

NAVSHIPS 94037(A)

Non-Registered

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PRELIMINARY
TECHNICAL MANUAL
for
COMMUNICATION PATCHING PANELS
SB-1203/UG and SB-1210/UGQ

RCA SERVICE CO.
SYSTEMS ENGINEERING FACILITY
ALEXANDRIA, VIRGINIA

DEPARTMENT OF THE NAVY
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LIST OF EFFECTIVE PAGES

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This Preliminary Technical Manual for Communication Patching Panels SB-1203/UG and SB-1210/UGQ, NAVSHIPS 94037(A), supersedes Preliminary Technical Manual for Communication Patching Panels SB-1203/UG and SB-1210/UGQ, NAVSHIPS 94037.

RECORD OF CORRECTIONS MADE

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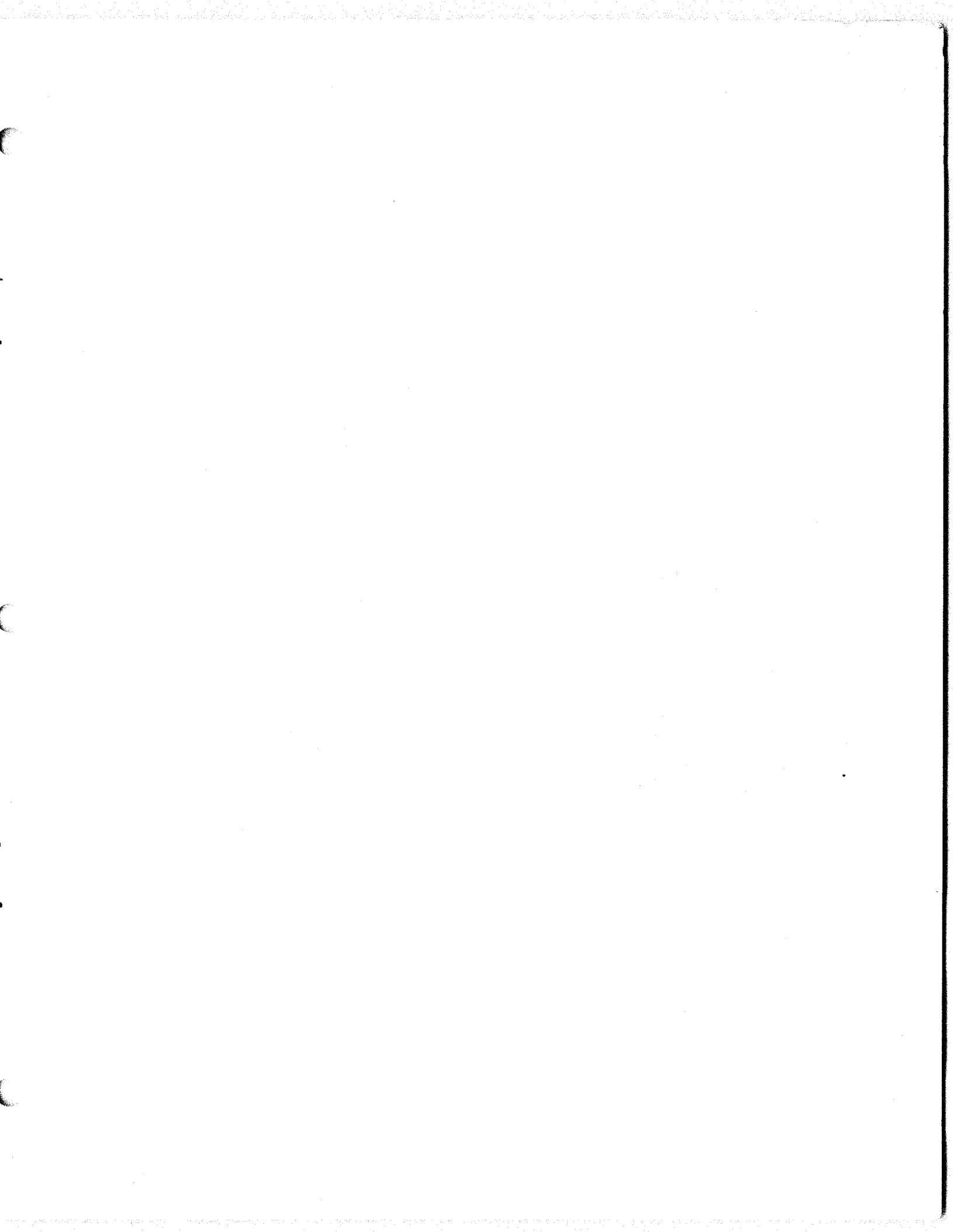
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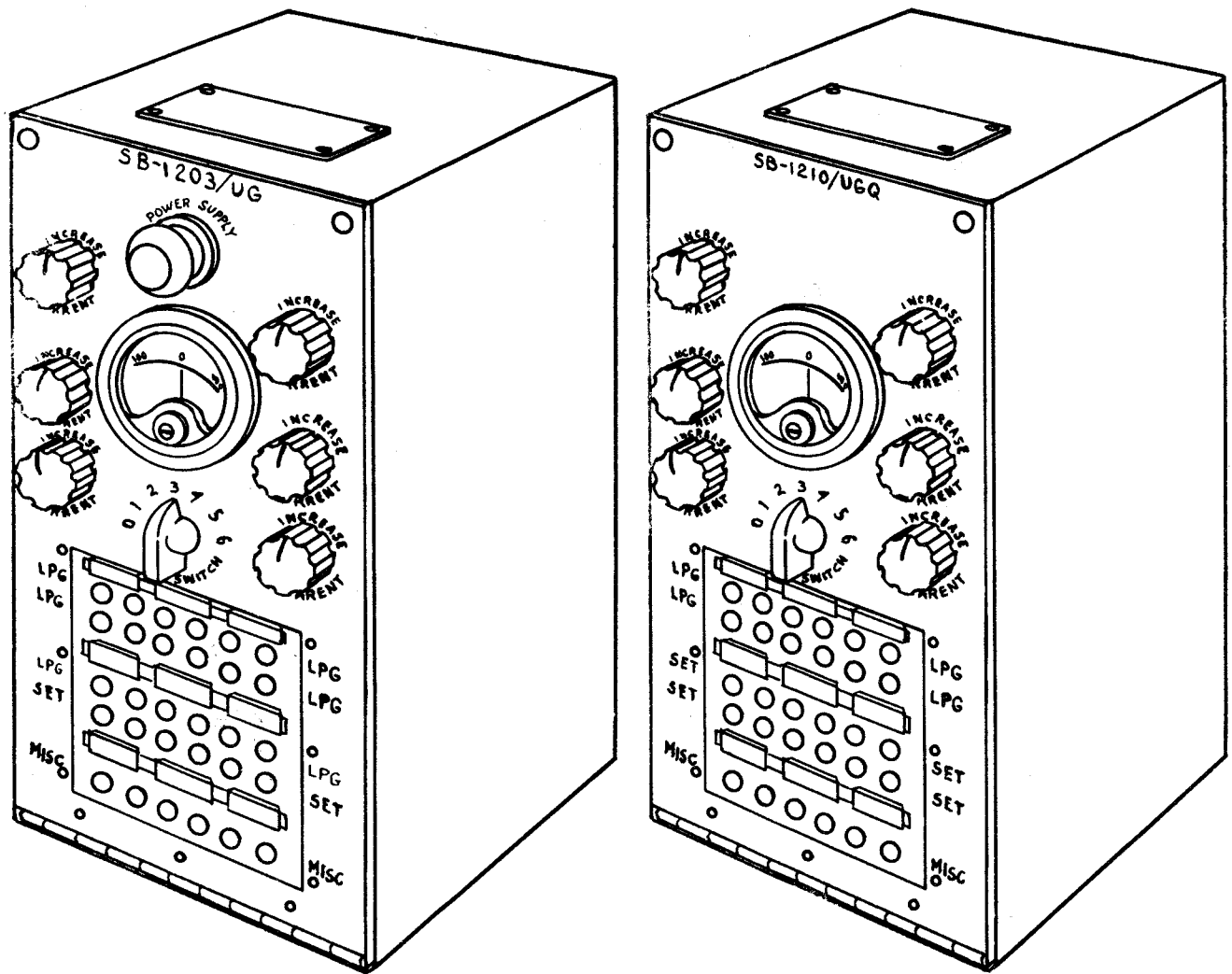


