

Ev TAPCO
a gulton company

C-12/C-8E SERIES TWO

**Sound Reinforcement and
Recording Mixing System**

**With Transformer Balanced
Inputs/Outputs***

SPECIFICATIONS (Typical)

Frequency Response:

Mic Input: $\pm 1.0\text{dB}$,
20Hz to 20kHz
(150 ohm source, 44dB gain,
normal gain structure,
+ 4dBm at Stereo Outputs)

Line Input: $\pm 0.5\text{dB}$,
20Hz to 20kHz
(14dB gain, normalized gain
structure, + 4dBm at
Stereo Outputs)

Maximum Output Level:
+ 18dBm (600 ohms)

Output Impedance:
175 ohms
(All outputs designed
to operate into 600 ohms
or greater load)

T.H.D.:

Mic Input: .5% at 20 Hz
.15% at 50 Hz
.05% at 100Hz
.01% at 1kHz
.02% at 20kHz
(150 ohm source, 44dB gain,
normalized gain structure,
+ 4dBm at Stereo Outputs)

Line Input: .3% at 20 Hz
.01% at 1kHz
.02% at 20kHz

CCIF IM Distortion:

.02% (19kHz & 20kHz mixed 1:1,
normalized gain structure,
+ 4dBm at Stereo Outputs
Mic or Line Inputs)

Equivalent Input Noise:

- 129dBV
(20-20kHz NBW, 40dB gain,
150 ohm source, measured
at Channel Patch Send)

Output Noise:

-80dBV, 1 channel assigned
-72dBV, 12 channels assigned
-70dBV, 20 channels assigned
-68dBV, 28 channels assigned
-67dBV, 36 channels assigned
-66dBV, 44 channels assigned
(20-20kHz NBW, 44dB gain,
normalized gain structure,
150 ohm source measured at Stereo Outputs)

Maximum Mic Input Level:
0dBu (.775Vrms)

Maximum Line Input Level:
+30dBu (25 Vrms)

Maximum Preamp Gain:
50dB

Maximum Total Gain:
84dB, (mic input)
54dB, (line input)

Phantom Power:

+ 48VDC, regulated 60mA maximum current

Input Channel Equalizer:

$\pm 18\text{dB}$ at 50Hz, shelving
 $\pm 12\text{dB}$ sweep range 300Hz
to 6kHz, peaking
 $\pm 18\text{dB}$ at 15kHz, shelving

Dimensions: C-12 C-8E

W — 28.5"	W — 17"
H — 9.5"	H — 9.5"
D — 29"	D — 29"

Dimensions Without Wood:

W — 27"	W — 15.5"
H — 7.5"	H — 7.5"
D — 26.5"	D — 26.5"

Weight: 49 lbs. 33 lbs.

Power

Requirements: 120V,
60Hz,
60W†

† 100, 220, 240V 50Hz models available.

DESCRIPTION & APPLICATIONS

The C-12/Series TWO is a compact, high performance 12-in/4 Subgroup/Stereo and Mono output mixer designed for musical, speech, and theatrical sound reinforcement, and recording applications. A new **Balanced Output Option*** uses highest quality transformers and circuitry with XLR connectors on all 10 outputs (Mono, L/R Stereo, 4 Subgroups, Monitor, Aux, and Hi Effects Sends) for lowest noise and distortion. These may be used either singly, or in any combination with the normally provided Unbalanced (1/4" phone) outs. This variety of outputs and the versatility provided by having access jacks at almost every point in the signal path makes the mixer equally at home in broadcast, recording, or production environments. The C-12/Series TWO is available with attractive solid oak end panels and padded arm rest.

INPUTS

Each of the 12 inputs are transformer balanced and will accept microphone level as well as line level signals. The Trim control adjusts the gain of the input preamp to optimize headroom and noise performance for a wide range of input signals. The output of the preamp (line or mic) and the input to the channel Equalizer are available at a half-normalled pair of tip-sleeve jacks labeled Channel Patching (receive breaks normal, send does not). This may be used for an insert point for additional channel signal processing or as a signal take-off point to another point in a complex system.

