TECHNICAL BULLETIN from the HAMMARLUND Manufacturing Company, Inc.
460 West 34th St. New York 1, N. Y. Telephone: LOngacre 5-1300

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HAMMARLUND SP-600-JX DIVERSITY RECEIVERS

In the past many diversity receivers were built around the modern SP-600-JX and older model Super-Pros. These receivers were usually modified by the user to permit diversity operation. Such modifications were usually costly and undesirable because calibration and re-alignment was not accomplished by precision factory methods.

An SP-600 designed for diversity operation is now offered by Hammarlund. Its special features are the combined result of many years of experience gained in the operation and design of custom-built diversity receivers and from working with those who have converted Hammarlund receivers to this type of operation.

The diversity model SP-600-JX receiver provides facilities for operating two receivers in a conventional dual diversity system. The HF crystal oscillator, 3.5 mc crystal oscillator, BFO, AVC and second detector circuits have been designed specifically for this application.

The high frequency oscillator circuit (HFO) permits operation within the frequency range of 2-30 mcs in the following ways:

(1) Normal independent operation, wherein the receiver is operated by itself in conventional fashion.

(2) Master operation, wherein one high frequency crystal oscillator supplies output for the purpose of controlling the frequency of another receiver as well as controlling itself.

(3) Slave operation, wherein the receiver frequency is controlled by another receiver operating as in 2.

(4) External operation, wherein the receiver obtains its HFO injection from an external source common to two receivers. When internal or external HFO, or, when internal crystal oscillator is used, the calibration of the tuning dial is equal to that obtainable before modification. Means are provided to prevent undesirable cross-feed between receivers operating in any and all normal options.

The 3.5 mcs oscillator permits operation as follows:

(1) Normal independent operation.

(2) Master operation, wherein the 3.5 mcs oscillator supplies injection voltage to its own intermediate detector and to the corresponding detector in another receiver.

(3) Slave operation, wherein the 3.5 mcs injection voltage into the intermediate detector is obtained from another receiver.

The BFO permits options of operation described as follows:

(1) Normal independent operation.

(2) Master operation, wherein one BF oscillator supplies output to the second detector of another receiver as well as supplying output to the second detector of its own receiver.

(3) Slave operation, wherein the receiver second detector is supplied BF oscillator voltage from another receiver operated as in 2.

(4) External operation, wherein the receiver second detector obtains BF oscillator voltage from an external source.

IF Amplifier

For all modes of operation, provision is made for the amplitude modulation of the IF amplifier by an audio frequency within the range 500-5000 cps, originating externally to each receiver. This permits the reception of an unmodulated carrier (cw) without the use of BFO. The audio tone produced in the presence of a carrier is of the same frequency as the modulating tone. All IF filter crystals and all IF systems are adjusted to operate with center frequency of 455 kc ± 25 cps to permit the diversity operation of any pair of receivers.

AVC Circuit

The AVC circuit permits the AVC lines of two receivers to be interconnected.

2nd Detector

The second detector circuit allows the diode detectors of two receivers to be connected to the diode load of either of the two receivers or to an external load.

Controls

The change-over switch, mounted on the front panel, for controlling the various types of HFO operation is labeled "HFO." The various switch positions are marked as follows:

Marking	Operation
"VAR"	Normal
"EXT"	Slave
"XTL" (6 positions)	Master

The change-over switch mounted on the front panel for controlling the operation of the 3.5 mcs oscillator is labeled "IFO" and the switch positions are marked as follows:

Marking	Operation
"INT"	Master
"EXT"	Slave

A BFO change-over switch is mounted on the front panel and is designated as "BFO-AVC" and has four positions as follows:

Marking	Operation
"EXT BFO Slow"	Slave
"EXT BFO Fast"	Slave
"INT BFO Slow"	Master
"INT BFO Fast"	Master

The BFO change-over switch also controls the AVC time constant for "Fast" or "Slow" operation.

Connectors and Terminals

A 70 ohm coaxial connector for HFO injection is located on the rear of the HF crystal oscillator shield and is complete with cable connector.

Seventy ohm connectors for BFO and 3.5 mc injection are located on the rear skirt of the chassis and are complete with right angle cable fittings.

