

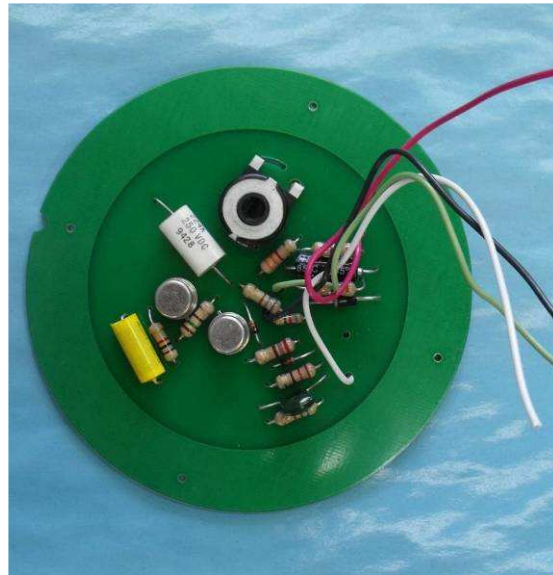


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'64 -'66 Mopar Tach Sender Board Installation Instructions



Introduction

Thank you for purchasing our **'64-'66 Mopar Tach Sender Board** from Mr. Heaterbox and Interior / PremiumDashDecals.com. These boards are designed to be a **NON-FACTORY-STOCK UPGRADE** for the Factory OEM tach Sending Unit found in 1964-1966 Dodge, Plymouth, Chrysler Console tachometers. This instruction booklet will take you through the steps of making a few modifications to your factory tachometer wiring to make this tach board work in your car.

This tach board system is not recommended for use in '66 Dodge Charger due it being incompatible with Electroluminescent lighting used in that dashboard which is in part using one of the tach signal input lines as a ground.

Your new reproduction tach board is manufactured from new components only and uses component of both higher voltage ratings and tighter tolerances for improved performance and reliability. It copies a design used in later model tachometers which does away with the mechanical oscillator used in your original sending unit board, and makes it more reliable and compatible for other ignition systems used in Mopars. Each board has been connected to and

tested on a real Mopar OEM tach mechanism before shipping to you. This way you can have full confidence in knowing that you have received a fully working circuit board.

Please note that this tachometer board has been configured to be used on Chrysler POINTS/ELECTRONIC ignition. This means that the input signal to the tach must come from the ignition coil NEGATIVE terminal. This board still requires the brass “can” known as the '64 -'66 Tachometer sending unit and wiring associated with these tachometers. If you do not have a Sending Unit assembly, you will have to locate one to install this board and you can make your own necessary wiring using Do-it-yourself wiring terminals, there are *no* suitable ways to install a tach board *inside* of a '64 -'66 Console Tachometer (unless you are using a '67 - '69 model).

First ensure that you have the correct tachometer for your application, since the '64 - '66 and the '67 - '69 console tachometers can look almost identical. You can identify the 64-66 by looking at the wiring coming out of the bottom of the console tach. There should be 3 wires coming out. Additionally, when you open the console tach housing you will notice that other than some wiring terminals, there is no circuit board inside this tach, as that is the role of the tach sender can. In the 1967 and later tachs, the sender board was relocated to be inside the tach at the rear.

Please follow the instruction below in order to replace your old tach board

Installation Procedure:

This procedure shows the installation of our *New Exact Reproduction OEM-Style Mopar Console Tach Sender Board* into a Console Tach setup and requires modification of both the sender can and the tach internally. The modifications are minor and require the addition of a ground wire as you will see outlined below.

Time Required: 30 minutes approx.

Tools Required: (see *Figure 1*)

11/32” nutdriver (or 1/4” drive 11/32” socket on a handle)
low wattage soldering iron (NOT a soldering gun) and solder
small Phillips’ screwdriver
medium-large Phillips screwdriver
small flat blade screwdriver
small needle nose pliers
small wire cutters
small wire strippers
steel wool or fine sandpaper to clean tach terminals
digital camera for documentation (optional)
digital multimeter (ohms and volts) (optional for troubleshooting)

- Unhook Console Tach from where it is installed, bringing the console tach, tach wiring harness and tach sender (brass) can to the workbench.
- Optionally, it is a great idea take a series of pictures before you start of the front and back of the tach unit and maybe a couple along the way should you have any questions later on.

