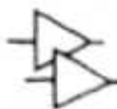
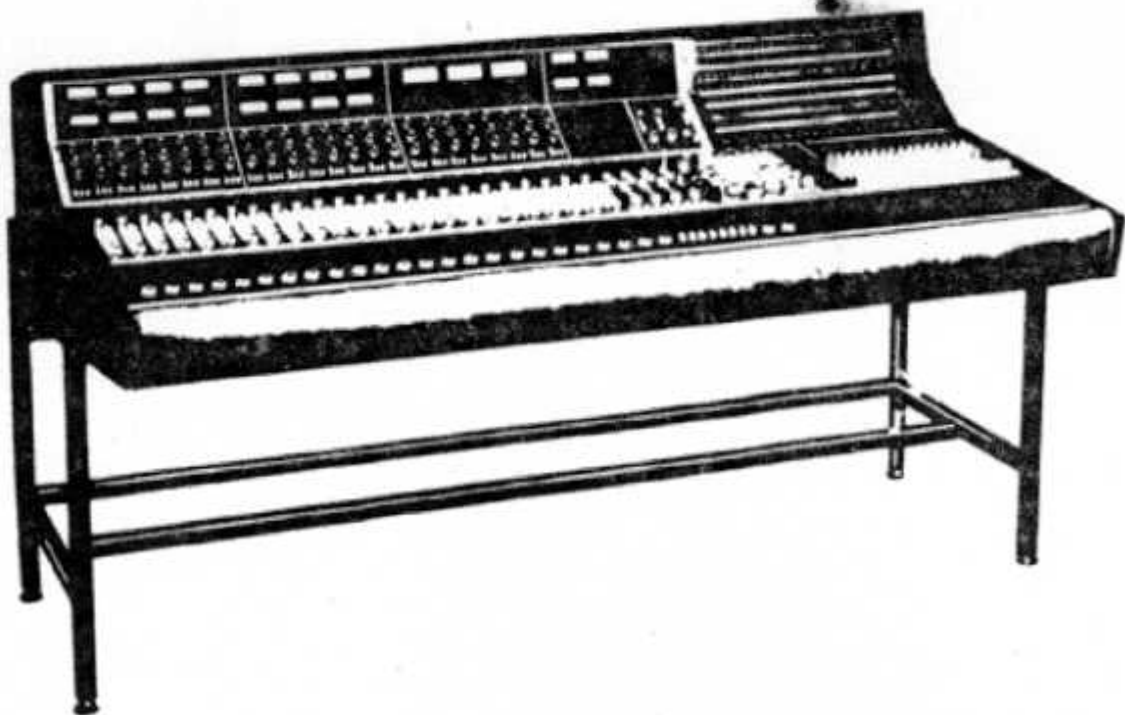


OWNER'S MANUAL

AUTOMATED PROCESSES'

AUDIO CONTROL CONSOLE

Model 2488



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1. GENERAL INFORMATION

1.1 INTRODUCTION

The Model 2488 is designed to perform as a Recording and Mixdown console. It features 24 (mic or line) input channels. Each channel is capable of routing signal to any or all of the 8 mix busses, 2 cue busses, 4 Echo send busses, pan into the stereo mix busses, and directly assign to a tape track. All channel inputs can be monitored via the Multi-monitor allowing the operator to listen to a rough mix while recording.

The console is of modular design enabling quick servicing and a high degree of flexibility, should future expansion be desired.

1.2 OVERALL SPECIFICATIONS

FREQUENCY RESPONSE: 30 Hz to 20kHz within 1 dB measured at any level up to +24 dBm output from microphone input to any output.

SIGNAL TO NOISE RATIO: At least 75 dB with controls set for nominal +4 dBm line level output and -50 dBm mic level input.

DISTORTION FOR THE COMPLETE SYSTEM: Less than 0.5% T.H.D. at +24 dBm sine wave output, measured at any frequency between 30 Hz and 20 kHz. (Typically less than 0.1% at normal operating levels).

CROSSTALK: Better than 70 dB measured between two adjacent channels at normal control settings with -50 dBm input level and +4 dBm output level.

POWER REQUIREMENT: 115/230 Volts, 50/60 Hz.
10 Amperes, 115 Volts;
or 5 Amperes, 230 Volts

SHIPPING WEIGHT: Approximately 600 pounds

LEVELS	NOMINAL	MAXIMUM
Mic Input	-60 dBm	+16 dBm
Line Input	+4 dBm	+24 dBm
Channel Direct Output	+4 dBm	+24 dBm
Output Busses	+4 dBm	+24 dBm
Mono Output	+4 dBm	+24 dBm
Stereo Output	+4 dBm	+24 dBm
Cue Output	+4 dBm	+24 dBm
Echo Send	+4 dBm	+24 dBm
Echo Return	+4 dBm	+24 dBm
Control Room Monitor Output	+4 dBm	+24 dBm
Studio Monitor Output	+4 dBm	+24 dBm

All outputs are transformer coupled.

