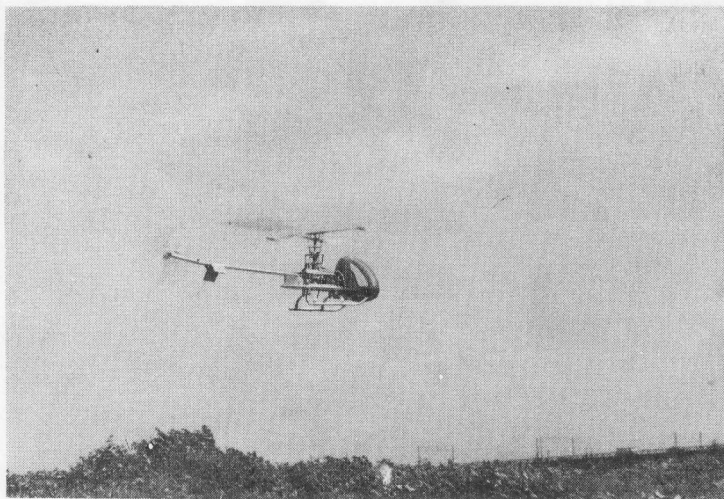


Hughes 250

《コレクティブピッチコントロール》 説明書



相模 R C 製作所

Small size models are usually handled roughly, but we believe they should be constructed and handled with more care to get 100% performance out of a small size model such as the HUGHES-250 Helicopter.

If you are just starting in R/C helicopter, it is wise to study carefully flying principles, construction, flying technique, etc., all of which can be obtained from various R/C magazines or from reports by experienced flyers.

When assembling the HUGHES-250, please note the following points:

1. On assembling the mechanism always try to eliminate all friction by making the rotating and power transmission sections extremely smooth with no binding.
2. Install only a fully run-in engine.
3. For better performance of your model, always try to use light R/C equipment.
 - a. Body of HUGHES-250 ... All of the mechanism installed in the body is exposed.
 - b. Canopy & Cockpit These are complete plastic mouldings and the wooden components are partly processed.
 - c. Use Epoxy for firm assembly of wooden components.
 - d. When the assembly of the wooden components is completed, drill mating holes for the main gear box.
 - e. After sanding all the wooden components, paint. (Epoxy type paint is recommended.)
 - f. The addition of a dummy pilot and/or Instrument Panel gauge inside the Cockpit will greatly improve the appearance of the helicopter.
 - g. The receiver and battery are installed under the cockpit floor.

ENGINE

The helicopter flies mainly at a medium power setting, therefore the engine selected should have adequate power at a mid-throttle setting, but also a quick and smooth response to high power.

A specially designed engine of this size is not yet available for an R/C helicopter, so you have no alternative but to use a regular R/C engine and adjust it for helicopter use. The O.S. .25 R/C or Enya .19 R/C B. B. are recommended.

RUNNING-IN THE ENGINE

The engine MUST be properly run-in before mounting in the helicopter. Follow the instructions supplied with the engine carefully. If the engine is not run-in properly, it may not cause serious trouble in a normal propeller model; however, in the helicopter it can cause major damage and perhaps injure people.

Use a 200 c.c. fuel tank on the model and, if possible, use muffler pressure. If available, 15% - 30% Nitro in the fuel will improve performance.

GENERAL ASSEMBLY

Carefully assemble the HUGHES-250 as follows:

1. Remove the clutch from the pins on the flywheel and mount the flywheel on the motor using the normal propeller nut.

Reposition the clutch on the flywheel. The direction of the clutch insert is referred to on Figure E. Note the washer behind the flywheel for the O.S. .25.

2. Glue the wooden tail-boom block (8) onto the main base (1) making sure that the recess to clear the nylon pinion is facing upwards.

3. Fix servo mounts (6) and (7) to formers (2) and (3). Height of mount is determined by the depth of the servos. Rails (7) are used to raise No. 2 servo.

