

AMX-180/ AMX-180FX

User's Manual

18-CHANNEL MIXING CONSOLE/
WITH DIGITAL EFFECTS



www.altoproaudio.com
Version 1.0 September 2004

— English —

SAFETY RELATED SYMBOLS



This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.



This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.



Protective Ground Terminal



AC mains (Alternating Current)



Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

WARNING

Describes precautions that should be observed to prevent the possibility of death or injury to the user.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

WARNING

• Power Supply

Ensure that the mains source voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user.

Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

• External Connection

Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/death or fire. If in doubt, seek advice from a registered electrician.

• Do Not Remove Any Covers

Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed.

Covers should be removed by qualified service personnel only.

No user serviceable parts inside.

• Fuse

To prevent fire and damage to the product, use only

the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

• Protective Ground

Before turning the product ON, make sure that it is connected to Ground. This is to prevent the risk of electric shock.

Never cut internal or external Ground wires. Likewise, never remove Ground wiring from the Protective Ground Terminal.

• Operating Conditions

Always install in accordance with the manufacturer's instructions.

To avoid the risk of electric shock and damage, do not subject this product to any liquid/rain or moisture. Do not use this product when in close proximity to water.

Do not install this product near any direct heat source.

Do not block areas of ventilation. Failure to do so could result in fire.

Keep product away from naked flames.

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions

Follow all instructions

Keep these instructions. Do not discard.

Heed all warnings.

Only use attachments/accessories specified by the manufacturer.

• Power Cord and Plug

Do not tamper with the power cord or plug. These are designed for your safety.

Do not remove Ground connections!

If the plug does not fit your AC outlet seek advice from a qualified electrician.

Protect the power cord and plug from any physical stress to avoid risk of electric shock.

Do not place heavy objects on the power cord. This could cause electric shock or fire.

• Cleaning

When required, either blow off dust from the product or use a dry cloth.

Do not use any solvents such as Benzol or Alcohol.

For safety, keep product clean and free from dust.

• Servicing

Refer all servicing to qualified service personnel only.

Do not perform any servicing other than those instructions contained within the User's Manual.

PREFACE

Dear Customer:

Thank you for choosing the ▲LTO AMX-180 18-Channel Mixing Console (AMX-180FX 18-Channel Mixing Console with Digital Effects), which is the result of our ▲LTO AUDIO TEAM's endeavours.

For the ▲LTO AUDIO TEAM, music and audio are more than a profession, it is a passion and an obsession!

We have, in fact, been designing professional audio products for a number of years in cooperation with many of the world's major brands.

The ▲LTO line represents unparalleled analogue and digital products made by musicians, for musicians. With our design centres in Italy, the Netherlands, and the United Kingdom we provide you with world-class designs, while our software development teams continue to develop an impressive range of audio specific algorithms.

By purchasing our ▲LTO products you become the most important member of our ▲LTO AUDIO TEAM. We would like to share with you our passion for what we design and invite you to make suggestions, which will aid us in developing future products for you. We guarantee you our commitment for quality, continual research and development, and of course the best prices.

The ▲LTO AMX-180/AMX-180FX mixing console is equipped with 4 mono input channels (these are provided with ultra low noise microphone pre-amplifiers and phantom power at +48 Volt), 4 stereo input channels, 2 stereo aux returns and 2 TK IN. So, in total you have 18 input channels on your AMX-180/AMX-180FX. It is specifically designed for professional application. Seeing is believing, let's meet the ▲LTO AMX-180/AMX-180FX.

We would like to thank all the people who made the ▲LTO AMX-180/AMX-180FX 18-Channel Mixing Console possible, especially to our designers and ▲LTO staff. It is their passion for music and professional audio that has made it possible for us to offer you, our most important team member, our continued support.

Thank you very much
▲LTO AUDIO TEAM

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1. INTRODUCTION

Thank you very much for expressing your confidence in ▲LTO products by purchasing ▲LTO AMX-180/AMX-180FX mixing console. The AMX-180/AMX-180FX is a professional compact mixer. You will get the smooth, accurate more natural and open sound from this apparatus, and it is really ideal for gigs, recording and fixed PA installations.

The AMX-180/AMX-180FX mixing console is packed with some key features that can not be found in other consoles of its size: 4 mono (these are provided with ultra low noise microphone preamplifiers and phantom power at +48 Volt) and 4 stereo input channels, and each of them is provided with a 3 bands equalizer for HI, MID and LOW controls; highly accurate 12-segment bar graph meters and 2-Track inputs assignable to main mix, control room/phone outputs etc. Besides, the 24-bit effect processor with 256 effects (16 presets ×16 variations) is equipped specifically for AMX-180FX.

Your AMX-180/AMX-180FX is very easy to operate but we advise you to go through each section of this manual carefully. In this way you will get the best out of your AMX-180/AMX-180FX.

2. FEATURES

The AMX-180/AMX-180FX mixing console is designed for professional application. It will provide the following features:

The common features:

- 5 MIC input channels with gold plated XLR and balanced LINE inputs
- 4 stereo input channels with balanced TRS jacks
- Ultra-low noise discrete MIC pre-amps with +48V Phantom power
- Extremely high headroom offering more dynamic range
- Insert on each of mono input channels
- Switchable Low-cut filter on each mono channel
- +4dBu/-10dBV on each channel
- Warm, natural 3-band EQ on each channel
- Peak LED on each channel
- Mute/ALT 3-4, SOLO function on each channel
- 4 AUX returns for additional functionality
- Control room and headphone outputs
- 2-Track inputs assignable to main mix, control room / headphone outputs
- Highly accurate 12-segment bar graph meters

Additionally, the AMX-180FX is also equipped with following features:

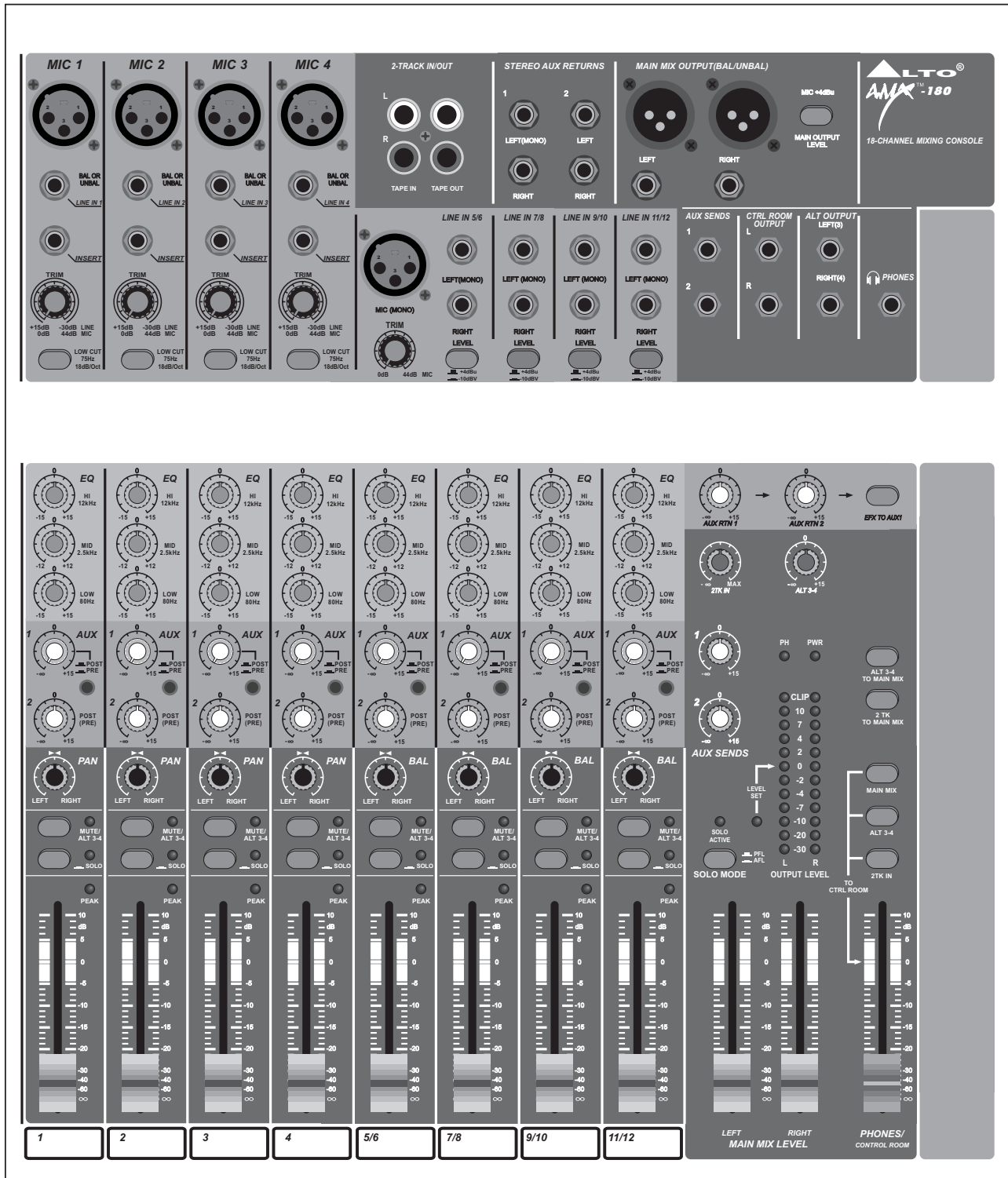
- 24 bit digital effect processor
- 256 effects (16 presets ×16 variations)
- Effect on/off by means of MUTE switch or a footswitch connected to the DFX FOOTSWITCH