Figure 1-1. Communication Patching Panels SB-1203/UG, SB-1210/UGQ

SECTION 1

GENERAL INFORMATION

1-1. INTRODUCTION

The information contained in the preliminary technical manual is provided as an interim measure pending publication of a final technical manual applicable to these equipments. The drawing shown in figure 1-1 illustrates the arrangement of the various controls and components which are mounted on the front panel. In respect to function, application, and external appearance both Communication Patching Panels SB-1203/UG and SB-1210/UGQ are basically alike. The SB-1210/UGQ differs in the number of looping and set jacks per channel (see figure 1-1). The SB-1210/UGQ has been designed for patching requirements of secure teletypewriter channels.

1-2. GENERAL DESCRIPTION

Communication Patching Panels SB-1203/UG and SB-1210/UGQ are intended for shipboard installation to facilitate interconnection and transfer of teletypewriter equipment and various types of terminal equipment. Each panel provides for six channels with looping jacks and at least one set jack for each channel. Each panel also contains six miscellaneous jacks. Teletypewriter page printers, transmitter-distributors or reperforators are connected to the set jacks of a panel. Frequency shift converters, frequency shift keyers or tone modulators with d-c inputs or outputs are connected to the line terminals. The panels are also designed for mounting side-by-side when more than six channels are required. The front panel is hinged to allow access for mounting and also for access to components inside the enclosure.

1-3. FACTORY OR FIELD CHANGES

No factory or field changes have been made on these equipments.

1-4. QUICK REFERENCE DATA

a. Communication Patching Panel SB-1203/UG

- (1) Overall dimensions:
 - (a) Height - 12-1/8 inches
 - (b) Width - 5-13/16 inches
 - (c) Depth - 6 inches
- (2) Total Weight: 8 pounds (approximate)
- (3) Voltage: 115 d. c.
- (4) Current: 60 milliamperes
- (5) Jacks:
 - Looping (LPG): 3 per channel
 - Set (SET): 1 per channel

Miscellaneous (MISC): 1 per channel

b. Communication Patching Panel SB-1210/UGQ

- (1) Overall dimensions:
 - (a) Height - 12-1/8 inches
 - (b) Width - 5-13/16 inches
 - (c) Depth - 6 inches
- (2) Total Weight: 8 pounds (approximate)
- (3) Voltage: 115 d. c.
- (4) Current: 60 milliamperes
- (5) Jacks:
 - Looping (LPG): 2 per channel
 - Set (SET): 2 per channel
 - Miscellaneous (MISC): 1 per channel

SECTION 2
INSTALLATION

2-1. METHOD OF MOUNTING

Communication Patching Panels SB-1203/UG and SB-1210/UGQ are 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 in the top and upper 8 inches of both sides.

