

Marshall

AMPLIFICATION



1959HW - 100 Watt Head
Owners Manual



From the Chairman

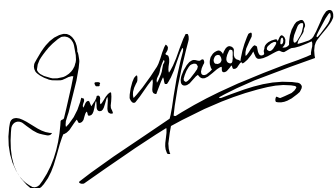
Congratulations on your purchase of this handwired re-issue of a model 1959 100 Watt, all-valve, Super Lead head. The original versions of this world famous amplifier - nicknamed the 'Plexi' because of its front panel material - were produced from late 1965 to mid 1969 and are now extremely rare and highly collectable. This authentic reiteration of an SL/A head made pre-July of 1969 is part of an ongoing series, which will feature handwired re-issues of revered historical Marshall products. The reason I have decided to do this is simple - public demand!

One of the things I love doing most is meeting and talking to Marshall users at the many trade shows, music fairs and shop appearances I do all over the world every year. A subject that almost always seems to come up in conversation at such events is hand-wiring. In fact, in recent years so many people have asked me to please start building handwired re-issue products that I've lost count! Not surprisingly, given its much discussed tonal legacy and impressive list of groundbreaking, world-famous users, the most frequently requested vintage Marshall amps to appear in such a guise is an early version of the model 1959 Plexi head you've just bought - hence its inclusion as one of our first handwired re-issues.

Just like its well-known vintage predecessor, the JTM45, the 1959HW is relatively simple in terms of controls, features and circuitry, but sounds and feels fantastic. To recreate the incredible tone and feel of the original, as well as its eye-catching good looks, my team of designers has gone to enormous lengths to seek out and reproduce all of the original components and materials plus revisit the original methods of construction we used back in the mid 1960s. From the handwired tag-board circuits to the custom-manufactured Dagnall output and mains transformers, I am extremely proud of the incredible accuracy and authenticity of this re-issue.

I sincerely hope that this handwired landmark of Marshall history will provide you with countless hours of playing pleasure.

Yours Sincerely,



Introduction

Overview: Historical, Tone and Tech Talk

The 1959HW is a Class-A/B, all-valve, 100 Watt, two-channel head. When building this handwired re-issue of an amazing sounding, original Plexi head made in 1969, our goal was both obvious and simple: to make it as close to the original as possible in terms of components, circuitry, constructional methods, materials, specifications, aesthetics, signal path, performance, tonal characteristics and feel. We went to incredible lengths to achieve maximum authenticity and are delighted to report that our suppliers were equally as exacting in their tasks - none-more-so than our long-time partner, Dagnall Transformers.

