Group	1	Structure and function	4-1
Group	2	Operational checks and troubleshooting	4-5
Group	3	Adjustments	4-7

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 is operated automatically by electric control. This E-Brake is installed in the motor.

2. SPECIFICATION

1) BRAKE

Item	Unit	Specification
Brake type	-	Front wheel, Wet disc brake
Brake fluid	-	Brake Fluid DOT 3
Max. brake torque	N ∙ m (at 60bar)	2450
Max. braking pressure	bar	140
Oil volume	сс	500

2) PARKING BRAKE

Item	Specification
Туре	Electric Auto parking (2EA)
Norminal Static Torque	60nm
Max. rotation speed	5500rpm

3. BRAKE PEDAL AND PIPING



- 1 Brake pedal & bracket assy
- 3 Brake master cylinder 4 5 Way Block
- 2 Reservoir tank assy

4. PARKING BRAKE (E-BRAKE)



5. BRAKE MASTER CYLINDER

1) STRUCTURE



1 Body

- 2 Secondary cup
- 3 Piston
- 4 Spacer
- 5 Primary cup
- 6 Spring seat

- 7 Spring
- 8 Check valve assembly
- 9 Union bolt
- 10 Cap
- 11 Retaining ring
- 12 Boot

13 Plate

15BT9USM0403

- 14 Cap
- 15 Gasket
- 16 Union

2) DISASSEMBLY AND ASSEMBLY

- (1) Remove the boot(12).
- (2) Take out the retaining ring(11) and plate(13).
- (3) Take out the piston(3), secondary cup(2), spacer(4), primary cup(5), spring seat(6), spring(7) and check valve assembly(8) from cylinder.
- (4) Perform assembly in reverse order of disassembly and add special working.

 \cdot Body and metallic parts should be washed and cleaned with petroleum solvents then dry the parts by air. Rubber parts should be washed with brake oil.

 \cdot Coat the rubber grease inner surface of cylinder.

2) INSPECTION

(1) Cylinder

Check the corrosion and pitching of inner surface of cylinder. If any defects are noted, replace the parts.

(2) Piston

Check for wear of piston, replace the piston if necessary.

Item	Standard gap	Allowable limit
Gap of cylinder and piston	0.020~0.080mm	0.2mm

(3) Rubber parts

Check for wear of secondary cup and primary cup and replace them with new ones if necessary.

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 in 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 5m(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) Trouble shooting

Problem	Cause	Remedy
Brakes do not work	\cdot Oil leakage in the system or oil to low	Repair oil leakage. After bleeding fill
	low in tank.	fill oil tank of master cylinder to speci-
		fied level with brake oil.
	 Air trapped in the system. 	\cdot Bleed air completely from the brake
		lever.
	\cdot Worn out of deteriorated piston cup in	\cdot Inspect cylinder and piston for degree
	master cylinder resulting in oil leakage	of wear. On satisfactory, replace cup.
Brake pedal travel too large	\cdot Air trapped in the system.	· Bleed air completely out.
		 Inspect oil tube joints & connections
		and replace leaking parts.
Wheel feel heavy	Return port in master cylinder closed	Inspect master cylinder.
	by piston cup.	\cdot Repair or replace pedal return spring.

2. PARKING BRAKE (E-BRAKE)

1. OPERATIONAL CHECKS

1) BRAKE CONNECTION

- (1) E-brake has to be supplied with direct current. The polarity does not affect operation.
- (2) Switch the equipment on and confirm that the friction disc rotates freely.

2) BRAKING FORCE

(1) Friction faces must kept completely clean of any oil, grease or abrasive dust to get the proper force. Nominal static torque is 60nm.

3) Trouble shooting

Problem	Cause	Remedy
Brakes do not release	Power supply is too low.	Adjust power supply.
	 Power supply is interrupted. 	 Reconnect power supply.
	• Worn disc.	\cdot Replace the brake.
	 Coil is damaged. 	\cdot Replace the brake.
Brake does not brake	· Voltage present at switch off position.	Check power supply.
	 Grease on friction faces. 	\cdot Replace the brake
	 Release screws are engaged. 	· Remove release screws or screws
		caps are not too engaged.
Nuisance braking	Power supply is too low.	Adjust power supply.

GROUP 3 ADJUSTMENTS

1. ADJUSTMENT OF PEDAL

1) BRAKE PEDAL

- (1) Pedal height from floor plate adjust with stopper bolt.
 - Pedal height : 125~130mm (4.9~5.1in)
- (2) Play

Adjust with rod of mast cylinder.

· Idle stroke : 4~6mm (0.16~0.23in)

