

PA400 400 WATT MIXER AMP

INTRODUCTION

In order to provide the flexibility and control necessary for the broad usage expected from a PA system, the new Marshall

established within the Marshall tradition and are a part of any unit bearing our renowned logo.

For the best results from your



PA -400 features the latest Mixer/amplifier technology.

The comprehensive facilities are laid out with the user in mind and are fully explained in this handbook. We suggest that you study the manual carefully before operating the PA-400 to obtain the best results. Particular attention should be paid to the warning list and connection instructions.

Successful Amplification equipment involves hours of research and requires innovation, practicality and above all reliability. These attributes are all

PA-400 Marshall have developed two speaker enclosures.

Model 6115H 1x15" + horn 175 Watt and Model 6112H 1x12" + Horn 150 Watt.

A range of speaker cables (PAL20 20ft & PAL40 40ft) and stands (PAS) are available.

USING THE PA400

The features of this amplifier have been laid out as simply as possible, but there may be functions with which you are unfamiliar. The following guide sets out some operating instructions to help you to get the best results from your amplifier.

1) Connections:

Before switching the PA-400 on, ensure that all the necessary connections are correctly made with reliable cables. Speakers cables should be regularly checked and connected first, followed by all external devices such as microphones, cassette /CD player, effects units, monitor system and power amps. Turn on the power to cassette machine and effects units before the PA-400, then any power amps to monitor or slave system.

2) Control Settings:

It is advisable to check that the volume and gain settings of the PA-400 are set to zero before switching on. Each channel should be set up individually

according to the proposed usage, in the following manner;

- Set the tone controls (3, 4 and 5) initially to 12 o'clock.
- Set the Monitor, Reverb and Effects controls (6, 7 and 8) to zero.
- Set the Master Volume (18) and Reverb (19) controls to adjust the overall volume levels.
- Adjust the channel volume controls (9) to the desired independent volume level.
- Now the channel EQ (3,4 and 5) and the reverb control (8) can be adjusted to create the desired tone and reverb effect. (Some experimentation will be required to find the best settings for different microphone and voice types).

WARNING! PLEASE READ THE FOLLOWING LIST CAREFULLY

- ALWAYS** fit a good quality mains plug conforming to the latest B.S.I. standards (UK Only).
- ALWAYS** wire the plug in accordance with the colour code attached to the mains lead (UK only).
- DO NOT** attempt to remove the amplifier chassis. There are no user serviceable parts inside.
- ALWAYS** have this equipment serviced or repaired by competent, qualified personnel.
- NEVER** under any circumstances, operate the amplifier without an earth (ground).
- NEVER** use any amplifier in damp or wet conditions.
- ALWAYS** ensure that the impedance of the speaker or speakers connected does not fall below the amplifiers minimum impedance rating.
- DO NOT** obstruct the ventilation grilles at any time.
- PLEASE READ** this instruction manual carefully before switching on.

