

Marshall

INTEGRATED BASS SYSTEM HANDBOOK

The range consists of the following:

Three Bass Amplifiers:

Model 3510.....	100 watt
Model 3520.....	200 watt
Model 3540.....	400 watt

Three Slave Amplifiers:

Model 6010.....	100 watt
Model 6020.....	200 watt
Model 6040.....	2 × 200 watt

Two Bass Combos:

Model 5510.....	100 watt
Model 5522.....	200 watt

Two Optional Combo Boxes:

Model 3051.....	100 watt combo box with speaker
Model 3052.....	200 watt combo box with speaker

Seven Bass Cabinets:

Model 1550.....	1 × 15 250 watt
Model 1551.....	2 × 15 200 watt
Model 1552.....	2 × 15 500 watt
Model 1580.....	1 × 18 400 watt
Model 1553.....	1 × 15 and 2 × 10 300 watt
Model 1510.....	4 × 10 200 watt
Model 1520.....	4 × 12 600 watt

Optional Amp Sleeves:

Model 3002.....	for 100 watt and 200 watt models
Model 3003.....	for 400 watt model

Congratulations !

I would like to thank you personally for selecting one of our amplifiers.

Our reputation is built on a total commitment to design and engineer the finest amplifiers available in the world. To that end we have spared no effort in providing the very best in materials, and precision workmanship to allow extended years of outstanding performance.

Please be sure to return your registration card, so that we may enter your name in our roster of Marshall users.

Again, thank you sincerely.

A handwritten signature in black ink that reads "Jim Marshall". The signature is written in a cursive, flowing style and is positioned above the printed name.

Managing Director

Introduction

Jim Marshall Products offer a range of professional bass amplifiers and cabinets, which are completely new in concept and design, but are engineered to the same standards of excellence as all Marshall amplification.

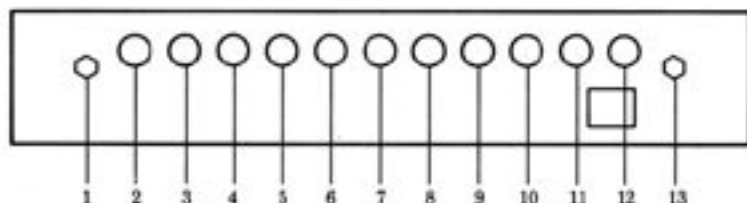
The amplifiers are all rack-mountable (in standard 19" rack format), or available in a purpose built, removable sleeve, for use with the classic 'stack' format.

The combo models (5510 and 5522), may also have their respective amp sections (3510 and 3520) removed for use in a rack system. Alternatively, the combo boxes may be obtained separately, allowing the rack amplifier to be mounted inside.

These features, combined with the wide E.Q. and bi-amp patching facilities, provide a very flexible and fully integrated bass system.

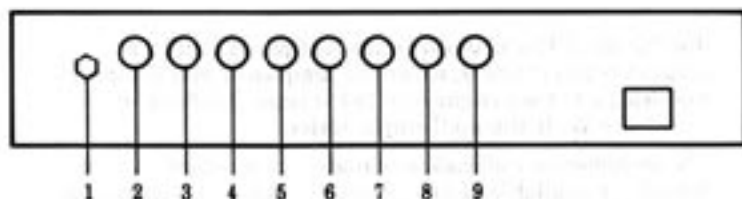
Jim Marshall (Products) Ltd. operate a policy of continuous development and reserve the right to change specifications without prior notice.

Front Panel Functions 3520, 3540, 5522



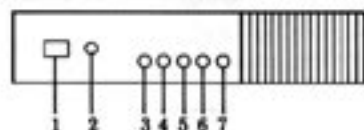
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|-------------------|--|------------------------------|---|
| 1. Input Jack | Connects instrument to amplifier. | 9. Boost Control | Provides footswitched gain boost, control operative without footswitch for increased system gain. |
| 2. Sensitivity | Controls input signal level and dynamic range. | 10. X-Over Frequency Control | Variable between 100 and 1KHz. Should be set to approximately 500Hz. if non bi-amp mode is used. |
| 3. Contour | Provides approximately 10dB. cut at low and mid frequencies, to control rumble or voicing, centre off. | 11. Treble Volume | Acts on treble spectrum of signal. |
| 4. 50Hz. Control | } Cut and boost, centre off E.Q. controls. Provides wide E.Q. adjustment across the bass spectrum. Flat response when E.Q. and contour controls set to zero. | 12. Bass Volume | Acts on bass spectrum of signal (in non bi-amp mode outputs 11 and 12 are mixed together) to give further tonal variations. |
| 5. 400Hz. Control | | | |
| 6. 1KHz. Control | | | |
| 7. 5KHz. Control | | | |
| 8. 10KHz. Control | | | |
| | | 13. Footswitch Jack | Socket for boost footswitch. |

