

<b>FOREWORD</b> .....	0-1
-----------------------	-----

## **SECTION 1 GENERAL**

Group 1 Safety Hints .....	1-1
Group 2 Specifications .....	1-10
Group 3 Operational Checkout Record Sheet .....	1-21

## **SECTION 2 ENGINE**

Group 1 Structure and Function .....	2-1
Group 2 Engine speed and Stall rpm .....	2-14

## **SECTION 3 POWER TRAIN SYSTEM**

Group 1 Structure and Function (fault codes) .....	3-1
Group 2 Operational Checks and Troubleshooting .....	3-53
Group 3 Test and Adjustments .....	3-64
Group 4 Disassembly and Assembly .....	3-66

## **SECTION 4 BRAKE SYSTEM**

Group 1 Structure and Function .....	4-1
Group 2 Operational Checks and Troubleshooting .....	4-32
Group 3 Tests and Adjustments .....	4-39
Group 4 Disassembly and assembly .....	4-41

## **SECTION 5 STEERING SYSTEM**

Group 1 Structure and Function .....	5-1
Group 2 Operational Checks and Troubleshooting .....	5-16
Group 3 Tests and Adjustments .....	5-24
Group 4 Disassembly and Assembly .....	5-32

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

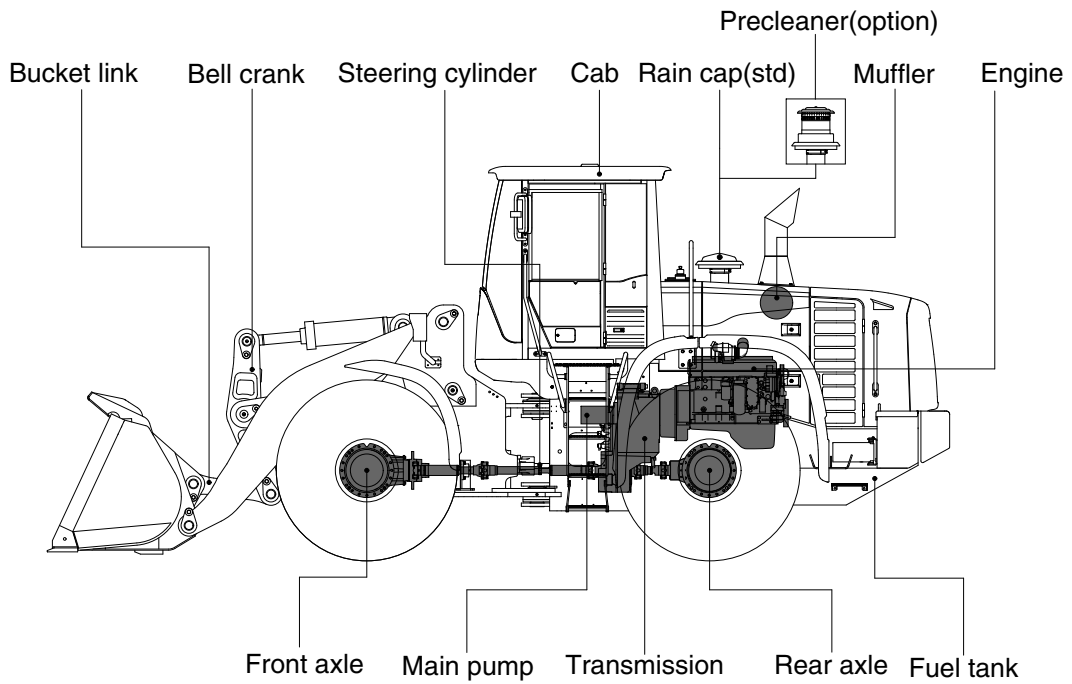
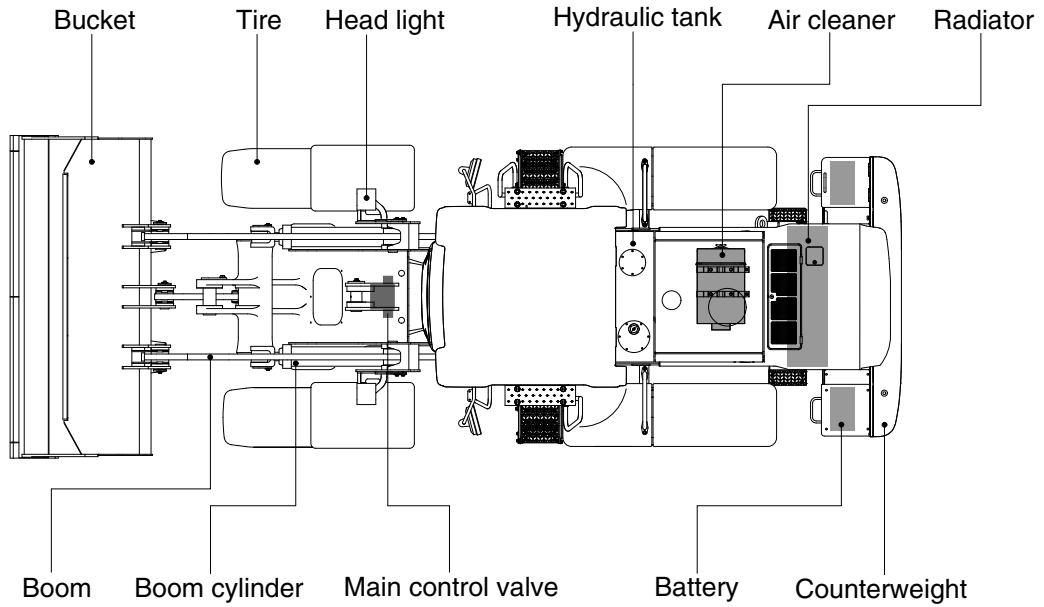
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

# SECTION 1 GENERAL

Group 1 Safety Hints .....	1-1
Group 2 Specifications .....	1-10
Group 3 Operational Checkout Record Sheet .....	1-21

# GROUP 2 SPECIFICATION

## 1. MAJOR COMPONENT



7709S2SE01

## 7. RECOMMENDED LUBRICANTS

Use only oils listed below. Do not mix different brand oil.

Please use HYUNDAI genuine oil and grease

Service point	Kind of fluid	Capacity ℓ (U.S. gal)	Ambient temperature °C (°F)						
			-50 (-58)	-30 (-22)	-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)
Engine oil pan	Engine oil	34 (9.0)	* <sup>1</sup> SAE 5W-40						
			SAE 30						
			SAE 10W						
			SAE 10W-30						
			SAE 15W-40						
Transmission	Engine oil	43 (11.4)	SAE 10W-30						
			SAE 15W-40						
Axle	UTTO	Front : 51 (13.5) Rear : 51 (13.5)	*Refer to below list						
Hydraulic tank	Hydraulic oil	Tank: 185 (48.9) System: 295 (77.9)	* <sup>1</sup> ISO VG 15						
			ISO VG 32						
			ISO VG 46						
			ISO VG 68						
Fuel tank	Diesel fuel	362 (95.6)	* <sup>1</sup> ASTM D975 NO.1						
			ASTM D975 NO.2						
Fitting (grease nipple)	Grease	As required	* <sup>1</sup> NLGI NO.1						
			NLGI NO.2						
Radiator (reservoir tank)	Mixture of antifreeze and soft water* <sup>2</sup>	46 (12.1)	Ethylene glycol base permanent type (50 : 50)						
			* <sup>1</sup> Ethylene glycol base permanent type (60 : 40)						

- SAE : Society of Automotive Engineers
- API : American Petroleum Institute
- ISO : International Organization for Standardization
- NLGI : National Lubricating Grease Institute
- ASTM : American Society of Testing and Material
- UTTO : Universal Tractor Transmission Oil

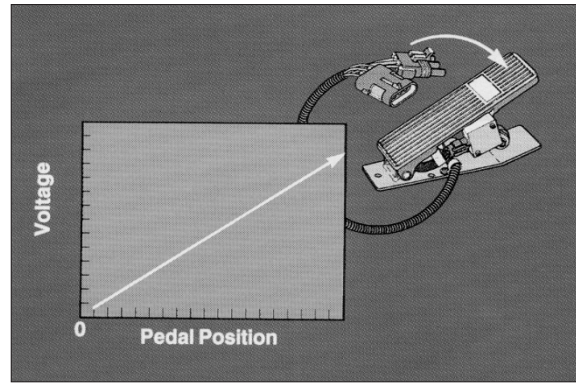
- \* Recommended oil list
  - BP TERRAC SUPER TRANSMISSION 10W-30
  - CASTROL AGRI TRANS PLUS 10W-30
  - MOBILFLUID 426
  - SHELL DONAX TD 10W-30
  - TOTAL DYNATRANS MPV

\*<sup>1</sup> Cold region : Russia, CIS, Mongolia

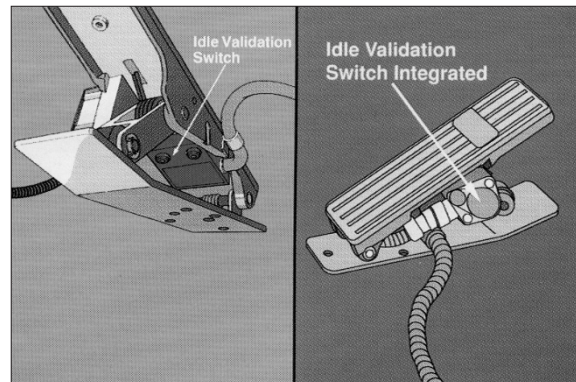
\*<sup>2</sup> Soft water : City water or distilled water

- 15) The potentiometer provides a DC voltage signal proportional to pedal angle displacement.

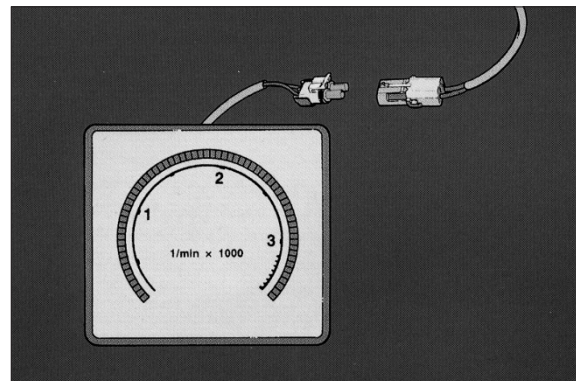
The ECM sees this voltage signal as an indication of throttle position.



- 16) The Idle Validation Switch provides verification independent of throttle pot movement that the pedal is, or is not, in the idle position. This scheme allows the ECM to detect potential throttle assembly problems. The Idle Validation Switch can be a separate mechanical or an integrated switch with the potentiometer.

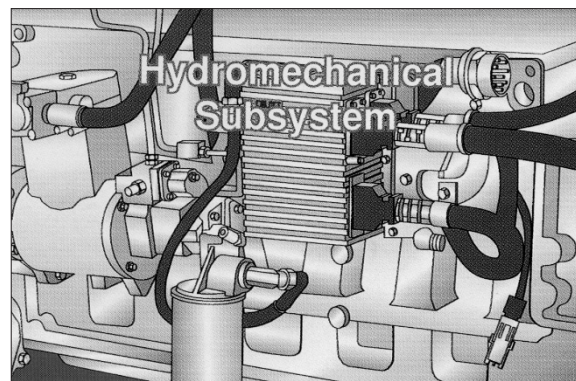


- 17) The tachometer output-signal connector can provide the engine RPM signal to the vehicle tachometer.



- 18) In this section we'll review the major components of the QSM Hydromechanical Subsystem.

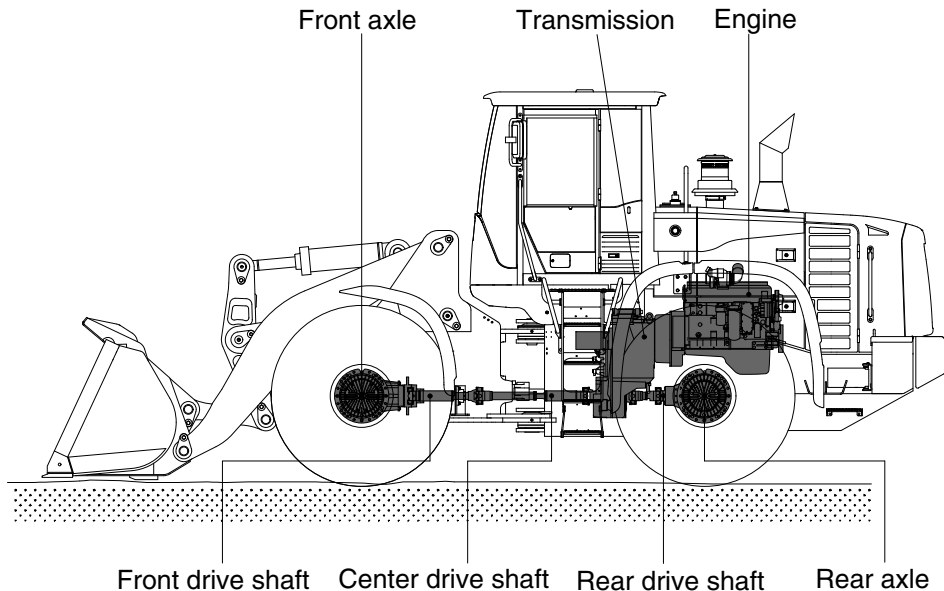
The QSM system fuel supply pump is mounted to the air compressor assembly and, like the air compressor, is driven by the engine through the accessory drive.



# SECTION 3 POWER TRAIN SYSTEM

## GROUP 1 STRUCTURE AND FUNCTION

### 1. POWER TRAIN COMPONENT OVERVIEW



77093PT01

The power train consists of the following components:

- Transmission
- Front, center and rear drive shafts
- Front and rear axles

Engine power is transmitted to the transmission through the torque converter.

The transmission is a hydraulically engaged four speed forward, three speed reverse countershaft type power shift transmission. A calliper-disc type parking brake is located on the transmission.

The transmission outputs through universal joints to three drive shaft assemblies. The front drive shaft is a telescoping shaft which drives the front axle. The front axle is mounted directly to the loader frame.

The rear axle is mounted on an oscillating pivot.

The front and rear axle are conventional differential as standard (option : limited slip differential).

