
SECTION 4E

REAR DRUM BRAKES

TABLE OF CONTENTS

Description and Operation	4E-2	Rear Brake Drum	4E-6
Drum Brakes	4E-2	Brake Shoe	4E-7
Component Locator	4E-3	Wheel Cylinder Assembly	4E-8
Rear Drum Brakes	4E-3	Backing Plate	4E-9
Diagnostic Information and Procedures	4E-4	Unit Repair	4E-10
Rear Drum Brake	4E-4	Wheel Cylinder	4E-10
Drums	4E-5	Specifications	4E-11
Lining	4E-5	General Specifications	4E-11
Repair Instructions	4E-6	Fastener Tightening Specifications	4E-11
On-Vehicle Service	4E-6		

DESCRIPTION AND OPERATION

DRUM BRAKES

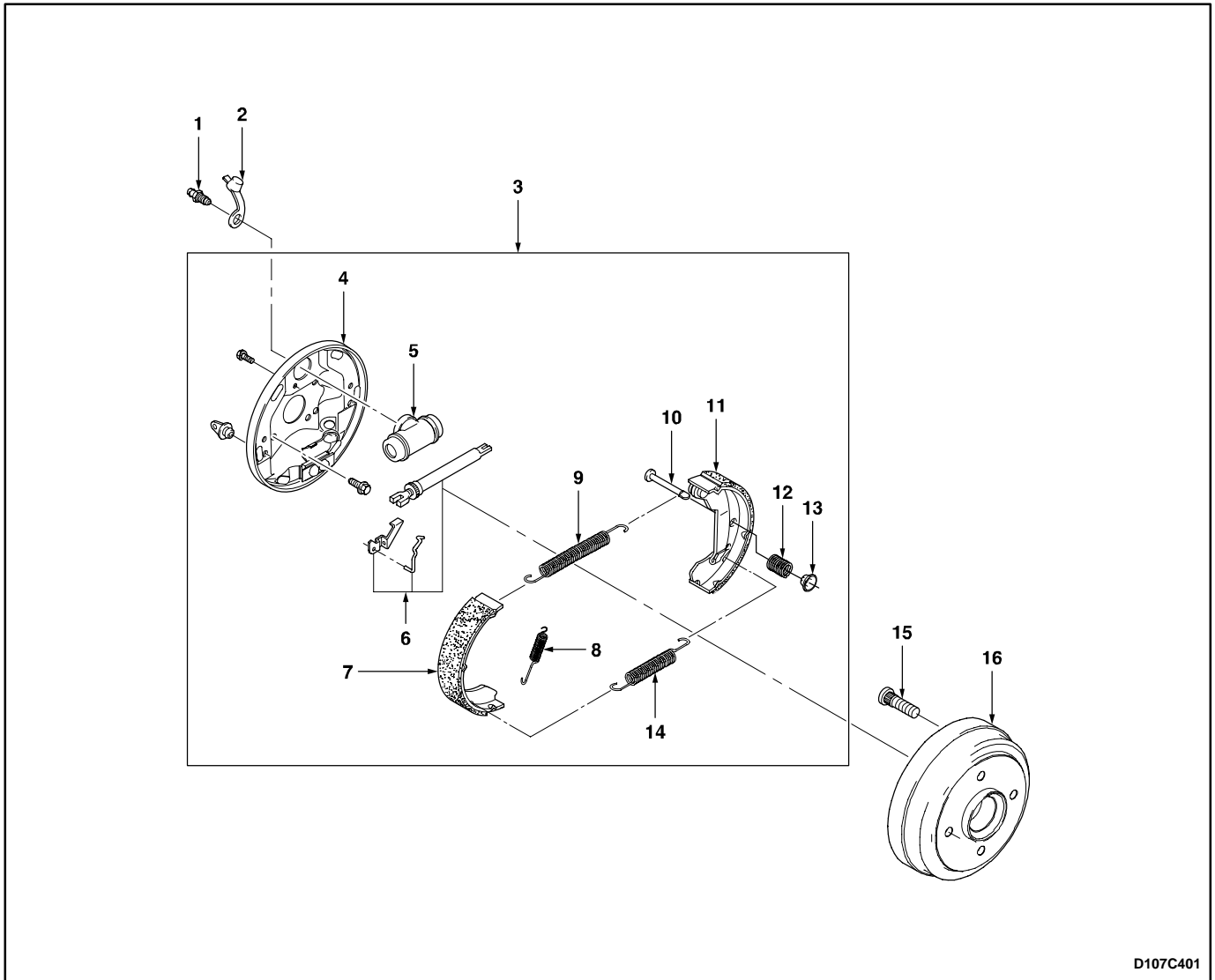
This drum brake assembly is a leading/trailing shoe design. Both brake shoes are held against the wheel cylinder pistons by the lower return spring and the fixed anchor plate near the lower return spring. When the brakes are applied, the wheel cylinder pistons move both shoes out to contact the drum. With forward wheel rotation, the forward brake shoe will wrap into the drum and become self-energized. With reverse wheel rotation, the rear brake shoe is self-energized. Force from the brake shoes is transferred to the anchor plate through the backing plate to the axle flange. Adjustment is automatic and occurs on any service brake application. Do not switch the position of shoes that have been in service, as this may render the self-adjustment feature inoperative and result in increased pedal travel.

