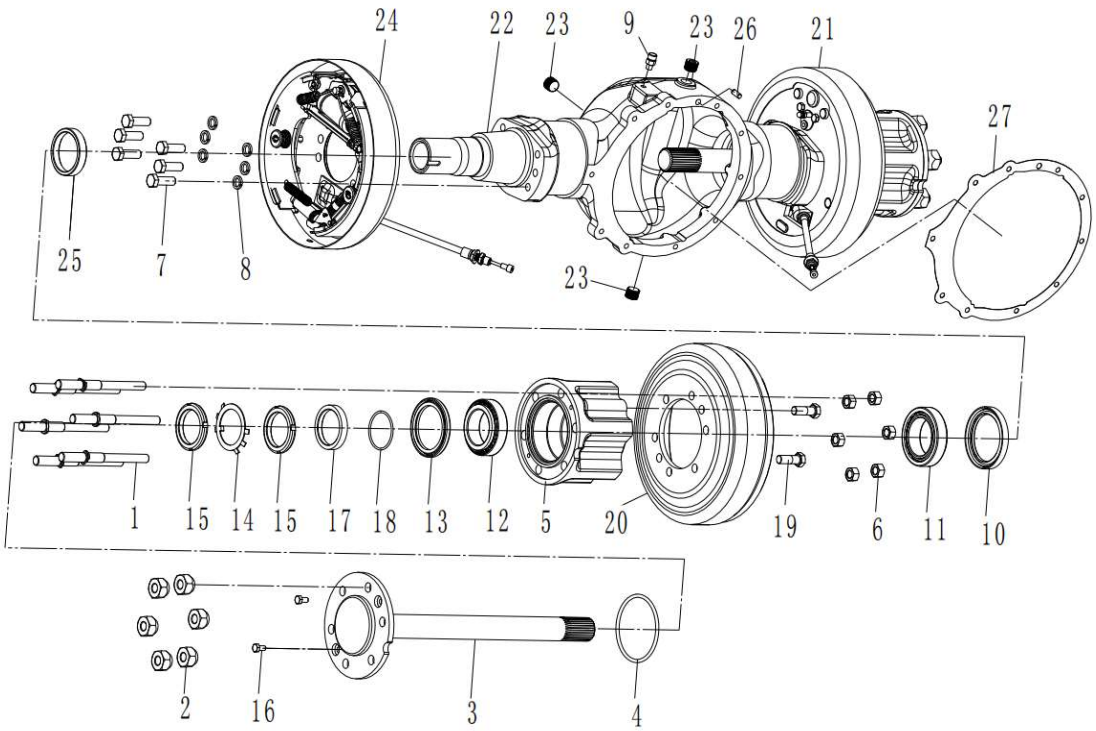
GROUP 1 STRUCTURE AND OPERATION

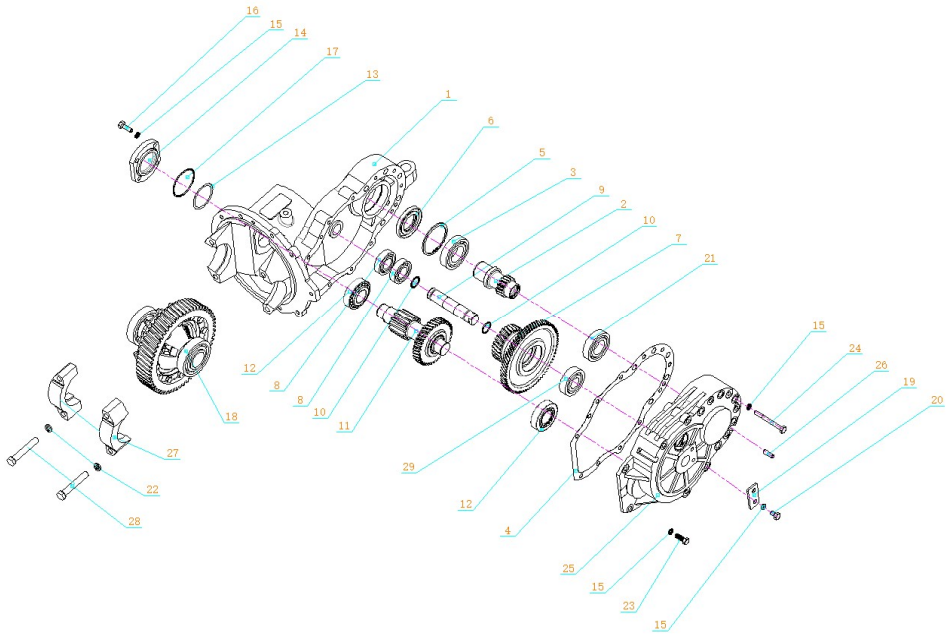
1. STRUCTURE

1) Drive Axle

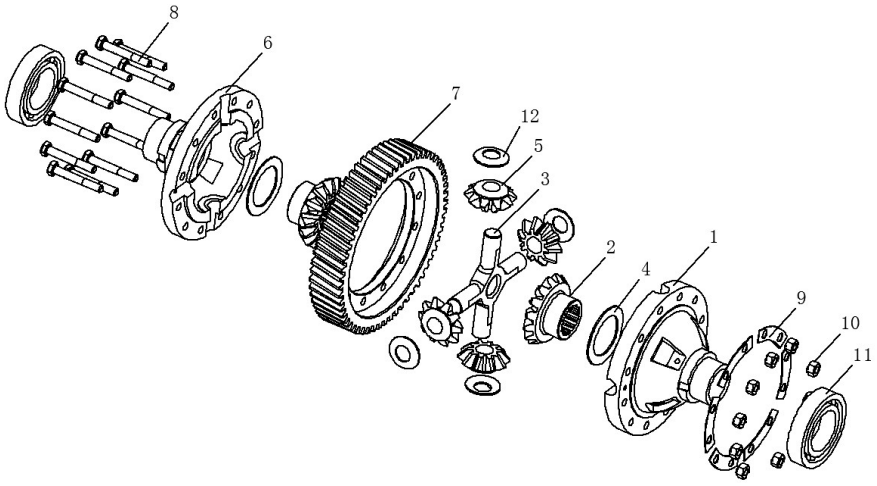


1	Bolt-Hub	10	Oil Seal	19	Bolt
2	Nut-Hub	11	Bearing	20	Brake Drum
3	Axle Shaft	12	Bearing	21	RH Brake Assy
4	O-Ring	13	Oil Seal	22	Housing-Axle
5	Hub	14	Ring-Stop	23	Plug
6	Nut	15	Nut	24	LH Brake Assy
7	Bolt-Brake Assy	16	Bolt	25	Ring-Seal
8	Spring Washer	17	Ring-Retain	26	Pin
9	Plug-Breath	18	O-Ring	27	Gasket-Axle Shaft