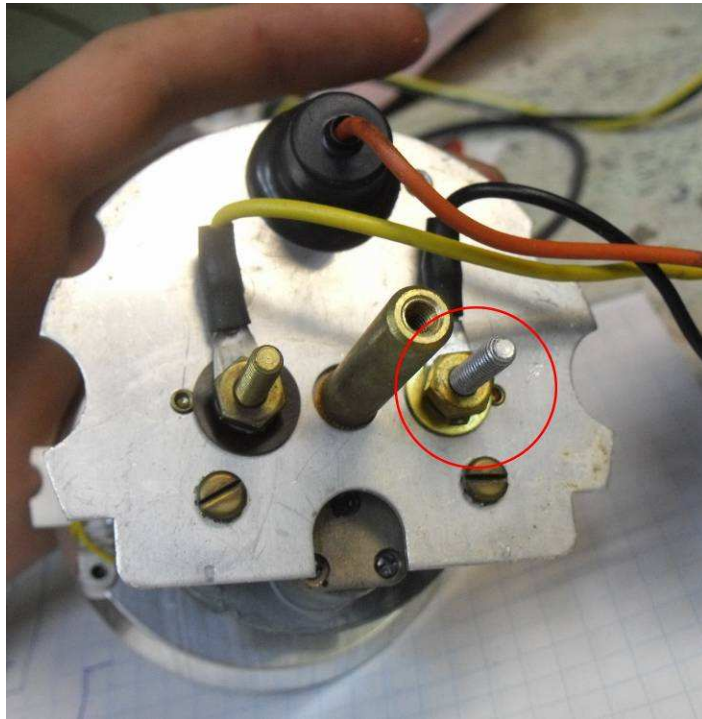
- Your setup on the bench should now look something like the following picture (remember to undo all screw terminals and do not cut any wiring).



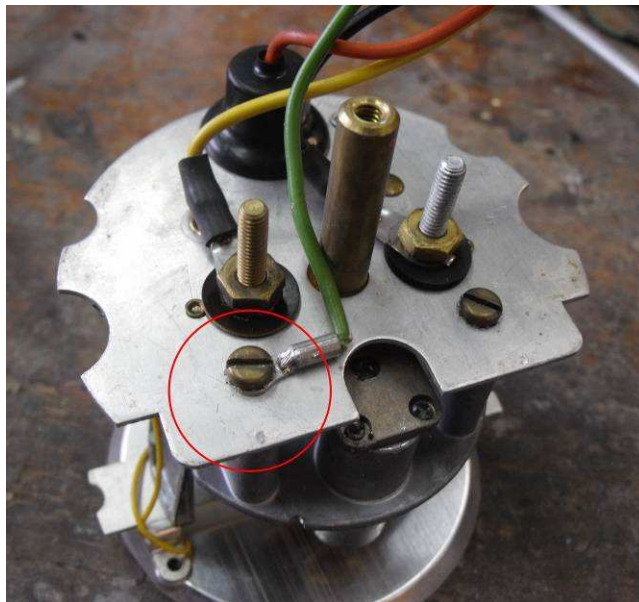
- Undo the wiring harness plugs that go into the tach and separate the tach sender from the actual console tach unit.
- First we need to open the tach. There are also two smaller Phillips screws in the 3 and 9 o'clock positions of the chrome tach lens housing. Remove the screws and then carefully set aside the lens housing and lens being careful not to drop or mark the glass lens. At the rear there is a single Phillips head screw, take this out in order to be able to remove the rear console tach housing. Once these three screws have been removed you can slide the tachometer mechanism out of the housing..



- Once inside there are a couple of changes that need to be made. First we will install the insulator (provided) on the terminal highlighted on the picture below so that both of the tach signal input posts ARE NOT GROUNDED. Failure to do this step may damage the sender board when powered up.