4. Fix former (2) onto base (1).

5. Fix runners (4) onto base (1).

6. Fit floor (5) to base (1) length to suit the servos used.

7. Fit former (3) to base (1).

8. Sand and paint all wooden parts.

9. Remove the engine mounting bed from the main gear assembly and install it on the wooden body using the screws included in the kit. Use "Loctite" on all screws.

10. Fit the starting belt onto the flywheel and sit the engine temporarily on the mount then insert the spacer ring onto the head of the engine. After removing the motor clamping screw at the front of the main gearbox, place the assembly on the head of the motor and fix motor mounting bed to gearbox assembly. If everything lines up correctly, fix engine and replace motor clamping screw.

11. Insert the flexible tube and formers into the tail boom. Fix the piano wire tail rotor drive shaft on to the tail gearbox joint and insert it through the flexible tube. After fitting gearbox into tail boom, fasten with screw.

Rotate the drive shaft by hand to check that the tail gear turns smoothly. Do not pour oil into the flexible tube - it will only increase friction.

12. Fix the tail pipe to the mounting frame making sure that it is installed on the centre line of the body. The tip of the tail pipe should be 73 m.m. above the base line as shown on Figure F.

13. Fix the tail wire drive to the main gearbox shaft. The wire is bent at right angles then slid into the slot in the gearbox shaft. Put the collar onto the wire BEFORE bending.

14. Apply several coats of dope to the tail rotor blades and sand. Insert the tail rotor blades into the pitch housing and fasten with the bolt supplied. Make sure that the blades are fixed to rotate in the correct direction. (FLAT FACE OUTWARDS)

15. Fix the servos into position on the servo rails.

16. Install the tail rotor pitch control wire and tube. The tube is fixed to the tail boom by wrapping at approximately 6 inch centres with vinyl tape. A pushrod adjuster should be fitted at each end of the wire - one end connected to the bellcrank on the tail rotor gearbox and the other to the right hand servo - looking from the rear. Do not lubricate the wire - this will cause extra friction.

17. Fix the tail skid by means of the metal tail skid holder in the position shown on the plan.

18. After finishing the balsa stabilizers by painting or covering with tissue or film, fix them to the aluminium plate with the P.K. screws supplied, then fix the plate to the boom.

19. Fit the landing skid to the body. Screw the two eye-hooks supplied into the wooden frame and fix tank into position.

Fit pressure line from muffler to tank.

20. Fix head assembly to main drive shaft.

21. Fit linkages as shown on plan. Looking from rear:

L. H. Servo No. 1 is for Engine.

Next Servo No. 2 is for Longitudinal (elevator).

Next Servo No. 3 is for Lateral (Aileron).

R. H. Servo No. 4 is for Tail Rotor Pitch (Rudder).

Note operating angles shown in Figure (A).

Check all linkages to ensure that they operate smoothly over their total travel.

22. Fit fly-bar rods into head and fix with grub screws provided. Tubes should be horizontal when head is in a horizontal position.

23. Apply several coats of dope to the main rotor blades and sand. Balance the blades as shown in Figure (B), i.e., bolt the blades together and add tape to the lighter blade tip until two (2) blades balance. This must be done with care. After balancing, fix main rotor blades to nylon blade holders and check that they are in line.

24. With swashplate and head in horizontal position, use pitch gauge supplied to adjust main rotor blade pitch. Slide gauge onto blade and adjust relevant pitch control adjuster until top of gauge is also horizontal, i.e., in line with horizontal fly-bar.

25. Fit canopy base to wooden frame. Receiver battery and switch should be fitted under seat.

26. Cut canopy to clear servos. This can be done with a hot wire and then cleaned up with fine sandpaper. Heat the canopy by placing in warm-hot water before cutting - this reduces the risk of cracking.

27. Paint the canopy base and canopy then fix to wooden base with P.K. screws supplied.

28. Check that the model balances just ahead of the main mast, i.e., model should sit nose down at about 5° - 10° when the model is held at the main shaft. Add weight as necessary to achieve balance.

