

SUSPENSION AND AXLE

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Inspection and Repair of Front Suspension

Disassembly and Installation of Shock Absorber and Upper Swinging Arm

Parts List

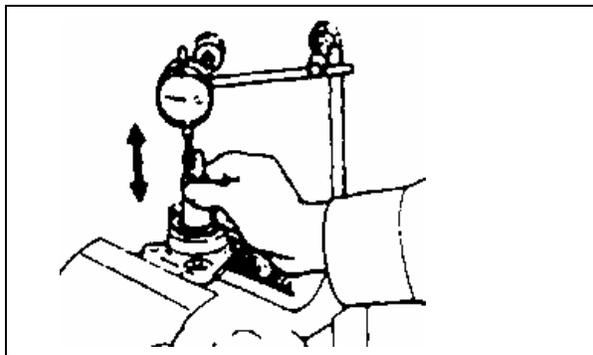
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|--|------------------------------------|
| 1 Shock absorber | 5 Suspension return spring limiter |
| 2 Adjustment nut of adjustment arm unit | 6 Suspension return spring limiter |
| 3 Connecting part of upper ball and trunnion joint and knuckle arm | 7 Gasket |
| 4 Brake hose bracket | 8 Upper swinging arm |
| | 9 Upper ball and trunnion joint |

If the boot of upper ball and trunnion joint is replaced, apply multi-function grease to the inner and outer sides of the new boot, lips and upper ball and trunnion joint. Tighten the shock absorber installation nut.

Disassembly of Lower Swinging Arm

Parts List

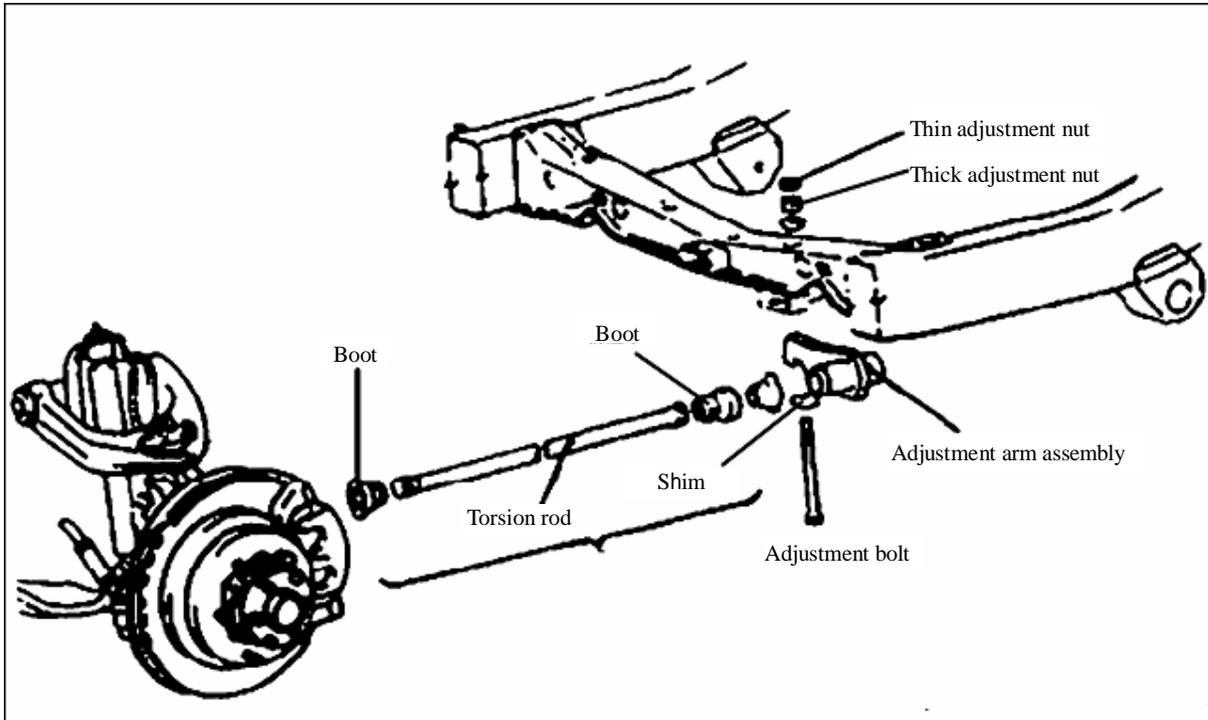
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|--|----------------------------------|
| 1 Torsion Bar Assembly: | 6 Lower swinging arm shaft |
| 2 Split pin | 7 Torsion bar anchor |
| 3 Connecting part of lower ball and trunnion joint and knuckle arm | 8 Lower swinging arm |
| 4 Front lateral stabilizing bar assembly | 9 Suspension stroke limiter |
| 5 Shock absorber installation nut | 10 Lower ball and trunnion joint |



The Disassembly of lower ball and trunnion joint is the same as that of upper ball and trunnion joint.

When lower ball and trunnion joint is removed from the steering arm, use a dial gauge to measure the axial backlash of lower ball and trunnion joint. Its limit value is 0.3mm. Replace if the axial backlash exceeds the limit value.

Disassembly of Torsion Bar



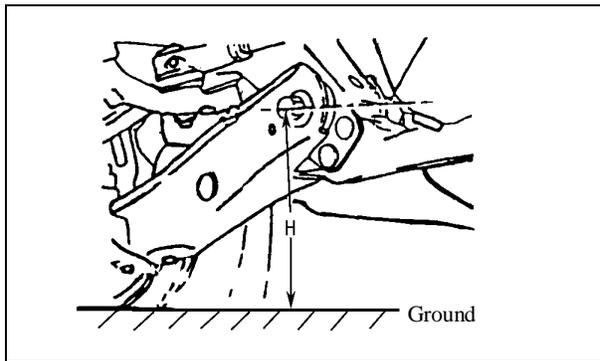
- (1) During assembly, do not misinstall the left and the right torsion bars to prevent them from damage. R is marked on the right torsion bar, and L on the left torsion bar.
- (2) After assembly, measure the height of the center of lower arm front shaft sleeve above the ground, and tighten the adjustment nut with the bolt protrusion height being less than 80mm. In idle status, check the height of the center of lower front shaft sleeve above ground is 299mm, and if not satisfactory, adjust with adjustment nut.

Adjustment of Front Wheel Alignment

Front Wheel Alignment Parameters

Vehicle Type Parameter	K Chassis
Kingpin caster	$3' \pm 30'$
Kingpin inclination	$14'50' \pm 30'$
Front wheel camber	$40' \pm 30'$
Front heel toe-in	2 ± 2 mm

K Chassis: BQ6473SG, BQ6473RG and BQ6473RSG



Adjustment of Front Wheel Alignment Parameters

- (1) First park the empty vehicle on a level ground, adjust the tension of torsion bar to ensure that the left and the right sides of the vehicle are at a same height (tyre air pressure meets the standard requirement). The adjustment nut is at the rear end of torsion bar. Then measure height H of the center of front lower arm fixing nut of front suspension above the ground. When 235/70R16 Tyre is installed, value H is 299mm, and at the same time, the height difference between the left and the right fixing centers is not more than 2mm.

(2) Adjustment of Front Wheel Camber

Add or reduce shim at transverse arm shaft to ensure the wheel camber. Addition (in the front and at the rear simultaneously) of 1mm thick shim may reduces the front wheel camber of 11.6'. During adjustment, addition of shim reduces the camber. Addition or reduction of two groups of shims on the same side may keep the caster unchanged.

- a. Adjustment of kingpin caster: Change the thickness of the front and the rear shims at upper transverse arm shaft to adjust the kingpin caster. The difference of every 1mm between the front and the rear shims may change the kingpin caster of 24'.
- b. Adjustment of toe-in: During adjustment of toe-in, park the vehicle with the front wheel at straight-line running position. By adjusting the left and the right steering straight drag rod assemblies equally and evenly, adjust the wheel toe-in to meet the required value.

Max Turning Angle of Front Wheel

Max Turning Angle of Front Wheel	
Inner wheel	Outer wheel
32	28

Repair (Disassembly and Installation) of Front Suspension

Disassembly and Installation of Knuckle and Brake Caliper Assembly

1 4*2 Vehicle Type

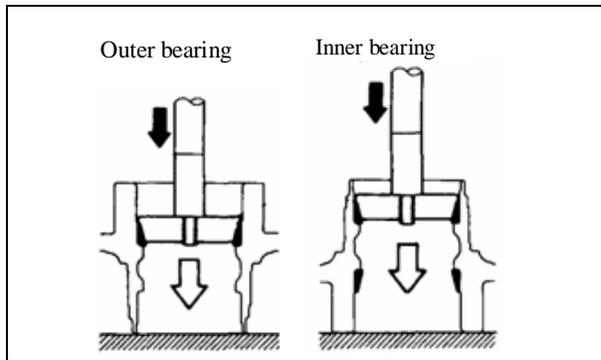
Disassembly steps:

Step	Description	Step	Description
(1)	Caliper bracket fixing bolt	(13)	Nut
(2)	Bolt	(14)	Washer
(3)	Front brake caliper assembly	(15)	Hub assembly
(4)	Hub nut	(16)	Bolt
(5)	Bolt	(17)	ABS toothed ring
(6)	Washer	(18)	Brake disk
(7)	Wheel cover assembly	(19)	Hub bearing
(8)	Lock screw	(20)	Hub seal
(9)	Pad	(21)	Hexagon and cross head bolt
(10)	Lock nut	(22)	Boot
(11)	Lock washer	(23)	Knuckle end cover
(12)	Bolt	(24)	Knuckle

