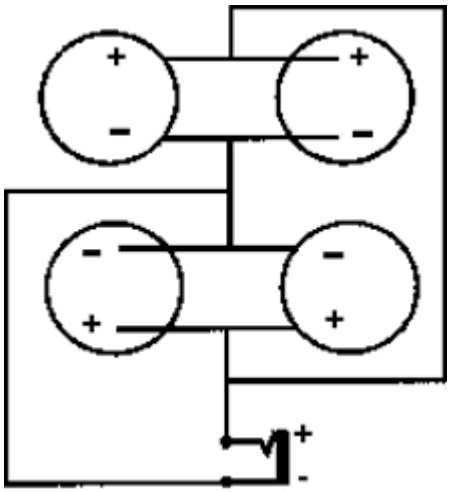
<u>Parallel Wiring</u> - Speakers of equal impedances you divide the impedance value by the number of speakers. To determine the wattage you add the wattage of the speakers together.

If you wire (4) 16 ohm speakers in parallel you'd have a 4 ohm cabinet. (2) 16 ohm speakers in parallel would give you an 8 ohm cabinet. If you were using (4) 100 watts speakers you'd have 400 watts power handling. If you were using (2) 100 watt speakers you'd have 200 watts power handling.

2x8 Ohm speakers in Parallel = 4
4x8 Ohm speakers in Parallel = 2

2x16 Ohm speakers in Parallel = 8
4x16 Ohm speakers in Parallel = 4

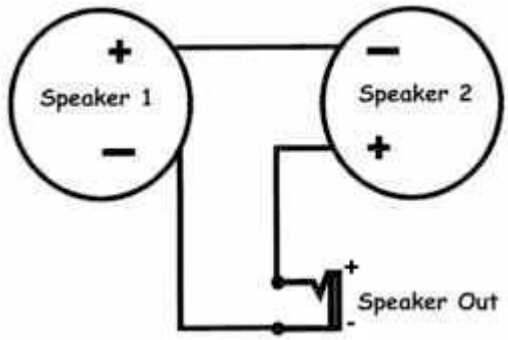


<u>Series Wiring</u> - For speakers in series you add the impedances of the speakers together. To determine the wattage you add the wattage of the speakers together.

If you were using (2) 8 ohm speakers you'd have a 16 ohm cabinet. If you were using (2) 200 watt speakers you'd have 400 watts of power handling.

2x8 Ohm speakers in Series = 16
4x8 Ohm speakers in Series = 32

2x16 Ohm speakers in Series = 32
4x16 Ohm speakers in Series = 64

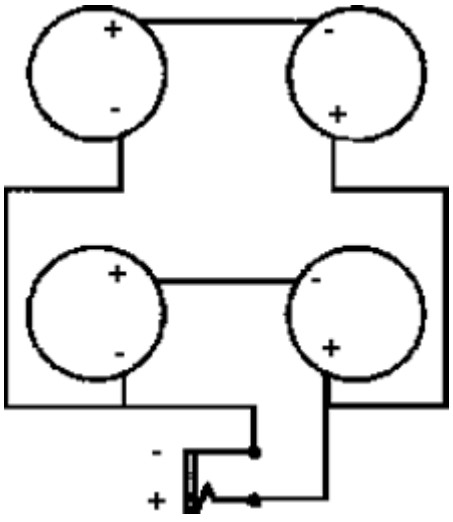


<u>Series/Parallel Wiring</u> - All speaker's should be the same impedance & wattage. The impedance of the cabinet will be the same as one speaker. The wattage will be 4 times the individual speaker wattage.

If you're using 8 ohm speakers the cabinet will be 8 ohms. If you were using 100 watt speakers the wattage for the cabinet will be 400 watts power handling.

2x8 Ohm speakers in Series-Parallel = 16
4x8 Ohm speakers in Series-Parallel = 32

2x16 Ohm speakers in Series-Parallel = 32
4x16 Ohm speakers in Series-Parallel = 64



HEAD-CAB SETTING
If cab speaker outs are paralleled, e.g., Marshall Plexi, JCM 800 etc:

1x16 Ohm Cab	**Set head to 16 Ohms**
2x16 Ohm Cabs	**Set Head to 8 Ohms**
1x8 Ohm Cab	**Set Head to 8 Ohms**
2x8 Ohm Cabs	**Set Head to 4 Ohms**
1x4 Ohm Cab	**Set Head to 4 Ohms**
2x4 Ohm Cabs	**Set Head to 2 Ohms**

