

MR. HEATERBOX AND INTERIOR

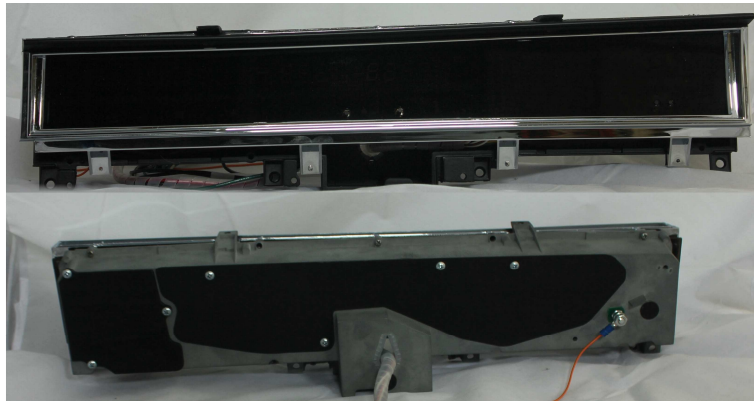


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DIGITAL GAUGE CLUSTER INSTALLATION AND OPERATION MANUAL (Mopar 68-70 B Body Standard Gauge Replacement Product –MHB2501)



Thank you for your purchase of our Mr. Heaterbox and Interior MHB2501 Digital Gauge Cluster with OEM Fit Kit. This cluster is intended as a drop-in exact replacement for 1968 - 70 Dodge and Plymouth B Body cars with standard (sweep speedometer) dash. Please take a moment to familiarize yourself with the features and installation procedures of this Kit before you begin.

MHB2501 KIT CONTENTS:

- Digital Instrument cluster panel with lens and chrome bezel
- Electronic speedometer sender
- Oil pressure sender
- Temperature sender
- Instruction book

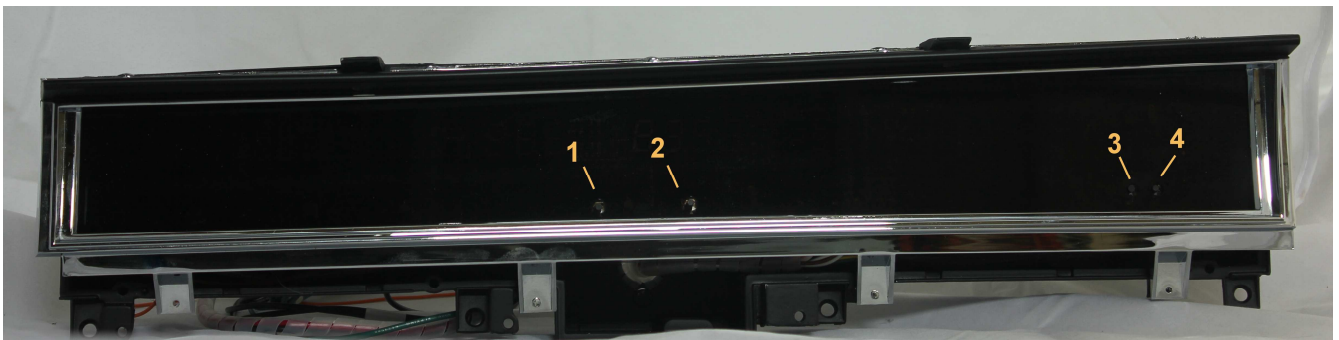
INSTALLATION FEATURES:

- OEM factory install, no cutting or drilling required, uses factory screws in factory mounting locations
- Direct plug in to factory wiring harness (no wire cutting at all).
- Works with MSD/Pertronix or stock points/electronic ignition setups (incl. 4/6/8 cyl)
- Compatible with stock transmission (via included speedo adapter) or modern transmissions
- Removes the 'dangerous' ammeter from the stock cluster and replaces it with a voltmeter instead
- Works with Mopar, VDO, Universal/Stewart Warner fuel senders so is compatible with OEM tanks and all aftermarket fuel cells
- Available in Red, Green, Blue and White display (chosen at purchase time)
- Kit comes complete with new oil pressure sender, coolant temperature sensor and electronic speedometer sensor (no more speedo cable is required)