Notice:

- Replace all the components included in the repair kits used to service this drum brake.
- Do not use lubricated shop air on the brake parts, as damage to the rubber components may result.
- If any hydraulic component is removed or disconnected, it may be necessary to bleed all or part of the braking system.
- The torque values specified are for dry, unlubricated fasteners.
- Perform service operations on a clean bench that is free from all mineral oil materials.

COMPONENT LOCATOR

REAR DRUM BRAKES



D107C401

- | | |
|-------------------------|----------------------------------|
| 1. Bleeder Screw | 9. Upper Return Spring |
| 2. Bleeder Screw | 10. Brake Shoe Retain Spring Pin |
| 3. Rear Brake Assembly | 11. Trailing Shoe |
| 4. Rear Brake Plate | 12. Brake Shoe Retain Spring |
| 5. Wheel Cylinder | 13. Brake Shoe Retain Spring Cap |
| 6. Strut Assembly | 14. Lower Return Spring |
| 7. Brake Leading Shoe | 15. Hub Bolt |
| 8. Middle Return Spring | 16. Rear Brake Drum |

DIAGNOSTIC INFORMATION AND PROCEDURES

REAR DRUM BRAKE

Condition	Probable cause	Correction
Not Enough Braking Force	<ul style="list-style-type: none"> ● Badly worn brake shoe lining. 	<ul style="list-style-type: none"> ● Replace the lining.
	<ul style="list-style-type: none"> ● Lining stained with oil. 	<ul style="list-style-type: none"> ● Check the wheel cylinder leaks and then replace the wheel cylinder or the lining, if needed.
	<ul style="list-style-type: none"> ● Wheel cylinder condition faulty. 	<ul style="list-style-type: none"> ● Replace the wheel cylinder.
	<ul style="list-style-type: none"> ● Malfunctioning self-adjustment feature. 	<ul style="list-style-type: none"> ● Repair the self-adjustment feature.
Uneven Braking	<ul style="list-style-type: none"> ● Lining stained with oil. 	<ul style="list-style-type: none"> ● Check the wheel cylinder leaks and then replace the wheel cylinder or the lining, if needed.
	<ul style="list-style-type: none"> ● Wheel cylinder condition faulty. 	<ul style="list-style-type: none"> ● Replace the wheel cylinder.
	<ul style="list-style-type: none"> ● Malfunctioning self-adjustment feature. 	<ul style="list-style-type: none"> ● Repair the self-adjustment feature.
Dragging Brakes After Pedal is Released	<ul style="list-style-type: none"> ● Weakened brake shoe return spring. 	<ul style="list-style-type: none"> ● Replace the brake shoe return spring.
	<ul style="list-style-type: none"> ● Wheel cylinder condition faulty. 	<ul style="list-style-type: none"> ● Replace the wheel cylinder.
Excessive Pedal Travel	<ul style="list-style-type: none"> ● Excessively worn lining. 	<ul style="list-style-type: none"> ● Replace the lining.
	<ul style="list-style-type: none"> ● Malfunctioning self-adjustment feature. 	<ul style="list-style-type: none"> ● Repair the self-adjustment feature.
Braking Noise or Vibration	<ul style="list-style-type: none"> ● Foreign material stuck to drum. 	<ul style="list-style-type: none"> ● Clean the rear drum brake.
	<ul style="list-style-type: none"> ● Loosen brake plate bolt. 	<ul style="list-style-type: none"> ● Tighten the brake plate bolt.
	<ul style="list-style-type: none"> ● Damaged drum. 	<ul style="list-style-type: none"> ● Replace the drum.
Poor Braking Force of Parking Brake	<ul style="list-style-type: none"> ● Lining stained with oil. 	<ul style="list-style-type: none"> ● Check the wheel cylinder leaks and then replace the wheel cylinder or the lining, if needed.
	<ul style="list-style-type: none"> ● Damaged self-adjustment feature. 	<ul style="list-style-type: none"> ● Repair the self-adjustment feature.
	<ul style="list-style-type: none"> ● Poor adjustment of parking brake cable. 	<ul style="list-style-type: none"> ● Adjust the parking brake cable.

