

CHAPTER 7

BRAKE

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FRONT BRAKE

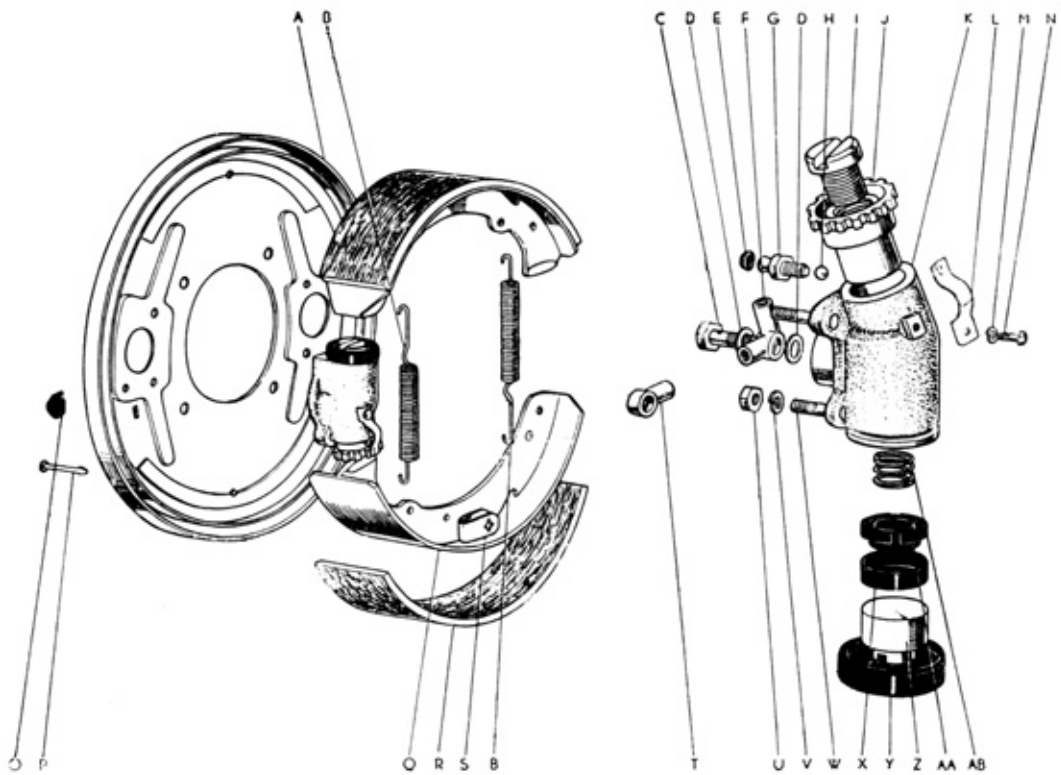


Fig. 7-1 Front Brake

- A Front Brake Flange Plate Complete
- B Front Brake Shoe Return Spring
- C Wheel Cylinder Union Bolt
- D Wheel Cylinder Union Packing
- E Bleeder Plug Rubber Cap
- F Front Wheel Cylinder Union
- G Wheel Cylinder Bleeder Plug
- H Wheel Cylinder Bleeder Seat Ball
- I Front Wheel Cylinder Brake Adjusting Screw
- J Wheel Cylinder Adjuster
- K Front Wheel Cylinder
- L Wheel Cylinder Adjuster Lock Spring
- M Spring Washer
- N Screw

- O Brake Shoe Adjust Hole Plug
- P Brake Shoe Guide Pin
- Q Brake Shoe Complete
- R Brake Lining
- S Brake Shoe Clamp Spring
- T Master & Wheel Cylinder Union
- U Nut
- V Spring Washer
- W Wheel Cylinder Stud Bolt
- X Wheel Cylinder Piston Cup
- Y Wheel Cylinder Cover
- Z Front Wheel Cylinder Piston
- AA Wheel Cylinder Spring Seat
- AB Wheel Cylinder Spring

BRAKE SHOE & BRAKE DRUM Disassembly

1. Raise vehicle and place it on stand.
2. Remove wheel, and pry off front axle hub cover with screwdriver.

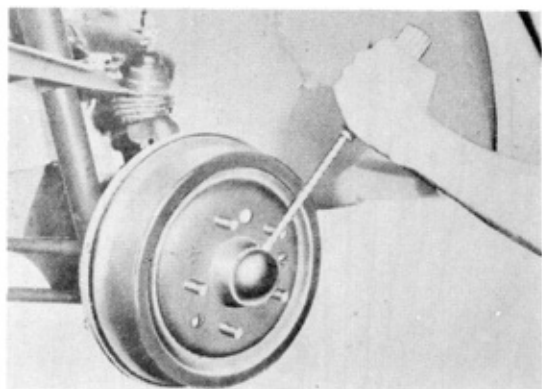


Fig. 7-2 Removing Hub Cover

3. Pull out cotter pin at the end of steering knuckle. Remove knuckle nut and take out steering knuckle washer.
4. Remove front axle outer bearing.
5. Remove brake drum with axle hub attached.