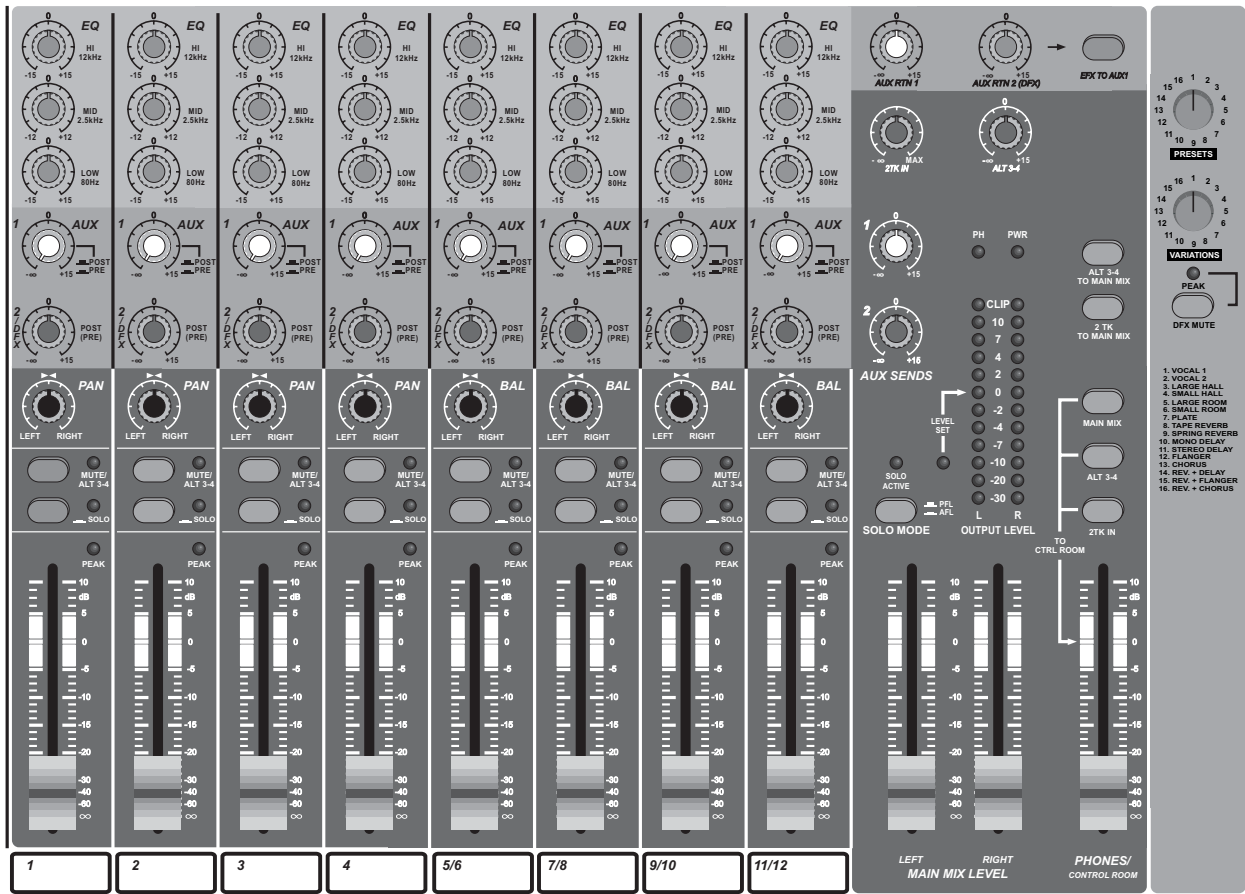
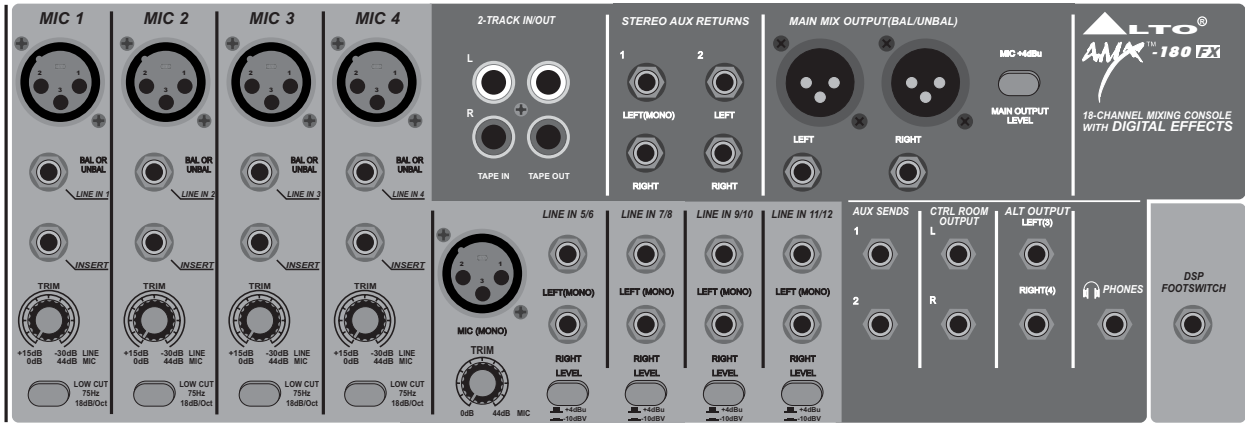
3. READY TO START?

- 3.1 Please check the AC voltage available in your country before connecting your AMX-180/AMX-180FX to the AC socket.
- 3.2 Be sure that the main power switch is turned off before connecting the mixer to the AC socket. Also, you should make sure that all input and output controls are turned down. This will avoid damage to your speakers and avoid excessive noise.
- 3.3 Before turning on the AMX-180/AMX-180FX you shall connect it to a power amplifier and turn-on the mixer BEFORE the power amplifier. Once you have finished your working session you shall turn the mixer off AFTER the power amplifier.
- 3.4 Before disconnecting the AMX-180/AMX-180FX always turn-off the power switch.
- 3.5 Do not use solvents to clean your AMX-180/AMX-180FX. A dry and clean cloth will be OK.

4. CONTROL ELEMENTS

AMX-180





4.1 MONO MIC/LINE CHANNELS 1

These are channel 1 through channel 4. You can connect balanced, low impedance microphones or a low level signal to the XLR socket. On the 1/4" line jack you can connect either a microphone or a line level instrument such as synthesizers, drum machines, effect processors or any other line level signal.

Note: You shall never connect an unbalanced microphone to the XLR socket if you do not want to damage both the microphone and mixer. Also, it is not possible to simultaneously use both the MIC & LINE inputs on the same channel, use only one of them for the appropriate source.

PHANTOM POWER +48 VOLT

It is available only to the XLR MIC sockets. Never connect a microphone when phantom power is already on.

4.2 MONO CHANNEL INSERT 2

Insert sockets are provided for all mono MIC channels. It can allow you patch external signal processing devices into signal path via a TRS connector, the signal will be taken out after the input gain control (Trim), and sent to an external processor such as a compressor- limiter, then returned into the same channel immediately before the EQ section.

Note: Usually, insert connections require a special stereo-splitting Y-cord to be connected, known as TRS connector (Tip Send/Ring Return).

4.3 INPUT LEVEL SETTING 3

This control is provided with 2 different indication rings: one is for the microphone and the other for the line level. When you use a microphone you shall read the OUTSIDE ring (0 ~ 44dB), when you use a line level instrument you shall read the INSIDE ring (+15 ~ -30dB). For optimum operation you shall set this control in a way that the peak LED will blink also occasionally in order to avoid distortion on the input channel.

4.4 LOW CUT SWITCH 4

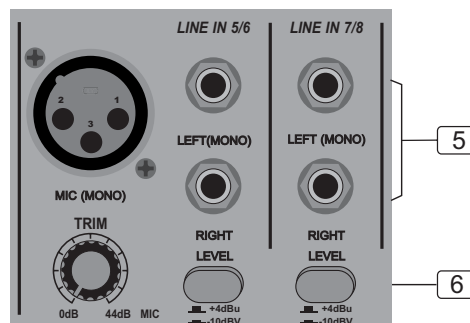
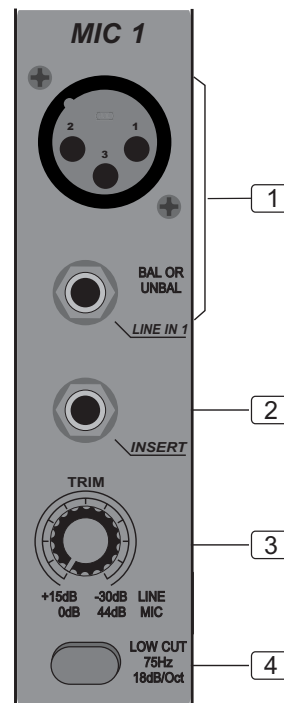
By pressing this button you will activate a 75Hz low frequency filter with a slope of 18 dB per octave. You can use this facility to reduce the hum noise caused by the mains power supply, or the stage rumble while using a microphone.