29. The model is now ready to fly. Check radio installation carefully and run up engine while holding the model. If possible, obtain the service of an experienced pilot to trim and fly the model. If an experienced flyer is not available, take the following steps:

- (1) While holding the model, run-up engine and check tracking of main rotor blades. The low blade should have its pitch increased (by adjusting pitch adjusting rod) until it tracks correctly with other blade.
- (2) Set model on ground while idling and slowly increase speed of engine. Adjust lateral and tail rotor pitch such that model remains level at lift-off. Adjust longitudinal such that model travels slowly forward at lift-off.
- (3) Now try flying like a propeller aircraft - travel forward - add elevator slowly, travel in a straight line for about one metre then land. Continue doing this by steadily increasing the distance flown, until you have confidence in your ability.
- (4) Slowly learn to hover by gently applying up elevator while travelling along, as well as increasing motor - but don't go too high. You will soon learn the technique necessary to hover.

BEST OF LUCK

FIGURE A

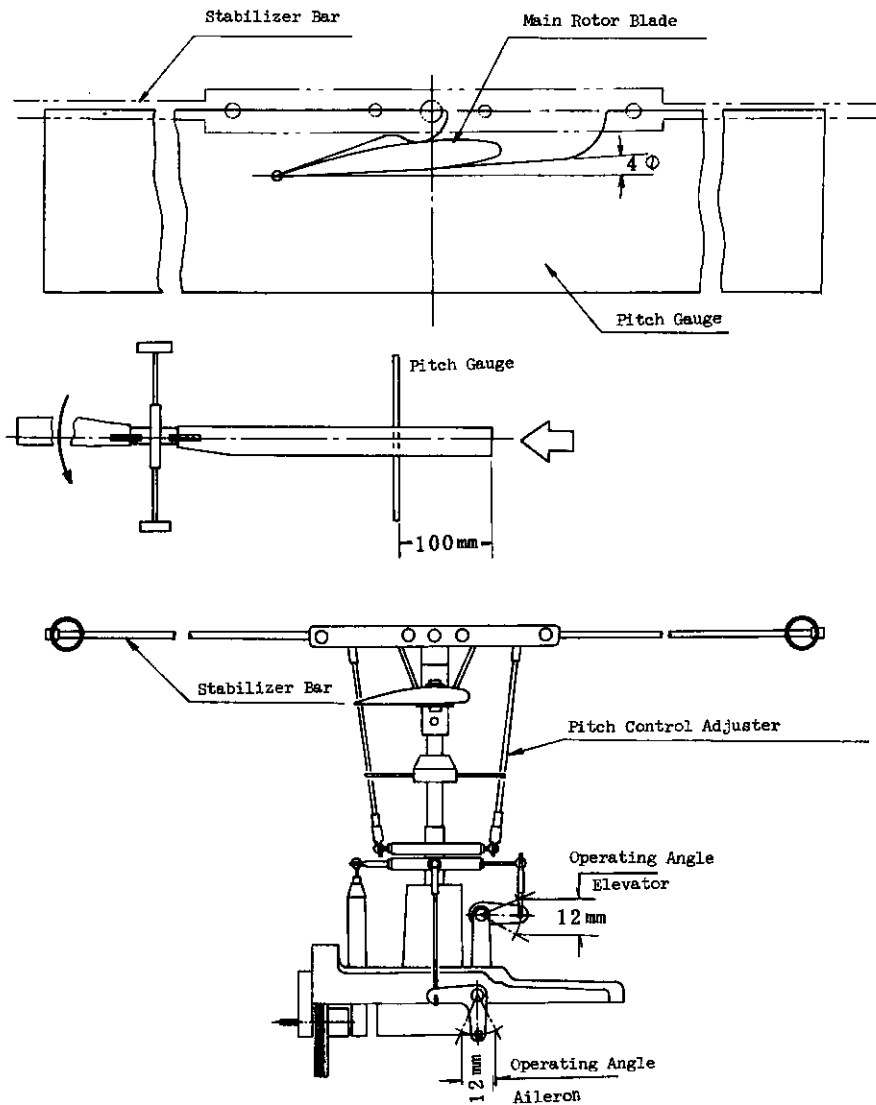


FIGURE B

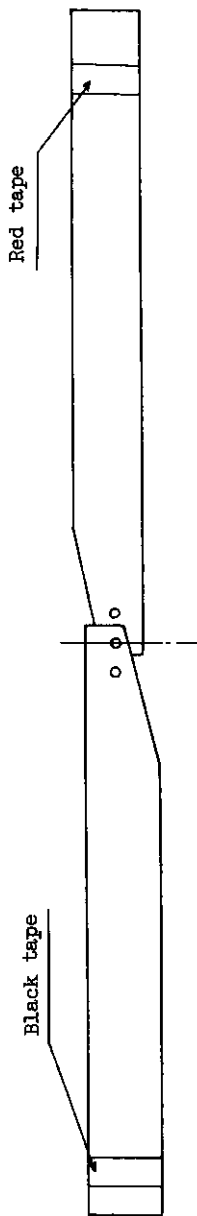
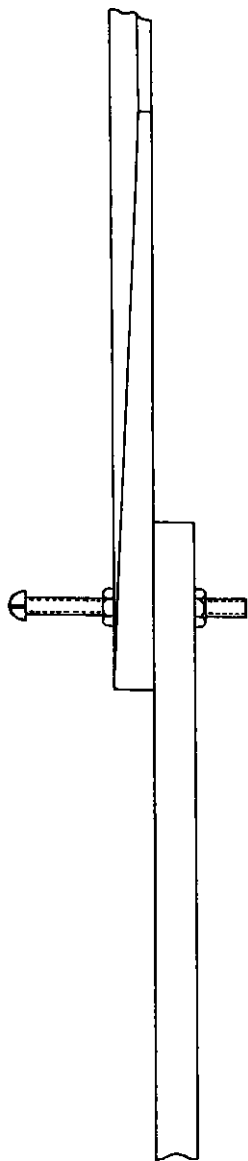
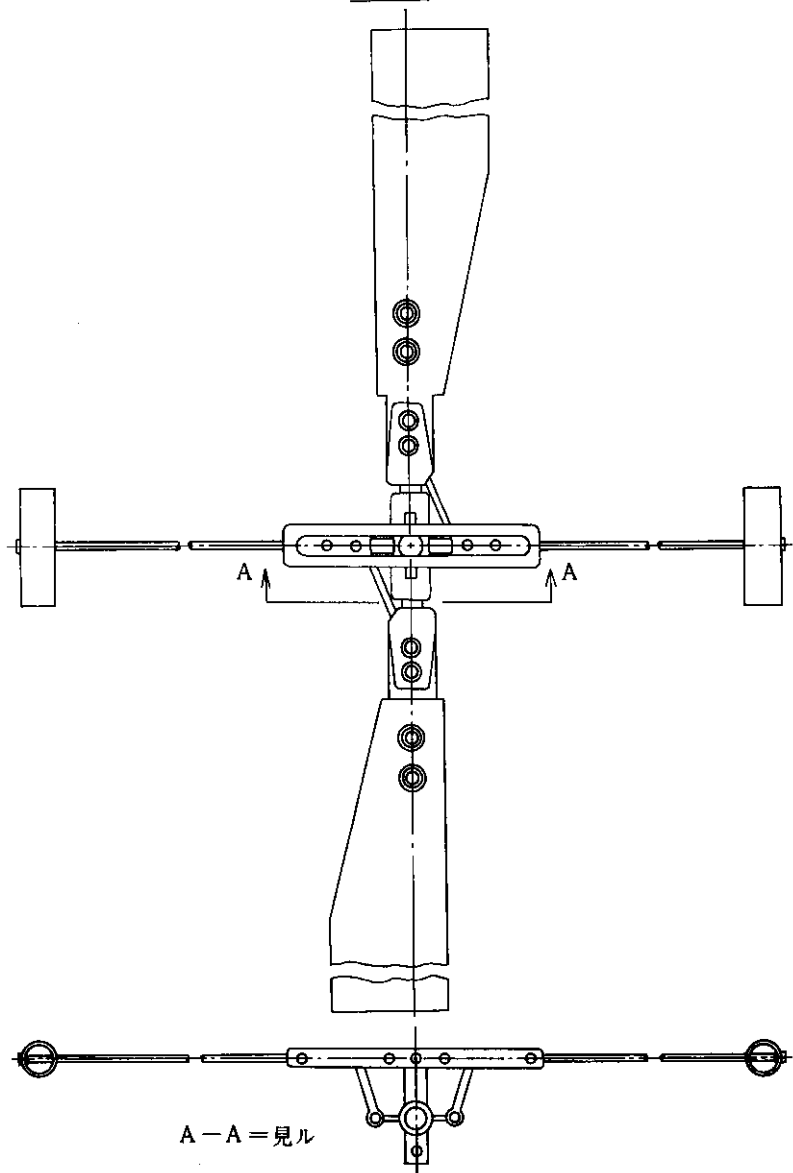


