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2005 FORD Focus 3 Doors OEM Service and Repair Workshop Manual

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	camber to nominal.

PINPOINT TEST D : DIAGONAL WEAR

Normal Operation and Fault Conditions

REFER to: Safety Precautions - Overview(204-04A Wheels and Tires, Description and Operation).

Possible Sources

- Excessive toe in/out
- Incorrect tire rotation intervals

D1 MEASURE THE TREAD DEPTH

- Using a tread depth gauge or similar tool, measure the tread depth of the wear pattern.

Is the tread depth greater than 1.588 mm (0.0625 in) ?

Yes	If no performance concerns (noise/vibration) are present, the tire can remain in service. CHECK the air pressure in the tires, ADJUST as necessary. ROTATE the wheel and tire assemblies. INSPECT for loose, worn or damaged suspension components. INSTALL new components as necessary. CHECK the alignment and ADJUST as necessary.
No	INSTALL a new tire(s). CHECK the air pressure in the tires, ADJUST as necessary. ROTATE the wheel and tire assemblies. INSPECT for loose, worn or damaged suspension components. INSTALL new components as necessary. CHECK the alignment and ADJUST as necessary.

PINPOINT TEST E : WOBBLE OR SHIMMY

Normal Operation and Fault Conditions

REFER to: Safety Precautions - Overview(204-04A Wheels and Tires, Description and Operation).

Possible Sources

- Bent wheel
- Damaged tire
- Loose wheel nuts

E1 CHECK FOR LOOSE WHEEL NUTS

Yes	INSTALL a new tire(s). CHECK and ADJUST the toe to nominal. CHECK and ADJUST caster and camber to nominal. REFER to: Wheel and Tire (204-04A Wheels and Tires, Removal and Installation).

No	CHECK the air pressure in the tires, ADJUST as necessary. ROTATE the wheel and tire assemblies. INSPECT for loose, worn or damaged suspension components. INSTALL new components as necessary. CHECK the alignment and ADJUST as necessary.GO to F2

F2 CHECK RADIAL RUNOUT

- Verify whether radial runout is correct.
- Refer to Radial Runout Measurement - Loaded Hunter Road Force® Method or Radial Runout Measurement - Dial Indicator Method.

Is radial runout correct?

Yes	CHECK the air pressure in the tires, ADJUST as necessary. ROTATE the wheel and tire assemblies. INSPECT for loose, worn or damaged suspension components. INSTALL new components as necessary. CHECK the alignment and ADJUST as necessary.

No	Correct the radial runout.

Component Test- Radial Runout

Radial runout is the egg-shaped deviation from a perfect circle and is measured perpendicular to the circumference. On a wheel and tire assembly, this means measuring the center tire tread rib. The center rib is indicative of the condition of the tire as a whole. Total runout is the difference between the maximum-to-minimum gauge reading. The high spot is the location of maximum runout.

values are obtained.

Make sure that the tire pressures are set to the correct pressure as indicated on the tire pressure label.

4. **NOTICE**

   Make sure that the correct wheel balancer adapters are used when mounting the assembly to the wheel balancer. This will prevent the possibility of inducing runout by using incorrect adapters and/or wheel damage.

   NOTE

   Modern balancers typically list the correct adapter when selecting the vehicle in the application menu. For additional instructions, refer the balancer's user manual for proper adapter selection.

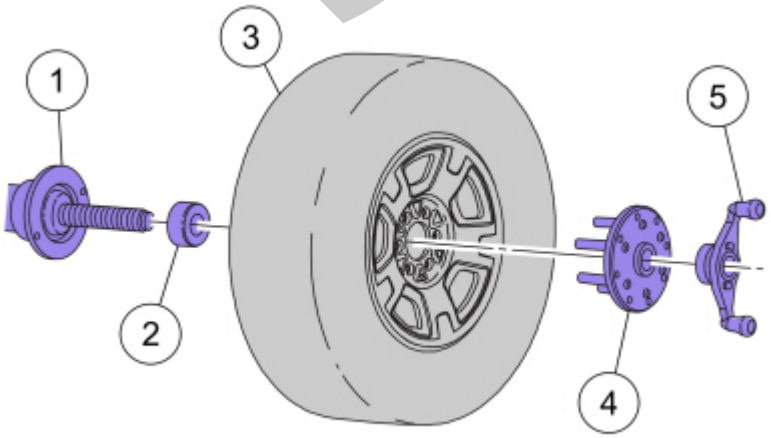
   NOTE

   Make sure that the wheel and tire assembly is clean and free of foreign material prior to installation on the balancer.