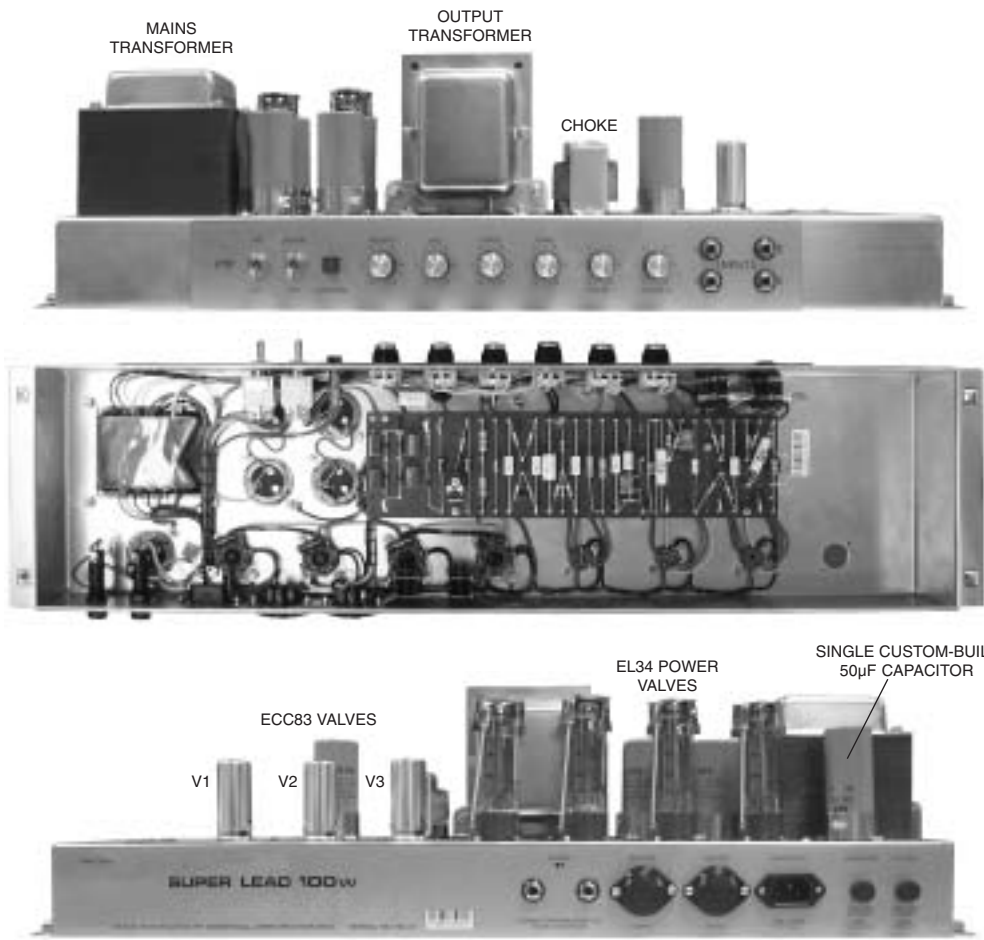
As is now rock folklore, the 1959 came to be when The Who's guitarist, Pete Townshend, approached Marshall in the mid '60s and asked Jim to build him a 'weapon' that would allow him to play so loud that he wouldn't be able to hear what the members of the audience were saying, should they have the sheer audacity to talk whilst he was performing! Jim and his team obliged and within weeks of Pete's request one of rock's most instantly recognisable icons was born - the 100 Watt Marshall stack.

As Jim Marshall has already stated, the 1959 head first saw the light of day in late 1965 and was affectionately dubbed the Plexi because of the material used for its front panel. Although we continued to build 1959s, the now legendary Plexi-era came to an end in July 1969 when we started using gold anodised aluminium panels instead of Plexiglas. While all original Plexi 1959s are held in the highest esteem, several subtly different but tonally significant circuit variations existed - the most celebrated and revered versions being those made between 1967 and 1969.

The circuit we have revisited for the 1959HW boasts several of said 'tonally significant' variants when compared to the slightly later circuit we use for our critically acclaimed, standard-production Plexi re-issue - the 1959SLP. The most sonically relevant technical departures in question lie in the negative feedback circuit. Where relevant, specific details concerning these 'deviations', and others, are inserted into the text labelled as 'Tonal Notes'.

As you can see from its front panel layout, the 1959HW is an extremely straightforward amplifier. Its two channels - Channel I and Channel II - each have two inputs (High and Low sensitivity) and separate Volume controls, while sharing the amplifier's four tone controls: Presence, Bass, Middle and Treble. Like all Marshall, all-valve amplifiers, the 1959 sounds at its very best when turned up full - and because of its conservative power rating and astonishing projection, is a formidable live amplifier in even the largest of venues. A truth its impressive history has proven time-and-time again, from the mid '60s to current day.

In keeping with its other non-master-volume, all-valve, Marshall brethren such as the JTM45 head and the 1962 'Bluesbreaker' combo, the 1959HW's aggressive yet sweetly distorted, harmonically rich, thick, musical tones result from its power valves being overdriven. As a result, when 'cranked' the 1959HW's instantly recognisable, guttural, 'punch you in the chest' roar is incredibly touch-sensitive, cleaning up or, if desired, sitting right on the edge of distortion when the guitar's volume is turned down. Not surprisingly, it responds well to picking dynamics too, indefatigably 'in-your-face' when you play like you really mean it and, once again, cleaning up as you pull back on your picking attack.