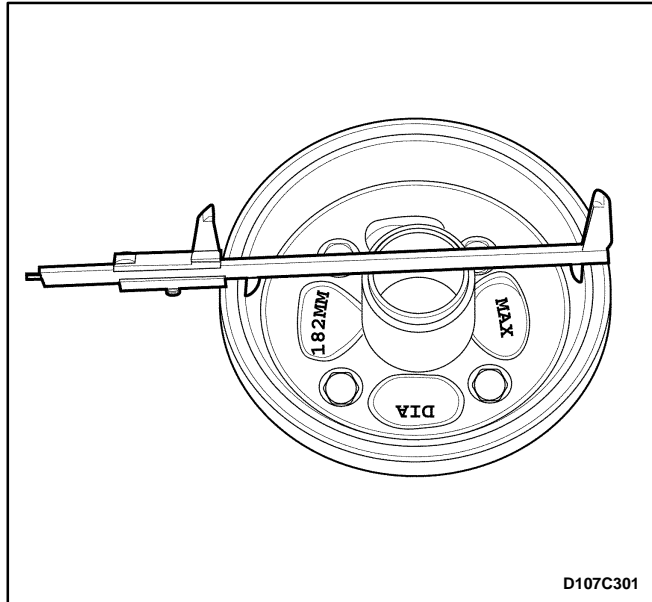
DRUMS

Inspect the brake drum as follows ;

1. Inspect the drum for crack or damage.
2. Measure the inside diameter.

Unit : mm (in.)

Inside Diameter Wear Limit Value	182 (7.165)
----------------------------------	-------------



3. If the measured value is over the limit value, or if the defect is found, replace the drum.

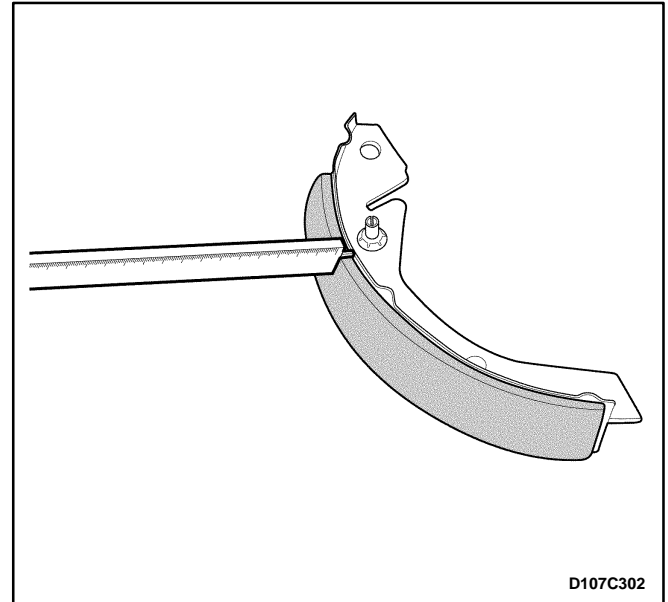
LINING

Inspect the brake drum as follows ;

1. Inspect the lining for wear or stain with oil.
2. Measure the thickness.

Unit : mm (in.)

