

**installation
and
operating
instructions
for model S-51
radio receiver**



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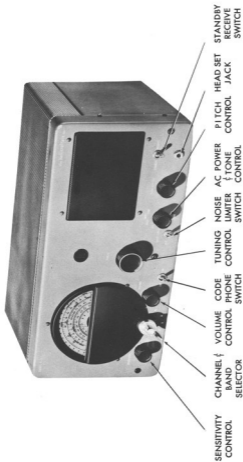


Fig. 2. Front view, location of controls.

INSTALLATION AND OPERATING INSTRUCTIONS

RADIO RECEIVER MODEL S-51

DESCRIPTION

The Model S-51 radio receiver is a combination fixed frequency and general coverage superheterodyne receiver providing AM telephone and CW telegraph reception on three fixed frequency channels and general coverage of the 132 kc to 13 mc range omitting the intermediate frequency range (405-485 kc). The three fixed frequency channels provide for one pretuned channel in the 200-300 kc range (A) and two pretuned channels in the 2000-3000 kc range (B,C). The general coverage dial and fixed frequency channels cover the 132 kc to 13 mc range in seven bands as follows:

Range Switch Position	Frequency Range	Type of Reception
A	200 - 300 kc	Fixed Frequency
P	2.0 - 3.0 mc	" "
C	2.0 - 3.0 mc	" "
1	132 - 405 kc	General Coverage
2	485 - 1530 kc	" "
3	1450 - 4550 kc	" "
4	4.2 - 13.0 mc	" "

The receiver normally operates from a 105-125 V, 60 cycle alternating current (AC) or direct current (DC) source but may be operated from either a 32 V., 12 V., or vibrator type power supply package which plugs into and becomes a part of the receiver. The nominal power consumption is 30 watts.

The receiver is equipped with rubber feet for table top or shelf mounting. When locating the receiver, avoid excessively warm locations and allow about an inch of clearance between the set and the wall for proper ventilation.

There are two connections to be made, antenna and power, to completely set up

The antenna connection will accommodate either a single wire antenna or a balanced antenna transmission line.

A built-in speaker provides for loud speaker reception, however, headphone reception may be had by merely plugging in a pair of high impedance headphones into the PHONES jack located on the front panel. Plugging in the headset automatically disables the speaker.

A noise limiter may be switched in to provide an improved signal to noise ratio when operating in locations that are blanketed by severe electrical disturbances. The proper use of the TUNE control also helps to provide a more readable signal during abnormal receiving conditions.

Reception of CW code signals as well as normal telephone signals is provided for by a single switch control. The pitch of the CW signal has been made adjustable from the front panel by the PITCH CONTROL.

Separate sensitivity and volume controls provide individual adjustment of the receiver's sensitivity and volume.

A STANDBY-RECEIVE switch permits the operator to disable the receiver for short standby periods without having to wait for the filaments to reach operating temperature when reception is again required.

INSTALLATION

The Model S-51 receiver. All connections are located on the rear apron of the chassis.

ANTENNAS - A three terminal strip is provided on the rear apron for antenna connections. The terminals are marked "A1", "A2", and "G". A jumper bar is normally connected between terminals "A2" and

"G" for single wire antenna systems and unbalanced antenna transmission lines. For doublet antenna installations using a balanced transmission line, the jumper between "A1" and "G" is disconnected. A ground connection, when used, is connected to terminal "G".

Single Wire Antenna - When using a single wire antenna installation, connect the jumper bar between the antenna terminals "A1" and "G". A single wire antenna of about 50 to 100 feet (including lead-in) is then connected to terminal "A1". Erect the antenna as high and free from surrounding objects as possible. This type of antenna is recommended for reception on the lower frequency bands particularly.

Doublet Antenna - The doublet antenna is recommended for the higher frequency bands especially where maximum signal to noise is required over a relatively narrow range of frequencies. The transmission line from the antenna is connected to terminals "A1" and "A2". If a concentric line with a grounded outer conductor is used, connect the inner conductor to terminal "A1", the outer conductor to terminal "A2", and connect the jumper bar between terminals "A2" and "G".

The overall length (feet) of a doublet antenna may be determined by dividing the constant 468 by the desired frequency in megacycles.

Keep in mind that this type of antenna is directional broadside to its length and should be so orientated if maximum pickup from a given direction is desired.

Note that for frequencies lower than approx. 2 mc the half-wave doublet will exceed 200 feet in length, hence, the single wire type antenna may be preferred from the constructional standpoint if low frequency reception is most desired.

POWER SUPPLY - The receiver may be operated from a 105-125 V, 60 cycle AC or DC line or from a 32 V., 12 V., or 6V. DC source.

117. AC/DC Operation - The receiver as received is capable of operating from a 105-125 V. AC or DC source, hence it is merely necessary to connect the power cable supplied with the receiver between the

power socket of the receiver and the convenience outlet available. Check the voltage (and frequency if AC) of the supply before connecting up and avoid costly repairs.

32 V., 12 V., and 6 V. Operation - For operation of the receiver on these three lower DC voltages and adapter package is available which is plugged into the dual socket located on the top of the receiver chassis and accessible through the hinged cabinet cover. One adapter unit is available for each of the above source voltages. They are identified as follows:

DC Source Voltage	Adapter Unit Part No.	Identification Stamps
6 Volts	IX629	6 VOLTS
12 Volts	IX630	12 VOLTS
32 Volts	IX631	32 VOLTS

When operating the receiver with the adapter, the power cable normally used for 117 V. AC/DC operation is replaced with the power cable supplied with the adapter unit and plugged into the same receptacle on the receiver. Connect the fused power cable lead to the "hot" side of the DC source and the unfused lead to the ground or "cold" side of the supply. Disregard polarity of the DC supply as this is taken care of by a reversing switch located on the back side of the adapter unit.

