

Leopard(B111)

INSTRUCTION MANUAL



Specifications

| | |
|---------------|--------------------------|
| Length | 45.5 in / 1160 mm |
| Beam | 14.0 in / 370 mm |
| Weight | 10.9 lb / 4940 g |

* Specifications are subject to change without notice.*

Warning ! This model is not a toy.

It is designed for maximum performance. Please seek advice if one is not familiar with this kind of electric powered precision model. Operating this model without prior preparation may cause injuries. Remember, safety is the most important thing. Always keep this instruction manual at hand for quick reference.



**THE WORLD MODELS
MANUFACTURING CO., LTD.**

FACTORY PRE-FABRICATED
ALMOST-READY-TO-FLY (ARF) SERIES

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Leopard(B111)

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BEFORE YOU BEGIN

- 1 Read through the manual before you begin, so you will have an overall idea of what to do.
- 2 Check all parts. If you find any defective or missing parts contact your local dealer. Please DRY FIT and check for defects for all parts that will require CA or Epoxy for final assembly. Any parts you find to be defective after the gluing process may be difficult to remove for warranty replacement. The manufacturer will replace any defective parts, but will not extend to the parts that are good before gluing to defective parts during assembly. Warranty will not cover any parts modified by customer.
- 3 Symbols used throughout this instruction manual comprise of the following :-



Apply epoxy glue.



Apply instant glue
(C.A.glue, super glue.)



Assemble left and right
sides the same way.



Ensure smooth non-binding
movement while assembling.



Peel off shaded portion
covering film.



Cut off shaded portion.



Drill holes with the specified
diameter (here: 3mm).



Must be purchased separately!



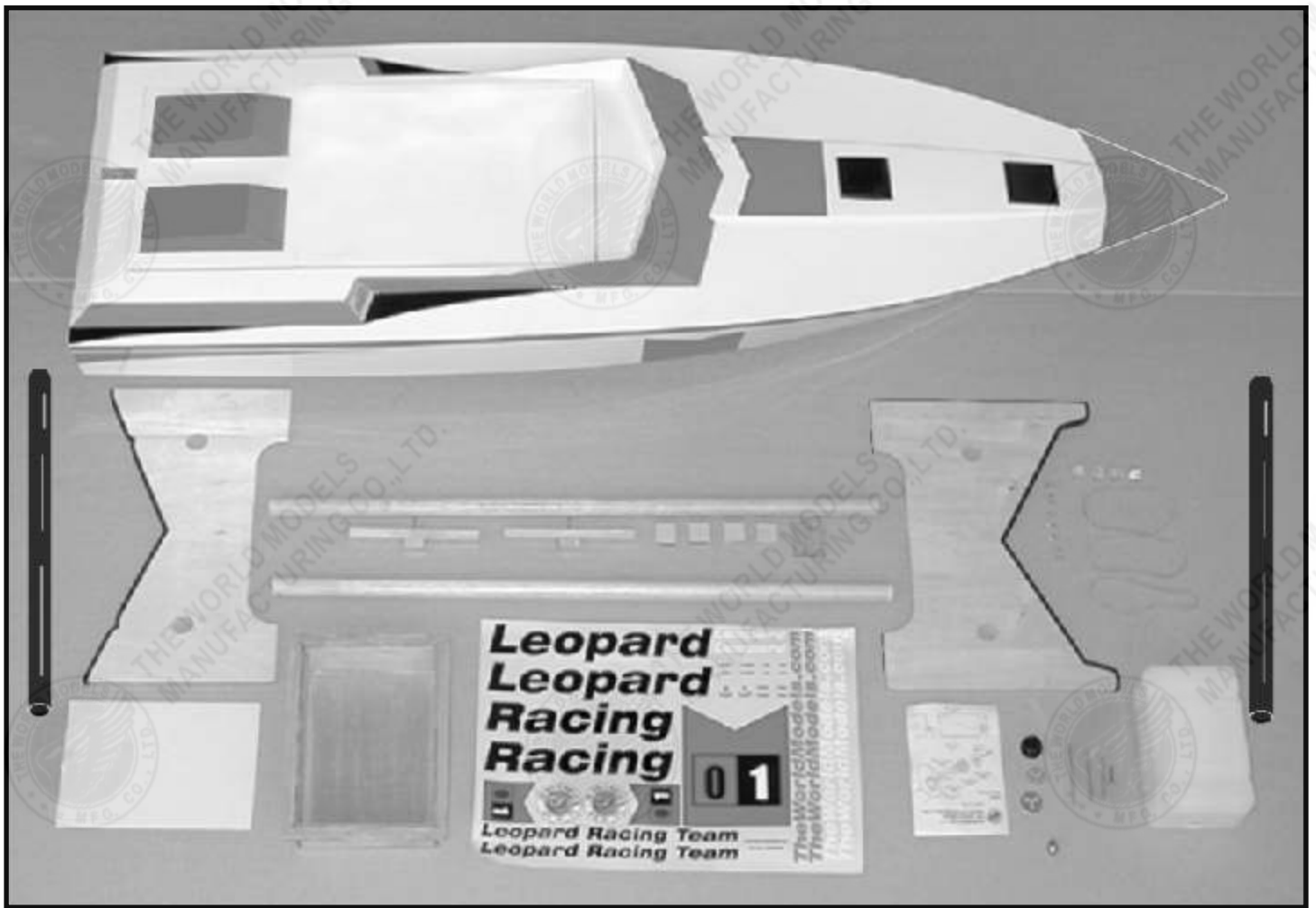
Pay close attention here!



