

Wide Band Sweep Generator

Designed and engineered for use in the laboratory, production test . . . or wherever *unusual versatility, high stability and constancy of output* are essential in accurate sweep frequency measurements.



Figure 1. Model 900-A

Features:

- Sweep Frequency Range From 200 KC to 1,200 MC
- Sweep Width Variable From 100 KC Up to 400 MC
- Output Voltage Variation Held to ± 0.5 DB at Any Sweep Width . . . at Any Center Frequency
- Plug-In RF Detector . . . Can Be Used Remotely
- Instantaneous Selection of VHF or UHF Output
- Provisions for External Markers
- Block Type . . . Back Matched Design

Supplies a sweep signal at any frequency from 200 KC to over 1,200 MC . . . with sweep widths as wide as 400 MC and as narrow as 100 KC.

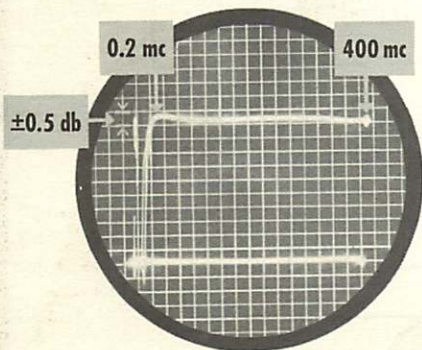


Figure 2. Detected output of Model 900-A

Description—The JERROLD Model 900-A, Wide Band Sweep Frequency Generator, is an instrument of unusual versatility. In two *ranges*—"VHF" and "UHF"—the instrument supplies a sweep signal with center at any frequency from 200 KC to 1,000 MC and with sweep widths as broad as 400 MC and as narrow as 100 KC. The RF output—carefully monitored by matched, crystal diodes feeding a two stage, push-pull AGC amplifier—is flat within ± 0.5 db. over the full sweep width at any center frequency. The mechanical and electrical stability and the extreme constancy of its output recommend the Model 900-A Generator for use wherever careful and highly accurate sweep frequency measurements are to be made.

Circuit Description

MARKER CIRCUITS

A flexible arrangement allows injecting a center frequency marker as well as sideband markers for any of the frequencies to which the sweep can be tuned. The sideband marker arrangement is particularly convenient where it is desired to mark frequencies which are spaced a small distance away from a high, center-frequency. A built-in marker amplifier provides ample gain in the marker channel to ensure clear indications from weak marker signals. The frequency response of the marker amplifier is controlled to give the clearest possible marking with no distortion of the trace.

PLUG-IN DETECTOR

A unique plug-in detector has been supplied with the instrument. The detector is a full-wave, peak-to-peak type and contains crystal diodes that are carefully matched with those in the AGC circuit of the sweep, in order to obtain flat response over the extremely wide band provided in this generator. In equipment test set-ups requiring an accurate detector coupled very close to the unit under test, the detector may be removed from the sweep and used externally. For convenience, a compartment is included on the front panel of the instrument for the detector.

PHASE ADJUSTMENTS

A phase reverse as well as a phasing adjustment control is provided in the horizontal deflection circuit of the sweep for proper adjustment of the oscilloscope pattern. The blanking circuit derives its voltage from the horizontal deflection of the sweep. Either the forward or return trace may be blanked on the oscilloscope.

BUILT-IN FILTERS

A carefully designed filter network is included in the VHF section of the generator to prevent transmission of frequency components other than those desired, thus ensuring that the output voltage measured at the output by an untuned detector, is a true indication of the sweep output.

COMPLETE VOLTAGE REGULATION

All critical voltages and the deflection voltages of the generator are regulated by gaseous, voltage regulating tubes. This ensures absolute stability and freedom from changes in the sweep operation due to line voltage variations.

RUGGED MECHANICAL DESIGN

All parts of the sweep oscillator circuit are precisely machined from rugged, silver plated brass pieces. A slider of unique design moves in a rhodium-plated tube to provide long and trouble-free operation. The entire sweep unit is mounted on shock mounts within the cabinet to prevent transmission of external shocks to the sweep mechanism, as well as to prevent any mechanical hum being transmitted to the work-bench on which the unit is mounted.