Front Panel Functions 3510, 5510



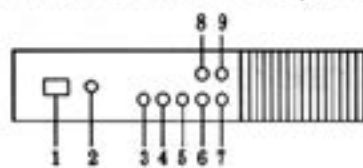
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|--|--|---|---|
| <p>1. Input Jack</p> <p>2. Sensitivity</p> <p>3. Contour</p> | <p>Connects instrument to amplifier.</p> <p>Controls input signal level and dynamic range.</p> <p>Provides approximately 10dB. cut at low and mid frequencies to control rumble or voicing, centre off position.</p> | <p>4. 50Hz. Control</p> <p>5. 400Hz. Control</p> <p>6. 1KHz. Control</p> <p>7. 5KHz. Control</p> <p>8. 10KHz. Control</p> | <p>} Cut and boost, centre off E.Q. controls. Provides for wide E.Q. adjustment across the bass spectrum. Flat response when contour and E.Q. controls set to zero.</p> |
| | | <p>9. Volume</p> | <p>Controls signal level to internal power amp.</p> |

Rear Panel Functions 3510, 5510



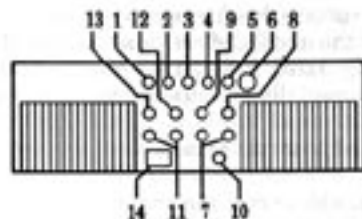
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| <p>1. Mains Input</p> <p>2. Mains Fuse</p> <p>3. Effects Send</p> <p>4. Effects Return</p> <p>5. Preamp Output</p> <p>6-7. Loudspeaker Outputs</p> | <p>Connects amplifier to power supply.</p> <p>Refer to rear label of amp for correct value.</p> <p>Signal jack to feed the input of external effects unit.</p> <p>Return jack from output of external effect unit. (Pre-output volume circuit).</p> <p>Post-output volume circuit.</p> <p>For connection of loudspeakers total minimum loading not less than 4 ohms.</p> |
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Rear Panel Functions 3520, 5522



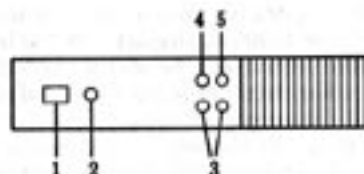
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|---|---|
| <p>1. Mains Input</p> <p>2. Mains Fuse</p> <p>3. Effects Send</p> <p>4. Effects Return</p> <p>5. Bi-amp Treble Output</p> <p>6. Bi-amp Bass Output</p> <p>7. Pre-Master Output Section Preamp Out</p> <p>8-9. Loudspeaker Outputs</p> | <p>Connects amplifier to power supply.</p> <p>Refer to rear label of amp for correct value.</p> <p>Signal jack to feed the input of effects unit.</p> <p>Return jack from output of external effects unit.</p> <p>Using this socket switches master section into bi-amp mode. Bass output is then fed to internal power amp via bi-amp bass socket.</p> <p>When used in bi-amp mode socket carries bass only. In non bi-amp mode socket carries full range signal, post mixed master output.</p> <p>Can be used to feed mixing console or separate full range amp/speaker system when bi-amp mode is utilized.</p> <p>For loudspeakers. Total loading not less than 4 ohms.</p> |
|---|---|

Rear Panel Functions 3540



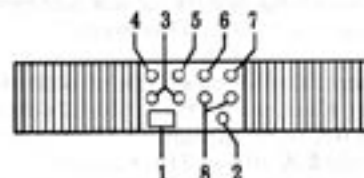
- Effects Send Socket** Signal jack to feed the input of external effects unit.
- Effects Return Socket** Return jack from output of external effects unit.
- Bi-amp Treble Output** Connects master output into bi-amp mode and carries treble frequencies only.
- Bi-amp Bass (or Post-Master full range Output)** If no patching is done, full range signal is switched into power amps. Carries bass only in bi-amp mode.
- Pre-Master Preamp Output** Can be used to feed mixing console or separate full range amp/speaker system when bi-amp mode is used.
- Balanced D.I. Output Pre-Master Output** Balanced output can be used for recording or balanced line P.A. connection.
- Channel A Loudspeaker Output** Gives 200w. into not less than 4 ohms.
- Channel A Link-Out** Output for connection to external power amp.
- Channel A In** Input to internal power amp.
- Mains Fuse** Refer to rear label on amp for correct value.
- Channel B Loudspeaker Output** Gives 200w. into not less than 4 ohms.
- Channel B In** Input to internal power amp.
- Channel B Link** Output for connection to external power amp.
- Mains Input Socket** Connects amplifier to power supply.