2-2. CONNECTION OF CABLES

All cables coming into the panel are terminated on the applicable terminal blocks TB-101 through TB-104 (also TB-105 on model SB-1210/UGQ). See figures 2-1 and 2-2. All teletypewriter equipment desired to be patched permanently in a looping circuit should be connected to a SET jack through TB-102 (also TB-103 on SB-1210/UGQ). Other miscellaneous teletypewriter equipments may be connected to the MISC jack through TB-103 (SB-1203/UG) and TB-104 (SB-1210/UGQ).

All radio adapters such as frequency shift keyers, converters, and tone modulated terminal equipment should be connected to TB-101 (LINE) (refer to Table 2-1).

NOTE

Patchcords CX-6932/U-(18 inches) and CX-6932/U-(36 inches) are not supplied as parts of these equipments. They are available in Navy Stock, as listed in Table 5-1.

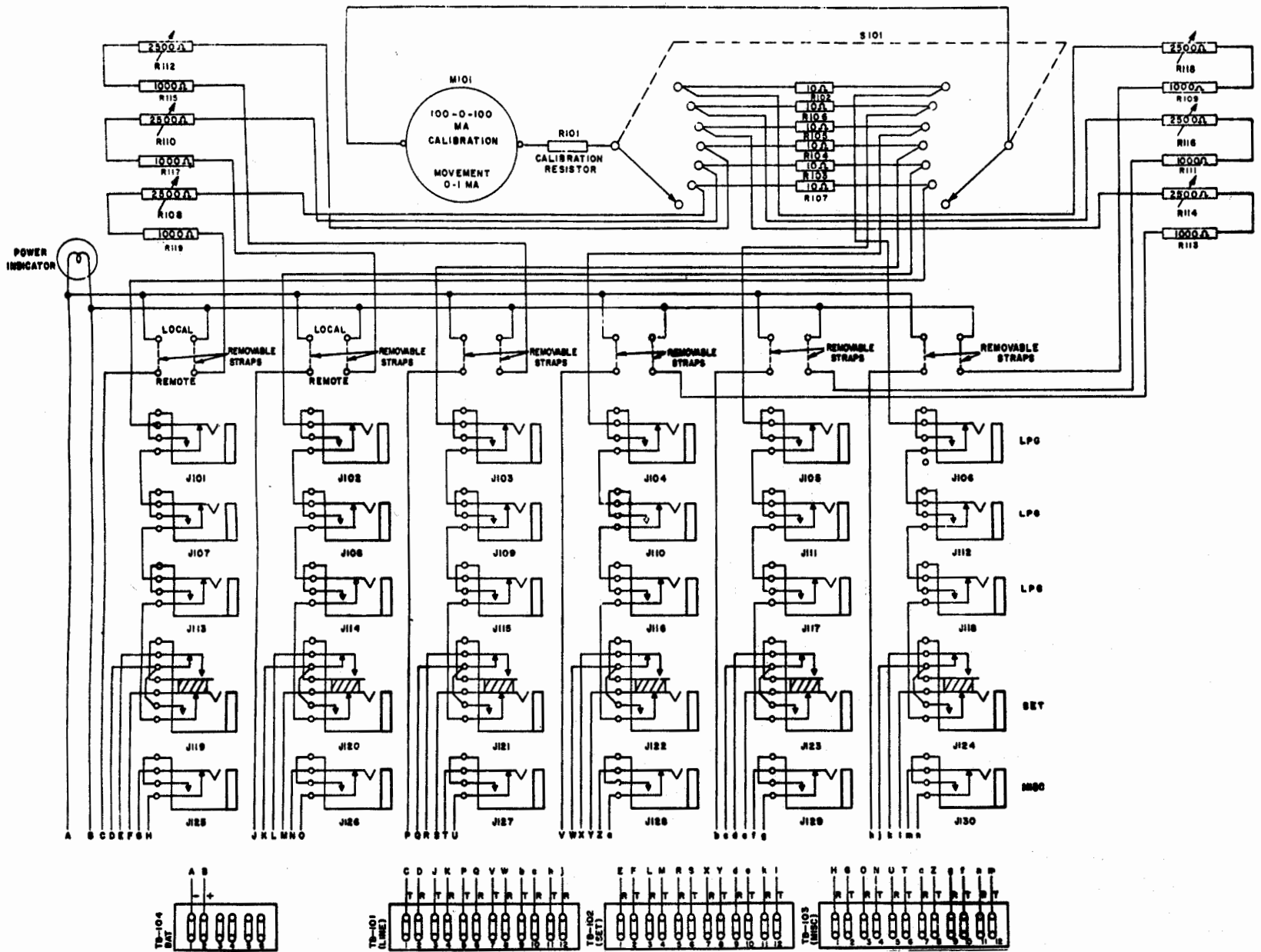


Figure 2-1

NAVSHIPS 94037(A) SB-1203/UG, SB-1210/UG
INSTALLATION

ORIGINAL

Figure 2-1. Communication Patching Panel SB-1203/UG, Schematic Wiring Diagram

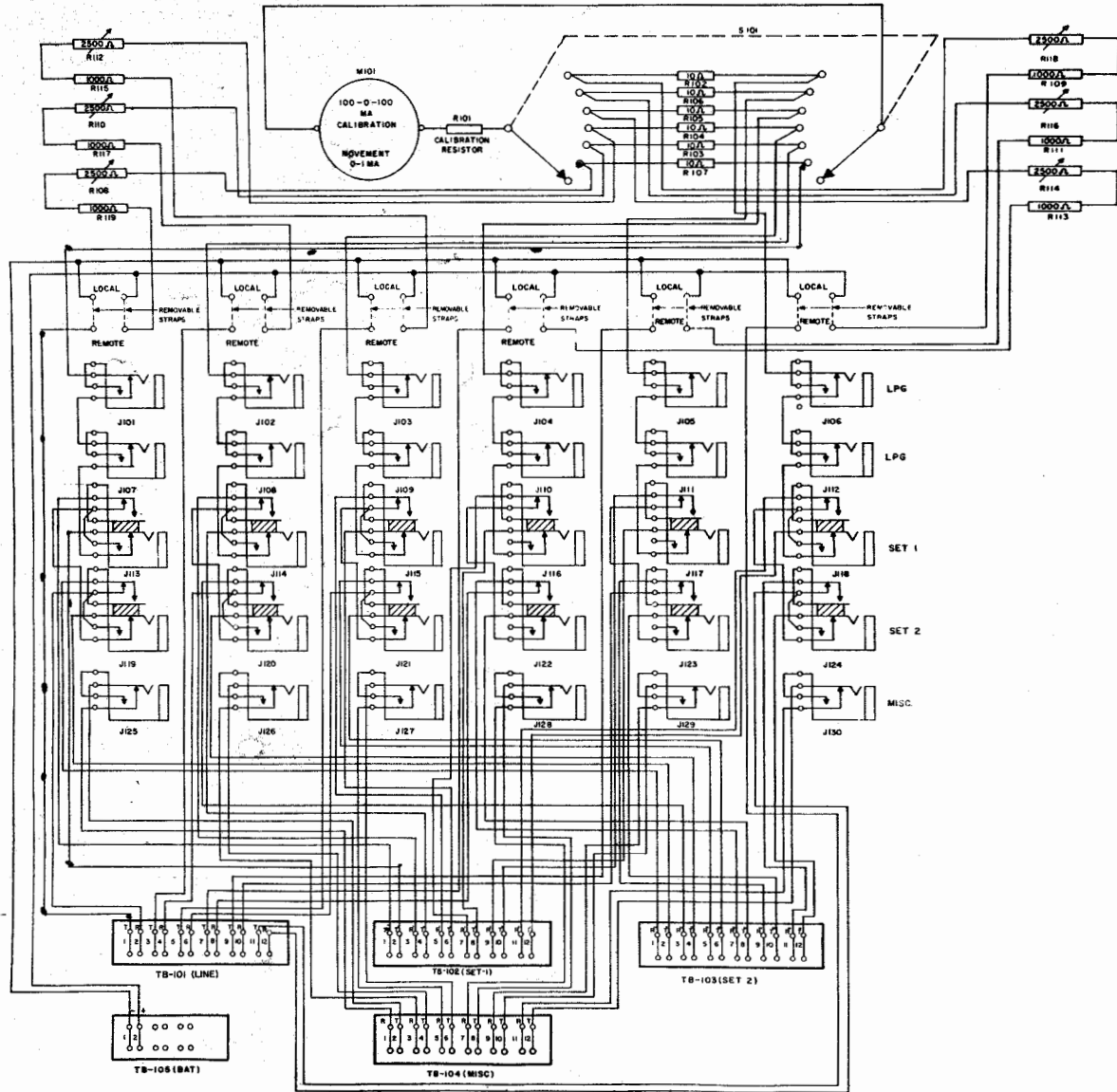


Figure 2-2. Communication Patching Panel SB-1210/UGQ,
Schematic Wiring Diagram

TABLE 2-1. COMMUNICATION PATCHING PANELS SB-1203/UG and SB-1210/UGQ
LOOPING CIRCUIT TERMINAL BOARD CONNECTIONS

CONNECTIONS		CHANNELS					
		1	2	3	4	5	6
