

Suspension System

Principles of Operation

Inspection and Verification

1. Road test.
 - If any suspension alignment or ride height concerns are present, [GO to Symptom Chart "Suspension System](#).
 - Verify the customer concern by carrying out a road test on a smooth road. If any vibrations are present, [GO to Symptom Chart - NVH](#).
2. Inspect the tires.
 - Check the tire pressure with all normal loads in the vehicle and with the tires cold. Refer to the VC label.
 - Verify that all tires are sized to specification.
 - Inspect the tires for incorrect wear and damage.
REFER to: Wheels and Tires (204-04A Wheels and Tires, Diagnosis and Testing).
3. Inspect the chassis and underbody.
 - Remove any excessive accumulation of mud, dirt or road deposits from the chassis and underbody.
 - Front or rear suspension components.
 - Suspension fastener(s).
 - Incorrect spring usage Spring(s).
 - Shock absorber(s).
 - Strut(s).
 - Suspension bushing(s).
 - Steering system components.
 - Wheel bearing and wheel hub(s).
 - Remove any excessive accumulation of mud, dirt or road deposits from the chassis and underbody.
4. Inspect for aftermarket equipment.
 - Check for aftermarket changes to the steering, suspension, wheel and tire components (such as competition, heavy duty, etc.) The specifications shown in this manual do not apply to vehicles equipped with aftermarket equipment.

Visual Inspection Chart

Mechanical
Damaged axle components
Damaged or leaking shock absorber(s)
Damaged or sagging spring(s)
Front wheel bearing(s)
Incorrect spring usage
Worn kingpin(s) or bushing(s)
Loose, worn or damaged steering system components
Loose or damaged front or rear suspension components

Mechanical	
• Loose, damaged or missing suspension fastener(s)	
• Loose or damaged leaf spring shackle(s)	
• Worn or damaged suspension bushing(s)	

5. If an obvious cause for an observed or reported condition is found, correct the cause (if possible) before proceeding to the next step.

6. If the fault is not visually evident, GO to Symptom Chart “Suspension System” or GO to Symptom Chart - NVH.

Symptom Chart: Suspension System

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Symptom	Possible Sources	Action
• Incorrect thrust angle (dogtracking)	• Damaged or misaligned rear suspension components	• INSPECT rear suspension. REPAIR or INSTALL new components as necessary. REFER to the appropriate section in Group 204 for the procedure.
• Drift/pull	• Unevenly loaded or overloaded vehicle	• NOTIFY customer of incorrect vehicle loading.
	• Unequal tire pressure	• CHECK and ADJUST tire pressure as necessary.
	• Tire forces	• CROSS ROTATE tires front to rear. REFER to: Wheels and Tires (204-04A Wheels and Tires, Diagnosis and Testing).
	• Caster is not within specification	• CHECK front caster and ADJUST as necessary. REFER to: Front Camber and Caster Adjustment - F-250/F-350, RWD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Camber and Caster Adjustment - F-250/F-350/F-450/F-550, 4WD (204-00 Suspension System - General Information, General Procedures).
	• Steering components	• INSPECT the steering system. INSTALL new components as necessary. REFER to: Adaptive Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering - Vehicles With Electronic Steering Actuator (211-02 Power Steering, Diagnosis and Testing).
	• Brake drag	• REFER to: Brake System (206-00 Brake System - General Information, Diagnosis and Testing).
• Front bottoming or riding low	• Spring(s)	• INSTALL front new spring(s) as necessary. REFER to: Spring - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring (204-01B Front Suspension - 4WD, Removal and Installation).