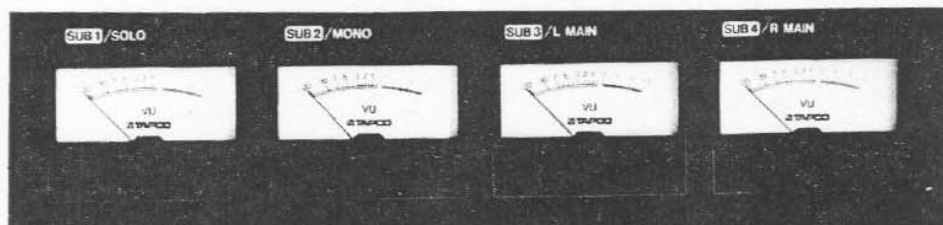
The channel Equalizer is a 4 knob, 3 frequency type. The High and Low frequency equalizers are $\pm 18\text{dB}$ shelving types at 15kHz and 50Hz respectively. The Mid frequency peak or dip equalizer is a $\pm 12\text{dB}$ sweep frequency type covering the range from 300 to 6kHz. The 4 $\frac{1}{3}$ octave range of the Midrange equalizer is extremely effective in dealing with a wide range of program material in a variety of situations.

Next in the signal path is the Channel Fader, Mute switch, Channel Assign switches, and the Pan Pot. A 100mm long-travel Slide Fader is

*Transformer Balanced Outputs on C-12 are Factory Option Selected at Time of Order

Meter Bridge

The four illuminated level indicators are mounted above the main console surface and are angled for easy operator viewing. Each indicator is a high quality, full-wave, average responding meter, closely conforming to ANSI standards for VU indicators. More than twenty signals can be sampled and displayed on these meters using the appropriate function switches (see Meter Switching under Output Section).



Rear Panel

Stacking Inputs

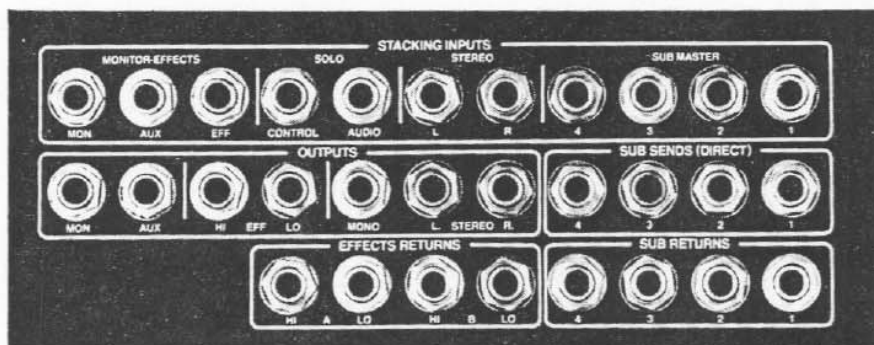
1/4" phone jacks are conveniently provided for connecting monitor, aux, effects, solo (control and audio), sub-group outputs, and left and right stereo buses from another mixer for "master/slave" operation. These jacks also provide an additional line input to the corresponding bus for cross patching or effects returns.

Outputs

1/4" phone jacks for monitor, aux, high level effects send, low level effects send, mono, and right stereo outputs.

Effects Returns

1/4" phone jacks will accept a wide range of signals, from guitar level to line level effects signals. Both Returns A & B have a hi and lo level input jack.



Sub Group Sends (Direct) and Returns

The four 1/4" phone jacks provided can be used for sub-group patching (effects, EQ, limiting, etc.), when used in conjunction with the four 1/4" return jacks. Used alone, they provide a direct output from each of the sub-groups. The returns are normalled to the send jacks and feed the pan pots at each of the sub-groups. Inserting a plug into the returns breaks the normal.

