



# Premium Dash Decals

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613-532-2587

## New Exact Reproduction OEM-Style Mopar Tach Board with MSD Input Installation Instructions



### Introduction

Thank you for purchasing our *New Exact Reproduction OEM-Style Mopar Tach Board-MSD* from Mr. Heaterbox and Interior / PremiumDashDecals.com. These boards are designed to be an exact drop in replacements for OEM tach boards found in 1967 and later Dodge and Plymouth tachometers. 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. 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 for use with MSD style ignition boxes only! This board is **not** to be used to be connected to the coil -ve terminal, doing so may damage the board. This means that the input signal to the tach must come from the TACH OUTPUT terminal of the MSD ignition box. Run a suitable gauge wire directly from the TACH OUTPUT terminal of the MSD style ignition box to the input terminal of your tach. No “Tach Adapter” is needed since your new Exact *Exact Reproduction OEM-Style Mopar Tach Board-M/SD* has been engineered to be fully compatible with the signal directly out of the MSD-style ignition box. This board is not compatible with the 1966 and

earlier tach OEM senders (a circular metal can mounted under the dash) installations. This board is compatible with all aftermarket performance/racing ignition boxes that output a +12 volt square wave signal with a 30% duty cycle.

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

### **Installation Procedure:**

This procedure shows the installation of our ***New Exact Reproduction OEM-Style Mopar Tach Board*** into a 68-70 Tic Toc Tach mechanism. From the rear view and internals all 67 and later Mopar tachs are virtually identical. So as a result even though this document uses pictures of the Tic Toc Tach style unit, they are still totally applicable to whichever Mopar tach you will be installing your board into.

Tools Required: (see *Figure 1*)

3/8" nutdriver, (or 1/4" drive 3/8" socket on a handle)  
9/32" nutdriver (or 1/4" drive 9/32" socket on a handle)  
low wattage soldering iron (NOT a soldering gun) and solder  
flat blade jeweller's screwdriver  
small needle nose pliers  
small wire cutters  
steel wool or fine sandpaper to clean tach terminals  
digital camera for documentation (optional)  
digital multimeter (ohms and volts) (optional for troubleshooting)

- Remove tach from cluster.
- Optionally take a series of pictures before you start of the front and back of the tach unit.
- Using a 3/8 nutdriver remove the 5 nuts from the rear housing of the tach, taking care to note which of them has the brass terminal
- Remove the back housing and push out the terminal board containing the pair of power input and tach signal input terminals. Note that one terminal has a longer stud than the other. The long stud is the +12V input, and the short stud is the tach signal input (MSD Tach Output). Each of these input terminals has a very fine fibre washer at the base. It is important not to lose it as it helps to ensure that the tach terminals can not touch the metal housing (which is ground) when reinstalled. (see *Figure 2 & 3*)
- It might be a wise idea at this point to snap a few more digital pictures of the tach's internal configuration and wiring.
- Unscrew the three brass standoffs which hold the circuit board in place and lift the circuit board away from the tach. (see *Figure 5*)
- The only thing holding the old board in now is the two soldered tach movement drive wires which are soldered to the front and rear clockspring mount. Using a soldering iron carefully, with minimal heat, desolder each of these wires at the clockspring terminal. Take care to make note of how the wires are routed. You will want to use the same routing path for the clockspring wires once you reinstall your new tach board from this kit. (see *Figure 6*)

