Section 2 Chassis

General Specifications

Description	Degrees.	Radians
Front Toe Setting	0.0 ± 0.50	0.0 ± 0.009

Description	2 Passenger mm (in)	2 Passenger Wagon mm (in)	4 Passenger mm (in)
Track – Street tires	1274 (50.1)	1274 (50.1)	1274 (50.1)
Track – Turf tires	1234 (48.6)	1234 (48.6)	1234 (48.6)
Overall height	1720 (67.7)	1720 (67.7)	1720 (67.7)

Torque Specifications

Description	Nm	Lb-Ft	Lb-In
Accelerator Assembly Bolts	23-31	18-22	-
Master Cylinder Push Rod Jam Nut	8.5-11.5		76-101
Brake Drum Screws	1	-	8.9
Brake Fittings	13-17	10-12	
Brake Pedal Arm Pivot Bolt	10.6–14.4	7.8-10.6	-
Brake Pedal Pad Bolt	23-31	18-23	-
Ball Joint Nuts	59.5-80.5	43.8-59.3	-
Master Cylinder Reservoir Bolts	3.4-4.8	-	30.1-42.4

Description	Nm	Lb-Ft	Lb-In
Master Cylinder Reservoir Bracket/Header	9-12	-	80-106
Coil over Bolt – Lower	102-150	75-111	-
Coil over Nut – Upper	15-18 mm from top of stud.		
Front Hub Bolts	23-31	18-23	-
Front Lower Control Arm Bolts	102-150	75-111	-
Front Upper Control Arm Bolts	102-150	75-111	-
Halfshaft Nut	175-260	129-191	-
Master Cylinder Bolts	23-31	18-23	
Multifunction Switch Screw	2.5-3.7	-	22.1-32.7
Parking Brake Lever Bolts	23-31	18-23	-
Parking Brake Rear Cable Bracket Bolts	23-31	18-23	-
Parking Brake Cable Adjustment/Lever	30 mm	Exposed	Thread
Rear Hub Bolts	23-31	18-23	-
Steering Column and Bracket Bolts	23-31	18-22	-
Steering Column Shroud Screws	2.5-3.7	-	22.1-32.7
Steering Rack Bolt/Left Side	102-150	75-110	-
Steering Rack Bolt/Right Side	41-60	30-44	
Steering Shaft Pinch Bolt	20-30	15-22	-
Steering wheel bolt	40-55	30-40	
Tie down brackets	20-30	15-22	
Tie Rod Castle Nuts	16-34	11-25	-
Trailing Arm Bolts	124-128	91-94	-
Tie Rod End Jam Nut	49-54	37-40	-
Wheel Cylinder Bolts	12-14	8-10	-
Wheel Lug Nuts	100-134	74-98	-

Description and Operation

Wheel Alignment Angles

- Caster and camber correction requirements are factory-determined. Thoroughly inspect the suspension system to locate worn or damaged components that may have caused the setting to change.
- The vehicle toe setting affects tire wear and directional stability.
- Wander is the tendency of the vehicle to require frequent, random left and right steering wheel corrections to maintain a straight path down a level road.
- Shimmy, as observed by the driver, is large, consistent, rotational oscillations of the steering wheel resulting from large, side-to-side (lateral) tire/wheel movements.
- Poor returnability and sticky steering is used to describe the poor return of the steering wheel to center after a turn or the steering correction is completed.
- Drift/pull is a tugging sensation, felt by the hands on the steering wheel that must be overcome to keep the vehicle going straight. Drift describes what a vehicle with this condition does with hands off the steering wheel. A vehicle-related drift/pull, on a flat road, will cause a consistent deviation from the straight-ahead path and require constant steering input in the opposite direction to counteract the effect. Drift/pull may be induced by conditions external to the vehicle (i.e., wind, road camber).

Brakes

The hydraulic brake system consists of:

- Master cylinder
- Brake fluid reservoir
- Wheel cylinders
- Brake lines and hoses

The hydraulic brake system is divided into two separate circuits, front and rear. It is divided to help prevent complete brake failure if one part of either circuit is damaged.

Brake Fluid

WARNING!

BRAKE FLUID CONTAINS POLYGLYCOL ETHERS AND POLYGLYCOLS. AVOID CONTACT WITH EYES. WASH HANDS THOROUGHLY AFTER HANDLING. IF BRAKE FLUID CONTACTS EYES, FLUSH EYES WITH RUNNING WATER FOR 15 MINUTES. GET MEDICAL ATTENTION IF IRRITATION PERSISTS. IF TAKEN INTERNALLY, DRINK WATER AND INDUCE VOMITING. GET MEDICAL ATTENTION IMMEDIATELY.

CAUTION:

When adding brake fluid to the brake reservoir, avoid spilling fluid onto the vehicle's plastic panels, including the instrument panel. If brake fluid is spilled on any surface, wash it immediately with soap and water to prevent cracking, discoloration, or other damage.

- Clean, fresh Motorcraft High Performance DOT 3 Motor Vehicle Brake Fluid C6AZ-19542-AB or equivalent DOT 3 fluid meeting Ford specification ESA-M6C25-A is the only brake fluid that should be used in motor vehicles.
- Do not reuse brake fluid drained or bled from the system.
- Do not use brake fluid that has been stored in an open container.
- Do not use contaminated brake fluid.
- Do not mix different types of brake fluid.

Master Cylinder and Master Cylinder Reservoir

The master cylinder reservoir is equipped with a fluid level sensor to detect low brake fluid level. The fluid level sensor will provide a ground path to illuminate the brake warning icon.

Brake Tubes and Hoses

CAUTION:

Never use copper tubing, it is subject to fatigue, cracking and corrosion, which could result in brake tube failure.

All brake tube fittings must be properly flared (90° bubble flare for master cylinder and wheel cylinder, 45° double flare per SAE J533B for all other connections) to provide strong leak proof connections. When bending tubing to fit the underbody contours, be careful not to kink or crack the tube.

If a section of brake tube is damaged, the entire section must be replaced with a tube of the same type, size, shape and length.

When replacing hydraulic brake tubing, hoses, or connectors, tighten all connections securely. After replacement, bleed the brake system.

Parking Brake

The vehicle is equipped with a cable operated parking brake system. The parking brake is designed to prevent vehicle roll away if stopped on an incline and the foot operated brakes are not engaged. The parking brake system incorporates a warning signal. If the vehicle is stopped and the key switch turned off, the signal will remind the operator for ten seconds to set the parking brake.

Diagnosis and Testing

Ball Joint Inspection

1. Raise and support the vehicle. Refer to Lifting in the General Information section.

2. Prior to performing any inspection of the ball joints, inspect the front wheel bearings. Refer to Wheel Bearings in this section.

3. Position a safety stand beneath the front axle to be tested.

4. While an assistant pulls and pushes the bottom of the tire, observe the relative movement between the lower control arm and the steering knuckle. Any movement indicates a worn or damaged lower ball joint. Replace lower control arm Refer to Lower Control Arm in this section.

5. While an assistant pulls and pushes the top of the tire, observe the relative movement between the upper control arm and the steering knuckle. Movement at or exceeding the specification indicates a worn or damaged upper ball joint. Replace the upper control arm. Refer to Upper Control Arm in this section.

Wheel Bearing Inspection

1. Raise and support the vehicle until the tire is off the floor. Refer to Lifting in the General Information section.

Note:

Make sure the wheel rotates freely and the brake shoes are retracted sufficiently to allow movement of the tire and wheel assembly.

2. Grasp each front tire at the top and bottom and move the wheel inward and outward while lifting the weight of the tire off the front wheel bearing.

3. If the tire and wheel (hub) is loose on the steering knuckle or does not rotate freely, replace the front wheel bearing.

Master Cylinder

1. Disconnect the brake lines at the master cylinder.

2. Plug the outlet ports of the master cylinder.

3. Apply the brakes. If brake pedal height cannot be maintained, the master cylinder has an internal leak and must be rebuilt or a new one installed.

Compensator Port Check

The purpose of the compensator ports in the master cylinder is to supply any additional brake fluid required by the system due to brake pad wear, and to allow brake fluid returning from the brake lines to the master cylinder to enter the master cylinder reservoir.

The returning brake fluid will cause a slight turbulence in the master cylinder reservoir. Turbulence seen in the master cylinder reservoir upon release of the brake pedal is normal and shows that the compensating ports are not plugged.

Brake Drag Check

Vehicles built before 12/14/01 may exhibit brake drag. Verify the condition as follows:

1. Raise and support the vehicle. Refer to Lifting in the General information section.

2. Spin the wheels to verify they rotate freely. Refer to Brake Pushrod Adjustment if the wheels do not rotate freely.

Bleeding Brake System

Manual Bleeding

WARNING!

USE OF ANY BRAKE FLUID OTHER THAN APPROVED DOT 3 WILL CAUSE PERMANENT DAMAGE TO BRAKE COMPONENTS AND WILL RENDER THE BRAKES INOPERATIVE.

WARNING!

BRAKE FLUID CONTAINS POLYGLYCOL ETHERS AND POLYGLYCOLS. AVOID CONTACT WITH EYES. WASH HANDS THOROUGHLY AFTER HANDLING. IF BRAKE FLUID CONTACTS EYES, FLUSH EYES WITH RUNNING WATER FOR 15 MINUTES. GET MEDICAL ATTENTION IF IRRITATION PERSISTS. IF TAKEN INTERNALLY, DRINK WATER AND INDUCE VOMITING. GET MEDICAL ATTENTION IMMEDIATELY.

