Marshall

SPLIT CHANNEL AMPLIFIER HANDBOOK

The range consists of the following:

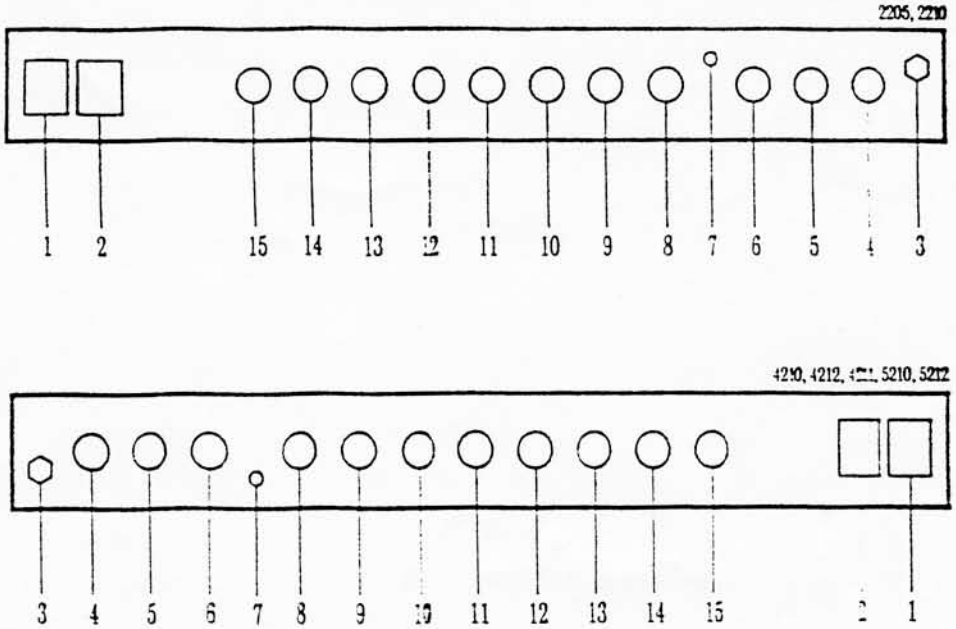
Amplifiers

2205 _____ 50 watt Split Channel Valve
2210 _____ 100 watt Split Channel Valve
3210 _____ 100 watt Split Channel Mosfet

Combos:

4210 _____ 50 watt Split Channel Valve
4212 _____ 50 watt Split Channel Valve
4211 _____ 100 watt Split Channel Valve
5210 _____ 50 watt Split Channel Transistor
5212 _____ 50 watt Split Channel Transistor
5275 _____ 75 watt Split Channel Transistor

Front Panel Functions 2205, 2210, 4210, 4212, 4211, 5210, 5212



1. Power Switch — Controls total mains power to amplifier.
2. Standby Switch — Controls H.T. supply to amp valves. Allows the filaments to remain heated during breaks. (Not present on 5210 or 5212 transistor combos.)
3. Input Jack — Connects instrument to amplifier.