2 4*4 Vehicle Type

Disassembly steps:

Step	Description	Step	Description
1.	Caliper bracket fixing bolt	14.	Washer
2.	Bolt	15.	Hub assembly
3.	Front brake caliper assembly	16.	Hub bolt
4.	Hub nut	17.	Bolt
5.	Front clutch fixing bolt	18.	ABS toothed ring
6.	Pad	19.	Brake disk
7.	Shaft head automatic clutch assembly	20.	Hub bearing
8.	Lock screw	21.	Hub seal
9.	Spring washer	22.	Hexagon and cross head bolt
10.	Lock nut	23.	Boot
11.	Lock washer	24.	Knuckle seal boot
12.	Bolt	25.	Knuckle seal boot
13.	Nut	26.	Needle bearing
		26	Knuckle

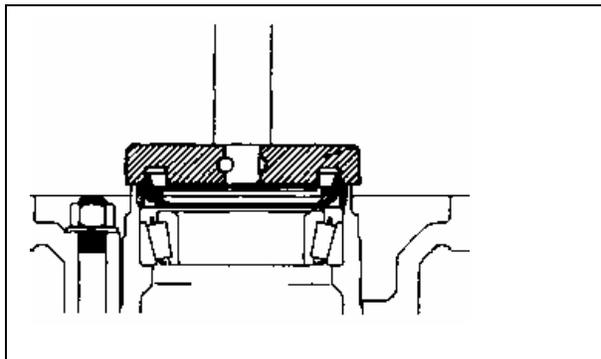


3 Disassembly of Inspection and Repair Points:

Replacement of Bearing:

- (1) Wipe off the grease from the inside of front wheel hub.
- (2) By using special tool, squeeze out the inner and outer bearings by evenly tapping them.
- (3) By using the special tool, press and install the hub bearing outer race.

Note: Replace the bearing inner race and outer race as one assembly.



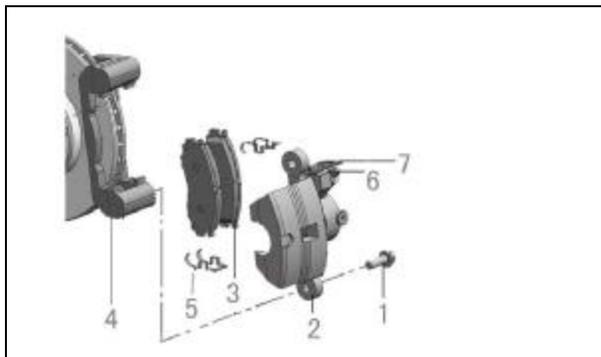
4 Reassembly of Inspection and Repair Points:

Press fit the seal.

Caution: Do not press the needle bearing too deeply.

5 Adjustment of Hub Bearing Pre-tension

Tighten the lock nut with a torque of 130~200N·m, and loosen it. Tighten the nut with torque of 25 ~ 30N·m, and loosen it by 30°~40° to ensure the free rotation of the hub. Install the lock washer. When the hole in the lock nut is not aligned, it is allowed to loosen the nut within range of 20° for the hole alignment. Fix the lock gasket to the lock nut with shaft end lock screw (M6×12).



6 Disassembly of Caliper Body

- ① Caliper body fixing bolt
- ② Caliper Body (left)
- ③ Friction block assembly
- ④ Spring sheet
- ⑤ Caliper body bracket (left)
- ⑥ Bleed screw cap and bleed screw
- ⑦ Oil pipe oil pipe rack (left) lock nut
knuckle end cover

Disassembly and Installation of Upper Transverse Arm Assembly**Disassembly steps:**

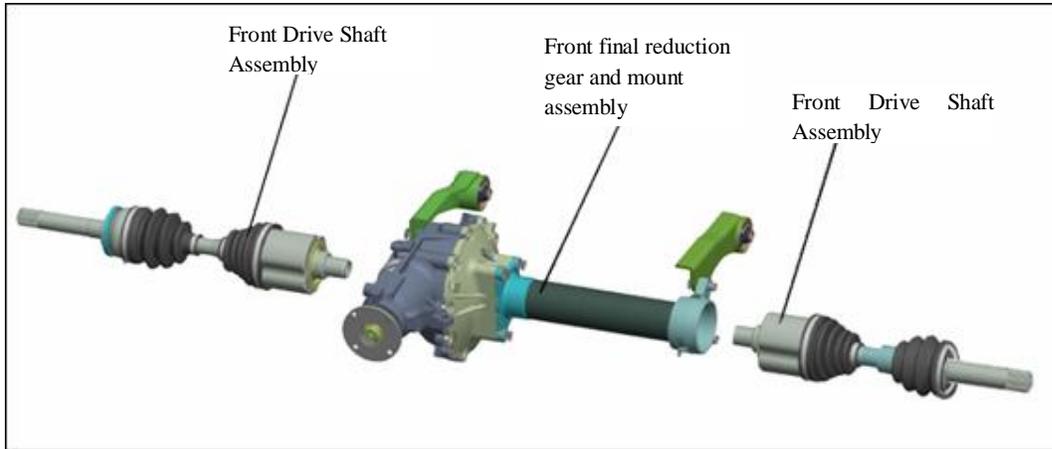
Step	Description
(1)	Upper transverse arm shaft lock nut
(2)	Washer
(3)	Upper transverse arm bush
(4)	Washer
(5)	Upper transverse arm shaft
(6)	Bolt
(7)	Washer
(8)	Upper limiting block assembly
(9)	Upper ball stud fixing bolt
(10)	Nut
(11)	Washer
(12)	Upper ball stud

Disassembly and Installation of Lower Transverse Arm Assembly**Disassembly steps:**

Step	Description	Step	Description
(1)	Bush	(7)	Lower limiting block assembly
(2)	Shock absorber mount fixing bolt	(8)	Nut
(3)	Washer	(9)	Washer
(4)	Shock absorber mount	(10)	Upper ball stud fixing bolt
(5)	Nut	(11)	Lower ball stud assembly
(6)	Washer		

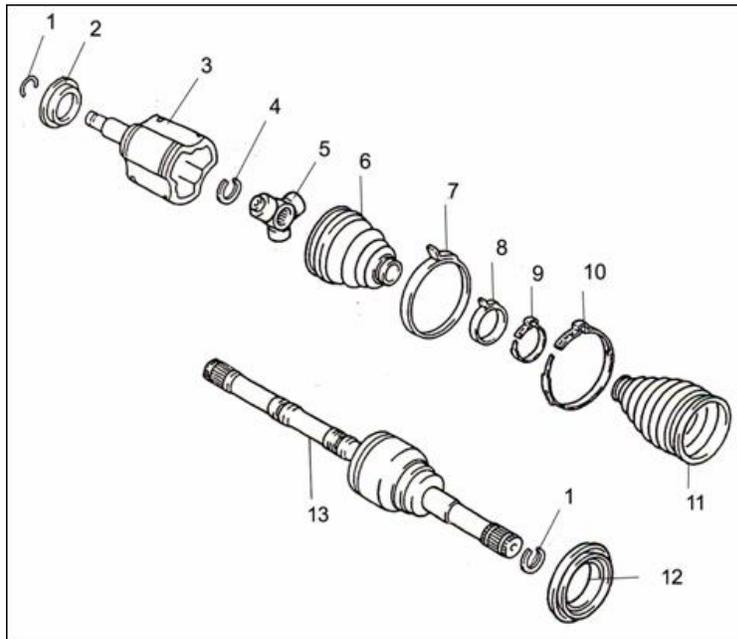
High-Mortality Parts List for Front Axle

S/N	Code	Description	Quantity per Axle	Remarks
1	Driving gear front bearing	TR0708-1YR-N/-1-N	1	
2	Driving gear rear bearing	TRA0607RYR/0607	1	
3	Half shaft seal (left)	SG2032-2301050	1	
4	Driving gear seal	SG2032-2302040	1	
5	Differential bearing	SOKB831LT/801	2	
6	Half shaft seal (right)	SG2032-2301060	1	
7	Inner half shaft ball bearing	DG4180	1	
8	Hub bearing	MA800135	2	
9	Hub seal	MB526395	2	
10	Needle bearing	MA800152	2	
11	Knuckle seal boot	MB800148	2	
12	Upper ball stud assembly (left/right)	MB633811/12	2	
13	Lower ball stud assembly (left/right)	MB6338160/61	2	
14	Upper transverse arm bush	MB633820	4	
15	Lower transverse arm bush	MB109684	2	



Front Axle Drive (4*4)

1 Disassembly of Front Drive Shaft Assembly



Parts List

S/N	Description
(1)	Clip
(2)	Guard ring
(3)	Straight head
(4)	Inner wheel retaining ring
(5)	Y-shaped part
(6)	IB boot
(7)	Clamp (I)
(8)	Clamp (II)
(9)	Clamp (III)
(10)	Clamp (IV)
(11)	OB boot
(12)	Guard ring
(13)	Intermediate shaft

Caution:

- (1) During Disassembly, pull out the Front Drive Shaft from the hub assembly, final reduction gear assembly and inner half shaft, and take care not damage the seal boot and the half shaft seal by the Front Drive Shaft spline.
- (2) Check the ball joint of Front Drive Shaft for normal operation and excessive looseness.
- (3) During installation, take care not to damage the half shaft seal lip.