Output Section

Monitor Master Control

Sets overall output level of signals derived from the input channel monitor sends.

Monitor Solo Switch

Allows monitor bus signals to be soloed through the headphone solo system.

Aux Master Control

Sets overall output level of signals derived from the input channel aux sends. Can be used for additional monitor mix, effects, or independent feed.

Aux Solo Switch

Allows aux bus to be soloed.

Effects Master Control

Sets overall level of signals derived from the input channel effects sends.

Effect Solo Switch

Allows effects bus to be soloed.

Meter Switching

Allows switching of signals to each pair of meters. Meters 1 & 2 can be switched to monitor Sub 1 & 2, or the solo and mono outputs. Meters 3 & 4 can be switched to monitor Sub 3 & 4 or the L and R stereo outputs.

Solo Level Control

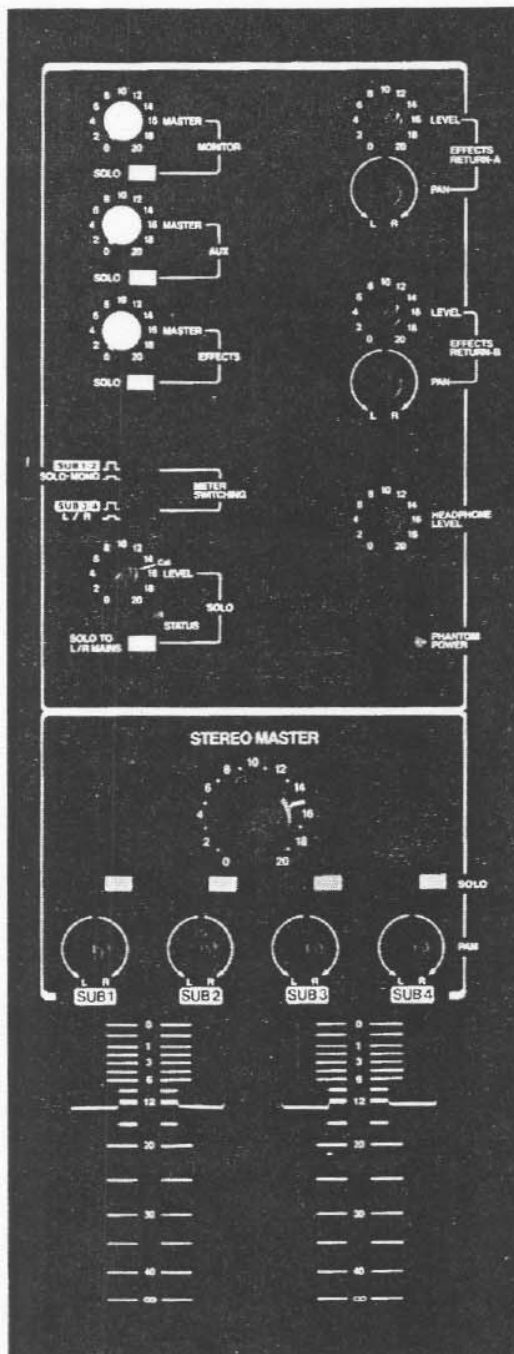
Sets overall level of solo bus signals heard on headphones and/or the main mix. At the CAL. mark, solo bus levels are referenced to "0" Vu so internal operating levels may be observed on all input channels, sub, and send masters.

Solo Status Led

Indicator lights to conveniently show when any of the solo switches have been engaged.

Solo to L/R Stereo (Mains) Switch

Routes all solo bus signals to the L/R stereo outputs. Used for P.A. sound checks, studio monitor routing, etc.



Effects Return—A, Level Control

Sets volume level in L/R stereo mix of all signals fed to the corresponding input jack on rear of unit.

Effects Return—A, Pan Control

Places the effects return A signal within the stereo panorama.