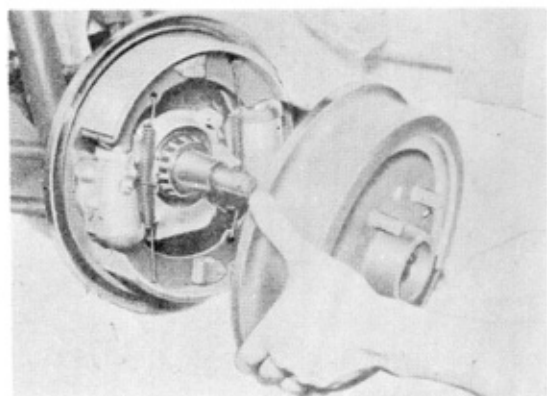


Fig. 7-3 Removing Brake Drum

6. Remove two brake shoe return springs using Brake Shoe Return Spring Tool (RS21 SST-2073).

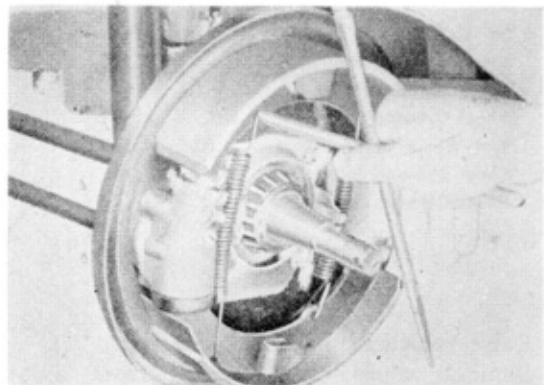


Fig. 7-4 Removing Return Spring

7. Remove guide pins and brake shoe clamp springs.
(Lower guide pin cannot be removed without removing flange plate).

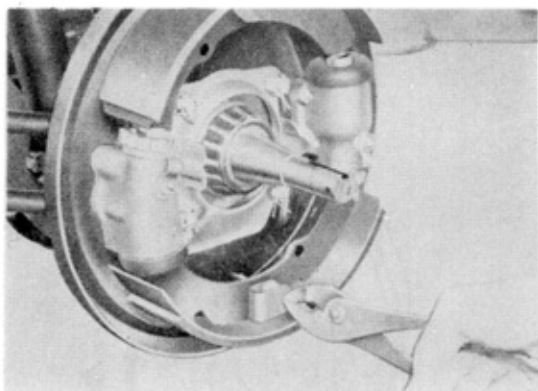


Fig. 7-5 Removing Brake Shoe Clamp

8. Remove upper and lower brake shoes.

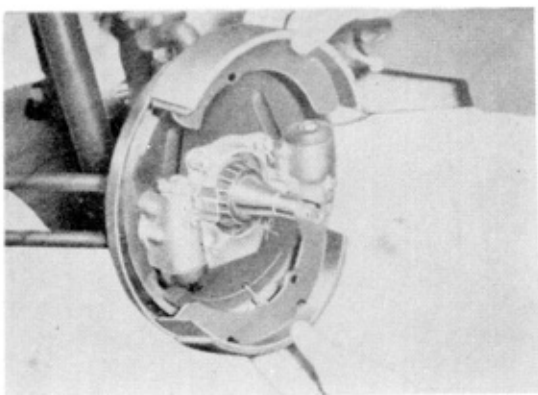


Fig. 7-6 Removing Brake Shoes

9. Remove union bolt attaching brake flexible hose to wheel cylinder.

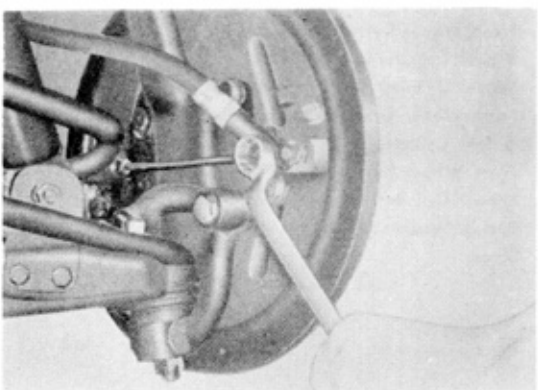


Fig. 7-7 Removing Union Bolt

10. Remove nuts retaining wheel cylinders

to the flange plate, and remove the wheel cylinders.

Inspection

BRAKE LINING

1. If the inspection indicates poor lining to drum contact, recondition the lining to obtain proper contact.
2. Replace lining if it is worn down to 1.5 mm (0.059").

BRAKE DRUM

Caution: Do not wash the lining unless grease is adhering to the lining.

If brake drum is excessively worn or scored, remove the hub and correct brake drum by grinding on a lathe. Thicker brake lining may be used depending upon reconditioning of the brake drum.



Fig. 7-8

Note:

1. Brake drum should not be ground more than 232 mm (9.13") in diameter.
2. Brake lining are available in three different sizes in thickness.

STD.	4.8 mm (0.19")
O.S.	5.3 mm (0.21")
	5.8 mm (0.23")

SHOE RETURN SPRING

Replace shoe return spring if it is weak or damaged.

Assembly

1. Attach wheel cylinders to the flange plate.

2. Engage ends of shoes into slots of wheel cylinder pistons and adjusting screws.
3. Attach the brake shoes with guide pins and clamp springs to the flange plate.
4. Install brake shoe return spring using Brake Shoe Return Spring Tool (RS21 SST-2073).

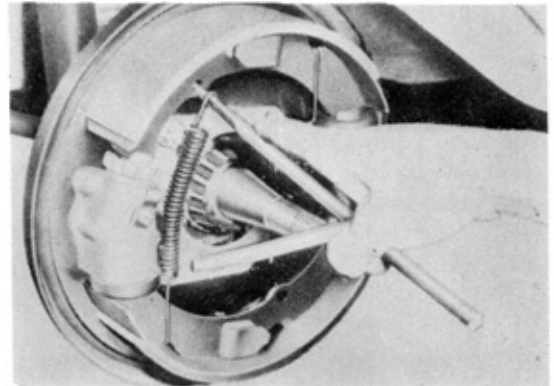


Fig. 7-9 Installing Return Spring

5. Install hub and drum assembly.
6. Install front axle outer bearing.
7. Insert steering knuckle washer, and tighten knuckle nut. If the nut lines up with the hole in the knuckle, back off the nut (1/6 turn) until the next slot in the nut lines up with the same hole in the knuckle, and insert cotter pin.
8. Install hub cover, wheel and wheel cap.

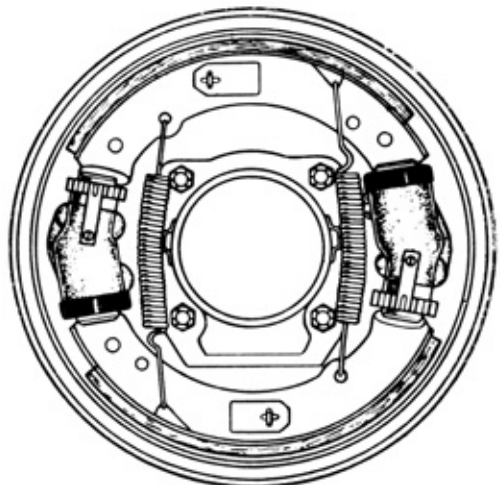


Fig. 7-10 Front Brake

9. Depress brake pedal several times to align the brake shoe articulating links. Adjust brakes and bleed air.
10. Lower the vehicle to ground.

FRONT WHEEL CYLINDER

Disassembly

1. Remove adjuster lock spring.
2. Remove bleeder plug rubber cap, unscrew the bleeder plug, and take out seat ball.
3. Pull out wheel cylinder adjuster, and unscrew adjust screw.

