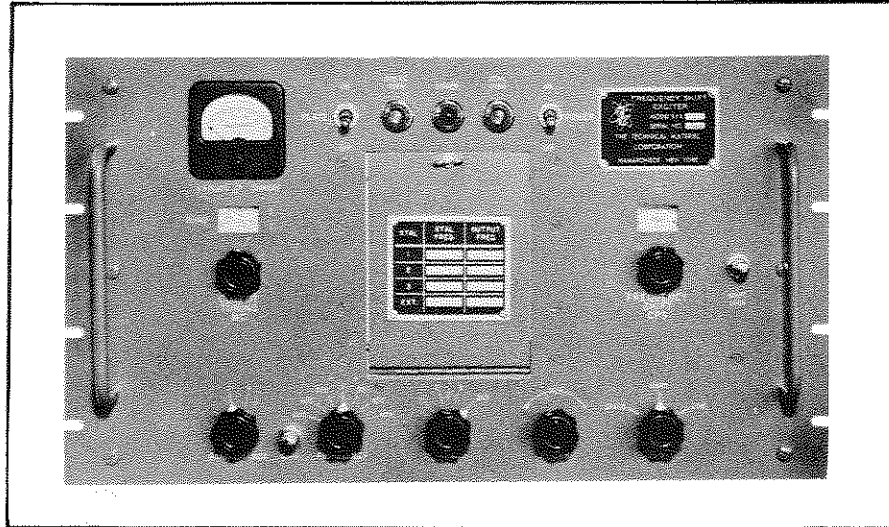


Frequency Shift Exciter Model XFK

REGISTRATION FILES



PH-100

The Model XFK Frequency Shift Exciter is a high stability radio frequency oscillator which provides a means of shifting an RF carrier in accordance with the variations of an audio or pulse signal. The XFK is a single unit, self-contained equipment designed for fixed station use.

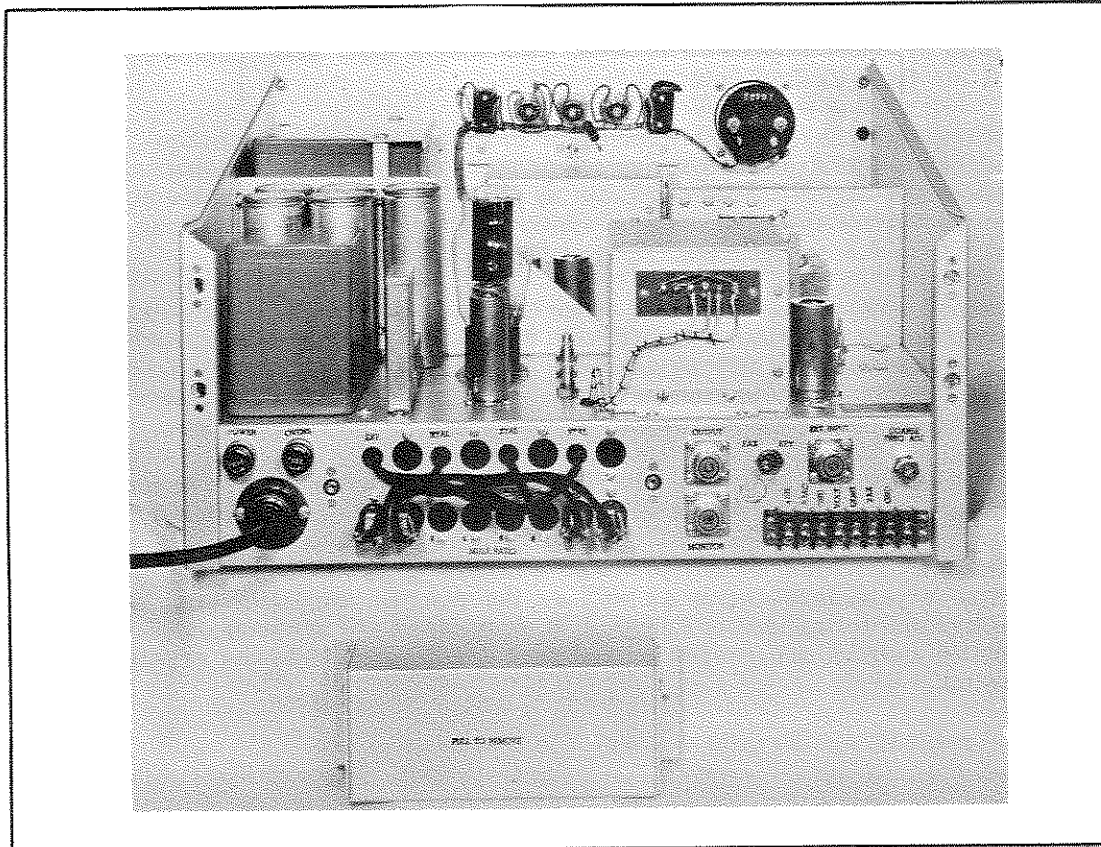
The Exciter replaces the crystal oscillator in a transmitter and provides "mark and space" carrier-shift transmission of teleprinter, telegraph, FM telephone, facsimile or telephoto intelligence. Carrier shift up to 1,000 cycles is available either linear with applied voltage or independent of applied voltage amplitude variations within the range of 1.0 to 6.9 megacycles.