Effects Return—B, Level Control

Sets volume level in L/R stereo mix of all signals fed to the corresponding input jack on rear of unit.

Effects Return—B, Pan Control

Places the effects return B signal within the stereo panorama.

Headphone Level Control

This control adjusts headphone level from off to painfully loud when used with headphones from 8 Ohms to 2k Ohms impedance.

Phantom Power Led

Indicates activation of the +48V Phantom Power supply.

Stereo Master Control

Controls overall output level of the L/R stereo (mains) mix and the mono mix.

Sub Section

Solo Switches (Sub)

Allows the corresponding sub-group output signal to be soloed through the headphone solo system.

Pan Controls (Sub)

Each control places the corresponding sub-group output signal within the stereo panorama of the L/R stereo master.

Sub Level Controls

The four sub-group level controls determine the overall volume of their respective group. The 100mm slide fader controls are active instead of passive, so the lowest noise and best headroom performance are preserved throughout the system.

C-8E EXPANDER

DESCRIPTION & APPLICATIONS

For those applications requiring more than twelve (12) inputs, the C-8E Expander unit is available. Up to four (4) Expanders may be cascaded to add multiples of eight inputs to the basic C-12, giving 12, 20, 28, 36, or 44 input configurations. C-12 master units may also be used as expanders, offering additional features and flexibility.

The C-8E consists of eight (8) C-12 input channels, ten (10) mixing amplifiers, phantom and bipolar power supplies. The usual interconnect point in the signal flow is at the master console's Stacking inputs, but the C-8E may also be connected to the line input of an input channel. Each C-8E has Stacking Input jacks allowing an additional C-8E or C-12 to be interconnected or "stacked". Interconnection is via eleven (11) standard 1/4" phone plug patch cords (not supplied).

Expanders can not only be used to add inputs, but can be used as submixers (with drums or keyboards for example), as monitor mixers, or as remote units feeding a C-12 in another location. The independent power supplies (for AC and phantom power) allow the C-8E to "stand alone" at a convenient distance away.

