

MODEL 3616 CONTROL UNIT

DESCRIPTION

Weight: 3 pounds, 7½ ounces.

Dimensions: Box 5½" high, 7" wide, 3½" deep.

Overall: 6½" high, 7" wide, 5½" deep.

The Model 3616 Control Unit is shown in the Instruction Manual in photograph Figure 7, Dimensional Drawing Figure 17, and Schematic Drawing Figure 27.

This unit is the master control unit for the Transmitter and associated Radio remote control units, in that a two position transfer key places the Transmitter under either LOCAL or REMOTE control. A four point rotary switch selects the frequency channel to be used, and for convenience a small slate is placed on the front panel, on which may be written the frequency of each of the four channels, which may be erased and changed as required. A third switch, a two position rotary marked I/C RADIO-RADIO ONLY directs the microphone output to either the Interphone Amplifier or the Transmitter. On I/C RADIO the Transmitter is fed from the output of the Amplifier. Within the Station Box is located a variable pad with screw-driver adjustment for input leveling to the Transmitter between RADIO ONLY and I/C RADIO. With this third switch (SW2) in the RADIO ONLY position the microphones are fed direct into the Modulator unit of the Transmitter, the Interphone Amplifier output is shorted out, to prevent damage from unterminated voltage developed therein, and Telephones are connected to the Receiver output. In the I/C RADIO position the microphones feed the amplifier, its output to the telephones being bridged by the leveling pad to Transmitter input. In this position sidetone circuits are completed through a small relay which acts when a SEND-RECEIVE key is depressed with C.W. or M.C.W. emission. Another function of the relay is to start the high voltage generator on C.W. or M.C.W. which is done directly by the SEND switch on Radio Telephone. In the RADIO ONLY position the sidetone circuits are completed through the switch SW2.

Other features include the master ON and OFF switch for Transmitter and Interphone Amplifier and a separate ON and OFF switch for Interphone Amplifier only. The Amplifier's line fuse is contained in this Box and may be replaced from the front of the panel. A three position SEND, RECEIVE and SEND LOCK toggle switch is available on the front panel, and a Transmitter HIGH TENSION ON jewel lights when any SEND key is in use. A three point EMISSION control selects Transmitter emission of Radio Telephone, C.W. or M.C.W. when the Transmitter Control switch is LOCAL.

A Telephone VOLUME control appears on the front panel, which, working in conjunction with the matching transformer in the 3615 Auxiliary Box, controls the Operator's headphone volume.

This unit differs from the Model 3616-B Control Unit by the provision of 4 instead of 8 frequency channels and inclusion of a headphone volume control not used on 3616-B.

All external connections to the Model 3616 Control Unit are completed through a single cable plug.

OPERATION AND FUNCTIONS

In addition to the Interphone functions previously described under I/C operation, this Station Box is the Radio Operator's Control panel. It permits Radio transmission on any one of four frequencies. Therefore, it is important, in setting up the Transmitter that note be made of the frequency used on each of the four channels, and that all four be entered on the slate provided on the front panel for ready reference.

Operational procedure and parts functions follow:

A. Turn on MASTER RADIO (SW4) switch. This switch lights the filaments of the Transmitter as well as starting the Interphone Amplifier. If I/C operation only is desired, leave MASTER RADIO off and turn on I/C (SW5) switch which will put the Interphone Amplifier only into operation.

B. Turn I/C RADIO-RADIO ONLY (SW2) switch to I/C RADIO. The I/C channel is now in operation and no further adjustments need be made for it. In this position SW2 performs the following functions:

1. Connects the Transmitter Speech Input to the output of the Interphone Amplifier through a leveling pad (R2) inside the 3616, adjusting the transmitter input to match that provided by un-amplified microphone output.
2. It connects the microphones to the interphone amplifier input.
3. The Telephones, which are permanently connected to the Receiver's Output, are now also connected to the Interphone Amplifier's Output.
4. The sidetone circuit between Transmitter and Receiver is opened.

NOTE: The leveling pad (R2) above mentioned should be adjusted when the Transmitter is set up, to give proper modulation, after which it may be disregarded. It may be readjusted by removing the front panel of the 3616 and turning leveling pad shaft with a screwdriver until proper modulation is reached.

A convenient method of adjustment for 100 per cent modulation on the TA-12 Transmitter is to measure the audio voltage across the secondary of the modulator output transformer. A 1000 ohms per volt A.C. voltmeter placed across the modulator output audio line at the main junction box should read 200 volts, approximately, when speaking rather loudly into a microphone.

C. For LOCAL Radio-telephone transmission:

1. Throw TRANS. CONTROL (SW1) switch to LOCAL.
2. Turn CHANNEL (SW6) switch to 1, 2, 3, or 4 for proper frequency.
3. Turn EMISSION (SW7) switch to R/T.
4. Turn Microphone switch ON, throw SEND-REC. (SW3) switch to SEND (up locks SW3, down it must be held) and transmit message.
5. Upon completion of message return SW3 to REC.
6. Upon completion of transmission turn microphone switch OFF.

Functions performed were: SW1 completed the SEND-REC. (SW3) circuit through SW7 so that when SW3 was depressed the keying and Dynamotor relays were energized and the transmitter was ON. SW6 (CHANNEL Switch) energized the positioning motor in the Transmitter which tunes to the selected frequency.

D. For LOCAL C.W. and M.C.W. transmission proceed as under "C" except EMISSION (SW7) is turned to C.W. or M.C.W. and the telegraph key is used.