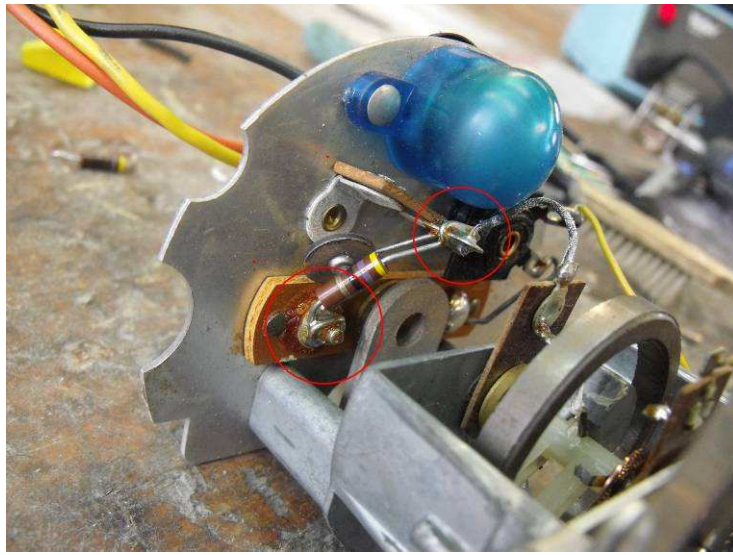
- Next we need to add a ground wire to the body of the tach. This can be done with almost any gauge/size of wire as it's only a ground. If possible use a green wire. The wire should be the same length as the tach wiring harness so that it can go all the way back to the brass tach sender can, where it will ultimately be attached to one of the two mounting screws. This new wire can easily be run through the tach wiring fitting (tube) in the rear housing of the tach. Attach the wire exactly as shown in the next picture. (please note this picture also shows the insulating washer installed on the right side input post.)



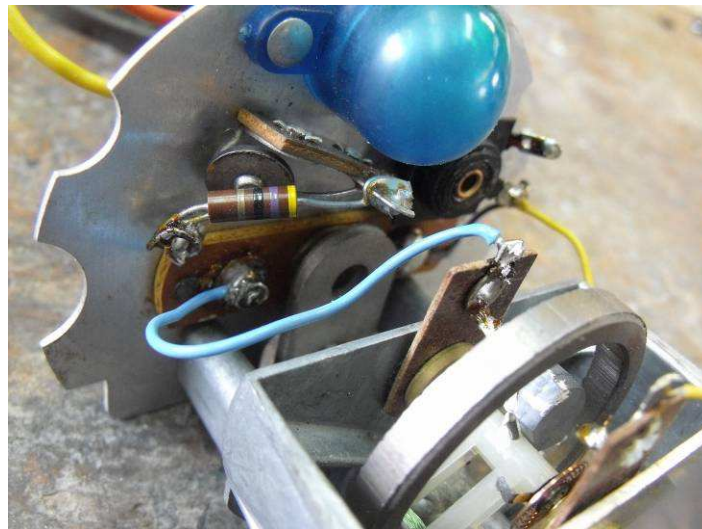
- The last work on the tach involves connecting the clockspring wires directly to their respective input terminals on the back of the tach. These old style tachs have some internal

electrical devices that are not needed. There is nothing to remove and this step does not irreversibly alter the tach.

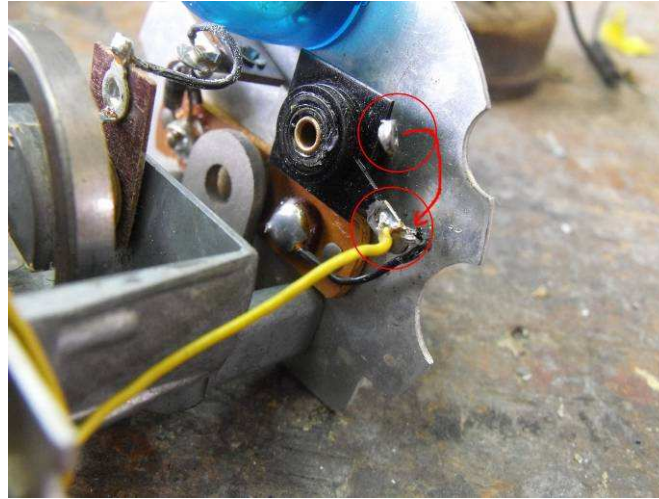
- We need to remove the resistor from the tach input terminal and replace that connection with the wire from the rear clockspring. While looking at the picture below; we are going to simply remove the resistor lead in the (left) red circle area from the tach input terminal and leave it hanging not touching anything.
- Then remove the clockspring wire as highlighted in the (right) red circle from the terminal strip and leave it hanging.