4.5 STEREO INPUTS 5

These are channel 5 through channel 12. They are organized in stereo pair and provided with 1/4" TRS sockets. Use the left input if connect a mono input signal to the STEREO INPUT. There is an additional MIC input jack and a TRIM control on channel 5/6.

4.6 +4dBu/-10dBV 6

These switches adjust the input sensitivity of the line inputs on the stereo channels CH5~CH12. +4dBu is suitable for professional audio devices, -10dBV is suitable for general HI-FI devices. If not sure to use which setting, try +4dBu first, or change it to -10dBV if the volume is too small to be satisfied.



4.7 3-BAND EQUALIZER

A 3-band equalizer is provided for each input channel with a wide range of frequency adjustment.

- HI 7

This is the treble control. You can use it to get rid of high frequency noises or to boost the sound of cymbals or the high harmonics of the human voice. The gain range goes from -15dB to +15dB with a center frequency of 12kHz.

- MID 8

This is the midrange control. It can affect most fundamental frequencies of all musical instruments and human voice. An attentive use of this control will give you a very wide panorama of sound effects. The gain range goes from -12dB to +12dB and the center frequency is 2.5kHz.

- LOW 9

This is the bass control. It is used to boost male voice, kickdrum or bass guitar. Your system will sound much bigger than what it is. The gain range goes from -15dB to +15dB and the center frequency is 80Hz.

4.8 AUX SENDS CONTROL 10

These two controls are used to adjust the level of signal sent to AUX bus1&2, and this adjustment doesn't effect the main mix output signal at all.

AUX1 can be configured as PRE/POST fader via the PRE/POST switch. Up for POST fader, the signal is sent out after the channel fader and will be affected by the channel fader. Down for PRE fader, the signal is sent out before the channel fader and will not be affected by the channel fader. AUX2 is configured as POST fader, however, it can also be configured as PRE fader through internal modification. (For more detail, please refer to chapter 6)

4.9 PAN/BAL CONTROL 11

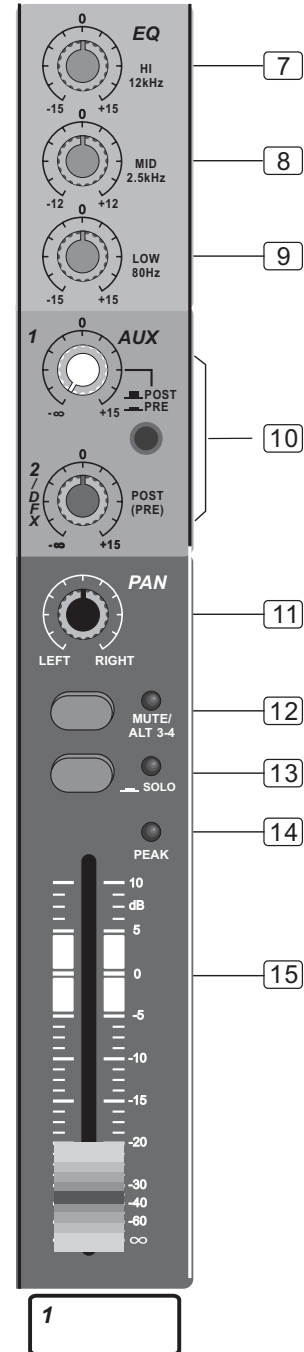
Abbreviation of PANORAMA control for mono channels, for the stereo channels, always says, BALANCE control. You can adjust the stereo image of the signal via this control. Keep this control in center position and your signal will be positioned in the middle of stage. Turn this control fully counterclockwise and the signal will be present only on the left speaker and vice-versa.

4.10 MUTE/ALT3-4 SWITCH & LED INDICATOR 12

Each channel is equipped with the MUTE/ALT3-4 switch. This switch is used to route the channel signal to ALT3-4 output instead of the main mix and the LED beside MUTE/ALT3-4 will illuminate when the switch is pressed.

4.11 SOLO SWITCH & LED INDICATOR 13

When pressing this switch, the SOLO signal will replace other signals and reach to the CONTROL ROOM / PHONES, also the LED beside it will illuminate. Usually use the SOLO function to preview each channel signal before they are let into the mix. It is useful to set an instrument's input level and EQ, and you can "solo" any channel that you want to. However, The SOLO switch never affects any mix other than the CONTROL ROOM/PHONES mix.

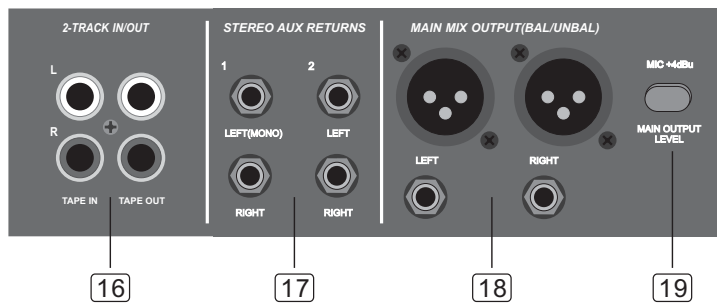


4.12 PEAK LED 14

Inside your AMX-180/AMX-180FX the audio signal is monitored in several different stages and then sent to the PEAK LED, when this LED blinks, it warns you that you are reaching signal saturation and possible distortion. The PEAK LED will blink with a level that is 6dB before actual clipping.

4.13 FADER 15

This control will adjust the overall level of this channel and set the amount of signal sent to the main output.



4.14 2-TRACK IN/OUT 16

TAPE IN

Use the Tape input if you wish to listen to your mixer from a Taper Recorder or DAT. You can assign the signal coming from the Taper Recorder either to CONTROL ROOM/PHONES output using the 2TK IN button on the front panel or to the MAIN MIX output using the 2TK TO MAIN MIX button.

TAPE OUT

These RCA sockets will route the main mix into a tape recorder.

4.15 STEREO AUX RETURNS 17

Use these stereo 1/4" sockets to return the sound of an effect unit to the main mix. You can also use them as the extra auxiliary inputs, but they are primarily used to connect the output of external effect processors.

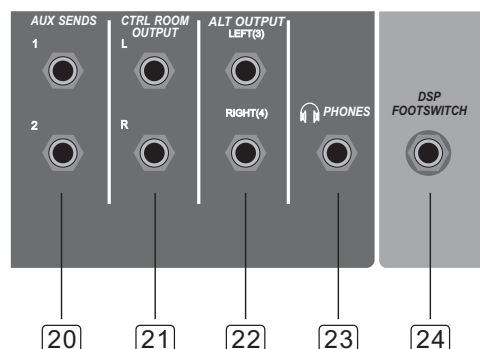
Note: in AMX-180 model, the returned signal of AUX RETURN 1 will also be routed to AUX RETURN 2 if there is no signal feeding to AUX RETURN 2 sockets, The signal is summed, or mixed in to the main L/R mix bus.

4.16 MAIN MIX OUTPUT 18

The stereo output is supplied both with XLR and 1/4" TRS sockets, which are used to send the audio signal to an amplifier. Through the main mix level control, you can adjust the output level from $-\infty$ to +10dB.

4.17 MIC +4dB 19

When this switch is pressed, the output level from MAIN MIX OUTPUT will be reduced 30dB.



4.18 AUX SENDS 20

These 1/4" sockets are used to send out the signal from the AUX bus to external devices such as effects equipment, they also can be used as monitoring outputs by connecting a power amp and monitor speaker.

4.19 CTRL ROOM OUTPUT 21

These 1/4" sockets are used to send the control room signal to the studio monitor speakers or a second set of PA.

4.20 ALT OUTPUT 22

These 1/4" sockets are unbalanced outputs, the signal level to the ALT OUTPUT is adjusted by ALT 3-4 rotary on the front panel.

4.21 PHONES 23

This socket will send out the mix signal to a pair of headphones.

4.22 DSP FOOTSWITCH 24

This socket is used to connect external footswitch for your convenient operation, it will activate/deactivate the DSP effect module in this unit and function same as DFX MUTE switch 41.

4.23 AUX RETURN CONTROL 25

These two controls adjust the level of the signal present at the AUX1&2 RETURNS jacks. The signal is summed, or mixed in to the main L/R mix bus.

4.24 EFX TO AUX1 26

Press this button, the signal present at AUX RETURN 2 will be routed to AUX1 bus instead of the main mix output.

Without doubt, this feature will be very useful to you.

4.25 ALT 3-4 CONTROL 27

This control is used to adjust the level of the ALT output, and the adjustable range is from $-\infty$ to +15dB, this is another way to offer you extra independent stereo submix with its own level adjustment knob.

4.26 2TK IN CONTROL 28

This control is used to adjust the level of 2TK IN signal, which can be varied from $-\infty$ to MAX.