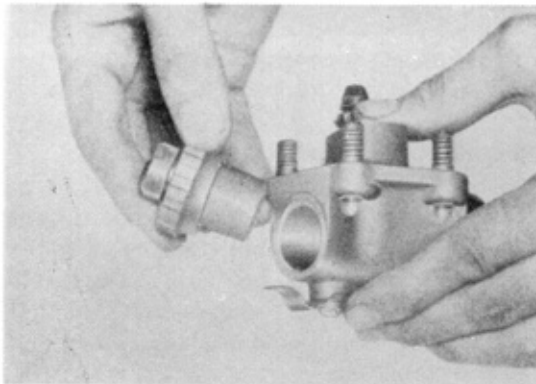


Fig. 7-11 Removing Wheel Cylinder Adjuster

4. Remove wheel cylinder cover, and take out piston, piston cup, spring seat, and spring.

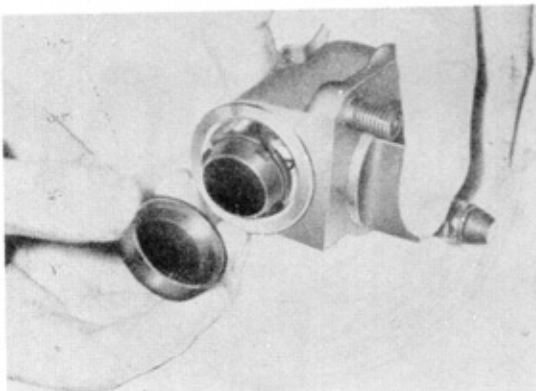


Fig. 7-12 Removing Wheel Cylinder Cover

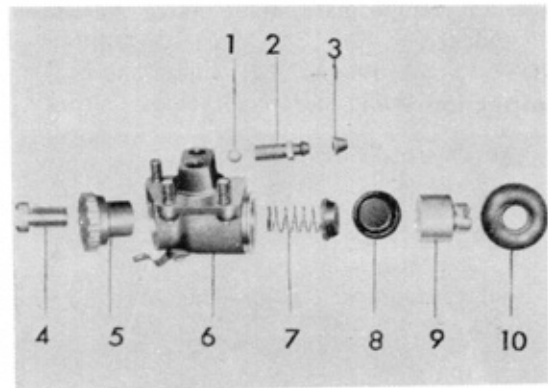


Fig. 7-13 Front Wheel Cylinders

- | | |
|----------------------------|---------------|
| 1. Seat Ball | 6. Cylinder |
| 2. Bleeder Plug | 7. Spring |
| 3. Bleeder Plug Rubber Cup | 8. Piston Cup |
| 4. Adjusting Screw | 9. Piston |
| 5. Adjuster | 10. Cover |

Inspection

Caution: Wash all parts with alcohol or brake fluid.

1. Inspect wheel cylinder bore for score and wear. A scored or damaged cylinder must be replaced. If the wear in the bore is over 0.127 mm (0.005"), replace the cylinder.

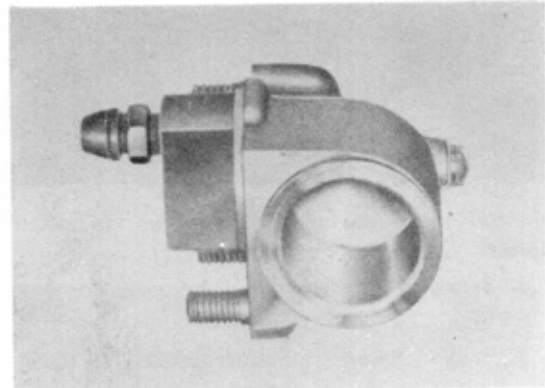


Fig. 7-14 Inspecting Wheel Cylinder Bore

2. Check piston cup for damage or swelling. Replace the cup if necessary.
3. Check clearance between cylinder and piston. The clearance should be from 0.04 mm to 0.12 mm (0.002" to 0.005"). If the clearance is more than the specified value, replace the cylinder and piston.
4. Check wheel cylinder spring. Weak or damaged spring must be replaced.

Note: Free length 40 mm (1.59")

Assembly

Follow "REMOVAL" in reverse order.

Caution:

1. Before assembling apply brake fluid to cylinder bore, adjuster, piston and

piston cup.

