

## RECEIVER RA-1

This is a super regenerating detector system, all transistor, tone system, single channel receiver, with relay. The basic characteristics of transistors to change sensitivity with temperature change etc., has been overcome with our special circuit design. This has been fully born out by experiments and the receiver is very stable in temperatures ranging from 30°F - 120°F. Range on the ground is 1200 feet and 1700 feet in the air when used with the TA-1 transmitter.

### WIRING:

This should be done keeping leads as short as possible ( see diagram ). Use insulated wire of 10 strands or more and resin core solder.

Be careful not to confuse the (+) and (-) terminals on battery.

### SELECTION OF RUDDER MECHANISM:

Airplanes: Small type With Max.15 engine and below. K-11 compound Escapement for rudder. S-2, 2 claw Escapement for motor control.  
Large type With engines larger than Max 15. K-1 compound Escapement for rudder. S-2, 2 claw Escapement for motor control.

### SHIPS AND BOATS:

K-1 or K-11 for rudder control  
S-2 or S-4 for motor control

When electric motors are used, it is advisable to use electric Servos for ships and boats, which require more power for their rudders.

### RELAY:

This is fully tested. Attempts at adjusting are not recommended. Maximum capacity of the contact point is 1 amp at 6v. DC., therefore take care that maximum current requirements of escapement and servos for rudder mechanisms do not exceed this.

### ADJUSTMENT:

Check wiring connections carefully, and adjust receiver in the following order:

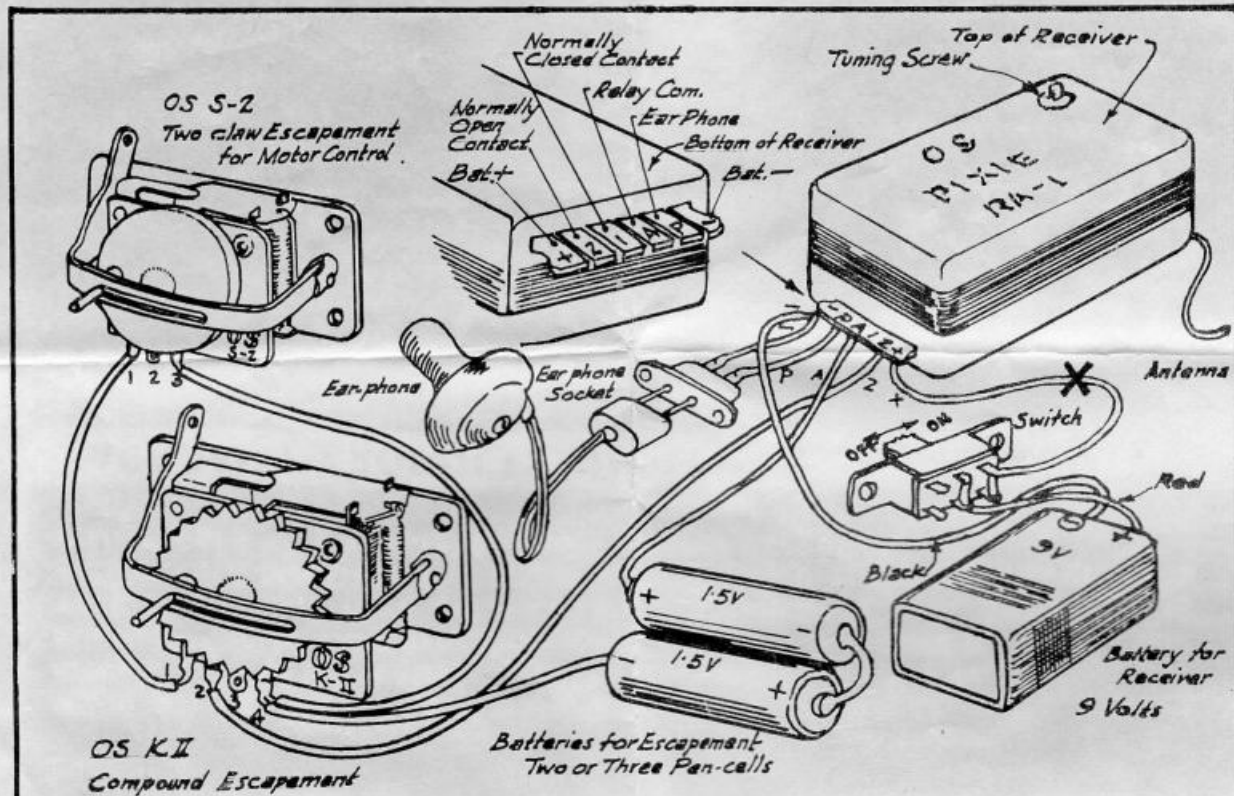
1. Insert an earphone and DC ammeter 0-50 ma, and switch on.
2. Super-regenerative hiss ("sh" sound) will be heard in earphones, and ammeter will indicate between 5 ma - 10 ma.
3. Hold transmitter about 10 meter away, and switch on. The carrier wave (27.120Mc) is now radiated and super regenerative hiss will stop.
4. Press the transmitting button, and the signal sound "P" can be heard.
5. If the audible signal is weak, adjust the tuning screw with an insulated screwdriver for maximum signal strength and maximum meter indication.
6. Also tune with the transmitter at a distance of 650 - 1000 feet. Check operation of controls, and also check for malfunction due to vibration from engine.
7. Remove earphone and ammeter, and re-check operation of rudder mechanism, servos, escapements etc. An ammeter is only necessary for tuning after installation or troubleshooting. Normal tuning can be done with earphone alone.

### CAUTION:

1. When voltage of the 9V battery drop below 7.5V, it must be replaced. Voltage should be measured under load, with receiver on, and operating under maximum current.
2. Use antenna (as fitted to receiver, fully extended. Even when used shorter, it must be at least 2 feet. On ships and boats mount aerial as high as possible, and keep it parallel with water level. (A length of steel wire may be substituted). Using antenna in this way results in maximum sensitivity.
3. When temperature rises above 120°F, sensitivity of the transistors drop. During use and storage do not leave in direct sunlight and places of high humidity.
4. When using rudder servos with a heavy current drain which will induce a spark in the relay contact points, malfunction of the receiver may result. This can be rectified by fitting an additional spark suppressing condenser (.04 - .1 mF.) in parallel across the relay contact points.
5. The receiver may also be influenced by sparks created by the brushes of a nearby electric motor. In this case, fit 0.1 - 1 mF condenser between the motor brushes.

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# OS PIXIE WIRING DIAGRAM



**Remarks:** X mark is to show the place for inserting a meter when you need to test.

The "connector points" on the P.C. board have gromets installed for ease of solid connections. It is essential that these points are free of grit, grease and even finger marks in order to make the connections complete.

When wiring, insert each wire through the gromet from the printed circuit side of the installation. Securely solder each wire in place and allow solder to flow over onto the printed circuit board material. Use very little resin core solder on a clean soldering iron. **DO NOT USE ACID CORE SOLDER.** Following these simple precautions will give you many hours of pleasure in radio control operation.

**ACADEMY PRODUCTS LIMITED**

**TORONTO**