OPERATIONAL FEATURE SUMMARY:

- **6 digital gauges plus clock (Speedometer, tachometer, fuel, voltmeter, oil pressure, temperature)**
- **Left and right turn signal indicators integrated into design**
- **Special indicator light pattern for when Hazard Flasher is on**
- **Dedicated BRAKE SYSTEM red LED light**
- **Integrated blue headlight High Beam indicator LED**
- **Panel automatically dims when headlights are turned on for better night viewing**
- **Memory Tach/Tach Recall of highest RPM achieved**
- **Digital Performance Speedometer that includes trip odometer, high speed recall, 0-60 time, ¼ mile elapsed time (ET)**
- **Calibratable digitally to any wheel/tire/axle ratio combination (no speedo drive gears to mess with)**
- **Optionally can drive speedo from a GPS unit if so desired (not included with kit)**
- **Optionally can trigger one and two stage nitrous with an additional module (not included with kit)**

FRONT PICTURE - MHB2501 Digital Instrument Cluster:



(Figure #1)

- 1 – Speedo Recall/Trip Button**
- 2 – Tach Recall Button**
- 3 – Clock hour set button (12 hr time only)**
- 4 – Clock minute set button**

REAR PICTURE - MHB2501 Digital Instrument Cluster:



(Figure #2)

- A- Ammeter Wires Junction Post (both ammeter wires connected here together)**
- B- Wiring Harness Plug in Connector**
- C- Bare metal ground connection terminal**
- D- Tach input wire (either coil or tach output terminal on a multiple spark box)**
- E- Speedo sender wire set (red = +12V, Black = GND, White = Signal)**
- F- Electronic Speedo Sender / Signal Generator**
- G- Coolant Temperature Sender**
- H- Oil Pressure Sender**

INSTALLATION INSTRUCTIONS:

Installation of this cluster is very straightforward due to the fact that it has been designed around exact OEM fit using OEM mounting locations and requires no cutting or modifying of the factory wiring harness. In addition, this robust kit comes with all sensors needed to make it an easy install.

- 1. Disconnect the negative battery terminal**
- 2. Reaching under the dash unplug the main round circular wiring connector which connects into the circuit board of your cluster. If your circuit board is an original unit, be very careful removing the round connector as the pins are weak and somewhat fragile.**
- 3. Using a Phillips head screwdriver and a 3/8" nut driver, remove steering column cover and loosen off the front lower dash pad, and dash switch panel. Remove the front bezel screws so that the cluster can be pulled forward out of the dash frame. You may want to put a towel or pad over your steering column to protect it during this process. Some people may prefer to loosen the three nuts that hold the steering column mounted to the dash frame and drop it down and out of the way to provide for more room. If in doubt refer to your factory Service Manual, Chapter 8: Electrical, Instrument Panels, for a detailed cluster removal procedure.**
- 4. Slide cluster forward to gain access to the two heavy red and black ammeter wires. Undo the nuts using a 3/8" nut driver or wrench.**
- 5. If your cluster has a clock or factory dash tach, remove the clock or tach wiring and set aside to be saved with your original cluster.**
- 6. Remove the original cluster from the car and store away with any clock/tach harnesses that may have been removed.**
- 7. If the car is a Convertible, Station Wagon, or is equipped with factory power windows, there should be a circuit breaker on the back of your original instrument cluster, located on the lower back of the cluster near the ammeter with one end attached to the ammeter post labelled "RED". Transfer this circuit breaker to the new Digital Cluster using the same mounting location found on all cluster housings, placing the circuit breaker power strap on top of the nut on the Digital Cluster ammeter junction post (labeled "A" in Figure #2). Reuse all hardware for the circuit breaker during the swap.**
- 8. If the car is a 1970 Model, there should be a large black metal bracket attached to the front lower cluster housing, this is for attaching the front plastic lower Pad/Switchpanel, transfer this bracket to the new Digital Cluster using all related hardware from the original cluster.**
- 9. Disconnect the speedometer cable from the transmission tail stock connector and carefully remove the speedometer cable. Pack it away with your other saved original parts.**
- 10. Prepare your new MHB2501 Digital Instrument Cluster to slide into the dash opening but don't put it all the way in yet.**
- 11. Connect the two ammeter wires together and install them on the screw post labelled A in Figure #2. Carefully tighten the nuts with the toothed washer and ensure that the wire terminals are in no way touching the metal cluster body. This process effectively removes the ammeter from the electrical circuits in the harness and at the same time provides for full time 12volt power to the clock.**
- 12. Feed the three wire bundle of red/white/black wires, the green tach wire and the ground wire into the dash frame opening letting them hang down for the moment.**
- 13. Finish installing your new Digital Cluster into the dash frame reusing all factory screws and mounting locations.**