2. Adjuster and Adjuster Screw have a distinction between right and left, and they should be installed as follows.

Left-hand Thread	Right side
Right-hand Thread	Left side

REAR BRAKE

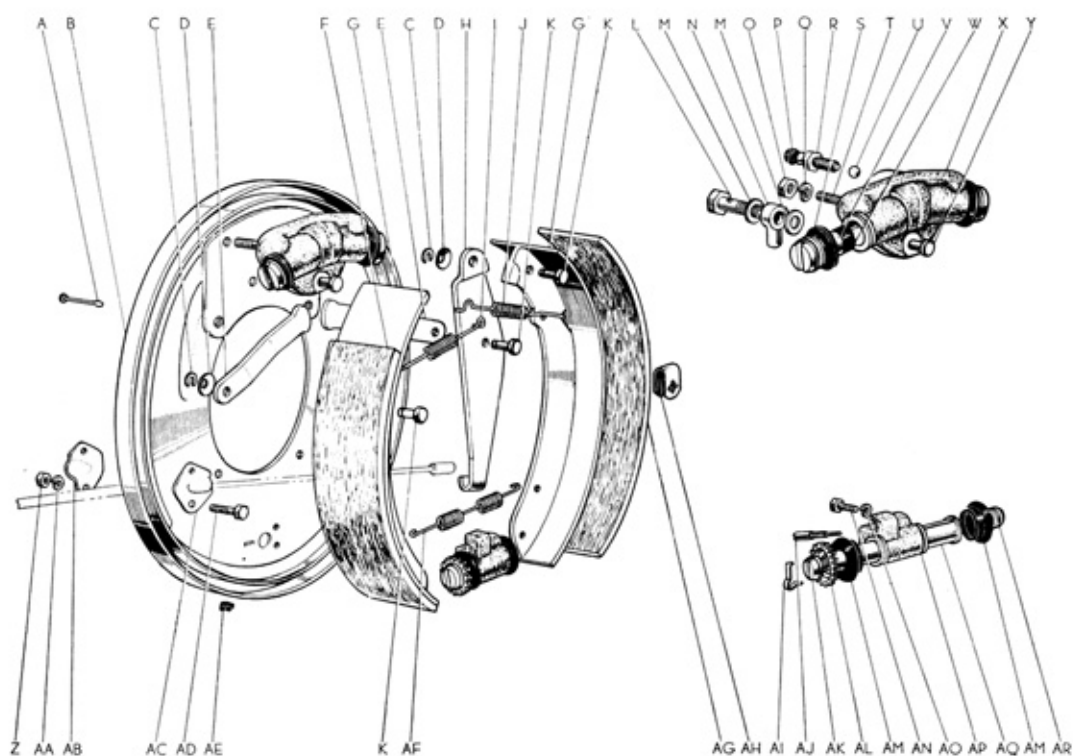


Fig. 7-15 Rear Brake

- | | |
|--------------------------------------|---|
| A Brake Shoe Guide Pin | W Rear Wheel Cylinder Piston Cup |
| B Rear Brake Flange Plate Complete | X Rear Wheel Cylinder |
| C Stopper (For rear brake shoe pin) | Y Rear Wheel Cylinder Spring Support Pin |
| D Washer (For rear brake shoe pin) | Z Nut |
| E Rear Brake Strut | AA Spring Washer |
| F Rear Brake Primary Lining | AB Hand Brake Rear Flexible Wire Clamp |
| G Brake Shoe Complete | AC Hand Brake Rear Flexible Wire Lock Plate |
| H Rear Brake Lever | AD Bolt |
| I Rear Brake Shoe Return Spring No.2 | AE Slot Hole Cover |
| J Rear Brake Shoe Return Spring No.1 | AF Rear Brake Shoe Adjuster Spring |
| K Rear Brake Shoe Pin | AG Brake Lining |
| L Wheel Cylinder Union Bolt | AH Brake Shoe Clamp Spring |
| M Wheel Cylinder Union Packing | AI Rear Brake Adjuster Lock Spring |
| N Master & Wheel Cylinder Union | AJ Adjuster Spring Clamp Bolt Complete |
| O Nut | AK Rear Brake Adjuster Screw |
| P Bleeder Plug Rubber Cap | AL Rear Brake Adjuster |
| Q Spring Washer | AM Rear Brake Adjuster Dust Cover |
| R Wheel Cylinder Bleeder Plug | AN Bolt |
| S Rear Wheel Cylinder Dust Cover | AO Spring Washer |
| T Rear Wheel Cylinder Stud Bolt | AP Rear Brake Adjuster Guide |
| U Wheel Cylinder Bleeder Seat Ball | AQ Rear Brake Adjuster Guide Bushing |
| V Rear Wheel Cylinder Piston | AR Primary Shoe Support Piece |

BRAKE SHOE & BRAKE DRUM

Disassembly

1. Raise the car and place on stand jacks. Remove wheel.
2. Remove brake drum set screws, then remove the drum.
3. Unhook return springs and adjuster spring from brake shoes using Brake Shoe Return

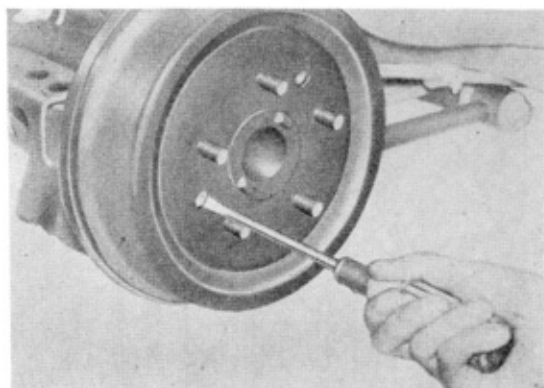


Fig. 7-16 Removing Set Screw

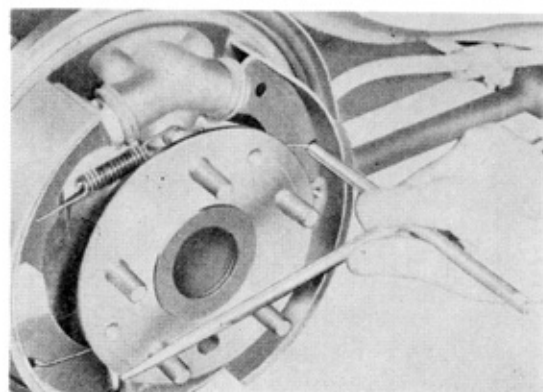


Fig. 7-17 Removing Return Spring

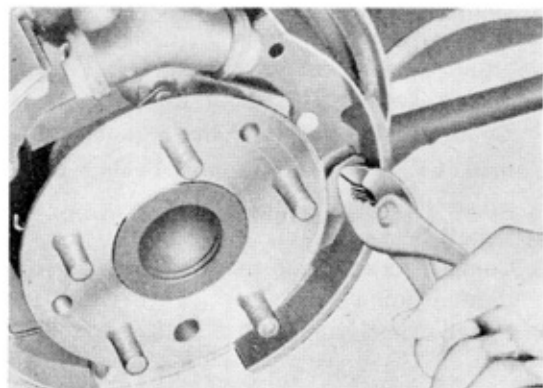


Fig. 7-18 Removing Brake Shoe Clamp

- Spring Tool (RS21 SST-2073).
4. Remove guide pins and brake shoe clamp springs.
 5. Remove primary brake shoe with strut attached to it.

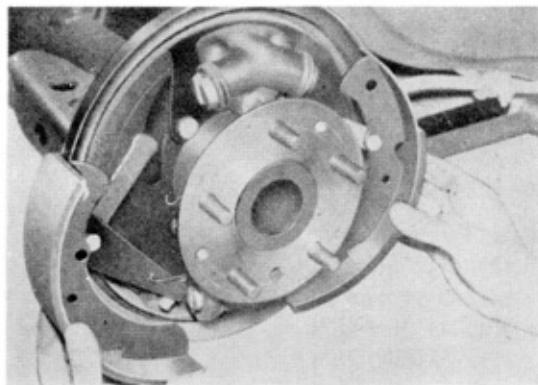


Fig. 7-19 Removing Brake Shoes

6. Remove secondary brake shoe with brake lever and strut attached to it, and disconnect flexible wire coil from brake lever.

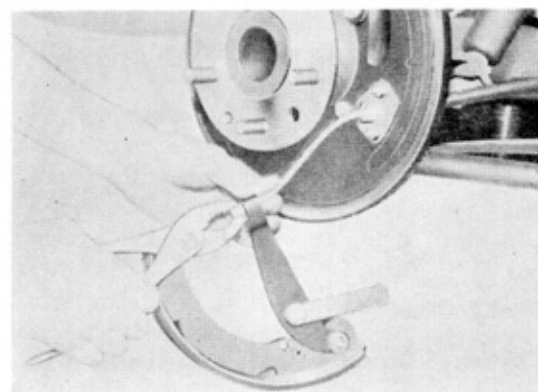


Fig. 7-20 Disconnecting Wire Coil

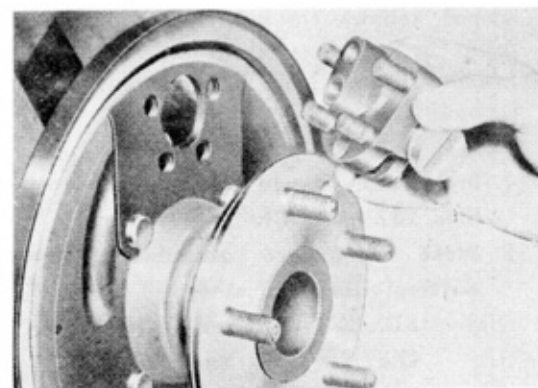


Fig. 7-21 Removing Wheel Cylinder

7. Remove brake strut and brake lever from shoe.
8. Remove brakeadjuster.
9. Remove union bolt and disconnect brake pipe from wheel cylinder.
10. Remove 4 bolts retaining wheel cylinder to the flange plate and remove wheel cylinder.