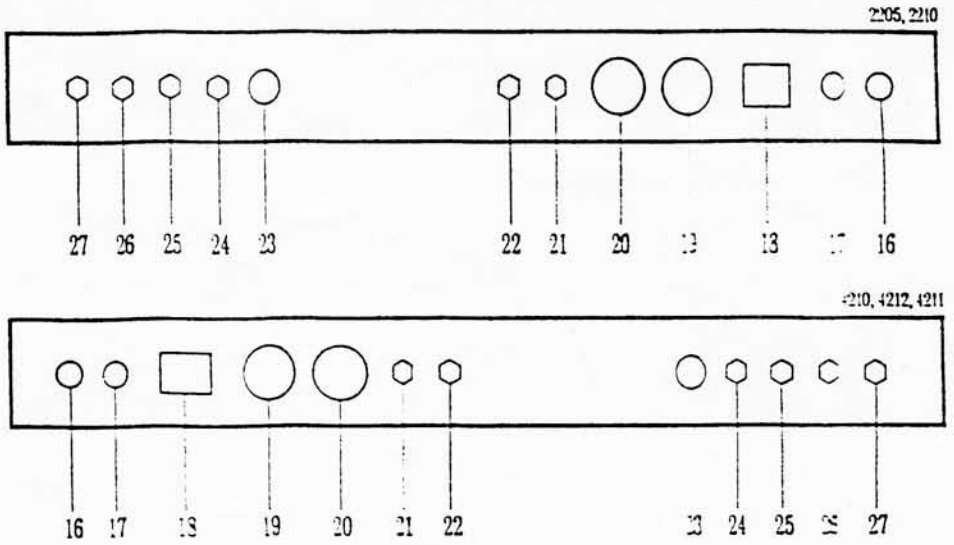
Normal Channel

4. Volume Control — To set the level of normal or rhythm playing styles.
5. Treble Control — Controls increase or decrease of channels high frequency response.
6. Bass Control — Controls increase or decrease of the channels low frequency response.

Boost Channel

7. Boost Channel L.E.D. — Indicates red when channel is selected via footswitch.
8. Gain Control — Controls the amount of boost drive and degree of overdrive required.
9. Volume Control — Controls the loudness level of the channel.
10. Treble Control — Controls the high frequency content of the channel.
11. Middle Control — Controls the middle register of the channel and, at high levels, will modify the treble and bass.
12. Bass Control — Controls the low frequency content of the channel output.
13. Master Reverb — Controls the depth of the reverb effect in total sound output.
14. Master Volume — Controls the overall output level of the amplifier and loudspeakers.
15. Master Presence — Controls additional boost to the upper frequencies (not included on models 4210 or 5210), of the overall sound. Adds crispness and liveliness.

Rear Panel Functions 2205, 2210, 4210, 4212, 4211



16. H.T. Fuse — Refer to rear label of amp. for correct value. USE CORRECT FUSE ONLY! *(Please note, on models 4210 and 2205, this item is reversed with component 17.)*
17. Mains Fuse — Refer to rear label of amp. for correct value. USE CORRECT FUSE ONLY! *(Please note, on models 4210 and 2205, this item is reversed with component 16.)*
18. Mains Input Socket — Connects amplifier to power supply, i.e. 120/220/240v. *(Please note, on models 4210 and 2205 the position of this component is at the extreme of the chassis.)*
19. Mains Selector — Matches amplifier power transformer to the incoming power voltage, i.e. 120/220/240v.
20. Output Selector — Matches amplifier output transformer impedance to loudspeaker load impedance, i.e. 4/8/16 ohm. Internal speakers in 1 × 12 combo units are normally 16 ohm, unless otherwise stated on the loudspeaker chassis. On 2 × 12 combos, the internal speakers are 8 ohms.
21.22. Loudspeaker Jacks — Parallel connected jacks for loudspeaker connections. Loudspeaker lead must always be connected. If one or both sockets are used, total impedance must be matched to selector and must not be less than 4 ohm. Please refer to outside back cover for set-up impedances.
23. D.I. or Slave Level — Controls volume of low level output signal.
24. D.I. or Slave Jack — Jack socket carrying low level version of amplifier output. Suitable for connecting to recording and P.A. mixing desks, or into slave amplifying system.
25. Effects Return Socket — Return jack from output of external effects unit.
26. Effects Send Socket — Signal jack to feed the input of external effects unit.
27. Footswitch Jack — Connector for boost/reverb foot pedal.

Operational Functions Note! *Before switching on this unit it must be correctly earthed.*

a. Ensure internal or external loudspeakers are connected (21 and/or 22), and properly matched to the amplifier by correct usage of the impedance selector (20). (Valve models only.)

b. Connect footswitch to correct jack socket (27). *(32 on transistor models.)*

c. Connect external effects units, if desired, to (25 and 26). *(30 and 31 on transistor models.)*

d. Connect D.I. Slave equipment, if in use (23 and 24).

e. Turn the volume controls to zero.

f. Check that mains settings (19), correspond to mains supply and connect to amplifier at socket. (Valve models only.)

g. Switch power on (1), and allow valves to heat up to working temperature — on valve models only).

h. Connect instrument to input jack (3).

i. Switch standby on (2). (Valve models only.)

j. Turn boost channel off and normal channel on with the footswitch.

k. Set volume controls (4) and (14), to desired levels. For clean sounds, use low normal volume (4), and high master volume settings (14). Set tone required by adjusting normal channel treble (5), and bass (6).

l. Turn boost channel on and normal channel off by depressing footswitch, the red L.E.D. (7), will now light up.

m. Set boost channel volume controls (8) and (9), i.e. for a clean sound use low gain (8), and high volume (9), settings. For overdriven sounds, use high gain (8) and low, medium or high volume settings (9). Adjust boost channel treble (10), middle (11), and bass (12), controls for desired tone, but note that these tone controls become less effective during high overdrive situations.