Rear Panel Functions 6010, 6020



- Mains Input Socket** For connection to mains power supply.
- Mains Fuse** Refer to rear label of amp for correct value.
- Loudspeaker Output** Giving 100w. or 200w. depending on model, into not less than 4 ohms.
- In Socket** Input to power amp.
- Link Output Socket** Parallel wired to input sockets to link to further power amplifiers.

Rear Panel Functions 6040



- Mains Input Socket** Connects amplifier to power supply.
- Mains Fuse** Refer to rear label of amp for correct value.
- Channel B Loudspeaker Output** Giving 200w. into not less than 4 ohms.
- Channel B Link Output** To link to any further power amplifiers.
- Channel B In Socket** Input to power amp Channel B.
- Channel A In Socket** Input to power amp Channel A.
- Channel B Link Output** To link any further power amplifier.
- Channel A Loudspeaker Output** Giving 200w. into not less than 4 ohms.

Front Panel Controls

Sensitivity Controls the gain of input to preamplifier, hence the signal from the bass guitar and determines the amount of drive to the amplifier circuit. Toward the end of its travel (+), the control will take the preamplifier into clipping for a thicker sound and overdrive effects. The amount of drive required will vary with the type of bass (passive or active), and the playing style: fingers, slap, pick, etc. The settings of the E.Q. controls will also have a substantial effect of the control setting.

E.Q. The E.Q. section is divided into six controls that act on specific bands of the tonal spectrum. Flat response is achieved when all controls are set mid-way (0) and, except for the contour, will boost or cut from this position. The overall tonal effect will be determined by the final interrelation of the entire E.Q. section, thus it is recommended that, initially, the E.Q. section is set at (0), and each control is experimented with. It will be found that higher volume settings will require less E.Q. adjustments.

Contour allows for a variable amount of cut at either 40Hz. or 700Hz. At the '12 o'clock' position (0), no cut is realized. Moving the control clockwise from 0 increases the amount of cut at 700Hz. This helps provide a cleaner, more rounded sound, especially at low volume settings. Rotating the control counter-clockwise from 0 increases the amount of cut at 40Hz. This will tighten up the sound when the amplifier is being overdriven, and also helps protect speakers from excessive cone excursion at high power levels.

50Hz. boosts or cuts the fundamental frequencies of the bass guitar, care should be exercised with excessive boost when playing at high volume levels, if output clipping is not required.

400Hz. cutting this control will help create a smooth rounded sound, whilst boosting will add body to the sound, although excessive boost can create a 'honky peak' to the tone.

1KHz. cutting this frequency will give a 'hole in the middle' effect, boosting will give a cutting clarity to help individual notes be heard, especially in contemporary playing.

5KHz. adds or cuts presence.

10KHz. adds or cuts the amount of edge. These two controls are fairly interdependent in determining the amount of high harmonics.

Output Volume. Models 3510 and 5510 — determine the amount of signal passed from the preamplifier to the internal power amplifier and slave output socket.

Master Output Section. Models 3520, 5522, 3540 — comprises four controls that enhance the flexibility of the bass system. The mixed output from this section is normally patched directly to the internal power amplifiers, although it can be bypassed on model 3540, if required (see Patching Example 'D').

Boost provides a footswitchable amount of gain boost for two playing levels, i.e. backing or soloing, before or after distortion etc.

X-Over frequency, combined variable high and low pass filter network. The full slope of the high pass network is not realised until the treble bi-amp socket on the rear panel is used.

Treble volume acts on the output of the high pass filter.

Bass volume acts on the output of the low pass filter.

The output of these two controls is normally mixed to increase the tonal control, and thus is interdependent. When the bi-amp mode is selected, then each control is independent.

Rear Panel Controls

Mains Input and Fuse. Refer to amplifier label for rated mains voltage, consumption and fuse value. Attention is drawn to the following WARNINGS:

A. The amplifier chassis must be earthed.
B. To prevent fire and shock hazard, replace fuse with one of the correct value and voltage.

ATTENTION! UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE.

