

STEELMAN™ PRO

CHASSISEAR® 2

NOISE | VIBRATION | HARSHNESS

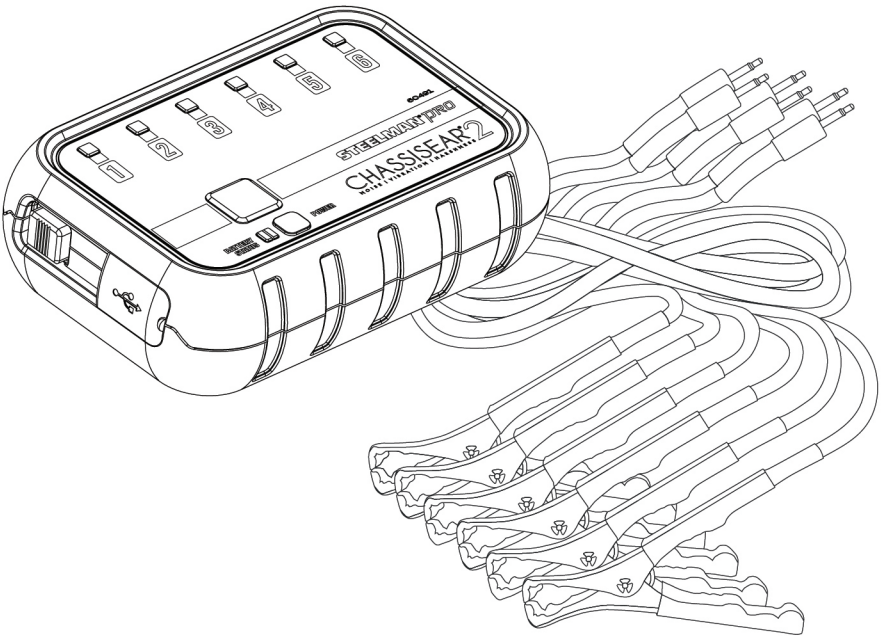


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OVERVIEW

The STEELMAN PRO ChassisEAR 2® is a versatile noise, vibration, and harshness (NVH) diagnostic tool. The STEELMAN PRO ChassisEAR2 Digital Control Unit uses six precision piezo microphones embedded inside of the included clamps. These clamps can then be attached to almost any location on a vehicle that is experiencing elusive NVH to amplify sounds and aid in locating NVH. The unit can be used on a vehicle either while parked or during a road test.

Some examples of areas where NVH originates and this unit can be used are:

- Wheel Bearings
- Brake Calipers
- C.V. Joints
- Leaf and Coil Springs
- Differentials
- Transmissions
- Body Mount Points
- Interior Trim
- Alternators
- Water Pumps
- Power Steering Pumps
- AC Compressors
- Accessory Pulleys
- Motor Mounts
- Engine Bay

SAFETY

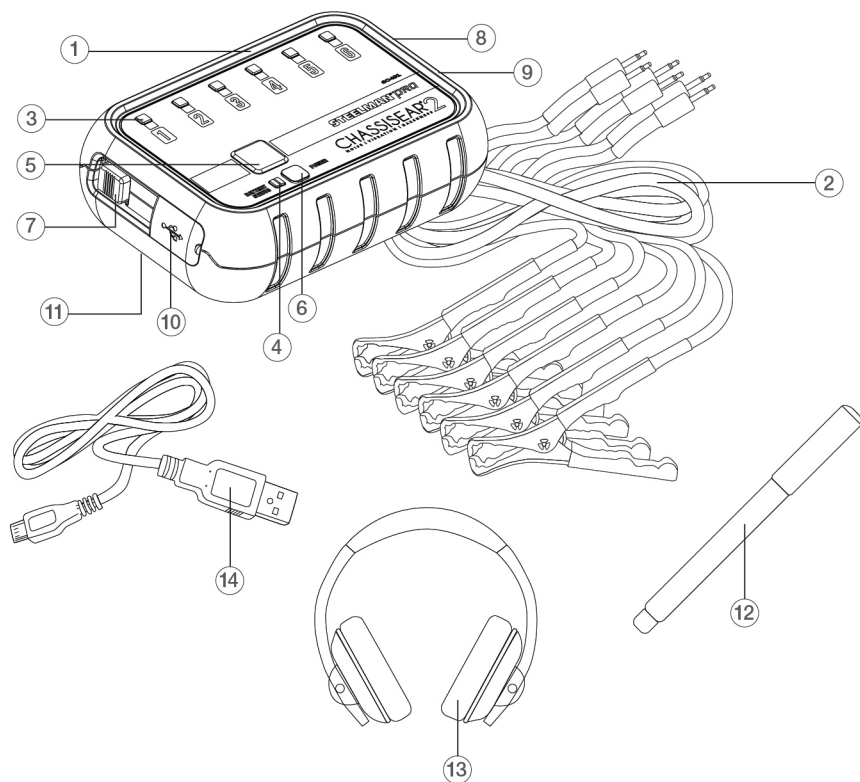
To ensure the accuracy of measured results and the safety of the user, please carefully read this manual before operation.

