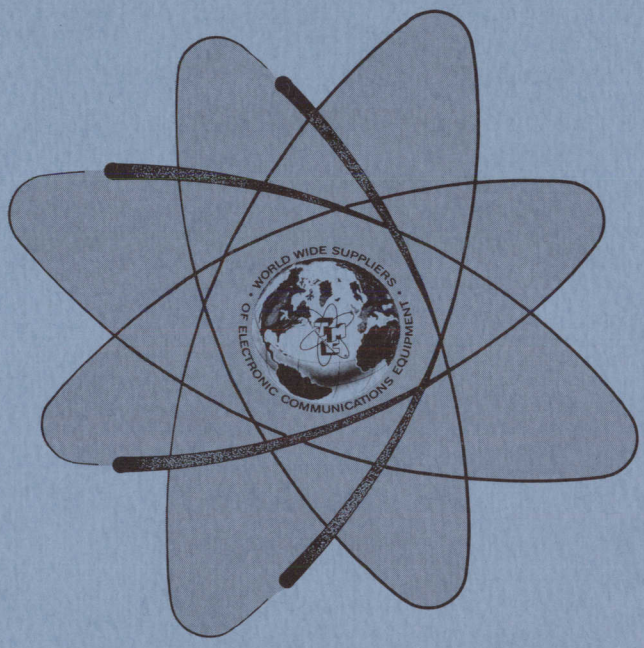
TECHNICAL MANUAL

for

SIDEBAND MULTI-CHANNEL EXCITER

MODEL SME(R)-6

AUTOMATED



THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y. OTTAWA, ONTARIO

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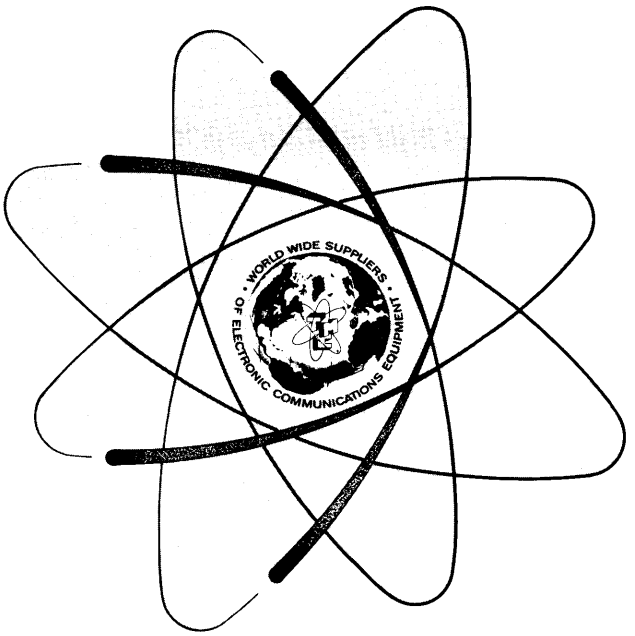

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MAMARONECK, N.Y. OTTAWA, ONTARIO

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SIDEBAND MULTI-CHANNEL EXCITER
Model SME(R)-6
(Automated)

1. Introduction

The SME(R)-6 Multi-Channel Exciter is similar to the SME( )-6. The technical manual for Multi-Channel Exciter, Model SME( )-6 will apply to the SME(R)-6, when the additions, deletions and corrections outlined in this addendum have been incorporated. All references to SME-6 within the technical manual will then apply to the SME(R)-6.

The modifications fall into specific categories, and each category is covered separately in this addendum. A general discription of each modification is given. Additionally, the effect of the modification on particular sections of the technical manual is discussed, and an engineering drawing of the modifications is provided.

2. Pre-Position Switching

The SME(R)-6 is designed to operate within an automated transmitting system. When a carrier frequency is selected by the manual positioning of the channel selector switch on the front panel of the SME(R)-6, the exciter will provide proper interconnections, via contacts on the channel selector switch, for routing of bandswitch information to the associated transmitter. This bandswitching information will be utilized by the transmitter, to automatically pre-position the transmitter's bandswitch(es) to a band which includes the selected carrier frequency.

The pre-position switching modification is shown on figure 1. The channel switches have been replaced by switches with additional wafers for the routing of bandswitching information. Remote jack, J119, is utilized for interconnection of the bandswitching information to the transmitting system.

(a) In Section 2, Installation, it should be noted that J119 (Remote Input) is not optional, as indicated in table 2-1 and on figure 2-2. The location of J119 is shown on figure 2-2, and it should be connected when installing the SME(R)-6 in an automated transmitting system, which utilizes the pre-position bandswitching information provided by the exciter.