CAUTION:

Do not allow the master cylinder reservoir to run dry during the bleeding operation. Keep the master cylinder reservoir filled with the specified brake fluid. Never reuse the brake fluid that has been drained from the hydraulic system.

CAUTION:

Brake fluid is harmful to painted and plastic surfaces. If brake fluid is spilled onto a painted or plastic surface, immediately wash it with water.

Note:

When any part of the hydraulic system has been disconnected for repair or installation of new components, air can get into the system and cause spongy brake pedal action. This requires bleeding of the hydraulic system after it has been correctly connected. The hydraulic system can be bled manually or with pressure bleeding equipment.

1. Clean all dirt from and remove the master cylinder reservoir cap and fill the master cylinder reservoir with the specified brake fluid.

2. Place a box end wrench on the right rear bleeder screw. Attach a rubber drain tube to the right rear bleeder screw and submerge the free end of the tube in a container partially filled with clean brake fluid.

3. Have an assistant hold firm pressure on the brake pedal.

4. Loosen the right rear bleeder screw until a stream of brake fluid comes out. While the assistant maintains pressure on the brake pedal, tighten the right rear bleeder screw.

5. Repeat until clear, bubble-free fluid comes out.

6. Fill the master cylinder reservoir as necessary.

7. Tighten the right rear bleeder screw.

8. Repeat steps **3, 4, 5**, **6** and **7** for the left rear bleeder screw.

9. Place a box end wrench on the right front brake wheel cylinder bleeder screw. Attach a rubber drain tube to the right front brake wheel cylinder bleeder screw, and submerge the free end of the tube in a container partially filled with clean brake fluid.

10. Have an assistant hold firm pressure on the brake pedal.

11. Loosen the right front cylinder bleeder screw until a stream of brake fluid comes out. While the assistant maintains pressure on the brake pedal, tighten the right front wheel cylinder brake wheel cylinder bleeder screw.

12. Repeat until clear, bubble-free fluid flows.

13. Fill the master cylinder reservoir as necessary.

14. Tighten the right front wheel cylinder bleeder screw.

15. Repeat steps **10**, **11, 12, 13** and **14** for the left front wheel cylinder brake bleeder screw.

Pressure Bleeding

WARNING!

USE OF ANY BRAKE FLUID OTHER THAN APPROVED DOT 3 WILL CAUSE PERMANENT DAMAGE TO BRAKE COMPONENTS AND WILL RENDER THE BRAKES INOPERATIVE.

WARNING!

BRAKE FLUID CONTAINS POLYGLYCOL ETHERS AND POLYGLYCOLS. AVOID CONTACT WITH EYES. WASH HANDS THOROUGHLY AFTER HANDLING. IF BRAKE FLUID CONTACTS EYES, FLUSH EYES WITH RUNNING WATER FOR 15 MINUTES. GET MEDICAL ATTENTION IF IRRITATION PERSISTS. IF TAKEN INTERNALLY, DRINK WATER AND INDUCE VOMITING. GET MEDICAL ATTENTION IMMEDIATELY.

CAUTION:

Do not allow the master cylinder reservoir to run dry during the bleeding operation. Keep the master cylinder reservoir filled with the specified brake fluid. Never reuse the brake fluid that has been drained from the hydraulic system.

CAUTION:

Brake fluid is harmful to painted and plastic surfaces. If brake fluid is spilled onto a painted or plastic surface, immediately wash it with water.

Note:

When any part of the hydraulic system has been disconnected for repair or installation of new components, air can get into the system and cause spongy brake pedal action. This requires bleeding of the hydraulic system after it has been correctly connected. The hydraulic system can be bled manually or with pressure bleeding equipment.

1. Clean all dirt from and remove the master cylinder filler cap and fill the master cylinder reservoir with the specified brake fluid

Note:

Master cylinder pressure bleeder adapter tools are available from various manufacturers of pressure bleeding equipment. Follow the instructions of the manufacturer when installing the adapter.

2. Install the bleeder adapter to the master cylinder reservoir, and attach the bleeder tank hose to the fitting on the adapter.

Note:

Bleed the longest line first. Make sure the bleeder tank contains enough specified brake fluid to complete the bleeding operation.

3. Place a box end wrench on the right rear bleeder screw. Attach a rubber drain tube to the right rear bleeder screw, and submerge the free end of the tube in a container partially filled with clean brake fluid.

4. Open the valve on the bleeder tank.

5. Loosen the right rear bleeder screw. Leave open until clear, bubble-free brake fluid flows, then tighten the right rear bleeder screw and remove the rubber hose.

6. Continue bleeding the rear of the system, going in order from the left rear bleeder screw to the right front wheel cylinder brake bleeder screw, ending with the left front wheel cylinder brake bleeder screw.

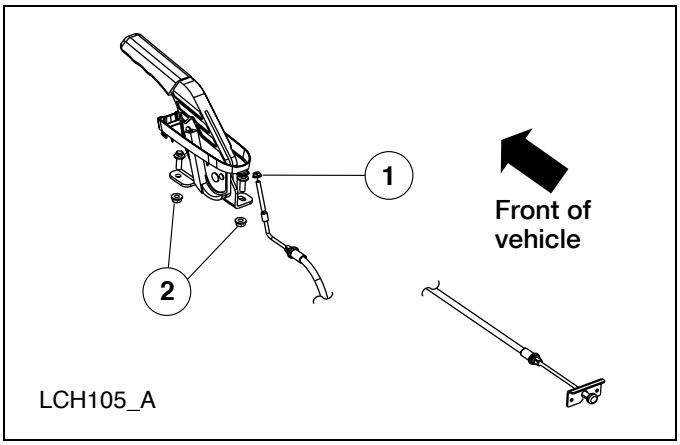
7. Close the bleeder tank valve. Remove the tank hose from the adapter, and remove the adapter.

Removal and Installation

Parking Brake Lever

Removal

1. Remove the seat stanchion cover. Refer to Seat Stanchion Cover in the Body section.
2. Remove the two parking brake lever bolts (2) and the parking brake lever.
3. Disconnect the warning lamp switch connector
4. Disconnect the primary parking brake cable (1).



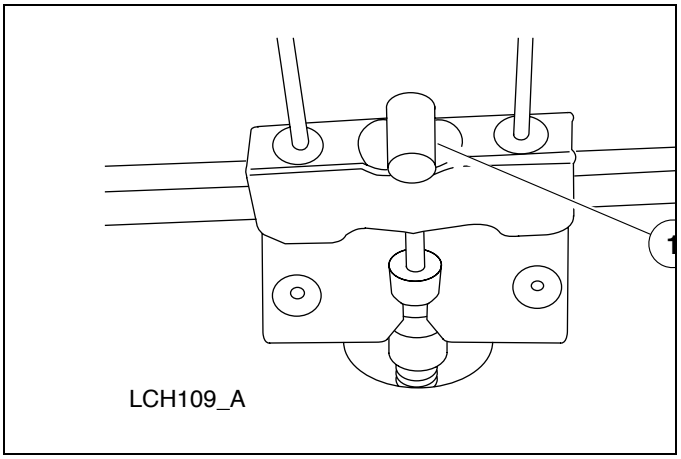
Installation

1. Reverse the removal procedure.
2. Tighten the parking brake lever bolts to 23-31N.m. (18-23lb-ft.).
3. Tighten the cable nut until the cable is fully seated in the cable housing and 30mm (1.1in) of thread is exposed.

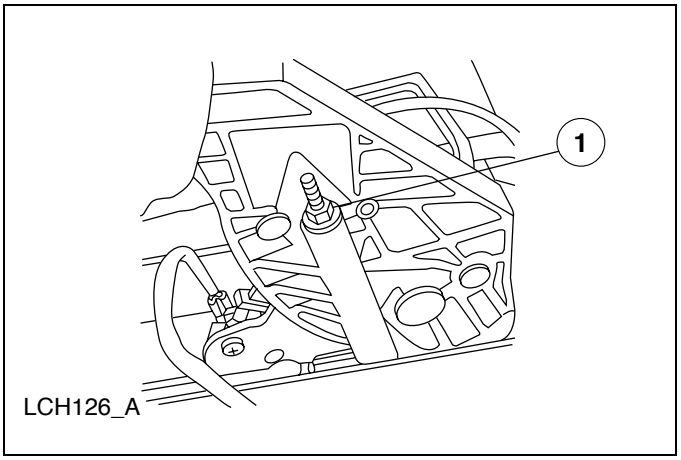
Parking Brake Cables - Primary, Front Cable

Removal

1. Remove the seat stanchion cover. Refer to Seat Stanchion Cover in the Body section.
2. Raise and support the vehicle. Refer to Lifting in the General Information section.
3. Disconnect the primary parking brake cable (1) from the rear cable bracket.



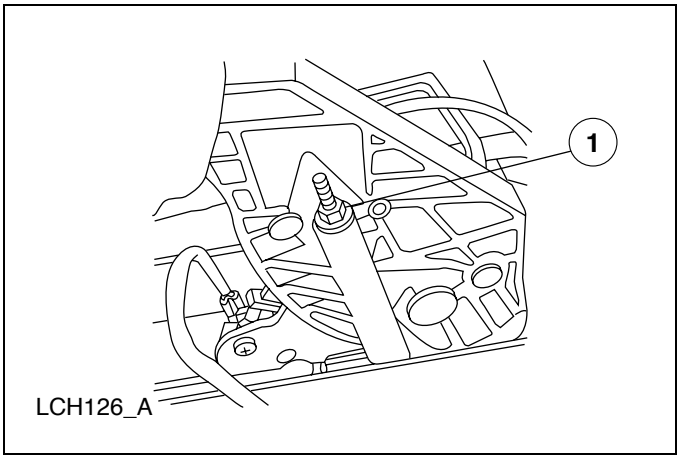
4. Remove the anchor nut from the cable end.