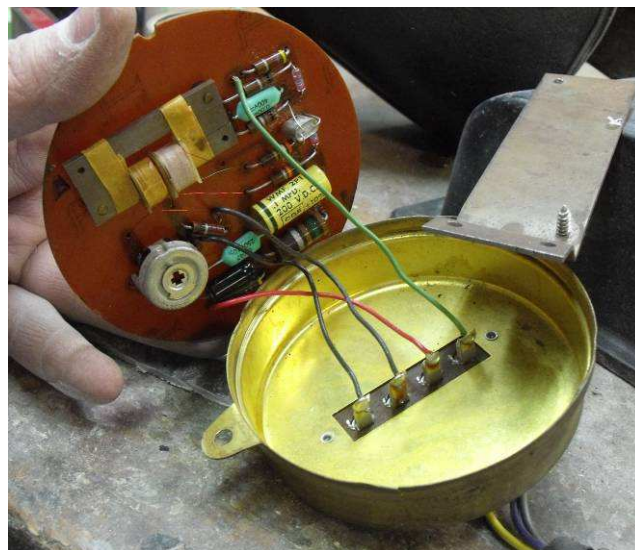
- Now you can either use the existing wire and solder the end that you removed right to the input terminal or you can remove and replace the wire with a new wire. Below shows a picture of the completed mod.



- We are now going to do essentially the same for the other terminal, (removes diode from circuit). This process is really simple, just remove the yellow wire that you see connected to the upper diode terminal (upper red circle in picture) and move it to the lower diode terminal (lower circle in picture) so that its now connected to the existing black wire that goes to the tach input terminal. When done your work should look just like the picture below.



- Verify that the front and rear clockspring wires now go directly to the two tach input terminals and that both of the terminals are insulated from the main tach body.
- Once you have done this you may reassemble the tach, feeding the wires (including the new ground wire we have previously installed) through the tach mounting “pipe”. Put the rear cover on the tach and set aside.
- The second part of the install is to put the new circuit board into the tach sender can, replacing the old defective board. On the underside of the tach sender (having removed the metal mounting strap (if applicable), you will see a series of metal crimped areas where the edges of the tach can has been folded inward to hold the board in place. Straighten these crimped areas and allow the board to come out of the can as per the picture below.



- Remove all the wires on the underside of the terminal strip by desoldering them carefully so as not to overheat the terminal strip contacts. When you are done, remove the old board. Your tach sender can should now look as follows:

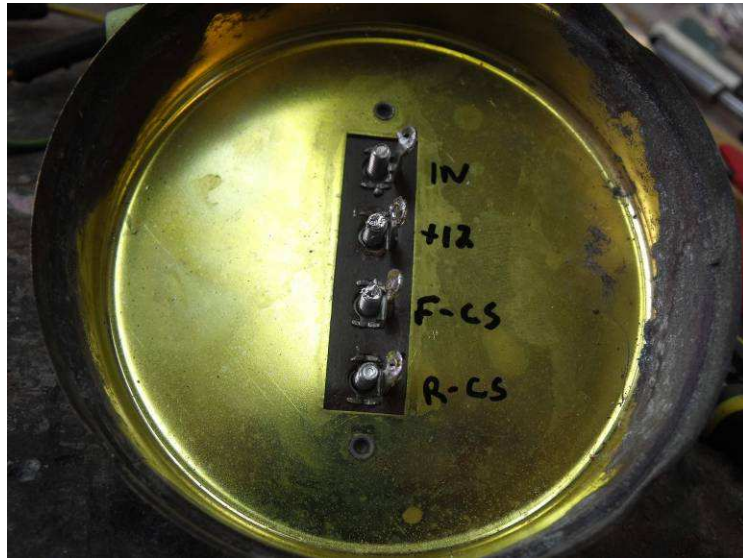


- Flip the tach sender over as we need to prepare and label the terminal strip. This step is very important. The tach will not work if the sender is wired up incorrectly. There is one modification required to the tach can. Note how the ground strap has been removed (you can leave it there not touching anything or you can pull it off and discard as we need to use this terminal ungrounded). In the new setup the tach can will be the ground so the ground terminal isn't needed