Do not overlook this symbol!



Pierce the shaded portion
covering film.



Parts List

- a. RADIO BOX SCREW PWA2.3 x 8mm -- 8 pcs
- b. RADIO BOX ALU.PLATE 10 x 20 x 0.5mm -- 4 pcs
- c. FUEL TANK 800cc -- 1 pc.
- d. CABLE PROTECT MOUNTING 20 x 20 x 8mm -- 4 pcs
- e. RADIO BOX MOUNTING 10 x 10 x 127mm -- 2 pcs
- f. BOAT CABIN ALU.PLATE 35 x 13 x 1.5mm -- 1 pc.
- g. RADIO BOX 200 x 147 x 51mm -- 1 pc.
- h. SHAFT MOUNT 40 x 32 x 3mm -- 3 pcs
- i. BRACKET BLIND NUT M3-- 4 pcs
- j. RUBBER BAND D60 x 4mm -- 3 pcs
- k. RADIO BOX COVER BOARD 178 x125 x 1mm -- 1 pc.
- l. BOAT STAND -- 1 set
- m.SPONGE TUBE -- 2 pcs
- n. DECALS -- 1 set

Leopard (B111) Assembly Instructions

Note: Other than the boat hull and the parts listed on P.2 (parts list), all other components for assembling the boat are not included in the boat package of supplies. Customers have to purchase all these components separately. (A recommended parts list from other manufacturers can be obtained from your local dealers).

1. Picture 1 shows the general tools required for assembling the boat.

Tools required: Electric drill
Combination plier
Philips head screw driver
Flat head screw driver
Ruler
1 set of Allen keys (metric)



Picture 1

2. Picture 2 shows the components of the strut assembly.



Picture 2

3. Picture 3 shows the strut with reducer bushings and sleeve bearings.



Picture 3

4. Fit the reducer bushings on the sleeve bearings as illustrated in picture 4, by using a stationery vice.



Picture 4

5. Fit the sleeve bearings with the reducer bushings on the strut as shown in picture 5.



Picture 5



Picture 8

6. Bolt the strut and the strut L-shaped brackets together as illustrated in picture 6.



Picture 6

8. By referring to the center line marked on the transom and by using the strut assembly as template, locate and mark the hole at the bottom of transom through which the propeller shaft passes, as illustrated in pictures 9 and 10.



Picture 9

7. Mark a center line on the transom as illustrated in pictures 7 and 8.



Picture 7



Picture 10

9. Drill a hole in the position marked in assembly step 8, as illustrated in picture 11. For the size of such hole, refer to the diameter of the prop shaft or flex cable to be installed. The center of this hole should be at such distance from the boat bottom tip that the hole edge clears off the boat bottom plates.

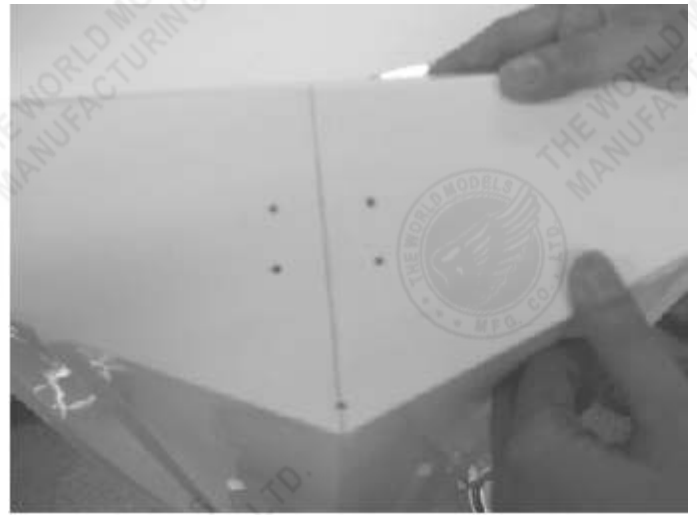


Picture 11

10. By using the center line marked on the transom and using the strut assembly (with strut brackets) as template, and by aligning the strut nose hole with the hole drilled in the transom, locate and drill 4 holes of 3 mm in diameter each on the transom. Note and ensure strut assembly is placed symmetrically over the center line. See pictures 12 and 13.