LIMITED WARRANTY

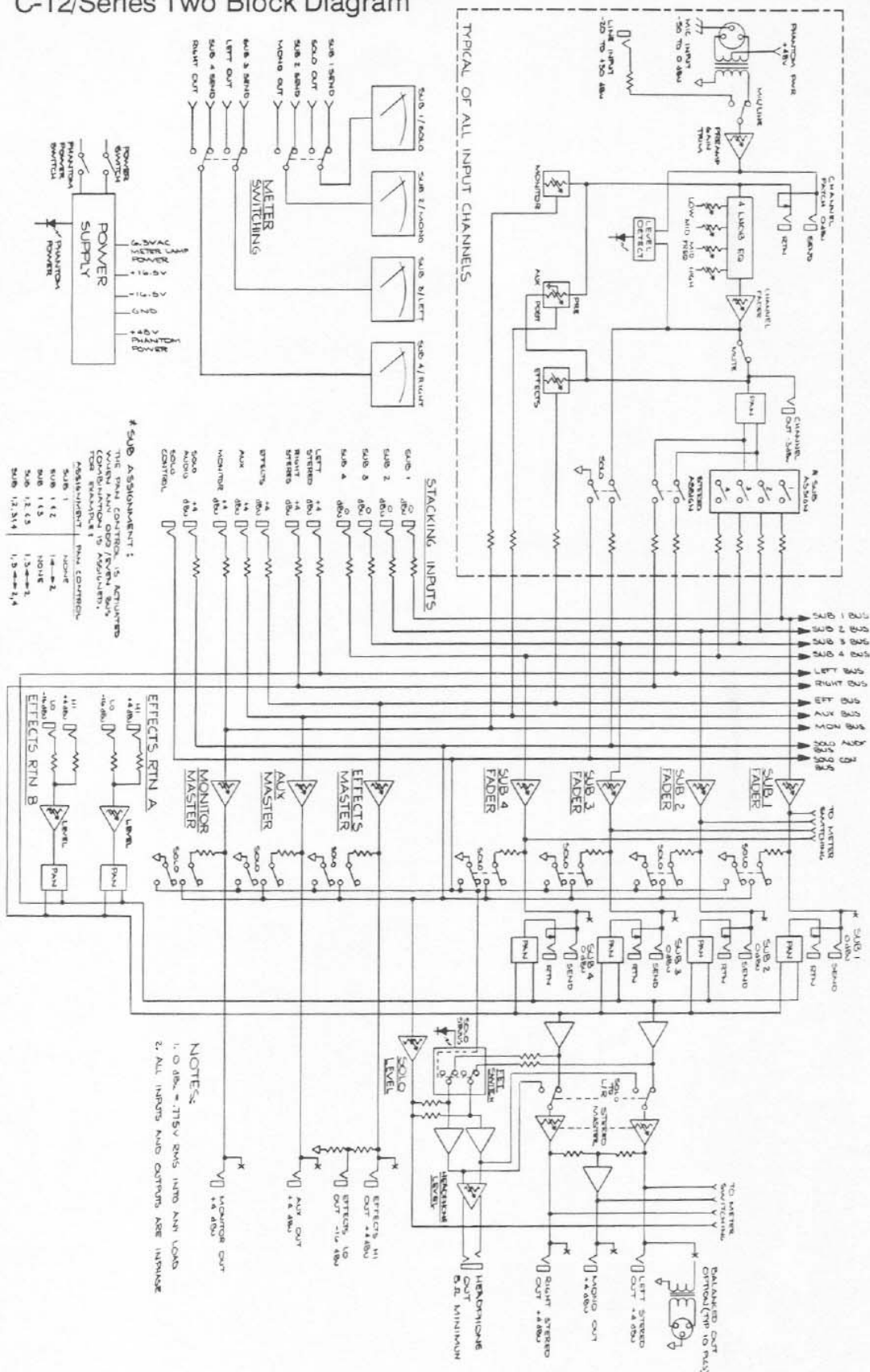
TAPCO warrants the materials, workmanship and proper functioning of its products for a period of one full year from the date of original purchase. If any defects are found in the materials or workmanship of TAPCO products, or if the product ceases to properly function within one year from the date of first purchase, TAPCO will repair or replace any non-conforming materials through the nearest TAPCO authorized warranty service center.

The purchaser must return the product to the TAPCO authorized warranty service center, freight prepaid. A list of these warranty service centers is available from any TAPCO authorized dealer. Claims must first be sent to any TAPCO authorized warranty service center.

Warranty registration cards must be completed and mailed to TAPCO within 30 days of purchase. All correspondence with TAPCO should include purchaser's phone number.

Specifications subject to change without notice.

C-12/Series Two Block Diagram



provided for smooth and accurate control. An active fader configuration optimizes the operating headroom and noise level to the fader setting. The Channel Fader Output is available at the Channel Direct Output. The channel "Clip" LED monitors two critical points for overload: the microphone preamp and channel fader output (post EQ). The LED is peak-stretched for maximum visibility.

The five (5) Assignment switches allow selection of the four (4) Subgroups and/or the Stereo Master. A given channel may be panned between any even and odd Subgroup by depressing both appropriate Assignment switches. Direct assignment via the Pan control to the Stereo Master section gives increased flexibility by allowing the Subgroups to be delegated to a non-related function, such as recording or as mono subgroups that are panned into position in a stereo mix created by direct assignment.

The three (3) Sends have access to two points in the signal path: Mic Preamp Output, just after the Channel Patch return jack (pre fader) or the Channel Fader Output (post fader). The Monitor send is connected to the pre fader point and the Effects send is connected to the post fader point. The Aux send is able to access either of the two points by means of a center detented, center off pot (much like a cross-fader).

