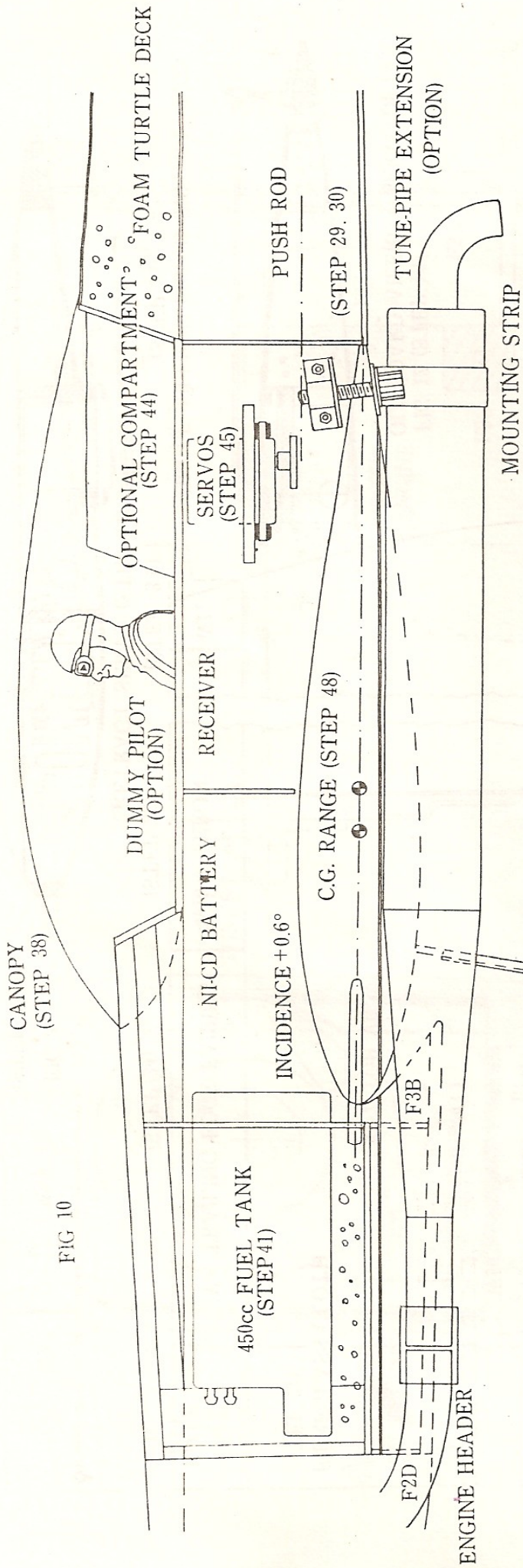


FIG 10

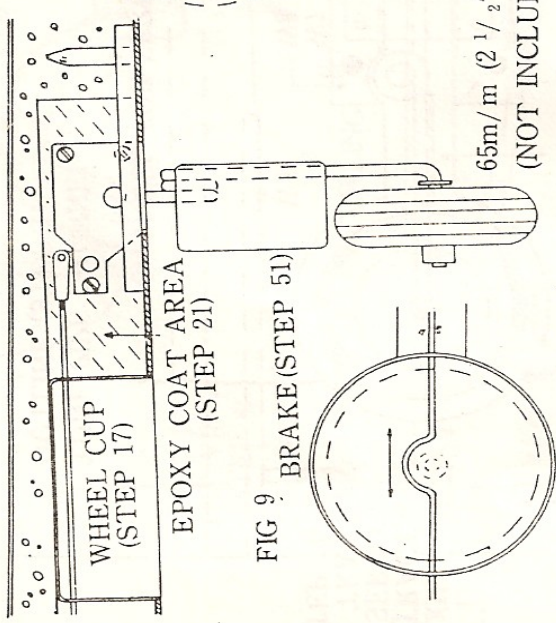


FIG 9

BEND RETRACT PUSH-ROD TO CLEAR OFF WHEEL COLLAR (STEP 18)

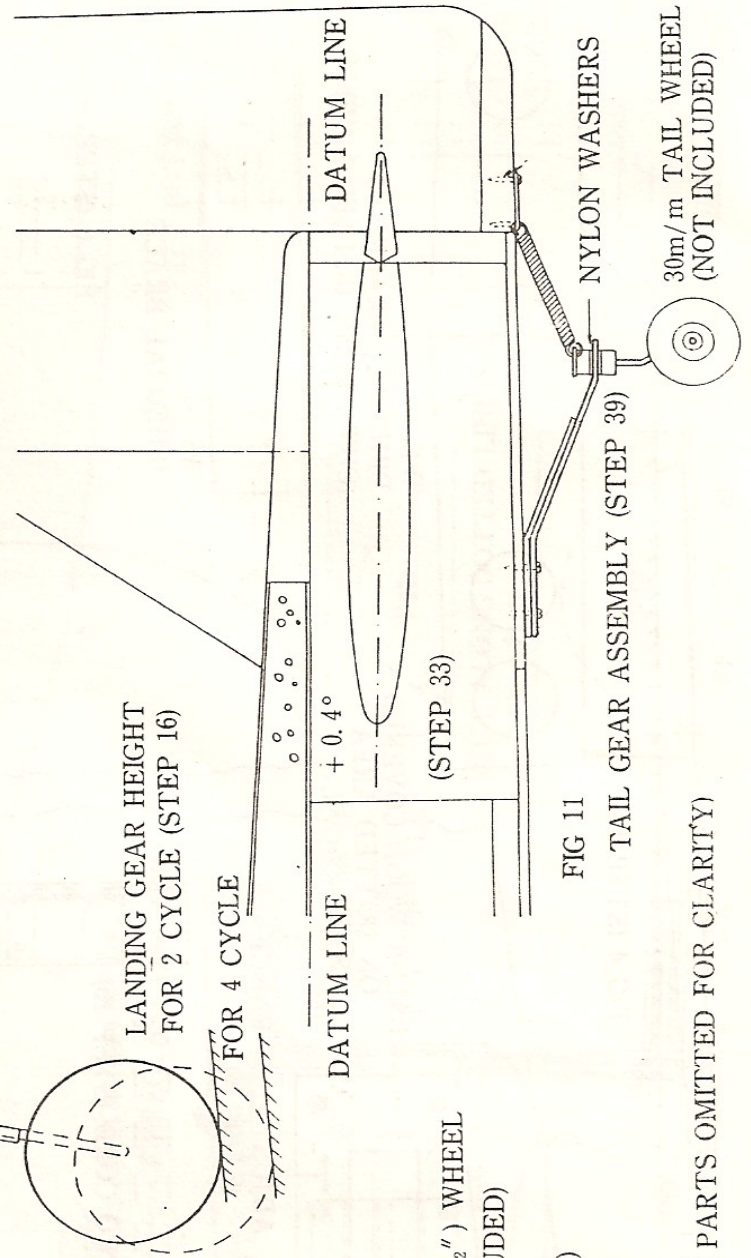


FIG 11

TAIL GEAR ASSEMBLY (STEP 39)