2) Transmission



1	Body	11	Gear Assy	21	Bearing
2	Input Shaft Assy	12	Bearing	22	Washer-Spring
3	Bearing	13	Shim	23	Bolt
4	Gasket	14	Cover-Bearing	24	Bolt
5	Ring-Block	15	Washer-Spring	25	Cover-Body
6	Oil Seal	16	Bolt	26	Pin
7	Gear Assy	17	O-Ring	27	Bearing Seat
8	Bearing	18	Differential Assy	28	Bolt
9	Shaft	19	Block	29	Bearing
10	O-Ring	20	Bolt		



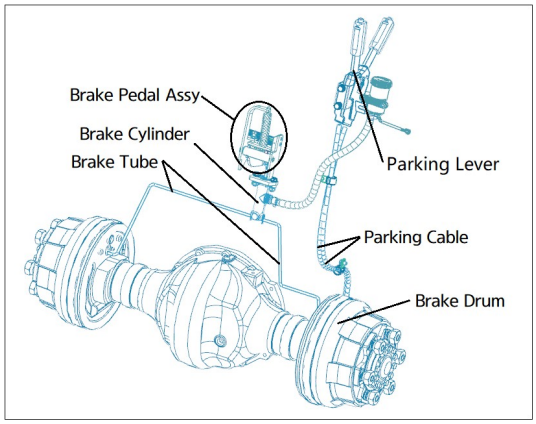
Differential

1	Housing-LH	5	Planetary Gear	9	Plate-Lock
2	Axle Shaft Gear	6	Housing-RH	10	Nut
3	Cross Axle	7	Gear Ring	11	Bearing
4	Washer	8	Bolt	12	Washer-Block

2. OPERATION

The drive axle and the transmission transmit the power from motor to drive wheels.

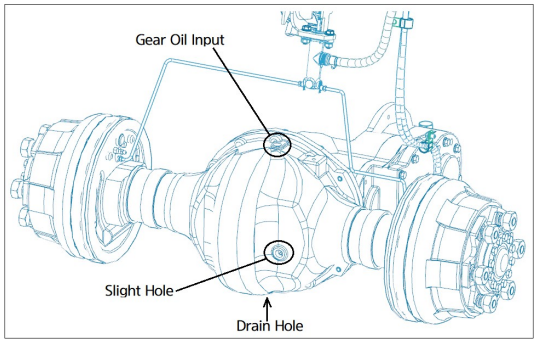
Service brake and parking brake will affect brake drum by brake tube and parking cable, and work in dry mode.



Add gear oil

1) Remove the bolts in sight hole and oil input.
2) Add the gear oil in oil input until the oil level rise to the sight hole which means the oil level can be observed from sight hole.
3) Mount two bolts.

※ **Do not spill gear oil on the floor, or discharge it into drain.**



3. SPECIFICATIONS

Drive Axle

Item	Unit	Specifications
Rated axle load	Kg	5000
Weight (excluding oil)	Kg	118
Gear oil volume	L	3.5

Transmission

Item	Unit	Specifications
Gear ratio	-	25.047
Transmission efficiency	-	≥90%
Noise	dB(A)	≤80
Max. input speed	Rpm	3300

GROUP 2 FAILURE DIAGNOSIS AND CORRECTIVE ACTIONS

Drive axle

Trouble		Cause	Corrective action
Oil leak	Oil seal	· O-ring or ring-spring broken · Oil seal broken	· Replace · Replace
	Outer of axle shaft	· Bolt loose · Gasket-axle shaft broken	· Tighten, torque 230Nm · Replace
	Axle Body	· The bottom plug loose	· Tighten, replace parts if required
	Connection of axle and T/M	· Gasket broken · Bolt loose	· Replace · Tighten, replace parts if required
Nosie	Bearing	· Space between bearings is too big · Bearing broken	· Remount the axle shaft assy · Replace