4.27 AUX SENDS CONTROL 29

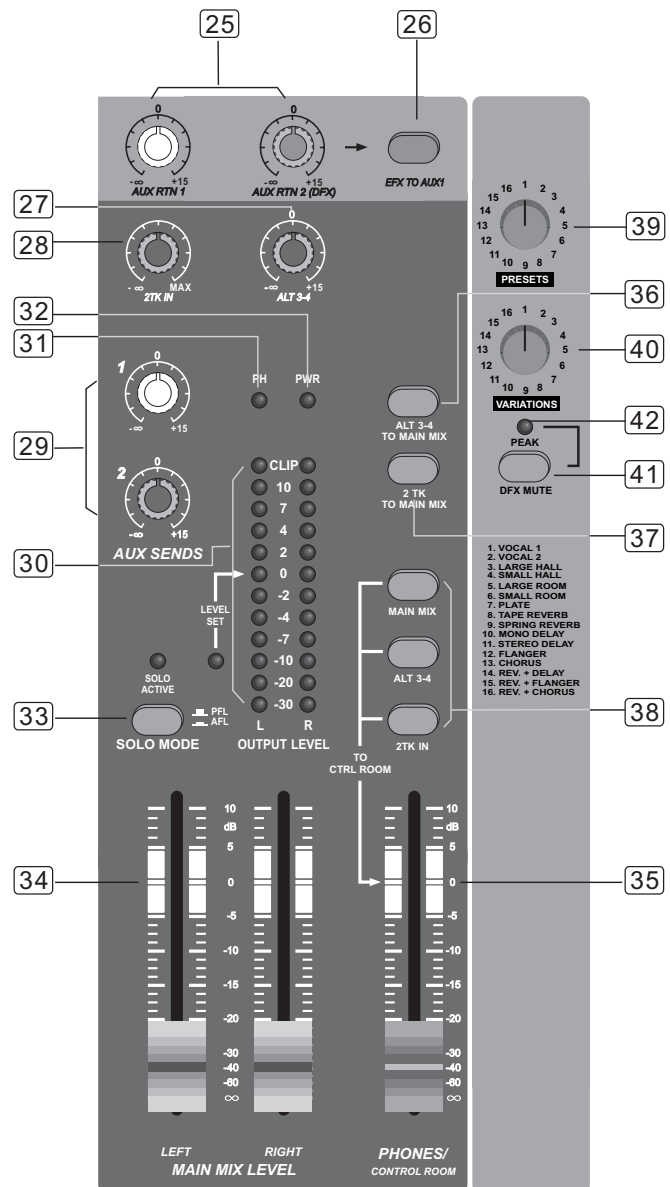
Both controls are used to determine the master AUX SENDS levels. The adjustable range is from $-\infty$ to +15dB. When the effect unit connected to mixer has no input gain control, you can get a further +15dB gain available from these AUX SENDS outputs.

4.28 OUTPUT LEVEL LED DISPLAY 30

This stereo 12 segments LED meter will indicate the level of the overall output signal.

4.29 PHANTOM LED 31

This LED indicates when the phantom power is switched on.



4.30 POWER LED 32

This LED indicates when the power is on in your AMX-180/AMX-180FX.

4.31 SOLO MODE SWITCH 33

This button provides two modes: up for PFL (Pre-Fader-Listen) mode, down for AFL (After-Fader-Listen) mode. Engage the button, the output signal of soloed channel will follow the TRIM, EQ, FADER and PAN/BAL control, and the SOLO ACTIVE LED illuminates.

Release the button to enter into PFL mode, the output signal of soloed channel is unaffected by the PAN/BAL and FADER control.

4.32 MAIN MIX LEVEL 34

These faders set the amount of signal sent to the Main Output and the Tape Output.

4.33 PHONES/CONTROL ROOM 35

This fader sets the amount of signal sent to Control Room /Phone output.

4.34 ALT 3-4 TO MAIN MIX 36

Engaging this switch allows you to combine the ALT 3-4 output with the MAIN MIX, and feeds ALT 3-4 signal into Main output.

4.35 2 TK TO MAIN MIX 37

Engaging this button to route the 2 TK IN signal into the Main Mix output.

4.36 CONTROL ROOM SOURCE 38

You can choose to monitor any combination of MAIN MIX, ALT 3-4 and 2 TK IN via these MATRIX switches. The ALT 3-4 is additional stereo mix bus, 2TK IN is the stereo signal coming from the TAPE IN jacks. These stereo signals will be delivered to the CONTROL ROOM/PHONES by engaging these switches. If no switches are engaged, there will be no signal at these outputs.

Note: when the channel's SOLO switch was engaged, then the SOLO signal will replace other signals, and also be sent to the CONTROL ROOM/PHONES.

4.37 24 BIT DIGITAL EFFECTS (For AMX-180FX Model)

- PRESETS CONTROL 39

Adjust this knob to select the right effect you wish to perform. There are total 16 options for you: several kinds of reverb, mono and stereo delay, modulation effects, and versatile two-effect combination.

- VARIATIONS CONTROL 40

Since you have selected the preferable effect, the next step, please go with the fine consideration, there are also total 16 variations for each preset. Each variation has been designed modifying several parameter.

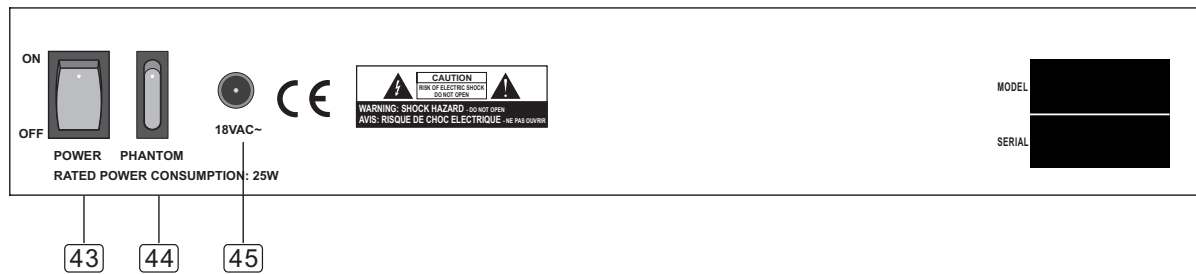
- DFX MUTE SWITCH 41

This switch is used to activate/deactivate the effect facility. Sometimes, you can also use the DFX FOOTSWITCH for convenient operation.

- PEAK LED 42

This LED lights up when the input signal is too strong. In case of the digital effect module being muted, this LED also lights up.

4.38 REAR PANEL DESCRIPTION



- POWER ON/OFF SWITCH 43

This switch is used to turn the main power ON and OFF.

- PHANTOM ON/OFF SWITCH 44

This switch will apply +48 Volt Phantom Power only to the 5 XLR MIC inputs. Never connect microphones when the phantom power is on already.

- AC INPUT CONNECTOR 45

This connector is used to connect the 18VAC adapter supplied by ▲LTO company only.

