

INSTRUCTIONS FOR OPERATION  
OF  
CITIZEN-SHIP MODEL MDL RECEIVER

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## INSTRUCTIONS FOR OPERATION OF CITIZEN-SHIP MODEL MDL RECEIVER

The MDL is a new CITIZEN-SHIP design of a single channel relayless midget tone receiver with module construction as adapted from a modern military concept. We have, however, used conventional and time-proven standard components which will permit servicing of this unit if ever necessary.

Module construction gives maximum performance in a minimum volume, and also makes the receiver virtually crash-proof.

Your MDL Receiver is factory tuned to a frequency of 27.255mc and can easily be retuned to operate on all frequencies of the 27mc band assigned to modelers by the F.C.C. for radio control of models. It is a superregenerative circuit of very high sensitivity, but is not selective enough to distinguish between adjacent assigned frequencies. If it is desired to fly several planes simultaneously, the superheterodyne receivers (JSH, WR-8, WR-10, or ZR-10) should be used.

Operation is intended with CITIZEN-SHIP TTX, SPX or CTX Transmitter, but CITIZEN-SHIP TMS, CNT-8, CNT-10, MST-8, BT-6, REX and others may also give satisfactory results.

### WIRING THE RECEIVER

Wiring the receiver is very simple as only two pen cell batteries are required. See the paragraph on Battery Requirements.

The red wire is connected to the plus battery terminal and the black wire to minus through an off-on single pole singlethrow switch. (See Figure 1).

The white wire connects to one side of the escapement, the other side of the escapement connects to the black receiver wire at the switch. (See Figure 1).

WARNING - Be sure to check wiring before turning on the receiver. If reverse polarity is applied to the set, transistors may be damaged.

### BATTERY REQUIREMENT

The set requires only 3 Volts and is intended for operation on two Pen Cell Batteries. In ultra lightweight installations, even smaller batteries may be used, but life will be very limited. See Figure 2 for connecting two batteries in series to obtain 3 Volts.

### END USE OF BATTERIES

Discard batteries when voltage drops to 2.2 Volts with signal being received from transmitter. After batteries drop below 2.2 Volts, range may still be very good but escapement may not pull in reliably.

### MOUNTING

The CITIZEN-SHIP MDL Receiver should be mounted with the printed circuit bases in a vertical position and either one of them toward the front of the plane. Vertical mounting gives the best protection to the receiver in the event of a crash. A removable plywood vertical mounting board can be conveniently used to hold both the receiver and batteries. A 3/8" to 1/2" thick piece of sponge rubber should be used in front of the receiver with rubber bands holding this and the receiver to the plywood (rear side). Batteries may be held to other side (front) of plywood with rubber bands.

If vertical mounting is not used, the receiver may be wrapped in sponge rubber and inserted into the fuselage. Batteries and receiver must be mounted to give proper balance to the plane, but batteries should always be forward of receiver.

### ESCAPEMENTS

CITIZEN-SHIP Escapements SE-2 and PSN-2 are best suited to the MDL for proper operation. When motor control is desired, the SE-2-M assembly should be used allowing operation of auxiliary PSN-2.

Other types may be used, but in general 8 to 10 ohm escapements work best. It is advisable to use the lightest weight escapement rubber possible - a 1/8" loop is recommended. (See Escapement instructions.)

### RETUNING AND ADJUSTING

After the previous complete factory testing and tuning of your set, there is probably only a need to check it or slightly re-adjust the tuning slug. A change of over 1/2 turn in either direction should never be necessary. Use a tuning wand of all bakelite or a wood dowel shaped to a wedge. Never use a tuning wand with a metal tip for this adjustment. Connect a voltmeter (0 - 3) or higher range scale across the escapement coil (See Figure 1). Remove transmitter antenna and push operate button with transmitter very near receiver. Adjust tuning slug to give highest voltage rise. Move transmitter farther away until this tuning peak is very sharp and you have the slug adjusted exactly at the peak of the voltage setting. This voltage will read between 1.5 and 2.8 volts depending on the strength of the signal.

Close-up operation of the set may be erratic with antenna on transmitter. This is due to overloading of the receiver with the strong Carrier signal of the transmitter and may be corrected by resting hand on top of transmitter and tightly grasping the antenna with your fingers. This greatly reduces output and may be necessary at distances of 10 feet or more.

### ANTENNA

Several arrangements of antennae are possible. A stiff steel wire about 18" long may be mounted vertically at any convenient point and the antenna lead from the receiver soldered directly to this. A wire may be stretched from the receiver to the top of the rudder fin. A total length of 18" to 24" is entirely adequate. Leave some slack in the antenna lead into the receiver, but do not wind this lead in and around other wiring as range might be reduced.

### WARRANTY

Your CITIZEN-SHIP Model MDL Receiver is warranted by the manufacturer to be free from defects in material and workmanship. However, the transistors are known to be operative from testing of the set and we cannot guarantee them against damage caused by incorrect voltage.

Any unit failing to operate within 30 days after date of purchase will be repaired or replaced free of charge upon being returned to the factory. This warranty does not apply to failure of operation due to exhausted or improper batteries.

If your receiver is damaged in shipment, you should file a claim with the carrier immediately upon noting the damage.

This warranty does not apply if, in our judgement, the receiver has been tampered with or received abusive treatment beyond that encountered in normal usage.

# WIRING DIAGRAMS

FIG. 1

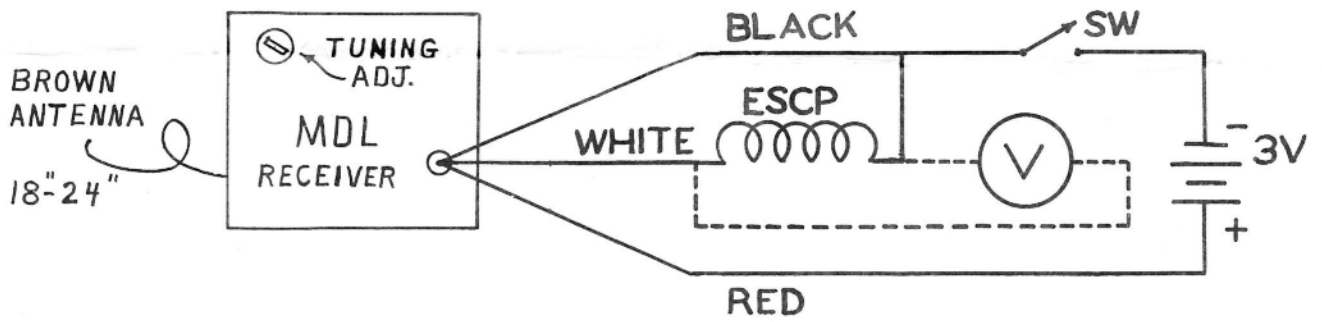


FIG. 2

