

INTRODUCTION

Testor's Freshman "9" is the first in a series of four progressive kits designed to train the amateur modeler in the art of building and flying control line stunt planes. This kit has been carefully developed—together with Testor's McCoy "9" propeller, Testor's "39" fuel, and the McCoy "9" Engine—to provide the uninitiated modeler with a perfect combination for a successful first venture into the exciting hobby of control line flying. The Freshman "9" is extremely easy to build and equally easy to fly.

After you have successfully built and flown your Freshman "9" you should plan to build and fly the second in the series called

the Testor Sophomore "9". The third and fourth models in the series are called the Junior and Senior, respectively. If you intend to use your present McCoy "9" (or similar size engine) for the entire series, always buy the kit with the green label.

Follow the instructions very carefully. Above all, don't assemble the model by guesswork. Study the drawings and instructions carefully, so that you understand every detail thoroughly before beginning actual construction.

STEP No. 1

Sand the entire fuselage smooth with 4/0 sandpaper. The wing tips and front of edge should be rounded. This can be accomplished quickly and easily with 2/0 sandpaper. Sand the entire wing with 4/0 sandpaper. Remember to sand WITH THE GRAIN OF THE WOOD during all sanding operations.

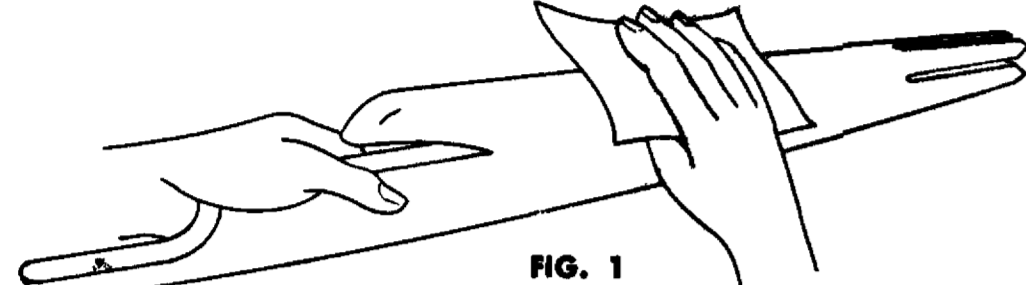


FIG. 1

STEP No. 2

Round the edges of the rudder, elevator, and stabilizer with 2/0 sandpaper. The edges where the elevator joins the stabilizer may be left square. Hand sand the tail surfaces with 4/0 sandpaper. Using TESTOR'S Formula B Cement, apply the control horn on the elevator 1/2" to the left of the center (looking towards the front of the plane). Use cement liberally, coating the joint a second time after the first application dries. Cut eight 1" cloth hinges from the long strip of cloth supplied in the kit. Cement these in place as shown here. Join the elevator and stabilizer by cementing the top elevator hinge cloth to the under side of the stabilizer and vice versa. BE VERY CAREFUL to prevent cement from getting on the hinges where they bend.

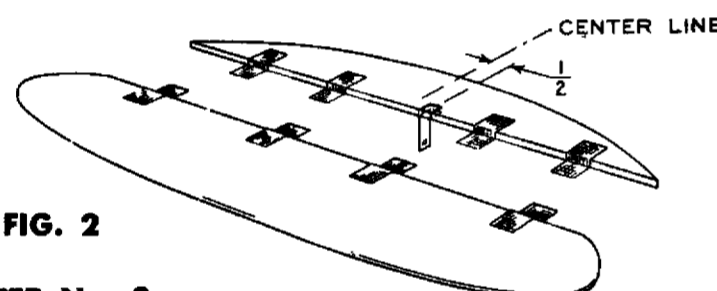


FIG. 2

STEP No. 3

The engine mounts require only light sanding. Slip the wire landing gear into place on the fuselage, and then cement the engine mounts into place. Make sure the mounts are flush with the top of the fuselage. After inserting the wing in the ready-cut notch, you will find that the landing gear wire is no longer free to move up and down. Insert the two wood screws as shown in the drawing. REMEMBER: this assembly carries the weight and vibration of your engine, so care should be taken to make it tight and strong.