Picture 12



Picture 13

11. Screw the strut assembly to transom using blind nuts, as illustrated in pictures 14 and 15.

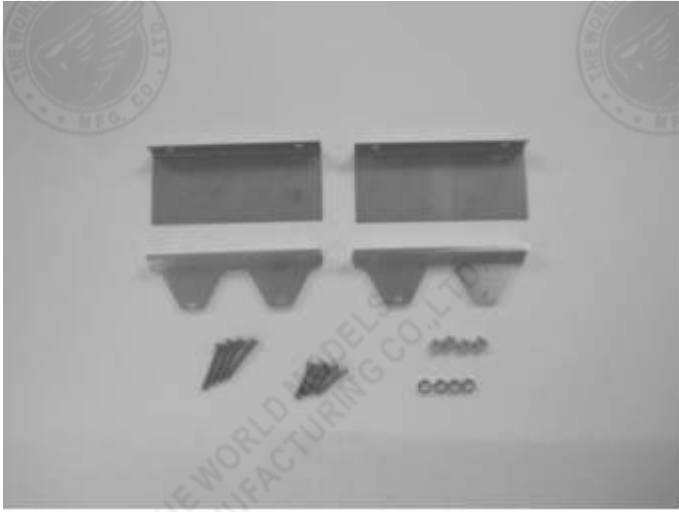


Picture 14



Picture 15

12. Picture 16 shows the components of trim tab assembly (not included in the boat package of supplies).

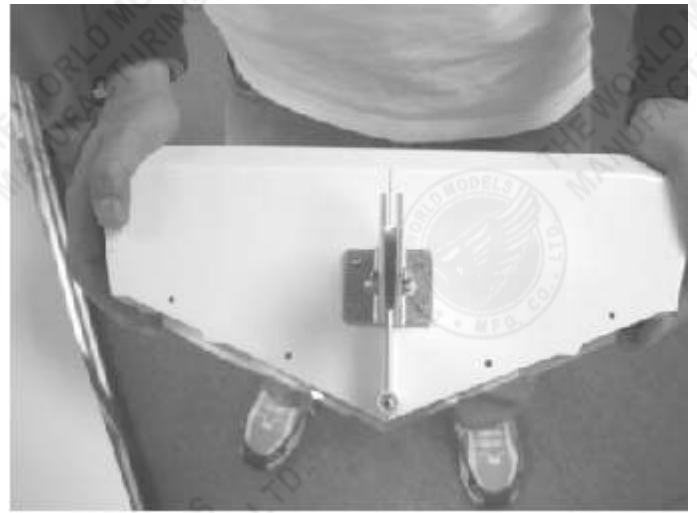


Picture 16

13. By using the trim tab bottom plates as templates and positioning these plates in the manner that the tab bottom plate is flush with the boat bottom and the tab bottom plate edge is 50 mm from the center line marked on the transom, mark and drill 4 holes in the transom for fixing the trim tabs to the boat, as illustrated in pictures 17 and 18.



Picture 17



Picture 18

14. Place the screws on the upper brackets of the trim tabs, as illustrated in picture 19. These screws are used to adjust trim.



Picture 19

15. Screw the trim tabs to the boat by using blind nuts as illustrated in picture 20.



Picture 20

16. Picture 21 below shows the trim tab securing nuts on the inside of the transom plate. If blind nuts are used for fastening the trim tabs to the transom, the transom plate should be reinforced by plywood plates to be glued internally under the outermost screw positions.

Make sure the plywood plates are thick enough so that the nails of the blind nuts do not pierce through the transom plate when tightening the fixing screws.



