



Service Bulletin

File in Section: 00 - General Information

Bulletin No.: 03-00-91-001F

Date: February, 2013

INFORMATION

Subject: Vibration Analysis Worksheet

Models: 2014 and Prior GM Passenger Cars and Trucks

This bulletin is being revised to add models years and to change the location of the EVA readings requested. Please discard Corporate Bulletin Number 03-00-91-001E (Section 00 – General Information).

When diagnosing vibration concerns, use the following worksheet in conjunction with the appropriate Vibration Analysis-Road testing procedure in the Vibration Correction sub-section in SI. FILL OUT ONLY THE APPLICABLE PORTION OF THE WORKSHEET THAT APPLIES TO THE VIBRATION / NOISE.

Refer to the appropriate section of SI for specifications and repair procedures that are related to the vibration concern.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



**WE SUPPORT VOLUNTARY
TECHNICIAN
CERTIFICATION**

Vibration Analysis Worksheet

To:

Dealer:

Fax Number:

VIN _____

Procedure Performed By:

Date:

Model:

Year: Gear Ratio:

Odometer:

VIN _____

TAC Case #, if applicable:

Conditions During Road Test Procedures

As condition occurs: Engine RPM _____

Vehicle Speed _____

Vibration/Noise detected during the following road test procedures:

Engine RPM _____ Vehicle Speed _____

Slow Acceleration Test: Yes _____ No _____

Neutral Coast-Down Test: Yes _____ No _____

Downshift Test: Yes _____ No _____

Neutral Run-Up Test: Yes _____ No _____

Brake Torque Test: Yes _____ No _____

Steering Input Test: Yes _____ No _____

Standing Start Acceleration (Launch Shudder) Test: Yes _____ No _____

Vibration/Noise Eliminated with TCC Commanded On: Yes _____ No _____

Vibration/Noise Eliminated with TCC Commanded Off: Yes _____ No _____

Vibration/Noise Duplicated on Hoist: Yes _____ No _____

When using the EVA, always take a snapshot. This will help determine which vibration shows up the most.

Important: Vibrate software can also be used to assist in vibration diagnosis. Refer to Vibrate Software Description and Operation in SI.

EVA Readings

Refer to Electronic Vibration Analyzer (EVA) Description and Operation in SI for more detailed information.

Important: As a reminder, place the EVA sensor where the vibration is felt by the customer or on the test drive ie: if the vibration complaint is from the seat then place the sensor on the seat track, if the vibration complaint is from the steering wheel then attach the sensor to the steering column. Ensure the word "UP" on the sensor is physically facing up. The typical areas are the seat track, the steering column or the instrument panel. Locating the EVA sensor on additional area (i.e. the right fender, left fender, right quarter panel, left quarter panel, rear seat track, etc.) may also assist in determining the component causing the vibration/ noise. The key is to look for the same Hz reading with the greatest amplitude G readings.

Vibration Analysis Worksheet

FILL OUT ONLY THE APPLICABLE PORTION OF THE WORKSHEET THAT APPLIES TO THE VIBRATION/NOISE:

Sensor at Steering Column:

1st Line MPH/KPH: _____ HZ: _____ Gs: _____
 2nd Line MPH/KPH: _____ HZ: _____ Gs: _____

Sensor at Drivers Seat Rail:

1st Line MPH/KPH: _____ HZ: _____ Gs: _____
 2nd Line MPH/KPH: _____ HZ: _____ Gs: _____

Sensor at Passenger Seat Rail:

1st Line MPH/KPH: _____ HZ: _____ Gs: _____
 2nd Line MPH/KPH: _____ HZ: _____ Gs: _____

Driveshaft Runout:

Is runout within specification? Yes _____ No _____
 Initial: Frt: _____ Center: _____ Rear: _____ Stub Shaft: _____
 Current: Frt: _____ Center: _____ Rear: _____ Stub Shaft: _____

Pinion Flange Runout Reading: _____

Has a system balance been attempted: Yes _____ No _____ (If no, perform a System Balance)

Were the drums removed to system balance? Yes _____ No _____

Initial: HZ _____ Gs _____

Current: HZ _____ Gs _____

Hose clamps added: Yes _____ No _____

Prop shaft indexed? Yes _____ No _____

If a System Balance has been attempted but the vibration is still present or system balance was not able to be achieved, check the ring gear backlash in eight different spots on the ring gear. Note that excessive ring gear runout may result in a first order tire speed or first order prop shaft speed concern.

Backlash in eight equal spots on the ring gear (readings should not vary more than 0.002 in (0.050 mm)):

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____

Does the vehicle have any of the following components attached?

Pinion damper: Yes _____ No _____

Pinion flange damper: Yes _____ No _____

Exhaust damper: Yes _____ No _____

Initial: Front angle: _____ Center Angle: _____ Rear Angle: _____

Current: Front angle: _____ Center Angle: _____ Rear Angle: _____

Were shims added to the following?

Transmission/transfer case mount: Yes _____ No _____

Pinion nose (rear springs): Yes _____ No _____

Center Support Mount: Yes _____ No _____

Tire Size and Brand: _____

Record wheel balance information below if available record weight information prior to balance and after balance.

Wheel/Tire balance

Right rear: Inner Weight: _____ Outer Weight: _____

Left rear: Inner Weight: _____ Outer Weight: _____

Right front: Inner Weight: _____ Outer Weight: _____

Left front: Inner Weight: _____ Outer Weight: _____

Wheel/Tire Runouts on vehicle (max. 0.050 in (1.27 mm))

Refer to the latest version of Corporate Bulletin Number 00-03-10-006 for tire radial force variation information.

Right rear: Inner lateral: _____ Center radial: _____

Left rear: Inner lateral: _____ Center radial: _____

Right front: Inner lateral: _____ Center radial: _____

Left front: Inner lateral: _____ Center radial: _____

Vibration Analysis Worksheet

Mounting surface runouts (max. 0.005 in (0.127 mm))

Flange, right rear: _____ Hub, right front: _____

Flange, left rear: _____ Hub, left front: _____

Wheel stud runouts (max. 0.008 in (0.203 mm))

Flange, right rear: _____ Hub, right front: _____

Flange, left rear: _____ Hub, left front: _____