2 Disassembly of Front Final Reduction Gear and Mount Assembly

Disassembly Steps:

Step	Description
(1)	Front final reduction gear mount bolt
(2)	Front final reduction gear mount assembly (left)
(3)	Front final reduction gear mount assembly (right)
(4)	Bolt
(5)	Mount assembly
(6)	Bleed pipe assembly
(7)	Normally closed vent plug
(8)	Half shaft seal (right)
(9)	Retaining ring (big)
(10)	Retaining ring (small)
(11)	Half shaft sleeve pipe connecting bolt
(12)	Half shaft sleeve pipe welding assembly
(13)	Inner half shaft ball bearing
(14)	Inner half shaft
(15)	Front final reduction gear assembly

Use special tool to pull out inner half shaft (7) from the front final reduction gear assembly.

3 Front Final Reduction Gear Assembly

Disassembly steps:

S/N	Description	S/N	Description
1	Final reduction gear casing connecting bolt	15	Driving gear
2	Final reduction gear casing (right)	16	Differential bearing
3	Differential bearing shim	17	Planet gear shaft lock pin
4	Driving gear fixing nut	18	Planet gear shaft
5	Driving gear flange assembly	19	Half shaft gear
6	Driving gear seal	20	Half shaft gear shim
7	Oil thrower ring	21	Planet gear
8	Driving gear front bearing	22	Planet gear washer
9	Bearing spacer	23	Half shaft seal (left)
10	Driving gear rear bearing	24	Filling plug
11	Driving gear shim	25	Drain plug washer
12	Driving gear	26	Vent pipe protecting cover
13	Driven gear fixing bolt	27	Vent pipe
14	Driven gear fixing bolt lock piece	28	Drain plug assembly
		29	Drain plug washer

Disassembly of Inspection and Repair Points:

(1) Differential Assembly

When taking out the differential assembly, take care not to drop or damage the bearing outer race.

Note: Place the shims for the right and left bearings and the differential bearings separately to prevent confusion during reinstallation.

(2) Differential Bearing Inner Race

Note: Two notches are provided on one side of differential casing for use of special tool.

(3) Driven Gear

Make matching marking on the differential casing and the driven gear, diagonally loosen the driven gear connecting bolts and remove the Driven gear.

(4) Remove the planet gear shaft Lock pin.

(5) Remove the driving gear lock nut.

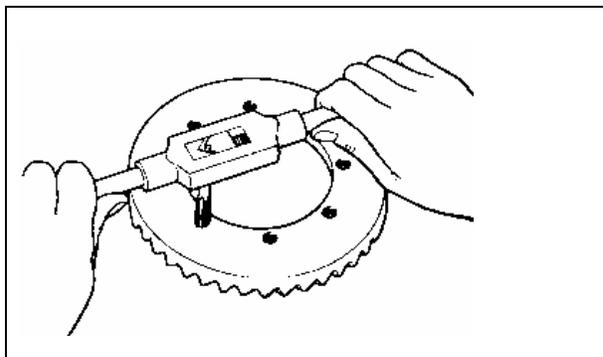
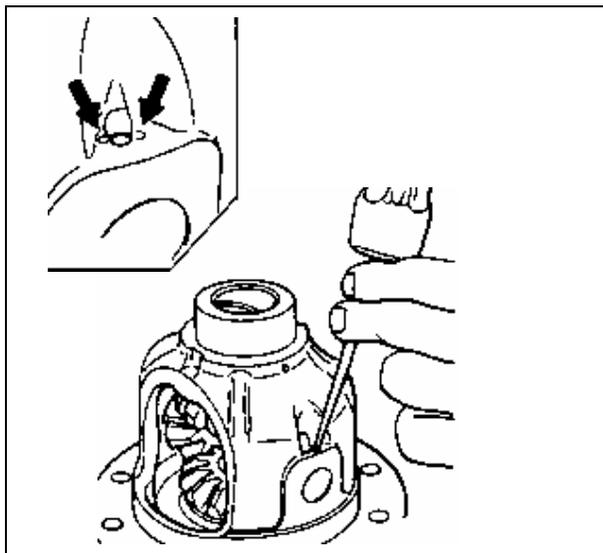
(6) Take out the driving gear assembly.

(7) Driving Gear Front Bearing Outer Race

By using the special tool, press out the driving gear front bearing outer race.

(8) Driving Gear Rear Bearing Outer Race

By using the special tool, press out the driving gear rear bearing outer race.

**Reassembly of Inspection and Repair Points:**

(1) Half shaft seal

(2) Driving Gear Front Bearing Outer Race

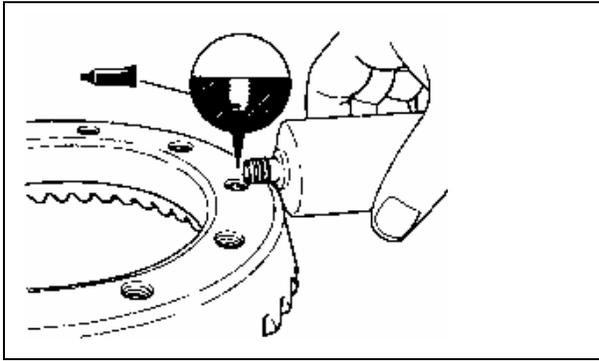
When pressing the bearing outer race into the final reduction gear casing, take care not to deviate the outer race.

(3) Lock Pin

Align the lock pin hole of planet gear shaft and that of differential casing, insert the lock pin, and punch in the lock pin at two points.

(4) Driven Gear

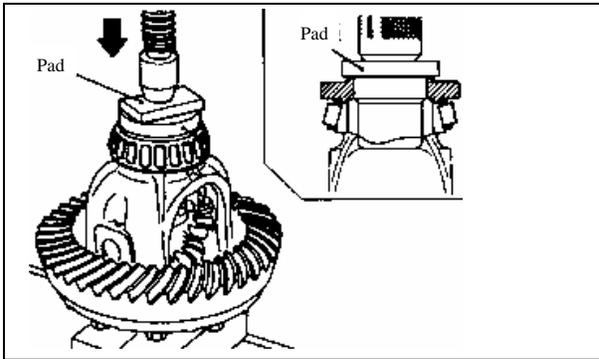
Clean the driven gear fixing bolt, screw the special tool to remove the adhesive from the threaded hole in driven gear, and then blow the threaded hole clean with compressed air.



Apply stipulated adhesive to the threaded hole of the driven gear.

Install the driven gear onto the differential casing, and diagonally tighten the driven gear fixing bolt to stipulated torque.

(5) Differential Bearing Inner Race

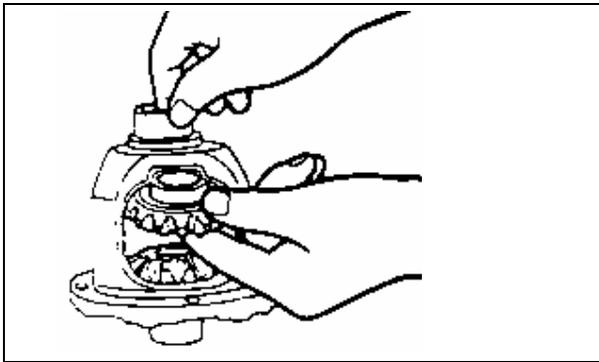


Caution: Only when the bearing inner race on one side is installed, add a load on the differential casing.

Adjustment of Differential Gear Gap

(1) Install the half shaft gear, half shaft gear washer, planet gear and planet gear washer into the differential casing.

(2) Temporarily install the planet gear shaft.



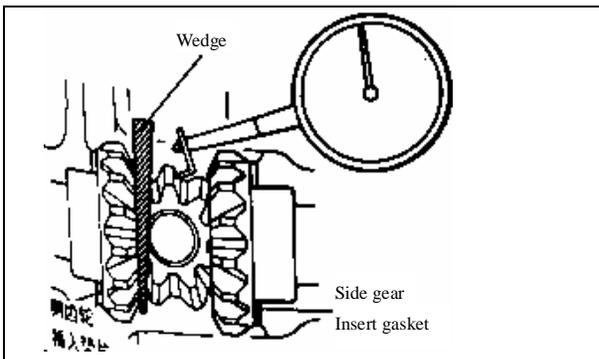
(3) Insert a wedge between the half shaft gear and the planet gear shaft to lock the half shaft gear.

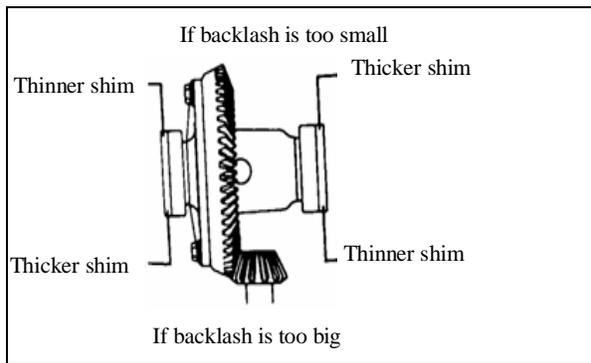
(4) Measure differential gear gap on planet gear with a micrometer.

Standard value: 0 ~ 0.1mm

(5) If the backlash of differential gear exceeds the limit, adjust it by adding a thicker half shaft gear thrust gasket.

(6) Measure the differential gear backlash again, and make sure that it is within the limit.





Adjustment of Driving and driven gear Backlash

- (1) Install the differential assembly into the final reduction gear casing.
- (2) Lightly turn the main gear flange, and measure the deviation of the any hole in main gear flange which is the measured backlash.

Standard value: 0.13 ~ 0.18mm

- (3) Replace the differential bearing shim to adjust the driving and driven gear backlash.