C. To prevent fire and shock hazard, protect amplifier from rain and moisture.

D. No user serviceable parts mounted inside, refer servicing to qualified personnel.

E. RISK OF SHOCK — DO NOT OPEN.
AVIS! RISQUE DE CHOC — NE PAS OUVRIE.

Effects Send and Return. Post E.Q. nominally line level, feeding from 600 ohms, into 47K ohm. Both sockets circuit breaking, unity gain.

Preamp Output. Nominally line level, post effects send and return, pre-master output sections.

Bi-amp Treble Output. The crossover frequency control is disengaged from the high-pass section of the crossover when a patch cord is not inserted into the treble bi-amp output jack. The treble volume control passes full range signal with slight low end attenuation in this mode. Inserting a patch cord into this jack allows the crossover frequency control to change the f_c of the high-pass section, and also disconnects the treble volume control from

the power amps. In this mode, a patch cord can be used to route the treble bi-amp output into the input of any amplifier (including one of the 3540's by connecting it to a power amp input jack).

Bi-amp Bass/Post Master Full Range Output. When used in conjunction with treble output, carries low pass signal from bass master volume control. When used independently, carries mixed output from master output section, parallel to normal mode signal to power amplifier.

Balanced D.I. Output. Electronically balanced XLR socket, post effects send and return, nominally line level 600 ohms (model 3540 only).

Loudspeaker Outputs. Parallel wired jack sockets — see amplifier label for rated output power. Under no circumstances must total impedance of less than 4 ohms be used, otherwise signal degradation and possible amplifier damage can occur.

Heatsinks. To prevent possible damage, these must not be obstructed.

Power Amp Inputs. Models 6010, 6020, 6040 — inputs to power amplifiers — input shorted on removal of jack. Model 3540 — internal signal linking breaking on jack insertion.

Power Amp Link Outputs. Parallel wired to input sockets — NOTE! These sockets cannot be used as inputs.

Specification 3520, 5522 Measured at 1KHz. E.Q. controls set to mid position (0) unless otherwise stated

Input impedance	470K.
Input sensitivity	35mV.
Max. input	2v.
Contour	-12dB. at 40Hz. 100Hz. corner frequency. -12dB. at 700Hz. Bandwidth 200Hz.-2KHz.
50Hz. control	±15dB.
400Hz. control	±15dB.
1KHz. control	±15dB.
5KHz. control	±15dB.
10KHz. control	±20dB.
Send/Return	Nominally 0dB. from 600 ohm return into 47K ohm both sockets breaking.
Preamplifier output	Nominally 0dB.
Boost	Footswitch controlled +12dB. gain boost.
Crossover	Combined high and low pass filter network infinitely variable between 10' and 1KHz. Fully variable attenuation controls on both filter network outputs.
Power output	200 watts R.M.S. into 4 ohms. Typically 0.15% T.H.D. at onset of clipping. Typically 0.01% T.H.D. below clipping.
Power input	Internally set for 110/120 volts or 220/240 volts A.C. 50/60Hz. 300 watts.

Output impedance less than 0.1 ohm.
Output protection operative below 2 ohm load impedance.
Complementary MOSFET power stage with multiple feedback paths for precise signal control.

Model 5522 only — internal loudspeaker Celestion S15-250 8 ohm. 250 watts edge wound bass driver in tuned enclosure.

Specification 3510, 5510 Measured at 1KHz. E.Q. controls set to mid position (0) unless otherwise stated

Input impedance	470K.
Input sensitivity	35mV.
Max. input	2v. input.
Contour	-12dB. at 40Hz. 100Hz. corner frequency. -12dB. at 700Hz. Bandwidth 200Hz.-2KHz.
50Hz. control	±15dB.
400Hz. control	±15dB.
1KHz. control	±15dB.
5KHz. control	±15dB.
10KHz. control	±20dB.
Send/Return	Nominally 0dB. from 600 ohm return into 47K ohm both sockets breaking.
Preamplifier output	Nominally 0dB.
Power output	100 watts R.M.S. into 4 ohms. Typically 0.15% T.H.D. at onset of clipping. Typically 0.01% T.H.D. below clipping.
Power input	Internally set for 110/120 volts or 220/240 volts A.C. 50/60Hz. 190 watts.

Output impedance less than 0.1 ohm.
Output protection operative below 2 ohm load impedance.
Complementary MOSFET power stage with multiple feedback paths for precise signal control.

Model 5510 only — internal loudspeaker Celestion G15-100 8 ohm bass driver in tuned enclosure.