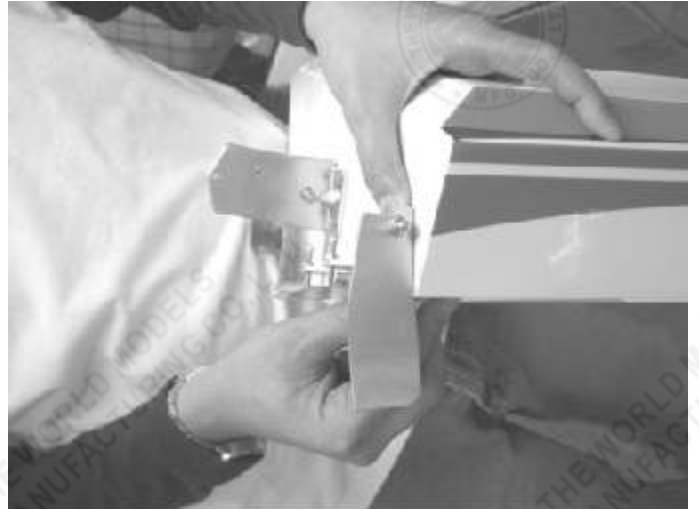
Picture 21

17. Mark a straight line on one side of the transom for installation of the pivot turn fin. The scribed line is at 90° angle with the boat bottom, as illustrated in picture 22.



Picture 22

18. Fit the turn fin on the transom in the position so that the turn fin edge aligns with the straight line marked on the transom, as illustrated in pictures 23 and 24. Make sure the transom has a thickness of at least 6 mm for fixing the turn fin.



Picture 23



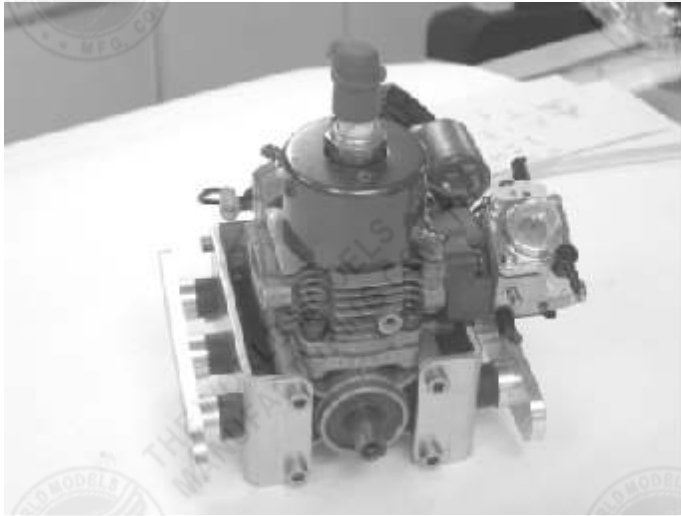
Picture 24

19. Picture 25 shows the components of a typical engine amount (not included in the boat package of supplies).

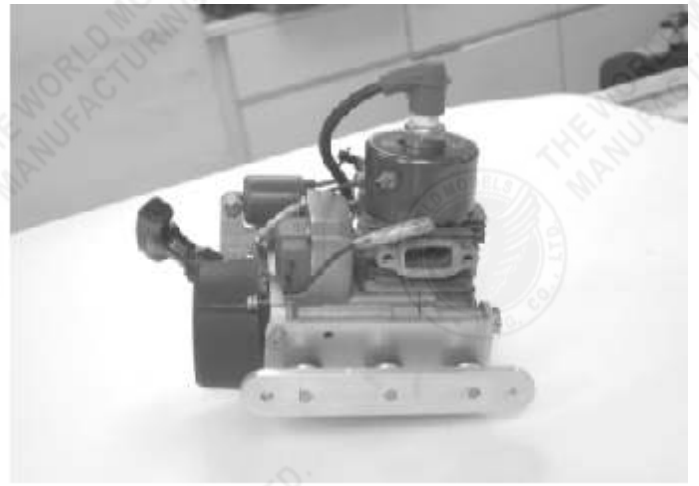


Picture 25

20. Screw the components of the engine mount to a typical gas engine (not included in the boat package of supplies) as illustrated in pictures 26 to 29. Apply Thread Locker (recommended) to the screw threads before screwing.