Inspection

BRAKE LINING

1. If the inspection indicates poor lining-to-drum contact, recondition the lining to obtain proper contact.
2. Replace lining if it is worn down to 1.5 mm (0.059").

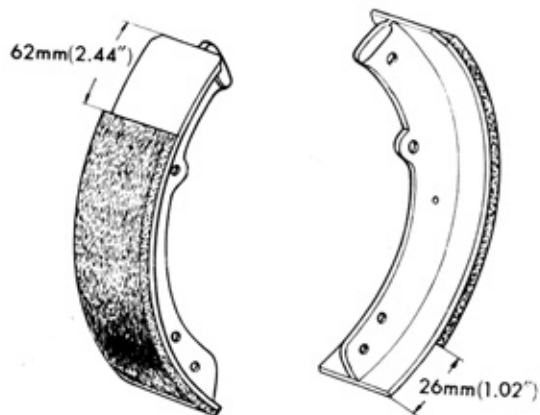


Fig. 7-22 Inspecting Brake Lining

BRAKE DRUM

Caution: Do not wash the lining unless grease is adhering to the lining.

1. If the brake drum is excessively worn or scored, remove the hub and correct brake drum by grinding on a lathe. Thicker brake lining may be used depending upon reconditioning of the brake drum.

Note:

1. Brake drum should not be ground more than 232 mm (9.13") in diameter.
2. Brake lining are available in three different sizes in thickness.

STD.	4.8 mm (0.19")
O.S.	5.3 mm (0.21")

5.8 mm (0.23")

SHOE RETURN SPRING & ADJUSTER SPRING

Replace shoe return spring or adjuster spring if they are weak or damaged.

Assembly

1. Attach wheel cylinder and brake adjuster to the flange plate.
2. Attach brake strut and brake lever, to brake shoe.

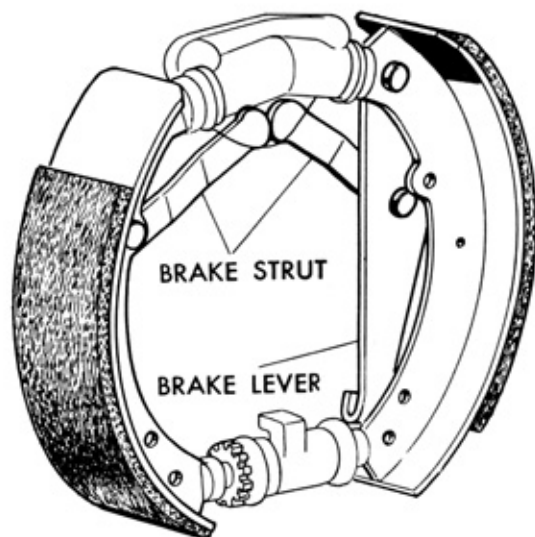


Fig. 7-23 Installing Brake Strut and Brake Lever

3. Hook flexible wire coil on brake lever.
4. Install secondary brake shoe and primary brake shoe.

When engaging ends of shoes in the slots in ends of adjusting screw, engage adjuster lock spring at the same time.

5. Attach brake shoes with guide pins and clamp springs to the flange plate.
6. Install brake shoe return spring and adjuster spring using Brake Shoe Return Spring Tool (RS21 SST-2073).

Caution: The center of the adjuster spring must be at the clamp bolt behind brake adjuster.

7. Install brake drum.
8. Connect brake pipe to wheel cylinder and tighten union bolt.
9. Install wheel, and adjust brakes and bleed air.

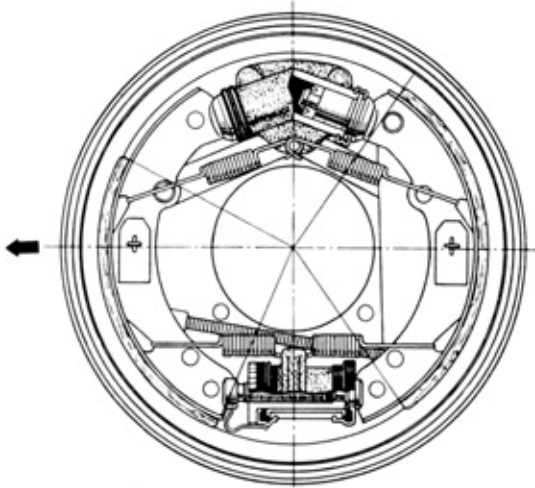


Fig. 7-24 Rear Brake

REAR WHEEL CYLINDER

Disassembly

1. Remove dust cover.
2. Take out piston and piston cup.

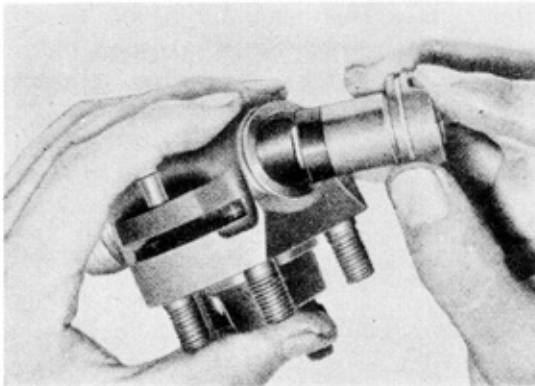


Fig. 7-25 Taking out Piston and Piston Cup

3. Remove bleeder plug rubber cap, unscrew the bleeder plug, and take out seat ball.

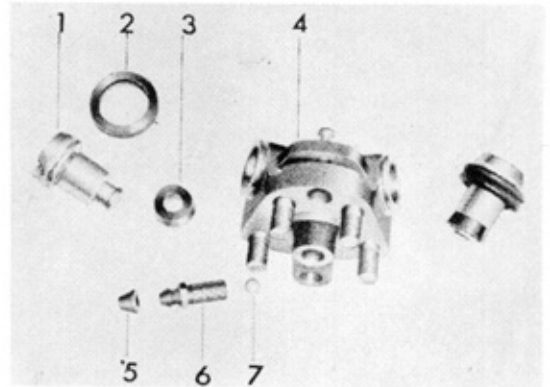


Fig. 7-26 Rear Wheel Cylinder

1. Piston
2. Dust Cover
3. Piston Cup
4. Cylinder
5. Bleeder Plug Rubber Cup
6. Bleeder Plug
7. Seat Ball

Inspection

Caution: Wash all the parts with alcohol or brake fluid.