UTILIZING THE SOLO SYSTEM

The Solo System allows the console operator, and in a special circumstance, the audience, to monitor any Input, Subgroup, or Send from within the console. The Solo System may be assigned to one of the four (4) VU meters for monitoring. Calibration is such that "0" VU observed on the Solo VU meter is the design center level for that point. The headphone amplifier monitors the Solo System, and with nothing soloed, the input to the Stereo Master control feeds the phones. A special feature of the Solo System is the ability to assign the Solo output to the main console outputs (Left, Right, Mono). This greatly enhances the usefulness of the Solo System. For example, in a sound reinforcement application, a single microphone may be isolated from the rest during a test (sound check) or during performance (MC's mic during a stage change). In a recording application, soloed sources may be routed to the control room monitors (left and right main outs) as is customary.

OUTPUT SECTION

The Output section is comprised of all the bus mixing amplifiers, their master gain controls, the Solo system, its associated headphone amplifier and console power supply. Each of the ten (10) mixing amplifiers (4 Subgroups, Stereo, 3 Sends and Solo) has a direct (wild) voltage input designated "Stacking" allowing interconnection of other mixers capable of +4dBm output or the C-8E Expander(s). Compatible Phantom Powering (+48V) is provided for condenser microphones of almost any type. The Phantom Power Supply has sufficient current to operate all twelve (12) inputs simultaneously. A single master on/off Phantom Power switch is provided on the front panel with an LED indicator.

OUTPUTS

A large part of the flexibility of the C-12/Series TWO comes from the unique configuration of the four Subgroups, Stereo and Mono Outputs. Each of the four Subgroups is panned between the two Stereo outputs. Additionally, the Direct Stereo assign and the two Effects Returns mix to this point. The Stereo Outputs are then mixed equally for the derived Mono output. The four Subgroups may be isolated from the Stereo outputs in any combination by

Input Section

Mic Input – Rear of Unit

A standard 3-pin XLR connector for balanced low impedance Microphone Inputs is provided.

Line Input – Rear of Unit

A standard 1/4" phone jack is provided for line level signals. Minimum input level to set a nominal channel send level of 0dBu is 77mV rms, or -20dBu. The input impedance is 20k ohms.

Channel Patching

Convenient 1/4" phone jacks are used to insert external processing gear in an individual channel, and/or for direct outputs.

Send/Return insert points are before the channel fader and after the channel EQ.

Channel Outputs

This 1/4" phone jack provides a post-EQ and post-fader signal for a direct send for multi-track recording, as an individual cue or effects send, or for a patch to another point in the mixer.

Mic/Line Switch

Allows you to select either a line level input (switch "in"), or balanced microphone input (switch "out").

Clip Indicator, Trim Control

Trim adjusts gain of first preamp stage in input channel, for both Mic and Line inputs. Clip (Peak) indicator LED lights when an overload condition occurs, in either the first stage or in EQ and fader stage.

Monitor

Monitor Control is a pre-fader, pre-EQ send that provides a separate mix for monitoring, or an independent bus send.

Aux

AUX Control is designed to be used either pre- or post-fader and EQ to provide an additional mix for monitors, cue, effects, reverb, etc.

Effects

Effects Control is a post-fader, post-EQ send most often used in conjunction with the Effects Return in the output section to provide a mix for external effects devices.

Equalization Controls

Frequencies of 3-Band EQ section have been selected for widest range of musical equalization. There are ± 18 dB shelving-type bass (50Hz) and treble (15kHz) controls, and an adjustable-frequency midrange control (± 12 dB peak/dip-type). Midrange sweep control can set frequency to be equalized anywhere from 300Hz to 6kHz. Three EQ controls have a center-detent with grounded center taps, so equalizers are totally out of circuit when centered.

Sub (Channel) Assign Switches

Sub Assign Switches route the signals from the input channels directly to sub-groups 1, 2, 3, or 4. Any input channel may be fed to any or all sub-masters by using the proper switch or combination of switches.