2488 OPTIONAL EQUIPMENT

- 1 - Echo Equalizer (4)
- 2 - Quad Master Fader (1) Model 440-46
- 3 - Quad Panner (2) Model 480
- 4 - Channel 17-24 Multi Monitor Input Modules Model 812
- 5 - Quad VU Meter (4)
- 6 - Cue Master Module (2) Model 827
- 7 - Microphone Patching *
- 8 - Producer's Desk
- 9 - Phantom Power Supply
- 10 - Fader Automation and Programmer *
- 11 - VCA Grouping *
- 12 - Channel 17-24 Metering

* Not field retrofits.

2. OPERATING INSTRUCTIONS

2.1 DESCRIPTION

2.1.1 INPUT CHANNELS

A standard input channel consists of a Model 550A Equalizer, Model 528B Input Module and Model 440-16 Fader.

Signal is fed from either studio microphones or Multi-Track tape playback into the console via its input connector (Cannon DL) either to the MIC or LINE inputs. In the case of the line inputs, patch points are present which normal the Multi-Track tape output to line input and to Multi-Monitor tape input. Mic input/output patching is available as an option. When this option is exercised the Multi-Monitor tape input jack is omitted.

The operator can select either Mic or Line inputs via the MIC pushbutton located on the input module. In its normal "up" position, LINE is selected and signal passes through to the input preamp. In the MIC or down position, a microphone input is selected. Its signal passes first through a PAD switch which when depressed inserts 20 dB of attenuation for higher level Mic inputs. The signal then passes through a 150 μ A bridging transformer and finally through to the preamp. A 34 dB continuously variable Mic trim is also inserted in the MIC position. This is a front panel control located on the input module.

The output of the preamp is internally coupled to an LED peak level indicator. The LED signal is internally set (by a potentiometer located on the top of the Input Motherboard under the 4th input module) to indicate peak level conditions which may require input gain modification. Preamp out signal also routes through a ϕ (phase) reversal pushbutton. ϕ reversal occurs when this button is depressed. The signal is then coupled through an output transformer and sent to the PREAMP OUT jack. The PREAMP OUT jack is normaled to the EQ-IN jack. (See paragraph 2.2.4 for patchbay terminology description). The equalizer output is routed to the channel ON switch and the input of the two CUE send pots. Input cue can then be sent without turning the channel on. Depressing channel ON couples signal to the channel fader. For purposes of obtaining operational headroom, the fader must be set at twelve (dot) to achieve nominal settings. The output of the fader then returns to the input module where it passes through FLTR 1 & 2 switches. These switches separately, and in combination, make up a three frequency high pass filter whose frequencies are 100, 200 and 60 Hz respectively. The frequency response of this network is shown in Figure 2A. The signal from this filter network then feeds the channel booster amplifier. The channel booster amplifier distributes signal to the following five areas:

a) Channel Out/Direct Out - Booster Amp Out signal passes through a transformer and is sent to the CHANNEL OUT MULT jack on the patchbay. This same signal is also fed to the input channel's DIRECT switch which, when depressed, routes signal directly to the multi-track recorder input and multi-track monitor input (Program) corresponding to that channel. It should also be noted that the MULTI-TRACK TAPE IN jack at the patchbay is in series with this line allowing the operator to patch any signal source directly into his multi-track tape machine.

b) Echo Send - When not depressed, the echo PRE pushbutton on the input module couples signal from after the fader to the Echo send pot. When depressed, the echo PRE switch derives signal from before the channel fader. The output of the send pot is then routed to all four ECHO send pushbuttons which when depressed will send signal to their corresponding echo channels.

c) Submaster Feed - Signal is routed through the PAN pushbutton switch and is sent to all eight SUBMASTER pushbutton switches. By pressing any or all of the SUBMASTER buttons will route signal to their corresponding submaster busses.

d) Stereo/Simul-stereo - The mix level control and stereo pan control make up the dual concentric pan pot located on the input module. The inner control (small knob) allows the operator to control levels being sent to the pan pot. Depressing STEREO couples signal from the pan pot directly into the stereo mix busses. Depressing PAN will allow the operator to pan between left and right rows of SUBMASTER assignment switches. Submasters one through four are designated as quad mix busses. A certain degree of quad positioning may be accomplished with the stereo pan pot and the SUBMASTER pushbutton switches.

e) Solo - Depressing SOLO on the input module couples signal directly into the solo mix bus. The C/R Monitor Mutes and the solo mix signal is fed to the LF (1) and RF (2) speakers. A solo light on the C/R Monitor Module indicates this mode. Since this function effects only the control room monitor, none of the other systems will be interrupted.

2.1.2 ECHO SEND/RETURN MODULE

The standard echo module, Model E528, contains all the circuitry needed to interface the console's functions to an external echo device. The echo send amplifier receives its input from any or all of the input modules (see section 2.1.1a) and sums these inputs to form one output. The echo send trim control provides 20dB of gain control for the echo send amplifier. The transformer coupled output of the echo send amplifiers is routed through the delay send switch, patchbay, and DL connector for external