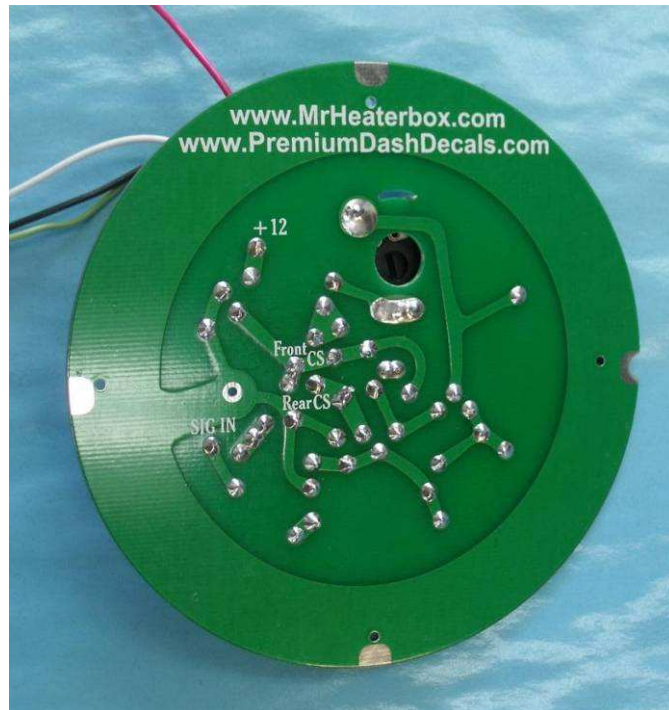


- By using either a tape label or writing right on the tach can with a sharpie marker, label each of the terminals EXACTLY as in the picture above.
- Now translate these labels carefully to the underside of the tach sender can. Make sure not to invert or reverse the labelling and double check when done. Your tach can should now

be prepared as in this next picture. Just to be safe its probably a good idea to just slightly bend back these terminals (flattening them just a bit) to make more interior room for this board.



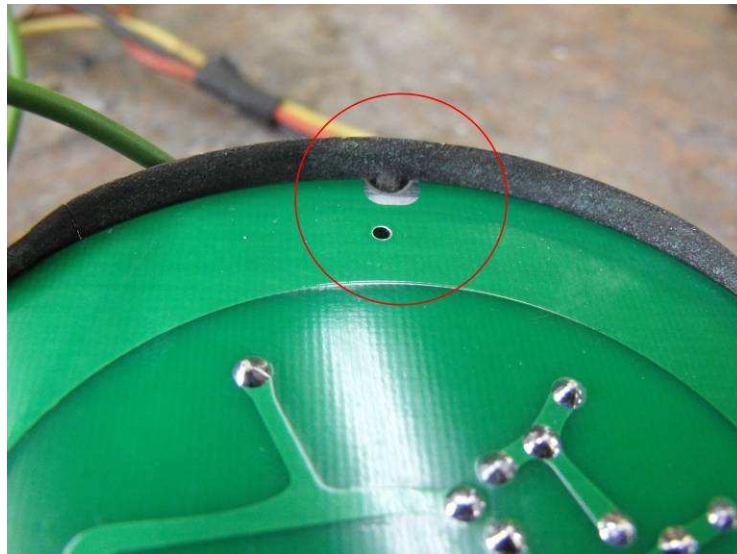
- Now we are going to install the tach board and finish things up. Note that the terminal labels on the underside of the tach can correspond directly with the wires come from the tach board (pictured below). There is a SIG IN line which is the tach input signal, +12V power line, front clockspring (FRONT-CS) that now goes to the tach and rear clockspring (REAR-CS) which is the second input wire to the tach. Also take time to note there is a metal alignment notch pressed into the brass case of the tach can, this is going to align with the same notch on the new tachboard. The ground connection will be made by soldering the tach board to the metal tach sender can. This will also provide for mechanical retention at the same time.