	• Front shock absorber(s)	• INSTALL new front shock absorber(s) as necessary. REFER to: Front Shock Absorber - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber (204-01B Front Suspension - 4WD, Removal and Installation).
• Rear bottoming or riding low	• Rear spring(s)	• INSTALL new rear spring(s) as necessary. REFER to: Spring - F-250/F-350 (204-02 Rear Suspension, Removal and Installation). REFER to: Spring - F-450/F-550 (204-02 Rear Suspension, Removal and Installation).
	• Rear shock absorbers	• INSTALL new rear shock absorber(s) as necessary. REFER to: Rear Shock Absorber (204-02 Rear Suspension, Removal and Installation).
• Incorrect/abnormal tire wear	• Underinflated tires • Incorrect wheel alignment • Incorrect wheel and tire assembly rotation intervals • Excessive high speed cornering	• REFER to: Wheels and Tires (204-04A Wheels and Tires, Diagnosis and Testing).
• Sticky steering, poor returnability	• Front caster angle	• CHECK front caster and ADJUST as necessary. REFER to: Front Camber and Caster Adjustment - F-250/F-350, RWD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Camber and Caster Adjustment - F-250/F-350/F-450/F-550, 4WD (204-00 Suspension System - General Information, General Procedures).
	• Steering components	• INSPECT the steering system. INSTALL new components as necessary. REFER to: Adaptive Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering - Vehicles With: Electronic Steering Actuator (211-02 Power Steering, Diagnosis and Testing).
• Steering wheel off center	• Unequal (side-to-side) front toe	• CHECK front toe and ADJUST as necessary. REFER to: Front Toe Adjustment - F-250/F-350, RWD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-250/F-350/F-450/F-550, 4WD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-250/F-350, Vehicles With: Adaptive Steering (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-450/F-550, RWD, Vehicles With: Adaptive Steering (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-450/F-550, RWD (204-00 Suspension System - General Information, General Procedures).

	Steering components	INSPECT the steering system. INSTALL new components as necessary. REFER to: Adaptive Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering - Vehicles With: Electronic Steering Actuator (211-02 Power Steering, Diagnosis and Testing).
Sway or roll	Overloaded, unevenly or incorrectly loaded vehicle	NOTIFY customer of incorrect vehicle loading.
	Loose wheel nut(s)	TIGHTEN the wheel nut(s) to specification. REFER to: Wheel and Tire - Vehicles With: Single Rear Wheels (204-04A Wheels and Tires, Removal and Installation). REFER to: Wheel and Tire - Vehicles With: Dual Rear Wheels (204-04A Wheels and Tires, Removal and Installation).
	Shock absorber(s)	INSPECT shock absorbers. INSTALL new shock absorber(s) as necessary. REFER to: Front Shock Absorber - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber (204-01B Front Suspension - 4WD, Removal and Installation). REFER to: Rear Shock Absorber (204-02 Rear Suspension, Removal and Installation).
	Worn spring(s)	INSTALL new spring(s) as necessary. REFER to: Spring - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring (204-01B Front Suspension - 4WD, Removal and Installation). REFER to: Spring - F-250/F-350 (204-02 Rear Suspension, Removal and Installation). REFER to: Spring - F-450/F-550 (204-02 Rear Suspension, Removal and Installation).
Vehicle leans to one side	Unevenly loaded or overloaded vehicle	NOTIFY customer of incorrect vehicle loading.
	Front or rear suspension components	INSPECT front and rear suspension components. REPAIR or INSTALL new components as necessary. REFER to the appropriate section in Group 204 for the procedure.
	Incorrect drive axle(s) ride height. Side-to-side lean out of specification	MEASURE the ride height. REFER to: Ride Height Measurement (204-00 Suspension System - General Information, General Procedures). INSPECT the front and rear suspension systems. REPAIR or INSTALL new components as necessary