14. **Connect the main round dash wiring harness connector to the small circuit board (Item B in Figure #2). Please ensure that you cable tie the wire harness into position so that there is no way that the circuit board terminals can come in contact with anything metal under the dash. If you so wish you can wrap the assembly in electrical tape for added protection, however cable tying it into position is more than sufficient. The Digital Dash Cluster wiring harness has been left long on purpose to facilitate doing this.**
15. **Now under the dash route the dark green tachometer signal wire (Item D in Figure #2) to either the coil NEGATIVE terminal on the engine's ignition coil (Stock Mopar ignition systems) or the TACHOMETER OUTPUT terminal on your multiple spark ignition box if your stock ignition has been upgraded to an MSD , Pertronix or equivalent product. There is nothing to set in the cluster, it will automatically detect and set itself up for the appropriate input signal voltage. Depending on whether your car had a factory tach or not, you may have to run this green wire into the engine compartment through a firewall plug in order to reach the tach or ignition box. Lots of wire has been provided so it can be cut to length when routed. Install a crimp on ring terminal or push on spade lug as needed depending on your installation.**
16. **Next is to find a bare unpainted metal part of the dash frame underneath where no wiring will be seen and attach the ring terminal of the black wire (Item C in Figure #2) using an existing screw. This black wire is the ground wire for the system. A good solid ground is always important for all electrical items in a car.**
17. **The speedometer signal assembly is next. This consists of the wiring bundle of three wires (red/black/white wires –Item E in Figure #2) along with the speedometer Signal Generator (Item F). If you have a modern transmission which already has an electronic speedometer signal output wire assembly then the screw in signal generator unit will not be needed.**

Essentially the black wire is a dedicated ground, the red wire is +12V power and the white wire is the signal input wire to the cluster. Consult the documentation on your modern transmission for the hookup wiring to the speedo signal sensor in the transmission. If you have a Mopar 727/904/A833 transmission simply screw the sender into spot where you removed the speedo cable connection. Do not over tighten this unit or damage could occur. The speedo sender is not prewired/connected to the wire harness so that you have increased flexibility of where or how to run the three wire harness. You may wish to run it under the carpet to a plastic floor pan plug which will provide access to the sender or you can have it follow the factory path of the speedo cable which you removed earlier. Please note to protect the wires should they pass by or near any sheet metal edges and keep the wiring away from exhaust pipes. A bit of common sense and pre-planning is well advised. If you so wish you can electrical tape wrap the harness during install or slide on some plastic mesh sleeving or convolute tube (not supplied) to protect the wires from abrasion. What you do will be determined by the path you choose to route the wiring.

Once run connect up the wires to the sender (red to red, black to black and white to white) using splice connectors or soldering them and using heat shrink tubing to insulate the connections.