   NOTE

   The wheel balancer inflation station must be turned OFF for tires with inflation pressures of 60.0 psi (414 kPa) or above.

   Mount the wheel and tire assembly on a suitable wheel balancer using the correct wheel balancer adapters as shown.



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Loaded run-out measurements are the preferred method for verifying tire serviceability. While a dial indicator can be used to optimize the position of the tire on the wheel, the unloaded run-out measurement cannot accurately determine if the tire should be removed from service.

NOTE

The following procedures should be used if normal diagnostics leads to a potential runout issue.

NOTE

Some vehicles may exhibit a wheel and tire vibration caused by excessive runout. Radial runout measurements can be taken using a dial indicator and should be measured with the wheel and tire assembly mounted on a suitable wheel balancer. The dial indicator should be mounted securely to eliminate gauge movement when measuring runout.

NOTE

Use only a digital tire pressure gauge any time tire pressures are measured to be sure that accurate values are obtained.

1. Make sure that the tire pressures are set to the correct pressure as indicated on the VC (vehicle certification) label.
2. Using a tire crayon, record the vehicle position on the inward sidewall of all 4 tires.
3. Remove the wheel and tire assemblies.

   REFER to: Wheel and Tire(204-04A Wheels and Tires, Removal and Installation).

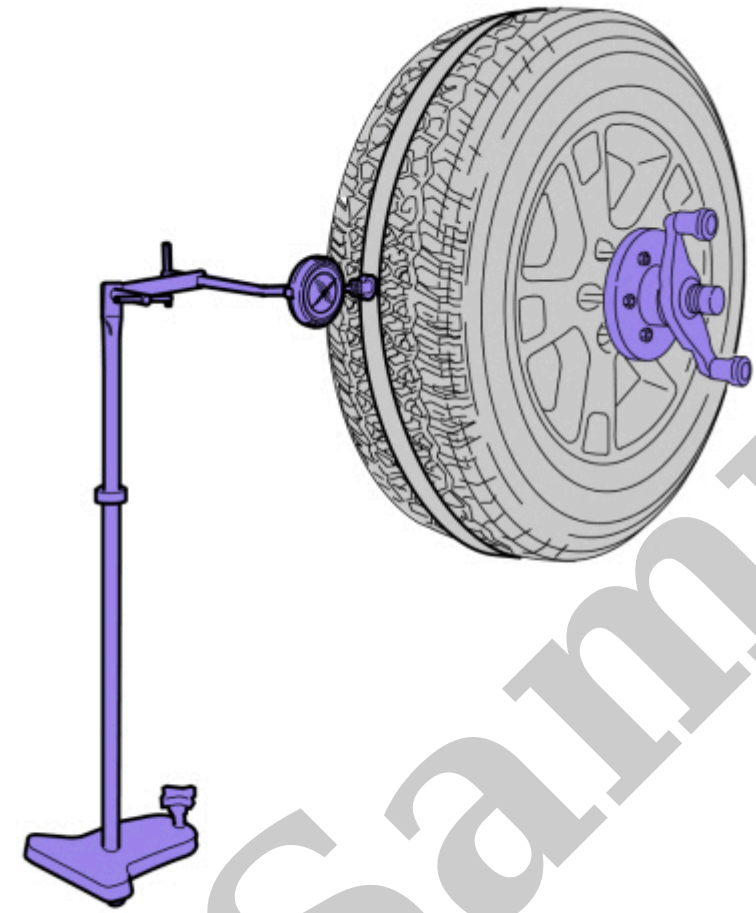
4. **NOTICE**

   Make sure that the correct wheel balancer adapters are used when mounting the assembly to the wheel balancer or damage to the wheel may occur.

   NOTE

   Make sure that the wheel and tire assembly is clean and free of foreign material prior to installation on the balancer.

- Rotate the wheel and tire assembly (or wheel) to locate the low spot.
- Adjust the runout gauge to read 0.
- Rotate the wheel and tire assembly one complete revolution to make sure that the low spot has been found and that the dial indicator returns to a 0 reading.