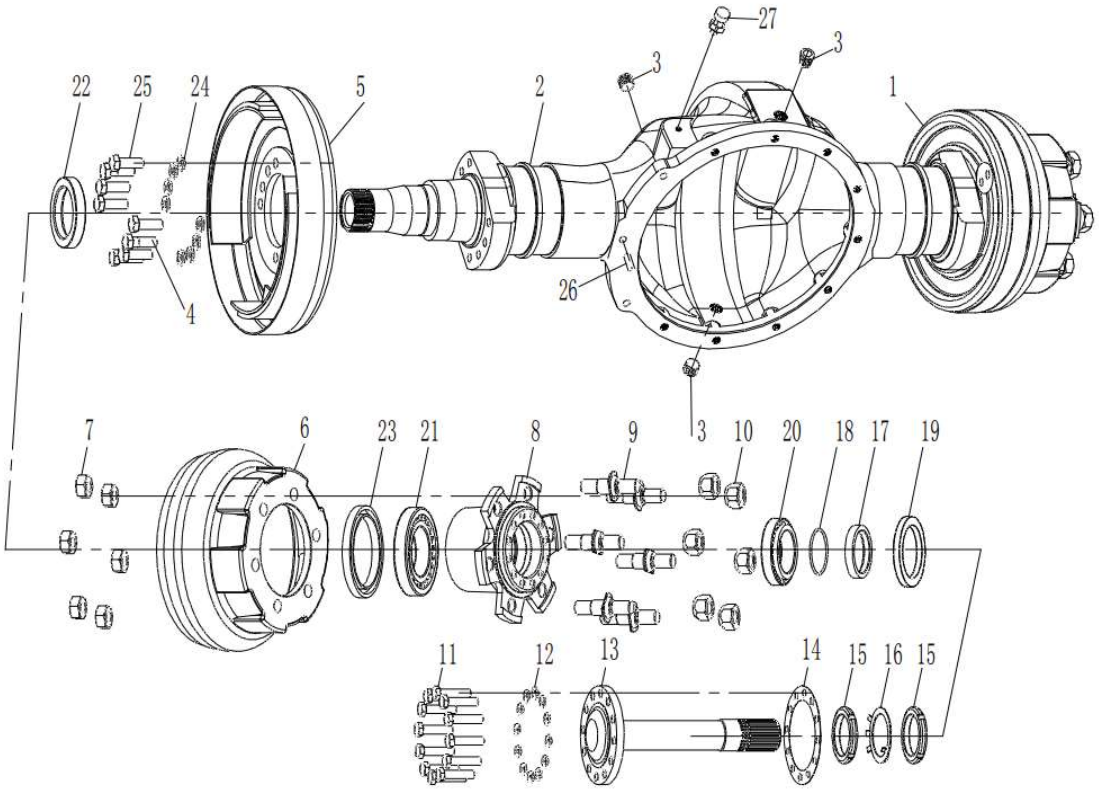
Transmission

Trouble		Cause	Corrective action
Oil leak	Input shaft	· Oil seal broken · Input shaft cover loosen	· Replace the oil seal, check the shaft for scratches, replace the shaft if there are scratches · Apply sealant on the outer circle of the cover
	Middle shaft	· O-ring broken	· Replace
	Body cover	· Gasket broken	· Replace
	Bearing cover-gear shaft	· O-ring broken · Slot of O-ring is too deep	· Replace · Replace the cover
Noise	Periodic noise	· There are scratches or bumping on tooth surface of gear	· Polish the protruding point above the tooth surface.
	Big noise in reduce	· Lack of oil · Bearing broken · Gear in reduce broken	· Add · Replace · Replace gear ring
Truck cannot move	Differential	· Connect bolts broken	· Replace

GROUP 3 DISASSEMBLY AND ASSEMBLY

DRIVE AXLE

Disassembly



1) Disassemble the bottom and top plug (23#) to drain gear oil.
2) Remove the bolt (16#) to disassemble the axle shafts.
3) Remove nuts (15#) and ring-stop (14#), then disassemble brake drum (20#).
4) Remove nuts (6#) to disassemble hub (5#) from bake drum (20#).
5) Remove ring-seal (25#) and bolts-brake assy (7#) to disassemble brake assy (24#).

※ **Care should be exercised to protect O-ring and bearings.**

※ **Store LH and RH axle shafts respectively.**

Assembling is the reverse order of removal and for more details please refer disassemble in next page.

Assembling

1) Mount outer ring of bearing (12#) into hub (5#) with a fixture.

2) Mount outer ring of bearing (11#) into hub (5#) with a fixture.

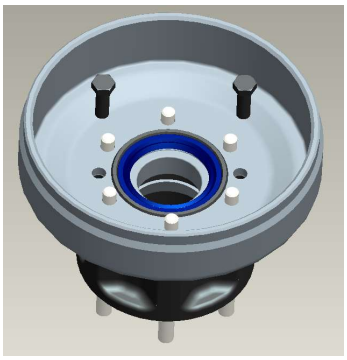
3) Apply lithium base grease on inside of hub (5#) until 1/3-1/2 of inside surface is applied.

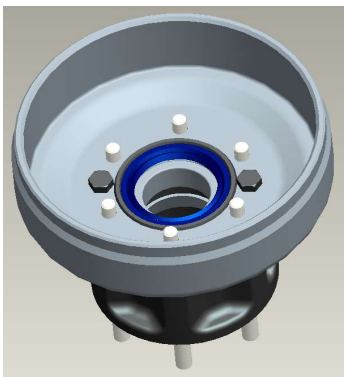
4) Mount inner ring of bearing (11#) into hub (5#).

5) Mount oil sear (10#) into hub (5#).

6) Mount bolt (1#) × 6 in Hub (5#).

7) Mount hub (5#) and brake drum (20#) together. Then install the set bolt (19#) × 2 with Loctite 242.
Fastening torque:23 kgf·m





8) Lubricate bolt (1#) × 6 with Loctite 242.

9) Mount bolt (6#).
Fastening torque:22 kgf·m

10) Lubricate housing-axle (22#) in mounting position of ring-seal (25#) with sealant.

11) Mount the ring-seal (25#) on housing-axle (22#) with a fixture.

12) Lubricate housing-axle (22#) in mounting position of brake assy (24#) with sealant

13) Mount brake assy (24#) and housing-axle (22#) together.

14) Lubricate bolt-brake assy (7#) × 6 with Loctite 242.

15) Mount the bolt-brake assy (25#) × 6 and remark.
Fastening torque:21-23 kgf·m

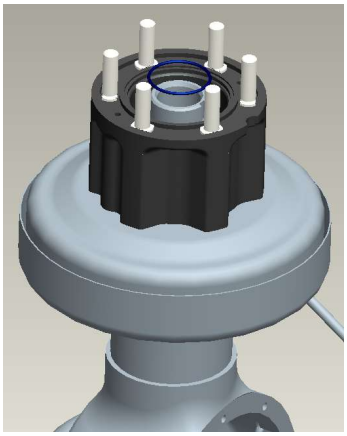
16) Mount brake drum (20#) and housing-axle (22#) together.

17) Knock the brake drum (20#) with copper rod to ring-seal (25#) match up oil seal (10#).

18) Lubricate inner ring of bearing (11#) with grease.

19) Mount inner ring of bearing (11#) into hub (5#).

20) Mount the O-ring (18#) into hub (5#).



21) Mount the ring-retain (17#) into hub (5#).

22) Lubricate outside of oil seal (13#).

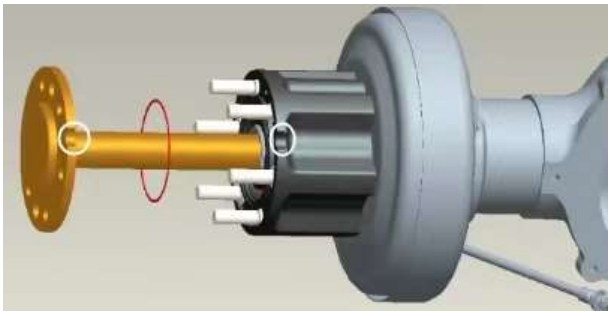
23) Mount the oil seal (13#) into hub (5#) with a fixture.

24) Mount the nut (15#) with a fixture. After tightening the nut, brake drum cannot rotate freely, then return the nut 1/8-1/6 circle.

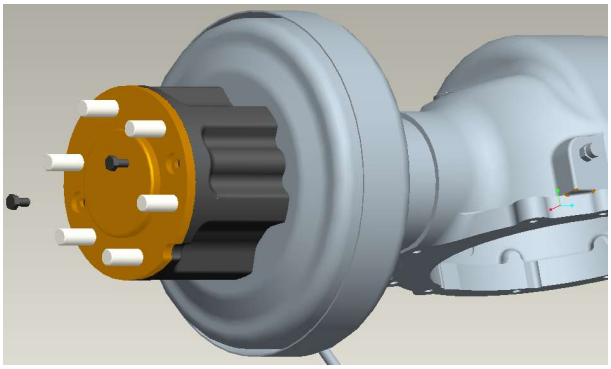
Check if the start torque of hub is 7-15 kgf·m. If not, adjust the nut.