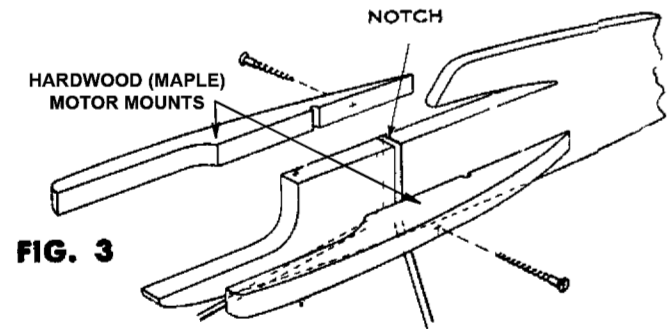


FIG. 3

STEP No. 4

Cement the wheel halves together making sure they are cross-grained and that the holes are aligned properly. Cement the bushings in the hole, using the cement liberally. It is recommended that you use these wheels inasmuch as they are very light and strong. A single coat of TESTOR'S Black STA is sufficient to finish them.

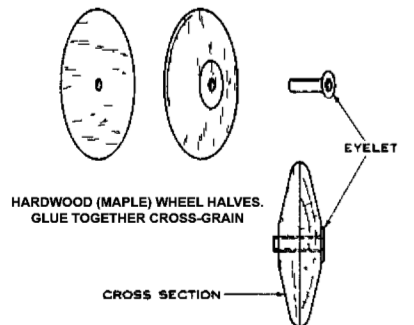
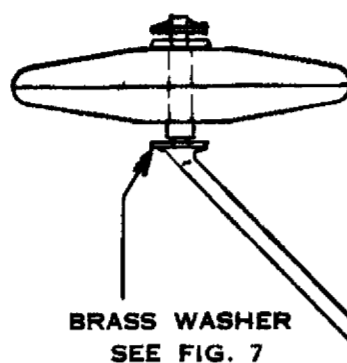
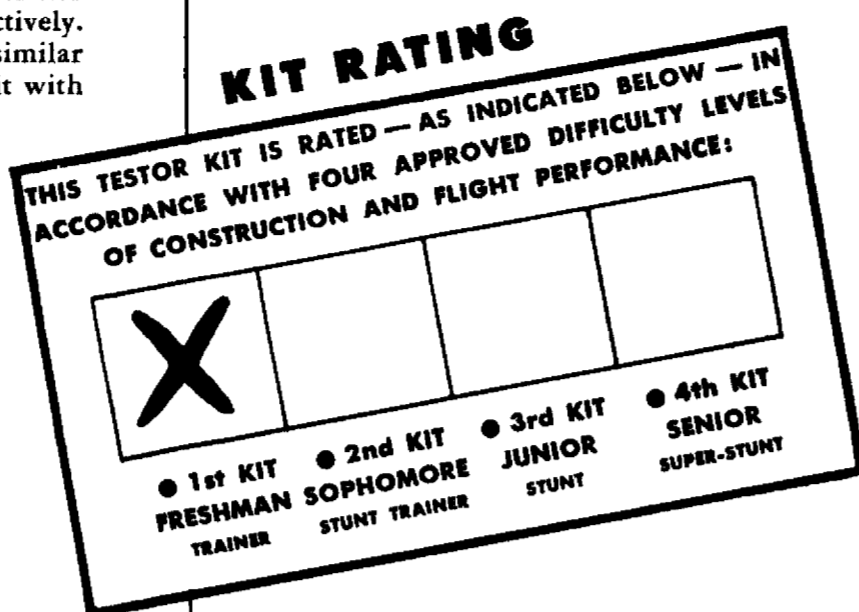
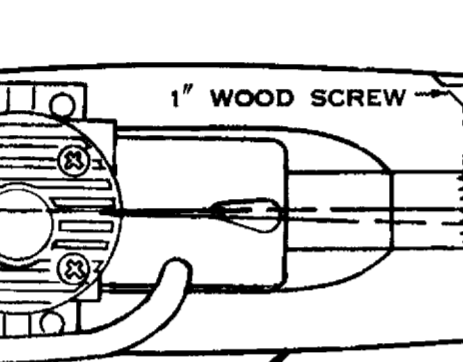