WARNING:

Never operate a motor vehicle while wearing headphones. Road testing requires 2 technicians: one to drive the vehicle, and one listening to the diagnostic unit. Do not attempt to conduct a road test without a dedicated driver. Serious injury or death may result.

 **WARNING:** Cancer and Reproductive Harm. www.P65Warnings.ca.gov

COMPONENT DESCRIPTION



Item	Description	Item	Description
1	Control unit	8	Volume Wheel
2	Clamps and leads	9	Headphone port
3	Channel LED Indicators	10	Mini USB Charging Port
4	Battery status indicator LED	11	Locations label
5	Channel select button	12	Dry erase pen
6	Power Status LED	13	On-Ear Headphones
7	Power Switch	14	USB Cable

CHARGING:

ChassisEAR 2 is equipped with a rechargeable battery that provides up to 8 hours of continuous use between charges. To charge the unit:

- 1.) Locate the Mini USB Charging Port by pulling back the charging port cover on the left side of the Control Unit.
- 2.) Plug the Mini USB end of the supplied USB Cable into the Control Unit.
- 3.) Plug the other end of the cable either into an available USB port on a device, or into a USB/AC converter. If using an USB/AC converter, plug converter into wall outlet.
- 4.) The Battery Status Indicator LED on the control unit will illuminate GREEN while unit is charging. Once charging is complete, the Battery Status Indicator LED will turn off.
- 5.) During use, the Battery Status Indicator LED will flash RED when the unit has 10% charge remaining and is an indication that the unit needs to be charged.

SET UP:

- 1.) Attach the clamps to the suspected noise source areas. Up to 6 areas can be monitored. The function of the unit is dependent upon using a good diagnostic process. An example of a good diagnosis process for wheel bearings would be to attach the clamps to areas as close as possible to each wheel bearing. In this case, since there are four wheel bearings, it would be prudent to also attach the remaining two clamps to other areas that are frequent sources of NVH such as the transmission or differential housing in case the offending noise isn't coming from the bearings.

NOTE: Optimal placement of clamps will aid in diagnosis. The closer the clamp is positioned to the suspected problem, the better sound reproduction will be. Place clamps on metal only as other materials do not transmit sound efficiently.

- 2.) Using the included Dry Erase Pen, record the location of each clamp next to its color corresponding line on Locations Label, which is on the backside of the Control Unit. This will allow easy identification of the problem part and elimination of good parts once the noise is identified. The locations can be easily removed from the Locations Label of the Control Unit using a clean, dry cloth.
- 3.) Using the Nylon Zip Ties and Velcro Straps that are provided, secure the leads under the car so that they do not drag on the pavement. Be careful to avoid running the leads against the exhaust pipe or any other hot location as this could damage the leads and the vehicle.
- 4.) Run the wire leads to the inside of the vehicle and connect the jack from each wire lead into the Control Unit by it's corresponding color code and channel number. For example, the red jack is plugged into input jack #1, green is plugged into #2, and so forth.

DIAGNOSTIC OPERATION:

- 1.) Turn the Control Unit on by sliding the Power Switch to the ON position. The LED Indicator for each channel that is connected to the Control Unit will illuminate. If the LED for a channel that is connected fails to illuminate, check the connection to ensure that the cable is completely plugged in.
- 2.) Plug the Headphones into the Headphone Jack.
- 3.) Audio volume for the unit can be changed by adjusting the Volume Wheel on the side of the Control Unit.
- 4.) Begin testing. The active “listening” channel is indicated by its illuminated LED. To switch to the next active channel, press the Channel Select button.
- 5.) As the testing is conducted, if it is found that a certain area is free from NVH and can be eliminated from consideration, the channel can be disabled to allow for faster cross comparison of the remaining suspect areas. To disable a channel, press the Channel Select Button until the channel you want to disable is illuminated. Press and hold the Channel Select Button for 3 seconds. The channel’s LED Indicator will flash 6 times and turn off. This channel is now disabled and can only be enabled again by cycling the power switch off and on.
- 6.) Once the offending channel is located, match the channel number with the corresponding location that was written on the Locations Label of the control unit to pinpoint the location of the noise.

REPLACEMET PARTS

Part Number	Description
60611	BMC Case
60612	ChassisEar 2 Control Unit
60594	Headphones
60613	Micro USB cable
60614	Lead/Clamp Set
60614-R	Microphone clamp with 16 foot lead (Red)
60614-G	Microphone clamp with 16 foot lead (Green)
60614-W	Microphone clamp with 16 foot lead (White)
60614-P	Microphone clamp with 16 foot lead (Pink)
60614-B	Microphone clamp with 16 foot lead (Blue)
60614-Y	Microphone clamp with 16 foot lead (Yellow)



ONE YEAR LIMITED WARRANTY

This product is backed by a one year limited warranty. This warranty covers manufacturer defects and workmanship. The warranty excludes misuse or abuse and normal wear and tear.