The power transmitted to front axle and rear axle is reduced by the pinion gear and ring gear of differential. It then passes from the differential to the sun gear shaft (axle shaft) of final drive.

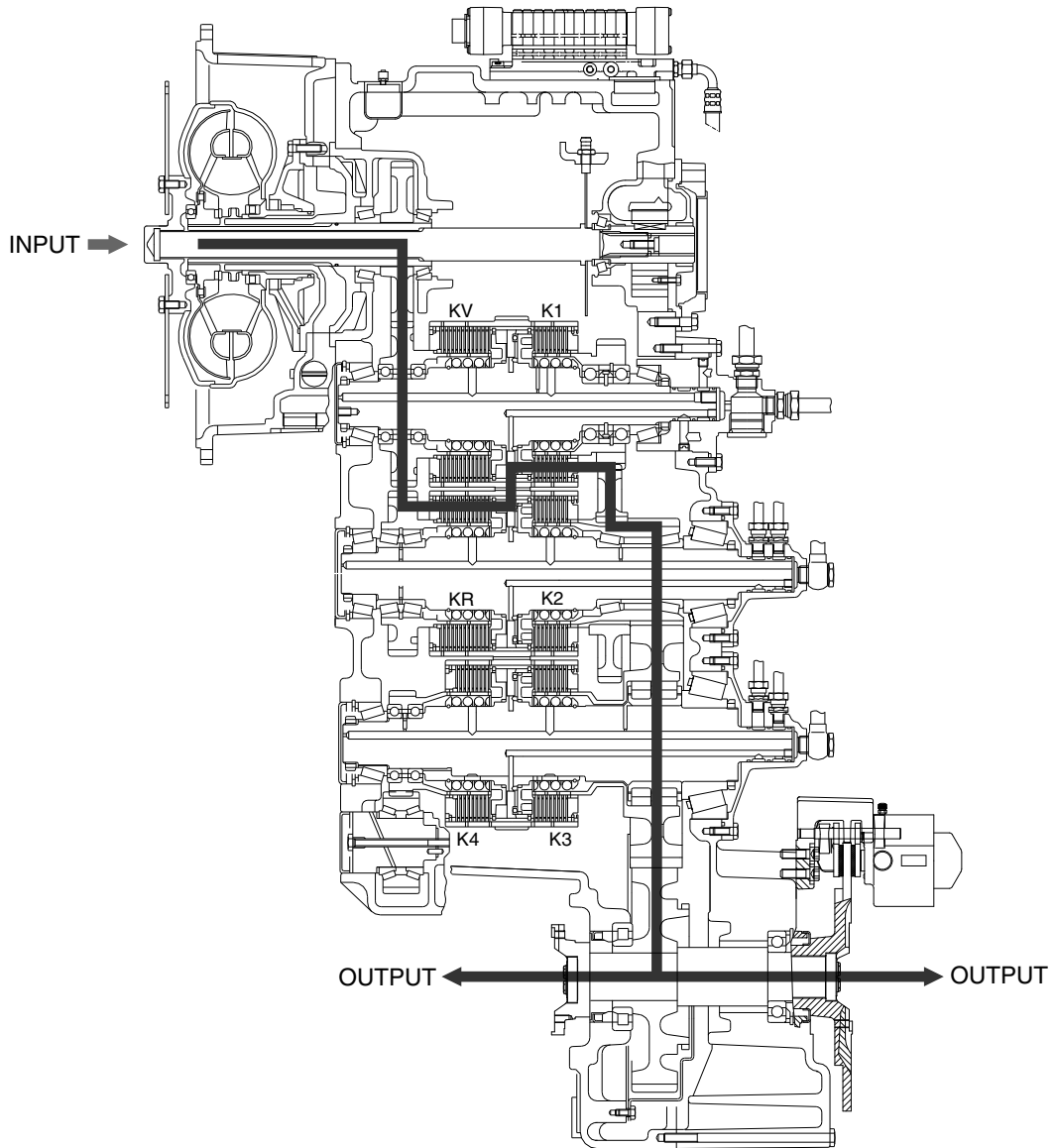
The power of the sun gear is reduced by a planetary mechanism and is transmitted through the planetary hub to the wheel.

**(2) Reverse**

**① Reverse 1st**

In 1st reverse, reverse clutch (KR) and 1st clutch (K1) are engaged.

Reverse clutch and 1st clutch are actuated by the hydraulic pressure applied to the clutch piston.



77093PT11

HCESPN	FMI	Description
707	1	Alternator node I voltage low (or open circuit)
723	3	Buzzer circuit - Voltage above normal, or shorted to high source
	4	Buzzer circuit - Voltage below normal, or shorted to low source (or open circuit)
727	4	Wiper relay circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Wiper relay circuit – Current above normal
728	3	Boom position sensor signal circuit – Voltage above normal, or shorted to high source (or open circuit)
	4	Boom position sensor signal circuit – Voltage below normal, or shorted to low source
729	3	Bucket position sensor signal circuit – Voltage above normal, or shorted to high source (or open circuit)
	4	Bucket position sensor signal circuit – Voltage below normal, or shorted to low source
730	19	APTC heater PWM output duty operation error
830	12	MCU internal memory error
840	2	Cluster communication error
841	2	ECM communication error
842	2	TCU communication error
843	2	APTC communication error
844	2	Monitor communication error
850	2	RMCU communication error

### 3) DEFINITION OF OPERATING MODES

#### (1) Normal

There's no failure detected in the transmission system or the failure has no or slight effects on transmission control. TCU will work without or in special cases with little limitations. (See following table)

#### (2) Substitute clutch control

TCU can't change the gears or the direction under the control of the normal clutch modulation. TCU uses the substitute strategy for clutch control. All modulations are only time controlled. (Comparable with EST 25)

#### (3) Limp-home

The detected failure in the system has strong limitations to transmission control. TCU can engage only one gear in each direction. In some cases only one direction will be possible.

TCU will shift the transmission into neutral at the first occurrence of the failure. First, the operator must shift the gear selector into neutral position.

If output speed is less than a threshold for neutral to gear and the operator shifts the gear selector into forward or reverse, the TCU will select the limp-home gear.

If output speed is less than a threshold for reversal speed and TCU has changed into the limp-home gear and the operator selects a shuttle shift, TCU will shift immediately into the limp-home gear of the selected direction.

If output speed is greater than the threshold, TCU will shift the transmission into neutral. The operator has to slow down the vehicle and must shift the gear selector into neutral position.

#### (4) Transmission-shutdown

TCU has detected a severe failure that disables control of the transmission.

TCU will shut off the solenoid valves for the clutches and also the common power supply (VPS1).

Transmission shifts to neutral. The park brake will operate normally, also the other functions which use ADM1 to ADM8.

The operator has to slow down the vehicle. The transmission will stay in neutral.

#### (5) TCU-shutdown

TCU has detected a severe failure that disables control of system.

TCU will shut off all solenoid valves and also both common power supplies (VPS1, VPS2). The park brake will engage, also functions are disabled which use ADM 1 to ADM 8.

The transmission will stay in neutral.

#### ※ Abbreviations

OC : Open circuit

SC : Short circuit

OP mode : Operating mode

TCU : Transmission control unit

EEC : Electronic engine controller

PTO : Power take off

Fault code (Hex)	Meaning of the fault code possible reason for fault detection	Reaction of the TCU	Possible steps to repair
86	O.C. at clutch KV The measured resistance value of the valve is out of limit ·Cable/connector is defective and has contact to TCU ·Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	<ul style="list-style-type: none"> <li>· Check the cable from TCU to the gearbox</li> <li>· Check the connectors from gearbox to TCU</li> <li>· Check the regulator resistance*</li> <li>· Check internal wire harness of the gearbox</li> </ul> <p>* See page 3-49</p>
87	S.C. to battery voltage at clutch KR The measured resistance value of the valve is out of limit, the voltage at KR valve is too high ·Cable/connector is defective and has contact to battery voltage ·Cable/connector is defective and has contact to another regulator output of the TCU ·Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	<ul style="list-style-type: none"> <li>· Check the cable from TCU to the gearbox</li> <li>· Check the connectors from gearbox to TCU</li> <li>· Check the regulator resistance*</li> <li>· Check internal wire harness of the gearbox</li> </ul> <p>* See page 3-49</p>
88	S.C. to ground at clutch KR The measured resistance value of the valve is out of limit, the voltage at KR valve is too low ·Cable/connector is defective and has contact to vehicle ground ·Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	<ul style="list-style-type: none"> <li>· Check the cable from TCU to the gearbox</li> <li>· Check the connectors from gearbox to TCU</li> <li>· Check the regulator resistance*</li> <li>· Check internal wire harness of the gearbox</li> </ul> <p>* See page 3-49</p>
89	O.C. at clutch KR The measured resistance value of the valve is out of limit ·Cable/connector is defective and has no contact to TCU ·Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	<ul style="list-style-type: none"> <li>· Check the cable from TCU to the gearbox</li> <li>· Check the connectors from gearbox to TCU</li> <li>· Check the regulator resistance*</li> <li>· Check internal wire harness of the gearbox</li> </ul> <p>* See page 3-49</p>
91	S.C. to ground at relay reverse warning alarm TCU detected a wrong voltage at the output pin, that looks like a S.C. to vehicle ground ·Cable is defective and is contact to vehicle ground ·Backup alarm device has an internal defect ·Connector pin is contacted to vehicle ground	Backup alarm will be on until TCU power down even if fault vanishes (Loose connection) OP mode : Normal	<ul style="list-style-type: none"> <li>· Check the cable from TCU to the backup alarm device</li> <li>· Check the connectors from backup alarm device to TCU</li> <li>· Check the resistance* of backup alarm device</li> </ul> <p>* See page 3-49</p>
92	S.C. to battery voltage at relay reverse warning alarm TCU detected a wrong voltage at the output pin, that looks like a S.C. to battery voltage ·Cable is defective and is contacted to battery voltage ·Backup alarm device has an internal defect ·Connector pin is contacted to battery voltage	No reaction OP mode : Normal	<ul style="list-style-type: none"> <li>· Check the cable from TCU to the backup alarm device</li> <li>· Check the connectors from backup alarm device to TCU</li> <li>· Check the resistance* of backup alarm device</li> </ul> <p>* See page 3-49</p>

※ Some fault codes are not applied to this machine.

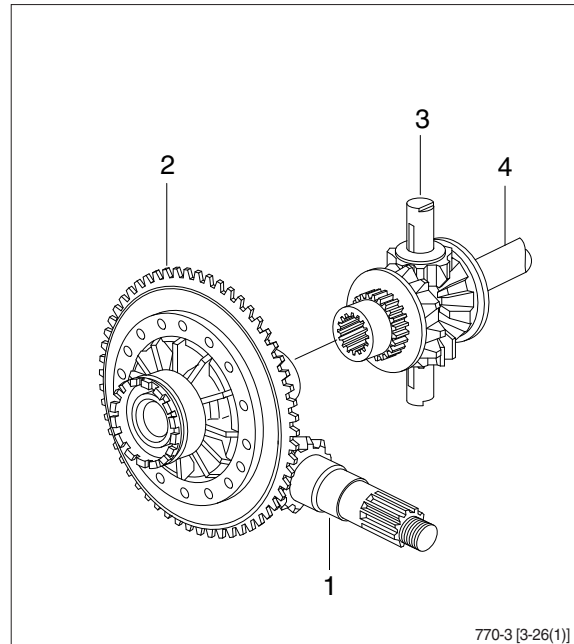
## 2) DIFFERENTIAL

### (1) Description

When the machine makes a turn, the outside wheel must rotate faster than the inside wheel. A differential is a device which continuously transmits power to the right and left wheels while allowing them to turn at different speeds, during a turn.

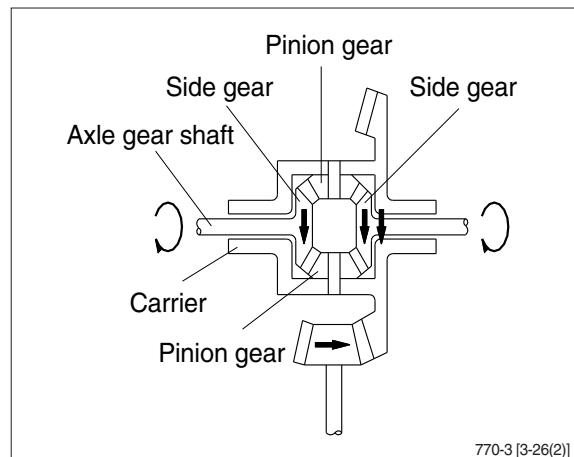
The power from the drive shaft passes through bevel pinion (1) and is transmitted to the bevel gear (2). The bevel gear changes the direction of the motive force by 90 degrees, and at the same time reduces the speed.

It then transmits the motive force through the differential (3) to the axle gear shaft (4).



### (2) When driving straight forward

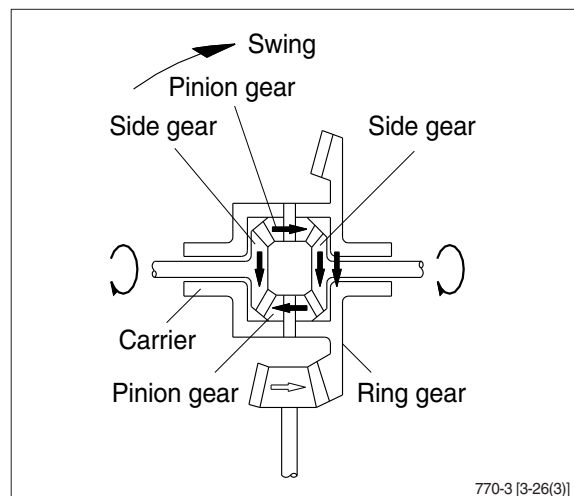
When the machine is being driven straight forward and the right and left wheels are rotating at the same speed, so the pinion gear inside the differential assembly do not rotate. The motive force of the carrier is sent through the pinion gear and the side gear, therefore the power is equally transmitted to the left and right axle gear shaft.



### (3) When turning

When turning, the rotating speed of the left and right wheels is different, so the pinion gear and side gear inside the differential assembly rotate in accordance with the difference between the rotating speed of the left and right wheels.

The power of the carrier is then transmitted to the axle gear shafts.



