Available FORD NVH Uniformity Information

• Published Vehicle Vibration Diagnosis TSB’s
  TSB 05-24-8 (Econoline Vibration)
  TSB 06-12-2 (F150 Vibration / Nibble)
  TSB 05-07-2 (Expedition / Navigator vibration / nibble)
  TSB 05-26-24 (Tire & Wheel Runout)

• Fix-It-Right-First-Time (FIRTFT) web-based vehicle vibration training (course # 33G01W0)

• 2007 Service Manuals have been updated to reflect the latest procedures
STEERING WHEEL VIBRATION AT 50 MPH (80 KM/H) OR HIGHER—STEERING WHEEL NIBBLE AT 65 MPH (105 KM/H) OR HIGHER

FORD:
2004-2008 F-150

This article supersedes TSB 06-12-2 to update the vehicle model years.

ISSUE
Some 2004-2008 F-150 and 2006-2008 Mark LT vehicles (excluding F-150 Heritage) may exhibit a vehicle/steering wheel vibration (not nibble) at 50 MPH (80 Km/h) or higher, or a steering wheel nibble (side-to-side or rotational oscillation) at 65 MPH (105 Km/h) or higher.

ACTION
Follow the Service Procedure steps to correct the condition.

SERVICE PROCEDURE
Refer to the Diagnostic Overview (Figure 1). Based on the customer’s description of the concern, find the appropriate Operating Condition, Probable Cause, and Repair Action.

LINCOLN:
2006-2008 Mark LT

NOTE
IT IS CRITICAL TO IDENTIFY SPECIFIC VEHICLE SPEEDS AND OPERATING CONDITIONS WHEN THE VIBRATION OR NIBBLE IS OCCURRING, TO PROPERLY DIAGNOSE AND REPAIR THE ISSUE. TIRE AND DRIVELINE VIBRATION CAN FEEL SIMILAR. USE OF AN ELECTRONIC VIBRATION ANALYZER (EVA) OR VETRONIX VIBRATION ANALYZER IS RECOMMENDED TO CORRECTLY IDENTIFY VIBRATION SOURCES (ORDERS) AND FREQUENCY (HZ).

NOTE
NIBBLE CANNOT BE ELIMINATED WITHOUT ADDRESSING PROPER TIRE AND WHEEL BALANCE.

NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by “do-it-yoursefiers”. Do not assume that a condition described affects your car or truck. Contact a Ford, Lincoln, or Mercury dealership to determine whether the Bulletin applies to your vehicle. Warranty Policy and Extended Service Plan documentation determine Warranty and/or Extended Service Plan coverage unless stated otherwise in the TSB article. The information in this Technical Service Bulletin (TSB) was current at the time of printing. Ford Motor Company reserves the right to supercede this information with updates. The most recent information is available through Ford Motor Company’s on-line technical resources.
<table>
<thead>
<tr>
<th>CUSTOMER CONCERN AND VEHICLE SPEED</th>
<th>OPERATING CONDITION AND EVA/VETRONIX READING</th>
<th>PROBABLE CAUSE</th>
<th>REPAIR ACTION(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEHICLE AND/OR STEERING WHEEL VIBRATION. 40-55 MPH (70-90 KM/H)</td>
<td>DURING ALL CONDITIONS: ACCEL/DECEL, COAST NEUTRAL, 4\textsuperscript{th} OR 5\textsuperscript{th} GEAR (O/D OFF). NON-TORQUE SENSITIVE. 1\textsuperscript{st} ORDER DRIVELINE (25-35 HZ)</td>
<td>DRIVELINE IMBALANCE DUE TO: 1. DRIVESHAFT RUNOUT 2. DRIVESHAFT IMBALANCE 3. U-JOINT DAMAGED (CUPS LOOSE OR PULLED OUT) 4. NON-SYMMETRIC CENTER BEARING MOUNT (2-PC DIS ONLY)</td>
<td>REFER TO 1\textsuperscript{st} ORDER DRIVELINE VIBRATION DIAGNOSTIC FLOW CHART IN TSB ARTICLE 07-10-9</td>
</tr>
<tr>
<td>VEHICLE AND/OR STEERING WHEEL VIBRATION. 50-65 MPH (80-105 KM/H)</td>
<td>DURING ALL CONDITIONS: ACCEL/DECEL, COAST NEUTRAL, 4\textsuperscript{th} OR 5\textsuperscript{th} GEAR (O/D OFF). NON-TORQUE SENSITIVE. 1\textsuperscript{st} ORDER TIRE (9-11 HZ)</td>
<td>TIRE-INDUCED VIBRATION INPUTS DUE TO IMBALANCE AND/OR ROAD FORCE. NOTE: TIRE AND DRIVELINE VIBRATION MAY FEEL SIMILAR.</td>
<td>FOLLOW SERVICE PROCEDURE IN THIS TSB</td>
</tr>
<tr>
<td></td>
<td>SMOOTH ROAD-INDUCED VIBRATION (VARIES DEPENDING ON SURFACE). NOT ORDER DEPENDENT (9-11 HZ).</td>
<td>VEHICLE SENSITIVITY AT 10 HZ RELATED TO VEHICLE TORSION MODE.</td>
<td>FOLLOW SERVICE PROCEDURE IN THIS TSB</td>
</tr>
<tr>
<td></td>
<td>4\textsuperscript{th} GEAR W/ TORQUE CONVERTER LOCKED AND ABSENT WHEN UNLOCKED. 1\textsuperscript{st} ORDER DRIVELINE (35-45 HZ)</td>
<td>TRANSMISSION IMBALANCE AND/OR RUNOUT.</td>
<td>REFER TO 1\textsuperscript{st} ORDER DRIVELINE VIBRATION DIAGNOSTIC FLOW CHART IN TSB ARTICLE 07-10-9</td>
</tr>
<tr>
<td>STEERING WHEEL NIBBLE/SHIMMY. 65-75 MPH (105-120 KM/H)</td>
<td>DURING ALL CONDITIONS ON SMOOTH ROADS. 1\textsuperscript{st} ORDER TIRE (12-14 HZ)</td>
<td>1. TIRE/WHEEL IMBALANCE AND/OR ROAD FORCE. 2. OLDER STEERING GEAR.</td>
<td>FOLLOW SERVICE PROCEDURE IN THIS TSB</td>
</tr>
<tr>
<td>TAKE-OFF SHUTTER OR HIGH SPEED COAST DOWN VIBRATION</td>
<td>ACCELERATING FROM A STOP (10-25 MPH (16-40 KM/H)) OR COASTDOWN (ABOVE 75 MPH (120 KM/H))</td>
<td>DRIVELINE ANGLES</td>
<td>ADJUST REAR AXLE PINION ANGLE - REFER TO TSB 06-19-16</td>
</tr>
</tbody>
</table>

Figure 1 - Article 07-10-8
1. Drive the vehicle at highway speeds for at least 20 miles (32 km) to eliminate flat spotting. Install an EVA or Vetronix vibration analyzer and have an assistant monitor and record the reading near the end of the 20 mile (32 km) drive and while at the peak of the vibration. Proceed to Step 2 for 4X4 vehicles and directly to Step 3 for 4X2 vehicles.

NOTE
IF NOT DRIVEN TO REMOVE FLAT SPOTS, THE TIRE BALANCE AND ROAD FORCE MEASUREMENTS MAY BE INACCURATE.

NOTE
IF THE VIBRATION GOES AWAY DURING THE 20 MILE DRIVE, THE CONCERN IS DUE TO TIRE FLAT SPOTTING WHICH IS A NORMAL TIRE CONDITION. NO FURTHER DIAGNOSIS OR REPAIRS SHOULD BE PERFORMED.

2. Check the integrated wheel end (IWE) on 4X4 units. Raise the front of the vehicle (wheels off the ground), engine running, and vehicle in 2WD mode. The front half shafts should not turn when wheels are rotated by hand. If the IWE is functioning correctly proceed to Step 3. If not, refer to Workshop Manual (WSM), Section 308-07 to repair IWE first. Then proceed to Step 3.

3. If road force measurement equipment (Hunter GSP9700/9712, or equivalent) is available, proceed to Step 4. If not, refer to TSB 07-4-5 for using a dial indicator to optimize tire/wheel run-out. After optimizing tire/wheel run-out, proceed to Step 6.

