

SERIES "8"

Subcarrier System

Model SCG-8 Subcarrier Generator

Model SCD-8 Subcarrier Demodulator



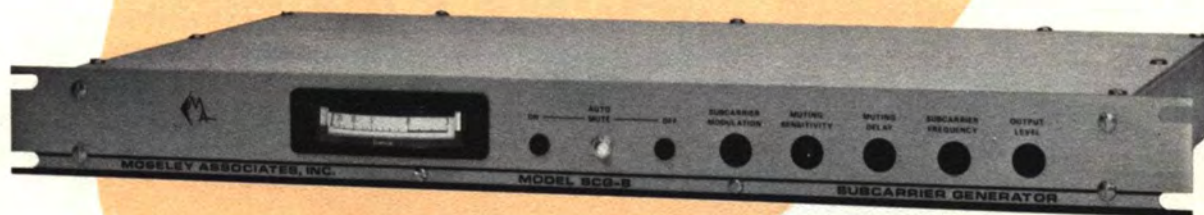
BULLETIN 247

SUBCARRIER SYSTEMS FOR

- SCA Service
- Studio-Transmitter Link Applications
- TV Telemetry



MODEL SCD-8 SUBCARRIER DEMODULATOR



MODEL SCG-8 SUBCARRIER GENERATOR

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MOSELEY ASSOCIATES, INC.

A FLOW GENERAL COMPANY

Series "8" Subcarrier System forms a revolutionary FM system providing superior performance. The Series "8" System consists of the Model SCG-8 Subcarrier Generator and Model SCD-8 Subcarrier Demodulator. These units may be individually used to meet specific requirements such as SCA service on an FM broadcast transmitter, or telemetry service. This system is ideally suited to aural studio-transmitter link (STL) service. Providing a means of establishing a secondary program channel, the Series "8" System enables multiplexing SCA program audio, provides for remote pickup link audio, or serves as an intercom on an STL. Command information from a remote control system can also be conveyed by the SCG-8 and SCD-8.

The **Model SCG-8 Subcarrier Generator** is designed specifically to develop a direct FM subcarrier for multiplexing an FM, TV, or studio-transmitter link transmitter with an additional sound channel. Excellent carrier stability and sound quality are just some of the characteristics of the performance of the SCG-8. Both the environment in which the equipment will function and the operator using the equipment have been carefully considered. Various operational controls are available through the front panel. Recessing these controls restricts idle adjustment by unauthorized personnel, yet allows easy access for engineering personnel. Front-panel metering of subcarrier deviation is provided. This meter is a peak-reading type and is calibrated in dB and referenced to full deviation. Full deviation is equal to 10% of the carrier frequency; i.e., ± 6.7 kHz deviation for a carrier frequency of 67 kHz. A 75 μ sec pre-emphasis is standard in the SCG-8, but is easily changed to other time-constants. **Automatic carrier muting** functions with the absence of program audio input. The time delay from the absence of audio until the carrier is muted can be adjusted from less than 1 second to more than 5 seconds. A front-panel switch enables selection of this automatic-mute feature or a

continuous on or off subcarrier condition. A second input applied to a rear-mounted BNC connector accepts a subaudible telemetry signal. Subaudible telemetry information from a Moseley Associates Remote Control System can be fed directly to the SCG-8. The automatic muting feature does not respond to the subaudible telemetry signals. This feature is extremely useful when the SCG-8 is in SCA or similar service. The generator complies with current FCC requirements for SCA service.

The **Model SCD-8 Subcarrier Demodulator** was developed as a companion to the SCG-8 Generator and encompasses the same design philosophy. Input carrier bandpass filtering enables operation from a composite signal source without external filters. This filter is a plug-in assembly enabling easy field changes to other frequencies. Characteristics of these filters are outlined below and tailored to intended applications based upon carrier frequency. All-electronic muting of the audio output of the SCD-8 adds to the versatility of the unit. The muting circuitry monitors both carrier amplitude and audio noise level. The audio output is sufficient to drive most broadcast equipment and is adjustable from the front panel.

Carrier bandpass and audio low-pass filters are used in the Series "8" Subcarrier System. Audio performance is tailored to the intended application based upon the carrier frequencies. For carrier frequencies of 26 kHz and 39 kHz, the normal application is either command or telemetry for a remote control system. These applications require a 3 kHz audio bandwidth. Frequencies of 41 kHz and 67 kHz normally are used for SCA service requiring 5 kHz response. As a 67 kHz carrier frequency may also be used for secondary program service on a monaural studio-transmitter link (STL), it can optionally be supplied for 10 kHz performance. Likewise, 10 kHz response is provided when operated at a carrier frequency of 185 kHz when using a composite STL for stereo transmission.

SYSTEM SPECIFICATIONS

Frequency Response	± 1 dB, 50 Hz to 10 kHz, less audio filters. Audio response tailored by low-pass filters in Demodulator. See frequency response specifications for Demodulator
Signal-to-noise Ratio	Better than 60 dB below 100% modulation back-to-back. Better than 50 dB below 100% modulation over typical RF link. (100% modulation equivalent to deviation of $\pm 10\%$ of carrier frequency, i.e., ± 6.7 kHz at 67 kHz)
Distortion	Less than 1% at 400 Hz