Problem	Cause	Remedy
Excessive transmission noise (Under load or no load)	Too low engine low idle. Worn parts or damaged in transmission. Warped drive line between engine and torque converter. Low or no lube.	Check engine low idle speed. Remove transmission suction screen. Inspect for metal particles. Repair as necessary. Inspect drive line. Do converter-out and lube pressure test. Do transmission pump flow test.
Foaming oil	Incorrect type of oil. High oil level. Low oil level. Air leak on suction side of pump.	Change oil. Transmission overfilled or hydraulic pump seal leaking. Add oil. Check oil pickup tube on side of transmission.
Oil ejected from dipstick	Plugged breather.	Inspect breather on top of transmission. Replace.
Machine vibrates	Aerated oil. Low engine speed. Failed universal joints on transmission drive shaft or differential drive shafts.	Add oil. Check engine speed. Check universal joints.
Machine lacks power and acceleration	Engine high idle speed set too low. Incorrect transmission oil. Aerated oil. Low transmission pressure. Warped transmission clutch. Torn transmission control valve gasket. Brake drag. Failed torque converter. Low engine power.	Check high idle adjustment. Change oil. Add oil. Do transmission system pressure test. Do transmission clutch drag checks. Inspect gasket. Do brake drag check. Do torque converter stall speed test. Do engine power test.
Torque converter stall RPM too high	Aerated oil. Stuck open converter relief valve. Leakage in torque converter seal. Torque converter not transferring power (Bent fins, broken starter).	Put clear hose on thermal bypass outlet port. Run machine to check for bubbles in oil. Do converter-out pressure test. Do converter-out pressure test. Replace torque converter.

**Preassemble the opposite side :**

(7) The opposite figure shows the following single components :

- 1 Main pressure valve  
(1EA, piston & comp spring)
- 2 Follow-on slide  
(3EA, piston & comp spring)
- 3 Vibration damper  
(3EA, piston & comp spring)

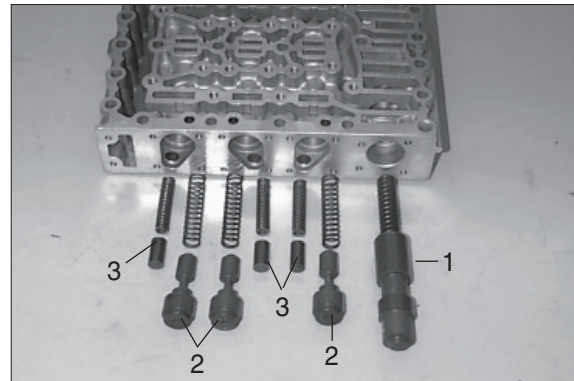


Figure1021

(8) Install the single components according to figure 1021.

Preload the compression springs of the follow-on slides and fasten the piston preliminarily by means of cylindrical pins  $\varnothing 5$  mm (assembly aid), see arrows.

Install two adjusting screws.

Assemble the gasket (arrow 1) and the housing cover and place them equally until contact by means of adjusting screws.

Then fasten the housing cover with cap screws.

- Torque limit : 0.76 kgf · m (5.53 lbf · ft)

Remove the cylindrical pins (assembly aid) again.

※ Special tool

Adjusting screws                      5870 204 036

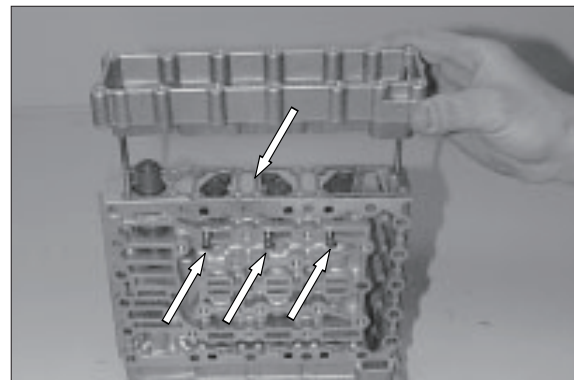


Figure1022

(9) Assemble the pressure controllers and fasten them by means of fixing plates and cap screws.

※ Install the fixing plates with the neck showing downwards.

Observe radial installation position of the pressure controllers, see Figure.

- Torque limit : 0.56 kgf · m (4.06 lbf · ft)

※ Special tool

Socket spanner TX-27                5873 042 002

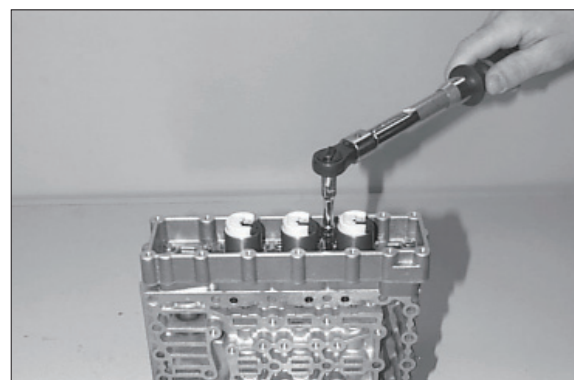


Figure1023

- (4) Press out the driver with ball bearing from the bearing bore.  
Then separate the ball bearing from the driver.

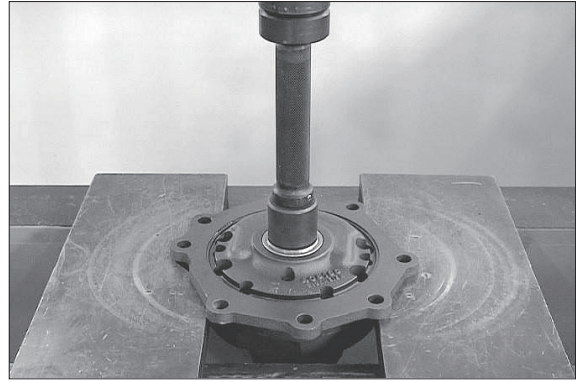


Figure 29

- (5) Loosen the cap screws, take off the pump cover and remove the rotor set.

**▲ If marks due to running-in are found on the pump housing or housing cover, the complete pump is to be replaced.**

Then assemble the rotor set with the chamfer on the tooth tip showing downwards and install the housing cover again.

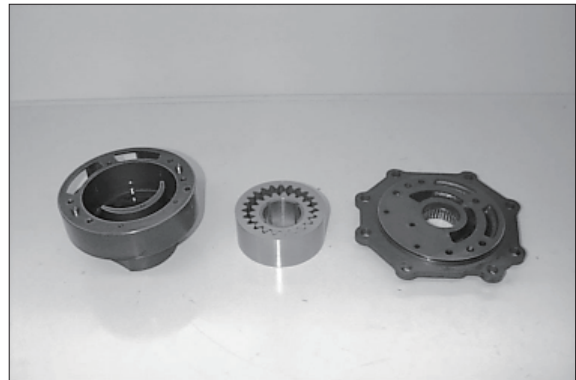


Figure 30

- Torque limit (M8/8.8) :  
2.35 kgf · m (17.0 lbf · ft)
- Torque limit (M6/8.8) :  
0.97 kgf · m (7.01 lbf · ft)

(8) Pull off the taper roller bearing from the disc carrier.

※ Special tool

Gripping insert 5873 002 044

Basic tool 5873 002 001

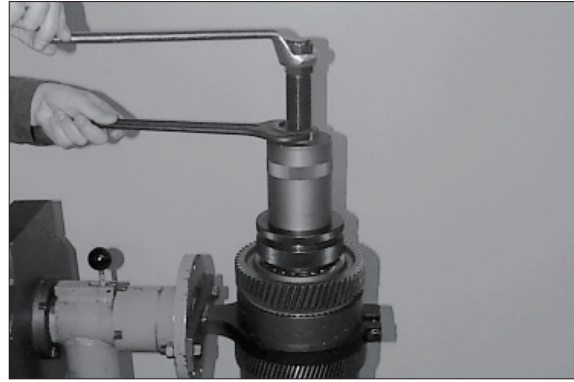


Figure 82

(9) Fasten spur gear KR by means of clamping ring (arrow) and pull it from the disc carrier.

※ Collar of the clamping ring must show upwards (to the spur gear).

※ Special tool

Three-armed puller 5870 971 003

Clamping ring 5870 654 045

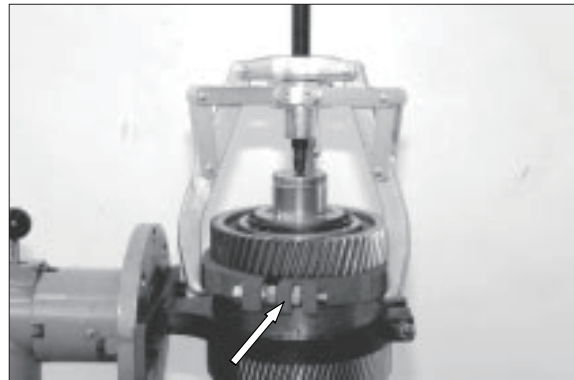


Figure 83

(10) Remove the ring.

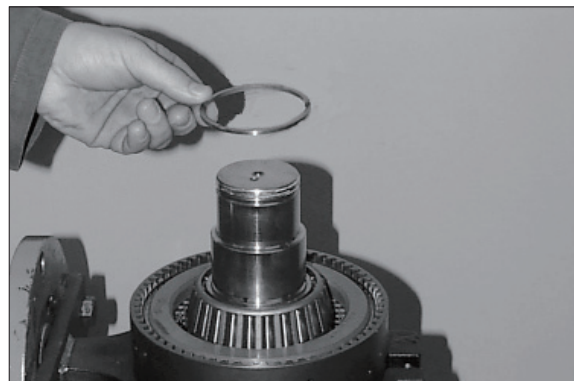


Figure 84

(11) Squeeze out the snap ring.  
Remove end shim and disc set KR.



Figure 85

**Preassemble and install spur gear K4  
(figure 140~144) :**

(1) Opposite figure shows the single components of spur gear K4.

- 1 Bearing inner ring
- 2 Bearing outer ring
- 3 Ring
- 4 Spur gear

Locate both bearing outer rings (2) until contact.

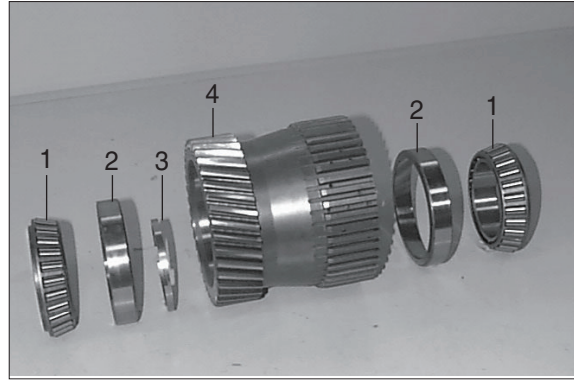


Figure140

(2) Heat the bearing inner ring and install it until contact.



Figure141

(3) Install the ring (3).



Figure142

(4) Assemble the spur gear until all inner clutch discs are located.

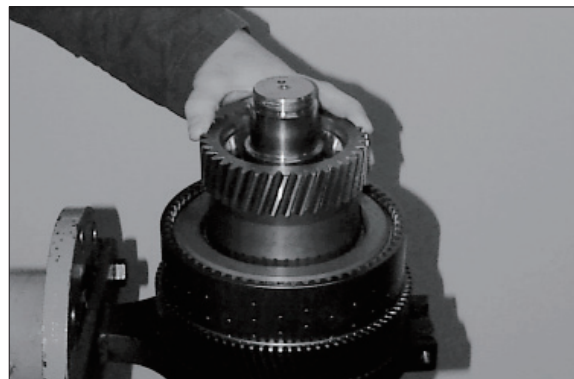


Figure143

## Disc Components KR

※ Below sketch or table shows the standard version as to the installation position of the single components. Obligatory is the respective spare parts list.

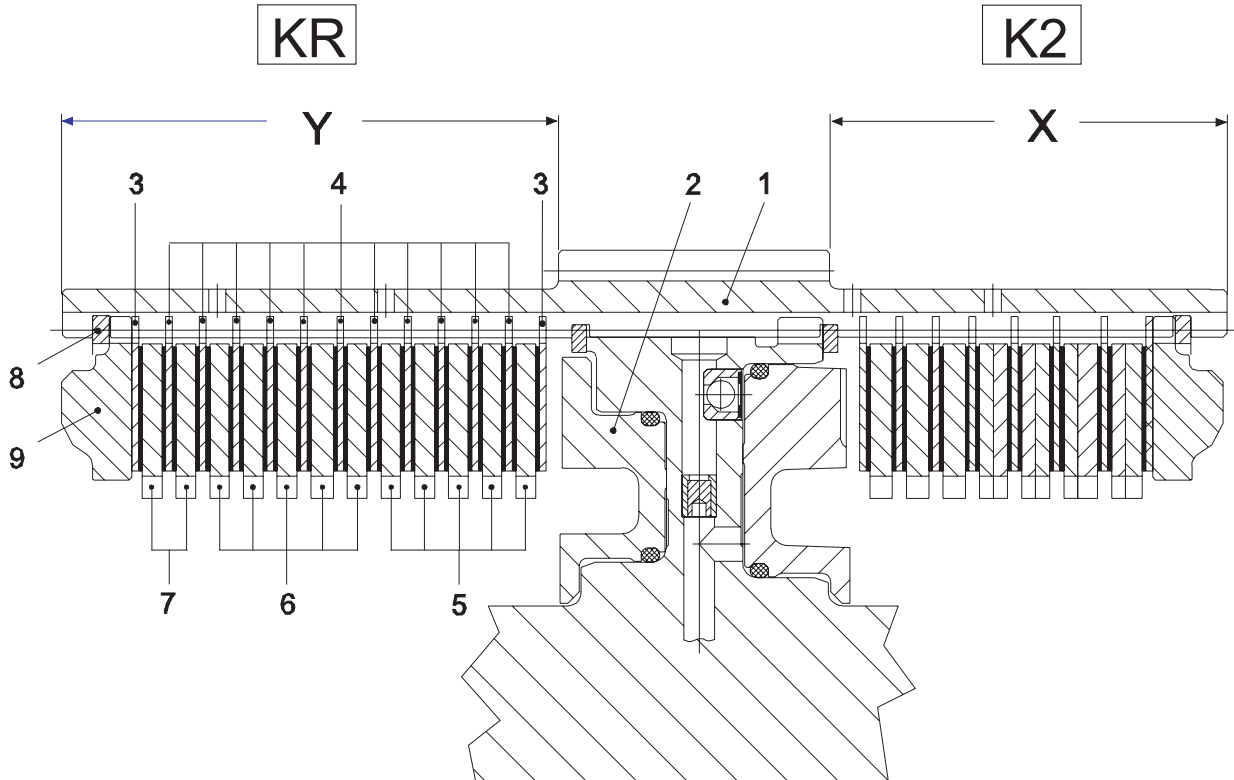


Figure 168

Position	Description	Quantity	s (mm)	Remarks
1	Disc carrier	1		
2	Piston	1		
3	Outer clutch disc	2	1.85	Coated on one side
4	Outer clutch disc	11	3.35	Coated on both sides
5	Inner clutch disc	5	2.5	
6	Inner clutch disc	5	3.0	
7	Inner clutch disc	2	2.5~4.0	Optional
8	Snap ring	1	2.10~3.10	Optional
9	End shim	1		
Number of friction surfaces : 24				
Disc clearance : 2.8 ~ 3.0 mm				

※ Install the outer clutch discs position 3 with uncoated side showing to the piston and end shim respectively. The respective clutch side can be seen on the length of the disc carrier, see sketch.

