GE MOBILE RADIO

OPERATING MANUAL
for
SERIES 2500, 503 and 502 CONSOLES
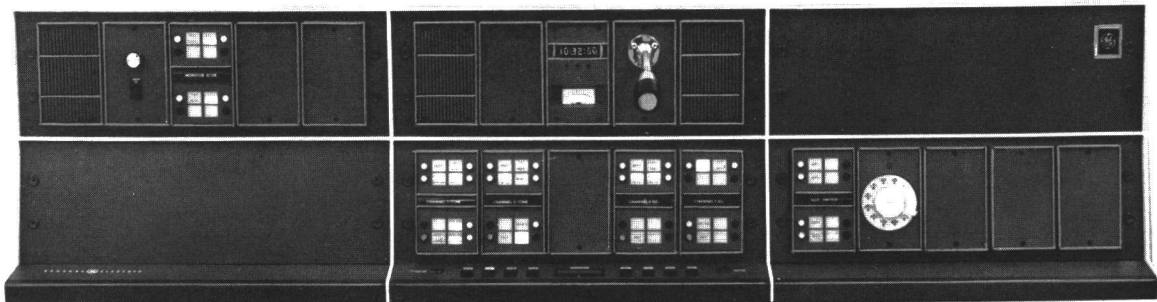
SERIES 2500

SERIES 503

SERIES 502
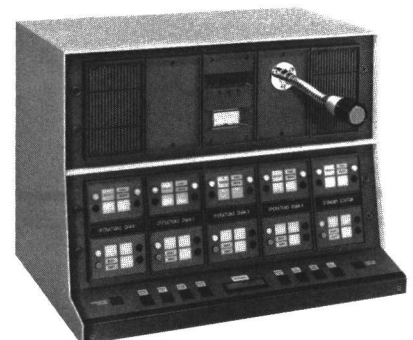
GENERAL GE ELECTRIC

INTRODUCTION

The General Electric Series 2500, 503 and 502 Consoles are highly versatile consoles capable of multi-station control. The 2500 Series Console may be equipped with as many as 25 channel modules, each controlling a station.

The Series 503 and 502 Consoles may be equipped with up to five channel modules. The timed mute function and headset adapter are standard.

Each console contains two speakers, the SELECT speaker and the UNSELECT speaker. Pushing the SELECT pushbutton on a given channel module selects that channel (station) as the operating channel. Audio from the selected channel is routed to the SELECT speaker. Audio from all unselected channel modules is routed to the UNSELECT speaker. Audio levels are adjusted by the SELECT and UNSELECT volume controls located on the Common Control Shelf. Two muting controls allow the operator to mute the unselected audio (UNSEL MUTE) or to mute all audio (ALL MUTE) from both speakers.

The SELECT switches are normally interlocked so that when a second channel is selected, the first channel is released. The audio from the released channel is now routed to the unselect speaker. Operating the SIMUL SELECT switch enables two or more channels to be received on the SELECT speaker.

An incoming message on any channel causes the CALL lamp on the associated channel module to flash on and off. All status windows are illuminated when the adjacent pushbutton switch is operated or when the associated function is operating. Detailed operating information on all controls and indicators is provided in the OPERATIONS section of this manual.

OPERATING PROCEDURES

Two-way FM radio systems must be operated in accordance with the applicable rules and regulations. As an operator of two-way radio equipment, you must be thoroughly familiar with the rules that apply to your particular type of radio operation. Following these rules will help to eliminate confusion and will assure the most efficient use of existing radio channels.

CHANNEL SHARING

Radio frequencies or channels, like our highways, are a shared public resource. Each operator must cooperate with others on the same channel and wait his turn if the channel is being used. Courtesy toward your channel neighbor is essential at all times.

TO ORIGINATE A CALL

1. Address the unit you are calling and identify yourself.

   Station: "Car 4, from Headquarters."

2. Wait for the unit called to answer.

   Mobile Unit: "Car 4 . . . go ahead."

3. Complete your message.

   Station: "Report back to office when job is completed."

4. Wait for acknowledgment from mobile, then sign off.

   Mobile Unit: "Car 4, Ten Four".

   Station: "KEJ419."