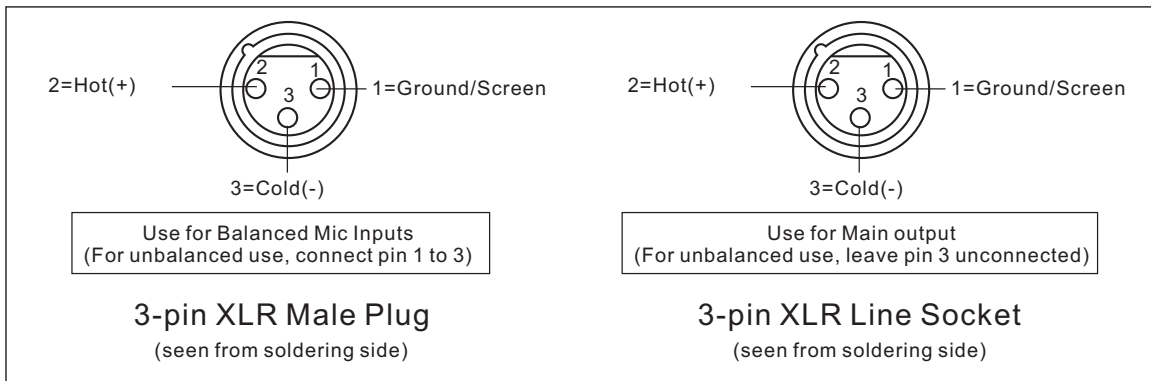
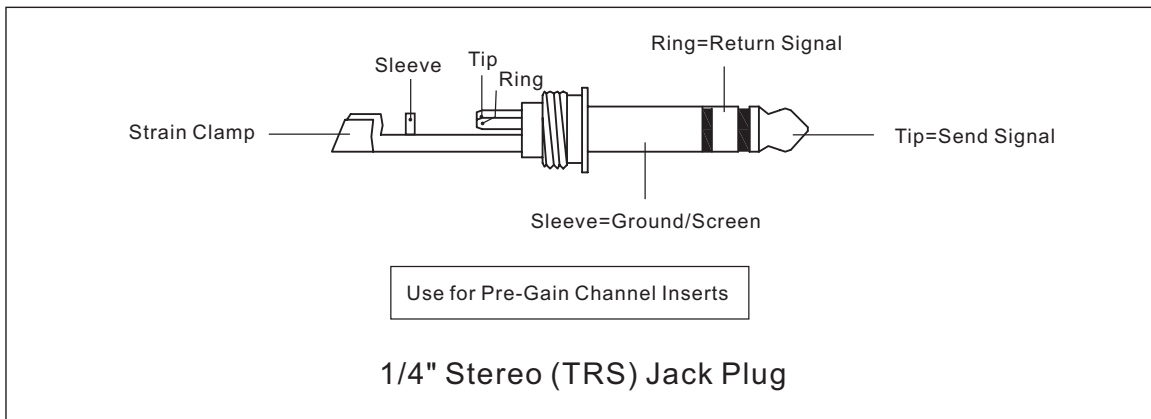
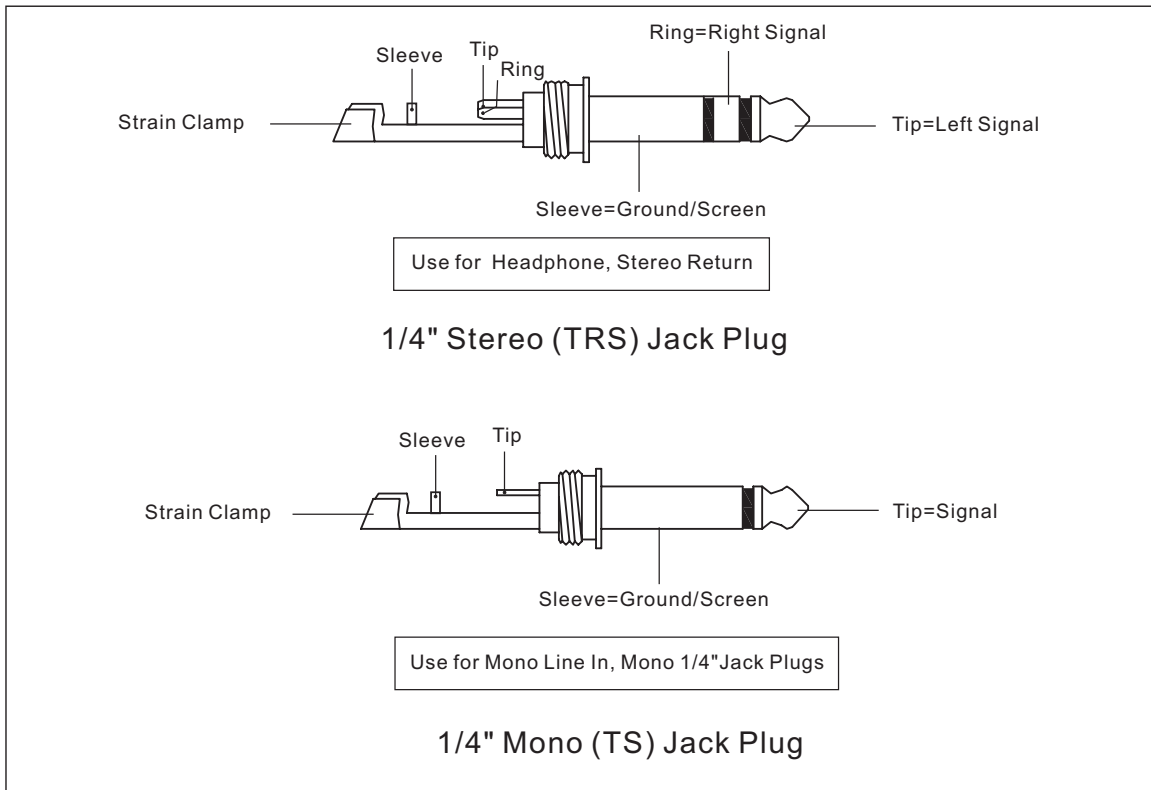
5. INSTALLATION AND CONNECTION

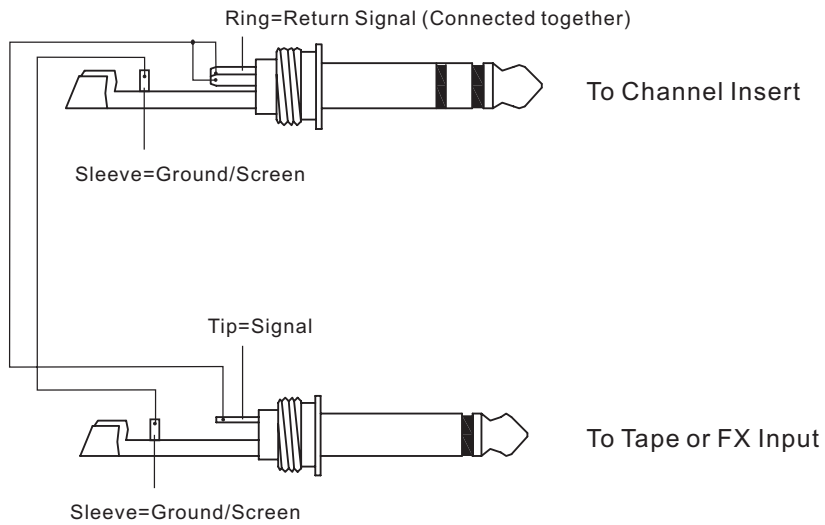
Ok, you have got to this point and you are now in the position to successfully operate your AMX-180/AMX-180FX. However, we advise you to read carefully the following section to be the real master of your own mixer. Not paying enough attention to the input signal level, to the routing of the signal and the assignment of the signal will result in unwanted distortion, a corrupted signal or no sound at all. So you should follow these procedures for every single channel:

- Before connecting mics or instruments, make sure that the power of all your systems components including the mixer is turned off. Also, make sure that all input and output controls of your mixer are turned down. This will avoid damage to your speakers and avoid excessive noise.
- Properly connect all external devices such as mics, power amplifiers, speakers, effects processor etc.
- Now, turn on the power of any peripheral devices, then power up the mixer.
Note: the power amplifier or powered monitors shall be turned on after the mixer and turned off before the mixer.
- Set the output level of your mixer or the connected power amplifier at no more than 75%.
- Set the CONTROL ROOM/PHONE level at no more than 50%.
- Position HI, MID and LOW EQ controls on middle position.
- Position panoramic (PAN/BAL) control on center position.
- While speaking into the mic (or playing the instrument), adjust the channel Level control so that the channel PEAK LED will blink occasionally, in this way you will maintain good headroom and idea dynamic range.
- You can shape the tone of each channel by adjusting the equalizer controls as desired.
- Now repeat the same sequence for all other input channels. The main LED could move up into the red section, in this case yo can adjust the overall output level through the MAIN MIX control.
- For AMX-180FX, you can select desired DSP sound effects via PRESET and VARIATION controls.

5.1. Some Final Tips on Wiring Configuration

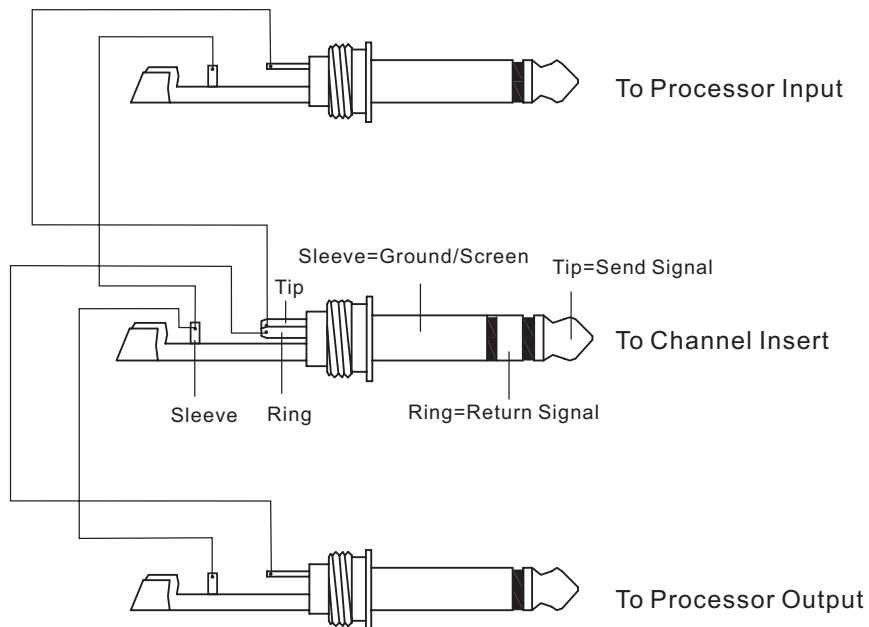
You can connect unbalanced equipment to balanced inputs and outputs. Simply follow these schemes.





'Tapped' Connection Direct Output Lead

(Enables the Insert to be used as a Direct Output while maintaining the channel signal flow)

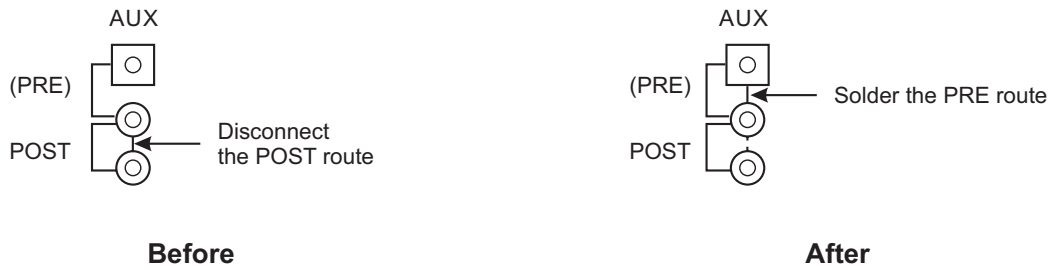


Y-Stereo lead for insert Connection

(To be used when the processor does not employ a single jack connection for the In/Out Connections)

6. FOR THE EXPERTS WHO WANT TO KNOW MORE

As we have told you previously in this manual, the AUX SEND2 control both on mono and on stereo channels is factory wired as POST-FADER. If you have some skill in electronic components soldering you can modify this setting and have all your AUX SENDS configured as PRE-FADER.