KR Dimension X (long disc carrier side)

K2 Dimension Y (short disc carrier side)

- (1) Lift the disc carrier with the KV-side showing downwards into the clamping ring and fasten it.  
Then rotate disc carrier by 180°.

**▲ To install new disc carriers the finished bores have to be sealed with plugs. Installation position, see arrow, figure193~194.**

- ※ Special tool  
Hand mounting tool            5870 320 014  
Ratchet spanner                5870 320 018

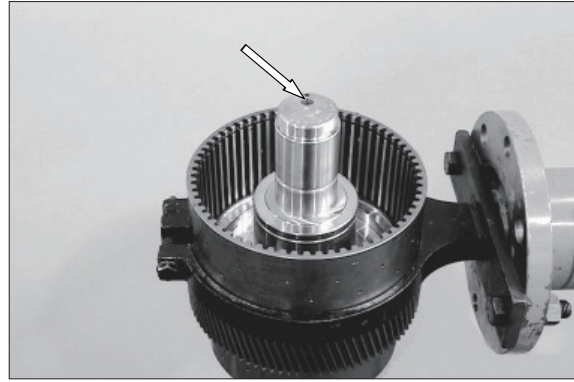


Figure 193

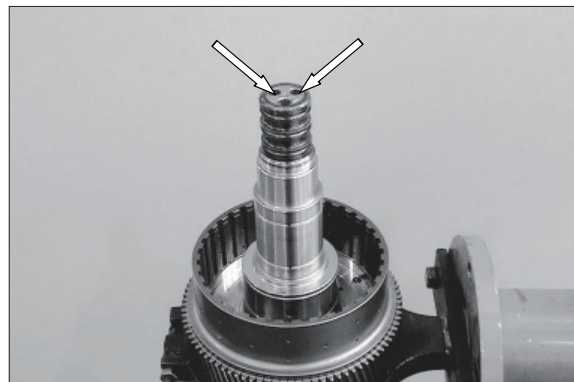


Figure 194

- (2) Flush-mount the drain valve (arrow) with the chamfer showing downwards.

- ※ Special tool  
Inserting tool                    5870 320 019

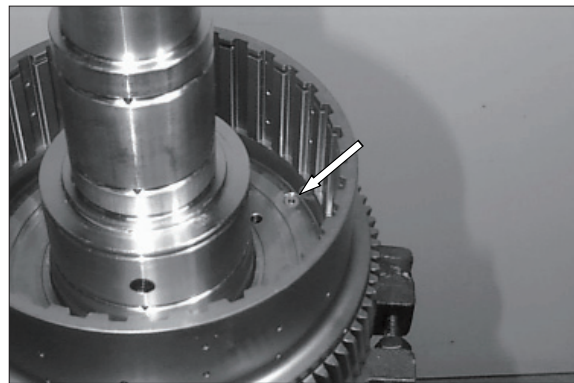


Figure 195

- (3) Put both O-rings scroll-free into the annular grooves of the piston, see arrows.

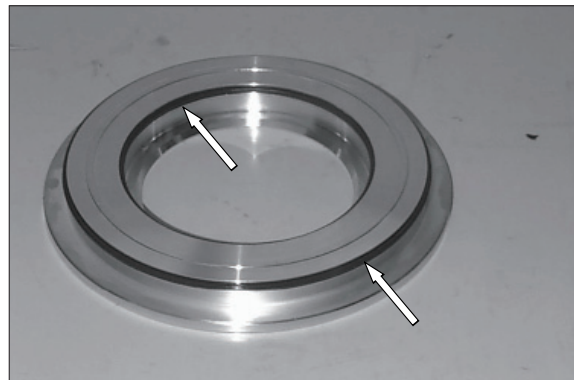


Figure 196

(8) Install shim  $s = 1.20 \text{ mm}$

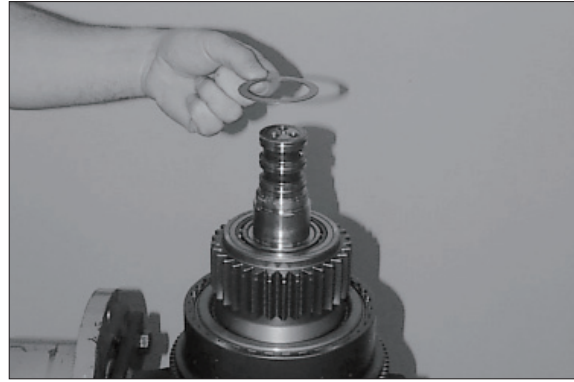


Figure 223

(9) Heat the bearing inner ring and install it until contact.

**▲ Use safety gloves.**



Figure 224

(10) Lift the disc carrier out of the clamping ring. To ensure the exact locating of the single components, preload the bearing with 100kN (10 t) (figure 225).

**▲ Support on the lower as well as upper bearing inner ring.  
Use pressure pieces.**

※ Special tool  
Pressure pieces

5870 506 096

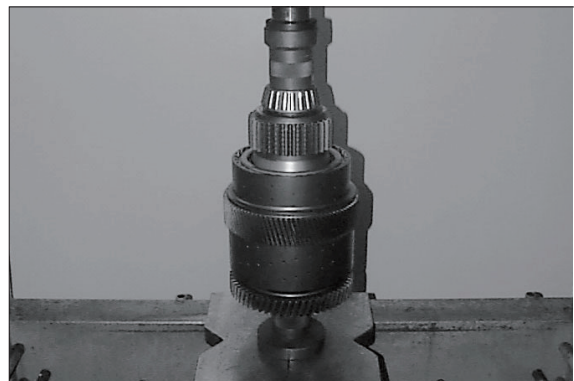


Figure 225

**Housing dimension :**

- (3) Determine Dimension I, from the bearing outer ring to the mounting face.

Dimension I e.g ..... 16.13 mm

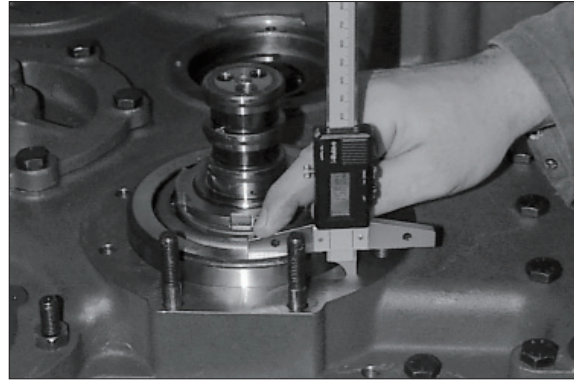


Figure 260

**Cover dimension :**

- (4) Determine Dimension II, from the contact/bearing outer ring to the mounting face.

Dimension II e.g ..... 17.75 mm

※ Special tool

Digital depth gauge                      5870 200 072

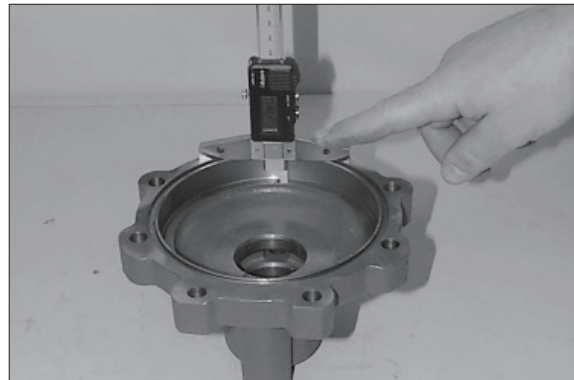


Figure 261

**Example :**

Dimension II ..... 17.75 mm

Dimension I ..... - 16.13 mm

Difference ..... = 1.62 mm

Bearing preload ..... e.g. + 0.03 mm

Resulting shim (s) ..... s = 1.65 mm

- (5) Fix the shim with assembly grease into the cover. Install the O-ring (arrow).

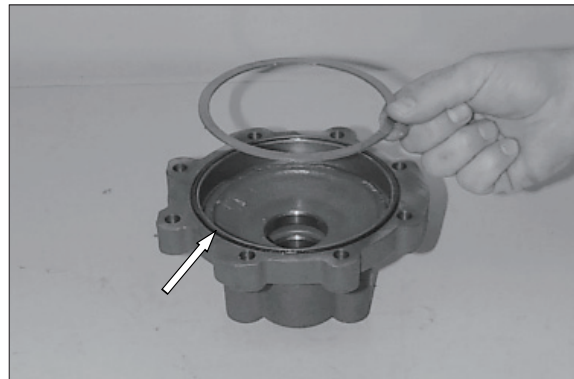


Figure 262

- (6) Grease the rectangular rings (arrows) and centrally align them.

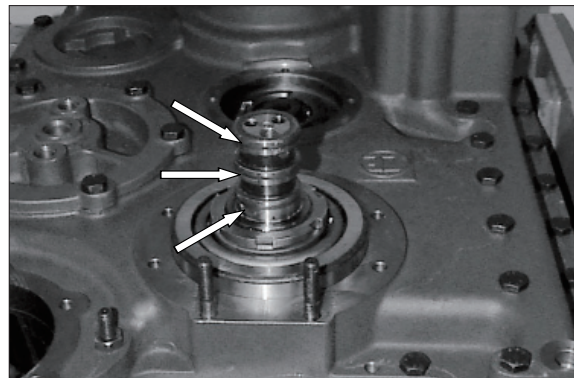


Figure 263

- (3) Place the O-ring (arrow) into the space between output flange and shaft (see also figure 289) and put on the shim.

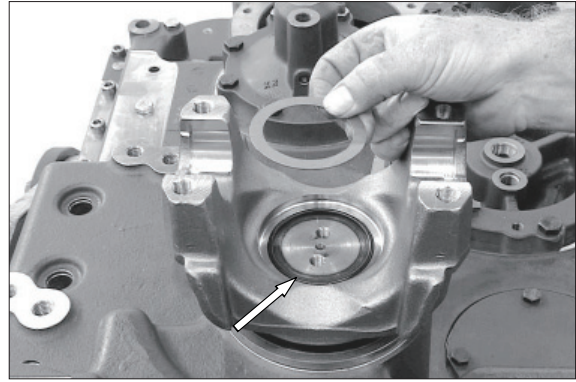


Figure 292

- (4) Put on the washer and fasten the output flange by means of hexagon screws.
- Torque limit (M10/8.8) :  
4.69 kgf · m (33.9 lbf · ft)

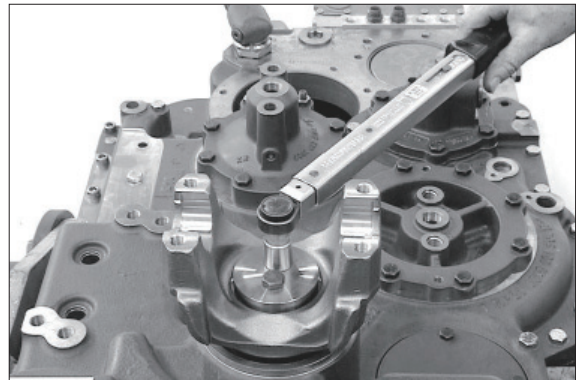


Figure 293

- (5) Fasten the hexagon screws by means of the lock plate.

- ※ Specail tool
- Mounting tool 5870 057 009
- Handle 5870 260 002

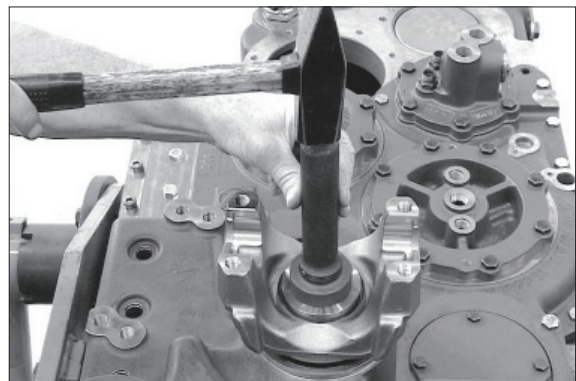


Figure 294

(8) Install the converter safety valve (arrow 1) and fasten it by means of slotted pin (arrow 2).

※ Flush-mount slotted pin to recess.

Put the O-ring (arrow 3) into the annular groove.

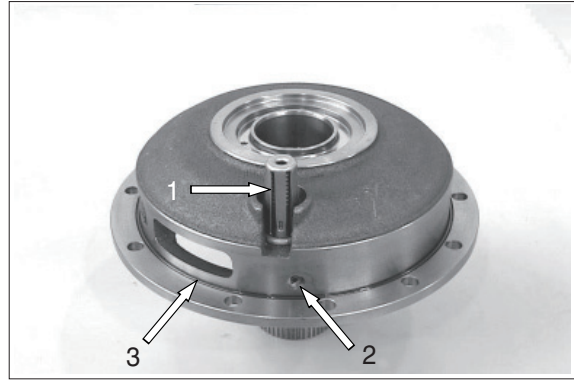


Figure 352

(9) Press the needle bearing (arrow), with the reinforced coating towards the press-in tool into the bore of the bearing cover until contact.

