

YOUR DELTRON MICRO MINIATURE RECEIVER

The DELTRON R109 is an all transistorized, tone operated receiver designed for operation on the citizens band of 27.255 mc. It has a usable tuning range from 26 to 29 mc, and incorporates many advanced features that make it ideal for expert or novice in radio control.

Among its many advantages over the conventional type receiver are: extreme dependability over a wide range of operating conditions; extra long range; small size and feather weight; very low current drain when idling; strong relay "hold in" on signal; rugged "crash proof" construction, and long life expectancy.

A single sub miniature 22½ volt battery is the only current source needed to operate the receiver. The Burgess Y15 will last for many flights and will provide a total receiver and battery weight of just 2½ ounces. In large planes, the Burgess U15 is recommended for more economical operation. The total receiver and battery weight with the U15 will be just over three ounces. The battery should be replaced when voltage drops to 19 volts with switch on and receiving signal.

Although the R109 will operate at higher temperatures than most transistor receivers, precautions should be taken to prevent the case from heating above 115 degrees. Heat radiation from the ground or a concrete runway may cause the cabin temperature of your plane to rise considerably above the temperature of the air. It is recommended that you park your plane in the shade on hot days, or lay a cloth over the cabin until you're ready to fly.

Like all radios, protection against water damage is important. Water can cause short circuits with resulting overloads. If you are installing the receiver in a boat, it is

suggested that you use its plastic box for a water cover, making a notch in the end for the lead wires.



Wiring and Installation

The R109 is simple to install in your plane or boat, even if you have had no electrical experience. The lead in wires are first soldered to the plug. Study the illustration on the back of this instruction sheet for the color coding. The #3 terminal is not used with this receiver. Just leave it blank.

A piece of "spagetti" should be slipped over the end of each lead before soldering, and then pushed down over the terminal to prevent shorting. When all leads are soldered to the plug, wrap a piece of string or electrical tape around the wires, as close to the plug as possible. This will help prevent soldering joints from breaking loose.

No "installation kit" is necessary with the R109, but you will need a good single pole, single throw switch to disconnect the battery. Switch, batteries and escapements or servos are wired directly to the printed circuit terminal board as shown in the wiring diagram. This illustrates a rudder escapement and "quick blip" motor control, only one of many possible arrangements. Instructions you receive with

your escapement or servo will illustrate other wiring possibilities.

In wiring to the terminal board, about 1/8" of insulation should be stripped from each lead, and the wire inserted in the proper eyelet. Solder securely to the eyelet.

The plug and circuit board can be left floating, or can be anchored in your plane or boat with #2 wood screws or 2/56 machine screws, but be sure that no metal can touch them and short out the contacts.

A piece of insulated hook up wire is used for the antenna. Any length from 18" to 36" will be satisfactory. It can be soldered directly to the grey antenna lead, or a plug and jack used for quick disconnect when removing the set.

In a plane the receiver should be shock mounted by wrapping it completely in plastic sponge material and securing it with a rubber band.

Tuning

Before plugging in the receiver BE SURE THAT YOUR BATTERY POLARITY IS CORRECT. The transistors have a life expectancy of more than 50,000 hours if properly cared for, but they will not withstand reverse polarities.

After plugging in the receiver, turn on the switch and attach headphones to the phone terminals on the terminal board. Turn on your transmitter (it must be a TONE transmitter such as the DELTRON TONE MASTER), and hold down the pulsing button. Adjust the tuning slug with a non-metallic screw driver or tuning wand until you hear a clear,

musical tone. Continue to adjust until the tone is loudest, at which time the relay will pull in and operate your escapement.

ALWAYS TUNE THIS SET WITH THE COVER ON

Before flying, a further "fine tuning" adjustment must be made to guarantee maximum range. Have a friend take your transmitter 500 to 1000 feet away and make a further adjustment while he holds down the pulsing key.

Operation

The R109 is a TONE operated receiver. A carrier wave transmitter will not operate it. You will get extra range if you use a DELTRON TONE MASTER transmitter because of its high output and 100% modulation.

Both the transmitter and receiver switches should be off at all times when not in actual use.

Before launching your plane, test the controls with the motor running to make sure no solder joint has worked loose.

The R109 idles at approximately 1 ma, the current dropping to about .7 ma with carrier on, and rising to above 4 ma with signal, providing a very strong relay hold in that

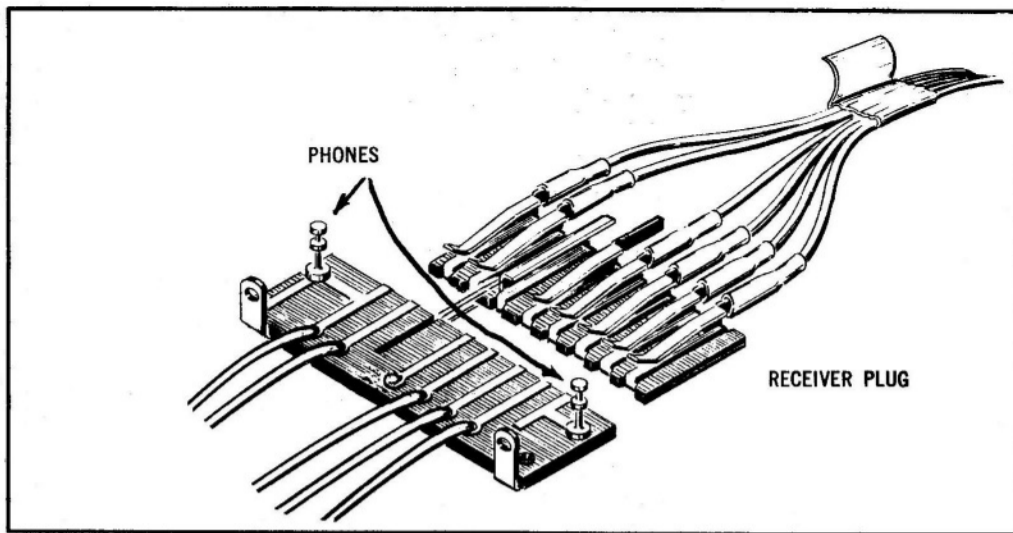
won't "G out" during violent maneuvers.