TO RECEIVE A CALL

1. Acknowledge the call as quickly as possible.

   Mobile Unit: "Unit 7 to Headquarters."

2. Identify Yourself.

   Station: "Unit 7."

3. Caller will complete message and wait for acknowledgment.

   Mobile Unit: "Will report in 10 minutes."

4. Base station acknowledges and signs off.

   Station: "OK, KEJ419."

Always wait for an acknowledgment, never assume your message was received and understood.
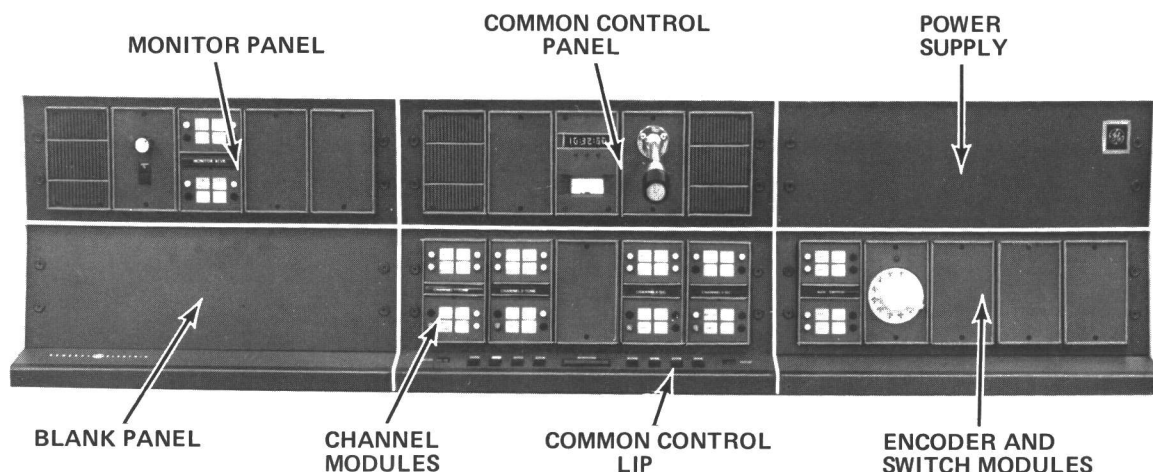
When receiving a message, never guess what the other party is trying to tell you. When you are not sure of the message being sent to you, ask the other station to repeat.

The examples given in this booklet are intended as a general guide. Many radio services such as police, logging, etc. have special procedures that should be followed. The above examples illustrate the most commonly used practices in Two-Way Mobile radio conversations.
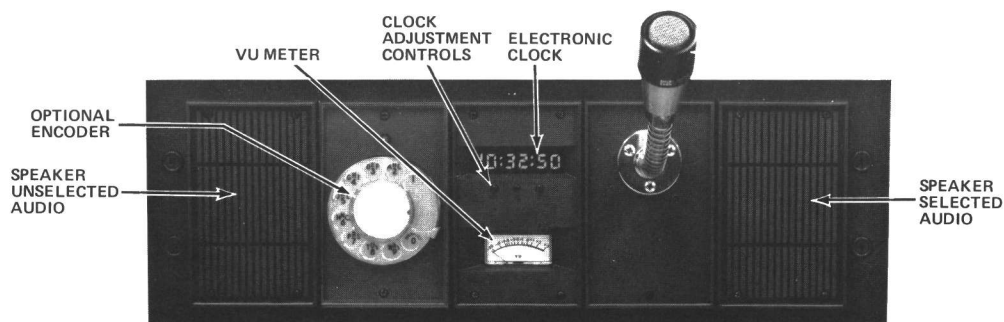
OPERATION

Shown below is a typical Series 2500 Console equipped with Channel Modules, Encoder and Switch Modules and Monitor Panel. The Power Supply, Common Control Panel, and Common Control Lip are standard on all consoles. The Series 503 and 502 Consoles consists of a Common Control Panel and Lip, Remote Power Supply, and space for up to five channel modules.