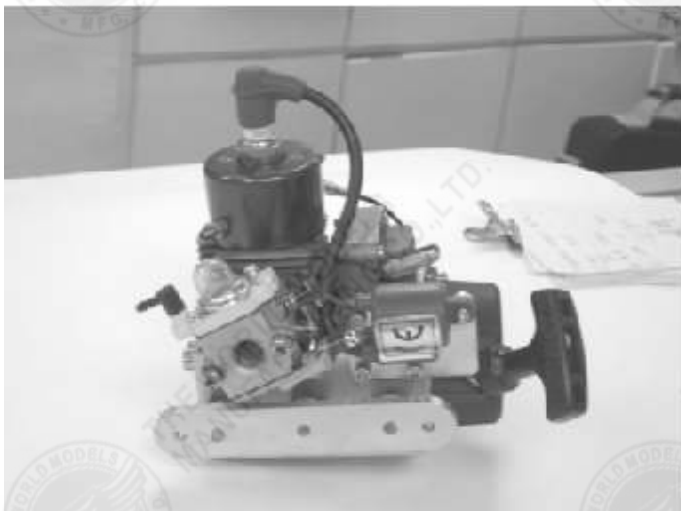


Picture 26



Picture 29

21. Picture 30 shows the gasoline fuel tank with associated accessories (all not included in the boat package of supplies) (Warning: Make sure the fuel oil hose and fuel tank lid are of material type which will not be corroded or contaminated by gasoline fuel).



Picture 27



Picture 30

1. Secure firmly the tank in the tank tray by rubber bands as illustrated in picture 31.

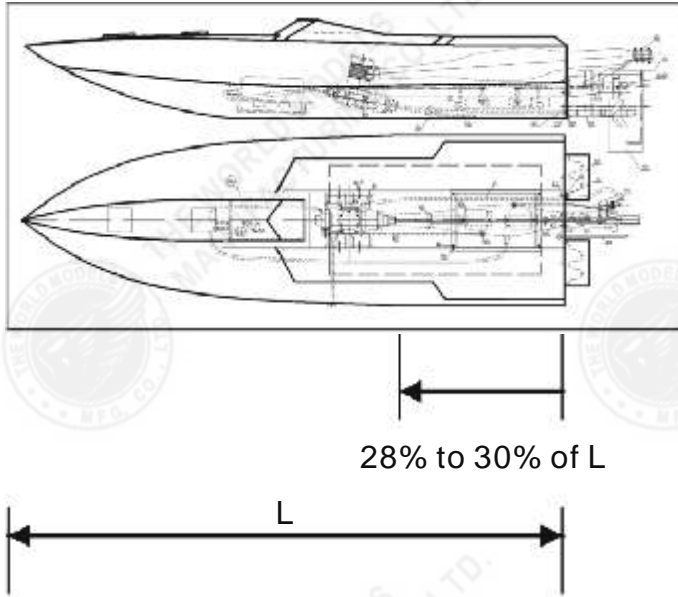


Picture 28



Picture 31

23. Place a typical gas engine (not included in the boat package of supplies) in between the wood rails in the hull as illustrated in pictures 32 and 33. Position the engine, servo compartment (together with servos, radio receiver and battery pack), tuned pipe or muffler so that the center of gravity (c.g.) of the boat is located at the point with a distance of about 28% to 30% of the boat overall length from the transom.



Picture 33

24. Fit properly the muffler on the gas engine (typical for illustration purpose here) as illustrated in picture 34.

Use pipe or tube to be connected to the muffler, to convey the exhaust gases from the engine to outside the hull.



Picture 32



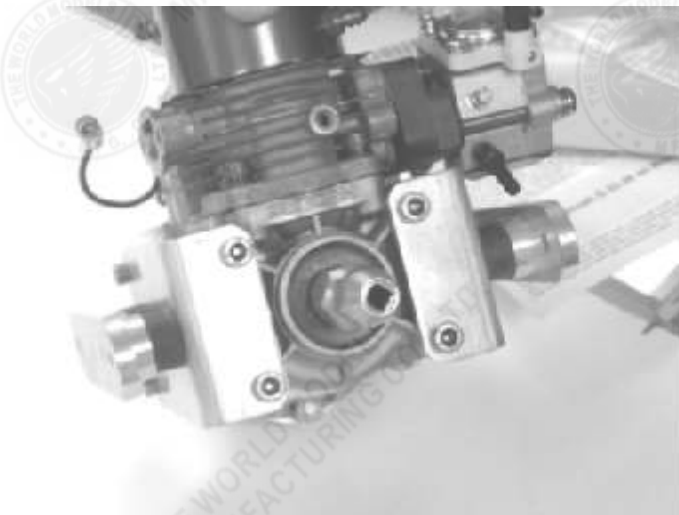
Picture 34

25. Picture 35 shows the components of the flex coupling.



Picture 35

26. Screw the flex coupling to the engine as illustrated in picture 36. Apply Thread Locker to screw threads before screwing.

