97-5, ***Publication Date: MARCH 3, 1997***

Vibration - Tires - Vibration Felt While Driving At Highway Speeds - Vehicles Built Through 12/20/96 Equipped With 16 Inch Goodyear Tires	**Article No. 97-5-3**

FORD:
1996-97 THUNDERBIRD

LINCOLN-MERCURY:
1996-97 COUGAR

ISSUE:
Some vehicles equipped with Goodyear 16 inch tires may experience a vibration caused by the tires.

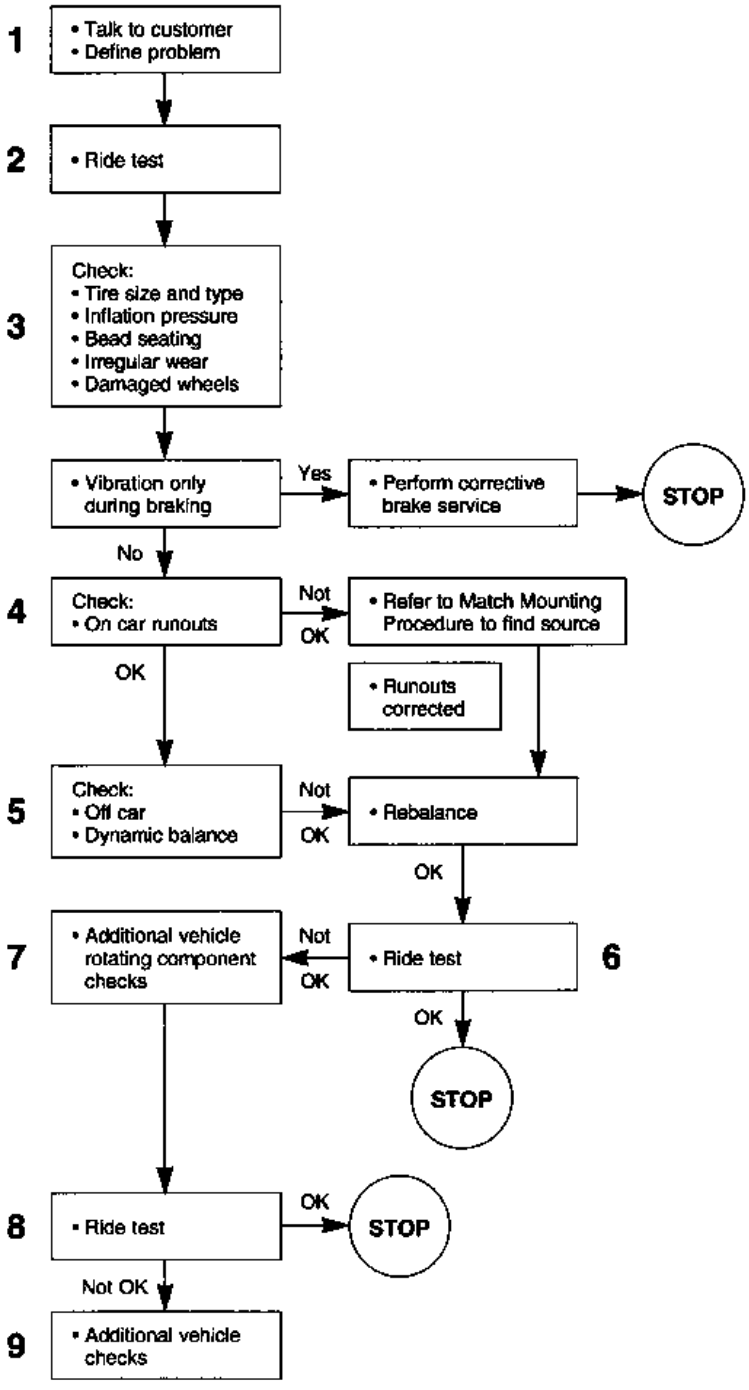
ACTION:
Refer to the following Checklist (Figure 1) to determine if the tires are the cause of the vibration.

DIAGNOSING VIBRATION PROBLEMS

Vibration problems can come from a variety of sources and experienced vehicle technicians will be required to diagnose problems related to the suspension system. However, drive problems related to tires can often be diagnosed by following the directions given here.

