

SECTION 4 BRAKE SYSTEM

Group 1 Structure and function	4-1
Group 2 Operational checks and troubleshooting	4-4
Group 3 Adjustments	4-6

SECTION 4 BRAKE SYSTEM

GROUP 1 STRUCTURE AND FUNCTION

1. OUTLINE

There are two brake systems, the service brake system and the parking brake system.

In the service brake system, oil pressure is generated in the master cylinder by treading on the brake pedal. This pressure causes the brake lever to press the pressure pin which gives braking pressure to the disk carrier.

In the parking brake system, the brake lever is operated by cable. Therefore the pressure pin makes braking pressure onto the disk carrier.

2. SPECIFICATION

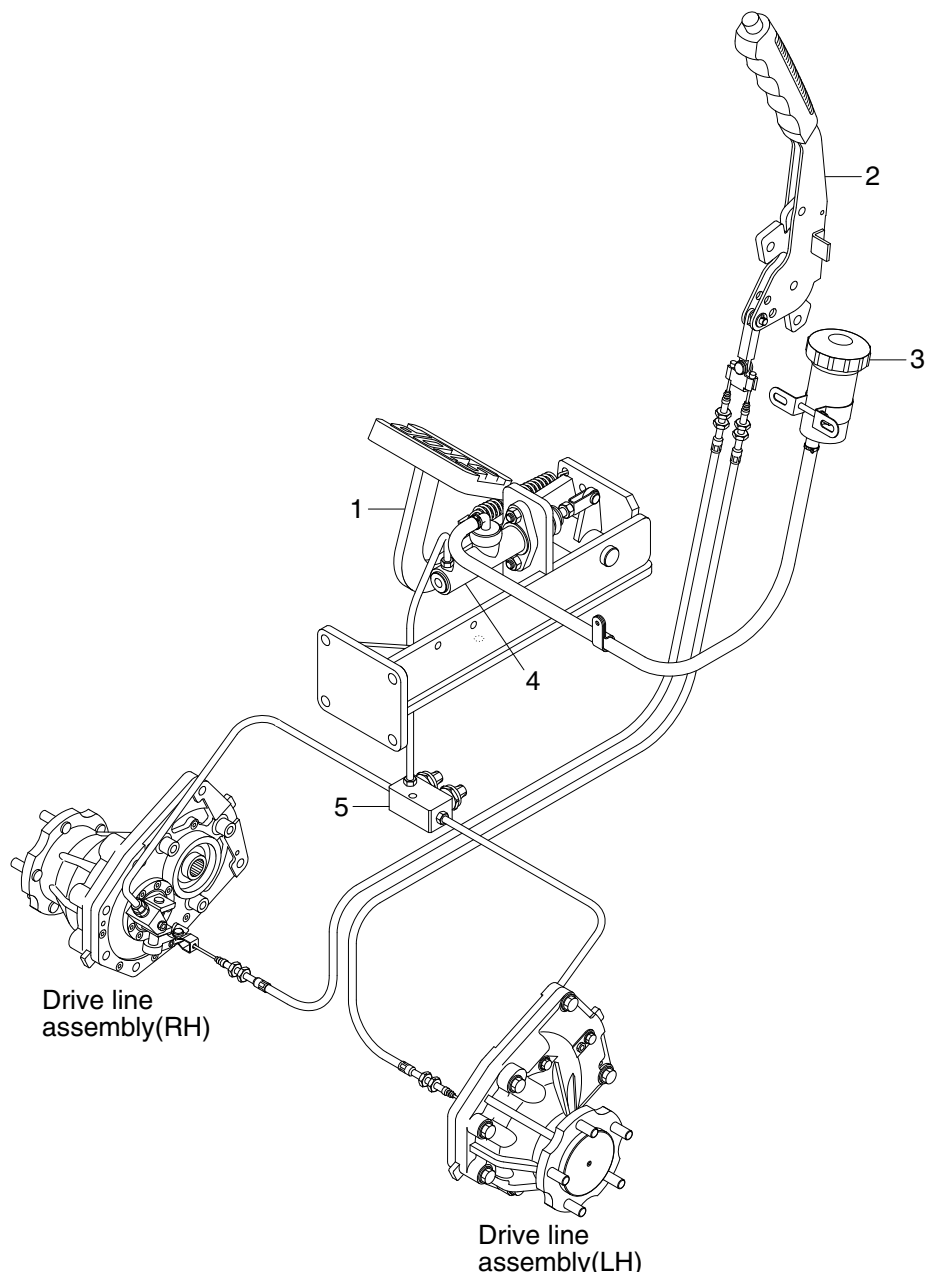
1) SERVICE BRAKE

Item	Unit	Specification
Brake type	-	Wet disc brake
Brake fluid	-	Hydraulic oil ISO VG32 (AZOLLA ZS32)
Max. brake torque	N · m (at 60 bar)	2450
Max. braking pressure	bar	140
Oil volume (Never use disc)	ℓ	0.5

2) PARKING BRAKE

Item	Specification
Type	Ratchet, internal expanding mechanical type
Parking lever stroke	18.6°
Parking cable stroke	9.7 mm
Parking brake torque (wheel)	1080 N·m (980 N·m)