JACKS	TERMINAL BOARD	Term. Nos.	Term. Nos.	Term. Nos.	Term. Nos.	Term. Nos.	Term. Nos.
LOOPING	TB-101 (LINE)	1-2	3-4	5-6	7-8	9-10	11-12
SET - 1	TB-102 (SET)	1-2	3-4	5-6	7-8	9-10	11-12
SET - 2*	TB-103 (SET)	1-2	3-4	5-6	7-8	9-10	11-12
MISCELLANEOUS	TB-103 (MISC) SB-1203/UG	1-2	3-4	5-6	7-8	9-10	11-12
	TB-104 SB-1210/UGQ	1-2	3-4	5-6	7-8	9-10	11-12
POWER SUPPLY	TB-104 (BAT) SB-1203/UG	1-2	1-2	1-2	1-2	1-2	1-2
	TB-105 SB-1210/UGQ	1-2	1-2	1-2	1-2	1-2	1-2

* Model SB-1210/UGQ only.

Connected loops which require local line current are supplied by connecting the removable straps as shown in figures 4-1, 4-2.

Loops furnishing their own line current are connected by strapping across the two lower terminals shown immediately over the word "REMOTE" in the above figures.

Careful consideration should be given to which teletypewriter equipments are connected in the various looping circuits. Circuit layout should endeavor to avoid patches in normal operation. If most used combinations of radio adapters and teletypewriter equipments can be determined and connected in the same loop, considerable patching can be eliminated during operation.

The local source of line current, 115v. d. c., should be connected to terminals 1 and 2 of TB-104 or TB-105 on SB-1210/UGQ, which are paralleled across the panel for each loop. (See figures 2-1 and 2-2.)