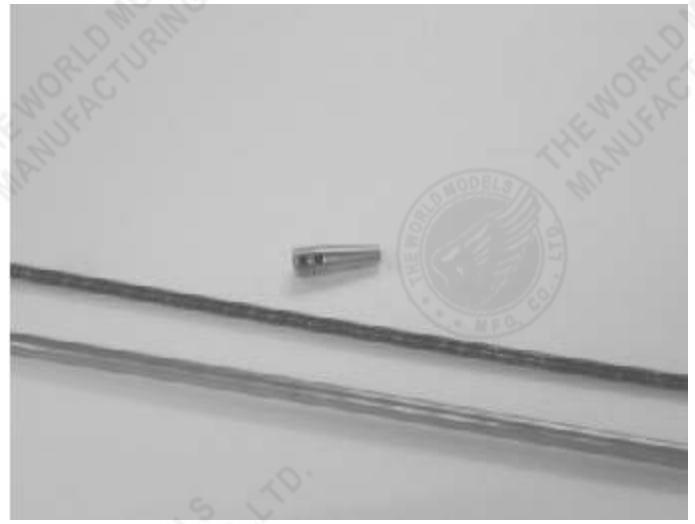


Picture 36

27. Pictures 37 and 38 below show the stuffing box, flex cable and flex ferrule with set screws.



Picture 37



Picture 38

28. Before installing the flex cable and flex ferrule, make sure the hole was drilled in the transom bottom tip in the correct position. Such hole location is illustrated in pictures 11 and 39.



Picture 39

29. Insert one end of the flex cable in the flex coupling fitted on the engine so that the cable end is not fully home but is 3 mm distant from home in the flex coupling.

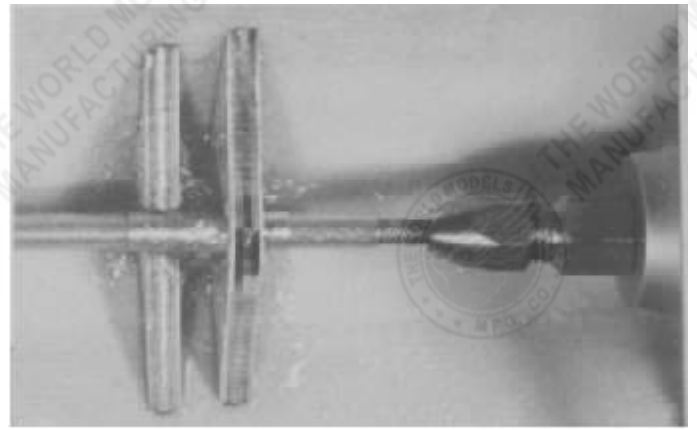
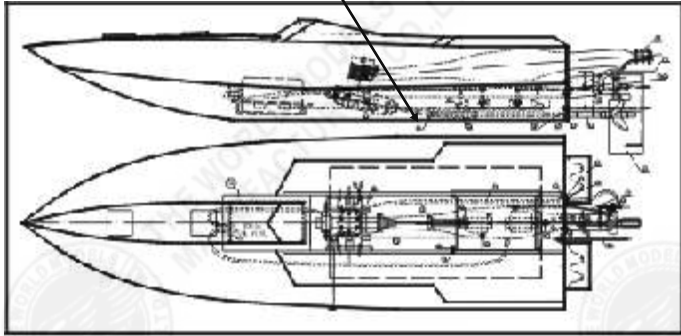
Tilt the engine so that the flex cable is slightly curved downward to let room for the radio compartment as illustrated in picture 40 below. Bend the stuffing box to have the same curvature of the flex cable.

Put in the stuffing box to hold the flex cable and move the stuffing box along the flex cable to the position where the stuffing box

end is 40 mm distant from the flex coupling as illustrated in picture 41 following.

Shorten the flex cable and stuffing box by cutting (if required) so that with one end of the flex cable connected to the flex coupling fitted on the engine and with the other end connected to the propeller shaft, the distance between the engine and the propeller is optimal.

Flex cable slightly curved here



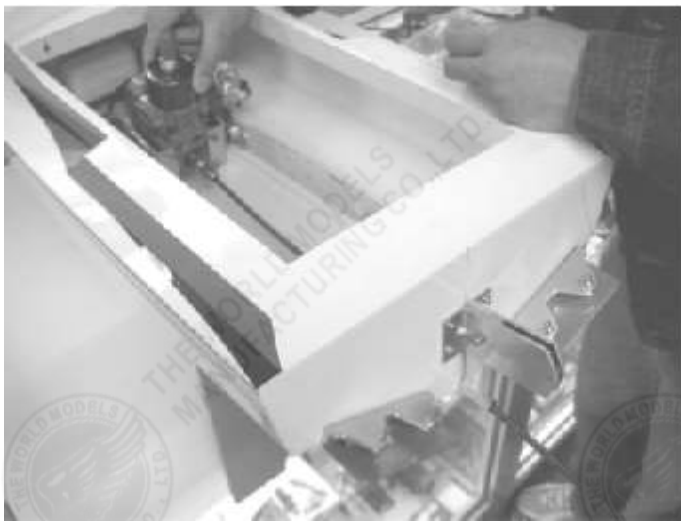
40 mm
Picture 41

31. Picture 42 shows the prop shaft with drive dog and flex ferrule fitted on the shaft.



Picture 42

32. Insert the flex cable end in the ferrule to be fitted on the prop shaft as illustrated in picture 43 and secure firmly the flex cable to the ferrule by sufficient soldering.