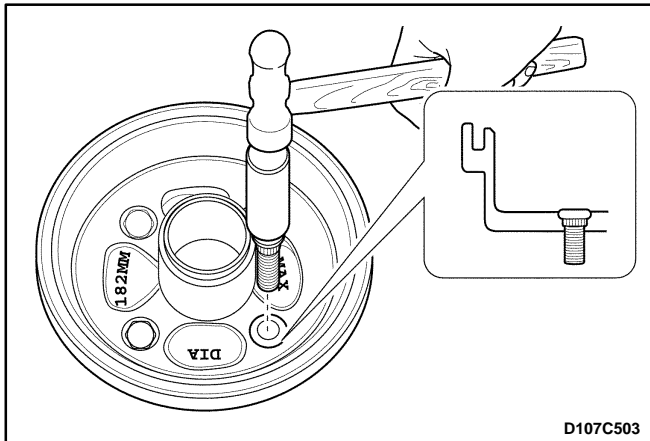
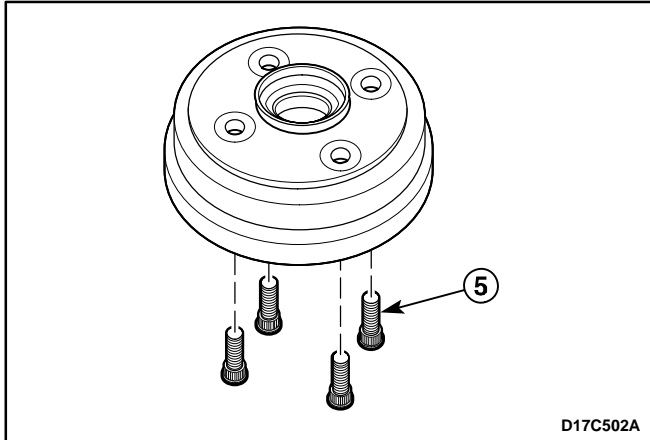
Lining Wear Limit Value	1 (0.039)
-------------------------	-----------



3. If the measured value is within the limit value, or if the defect is found, replace the lining.

REPAIR INSTRUCTIONS

ON-VEHICLE SERVICE



REAR BRAKE DRUM

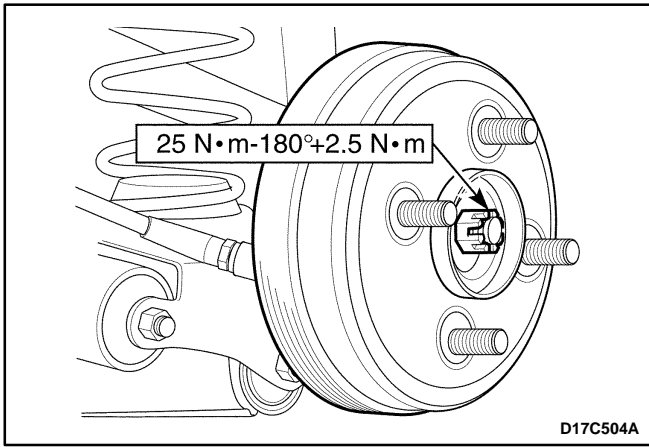
Removal Procedure

1. Remove the rear wheels. Refer to *Section 6E, Tires and Wheels*.
2. Release the parking brake.
3. Remove the brake drum.
 - Remove the spindle cap (1).
 - Remove the cotter pin and do not reuse it (2).
 - Remove the castellated nut (3).
 - Remove the rear axle washer (4).
 - Remove the bearing, race and oil seal. Refer to *Section 2D, Rear Suspension*.
 - Remove the hub bolts using a hammer (5).