5. Remove the primary parking brake cable from the vehicle.

Installation

1. Install the front end of the cable through the floor, into the lever mounting bracket.
2. Connect the primary parking brake cable to the rear cable bracket.
3. Lower the vehicle.
4. Position the cable through the cable anchor nut and bracket.
5. Connect the cable to the anchor and tighten the nut until the exposed thread length is 30 mm.

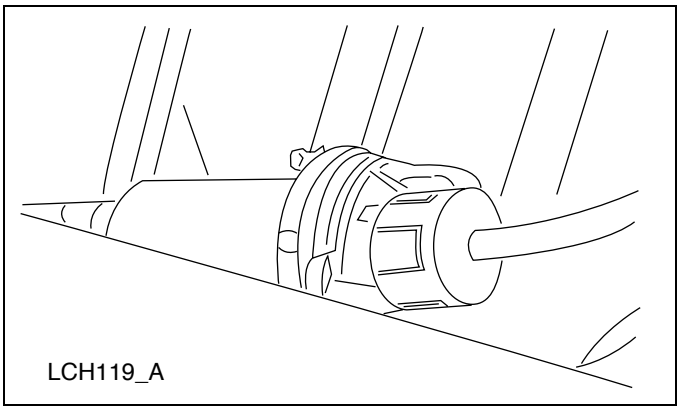


6. Install the dust boot.
7. Install the seat stanchion cover.

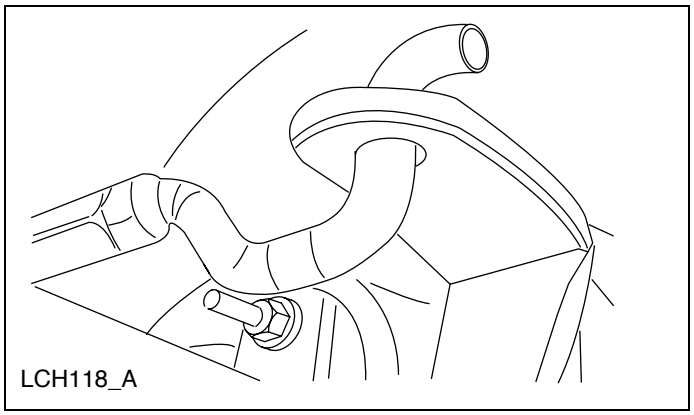
Rear Parking Brake Cable

Removal

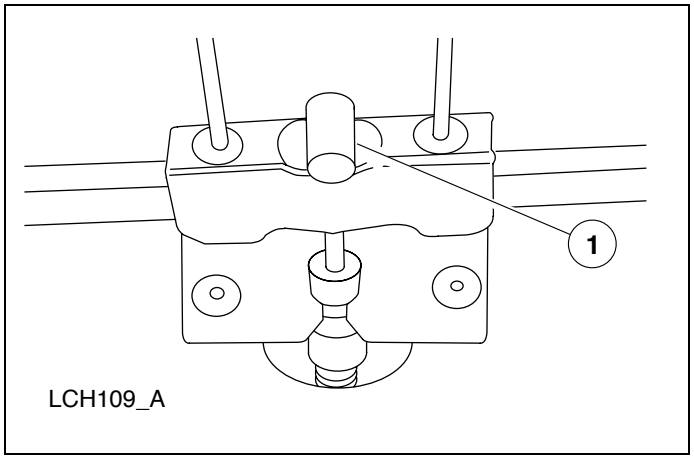
1. Raise and support the vehicle. Refer to Lifting in the General Information section.



2. Loosen primary cable adjustment nut to reduce system tension.
3. Disconnect the cables from the rear brake cable bracket.



4. Remove the cable from the rear actuator on the rear wheel.



5. Disconnect the primary cable (1).
6. Remove the secondary parking brake cables from the vehicle.

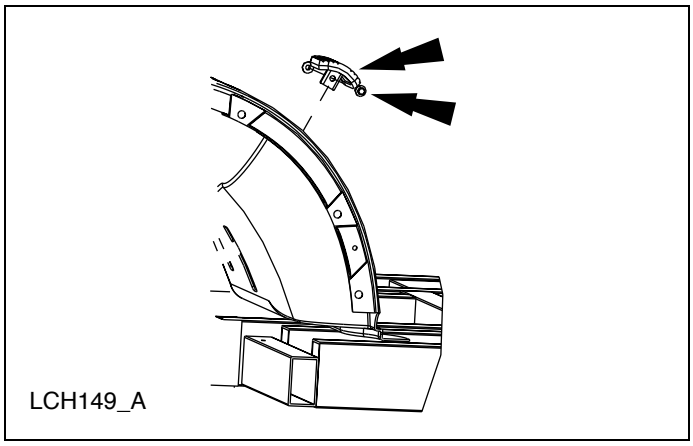
Installation

1. Reverse the removal procedure.

Brake Pedal Arm and Pad

Removal

1. Remove the pedal pad nut and bolt. Remove the pad.

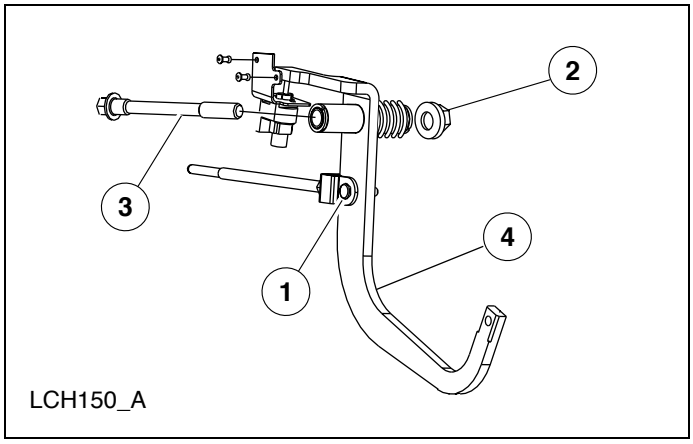


2. Raise and support the vehicle. Refer to Lifting in the General information section.

Note:

The system has a brake pedal arm return spring. The brake arm may spring up if the floor has been removed from the vehicle.

3. Remove the master cylinder push rod clevis pin and cotter pin (1).



4. Remove the brake on/off switch from the bracket.

CAUTION:

Switch will be over plunged if not removed.

5. Remove the brake pedal arm pivot bolt (2) and nut (3).

6. Remove the brake pedal arm (4).

Installation

WARNING!

Make sure the master cylinder push rod jam nut is tightened to 8.5 – 11.5N.m (76-101lb-in). The master cylinder push rod jam nut could loosen resulting in an accident or personal injury.

WARNING!

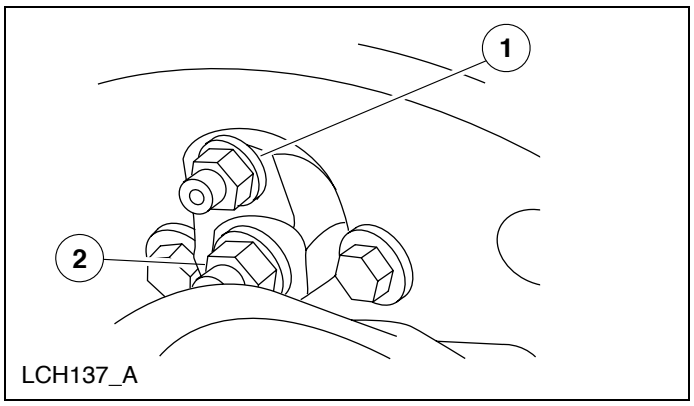
Make sure the cotter pin is properly installed through the master cylinder push rod clevis pin. If the cotter pin is not installed the clevis pin could fallout resulting in an accident or personal injury.

1. Reverse the removal procedure.
2. Tighten the brake pedal arm pivot bolt to 10.6-14.4N.m. (7.8-10.6lb-ft.).
3. Tighten the brake pedal pad bolt to 23-31N.m. (18-23lb-ft.).
4. Tighten the master cylinder push rod jam nut to 8.5 – 11.5N.m (76-101lb-in).

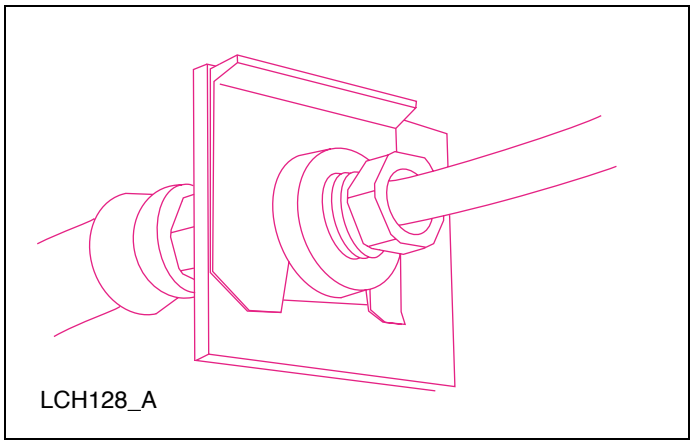
Brake Lines

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Open the brake bleeder (1) on the wheel for the brake line that is being replaced.



