TECHNICAL MANUAL

for

MULTI-MODE EXCITER

MODEL MMX-1M

THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y. OTTAWA, CANADA

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Addendum to MMXM-2
Technical Manual
(IN-2039)

MULTI-MODE EXCITER

MODEL MMX-1-M

1. DESCRIPTION

Multi-Mode Exciter; Model MMX-1-M is the same as Model MMXM-2, differing in the addition of circuitry pertaining to automatic upper sideband with a degree of carrier (A3H) when the frequency selection switches are placed at 2003, 2182, and 2638 KHz and additional switching for remote control of associated equipment distinguishing the different bands that are available. This feature is used for pre-positioning tuning circuits of an associated linear power amplifier. These additions do not restrict the MMX to manual tuning only.

2. ACTION

Due to the similarity in function and operation of the MMXM-2 versus the MMX-1-M, the following deletions, additions and corrections will enable the MMX manual to be applicable to the MMX-1-M. All references to MMX should be changed to read MMX-1-M.

SECTION 1 - GENERAL DESCRIPTION

Paragraph 1-1 Page 1-1.

In the first sub-paragraph, Add:

This exciter is specialized in that only A3H (Upper Sideband Audio with a carrier) is possible when the frequency selection switches are set at 2003, 2182, and 2638 KHz. When these frequencies are selected they are automatically independent of the setting of the mode switch. Pre-positioning of an associated Automated Linear Power Amplifier is accomplished by adding additional wafers to S105, S106 and S107.

SECTION 3 - OPERATORS SECTION

Paragraph 3-1, Page 3-1.

Add to this paragraph, the following: Specialized A3H Operation (Upper Sideband Audio with a carrier) is the only output available when the frequency selection

switches are set at 2003, 2182, and 2638 KHz.

To insure proper A3H operation; after the exciter has been operating in any mode, simply set the frequency selection switches to 2003, 2182, or 2638 KHz and automatically the output will be upper sideband with a pre-determined carrier. The r-f level may be adjusted by the r-f LEVEL control located on the front panel of the exciter.

SECTION 4 - PRINCIPLES OF OPERATION

The addition of the circuitry for A3H operation does not affect the Principles of Operation given in the MMX manual under normal operation. When A3H frequencies are selected SECTION 4 inludes the following information.

Replace Figure 4-1 with the block diagram provided with this addendum.

The required voltage to operate Relay K101 is connected to the switches, shown in figure 2 of this addendum, in such a way, as to energize K101 when the frequencies are selected. The other relays, K102 and K103 are energized via a set of K101 contacts whenever K101 is energized.

Additional wafers on (S107, S106, and S105) provide a complete circuit path via one of 18 contacts on J119. Each contact representing a particular frequency range (refer to table 1 of this addendum).

The wafer switches of the relay's shown in figure 7-1 have been modified as shown in figures 1 and 2 provided as a part of this addendum.

TABLE 1

Frequency Range	J119 Pin No's
Common	A
2.0-2.4999 mc	B
2.5-2.9999 mc	C
3.0-3.9999 mc	D
4.0-4.9999 mc	E
5.0-5.9999 mc	F

Frequency Range	J119 Pin No's
6.0-6.999 mc	H
7.0-8.9999 mc	J
9.0-10.9999 mc	K
11.0-12.9999 mc	L
13.0-14.9999 mc	M
15.0-16.9999 mc	N
17.0-18.9999 mc	P
19.0-21.9999 mc	R
22.0-23.9999 mc	S
24.0-25.9999 mc	T
26.0-27.9999 mc	U
28.0-28.9999 mc	V
29.0-29.9999 mc	W

These circuit paths can be extended to an automated linear power amplifier for frequency pre-positioning.

Paragraph 4-2 Page 4-1.

In the first sub-paragraph; change the last sentence and add the following:

The following outlined information is a description of each section. Before reading the outlined description of the unit the overall diagram analysis of specialized A3H operation will be discussed.

Relays K101, K102, and K103 are inserted in the circuit to enable Automatic A3H operation. When the Frequency Selection switches are set at 2003, 2182, or 2638 KHz additional wafers on S103, S104, S105, S106 and S107 extend the ground required to energized relay K101. Relays K102 and K103 are energized via a set of K101 contacts, automatically the MODE switch (S114) contacts are by-passed, and only A3H mode of transmission is possible. For a description of the connections to the relays refer to Table 2 and Figures 1 and 2 provided with this addendum.