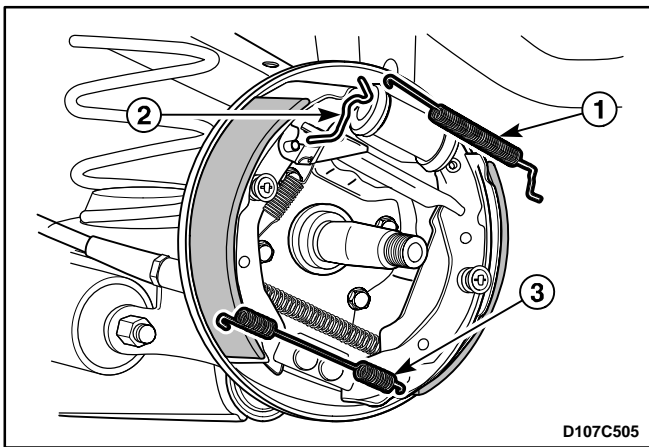
Important: Do not reuse removed hub bolts.

Installation Procedure

1. Install the brake drum.
 - Insert the new hub bolts using a hammer.
 - Install the bearing, race, oil seal and rear axle washer.



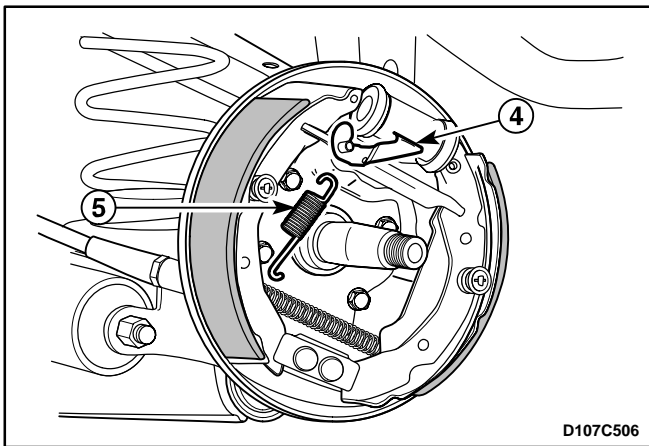
- Tighten the castellated nut to 25 N•m (18 lb-ft).
 - Loosen the castellated nut to 180°.
 - Retighten the castellated nut to 2.5 N•m (22 lb-in).
 - Install the new cotter pin and spindle cap.
2. Adjust the parking brake.
 3. Install the rear wheels. Refer to *Section 6E, Tires and Wheels*.



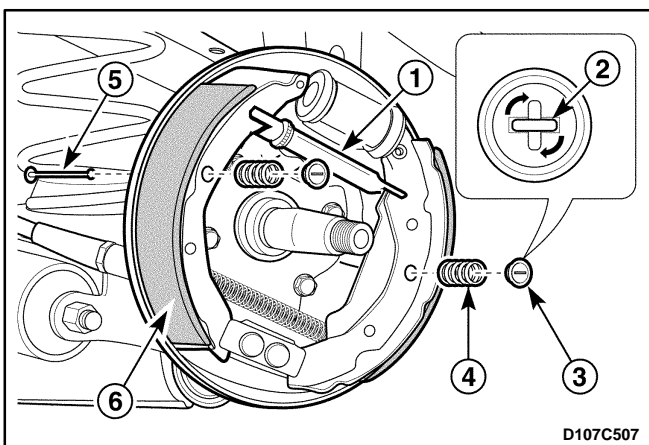
BRAKE SHOE

Removal Procedure

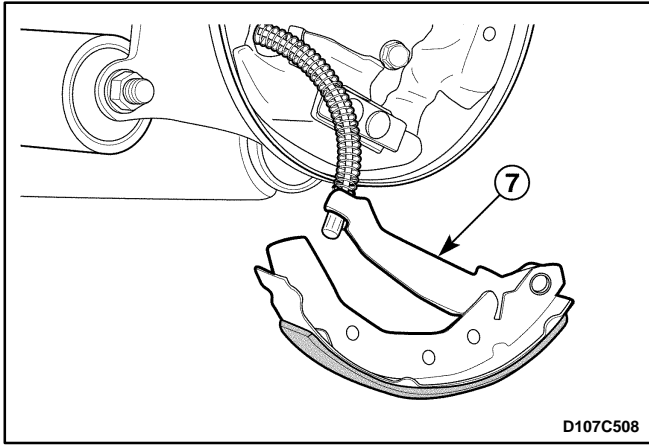
1. Remove the brake drum. Refer to "Brake Drum" in this section.
2. Remove the return spring.
 - Remove the upper return spring (1).
 - Remove the upper return spring bracket (2).
 - Remove the lower return spring (3).