3. Disconnect the brake line (2) on the brake wheel cylinder.



4. Disconnect the brake line at the brake tube (3).
5. Remove the brake line retainer and the brake line.

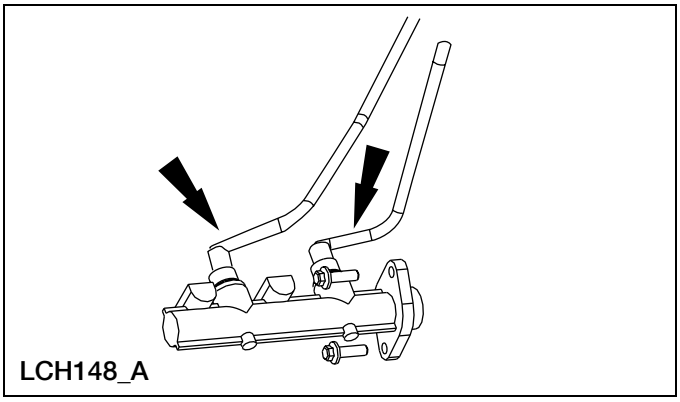
Installation

1. Reverse the removal procedure.
2. Bleed the brake system. Refer to Bleeding Brake System in this section.

Master Cylinder Reservoir

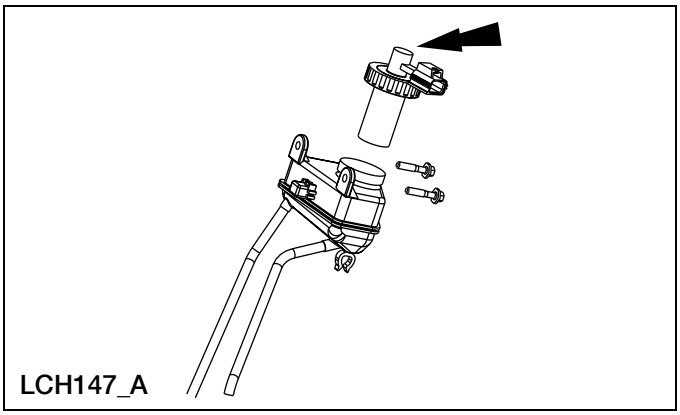
Removal

1. Position a drain pan under the vehicle.
2. Unlock and remove the hood.
3. Disconnect the two brake fluid lines from the master cylinder.

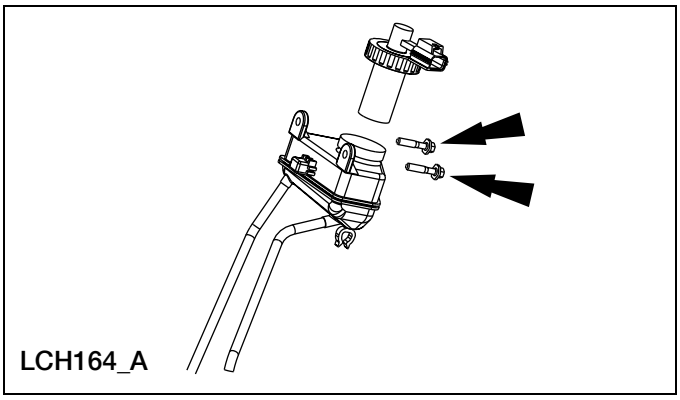


4. Remove the scrivet and the cowl tray panel.

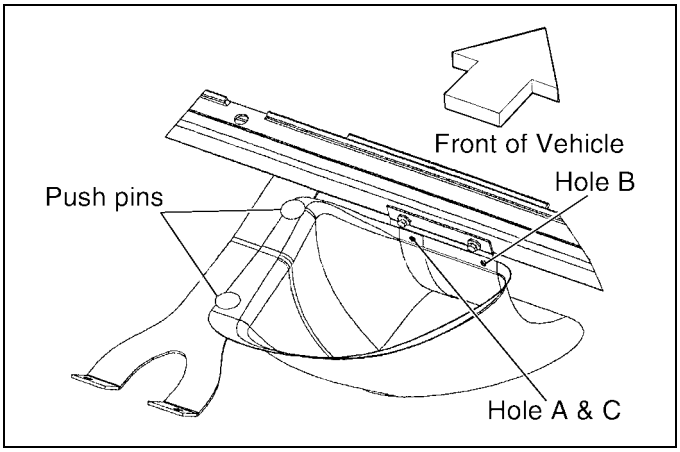
5. Remove the master cylinder reservoir filler cap.



6. Remove the two master cylinder brake fluid reservoir bolts, spacer and the master cylinder brake fluid reservoir.

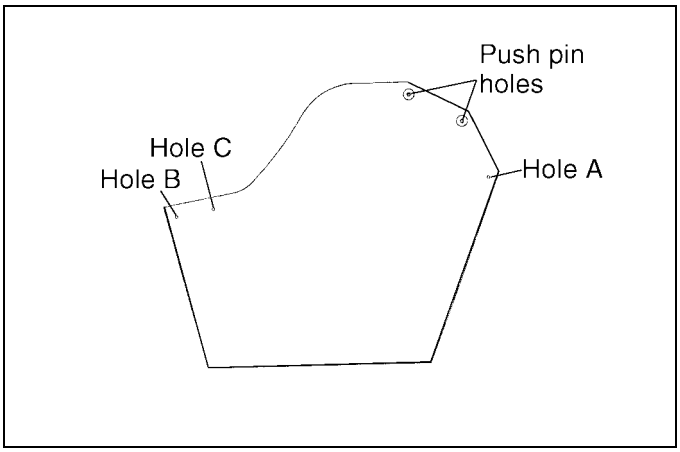


7. If necessary, remove the two pushpins and the brake fluid shield.



Installation

1. Reverse the removal procedure.
2. Align holes A and C while installing the master cylinder reservoir and bolts.

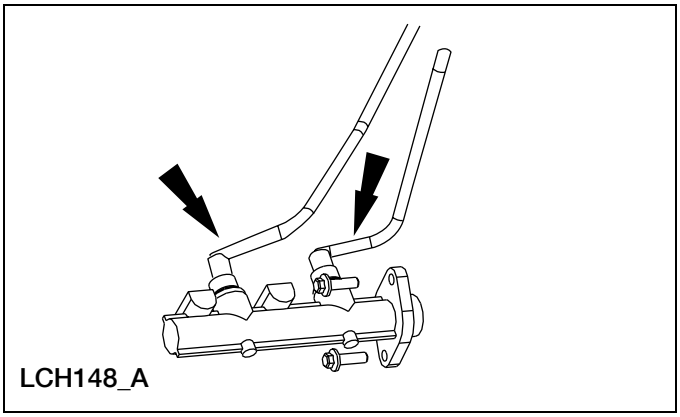


3. Tighten the master cylinder reservoir bolts to 3.4-4.8 N.m. (30.1-42.4 lb-in.).
4. Fill and bleed the master cylinder. Refer to Bleeding Brake System in this section.
5. Recheck the brake fluid level.

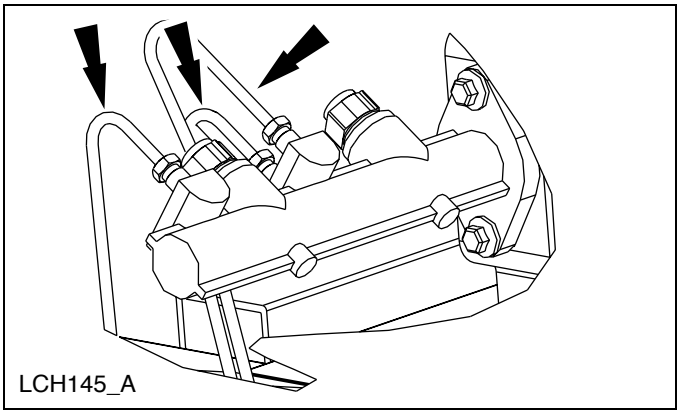
Master Cylinder

Removal

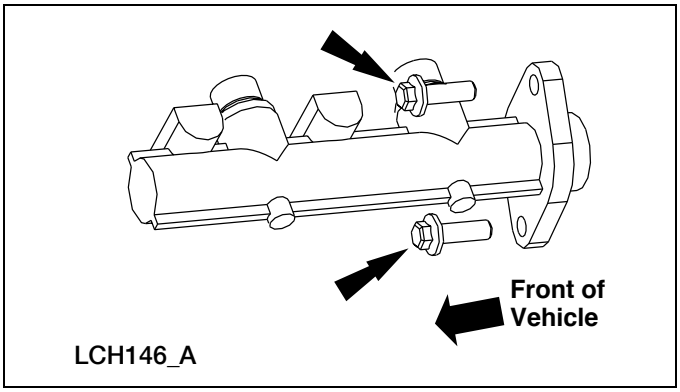
1. Position a drain pan under the vehicle.
2. Unlock and remove the hood.
3. Disconnect the two brake fluid lines from the master cylinder.



4. Disconnect the three brake lines from the master cylinder.



5. Remove the two master cylinder bolts and the master cylinder.



Installation

WARNING!