	Spring(s)	INSTALL new spring(s) as necessary. REFER to: Spring - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring (204-01B Front Suspension - 4WD, Removal and Installation). REFER to: Spring - F-250/F-350 (204-02 Rear Suspension, Removal and Installation). REFER to: Spring - F-450/F-550 (204-02 Rear Suspension, Removal and Installation).
Wander	Excessive total toe-in/out	CHECK front toe and ADJUST as necessary. REFER to: Front Toe Adjustment - F-250/F-350, RWD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-250/F-350/F-450/F-550, 4WD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-250/F-350, Vehicles With: Adaptive Steering (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-450/F-550, RWD, Vehicles With: Adaptive Steering (204-00 Suspension System - General Information, General Procedures). REFER to: Front Toe Adjustment - F-450/F-550, RWD (204-00 Suspension System - General Information, General Procedures).
	Unevenly loaded or overloaded vehicle	NOTIFY customer of incorrect vehicle loading.
	Steering components	INSPECT the steering system. INSTALL new components as necessary. REFER to: Adaptive Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering - Vehicles With: Electronic Steering Actuator (211-02 Power Steering, Diagnosis and Testing). 1
	Loose, worn or damaged front wheel bearing(s)	INSPECT front wheel bearings. INSTALL new bearing(s) as necessary. REFER to: Front Wheel Bearing and Wheel Hub - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Wheel Bearing and Wheel Hub - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Wheel Bearing and Wheel Hub (204-01B Front Suspension - 4WD, Removal and Installation).
	Worn or damaged front suspension component(s)	INSPECT and INSTALL new front suspension component(s) as necessary. REFER to the appropriate section in Group 204 for the procedure.
	Loose suspension fasteners	NOTE: Do not lubricate fasteners. - INSPECT the suspension fasteners. TIGHTEN to specification.

Symptom Chart – NVH

NVH symptoms should be identified using the diagnostic tools that are available. For a list of these tools, an explanation of their uses and a glossary of common terms,

REFER to: Noise, Vibration and Harshness (NVH) (100-04 Noise, Vibration and Harshness, Description and Operation).

Since it is possible any one of multiple systems may be the cause of a symptom, it may be necessary to use a process of elimination type of diagnostic approach to pinpoint the responsible system. If this is not the causal system for the symptom, REFER to: Noise, Vibration and Harshness (NVH) (100-04 Noise, Vibration and Harshness, Description and Operation).

For the next likely system and continue diagnosis.

Additional diagnostics may be necessary to further isolate the concern. An electronic listening tool such as Chassis Ear[®] may be used. Follow the tool manufacturer's instructions and the Possible Sources found in the following NVH chart to determine the connection points.

Symptom	Possible Sources	Action
Clunk " noise from the front suspension, occurs in and out of turns	Loose front shocks	INSPECT for shock absorber fasteners. TIGHTEN to specifications. REFER to: Front Shock Absorber - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber (204-01B Front Suspension - 4WD, Removal and Installation).
Clunk " noise from the rear suspension, occurs when shifting from REVERSE to DRIVE	Loose or damaged rear suspension components	INSPECT for loose or damaged rear suspension components. REPAIR or INSTALL new components as necessary. REFER to the appropriate section in Group 204 for the procedure.
Click or pop " noise from the front suspension. More noticeable over rough roads or over bumps	Worn or damaged kingpin(s) or bushing(s)	INSPECT front kingpin bushing(s). REFER to Kingpin Bushing Wear Check Component Test in this section. INSTALL new kingpin bushing(s) as necessary.
Front suspension noise " a squeak, creak or rattle noise. Occurs mostly over bumps or rough road	- Loose or bent front shock absorber(s) - Damaged spring or spring mount(s)	INSPECT the front suspension. INSTALL new components as necessary. REFER to the appropriate section in Group 204 for the procedure.
Rear suspension noise " a squeak, creak or rattle noise. Occurs mostly over bumps or rough roads due to the suspension moving in an up/down motion.	- Loose or damaged rear shock absorber(s) or shock absorber bushing(s) - Damaged spring or spring mount(s) - Damaged or worn bushing(s)	INSPECT rear suspension. INSTALL new components as necessary. REFER to the appropriate section in Group 204 for the procedure.
	Rear leaf spring tip isolator or bushing	INSPECT the rear leaf spring tip isolator(s) or bushing(s). REPLACE damaged components as necessary. REFER to: Leaf Spring Tip Isolator (204-02 Rear Suspension, Removal and Installation).