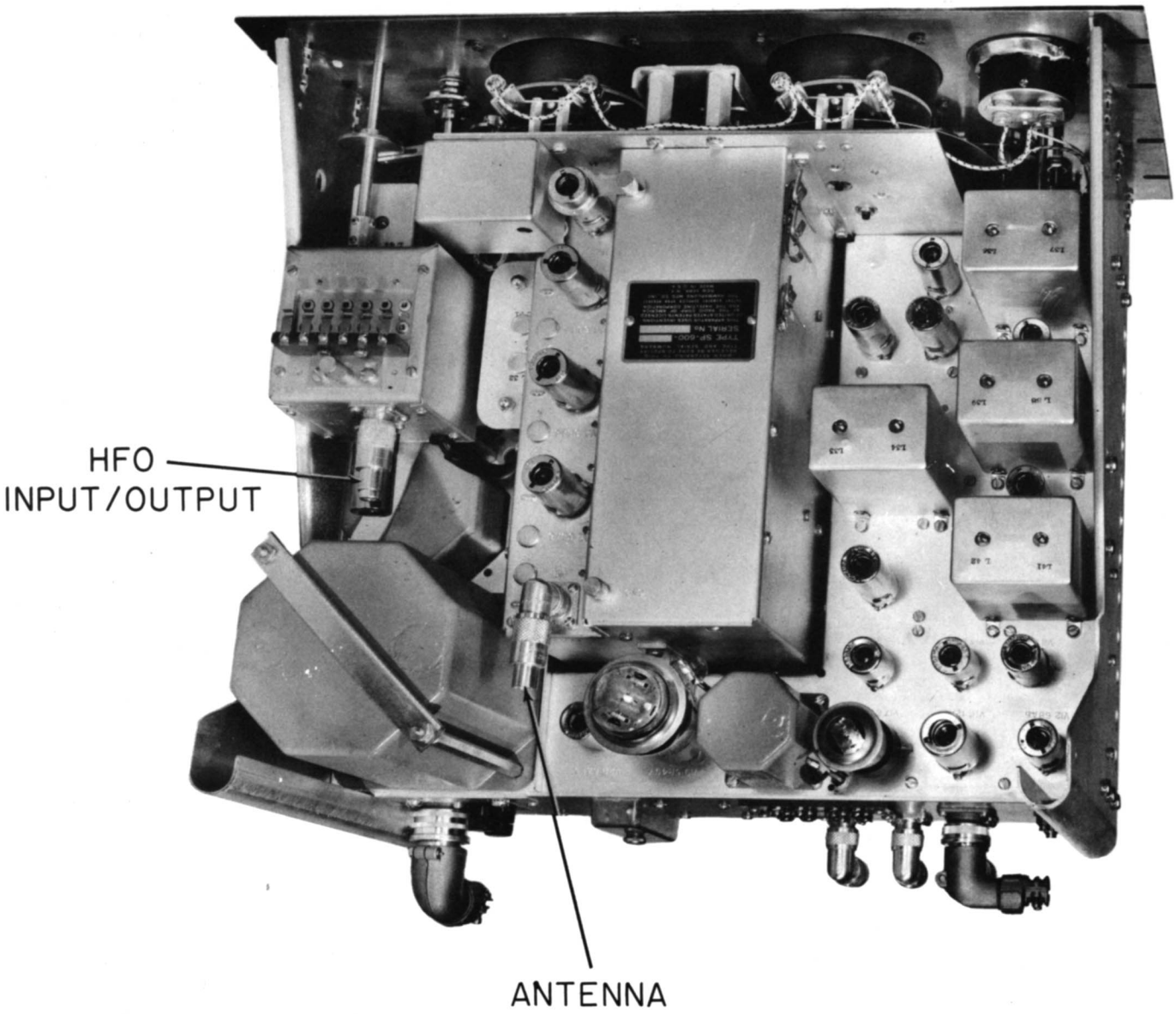
The normal receiver antenna connector is an unbalanced 70 ohm coaxial connector, complete with right angle cable connector.

Primary power is applied to the receiver through an appropriate 2-circuit JAN type connector located on the rear skirt of chassis. Female cable connector is supplied.

Rear of chassis has a terminal strip providing for external diode and AVC connections.