Note: Add differential bearing shims on each side in equal and less quantity as possible

Inspection and Repair of Rear Suspension

Disassembly of Rear Suspension

1 Leaf-spring Rear Suspension System

Parts List

1	Rear leaf-spring vertical plate and shackle pin assembly	20	Leaf-spring pressure plate assembly
2	Leaf-spring shackle bush	21	U-Type bolt
3	Rear leaf-spring rear rack assembly	22	Leaf-spring rear suspension limiting block
4	Rear shackle pin inner vertical plate	23	Bolt
5	Spring washer	24	Self-locking nut
6	Nut	25	Spring washer
7	Rear left shock absorber mount assembly	26	Rear lateral stabilizing bar boom assembly
8	Rear plate spring assembly	26.1	lateral stabilizing bar boom retaining ring
9	Rear leaf-spring seat	26.2	lateral stabilizing bar boom rubber washer
10	Inner washer	26.3	Rear lateral stabilizing bar boom
11	Rubber bush	27	Hexagon nut
12	Rear shock absorber assembly	28	Outer washer
13	Outer washer	29	Hexagon head bolt
14	Spring washer	30	Rear lateral stabilizing bar assembly
15	Bolt	31	Hexagon head bolt
16	Rear leaf-spring front rack assembly (left)	32	Spring washer
17	Rear leaf-spring pin assembly	33	Flat washer
18	Hexagon head bolt, flat washer and elastic pad assembly	34	Rear lateral stabilizing bar clamp
19	Spring washer	35	Rear lateral stabilizing bar bush

2 Coil-spring Rear Suspension System

Parts List

1 Hexagon nut (fine thread)	18 Hexagon nut
2 Spring washer	19 Spring washer
3 Rear lateral stabilizing bar boom assembly	20 Flat washer
3.1 Support washer	21 Hexagon head bolt
3.2 Rubber buffer block	22 lower longitudinal thrust rod assembly
3.3 Rear lateral stabilizing bar boom	23 Hexagon head bolt
4 Hexagon nut	24 Rear shock absorber outer washer
5 Flat washer	25 Shock absorber lower rubber sleeve
6 Hexagon head bolt	26 Rear shock absorber inner washer
7 Rear lateral stabilizing bar assembly	27 Rear shock absorber assembly
8 Hexagon head bolt	28 Buffer limiting seat
9 Spring washer	29 Centering washer
10 Flat washer	30 Shock absorber rubber sleeve
11 Rear lateral stabilizing bar clamp	31 Hexagon nut
12 Rear lateral stabilizing bar rubber sleeve	32 Hexagon thin nut
13 Hexagon head bolt	33 Rear lateral thrust rod assembly
14 Upper longitudinal thrust rod assembly	34 Hexagon nut
15 Flat washer	35 Hexagon head bolt
16 Spring washer	36 Hexagon head bolt
17 Hexagon nut	37 Rear coil spring
	38 Coil spring buffer block assembly

Tightening torques of the key parts are listed in the following table:

S/N	Description	Spec.	Tightening Torque N.m
1	Rear suspension upper longitudinal arm fixing bolt	M12×1.5	108±10
2	Rear suspension lower longitudinal arm fixing bolt	M14×1.5	147±15
3	Rear lateral thrust rod fixing bolt	M12×1.5	108±10
4	Rear shock absorber fixing bolt	M10×1.5	45±5

Operation and Adjustment of Rear Axle

Assembly and Adjustment of Final Reduction Gear

(1) Pretension of Driving Gear and Differential Bearing:

To measure the pretension torque of the bearing, measure the friction torque at driving gear flange with a torque gauge.

- The pretension moment of driving gear bearing is 1.9 ~ 2.5N.m.
- The total bearing pretension moment is 2.0 ~ 3.0N.m.

(2) Adjustment Method of Pretension Force

A Start when the pretension force of differential bearing is zero, tighten the adjustment nut by 1~1.5 turns.

B Pretension Force of Driving Gear:

Apply grease to the nut thread first, tighten the nut to 210N.m (190~245N.m), and then measure the pretension moment. Replace the bearing spacer if the pretension moment exceeds the stipulated value. If the pretension moment is less than the stipulated value, slowly tighten the nut until the pretension moment reaches to the stipulated value. The max nut tightening torque is 343N.m. If it exceeds the max. moment with nut tightened, replace the bearing spacer. It is not allowed to reduce the pretension force by loosening the driving gear nut.(Note: During reassemble the removed driving gear, replace the bearing spacer.)

(3) Driving and driven gear backlash: With driving gear stationary, lightly turn the driven gear, and measure the big end of driven gear. The backlash should be 0.13~0.18mm.

(4) The tightening torque of differential bearing press cover bolt is 69~79N.m.

(5) The tightening torque of differential bearing adjustment nut lock piece is 18~22N.m.

(6) When the driving gear seal is installed, apply No.2 lithium grease to its lip.

(7) Check driving gear flange.

- Jumping error of matching end face is not more than 0.1mm.
- Jumping error of detent notch is 0.1mm.

Assembly of Final Reduction Gear and Axle Casing

(1) Insert the bonding face stud into the axle casing, and apply Locklite.

The standard value of tightening torque is 51N.m (47N.m~55N.m).

(2) It is allowed to seal the bonding faces by using hard paper pad or applying sealant. Install the final reduction gear, and diagonally tighten the nuts.

The standard value of tightening torque is 51N.m (47N.m~55N.m).

Assembly of Rear Axle Half Shaft and Brake

(1) Assembly the wheel bole and the half shaft, press the bolt to its position without any seam.

(2) Assembly the brake bottom and the bearing sleeve, press the bearing sleeve bolt to its position without any seam.

(3) Assemble the Half shaft and the brake, ensure that the bearing is pressed to its position and that the bearing clip is in the groove. Apply grease on the lip of dust-proof seal before assembly.

(4) Apply grease on the lip of half shaft seal, and take care not to scratch the lip of half shaft seal while inserting the half shaft.

(5) The tightening torque Bearing sleeve bolt and nut: Standard 55N.m (50N.m ~60N.m)

(6) Adjust the brake gap to the position via the lever.

(7) Fill No. 3 or No. 2 lithium grease into the half shaft bearing.

(8) Take care to prevent the brake shoe and the brake drum inner surface from any oil stain.

Note: • **Replace the brake shoe if the thickness of the brake shoe lining is less than 1mm or uneven wear is generated.**

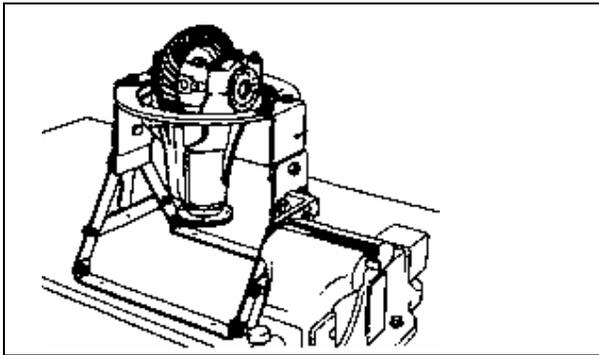
- **The distance of initial failure for seal and bearing is 50,000km.**

Repair of Rear Axle (Disassembly and Installation)

1 Disassembly and Installation of Rear Axle Assembly

Disassembly steps:

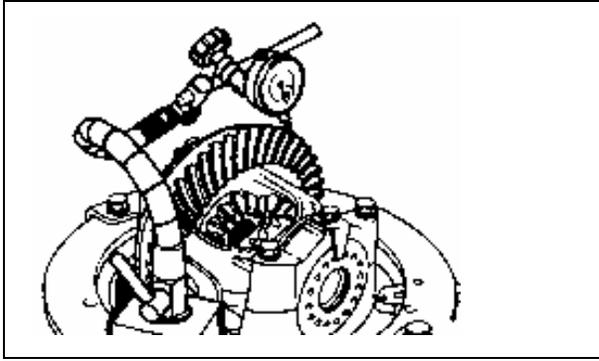
Steps:	Description
(1)	Tyre nut
(2)	Brake drum
(3)	Nut
(4)	Washer
(5)	Half shaft and brake assembly
(6)	O ring
(7)	Half shaft seal
(8)	Nut (final reduction gear)
(9)	Spring washer
(10)	Final reduction gear assembly
(11)	Stud



Disassembly of Inspection and Repair Points:

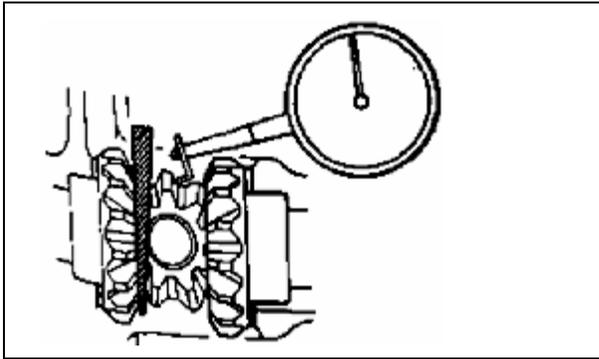
Inspection before Disassembly:

Clamp the special tool to a vice, and install the final reduction gear assembly onto the special tool.



