

HOW IT WORKS

An antenna input is provided for either open wire line or for coaxial cable.

The signal is fed from the antenna to the grid of the RF amplifier, V-1, the 6BZ6, through the tuned circuit of the last section (wafers E-F) of the band-switched coils and C-1A. The signal goes to the mixer (the pentode section of V-2, the 6BH8, through the tuned circuit of the band-switched (wafers C-D) coils and C-1B with the BANDSPREAD capacitor, C-2A. The first section of S-1 (wafers A-B) switches coils in the oscillator grid (the triode section of the 6BH8), which operates as a tuned grid oscillator. The oscillator is tuned by C-1C and by C-2B, the BANDSPREAD capacitor. This oscillator operates continuously even when the receiver is in standby position, and the plate of this tube is supplied with regulated voltage through V-3, the OB2. This insures maximum oscillator stability. The oscillator voltage injection takes place through a 10 μ fd capacitor on band A, through a 3.3 μ fd capacitor on band B, and through the internal capacity between the two sections of the 6BH8 on the two high bands, C and D.

The Q-Multiplier circuit is inserted at the output of the mixer. This is a tuneable null or peak circuit which either puts a sharp peak in the IF response curve, or a shiftable null which can be adjusted to provide as much as 60 db attenuation. This circuit makes it possible to tune out much of the unwanted interference and to bring in the wanted signal more clearly. This is accomplished with V-4 (the 12AX7), L-14, C-26, and the associated circuitry.

The IF amplifier section consists of the pentode sections of V-5 and V-6, both 6AZ6 tubes. These IF amplifiers are stabilized.

The detection takes place in the first of three diodes of the 6BC7, V-7. The second diode is used as a delayed AVC rectifier which can be turned off by S-3 at the front panel. A two-volt signal must be applied from the second detector before AVC action begins. The third section of the 6BC7 is used as a series noise limiter which cuts off the high noise peaks. This circuit is inserted between the second detector and the volume control by the switch, S-3, on the front panel.

The audio voltage amplifier consists of the triode section of the 6AZ6 second IF amplifier, V-6B. The output power amplifier, the pentode section of the 6AW8A (V-8), can either drive low impedance phones or an 8 Ω speaker. The triode section of the 6AW8A is used as the beat frequency oscillator (BFO). The BFO output is injected into the grid of the second IF amplifier, V-6A, through the capacity coupling available in R-32, a 10meg Ω resistor. Injecting the BFO output into the second IF reduces the power necessary to get adequate BFO action, which permits this circuit to operate with a minimum of harmonics.

The 6X4 full-wave rectifier tube, V-9, provides the DC operating voltages.

When this receiver is on "STANDBY", the cathodes of the RF amplifier and the first IF amplifier are biased to cut-off. "Break-in" operation is made possible by connecting an external keying relay to the "remote" terminals at the rear of the receiver when it is switched to "Standby". Shorting these terminals restores the receiver to operation.

This receiver is designed so the 100 kc Crystal Calibrator may be installed internally and operated from the front panel, as shown elsewhere in this manual.

The S-METER may be installed on the front panel and wired into the circuit as shown elsewhere in this manual.

RESISTANCE CHART

Control positions: OFF-STBY-RCV-CAL in OFF; QX SELECTIVITY at maximum; PEAK-OFF-NULL in PEAK; BFO-MVC-AVC-ANT in AVC; RF GAIN at maximum; A-B-BAND-C-D in A; AF GAIN at maximum.

All readings from point indicated to chassis ground except: *Readings from point indicated to B+ (holes 11 and 12 on the IF printed circuit board.)

POINT	1	2	3	4	5	6	7	8	9
V-1 6BZ6	2M	100K*	0	.10	2.3K*	56K*	0	NS	NS
V-2 6BH8	0	27K	15K*	0	.10	150 Ω	62K	10K	2.7K
V-3 OB2	NS	0	4.3K*	NS	NS	NS	NS	NS	NS
V-4 12AX7	240K*	2.7M	1.5K	0	0	20K*	2.7M	5.6K	.10
V-5 6AZ6	2.7K*	47K*	160K*	.10	0	2.1M	0	0	0
V-6 6AZ6	2.7K*	47K*	680 Ω	.10	0	2M	2.7K	220K*	1M
V-7 6BC7	100 Ω	1M	NS	0	1.2 Ω	230K	230K	440K	0
V-8 6AW8A	open	47K	250K	0	.10	180 Ω	500K	0*	175 Ω *
V-9 6X4	185 Ω	NS	.10	0	NS	185 Ω	300 Ω *	NS	NS

NS = not significant.