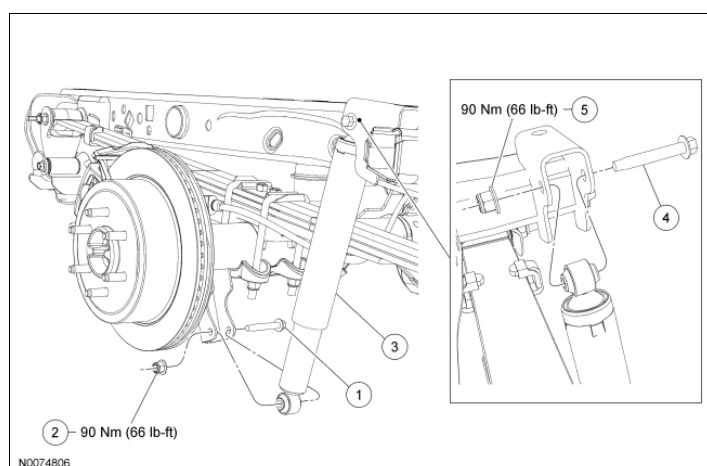


Shock Absorber

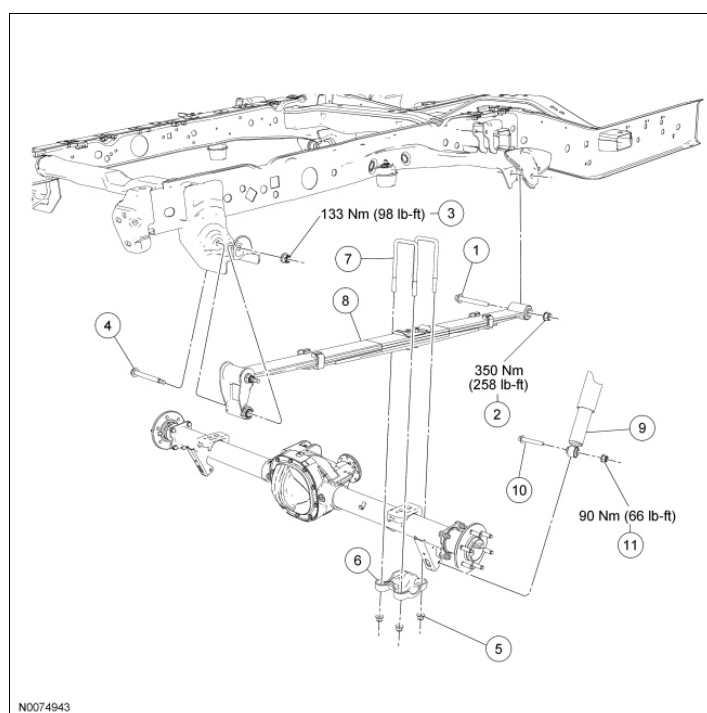
Item	Part Number	Description
1	W506545	Shock absorber lower bolt
2	W520214	Shock absorber lower nut
3	8125	Shock absorber
4	W506545	Shock absorber upper bolt
5	W520214	Shock absorber upper nut

⚠ WARNING: Do not apply heat or flame to the shock absorber or strut tube. The shock absorber and strut tube are gas pressurized and could explode if heated. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Keep all body parts clear of shock absorbers or strut rods. Shock absorbers or struts can extend unassisted. Failure to follow this instruction may result in serious personal injury.

NOTICE: Suspension fasteners are critical parts because they affect performance of vital components and systems and their failure may result in major service expense. New parts must be installed with the same part numbers or equivalent part, if replacement is necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to make sure correct retention of these parts.

1. Remove the wheel and tire. For additional information, refer to [Section 204-04](#).
2. Using a suitable jack, support the axle.
3. Remove and discard the shock absorber upper nut and bolt.
 - To install, tighten to 90 Nm (66 lb-ft).
4. Remove the shock absorber lower nut, lower bolt and the shock absorber.
 - Discard the nut and bolt.
 - To install, tighten to 90 Nm (66 lb-ft).
5. To install, reverse the removal procedure.