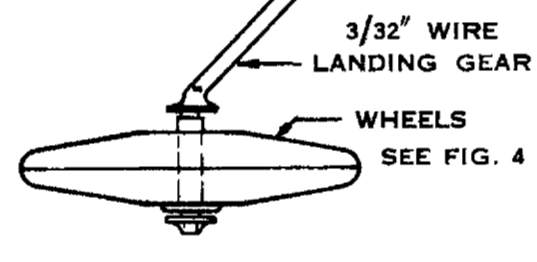
FIG. 4



BRASS WASHER
SEE FIG. 7

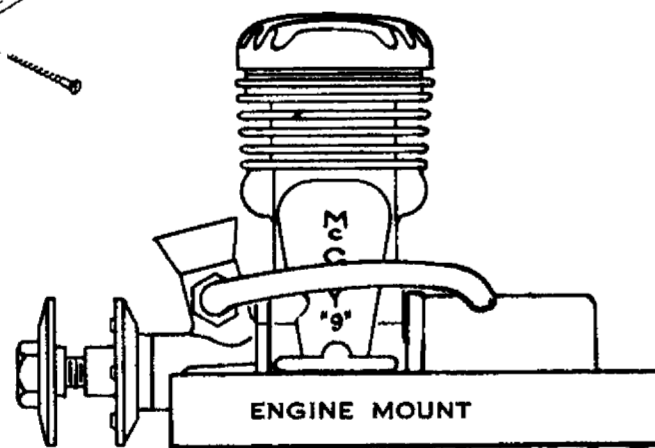


ENGINE MOUNT SEE FIG. 3

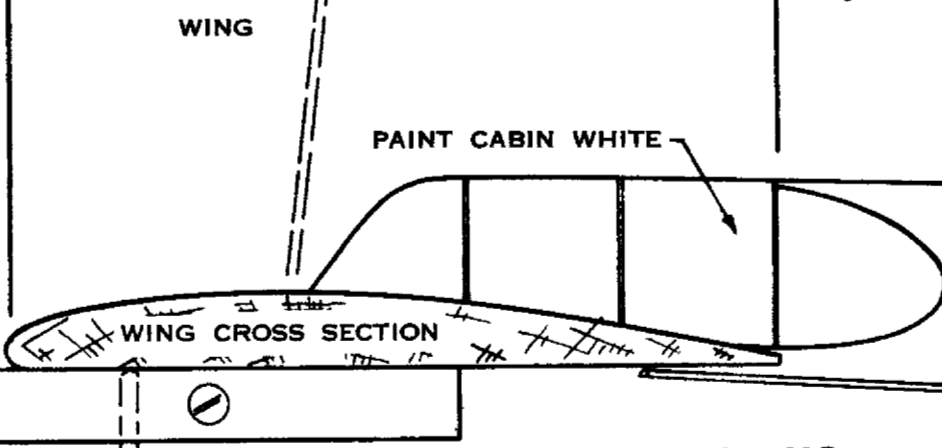


3/32 WIRE
LANDING GEAR
WHEELS
SEE FIG. 4

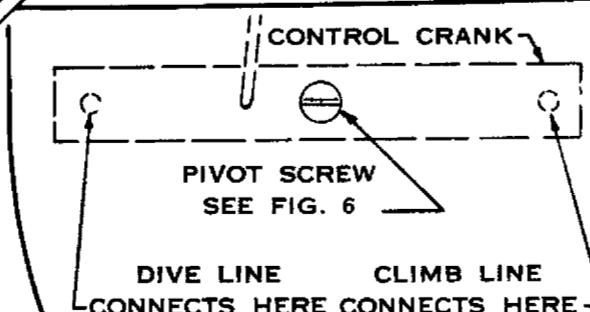
1/4" MORE THAN
OTHER PROP TIP MEASURED
FROM WING LEADING EDGE



ENGINE MOUNT
USE TESTOR'S McCoy "9" PROPELLER



FUSELAGE



CONTROL CRANK
PIVOT SCREW
SEE FIG. 6
DIVE LINE
CLIMB LINE
- CONNECTS HERE

STEP No. 5

Locate the center of the wing and cement it into place. Use plenty of TESTOR'S Formula B Cement for there is considerable stress at this point during flight. Be sure the wing is square with the fuselage. This can best be accomplished by laying the plane upside down on the drawing to check alignment as shown in Fig. 5. After the cement is dry, coat the joint a second time as a reinforcement.