Inspection of Auxiliary Backlash of Driving and Driven Gears

Lock the driving gear at its position, use a caliper to measure the backlash on the driven gear tooth face. Standard value: 0.13 ~ 0.18mm



Measurement of Differential Backlash:

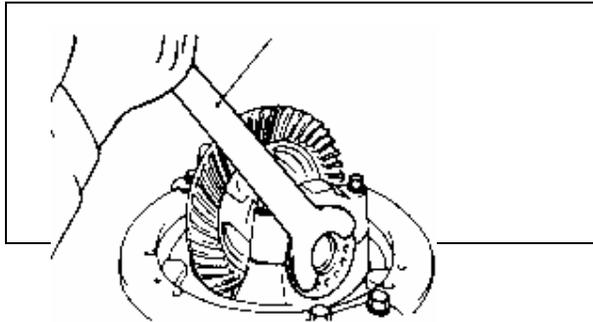
Lock the half shaft gear with a wedge, and use a micrometer to measure the backlash on planet gear.

Standard value: 0.05 ~ 0.20mm

2 Disassembly and Installation of Final Reduction Gear

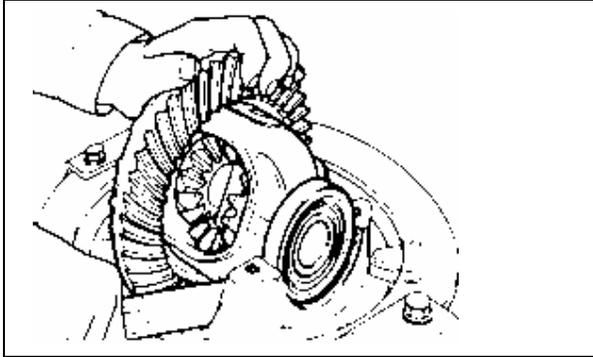
Disassembly steps:

Step	Description	Step	Description
1	Lock piece press bolt	15	Half shaft gear washer
2	Bearing sleeve adjustment nut lock piece	16	Differential casing
3	Differential bearing adjustment nut	17	Driving gear fixing nut
4	Differential cover fixing bolt	18	Driving gear front bearing shim
5	Washer	19	Bearing spacer
6	Final reduction gear bearing press cover	20	Driving gear inner bearing
7	Differential bearing	21	Driving gear inner bearing shim
8	Driven gear fixing nut	22	Driving gear
9	Driven gear	23	Driving gear flange
10	Planet gear shaft Lock pin	24	Driving gear seal
11	Planet gear shaft	25	Driving gear outer bearing
12	Planet gear	26	Final reduction gear casing
13	Planet gear washer		
14	Half shaft gear		



Disassembly of Inspection and Repair Points:

- (1) Differential Bearing Adjustment Nut



(2) Differential assembly:

Place the shims for the right and left differential bearings separately to prevent confusion during reinstallation.

(3) Place the tip of special tool into the differential bearing inner race through the opening of differential casing.

(4) Driven Gear:

Make matching marking on the differential casing and the driving gear, diagonally loosen the driven gear fixing bolts and remove the driven gear.

(5) Remove the lock pin.

(6) Remove the self-locking nut.

(7) Driving gear assembly

Make matching marking on the driving gear and the driving gear flange, and take out the driving gear with driving gear washer and spacer together.

Caution: Do not make marking on the bonding faces of flange and drive shaft.

(8) take out the inner race of driving gear inner bearing.

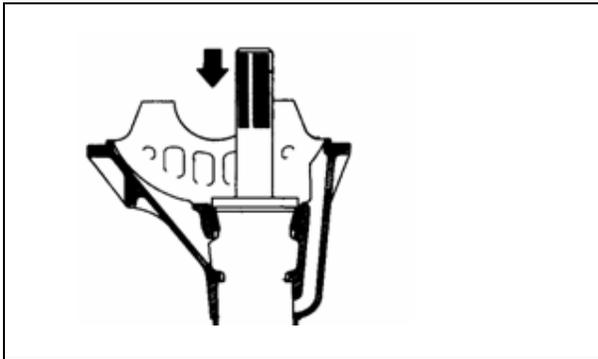
(9) seal, driving gear front bearing inner race, driving gear front bearing outer race and driving gear inner bearing outer race:

Using a special tool, tap out the driving gear outer bearing outer race from the final reduction gear casing, and tap the bearing inner race and seal together; and by using the same method, tap out the driving gear inner bearing outer race.

Reassembly Steps:

Step	Description
(1)	Final reduction gear casing
(2)	Driving gear inner bearing (outer race)
(3)	Driving gear outer bearing (outer race)
(4)	Selection of driving gear inner bearing shim
(5)	Driving gear
(6)	Driving gear inner bearing shim
(7)	Driving gear inner bearing (inner race)
(8)	Bearing spacer
(9)	Driving gear outer bearing shim
(10)	Driving gear outer bearing (inner race)
(11)	Driving gear seal
(12)	Driving gear flange
(13)	Driving gear fixing nut
(14)	Driving gear bearing pretension Force
(15)	Differential casing
(16)	Half shaft gear thrust gasket
(17)	Half shaft gear

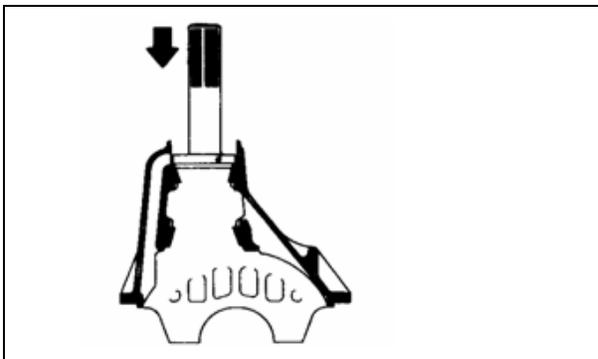
- | Step | Description |
|------|--|
| (18) | Planet gear washer |
| (19) | Planet gear |
| (20) | Planet gear shaft |
| (21) | Adjustment of auxiliary backlash of half shaft planet gear |
| (22) | Planet gear shaft lock pin |
| (23) | Differential bearing (inner race) |
| (24) | Differential bearing outer race) |
| (25) | Driven gear |
| (26) | Driven gear fixing bolt |
| (27) | Differential assembly |
| (28) | Final reduction gear bearing press cover |
| (29) | Washer |
| (30) | Differential cover fixing bolt |
| (31) | Differential bearing adjustment nut |
| (32) | Adjustment of auxiliary backlash of driving and driven gears |
| (33) | Adjustment nut lock piece |
| (34) | Lock piece press bolt |



Reassembly of Inspection and Repair Points:

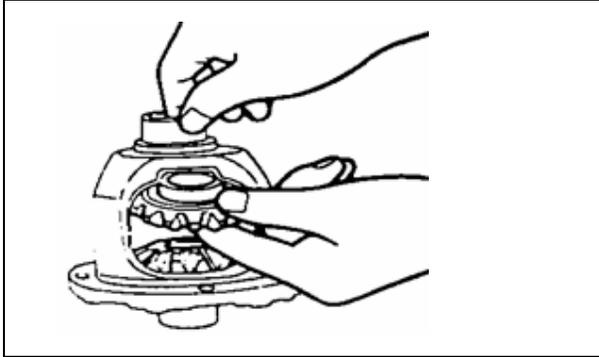
Driving gear inner bearing outer race:

During pressing, take care not to deviate the outer race.

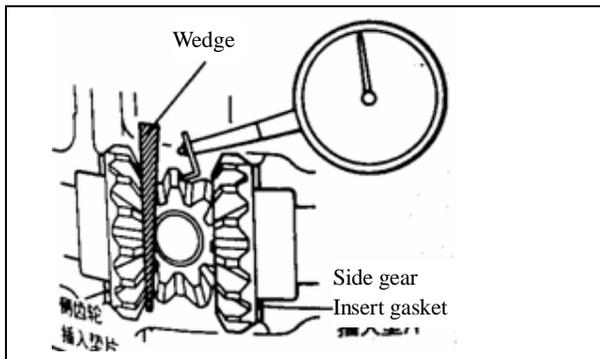


Driving gear outer bearing outer race:

Caution: Press machine must be used to assemble the bearing outer race to avoid declination and deformation.

**Adjustment of Differential Backlash:**

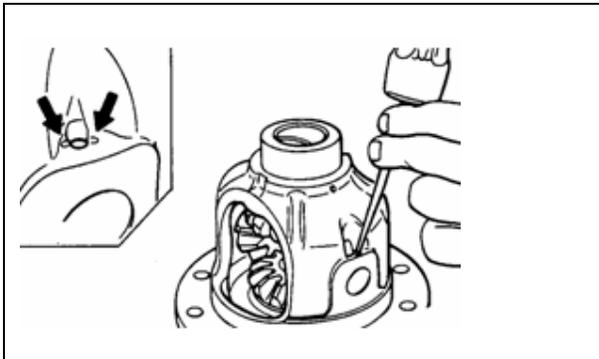
- (1) Install the half shaft gear, half shaft gear washer, and planet gear and planet gear washer into the differential casing.
- (2) Temporarily install the planet gear shaft.



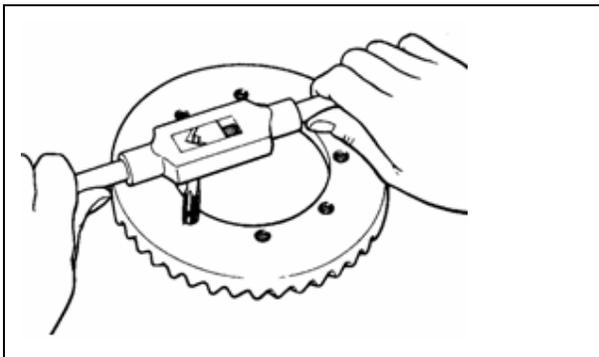
- (3) Lock the half shaft gear by inserting a wedge in between the half shaft gear and the planet gear shaft, and use a caliper to measure the differential backlash on planet gear.