Stereo (Mains) Assign Switch

Routes any input signal directly to the L/R Stereo Master bypassing the sub-groups, and may be used simultaneously with the Sub Assigns for live recording, etc.

Pan Pot

Positions the input channel signal between any odd-even combination of sub-groups or within the stereo panorama between the L/R stereo outputs.

Mute

Allows muting of post-fader functions of input channel including channel output, aux (post) output, effects output, sub-assign, and L/R stereo assign. Does not affect pre-fader or solo functions.

Solo

When depressed, allows post-fader monitoring of the input channel. It pre-empts headphone monitoring with the individually selected signal(s).

Channel Fader

Active channel level control (100mm travel) adjusts volume of channel in overall mix. AutoPad™ circuitry maximizes headroom and S/N ratio while providing the same kind of smooth acting taper and overall attenuation as a passive fader.



inserting plugs into the half-normalled Subgroup Return jacks. The input channels have simultaneous access to both the Stereo Master outputs as well as the Subgroups, which allows the Subgroups to be used independently

of the Main Stereo output (i.e. for an isolated feed). Whether Balanced or Unbalanced, the Subgroups have 0dBm and the Stereo/Mono sends have +4dBm nominal outputs, with +18dBm peak capability.

Output Section

Monitor Master Control

Sets overall output level of signals derived from the input channel monitor sends.

Monitor Solo Switch

Allows monitor bus signals to be soloed through the headphone solo system.

Aux Master Control

Sets overall output level of signals derived from the input channel aux sends. Can be used for additional monitor mix, effects, or independent feed.

Aux Solo Switch

Allows aux bus to be soloed.

Effects Master Control

Sets overall level of signals derived from the input channel effects sends.

Effect Solo Switch

Allows effects bus to be soloed.

Meter Switching

Allows switching of signals to each pair of meters. Meters 1 & 2 can be switched to monitor Sub 1 & 2, or the solo and mono outputs. Meters 3 & 4 can be switched to monitor Sub 3 & 4 or the L and R stereo outputs.

Solo Level Control

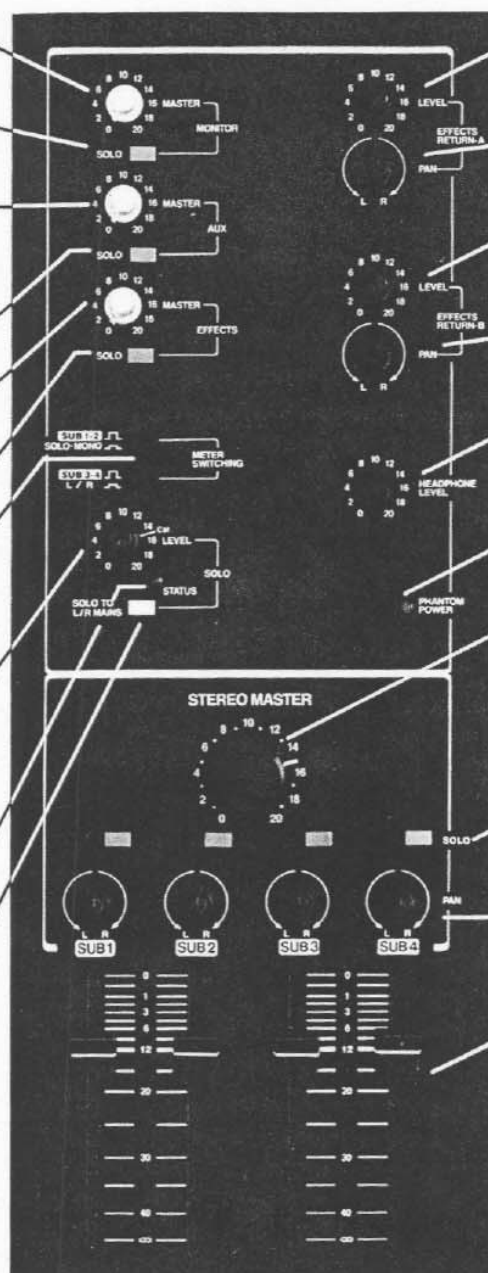
Sets overall level of solo bus signals heard on headphones and/or the main mix. At the CAL. mark, solo bus levels are referenced to "0" VU so internal operating levels may be observed on all input channels, sub, and send masters.

