

**Document ID# 1803033
2004 Cadillac CTS**



Subject: Info - Vibration Analysis Worksheet #03-00-91-001C - (03/29/2006)

**Models: 2007 and Prior Passenger Cars and Trucks
2003-2007 HUMMER H2
2006-2007 HUMMER H3
2006-2007 Saab 9-7X**

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 03-00-91-001B (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.

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 mostly felt. 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.

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 Roof:

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: _____

Sensor at Pinion Nose (Rear Wheel Drive):

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

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

Sensor at Pinion Nose Front Axle (Four Wheel Drive):

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

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

Sensor at Crossmember/Cradle (Front Wheel Drive):

1st Line MPH:_____ HZ:_____ Gs:_____

2nd Line MPH:_____ HZ:_____ Gs:_____

Driveshaft Runout:

Is round out 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):

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: _____

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

Refer to Corporate Bulletin Number 00-03-10-006A for tire radial force variation.

Right rear: Inner lateral: _____ Center radial: _____

Left rear: Inner lateral: _____ Center radial: _____

Right front: Inner lateral: _____ Center radial: _____

Left front: Inner lateral: _____ Center radial: _____

Mounting surface runouts (max. 0.005 in)

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

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

Wheel stud runouts (max. 0.008 in)

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

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

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.



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