- Remove the old tach board. You can now desolder the two wires that lead to the +12V power in and tach signal in (MSD Tach Output). Take care as the little piece of circuit board phenolic material is somewhat fragile. Sometimes they are already cracked or broken, if this is the case you can use a few drops of “CA / Crazy Glue” to put it back together.
- Get the new tach board out of the kit. It is now time to solder the RED and WHITE wires to the solder tabs on the small terminal board.
- Solder the RED wire to the LONGer terminal of the two, this is the +12V input.
- Solder the WHITE wire to the shorter (usually also copper colored) terminal, this is the tach input signal (connected to MSD Tach Output). (*see Figure 7*)
- Next install your *New Exact Reproduction OEM-Style Mopar Tach Board-MSD* into the tach frame, correctly orienting the board on the three small standoff studs and running the wires to the clockspring terminal using the identical routing paths as before. The black wire is the rear clockspring (when viewing the tach mechanism from the face) and the yellow wire connects to the front clockspring terminal.
- Solder each wire to the respective clockspring terminal. Carefully move the plastic coil/needle assembly so that the tach needle travels the full range of motion to verify the neither of the wires is inhibiting its motion. This is a common problem that is easily avoidable! If you are concerned that the front clockspring wire may change position over time and interfere with the mechanism movement, feel free to use a few dabs of CA / Crazy Glue, to tack the wire permanently into place.
- Reinstall the three standoffs to hold the *New Exact Reproduction OEM-Style Mopar Tach Board-MSD*, making sure to tighten them down since once of them is responsible for the electrical ground of the circuit.
- You are now ready to fine tune the calibration of your tach.

### 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.
- Using jumper wires, provide +12V to the long tach input terminal and to the short terminal of the set connect a signal from the Tach Output terminal of the MSD style ignition control box. Ground the tach body to a solid unpainted engine or body part.

- 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 use the potentiometer on the circuit board to adjust the high calibration point. Use a jeweller's screwdriver to make the adjustment.
- Recheck your low setting, it 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.

### **Final Reassembly**

Reassembly consists of installing the terminal board into the rear housing of the tach and then reattaching the tach cover to the body of the tach.

- Install the tach terminal board into the metal housing. Take note of the small fibre washers and make sure that they are used to insulate the studs from the edge of the outing hold in the rear cover of the tach housing.
- Reinstall hardware including large insulating washer, brass terminal on the tach input terminal, copper lock washers and nuts. Tighten snug but not too tight. make sure that the red and white wires are still twisted together a they were shipped to you as this technique helps to reduce electrical noise.
- Carefully install the tach rear cover on the standoff terminals. Note due to spacing, it will only fit one way. Once oriented correctly install the copper lock washers and brass nuts. (*see Figure 8*)
- Visually verify that the tach input terminals (+12V and points) are nice and bright and shiny and free from any oxidation. If oxidized, use either the steel wool or a light sandpaper to clean. A Dremel rotary tool with a wire brush wheel also does an excellent job.(optional) Using an ohmmeter or continuity beep tester, verify that there is no short circuit (or beep) between the +12V terminal and the metal tach housing. Likewise, verify that there is no connection between the points input terminal and the tach housing cover which is grounded. Should there be continuity it simply means that the small terminal board was not correctly installed and that you will have to loosen the two nuts and reposition it and retighten.

This completes your upgrade of your tach. It can not be reinstalled in the dash cluster of your car

## **Troubleshooting**

This section shows 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 the MSD TACH OUTPUT terminal of the ignition box
- 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.
- Ensure that the brass standoff closest to the white wire is tightened securely as this provides the electrical ground connection to the tach assembly. Also verify that the low half of the standoff is not heavily tarnished or oxidized which may prevent a good ground connection.