18. **Once this is done, it's time to move to the engine compartment and replace the stock oil pressure sender (on these cars it's a switch sender which is totally incompatible with the electronics in your new digital cluster) with the variable pressure sender (Item H) supplied with your kit. Hook up the wire once it has been changed.**

19. Towards the front of the engine near the rad hose/water outlet neck fitting is the coolant temperature sensor. Again replace the stock one for the one supplied in the kit, tightening it sufficiently to ensure there will be no leaks. Hook up the signal wire.

NOTE: do not use Teflon tape or sealant when installing senders as there is the potential for the tape to act as an insulator which will interfere with the electrical operation of your sender as it's important that the sender body is grounded to the engine via the screw threads (of both the coolant and oil pressure senders).

20. Double check all of your wire connections, ensuring that everything is neat, tidy, protected and well connected. Once you are satisfied with your wiring you can now connect the battery negative terminal back up and proceed to calibrate the dash and set the clock.

SPEED CALIBRATION INSTRUCTIONS:

After installation and **BEFORE FIRST TIME USE**, you must do a factory reset on you Digital Dash Cluster. To do a factory reset, apply power to the Cluster (key on). Hold down the pushbutton next to the odometer (Item #1 in Figure #1), and then turn the power off (key off) while still holding down this pushbutton. Hold the button down without power for 5 seconds, then apply power back to the Cluster (key on) and then let go of the button when the Cluster is powered up. The speedometer and odometer will display some symbols and then change to zeros. The speedo is now reset back to factory settings; you may now proceed with the calibration of your digital speedometer as described next below.

Start the car and take it for a test drive. Before calibrating the speedometer, make sure that it is showing a reading (non-zero) that increases as you speed up. If the speedometer reads zero or does not change as you drive, double check the wiring to the speed sensor. Do not attempt to calibrate the speedometer until you are getting settings that vary as you drive. If the attempt to calibrate the speedometer when it's not wired correctly, the speedometer will show **ERR**. The speedometer sender uses the industry standard of 8000 pulses per mile. In the future if you have changed your tire size or axle ratio you will need to recalibrate your speedometer.

To calibrate the speedometer locate a 'measured mile' preferably in a straight, safe, open location where you can safely start and stop your vehicle. By running the vehicle over this measure distance, this speedometer will learn the exact number of pulses output by the speedometer sender during a mile of distance covered. It will then use this newly acquired data to recalibrate itself for accurate readings. There is a small pushbutton directly to the right of the odometer in the center of the panel (Item #1 in Figure #1) used to calibrate and read all of the data stored in the speedometer.

While stopped at the beginning of the measured mile with your vehicle running, press and hold this pushbutton (#1) until the odometer displays **HI-SP**. On its own, the gauge will cycle through the recorded performance data in the order: **0-60**, **1/4** and **CAL**. While **CAL** is being displayed press this same pushbutton one more time. This will put the speedometer in Calibration Mode.

Now the speedometer is waiting to record the pulse count accumulated over the measured mile. If the speedometer does not detect at least 500 pulses it will delay **ERR**. If this happens it typically means the speedometer sender is not correctly engaged into the drive socket / not turning as the vehicle moves.

When you are ready and it is safe to begin driving the measured mile, press the speedo button once. The speedo will display **CAL** and the odometer will show **0**. Drive the vehicle through the measure mile (speed is not important so slow and safe is the best call here). As you move the odometer display will begin showing the speedometer pulses as they are being calculated.

At the end of the mile, stop and press the pushbutton again. The odometer will now display the number of pulses that were counted/registered over the measured mile.

The odometer will continue to display the pulse reading for a few seconds. Once it reverts to the default odometer display mode you have calibrated the speedometer!

You can do this any time you make tire or rear axle changes with your car. The maximum speed the speedometer can display is 255 MPH so there is no way you can 'bury the needle' on this product.