This procedure can be used when the customer complains about the vehicle shaking or wobbling. This problem usually gets more severe at higher speeds.

1. Talk to the customer and listen carefully to their description of the problem.
2. Get in the vehicle and run the engine at various speeds with the vehicle in Neutral.
3. Ride test the vehicle and check for vibration severity and location. Apply the brakes to see if vibration occurs only during braking. If so, corrective brake service is needed.
4. Check the most obvious potential problem areas. Make sure:
   - Tire size and type are correct
   - Inflation pressure is correct
   - Beads are seated correctly, with the bead and the rim flange the same distance apart around the circumference of the tire
   - Check for irregular wear
   - Check for damaged wheels
5. Perform a runout test using a runout gauge. Refer to Figure 2.
6. If runout is the problem, refer to Match Mounting Procedure to correct the problem. Refer to Figure 3.
7. If runout is OK, check the tire's off-car dynamic balance. If there is a problem, rebalance the tire.
8. If balancing is OK, check other rotating components.
9. Conduct a ride test to see if any service actions have cured the problem.
10. Make additional vehicle checks as needed.



TB-4995-A

Figure 1 - Article 97-5-3

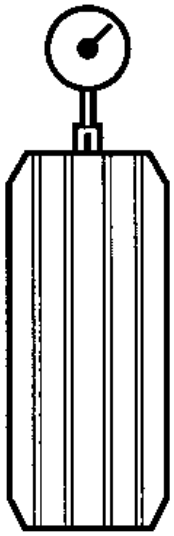
If, after a complete analysis of the vehicle (Figures 1, 2 and 3), the Goodyear tires are suspected to be the source of the vibration, contact the Goodyear Customer Assistance Center at 1-800-321-2136. Ask to speak to someone in the Original Equipment Contact Group. This group will coordinate with the local Ford and Goodyear dealers to complete the tire analysis.

HOW TO MEASURE RADIAL AND LATERAL RUNOUT

Runout is a term used to describe an egg-shaped deviation from a perfect circle measured on the tread of the tire (radial runout) and the sidewall (lateral runout). Runout measurements can be taken both on and off the vehicle using a runout gauge. The runout gauge defines total runout and locates the high and low spots of the tire.

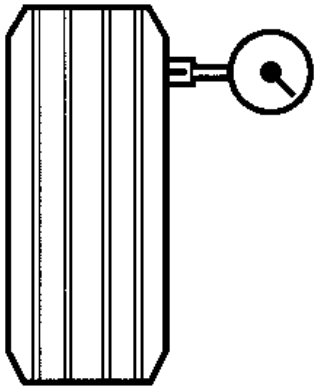
Measurement Procedure

1. Warm-up the tires prior to measurement to eliminate flare spotting. This may be done during the ride test. Newly installed tires do not need to be warmed up.
2. Raise the vehicle on the lift, or put the tire on a dynamic balance machine.
3. Mark a stud bolt for future reference of original assembly position of the hub. Also mark the assembly position of each tire.
4. Place the runout gauge in position for either a lateral or radial check and rotate the tire to find the low spot. Adjust the gauge to read zero and rotate the assembly again to be sure it returns to zero at the same spot.
5. Rotate the assembly slowly, but constantly and note the runout, or variance on the dial. Locate and mark the high spot. If not within the variance (refer to the Runout Guideline below), proceed to match mounting to correct the problem.



Radial Runout

Radial runout is to be measured on the center rib, as shown. The total runout of the tire is the reading from the gauge. The high spot (diagram) is the location of maximum runout.



Lateral Runout

Lateral runout can cause a twist or wobble in the tire. It is measured on the sidewall as close to the tread design edge as possible.