### 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





Figure 1



Figure 2

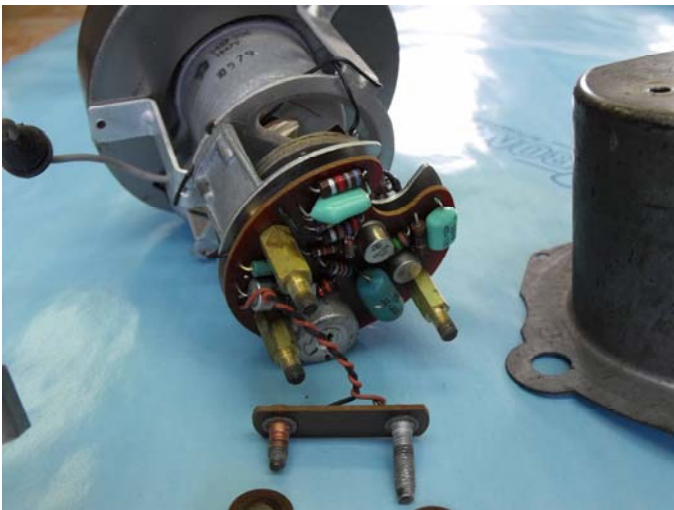


Figure 3

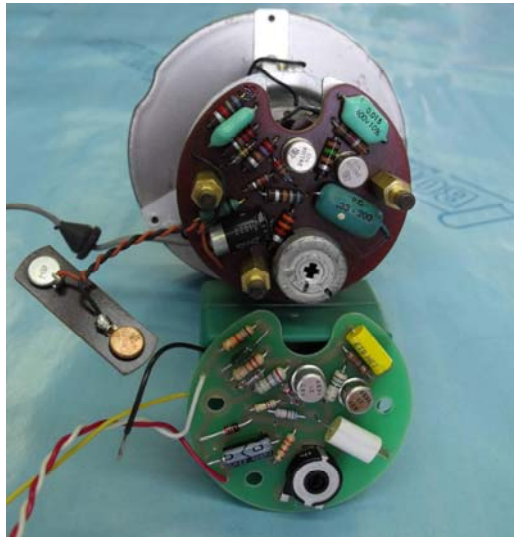


Figure 4



Figure 5

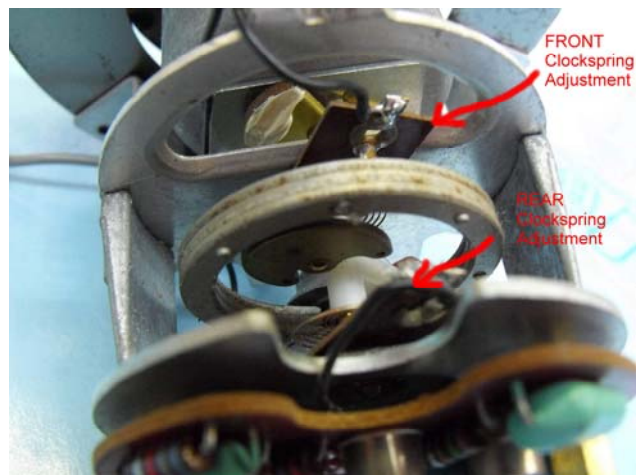


Figure 6

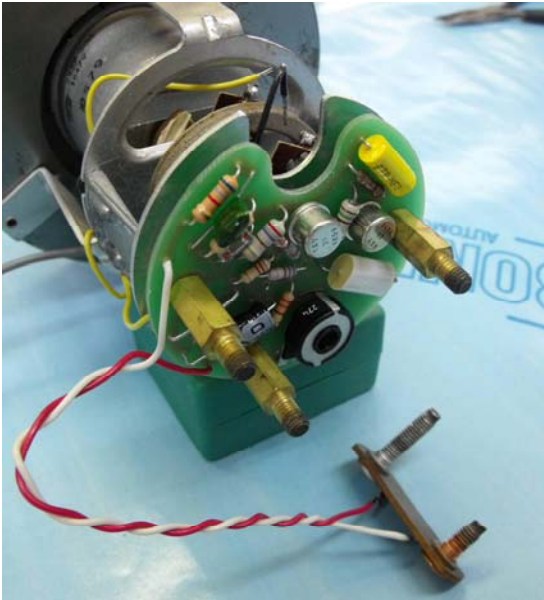


Figure 7



Figure 8

**PremiumDashDecals.com  
&  
Mr Heaterbox and Interior Restoration Services**

**4126 Henderson Rd  
RR #3 Harrowsmith Ontario  
Canada  
K0H 1V0**

**613-532-2587  
sales@PremiumDashDecals.com  
www.PremiumDashDecals.com  
www.MrHeaterbox.com**