MONITOR PANEL   COMMON CONTROL PANEL   POWER SUPPLY

BLANK PANEL   CHANNEL MODULES   COMMON CONTROL LIP   ENCODER AND SWITCH MODULES

COMMAND CONTROL PANEL

CLOCK ADJUSTMENT CONTROLS   ELECTRONIC CLOCK

VU METER

OPTIONAL ENCODER

SPEAKER UNSELECTED AUDIO

SPEAKER SELECTED AUDIO

The Command Control Panel has all of the necessary circuitry to handle up to 25 individual transmit/receive modules.
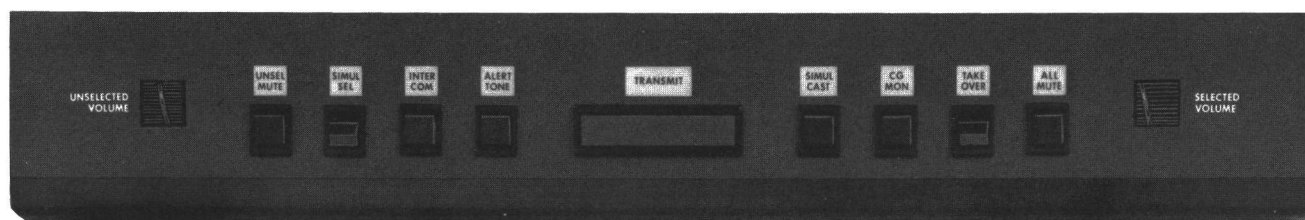
The electronic digital clock has a highly visible LED display which will hold its time for 30 seconds during a power outage. It will flash if a power interruption was long enough to warrant an adjustment of time. To stop the LED display from flashing, momentarily, depress the PTT bar.

The electronic digital clock is normally supplied to display the time in the 24-hour format. To change to the 12-hour format, a service technician should perform the proper strapping as described in the applicable maintenance manual.

To set the correct time of the electronic digital clock perform the following using the three pushbutton switches labeled "H", "S" and "F" under the LED display:

1. Depress and hold the "F" pushbutton switch until the correct hour appears.
2. Depress and hold the "S" pushbutton switch until the minutes display is one or two minutes more than the actual time.
3. Let the seconds display count until the seconds displayed is "00". Then depress the "H" pushbutton switch and hold until the actual time is the same as displayed. Releasing the "H" pushbutton switch starts the clock.

COMMON CONTROL LIP

SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION
UNSELECTED Volume	Adjusts audio level of unselected speaker.
UNSEL MUTE (Alternate Action/ Momentary in Series 503)	MUTES audio from unselected speaker.
SIMUL SEL (Two position)	Enables two or more channels to be operated as "Selected" channels.
INTERCOM (Momentary)	When depressed, establishes communications between the console and a base station or with parallel consoles.
ALERT TONE (Momentary)	When depressed, transmits a 1 kHz tone on all selected channels.
TRANSMIT (Momentary)	Keys transmitter on selected channel(s). Display illuminates (red) when TRANSMIT bar is pushed.
SIMUL CAST (Momentary)	Keys a pre-established group of transmitters.
CG MON (Momentary, locking)	Disables Channel Guard Decoder on all selected receiver channels. CG MON indicator lights when operated. Reset decoder by tapping the TRANSMIT bar.
TAKE OVER (Two position)	When operated, prevents a parallel control unit from keying any selected transmitter.
ALL MUTE (Alternate Action/ Momentary in Series 503)	When depressed initially it partially mutes audio from both speakers. When depressed a second time, full audio is heard. When the console is equipped with timed muting, momentarily pressing the all MUTE switch will cause the audio to be muted for a preset length of time.
SELECTED VOLUME	Adjusts audio level of selected speaker.