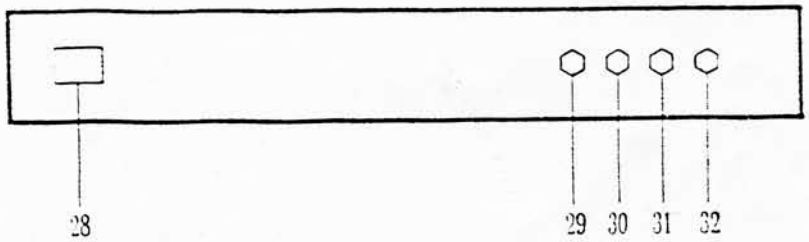
n. Adjust reverb control (13), for desired depth of effect, using footswitch to control ON/OFF function.

o. To achieve maximum overdrive/sustain, use the boost channel, turn the volume controls (8) and (9), to maximum and control the total output of the combo or amp, using the Master Volume (14).

p. The master presence control (15), may be used to further colour the brightness of the sound.

q. Always ensure that amp is switched off before plugging in headphones.

Rear Panel Functions 5210, 5212



28. Mains Input Socket — Connects amplifier to supply.

29. Headphone Socket — Socket for headphone / line-out insertion of jack plug halfway mutes the speaker and feeds signal to headphones. Full insertion maintains full speaker output plus line-out. *Always ensure that amp is switched on before plugging in headphones.*

30. Effects Return — Return jack from output of external effects unit.

31. Effects Send — Signal jack to feed the input of external effects unit.

32. Footswitch Jack — Connector for boost/reverb dual footswitch unit.

Specification 5210, 5212

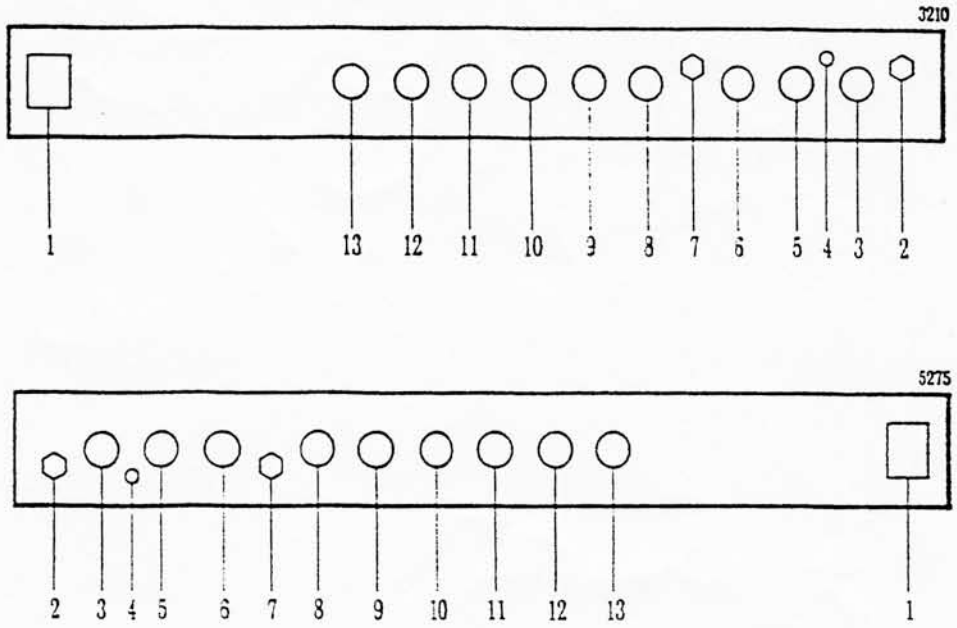
Normal Channel	Sensitivity at 1KHz. all controls full. .8mV. Max. input signal — 2v. R.M.S. Min. overload level — 1.5mV.
Tone	5KHz. 22dB. automatic brightness circuit on volume control. 100Hz. 15dB. Mid point 400Hz.
Boost Channel	Sensitivity at 1KHz. all controls full. .3mV. Max input signal 2v. R.M.S. O/L level .6mV. Gain and Channel volumes full — .5mV. Treble — 5KHz. 12dB. — Mid full 33dB. — Mid down } Automatic brightness circuit on gain control. Middle — 500Hz. 17dB. — Treble and bass full. Bass — 150Hz. 18dB. — Mid down. Presence — 3KHz. 6dB. (Model 5212 only.)
Headphone / Line-out	Headphone output approximately 100mV. into 8 ohms. Line-out 700mV. at 50 watts R.M.S. output.
Effects Send / Return	Level — 120mV. R.M.S. for full output. Send output impedance — 4.7K ohm. Return input impedance — 100K ohm.
Channel and Reverb Switching	Transistor logic L.E.D. indication for boost channel On. Remote double footswitched, single pole switching to earth.
Reverb	Hammond 2 sec. decay. Infinitely variable.
Power Output	50w. R.M.S. into 4 ohm 70 watt high sensitivity loudspeaker. (Model 5210 only.) 50w. R.M.S into 2 × 8 ohm G12-70. Wired parallel for 4 ohm operation. (Model 5212 only.)
Power Supply	Internally adjustable 120/240v. 40/60Hz. 75VA. Internal mains fuse 120v. — T1A. 240v. — T500mA.