NOTE
THE PROCEDURE IN THIS TSB IS FAR MORE EFFECTIVE WHEN USING ROAD FORCE MEASUREMENT EQUIPMENT. ONLY USE A STANDARD BALANCER AND MANUALLY CHECK RUN OUT WHEN ABSOLUTELY NECESSARY. THERE IS A WEBSITE AVAILABLE (WWW.GSP9700.COM) TO LOCATE THE NEAREST FACILITY THAT HAS THIS TYPE OF EQUIPMENT.

NOTE
SUPPRESS ROUND OFF FUNCTION ON ROAD FORCE BALANCER TO ALLOW ACTUAL RESIDUALS TO BE DISPLAYED.

4. Perform the road force measurement immediately after driving the vehicle. Remove the wheel cover and wheel assembly. Measure the road force variation of all four (4) tires. Measure and mark the tire HIGH road force variation point (R1H) on all four (4) tires prior to dismounting them from the road force measurement equipment. Balance as required to 0.35 oz. (10g) or less of imbalance (check both two-plane and static). If any wheel assembly measures more than the values listed in the chart below for R1H, refer to TSB 07-4-5 for tire/wheel run-out diagnostics. If a tire/wheel assembly can not be brought within the R1H values listed in the chart using TSB 07-4-5, replace the tire and re-check. If less than the values listed, proceed to Step 5.

<table>
<thead>
<tr>
<th>Tire Type</th>
<th>R1H</th>
</tr>
</thead>
<tbody>
<tr>
<td>P Metric Tires</td>
<td>25 lbs.</td>
</tr>
<tr>
<td>LT Tires</td>
<td>35 lbs.</td>
</tr>
</tbody>
</table>

5. Install the lowest R1H level tires on the front of the vehicle.

6. Position all tire/wheel assemblies on the hubs with the high R1H point, or high tire centerline radial run out point, at the 12:00 position (Figure 2).

NOTE
THE SPARE TIRE SHOULD NOT BE USED AS A REPLACEMENT TIRE.

7. Install the lug nuts and torque to 150 lb-ft (203 N•m).
8. Using a flat feeler gauge, check the wheel hub-to-bore clearance to verify the largest gap is as close to the 6:00 position as possible (Figure 2). If the largest gap is not located near the 6:00 position remove the lug nuts and tire/wheel assembly, rotate the hub to a new position, and reinstall the tire/wheel assembly again following Steps 6 and 7. Check again for the optimum 6:00 gap location. Road test vehicle to verify vehicle is corrected. If not corrected, proceed to Step 9.

9. Perform the following based on remaining symptom:

a. If vibration still exists at 50-60 MPH (80-97 Km/h) (9-11 Hz), condition may be due to vehicle sensitivity or road inputs. Obtain Frame Damper Kit and refer to the instruction sheet included in the kit for installation.

b. If steering wheel nibble still exists at 65 MPH (105 Km/h) or higher (12-14 Hz), and the vehicle build date is prior to 8/20/2003, follow TSB 06-12-4 to determine if steering gear replacement is needed.

NOTE

THE DAMPER KIT WILL NOT HELP A STEERING WHEEL NIBBLE CONDITION OR A DRIVELINE VIBRATION (25-45 HZ).

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>PART NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>4L3Z-5D008-AA</td>
<td>Frame Damper Kit (MY 2004-2005)</td>
</tr>
<tr>
<td>6L3Z-5D008-B</td>
<td>Frame Damper Kit (MY 2006)</td>
</tr>
</tbody>
</table>

OTHER APPLICABLE ARTICLES: 07-04-05, 07-10-9, 06-19-16


IMPORTANT: Warranty coverage limits/policies are not altered by a TSB. Warranty coverage limits are determined by the identified causal part.