CHANNEL MODULES
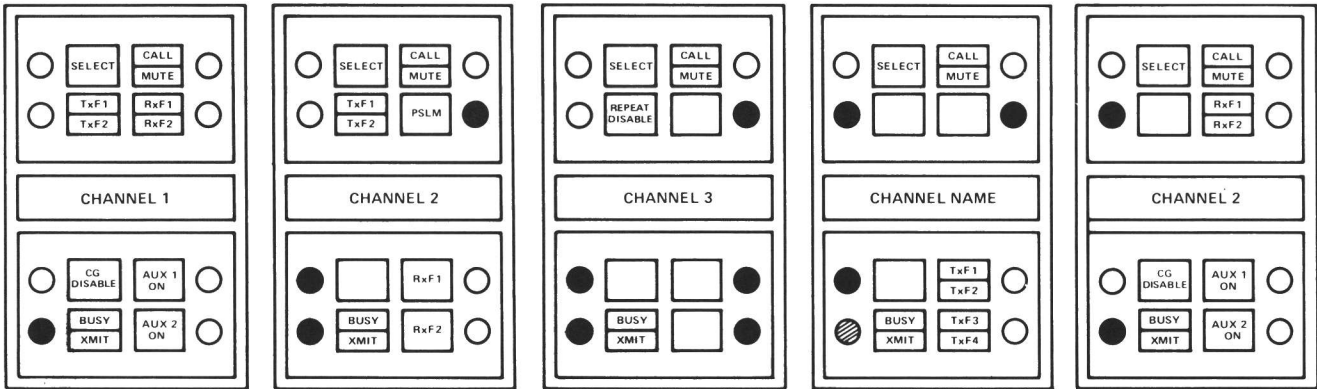
- ○ Switch Location
- ● Dummy Plug
- ◉ Instant Transmit Switch

SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION	
SELECT	Activates module; routes receive audio to select speaker; permits transmitter keying by TRANSMIT bar on Common Control Lip; deactivates previously selected channel module(s); and routes audio from previously selected channel to the unselected speaker. Window of selected channel module lights.	
CALL/MUTE	CALL:	Display flashes when receive audio is present.
	MUTE:	When depressed, mutes the receive audio on its channel and illuminates window. The level is adjustable. (If the module is not selected it may be muted by the UNSEL MUTE switch on the Common Control Lip.)
XMIT/BUSY (Momentary)	XMIT:	Keys associated transmitter. Display illuminates (red) when XMIT switch is depressed or when TRANSMIT bar switch is pushed while the SELECT function is activated.
	BUSY:	Display illuminates when SELECTED transmitter is keyed by a paralled 2nd console.

SWITCH AND CONTROL FUNCTIONS

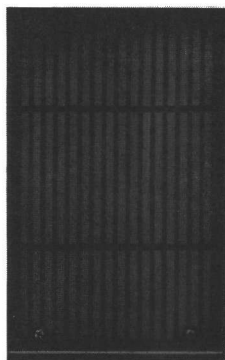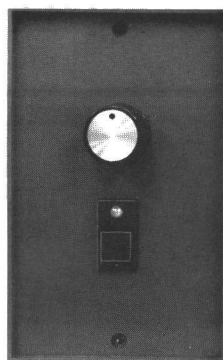| CONTROL	FUNCTION
CG DISABLE (Alternate Action/ Momentary)	Disables Channel Guard decoder to permit receiver monitoring. Display illuminates when CG decoder is disabled. To reset CG decoder, push CG DISABLE switch again.
REPEATER DISABLE (Alternate Action)	Disables repeater while switch is operated. Display illuminates when repeater is disabled. To enable repeater after disable, press the REPEATER DISABLE switch again.
TxF1, TxF2 TxF3, TxF4	SELECTs frequency for transmit function F1, F2, F3 or F4.
PSLM	When lit, indicates that receive channels, are being searched. Operates when RxF1 and RxF2 pushbuttons are both pushed in or when both switches are in the OFF position.
RxF1 and RxF2 (Alternate Action)	Selects receive frequency and causes receive frequency indicator to light.
RCVR 1 (Alternate Action)	Selects Receiver 1 for monitoring.
RCVR 2 (Alternate Action)	Selects Receiver 2 for monitoring.
RCVRS 1 & 2	When lit, indicates both receivers are being monitored simultaneously. "ON" when both RCVR 1 and RCVR 2 switches are engaged or in the "OFF" position.
AUX 1, AUX 2	Controls an externally connected device. Window is illuminated when function is enabled.
VOLUME	Adjusts receive audio level on that channel.