All frequency determining elements in the Model XFK are enclosed within new and highly improved temperature controlled ovens. Separate ovens are provided for the crystal oscillator and the 200 kc oscillator. The frequency modulation is accomplished by a newly developed circuit technique offering many advantages over any existing Exciter, some of the details of which are as indicated below:

1. Crystal and 200 kc ovens have fast heating characteristics in order that their temperatures may be stable within approximately 10 minutes after a cold start.
2. New multiplication circuit provides a means of presetting output shift for all three crystal frequencies as well as the external oscillator position. Transmitter multiplications of 1, 2, 3, 4, 6, 8, 9 and 12 are accommodated. Once set, multiplications and proper output shift are controlled by the crystal selector switch.
3. All controls are directly calibrated in frequency.
4. Single Control output tuning eliminates possible error of tuning to a lower sideband.
5. All crystals are easily accessible from the front panel.

## TECHNICAL DATA

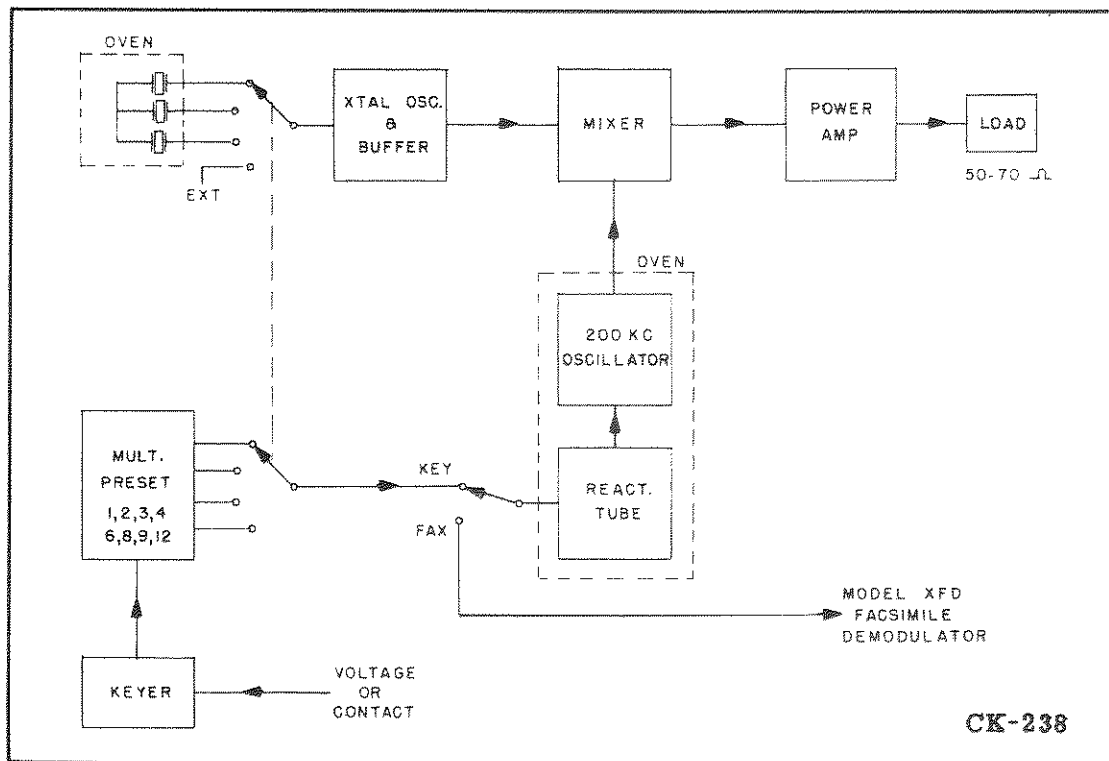
<b>OUTPUT FREQUENCY RANGE</b>	1 to 2.5 megacycles on Band 1 2.5 to 6.9 megacycles on Band 2
<b>FREQUENCY SHIFT</b>	Linear to 1,000 cycles.
<b>OUTPUT POWER</b>	Adjustable to 3 watts
<b>OUTPUT IMPEDANCE</b>	50 to 70 ohms
<b>KEYING SOURCES</b>	1. Contact closing to ground. 2. Polar or neutral positive. 3. Linear input 30,000 ohms impedance.
<b>KEYING SPEED</b>	1,000 wpm maximum
<b>KEYING IMPEDANCE</b>	Polar or neutral operation 100,000 ohms, may be bridged by external 1800 ohm loop resistance. Contact closing to ground must be open circuit.
<b>RF SOURCE</b>	Internal crystal oscillator or external oscillator such as the TMC Variable Frequency Oscillator Model VOX.
<b>INPUT IMPEDANCE FOR EXTERNAL RF SOURCE</b>	70 ohms, 6 to 8 volts RMS