OPERATION DESCRIPTION TIME

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>DESCRIPTION</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>071008A</td>
<td>2004-2008 F-150, 2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance) If Concern Is Solved, Return To Customer (Do Not Use With 1007D, 1007D2, 1007D3)</td>
<td>1.6 Hrs.</td>
</tr>
<tr>
<td>071008B</td>
<td>2004-2008 F-150, 2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance), Inspect IWE, Balance 4 Tires, Measure Hubs, Re-Road Test (Do Not Use With 1007D, 1007D2, 1007D3)</td>
<td>2.8 Hrs.</td>
</tr>
<tr>
<td>071008C</td>
<td>2004-2008 F-150, 2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance), Inspect IWE, Balance 4 Tires, Measure Hubs, Re-Road Test (Do Not Use With 1007D, 1007D2, 1007D3)</td>
<td>3.4 Hrs.</td>
</tr>
<tr>
<td>071008D</td>
<td>2004-2008 F-150, 2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance), Inspect IWE, Balance 4 Tires, Measure Hubs, Re-Road Test (Do Not Use With 1007D, 1007D2, 1007D3)</td>
<td>3.4 Hrs.</td>
</tr>
<tr>
<td>071008E</td>
<td>2004-2008 F-150, 2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance), Inspect IWE, Balance 4 Tires, Re-Index 4 Tires, Balance 4 Tires, Measure Hubs, Re-Road Test (Do Not Use With 1007D, 1007D2, 1007D3)</td>
<td>4.0 Hrs.</td>
</tr>
<tr>
<td>071008F</td>
<td>2004-2008 F-150, 2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance), Inspect IWE, Balance 4 Tires, Re-Index 4 Tires, Balance 4 Tires, Measure Hubs, Re-Road Test Install Damper</td>
<td>4.3 Hrs.</td>
</tr>
<tr>
<td>DEALER CODING</td>
<td>CONDITION</td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>5D008 (OPERATION C, E)</td>
<td>42</td>
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<tr>
<td>ALBAL (OPERATION B, D)</td>
<td>D9</td>
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</tr>
<tr>
<td>NPF (OPERATION A)</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>TWC01 (OPERATION F, G)</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

071008G 2004-2008 F-150, 4.6 Hrs.
2006-2008 Mark LT: Road Test 20 Miles (32 km) With NVH Tool, Recorded Frequency (Two Man Allowance), Inspect IWE, Balance 4 Tires, Re-Index 4 Tires, Re-Balance 4 Tires, Replace 4 Tires, Balance 4 New Tires, Measure Hubs, Re-Road Test, Install Damper (Do Not Use With 1007D, 1007D2, 1007D3)
This article supersedes TSB 05-26-24 to update the vehicle model years.

ISSUE
Some vehicles may exhibit a tire/wheel vibration caused by excessive runout.

ACTION
The following procedure should be used if normal diagnostics lead to a potential runout issue. The procedure is intended to assist with the diagnosis of tire/wheel assembly runout and/or force variation issues. To diagnose and correct the concern, refer to the following Service Procedure.

NOTE
FOLLOW THIS TSB PROCEDURE ONLY IF THERE ARE NO SPECIFIC TSBs/SSMs RELEASED FOR THE VEHICLE SYMPTOM BEING EXPERIENCED.

GENERAL INFORMATION
NOTE
MEASUREMENTS ARE TO BE COMPLETED ON THE BALANCER AND NOT ON VEHICLE.

NOTE
A DIAL INDICATOR IS TO BE USED IF A HUNTER GSP9700 BALANCER IS NOT AVAILABLE.

ROAD FORCE
Hunter Engineering has developed a service balancer line (GSP9700) that includes an assembly uniformity feature that they call “Road Force”. This Hunter system measures the assembly’s loaded runout, measures the tires radial spring rate and then converts the runout into pounds of Road Force. The value that the machine displays is a reasonably close equivalent of the R1H (see below) from a force machine. The term “Road Force measurement” has been trademarked and registered by Hunter Engineering.

FORCE VARIATION
The industry standard for a tire’s or an assembly’s uniformity is expressed as “force variation”. Force variation is the variation in the load at the footprint while the inflated tire is rolled at low speed against an instrumented drum at a fixed deflection and also at a predetermined load. Ford Motor Company has specifications for force variation that all tire suppliers must meet. The information that is output from a “Force” machine is usually Radial Force Variation (RFV), Radial First Harmonic (R1H), Radial Second Harmonic (R2H), etc. These are the total variation (RFV), the once per revolution (R1H), and the twice per revolution (R2H), variation, respectively, in the radial load at the footprint.