- Carefully trim the wires on the tachboard to the shortest reasonable length, strip and tin the ends with solder. Now solder each wire to their respective terminals. When done trace each of the wires to the labels on the underside of the board and double check that each wire goes to the correct terminal (IMPORTANT!). Your board should look something like below (note wire colours could vary so don't go by wire colour, go by names written on the inside tach sender can and tach sender board)



- Test fit the board into the sender can. Don't forget to line up the can and board via the notch and matching bump in the can. Mark the position alignment of the shiny solder pads on tach sender can.



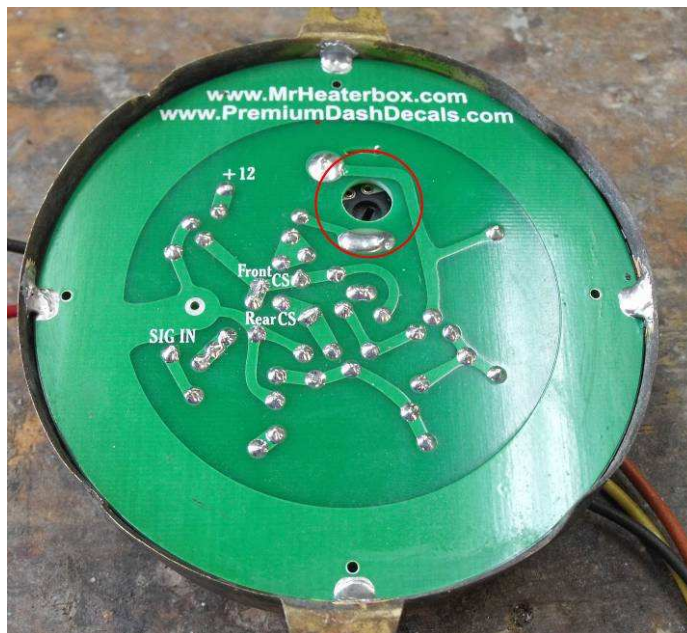
- It is a good idea to remove the board from the can and clean the areas to be soldered. A wire brush wheel on a Dremel tool or a fine piece of sandpaper will do just fine. Make sure to not get any of the metallic dust onto the new sender board! Install the board using the alignment notch and then solder bridge the four bare metal pads to side of the can. Note that these connections form the electrical ground path so make sure they are properly soldered.



- You are now ready to reinstall the tach back into the car. Remember to select a unpainted metal ground point for your tach sender can (usually somewhere on your dash frame). Depending on the model your sender can may be mounted on a metal strap that is in turn to the dash frame. Screw the can back into place using the two mounting screws and while doing so insert the ground wire added to the body of the tachometer in the steps above to one of the ground screws.
- Reattach the power wire and the tach signal input wires in the car to the appropriate terminals on the tach sender screw terminal strip. NOTE: on some models of cars the orange light that goes to the dash light bulb inside the tach (orange wire usually) may be hooked up directly to the +12V terminal. In these types of installations the tach light is always on (day or night) once the ignition switch is on and is not dimmable. Some people don't like this. If you so wish you can move the orange wire from the tach sender +12V terminal and route it to any solid orange wire in your dash wiring harness. This now makes the bulb dimmable with the dash lights.

You are now done and ready to test the tach. If it needs calibration (reads high or low) there is an opening on the underside of the tach sender (just like the original) that you can insert

a screwdriver into and turn the calibration potentiometer. To do so means that you will need to remove one of the mounting screws and swing the tach sender away from the mounting area or metal strap. Do not remove completely as the tach can be your ground path and if you take all the screws out the tach will stop operating. The tach sender calibration hole is shown in the picture below.



