

## SPECIFICATION FILES



TMC Low Frequency Shift Adapter, Model LFA

The TMC Model LFA Low Frequency Shift Adapter is a highly stable radio frequency oscillator and wideband amplifier chain which, when combined with any frequency shift exciter having an output at 2 Mc., will produce an extended range of operation. The resultant output will then be in the range of 50 to 500 Kc., and when used with a unit such as the TMC Model XFK Frequency Shift Exciter, may be used on circuits operating 0 to 1000 cps shift. The Model LFA has been so designed that it imposes no additional restrictions on the frequency stability or shift characteristics above those already existing in the exciter with which it is to be used.

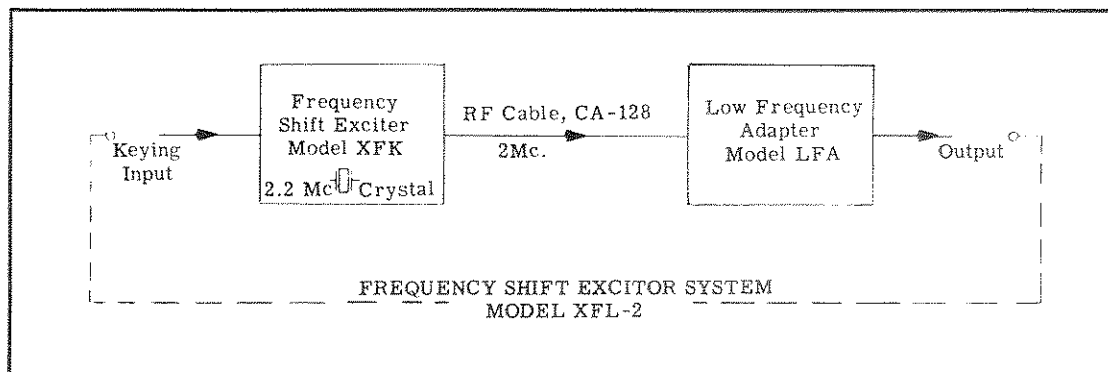
The TMC Model XFL-2 Frequency Shift Exciter System combines the Model LFA with the Model XFK Frequency Shift Exciter (see SSB No. 154) to provide versatile operation over a very wide range of frequencies - 1 to 6.9 Mcs and 50 to 500 Kcs. The higher range may be obtained directly from the Model XFK while a need for the lower range requires that a 2.2 Mcs crystal be inserted in this unit and the lower sideband (2 Mcs.) be chosen in its output. This frequency shifted signal, whose center is at 2 Mcs., is then inserted into the Model LFA where it is mixed with a locally generated signal from an oven enclosed, highly stable, crystal oscillator operating in the range of 2.05 to 2.50 Mcs. The difference frequency is then passed through a low pass filter and through a broad band voltage and power amplifier series.

It is in this amplifier chain that the Model LFA shows superior characteristics. The amplifiers and the push-pull output transformer have been designed for a minimum of harmonic distortion. This means that virtually all of the power output is fundamental in nature, and therefore is put to good use. At the same time, the linearity is such that, when properly terminated in a 75 ohm load, the output voltage of power will remain nearly constant through the entire frequency range.

From the operator's point of view, the Model LFA is both simple to set up and clean in appearance. Selection of the output frequency requires no tuning adjustment other than the rotation of a switch to the appropriate crystal position (any one of three crystal positions may be chosen). A meter is provided for monitoring the output voltage which is adjustable from zero to its maximum value by means of a front panel control. The oven opening is also conveniently placed on the front panel.

