SUBJECT: TELETYPE PANEL TT-23/SG

ref: NavShips 91103
Wiring diagram, page 170 of this study guide
Wiring diagram, page 171 of this study guide

The teletype panel TT-23/SG is intended for general shipboard use to facilitate the interconnection and transfere of teletype equipment with various radio adaptors such as frequency shift keyers, converters, tone modulation terminal equipment, etc.

The panel has the following characteristics.
a. There are six channels, each comprising a looping circuit of two looping jacks, one set jack, a rheostat for adjusting line current and toggle switch for selecting either local or external source of line current.

b. There is a meter and a rotary selector switch for measuring line current in any channel.

c. There are six miscellaneous jacks to which may be connected any teletype equipment not regularly assigned to a channel.

d. There is a connection block mounted inside the cabinet to which all teletype equipment, radio adapters and local current connections are terminated.

Basic circuit design

a. The teletype panel TT-23/SG contains six"loopi g" circuits. The word looping is intended to indicate the manner in which the jacks are connected in series with the teletype equipment and radio adapters thus forming a complete loop as shown in the basic looping circuit diargam (page 170

b. The looping jacks on the front panel are the standard type 49560 phone jacks. With the jumper connection as shown the tip and sleeve springs are shorted thru the spring contacts thus providing circuit continuity thru each jack. Insertion of a patchcord plug in either jack opens up the spring contacts and allows another equipment to be connected in the series circuit.

The set jack incorporates a double pole-double throw switch. When no plug is inserted in the jack, it functions the same as the looping jacks, however, by inserting a plug in the set jack, the sleeve and tip of the plug are connected to terminals 3 and 4 (series) respectively of the connection block to which a teletype may also be connected. In addition, the looping circuit is simultaneously completed maintaining loop continuity thru the radio adaptor and looping jacks. The switching action of the set jack is shown on set jack diagrams (page 171).

c. It may now be clearly seen that if it is desired to transfere a teletype from one channel to any other channel, all that is required is to patch the teletype equipment from its corresponding set jack to one of the two looping jacks in the channel to be used. If it is preferred that the teletype wired in this channel should not operate, simply insert a dummy plug (supplied with the panel) in the set jack.

d. Any teletype connected to terminals 5 and 6 (series) of the connection block may be patched from the miscellaneous jack to a looping jack of any desired channel.

e. Also included in each looping channel is a battery selector switch by which either local or external line current can be selected, a rheostat for adjusting line currentm and a meter shunt resistor. Provisions are made to connect a local source of 120V DC across terminals 7 and 9 (series). These connections are parallel across the corresponding terminals of each channel by means of the selector toggle switch. It should be noted that this local current is not supplied.

f. The meter and meter selector switch are provided for the purpose of measuring the line current in each channel. By having identical meter shunt resistors in each channel, the meter may be switched to any channel without interupting the teletype signal.

g. Another desirable feature of the teletype panel TT-23/SG is the provision for testing teletype equipment. In those instances where signal distortion test equipment is available it may be permanently connected into one channel similarly to that of a frequency shift converter or keyer. Any teletypewriter termination in this patch panel or an adjecent panel may be patched into this test circuit.

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INSTALLATION
The teletype panel TT-23/SG is designed for fastening to bulkheads by means of the 1/4 inch mounting holes in the back of the cabinet. Cable entry holes may be made on the top and the upper 8 inches of both sides.

Connection of Cables.

a. All cables coming into the panel are terminated on the terminal block. All teletype equipment desired to be in a looping circuit should be connected to the 3 and 4 (series) lugs. Other miscellaneous teletype equipment may be connected to the 5 and 6 (series) lugs.

b. All radio adapters, such as frequency shift keyers, converters and tone modulated terminal equipment should be connected to the 1 and 2 (series) lugs except FSA and KY-32-GRT.

c. Careful consideration should be given to which teletype equipment are connected with the various looping circuits. If the most used combinations of radio adaptors and teletype equipment can be determained, and then be connected accordingly, considerable patching cen be eliminated during operation.

d. The local source of line current, 120V DC should be connected to terminals 7 and 9 (series) which are parallel across the panel for each channel. A 1000 ohm fixed resistor is inserted in a leg of each toggle switch to serve to limit line current to a maximum of approximately 100 Ma. The local line current supplied to the panel should be routed thru a power distribution panel to provide for on-off control.

e. The lugs on the terminal block of the patch panel TT-23/SG are numbered from 10 to 69. The first digit indicates to which channel the lug belongs. The second digit indicates a particular terminal in that channel. Terminal lug numbers 10,20,30,40,50 and 60 are spares, one spare terminal for each channel. Lug terminal 44 could indicate that it belongs to channel number four and is the positive terminal four, where a teletype would normally be conntcted. Terminal 61 would indicate that the lug belongs to channel six and is the negative terminal number one, where a radio adaptor would normally be connected.