STEP No. 6

Locate the center of the stabilizer and cement it into place in the slot at the rear of the fuselage. Check alignment in the same manner as you did the wing, as shown in Fig. 5. Be absolutely certain not to get any cement on the elevator or the hinges as this will prevent free movement. Now cement the rudder into the slot on top of the fuselage. Make sure that it is straight up and down. Refer to the drawing side view for the correct location and position of the rudder.

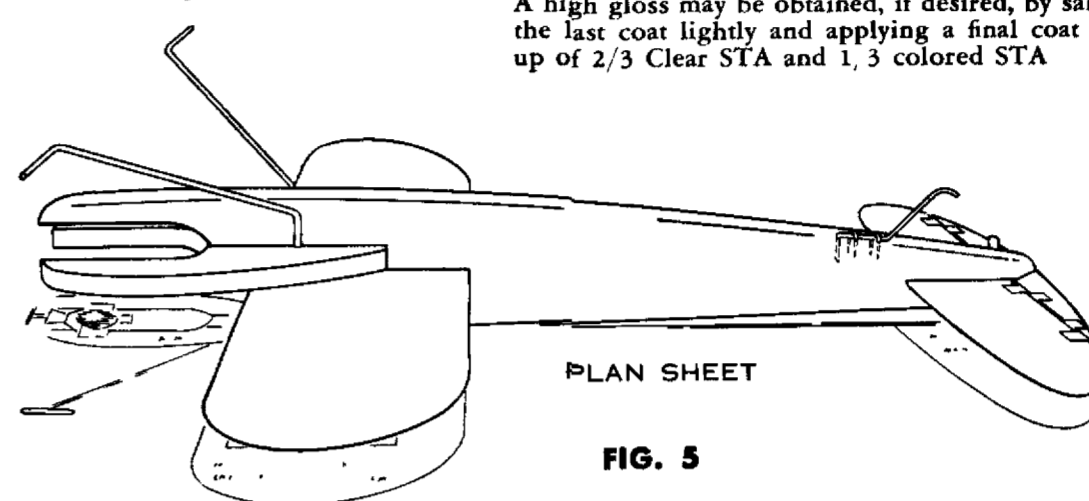


FIG. 5

STEP No. 9

Slip the end of the push rod with the double bend into the control horn on the elevator as shown in Fig. 6. Now check the drawing side view, and locate the position of the push rod clip. Fasten the push rod to the fuselage with the clip and two screws at the correct location. The push rod must be free to move back and forth under the clip.

Push the pivot bolt (6-32" x 1" flathead) through the hole in the left wing with the head on top of the wing. Then place two 1/8" washers on the bolt from the under side of the wing. Now place the pushrod end into the small hole at the center of the control crank, and slip the large center hole of the crank onto the pivot bolt. Place a 1/8" washer on the bolt and lock the two nuts together in such a manner that the crank can pivot freely, but the nuts will not come off. Now, pin the elevator in neutral position (straight in line with the stabilizer) with common pins. Also pin the control crank in neutral position (parallel to the fuselage). Place the pushrod clip over the center of the diagonal portion of the pushrod and screw into place as shown on the drawing top view. Remove the pins and make sure the control system works freely. When you move the forward end of the crank towards the wing tip, the elevator moves downward. The dive line connects here. When rigging your lines for flying, the dive line connects to the bottom of the control handle, and climb line to the top. Tilting the handle forward dives the plane, and tilting it backward will cause the plane to climb.

