

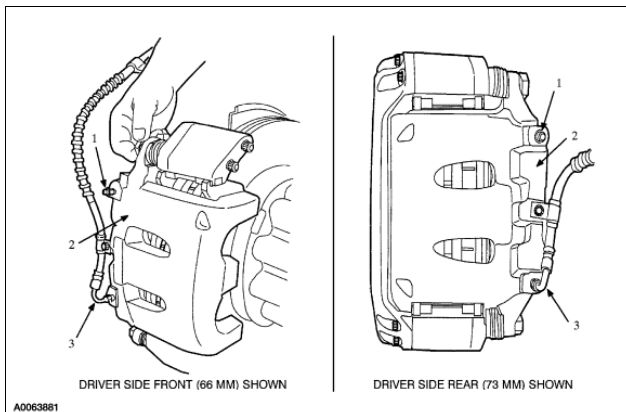
Caliper  [Printable View \(419 KB\)](#)

Removal


NOTE: During service procedure, keep grease and other foreign material from caliper assembly, disc brake pads, brake rotor and external surfaces of hub. Handle parts carefully to avoid damage to caliper, rotor, disc brake pads and brake lines.

NOTE: In the event the original disc brake pads are to be used again, be sure to mark them in some manner so that they are reinstalled in same location.

1. If a new caliper assembly is being installed, be sure that the bleeder screw is installed in upper (top) hydraulic line port of caliper.



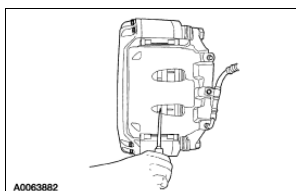
Item	Part Number	Description
1		Bleeder screw with cap (upper hydraulic line port)
2		Caliper
3		Hydraulic brake line hose (lower hydraulic line port)

2.  **WARNING:** A jack must never be used alone to support a vehicle while under-chassis service is being performed. The jack may lower. Always support vehicle with suitable floor stands. Failure to follow these instructions may result in personal injury.

NOTE: The following steps refer to only one wheel. The same procedure will need to be performed at each wheel.

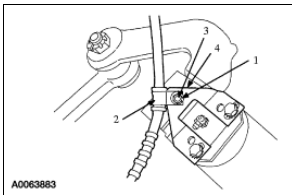
Position vehicle on suitable floor stands and remove wheel (tire and rim).

3. Insert a screwdriver in one of the rotor cooling fin slots and pry the caliper outboard pushing the caliper pistons into the piston bores. This will allow removal of caliper assembly.



4. **NOTE:** Driver side front shown.

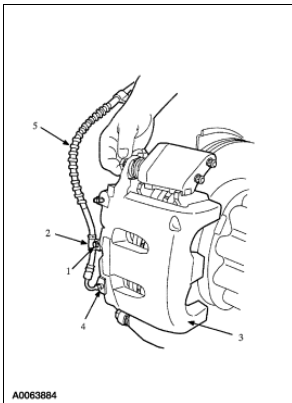
On front axles only, remove hex nut and lock washer and lift brake line retaining clip off threaded stud on the steering knuckle hose support bracket. This will allow the brake line hose to hang free.



Item	Part Number	Description
1		Hex nut and lock washer
2		Brake line retaining clip
3		Threaded stud
4		Hose support bracket

5. **NOTE:** Driver side front (66 mm) shown.

On front brakes, remove hex head bolt and remove brake line retaining clip from caliper.



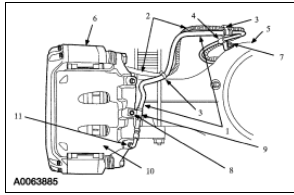
Item	Part Number	Description
1		Hex head bolt
2		Brake line retaining clip
3		Caliper
4		Hydraulic brake line hex fitting
5		Brake line hose

6. Disconnect hydraulic brake line hex fitting from the caliper and remove brake line hose. Cap the brake line hose and plug the caliper inlet to prevent brake fluid leakage. Position brake line hose out of the way. Be careful to avoid getting grease or brake fluid on disc pads. Refer to the previous illustration.

7. **NOTE:** Driver side rear (73 mm) shown.

On rear brakes, if vehicle is equipped with ABS brake system and/or air suspension system, note that the brake line hose is attached to ABS sensor cable with tywrap straps from retaining clip on axle to disc brake assembly. Remove hex head bolt from retaining clip. Remove hex head bolt and brake line retaining clip from caliper. This will allow the brake line hose to hang free while rotating the caliper

down.