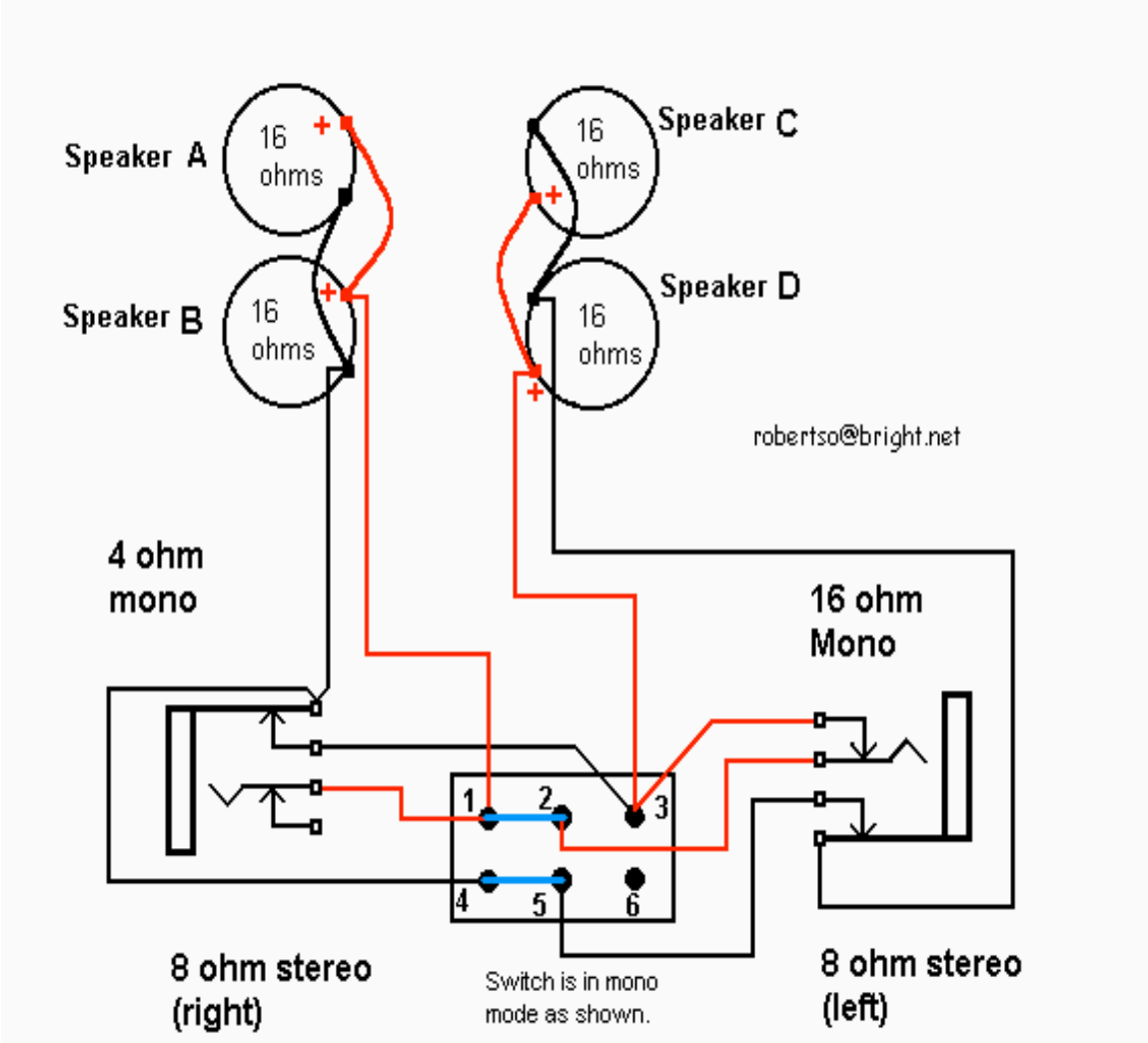
Note: Standard amp heads are NOT stable at 2 Ohms
Exception: Fender Bassman has a 2 Ohm output transformer

Marshall 1960 Cabinet Wiring

Marshall cabinets employ four sixteen-ohm speakers, with the 1960 rated at 300 watts and the 1960V rated at 280 watts.

This high wattage may seem like over-kill, but consider the consequences of hooking your 100-watt cab in stereo mode. In stereo mode, because each side is now using half of the speakers, each side is now half the power rating as the cab was in mono. Each stereo side is now only 50 watts. This should be taken in consideration if either of your amplifiers is rated at 50 watts or more.

Marshall uses switches to allow several hook-up options. The cab has a jack for four-ohm mono termination, a jack for sixteen-ohm mono termination, and a mono/stereo switch to allow two power amps (or one stereo amp) to be hooked to the two eight-ohm pairs of speakers. When you slide the double-pole-double-throw slide switch to the stereo position the four-ohm jack becomes an eight-ohm "right" input and the sixteen-ohm input becomes an eight-ohm "left" input. When in "Mono" mode, impedance switching is achieved by the use of switches contained within the jacks (switching jacks). When you plug into a jack it automatically "switches" the wiring to accommodate the chosen impedance.



The speakers are shown as viewed from the rear of the cabinet. The speaker that appears on the left side of the diagram is actually the right speaker when viewed from the front.

All of the speakers are sixteen-ohm speakers.

Speaker A is wired parallel to speaker B for an output of eight ohms for the pair.

Speaker C is paralleled with speaker D for an output of eight ohms for this pair.

The switching jacks allow for sixteen or four-ohm termination when in the mono mode.

The switching jacks switch both the tip and the sleeve on the 16-ohm jack and switch the sleeve part of the 4-ohm jack.

This is important for understanding how the circuit does its' stuff.

The terminals of the slide switch 1,2, and 3 for one pole and 4,5, and 6 for the second pole.

Terminal 2 is the common terminal for the first pole and 5 is the common for the second pole.

The blue lines represent a connection within the switch. In mono mode the blue line denotes that terminals 1 and 2 are connected together and 4 and 5 are connected together.

In stereo mode, this blue line (connection) would connect terminals 2 and 3 and 5 and 6 respectively.

When you slide the switch to Stereo mode, the 4-ohm mono jack becomes an 8-ohm-right input and the 16-ohm input becomes an 8-ohm-left input.

References:

http://www.usspeaker.com/speaker%20wiring-1.htm

http://www.attentiontodesign.com/ax84/stevec/1960cab.html