25) Mount the ring-stop (14#)

26) Mount the O-Ring (4#) and Axle Shaft (3#), the notch should align at another notch.

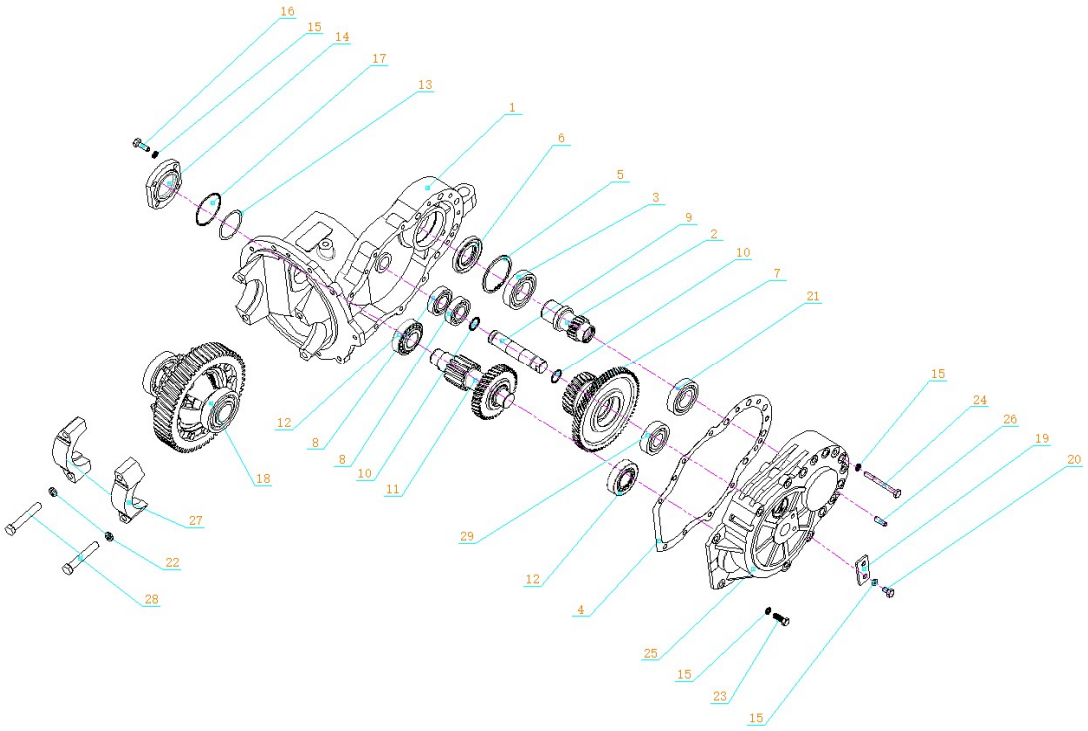


27) Mount the bolt x 2 (16#).
Fastening torque:2.5 kgf·m



Transmission

Disassembly



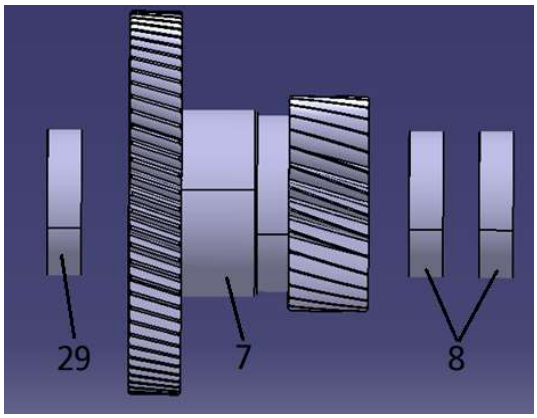
1) Remove bolts (28#) to disassemble the disserential.
2) Remove oil seal and ring-block to disassemble input shaft assy.
3) Remove bolts (20#) to disassemble the shaft (9#).
4) Remove bolts (24#) and bolts (23#) to disconnect body (1#) and cover (25#).
5) Remove shaft (9#) and two gear assy (7#/11#).

※ **Care should be exercised to protect O-ring, gasket and bearings.**

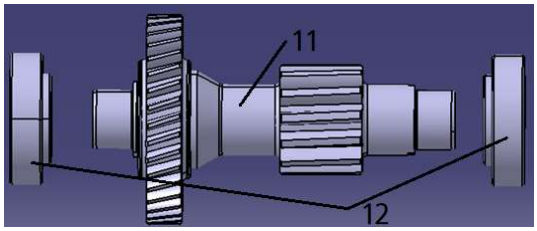
Assembling is the reverse order of removal and for more details please refer disassemble in next page.

ASSEMBLING

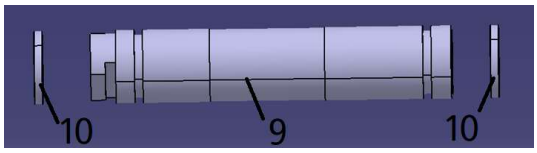
1) Part 1: Mount the bearing (8#) × 2 and bearing (29#) in the gear assy (7#).



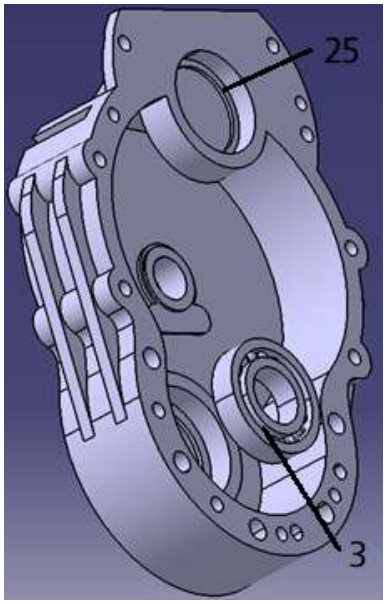
2) Part 2: Mount the bearing (11#) × 2 in the gear assy (12#).



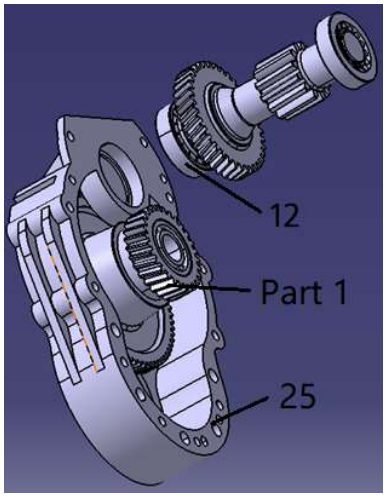
3) Part 3: Mount the O-ring (10#) × 2 on the shaft (9#).