Modification on mono and stereo channels

7. PRESET LIST (For AMX-180FX Model)

01. VOCAL1

| No | Pre-delay | Rev Time | Room Size | Rev. Type | Hi Damp |
|----|-----------|----------|-----------|-----------|---------|
| 1 | 84 | 1.00 | 39 | Hall | -12 |
| 2 | 30 | 1.00 | 8 | Tape | -12 |
| 3 | 0 | 4.50 | 10 | Spring | -12 |
| 4 | 55 | 3.60 | 11 | Plate | -12 |
| 5 | 10 | 1.20 | 9 | Spring | -12 |
| 6 | 79 | 3.60 | 8 | Hall | -12 |
| 7 | 45 | 0.8 | 41 | Plate | -12 |
| 8 | 45 | 1.50 | 41 | Plate | -12 |
| 9 | 25 | 2.40 | 9 | Spring | -12 |
| 10 | 0 | 0.90 | 41 | Tape | -12 |
| 11 | 45 | 1.50 | 10 | Plate | -12 |
| 12 | 114 | 1.00 | 45 | Hall | -12 |
| 13 | 40 | 1.00 | 9 | Spring | -12 |
| 14 | 50 | 2.10 | 10 | Tape | -12 |
| 15 | 45 | 4.50 | 11 | Plate | -12 |
| 16 | 55 | 1.70 | | Plate | -12 |

02. VOCAL2

| No | Pre-delay | Rev Time | Room Size | Rev. Type | Hi Damp |
|----|-----------|----------|-----------|-----------|---------|
| 1 | 114 | 1.00 | 10 | Spring | -12 |
| 2 | 45 | 0.80 | 41 | Plate | -12 |
| 3 | 79 | 3.60 | 8 | Hall | -12 |
| 4 | 10 | 1.20 | 9 | Spring | -12 |
| 5 | 55 | 3.60 | 11 | Plate | -12 |
| 6 | 0 | 4.50 | 10 | Spring | -12 |
| 7 | 30 | 1.00 | 8 | Tape | -12 |
| 8 | 84 | 1.00 | 39 | Hall | -12 |
| 9 | 55 | 1.70 | 11 | Plate | -12 |
| 10 | 45 | 4.50 | 41 | Plate | -12 |
| 11 | 50 | 2.10 | 9 | Tape | -12 |
| 12 | 40 | 1.00 | 45 | Spring | -12 |
| 13 | 114 | 1.00 | 10 | Hall | -12 |
| 14 | 45 | 1.50 | 41 | Plate | -12 |
| 15 | 0 | 0.90 | 41 | Tape | -12 |
| 16 | 25 | 2.40 | 9 | Spring | -12 |

03. LARGE HALL

| No | Pre-delay | Rev Time | Room Size | Hi Damp | Rev level |
|----|-----------|----------|-----------|---------|-----------|
| 1 | 55 | 5.40 | 45 | -0.96 | 79 |
| 2 | 55 | 5.40 | 45 | -12.00 | 79 |
| 3 | 40 | 5.40 | 35 | -0.96 | 78 |
| 4 | 40 | 5.40 | 35 | -12.00 | 78 |
| 5 | 50 | 4.50 | 43 | -0.96 | 82 |
| 6 | 50 | 4.50 | 43 | -12.00 | 82 |
| 7 | 27 | 4.50 | 33 | -0.96 | 82 |
| 8 | 27 | 4.50 | 33 | -12.00 | 82 |

| | | | | | |
|----|----|------|----|--------|----|
| 9 | 50 | 4.00 | 42 | -0.96 | 82 |
| 10 | 50 | 4.00 | 42 | -12.00 | 82 |
| 11 | 27 | 4.00 | 32 | -0.96 | 82 |
| 12 | 27 | 4.00 | 32 | -12.00 | 82 |
| 13 | 45 | 3.60 | 41 | -0.96 | 88 |
| 14 | 45 | 3.60 | 41 | -12.00 | 88 |
| 15 | 23 | 3.60 | 30 | -0.96 | 88 |
| 16 | 23 | 3.60 | 30 | -12.00 | 88 |

04. SMALL HALL

| No | Pre-delay | Rev Time | Room Size | Hi Damp | Rev level |
|----|-----------|----------|-----------|---------|-----------|
| 1 | 45 | 2.90 | 39 | -0.96 | 92 |
| 2 | 45 | 2.90 | 39 | -12.00 | 92 |
| 3 | 23 | 2.90 | 28 | -0.96 | 92 |
| 4 | 23 | 2.90 | 28 | -12.00 | 92 |
| 5 | 40 | 2.10 | 38 | -0.96 | 100 |
| 6 | 40 | 2.10 | 38 | -12.00 | 100 |
| 7 | 20 | 2.10 | 27 | -0.96 | 100 |
| 8 | 20 | 2.10 | 27 | -12.00 | 100 |
| 9 | 40 | 1.50 | 37 | -0.96 | 100 |
| 10 | 40 | 1.50 | 37 | -12.00 | 100 |
| 11 | 20 | 1.50 | 26 | -0.96 | 100 |
| 12 | 20 | 1.50 | 26 | -12.00 | 100 |
| 13 | 40 | 1.00 | 36 | -0.96 | 100 |
| 14 | 40 | 1.00 | 36 | -12.00 | 100 |
| 15 | 20 | 1.00 | 25 | -0.96 | 100 |
| 16 | 20 | 1.00 | 25 | -12.00 | 100 |

05. LARGE ROOM

| No | Pre-delay | Rev Time | Room Size | Hi Damp | Rev level |
|----|-----------|----------|-----------|---------|-----------|
| 1 | 55 | 4.50 | 20 | -0.96 | 82 |
| 2 | 55 | 4.50 | 20 | -12.00 | 82 |
| 3 | 40 | 4.50 | 11 | -0.96 | 82 |
| 4 | 40 | 4.50 | 11 | -12.00 | 82 |
| 5 | 50 | 4.00 | 19 | -0.96 | 82 |
| 6 | 50 | 4.00 | 19 | -12.00 | 82 |
| 7 | 27 | 4.00 | 11 | -0.96 | 82 |
| 8 | 27 | 4.00 | 11 | -12.00 | 82 |
| 9 | 50 | 3.60 | 18 | -0.96 | 88 |
| 10 | 50 | 3.60 | 18 | -12.00 | 88 |
| 11 | 27 | 3.60 | 10 | -0.96 | 88 |
| 12 | 27 | 3.60 | 10 | -12.00 | 88 |
| 13 | 45 | 2.90 | 18 | -0.96 | 88 |
| 14 | 45 | 2.90 | 18 | -12.00 | 88 |
| 15 | 23 | 2.90 | 10 | -0.96 | 88 |
| 16 | 23 | 2.90 | 10 | -12.00 | 88 |

06. SMALL ROOM

| No | Pre-delay | Rev Time | Room Size | Hi Damp | Rev level |
|----|-----------|----------|-----------|---------|-----------|
| 1 | 45 | 2.10 | 17 | -0.96 | 92 |
| 2 | 45 | 2.10 | 17 | -12.00 | 92 |
| 3 | 23 | 2.10 | 9 | -0.96 | 92 |
| 4 | 23 | 2.10 | 9 | -12.00 | 92 |
| 5 | 40 | 1.50 | 17 | -0.96 | 100 |
| 6 | 40 | 1.50 | 17 | -12.00 | 100 |
| 7 | 20 | 1.50 | 9 | -0.96 | 100 |
| 8 | 20 | 1.50 | 9 | -12.00 | 100 |
| 9 | 40 | 1.00 | 16 | -0.96 | 100 |
| 10 | 40 | 1.00 | 16 | -12.00 | 100 |
| 11 | 20 | 1.00 | 8 | -0.96 | 100 |
| 12 | 20 | 1.00 | 8 | -12.00 | 100 |
| 13 | 40 | 0.70 | 16 | -0.96 | 100 |
| 14 | 40 | 0.70 | 16 | -12.00 | 100 |
| 15 | 20 | 0.70 | 8 | -0.96 | 100 |
| 16 | 20 | 0.70 | 8 | -12.00 | 100 |

07. PLATE

| No | Pre-delay | Rev Time | Room Size | Hi Damp |
|----|-----------|----------|-----------|---------|
| 1 | 10 | 6.10 | 10 | -2.08 |
| 2 | 10 | 5.40 | 10 | -2.08 |
| 3 | 10 | 4.50 | 10 | -2.08 |
| 4 | 10 | 4.00 | 10 | -2.08 |
| 5 | 10 | 3.60 | 10 | -2.08 |
| 6 | 10 | 2.90 | 10 | -2.08 |
| 7 | 10 | 2.40 | 10 | -2.08 |
| 8 | 10 | 2.10 | 10 | -2.08 |
| 9 | 10 | 1.70 | 10 | -2.08 |
| 10 | 10 | 1.50 | 10 | -2.08 |
| 11 | 10 | 1.30 | 10 | -2.08 |
| 12 | 10 | 1.20 | 10 | -2.08 |
| 13 | 10 | 1.00 | 10 | -2.08 |
| 14 | 10 | 0.80 | 10 | -2.08 |
| 15 | 10 | 0.70 | 10 | -2.08 |
| 16 | 10 | 0.60 | 10 | -2.08 |