Runout Guideline

	Radial Runout Thousandths	64ths	Lateral Runout Thousandths	64ths
Assembly – on car	.050	4	.050	4
Assembly – off car	.050	3-1/2	.050	3-1/2
Wheel	.040	2-1/2	.045	3

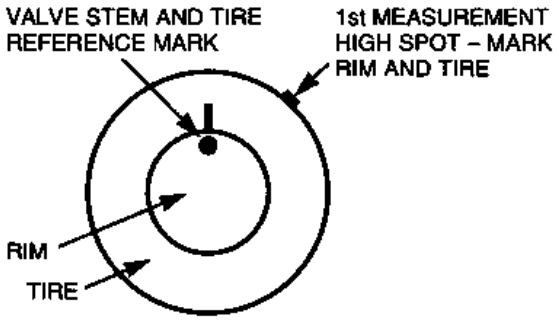
Figure 2 - Article 97-5-3

HOW TO MATCH MOUNT TIRES

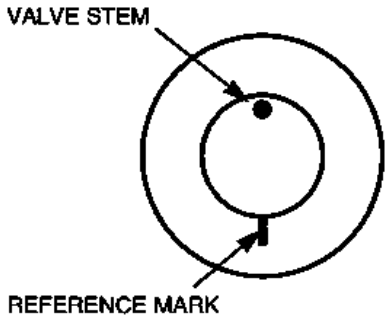
Match mounting is a technique that reduces the effects of lateral runout. Runout is a condition in which a tire has a high spot on either the tread or the sidewall, creating a ride disturbance. Match mounting helps offset this condition.

Match mounting is done when radial or lateral runout has been measured and exceeds the given guidelines.

1. After determining that runout is the problem, put the tire assembly on the tire mounting machine. Put a reference crayon mark on the tire sidewall at the valve location (Diagram 1).



2. Break the assembly down and rotate the tire so the valve reference mark is opposite the valve stem (Diagram 2).

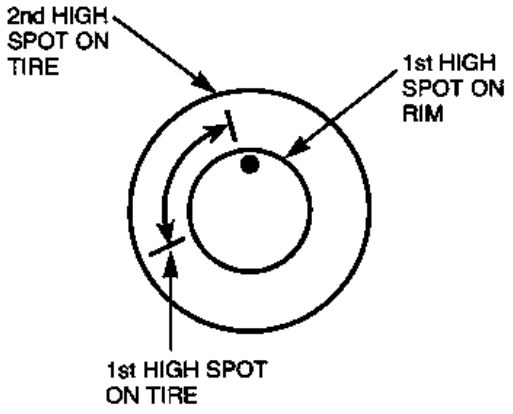


3. Reinflate the tire and measure the runout. Record your reading and mark the high spot location on the tire. If the runout is reduced below the acceptable guidelines, you have solved the problem. If not, proceed to Steps 4-6.

4. If the high spot is within 102mm (4″) of the first high spot on the tire and is still outside the guidelines, replace the tire.

5. If the high spot is within 102mm (4″) of the first high spot on the wheel, the wheel may be out of tolerance. Remove the tire and check the wheel for runout.

6. If the high spot is not within 102mm (4″) of either original high spot on the tire or wheel, then draw an arrow from the second high spot to the first high spot (in the shortest direction, refer to Diagram 3) and rotate the tire on the rim 90 degrees (1/4 turn). This will normally reduce runout to an acceptable figure.



Additional Information: **In most cases, match mounting will solve problems with runout. If not, the tire qualifies as adjustable and is eligible for the warranty.**

Figure 3 - Article 97-5-3

An information sheet is provided (Figure 4) and may be faxed to the Customer Assistance Center at 1-330-796-3753 to facilitate the information gathering needed.

— FACSIMILE TRANSMISSION —

DATE: _____ NUMBER OF PAGES: _____

FROM:

DEALERSHIP: _____

ADDRESS: _____

PHONE #: _____ FAX #: _____

NAME: _____ TITLE: _____

TO: The Goodyear Tire and Rubber Company (FAX # 330-796-3753)
Customer Assistance Center (800-321-2136)
Attention: Original Equipment Contact Group

This facsimile is in reference to: _____

_____

_____

VEHICLE/OWNER INFORMATION

NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

YEAR/MAKE/MODEL: _____ MILES: _____

TIRE SIZE AND TYPE: _____

NEAREST GOODYEAR RETAILER: _____

_____

This fax copy will be directed to an O.E. Group Representative.
If fax is received by 3:00 PM E.S.T. Monday through Friday, you should expect a response by 5:00 PM E.S.T. that same day.

Figure 4 - Article 97-5-3

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 303000, 306000, 703000, 703200, 703300, 703400