Functional differences are:

1. Since no modulation now comes through the Interphone Amplifier the operator is dependent upon the Receiver for Sidetones. SW7 completes the Sidetone and Start relay energizing circuit whenever a SEND key is depressed. This relay S1, located in the 3616, operates only on C.W. and M.C.W. and its function is to close the Sidetone circuit between Modulator and Receiver.
2. A second function of the Sidetone-Start Relay is to start the H.T. Dynamotor through its control relay. This also turns on TRANS. H.T. indicator jewels.

3. On C.W. only SW7 energizes the Modulator relay which opens the plate return circuit of the Modulator output tubes, preventing modulation of the Carrier.
4. On both C.W. and M.C.W., SW7 through SW1 completes the keying circuit from the telegraph key to the keying relay control.

E. For REMOTE CONTROL operation the operator must:

1. Select desired frequency channel on SW6.
2. Throw TRANS. CONTROL (SW1) to REMOTE. EMISSION will be selected at the remote control station.

The functions of SW1 in REMOTE position are:

1. Disconnects 3616 Emission Switch.
2. Completes circuit from remote SEND switch to key relay control, on remote control's R/T position only.

f. For RADIO ONLY operation, all other functions and operational procedures are unchanged excepting that I/C is disconnected and only transmitted messages will be heard in all telephones through the Sidetone circuits. The operator should, therefore, return SW2 to I/C RADIO position immediately after any RADIO ONLY transmission so that Inter-Communication may be resumed. In RADIO ONLY position:

1. SW2 energizes a relay in the modulator which cuts in an additional stage of amplification in that unit, until the M.C.W. relay is used.
2. Connects microphones direct to speech input of Modulator.
3. Disconnects Telephones from Interphone Amplifier.
4. Completes Sidetone circuit regardless of position of Sidetone-Start relay S1.
5. Shorts out Interphone Amplifier's output to prevent generation of excess voltage.

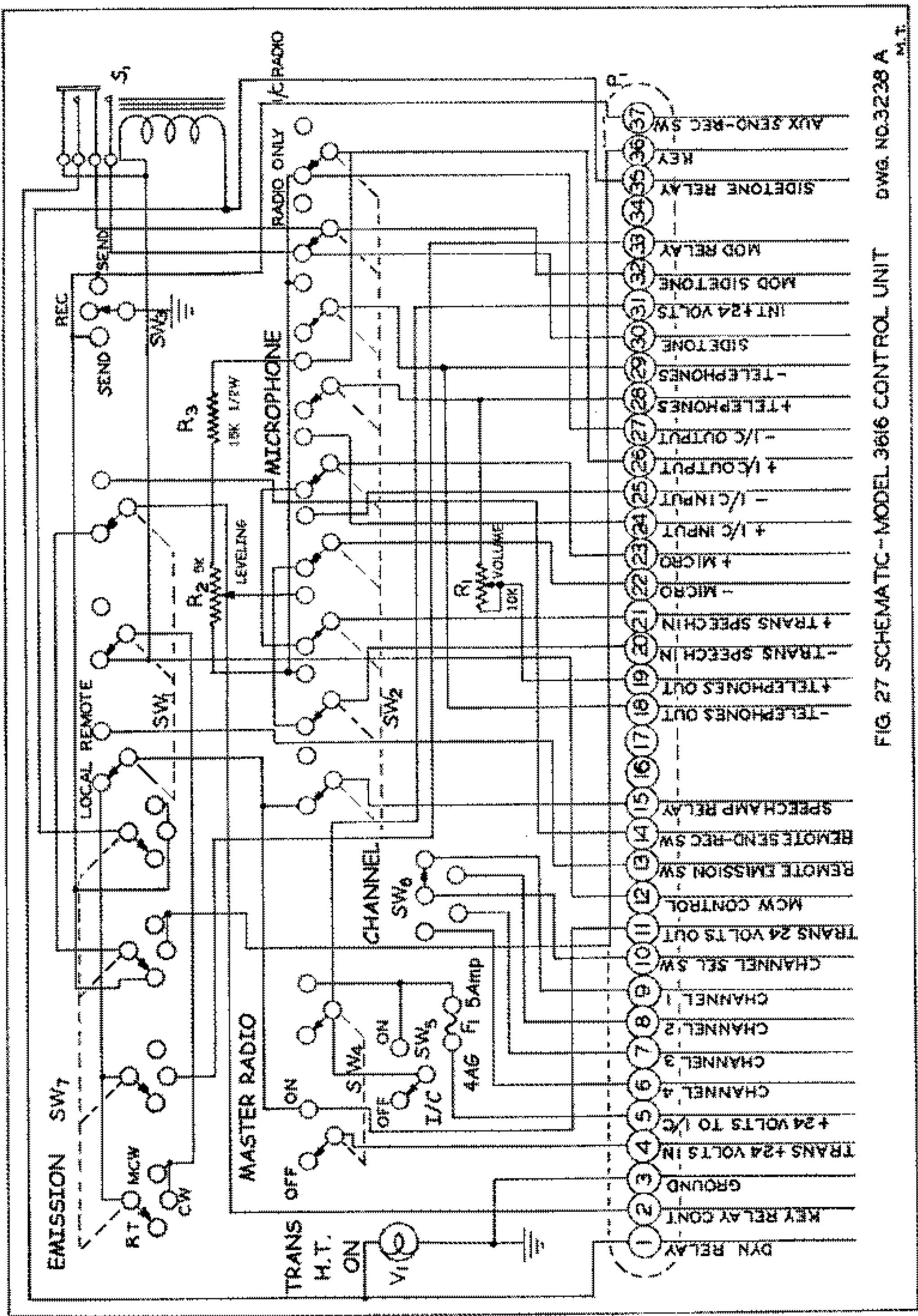


FIG. 27 SCHEMATIC - MODEL 3616 CONTROL UNIT

DWG. NO. 3238 A

M.T.