Spring

Item	Part Number	Description
1	W709627	Spring-to-frame bolt
2	W708988	Spring-to-frame nut
3	W520215	Spring shackle-to-frame nut
4	W709627	Spring shackle-to-frame bolt
5	W520215	U-bolt nut (4 required)
6	5798	U-bolt plate
7	5704	U-bolt (2 required)
8	5560	Spring
9	8125	Shock absorber
10	W506545	Shock absorber lower bolt
11	W520214	Shock absorber lower nut

Removal

⚠ WARNING: Do not apply heat or flame to the shock absorber or strut tube. The shock absorber and strut tube are gas pressurized and could explode if heated. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Keep all body parts clear of shock absorbers or strut rods. Shock absorbers or struts can extend unassisted. Failure to follow this instruction may result in serious personal injury.

NOTICE: Suspension fasteners are critical parts because they affect performance of vital components and systems and their failure may result in major service expense. New parts must be installed with the same part numbers or equivalent part, if replacement is necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to make

sure correct retention of these parts.

1. Remove the wheel and tire. For additional information, refer to [Section 204-04](#) .
2. Using a suitable jack, support the axle.
3. Remove and discard the shock absorber lower nut and bolt.
4. Remove the 4 U-bolt nuts, the U-bolt plate and the 2 U-bolts.
 - Discard the nuts and the U-bolts.
5. **NOTE:** If removing the left rear spring, lower the fuel tank to gain access to the spring shackle-to-frame bolt. For additional information, refer to [Section 310-00](#) .

NOTE: If removing the right rear spring, remove the muffler to gain access to the spring-to-frame bolt. For additional information, refer to [Section 309-00](#) .

Remove and discard the spring-to-frame nut and bolt.

6. Remove and discard the spring shackle-to-frame nut and bolt.
7. **NOTE:** Only lower the axle enough to gain access to remove the spring.

Lower the jack and remove the spring and shackle.
8. If necessary, remove the spring-to-shackle nut, bolt and spring shackle.
 - Discard the nut and bolt.

Installation

All vehicles

1. If necessary, position the spring and install the shackle-to-spring bolt and nut.
 - Tighten until snug.
2. Install the spring shackle-to-frame bolt and nut.
 - Tighten until snug.
3. Position the U-bolt plate and install the U-bolts and nuts.
 - Tighten until snug.
4. **NOTE:** On four wheel drive (4WD) vehicles, make sure the spacer is correctly seated between the axle and spring, with the nose pointed inward.

Install the spring-to-frame bolt and nut.

- Tighten until snug.
5. Install the shock absorber bolt and nut.
 - Tighten until snug.
 6. Install the wheel and tire. For additional information, refer to [Section 204-04](#) .
 7. Lower the vehicle until the weight of the vehicle is resting on the wheels and tires (curb height).

8. Tighten the spring shackle-to-frame nut to 133 Nm (98 lb-ft).
9. Tighten the spring-to-shackle nut to 133 Nm (98 lb-ft).
10. **NOTE:** If installing the left rear spring, raise the fuel tank. For additional information, refer to Section 310-00 .

NOTE: If installing the right rear spring, install the muffler. For additional information, refer to Section 309-00 .

Tighten the spring-to-frame nut and bolt to 350 Nm (258 lb-ft).

Light duty vehicles

11. Tighten the U-bolt nuts in 4 stages.
 - Stage 1: Tighten in a cross pattern to 35 Nm (26 lb-ft).
 - Stage 2: Tighten in a cross pattern to 70 Nm (52 lb-ft).
 - Stage 3: Tighten in a cross pattern to 100 Nm (74 lb-ft).
 - Stage 4: Tighten in a cross pattern to 133 Nm (98 lb-ft).

Heavy duty vehicles

12. Tighten the U-bolt nuts in 4 stages.
 - Stage 1: Tighten in a cross pattern to 63 Nm (46 lb-ft).
 - Stage 2: Tighten in a cross pattern to 125 Nm (92 lb-ft).
 - Stage 3: Tighten in a cross pattern to 188 Nm (139 lb-ft).
 - Stage 4: Tighten in a cross pattern to 250 Nm (184 lb-ft).

