

**GENERAL PURPOSE
COMMUNICATIONS RECEIVER**

MODEL SP-600-JX

AND

MODEL SP-600-J

INSTRUCTIONS

ISSUE 6 — MAY, 1956

Manufactured by

THE HAMMARLUND MFG. CO. INC.

460 West 34th St.

New York 1, New York, U.S.A.

1956

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AND

MODEL SP-600-J

INSTRUCTIONS

MODEL SP-600-J

The Model SP-600-J Receiver does not have the Frequency Control Unit. When this Instruction Book is used in connection with the Model SP-600-J Receiver, all indications in the text, photographs and diagrams, with reference to the Frequency Control Unit, should be ignored as they do not apply. With this exception the two models are identical.

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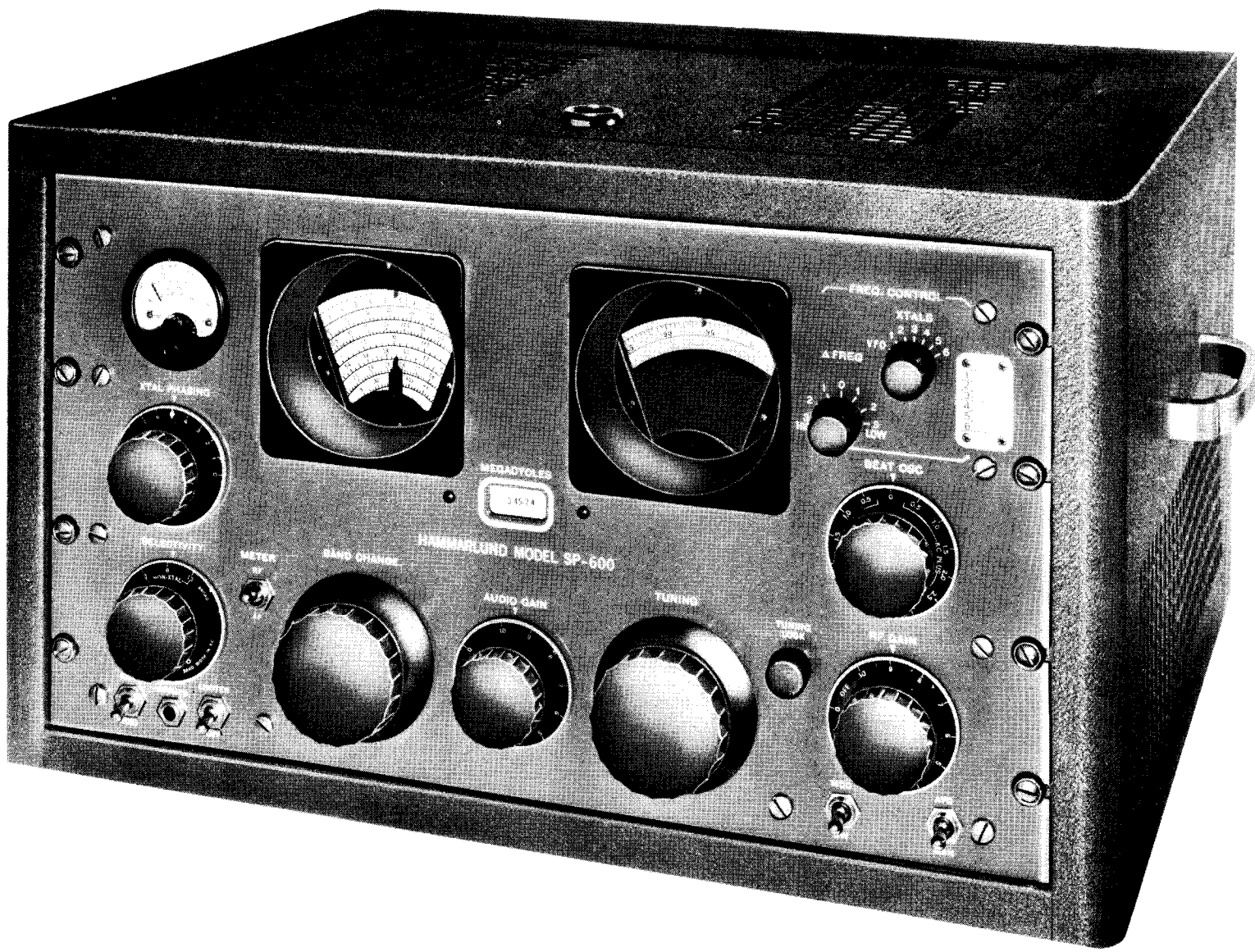


FIG. 1
FRONT VIEW OF RECEIVER
SP-600-JX IN CABINET

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GENERAL PURPOSE COMMUNICATIONS RECEIVER

MODEL SP-600-JX

TECHNICAL SUMMARY

Electrical Characteristics

Frequency Range—total 6 bands.....	.54 to 54.0 mc
Band 1.....	.54 to 1.35 mc
Band 2.....	1.35 to 3.45 mc
Band 3.....	3.45 to 7.40 mc
Band 4.....	7.40 to 14.8 mc
Band 5.....	14.80 to 29.7 mc
Band 6.....	29.70 to 54.0 mc

Power Output—2.0 watts, with less than 10 percent distortion.

Output Impedance—600 ohms-balanced split windings.

Phone jack-winding; delivers 15 milliwatts to an 8000 ohm resistive load, when the audio output to the 600 ohm power load is adjusted to 500 milliwatts.