	Rear leaf spring or bushing contaminated with dirt, sand or mud	NOTE: To avoid the re-occurrence of noise, make sure that all contamination and moisture trapped between the individual leaf spring components have been completely removed. NOTE: Do not apply any lubricant or grease to the leaf springs as this will attract dirt and moisture. - PRESSURE WASH the leaf springs between the individual spring leafs and the gaps between the spring bushings, mounting brackets and shackles to remove any trapped debris. USE compressed (shop) air to remove any remaining debris and to completely dry between all of the individual spring components. Verify noise symptom is not present. If still present replace tip insert. REFER to: Leaf Spring Tip Isolator (204-02 Rear Suspension, Removal and Installation).
Shudder “ occurs during acceleration from a slow speed or stop	Incorrect ride height causing incorrect driveline angle	REFER to REFER to: Driveshaft (205-01 Driveshaft, Diagnosis and Testing). for driveline angle diagnosis.
Shimmy	Loose wheel nut(s)	TIGHTEN nut(s) to specification. REFER to: Wheel and Tire - Vehicles With: Single Rear Wheels (204-04A Wheels and Tires, Removal and Installation). REFER to: Wheel and Tire - Vehicles With: Dual Rear Wheels (204-04A Wheels and Tires, Removal and Installation).
	Loose front suspension fastener(s)	TIGHTEN fastener(s) to specification. REFER to the appropriate section in Group 204 for the procedure.
	Loose front wheel bearing(s)	INSPECT front wheel bearing(s). REFER to Wheel Bearing Inspection in this section. INSTALL new bearing(s) as necessary.
	Shock absorber(s)	INSPECT shock absorbers. INSTALL new shock absorber(s) as necessary. REFER to: Front Shock Absorber - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber (204-01B Front Suspension - 4WD, Removal and Installation). REFER to: Rear Shock Absorber (204-02 Rear Suspension, Removal and Installation).
Shimmy “ most noticeable on coast/deceleration. Also hard steering condition	Excessive positive caster	CHECK front caster and ADJUST as necessary. REFER to: Front Camber and Caster Adjustment - F-250/F-350, RWD (204-00 Suspension System - General Information, General Procedures). REFER to: Front Camber and Caster Adjustment - F-250/F-350/F-450/F-550, 4WD (204-00 Suspension System - General Information, General Procedures).

Rough/harsh ride	Shock absorber(s)	INSPECT shock absorbers. INSTALL new shock absorber(s) as necessary. REFER to: Front Shock Absorber - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Front Shock Absorber (204-01B Front Suspension - 4WD, Removal and Installation). REFER to: Rear Shock Absorber (204-02 Rear Suspension, Removal and Installation).
	Spring(s)	INSTALL new spring(s) as necessary. REFER to: Spring - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation). REFER to: Spring (204-01B Front Suspension - 4WD, Removal and Installation). REFER to: Spring - F-250/F-350 (204-02 Rear Suspension, Removal and Installation). REFER to: Spring - F-450/F-550 (204-02 Rear Suspension, Removal and Installation).

Pinpoint Tests

Vehicle Drifts, Pulls

Diagnostic Overview

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.
REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Possible Causes

- Unevenly loaded vehicle
- Tire pressure
- Tire forces
- Brake drag
- Incorrect vehicle alignment
- Bent/damaged vehicle components
- Steering system

PINPOINT TEST A : VEHICLE DRIFTS, PULLS

A1 CHECK FOR UNEVENLY LOADED VEHICLE

- Visually check the vehicle for an uneven loading condition.

Is the vehicle unevenly loaded?

Yes	ADVISE the customer of uneven loading condition.
No	GO to A2

A2 CHECK THE TIRE PRESSURES AND TIRE CONDITIONS

- Check the tire pressures. Vehicle Certification (VC) Codes
REFER to: Identification Codes (100-01 Identification Codes, Description and Operation).
Check the tires for uneven/abnormal wear. Symptom Chart: Tire Wear REFER to: Wheels and Tires (204-04A Wheels and Tires, Diagnosis and Testing).

Are the tire pressures and tire conditions OK?