Specification 3540 Measured at 1KHz. E.Q. controls set to mid position (0) unless otherwise stated

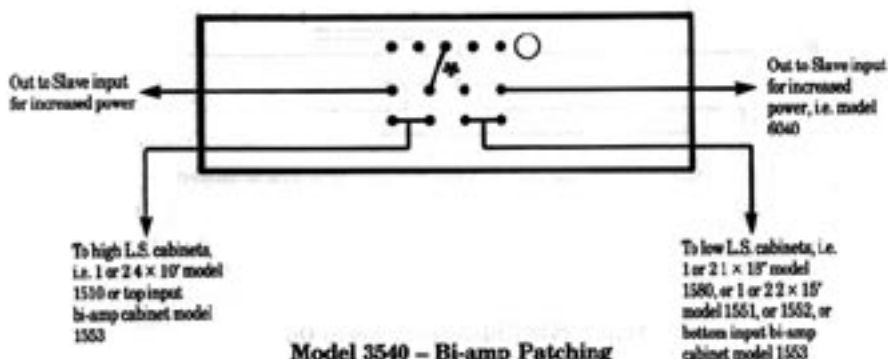
Input impedance	470K.
Input sensitivity	35mV.
Max. input	2v.
Contour	-12dB. at 40Hz. 100Hz. corner frequency. -12dB. at 700Hz. Bandwidth 200Hz.-2KHz.
50Hz. control	±15dB.
400Hz. control	±15dB.
1KHz. control	±15dB.
5KHz. control	±15dB.
10KHz. control	±20dB.
Send/Return	Nominally 0dB. from 600 ohm return into 47K ohm both sockets breaking.
Preamplifier output	Nominally 0dB.
Boost	Footswitch controlled +12dB. gain boost.
Power	Combined high and low pass filter network infinitely variable between 100Hz. and 1KHz. Fully variable attenuation controls on both filter network outputs.
D.I. output	Electronically balanced XLR type output providing nominally 0dB. into 600 ohms.
Power output	Twin independent power amplifiers each providing 200 watts R.M.S. into 4 ohms. Typically 0.15% T.H.D. at onset of clipping. Typically 0.01% T.H.D. below clipping.
Power input	Internally set for 110/120 volts or 220/240 volts A.C. 50/60Hz. 750 watts.
Output impedance	less than 0.1 ohm.
Output protection	operative below 2 ohm load impedance.
Complementary MOSFET power stage	with multiple feedback paths for precise signal control.

Patching Examples of Marshall Integrated Bass System

In use, other patching interconnections will become apparent especially when utilising a variety of effects units. Experimentation will verify validity.

Patching Example 'A'

* Link Lead - short jack to jack screened lead

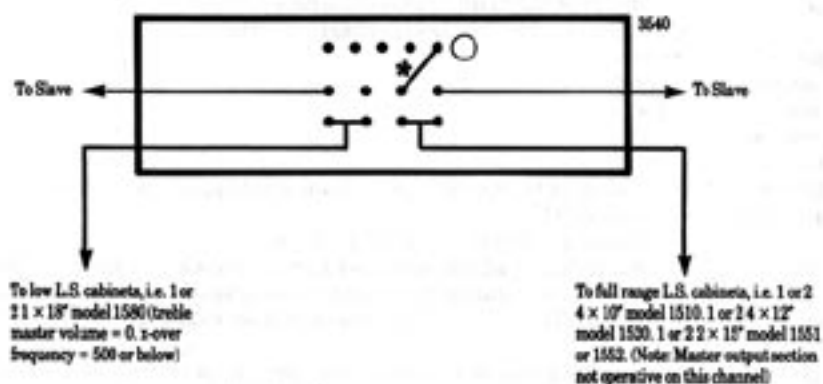


Model 3540 - Bi-amp Patching

NOTE! All interconnections should be carried out with mains power turned off.

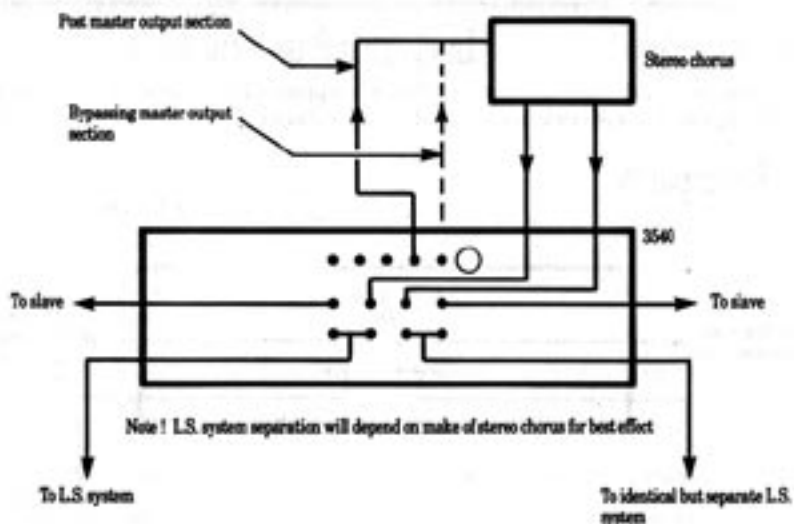
Patching Example 'B'