Technical Information

Valve compliment: Three ECC83s (12AX7s) in the pre-amp and a quartet of EL34 power valves working in push-pull. All valves are of the highest quality available and are subjected to meticulous grading and testing processes.

The way the three ECC83s (V1, V2 & V3) in the pre-amp are utilised is as follows:

V1 acts as the pre-amp gain stage for the High Treble and Normal channels - each half of the valve (the ECC83 being a dual-triode) acting as a dedicated gain stage for each channel.

V2 is common to both channels, which are passively summed before reaching this valve. The first half of V2 acts as a common second gain stage, boosting the combined signal, and then directly driving the second half of the valve which is configured as a cathode follower. The cathode follower is a unity gain device which acts as a buffer, providing a low impedance signal to drive the tone network.

Tonal Note 1: The second gain stage of the 1969 circuit we've faithfully reproduced boasts an extra cathode bypass capacitor which boosts upper-mids and top-end.

V3 acts as the amplifier's phase-splitter. This device divides the signal into two halves that are 180 degree out-of-phase with each other, and then feed the 1959's push-pull output stage.

Tone Circuit: In typical Marshall fashion, the shared tone network of this handwired 1959 re-issue is post gain, passive and interactive - the latter simply meaning that the settings of the Bass and Treble controls affect the amount of mid-dip available via the Middle control.

Tonal Note 2: The Middle control is a 10% log pot, unlike the linear one found in the regular production 1959SLP. This greatly changes the dynamic of the whole tonal network and the interaction of its controls.

Components: Where possible we have gone back to the original suppliers for all components, to maintain the highest quality - including, as per the original, a U-clamp mounted choke as opposed to the fully-shrouded, stand-up smoothing choke used in the majority of Marshall valve amplifiers. Also included is a custom-built 50µF single can, smoothing capacitor. These are just two examples of the many steps we have taken in order to ensure maximum authenticity.

Tag Boards: The tag boards used in your handwired re-issue is exactly the same as that in the original in terms of thickness and matrix pitch. The material we're using is made exclusively for us and is registered with UL as 'Marshall EM42 brown'. The reason we didn't use a board with the exact same chemical composition as in the original units is because that material doesn't pass current safety legislation regarding flammability.

Transformers: As you are no doubt aware, the output and mains transformers are vital components in an amplifier as they influence performance, sound and feel. Consequently, we worked extremely closely with our associates in Dagnall's R&D department in order to duplicate the original transformers. To do this we spent a great deal of time and attention studying and analysing the constructional methods and materials used in both transformers so we could match everything as closely as possible and also ensure that the all-important electrical characteristics and performance were identical.

Output Transformer: Just like the 1.5" original, it is an exact replica in terms of both performance and dimensions, the re-issue transformer is upright-mounting and sits entirely above the chassis. To be exact, this transformer is a C1998 which has a specification date of August 1967

Tonal Note 3: In the vast majority of Marshall valve amplifiers it is a standard design trait that the negative feedback (a circuit that drops the output impedance and thus controls the damping factor of the powerstage) applied around the amplifier is taken from the 8 Ohm tap on the output transformer. Doing this sets the power-amp up for a certain amount of damping that is independent of where you have the amplifier's impedance selector set. This means that, regardless of whether you use a 16, 8 or 4 Ohm cabinet, the damping on the speakers is the same.

This said, as is the case with quite a number of 'Plexi' era 100 Watt heads, the negative feedback on the original 1969 circuit we've used for this reissue is taken off the actual speaker output itself. This means that the lower the impedance setting, the lower the damping factor - and the lower the damping factor is, the more loose and more resonant the sound. Consequently, if you're using a 4 x 12" cabinet loaded with 16 Ohm speakers that offers 16 Ohm and 4 Ohm mono inputs (e.g.: the Marshall 1960A, 1960B, 1960AV or 1960BV cabinets), the 4 Ohm input will be more loose and more resonant on the low end, while the 16 Ohm input will be tighter and more controlled.