Yes	GO to A3
No	ADJUST the tire pressures to the specified pressure or INSTALL new tires as necessary.

A3 ISOLATE TIRE DRIFT/PULL CONDITION

- Cross the front wheel and tire assemblies from left-to-right.

Does the vehicle drift/pull?

Yes	If the vehicle drifts/pulls in the opposite direction, tire forces are causing the drift/pull. ROTATE the wheel and tire assemblies front-to-rear. If the vehicle drifts/pulls in the same direction, GO to A4
No	Tire forces were causing the drift/pull and the concern has been corrected.

A4 CHECK FOR BRAKE DRAG

- Spin all four wheel and tire assemblies by hand and check for brake drag.

Do the wheels spin freely?

Yes	GO to A5
No	REFER to: Brake System (206-00 Brake System - General Information, Diagnosis and Testing). to diagnose brake drag condition

A5 CHECK THE WHEEL ALIGNMENT

- Using alignment equipment and the manufacturer's instructions, check the wheel alignment.

Is the wheel alignment out of specification?

Yes	ADJUST the alignment as necessary. REFER to: Front Toe Adjustment - F-250/F-350, RWD (204-00 Suspension System - General Information, General Procedures). or REFER to: Front Toe Adjustment - F-250/F-350/F-450/F-550, 4WD (204-00 Suspension System - General Information, General Procedures).
No	REFER to: Adaptive Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing). REFER to: Power Steering - Vehicles With: Electronic Steering Actuator (211-02 Power Steering, Diagnosis and Testing). Symptom Chart(s) to diagnose steering system drift/pull/wander condition.

Ball Joint Inspection

1. Prior to inspecting the ball joints for wear, inspect the wheel bearings and wheel hubs.
REFER to: Noise, Vibration and Harshness (NVH) (100-04 Noise, Vibration and Harshness, Description and Operation).
2. **NOTE:** *In order to obtain accurate measurements, the suspension must be in full rebound with the weight of the vehicle supported by the frame.*

Raise and support the vehicle by the frame to allow the wheels to hang in the rebound position.

3. Inspect the ball joint and ball joint boot for damage.
 - If the ball joint or ball joint boot is damaged, install a new lower ball joint as necessary.
REFER to: Ball Joint (204-01A Front Suspension - RWD, Removal and Installation).
for RWD vehicles or
REFER to: Ball Joint (204-01B Front Suspension - 4WD, Removal and Installation).
for 4WD vehicles.

NOTE: *Carry out Steps 4 through 6 to inspect the lower ball joint. Carry out Steps 7 through 9 to inspect the upper ball joint.*

4. **NOTICE:** **Do not use any tools or equipment to move the wheel and tire assembly or suspension components while checking for relative movement. Suspension damage may occur. The use of tools or equipment will also create relative movement that may not exist when using hand force. Relative movement must be measured using hand force only.**

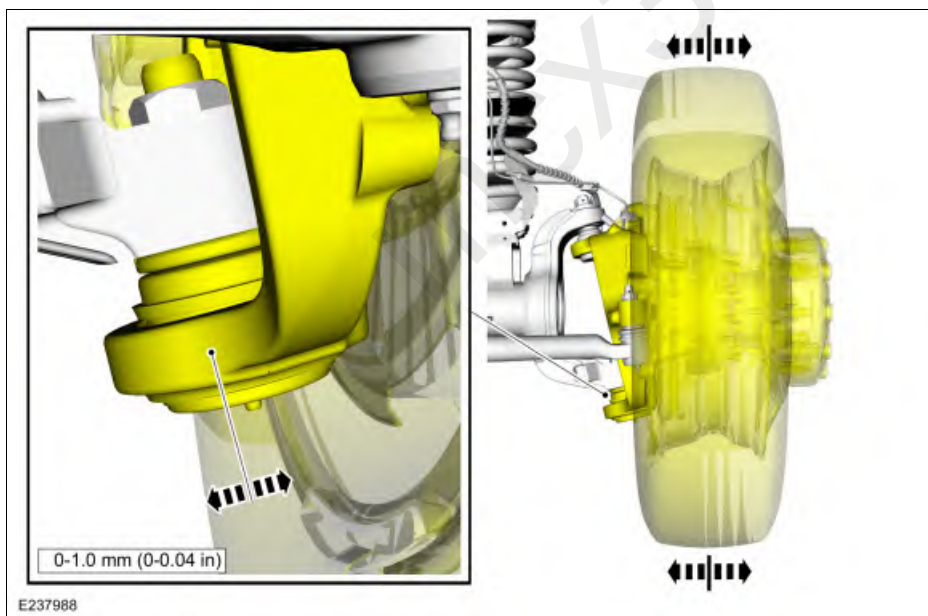
NOTE: *The weight of the wheel and tire assembly must be overcome to obtain an accurate measurement on the dial indicator.*

