

How to bias: V3M, V3MC



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Only a certified technician should bias Carvin amps, this can be very dangerous, you can get hurt, please be very careful when working with any tube amp!

If you are changing the tubes make sure they are a matched set.

-The bias for the V3M, V3MC should be **80mA** (measured across the Standby switch) in the 50W Power Mode setting.

These are the tools you will need:

1. A Phillips head screw driver.
2. A small (plastic if available) flat head screwdriver.
3. A multi-meter, with milli amp (mA) reading.
4. Banana to clip meter leads.
5. An Amp Stand or several wood blocks.



STEP 1

(A) For the V3M, first remove the top grill with the 4 large side screws.

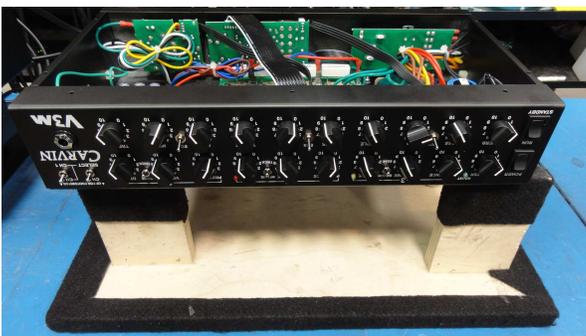
-or-

(B) For the V3MC, first remove the amp from the speaker cabinet:

1. Unplug speaker from rear amp jack.
2. Remove rear wood panel (4 screws on back of cabinet)
3. Remove 4 screws on top of amp.
4. Slide amp out of speaker cabinet, to the rear.

-Replace tubes now if they are to be changed. *Be very careful with the tubes they can break.

STEP 2

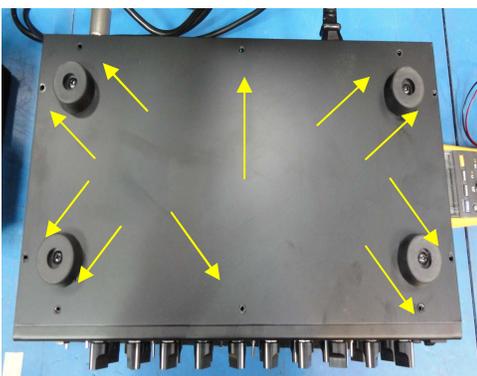


Set the amp with tubes down, on an amp stand.

NOTE: If you don't have an amp stand, steadily support the chassis on solid blocks of wood so that the power tubes are not touching anything - they get very hot.

* Be very careful with the tubes they can break.*

STEP 3



Remove the bottom lid by removing the 10 screws where indicated.

For the V3MC, there are 6 screws to remove the metal plate.

STEP 4



Plug in a speaker to output 1 or 2, they are both the same, both jacks are in parallel.

IMPORTANT: Do NOT turn on the amplifier without a speaker plugged in!

STEP 5



Next to the Speaker Output you will find the OHM setting.

Set the OHM switch to match your speaker.

Improper OHM settings will not bias properly, and could result in damage to the amp!

STEP 6



Set the Power Mode switch in the back to 50W.

NOTE: This step is very important, if you don't set this to 50W setting you will not get the correct bias setting when you adjust it later in the procedure.

STEP 7



A) Set the Master volume and all channel Volumes to “0”.

B) Unplug your guitar cord from the input of the amp.

NOTE: If you have signal going through the amp, it will not be the true reading when you set the bias.

STEP 8



Plug in AC Cord.

Make sure the rear AC switch is set for the voltage in your area.

NOTE: Sometimes when the AC Cord is new it does not want to go in all the way. Push firmly to force it in, if that is the case.

STEP 9



15secs. > RUN

Turn the Power Switch ON.

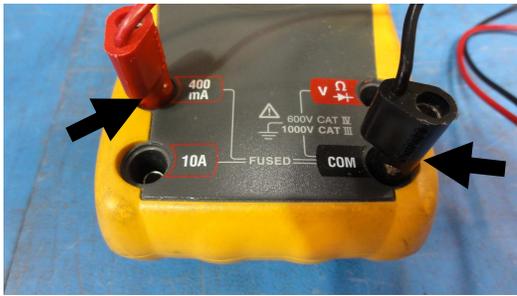
Wait at least 15 seconds, then turn the Standby Switch to RUN (ON).

Allow 2 minutes for the amp to warm up. During this time you can set up your Meter to measure the current (mA) DC.

CAUTION: The tubes get very hot! Don't touch them, you will burn your skin if you do.

IMPORTANT: During biasing and normal amp operation if there is a burning smell or loud crackling noise that comes from the speaker, you should turn off the amp as the amp may have a bad tube. The tubes should never glow RED on the gray plate material, the largest metal part inside the tube. This indicates a major problem and extremely unsafe condition. If this happens turn off the amp immediately!

STEP 10



A) Connect the leads to the meter.
Make sure the fuse inside is good.