Check the wiring carefully before turning on the power (TUNE control). If after a short warm up period the receiver does not respond, insert a screwdriver blade through the ventilating grill at the rear of the receiver cabinet, engage and turn the changeover switch located on the rear of the adapter unit. Changing the polarity will produce the desired results if the installation and receiver are in working order.

The receiver fuse for low voltage operation is located in the power cable. Replace defective fuses with type JAG fuses of the following current rating:

DC Source Voltage	Fuse Rating
6 Volts	10 Amperes
12 Volts	5 Amperes
32 Volts	2 amperes

OPERATION

GENERAL BROADCAST RECEPTION - For regular broadcast entertainment purposes the front panel controls may be set as indicated by the red color coded dot. The stations are then tuned in with the TUNING

control and volume adjusted with the VOLUME control in the normal manner. Note that the TONE control operates the power switch, hence, when the receiver is not in use the TONE control must be set at "OFF".

RADIO TELEPHONE RECEPTION - To receive amplitude modulated radio telephone signals, set the front panel controls as follows:

- TONE control** - Set at "OFF" when the receiver is not in use. Normally set at "MED" or "LOW" for voice communications and at "HIGH" for musical entertainment.
- STANDBY/RECEIVE switch** - Normally set at "RECEIVE". May be set at "STANDBY" to disable the receiver for short standby periods to keep the tube filaments at operating temperature for instant use.
- CW/AM switch** - Set at "AM".
- Band switch** - Set at range number or letter corresponding to the band covering the desired frequency of reception. Positions "A", "B", and "C" cover the fixed frequency channels and positions "1" through "4" cover the general coverage ranges.
- SENSITIVITY control** - Normally set for maximum sensitivity. (Maximum clock-wise rotation.)
- TUNING control** - Set calibrated dial to the frequency of the desired signal, tune for clearest reception. When receiving on fixed frequency channels (Band switch positions A, B, and C) the TUNING control is not used.
- VOLUME control** - Adjust for desired volume at headset or speaker. Turn to the right to increase volume.
- NOISE LIMITER Switch** - Normally set at "OFF". If background noise is excessive, setting this switch at "ON" will greatly reduce the objectionable noise generally caused by electrical storms or man made static.
- PITCH CONTROL** - Not Used.

CW CODE RECEPTION - To receive continuous wave (CW) code signals, set the front panel controls as follows:

- TONE control** - Set at "OFF" when the receiver is not in use. Normally set at "MED" or "LOW" for code reception.
- STANDBY/RECEIVE switch** - Normally set at "RECEIVE". May be set at "STANDBY" to disable the receiver for short standby periods to keep the tube filaments at operating temperature for instant use.

- CW/JAM switch - Set at "CW".
- Band switch - Set at range number or letter corresponding to the band covering the desired frequency of reception. Positions "A", "B", and "C" cover the fixed frequency channels and position "1" through "4" cover the general coverage ranges.
- TUNING control - Set calibrated dial to the frequency of the desired signal, tune for maximum volume. When receiving on fixed frequency channels (Band switch positions A, B, and C) the TUNING control is not used.
- SENSITIVITY control - Turn up sensitivity (clockwise) as high as the signal strength will allow. Too much gain will result in distortion of the signal.
- VOLUME control - Adjust for desired volume at headset or speaker. Turn to the right to increase volume.
- PITCH CONTROL - Normally adjusted to produce a 500 to 1000 cycle code signal.
- NOISE LIMITER switch - Normally left at "OFF".

FIXED FREQUENCY RECEPTION -

Operation of the fixed frequency channels is accomplished as described above for C-W code and radio telephone reception in the 200 kc to 300 kc or 2000 kc to 3000 kc ranges with the exception that the TUNING control is not used. Reception on any of the fixed frequency channels requires that the following preliminary adjustments be made on a particular channel to put it into operation.

1. Set the band or range switch at "A" for a channel in the 200 kc to 300 kc band or at either "B" or "C" for a channel in the 2000 kc to 3000 kc band.
2. Lift the hinged cabinet cover and with a small screwdriver, adjust

the screws identified as "A", "A₁", and "A₂" for the "A" band or "B₁", "B₂" and "B₃" for the "B" band, etc. Refer to Fig. 2. Make the adjustments in the order "O" "M" "A" (Oscillator, Mixer and Antenna), adjusting the oscillator screw ("O") as you would normally tune in a station and adjusting the "M" and "A" screws for maximum volume. When setting up a channel for C-W code reception, set the "PITCH CONTROL" at zero and tune the "O" adjustment for zero beat. The "PITCH CONTROL" may then be set for the desired pitch when copying code signals on the particular fixed frequency channel.

SERVICE

TUBE FUSE AND DIAL LAMP REPLACEMENT- The tube types and their relative position in the receiver are shown in Fig. 2. Replace defective tubes with the exact type specified for maximum performance. The operating fuse may be located in one of two places depending upon the power source. When operating from a 117 V. AC/EC line the operating fuse is in the container located on the rear chassis apron. This fuse is a type 3AG one ampere fuse. If the receiver is operating from a 6V.,

12 V., or 32 V. source, the operating fuse will be found in the container built into the power cable. Replace the defective fuse with a type 3AG fuse of the following current rating:

DC Source Voltage	Fuse Rating
6 Volt	10 amperes
12 Volts	5 amperes
32 Volts	2 amperes

Warranty

The Hollingers Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to our authorized radio dealer or wholesaler from whom purchased, intact, for our examination with all transportation charges prepaid within sixty days from the date of sale to original purchaser and provided that such examination discloses in our judgment that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our authorized facilities, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products.