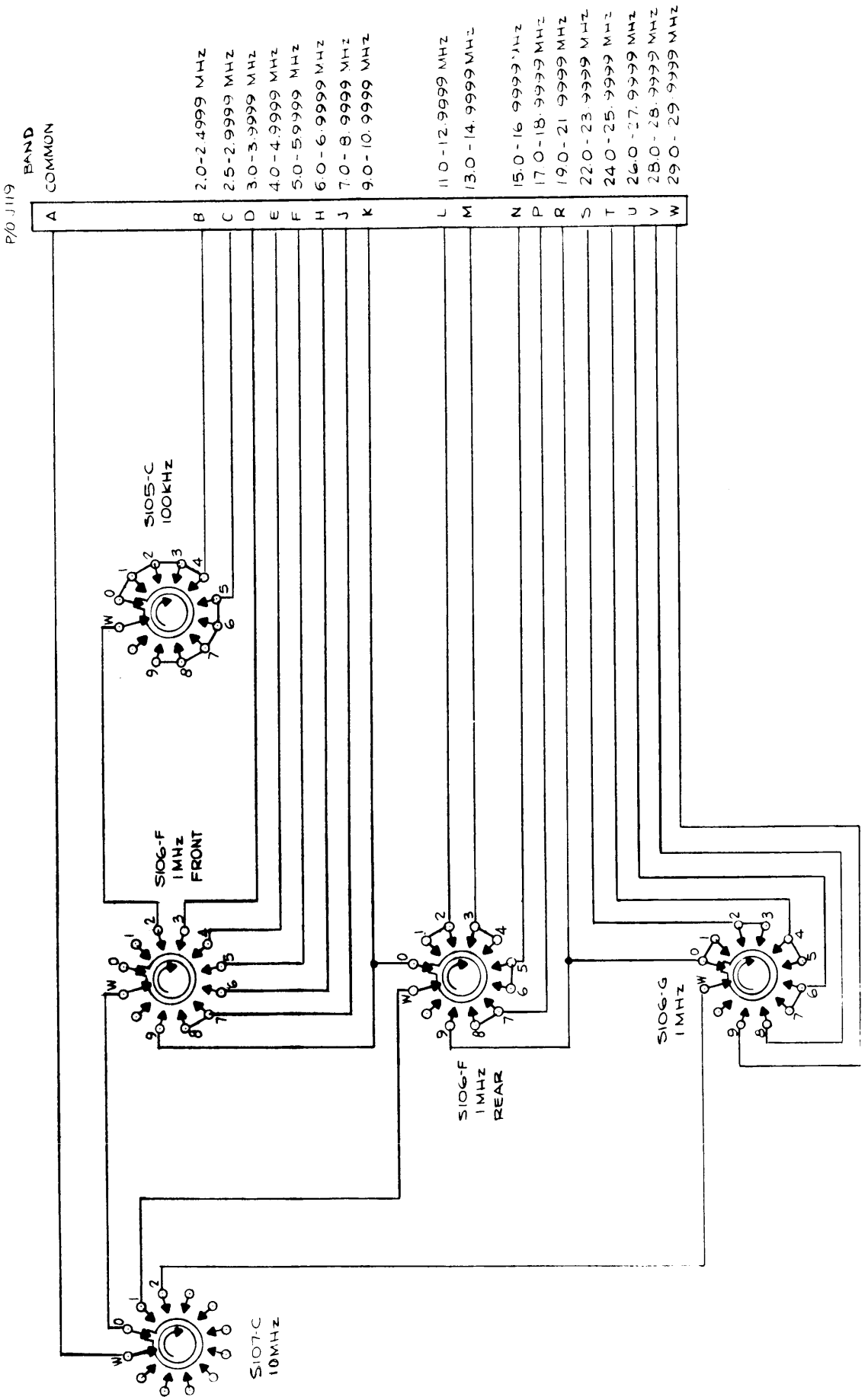
TABLE 2

RELAY		CONNECTION	
SYM.	Pin No.	A3H (Energized)	NORMAL (de-energized)
K101	6	J109H	J109H
	5		S114B REAR "1"
	7	Ground	
	18	K102, K103 for Conn. Operate 12 vdc	K102, K103 No Connection to +E
	17		OPEN
	19	+12 vdc	
	21	LSB GAIN control	LSB GAIN Control
	20		J107(P)
	22	USB GAIN Output to J107(C)	
	9	S113(5)	S113(5)
	8		P301(K)
	10	No connection	
	15	J109(2)	J109(2)
	14		S114 B Front "8"
	16	+12 vdc	
K102	2	J108(2)	J108(2)
	1		S114 B Rear "8"
	3	Pin 6 K102	
	5	J107(S)	J107(S)
	4		S114 C Rear "5"
	6	Pin 3 K102	
K103	2	J109(F)	J109(F)
	1		S114 A REAR "5"
	3	J107(A)	
	5	J109(N)	J109(N)