※ Special tool

Mounting tool 5870 058 051

Handle 5870 260 002

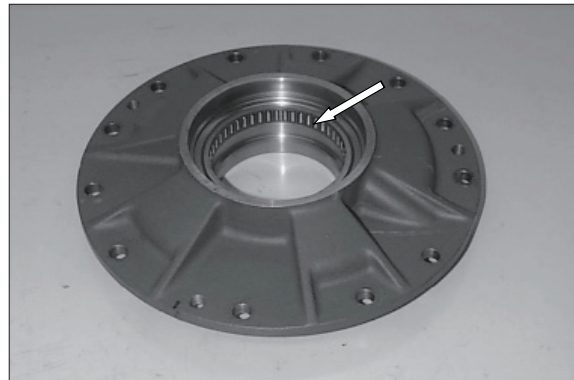


Figure 353

(10) Flush-mount the shaft seal (arrow) with the sealing lip showing (downwards) to the oil sump.

※ Wet the outer diameter with spirit.  
Grease the sealing lip.

※ Special tool

Mounting tool 5870 048 030

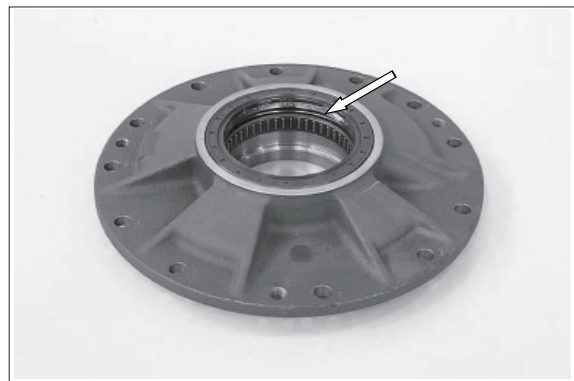


Figure 354

※ Make the following steps (figure 355~358) in direct time sequence to secure the precise contact of the oil supply flange.

(11) Heat the housing bore.

※ Special tool

Preheating bush 5870 801 006

Hot-air blower 5870 221 500

Hot-air blower 5870 221 501



Figure 355

### 3. AXLE

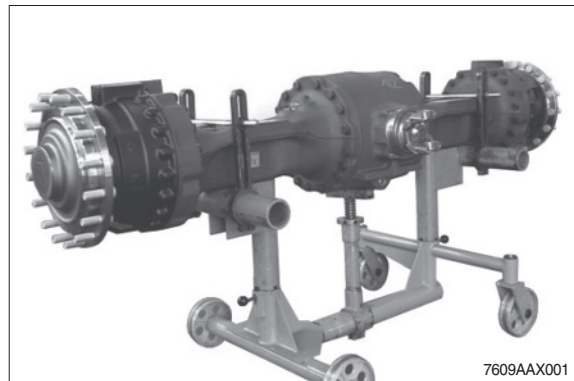
#### 1) DISASSEMBLY

##### (1) Disassembly output and brake

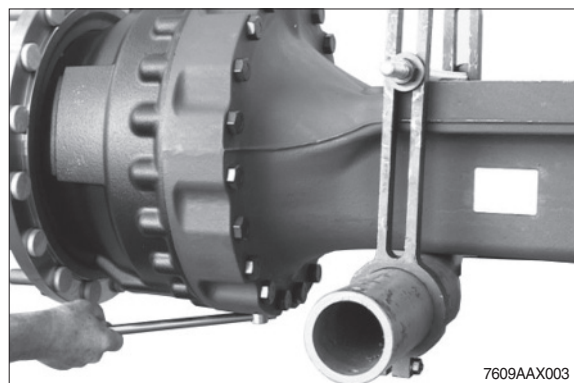
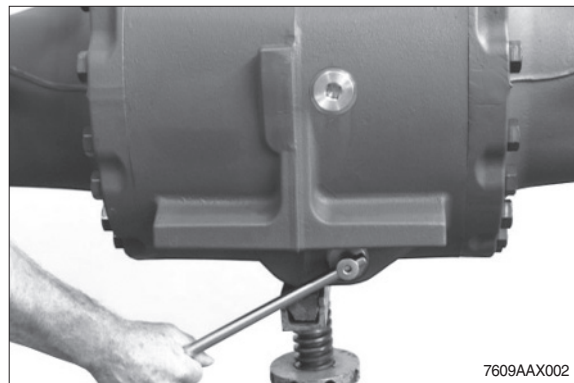
- ① Fix axle to assembly truck.

Assembly truck	5870 350 000
Fixtures	5870 350 077
Clamping brackets	5870 350 075
Support	5870 350 125

- ※ Before clamping the axle fully turn in the support. Position axle first onto the two fixtures, secure with clamping brackets and then unbolt the support until contact with the axle is obtained.



- ② Loosen screw plugs (3EA, see AX002 and AX003) and drain oil from the axle.

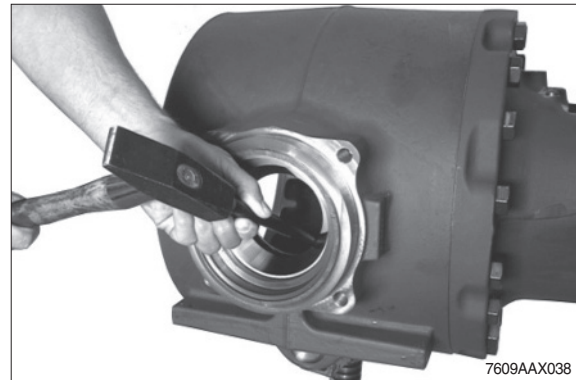


- ⑧ Remove spacer ring and pull the tapered roller bearing from the input pinion.

Gripping device                    5873 002 030  
Basic tool                            5873 002 000



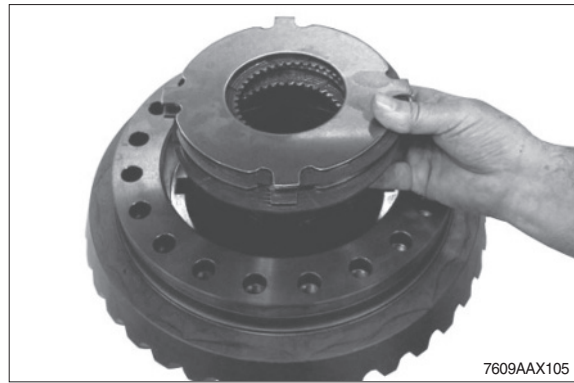
- ⑨ If necessary, force both bearing outer rings out of the axle drive housing.



- ⑨ Mount outer and inner disks in alternating order, starting with an inner disk.

The installation clearance of the internal parts is corrected by mounting outer disks with different thicknesses.

- ▲ The difference in thickness between the left and the right disk package must only be 0.1 mm at maximum.



7609AAX105

**Determine the installation clearance 0.2~0.7 mm**

- ⑩ Measure dimension I, from the mounting face of the differential housing to the plane face of the outer disk.

Dimension I e.g. .... 44.30 mm



7609AAX106

- ⑪ Measure dimension II, from the contact face of the outer disk to the mounting face on the housing cover.

Dimension II e.g. .... 43.95 mm

**CALCULATION EXAMPLE :**

Dimension I ..... 44.30 mm

Dimension II ..... - 43.95 mm

**Difference = disk clearance = 0.35 mm**

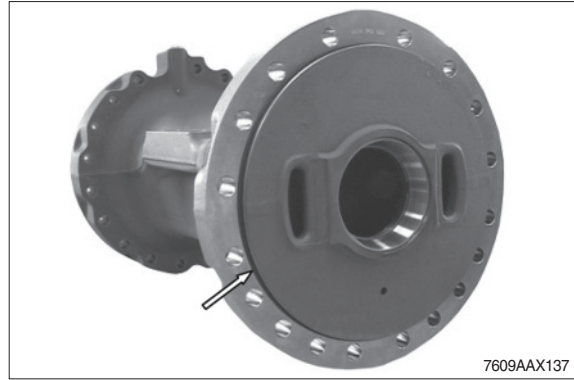


7609AAX107

- ※ Any deviation from the required installation clearance is to be corrected with corresponding outer disks (s = 2.7, s = 2.9, s = 3.0, s = 3.1, s = 3.2, s = 3.3 or s = 3.5 mm), taking care that the difference in thickness between the left and the right disk package must only be 0.1 mm at maximum.

## (7) Reassembly axle housing

- ① Grease O-ring (see arrow) and insert it into the axle housing.

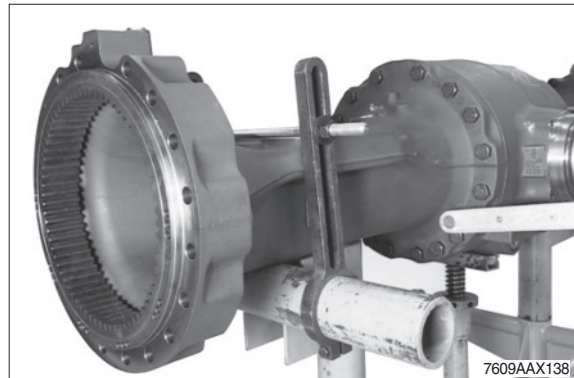


- ② Mount two locating pins and bring the axle housing into contact position with the axle drive housing by using the lifting device.

Then fix the axle housing by means of hexagon screws.

- Tightening torque (M20/10.9) :  
57.1 kgf · m (413 lbf · ft)

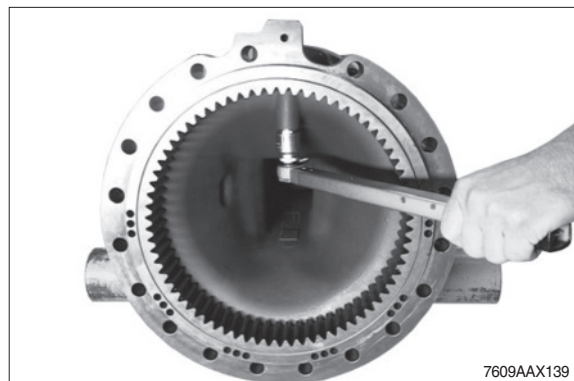
Locating pins                      5870 204 024



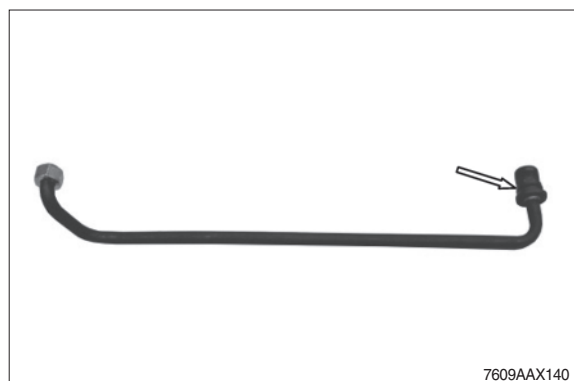
- ※ After assembling the axle housing secure the axle with clamping brackets.

- ③ Mount fitting.

- Tightening torque :  
3.67 kgf · m (26.6 lbf · ft)



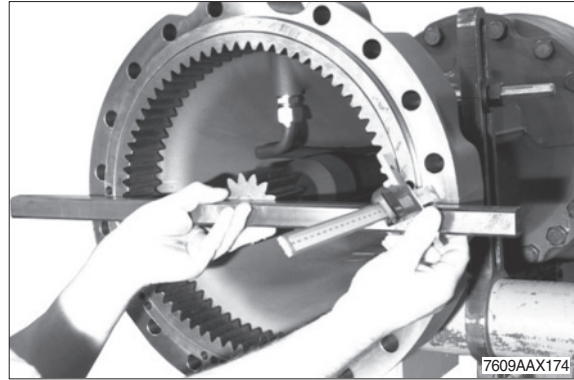
- ④ Grease O-ring and insert it into the annular groove of the brake tube (see arrow).



- ② Measure dimension II, from the front face of the sun gear shaft to the mounting surface of the axle housing.

