

USER'S  
INSTRUCTIONS

for

MODEL 0 - 21  
R/C RECEIVER



OTARION ELECTRONICS INC.  
OSSINING, N. Y.

Congratulations! You have purchased one of the finest pieces of miniature electronic equipment available today. The Otarion Model O-21 Receiver is made with the same high quality components and precise construction techniques that have made Otarion Electronics, Inc., a leader in the field of micro-miniature hearing aids.

Some of the outstanding features of the Model O-21 are:—

- Extremely small size and very light weight.
- All transistor relay-less tone circuit.
- Syncro-tuning indicator greatly simplifies tuning procedure.
- Fully temperature compensated from 0 degrees Fahrenheit to 120 degree Fahrenheit.
- High sensitivity.
- Printed circuit board of epoxy glass for strength and coated with polyurethane plastic to protect the printed wiring.

## MOUNTING

The Model O-21 can be mounted in many positions although the recommended and most crash-resistant mounting is with the printed wiring facing the direction of flight. The simplest method of mounting is to cut a piece of  $\frac{1}{2}$ " to  $\frac{3}{4}$ " foam material and cement it to the bottom of the receiver chassis with contact cement (Weldwood, Bond, etc.). Don't use standard model airplane cements. The foam can then be cemented to a vertical bulkhead. A typical installation is shown in Figure 1.

Another method of mounting is to wrap the receiver in a blanket of  $\frac{1}{2}$ " foam and pack it into a compartment in the aircraft.

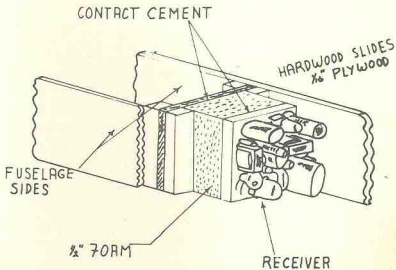


Figure 1.

## WIRING

Wiring of the Model O-21 Receiver is a simple operation if attention is paid to the color coding of the wire leads and the polarity of the batteries. Use a soldering iron of low wattage. A 35 watt iron will suffice for most applications.

**Important.** Observe battery polarity. If batteries are connected in reverse polarity, damage to the transistors can result.

The basic wiring diagram is shown in Figure 2.

The 1.5 volt batteries can be pencils (AA size, such as Eveready 1015) or "N" type pencils (such as Eveready 904). Alkaline batteries (Eveready E-91) would be considered a good investment since their life is much longer than normal pencils.

Separate batteries for the escapement are optional when weight is not a problem.

If a battery box is not used and the leads are soldered directly to the batteries, a larger soldering iron of 75 to 100 watts will be required.

Be careful when soldering to the batteries that too much heat is not applied. Most of the new "leakproof" batteries must have the bottom cap removed (negative

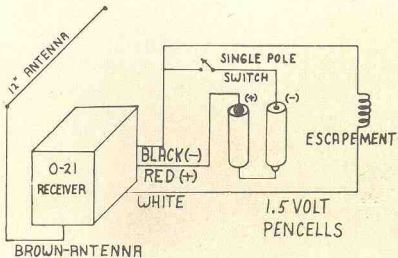


Figure 2.

terminal). This can be accomplished by carefully cutting the paper around the bottom circumference of the battery.

## TUNING

Each receiver is factory tuned to 27.255 mc and given a simulated range test. Because of the variance in lead lengths from installation to installation, it may be necessary to retune the receiver. A rough tuning check of the receiver can be accomplished by removing the antenna from your transmitter to simulate a weak signal. The transmitter should be placed approximately 6 inches from the receiver antenna. The key on the transmitter should be pushed and the Syncro-tuning indicator should be light. If not, re-tuning is indicated.

To tune the receiver, a tuning wand (non-metallic screwdriver) is needed. If a tuning wand is not available, one can be made from a length of  $\frac{1}{8}$ " wood dowel with the tip carved to the shape of a small screwdriver blade.

With the transmitter key depressed, the core in the tuning coil should be slowly rotated until the Syncrotuning indicator lights. Proper tuning is indicated by maximum brilliance of the indicator.

For a finer or more exact tuning adjustment, the transmitter (with antenna attached) should be taken about 500 feet from the receiver and the tuning procedure followed again.

## ELECTRICAL SPECIFICATIONS

Sensitivity sufficient to fly the largest model planes with most hand-held transmitters.

A F modulation required 300 to 1,000 cps with 600 cycles nominal 90% to 100% modulation.

Temperature compensated from 0 degrees Fahrenheit to plus 120 degrees Fahrenheit.

Escapement: Handles any of the standard escapements from 7 ohms up.

Idle current—No carrier—15 ma nominal. With Carrier—4 ma nominal.



Frequency Range — All 27 mc Citizen Band channels.

Operating Voltages — 3.3 volts maximum—2.2 volts minimum.

Provided with four 12 inch color coded wire leads.  
Printed circuit protected with polyurethan seal.

## TROUBLES

Your receiver was thoroughly checked before leaving our factory. If any problems occur the procedure below should be followed.

1. All your solder joints should be carefully checked.
2. All wiring should be checked.
3. The battery polarity should be checked.
4. The battery voltage should be checked. It should be between 2.4 and 3 volts with no signal from the transmitter present. The battery voltage should not drop below 2.2. volts when the transmitter key is depressed.
5. When the battery voltage drops below 2.2 volts, the batteries should be replaced.



## GUARANTEE

The Otarion Model O-21 Receiver is guaranteed for 90 days against any defects in material and workmanship. This guarantee is void if the receiver has been abused or any soldering done on the printed circuit board.

There will be a \$2.00 minimum charge to cover shipping and handling on all receivers returned to the factory.

The Otarion Model O-21 Receivers should be returned to:—

  
**OTARION** *Electronics...*

Micro-Miniature Controls Division

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