All vehicles

13. Tighten the shock absorber lower nut to 90 Nm (66 lb-ft).
-

Material

Item	Specification	Fill Capacity
High Temperature Nickel Anti-Seize Lubricant XL-2 (US); CXG-2-B (Canada)	ESE-M12A4-A	--
Wheel and Tire Cleaner ZC-27-A or B	--	--

General Specifications

Item	Specification
Tire Balance Weight	
Maximum balance weight (total of inner and outer wheel flange)	280 g (10 oz)
Tire Inflation	
Tires	See Safety Certification Label located on driver door jamb.
Wheel Runout	
Lateral	1.14 mm (0.045 in)
Radial	1.14 mm (0.045 in)

NOTE: Use only special tool 204-354 any time tire pressures are measured to be sure that accurate values are obtained.

For accuracy, Ford recommends the use of a digital or dial-type tire pressure gauge rather than a stick-type pressure gauge.

Inflate the tire to the pressure specified on the safety certification sticker located on the driver door or door pillar.

Torque Specifications

Description	Nm	lb-ft	lb-in
Sensor strap (worm gear)	3	--	27
Wheel nuts	204	150	--

Wheels And Tires

⚠ WARNING: Only use replacement tires that are the same size, load index, speed rating and type (such as P-metric versus LT-metric or all-season versus all-terrain) as those originally provided by Ford. The recommended tire and wheel size may be found on either the Safety Compliance Certification Label or the Tire Label, which is located on the B-pillar or edge of the driver's door. If the information is not found on these labels, consult a Ford dealer. Use of any tire or wheel not recommended by Ford can affect the safety and performance of the vehicle, which could result in an increased risk of loss of vehicle control, vehicle rollover, personal injury and death. Additionally, the use of non-recommended tires and wheels could cause steering, suspension, axle or transfer case/power transfer unit failure.

Factory-installed tires and wheels are designed to operate satisfactorily with loads up to and including full-rated load capacity when inflated to recommended inflation pressures.

Correct tire pressure and driving techniques have an important influence on tire life. Heavy cornering, excessively rapid acceleration and unnecessary sharp braking increase tire wear.

To equalize tire wear, the tires should be rotated at recommended intervals.

Tire Rotation

For vehicles with different front and rear tire pressure (such as E-Series and certain F-Series), the tire pressures must be adjusted and the tire pressure sensors must be trained following a tire rotation. Refer to [Tire Pressure Monitoring System \(TPMS\) Sensor Training](#) in this section. Failure to train the sensors will result in a false low tire pressure event, which will cause the tire pressure monitoring system (TPMS) indicator to illuminate.

For vehicles with the same tire pressure for front and rear tires, tire rotation will not affect the system.

Safety Precautions

⚠ WARNING: Vehicle may have multiple drive wheels. Do not use engine to power the driveline unless all drive wheels are elevated off the ground. Drive wheels in contact with ground could cause unexpected vehicle movement. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Always match the tire size to the wheel size during assembly. Incorrect matching can result in tire bead damage or tire separation from the wheel. Failure to follow this instruction may result in serious personal injury to technician or vehicle occupant(s).

⚠ WARNING: Before servicing any tire, ask the customer if anyone injected a tire sealant into the tire. Tire sealants may be flammable and can burn or explode if exposed to an ignition source. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Replacement wheels must be equivalent to the original equipment wheels in:

- load carrying capacity.
- diameter, width and offset.
- pilot hole and bolt circle.

Combined load carrying capacity of replacement wheels for a given axle, must be equal to or greater than that axle's gross axle weight rating (GAWR) identified on the vehicle's Safety Compliance Certification label. All other specifications should be evaluated by measurement of both the original wheel and the replacement wheel. If specifications are not equivalent, the safety and handling of the vehicle may be degraded, which may result in serious injury to the vehicle occupant(s).

⚠ WARNING: Never use wheels different than the original equipment. Additionally, never use wheel nuts different than the original equipment. Failure to follow these instructions may result in damage to the wheel or mounting system. This damage could cause the wheel to come off while the vehicle is being driven, which could result in serious personal injury or death to vehicle occupant(s).

⚠ WARNING: Always wear eye protection when servicing a vehicle. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Keep eyes away from valve stem when deflating tires. Reduce air pressure in tire as much as possible by pushing in valve core plunger prior to removing the core. Escaping air can carry particles that can injure the eyes. Failure to follow these instructions may result in serious personal injury.