SPECIFICATIONS

CENTER FREQUENCY RANGE

VHF.....200 KC TO 400 MC
UHF.....275 MC TO 1,000 MC

SWEEP WIDTH

VHF...Min. 100 KC
Max. From...
200 KC TO 400 MC
UHF...Min. 100 KC
Max. Depending on Center
Frequency Setting:
From...
225 MC TO 325 MC
300 MC TO 450 MC
400 MC TO 600 MC
500 MC TO 750 MC
600 MC TO 1,000 MC
800 MC TO 1,200 MC

MAXIMUM OUTPUT VOLTAGE

VHF...0.25 volts RMS (0 DBM)
UHF...0.5 volts RMS (+6 DBM)

OUTPUT VOLTAGE VARIATION

± 0.5 DB, Maximum... at full sweep width and at any center frequency, as measured by a Jerrold D-50 Detector.

SPURIOUS BEATS AND HARMONICS

20 DB or more below fundamental output.

SOURCE IMPEDANCE

50 ohms, with a VSWR of less than 1.1.

PLUG-IN DETECTOR

Full-Wave, Peak-to-Peak Type. VSWR less than 1.1. May be unplugged and used externally.

LINEARITY OF FREQUENCY SCALE

Within 5% of Sweep Width (in relation to the horizontal deflection voltage).

FREQUENCY MODULATION

60 Cycle Sinusoidal.

HORIZONTAL DEFLECTION VOLTAGE

5 volts Peak-to-Peak, 60 Cycle Sinusoidal.

MARKER INPUT

20 MV or more. Gain of Marker Amplifier variable.

BLANKING

Either Forward or Return Trace, output reduced to zero.

TUBE COMPLEMENT

1..12A7 Marker Amplifier
2..6AU6 AGC Voltage Amplifier
2..6V6 AGC Output Amplifier
1..12A7 Blanking Circuit
1..5675 Sweep Oscillator
1..5675 Fixed Oscillator
1..OD3 Voltage Regulator
2..OC3 Voltage Regulator
9..K3A Silicon Diodes

POWER SUPPLY REQUIREMENTS

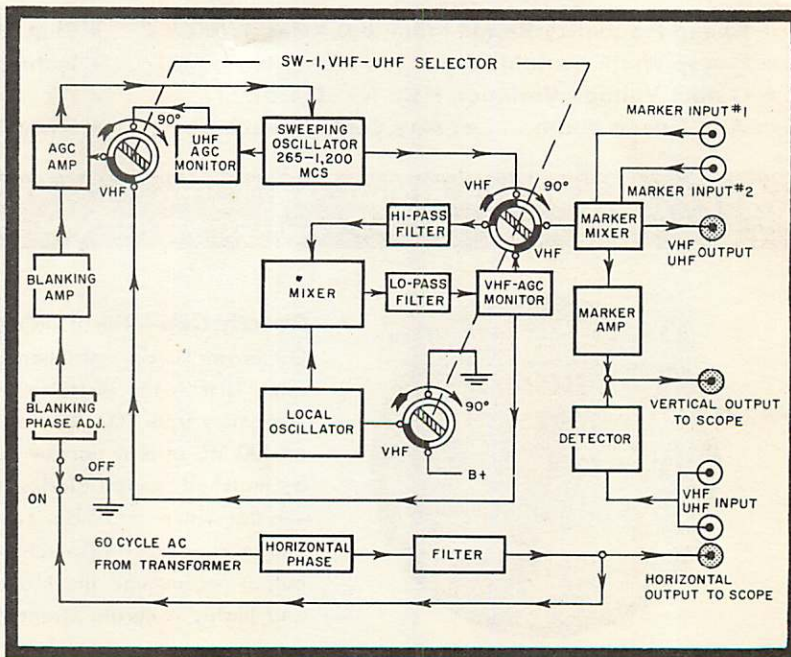
105 to 125 volts RMS, @ 60 cycles, 75 watts.

CABINET

10½" H, 23" W, 15½" D. May mount on its standard 8¾" relay rack panel with cabinet omitted.

WEIGHT

63 lbs.



BLOCK DIAGRAM - MODEL 900-A

Figure 3