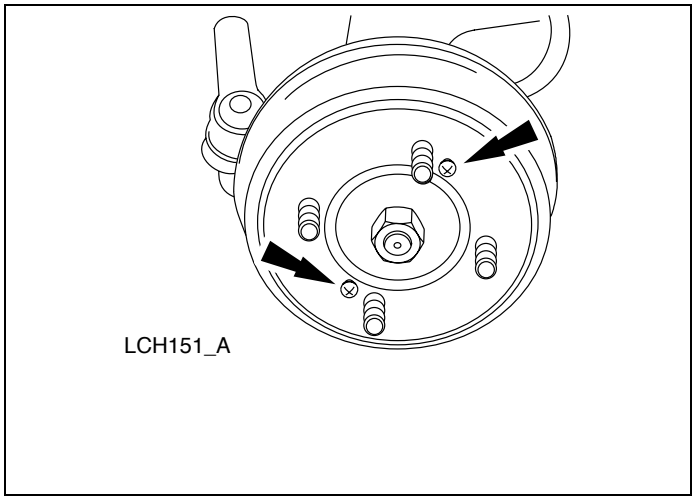
Make sure to torque the brake actuator rod jam nut to 8.5 – 11.5N.m (76-101lb-in). The brake actuator rod jam nut could loosen resulting in an accident or personal injury.

1. Reverse the removal procedure.
2. Tighten the master cylinder bolts to 23-31N.m. (18-23lb-ft.).
3. Fill the brake fluid reservoir.
4. Bleed the master cylinder. Refer to Bleeding Brake System in this section.
5. Recheck the brake fluid level.

Front/Rear Brake Drum

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Remove the brake hub screws from the brake drum.

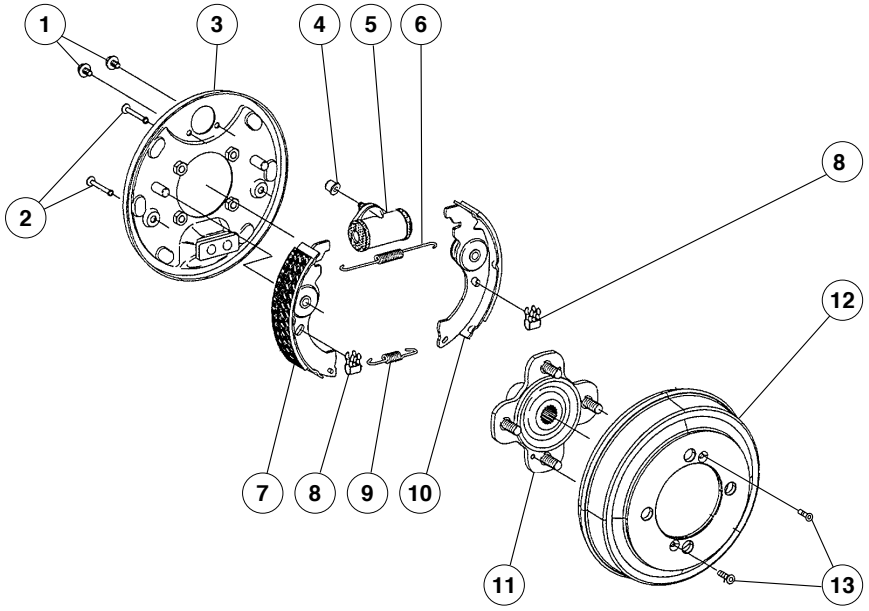


4. Remove the brake drum from the hub.

Installation

1. Reverse the removal procedure.
2. Tighten the brake hub screws to 1 N.m. (8.8lb-in.).
3. Check the brake adjustment.

Front Brake Shoes and Hardware



LCH157_A

Item	Part Number	Description
1	9922	Screw M6 X 40
2	-	Spring Pin
3	-	Shoe Holder Plate
4	-	Boot
5	2C-537	Hydraulic Cylinder
6	2A-225	Upper Return Spring
7	2007	Left Brake Shoe
8	-	Shoe Locking Spring
9	2A-225	Lower Return Spring
10	2007	Right Brake Shoe
11	-	Flange
12	1126	Front Brake Drum
13	-	Screw M5 X 12

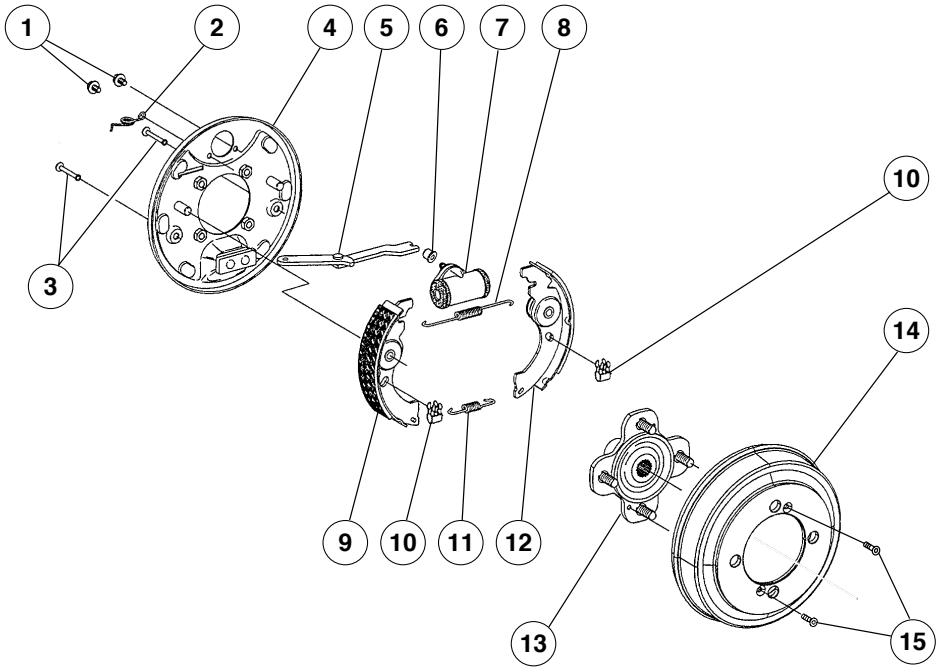
Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the front wheel and tire assembly.
3. Remove the front brake drum screws (13) and the brake drum (12).
4. Remove the upper return spring (6).
5. Remove the shoe locking springs (8).
6. Remove the spring pins (2).
7. Remove the brake shoes (7) and (10).

Installation

1. Install the spring pins (2).
2. Install the lower return spring (9) between the two brake shoes.
3. Install the brake shoes (7) and (10) on the spring pins (2).
4. Install the shoe locking springs (8).
5. Install the upper return spring (6).
6. Install the brake drum (12) and screws (13).
7. Tighten the brake drum screws to 1 N.m. (8.8lb-in.).
8. Install the wheel and tire assembly. Tighten the wheel lug nuts to 110-124N.m. (81-91lb-ft.).
9. Lower the vehicle.
10. Test the brake pedal for hardness.
11. Check and fill the master cylinder reservoir if necessary.

Rear Brake Shoes and Hardware



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Item	Part Number	Description
1	9922	Screw M6 X 40
2	-	Left Hand Brake Lever Spring
3	-	Spring Pin
4	-	Shoe Holder Plate
5	-	Brake Hand Lever
6	-	Boot
7	-	Hydraulic Cylinder
8	2A-225	Upper Return Spring
9	2007	Left Brake Shoe
10	-	Shoe Locking Springs
11	2A-225	Lower Return Spring
12	2007	Right Brake Shoe

13	-	Flange
14	1126	Brake Drum
15	-	Screw M5 X 12

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Remove the two brake drum screws (15) and the brake drum (14).
4. Remove the upper return spring (8).
5. Remove the rear brake lever spring (2).
6. Remove the lower return spring (11).
7. Remove the shoe locking springs (10).
8. Remove the brake shoes (9) (12).

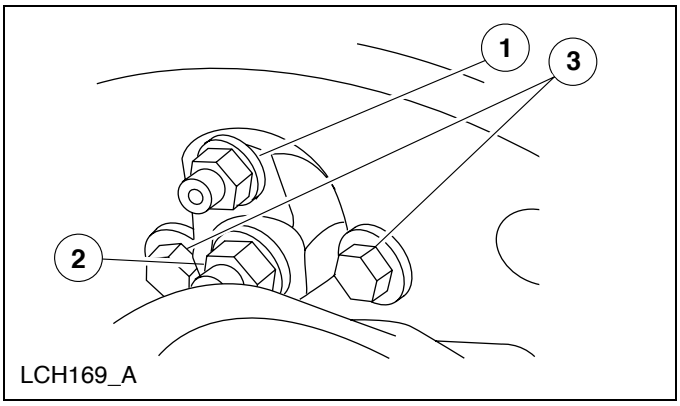
Installation

1. Reverse the removal procedure.
2. Tighten the brake drum screws to 1 N.m. (8.9lb-in.).
3. Tighten the wheel lug nuts to 100-134 N.m. (74-98lb-ft.).

Wheel Cylinder

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Loosen the bleeder screw (1) to relieve fluid pressure.



4. Remove the brake shoes. Refer to Brake Shoes and Hardware in this section.
5. Loosen the brake line flange nut and disconnect the brake line (2) from the wheel cylinder.
6. Remove the wheel cylinder bolts (3) and the wheel cylinder from the backing plate.

Installation

1. Reverse the removal procedure.
2. Tighten the wheel cylinder bolts to 12-14N.m (8-10lb-ft.).
3. Tighten the wheel lug nuts to 100-134N.m. (74-98lb-ft.).
4. Fill the master cylinder reservoir and bleed the brake system. Refer to Bleeding Brake System in this section.

Coil Over Assembly

Removal

Note:

On rear coil over shock removal, the rear-trailing arm must be supported. If allowed to fall, damage to halfshaft could occur.

