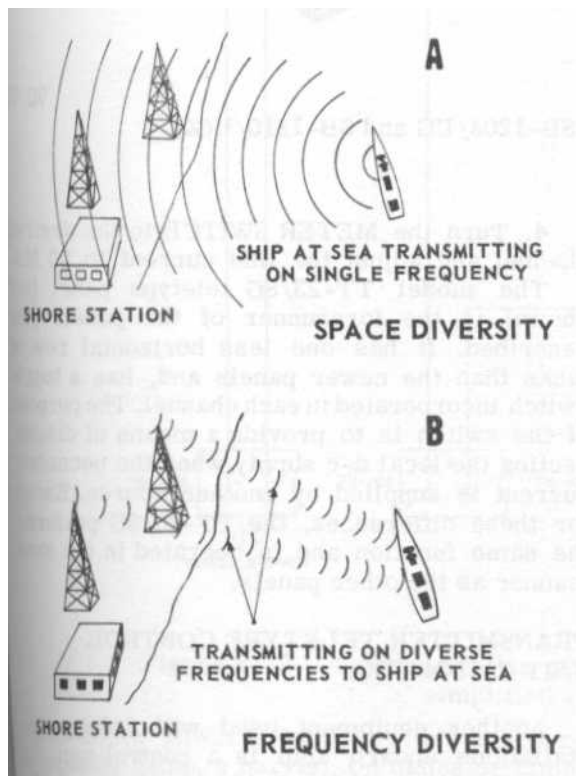


does not occur simultaneously at the same point, the Navy has taken advantage of this situation by the use of two methods of DIVERSITY RECEPTION (fig. 8-10).

In SPACE DIVERSITY reception (fig. 8-10, A), one signal is transmitted, and this signal is received by two receivers. Antennas for these receivers are separated by a distance greater than one wavelength. The outputs of the receivers are fed into two frequency-shift converters and then into a COMPARATOR, which selects the best signal for the teletypewriters.

In FREQUENCY DIVERSITY reception (fig. 8-10,B), two or more identical signals are transmitted on different frequencies. Two receivers, two converters, and a COMPARATOR are used, as in space diversity. The receiving antennas are not separated.

For the tone-modulation system (higher frequencies), the transmitter may be the TED and the receiver may be the AN/URR-35; for the carrier frequency-shift system (lower frequencies), the transmitter may be the AN/URC-32, and the receiver may be the AN/SSR-11 and AN/WRR-2, system.



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Figure 8-10.-Diversity reception.

A basic teletype system employing diversity reception is illustrated in figure 8-9.

#### COMMUNICATION PATCHING PANEL SB-1203/UG and SB-1210/UGQ

Teletype panels and communication patching panels are used to interconnect the page printers and terminal equipments. Communication patching panels SB-1203/UG and SB-1210/UGQ (fig. 8-11) contains 6 channels. The SB-1210/UGQ is intended for use with cryptographic devices, whereas the SB-1203/UG is a general-purpose panel. Since the panels are almost identical only the SB-1203/UG will be discussed.

The permanent and patching connections provide many circuit arrangements. Each channel comprises a circuit of 3 looping jacks (LPG), 1 SET jack, 1 MISC. jack, and a rheostat for adjusting line current. The LPG and MISC. jacks are identical, and are standard type phone jacks. The SET jacks incorporate the features of a double-pole double-throw switch, as will be seen later. The 6 line current rheostats provide individual channel current adjustment.

The CURRENT METER is a DC milliammeter. The METER SWITCH is a two-pole, seven-position, rotary selector switch. When the METER SWITCH is turned to any one of the 6 channels, line current in the selected channel will be indicated on the CURRENT METER.

Figure 8-12 shows a simplified schematic of a single channel. The other five channels are identical. Terminal equipment is connected to terminals 1 and 2 of terminal board TB-101, and the teletypewriter is connected to terminals 1 and 2 of TB-102. When line current is not supplied by the remote station loop, provisions are made to connect a local source of 115 volts d-c across terminals 1 and 2 of TB-104. These connections are paralleled across the corresponding terminals of each loop, and local current can be connected in or out of each loop by removable straps.