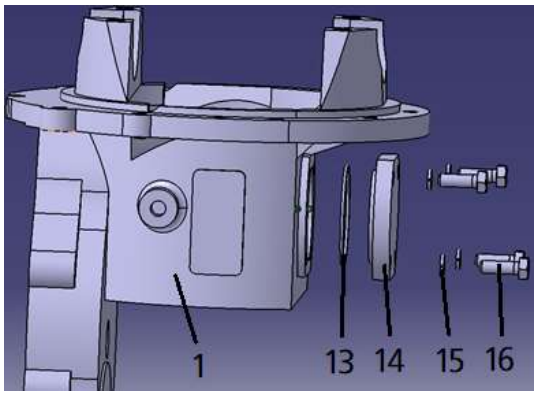
4) Mount the bearing (3#) in cover-body (25#).



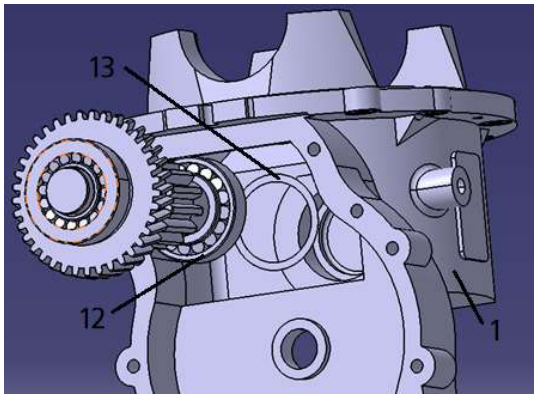
5) Mount the part 1 and the outer ring of bearing (12#) in cover-body (25#).



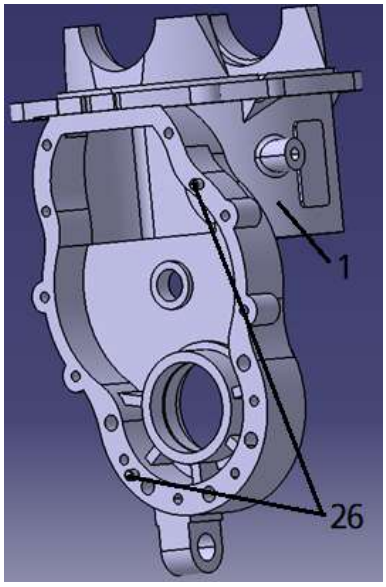
6) Mount the O-ring (13#), cover-bearing (14#), washer-spring (15#) × 4 and bolt (16#) × 4 on body (1#).



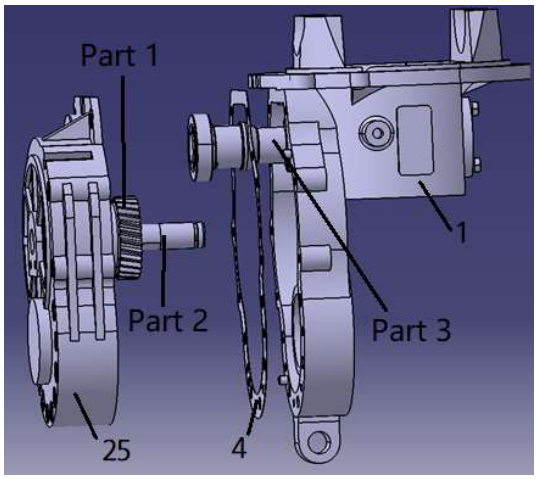
7) Mount the outer ring of bearing (12#) and washer (13#) in body (1#).



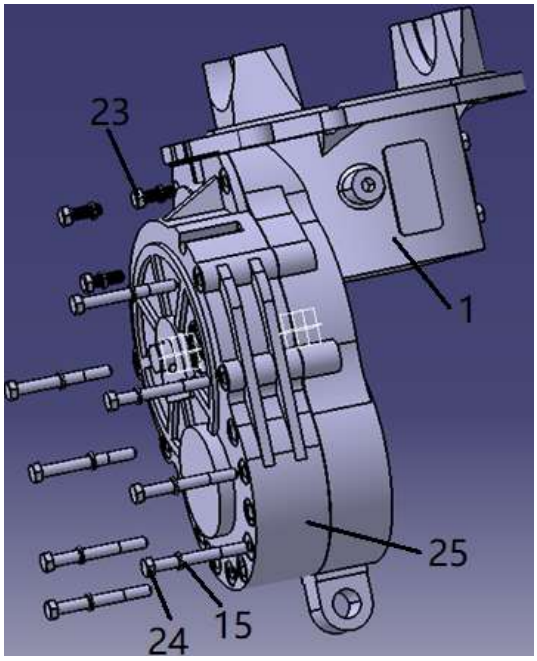
8) Mount the pin (26#) × 2 in body (1#).



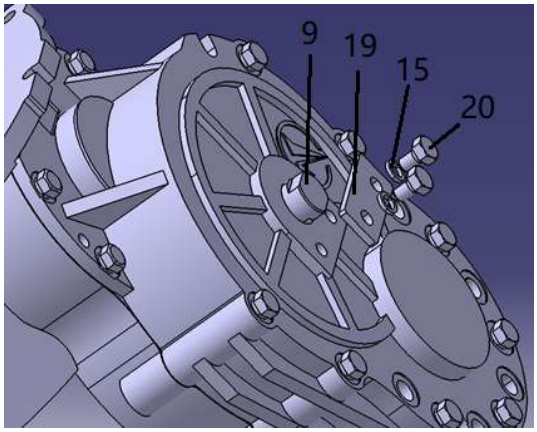
9) Mount part 1, part 2 and part 3 and gasket (4#) in body (1#) and cover-body (25#).