Dimension II e.g. . . . . . 38.20 mm

Straightedge 5870 200 022



**CALCULATION EXAMPLE :**

Dimension I . . . . . 40.80 mm

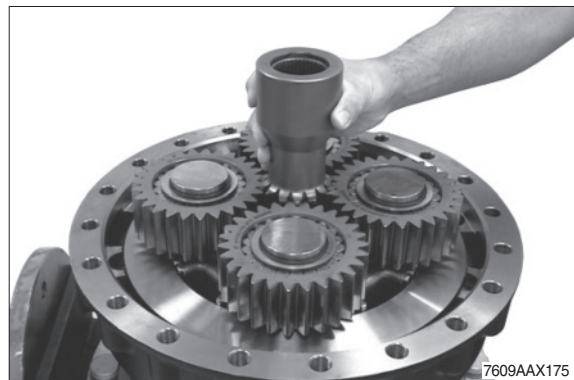
Dimension II . . . . . - 38.20 mm

Difference . . . . . 2.60 mm

Required axial play e.g. . . . - 1.00 mm

**Difference = shim e.g. s = 1.60 mm**

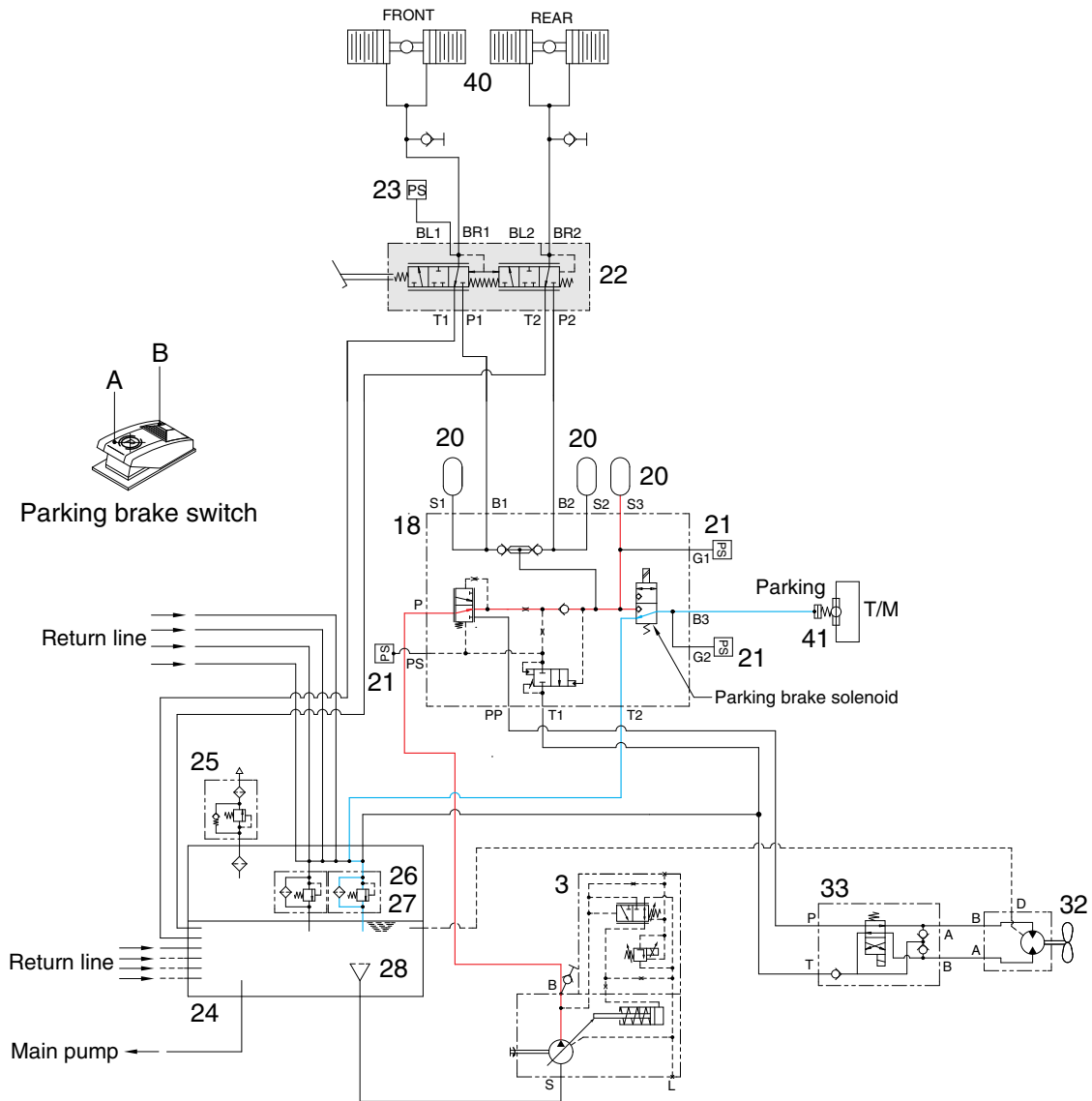
- ③ Insert sun gear shaft into the planetary carrier.



- ④ Fix determined shim (s) e.g. s = 1.60 mm with grease into the sun gear shaft.



#### 4) PARKING BRAKE OPERATED



7759S4BS05

When the parking brake switch is pressed B position, the solenoid valve is deenergized and the valve open the drain port.

At the same time, the hydraulic oil in the parking brake return to the tank through the solenoid valve. When the piston rod is returned by the force of the spring, the parking brake is applied.

## 2) OPERATION

The unloading valve (4) controls the minimum and maximum pressure of the braking system. When the service brake pressure is below the maximum pressure ( $125 \pm 5$  bar), the unloading valve (4) is blocked and PS pilot pressure (brake priority pressure) increases.

As soon as PS pilot pressure raises up above 15 bar, pump controller current is reduced by MCU (pressure sensor detects brake priority pressure, and pump supply flow and pressure in order to meet the brake system).

The pressure sensor at PS port detect whether brake system needs to be charged.

Priority valve spring and pilot pressure (brake priority pressure) pushed priority spool to the upward.

Therefore, full pump flow directly goes to the brake system in order to satisfy the demand of the brake system.

Pump flow goes through the following components : orifice (7), check valve (2), shuttle valve (8). Brake failure pressure sensor at G1 port detects pressure in the brake accumulators.

When the pressure is lower than 100 bar, the sensor activates warning lamp on the cluster in order to check brake system.

When brake system pressure reaches the maximum brake system pressure ( $150 \text{ bar} \pm 5 \text{ bar}$ ), unloading valve (4) opens, pilot pressure (brake priority pressure) of priority valve is low by draining the spring side of priority valve (3) to hydraulic tank through unloading valve (4).

### ※ FAN SYSTEM OPERATION

When the brake system pressure is below minimum pressure ( $125 \pm 5$  bar), it has the high priority than the fan system. Pump flow to the fan motor is blocked while brake system is charged.

However, The fan system has controlled pump when the brake system pressure is charged.

The fan speed solenoid valve (5-1) controls the pressure (fan speed) of pump when the brake system is fully charged.

The fan speed solenoid valve (5-1) is a proportional solenoid. As current to the fan speed solenoid increases, pump output pressure decreased, therefore, the fan motor rotates slower.

When the current of the fan speed solenoid valve (5-1) is reduced, the output pressure is increased.

The pump will be stroked and the pump will send maximum flow to the fan motor, thus, the fan motor is turning faster.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below

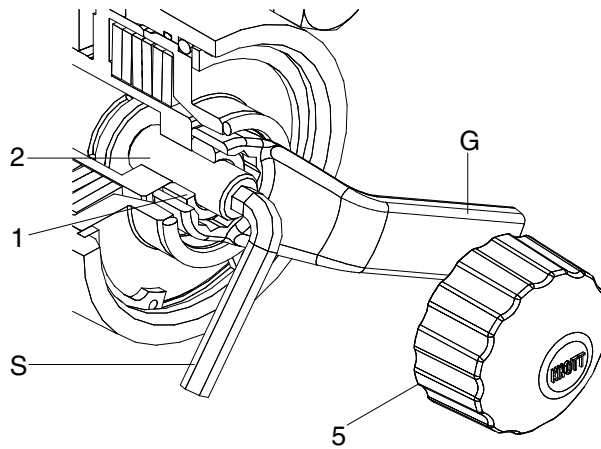


- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

#### 4) EMERGENCY RELEASE OF THE PARKING BRAKE

In the event of a failure in pressure supply the parking brake can be released mechanically in the following way :



7609A4BS23

- |   |               |   |              |
|---|---------------|---|--------------|
| 1 | Lock nut      | S | Peg spanner  |
| 2 | Setting screw | G | Ring spanner |
| 5 | Screw cap     |   |              |

- (1) Secure the machine against rolling away.
  - (2) Rotate the screw cap (5) in a counter-clockwise direction and unscrew it.
  - (3) Release the lock nut (1) and unscrew it back to the end of the setting screw (2).
  - (4) Rotate the setting screw (2) in a clockwise direction until the brake disc is completely free.
- ※ For emergency release a torque of min 7.1 kgf·m (51.6 lbf·ft) is required on the setting screw (2).
- (5) Screw on the lock nut (1) up to contact with the piston and apply a slight locking force to the setting screw (2).
  - (6) Screw on the screw cap (5) in a clockwise direction by a few threads. (dirt ingress protection)
- ※ In this condition the machine has no parking brake facility and thus must be protected from rolling away by different means. The brake must be adjusted before recommissioning.

## 2. TROUBLESHOOTING

### 1) SERVICE BRAKE

Diagnose malfunction charts are arranged from most probable and simplest to verify, to least likely, more difficult to verify. Remember the following steps when troubleshooting a problem :

Step 1. Operational check out procedure (see section 1)

Step 2. Operational checks (in this group)

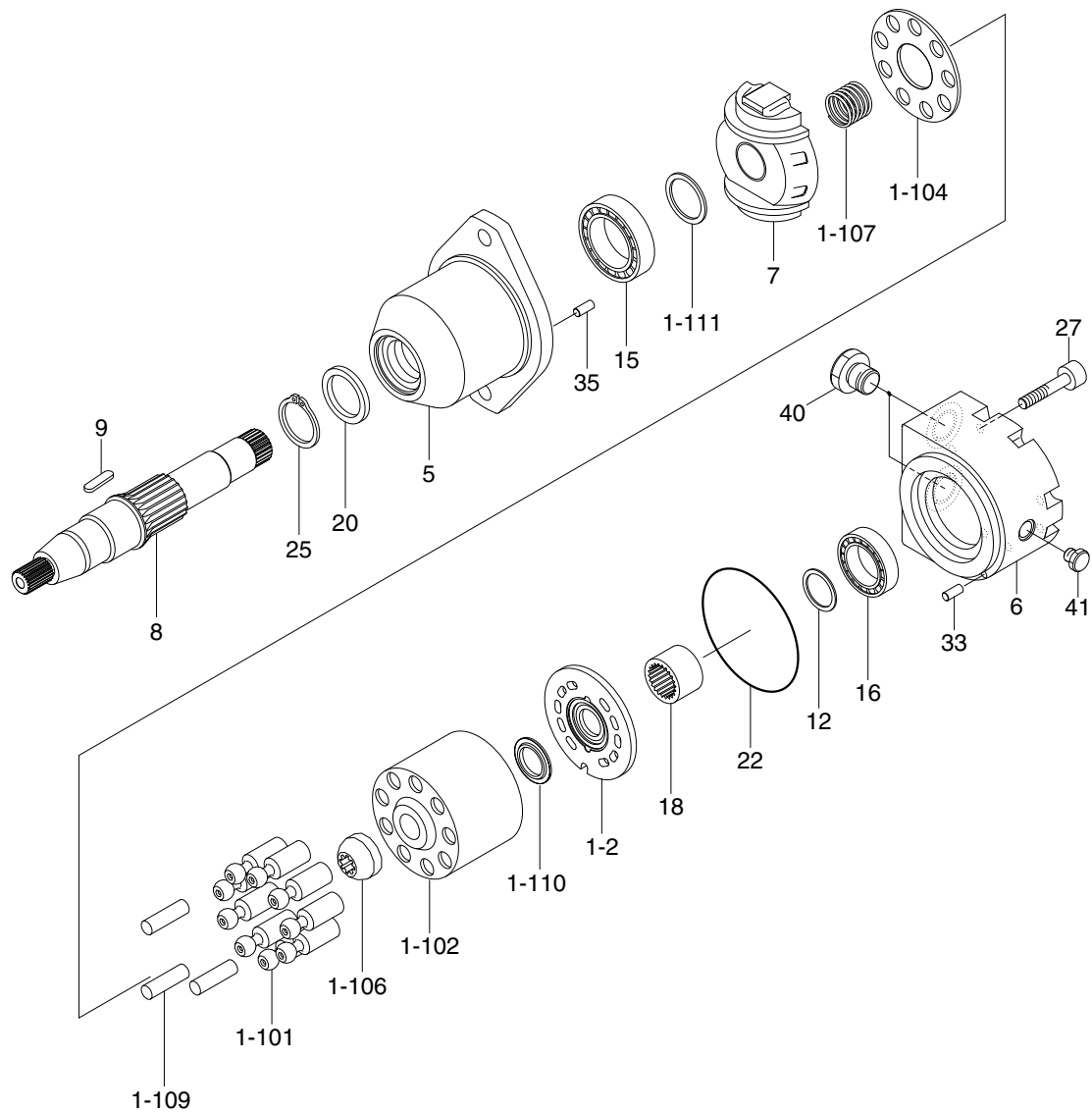
Step 3. Troubleshooting

Step 4. Tests and adjustments (see group 3)

Problem	Cause	Remedy
<b>Poor or no brakes</b>	Brake accumulator charge low. Brake pump standby pressure low. Brake pressure low. Air in system. Worn brake surface material. Leakage in brake valve. Leakage in brake piston seal.	Do brake accumulator check. Do brake pump standby pressure test. Do brake valve pressure test. Bleed brakes. Inspect brake surface material. Do brake valve leakage test. Check for an over filled differential. Apply brakes and check for leakage from check plug. ※ It is normal for the oil level to be slightly above the check plug.
<b>Aggressive brakes</b>	Internal restriction in circuit. Brake valve malfunction. Low oil level.	Remove lines and components. Disassemble and inspect. Check oil level.
<b>Brakes drag</b>	Brake pedal not returning properly. Debris holding valve partially open in brake valve. Warped brake disk. Stuck brake piston.	Inspect floor mat and pedal. Do brake valve pressure test. Inspect brake disk. Repair.
<b>Brakes lock up</b>	Brake valve malfunction.	Clean or replace brake valve.

## 2. FAN MOTOR

### 1) STRUCTURE

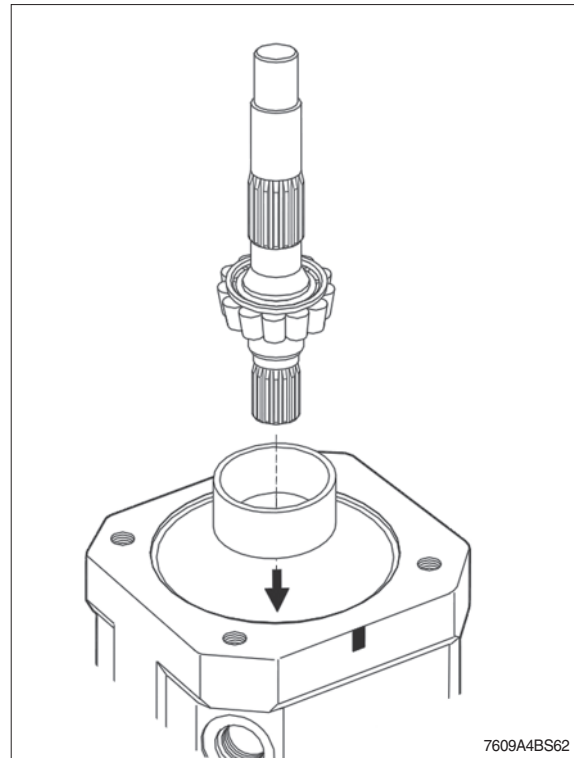


7609A4BS20

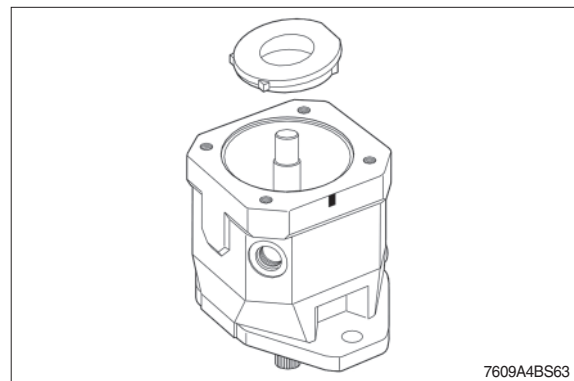
1-1	Rotary group	1-2	Control plate	18	Bearing bushing
1-101	Piston	5	Motor housing	20	Shaft seal
1-102	Cylinder	6	Port plate	22	O-ring
1-104	Retaining plate	7	Cam plate (swash plate)	25	Retaining ring (circlip)
1-106	Retaining ball	8	Drive shaft	27	Socket bolt
1-107	Spring	9	Shaft key	33	Cylinder pin
1-109	Pressure pin	12	Adjustment shim	35	Cylinder pin
1-110	V-ring	15	Tapered roller bearing	40	Screw
1-111	Back-up plate	16	Tapered roller bearing	41	Screw

(4) Press outer bearing ring into housing.  
Shaft seal with pre-assembled bearing into housing.