Resistor R119 limits the current in each loop to a maximum of 100 ma. Line current is adjusted by the 2500-ohm rheostat R108. One terminal of the rheostat is connected to the first looping jack J101. The SET jack J119 is connected to terminals 1 and 2 of TB-102 completing the circuit between the terminal equipment and the teletypewriter.

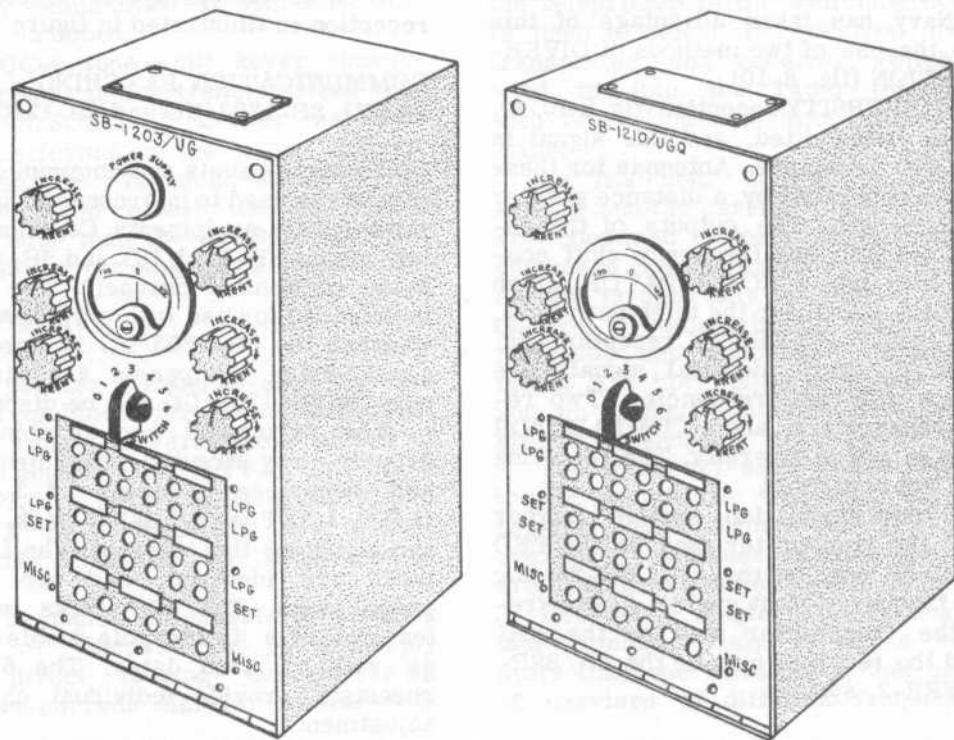


Figure 8-11.-Teletype patch panels SB-1203/UG and SB-1210/UGQ.

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The teletypewriter may be transferred to any other channel by patching it from the SET jack J119 to one of the looping jacks in the channel desired. If it is desirable for the teletypewriter in this channel to be inoperative, a dummy plug is inserted in SET jack J119. An additional teletypewriter may be connected to the MISC. jack and patched into any channel.

#### Operating Adjustments

1. Turn all line current rheostats counter-clockwise to allow minimum current.
2. Turn on local or remote power.
3. If the teletypewriter to be used is wired in the same looping channel as the terminal equipment to be used, no patching is required. If the teletypewriter is not wired in the same channel as the terminal equipment, insert one end of a patchcord in the proper SET jack and the other end in either of the looping jacks in the desired channel.

4. Turn the METER SWITCH to the desired channel and adjust the line current to 60 MA.

The model TT-23/SG teletype panel (not shown) is the forerunner of the panels just described. It has one less horizontal row of jacks than the newer panels and, has a toggle switch incorporated in each channel. The purpose of the switch is to provide a means of disconnecting the local d-c supply when the necessary current is supplied by another source. Except for these differences, the TT-23/SG performs the same function and is operated in the same manner as the other panels.