- **Congratulations you have now completed the installation of your new replacement tach sender board!**

Calibration Procedure

This procedure assumes that you will use your vehicle as the tach calibration setup. It also assumes that **you have sufficient mechanical knowledge to do so in a safe manner.**

If you are a professional shop who has access to a tach calibrator, simply follow the instructions that came with your calibrator setup. On the test vehicle you will need to use a clip on RPM meter as a reference. Most people use one of the combination tach/dwell testers that were commonly used when doing tune-ups on these old cars. We cannot stress how important it is to be careful with both your electrical connections and placement of all items. Keep clear of all rotating parts of the engine and cooling system when performing your calibration. Also do not work in a confined space due to risk of carbon monoxide poisoning. It is best to have a second person to help you and assist you in working safely.

- Hook up your reference RPM meter and ensure that it works by running the engine briefly in Park and with the emergency brake set. Turn off the engine.
- Install your tachometer unit and tach sender into the car.
- Start car and compare the RPM of the tachometer to your reference “device”

- If needed, fine adjust the potentiometer on the back lower portion of the tach board using a jeweller's screwdriver, but don't turn it too much as this is typically the high RPM adjustment point). Note how much you have turned the adjustment.
- If your tach is still not calibrated this means that the tachometer movement inside the main tachometer mechanical unit is out of calibration. This will require that the three screws be removed from the tach housing and the mechanism taken out. Return the tach sender potentiometer back to the original position before proceeding to the next step.
- Once this is done, start up the vehicle and let idle. Compare what the tach is indicating, relative to the RPM meter that you installed as your reference. If it is off you typically rotate the front clockspring (the terminal swivels) to provide more or less spring pressure to get the tach to read correctly at this low RPM. (If the clockspring doesn't have much effect then adjust the potentiometer on the back lower portion of the tach board using a jeweller's screwdriver, but don't turn it too much as this is typically the high RPM adjustment point)
- With the aid of a helper rev the engine to no more than 3500 RPM and hold it there for a few seconds. Verify that your tach is reading correctly when compared to the reference RPM meter. If not there is a potentiometer on the circuit board to adjust the high calibration point. Use a jeweller's screwdriver to make the adjustment.
- Recheck your low setting is should be correct.
- If not, on some tachs you may have to go back and forth a couple of times between the low adjustment and the high adjustment until you get it just right. Most tachs will calibrate on the first attempt.
- When done shut off the vehicle and disconnect everything.

Troubleshooting

Hopefully, you don't need this section but this section will show you some of the common solutions to problems you may encounter. If you continue to have difficulties, Mr. Heaterbox and Interior offers full reasonably priced tachometer repair services. We offer several flat rate repair service levels, so please call for pricing. Purchases of our TachBoard Kit will automatically receive priority repair service for quick turnaround time, typically completed within 72 hrs of receiving your tach unit.

Tach Needle Not Moving:

- Verify correct tach input signal to coil -ve side
- Using a voltmeter between the metal body of the tach and the +12 volt terminal, verify that there is between 12.0 – 14.4 volts
- Verify that tach movement is good by carefully using an ohmmeter on the 0-200ohm scale and measuring the resistance between the two clockspring terminals. A good coil movement will measure approximately 135 ohms
- Verify that the needle moves freely and is not stuck or hung up on clockspring wiring
- Verify that both clockspring wires are properly soldered by checking that they are firmly attached and that the solder connection is bright and shiny (dully grey solder joints tend to

indicate high resistance connections called cold solder joints) and that no wire strands are contacting the metal tach housing.

- Check wiring harness to tach.
- Verify the tach sender can wiring and ensure all steps in the above conversion procedure were followed exactly.

Tach Needle Not Returning to Zero:

- Front and/or rear clockspring is out of adjustment.
- Clockspring electrical wire (usually the front) causing movement to hang up.
- Tach movement out of balance (must be sent in for service to be rehung and rebalanced).
- Tach movement/bearings dirty or oxidized (must be sent in for service for full disassembly and ultrasonic cleaning – DO NOT OIL OR LUBRICATE).

Tach Can't Be Adequately Calibrated At Both Hi and Lo Calibration Points

- Tach mechanism either dirty or out of balance (must be sent back for service)
- Repeat calibration process adjusting both front and rear clocksprings instead of front only

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