ENCODER AND SWITCH MODULES
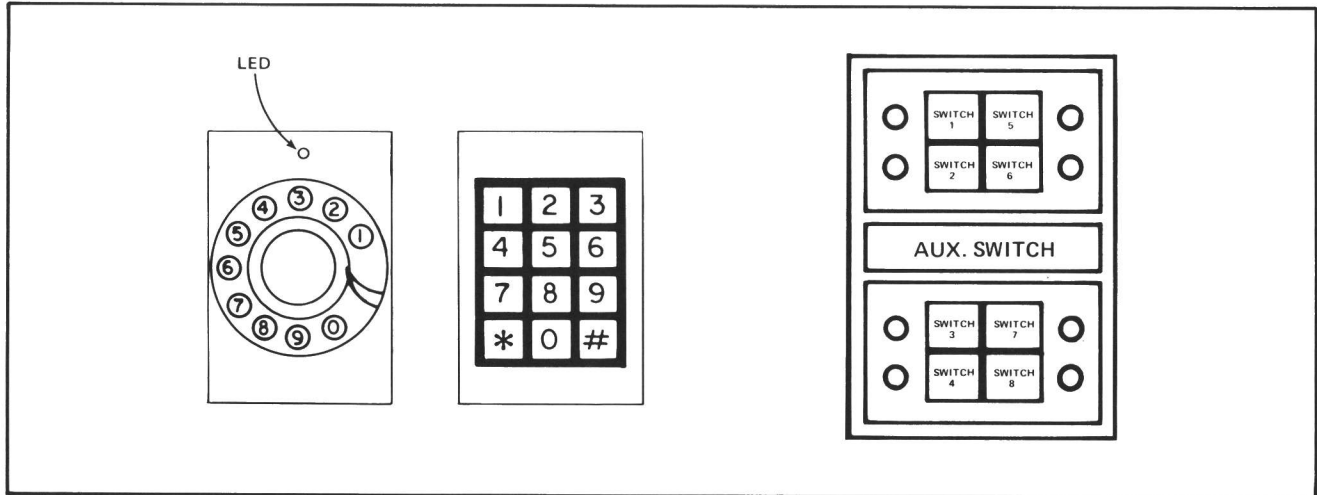
SWITCH AND CONTROL FUNCTIONS

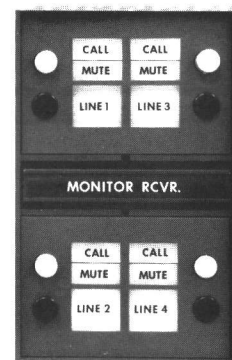| CONTROL	FUNCTION
ENCODER	Transmits the numbers dialed or punched up on the encoder keyboard. When lit, the LED indicates transmitter is "ON".
SWITCH 1-8 (Alternate Action/ Momentary)	Controls associated external device. Window is illuminated when function is enabled.

## MONITOR MODULES

SPEAKER

CONTROL PANEL

MONITOR MODULE

SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION
MONITOR MODULE MUTE	When depressed, mutes receive audio on its channel and illuminates MUTE display. (MUTE level is internally adjustable).
CALL	Flashes when receive audio is present.
LINE 1-4	When lit, indicates LINE is being monitored.
CONTROL PANEL MASTER VOLUME CONTROL	Adjusts receive audio level of all monitor receivers in a particular section.
MUTE	Mutes all receive audio lines in a particular monitor section.
MUTE LAMP	When lit, indicates all receive audio lines on that monitor section are muted.

HEADSET/FOOTSWITCH
SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION	
EAR PIECE LEVEL	Adjusts receive audio level to earpiece.	
SPKR/OFF	SPKR:	Routes receive audio to console SELECT speaker. Audio still heard over headset.
	OFF:	Disconnects console SELECT speaker. Receive audio for select channels heard over headset.
FOOTSWITCH	Allows parallel control of transmit function.	