SERVICE PROCEDURE
1. Measure the assembly runout, or R1H Road Force, and mark the magnitude (Road Force reading if using the Hunter GSP9700; amount of runout if using a dial indicator) and location on the tire. As the assembly is reworked, the value and location on the tire are important.
a. If using a Hunter GSP9700 balancer, the following road force values are effective guidelines for acceptable assembly runout:

- F-150/Expedition/Navigator/Mark LT - Road Force of 25 lbs (11 kg) or less (check with tire pressure at normal level on P metric tires; check with tire pressure at normal level or 50 psi (345 kPa), whichever is lower, on LT type tires)
- F-Super Duty/Excursion - Road Force of 35 lbs (16 kg) or less (check with tire at 30 psi (207 kPa))
- Escape/Mariner - Road Force of 18 lbs (8 kg) or less (check with tire pressure at 35 psi (241 kPa))
- Explorer/Mountaineer/Sport Trac/Ranger - Road Force of 25 lbs (11 kg) or less (check with tire pressure at 50 psi (345 kPa))

**NOTE**
AFTER TESTING ROAD FORCE AT THE TIRE PRESSURES RECOMMENDED ABOVE, ENSURE TIRE PRESSURE IS RESET TO PRESSURE INDICATED ON VEHICLE LABEL. IF THE TIRE PRESSURE IS NOT RESET, IT MAY LEAD TO ROUGH RIDE, STEERING WHEEL OSCILLATION, OR OTHER ISSUES.

2. If assembly runout (or Road Force) is high, evaluate effect of re-indexing the tire and wheel.

   a. Mark the tire at the valve stem. This is to reference the original indexing location.
   
   b. Deflate the tire and break down both beads from the wheel. Rotate the tire 180 degrees on the rim, rather than following the Hunter GSP9700 balancer’s routine for indexing (see note).

**NOTE**
THE HUNTER GSP9700 TIRE WHEEL MATCHING ROUTINE WORKS WELL WHEN THE “TIRE ON” WHEEL RUNOUT MEASUREMENTS ARE GOOD. ON MANY MODERN WHEEL DESIGNS THIS “TIRE ON” WHEEL MEASUREMENT MAY NOT BE A GOOD APPROXIMATION OF THE “TIRE OFF” WHEEL MEASUREMENTS. THIS IS ESPECIALLY TRUE FOR THE STEEL WHEELS WITH CHROME CLADDING, AND ALSO FOR THE “FULL FACE” STEEL WHEELS. THEREFORE IT IS MORE RELIABLE TO USE 180 DEGREE ROTATION IN THE FIRST STEP, AND THEN FOLLOW THESE GUIDELINES.

b. If the second high spot is still high and it is within four inches of being opposite the first high spot (Figure 2), then you may have a high runout wheel. In other words, the high spot followed the tire. Dismount the tire and put the bare wheel back on the balancer. Measure the wheel runout on the bead seat surfaces with the tire off. Check the service manual for wheel runout guidelines.

c. Re-inflate the tire to the measurement pressure and measure the assembly runout again.

d. Mark this second high spot of runout on the tire.

**NOTE**
IF THE RUNOUT GOES DOWN SIGNIFICANTLY, THEN THE ORIGINAL TIRE WHEEL ASSEMBLY INDEXING WAS NOT OPTIMIZED.

3. Review the following guidelines, based on the outcome of the second assembly runout (or Road Force) measurement.

   a. If the second measurement is still over the guidelines and it is also close to the first one, (that is the two measurements are within about four inches on the tire) then the root cause is probably the tire (Figure 1). To be SURE that it is the tire causing the high runout, you must have the two runout measurements over the guideline, and they must be in about the same location on the tire's sidewall. In other words, the high spot followed the tire when you turned it on the rim.
WARRANTY STATUS: Eligible Under Provisions Of New Vehicle Limited Warranty Coverage IMPORTANT: Warranty coverage limits/policies are not altered by a TSB. Warranty coverage limits are determined by the identified causal part.

OPERATION DESCRIPTION TIME
MT070405 Use SLTS Operations If Available; Claim Additional Time Diagnosis Or Labor Performed As Actual Time.

DEALER CODING
BASIC PART NO. ALB ALBAL
CONDITION CODE D9

Figure 2 - Article 07-4-5

c. If the second high spot did not follow either the tire or the wheel (Figure 3), AND the runout is still over the guideline, then you can probably improve the assembly by another one quarter turn. Draw an arrow on the tire sidewall from the second high spot toward the first high spot, and turn the tire 90 degrees in that direction. It is very likely that the assembly runout will drop to a lower number.