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Support the lower control arm spring weight on a jack stand.
3. Remove the coil over upper nut, washer and grommet (1) from the coil over assembly.

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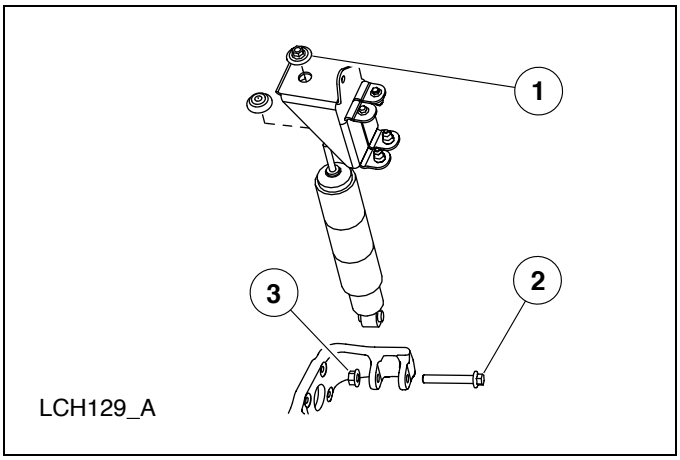
4. Remove the coil over nut (3) and bolt (2) from the coil over assembly lower mount.



5. Lower the jack stand.
6. Remove the coil over assembly.

Installation

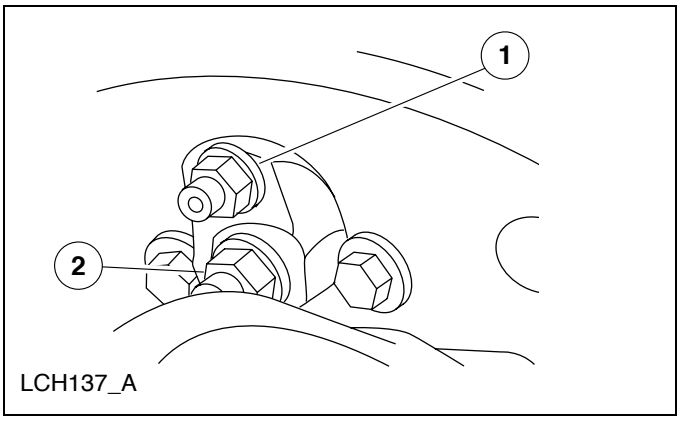
1. Reverse the removal procedure.
2. Install the coil over assembly with the painted alignment mark facing out.
3. Tighten the upper coil over nut to 15-18mm from top of stud.
4. Tighten the lower coil over bolt to 102-150N.m. (75-111lb-ft.).
5. Remove the jack stand.
6. Lower the vehicle.

Upper Control Arm

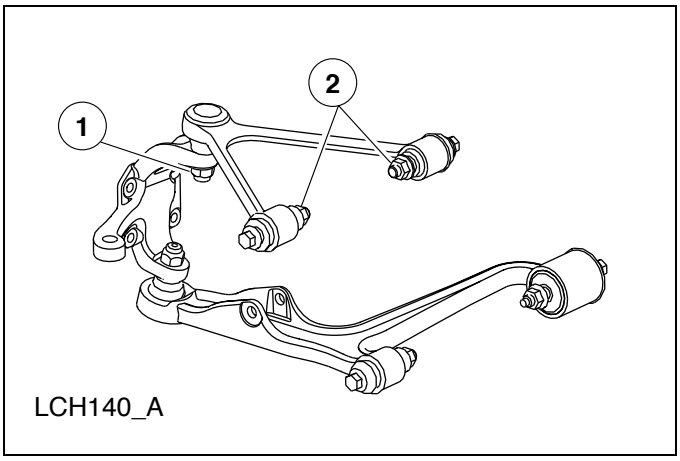
Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Drill out the four rivets and remove the inner fender shield.

4. Open the brake bleeder screw (1) to relieve fluid pressure.



5. Disconnect the wheel cylinder brake hose (2) and position it aside.
6. Support the lower control arm.
7. Separate the front steering knuckle from the upper ball joint (1).



8. Remove the upper control arm nuts and bolts (2) and remove the upper control arm.

Installation

1. Reverse the removal procedure.
2. Install the inner fender shield.

Note:

Tighten all fasteners in full rebound condition.

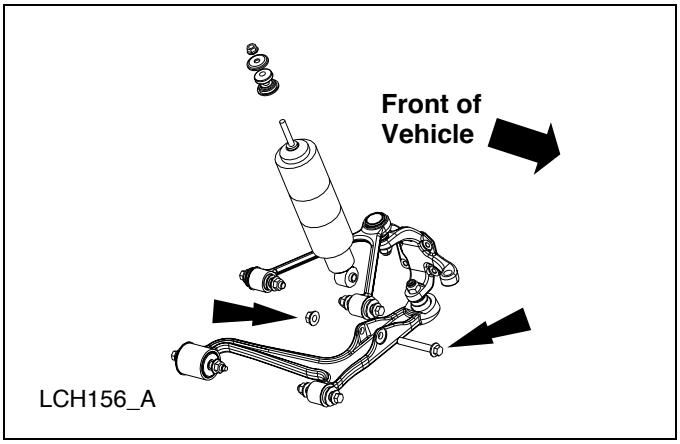
3. Tighten the ball joint nut to 59.5-80.5N.m. (43.8-59.3lb-ft.).
4. Tighten the control arm bolts to 102-150N.m. (75-111lb-ft.).

5. Tighten the wheel lug nuts to 100-134N.m. (74-98lb-ft.).
6. Adjust the toe equally for clear vision.

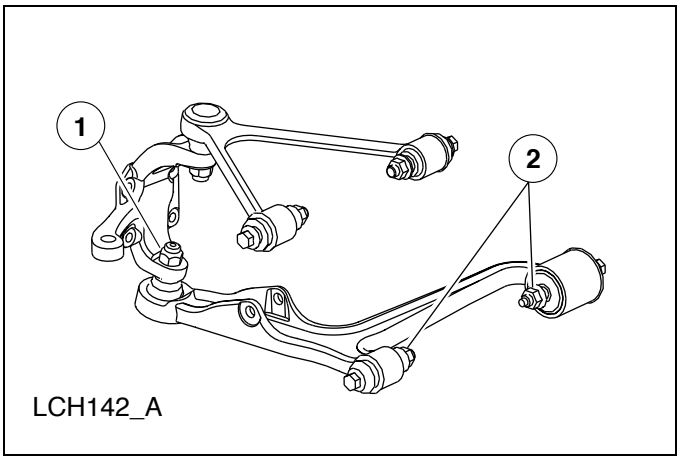
Lower Control Arm

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Support the lower control arm with a jack stand.
4. Remove the lower coil over shock bolt and nut.



5. Remove the lower ball joint nut and separate the lower ball joint (1).



6. Remove the lower control arm nuts and bolts (2) and spacers.
7. Reposition and support the upper control arm and brake drum assembly.
8. Remove the lower control arm.

Installation

1. Reverse the removal procedure.

Note:

Tighten all fasteners in full rebound condition.

2. Tighten the control arm bolts front then rear.
3. Tighten the control arm bolts to 102-150 N.m (75-111 lb.ft).
4. Tighten the lower coil over bolt to 102-150 N.m. (75-111lb-ft).
5. Tighten the ball joint nut to 59.5-80.5 N.m. (43.8-59.3lb-ft).
6. Tighten the wheel lug nuts to 100-134N.m. (74-98lb-ft.).
7. Adjust the toe equally for clear vision.

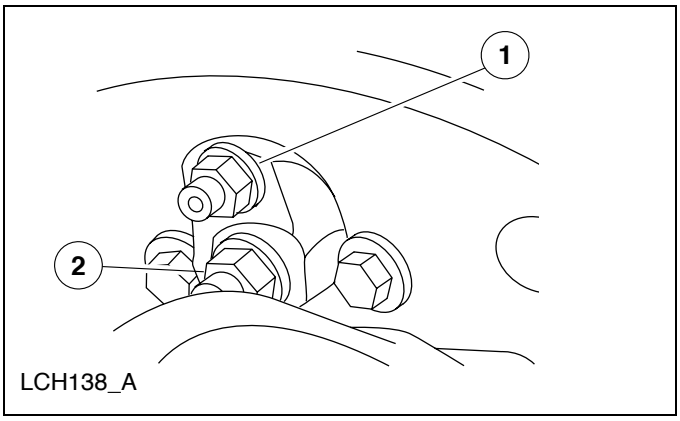
Rear Trailing Arm

Removal

Note:

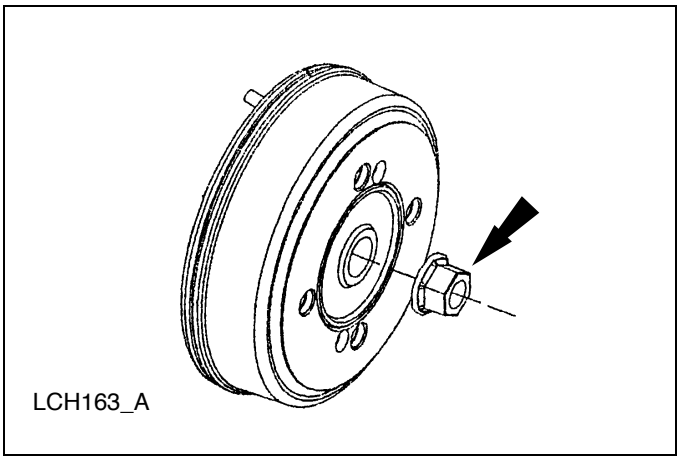
The rear-trailing arm must be supported. If allowed to fall, damage to the halfshaft could occur.