✳ Link Lead - short jack to jack screened lead



Model 3540 - Full Range with Bass Boost

Patching Example 'C'

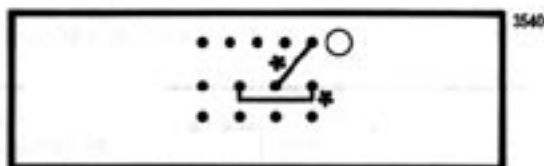


Model 3540 - Simulated Stereo Output

NOTE! All interconnections should be carried out with mains power turned off.

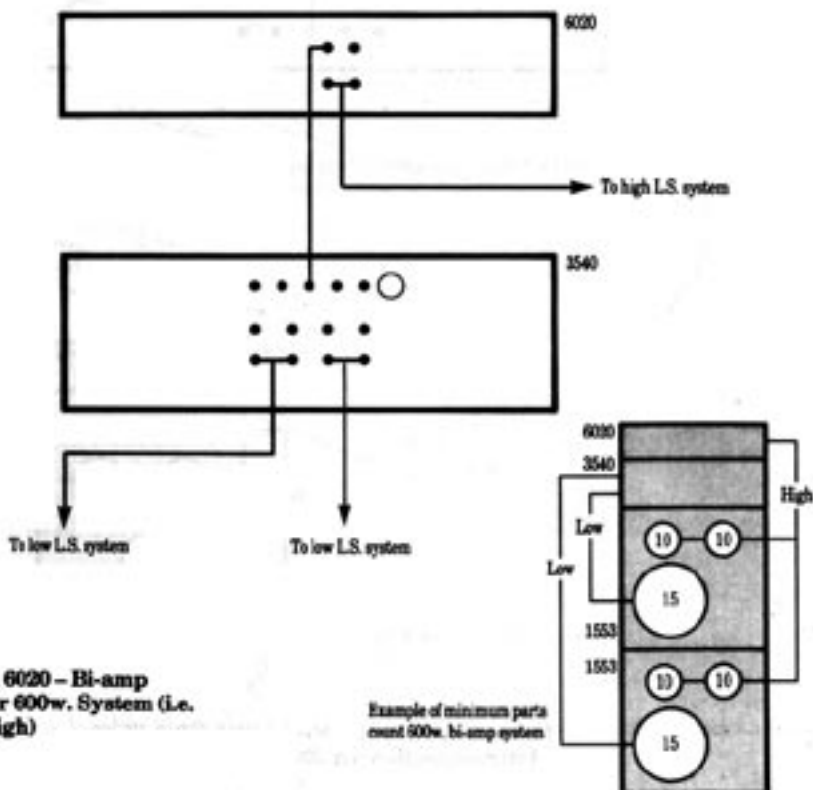
Patching Example 'D'

* Link Lead - short jack to jack screened lead



Model 3540 - Method of patching to bypass master output (x-over) section if required.

Patching Example 'E'



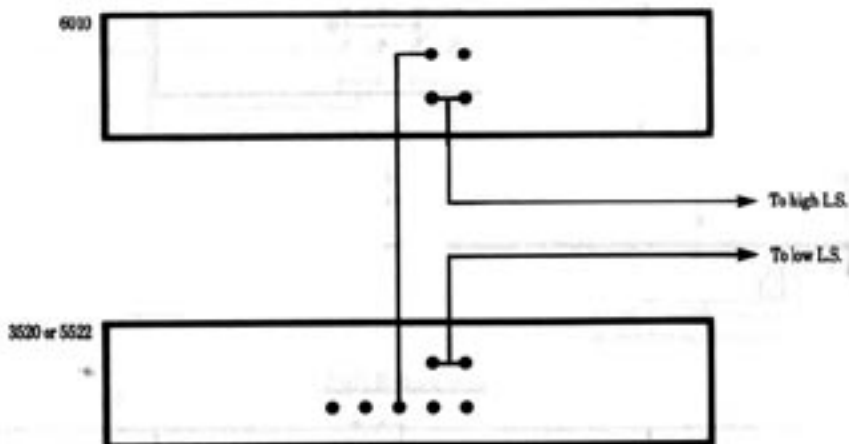
Model 3540, Model 6020 - Bi-amp interconnection for 600w. System (i.e. 400w. low, 200w. high)