Figure 3 - Article 07-4-5
VIBRATION DIAGNOSTICS—STEERING WHEEL NIBBLE—TIRE WHEEL RUNOUT AND BALANCE

FORD:
2005 Excursion, Explorer Sport Trac
2005-2008 Escape, Expedition, Explorer, F-150, F-Super Duty, Ranger
2006-2008 F-53 Motorhome Chassis
2007-2008 Explorer Sport Trac

LINCOLN:
2005-2008 Navigator
2006-2008 Mark LT

MERCURY:
2005-2008 Mariner, Mountaineer

This article supersedes TSBs 07-11-3, 07-10-8, and 07-4-5 to update the Part List and Service procedure.

ISSUE
Various Ford, Mercury and Lincoln vehicles may exhibit a vibration / steering wheel nibble above 50 MPH (80 Km/h) which may be associated to a wheel and tire vibration.

ACTION
Follow the Service Procedure steps to correct the condition.

SERVICE PROCEDURE
The following revisions have been made. The road test has been simplified to include 15 minutes of driving rather than a 20 mile test drive. The requirement to bring an assistant along on the road test has been eliminated. Recordings should be made using the vibration analyzer and then review recordings following the test drive. The step to inspect the Integrated Wheel Ends (IWE) has also been eliminated.

1. Long term temporary flat spotting can develop when a vehicle is stored without driving. Some initial tire and wheel vibration issues (such as flat spotting) will correct themselves after the tires have been in service for 200 miles (320 km). Confirm vehicle tires have been in service a minimum of 200 miles (320 km) to remove long term temporary flat spotting. Do not continue with this procedure if tires do not meet this requirement.

2. Refer to Workshop Manual (WSM), Section 100-04 to determine if a wheel and tire speed (9-14.5 HZ) vibration is present.

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NOTE
WHEEL-TO-HUB OPTIMIZATION IS IMPORTANT. CLEARANCE BETWEEN THE WHEEL AND HUB CAN BE USED TO OFFSET OR NEUTRALIZE THE ROAD FORCE® OR RUN-OUT OF THE WHEEL AND TIRE ASSEMBLY. FOR EVERY 0.001" (0.0254 MM) OF WHEEL-TO-HUB CLEARANCE, THE ROAD FORCE® CAN BE AFFECTED BETWEEN 1-3 LBS (0.45- 1.36 Kg). DEPENDING ON THE TIRE STIFFNESS.

4. When installing tire and wheel assemblies follow WSM, Section 204-04, Wheel-to-Hub Optimization procedure. There are unique procedures for single rear wheel vehicles, dual rear wheels vehicles, and vehicles with conical shaped lug nuts.

NOTE
THE SPARE TIRE SHOULD NOT BE USED AS A REPLACEMENT TIRE.

F-150 and MARK LT ONLY - If the vibration still persists continue to Step 5.

5. Perform the following based on remaining symptom:

a. If vibration still exists at 50-60 MPH (80-97 Km/h) (9-11 Hz), condition may be due to vehicle sensitivity or road inputs. Obtain Frame Damper Kit and refer to the instruction sheet included in the kit for installation.

NOTE
THE DAMPER KIT WILL NOT HELP A STEERING WHEEL NIBBLE CONDITION OR A DRIVELINE VIBRATION (25-45 HZ).

NOTE
CERTAIN VEHICLES ARE ALREADY EQUIPPED WITH THE FRAME DAMPER

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>PART NAME</th>
</tr>
</thead>
</table>

WARRANTY STATUS: Eligible Under Provisions Of New Vehicle Limited Warranty Coverage IMPORTANT: Warranty coverage limits/policies are not altered by a TSB. Warranty coverage limits are determined by the identified causal part.