Solo Status Led

Indicator lights to conveniently show when any of the solo switches have been engaged.

Solo to L/R Stereo (Mains) Switch

Routes all solo bus signals to the L/R stereo outputs. Used for P.A. sound checks, studio monitor routing, etc.



Effects Return-A, Level Control

Sets volume level in L/R stereo mix of all signals fed to the corresponding input jack on rear of unit.

Effects Return-A, Pan Control

Places the effects return A signal within the stereo panorama.

Effects Return-B, Level Control

Sets volume level in L/R stereo mix of all signals fed to the corresponding input jack on rear of unit.

Effects Return-B, Pan Control

Places the effects return B signal within the stereo panorama.

Headphone Level Control

This control adjusts headphone level from off to painfully loud when used with headphones from 8 Ohms to 2k Ohms impedance.

Phantom Power Led

Indicates activation of the +48V Phantom Power supply.

Stereo Master Control

Controls overall output level of the L/R stereo (mains) mix and the mono mix.

Sub Section

Solo Switches (Sub)

Allows the corresponding sub-group output signal to be soloed through the headphone solo system.

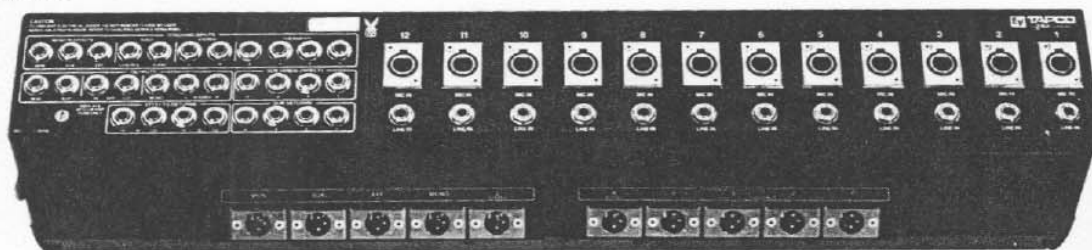
Pan Controls (Sub)

Each control places the corresponding sub-group output signal within the stereo panorama of the L/R stereo master.

Sub Level Controls

The four sub-group level controls determine the overall volume of their respective group. The 100mm slide fader controls are active instead of passive, so the lowest noise and best headroom performance are preserved throughout the system.

Rear Panel



USING THE BUS SENDS

All three (3) Bus Sends (Monitor, Effects, and Aux) have +4dBm nominal output with +18dBm peak capability (Balanced or Unbalanced). The Effects send has a second output (Unbalanced only) 20dB below the main effects output for easy interface with various types of musical instrument equipment.

The flexibility of the Sends is limited only by the

imagination of the operator. For example, in a church installation, the pre fader Monitor send might feed the choir and pulpit foldback system, the pre or post fader Effects send could feed a distributed 70V system for the lobby, cry room and external areas. The Main Stereo outputs would feed the central stereo house system. A secondary system for people with hearing impairment could be fed from the Mono output.

In a multi-use auditorium system, the Monitor and Aux sends could drive an on-stage foldback system, while the four Subgroup outputs might feed either a 4-track recorder or even a 4-channel stereo reinforcement system. The Stereo outputs could be used for a 2-track recorder or, of course, the main house system in a traditional 2-channel stereo setup. The Effects send is left over for an additional foldback, tape recorder, or reverb send.