Inspect the ball joint for relative movement by alternately pulling downward and pushing upward on the lower control arm by hand. Note any relative vertical movement between the wheel knuckle and lower control arm at the lower ball joint.

- If relative movement is not felt or seen, the ball joint is OK. Do not install a new lower ball joint.
- If relative movement is found, continue with Step 5.

5. **NOTE:** *In order to obtain an accurate measurement, the dial indicator should be aligned as close as possible with the vertical axis (center line) of the ball joint.*

To measure ball joint deflection, attach a suitable dial indicator with a flexible arm between the lower control arm and the wheel knuckle or ball joint stud.



6. Measure the ball joint deflection while an assistant pushes up and pulls down on the lower control arm, by hand.
 - If the deflection exceeds the specification, a new lower ball joint must be installed.
REFER to: Ball Joint (204-01A Front Suspension - RWD, Removal and Installation).
for RWD vehicles or
REFER to: Ball Joint (204-01B Front Suspension - 4WD, Removal and Installation).
for 4WD vehicles.
 - If the deflection meets the specification, continue with the procedure.
7. **NOTICE:** **Do not use any tools or equipment to move the wheel and tire assembly or suspension components while checking for relative movement. Suspension damage may occur. The use of tools or equipment will also create relative movement that**

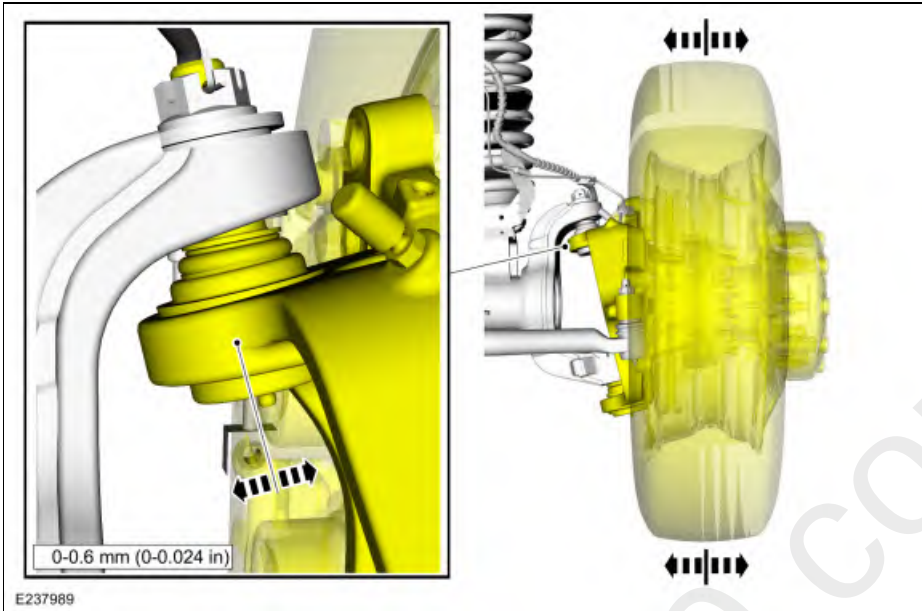
may not exist when using hand force. Relative movement must be measured using hand force only.