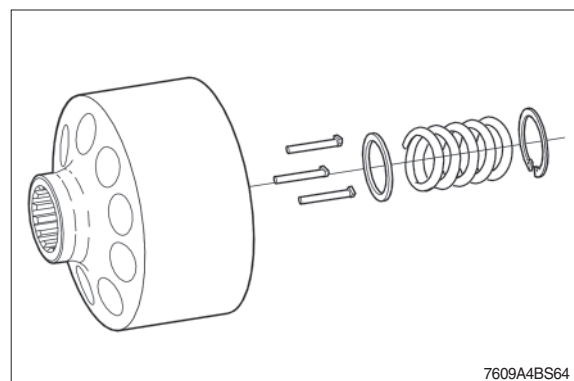
※ Protect splines of the shaft with plastic strip against damage of the seal lip.



(5) Assemble swash plate.

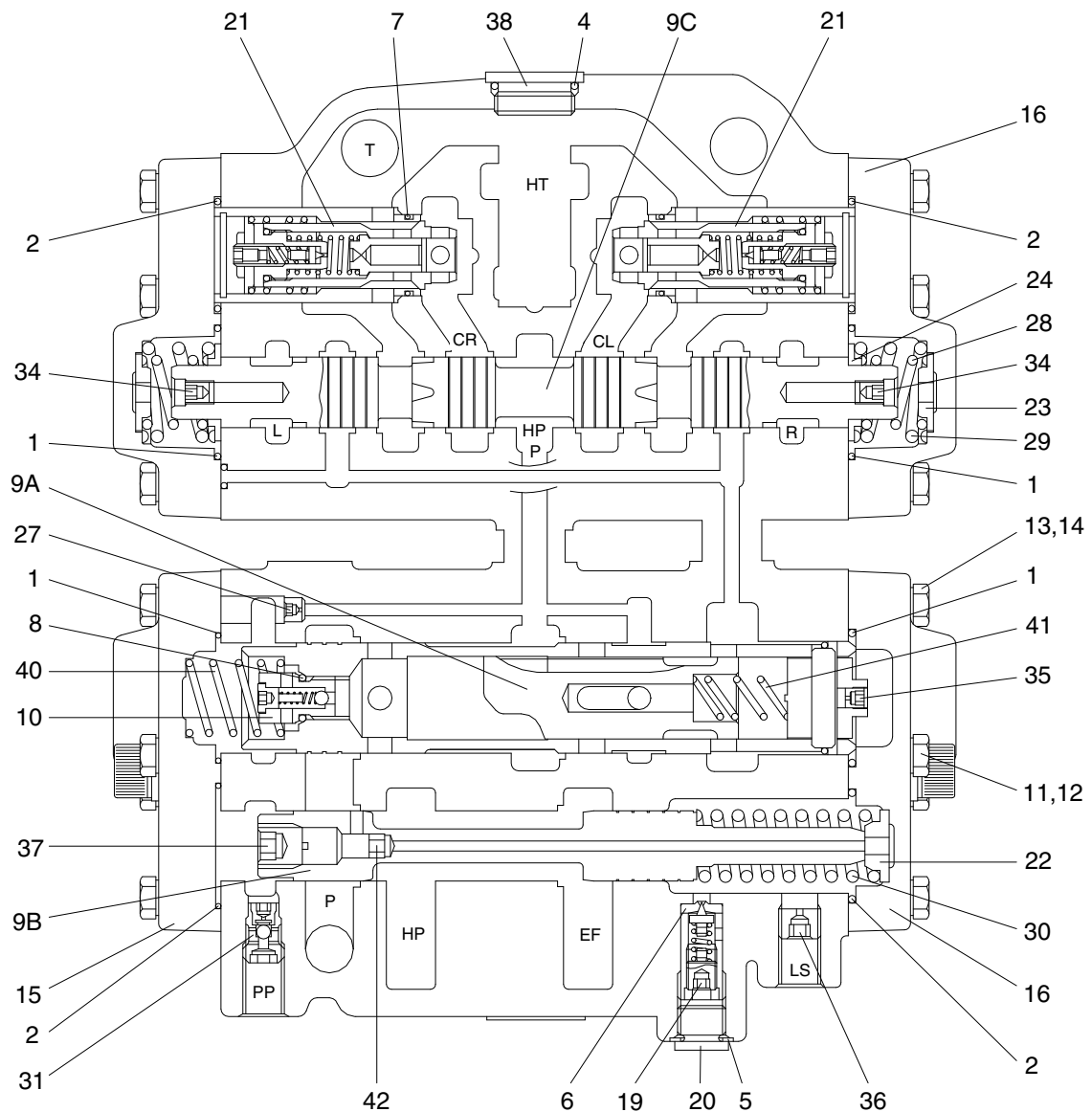


(6) Fit pressure pins using an assembly aid.



### 3. FLOW AMPLIFIER

#### 1) STRUCTURE



(770-7) 5-6

1	O-ring	12	Spring washer	28	Spring
2	O-ring	13	Screw	29	Spring
4	O-ring	14	Spring washer	30	Spring
5	Washer	15	End cover	31	Throttle check valve
6	Washer	16	End cover	34	Orifice
7	O-ring	19	Relief valve	35	Orifice
8	O-ring	20	Plug	36	Orifice
9A	Amplifier valve	21	Shock, suction valve	37	Plug
9B	Priority valve	22	Spring seat	38	Plug
9C	Directional valve	23	Spring seat	40	Spring
10	Check valve	24	Spring guide	41	Spring
11	Screw	27	Orifice	42	Orifice

## GROUP 2 OPERATIONAL CHECKS AND TROUBLESHOOTING

### 1. OPERATIONAL CHECKS

This procedure is designed so the service man can make a quick check of the steering system using a minimum amount of diagnostic equipment. If you need additional information, refer to structure and function in group 1.

A location will be required which is level and has adequate space to complete the checks.

The engine and all other major components must be at operating temperature for some checks.

Locate system check in the left column and read completely, following this sequence from left to right. Read each check completely before performing.

At the end of each check, if no problem is found (OK), that check is complete or an additional check is needed. If problem is indicated (NOT OK), you will be give repair required and group location. If verification is needed, you will be give next best source of information :

- Chapter 2 : Troubleshooting
- Group 3 : Tests and adjustments

## 2. TEST TOOLS

### 1) CLAMP-ON ELECTRONIC TACHOMETER INSTALLATION

- Service equipment and tools  
Tachometer

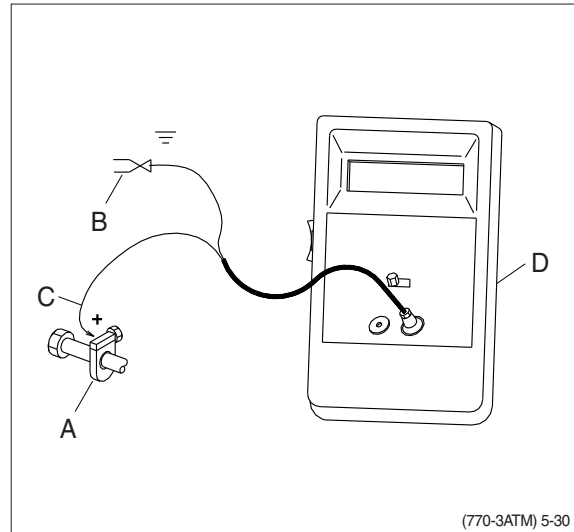
A : Clamp on tachometer.

Remove paint using emery cloth and connect to a straight section of injection line within 100 mm (4in) of pump. Finger tighten only-do not over tighten.

B : Black clip (-). Connect to main frame.

C : Red clip (+). Connect to transducer.

D : Tachometer readout. Install cable.



### 2) DIGITAL THERMOMETER INSTALLATION

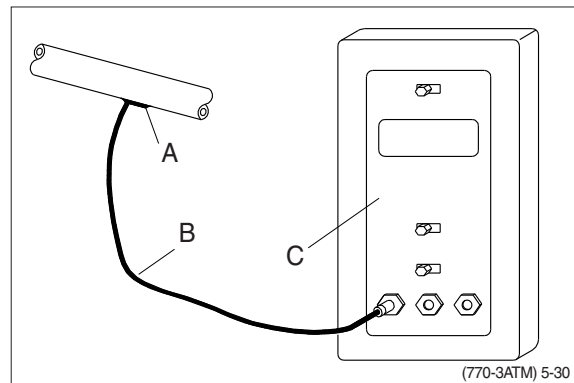
- Service equipment and tools  
Digital thermometer

A : Temperature probe.

Fasten to a bare metal line using a tie band. Wrap with shop towel.

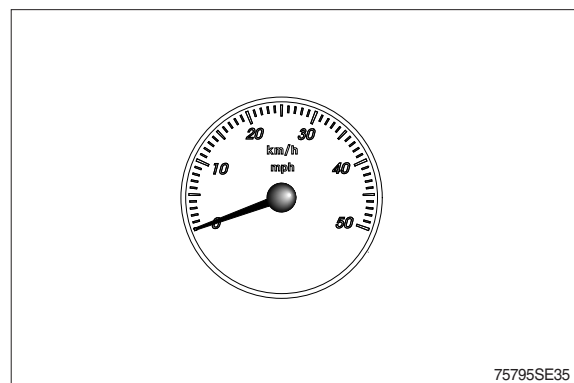
B : Cable.

C : Digital thermometer.



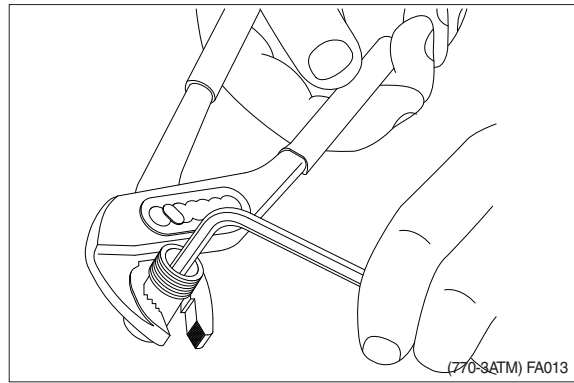
### 3) DISPLAY MONITOR TACHOMETER

The display monitor tachometer is accurate enough for test work.

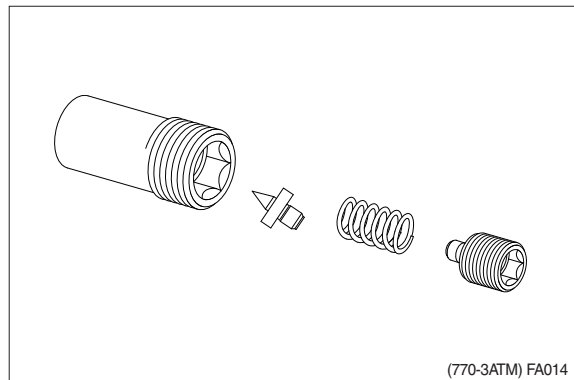


### (3) Disassembly pressure relief valve

- ① Hold cartridge (multigrip pliers) and screw the adjustment screw out (5 mm hexagon key).

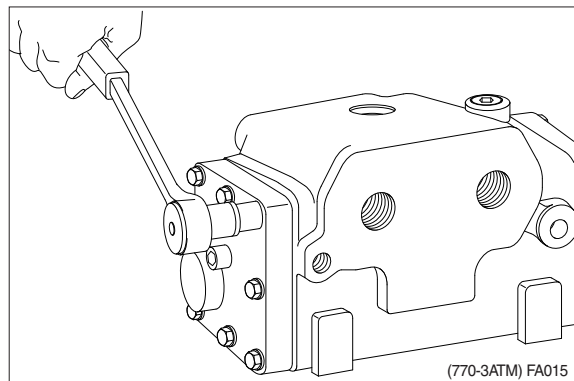


- ② Pressure relief valve shown disassembled.

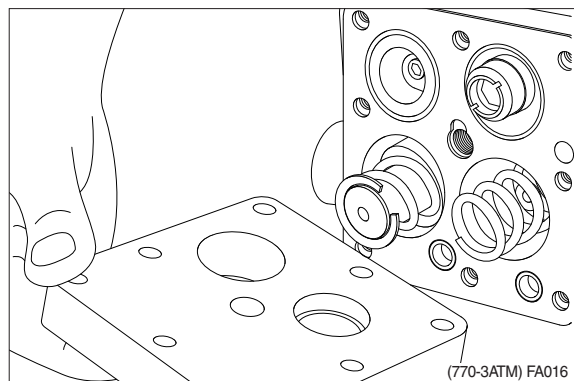


### (4) Removing end cover at PP-connection

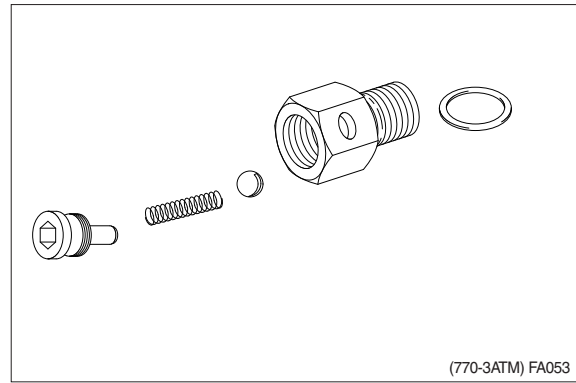
- ① Unscrew screws with spring washer using hexagon socket for 13 mm external hexagon and 10 mm internal hexagon.