NOTICE: Do not clean aluminum wheels with steel wool, abrasive-type cleaners or strong detergents or damage to the wheel may occur. Use Wheel and Tire Cleaner ZC-37-A or -B or equivalent.

When carrying out any inspection or repair procedures on wheels and tires, follow the preceding safety precautions.

Tire Pressure Monitoring System (TPMS)

The tire pressure monitoring system (TPMS) includes:

- the vehicle security module (VSM), TPMS functionality is integrated within the VSM.
- four tire pressure sensors.
- four tire pressure sensor cradles.
- four tire pressure sensor straps.
- an instrument cluster indicator.
- a message center (if equipped).

Tire Pressure Monitoring System (TPMS) Module

The VSM contains the TPMS functionality. Refer to Tire Pressure Monitoring System in Diagnosis and Testing for TPMS fault diagnosis and repair.

The VSM compares the information of each tire pressure sensor transmission against a pressure limit. If the VSM determines that the tire pressure has fallen below the low limit, the VSM communicates this to the instrument cluster on the vehicle communication bus.

Tire Pressure Monitoring System (TPMS) Pressure Sensor

The VSM monitors the air pressure in the 4 road tires with tire pressure sensors. The sensors transmit radio frequency signals to the VSM approximately every 60 seconds when the vehicle speed exceeds 32 km/h (20 mph).

The tire pressure sensors are battery operated and are mounted to metal brackets (called cradles) on the wheels inside the tires. The sensors are mounted 180 degrees from the valve stem.

The tire pressure sensor can be serviced separately from the cradle and the strap.

Tire Pressure Monitoring System (TPMS) Pressure Sensor Cradle

The tire pressure sensor cradles are mounted to the wheels with metal straps and have an adhesive strip to aid in their retention to the wheel.

To service the sensor cradle, the strap must also be removed.

Tire Pressure Monitoring System (TPMS) Pressure Sensor Strap

The sensor strap is what keeps the sensor and the cradle retained to the wheel. A factory-installed strap is joined together with a one-time use buckle and a dealer-installed strap is joined together with a worm gear (similar to a radiator hose clamp). Both straps should be discarded after removal and should not be re-used.

The strap can be serviced separately from the sensor and the cradle. The sensor is available separately from the cradle and the strap. The cradle and strap are available as a strap kit. There are several different strap kits available based on wheel diameter, all strap kits share the same base part number.



Instrument Cluster and Message Center

The instrument cluster illuminates the TPMS indicator when it receives a message from the VSM to do so and displays the appropriate message(s) in the message center (if equipped).

The instrument cluster and message center are diagnosed and serviced in their own respective workshop manual sections.

Wheels And Tires

Special Tool(s)

 <small>ST2889-A</small>	Digital Tire Pressure Gauge 204-354
 <small>ST3056-A</small>	Hunter Road Force® Wheel Balancer GSP9700 Series

Inspection and Verification

⚠ WARNING: Vehicle may have multiple drive wheels. Do not use engine to power the driveline unless all drive wheels are elevated off the ground. Drive wheels in contact with ground could cause unexpected vehicle movement. Failure to follow this instruction may result in serious personal injury.

Verify the customer concern by carrying out a road test on a smooth road. If any vibrations are apparent, GO to Symptom Chart - NVH .

To maximize tire performance, inspect for signs of incorrect inflation and uneven wear, which may indicate a need for balancing, rotation or front suspension alignment.

Correct tire pressure and driving techniques have an important influence on tire life. Heavy cornering, excessively rapid acceleration and unnecessary sharp braking increase tire wear.

Replacement tires must follow the recommended:

- tire sizes.
- speed rating.
- load range.
- tire construction type.

The use of any other tire/wheel size, load range or type can seriously affect:

- ride.
- handling.
- speedometer/odometer calibration.
- vehicle ground clearance.
- tire clearance between the body and chassis.
- wheel bearing life.
- braking performance.

New wheels need to be installed when the vehicle wheels:

- are bent.
- are cracked.
- are dented.
- are heavily corroded.