SECTION 3
OPERATOR'S SECTION

3-1. GENERAL

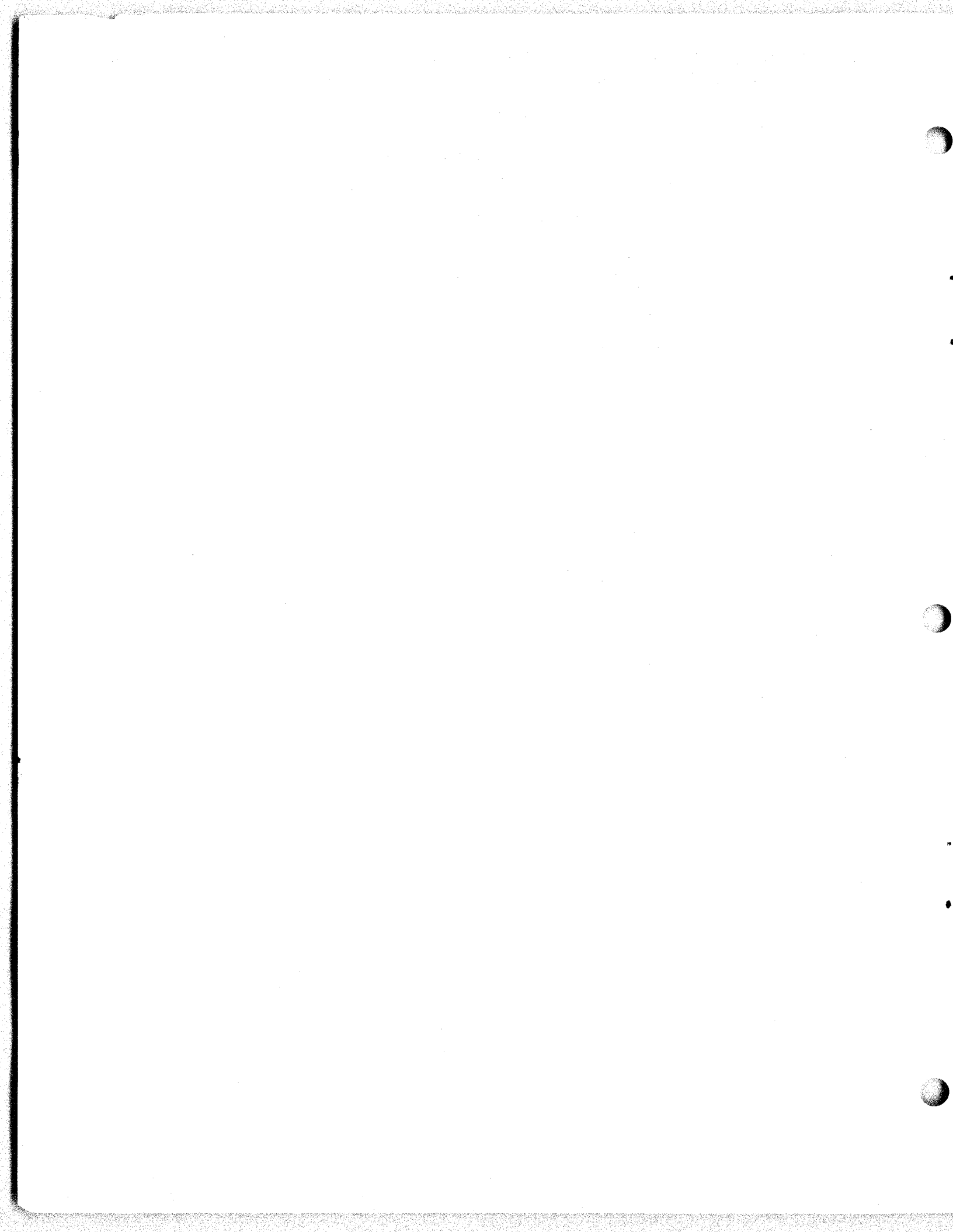
All controls are identified by the front panel markings for ease of identification and are arranged for ease of operation, figure 1-1. The information in the following paragraphs provides step-by-step procedures for operation of Communication Patching Panels SB-1203/UG and SB-1210/UGQ.

3-2. METHOD OF USE

- a. Turn all line current rheostats counterclockwise to allow passage of minimum current.
- b. Turn on local line current supply at power unit. The indicator light I-101 on model SB-1203/UG should go on. Model SB-1210/UGQ has no indicator light.
- c. If the desired teletypewriter equipment is wired in the same looping circuit as the radio adapter to be used, no patchcords are required.
- d. If the desired teletypewriter is not wired in the same looping circuit as the radio adapter to be used, insert one end of the patchcord in the proper teletypewriter jack and the other end into one of the looping jacks (LPG) of the desired channel. The teletypewriter originally in this channel may be made inoperative by inserting a dummy plug* in the set jack (SET), or it may be patched to the looping jack (LPG) of another channel in the same manner as described above.

*WARNING

DO NOT USE METAL SHELL PLUGS. ALWAYS PLUG IN
SET JACK FIRST.



SECTION 4

PRINCIPLES OF OPERATION

4-1. OVERALL FUNCTIONAL DESCRIPTION

Communication Patching Panels SB-1202/UG and SB-1210/UGQ each contain six looping circuits. The word looping is intended to indicate that the jacks are connected in series with the teletypewriter equipment and radio adapters thus forming a complete loop as shown in figures 4-1 and 4-2.

4-2. CIRCUIT ANALYSIS

The following circuit analysis is for one typical channel, figures 4-1 and 4-2. The remaining five channels are exactly the same with the exception of component symbol numbers. A radio adapter is connected to terminals 1 and 2 of terminal board TB-101 (LINE). When line current is not supplied by the 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 means of removable straps. It should be noted that this local current is required for loops in which line current is not supplied. The power indicator lamp (I-101) on model SB-1203/UG only, indicates when this local current is being used or is available. The 1000-ohm resistor (R-119) limits the current in any loop to a maximum of approximately 100 milliamperes.

The meter circuit consists of the milliammeter (M-101), a calibration resistor (R-101, 890 ohms minus meter resistance), and a 10-ohm meter shunt resistor (R-102). The meter selector switch (S-101) is used to place the meter into any of the six channels or in the OFF position.