Model XFK Rear View

PH-101

<b>FREQUENCY CONTROL</b>	High frequency crystal oscillator 0.8 to 6.7 megacycles. High stability 200 kc oscillator
<b>CRYSTAL HOLDERS</b>	FT-243, three positions and HC-6/U, three positions.
<b>OVEN TEMPERATURE</b>	70 Degrees Centigrade held constant within plus or minus 0.1 degrees C.
<b>KEYING BIAS</b>	Not greater than 10% at 1,000 wpm
<b>OVERALL STABILITY</b>	<ol style="list-style-type: none"> <li>1. 10 cycles for ambient temperature change of Zero to 50 degrees C.</li> <li>2. 10 cps for line voltage change of 10%.</li> <li>3. No drift for input signal variations of plus 25 volts to plus 150 volts. (mark frequency)</li> </ol>
<b>CRYSTAL FREQUENCY</b>	$\frac{\text{(Assigned transmitter frequency)}}{\text{( Transmitter Multiplication )}} \text{ minus } 200 \text{ kc}$
<b>METERING</b>	PA plate current (tuning)
<b>MONITORING</b>	100 millivolts across 70 ohm coaxial connector
<b>OPERATING CONTROLS</b>	<p>A. Front Panel</p> <ol style="list-style-type: none"> <li>1. Primary Power Switch</li> <li>2. Plate Power Switch</li> <li>3. Output Tuning Control</li> </ol>



CK-238

Model XFK Block Diagram

4. Crystal or External Oscillator Selector Switch
5. Bandswitch
6. Test Switch
7. Output Power Control
8. Frequency Shift Control
9. Crystal Access Door

**B. Rear Chassis**

1. Coarse Frequency Adjust Control
2. Multiplier Preset Selector
3. Key-Fax Switch

**PRIMARY POWER**

110/220 volts 50/60 cycles  
Both ovens off - 100 Watts  
Each Oven 40 Watts.

**DIMENSIONS**

10½" high x 19" wide x 16" deep including all rear panel controls.

**MOUNTING**

Standard 19" WE relay rack

**WEIGHT**

Approximately 40 lbs.

**SHIPPING WEIGHTS AND DIMENSIONS**

One case approximately 133 lbs.  
29-1/2 x 20-1/2 x 34-3/16 inches

**TUBE COMPLEMENT**

- 1 each 6J6 200 KC Oscillator
- 1 each 12AU7 Reactance Tube
- 2 each 6BE6 Mixers
- 1 each 2E26 Power Amplifier
- 1 each 12AU7 Crystal Oscillator - Buffer
- 1 each 12AU7 Keyer
- 1 each 5U4G High Voltage Rectifier
- 1 each 6X4 Bias Voltage Rectifier
- 2 each OB2/VR Voltage Regulators

**COMPONENTS AND CONSTRUCTION**

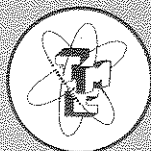
All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.

**THE TECHNICAL MATERIEL CORPORATION**

700 FENIMORE ROAD

MAMARONECK, NEW YORK

CABLE  
TEPEI  
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