Example of minimum parts count 500w. bi-amp system

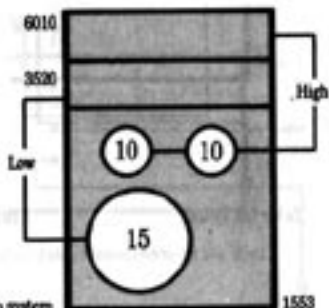
NOTE! All interconnections should be carried out with mains power turned off.

Patching Example 'F'

See Diagrams 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100



NOTE ! When using model 5522 combo, a medium powered 1 x 12" guitar combo can be utilized on the high end to good effect.



Example of minimum component 300w. bi-amp system

Model 3520 or 5522 + Model 6010 300w. Bi-amp Interconnection (i.e. 200w. low, 100w. high).

NOTE ! All interconnections should be carried out with mains power turned off.

Mounting

Amplifiers and Slaves. The various models of this range, can either be mounted in a purpose built 19" rack system (flight case or otherwise), or in the optional Marshall amp sleeve.

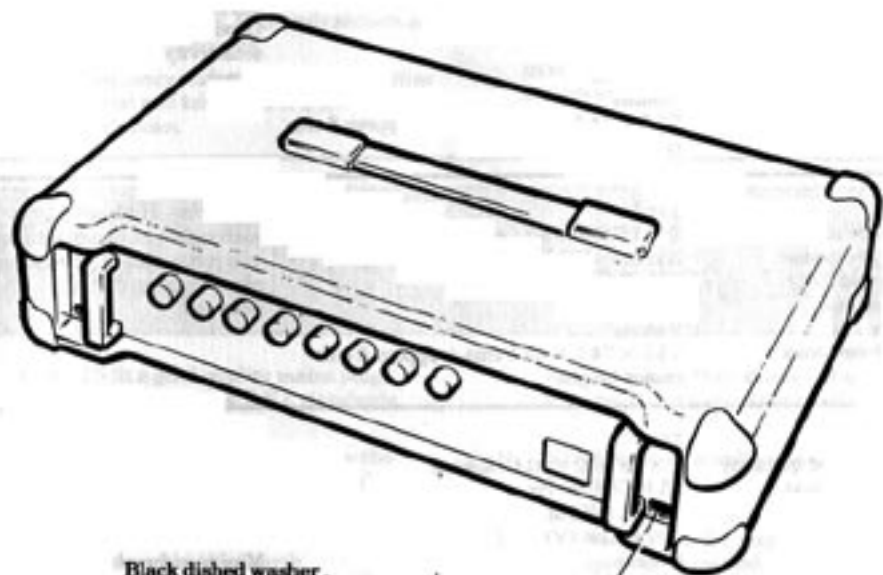
Models 3510, 3520, 6010, 6020 and 6040, are of two unit rack height and can be accommodated in the Marshall amp sleeve model 3002.

Model 3540 is of three unit rack height and

can be incorporated in the Marshall amp sleeve, model 3003.

(See drawing for mounting details).

As with all mobile rack equipment of substantial weight, when the units are to be mounted in a multiple rack case, the rear of the chassis — if possible — should have some support, to prevent movement in case of being excessively mishandled during shipping.



Black dished washer

M6 x 30 countersunk Pozidriv, black

M6 x 30 Pan head Pozidriv, black — 4 off

Cabinets

All cabinets are soundly constructed in birch ply, and every corner is locked with a special joint, in a radio frequency press. The cabinets are finished in the usual Marshall style but feature castor cups and amp mounting cups, on every model, so that each is capable of being a top or bottom unit, in the classic Marshall stack format.

The cabinets contain a new series of Celestion

speakers, featuring controlled suspension systems for minimum break-up at full power operation, and specially designed cones for a smooth, peak free but lively response. All cabinets are systematically ported using computer aided techniques for maximum cone control and smooth extended bass.