08. TAPE REVERB

| No | Pre-delay | Rev Time | Room Size | Hi Damp | Rev level |
|----|-----------|----------|-----------|---------|-----------|
| 1 | 84 | 5.4 | 38 | -0.96 | 79 |
| 2 | 84 | 5.4 | 38 | -12.00 | 79 |
| 3 | 84 | 4.50 | 35 | -0.96 | 79 |
| 4 | 84 | 4.50 | 35 | -12.00 | 79 |
| 5 | 84 | 4 | 31 | -0.96 | 84 |
| 6 | 84 | 4 | 31 | -12.00 | 84 |
| 7 | 84 | 3.60 | 28 | -0.96 | 84 |
| 8 | 84 | 3.60 | 28 | -12.00 | 84 |

| | | | | | |
|----|---|------|----|--------|-----|
| 9 | 0 | 3.60 | 23 | -0.96 | 92 |
| 10 | 0 | 3.60 | 23 | -12.00 | 92 |
| 11 | 0 | 2.90 | 23 | -0.96 | 92 |
| 12 | 0 | 2.90 | 23 | -12.00 | 92 |
| 13 | 0 | 2.10 | 21 | -0.96 | 100 |
| 14 | 0 | 2.10 | 21 | -12.00 | 100 |
| 15 | 0 | 1.30 | 21 | -0.96 | 100 |
| 16 | 0 | 1.30 | 21 | -12.00 | 100 |

09. SPRING REVERB

| No | Pre-delay | Rev Time | Room Size | Hi Damp | Rev level |
|----|-----------|----------|-----------|---------|-----------|
| 1 | 35 | 5.4 | 35 | -0.96 | 79 |
| 2 | 35 | 5.4 | 35 | -12.00 | 79 |
| 3 | 30 | 4.50 | 33 | -0.96 | 79 |
| 4 | 30 | 4.50 | 33 | -12.00 | 79 |
| 5 | 30 | 4 | 30 | -0.96 | 87 |
| 6 | 30 | 4 | 30 | -12.00 | 87 |
| 7 | 30 | 3.60 | 28 | -0.96 | 87 |
| 8 | 84 | 3.60 | 28 | -12.00 | 87 |
| 9 | 0 | 2.90 | 22 | -0.96 | 92 |
| 10 | 0 | 2.90 | 22 | -12.00 | 92 |
| 11 | 0 | 2.40 | 22 | -0.96 | 100 |
| 12 | 0 | 2.40 | 22 | -12.00 | 100 |
| 13 | 0 | 1.70 | 22 | -0.96 | 100 |
| 14 | 0 | 1.70 | 22 | -12.00 | 100 |
| 15 | 0 | 1.30 | 22 | -0.96 | 100 |
| 16 | 0 | 1.30 | 22 | -12.00 | 100 |

10. MONO DELAY

| No | Delay | F.B. |
|----|-------|------|
| 1 | 650 | 60 |
| 2 | 625 | 60 |
| 3 | 600 | 60 |
| 4 | 577 | 60 |
| 5 | 555 | 60 |
| 6 | 535 | 60 |
| 7 | 517 | 60 |
| 8 | 500 | 60 |
| 9 | 484 | 60 |
| 10 | 461 | 60 |
| 11 | 448 | 60 |
| 12 | 434 | 60 |
| 13 | 350 | 60 |
| 14 | 250 | 65 |
| 15 | 100 | 0 |
| 16 | 60 | 0 |

11. STEREO DELAY

| No | Delay | Right Delay | Left F.B. | Right F.B. |
|----|-------|-------------|-----------|------------|
| 1 | 400 | 200 | 51 | 72 |
| 2 | 375 | 187 | 51 | 72 |
| 3 | 352 | 176 | 40 | 72 |
| 4 | 326 | 163 | 40 | 72 |
| 5 | 312 | 156 | 40 | 72 |
| 6 | 300 | 150 | 40 | 72 |
| 7 | 288 | 144 | 40 | 66 |
| 8 | 277 | 138 | 40 | 66 |
| 9 | 267 | 133 | 30 | 66 |
| 10 | 258 | 129 | 38 | 73 |
| 11 | 250 | 125 | 37 | 73 |
| 12 | 241 | 120 | 36 | 73 |
| 13 | 238 | 119 | 36 | 73 |
| 14 | 230 | 115 | 37 | 74 |
| 15 | 222 | 111 | 38 | 73 |
| 16 | 214 | 107 | 37 | 73 |

12. FLANGER

| No | Mod. Freq | Pitch. Depth | Left F.B. | Right F.B. |
|----|-----------|--------------|-----------|------------|
| 1 | 2.79 | 30 | 38 | 42 |
| 2 | 2.52 | 40 | 42 | 38 |
| 3 | 2.33 | 40 | 38 | 42 |
| 4 | 2.25 | 40 | 38 | 42 |
| 5 | 2.10 | 40 | 42 | 38 |
| 6 | 1.99 | 40 | 38 | 42 |
| 7 | 1.75 | 40 | 42 | 38 |
| 8 | 1.61 | 50 | 38 | 42 |
| 9 | 1.34 | 50 | 42 | 38 |
| 10 | 1.22 | 70 | 58 | 62 |
| 11 | 1.00 | 70 | 62 | 58 |
| 12 | 0.80 | 70 | 62 | 58 |
| 13 | 0.65 | 70 | 58 | 62 |
| 14 | 0.54 | 70 | 68 | 72 |
| 15 | 0.42 | 70 | 68 | 72 |
| 16 | 0.16 | 70 | 68 | 72 |

13. CHORUS

| No | Mod. Freq. | Pitch. Depth | IHFR |
|----|------------|--------------|-------|
| 1 | 5.00 | 15 | -3(0) |
| 2 | 4.74 | 15 | -4(0) |
| 3 | 4.39 | 15 | -4(0) |
| 4 | 4.12 | 15 | -4(0) |
| 5 | 3.90 | 30 | -4(0) |
| 6 | 3.67 | 30 | -4(0) |
| 7 | 3.32 | 30 | -4(0) |
| 8 | 3.02 | 30 | -4(0) |
| 9 | 2.87 | 30 | -4(0) |
| 10 | 2.63 | 40 | -4(0) |

| | | | |
|----|------|----|-------|
| 11 | 2.33 | 40 | -3(0) |
| 12 | 1.99 | 40 | -3(0) |
| 13 | 1.70 | 40 | -3(0) |
| 14 | 1.35 | 40 | -2(0) |
| 15 | 1.00 | 70 | -2(0) |
| 16 | 0.50 | 70 | -2(0) |

14. REVERB+DELAY

| No | Rev Time | Room Size | Left Delay | Right Delay | Left F.B. | Right F.B. | Rev level |
|----|----------|-----------|------------|-------------|-----------|------------|-----------|
| 1 | 2.90 | 39 | 375 | 187 | 48 | 82 | 80% |
| 2 | 2.90 | 39 | 326 | 163 | 28 | 67 | 80% |
| 3 | 2.90 | 39 | 300 | 150 | 28 | 67 | 80% |
| 4 | 2.90 | 39 | 277 | 138 | 28 | 67 | 80% |
| 5 | 2.40 | 39 | 258 | 129 | 28 | 60 | 80% |
| 6 | 2.40 | 39 | 241 | 120 | 28 | 49 | 80% |
| 7 | 2.40 | 39 | 230 | 115 | 28 | 49 | 80% |
| 8 | 2.40 | 39 | 211 | 107 | 28 | 49 | 80% |
| 9 | 2.10 | 26 | 375 | 187 | 48 | 82 | 90% |
| 10 | 2.10 | 26 | 326 | 163 | 28 | 67 | 90% |
| 11 | 1.50 | 26 | 300 | 150 | 28 | 67 | 90% |
| 12 | 1.50 | 26 | 277 | 138 | 28 | 67 | 90% |
| 13 | 1.50 | 26 | 258 | 129 | 28 | 60 | 90% |
| 14 | 1.50 | 26 | 241 | 120 | 28 | 49 | 90% |
| 15 | 1.00 | 26 | 230 | 115 | 28 | 49 | 90% |
| 16 | 1.00 | 26 | 211 | 107 | 28 | 49 | 90% |

