

**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: \_\_\_\_\_

### Vibration Analysis Worksheet

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: \_\_\_\_\_