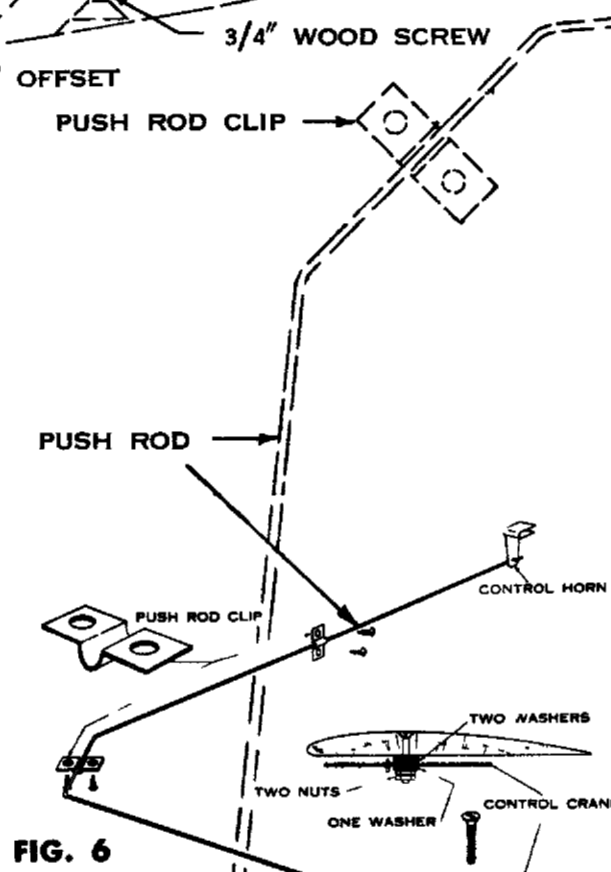


FIG. 6

WING

PAINT CABIN WHITE

STEP No. 7

From the drawing side view, locate the position of the tail skid. Bore a small hole and push the tail skid into place. Fasten securely with two small staples and a liberal application of TESTOR'S Formula B Cement. This is shown clearly in Fig. 5.

STEP No. 8

Wipe the entire plane clean so that all surfaces are dust free. Apply—either by brush or spraying—two coats of TESTOR'S STA Sealer without sanding between coats. IMPORTANT: Be very careful not to allow any STA to get on the cloth hinges where they bend as these must necessarily be flexible and free moving. Allow to dry 20 to 30 minutes and then sand thoroughly with 4/0 sandpaper. Again wipe surfaces so they are dust free; then apply two or three coats of colored STA. You may want to make the fuselage one color, and the wing and tail surfaces another color, or some other combination of your choice. A high gloss may be obtained, if desired, by sanding the last coat lightly and applying a final coat made up of 2/3 Clear STA and 1/3 colored STA.

STEP No. 10

Solder a washer to the inside of each landing gear axle, slip the wheels on the axle, and solder a washer on the end of each axle. Be careful not to solder the washer to the wheel bushing. Acid core solder is best for this particular soldering job.

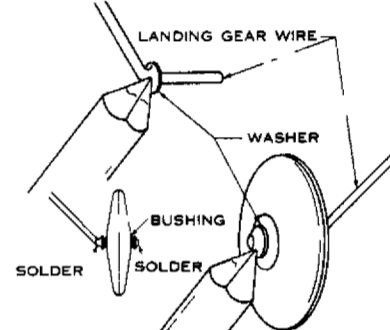


FIG. 7

STEP No. 11

This plane was designed for use with and field tested with a TESTOR'S McCoy "9" Propeller. Install one of these propellers on your engine and locate the position of the four engine mounting holes in the manner shown on the engine mount, top view drawing. Slip the engine between the mounts and hold it tightly with one hand so that the left propeller tip (looking from the rear towards the front of the plane) is 1/4" farther from the wing leading edge than the right tip. Now, with the other hand, mark the location of the holes with a pencil or sharp object. Remove the engine and drill four 3/32" holes at the proper location. Bolt the engine complete with the tank in place with the four machine screws and nuts furnished. Check again to see that the propeller is at the angle described above as shown on the engine mount, top view drawing. This will give you the necessary 2 degrees of right thrust to maintain tight lines during flight. Follow very carefully the instructions supplied with the engine.