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OPERATION

Method of Use.

a. Turn all line current rheostats counter-clockwise to allow passage of minimum current.

b. Turn on local line current supply at distribution panel (green indicator light on teletype panel on).

c. If desired teletype equipment is wired in the same looping channel as the radio adaptor being used, no patchcor is required.

d. If the radio adaptor supplies its own line current, flic toggle of battery selector switch down to "EXT" current position. If not supplied, flick switch to "LOCAL" current position.

e. Turn meter selector switch to desired channel and adjust corresponding line current to 60 MA.

f. If the desired teletype is not wired in the same looping channel as the radio adaptor being used, insert one end of a moulded patchcord (supplied with panel) in the proper set jack and the other end in either one of the two looping jac in the desired channel. The teletype originally in this channel may be made inoperative by inserting a dummy plug in the set jack, or it may be patched to the looping jacks of another channel in the same manner as described above.

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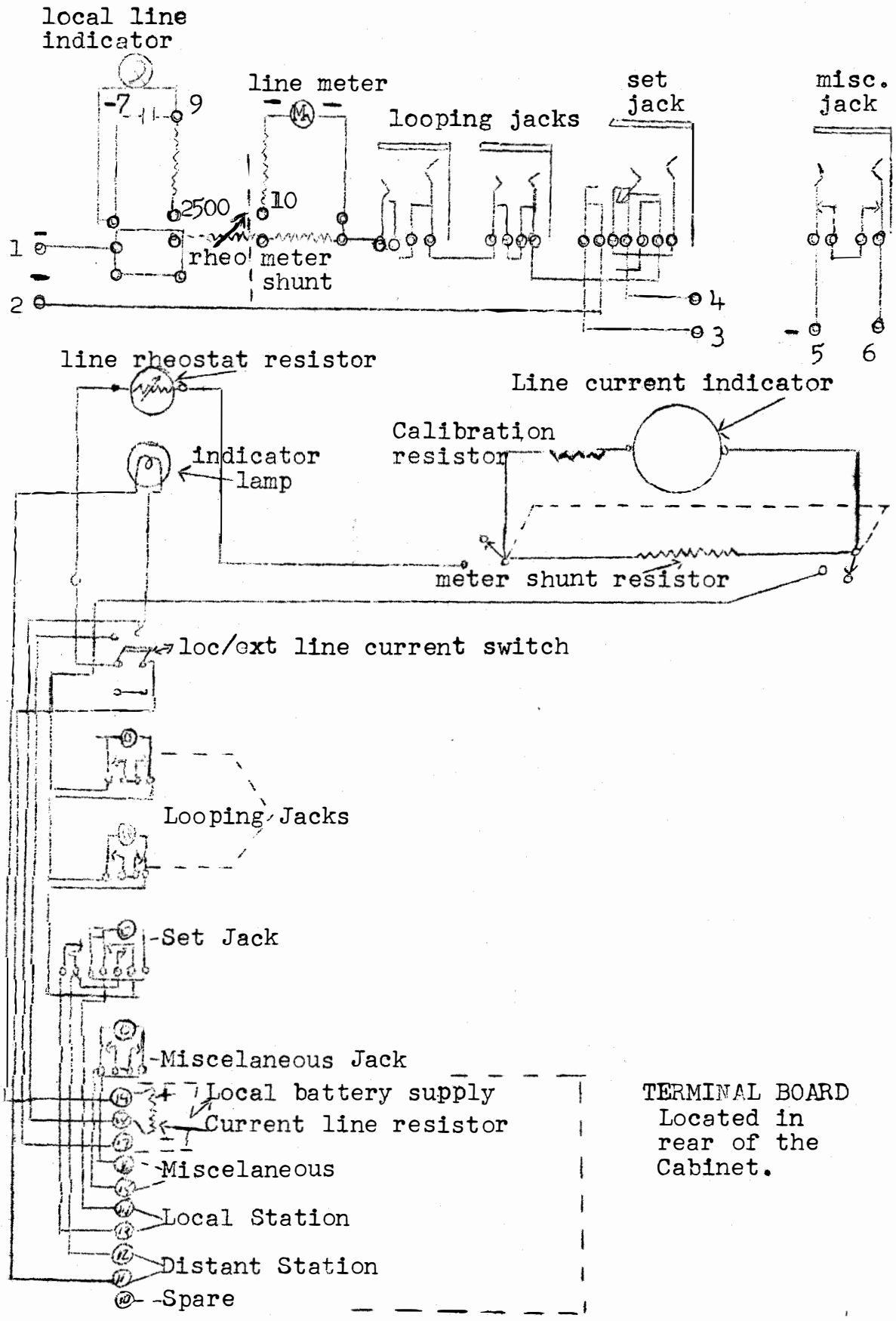
local line indicator
line meter
set jack
misc. jack
looping jacks
-7
9
2500
10
1
2
rheo
meter shunt
4
3
5
6
line rheostat resistor
Line current indicator
Calibration resistor
indicator lamp
meter shunt resistor
loc/ext line current switch
Looping Jacks
Set Jack
Miscelaneous Jack
Local battery supply
Current line resistor
Miscelaneous
Local Station
Distant Station
Spare
TERMINAL BOARD
Located in rear of the Cabinet.