## TECHNICAL SPECIFICATIONS

OUTPUT FREQUENCY RANGE:	50 to 500 Kcs.
Frequency Shift :	0 - 1000 cps.
OUTPUT POWER:	0 up to at least 5 watts, continuously adjustable.
HARMONIC DISTORTION:	Less than 5%.
OVEN TEMPERATURE:	70°C.
CRYSTAL FREQUENCY:	$f_{\text{output}} = f_{\text{xtal}} - 2.$
CRYSTAL SOCKETS:	Provisions for both HC-6/U and FT-243 for each position.
CRYSTAL POSITIONS:	Three, selectable by front panel switch.
OUTPUT IMPEDANCE:	75 ohms coaxial, UG-625/U (BNC)
INPUT IMPEDANCE:	75 ohms coaxial, UG-625/U (BNC)
INPUT FREQUENCY:	FS signal centered on 2.0 Mcs.
1. Keying Speed:	1000 wpm maximum when used with XFK, otherwise keying speed is dependent upon Exciter used.
2. Facsimile:	Capable of handling facsimile with XFK, otherwise dependent upon Exciter used.
METERING:	Output voltage.
FRONT PANEL CONTROLS:	Output Control Crystal Selector Switch Main Power Switch Plate Power Switch

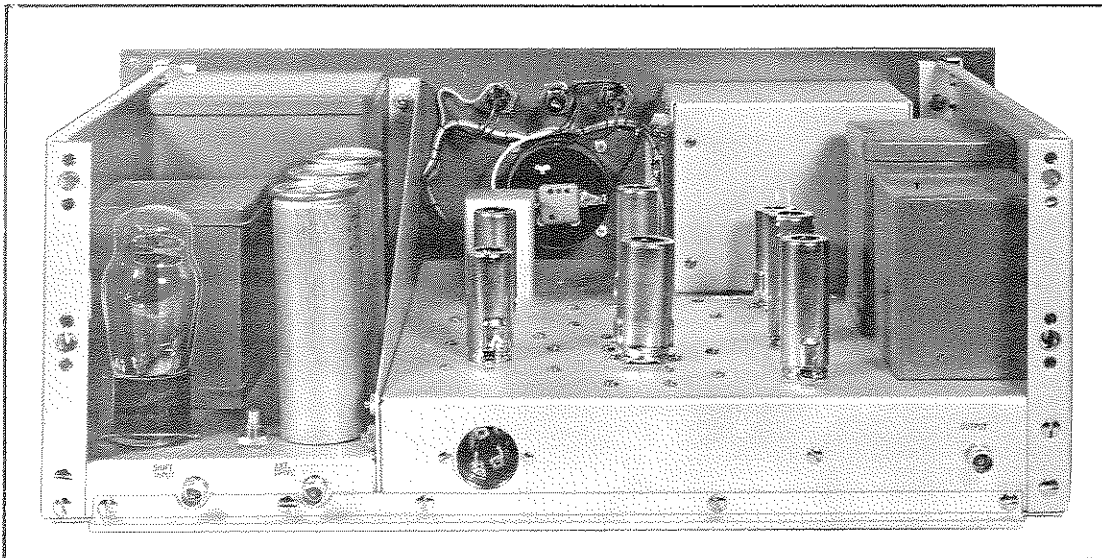


Block Diagram, Model XFL-2 FS Exciter System

**REAR CONTROLS:** Coarse Output Adjustment.  
**PRIMARY POWER:** 110/220 volts, 50/60 cps.  
 Oven heaters off - 70 watts.  
 Oven heaters on - 110 watts.  
**WEIGHT:** Net - 32 lbs.  
 Gross - 121 lbs.  
**MOUNTING:** Standard WE relay rack.  
**SIZE:** 19" wide x 12" deep x 7" high  
 26" x 22-1/2" x 18-1/2" packed for export.  
**TUBE COMPLEMENT:**

1 each 6C4	Crystal Oscillator
1 each 6BE6	Mixer
1 each 6C4	Phase Inverter
1 each 12AT7	Voltage Amplifier
2 each 6AQ5	Power Amplifiers
1 each 5V4G	Rectifier
1 each OA2	Voltage Regulator

**COMPONENTS AND CONSTRUCTION:** Equipment is manufactured in accordance with JAN Specifications wherever practicable.



Rear View, Model LFA

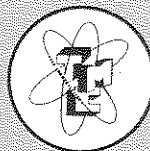
We reserve the right to make changes in the design of our equipment consistent with good engineering practice in order to make improvements in design and to effect economies in manufacture.

THE TECHNICAL MATERIEL CORPORATION

700 FENIMORE ROAD

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COMMUNICATION ENGINEERS

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