

Controlaire 5

RELAYLESS SUPER - REGEN RECEIVER OPERATING INSTRUCTIONS

The Controlaire "5" is a relayless all-transistorized receiver of advanced design. Its output is terminated in the use of a switching transistor that will operate an escapement direct without use of a relay. This feature allows for reduced size and weight thus making the receiver ideal for use in very small aircraft. Special design features eliminate all of the undesirable troubles that have been experienced in transistor receivers of the past. It will not swamp from strong transmitted signal conditions and has excellent noise rejection qualities. Last, but not least, it is fully temperature compensated to operate between 0° and 130° F. For operation the receiver requires a tone modulated signal from 500 to 1000 cycles per second. Factory assembled receivers are tuned to 26.995 mc, however, they can be retuned to match any transmitter from 26.995 mc to 27.255 mc. If your transmitter is at another frequency other than 26.995 be sure to retune the receiver before use.

TRANSMITTER REQUIREMENTS

For best results the transmitter should have a radiated RF output in excess of 75 milliwatts and be tone modulated to a percentage of at least 75%. Tone frequency should be a desired 700 CPS, however, if from 500 to 1000 CPS it will give satisfactory operation. Average receiver sensitivity is about 4 micro volts so a transmitter below these specifications might create a range problem. For best results we recommend the companion Controlaire "Mule" transmitter. This is an all-transistorized unit and exceeds the specifications as given above.

BATTERY REQUIREMENTS

A common battery installation will operate both the receiver and your escapement. For very small aircraft use two 1½v pen cells connected to provide 3v. If aircraft is of a larger variety larger cells are recommended to give a longer life. For those who like the rechargeable feature of nickle cadmium batteries we suggest use of 3 cells to provide 3.6v. Cells should be at least 225 M.A.H. capacity and again larger if aircraft size permits. Minimum voltage for a safe flight range is 2v. If small pen cells are used, keep a check on their condition and replace after every 5 to 10 flights.

RECEIVER OPERATION

To operate receiver, refer to wiring diagram and connect escapement to the receiver and to batteries. The escapement can be either a self-neutral or compound type, however, your choice should have at least a 5 ohm coil resistance. Resistances up to 10 ohms are best recommended because of increased efficiency and lower battery drain. When receiver is turned on you might experience incidental operation of your escapement until transmitter carrier signal is turned on. This is somewhat normal and generally caused by random electrical noise or other citizens band signals that could be on the air. With carrier signal on all incidental operation will disappear. To operate receiver and escapement, key a tone signal and the receiver will respond. If trouble is encountered, double check your wiring to batteries or clearance adjustments to your escapement.

TUNING

Only one adjustment is involved and this is the rotation of the slug in the tuning coil assembly. One method of adjustment is to position your helper and transmitter about 100' distant. With transmitter antenna collapsed, key a tone signal and adjust the slug for operation of the escapement. If at this distance the escapement operates readily and will do so from a series of pulsed signals, have your companion hold a steady signal on then adjust slug both ways noting points where escapement released, then center slug in midway position. This will give you a fine tuning adjustment. Always use an insulated tuning tool when making adjustments to the tuning slug. Another tuning method is to remove antenna from transmitter to create a very weak signal condition. Hold transmitter near receiver antenna, key signal, then adjust tuning slug for operation of the escapement. As adjustment tends to give operation of the escapement, weaken signal by moving transmitter farther away from receiver antenna. Continue this process until a fine tuning peak can be obtained. If your transmitter is the 9v Controlaire Mule, antenna-less operation should be good from 3" to 10" from receiver antenna.

A third way to peak tune the receiver is to connect a flashlight bulb across the escapement terminals. The point here is to adjust tuning to give greatest brilliance when using weakest transmitted signal. Bulb may deactivate escapement so remove it before flying.

TROUBLE-SHOOTING

Whenever trouble is experienced, such as loss of range, improper escapement actuation, always check condition of batteries and/or adjustment to escapement before assuming receiver is at fault. Battery voltage should be checked with receiver turned on and actuated with a signal. This creates a proper load condition.

GUARANTEE AND REPAIR

Guarantee - 60 days and is void if you dig into or modify the receiver.

Repair - Send your receiver and \$2.50, or if a Kit, \$7.97 (our minimum) to World Engines, Inc., 8206 Blue Ash Road, Cincinnati, Ohio 45236. Tell us in a note what you think the trouble is. Do not make us guess.

For slow repair service - 3-4 weeks longer - 1. Ignore the above instructions. 2. Have your dealer send the receiver to us - this really slows things down as the dealers are busy and cannot drop everything to do your mailing for you and he may elect not to follow the above instructions. 3. Leave your name off of the returned receiver.