Standard value: 0.05~0.2mm

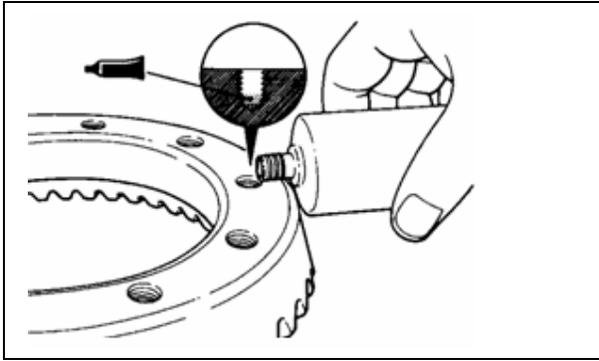
- (4) If the backlash of differential gear exceeds the limit, adjust it by installing the half shaft gear thrust gasket.
- (5) Measure differential gear backlash again, and make sure that it is within the limit.

**Lock pin:**

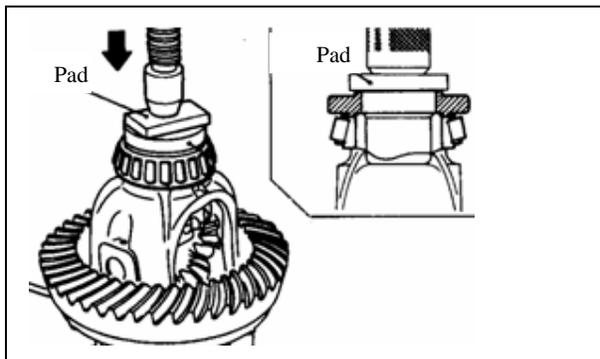
Align the lock pin hole of planet gear shaft and that of differential casing, insert the lock pin, and punch in the lock pin at two points.

**Driven gear:**

- (1) Clean the driven gear fixing bolt, screw the special tool to remove the adhesive from the threaded hole in driven gear, and then blow the threaded hole clean with compressed air.

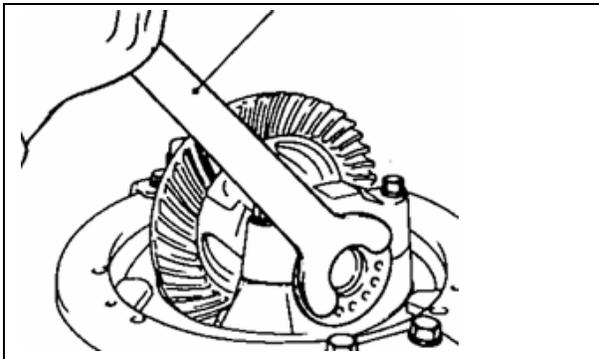


- (2) Apply stipulated adhesive to the threaded hole of the driven gear. Install the driven gear onto the differential casing, and diagonally tighten the driven gear fixing bolt to stipulated torque.



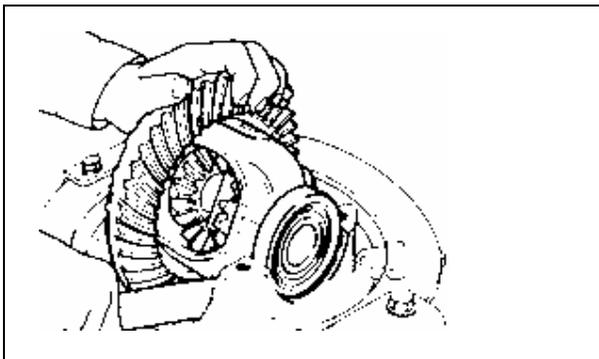
Differential Bearing Inner Race

- Caution:** When only the bearing inner race on one side is installed, add a load on the differential casing. Install the press cover of final reduction gear bearing, and tighten the press cover fixing bolt.

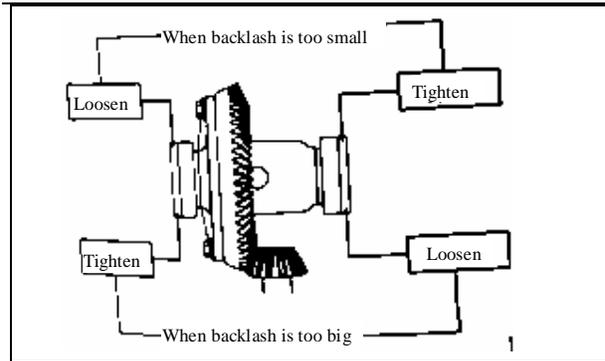


Adjustment of Driving and Driven Gear Backlash:

- (1) By using the special tool, temporarily tighten the differential bearing adjustment nut until it is in the status just before the differential bearing pretension force.



- (2) Measure the driving and driven gear backlash which is 0.13 ~ 0.18mm.

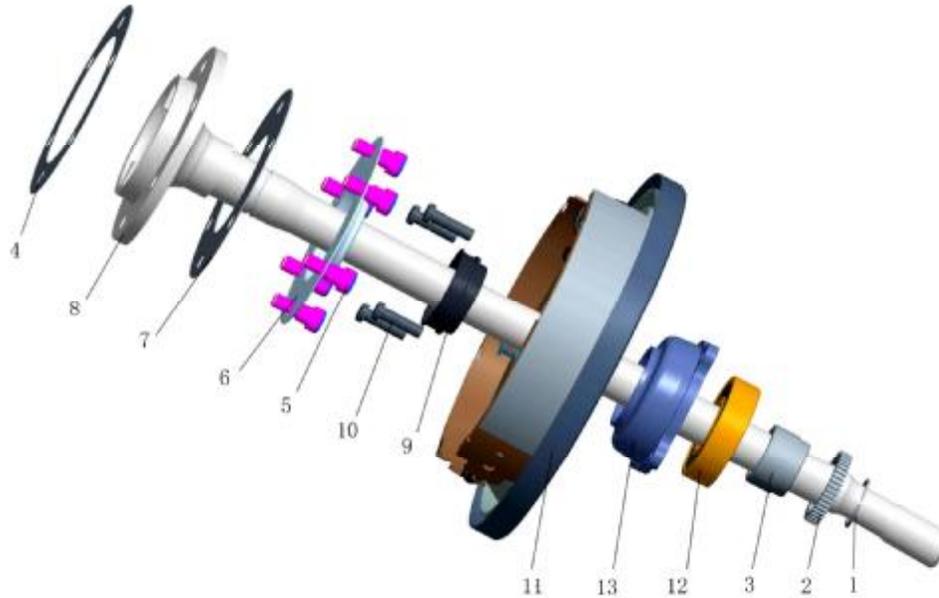


(3) By using the special tool, push the differential bearing gap to the standard value as shown in the Fig.

Note: Loosen one bearing adjustment nut first, and then tighten the adjustment nut on the opposite side by equal value.

(4) Combine the adjustment nut lock piece and the lock piece press bolt, and install them into the treaded hole in bearing press cover, press the lock piece into the round hole of the adjustment nut, and tighten the bolt.

3 Disassembly and Installation of Half Shaft and Brake Assembly



Disassembly steps:

Step Description

- 1 Bearing retaining ring
- 2 ABS toothed ring
- 3 Bearing retaining ring
- 4 Press-fit half shaft and brake
- 5 Tyre bolt
- 6 Brake drum oil interceptor
- 7 Brake drum oil interceptor paper pad

Step Description

- 8 Half shaft
- 9 Rear wheel dust-proof seal assembly
- 10 Bearing sleeve bolt
- 11 Brake assembly
- 12 Bearing
- 13 Bearing sleeve

Disassembly of Inspection and Repair Points:

- Check boot for deformation and damage.
- Check seal for damage.
- Check bearing for seize, discoloring and rough surface race.
- Check half shaft for crack, wear and damage.

Reassembly Steps:

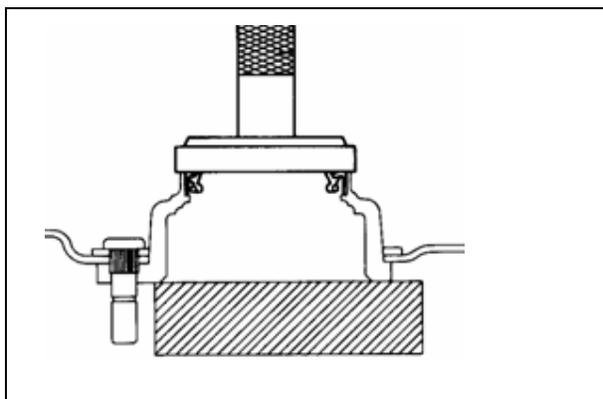
Step Description

- (1) Bearing sleeve
- (2) Bearing
- (3) Brake assembly
- (4) Bearing sleeve bolt
- (5) Rear wheel dust-proof seal assembly
- (6) Half shaft and tyre bolt assembly
- (7) Half shaft
- (8) Brake drum oil interceptor paper pad
- (9) Brake drum oil interceptor
- (10) Tyre bolt

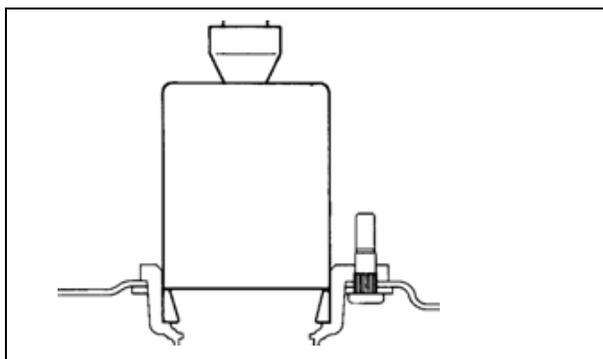
- (11) Press-fit half shaft and brake
- (12) Bearing retaining ring
- (13) ABS toothed ring
- (14) Bearing retaining ring clip