Model No.	1550	<i>Remarks</i> - Compact system with good sensitivity and bandwidth, but slightly limited in dispersion. Ideal for club, recording and session work. Can be stacked with 5510 and 5522 combos.
Speaker type and quantity	1 x 15" 250 watt Celestion Sidewinder	
Frequency response	45 Hz - 5000 Hz	
Average sensitivity	102dB 1W/1M	
Power handling	250 watts	
Impedance	8 ohms	
Cabinet dimensions	57 x 62.5 x 36 cms	
<hr/>		
Model No.	1551	<i>Remarks</i> - Good, cost effective, general bass system. Good bandwidth, reasonable sensitivity and mid range attack.
Speaker type and quantity	2 x 15" G15-100 Celestion	
Frequency response	45 Hz - 6000 Hz	
Average sensitivity	100dB 1W/1M	
Power handling	200 watts	
Impedance	8 ohms	
Cabinet dimensions	75.5 x 74.5 x 44.5 cms, plus approx 8 cms castor height	
<hr/>		
Model No.	1552	<i>Remarks</i> - High sensitivity with excellent bandwidth and mid range attack. Minimum cone break-up during overload.
Speaker type and quantity	2 x 15" 250 watt Celestion Sidewinder	
Frequency response	35 Hz - 4500 Hz	
Average sensitivity	103dB 1W/1M	
Power handling	500 watts	
Impedance	8 ohms	
Cabinet dimensions	75.5 x 74.5 x 44.5 cms + approx 8 cms castor height	
<hr/>		
Model No.	1580	<i>Remarks</i> - Well controlled sub woofer with excellent bass response of good sensitivity and clarity through the low and medium mid range. Minimum break-up for size of cone.
Speaker type and quantity	1 x 18" 400 watt Celestion	
Frequency response	35 Hz - 3500 Hz	
Average sensitivity	100dB 1W/1M	
Power handling	400 watts	
Impedance	8 ohms	
Cabinet dimensions	75.5 x 74.5 x 44.5 cms + approx 8 cms castor height	
<hr/>		
Model No.	1510	<i>Remarks</i> - Well controlled full range system with excellent bass and transient response. Good sensitivity across bandwidth.
Speaker type and quantity	4 x 10" 50 watt Celestion	
Frequency response	50 Hz - 6000 Hz	
Average sensitivity	100dB 1W/1M	
Power handling	200 watts	
Impedance	8 ohms	
Cabinet dimensions	75.5 x 74.5 x 44.5 cms + approx 8 cms castor height	

Model No.	1520	<i>Remarks - High sensitivity with excellent mid range attack and presence ideal for cutting through high stage sound levels. Excellent overdrive control.</i>
Speaker type and quantity	4 x 12" 150 watt Celestion Sidewinder	
Frequency response	50 Hz - 6000 Hz	
Average sensitivity	104dB 1W/1M	
Power handling	600 watts	
Impedance	8 ohms	
Cabinet dimensions	75.5 x 74.5 x 44.5 cms + approx 8 cms castor height	

Model No.	1553	<i>Remarks - Ideal for low component count full range or bi-amped systems, especially for contemporary playing styles.</i>
Speaker type and quantity	1 x 15" 250 watt Celestion Sidewinder, plus 2 x 10" 50 watt Celestion treble drivers	
Frequency response	45 Hz - 6000 Hz	
Average sensitivity	101dB 1W/1M	
Power handling	300 watts	
Impedance	8 ohms	
Cabinet dimensions	75.5 x 74.5 x 44.5 cms + approx 8 cms castor height.	
Special feature	Inputs for full range or bi-amp operation	

- All power ratings are R.M.S. and cabinets are of 8 ohm nominal impedance.
- Quoted frequency responses and sensitivities are measured and tabulated to DIN recommendations.
- All cabinets have standard Marshall side carrying handles, protective corners, amp mounting cups and, except for model 1550, have castors with castor trays for stacking.

WARNING PLEASE READ THE FOLLOWING LIST CAREFULLY

- ALWAYS fit a good quality mains plug, conforming to the latest B.S.I. standards.
- ALWAYS wire the plug according to the colour code attached to the mains lead.
- NEVER, under any circumstances, operate the amplifier without an earth.
- NEVER attempt to bypass the fuses or fit ones of the incorrect value.
- NEVER attempt to replace fuses with the amplifier connected to the mains.
- DO NOT attempt to remove the amplifier chassis, there are no user serviceable parts.
- ALWAYS have this equipment serviced or repaired by competent qualified personnel.
- NEVER use an amplifier in damp or wet conditions.
- DO NOT switch the amplifier on without the loudspeaker connected.
- DO NOT obstruct airflow around heatsinks.
- PLEASE READ this instruction manual carefully before switching on.

ALWAYS ENSURE THAT MARSHALL APPROVED COMPONENTS ARE USED AS REPLACEMENTS

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