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Open the wheel cylinder bleeder screw (1) to relieve fluid pressure

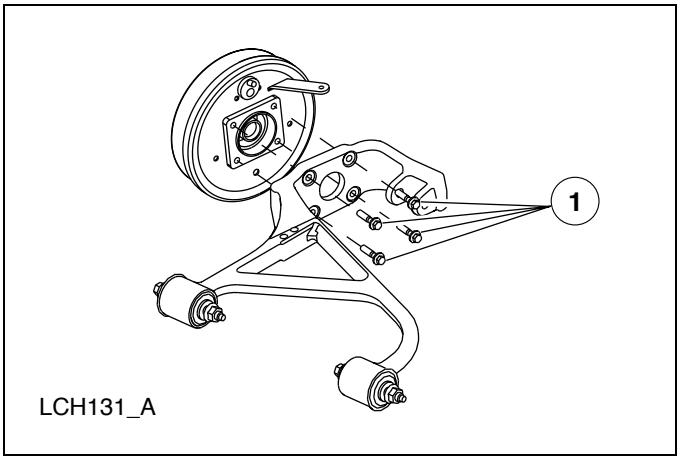


4. Disconnect the rear wheel cylinder brake line (2).

5. Remove the halfshaft nut.

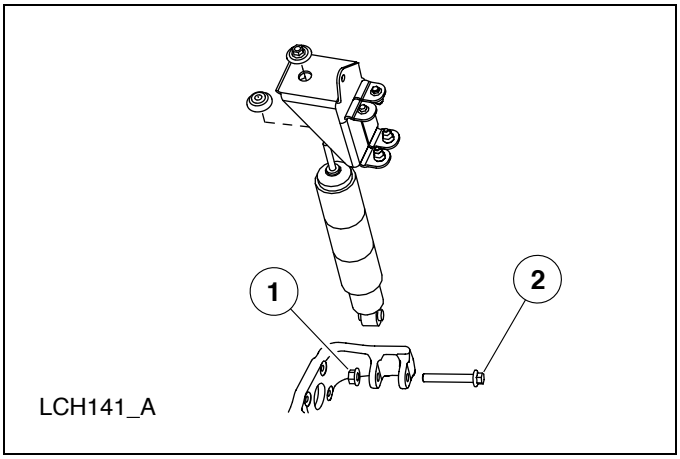


6. Remove the four rear hub bolts (1).



7. Support the hub assembly.

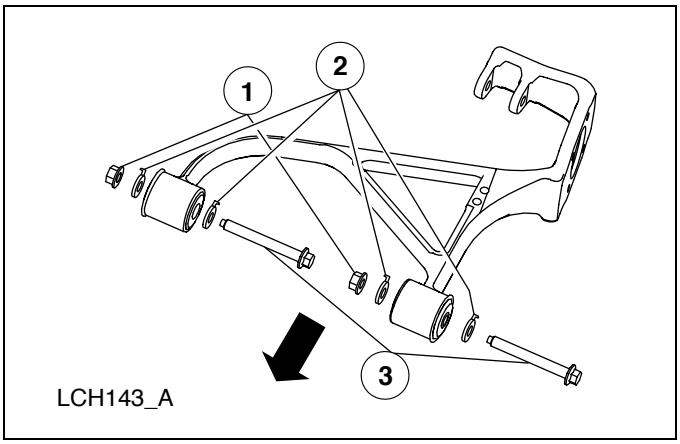
8. Remove the lower coil over shock nut (1) and bolt (2).



Note:

The rear-trailing arm must be supported. If allowed to fall, damage to the halfshaft could occur.

9. Remove the two trailing arm nuts (1), the four washers (2), and the two bolts (3).



10. Remove the rear-trailing arm off of the halfshaft and from the vehicle.

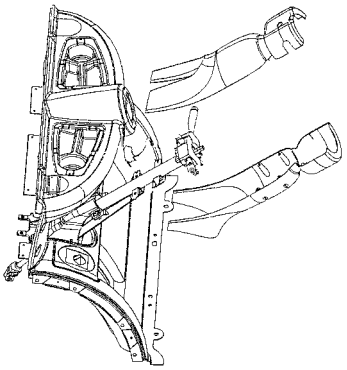
Installation

1. Reverse the removal procedure.
2. Tighten the lower coil over bolt to 102-150N.m. (75-111lb-ft.).
3. Tighten the trailing arm bolts to 124-128N.m. (91-94lb-ft.).
4. Tighten the halfshaft nut to 175-260N.m (129-191lb-ft.)
5. Tighten the wheel lug nuts to 100-134N.m. (74-98lb-ft.).
6. Bleed the brake system. Refer to Bleeding Brake System in this section.

Steering Column

Removal

1. Remove the four steering column shroud screws, the two pushpins and the steering column shrouds.



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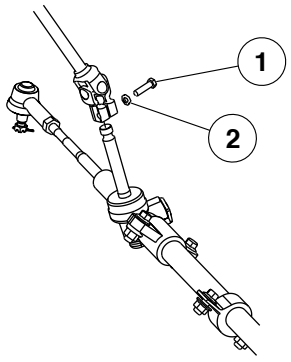
2. Remove the steering wheel cover, steering wheel bolt and the steering wheel.

3. Disconnect the two multifunction switch connectors.

4. Remove the intermediate shaft pinch bolt (1) and washer (2) at the steering rack input shaft.



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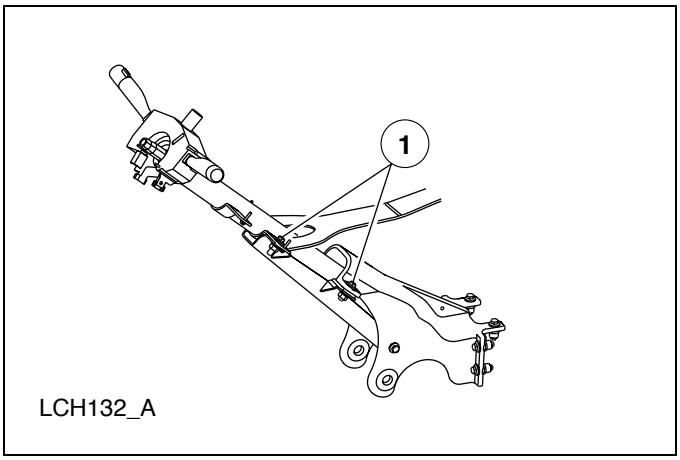
5. Remove the four steering column nuts and bolts (1). There are two on each side.



6. Remove the steering column from the vehicle.
7. Transfer the multifunction switch if necessary.

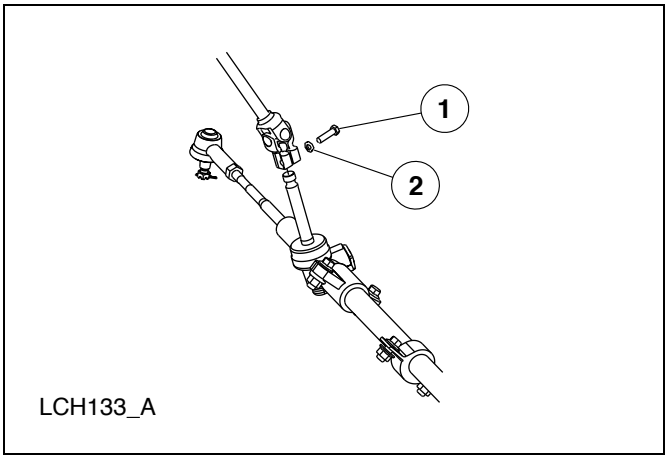
Installation

1. Reverse the removal procedure.
2. Tighten the steering column bolts to 23-31N.m. (18-22lb-ft.).
3. Tighten the intermediate shaft pinch bolt to 20-30N.m. (15-22lb-ft.).
4. Tighten the multifunction switch screw to 2.5-3.7N.m (22.1-32.7lb-in.).
5. Tighten the steering wheel bolt to 40-55Nm (30-40lb-ft.).
6. Adjust the steering wheel for clear vision.

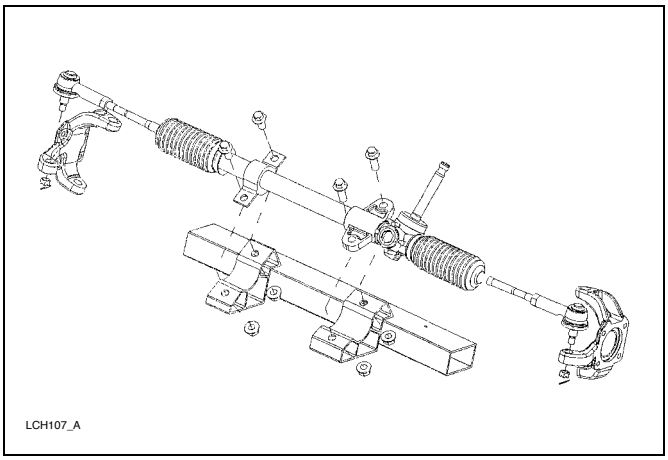
Steering Rack

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Disconnect the tie rod ends from the steering knuckle.
3. Remove the intermediate shaft pinch bolt (1) and washer (2).