Disassembly of Inspection and Repair Points:

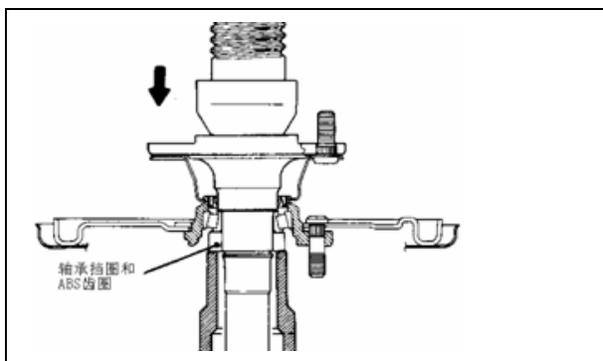
Press-fit half shaft seal



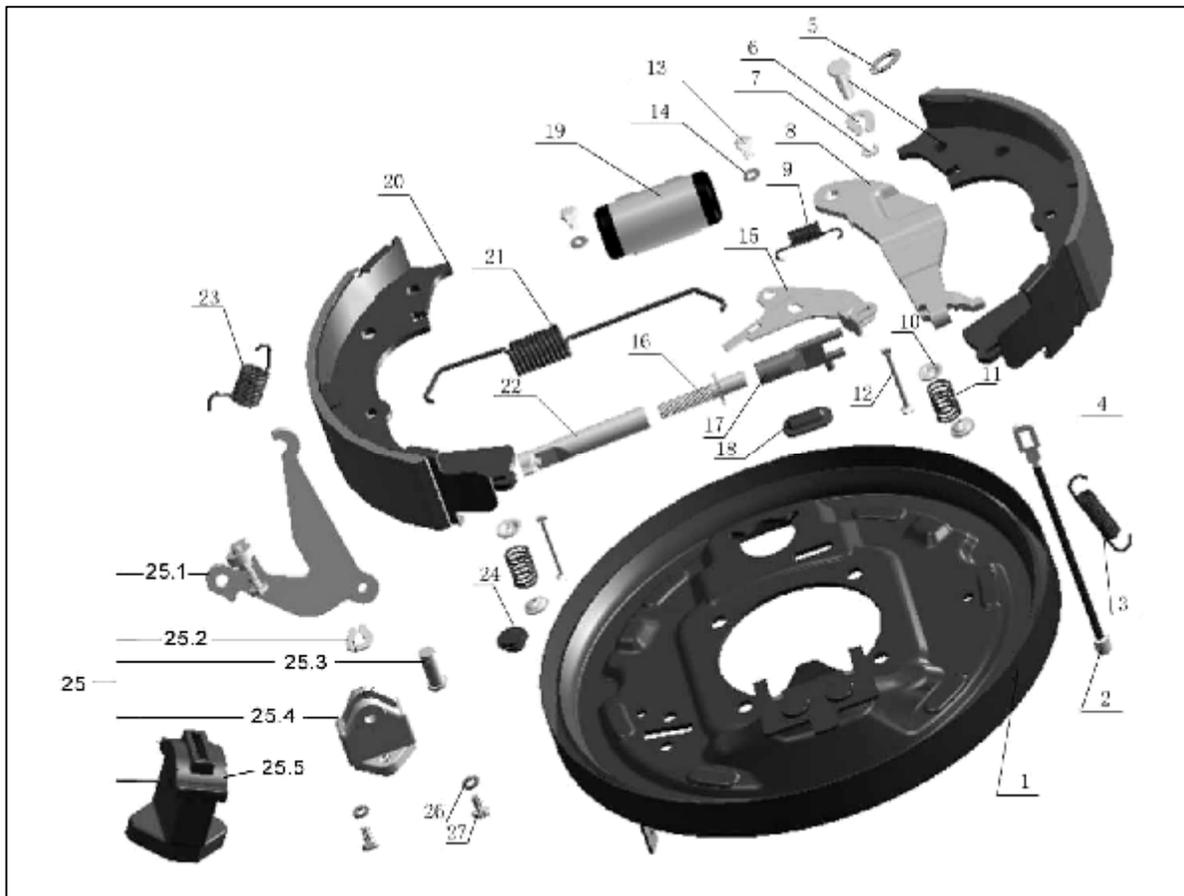
Press-fit bearing outer race



Press-fit bearing retaining ring and ABS toothed ring

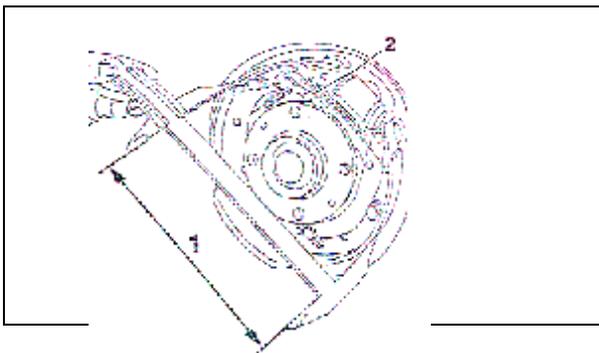
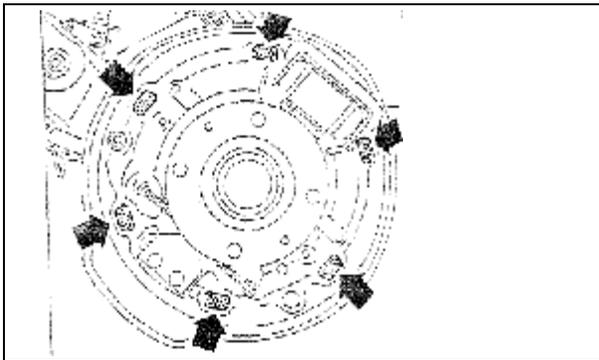
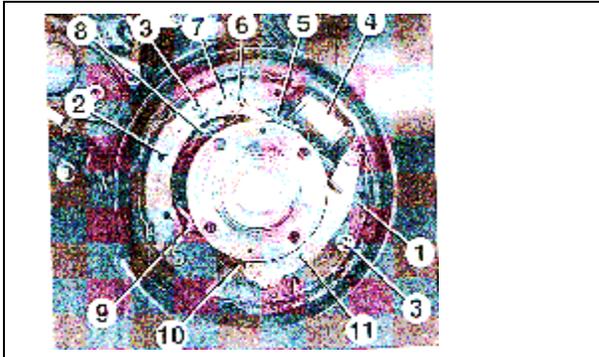


Rear Drum Brake



Parts List

- | | | | |
|----|--|------|--|
| 1 | Rear left brake anchorage assembly | 17 | Front support rod |
| 2 | Manual brake steel wire assembly | 18 | Rubber block |
| 3 | lower return spring | 19 | Rear brake chamber assembly |
| 4 | Rear brake left front shoe assembly | 20 | Rear brake rear shoe assembly |
| 5 | Toe gap adjustment sleeve washer | 21 | Left upper return spring |
| 6 | Snap retaining ring | 22 | Left rear support rod |
| 7 | Snap retaining ring | 23 | Spring |
| 8 | Left parking brake lever | 24 | Bottom plate observation hole rubber block |
| 9 | Tension spring | 25 | Rear left jib assembly |
| 10 | Brake shoe press spring seat | 25.1 | Left brake jib |
| 11 | Fixing spring | 25.2 | Snap retaining ring |
| 12 | Press spring drag rod | 25.3 | Pin shaft |
| 13 | Hexagon head bolt | 25.4 | Jib rack |
| 14 | Spring washer | 25.5 | Jib boot |
| 15 | Left automatic backlash adjustment plate | 26 | Spring washer |
| 16 | Left ratchet | 27 | Hexagon head bolt |



The main components of rear brake is as shown in the left Fig.

- | | | | |
|----|------------------------------------|----|---------------------|
| 1 | Leading brake shoe | 2 | Trailing brake shoe |
| 3 | Brake shoe side support shaft | 4 | Brake chamber |
| 5 | Upper resetting spring | | |
| 6 | Automatic backlash adjuster | | |
| 7 | Automatic backlash adjuster lever | | |
| 8 | Automatic backlash adjuster spring | | |
| 9 | Lower resetting spring | 10 | Parking brake cable |
| 11 | Parking brake lever | | |

Lightly apply grease to the areas on the brake anchorage to support the brake shoes (as shown in the left Fig.).

Installation steps

- ① Lightly apply a layer of grease to the areas on the brake anchorage to support the brake shoe.
- ② Install the connecting pin of of rotary lever on automatic backlash adjuster onto the leading brake shoe.
- ③ Install the rotary lever on automatic backlash adjuster onto the leading brake shoe.
- ④ Check the parking brake lever pin on the trailing brake shoe.
- ⑤ Screw on the rotary wheel of automatic backlash adjuster, do not tighten it to the end.

Caution: The reaction link installed on the right side has right-hand thread, and the reaction link installed on the left side has left-hand thread.

- ⑥ Install the brake shoe lower resetting spring.
 - ⑦ Hang the parking brake cable.
 - ⑧ Install the corresponding brake shoes on the brake anchorage respectively.
 - ⑨ Install the automatic backlash adjuster in between the brake shoes.
 - ⑩ Install the side holder of brake shoe.
 - ⑪ Remove the brake chamber piston holder.
- Y By using shoe remover, install the upper resetting spring.
- Y Turn the adjustment wheel of automatic backlash adjuster so as to ensure that the friction lining reaches to the stipulated gap.
- Y Install the brake drum.
- Y Repeatedly press the brake pedal.
- Y Install the wheel, and ground the vehicle body.