Line current in each channel is controlled by a 2500-ohm rheostat (R-108). One terminal of the rheostat is connected to the first jack (J-101) of a pair of looping jacks. The second looping jack (J-107) is joined to a set jack (J-113). The set jack is connected to the teletypewriter equipment at terminals 1 and 2 of TB-102 (or terminals 1 and 2 of TB-103 for SB-1210/UGQ). This completes the current between the radio adapter and the teletypewriter equipment.

By inserting a plug into the set jack (J-119) the sleeve and tip of the plug are connected to terminals 1 and 2 of TB-102 respectively. Refer to figures 4-1 and 4-2. This action connects the plug to the teletypewriter equipment wired at terminals 1 and 2. In addition, the remainder of the loops circuit is simultaneously disconnected from terminals 1 and 2 and closed.

Thus, if it is desired to transfer a teletypewriter from one channel to any other channel, the teletypewriter is patched from its corresponding set jack to one of the two looping jacks in the channel to be used. If it is preferred that the teletypewriter equipment wired in this channel not operate, a dummy plug is inserted into the jack (J-119).

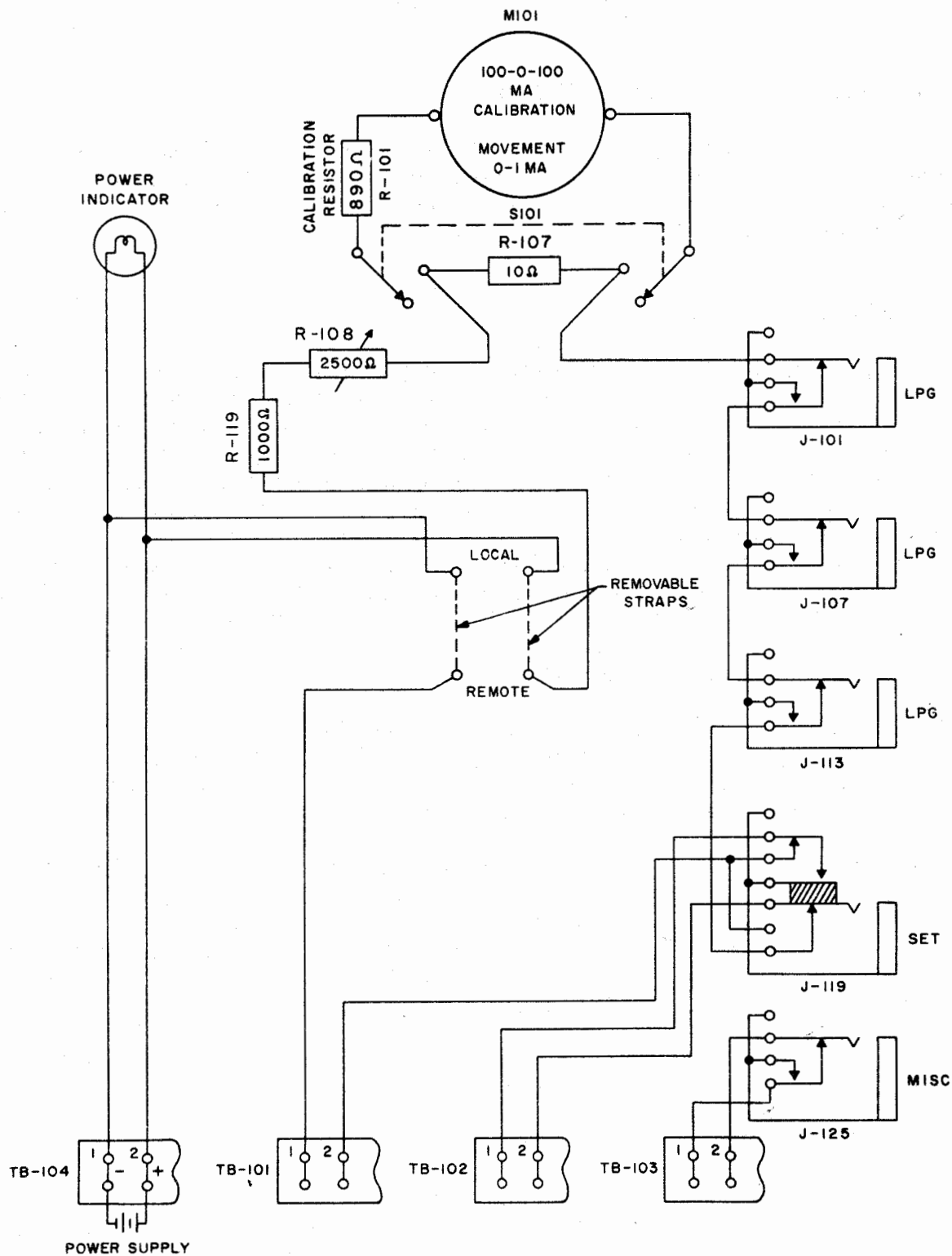


Figure 4-1. Communication Patching Panel SB-1203/UG, Single Channel
Schematic Diagram