FEATURE OPERATION INSTRUCTIONS:

Trip Distance: A single press of the speedometer recall pushbutton (Item #1 in Figure #1) will activate the trip meter in the odometer display. A decimal point will appear to indicate that you are in trip meter mode. Holding this recall button down for several seconds will clear the trip distance. To return to the default odometer distance display, press the recall button yet again. The decimal point will disappear to confirm that you are back in the normal odometer display mode.

Tach Memory/Recall: To recall your highest RPM achieved during a run or trip, simply press and release the pushbutton nearest the tach readout (Item #2 in Figure #1). To reset the peak RPM value, press and hold the pushbutton until the RPM display shows a value of zero. Note that the tach is factory configured for 8 cylinder operation but can be reconfigured for 4 and 6 cylinder applications if necessary (please contact us for instructions to change this). Also note that the tach displays in increments of 100 RPM otherwise the last two digits would be changing so frequently that it would be like a blur and show 88. The tach displays a range of 00 – 9900 RPM.

Recording and Viewing Performance Data: Please note that before each run your car must be at a complete stop at the starting position. Press and hold the pushbutton nearest the speedometer (Item #1) as it cycles through the performance data. At the end the odometer will reset and the performance data will be cleared from memory. This **DOES NOT** have any effect on your speedometer calibration data or odometer reading!

Press this pushbutton (Item #1) until **HI-SP** is displayed. On its own the gauge will cycle through performance data that it records in the following order **0-60 1/4 CAL**.

Start your pass, run, session etc. that you wish to record performance data on. When finished, press the same pushbutton to view the data gathered on this run. While stopped, you can view this data as many times as you wish. However, once it finishes scrolling one time, the memory is ready to record new data for the 1/4 and 0-60 mph times and will begin recording once the vehicle starts moving. The highest speed measured over multiple runs will be retained in memory and is not reset like the 1/4 mile and 0-60 data.

Setting the Clock: The clock is simply set by pressing the left clock pushbutton (Item #3 in Figure #1) repeated until the desired hour is set. The minutes are similarly set by pressing the rightmost pushbutton (Item #4) until the desired minute is set. The clock displays 12 hour format only and does not need to be calibrated due to the fact that it uses digital quartz technology.

Temperature: The Temperature (H₂O) display will display actual water temperature in degrees Fahrenheit and reads from 50 to 350 degrees F

Fuel Level: This gauge reads as a range of percent (99 percent = full, 0 percent = empty). Please note that due to the incredibly wide manufacturing tolerances of both OEM and reproduction tank senders, it is not uncommon for a full tank of fuel to read less than 99 percent. After a tank or two of fuel you will see for yourself what the operating range of your actual sender is. This is not a fault of the electronics but more something that shows in this instance when one marries old technology with new. If you have a fuel cell that has a non-Mopar resistance operation range (Mopar is 73 – 10 ohms) please contact us for instructions on how to change to the VDO range 10 – 180 ohms) or Universal/Stewart Warner (240 -33 ohm) range setting.

Oil Pressure: Oil pressure is displayed in PSI. Range with supplied sender is 0-100 psi

Voltmeter: Displays system electrical (BATTERY) voltage range from 7.5 VDC all the way up to 25 VDC

WARRANTY:

Your MHB2501 Digital Gauge Cluster and senders are warrantied for a period of 48 months from the date of purchase. Proof of purchase is required so please keep all paperwork. Warranty is limited to the repair/replacement of the gauge cluster or senders as we deem appropriate. We are not responsible for any additional or ancillary costs associated with the execution of this warranty.

TROUBLESHOOTING & CONTACT INFO

If you encounter any difficulties or have any question during installation, calibration or operating your new Digital Gauge Cluster, please feel free to email or contact our technical support hotline at:

613-532-2578 (9am – 5pm EST)

Or

MrHeaterbox@kos.net