Picture 40

30. Apply epoxy and polyester to fix the stuffing box wood holder in position as illustrated in picture 41. The wood holder plate is not included in the boat package of supplies.



Picture 43

33. Place the radio /servo compartment in between the wood rails in the hull as illustrated in picture 44.



Picture 44

34. Picture 45 below shows the radio /servo wooden compartment, compartment cover, compartment brackets and rubber bands.



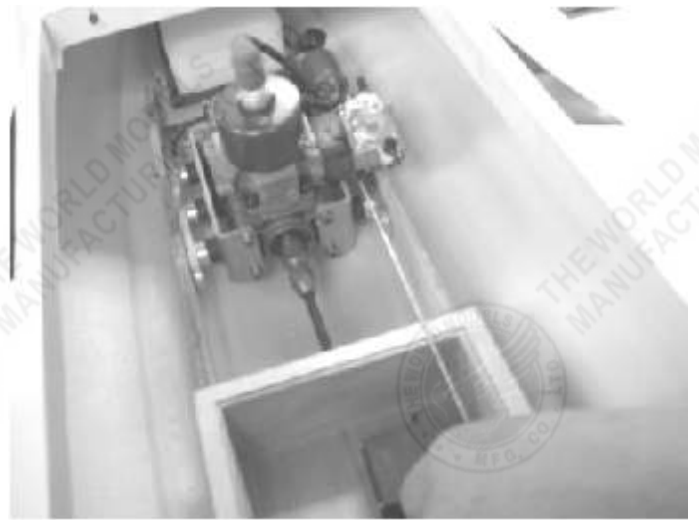
Picture 45

35. Fit the engine throttle bellcrank on the engine as illustrated in picture 46 below. For details of fitting, refer to the instructions manual from the engine manufacturer.

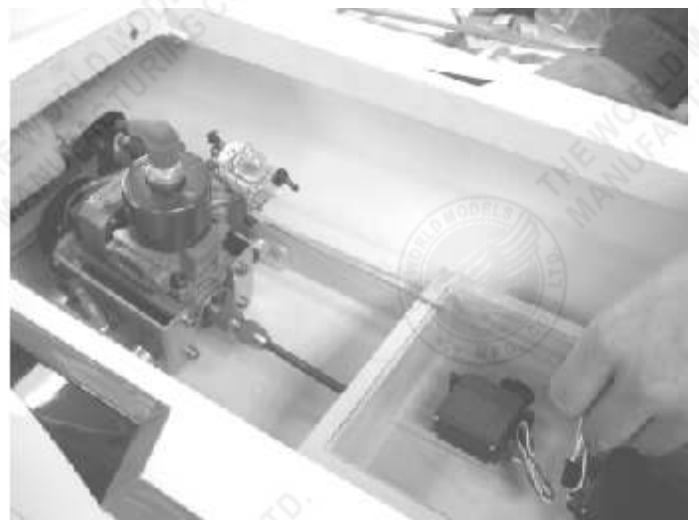


Picture 46

36. Position the servo push rod to be connected to the engine throttle bellcrank arm at one end and to the servo arm at the other end, in order to locate the hole in the servo compartment wall through which the servo push rod passes, as illustrated in pictures 47 and 48 below. Determine the hole size by referring to the push rod seal smaller diameter (see picture 49 following) and drill the hole in the compartment wall accordingly.