Not surprisingly, of the 'tonally significant' variants mentioned in this manual, this one is probably the most significant.

Mains (Power) Transformer: While the original transformer is large, the custom-made Dagnall re-issue has been made even larger in order to satisfy strict, current-day safety legislation. Just like the original, the re-issue transformer is what is called a 'drop through, half-shroud', which sits horizontally as opposed to vertically. As with the output transformer, we went to great lengths to ensure that its performance mirrors that of the original, paying particular attention to exactly replicating an effect called 'regulation' - which is the way that the voltage from the transformer that feeds the valve circuitry varies according to load. In terms of the concentric design and performance, this transformer embodies the performance of the 1203-80 original specification first drawn up for us by Drake in February 1967. The original was a 2.5" transformer. Due to the aforementioned modern legislations, the reissue is 3".

Tonal Note 4: This circuit has the same filtering on the H.T. (high voltage DC, a.k.a. the B+ voltage) line as later versions, a factor that contributes to the 1959HW having a tighter sound than earlier versions.

Note: The 1959HW incorporates 47nF/630V capacitors fitted in parallel with each of the four diodes in the bridge rectifier circuit. These are present for today's approval requirements that necessitate a reduction in electrical interference that may be generated and put back on the mains electricity supply. The addition of these capacitors has no sonic impact.

Chassis: We are using a box-section chassis made from 16 gauge mild steel with butt-welded corner joints. The steel is also passivated giving lifelong resistance to corrosion. Our original chassis has a lot of extra holes drilled in it that weren't used. No doubt these existed because the same exact chassis was also used for other products made at the time. The most noticeable 'extra hole' is one on top for a fourth ECC83 and on our reference unit, this particular hole has been covered up with a disc of steel that's been riveted into the two screw holes that would have been used to secure the valve holder, were it there. For the sake of authenticity we have copied all the holes on our reference chassis and have even duplicated the aforementioned circular steel cover!

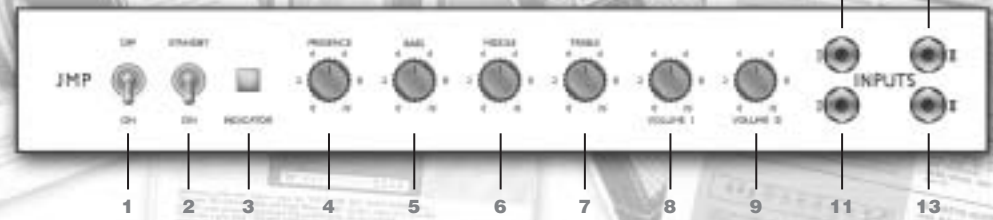
Front Panel: Extra thick, gold coloured Plexiglas (actually Perspex, causing some people to refer to it as 'Perplexi!') - exactly as the original. Specific details pertaining to the front panel features can be found on page 5 of this manual.

Rear Panel: Once again, gold Plexiglas - just like the original we referenced.

Cabinet Construction: High-grade, flawless (knot-free) Baltic birch-ply with fingerlocked joints for maximum strength. The main cabinet frame (both sides, top and bottom) are 15mm ply, the front baffle is constructed from 12mm ply while the back of the cabinet is 9mm ply. All edges have a 15mm radius.

Cabinet Cosmetics: The 6" gold Marshall logo, black Levant covering, beading and piping model the look and style of the original.

1959HW Front Panel



1. POWER SWITCH

This is the On/Off switch for mains power to the amplifier.

Note: Please ensure the amplifier is switched off and unplugged from the mains electricity supply whenever it is moved.

2. STANDBY SWITCH

The Standby Switch is used in conjunction with the Power Switch (item 1) to 'warm up' the amplifier before use and to prolong the life of the output valves.

