



OPERATING THE GENERAL RADIO TYPE 1133-A FREQUENCY
 CONVERTER WITH COUNTERS OF OTHER MAKES



The Type 1133-A Frequency Converter is designed for use with the GR Type 1130-A Digital Time and Frequency Meter and the Type 1153-A Digital Frequency Meter. It can, however, be operated with other 10-Mc counters or as a general-purpose frequency converter with other accessory equipment.

REFERENCE-FREQUENCY INPUT

The converter ordinarily requires a 5-Mc reference-frequency input (supplied by the counter) patched into a rear connector. Other reference-frequency sources can be used, however, as described below.

5 Mc/s

Any source of 5 Mc/s capable of supplying 15 mV or more into a 50-ohm load (e.g. 30 mV behind 50 ohm) can be used to drive the converter. Because of a narrow-band crystal filter in the converter, a lower-frequency source with a strong harmonic at 5 Mc/s can also be used.

100 kc/s, 200 kc/s, 500 kc/s

The Type 1153-P1 Frequency Multiplier, which plugs into the rear of the converter, multiplies a 100-kc reference-frequency input of 1-volt rms or greater (1-volt peak-to-peak for a square wave) to 5 Mc/s to

operate the converter. The multiplier requires a supply voltage of +20 V at 8 mA. It will also operate with other input frequencies which are submultiples of 5 Mc/s, such as 200 kc/s and 500 kc/s.

1 Mc/s

If a 1-Mc signal does not have sufficient 5-Mc harmonic voltage to drive the converter, a fast-switching germanium or silicon diode can be connected in series with the reference-frequency input connector of the converter. Satisfactory diodes are the 1N994 and HHD5000 types. The diode can be conveniently mounted in a Type 874-X Insertion Unit, which can be plugged into the INPUT connector at the rear of the converter. This scheme works well with Beckman Instruments counters.

10 Mc/s (H-P SERIES 524 COUNTERS)

The reference-frequency circuits of the converter can be operated from a 10-Mc source of 100 mV or greater into 50 ohms if the first stage of the converter is rewired as outlined below.

1. Remove instrument from cabinet (see Instruction Manual page 13).
2. Remove shield from 10's Reference Frequency Generator section (remove 10 nuts, see page 14).
3. Clip out C401 and C404 (page 29).