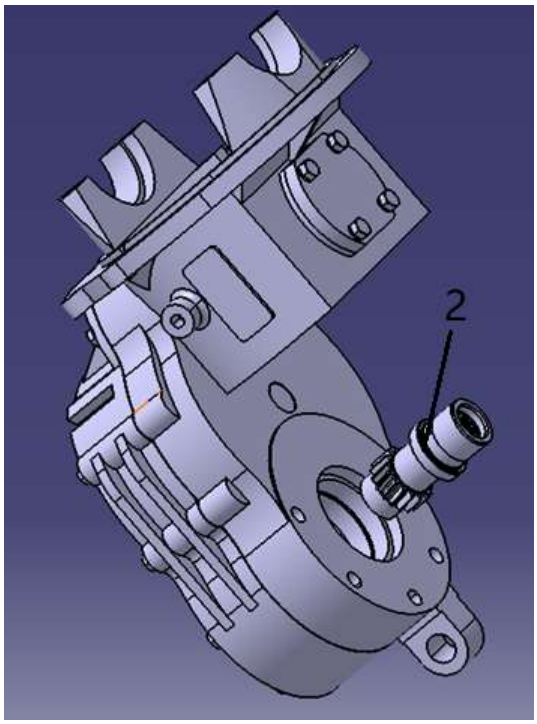
10) Mount body (1#) and cover-body (25#) with washer (15#) × 11, bolt (24#) × 8 and bolt (23#) × 3.



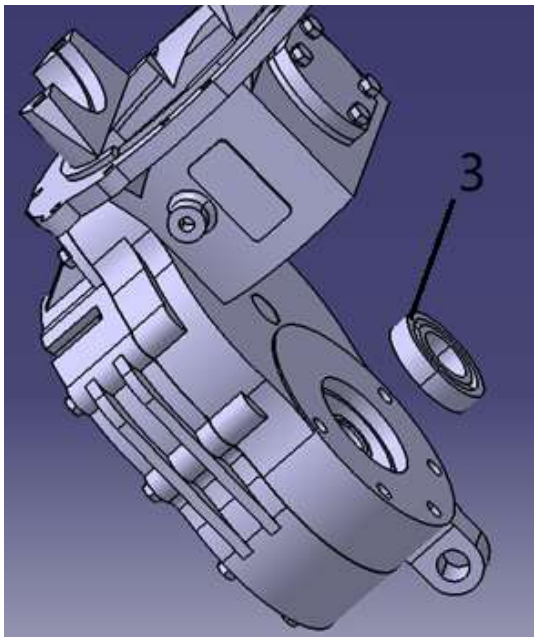
11) Mount the shaft (9#) and block (19#) as shown in photo with bolt (20#) × 2 and washer (15#) × 2.



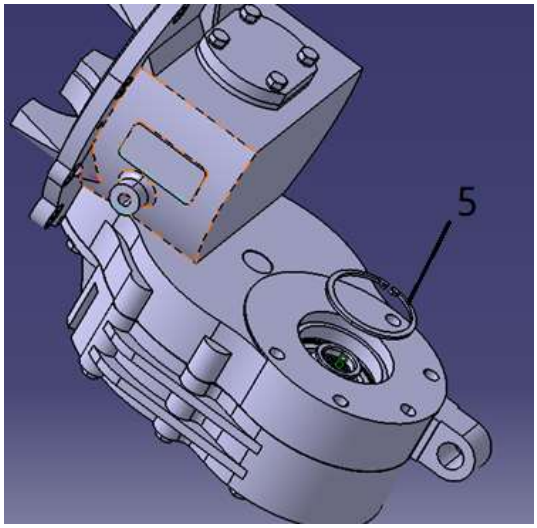
12) Mount the input shaft assy (2#).



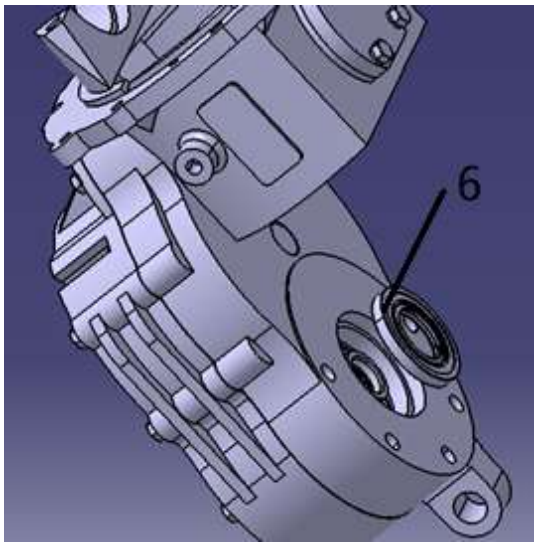
13) Mount the bearing (3#).



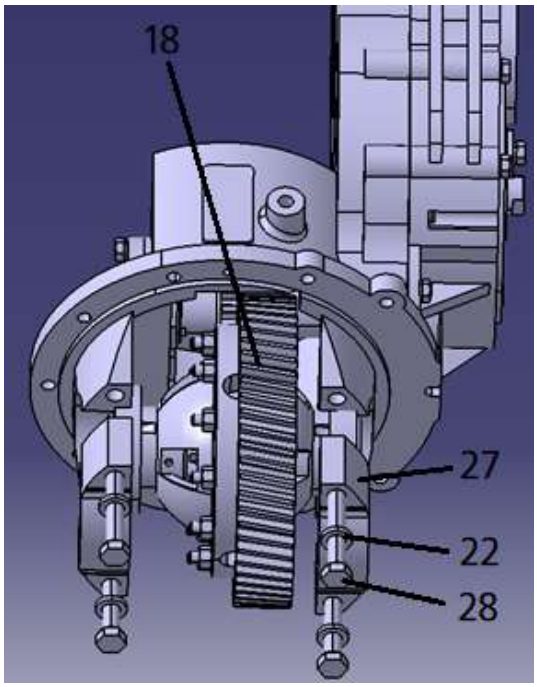
14) Mount the ring-block (5#).



15) Mount the oil seal (6#).



16) Mount the differential (18#) with boss-bearing (27#) × 2, spring lock washer (22) × 4 and bolt (28) × 4.



SECTION 4 BRAKE SYSTEM

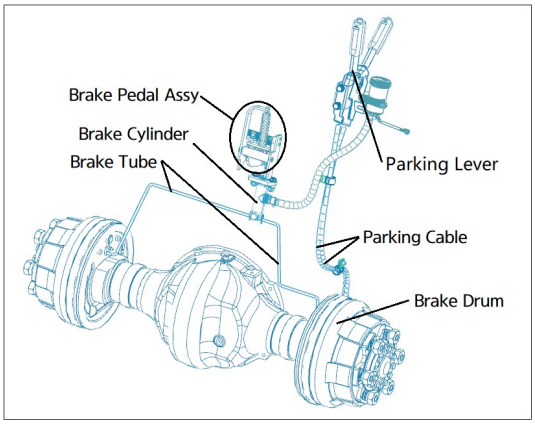
GROUP 1 STRUCTURE AND FUNCTIONS

1. INTRODUCTION

There are two types of brake systems: Service brake and parking brake.