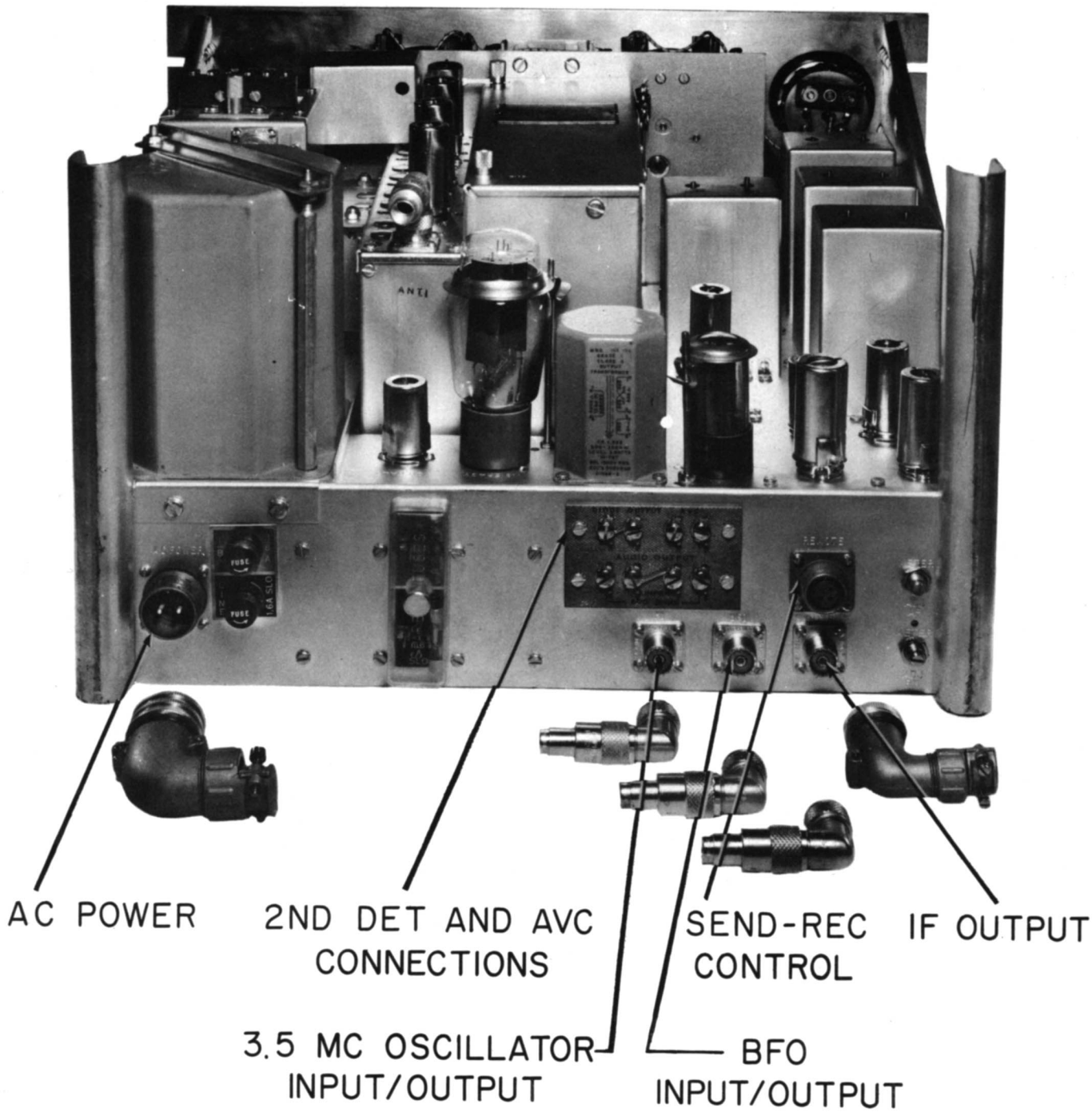
A JAN type connector is provided on the rear of the chassis to provide a function identical to that of the MOD-CW switch on receiver (i.e. on-off control of the BFO) by means of an external switch. The external control switch is in parallel with the internal control switch. This connector carries two additional contacts for the injection of audio modulation. Cable connector is supplied.

HMC-108-FL Attached



HAMMARLUND SP-600-JX DIVERSITY RECEIVER, TOP VIEW

The Hammarlund Manufacturing Co., Inc., **460 West 34th Street, New York 1, N. Y.**



HAMMARLUND SP-600-JX DIVERSITY RECEIVER, REAR VIEW

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