- Remove the adjust lever (4).
- Remove the middle return spring (5).

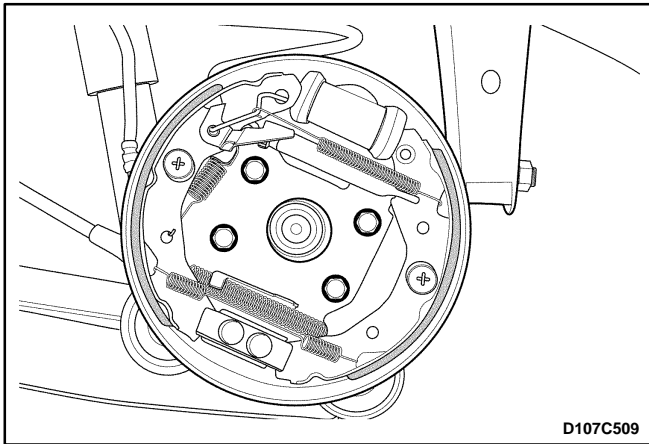


3. Remove the brake shoe.
 - Remove the readjusting unit (1).
 - Turn the brake shoe retaining spring pin rectangularly by the pliers (2).
 - Remove the brake shoe retain spring cap (3).
 - Remove the retaining spring (4).
 - Remove the retaining spring pin (5).
 - Remove the leading shoe (6).



D107C508

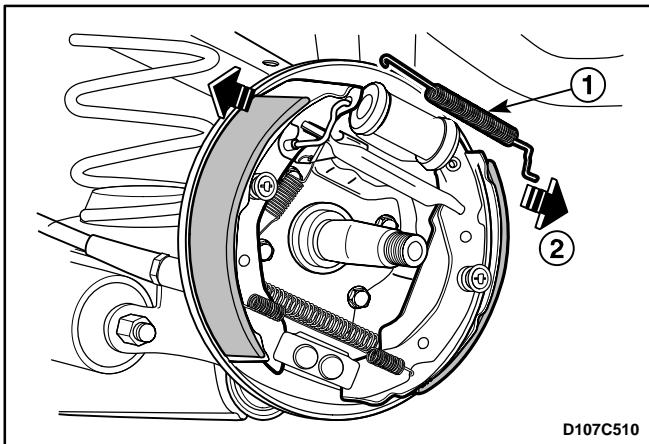
4. Disconnect the parking brake cable from the trailing shoe and remove the trailing shoe (7).



D107C509

Installation Procedure

1. Install in the reverse of removal.
2. Clean the adjust assembly and apply grease.
3. Connect the parking brake cable from the trailing shoe.
4. Install the brake shoe.
5. Install the return spring.
 - Install the middle return spring and adjust lever.
 - Install the lower return spring.
 - Install the upper return spring bracket.
 - Install the upper return spring.
6. Install the brake drum. Refer to “Brake Drum” in this section.