4. Remove the steering rack nuts and bolts.



5. Slide the steering rack out from the driver side of the vehicle
6. If necessary, remove the tie rod ends.

Installation

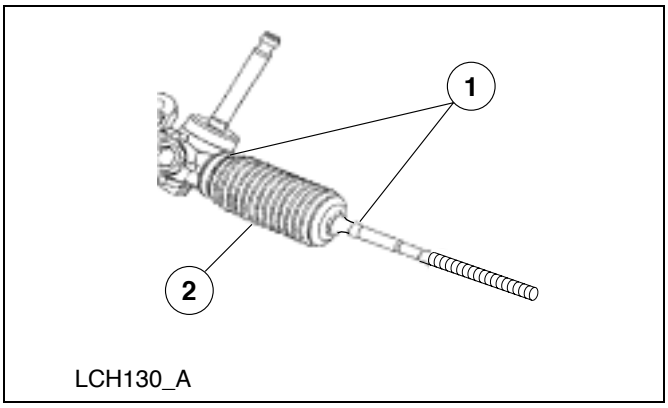
1. Reverse the removal procedure.
2. Tighten the left side steering rack bolts to 102-150N.m. (75-150 lb-ft.).

3. Tighten the right side steering rack bolts to 41-60 N.m (30-44 Lb. Ft.).
4. Tighten the intermediate shaft pinch bolt to 20-30N.m. (15-22lb-ft.).
5. Tighten the steering shroud screws to 2.5-3.7N.m (22.1-32.7 lb-in.).
6. Adjust the toe equally for clear vision.

Steering Bellows

Removal

1. Remove the tie rod end. Refer to Tie Rod End in this section
2. Remove the tie rod end jam nut.
3. Cut the inner and outer band clamps (1) on the bellows.



4. Slide the bellows (2) off the tie rod.
5. Clean dirt and debris from the tie rod.

Installation

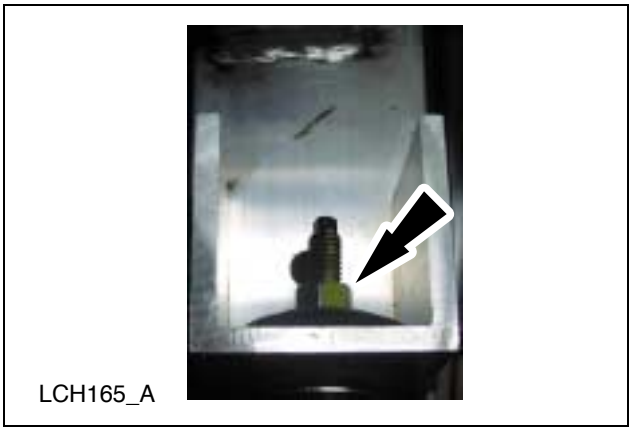
1. Wrap the tie rod threads with tape.
2. Lubricate the new bellows ends with a light coating of petroleum jelly.
3. Slide the bellows, with clamps, onto the steering rack.
4. Use band clamp pliers and secure the band clamps in position.
5. Remove the tape.
6. Install the tie rod jam nut.
7. Do not tighten the jam nut.

8. Install the tie rod end to the steering knuckle.
9. Adjust the toe equally for clear vision.
10. Tighten the jam nuts to 49-54N.m. (37-40lb-ft.).

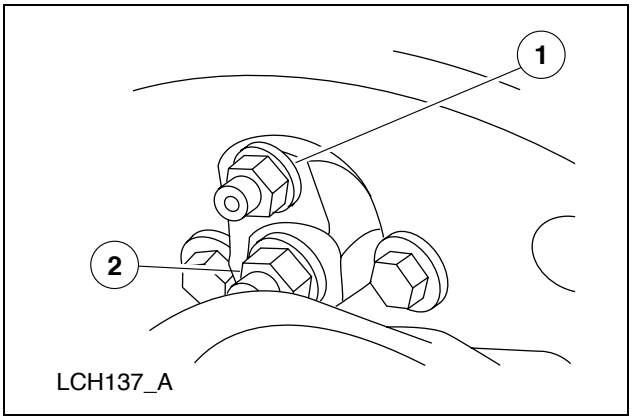
Steering Knuckle

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Remove the wheel and tire assembly.
3. Remove the upper coil over coil shock nut and grommet.

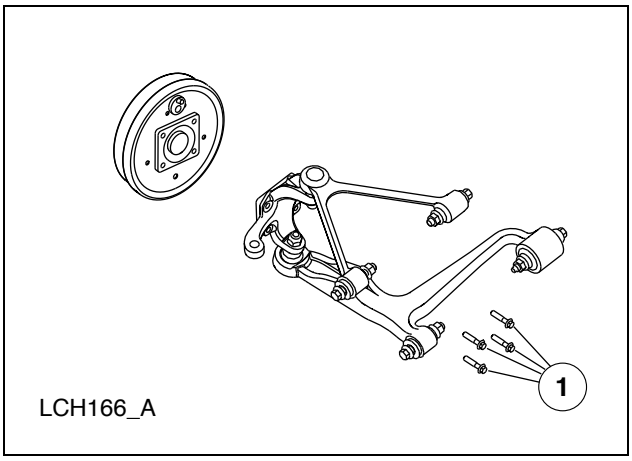


4. Open the wheel cylinder bleeder screw (1) to relieve fluid pressure.



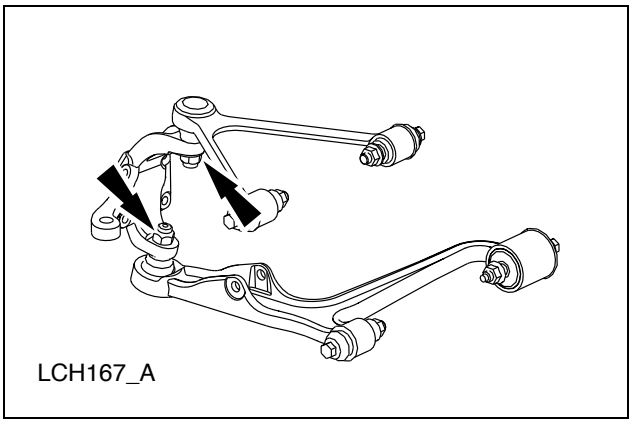
5. Disconnect the brake hose (2) from the wheel cylinder and position it aside.

6. Remove the front brake assembly bolts (1) and remove the brake assembly.



7. Separate the tie rod end from the steering knuckle.

8. Remove the upper and lower ball joint nuts and separate the upper and lower ball joints from the steering knuckle.



9. Remove the steering knuckle from the vehicle.

Installation

1. Reverse the removal procedure.

2. Tighten the ball joint nuts to 59.5-80.5N.m (43.8-59.3lb-ft.)

3. Tighten the tie rod castle nuts to 16-34N.m. (11-25lb- ft.).

4. Tighten the tie rod end jam nuts to 49-54N.m. (37-40lb- ft.).

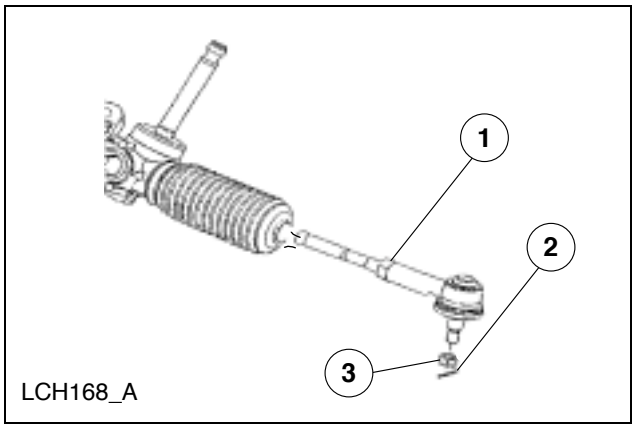
5. Tighten the wheel lug nuts to 100-134N.m. (74-98lb-ft.).

6. Adjust the toe equally for clear vision.

Tie Rod Ends

Removal

1. Raise and support the vehicle. Refer to Lifting in the General Information section.
2. Loosen the tie rod end jam nut (1).



3. Remove the cotter pin (2) and castle nut (3) from tie rod end.
4. Separate the tie rod end from the steering knuckle.
5. Mark the tie rod threads for reference when installing the tie rod end.
6. Remove the tie rod end from the tie rod.

Installation

1. Install the new tie rod end on the tie rod.
2. Tighten, but do not torque, the jam nut.
3. Install the tie rod end into the steering knuckle.
4. Install the tie rod castle nut. Tighten the tie rod castle nut to 16-34N.m. (11-25lb-ft.).
5. Install a new cotter pin. Rotate the castle nut clockwise to align hole.
6. Adjust the toe equally for clear vision.
7. Tighten the tie rod end jam nut to 49-54N.m. (37-40lb-ft.).

Adjustment

Brake Pushrod Adjustment

Adjustment

1. Raise and support the vehicle. Refer to Lifting in the General information section.

Note:

The system has a brake pedal arm return spring. The brake arm may spring up if the floor has been removed from the vehicle.

2. Loosen the master cylinder push rod jam nut.

3. Shorten or lengthen the pushrod effective length by turning the clevis in to the pushrod. The length should be adjusted to allow for 2-3mm (0.08-0.11in) of a gap between the brake pedal and the front kickup.

WARNING!

Make sure the master cylinder push rod jam nut is tightened to 8.5 – 11.5N.m (76-101lb-in). The master cylinder push rod jam nut could come loose resulting in an accident or personal injury.

4. Tighten the master cylinder push rod jam nut to 8.5 – 11.5N.m (76-101lb-in).

5. Lower the vehicle.