VOTING CONTROL PANEL
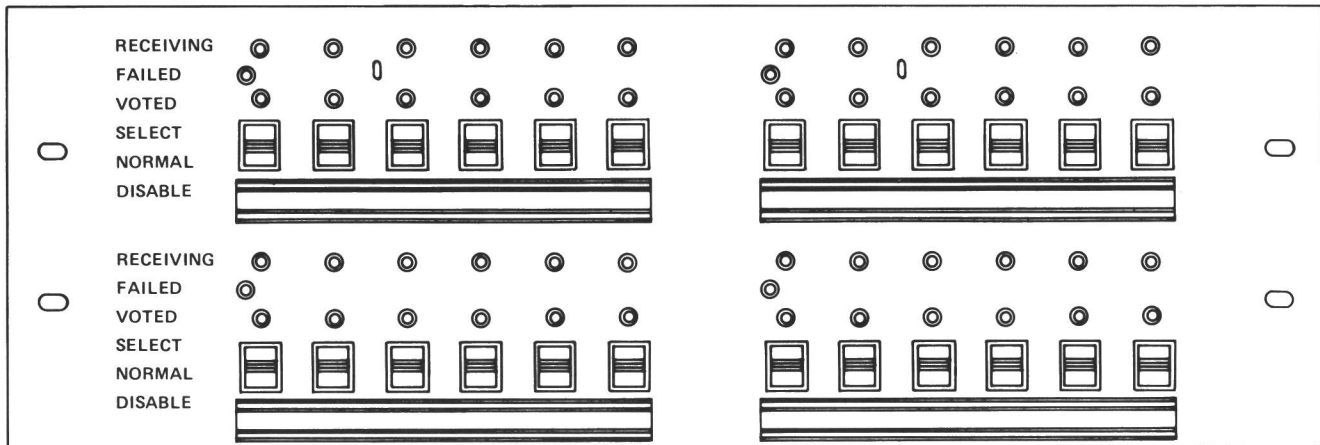
SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION
SELECT	Permits manual selection of a receiver. Bypasses selector voting unit.
NORMAL	Best quality receive path is selected and audio routed to selected speaker.
DISABLE	Associated receiver removed from voting process.
RECEIVING	When lit (yellow), indicates associated satellite receiver is unsquelched.
FAILED	When lit (red), indicates a failed channel.
VOTED	When lit (green), indicates receiver is selected.

PHONE PATCH CROSS PATCH

Parties involved in a phone patch/cross patch operation should be informed of the following general rules of conduct. Due to two delays associated with the phone patch/cross patch [VOX attack time delay (1/3 second) and VOX switchover delay (2-3 seconds)], each party should observe the following rules:

1. Wait briefly (2-3 seconds) after end of previous transmission to allow VOX switchover to occur. At radio end the party can tell when this occurs because the party can hear the VOX drop out. On the telephone end there will be no indication so the telephone party should count slowly to 3 before beginning the conversation.

2. Start each transmission with a meaningless word such as "ahh" to open the VOX. This will not get through but will use up the VOX attack time.

3. At the end of each transmission, stop talking and wait for 3 seconds until other party begins talking.

4. A party cannot interrupt another party already talking.

5. If a party has problems, the dispatcher should be asked for assistance.

CROSS PATCH
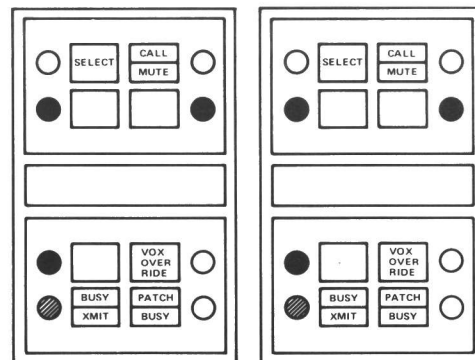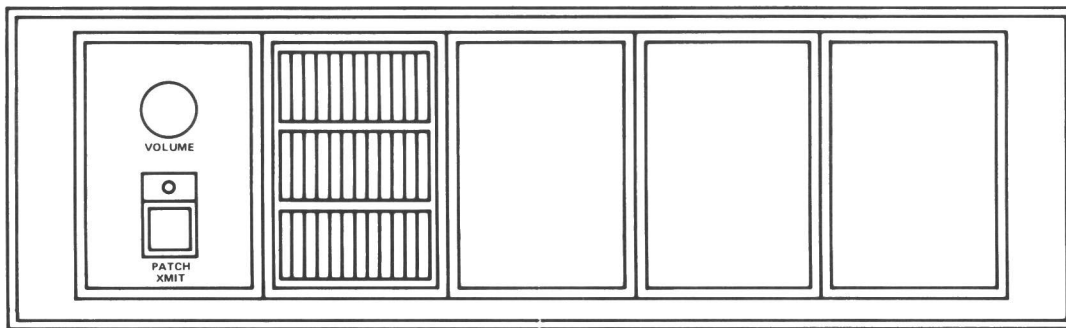
To set up the Patch, the operator pushes the PATCH selector on each channel module he wants to involve. A BUSY and PATCH lamp indicates that patching is enabled; that the module is unselected, and its audio output is switched to the Patch Monitor speaker. The operator may continue to control and use all of the remaining (unpatched) channels in the console while the patch is in progress.