Because of the added weight of the control mechanism on the left wing, it is necessary to balance the model by pushing nails into the right wing tip. Add enough weight to allow the model to be a little heavier on the right side. It is easy to determine this by grasping the model by the propeller hub with one hand and the rear tip of the fuselage with the other.

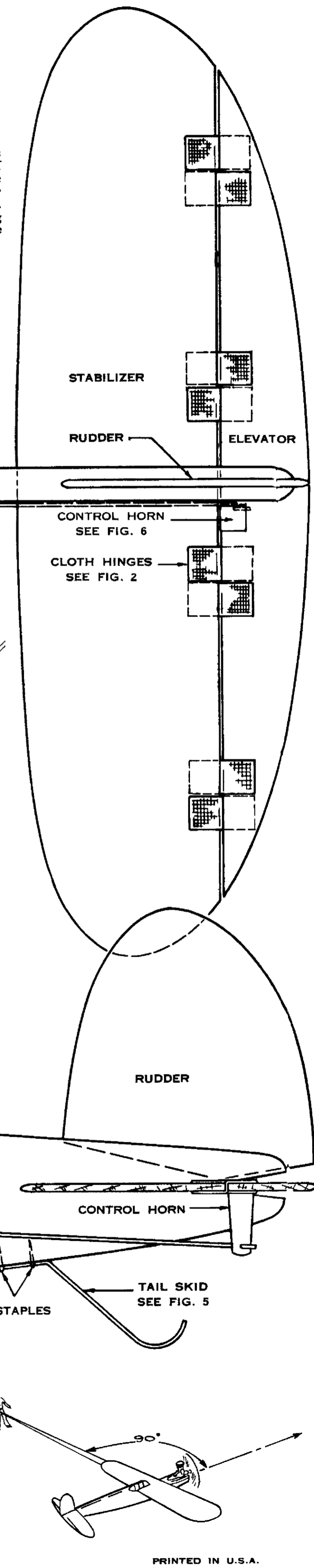
FLYING

Your airplane is now ready for flying. Use control lines of from .010" to .012" in diameter, and approximately 35 feet long for the Freshman "9". Both lines should be exactly the same length. Clips are installed on either end so as to clip the lines both to the control crank and the control handle. The lines should have the very best of care. Make sure there are no kinks and that the clips are secure. Store the lines on a reel 5" in diameter or larger. Be absolutely certain your control system works perfectly, and will not fail you. Select a handle on which the lines connect 5" or 6" apart. Pick a calm day to test fly, and be sure to select a spot that is smooth and spacious.

Start your engine and allow it to warm-up sufficiently. Have some one hold the plane until you get your hands on the control handle. Double-check to see that you have the handle with the right end up; that is, when you tilt the control handle backward, the elevator moves upward.

At a prearranged signal, the plane should be released at right angles to the control lines. From this moment on, be prepared to step back whenever the lines slacken as loss of control will result in the lines be-

coming slack. Do not step backward until the lines go slack, for this will drag the plane sideways during the take-off. This burdens your engine and makes for a poor take-off. The plane will take-off by itself with the handle just being held neutral. After the plane is airborne, tilting the handle back will cause the model to climb; and tilting it forward will dive the model. Hold your arm stiff and parallel to the ground, moving the wrist only. It is also essential to keep your eye on the plane at all times. Control action should be smooth and without quick changes from up to down movement. There is a possibility that you will get dizzy spells when you first fly your plane. Don't let this bother you, as you should overcome this after a few practice sessions. Practice level flying at about 15 feet altitude before attempting any climbing and diving. Try to achieve a reaction that is quick though smooth. When the engine stops, nose the plane down slightly to keep up the forward speed. Just before the model touches the ground, ease back on the controls just enough to bring the nose up a little. The plane will lose flying speed and settle to a neat landing. Don't be discouraged if your first landings are poor. They will improve greatly with practice if this technique is employed.



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FRESHMAN "9" CONTROL LINE TRAINER

FOR THE McCoy "9" AND OTHER CLASS AA ENGINES

TESTOR CHEMICAL COMPANY (Woodworking Division) ROCKFORD, ILLINOIS