PA400 FRONT PANEL

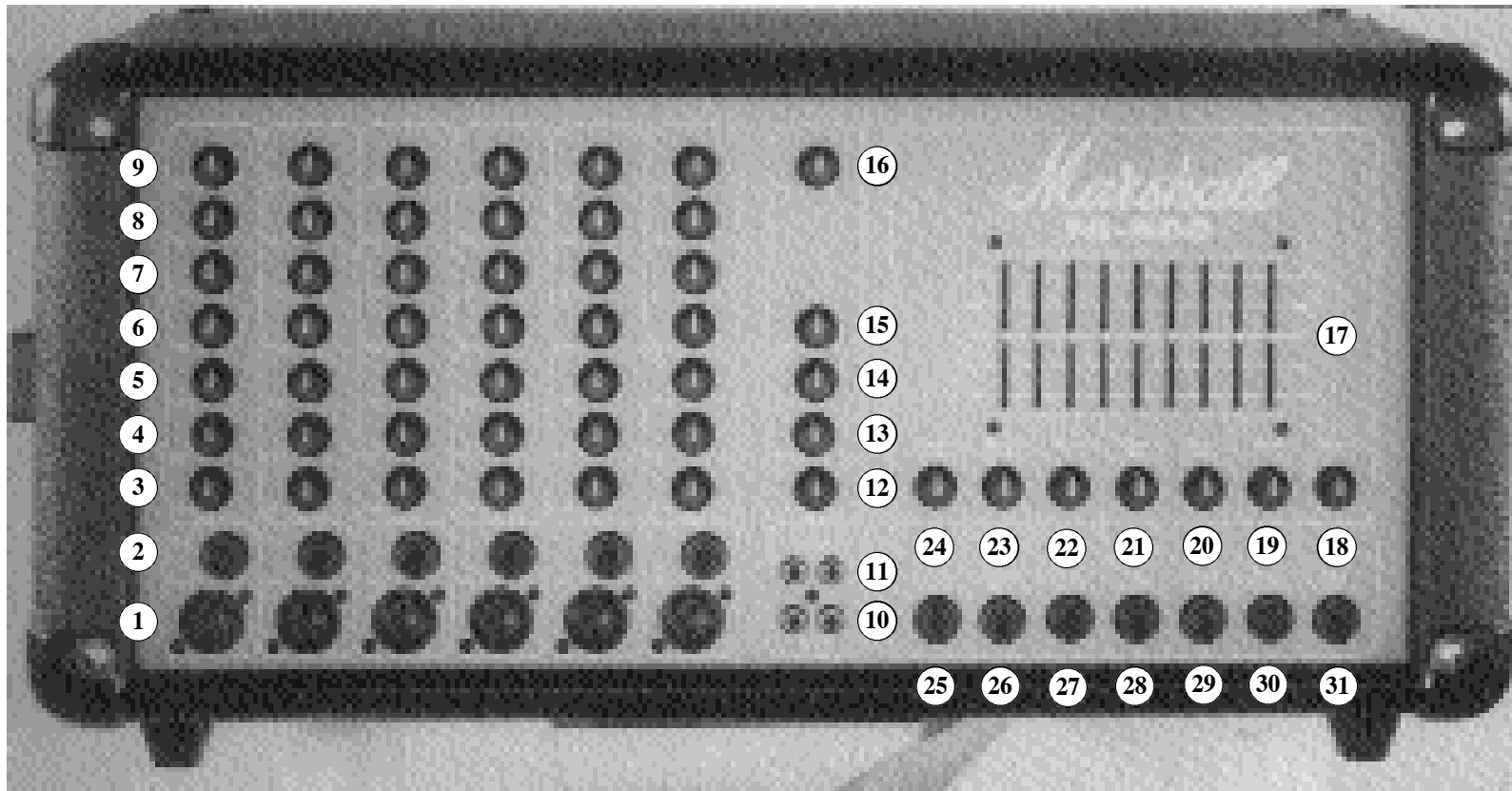
PA400 Front Panel Functions.

Channels 1-6

- 1. Low impedance XLR input** - For the connection of low impedance microphones.
- 2. High impedance Jack input** - For the connection of high impedance microphones. Also suitable for acoustic instruments with transducer type pick-ups.
- 3-5. Bass, Middle and Treble EQ controls** - A wide range of tonal adjustment can be selected using combinations of these controls.
- 6. Monitor level** - Provides the volume level adjustment from the channel to the monitor section.
- 7. Effects Level** - Provides level adjustment of the signal from the channel to effects units linked through the master effects loop.
- 8. Reverb Level** - Allows the level of the built in reverb to be adjusted on the channel.
- 9. Volume control** - This allows the individual volume level of the channel to be adjusted.

Channel 7 (tape channel).

- 10. Tape inputs** - Phono (RCA) sockets to accept the signal from tape or CD players.
- 11. Tape outputs** - Phono (RCA) sockets to provide connection out to cassette or other recording equipment.
- 12. Recording level control** - Provides level control of the output to external recording equipment.
- 13- 14. Bass and Treble EQ controls** - A wide range of tonal adjustment can be selected using combinations of these controls.
- 15. Monitor control** - Controls the level of the tape signal to the monitor output.
- 16. Volume control** - Provides level control of the tape channel output.



Master Section.

