

Diagnosis and Testing

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical damage.

VISUAL INSPECTION CHART

Mechanical
• Tire pressure(s) • Wheels and tires • Wheel knuckles • Tie-rod ends • Front suspension lower arm ball joints • Front suspension lower arm bushings • Front strut and spring assemblies • Front and rear stabilizer bar and connecting links • Front axle crossmember • Rear springs • Rear shock absorbers • Rear suspension beam axle and bushings

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

The table provides all possible symptoms related to the Suspension System. For a detailed diagnosis, proceed to the Ford diagnostic equipment.

Drift left or right	Vehicle attitude incorrect (front or rear is high or low)
	Steering gear or linkage worn or damaged
	Brake system
	Incorrect wheel alignment
	Incorrect front axle crossmember alignment
	Worn front wheel bearings
	Wheels and tires
Steering wheel off-center	Vehicle attitude incorrect (front or rear is high or low)
	Steering gear or linkage worn or damaged
	Lower arm ball joint
	Incorrect wheel alignment
Tracks incorrectly	Incorrect front suspension toe, castor or camber angles
	Front or rear suspension damage
Rough ride	Front strut and spring assemblies
	Front or stabilizer bar, connecting links or bushings
	Front suspension lower arm bushings
	Rear suspension bushings
	Rear shock absorbers
Excessive noise	Front strut and spring assembly or rear shock absorber and spring upper mounting bolts or nuts loose or broken
	Shock absorbers leaking
	Shock absorber performance incorrect
	Stabilizer bar components

	Strut and spring assembly and springs
	Springs moving on spring upper or lower seats
	Suspension bushings
	Lower / Upper arm ball joint
	Worn front / rear wheel bearings
	Wheels and tires
Incorrect tire wear	Front or rear suspension damage
	Incorrect wheel alignment
Vibration	Damaged or worn front wheel bearings
	Wheels and tires
	Incorrect wheel alignment
	Steering gear or linkage worn or damaged
	Front strut and spring assemblies
	Damaged front suspension lower / upper arm(s)

Component Tests

Raise and support the vehicle.

REFER to: [Jacking and Lifting](#) (100-02 Jacking and Lifting, Description and Operation).

Ball Joint Inspection

1. Firmly grasp the outer end of the suspension lower arm and try to move it up and down, watching and feeling for any movement. Free movement will usually be accompanied by an audible "click". There should be no free movement.
2. If there is any free movement, install a new lower arm ball joint. REFER to: [Lower Arm Ball Joint](#) (204-01 Front Suspension, Removal and Installation).
3. If a new lower arm ball joint is installed it will be necessary to check and adjust the front wheel alignment. REFER to: (204-00 Suspension System - General Information)

[Specifications](#) (Specifications),
[Front Toe Adjustment](#) (General Procedures).

Strut or Shock Absorber Inspection

NOTE: Inspect the struts or shock absorber for signs of oil weepage or leaks. Make sure that the oil is not from another source.

Weepage:

- deposits a thin film of oil on the strut and spring assembly or shock absorber.
- is normally noticed due to a collection of dust on the strut and spring assembly or shock absorber.
- occurs during the normal running-in period of 4800 - 8050 km. After this period no new signs of oil should be visible.
- does not require new struts or shock absorbers to be installed.

Leakage:

- covers the entire strut and spring assembly or shock absorber with oil.
- will drip oil onto the surrounding suspension components.
- requires new struts or shock absorbers to be installed.

Strut or Shock Absorber Testing

NOTE: Struts or shock absorbers must be tested in the vertical position.

1. Remove both strut and spring assemblies or shock absorbers. The piston rods should extend.

- Disassemble the strut and spring assemblies.
REFER to: [Shock Absorber and Spring Assembly](#) (204-01 Front Suspension, Disassembly and Assembly).
2. Compress the piston rods. Both piston rods should offer the same resistance when compressing.
 3. Compress and release the piston rods. The piston rods should extend equally.
 4. Compress and pull the piston rod in the vertical position. Feel if the resistance force at the point of direction change-over is perceptible without a lag. If a lag is perceptible it is an indication of damper valve damage and new struts or shock absorbers must be installed. REFER to: (204-01 Front Suspension)

[Driver Side Strut and Spring Assembly - Vehicles Built Up To: 20-11-2017](#) (Removal and Installation),

[Passenger Side Strut and Spring Assembly - Vehicles Built Up To: 20-11-2017](#) (Removal and Installation).

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