Inspect the ball joint for relative movement by alternately pulling downward and pushing upward on the upper control arm by hand. Note any relative vertical movement between the wheel knuckle and upper arm at the upper ball joint.

- If relative movement is not felt or seen, the ball joint is OK. Do not install a new ball joint.
- If relative movement is found, continue with Step 8

8. **NOTE:** *In order to obtain an accurate measurement, the dial indicator should be aligned as close as possible with the vertical axis (center line) of the ball joint.*

To measure ball joint deflection, attach a suitable dial indicator with a flexible arm between the upper control arm and the wheel knuckle or ball joint stud.



9. Measure the ball joint deflection while an assistant pushes up and then pulls down on the upper control arm, by hand.

- If the deflection exceeds the specification, a new upper ball joint must be installed.
REFER to: Ball Joint (204-01A Front Suspension - RWD, Removal and Installation).
for RWD vehicles or
REFER to: Ball Joint (204-01B Front Suspension - 4WD, Removal and Installation).
for 4WD vehicles.
- If the deflection meets or is below the specification, no further action is required.

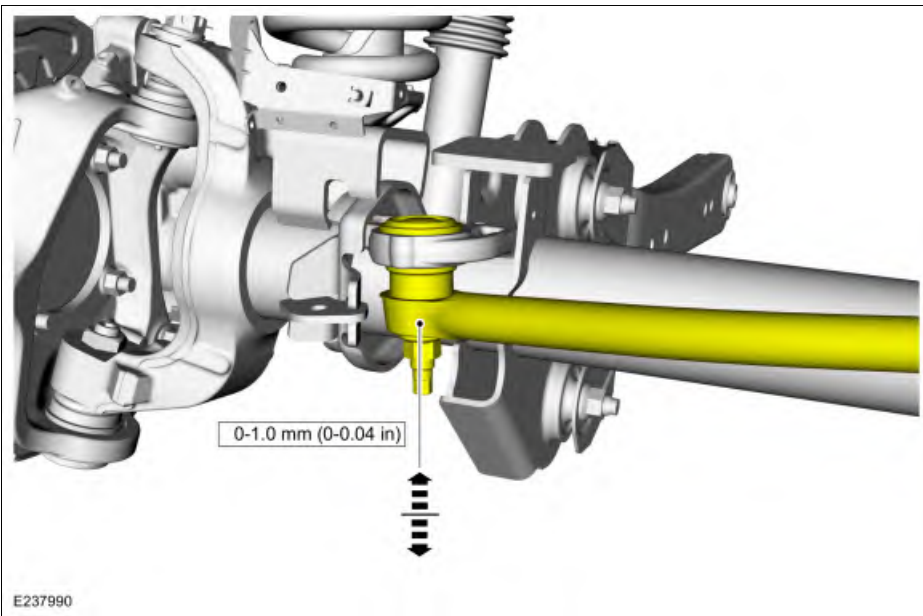
10. **NOTE:** *When inspecting the track bar ball joint, use a suitable drive-on hoist (such as a drive-on alignment rack). If a drive-on hoist is not available, unload the track bar by supporting the front axle with suitable jackstands.*

Inspect the ball joint for relative movement by alternately pushing up and pulling down on the track bar, by hand. Note any relative movement between the track bar and the axle at the track bar ball joint.

- If relative movement is not felt or seen, the ball joint is OK. Do not install a new ball joint.
- If relative movement is found, continue with Step 11.

11. **NOTE:** *In order to obtain an accurate measurement, the dial indicator should be aligned as close as possible with the center line of the ball joint*

To measure ball joint deflection, attach a suitable dial indicator with a flexible arm between the axle and the track bar at the ball joint.



12. Measure the ball joint deflection while an assistant alternately pulls downward and pushes upward on the track bar, by hand.
- If the deflection exceeds the specification, a new track bar ball joint must be installed.
REFER to: Track Bar Ball Joint (204-01A Front Suspension - RWD, Removal and Installation).