When powering up the amplifier always engage the Power Switch first, leaving the Standby switch on 'Standby'. This allows the application of the voltage required to heat the valves to their correct operating temperature - hence the switches name. After approximately two minutes the valves will have reached the correct operating temperature and the Standby Switch can be engaged. In order to prolong valve life, the Standby Switch alone should also be used to turn the amplifier on and off during breaks in a performance. Also, when switching off, always disengage the Standby Switch prior to the main Power Switch.

3. INDICATOR

This 6.3 Volts incandescent filament indicator will light up when your amplifier is receiving the correct mains power and is switched on. It will not be lit when the amplifier is switched off and/or is not receiving mains power.

4. PRESENCE CONTROL

This control operates in the 1959HW's power section and adds high frequencies to your sound by altering the power amplifier's negative feedback. Turning this control clockwise adds more edge and 'sparkle' to your sound, making it crisper and more cutting.

5. BASS CONTROL

This adjusts the bottom end, turning it clockwise increases the amount of low frequencies in the sound.

6. MIDDLE CONTROL

This adjusts the level of those all-important mid-range frequencies. Turning it clockwise increases

the mids and fattens your sound, giving it more punch. Turning it anticlockwise reduces the mids, producing a more 'scooped' tone.

7. TREBLE CONTROL

This adjusts the top-end. Turning it clockwise increases the amount of high frequencies (treble) present in the sound, making your guitar tone brighter.

Note: The following four controls - PRESENCE (item 4), BASS (item 5), MIDDLE (item 6) & TREBLE (item 7) - are all shared, meaning that they all work on both Channel I and Channel II. They are highly interactive and altering one control can change the way the other two behave. For this reason, experimentation is recommended.

8. VOLUME I

This controls the overall output level of Channel I, turning it clockwise increases the volume. This channel is voiced for a higher treble response than Channel II.

Tonal Note 5: The value of the capacitor across Volume I is 0.005µF. This rather large value makes this channel aggressive and bright at relatively low settings. Many players bridge (see page 6 for details) Channels I and II (which has a darker, less aggressive tone) in order to have more control over their overall tone. Many earlier versions of the 1959 (from 1965 to 1967) used a 100pf capacitor across Volume I which gives a less aggressive sound at all volume levels less than 8.

9. VOLUME II


This controls the overall output level of Channel II, turning it clockwise increases the volume level. This channel is voiced for a 'normal', flatter response and is labelled as the 'Normal' Channel in later versions of the 1959.

10. HIGH SENSITIVITY INPUT FOR CHANNEL I

This is the 'high sensitivity' guitar input for Channel I - the brighter of the two channels - and is the most commonly used input. Always use a high quality screened guitar lead.

Technical Specification

Power Output	100W RMS
Weight	21.4 kg
Size	740mm x 270mm x 210mm

EUROPE ONLY  - **Note:** This equipment has been tested and found to comply with the requirements of the EMC Directive (Environments E1, E2 and E3 EN 55103-1/2) and the Low Voltage Directive in the E.U.

EUROPE ONLY - Note: The Peak Inrush current for the 1959HW is 76 amps.

11. LOW SENSITIVITY INPUT FOR CHANNEL I

This is the 'low sensitivity' guitar input for Channel I. It is 6dB lower in volume than the 'high sensitivity' input and has a darker sound as well due to its significantly lower input impedance.

Interesting aside: Back in the day, a 'high sensitivity' input jack was recommended for use with a guitar loaded with low-output pickups (e.g.: single coils) while the 'low sensitivity' input was recommended for higher output pickups (e.g.: humbuckers). This said, the majority of guitarists - then and now - ignore these recommendations and plug high-output guitars into the 'high sensitivity' input because it further boosts the strength of their signal.

Performance Note: Bridging or 'jumping' the two channels

Because both Channels of the 1959HW have the same number of gain stages (two) and are therefore in phase with each other, it is possible to bridge them together ('slaving', 'jumping', 'linking' or even 'daisy-chaining') and use them both at the same time. Doing this enables you to expand upon the amp's tonal possibilities by mixing the two channels together.