Once the PATCH switch is enabled, operation is on a first come - first served basis.

NOTE: Simulcast and Instant Transmit functions may not cause transmission on the channel that is in control of the patch. However, microphone audio is superimposed on the patch channels whenever these functions are used.

SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION
VOLUME	Adjusts receive audio level to panel speaker.
PATCH XMIT	Permits console operator to talk to all parties involved in patch.
PATCH BUSY	Light illuminates when PATCH is enabled. PATCH window flashes on and off when channel is receiving.
VOX OVERRIDE	When depressed, it assures control of PATCH by that channel.

PHONE PATCH
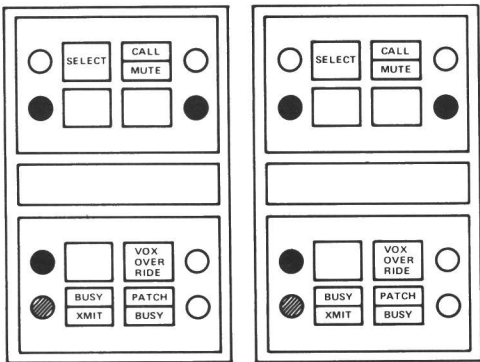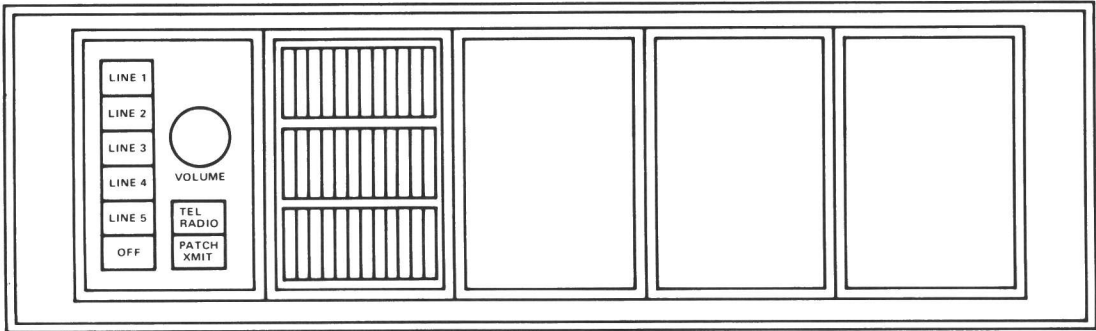
To set up the Patch, the operator must first ascertain that the radio channels that are to be patched are not busy. He then pushes the PATCH selector on each channel module he wants to involve. A BUSY and PATCH lamp indicates that patching is enabled; that the module is unselected, and its audio output is switched to the Patch Monitor speaker. The operator then selects an appropriate line (line 1-5) and dials or punches up the desired phone number on the encoder. When the called party is on line, complete the patch by pressing the

PATCH XMIT switch on the Patch Panel and advise both parties that the patch is ready. The operator may continue to control and use all of the remaining (unpatched) channels on the console while the patch is in progress.

Once the patch is enabled, operation is on a first come - first served basis.

NOTE: Simulcast and Instant Transmit functions may not cause transmission on the channel that is in control of the patch. However, microphone audio is superimposed on the patch channels whenever these functions are used.

SWITCH AND CONTROL FUNCTIONS

CONTROL	FUNCTION
LINE 1-5	Enables selected telephone line. Window illuminates to indicate selected line.
TEL RADIO	When pressed, forces audio path to be from telephone to radio channel.
PATCH XMIT	Permits console operator to talk to all parties involved in patch.
VOLUME	Adjusts receive audio level to panel speaker.
OFF	Disables phone patch and disconnects telephone line to panel.

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