DEALER CODING

<table>
<thead>
<tr>
<th>BASIC PART NO.</th>
<th>CONDITION</th>
</tr>
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<tbody>
<tr>
<td>5D005 (OPERATION R)</td>
<td>42</td>
</tr>
<tr>
<td>ALBAL (OPERATION B - C)</td>
<td>42</td>
</tr>
<tr>
<td>NPF (OPERATION A)</td>
<td>82</td>
</tr>
<tr>
<td>TWC01 (OPERATION D - Q)</td>
<td>42</td>
</tr>
<tr>
<td>Labor Operation Description</td>
<td>Vehicles</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Group 1 - Vibration Diagnostic</strong> (If required, a group 1 labor op may be used with groups 2, 3, 4, 5 and 6)</td>
<td>Time includes installation and removal of electronic vibration test equipment, performing a test drive to eliminate temporary tire flat spotting, and recording vibration readings during test drive. If concern is resolved, return vehicle to customer.</td>
</tr>
<tr>
<td><strong>Group 2 - Check Run Out / Road Force and Balance Tires</strong> (If required, a group 2 labor op may be used with groups 1, 3, 4, 5 and 6)</td>
<td>Time includes removing wheel / tire assemblies from vehicle, marking high spot of Road Force® / radial run out, balancing wheel / tire assemblies, and optimizing hub to wheel clearance when installing wheel / tire assemblies back onto vehicle.</td>
</tr>
<tr>
<td><strong>Group 3 - Match Mount Tire / Wheel Assemblies</strong> (If required, a group 3 labor op may be used with groups 1, 2, 4, 5 and 6)</td>
<td>Time includes Match Mounting tire(s) to wheel(s) to reduce Road Force® / radial run out. Select only 1 labor operation to reflect the number of tires which were match mounted.</td>
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</tr>
</tbody>
</table>

Do not use these labor operations with any other labor operations outside of this TSB.

TB-9244-D
<table>
<thead>
<tr>
<th>Labor Operation Description</th>
<th>Vehicles</th>
<th>Labor Operation Code</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 4 - Replace Tire(s) and/or Wheel(s)</strong>&lt;br&gt;(If required, a group 4 labor op may be used with groups 1, 2, 3, 5 and 6)</td>
<td><strong>2005-2008 F150, Expedition, Navigator, Escape, Mariner, Explorer, Mountaineer, F-Super Duty 250-350 (SRW), or Ranger 2006-2008 Mark LT 2005, 2007-2008 Explorer Sport Trac 2005 Excursion</strong></td>
<td><strong>082402K (1 tire)</strong>&lt;br&gt;or <strong>082402L (2 tires)</strong>&lt;br&gt;or <strong>082402M (3 tires)</strong>&lt;br&gt;or <strong>082402N (4 tires)</strong></td>
<td><strong>0.2</strong>&lt;br&gt;<strong>0.3</strong>&lt;br&gt;<strong>0.5</strong>&lt;br&gt;<strong>0.6</strong></td>
</tr>
<tr>
<td>Time includes replacing tire(s) and/or wheel(s)</td>
<td><strong>2005-2008 F-Super Duty 350 (DRW)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select only 1 labor operation to reflect the number of tires or wheels which were replaced.</td>
<td></td>
<td><strong>082402K (1 tire)</strong>&lt;br&gt;or <strong>082402L (2 tires)</strong>&lt;br&gt;or <strong>082402M (3 tires)</strong>&lt;br&gt;or <strong>082402N (4 tires)</strong>&lt;br&gt;or <strong>082402P (5 tires)</strong>&lt;br&gt;or <strong>082402Q (6 tires)</strong></td>
<td><strong>0.2</strong>&lt;br&gt;<strong>0.4</strong>&lt;br&gt;<strong>0.6</strong>&lt;br&gt;<strong>0.7</strong>&lt;br&gt;<strong>0.9</strong>&lt;br&gt;<strong>1.1</strong></td>
</tr>
<tr>
<td><strong>Group 5 - Install Frame Damper Kit F150 / Mark LT only (If required, this labor op may be used with groups 1, 2, 3, 4, and 6)</strong></td>
<td><strong>Includes time to install frame damper kit</strong></td>
<td><strong>2005-2008 F150 2006-2008 Mark LT</strong></td>
<td><strong>082402R</strong></td>
</tr>
<tr>
<td><strong>Group 6 - Post Road Test</strong>&lt;br&gt;(If required, group 6 may be used with groups 1, 2, 3, 4, and 5)</td>
<td><strong>Post Repair Road Test</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>2005-2008 F150, Expedition, Navigator, Escape, Mariner, Explorer, Mountaineer, F-Super Duty 250-350 (SRW), or Ranger 2006-2008 Mark LT 2005, 2007-2008 Explorer Sport Trac 2005 Excursion</strong></td>
<td><strong>082402S</strong></td>
<td><strong>0.2</strong></td>
</tr>
</tbody>
</table>

*Do not use these labor operations with any other labor operations outside of this TSB.*

TB-9245-B

Figure 2 - Article 08-24-2