#### TRANSMITTER TELETYPE CONTROL UNIT C-1004A/SG

Another equipment used with teletype installations aboard ship is a control unit, for example, Navy Model C-1004A/SG (fig. 8-13). This unit permits control of a teletypewriter! radio circuit from a remote position. It provides

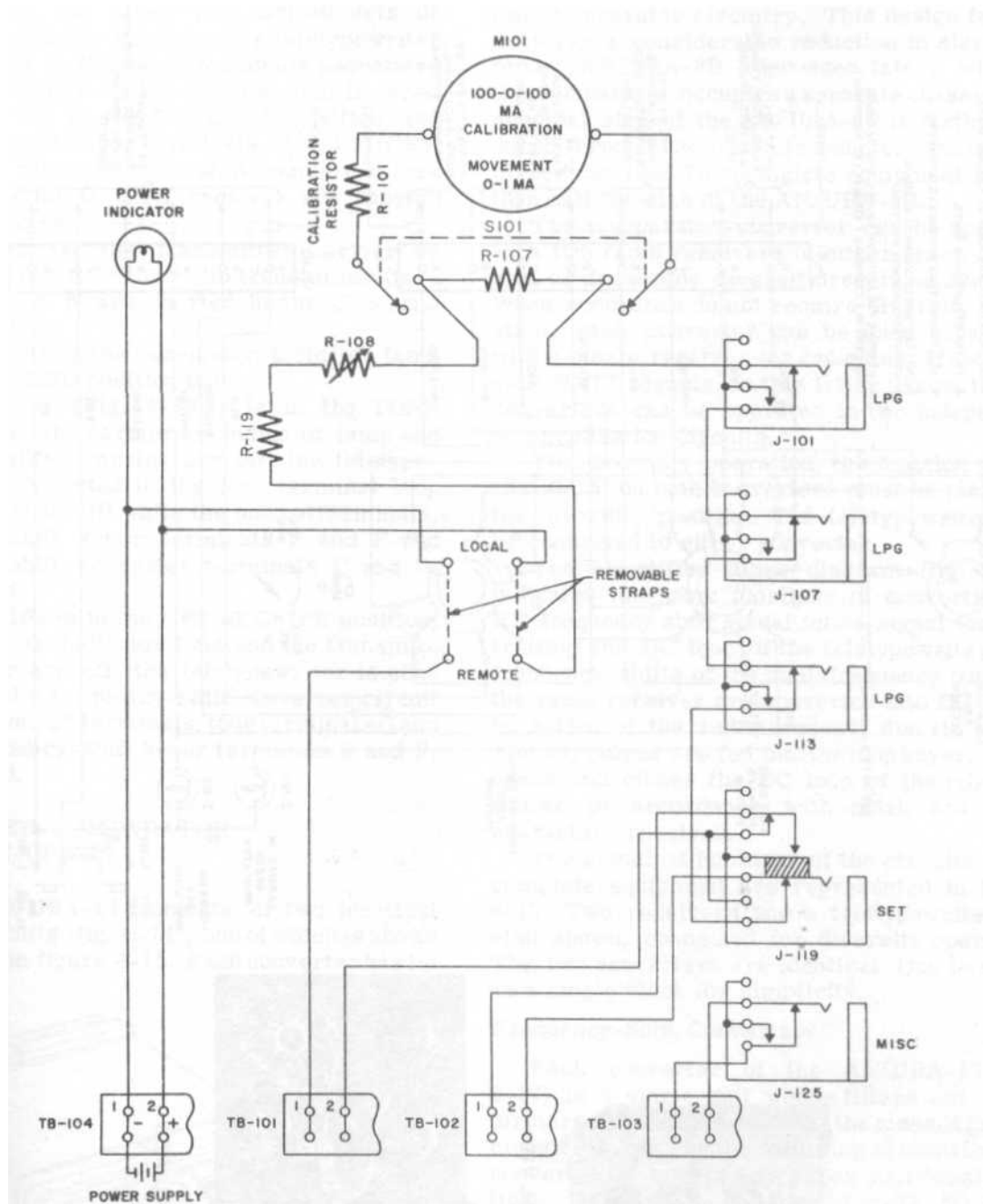


Figure 8-12.-Communication patching panel SB-1203/UG, single channel simplified schematic diagram.

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a transmitter power ON-OFF switch, a power-on indicator lamp, a carrier-on indicator lamp, and a three-position rotary selector switch. The rotary selector switch, S103, provides the following functions:

1. Connects a send-receive teletypewriter to (A) a frequency-shift keyer circuit (CFS send), (B) a frequency-shift converter or comparator circuit (CFS receive) or, (C) a tone terminal on a send receive basis (tone S/R).