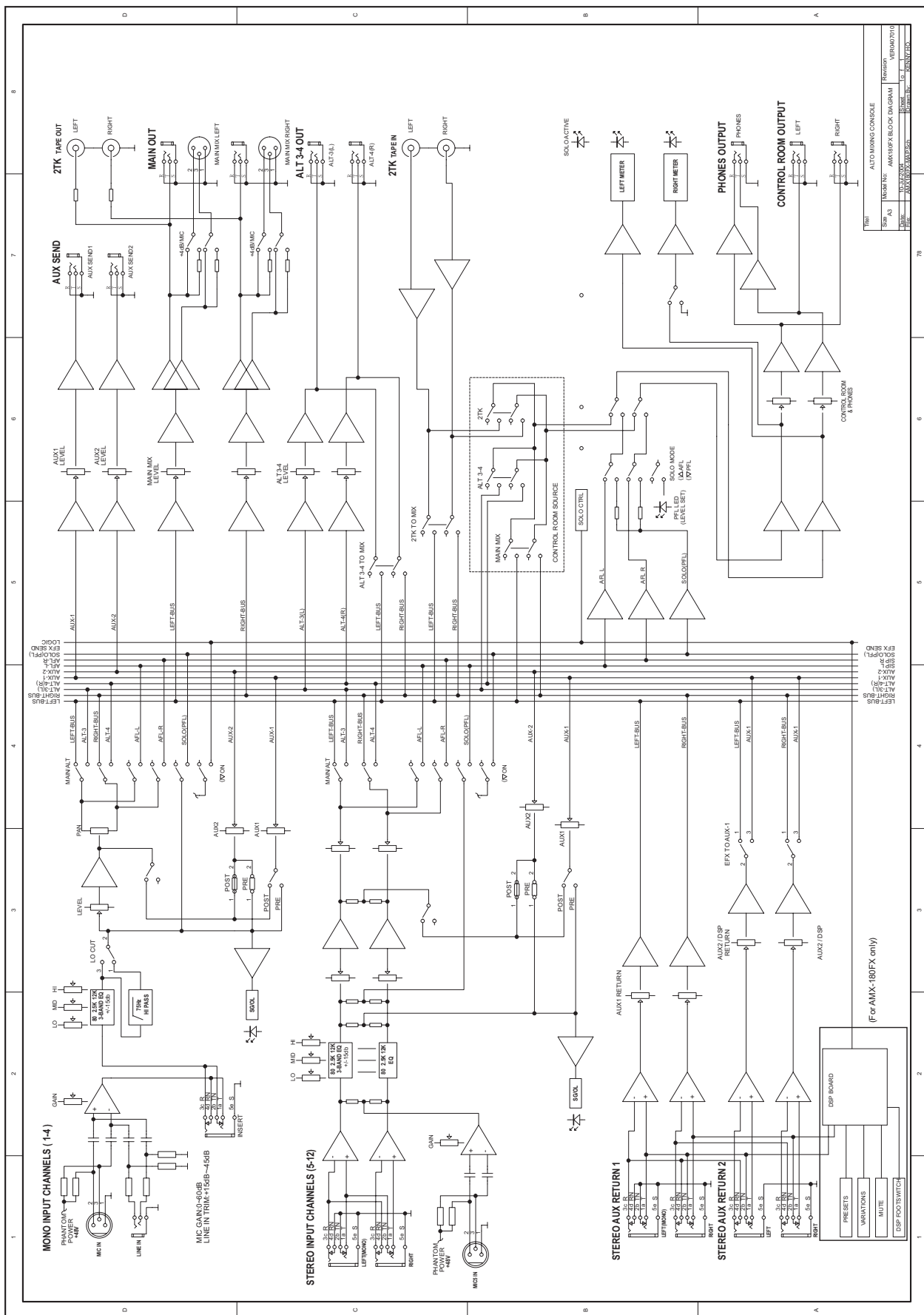
15. REVERB+FLANGER

| No | Rev Time | Room Size | Mod. Freq. | Pitch. Depth | Left F.B. | Rev level |
|----|----------|-----------|------------|--------------|-----------|-----------|
| 1 | 2.90 | 39 | 2.52 | 40 | 40 | 90% |
| 2 | 2.90 | 39 | 2.25 | 40 | 40 | 90% |
| 3 | 2.90 | 39 | 1.99 | 40 | 40 | 90% |
| 4 | 2.90 | 39 | 1.61 | 50 | 40 | 90% |
| 5 | 2.90 | 39 | 1.22 | 70 | 60 | 90% |
| 6 | 2.90 | 39 | 0.80 | 70 | 60 | 90% |
| 7 | 2.90 | 39 | 0.54 | 70 | 70 | 90% |
| 8 | 2.90 | 39 | 0.16 | 70 | 70 | 90% |
| 9 | 1.50 | 26 | 2.52 | 40 | 40 | 90% |
| 10 | 1.50 | 26 | 2.25 | 40 | 40 | 90% |
| 11 | 1.50 | 26 | 1.99 | 40 | 40 | 90% |
| 12 | 1.50 | 26 | 1.61 | 50 | 40 | 90% |
| 13 | 1.50 | 26 | 1.22 | 70 | 60 | 90% |
| 14 | 1.50 | 26 | 0.80 | 70 | 60 | 90% |
| 15 | 1.00 | 26 | 0.54 | 70 | 70 | 90% |
| 16 | 1.00 | 26 | 0.16 | 70 | 70 | 90% |

16. REVERB+CHORUS

| No | Rev Time | Room Size | Mod. Freq. | Pitch. Depth | Left F.B. | Rev level |
|----|----------|-----------|------------|--------------|-----------|-----------|
| 1 | 2.90 | 39 | 4.74 | 40 | 100 | 90% |
| 2 | 2.90 | 39 | 4.12 | 40 | 100 | 90% |
| 3 | 2.90 | 39 | 3.67 | 40 | 100 | 90% |
| 4 | 2.90 | 39 | 3.02 | 40 | 100 | 90% |
| 5 | 2.90 | 39 | 2.63 | 40 | 100 | 90% |
| 6 | 2.90 | 39 | 1.99 | 40 | 100 | 90% |
| 7 | 2.90 | 39 | 1.35 | 70 | 100 | 90% |
| 8 | 2.90 | 39 | 0.50 | 70 | 100 | 90% |
| 9 | 1.50 | 26 | 4.74 | 40 | 100 | 90% |
| 10 | 1.50 | 26 | 4.12 | 40 | 100 | 90% |
| 11 | 1.50 | 26 | 3.67 | 40 | 100 | 90% |
| 12 | 1.50 | 26 | 3.02 | 40 | 100 | 90% |
| 13 | 1.50 | 26 | 2.63 | 40 | 100 | 90% |
| 14 | 1.50 | 26 | 1.99 | 40 | 100 | 90% |
| 15 | 1.00 | 26 | 1.35 | 70 | 100 | 90% |
| 16 | 1.00 | 26 | 0.50 | 70 | 100 | 90% |

8. SYSTEM BLOCK DIAGRAM



9. TECHNICAL SPECIFICATION

| | | |
|--|--------------------------|---|
| Mono input channels | Microphone input | Electronically balanced ,discrete input configuration |
| | Frequency response | 10Hz to 55KHz, ± 3 dB |
| | Distortion (THD&N) | 0.005% at +4dBu, 1KHz |
| | Gain range | 0dB to 44dB(MIC) |
| | SNR (Signal Noise Rated) | 115dB |
| | Line input | Electronically balanced |
| | Frequency response | 10Hz to 55KHz, ± 3 dB |
| | Distortion (THD&N) | 0.005% at +4dBu, 1KHz |
| | Sensitivity range | +15dBu to -30dBu |
| Stereo input channels | Line input | unbalanced |
| | Frequency response | 10Hz to 55KHz, ± 3 dB |
| | Distortion (THD&N) | 0.005% at +4dBu, 1KHz |
| Impedance | Microphone input | 1.4K ohm |
| | Channel insert return | 2.5K ohm |
| | All other inputs | 10Kohm or greater |
| | Tape out | 1K ohm |
| | All other output | 120 ohm |
| Equalization | Hi shelving | |
| | Mid bell | ± 12 dB @ 2.5KHz |
| | Low shelving | |
| Main Mix Section | Noise (Bus noise) | Fader 0 dB, channels muted:-100.0dBr (ref.:+4dBu) |
| | | Fader 0 dB,all input channels assigned and set to UNITY gain:-90dBr(ref.:+4dBu) |
| | Max output | +22dBu balanced XLR, |
| | | +22dBu unbalanced,1/4" jacks |
| | AUX Return gain range | OFF to +15dB |
| AUX Sends max out | +22dBu | |
| Power supply (AC/AC Adaptor) | Main voltage | USA/ Canada 100-120V~,60Hz |
| | | Europe 210-230V~,50Hz/60Hz |
| | | U.K/Australia 240V~,50Hz |
| | Power Consumption | 25watts |
| Physical | Dimension (W×D×H) | 409mm×330mm×43mm |
| | | (16.10"×12.99"×1.69") |
| | Net weight | AMX-180: 3.90Kg (8.6lb) Without Adaptor |
| AMX-180FX: 3.97Kg (8.75lb) Without Adaptor | | |

10. WARRANTY

10.1 WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to purport a more effective and efficient after-sales warranty service.

Please fill out all the information carefully and genuinely, miswriting or absence of this card will void your warranty service.

10.2 RETURN NOTICE

- a. In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.
- b. Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.
- c. A brief description of the defect will be appreciated.
- d. Please prepay all the costs involved in the return shipping, handling and insurance.

10.3 TERMS AND CONDITIONS

- a. ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.
- b. The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.
- c. During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.
- d. This warranty does not apply to the damages to this product that occurred as the following conditions:
 - Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
 - Normal tear and wear.
 - The product has been altered or modified in any way.
 - Damage which may have been caused either directly or indirectly by another product / force / etc.
 - Abnormal service or repairing by anyone other than the qualified personnel or technician.And in such cases, all the expenses will be charged to the buyer.
- e. In no event shall ▲LTO be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.
- f. This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

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