TABLE 2
(Con't)

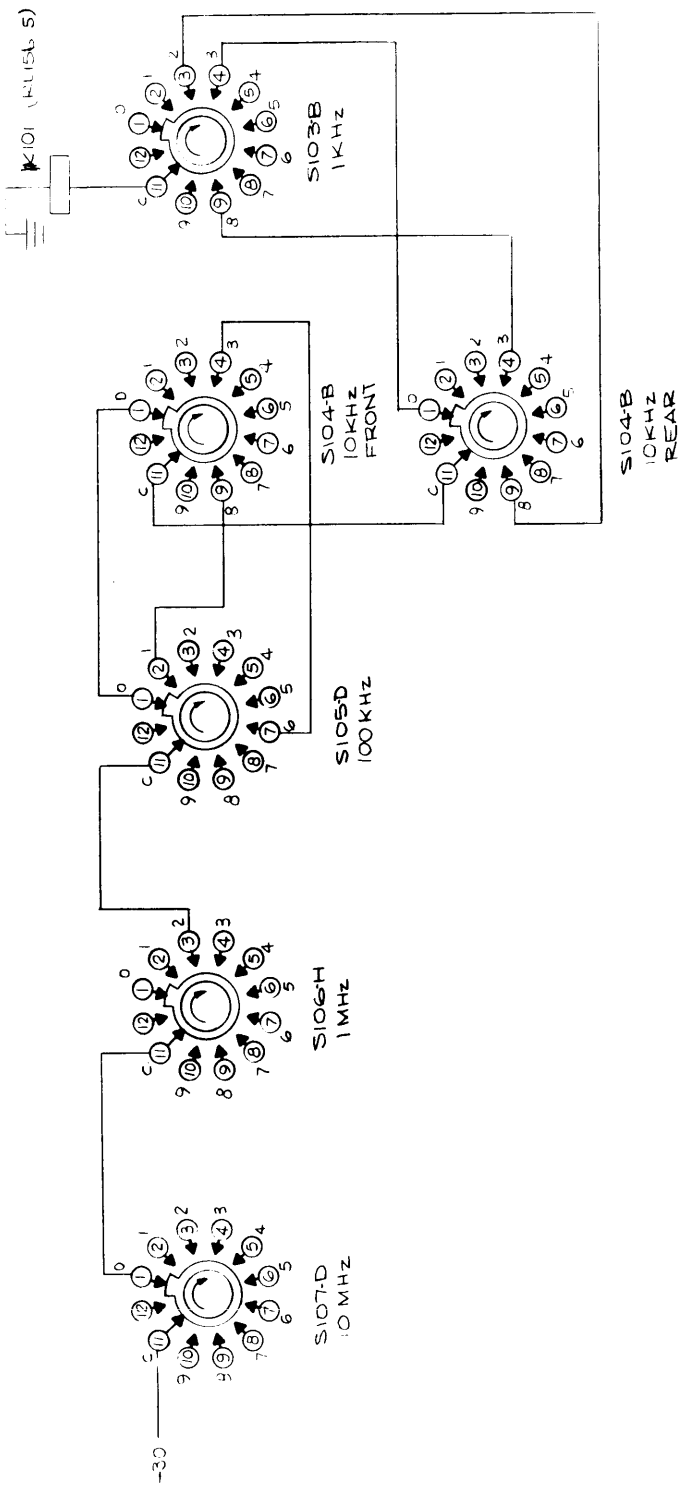
RELAY		CONNECTION	
SYM.	Pin No.	A3H (Energized)	NORMAL (de-energized)
K103	4		CARR INSERT R102 A cw terminal
	6	J108(2)	

Pins BZ and CD of J119 are provided to extend the push to talk feature to remote position. These contacts when connected together apply a ground to J109 pin H and J119 pin 15 enabling exciter operation.



CK 1452

Figure 1 (Sheet 1 of 2)



CK 1452

Figure 1 (Sheet 2 of 2)