Power Supply Requirements

Line Rating..... 95, 105, 117, 130, 190, 210, 234 and 260 volt taps, 50-60 cycles.
Power Consumption..... 130 watts, 1.25 amps. at 117 volts—maximum.

Tube Complement—total 20

RF, IF and BFO Amplifiers.....	7 — 6BA6
HF, 2nd Conversion and BFO Oscillators.....	3 — 6C4
Crystal Controlled HF Oscillator.....	1 — 6AC7
Mixers.....	2 — 6BE6
Detector, "C" Bias Rectifier and Noise Limiter & Meter Rectifier.....	3 — 6AL5
AF Amplifier and IF Output.....	1 — 12AU7
Power Output.....	1 — 6V6GT
Rectifier.....	1 — 5R4GY
Voltage Regulator.....	1 — 0A2

Mechanical Specifications

Rack Model — Dimensions; 19 inches wide, 10½ inches high and 16½ inches deep from rack mounting surface. Weight 66 lbs.

Table Model — Dimensions; 21¾ inches wide, 12¾ inches high and 17⅛ inches deep. Weight 87½ lbs.

Performance Data—(approximate values-taken on a sample receiver)

Sensitivity is 3.5 microvolts, or better, throughout the entire frequency range, for a signal to noise ratio of 10 db, at 20 milliwatts output and with the RF Gain Control at maximum.

Image rejection ratios are better than 74 db throughout the frequency range.

The IF rejection ratio at 600 kc is 2700 to 1.

The AVC action will maintain the output constant within 12 db when the input is increased from 2 to 200,000 microvolts.

GENERAL PURPOSE COMMUNICATIONS RECEIVER

I

GENERAL DESCRIPTION

The SP-600-JX is a 20 tube Radio Communications Receiver with self contained power supply. The J suffix in the model number denotes that this receiver is made using components having characteristics which are the equivalent of military component specifications insofar as is practicable.

The receiver is supplied in either a well ventilated steel, table model cabinet finished in dark grey to complement the lighter grey front panel or for mounting in a standard 19 inch relay rack.

The self contained power supply is designed for operation from a single phase, 50 to 60 cycle alternating current power source. The power transformer primary is provided with taps covering a line voltage range from 90 to 270 volts. The power consumption is 130 watts.

The receiver is suitable for either headphone or loudspeaker reception of AM radio telephone, CW telegraph, AM MCW telegraph signals and for diversity applications.

The standard model provides continuous coverage over a frequency range from 0.54 to 54.0 megacycles in six bands. The large easily operated band change control knob, on the front panel, selects the desired frequency band and a band indicator visible through a small front panel window indicates the frequency band in use. This control also aligns the dial frequency indicator with the proper dial scale.

In addition to the frequency scales, the main dial has an arbitrary scale which in conjunction with the vernier dial provides continuous expanded scales over each frequency band for extremely accurate logging and resetability.

The single tuning control is large and of special design to permit maximum traverse speed as well as exceptional operating ease. It controls both the main and vernier dials. An anti-backlash gear train provides extremely close calibration accuracy and completely accurate resetability. A tuning lock provides positive locking action without affecting the frequency setting.

The tuning ratio from the tuning control to the main dial is 50 to 1 and the ratio from the vernier dial to the main dial is 6 to 1.

Two stages of radio frequency amplification are provided on all bands. Single conversion is used for signal frequencies up to 7.4 mc and double conversion, employing a crystal controlled oscillator, for signal frequencies above 7.4 mc. Four stages of IF amplification, detector and AVC rectifier, noise limiter and meter rectifier, beat frequency oscillator and buffer

amplifier, IF output, AF amplifier and output power stage are provided.

The frequency control unit provides for fixed channel crystal controlled operation on any six frequencies within the range from .75 to 54 mc. Front panel controls permit the selection of the normal high stability continuously variable tuning or either of the six selected fixed frequency signals. For crystal controlled fixed channel operation it is only necessary to set the dial to the signal frequency, switch to the crystal frequency desired and tune with the delta frequency control. These crystals are not supplied with the receiver, but may be purchased on special order from HAMMARLUND MFG. CO. specifying the **signal** frequency for which each is to function.

The noise limiter circuit effectively limits the interference from ignition systems or other sources of pulse type noise. The limiter switch permits optional use of the limiter.

The antenna input circuit is designed for use with a balanced line. The input impedance is nominally 95 ohms. The receiver may also be operated with a conventional single wire antenna.

The audio output circuit is designed for a 600 ohm load or line and is provided with a four terminal split winding for balanced load operation. Maximum power output is approximately 2.0 watts. The headphone circuit when referred to an 8000 ohm load provides signals attenuated approximately 15 db below the 600 ohm power output.

The send receive switch desensitizes the receiver but leaves the power on to provide for instant reception between transmission periods.

Radiation is negligible and complies with requirements for shipboard operation and for multi-receiver installations.

Frequency drift after a 15 minute warm up period, ranges between .001 percent and .01 percent of frequency depending on the frequency used. This is a very unusual degree of frequency stability for variable tuned HF oscillators and closely approaches crystal stability.

The selectivity control provides three degrees of crystal and three degrees of non-crystal selectivity ranging from sharp (.2 kc) to broad (13.0 kc). The crystal filter embodies the same circuit features that have proved so effective and desirable in Hammarlund Super Pro Receivers, incorporated in an improved mechanical design.