Specification 4210, 4211, 4212, 2205, 2210

All values are typical at 1KHz. and all controls maximum unless otherwise stated.

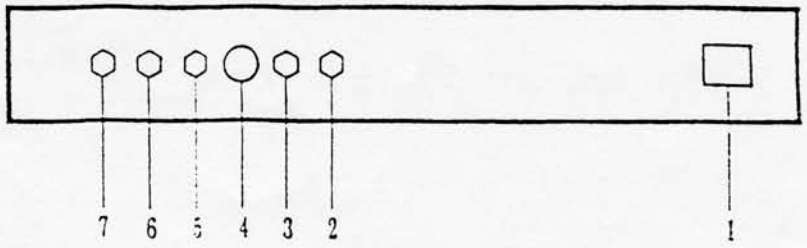
Normal Channel	Sensitivity — 3.5mV. Maximum clipping level 500mV. Minimum clipping level 6mV. Treble swing 10KHz. 35dB. Bass 50Hz. 14dB. Turnover frequency 500Hz.
Boost Channel	Sensitivity — 0.12mV. Maximum clipping level 500mV. Minimum clipping level 0.4mV. Treble swing 5KHz. 28dB. Mid at minimum. Middle swing 400Hz. 15dB. Bass swing 50Hz. 23dB.
Master Section	Master Volume control operating on both channels but with gain priority to boost channel. Master presence +6dB. at 4KHz. Turnover frequency 800Hz. Master reverb Hammond type 4 with treble pre-emphasis at low control settings and footswitch muting.
Channel Selection	Footswitch controlled transistor logic switching circuit L.E.D. indication of boost channel selected, channel inhibit circuitry on removal of signal lead.
Effects Send / Return	Level for rated output — 25mV. Send output impedance — 10K ohm. Return input impedance 1M ohm. Breaking connection — return.
D.I. Output	Unbalanced output impedance 100 ohm variable between 350mV. and 1.4v. at rated output.
Power Output	(Variable between 4, 8, 16 ohm.) With EL34 valves into 8 ohm load. 4210 — 80w. RMS for 4% THD. 4212, 2205 — 70w. RMS for 4% THD. 4211, 2210 — 105w. RMS for 4% THD. Less than 1% THD. for 10 watts RMS output.