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6. While slowly and constantly rotating the wheel and tire assembly (or wheel), measure the radial runout.

- Note the variance (runout) from 0 on the dial of the gauge.
- If the runout reading of a wheel and tire assembly is greater than 1.14 mm (0.045 in), locate and temporarily mark the high spot and runout reading on the sidewall of the tire and carry out the Match Mounting procedure to optimize the wheel and tire assembly.
- If the runout reading of a wheel and tire assembly is 1.14 mm (0.045 in) or less, permanently mark the high spot and the runout reading on the inward sidewall of the tire for reference during future wheel and

Wheel and Tire

204-04A Wheels and Tires	***2022 F-150***
Disassembly and Assembly	***Procedure revision date: 10/2/2020***

Wheel and Tire

DISASSEMBLY

NOTICE

Tire Changer: Ford requires center clamp style tire changers such as Hunter® Auto 34, Revolution, TC3900 or equivalent. Anything else, especially table top style machines, are highly likely to damage the wheel which is not warrantable. Do not use table top design machines that grab onto the inside of the wheel and that ride on the front wheel flange to remove the tire. Wheel damage will occur. Tire Balancer: Ford requires the use of wheel balancers that do not contact the wheel face such as, Hunter® Road Force Touch GSP9700. Do not use machines that contact the wheel face. Wheel damage will occur.

NOTICE

Failure to follow the instructions below may result in damage to the TPMS (tire pressure monitoring system).

NOTICE

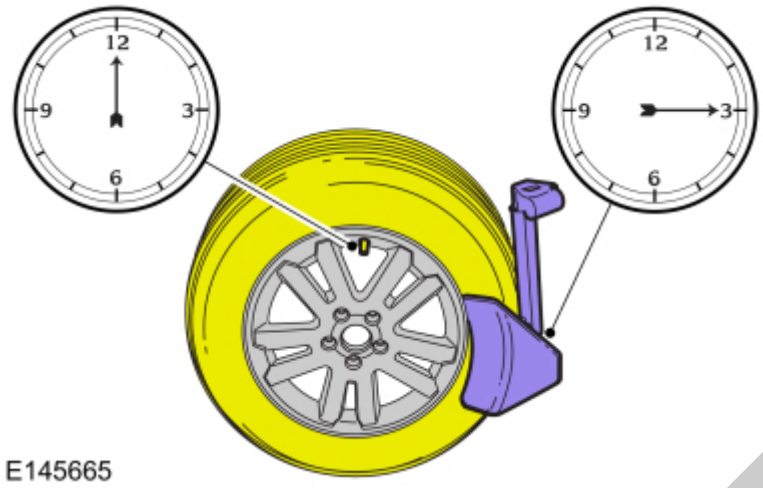
The TPMS (tire pressure monitoring system) sensor is mounted to the valve stem. Removal of the valve stem requires dismounting the tire from the wheel and removal of the TPMS (tire pressure monitoring system) sensor.

NOTE

- For a roller-type tire machine, align the valve stem with the roller at any position.

NOTE

Paddle type shown, roller type similar.