1. Inspect wheel cylinder bore for score and wear. A scored or damaged cylinder must be replaced.
2. Check piston for damage or swelling. Replace the cups if necessary.
3. Check clearance between cylinder and piston. The clearance should be from 0.04 mm to 0.12 mm (0.002" to 0.005"). If the clearance is more than the specified value, replace the cylinder.

Assembly

Follow "REMOVAL" in reverse order.

Caution: Before assembling, apply brake fluid to cylinder bore, piston and piston cup.

BRAKE ADJUSTER

Disassembly

1. Remove adjuster dust covers, take out adjuster, and remove adjuster screw.

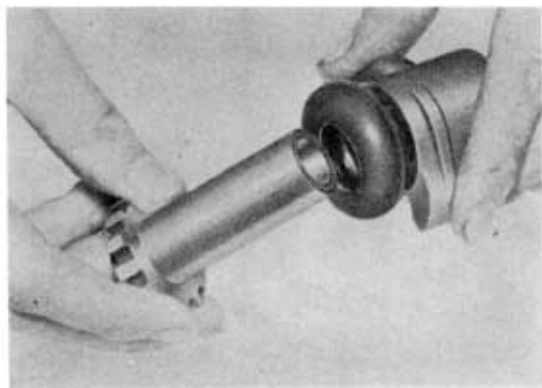


Fig. 7-27 Removing Adjuster Screw

2. Take out adjuster guide bushing.

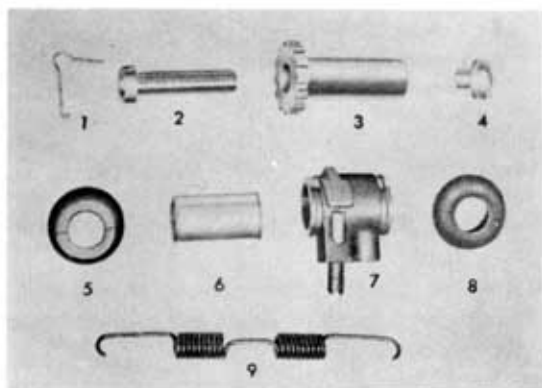


Fig. 7-28 Brake Adjusters

1. Adjuster Lock Spring
2. Adjuster Screw

3. Adjuster
4. Primary Shoe Support Piece
5. Dust Cover
6. Adjuster Guide Bushing
7. Adjuster Guide
8. Adjuster Spring
9. Rear Brake Shoe Adjuster Spring

Inspection

Caution: Wash all parts with alcohol or brake fluid.

1. Replace adjuster if it is scored or damaged.
2. Replace adjuster guide bushing if it is worn or scored.

Assembly

Follow "REMOVAL" in reverse order.

Caution: Adjuster Guide, Adjuster and Adjuster Screw have a distinction between right and left. Take care not to mismatch these parts when installing.

Adjuster and adjuster Screw

Left-hand Thread Right side

Right-hand Thread Left side

MASTER CYLINDER

Regarding "MASTER CYLINDER", see page 1-8 "CLUTCH MASTER CYLINDER".

AIR BLEEDING & BRAKE ADJUSTMENT

AIR BLEEDING

Master Cylinder

1. Remove cap and fill master cylinder oil tank with brake fluid.
2. Disconnect three way union attaching brake pipe to master cylinder. Close the master cylinder with cap to stop fluid running out of master cylinder, and depress the pedal several times until all the air in master cylinder has been removed.
3. After air has been completely bleed out of the master cylinder, connect main three way union while brake fluid is running out.

Wheel Cylinder

1. Remove rubber cap from wheel cylinder bleeder plug and attach vinyl tube. Place the other end of the tube into a clean glass jar half filled with brake fluid. Unscrew bleeder plug one full turn.
2. Depress brake pedal fully, then release pedal slowly. Continue this operation until fluid flows from tube into glass jar in a solid stream.
3. Frequently check master cylinder oil tank for fluid. Allowing oil tank to be emptied will cause air to be drawn into hydraulic system.
4. As soon as the bubbles stop coming out of the tube, tighten bleeder plug with brake pedal depressed.
5. Check oil tank for fluid level, refill it to 3/4 full if necessary.

Note: The brake fluid discharged into the glass jar during air bleeding operation should never be used unless it has been filtrated and left alone for several hours to remove all air bubbles.

BRAKE SHOE ADJUSTMENT

Front

1. Jack up vehicle.

2. Remove rubber plug from brake adjusting hole in flange plate. Using brake adjusting tool, turn adjuster screw to expand brake shoe.

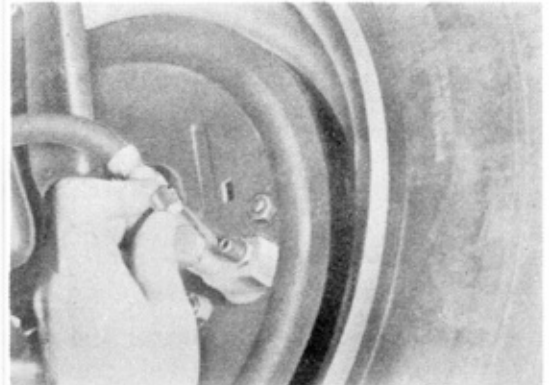


Fig. 7-29 Removing Rubber Plug

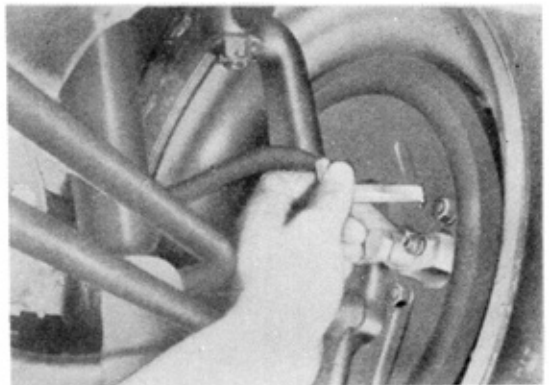


Fig. 7-30 Turning Adjuster Screw

The brake pedal must be depressed several times while turning adjusting screw in order to make the brake lining contact drum all around its surface and to lock wheel completely. Moving outer end of tool away from the center of flange plate toward the tire will expand the shoe.

3. Back off brake adjusting screw 5 notches. If shoe still drags lightly on drum, back off adjusting screw 1 or 2 additional notches. Check the wheel for being free of drag.