Front Panel Functions 3210, 5275



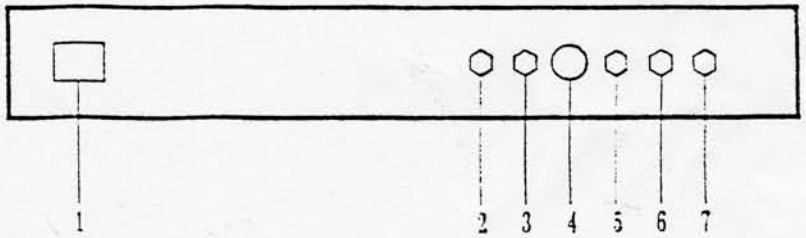
1. Mains Power Switch	ON/OFF for mains power to amplifier.
2. Input Jack Socket	Connects instrument to amplifier.
3. Gain + Pull E.Q. Control	Controls the amount of drive and degree of overdrive required. When control is pulled forward, the Master E.Q. is switched in, to allow greater tonal flexibility.
4. Boost Channel L.E.D.	Indicates red when boost channel is selected.
5. Volume Control	Controls the volume level of the channel.
6. Tone Control	Controls the amount of bass to treble on boost channel.
7. Footswitch Input	ON/OFF reverb, boost pedal input.
8. Volume Control	Controls level of clean or normal channels.
9. Treble Control	Controls the high frequency content of the channel.
10. Middle Control	Controls the middle register of the channel.
11. Bass Control	Controls the low frequency content of the channel output.
12. Master Reverb Control	Controls the depth of the reverb effect in total sound output.
13. Master Volume Control	Controls the overall output level of the amplifier.

Rear Panel Functions 3210



1. Mains Input	Connects amplifier to power supply.
2. – 3. Loudspeaker Outputs	For connection to speakers, giving 100w. into 4 ohms.
4. D.I. Level Control	Controls the low level signal output.
5. D.I. Output	Jack socket carrying a low level version of the amplifier output. Suitable for connecting to recording or P.A. mixing desks, or into slave amplifying systems.
6. Effects Return Socket	Return jack from output of external effects unit.
7. Effects Send Socket	Signal jack to feed the input of external effects unit.

Rear Panel Functions 5275



1. Mains Input	Connects amp to power supply.
2. Extension Speaker Socket	Output for connection to external loudspeaker (8 — 16 ohms only).
3. Headphone Socket	Stereo output for use with headphones.
4. D.I. Level Control	Controls the volume of low level output signal.
5. D.I. Slave Jack	Jack socket carrying low level version of amplifier output. Suitable for connecting to recording or P.A. mixing desks, or into slave amplifying system.
6. Effects Return Socket	Return jack from output of external effects unit.
7. Effects Send Socket	Signal jack to feed the input of external effects unit.

Use of Front Panel Controls 3210, 5275

When the footswitch is removed (socket 7), both channels of the amplifier may be used together. This can give a clean sustained sound, or a mixture of clean and distorted sounds by adjustment of the level controls (3, 5, 8 & 13).

When the boost channel is selected, maximum distortion is achieved by turning controls 3 & 5 full on and selecting the overall volume with Master Volume (13). By decreasing Gain control (3), the amount of distortion is decreased and by lowering volume control (5), the overall volume of the channel is decreased.

The tone control (6), may be used to set the overall tone of the boost channels and gives a very 'punchy' firm sound. For a greater variety of sounds, the Gain/E.Q. control (3), may be pulled outwards to introduce the full range, E.Q. circuit of the other channel (controls 9, 10 & 11), thus giving a much wider variation of sound.

The 'clean' channel will give a good clear sound when volume control (8), is kept at a lower level than Master Volume control (13). However, a certain amount of overdrive can be achieved by turning control 8 to maximum and control 13 to the required level for overall volume, using the wide ranging tone controls (9, 10 & 11), to 'shape' the sound produced.

It is often a good idea to set the levels of the two channels to create a balance of clean to overdrive, if required, before playing seriously.

Experimentation will provide a wide and extremely varied number of different sounds, which should fulfil the needs of all guitar players, whatever their individual style may be.