The most common way of doing this is to plug your guitar into the top (high sensitivity) input of Channel I and then run a short 'jumper' guitar cable (i.e. a screened cable) from the Channel I's bottom (low sensitivity) input to the top (high sensitivity) input of Channel II. (fig. 1)

The 'reverse' is also possible – namely plugging your guitar into Channel II's top input and then running the 'jumper' cable from Channel II's bottom input to Channel I's top input. This less common approach can yield some interesting tonal variations. (fig. 2)



Fig. 1



Fig. 2

12. HIGH SENSITIVITY INPUT FOR CHANNEL II

This is the 'high sensitivity' guitar input for Channel II, the so-called 'Normal' channel.

13. LOW SENSITIVITY INPUT FOR CHANNEL I

This is the 'low sensitivity' guitar input for Channel II. It is 6dB lower in volume than the 'high sensitivity' input and has a darker sound as well due to its significantly lower input impedance.

1959HW Rear Panel



1. LOUDSPEAKER OUTPUTS

WARNING! Never use the amplifier without a load attached!

There are two parallel loudspeaker output jacks provided for connection to speaker extension cabinet(s). Please always ensure that the amplifier's output impedance selector is set correctly (see item 2) and **ALWAYS** ensure you use good quality speaker (unshielded) cables. **NEVER** use guitar (shielded) cables.

Always use a non-screened Marshall approved speaker lead when connecting an extension cabinet to these units.

2. OUTPUT IMPEDANCE SELECTOR

Matches the amplifier's output to the load (speaker) impedance.

Your 1959HW should be completely powered down before the Output Impedance Selector is turned.

As is the case with any Marshall all-valve amplifier it is imperative that: a) the amplifier is connected to a load whilst in operation and b) the impedance selected on the amplifier matches the total impedance of the extension speaker cabinet(s) being used.

1x16 Ohm cabinet - Selector on 16 Ohm
Use either speaker output

2x16 Ohm cabinets - Selector on 8 Ohm
Use both outputs

1x8 Ohm cabinet - Selector on 8 Ohm
Use either output

2x8 Ohm cabinets - Selector on 4 Ohm
Use both outputs

1x4 Ohm cabinet - Selector on 4 Ohm
Use either output

WARNING! Do NOT use any other combination of cabinets and/or impedances. Doing so may result in damage to the amplifier! An extension speaker cabinet with an impedance of less than 4 Ohms, or two extension cabinets of 4 Ohms or less should **NOT** be used with this amplifier.

Failure to comply with any of the points raised in this section will result in damage to the amplifier.

3. MAINS SELECTOR

Matches the amplifier's mains transformer to the incoming mains voltage.

Your 1959HW should always be completely powered down before the mains selector is turned.

WARNING! ALWAYS ensure that this rotary selector is set to the correct mains voltage applicable for the country where the 1959HW is being used. If you do not know, consult your authorized Marshall dealer.

Adjusting the selector from 230V to 120/100V or vice-versa will require the mains fuse (item 5) to be changed to the correct value as detailed on the rear panel.

4. MAINS INPUT

Your amp is provided with a detachable mains (power) lead, which is connected here. The specific mains input voltage rating that your amplifier has been built for is indicated on the back panel. Before connecting for the first time, please ensure that your amplifier is compatible with your electricity supply. If you have any doubt, please get advice from a qualified technician. Your Marshall dealer will help you in this respect.

5. MAINS FUSE

The correct value of mains fuse is specified on the rear panel of the amplifier. **NEVER** attempt to bypass the fuse or fit one of the incorrect value.

6. H.T. FUSE

The correct value of this H.T. fuse is specified on the rear panel of the amplifier. **NEVER** attempt to bypass the fuse or fit one of the incorrect value.

**Follow all instructions and heed all warnings
KEEP THESE INSTRUCTIONS !**