Replacement of Brake Chamber

Note: It is recommended to replace the brake chambers of the whole axle when the brake shoe is replaced for the result of repair.

Disassembly steps:

- ① Lift and pad the tail of body, and remove the wheel. Adjust brake shoe interval (1), and Turn the adjustment wheel of automatic backlash adjuster (2).
- ② Remove the brake drum.
- ③ Remove the brake shoe.
- ④ Disconnect the hydraulic oil pipe of the brake

chamber, and block the oil pipe to avoid the brake fluid from flowing out.

⑤ Screw off the brake chamber fixing screws on the brake anchorage.

Installation steps

- ① Replace with new brake chamber, and tighten the fixing screws.
- ② Connect the brake fluid pipe.
- ③ Install the brake shoe.
- ④ Install the brake drum.

Expel the air from the hydraulic brake pipeline.

4 High-Mortality Parts List for Rear Axle

S/N	Code	Description	Quantity
1	M88043/M88010	Driving gear outer bearing	1
2	MA816524	Driving gear inner bearing	1
3	MA800158	Driving gear seal	1
4	17887/17831	Differential bearing	2
5	4G180308	Half shaft bearing	2
6	HFC6500-2400050	Half shaft seal	2
7	6480-2400040	Rear wheel dust-proof seal assembly	2
8	MB569368	Bearing spacer	1

Troubleshooting

Trouble	Cause	Remedy
Front wheel is shimmying.	Tyre is worn or inflated improperly. Wheels are not balanced. Shimmy damper is worn. Shock absorber is worn. Wheel centering is incorrect. Wheel bearing is worn or adjusted improperly. Ball stud or bush is worn. Steering leverage is loose or worn. Steering mechanism is adjusted badly or damaged.	Replace tyre or charge to suitable pressure. Balance the wheels. Replace steering damper. Replace shock absorber. Check front wheel for centering condition. Replace or adjust wheel bearing. Check ball stud and bush. Tighten or replace steering leverage. Adjust or repair steering mechanism.
Tyre is abnormally worn.	Tyre charge is incorrect. Shock absorber is worn. Wheel centering is not good. Suspension part is worn.	Charge Tyre to correct pressure. Replace shock absorber. Check wheel for negative camber. Replace suspension part.
Pedal is low or light and soft.	Brake lining is worn. Brake block is worn. Brake system leaks. Master pump is defective. Air is in brake system. Wheel brake chamber is faulty. Piston seal is worn or damaged. Rear Brake automatic adjuster is in trouble.	Replace brake lining. Replace brake block. Repair the leakage. Repair or replace master pump. Expel air from brake system. Repair wheel brake chamber. Replace piston seal. Repair or replace adjuster.
Brake pedal is hard, but brake is not flexible.	There is oil stain or oil on brake shoe or brake block. Brake shoe is deformed, brake lining worn or slipped, and brake wheel worn. Brake block is deformed, worn or slipped. Piston is frozen in brake chamber. brake booster is faulty. Vacuum is not correct. Brake pipe is blocked.	Check for reason. Replace brake shoe or brake block. Replace brake shoe and lining. Replace brake block. Repair brake chamber. Repair booster. Repair if necessary. Repair if necessary.
Brake clacks and clicks in operation.	(Drum brake) Brake shoe is seized at backplate flange. Backplate flange is worn. Brake shoe press spring is loose or lost. Backplate fixing bolt is loose. (Disk brake) Brake shoe support plate is loose or lost. Installation bolt is loose.	Fill oil. Replace lubrication flange. Replace. Tighten. Replace. Tighten.

Trouble	Cause	Remedy
Brake hisses or rattles in operation.	Brake shoe or brake block is worn. Brake caliper and wheel or brake disk are interfered to each other. Brake casing and brake disk, and backplate and brake drum are interfered to each other. Other brake system part is in trouble. Tyre and Chassis and body are in friction.	Replace. Finely machine a brake drum or brake disk if seriously worn. Repair if necessary. Correct or replace. Repair or replace if necessary. Inspect or service.
Brake groans, continuously shrills, rattles or vibrates in operation.	Brake drum and brake shoe, brake disk and brake block are worn or damaged. Brake lining or brake block is dirty, oily or slipped. Brake lining or brake block is used improperly. Brake pedal or booster push rod is adjusted wrongly. (Disk brake) Shoulder spring sheet and brake disk are collided to each other. Brake caliper is burred or rusted. (Drum brake) Brake shoe press spring is soft, damaged or incorrect, brake shoe press spring pin and spring are loose or damaged, and backplate flange is cracked.	Check, repair or replace. Clean or replace. Check and replace. Check and adjust. Repair or replace. Clean or deburr. Check, repair or replace.
Brake groans when it is not used.	Brake pedal or booster push rod is adjusted wrongly. Brake booster or master pump or wheel pump return is not good. (Disk brake) Piston rusted or seized. Brake block is position in brake caliper improperly. Brake disk and brake caliper casing are in friction. Brake block support plate is installed in disk brake improperly. (Drum brake) Brake shoe press spring is soft, damaged and incorrect. Backplate flange is cracked, resulting in manual interference between the brake and the backplate or brake shoe. Backplate is bent or buckling and interfered with brake drum. Brake is machined improperly and interfered with backplate or brake shoe. Other brake system parts: Loose or extra part is brake system. Rear brake drum is overtight, resulting in brake lining slippery. Wheel bearing is worn, damaged or lubricated improperly.	Check and adjust. Check, repair or replace. Check and fill oil if necessary. Repair or replace. Repair or replace. Repair or replace. Replace. Repair or replace. Repair or replace. Replace brake drum. Check, service and repair if necessary. Check, service and repair if necessary. Check, service and repair if necessary.

Caution:

The friction material in brake may generate inherent noise and heat during friction so as to disperse energy. Therefore it is normal if a xxx shrilling sound is generated. It is more serious in the bad weather conditions, severely cold, hot and humid, and at the place of snow, salt and bud. The xxx shrilling sound generated incidentally may not cause serious trouble to the brake and decrease the effective performance of the brake.

Trouble	Cause	Remedy
Brake still rattles, clicks or clucks when not used.	<p>stone of foreign object enter the inside of wheel cover.</p> <p>Tyre nut is loose.</p> <p>Brake pedal or booster push rod is adjusted improperly.</p> <p>Wheel bearing is worn, damaged or lubricated improperly.</p> <p>(Disk brake)</p> <p>Brake block support plate or Brake block out end is curled.</p> <p>Shoulder spring is bad.</p> <p>Slide bush is worn.</p> <p>Installation bolt is loose.</p> <p>Piston return is bad.</p> <p>(Drum brake)</p> <p>Loose or extra part is brake system.</p>	<p>Remove foreign object, i.e., stone.</p> <p>Tighten to stipulated torque. Replace if bolt hole is enlarged.</p> <p>Check and adjust.</p> <p>Check, fill oil and replace.</p> <p>Check, repair or replace.</p> <p>Check, repair or replace.</p> <p>Check and replace if necessary.</p> <p>Check and tighten if necessary.</p> <p>Check, repair or replace.</p> <p>Check, take out or replace.</p>
Brake deviates.	<p>A shoe is oily or watered.</p> <p>Left and right wheel brakes are adjusted differently.</p> <p>Brake drum is out of round.</p> <p>Hub bearing is loose.</p>	<p>Clean or replace shoe.</p> <p>Adjust them to be equal as per stipulation.</p> <p>Check or replace brake drum.</p> <p>Tighten hub bearing nut.</p>
Brake distance is long.	<p>Shoe is oiled or watered.</p> <p>Contact between shoe and drum is not good.</p> <p>Brake chamber acts abnormally.</p> <p>Pedal free travel is too big.</p> <p>Gap between shoe and drum is too big.</p> <p>Air is in brake pipeline.</p> <p>Brake pipeline leaks.</p>	<p>Clean or replace shoe.</p> <p>Check shoe and drum for out-of-roundness, and repair or replace when necessary.</p> <p>Disassemble brake chamber, and clean or replace the seriously damaged part.</p> <p>Open and check rear brake, and replace the part when necessary.</p> <p>Open and check rear brake, and replace the part when necessary.</p> <p>expel air from brake chamber.</p> <p>Trace the leakage and remove.</p>
Friction exists between Brake shoe and drum.	<p>Pedal free travel is too small.</p> <p>Gap between shoe and drum is too small.</p> <p>Pedal fails to return.</p>	<p>Check and remove the seize of pistons in master pump and brake chamber, and check or replace pedal return spring.</p> <p>Check and remove the seize of pistons in master pump and brake chamber.</p> <p>Check or replace return spring, and replenish oil as per stipulation.</p>
Noise is abnormal.	<p>Lubrication is not sufficient or there is metal chips in the oil</p> <p>Gear bearing or other part is worn excessively or damaged.</p> <p>Gear engagement is bad or bearing is overtight or loose.</p>	<p>Add enough oil or Replace.</p> <p>remove, check, repair or replace worn part.</p> <p>Check and adjust the gear engagement gap and bearing tension by using correct method.</p>
Final reduction gear leaks.	<p>Oil level is too high or oil quality is incorrect.</p> <p>Seal is worn or damaged.</p> <p>Driving gear flange Loose or damaged.</p>	<p>Drain and replace oil.</p> <p>Replace seal.</p> <p>Tighten or replace flange.</p>