- 17. 9 Band Graphic Equalizer** - Provides master EQ control across the audio spectrum. This feature is particularly useful for "shaping" the sound to achieve peak performance in rooms of different size and texture. Adjustment of -12 to +12 dB is provided at 63Hz, 125Hz, 250 Hz, 500 Hz, 1 K Hz, 2 K Hz, 4 K Hz, 8 K Hz and 16 K Hz. The slider tips are loaded with an LED to provide the display of graphic "shapes", even on darkened stages.
- 18. Master Volume control** - Controls the overall volume level of the amplifier.
- 19. Master Reverb control** - Provides the overall level control of the reverb.
- 20. Effects Return control** - Controls the level of the signal returning to the PA-400 from external effects processors

which would be linked through effects loop sockets (26 & 27).

- 21. Effects Send control** - Controls the level of the signal from the PA-400 to the input of external effects processors.
- 22. Monitor output control** - Controls the level of the output from monitor socket (25) to drive a separate monitor power amp.
- 23. Effects to Monitor control** - Provides level adjustment of the effects return into the monitor mix.
- 24. Reverb to Monitor control** - Provides level adjustment of the reverb into the monitor mix.
- 25. Monitor output** - Jack socket for connection to power amplifier driving the monitor system.
- 26. Effects Send** - Jack socket for connection to the input of external effects processors.
- 27. Effects Return** - Jack socket which

accepts the signal from the output of external effects processors.

- 28. Footswitch socket** - For connection of a two way (FS02) switch for reverb on/off and effects loop in/out. If a single footswitch is used, the reverb only will be switched.
- 29. Pre-amp output** - Provides a signal directly out from the pre-amp (also mutes the power amp) allows external processing of signal which can then be returned to Power Amp in socket (30).
- 30. Power Amp input** - Provides a direct input to the power amp stage of the PA-400. Also acts as the effects return for series connected processors linked via socket (29).
- 31. Slave output** - Sends out an overall signal from the mixer section, suitable for driving extra power amps, if the system needs to be extended.

PA400 REAR PANEL

Rear Panel Features.

32. Mains switch - Mains on/off switch

33. Mains Input- Socket to accept the mains power lead supplied. (note: please ensure that correct wiring practices have been observed before use).

34-35. Loudspeaker outputs - Jack sockets for the connection of loudspeaker systems. The power output is 400 Watts into 2 Ohms. Under no circumstances should a total loudspeaker load of less than 2 Ohms be connected.



SPECIFICATIONS

Channels 1-6

Low impedance	3 pin XLR balanced input.
Sensitivity	-50dBm.
Input impedance	10K Ω .
High impedance	2 pole jack unbalanced input.
Sensitivity	-30dBm.
Input impedance	1 M Ω .
Bass control	+/- 12dB @ 100 Hz.
Middle control	+/- 12dB @ 600 Hz.
Treble control	+/- 12dB @ 10KHz.

Channel 7 (tape channel).

Input impedance	33K Ω .
Input sensitivity	-20dBm.
Bass control	+/- 12dB @ 100Hz.
Treble control	+/- 12dB @ 10 KHz.
Output level	0 dBm.
Output impedance	500 Ω .
Master section	
Graphic equalizer	9 band giving +/- 12dB @ centre frequencies of 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz and 16KHz.

Effects output level	0dBm nominal.
Effects output impedance	500 Ω .
Effects input sensitivity impedance	-10dBm.
Effects input impedance	10K Ω .
Monitor output level	0dBm nominal.
Monitor output impedance	500 Ω .
Pre-amp/slave output level	0dBm nominal.
Pre-amp/slave output	500 Ω .
Power Amplifier	
MOSFET power output stage	400 Watts into 2 Ω . 300 Watts into 4 Ω . 200 Watts into 8 Ω .

Output offset voltage	+/- 10mV.
Frequency response	+/- 0.5dB 10Hz -20KHz.
Hum and noise	Greater than -100dB.
Load impedance	2 Ω or greater.
Output protection	Open circuit, short circuit, load mismatch and over temperature protection.
Input sensitivity	0dBm for 400W into 2 Ω .
Input impedance	47K Ω .
Slew rate	50V / μ S.

The PA-5400 has a built in cooling fan to ensure reliable operation under the most arduous conditions. The fan will switch on when the internal temperature exceeds 60°C and will automatically turn off again when the temperature drops below 55°C.