

INSTRUCTIONS FOR OPERATING  
CITIZEN-SHIP MODEL 3VTR RECEIVER

CITIZEN-SHIP RADIO CORPORATION  
820 East 64th Street  
Indianapolis, Indiana

## INSTRUCTIONS FOR OPERATING CITIZEN-SHIP MODEL 3VTR RECEIVER

Your CITIZEN-SHIP Model 3VTR Receiver is a completely transistorized midget tone receiver requiring no "A" Battery supply and using only a 3 volt "B" Battery supply at an amazingly low idle current. This receiver was designed to operate on the "examination free" 27mc Band of frequencies in conjunction with the CITIZEN-SHIP CTX and TTX Tone Transmitters. See transmitter instructions. The CITIZEN-SHIP CNT-8 & 10, BT-6, REX & MST-8 transmitters and others may also give very satisfactory results.

The 3VTR Receiver is not Selective and will not sort out any particular one of the 27mc frequencies. CITIZEN-SHIP Receivers type JSH & WR-8 & 10 are available for this selective operation.

### BATTERY REQUIREMENTS

The set requires only 3 volts and is intended for operation on two Pen Cell Batteries. See Figure 4 for connecting two batteries in series to obtain 3 volts.

The same two Receiver batteries may also be used for the escapement or Servo actuator batteries. However, separate escapement or actuator batteries are recommended. This is for two reasons:

1. A heavy load is placed on receiver batteries reducing the voltage and therefore may reduce the range of the set.
2. When batteries lose voltage, it is caused by an increase of the internal resistance of the batteries. This resistance inside the batteries becomes a common coupling path for both receiver and escapement. When the escapement opens and closes, it sends a pulse through the receiver which tries to close the relay. This becomes repetitive and can cause chattering and skipping of the escapement.

### ANTENNA

Several arrangements of antennae are possible. A stiff 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 30" 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.

### MOUNTING

The CITIZEN-SHIP 3VTR Receiver has two recommended mounting positions, with the printed circuit base Vertical and forward or Horizontal and downward. The Vertical position is definitely more crash-proof. Sponge rubber or some other shock protection method must be used to secure receiver and eliminate any trouble due to vibration. Ideally the receiver would be completely surrounded on all six sides with sponge rubber. Batteries and receiver must be mounted to give proper balance to the plane but batteries should always be forward of receiver. If Vertical mounting is used it is convenient to mount both receiver and batteries on a removable plywood board.

### TUNING 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. Tuning must be done with the cover of the set installed. 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.

Insert a 0-100 MA or higher range meter in the Black lead (See Figures 1 & 2). Idle current should be approximately 3 to 8 MA with set on and may not be completely steady. (Some meters may affect the set and give a false reading). Turn on transmitter carrier only and idle will drop slightly. Remove transmitter antenna and push operate button with transmitter very near receiver. Receiver current will rise to 25 to 75 MA. Adjust tuning slug to give highest current rise. Move transmitter farther away until this tuning peak is very sharp and you have the slug adjusted exactly at the peak current setting. After this adjustment is made a ground range check should be made with and without engine running to further insure proper operation when model is flown.

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 to 10 feet or more.

### OPERATION OF SERVOS AND MOTOR CONTROL UNITS

The wiring of Servos and Motor speed control units varies so greatly that the wiring for them is not shown. However, a diagram showing nomenclature of a relay is shown. (See Figure 3). All CITIZEN-SHIP Servos and the CITIZEN-SHIP Motor speed control unit have their own complete wiring diagram showing how to connect them to a relay.

The Red wire in your Receiver is connected to the Common or Relay Armature contact. This wire also brings the plus 3 volts to the receiver itself.

The Blue wire is connected to the Normally Closed contact, and it is not used in Figures 1 & 2.

The Yellow wire is connected to the Normally Open contact.

Remember, a relay is nothing but a Double Pole Single Throw-Spring Return Switch.

### WARRANTY

Your CITIZEN-SHIP Model 3VTR 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 receiver 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.