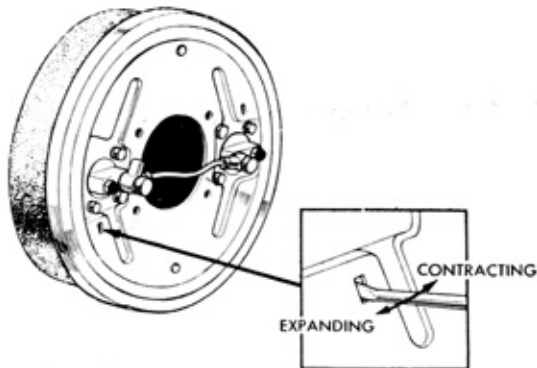


Fig. 7-31 Adjusting Front Foot Brake

4. Install adjusting hole plug in flange plate after adjustment has been completed.
5. Repeat the same operations on each brake shoe.

Rear

1. Jack up vehicle in safe manner and make sure that parking brake is fully released.

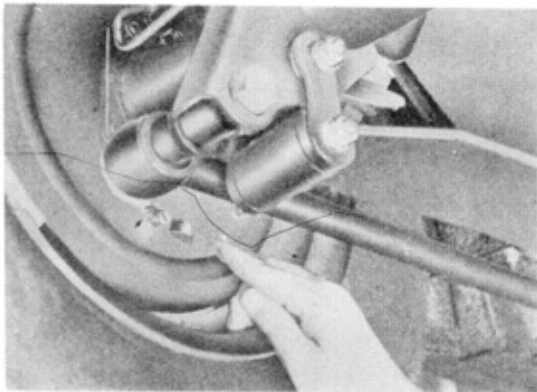


Fig. 7-32 Removing Rubber Plug

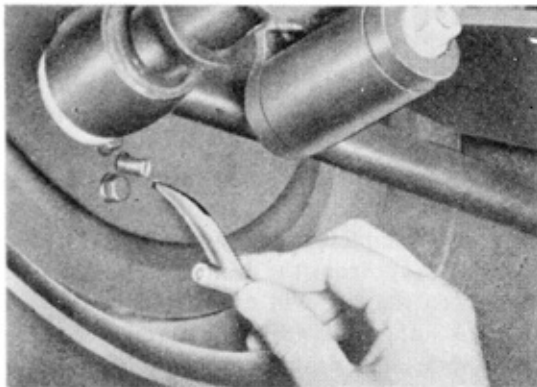


Fig. 7-33 Turning Adjuster Screw

2. Remove rubber plug from adjusting hole

in flange plate.

3. Using brake adjusting tool, turn adjusting screw to expand brake shoes. Brake pedal must be depressed several times to make the shoes contact drum all around their surfaces and to lock the wheel completely. Moving outer end of the tool away from the center of flange plate toward the tire will expand shoes.

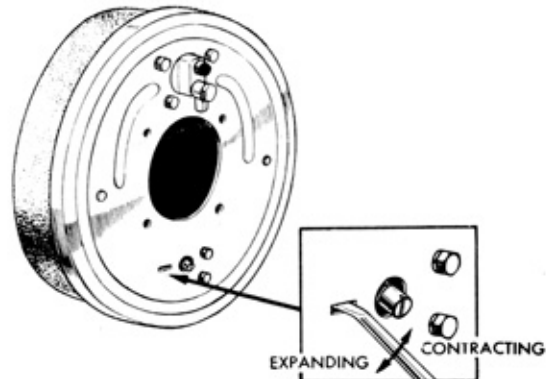


Fig. 7-34 Adjusting Rear Foot Brake

4. Back off the adjusting screw 5 notches. If the shoes still drag lightly on drum, back off a few additional notches until the shoes become free of drag on drum.
5. Install rubber plug in flange plate when adjustment is completed.
6. Repeat the same operations on the other brake.

BRAKE PEDAL ADJUSTMENT

Pedal Stopper (Stop Switch)

By changing the location of stop switch attached on pedal bracket, adjust pedal stopper so that the distance will be 630 mm (25.2") between steering wheel and brake pedal at fully released position.

Master Cylinder Push Rod

By loosening push rod lock nut and turning piston rod, adjust piston and push rod so that pedal will fully contact stop switch when pedal is depressed and piston will return fully when pedal is released.

If the distance from toeboard to the brake pedal is less than 25 mm (1") when depressed, brake linings should be checked for wear.

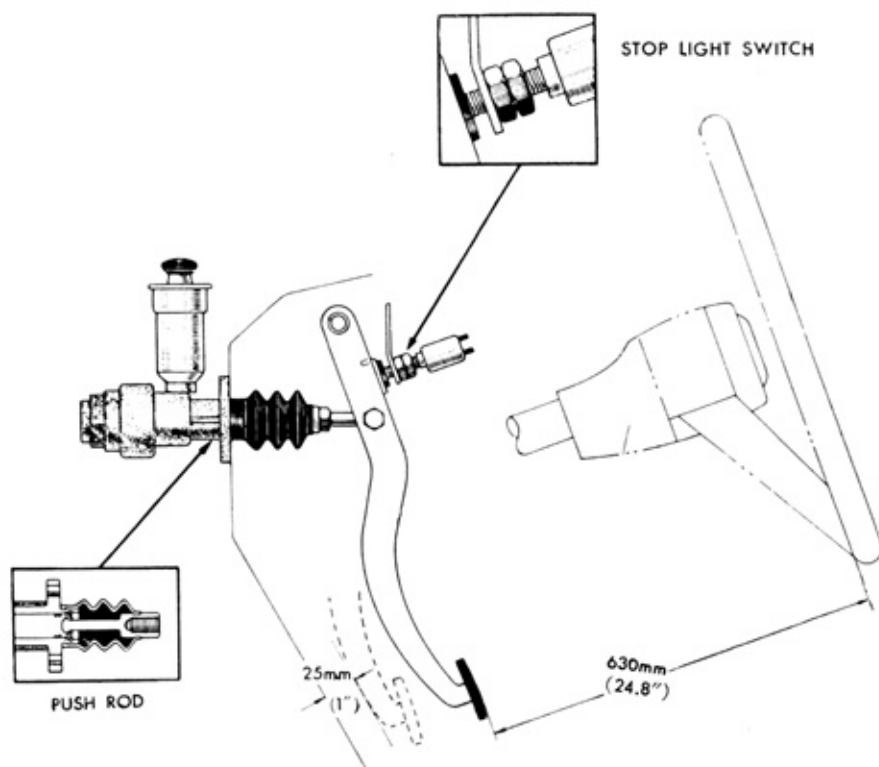


Fig. 7-35 Adjusting Brake Pedal

PARKING BRAKE ADJUSTMENT

Parking brake adjustment can be performed by changing the attaching location of center lever bracket and flexible wire adjusting nut.