Picture 47



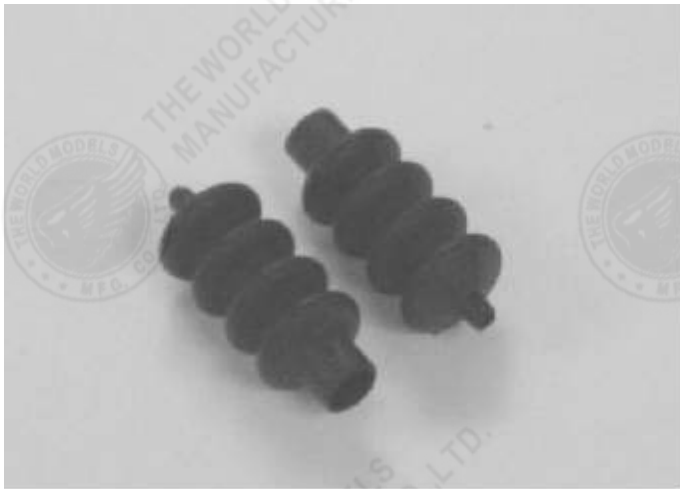
Picture 48

37. Position the rudder push rod to be connected to the servo arm at one end and to the rudder at the other end, in order to locate the hole in the radio/ servo compartment wall and to locate the other hole in the transom plate, through which two holes the push rod passes.

Determine the size of these holes each by referring to the push rod seal smaller diameter (see picture 49 following) and drill these holes in the radio/ servo compartment wall and in the transom plate accordingly.

38. Picture 49 shows the push rod seals. Install the push rod seals to the radio/ servo compartment walls and to transom before connecting both the engine throttle push rod and the rudder push rod to the servos.

Apply CA glue to seal the gap between the push rod seal and the transom plate and the gap between the push rod seals and the radio/ servo compartment wall.



Picture 49

39. Fit the drive dog, propeller and prop. tail nut to the prop shaft as illustrated in picture 50. Add thrust washer to where between the drive dog and the strut to avoid friction due to metal contact.



Picture 50

40. Screw the push rod adjuster to the rudder. Apply Thread Locker (not included in the boat package of supplies) to the screw threads before screwing.

Connect one end of the push rod to the adjuster fitted on the rudder as illustrated in pictures 51, 52 and 53.



Picture 51



Picture 52



Picture 53

41. Picture 54 shows the components of the cowl lock. Fit the cowl lock components to the cabin and the hull so that the cabin can be engaged in the hull and disengaged from the hull both readily.



Picture 54

42. Drill a hole in the transom through which the engine cooling water hose passes. Connect the hose to the rudder at one end and to the water inlet of the engine at the other end.

Connect one end of another cooling water hose to the outlet of the engine and put the other end of this hose through a metal water outlet to be fitted on the starboard side or the port side of the boat, for discharging the cooling water.

Note: the cooling water inlet port on the engine is at lower level than the outlet port on the engine.

43. Connect a fuel tube from the fuel tank to the engine and connect another hose to the fuel tank for air venting. For details of connection, read the instructions manual from the engine manufacturer.

44. Drill a hole in the servo compartment cover through which hole the antenna tube passes. Anchor the antenna tube securely and apply glue to seal the gap between the tube and the compartment cover.

45. On completion of the boat assembly, replace the foam blocks inside the hull.

For safe operation of the boat model, please read the next page.

Safe Operation of Boat Model

! WARNING : For first time boater

- First time boater should never run a boat by himself / herself. Assistance from experienced boater is absolutely necessary.
- Pre-run adjustment must be done before running a boat, it is dangerous to operate a boat not properly adjusted. When the boat model is behaving strangely, stop immediately the model and find out the reasons. As long as the problem exists, do not operate it. This may cause further trouble and deteriorate the boat conditions.

! WARNING : DO NOT operate the model under the following conditions

(Non - observance may result in accidents)

- Operate the boat in spacious areas with no people around ! DO NOT operate it : - in places
 - 1 . where children and people gather ;
 - 2 . in swollen river and
 - 3 . in rivers, lakes and other places with strong currents
- Always check the dry batteries in the radio !
When the batteries become weak, signal transmission and reception are reduced. You may lose control of your boat model during its operation with weak radio batteries. This may lead to accidents.
- Notice that people around you may also operate a radio control model ! Never share the same frequency with some somebody else at the same time ! Signals can be mixed and you will lose control of your model.

! WARNING : to avoid personal injury and property damage, be sure to observe the following :

- Handle fuel only outdoors! Vapors and exhausts are very noxious to health and highly inflammable.
- DO NOT touch any moving or rotating parts of the model. Touching parts rotating or moving at high speed can cause serious injury.
- Right after use, DO NOT touch parts or equipment on the boat model (such as engine and muffler) which produces high temperature.
- DO NOT handle fuel indoors or in places with open fires and sources of heat. Store fuel only in dry cool and dark places beyond children's reach. Always tightly close the fuel container cap.
- DO NOT dispose of empty fuel containers into fire to avoid the danger of explosion.
- DO NOT swallow fuel and let your eyes contact with fuel. If fuel is swallowed, immediately induce vomiting. If eyes get contact with fuel, rinse them immediately and consult a medical doctor.