

THE UNIVERSAL SW-3 RECEIVER

Description

General

THE Universal Model SW-3 Receiver employs a three-tube "regenerative-detector" circuit; one tube is used as an R.F. amplifier, a second as a controlled-regenerative detector and a third as an audio amplifier. Plug-in type radio frequency transformer coils in combination with a two-section variable capacitor are employed to tune the frequency range of the receiver. A separate power unit is used when the receiver is operated from AC lines. External batteries are employed for DC operation.

The receiver is compact, efficient and simple in its operation, making it ideal for portable or

emergency service and for the radio amateur. It can also be used as a very effective pre-selector for a short-wave receiver by simply coupling the antenna circuit of the receiver to the detector stage of the SW-3. A two or three turn link coil wound over the detector transformer coil and connected to the receiver input terminals with a short twisted line will be found satisfactory.

While headphone output only is provided, a separate audio amplifier and power supply may be used if loudspeaker operation is desired. The amplifier should preferably be of the push-pull type and be transformer-coupled to the output of the SW-3. Dwg. No. 4 shows a recommended circuit, less power supply.

Installation

Antenna Recommendations

ANTENNA input terminals are located at the rear left side of the receiver chassis. The input circuit is suitable for use with a single-wire antenna, a balanced feed line or a low impedance concentric transmission line. A short flexible grounding lead is attached to the chassis.

When using a single-wire antenna, the lead-in should be connected to the input terminal nearest the front of the receiver and the flexible lead, mentioned above, should be attached to the other terminal. The dimensions of the single-wire antenna system are not critical, the recommended length, including lead-in, being 75 to 100 feet.

Feed lines of doublet systems should be connected to the two input terminals; the flexible lead is not used.

The inner conductor of a concentric transmission line should be connected to the input terminal nearer the front of the receiver. The outer conductor and the flexible grounding lead should be connected to the other terminal.

An external ground to the chassis may or may not be necessary. It should be used unless it reduces signal strength.

Power Requirements

The Universal Model SW-3 can be operated from either an AC source in conjunction with a

National Type 5886-All Power Unit or from a combination of batteries. When AC or battery operated using one 6C5G and two 6J7G tubes, the heater circuits require .9 amperes at 6.3 volts; a "B" supply of 135 volts is recommended. When battery operated using one 1A5G and two 1N5G tubes, the filament circuits require .15 amperes at 1.5 volts; a 90-volt "B" supply is recommended.

When using the 6.3-volt type tubes, the change-over switch mounted at the rear left-hand top of the chassis must be set in the "6.3" position. When the 1.4-volt series of tubes is used, the change-over switch must be set at "1.5."

A four-wire cable and plug is attached to the SW-3 Receiver. Plug prong connections are as shown in Dwg. No. 1. When AC-operated, the plug should be inserted in the output socket of the National Type 5886-All Power Unit. When battery-operated, battery leads may be wired to a four-prong socket and the receiver cable and plug used to complete inter-connections. Alternatively, the plug may be removed and the cable leads connected directly to the battery terminals.

The National Type 686 Vibrator Pack is recommended for use with the SW-3 when a 6-volt DC source is available and when additional batteries for the "B" supply are not desirable. The plug connections of the SW-3 power cable are wired to match the output socket of the 686 Pack.