Travel of the Brake Plunger
6~9 notches

Caution :

1. Before parking brake adjustment, foot brake

should be adjusted correctly.

2. Brake shoe should return to its original position when parking brake plunger is fully released.

3. If proper adjustment cannot be obtained within the specified measurements of 3 mm (1/8") to 6 mm (1/4") of flexible wire protruding from the lock nut, then relocate the center lever bracket by loosening two nuts attaching bracket to vehicle.

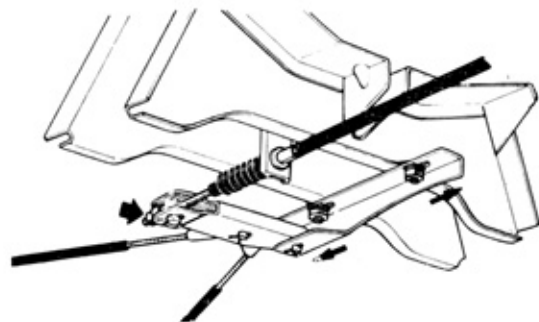
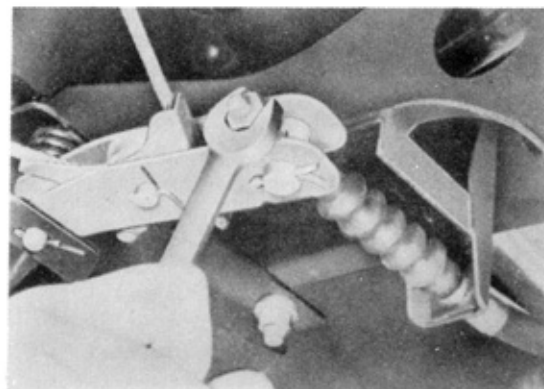


Fig. 7-36 Adjusting Parking Brake

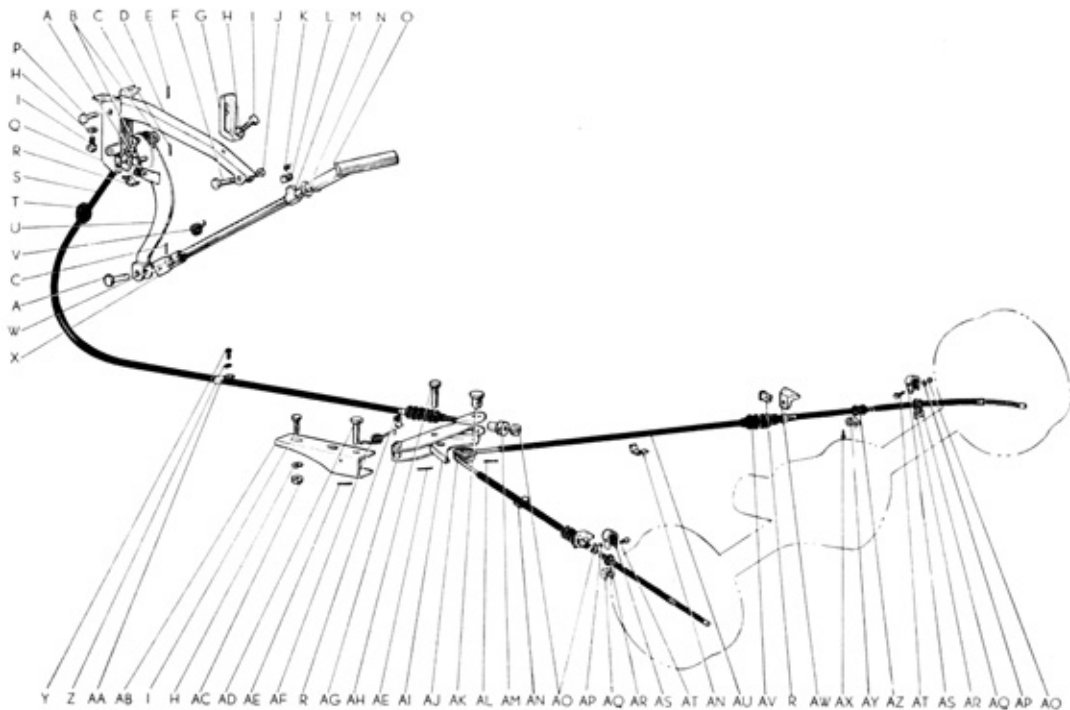


Fig. 7-37 Parking Brake Wire

- | | |
|--|---|
| A Flexible Wire Pivot Pin | AA Parking Brake Flexible Tube Clamp |
| B Parking Brake Lever Pin Spacer | AB Parking Brake Center Lever Bracket |
| C Cotter Pin | AC Nut |
| D Parking Brake Plunger Bracket Complete | AD Pin (For parking brake center lever) |
| E Cotter Pin | AE Cotter Pin |
| F Parking Brake Latch pivot Pin | AF Parking Brake Center Lever Spring |
| G Parking Brake Set plate | AG Parking Brake Center Lever Complete |
| H Spring Washer | AH Pin (For parking brake center lever pulley) |
| I Bolt | AI Parking Brake Center Lever Wire Guide |
| J "C" Washer | AJ Parking Brake Center Lever Pulley |
| K Parking Brake Latch Spring | AK Parking Brake Bell Crank & Flexible Wire Pivot Pin |
| L Parking Brake Latch | AL Cotter Pin |
| M Parking Brake Plunger Guide | AM Parking Brake Flexible Wire Adjusting Nut |
| N Parking Brake Plunger Washer | AN Parking Brake Rear Flexible Wire Support |
| O Parking Brake Plunger Complete | AO Nut |
| P Parking Brake Lever Pin | AP Spring Washer |
| Q Cushion Rubber (For parking brake lever) | AQ Flexible Tube Support Bracket |
| R Clip (For parking brake flexible wire) | AR Parking Brake Flexible Tube Support Bushing |
| S Parking Brake Flexible Wire Assembly | AS Parking Brake Flexible Tube Holder |
| T Parking Brake Flexible Tube Grommet | AT Bolt |
| U Parking Brake Lever Complete | AU Parking Brake Rear Flexible Wire Assembly |
| V Parking Brake Plunger Spring | AV Parking Brake Rear Flexible Tube Dust Cover |
| W Parking Brake Plunger Pin | AW Parking Brake Rear Flexible Tube Set Plate |
| X Parking Brake Plunger Sleeve | AX Tapping Screw |
| Y Tapping Screw | AY Clamp (For parking brake rear flexible tube) |
| Z Plate Washer | AZ Bushing (For parking brake rear flexible tube clamp) |