Pressing the service brake pedal generates hydraulic pressure in the master cylinder. This pressure lets the brake lever press the pressure pin to apply braking pressure on the disk carrier.

The parking brake lever operates with cable to make the pressure pin apply braking pressure on the disk carrier



2. SPECIFICATIONS

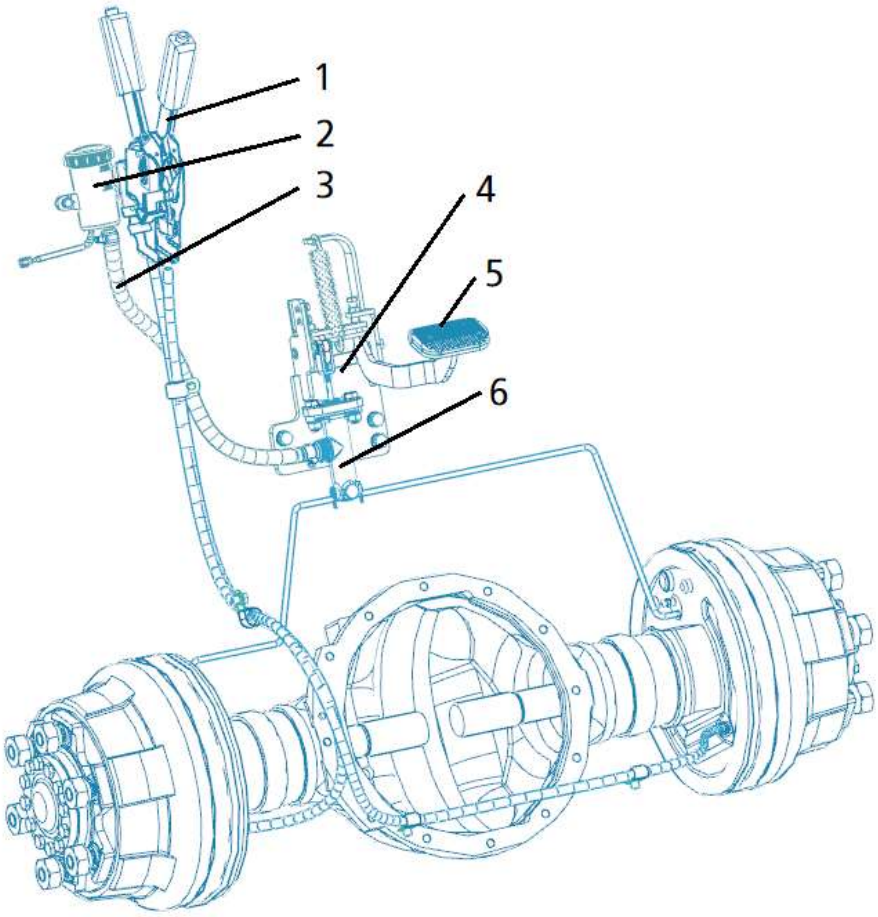
1) SERVICE BRAKE

Item	Specifications
Type	Front-wheel mounted, dry disk mode
Brake Oil	Dot 3

2) PARKING BRAKE

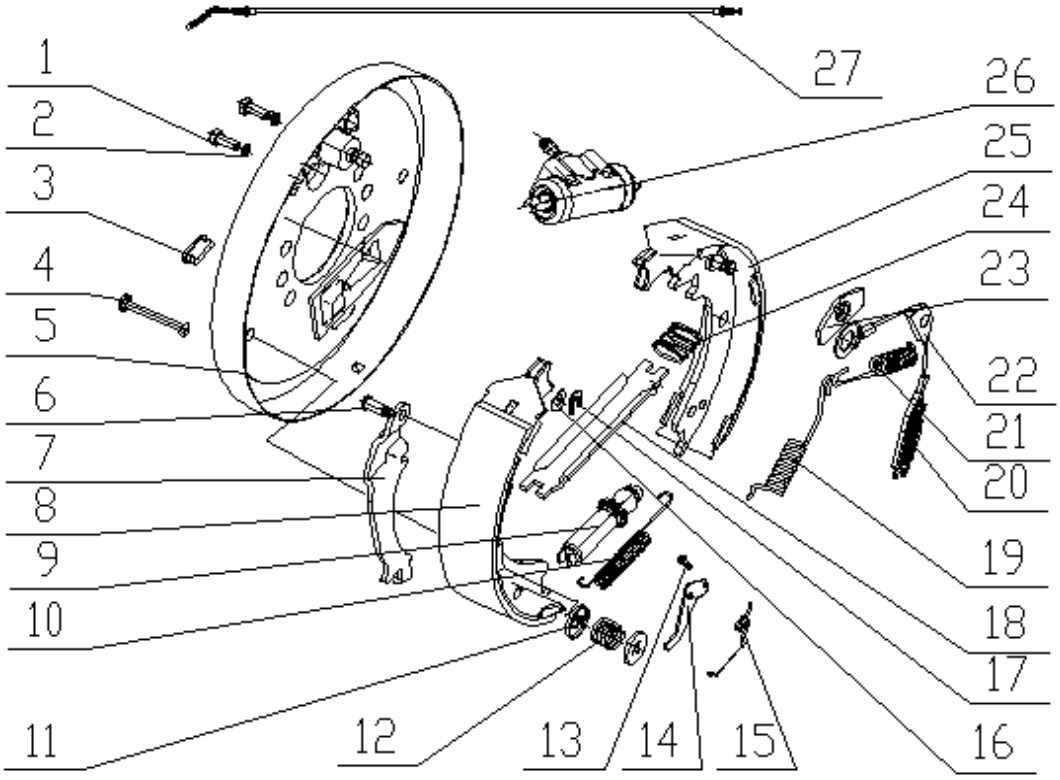
Item	Dimensions
Type	Mechanical
Parking lever stroke	48.3 deg.

