IN CASE OF DIFFICULTY

This part of the Manual is divided into two sections: Finding The Area Of Trouble, and General Tests. When necessary, refer to other parts of the Manual. For example, you may wish to refer to the Block Diagram, Identification Photos, Circuit Board X-Ray Views, and parts of the Step-By-Step Assembly section for help in locating parts and wires. Refer to the Table Of Contents on Page 2 to quickly locate a particular part of the Manual. If you have a knowledge of electronics, you will also find additional valuable information in the Circuit Description and Schematic Diagram. All voltages were taken with a high impedance voltmeter.

FINDING THE AREA OF TROUBLE

When trouble develops, the first indication usually is that one or more of the Servos do not respond to the movement of the Transmitter controls.

BATTERY

Before you suspect a faulty piece of equipment, you must first be sure that the batteries have a sufficient charge to provide proper operation. When the Transmitter is turned on and the meter indication is below 3, the transmitter battery is weak and should be recharged.

The batteries can also be checked with a voltmeter. To get an accurate check however, the batteries must be checked under load. That is, with the battery connected and the equipment turned on.

NOTE: The servo-controlling signal is produced by the Transmitter and picked up by the Receiver in the following channel sequence: channel #1, 2, 3, 4 and 5. If any one of the channels begins to operate erratically (in the Transmitter or Receiver) usually all the remaining channels in the sequence will also be affected. For example, if channel #3 fails to operate properly, it is quite likely that channels #4 and 5 will also be erratic in operation.

Therefore, when checking the Receiver and Transmitter for channel failure, you must correct any malfunction in the first channel affected in the sequence before the remaining channels can be expected to work properly. This can be an important observation when trying to locate trouble.

SERVO

If a Servo stops operating, first check the receiver battery. Then unplug the faulty Servo from the Receiver and plug another Servo known to be operating properly into the same connector. If this Servo also fails to operate, you can assume that the first Servo is all right and that the trouble is in the Receiver or Transmitter. In a condition where all of the Servos failed at the same time, you should suspect the Receiver Battery, the Receiver, or the Transmitter.

If the Servo was faulty, refer to the General Tests section of this Manual and the Servo difficulty chart in the Transmitter Servo section on Page 77.

If a Servo runs much slower than the others, check its gear train. Remove the gears and check for roughness on the surface of the gear pins. Each gear must slide freely over the gear pin.

RECEIVER

If a substitute Servo also failed to operate when plugged into the nonoperating channel of the Receiver, the Receiver or Transmitter should be suspected.

If all Receiver channels are faulty, it is more than likely that the trouble is in the receiver circuit board. Repeat the Receiver Test and Adjustments on Page 72.

If there are four or less channels at fault, the trouble is probably on the decoder circuit board of the Receiver. Refer to the Decoder Checkout on Page 74, and the General Tests.

TRANSMITTER

The quickest way to find the difficulty in the Transmitter is to go through the Transmitter Test And Adjustments on Page 67, and the General Tests section.

If the trouble is in the preassembled transmitter circuit board, remove the circuit board and return it to the Heath Company.

GENERAL TESTS

1. Recheck the wiring. It is frequently helpful to have a friend check your work. Someone who is not familiar with the unit may notice something consistently overlooked by the builder.

2. About 90% of the kits that are returned for repair do not function properly due to poor connections and soldering. Therefore many troubles can be eliminated by reheating all connections to make sure that they are soldered as described in the Soldering section of the Kit Builders Guide. However, be careful not to create any solder bridges.

3. Check the values of all the parts. Be sure that the proper part has been installed at each location on the circuit board. Pay special attention to resistor values, since there are many resistors of similar value that are easily interchanged. Example: 4700 Ω (yellow-violet-red) and 47 kΩ (yellow-violet-orange).

4. Check for bits of solder, wire ends, or other foreign matter which may be lodged in the wiring.

5. Check very carefully to be sure there are no solder bridges between different circuit board foils.

6. If, after careful checks, the trouble is still not located and a voltmeter is available, check voltage readings in the circuits of the unit that you are having trouble with against those shown on the Voltage Chart, X-Ray Views, and Schematic. All voltage readings were taken with a high impedance voltmeter. Voltages may vary as much as 20%.

7. A review of the Circuit Description and Schematic for each unit may also help you to locate any difficulties in the kit. NOTE: In an extreme case where you are unable to resolve a difficulty, refer to the "Customer Service" information inside the rear cover of the Manual. Your Warranty is inside the front cover.