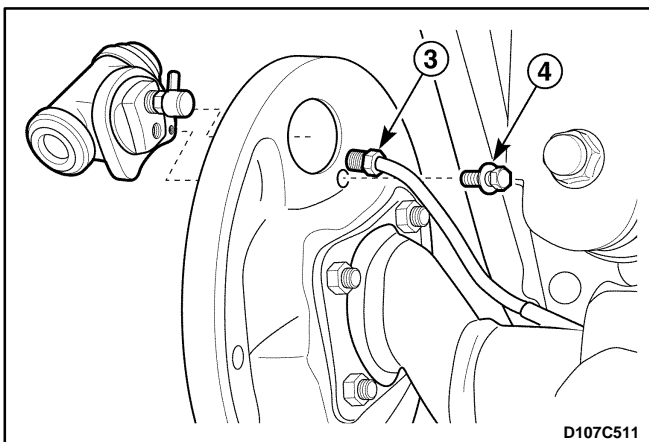


D107C510

WHEEL CYLINDER ASSEMBLY

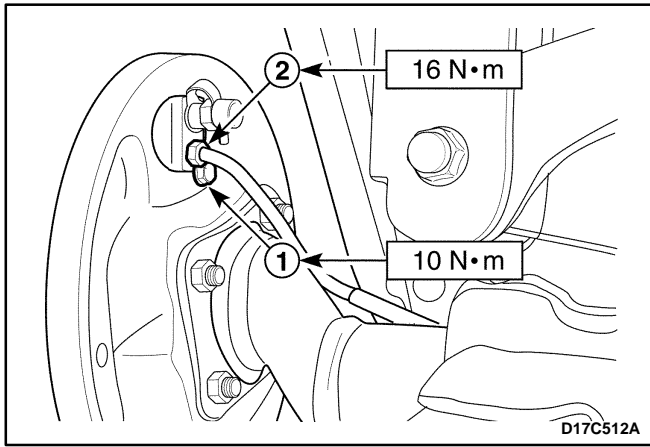
Removal Procedure

1. Remove the brake drum. Refer to “Rear Brake Drum” in this section.
2. Remove the wheel cylinder.
 - Remove the brake shoe upper spring (1).
 - Widen the leading shoe and trailing shoe (2).



D107C511

- Disconnect the brake line fitting (3).
- Plug the opening in the brake line to prevent fluid loss or contamination.
- Remove the wheel cylinder-to-backing plate bolt (4).



Installation Procedure

1. Install the wheel cylinder to the backing plate with the wheel cylinder bolt (1).

Tighten

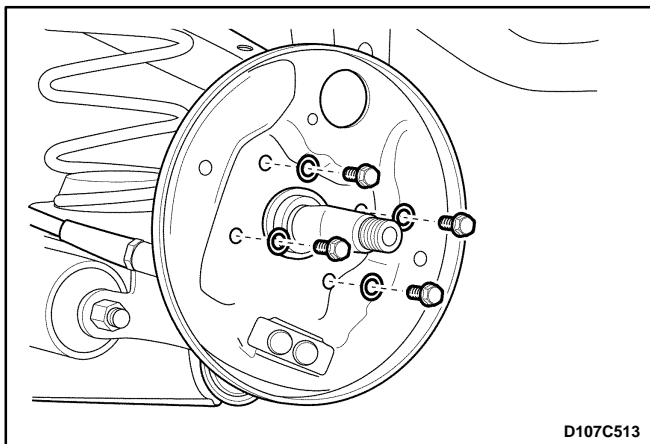
Tighten the wheel cylinder-to-backing plate bolt to 10 N·m (89 lb-in).

2. Connect the brake line fitting (2).

Tighten

Tighten the brake line fitting to 16 N·m (12 lb-ft).

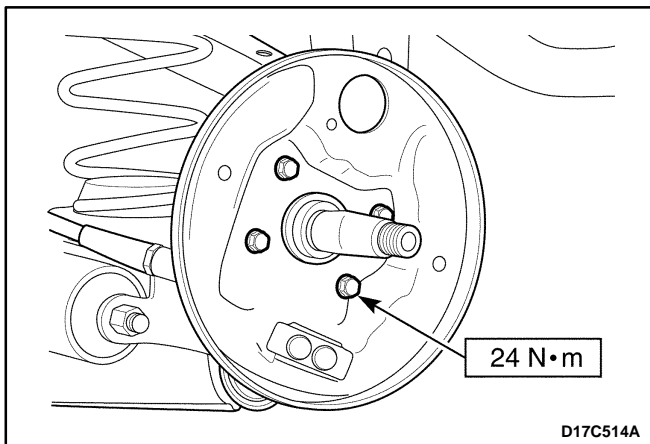
3. Install the brake shoe. Refer to "Brake Shoe" in this section.
4. Install the brake drum. Refer to "Rear Brake Drum" in this section.



BACKING PLATE

Removal Procedure

1. Remove the brake drum. Refer to "Rear Brake Drum" in this section.
2. Remove the brake shoe components. Refer to "Brake Shoe" in this section.
3. Remove the wheel cylinder assembly. Refer to "Wheel Cylinder Assembly" in this section.
4. Remove the bolts and the backing plate.