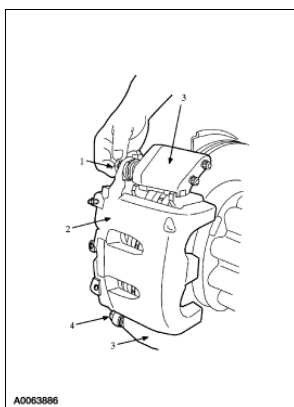
Item	Part Number	Description
1		Brake line hose
2		ABS sensor cable
3		Tywrap strap
4		Retaining clip
5		Axle
6		Disc brake assembly
7		Hex head bolt
8		Hex head bolt
9		Retaining clip
10		Caliper
11		Hydraulic brake line hex fitting

8. **NOTE:** If it becomes necessary to cut any of the tywrap straps to allow caliper to rotate all the way down during caliper removal, note the location of the tywrap strap before cutting it off, so it can be replaced in the proper place after service is completed.

Disconnect hydraulic brake line hex fitting from brake caliper and remove brake line hose. Cap the brake line hose and plug the caliper inlet to prevent brake fluid leakage. Position brake line hose out of the way. Be careful to avoid getting grease or brake fluid on disc pads. Refer to previous illustration.

9. **NOTE:** Driver side front (66 mm) shown.

Remove upper (top) hex mounting bolt securing the caliper to the anchor plate, driver side front brake shown.

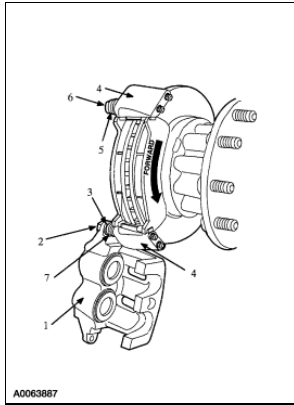


Item	Part Number	Description
1		Upper hex mounting bolt
2		Caliper

3		Anchor plate
4		Lower hex mounting bolt

10. **NOTE:** Driver side front (66 mm) shown.

Carefully rotate the caliper open about the lower (bottom) hex mounting bolt and guide pin, driver side front brake shown.



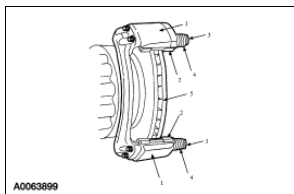
Item	Part Number	Description
1		Caliper
2		Lower hex mounting bolt
3		Lower guide pin
4		Anchor plate
5		Upper guide pin boot
6		Upper guide pin
7		Lower guide pin boot

11. **NOTE:** Use care to avoid damaging or dislodging the guide pin boots. Do not pull on guide pins, this may dislodge guide pin boot from guide pin or anchor plate grooves.

Remove lower (bottom) hex mounting bolt securing the caliper to the anchor plate and remove caliper, driver side front brake shown. Refer to previous illustration.

Installation

1. Before installing caliper, visually inspect anchor plate for damage or defects to mating surfaces at anchor plate pad abutment slippers and guide pin heads. Make sure guide pin boots are not dislodged or damaged. If damage or defects are found, repair or replace as required.
2. Visually inspect rotor for scoring, warping, cracks, bluing, heat spots or other damage or defects. If damage or defects are found, repair or replace as required. Refer to previous illustration.

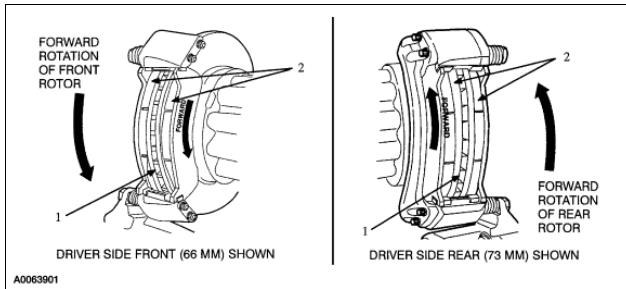


Item	Part Number	Description
1		Anchor plate

2		Anchor plate pad abutment slipper
3		Guide pin head
4		Guide pin boot
5		Rotor

3. **⚠ CAUTION:** The inboard and outboard disc brake pads are not interchangeable. The word **FORWARD** and the **ARROW** markings on the brake pads backing plate show forward rotation direction of the rotor. The arrow **MUST** point in the forward rotor rotation direction.