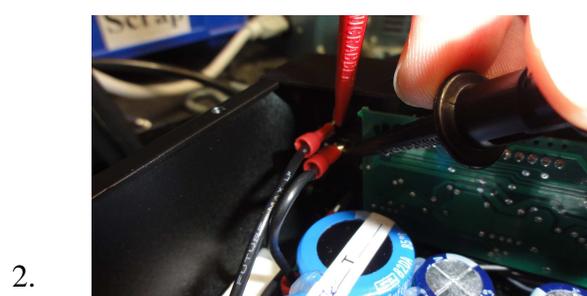
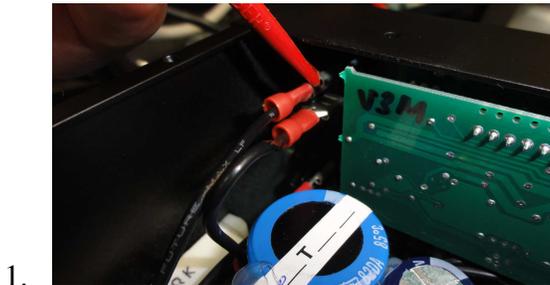
B) Set your meter to the milliamp (mA) position.
Set meter to DC Current, not AC current.

On the meter above, the (mA) and (COM) jacks are used, you have the option to use the (A) jack, but because the setting will be set to 80mA it's best to use (mA).

NOTE: If the Fuse inside your meter is open, the meter will not work. It will always read 0mA.

STEP 11

*** WARNING:** The Standby switch is connected to HIGH VOLTAGE !
DO NOT touch any metal of the meter lead clips while the meter is connected !



Carefully, connect the two meter lead clips, one to each connector of the Standby switch. *** Once one lead is connected, BOTH leads will have HIGH VOLTAGE.** Make sure the metal of the leads do not touch anything else.

It is usually easier to clip the leads to the wires on the Standby switch than connecting to the main circuit board.

IMPORTANT: Make sure the Standby switch is set to RUN (ON) before connecting the leads, or you will get a big spark, and may blow the fuse in the Meter.

STEP 12

With the meter connected to the Standby switch, turn the switch to Standby (OFF). The meter should now display a reading near 80mA.

If you have new tubes, this reading will likely be higher or lower.

NOTE: If your meter reads higher than 150mA or goes into overload "OL", you should turn off the amp immediately as the amp may have a bad tube.

STEP 13



Use a small, flat head screwdriver.

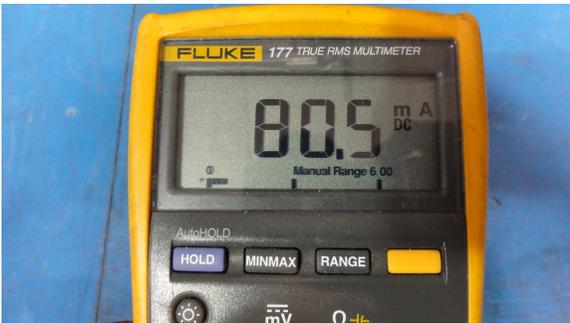
* A plastic screwdriver is preferred. Use caution if using a metal screwdriver, to not touch other parts.

-If the meter reads over 80mA, lower the bias by turning the bias potentiometer clockwise.

-If the reading is under 80mA bring it up by turning the potentiometer counter-clockwise.

IMPORTANT: Set your meter to DC Current, your meter should read mA DC.

It is OK and normal for the bias reading to fluctuate a little bit and may not be exactly 80mA, but as close as possible.



Good Bias

Congratulations! Your amp is now properly biased.

*PLEASE READ NEXT PAGE FOR SAFE METER REMOVAL and Power off.

STEP 14

Power down Steps:

1. Turn the STANDBY switch to RUN. (to protect the Meter)
2. Turn the Power switch OFF.
3. Disconnect the meter clips. (Turn the Standby switch OFF for next time)
4. Unplug the AC cord and wait for the tubes to cool down.
5. Attach the bottom cover with screws.
6. Attach the (V3M) top cover, or (V3MC) speaker cabinet.

IMPORTANT: During biasing and normal amp operation if there is a burning smell or loud crackling noise that comes from the speaker, you should turn off the amp as the amp may have a bad tube. The same is true if your meter reads higher than 150mA or goes into overload. The tubes should never glow RED on the gray plate material, the largest metal part inside the tube. This indicates a major problem and extremely unsafe condition. If this happens turn off the amp immediately!

CAUTION: The tubes get very hot! Don't touch them, you will burn your skin if you do. If the amp is ON the tubes will get hot, even if you are not playing the amp, wait 30 minutes before handling the unit to ensure the amp cooled down.

NOTE: This is not the only way to set the bias on this amp, this is the Carvin Approved method which is used on the Production line in the San Diego, California Factory.

NOTE: If you don't see any reading on your meter, check the meter. You may have the leads connected to the wrong jacks on your meter, or the fuse on the meter is open.

Comments or questions? You can email us at Carvinservice@carvin.com