3. BRAKE PEDAL AND PIPING

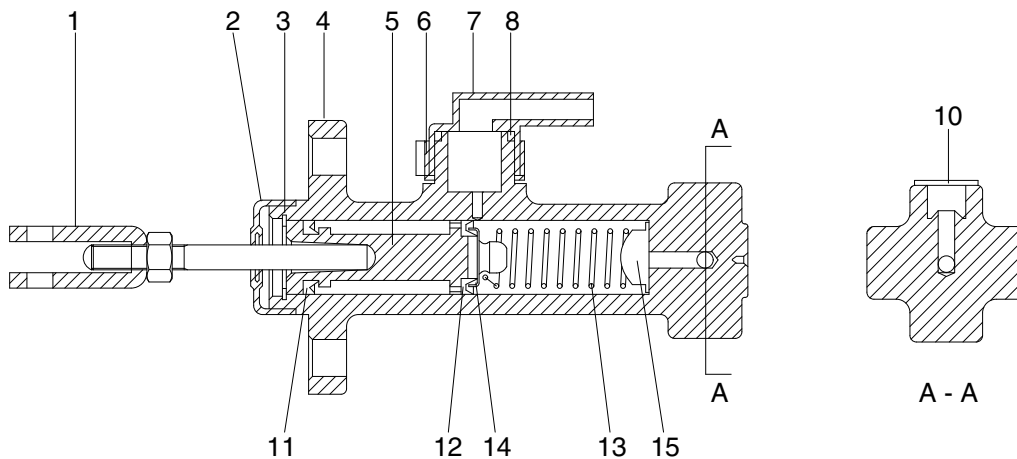


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- | | | | |
|---|----------------------------|---|------------------|
| 1 | Brake pedal & bracket assy | 4 | Brake valve assy |
| 2 | Parking lever assy | 5 | 5-way block |
| 3 | Reservoir tank assy | | |

4. BRAKE VALVE

1) STRUCTURE



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1	Rod assy	6	Union	13	Spring
2	Boot	7	Elbow	14	Spring seat
3	Snap ring	8	O-ring	15	Spring seat
4	Body	11	Secondary cup		
5	Piston	12	Primary cup		

2) DISASSEMBLY

- (1) Remove the master cylinder boot (2) and remove the rod assy (1).
- (2) Remove the snap ring (3) and take out the piston (5), the secondary cup (11), primary cup (12), spring (13) and spring seat (14, 15).
- (3) Specification of master cylinder.
 - Piston bore diameter : 22.23 mm (0.88")
 - Piston stroke : 34 ± 1 mm
 - Max operating pressure : 150 kgf/cm² (2130 psi)

3) INSPECTION

- (1) Clean and check these components.
 - ※ Use Isopropyl alcohol or brake fluid for washing the components. Do not use gasoline, kerosene or any other mineral oils. When using alcohol, do not leave urbber parts in the liquid for more than 30 seconds.
- (2) Inspect the inside wall of the master cylinder, and if any faults are found, replace the cylinder assembly.
- (3) Replace the boot (2), the secondary cup (11), primary cup (12) and piston (5), if deformation or any other defect is found.

4) ASSEMBLY

- ※ Prior to assembly make sure again of no contaminant of the components. Apply a thin coat of brake oil to the components.
- ※ Assembly is in opposite order to disassembly.

GROUP 2 OPERATIONAL CHECKS AND TROUBLESHOOTING

1. OPERATIONAL CHECKS

1) BRAKE PIPING

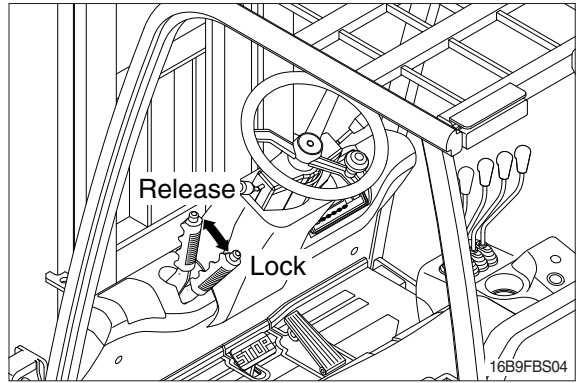
- (1) Check pipes, hoses and joints for damage, oil leakage or interference.
- (2) Operate brake pedal and check operating force when pedal is depressed. Check also change in operating force, and change in position of pedal when pedal is kept depressed.

2) BRAKING FORCE

- (1) Select a dry, flat, paved surface and, drive truck at maximum speed. When signal is given, stop truck immediately and measure distance from point where signal was given to point where truck stopped (unloaded)
 - Stopping distance : Within 5 m (16' 5")
- (2) Check that there is no pulling of steering wheel, pulling by brakes to one side or abnormal noise when making emergency stops.

3) PARKING BRAKE

- (1) Operating force of parking lever is 20 ~ 30 kgf · m (144 ~ 217lbf · ft).
- (2) Check that parking brake can hold machine in position when loaded on 15% slope. If there is no slope available, travel at low speed and check braking effect of parking brake.



2. TROUBLESHOOTING

Problem	Cause	Remedy
Brakes do not work	<ul style="list-style-type: none">• Oil leakage in the system or oil too low in tank.• Air trapped in the system.• Worn out or deteriorated piston cup in master cylinder resulting in oil leakage	<ul style="list-style-type: none">• Repair oil leakage. After bleeding fill oil tank of master cylinder to specified level with brake oil.• Bleed air completely from the brake lever.• Inspect cylinder and piston for degree of wear. On satisfactory, replace cup.
Brake pedal travel too large	<ul style="list-style-type: none">• Air trapped in the system.	<ul style="list-style-type: none">• Bleed air completely out.• Inspect oil tube joints & connections and replace leaking parts.
Wheel feel heavy	<ul style="list-style-type: none">• Return port in master cylinder closed by piston cup.	<ul style="list-style-type: none">• Inspect master cylinder.• Repair or replace pedal return spring.

GROUP 3 ADJUSTMENTS

1. ADJUSTMENT OF PEDAL

1) BRAKE PEDAL

(1) Pedal height from floor plate adjust with stopper bolt.

- Pedal height : 125 mm (4.9 in)

(2) Play

Adjust with rod of brake valve.

- Pedal play : 4~6 mm (0.16~0.23 in)

