

FM Exciter Unit, MI-7016

Power Supply MI-7017

Features

- Crystal-controlled frequency stability.
- Distortion less than 1% through range of 30 to 15,000 cycles.
- Every component and connection is easily accessible.
- Built-in oscilloscope for checking performance.
- No auxiliary equipment necessary for setting up to desired frequency.

Description

The RCA FM Exciter, MI-7016, and Power Supply, MI-7017, are vertical panel units designed to generate a high quality frequency modulated signal. These are the carrier generating units used in all RCA FM transmitters.

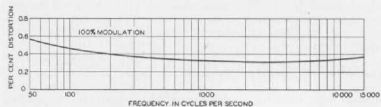
The RCA FM Exciter employs the principle of direct FM which uses fewer tubes and introduces less audio distortion, (especially at low frequencies). In this system, the mean, or "carrier" frequency is produced in a simple and straightforward manner by a master oscillator which is modulated directly by means of a reactance tube modulator. The oscillator is then followed by a relatively small number of multiplier stages. A new-type automatic frequency control system is employed in this exciter. Sub-harmonics of the FM master oscillator are compared with sub-harmonics of a low frequency crystal oscillator (100 to 125 kc). Any difference between these frequencies operates a two-phase, reversible, induction motor attached directly to the shaft of a variable capacitor. The motor never turns more than 45 degrees either way. No gears, counter circuits, or compensating voltages are involved. Its fast action and complete freedom from temperature variations provides a high degree of frequency stability. Failure of the automatic frequency control does not take the transmitter off the air, since operation may be continued by locking the motor shaft and making occasional manual frequency corrections.

The operation of the circuits may be checked easily and rapidly by means of a built-in cathode ray oscilloscope, milliammeter, and associated selector switches. All tubes and large components are mounted on the front of the panel. Wiring on the rear of the panel is "in the clear" with all terminals clearly marked and easily accessible.

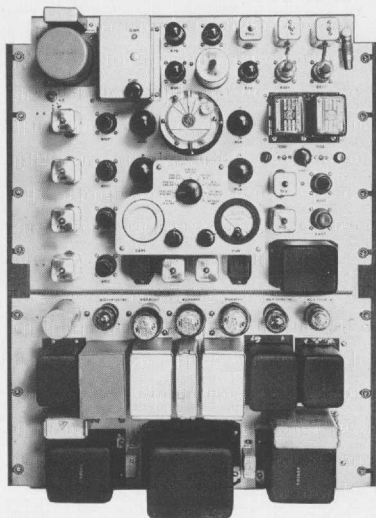
Specifications

Frequency Range	44 to 54 mc
Carrier Frequency Stability, at FM output frequency	Frequency doubled in amp. section to 88-108 mc
Deviation	less than 1000 cycles
Modulation Capability	± 100 kc
Method of Modulation	Push-pull reactance-tubes
Audio Input Impedance	600/150 ohms
Audio Frequency Response	30 to 15,000 cycles, 1000 cycle reference
Audio Frequency Distortion	± 1 db
30 to 100 cycles	1.0%
100 to 7,500 cycles	0.5%
7,500 to 15,000 cycles	1.0%
	(including all harmonics up to 30 kc at 75 kc swing)
FM Noise Level, below ± 75 kc swing	70 db
AM Noise Level, below 100% amplitude modulation	60 db
Power Line Requirements	208/230 volts, 50/60 cycles, 370 watts (approx.)

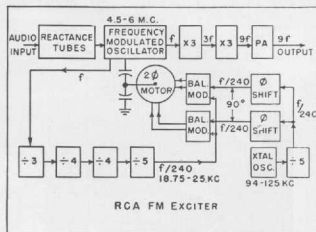
Power Line Requirements—
(Crystal Heaters) 100 to 125 volts a-c or d-c, 28 watts



Percentage distortion at 100% modulation



Overall Height—(RF and Power Supply)	29"
Overall Width	22 1/4"
Weight (RF Unit)	47 lbs.
Weight (Power Supply)	66 1/2 lbs.
Stock Identification:	
Exciter	MI-7016
Power Supply	MI-7017



RCA FM EXCITER



Audio frequency response less pre-emphasis