3. BRAKE PEDAL AND PIPING



1	Parking Brake Lever	4	Bracket
2	Reserve Tank	5	Brake Pedal
3	Hose	6	Brake Cylinder

4. BRAKE DRUM

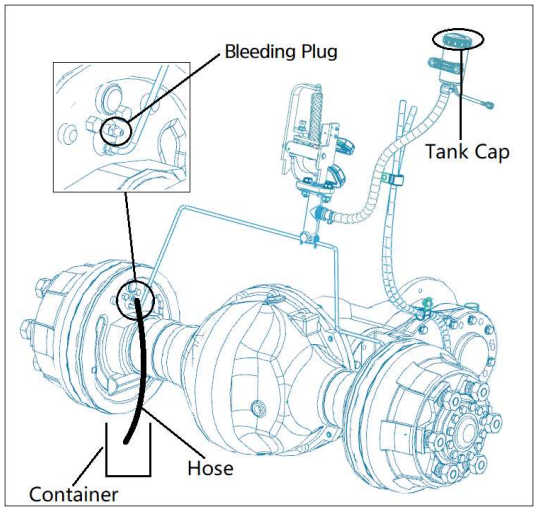


1	Bolt	10	Spring-Tension	19	Spring-Return
2	Washer-Spring	11	Boss-Spring	20	Spring Assy
3	Plug	12	Spring-Compress	21	Spring-Return
4	Rod-Spring	13	Pin	22	Block-Guide
5	Plate Assy	14	Pawl	23	Plate-Guide
6	Pin	15	Spring-Torsional	24	Spring
7	Rod-Parking	16	Washer-Spring	25	Brake Pad & Pin Assy
8	Brake Pad Assy	17	Ring-Retainer	26	Slave Pump
9	Gap Adjustment	18	Rod-Parking	27	Cable Assy RH/1650mm Cable Assy LH/1200mm

Trouble		Cause	Corrective action
Brake perform bad	Brake drum	· Space between brake pad assy and brake drum is too big	· Adjust
	Oil leak	· Connector loose	·Tighten the connector, replace parts if required
	Air in system	· Air in system · Connector loose	· Fully bleed the system. · Tighten the connector, replace parts if required
No brake	Brake drum	· Brake pad assy reach the limit of life	· Replace
	Hub oil seal	· Oil seal broken, oil flow into brake drum.	· Replace the oil seal and clean brake drum, replace parts if they cannot be cleaned.
	Slave Pump	· Oil leak, oil flow into brake drum	· Replace slave pump assy and clean brake drum, replace parts if they cannot be cleaned.
Always brake	Brake drum	· Space between brake pad assy and brake drum is too small	· Adjust

GROUP 3 TESTING AND ADJUSTMENT

1. BRAKE BLEEDING



Bleeding should be performed on brake system after filling brake oil.

1) Unscrew (not remove) the nut in the plug, and connect a hose to put discharging fluid into a container.

2) Press brake pedal to apply pressure.

3) Continue to loosen the nut until oil flows out while pressing brake pedal to bleed the brake oil.

※ **Put discharged brake fluid into a container.**

※ **Do not spill brake fluid on the floor, or discharge it into drain.**

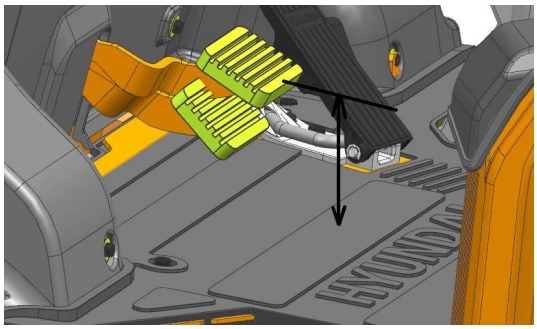
※ **Repeat this process until brake fluid shows no bubble.**

※ **Check the level of brake oil in the tank, and fill the brake oil, if required.**

4) Once brake oil is discharged without indication of bubble, remove hose, fasten the plug, and install dust prevention cap on the plug.

2. BRAKE PEDAL

Adjust the height of pedal from the floor plate with a stopper bolt.



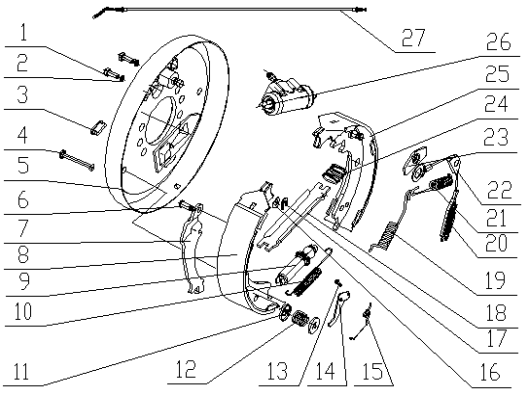
· Pedal height: 90 mm

3. BRAKE SYSTEM

The brake system does not need maintenance, except after replacing the friction plate. Please adjust the braking system in the following order.

1) Brake Drum

Brake drum does not need to be adjusted unless the brake pad assy (8#) has been replaced. The distance between pad assy (8#) and plate assy (5#) should be 0.25-0.4mm.



Distance is too big:

① Remove the rubber plug.

② Pull down the gap adjustment gear (9#) until the pawl (14#) slip.

③ Mount the rubber plug.

Distance is too small:

① Remove the rubber plug.

② Push the pawl (14#) away by a screwdriver

③ Pull up the gap adjustment gear (9#) until the distance is in range.

④ Mount the rubber plug.

2) Running-in

After changing the friction plate, it is necessary to run 500-800 circles in order to increase the contact area between the friction plate and brake drum.

There are two ways to run-in:

① When the front wheels are off the ground, press accelerator pedal and brake pedal at the same time. Repeat the process for a total of 2-3 minutes for one side.

② Repeat going frontward and backward. When the speed is at 15Km/h, press the brake pedal to slow down to 10~12Km/h and drive for 1-2 seconds. Then change the direction. Repeat the process for a total of 2-3 minutes.

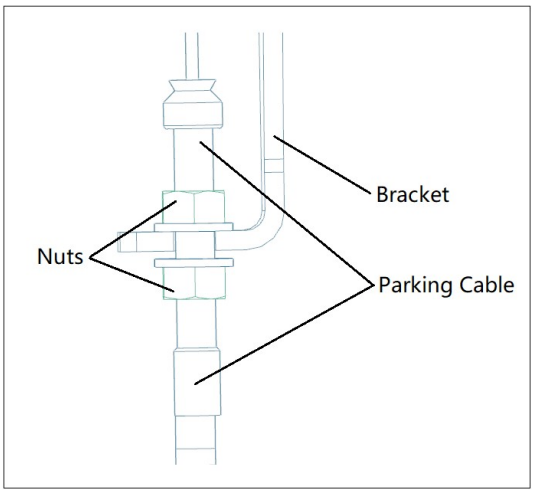
※ When there is only one brake drum is well-adjusted, jack this side and press accelerator pedal and brake pedal at the same.

⚠ When running-in, pay attention to prevent accidental intrusion.

3) Parking Brake

There are two parking cables that control LH/RH.

Move the parking cable up or down to adjust parking brake force by adjusting two nuts at the same time.



⚠ Make sure the brake system work properly before the truck is operated.