A very strong carrier wave may occasionally cause "blocking" and relay pull in at close range (up to 10 feet). If you notice this tendency in your receiver, just hold your hand on the transmitter antenna when hand launching, to reduce radiation.

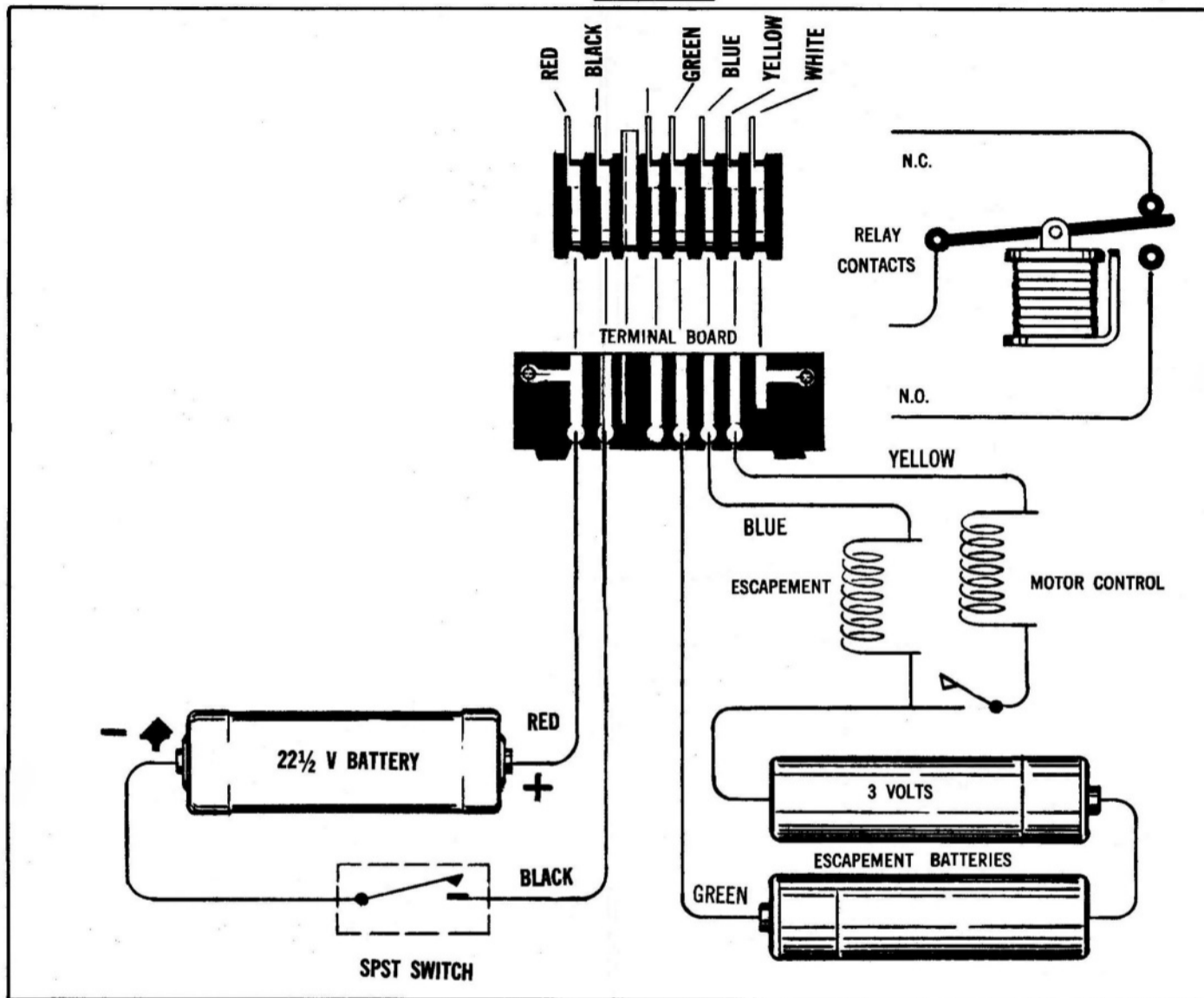
We recommend that the novice start out "rudder only" until he gets the feel of R/C flying. With the Bonner Vari-Comp escapement, this type of flying can be mastered first, after which elevator and motor control escapements can be added to give multi control operation.

GUARANTEE

This receiver is unconditionally guaranteed by the factory to be free from defects in parts and workmanship. Highest quality components, and selected transistors have been used throughout. Should any trouble develop, or should you damage your set in any way, DO NOT RETURN IT TO YOUR DEALER. Prompt, reasonable service by electronics experts is provided by DELTRON. Return the set to DELTRON CO., 1940 Conquista Ave., Long Beach 15, Calif., together with \$1.50 for service, testing and return postage. Damaged components will be replaced at no additional charge, except that a charge of \$3.00 each will be made for each transistor or relay which has been damaged. In event you have damaged this receiver beyond economical repair, it may be exchanged for a new one AT THE FACTORY for \$15.00 and your old receiver.



WIRING



SCHEMATIC