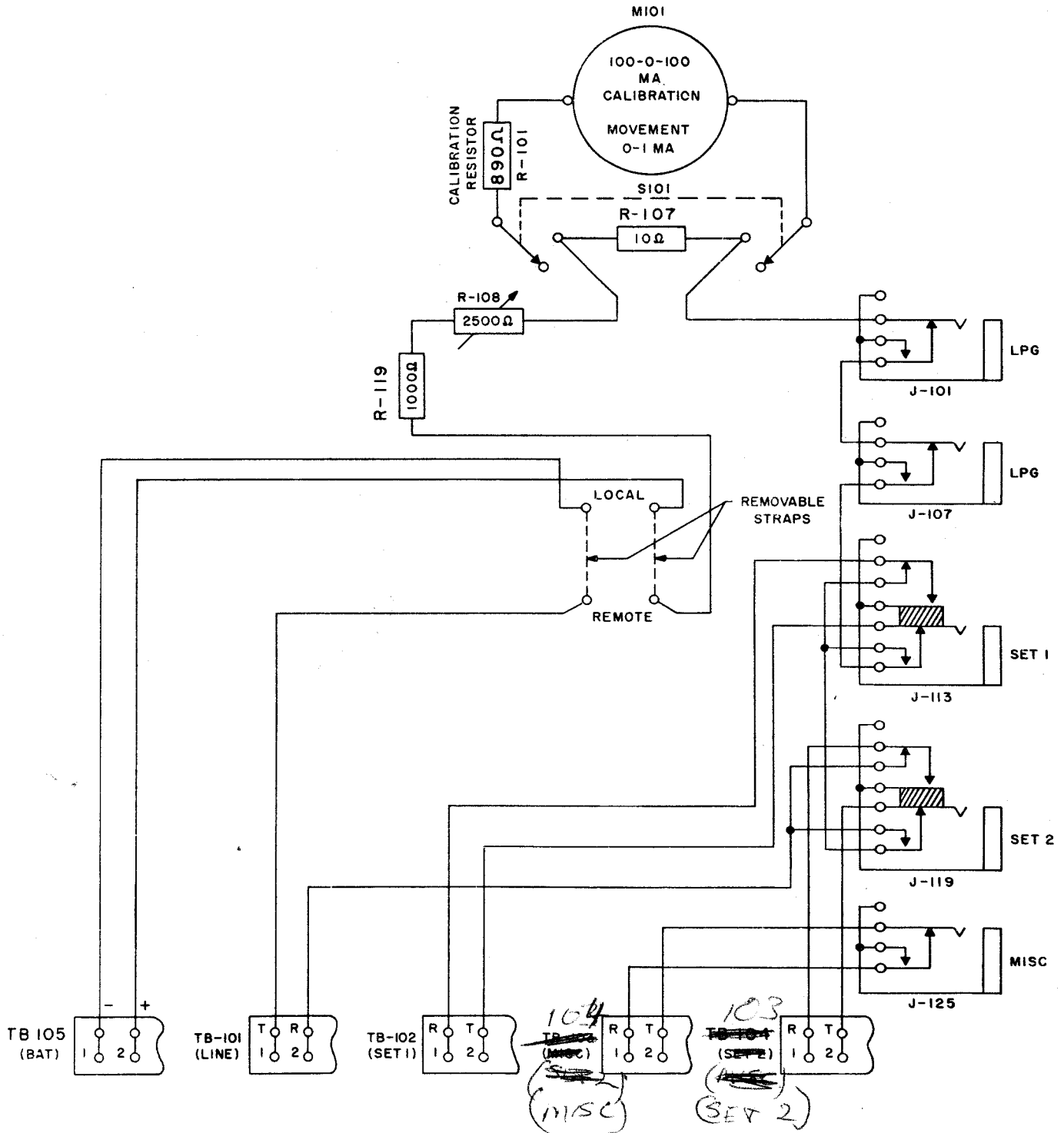


Figure 4-2. Communication Patching Panel SB-1210/UGQ, Single Channel Schematic Diagram

Paragraph
4-2

NAVSHIPS 94037(A) SB-1203/UG, SB-1210/UGQ
PRINCIPLES OF OPERATION

An additional teletypewriter may be connected to the miscellaneous jack and can be patched into any of the channels.

SECTION 5

PARTS LIST

5-1. INTRODUCTION

Reference designations (previously referred to as circuit symbols or reference symbols) have been assigned to identify all maintenance parts of the equipment. They are used for marking the equipment (adjacent to the part they identify) and are included on drawings and the parts list. The letters of a reference designation indicate the kind of part (generic group), such as meters (M-101), resistors (R-101), and switches (S-101).

5-2. MAINTENANCE PARTS LIST

Table 5-1 lists all maintenance parts. Column 1 lists the reference designation of the various parts. Column 2 refers to explanatory notes that appear in paragraph 5-3. Column 3 gives the name and describes the various parts. Column 4 indicates how the part is used and gives the functional location in the equipment.

5-3. NOTES

All items apply to models SB-1203/UG and SB-1210/UGQ unless otherwise indicated.

The numbers appearing in column 2 represent the following statements:

1. Replace from stock as required.
2. Not supplied with equipment.
3. Used on model SB-1203/UG only.
4. Used on model SB-1210/UGQ only.

TABLE 5-1. COMMUNICATION PATCHING PANELS SB-1203/UG, SB-1210/UGQ
MAINTENANCE PARTS LIST

Symbol Desig.	Notes	Name and Description	Locating Function
SB-1203/UG		Panel, Patching, Navy Type	
SB-1210/UGQ		Panel, Patching, Navy Type	
A-101	3	Box (Cabinet), Patching, communication, aluminum, QQ-A-327B	Used to house components at panel
A-101	4	Box (Cabinet), Patching, communication, aluminum, QQ-A-52SH34	Used to house components at panel