Installation Procedure

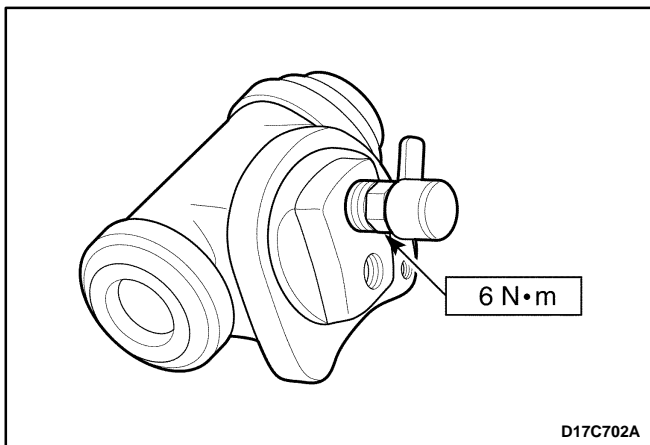
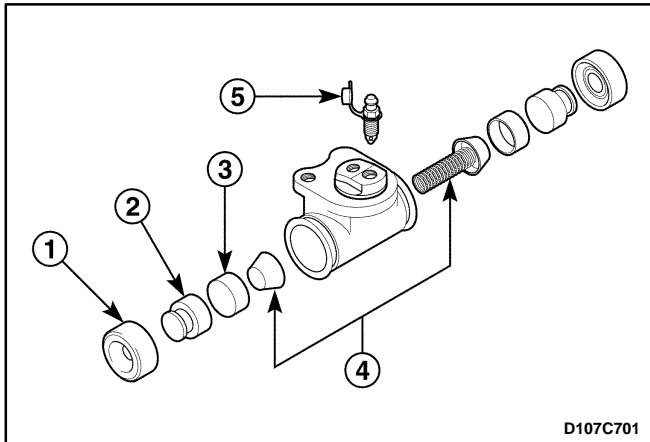
1. Install the bolts and the backing plate.

Tighten

Tighten the backing plate-to-rear axle bolts to 24 N·m (18 lb-ft).

2. Install the wheel cylinder assembly. Refer to "Wheel Cylinder Assembly" in this section.
3. Install the brake shoe components. Refer to "Brake Shoe" in this section.
4. Install the brake drum.

UNIT REPAIR



WHEEL CYLINDER

Disassembly Procedure

1. Remove the wheel cylinder assembly. Refer to “Wheel Cylinder Assembly” in this section.
2. Disassemble wheel cylinder assembly.
 - Remove the dust boots and do not reuse them (1).
 - Remove the piston (2).
 - Remove the piston cup and do not reuse it (3).
 - Remove the spring assembly (4).
 - Remove the bleeder screw (5).
3. Clean all parts with denatured alcohol. Dry the parts with unlubricated compressed air.

Assembly Procedure

Important: Lubricate the new seals, the piston, the piston cup and the wheel cylinder bore with clean brake fluid before assembly.

1. Assemble wheel cylinder assembly.
 - Insert the bleeder screw.

Tighten

Tighten the bleeder screw to 6 N•m (53 lb-in).

- Install the spring and the new piston cup.
 - Install the piston and the new boots.
2. Inspect the piston for free movement.
 3. Install the wheel cylinder assembly. Refer to “Wheel Cylinder Assembly” in this section.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Application		Unit	Description
Drum	Inside Diameter	mm (in.)	180 (7.086)
	Wear Limit	mm (in.)	182 (7.165)
	Out of Round	mm (in.)	0.04 (0.001)
	Cylindricity	mm (in.)	0.02 (0.0008)
Brake Lining	Thickness	mm (in.)	4 (0.157)
	Wear Limit	mm (in.)	1 (0.039)
	Distance Between Lining and Drum	mm (in.)	0.3 (0.011)
Wheel Cylinder	Inside Diameter	mm (in.)	17.46 (0.687)

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb-Ft	Lb-In
Castellated Nut*	–	–	–
Wheel Cylinder Bolt	10	–	89
Brake Backing Plate Bolt	24	18	–
Brake Pipe Fitting	16	12	–
Bleeder Screw	6	–	53

* Castellated Nut : 25 N•m – 180° + 2.5 N•m (18 lb-ft – 180° + 22 lb-in.)