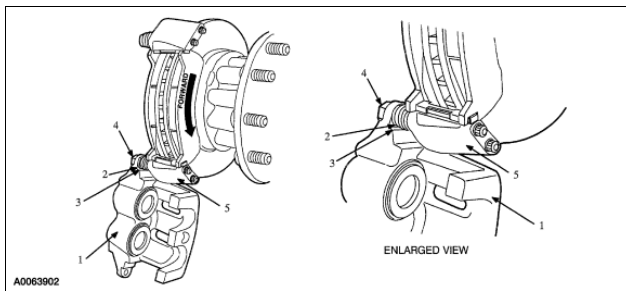
If disc brake pads were removed, position inboard and outboard disc brake pads onto anchor plate pad abutment slippers with the lining facing toward the rotor, driver side rear brake shown.



Item	Part Number	Description
1		Rotor
2		Disc brake pad

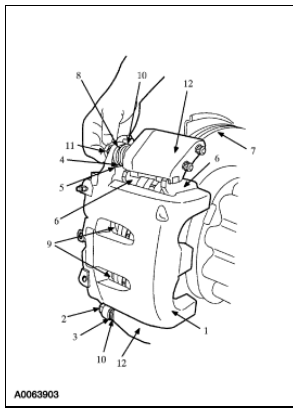
4. **NOTE:** Driver side front (66 mm) shown.

Position caliper in place at lower mounting and align flats on guide pin head with the flats on caliper guide pin boss, then install the lower (bottom) hex mounting bolt securing the caliper to the anchor plate. Tighten to finger tight, driver side front brake shown.



Item	Part Number	Description
1		Caliper
2		Lower guide pin flat
3		Caliper guide pin boss flat
4		Lower hex mounting bolt
5		Anchor plate

5. Carefully rotate caliper closed about the lower (bottom) hex mounting bolt and guide pin.



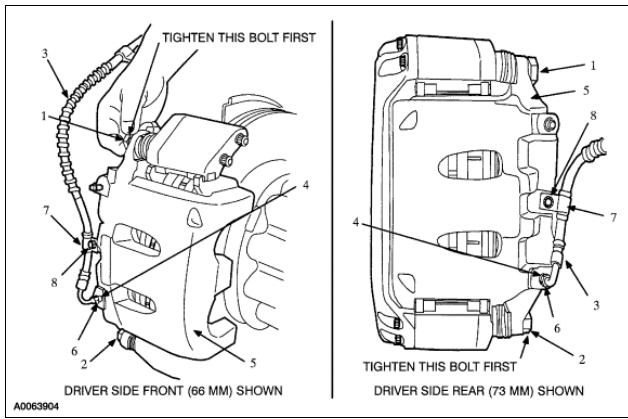
Item	Part Number	Description
1		Caliper
2		Lower hex mounting bolt
3		Lower guide pin
4		Upper guide pin head flat
5		Caliper upper guide pin boss flat
6		Disc brake pad
7		Rotor
8		Upper guide pin
9		Piston boot
10		Guide pin boot
11		Upper hex mounting bolt
12		Anchor plate

6. Align flat on upper (top) guide pin head with the flat on caliper upper (top) guide pin boss. Use care when positioning caliper over the disc brake pads, rotor and upper (top) guide pin head to avoid tearing, cutting or dislodging piston boots or guide pin boot, driver side front brake shown. Refer to previous illustration.
7. Hold caliper in closed position with upper (top) guide pin boss hole aligned with threads in upper guide pin, driver side front brake shown. Refer to previous illustration.
8. Install upper (top) hex mounting bolt securing the caliper to the anchor plate. Tighten to finger tight, driver side front brake shown. Refer to previous illustration.
9. **⚠ CAUTION: When both caliper hex mounting bolts have been loosened or removed, it is important to tighten the hex mounting bolts in the proper sequence. Increased brake drag may result from not tightening in proper sequence.**

For FRONT brakes, upper (top) hex mounting bolt (Item 1) should be tightened first, then tighten lower (bottom) hex mounting bolt.

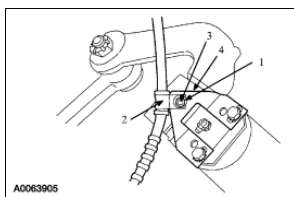
For REAR brakes, lower hex mounting bolt should be tightened first, then tighten upper hex mounting bolt.