**TABLE 5-1. COMMUNICATION PATCHING PANELS SB-1203/UG, SB-1210/UGQ
MAINTENANCE PARTS LIST (Con't)**

Symbol Desig.	Notes	Name and Description	Locating Function
A-102	3	Panel, Patching, communication, aluminum	Front panel, mounts components
A-102	4	Panel, Patching, communication, aluminum	Front panel, mounts components
E-101	3	Panel (Insulator), Jack, Plastic Phen, Resin, type CFG., Black MIL-P-14D	Used to insulate jack from panel
E-101	4	Panel (Insulator), Jack, Plastic Phen, Resin, type CFG., Black MIL-P-14D	Used to insulate jack from panel
E-102		Knob, Pointer, black phenolic, molded	Knob for channel selector switch S-101
E-103		Knob, round black, phenolic, brass	Knob for line current rheostats
E-104		Lug, terminal, copper tinned	Used on TB-104
E-105		Lug, terminal, #4, 27/64 in. lg. x .356 wide x .02 thk w/5/32 in. dia hole, copper tinned	Used on TB-101, TB-102, TB-103
H-101		Hinge, Piano, 1 in. wide O.A. x 5-1/2 in. lg., stainless steel	Hinges panel to cabinet
I-101	3	Light, Pilot, assembly, clear w/ NE-51 Glow Lamp	Local power indicators
J-101		Jack, telephone, looping	Looping jack in panel
J-102 thru J-118	3	Same as J-101	Same as J-101
J-102 thru J-112	4	Same as J-101	Same as J-101

TABLE 5-1. COMMUNICATION PATCHING PANELS SB-1203/UG, SB-1210/UGQ
MAINTENANCE PARTS LIST (Con't)

Symbol Desig.	Notes	Name and Description	Locating Function
J-119	3	Jack, telephone, 2 cond plug 6.25 in. dia, 3-1/8 in. lg. x 1/2 in. wd x 1-1/8 in. h. incl. term; one break before make and one make before set of contacts	Set jack in channel
J-120 thru J-124	3	Same as J-119	Same as J-119
J-113	4	Jack, telephone, 2 cond plug 6.25 in. dia, 3-1/8 in. lg. x 1/2 in. wd x 1-1/8 in. h. incl. term; one break before make and one make before set of contacts	Set jack in channel
J-114 thru J-124	4	Same as J-113	Same as J-113
J-125 thru J-130	4	Same as J-101	Same as J-101
J-125 thru J-130	3	Same as J-101	Same as J-101
M-101		Meter, milliampere, d. c. scale 100-0-100 DC ma equal to 2x1381 (1421) mfd by Sun Electric or Gov't No. MR 25W141 DC MA	Measures current in channel
N-102	3	Nameplate, aluminum alloy, mfd in accord w/MIL-P-15024B	Name plate for unit
N-102	4	Nameplate, aluminum alloy, mfd in accord w/MIL-P-15024B	Name plate for unit
N-103		Strip, designation WECO 99B (modified)	Designation strip
N-104		Same as N-103	Same as N-103
N-105		Strip, designation, WECO 99A (modified)	Designation strip

TABLE 5-1. COMMUNICATION PATCHING PANELS SB-1203/UG, SB-1210/UGQ
MAINTENANCE PARTS LIST (Con't)

Symbol Desig.	Notes	Name and Description	Locating Function
P-101	2	Plug, telephone; 2 cond, single shank, tubular, black bakelite shell, dimensions; a. shank, 1/4" dia x 1-1/4" lg. b. shell, 1/2" dia. c. overall length 2-7/8". lug cable termination; PJ-055B engraved on shell	Used as dummy plug
R-101		Resistor, fixed, wirewound, 890 ohms $\pm 1\%$ tol, 1 watt, vitreous enamel. 2 radial wire leads	Meter resistor
R-102		Resistor, fixed wirewound, 10 ohms $\pm 1\%$, 1 watt, vitreous enamel, 15/32 in. lg. w/lug terminals	Meter shunt resistor
R-103 thru R-107		Same as R-102	Same as R-102
R-108		Rheostat, wirewound, 2500 ohms 12-1/2 watts, ceramic, vitreous enamel w/welded terminals and tinned wire leads	Used to vary line current in channels
R-109		Resistor, fixed, wirewound, 1000 ohms, 10 watts, ceramic, w/vitreous enamel 1-3/4 in. lg. x 5/16 in. core. Welded terminals and tinned wire leads	
R-110		Same as R-108	Same as R-108
R-111		Same as R-109	Same as R-109
R-112		Same as R-108	Same as R-108
R-113		Same as R-109	Same as R-109
R-114		Same as R-108	Same as R-108
R-115		Same as R-109	Same as R-109
R-116		Same as R-108	Same as R-108
R-117		Same as R-109	Same as R-109

TABLE 5-1. COMMUNICATION PATCHING PANELS SB-1203/UG, SB-1210/UGQ
MAINTENANCE PARTS LIST (Con't)

Symbol Desig.	Notes	Name and Description	Locating Function
R-118		Same as R-108	Same as R-108
R-119		Same as R-109	Same as R-109
T-101	4	Switch, rotary, laminated, phenolic insulation w/positive 30 index, 2 pole 2 section, 1 pole per section, 7 position	Channel selector switch
TB-101		Block, Terminal, 12 terminals (double row) miniature, 5 in. lg. x 11/16 in. wide	Terminal board for panel
TB-102		Same as TB-101	Same as TB-101
TB-103		Same as TB-101	Same as TB-101
TB-104		Block, Terminal, 6 terminals (double row), miniature, 2-5/8 in. lg x 11/16 in. wide	Local and Remote current terminal connector
TB-105	4	Same as TB-101	Same as TB-101
TB-106		Board, Terminal; resistor meter plastic laminated, silicone resin MIL-P-997B	Meter, resistor mounting board
W-101	2	Cord, switchboard, CX-6932/U (18 inches) FSN N5995-675-4540	Patching cord
W-102	2	Cord, switchboard, CX-6932/U (36 inches) FSN N5995-675-4587	Patching cord