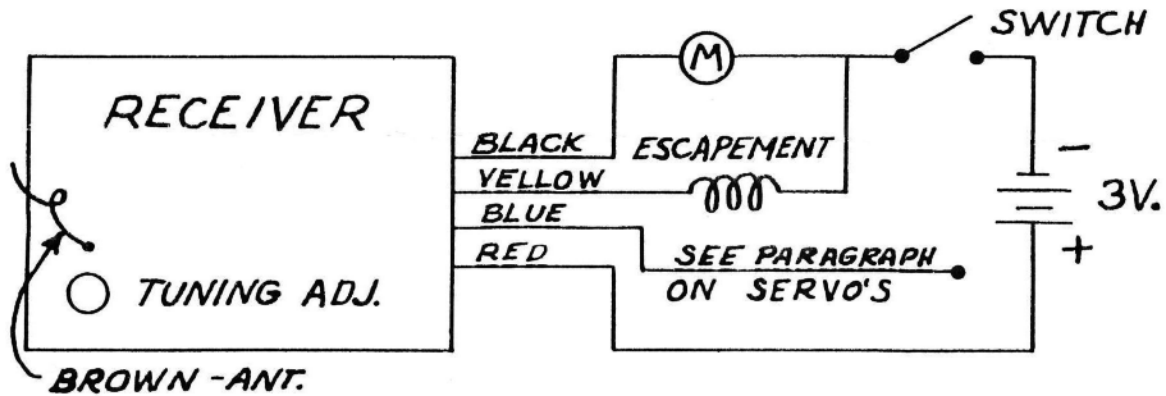
If your receiver is damaged in shipment, you should file a claim with the carrier immediately upon noting the damage.

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.

CITIZEN-SHIP RADIO CORPORATION  
810 EAST 64TH STREET  
INDIANAPOLIS, INDIANA

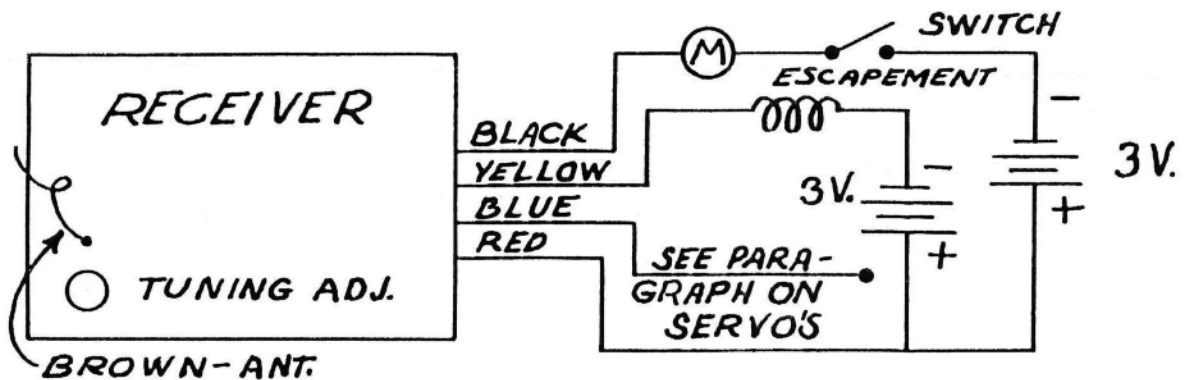
# 3VTR WIRING DIAGRAMS

FIG. 1



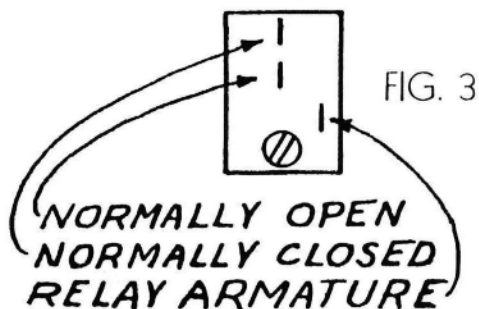
## OPERATION WITH ONE SET OF BATTERIES

FIG. 2



## OPERATION WITH TWO SETS OF BATTERIES

### RELAY CONTACTS



### BATTERIES