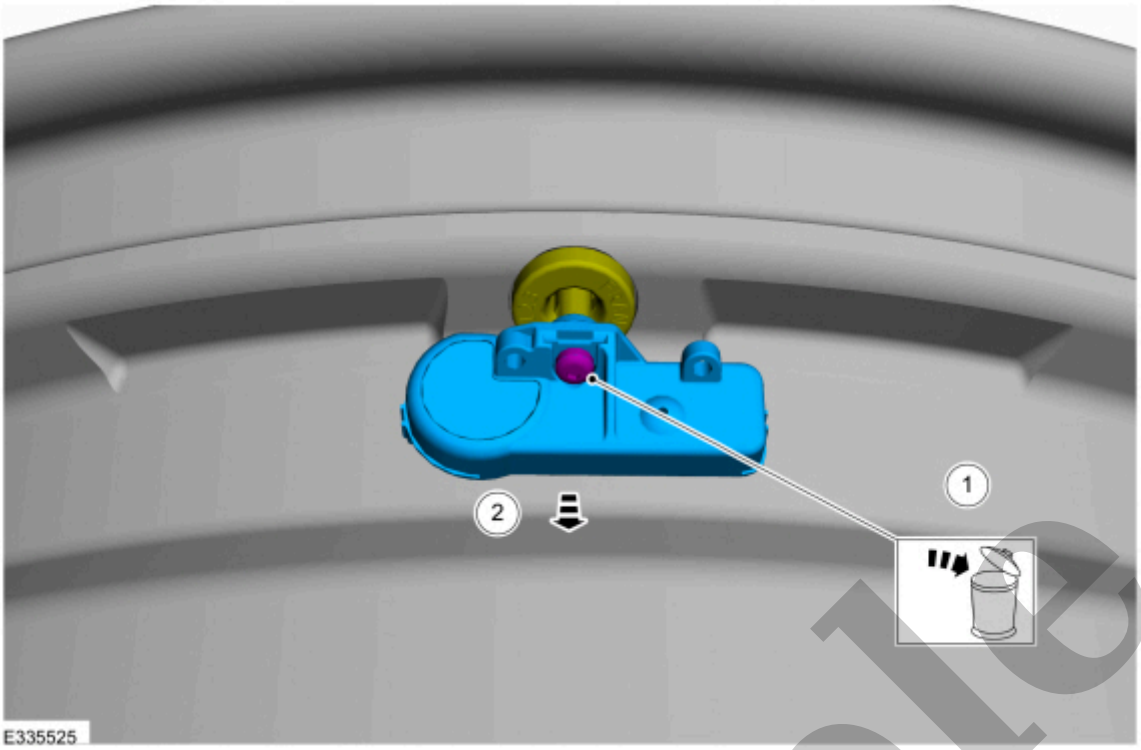


Click here to learn about symbols, color coding, and icons used in this manual.

4. **NOTE**

   Index-mark the valve stem and wheel weight positions on the tire.

   Place the wheel and tire assembly on the turntable of the tire machine with the valve stem at the 11:30 position and the machine arm at the 12 o'clock position and dismount the outer bead from the wheel.



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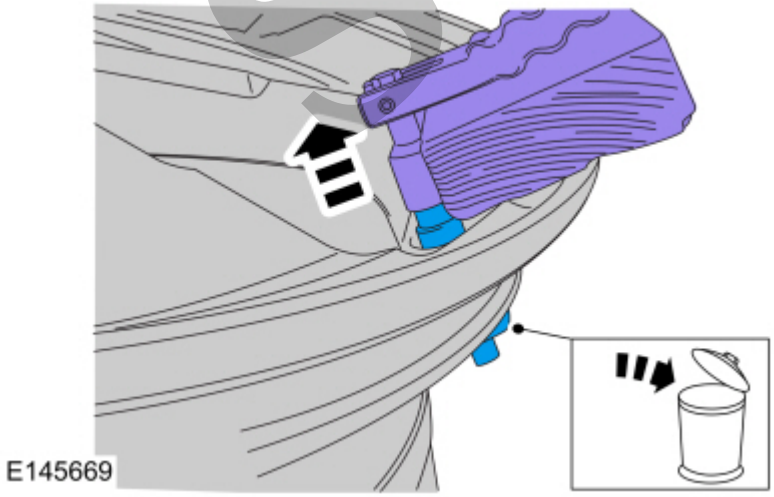
7. **NOTICE**

   Use care not to damage the wheel surface when removing the valve stem.

   Using a suitable valve stem remover/installer, remove and discard the valve stem.

   Use the General Equipment: Wooden Block



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ASSEMBLY

NOTICE

Damage to the TPMS (tire pressure monitoring system) sensor may result if the tire mounting is not carried out as instructed.

1. **NOTICE**

   It is important to pull the valve stem and TPMS (tire pressure monitoring system) sensor assembly through the wheel rim hole in a direction parallel to the valve stem hole axis. If the assembly is pulled through at an angle, damage to the valve stem and sensor assembly may occur.

   NOTICE

   Use care not to damage the wheel surface when installing the valve stem and TPMS (tire pressure monitoring system) sensor assembly.

   NOTE

   Lubricate the valve stem with soapy water and install the valve stem and TPMS (tire pressure monitoring system) sensor assembly into the wheel using a block of wood and a suitable valve stem installer.

   Using a suitable valve stem installer, install the new valve stem and TPMS (tire pressure monitoring system) sensor assembly.

   Use the General Equipment: Wooden Block