Tighten upper (top) and lower (bottom) hex mounting bolts for both front and rear disc brakes in the proper sequence as noted in CAUTION above. Tighten to 70 to 80 ft-lbs. (95 to 108 Nm).



Item	Part Number	Description
1		Upper hex mounting bolt
2		Lower hex mounting bolt
3		Brake line hose
4		Lower hydraulic brake line port
5		Caliper
6		Hydraulic brake line hex fitting
7		Brake line retaining clip
8		Hex head bolt

10. Position brake line hose at the lower hydraulic brake line port on the caliper and install hydraulic brake line hex fitting into the caliper. Tighten to 7.5 to 15 ft-lbs. (10 to 20 Nm). Refer to previous illustration.
11. Position brake line retaining clip on the caliper and install hex head bolt. Tighten to 18 to 22 ft-lbs. (24 to 30 Nm).
12. On front axles only, position brake line retaining clip over threaded stud on the steering knuckle hose support bracket, make sure the brake line hose is not pinched or kinked. Install hex nut and lock washer. Tighten to 115 to 140 in-lbs. (13 to 16 Nm).



Item	Part Number	Description
1		Hex nut and lock washer
2		Brake line retaining clip
3		Threaded stud
4		Hose support bracket

13. **NOTE:** When installing the wheel (tire and rim) on disc brake axles, make sure the tire valve stem clears the brake caliper. The use of a valve stem retainer or a tire manufacturer's stem forming tool are the only acceptable methods of obtaining clearance when necessary.

Install wheel (tire and rim) on vehicle and remove floor stands.

14. Check the master cylinder reservoir and fill if necessary.
 15. After any brake service, be sure to test brakes prior to returning vehicle to service. A firm pedal should be felt during brake application.
 16. If necessary, bleed brakes.
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Anchor Plate and Splash Shield  [Printable View \(306 KB\)](#)


Removal

NOTE: The caliper, anchor plate tie bar, if so equipped (73 mm brake assembly only) and hub and rotor must be removed before the anchor plate and splash shield can be removed.

NOTE: During service procedure, keep grease and other foreign material from caliper assembly, disc brake pads, brake rotor and external surfaces of wheel hub. Handle parts carefully to avoid damage to caliper, rotor, disc brake pads and brake lines.

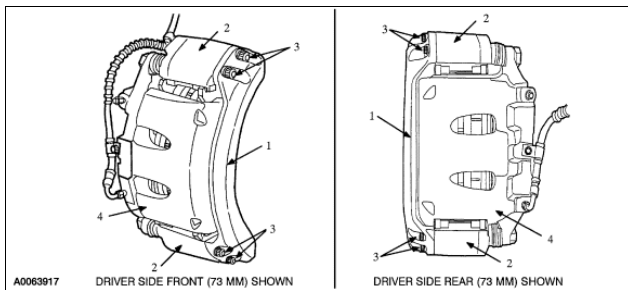
NOTE: In the event the original disc brake pads are to be used again, be sure to mark them in some manner so that they are reinstalled in same location.

NOTE: The following steps refer to only one wheel. The same procedure will need to be performed at each wheel.

1.  **WARNING: A jack must never be used alone to support a vehicle while under-chassis service is being performed. The jack may lower. Always support vehicle with suitable floor stands. Failure to follow these instructions may result in personal injury.**

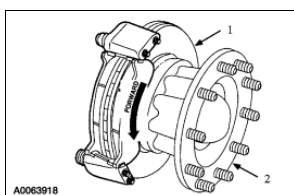
Position vehicle on suitable floor stands and remove wheel (tire and rim).

2. Remove anchor plate tie bar, if so equipped (73 mm brake assembly only), from anchor plate by removing 12-point head bolts, and lay it out of the way. Save for reinstallation.



Item	Part Number	Description
1		Anchor plate tie bar
2		Anchor plate
3		12-point head bolt
4		Caliper

3. Remove caliper assembly. Refer to previous illustration.
4. Remove rotor and wheel hub assembly, driver side front shown.

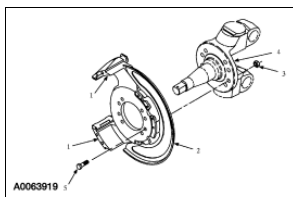


Item	Part Number	Description
1		Rotor
2		Wheel hub

5. **⚠ CAUTION:** When removing the ABS sensor from the ABS sensor bracket on the anchor plate, use your thumb and first finger to get hold of the rear of the sensor where the cable enters the sensor. Use extreme caution not to pull on the cable while twisting and pulling at the same time to remove the sensor.