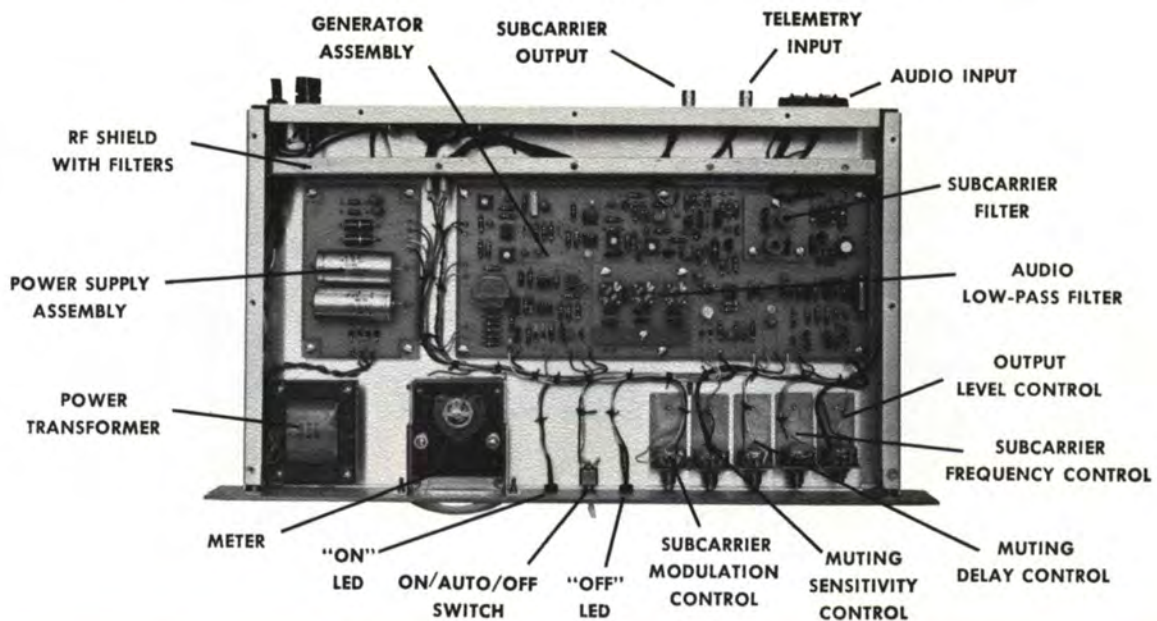
CARRIER SYSTEM

OUTSTANDING CONSTRUCTION PROVIDES

- Total access
- Full RF shielding
- Plug-in transistors and integrated circuits
- Complete front-panel metering and control functions
- System flexibility with easily-changed filters

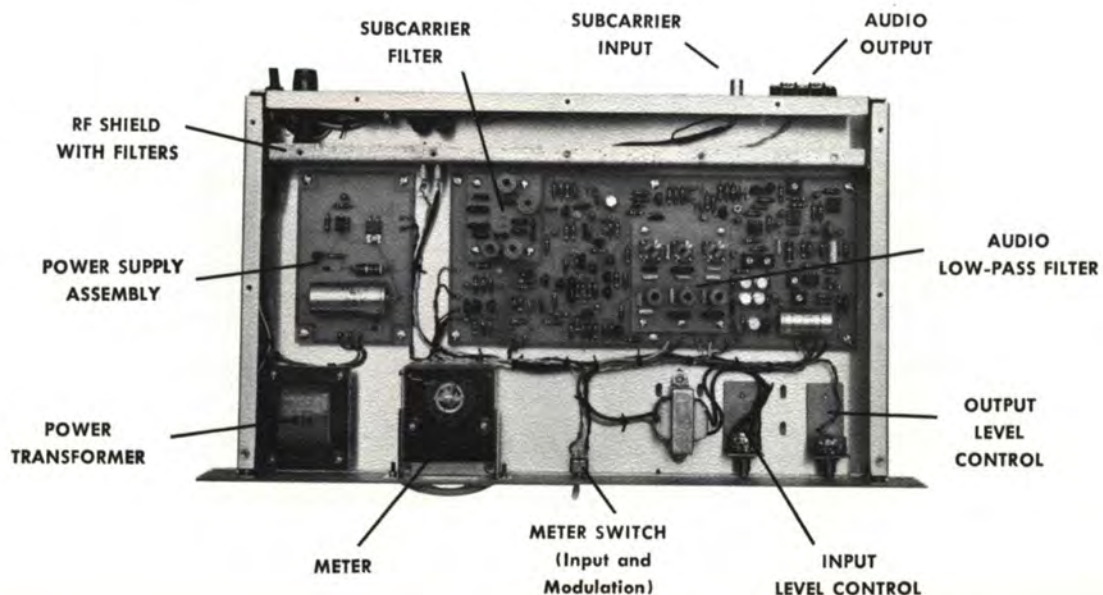
MODEL SCG-8 SUBCARRIER GENERATOR

(interior view)



MODEL SCD-8 SUBCARRIER DEMODULATOR

(interior view)



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Model SCD-8 Subcarrier Demodulator



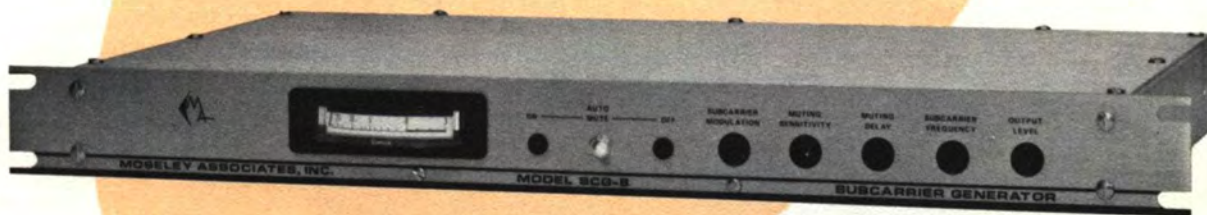
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