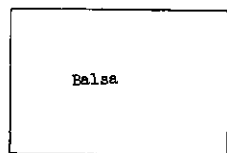
FIGURE C



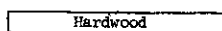
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PARTS OF BODY

FIGURE D



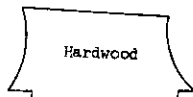
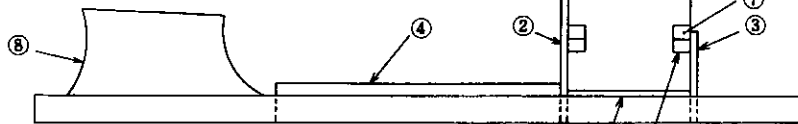
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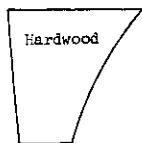
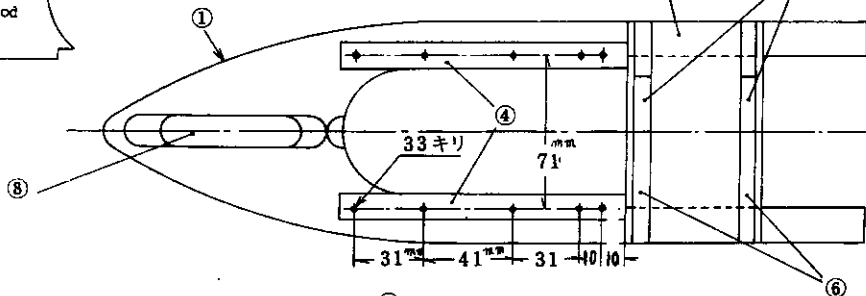
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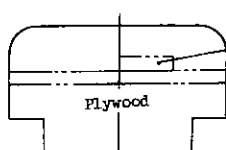
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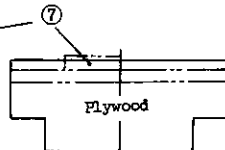
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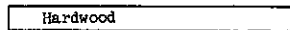


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Use Epoxy

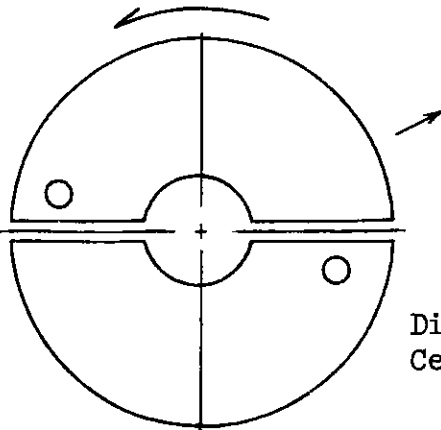
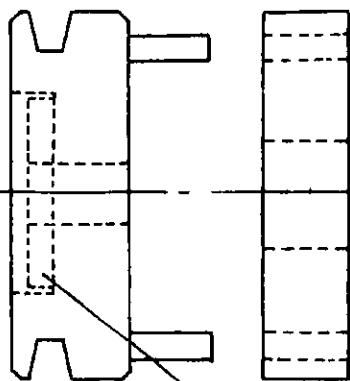


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FIGURE E

CLUTCH DIRECTION

Engine Revolving Direction



Direction of
Centrifugal Force

WHEN USING ENYA 19BB, REMOVE WASHER