Before removing the anchor plate and splash panel from the steering knuckle flange you must remove the ABS sensor (if so equipped) from the ABS sensor bracket.

6. On front axles with both 66 mm and 73 mm disc brakes, remove anchor plate and splash shield by removing hex lock nuts from inboard side of steering knuckle flange.



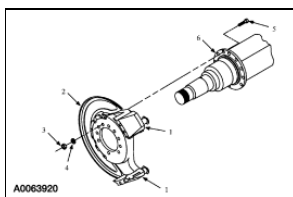
Item	Part Number	Description
1		Anchor plate
2		Splash shield
3		Hex lock nut
4		Steering knuckle flange
5		Hex bolt

7. Remove hex bolts and anchor plate and splash shield from outboard side of steering knuckle flange. Place anchor plate, splash shield and mounting hardware on a clean, dry surface out of the way and save for reinstallation. Refer to previous illustration.

8. **⚠ CAUTION:** When removing the ABS sensor from the ABS sensor bracket on the anchor plate, use your thumb and first finger to get hold of the rear of the sensor where the cable enters the sensor. Use extreme caution not to pull on the cable while twisting and pulling at the same time to remove the sensor.

Before removing the anchor plate and splash panel from the rear axle flange, you must remove the ABS sensor (if so equipped) from the ABS sensor bracket.

9. On rear axles with both 66 mm and 73 mm disc brakes, remove anchor plate and splash shield by removing hex lock nuts with flat washers from outboard side of anchor plate.



Item	Part Number	Description
1		Anchor plate
2		Splash shield

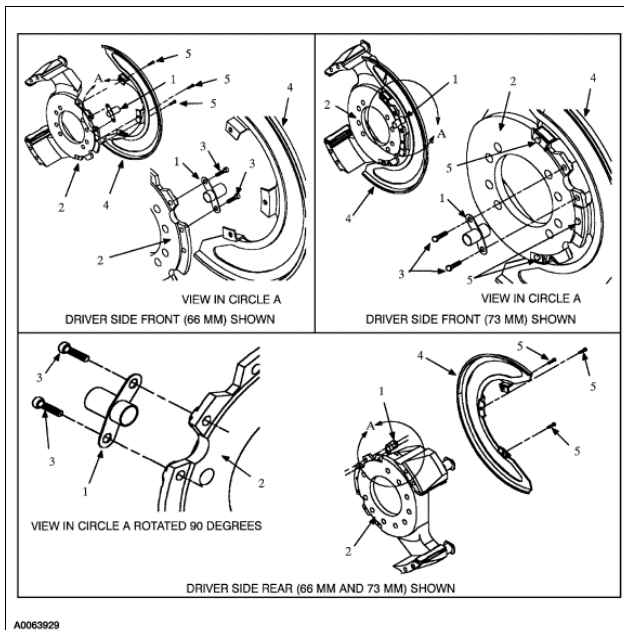
3		Hex lock nut
4		Flat washer
5		Hex bolt
6		Axle flange

- Remove hex bolts from inboard side and anchor plate and splash shield from outboard side of axle flange. Place anchor plate, splash shield and mounting hardware on a clean dry surface out of the way and save for reinstallation. Refer to previous illustration.

Installation

- Install splash shield onto anchor plate as follows:

- When installing the splash shield on the anchor plate for 66 mm front and rear and 73 mm rear brakes, the splash shield is mounted on the inboard side of the anchor plate and the three 12-point head bolts are installed from the inboard side. Tighten to 13 to 16 ft-lbs. (17 to 21 Nm).
- On the 73 mm front brakes, the splash shield is mounted on the outboard side of the anchor plate and the three 12-point head bolts are installed from the outboard side. Tighten to 13 to 16 ft-lbs. (17 to 21 Nm).



Item	Part Number	Description
1		ABS sensor bracket
2		Anchor plate
3		12-point head bolt
4		Splash shield
5		12-point head bolt

- NOTE:** When installing the ABS sensor bracket, the bracket is always installed on the same side of anchor plate as the splash shield, on the machined surface, with the long portion of the bracket on the same side as the mounting bolt heads.

If so equipped, install ABS sensor bracket on anchor plate by installing two 12-point head bolts, driver side front and rear shown. Tighten to 13 to 16 ft-lbs. (17 to 21 Nm).