(b) The following description of the pre-position bandswitching circuit of the SME(R)-6 is an addition to Section 4, Principles of Operation. This modification, however, does not change the circuit descriptions or block diagrams already contained in Section 4.

Refer to figure 1. A common input from an associated transmitting system is applied at pin BA of J119. This common is routed through contacts on the wafers of channel selector switch S101 to various output pins on J119. An example of channel 1 selection (10.416 MHz) is given as follows: The common at J119-AB is routed to the wafer of S101. The CHANNEL selector is in position 1 for 10.416 MHz selection, routing the common from pin AB on J119 to the wafer of S101.

When channel 1 is selected, the common is routed through the selector switches to pin J119-BB. The common at pin BB will be utilized by the associated transmitter to pre-position its bandswitch(es) in the 7.0 to 11.0 MHz band.

(c) The following troubleshooting procedure for the pre-position bandswitching circuit of the SME(R)-6 is an addition to Section 5, Maintenance. When the exciter is operating in an automated transmitting system and if the associated transmitter's bandswitch(es) will not position automatically, the following troubleshooting procedure will determine if the pre-position circuitry of the SME(R)-6 is at fault.

1. Disconnect the cable at J119 of the SME(R)-6.

2. Connect a multimeter, using the resistance scale, between J119-BA and each individual pin of J119 which provides bandswitching information (refer to figure 1).

3. The multimeter reading will be determined by the setting of the channel selector switch. For wxample, with the switch set for channel 1, the multimeter should read zero ohms across pins BA and BB. All other pins should read open.

4. If the proper routing of the common is not being provided by the exicter, troubleshoot the associated interconnect wiring between J119 and the wafers of S101.

3. Automatic Control of Exciter Functions

Since the SME(R)-6 exciter is primarily designed for operation in an automatically tuned transmitting system, modifications have been made to the exciter, allowing several of the exciter functions to be automatically controlled. Additionally, the exciter has been modified so that it is capable of providing specific functions, which are utilized in the operation of the associated automatic transmitter.

The SME(R)-6 will provide carrier, at the selected carrier frequency, for automatic tuning of the associated transmitter.

The exciter's push-to-talk (PTT) function is bypassed during the automatic tuning of the associated transmitter. During operation of the transmitter, however, the exciter's PTT function controls the transmitter output.

This automatic control of exciter functions has been provided by the addition of wafers to various exciter selector switches and by the addition of TUNE and PTT relays. The circuitry is shown on figure 1.

(1) Tune Carrier Circuitry

An associated automatic transmitter provides the necessary voltage to the SME(R)-6 at J119, when the transmitter is in a tune state. This input energizes TUNE relay which causes the PTT relay to energize. With all relays energized the following conditions will exist regardless of the position of the exciter's MODE, CARRIER, and EXCITER switches or intelligence inputs to the SME(R)-6: The 250 kHz used in normal CW operation will be routed via contacts on the TUNE relay to provide the carrier frequency output required by the associated transmitter for tuning. By means of contacts on the energized relays, AM, FSK, FAX, and sideband generation circuitry will be defeated during transmitter tuning. Additionally, the SME(R)-6, via contacts on the PTT relay, will route a ground from the exciter for control of the associated transmitter output, and in a system it will be connected so that the transmitter amplifiers will be biased on during the tune sequence.

(2) Push-To-Talk Circuitry

The SME(R)-6 has a push-to-talk relay which controls PTT circuitry within the exciter and within an associated automatic transmitter. When the PTT relay is energized, a ground is routed through its contacts from the MODE switch (AM, USB, and ISB positions only) enabling the operation of the final amplifier, for the exciter's final output. The energized PTT relay also routes a ground from the exciter for control of the associated transmitter output, biasing its amplifiers on when the exciter's PTT relay is energized. The PTT relay is energized in several ways: (1) the EXCITER ON/PTT switch in the ON position, (2) contacts on the TUNE relay when it is energized, (3) when the EXCITER ON/PTT switch is in the PTT position, an external mike input or a ground supplied externally (TB-103-5) will energize the PTT relay and will also enable the mike input amplifiers.

SUPPLEMENT PARTS LIST

for

SME(R)-6

(To be supplied)

SME(R)-6 WIRING DIAGRAM

Sheet 1 of 2

CK-1906

Sh. 1

SME(R)-6 WIRING DIAGRAM

Sheet 2 of 2

CK-1906

Sh. 2