Note! *Before switching on this unit it must be correctly earthed.*

Specification 3210

Normal	1.5mV. at 1KHz. sensitivity. E.Q. engaged.
Boost	E.Q. cancelled 0.12mV. sensitivity. Overload point – gain max. – 1mV. Gain and volume max. into Master Volume. Overload point – 0.3mV. Boost tone – 37dB. at 10KHz.
E.Q.	Bass 100Hz. 20dB. mid down. Mid 450Hz. 12dB. Treble 10KHz. 37dB. mid down.
E.Q. Switch	Operative on boost channel when footswitch connected. Operative on both channels when footswitch disengaged. 11dB. insertion loss in overall gain when E.Q. engaged.
Channel Switching	Logic switching L.E.D. indication of boost selection. Dual footswitch for boost and reverb. Both channels mixable when footswitch disengaged.
Reverb	Fully variable accutronics spring line.
Send & Return	Approximately 350mV. RMS from 600 ohm Send. Aproximately 350mV. RMS into 33K Return. Return socket breaking.
D.I. Output	Fully variable unbalanced approximately 1V. RMS maximum.
Power Output	Complementary Mosfet design. 100 watts RMS into 4 ohm at clipping. 80 watts RMS into 8 ohm – approximately. 50 watts RMS into 16 ohm – approximately.
Power Input	160 VA.

Specification 5275

Normal	4mV. at 1KHz. sensitivity. E.Q. engaged.
Boost	E.Q. cancelled 0.12mV. sensitivity. Overload point – gain max. – 1mV. Gain and volume max. into Master Volume. Overload point – 0.3mV. Boost tone – 37dB. at 10KHz.
E.Q.	Bass – 100Hz. 20dB. Mid down. Mid. – 450Hz. 12dB. Treble – 10KHz. 37dB. Mid down.
E.Q. Switch	Operative on boost channel when footswitch connected. Operative on both channels when footswitch disengaged. 11dB. insertion loss in overall gain when E.Q. engaged.
Channel Switching	Logic switching L.E.D. indication of boost selection. Dual footswitch for boost and reverb. Both channels mixable when footswitch disengaged.
Reverb	Fully variable accutronics spring line.
Send & Return	Approximately 350mV. RMS from 600 ohm Send. Approximately 350mV. RMS into 33K Return. Return socket breaking.
D.I. Output	Fully variable unbalanced approximately 1V. RMS maximum.
H.P. Output	Stereo only output.
Ext. L.S.	To feed 8 – 16 ohm system cancelling internal loudspeaker short circuit protected.
Power Output	75w. RMS into 8 ohms constant current design. Internal speaker – Celestion Sidewinder 150 watt / 8 ohm.
Power Input	220 VA.

Note! *Speaker – VE is not ground. Do not ground speaker connections.*

WARNING – PLEASE READ THE FOLLOWING LIST CAREFULLY

A. ALWAYS fit a good quality mains plug, conforming to the latest B.S.I. standards.

B. ALWAYS wire the plug according to the colour code attached to the mains lead.

C. NEVER, under any circumstances, operate the amplifier without an earth.

D. NEVER attempt to bypass the fuses or fit ones of the incorrect value.

E. NEVER attempt to replace fuses or valves with the amplifier connected to the mains.

F. DO NOT attempt to remove the amplifier chassis, there are no user serviceable parts.

G. ALWAYS have this equipment serviced or repaired by competent qualified personnel.

H. NEVER use an amplifier in damp or wet conditions.

I. DO NOT switch the amplifier on without the loudspeaker connected, and ensure that the impedance selector is correctly matched to the speaker or speakers. (Valve models only.)

J. PLEASE READ this instruction manual carefully before switching on.

ALWAYS ENSURE THAT MARSHALL APPROVED COMPONENTS ARE USED AS REPLACEMENTS

Amplifier Cabinet Set-Ups

AMPLIFIER	CABINET	AMP IMP.SETTINGS
1959, 2203, 2210	1 1960A or 1982A 1 1960A + 1960B (or 1982A + 1982B)	16 ohms 8 ohms
1987, 2204, 2205	1 1936 2 1936 1 1960A 1 1960A + 1960B	8 ohms 4 ohms 16 ohms 8 ohms
3210	1 1965A or 1960A 1 1965A + 1965B (or 1966A + 1966B)	8 ohms
4210, 4010	1 1933	8 ohms
4211, 4212, 4104 & 4103	1 1936	4 ohms

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