- ② Remove end cover.

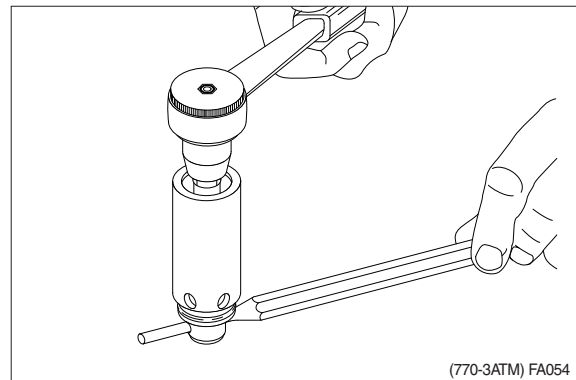


② Check valve shown disassembled.

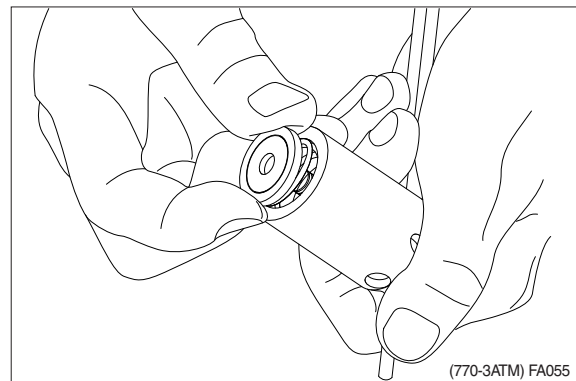


**(14) Disassembly of shock valve / suction valve**

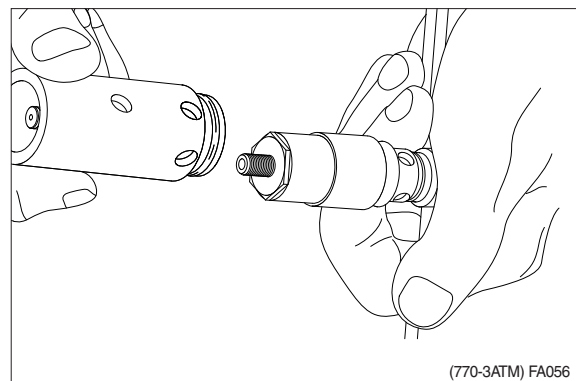
- ① Unscrew locknut with hexagon socket for 13 mm external hexagon.  
Use a mandrel.
- ※ When readjusting shock valve hold locknut with 13 mm ring spanner.



② Take out disc and spring.

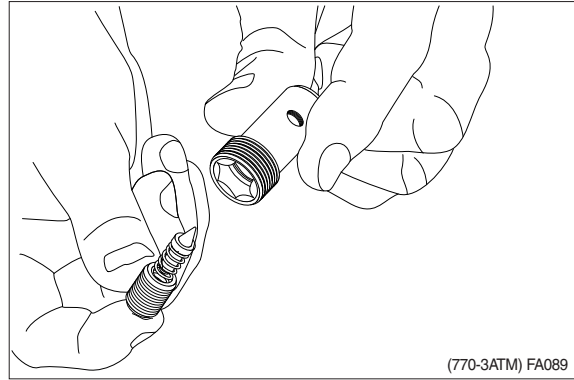


③ Take off housing.

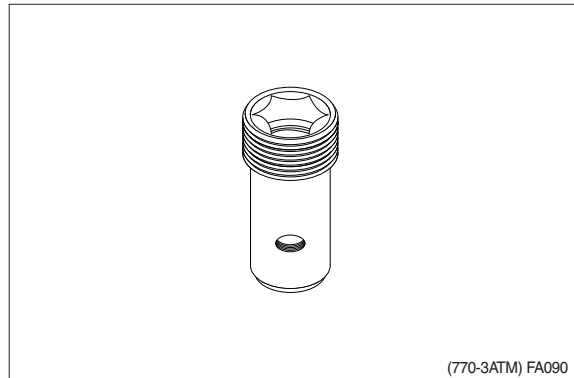


### (8) Assembly of pressure relief valve

- ① Guide adjustment screw, spring and cone up into the cartridge.

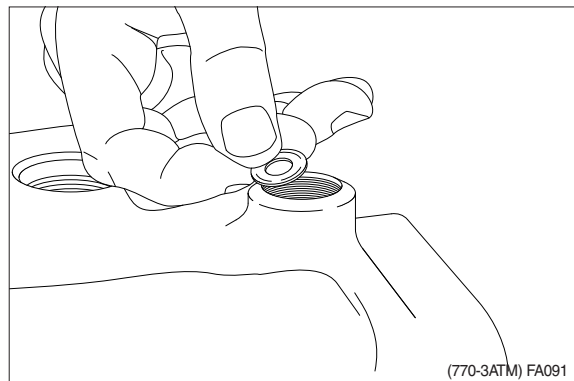


- ② Screw the adjustment screw so far in that the 10 mm hexagon key fully engages.

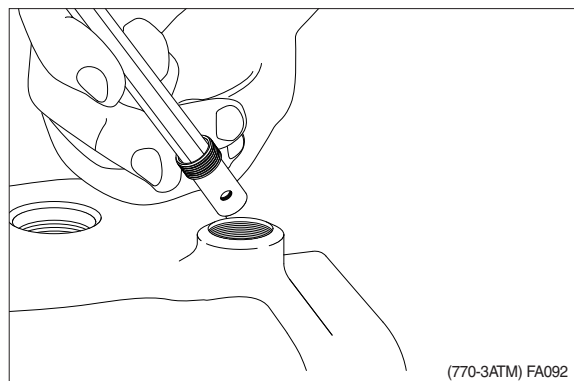


### (9) Installation of pressure relief valve

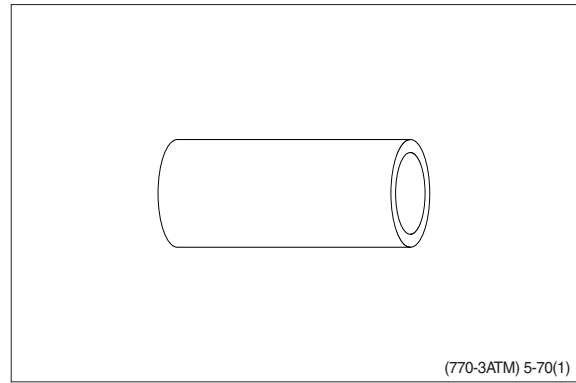
- ① Let the washer drop into the hole.



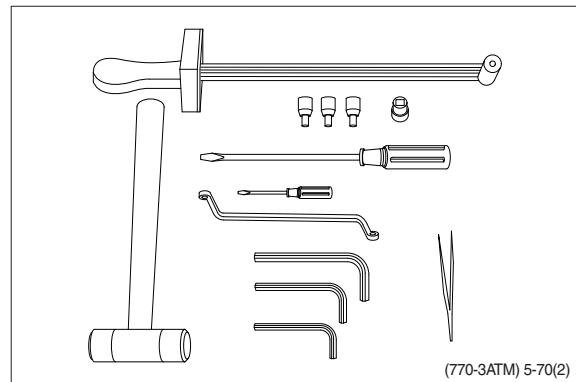
- ② Fit pressure relief valve.
  - Tightening torque :  $3.1 \pm 0.3 \text{ kgf} \cdot \text{m}$   
( $22.4 \pm 2.2 \text{ lbf} \cdot \text{ft}$ )



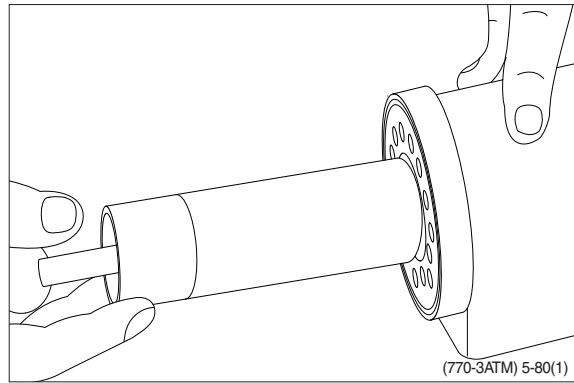
(5) Assembly tool for dust seal.



- (6) Torque wrench 0~7.1 kgf · m  
(0~54.4 lbf · ft)
- 13 mm socket spanner
- 6, 8 mm and 12 mm hexagon sockets
- 12 mm screwdriver
- 2 mm screwdriver
- 13 mm ring spanner
- 6, 8 and 12 mm hexagon socket spanners
- Plastic hammer
- Tweezers

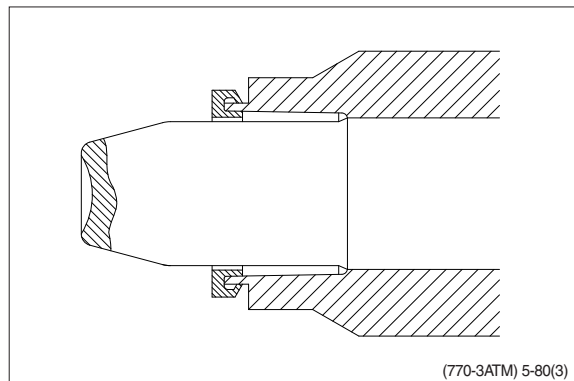
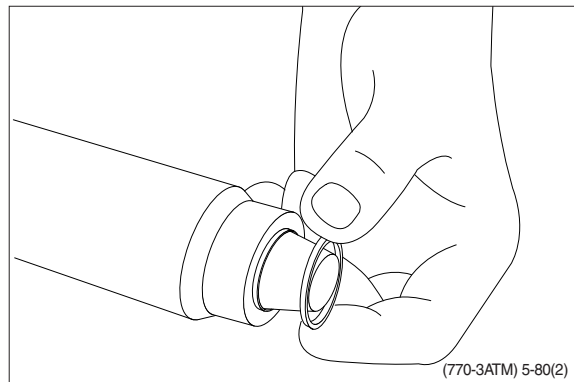


- (14) Draw the inner and outer parts of the assembly tool out of the steering unit bore, leaving the guide from the inner part in the bore.

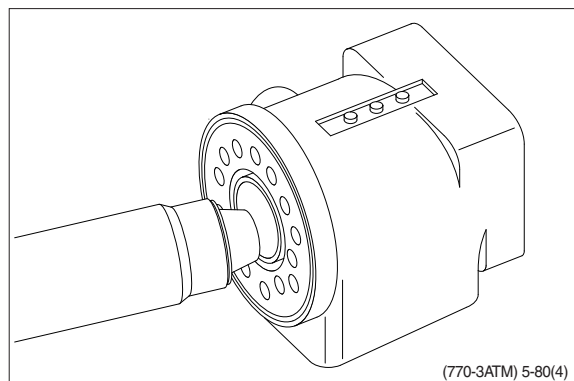


#### Installation instructions for lip seal

- (15) Lubricate the lip seal with hydraulic oil and place it on the assembly tool.

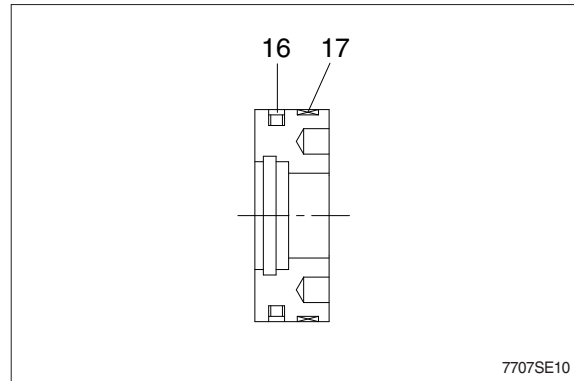


- (16) Guide the assembly tool right to the bottom.



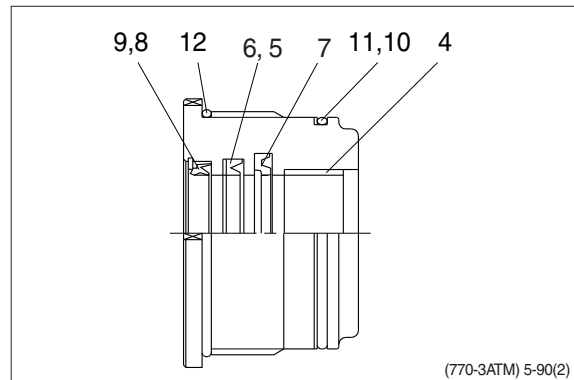
### (3) Disassemble the piston assembly

- ① Remove wear ring(17).
- Remove and piston seal(16).
- ※ Exercise care in this operation not to damage the grooves.



### (4) Disassemble gland assembly

- ① Remove back up ring(11), and O-ring (10).
- ② Remove O-ring (12).
- ③ Remove snap ring(9) and dust wiper(8).
- ④ Remove back up ring(6), rod seal(5) and buffer ring(7).
- ※ Exercise care in this operation not to damage the grooves.
- ※ Do not remove seal and ring, if does not damaged.



# SECTION 6 WORK EQUIPMENT

## GROUP 1 STRUCTURE AND FUNCTION

### 1. HYDRAULIC SYSTEM OUTLINE

The loader hydraulic system is a pilot operated, open center system which is supplied with flow from the fixed displacement main hydraulic pump.

The pilot control system is a low pressure, closed center hydraulic system which is supplied with flow from the first(Steering) pump.

The loader system components are :

- Main pump
- Main control valve
- Bucket cylinder
- Boom cylinders
- Pilot supply unit
- Remote control valve(Pilot control valve)
- Safety valve

The pilot unit supply consists of the pressure reducing valve, relief valve and accumulator.

Flow from the main hydraulic pump not used by the steering system leaves the flow amplifier EF port. It flows to the inlet port plate of a mono block type main control valve.

The main control valve is a tandem version spool type, open center valve which routes flow to the boom, bucket or auxiliary cylinders(Not shown) when the respective spools are shifted.

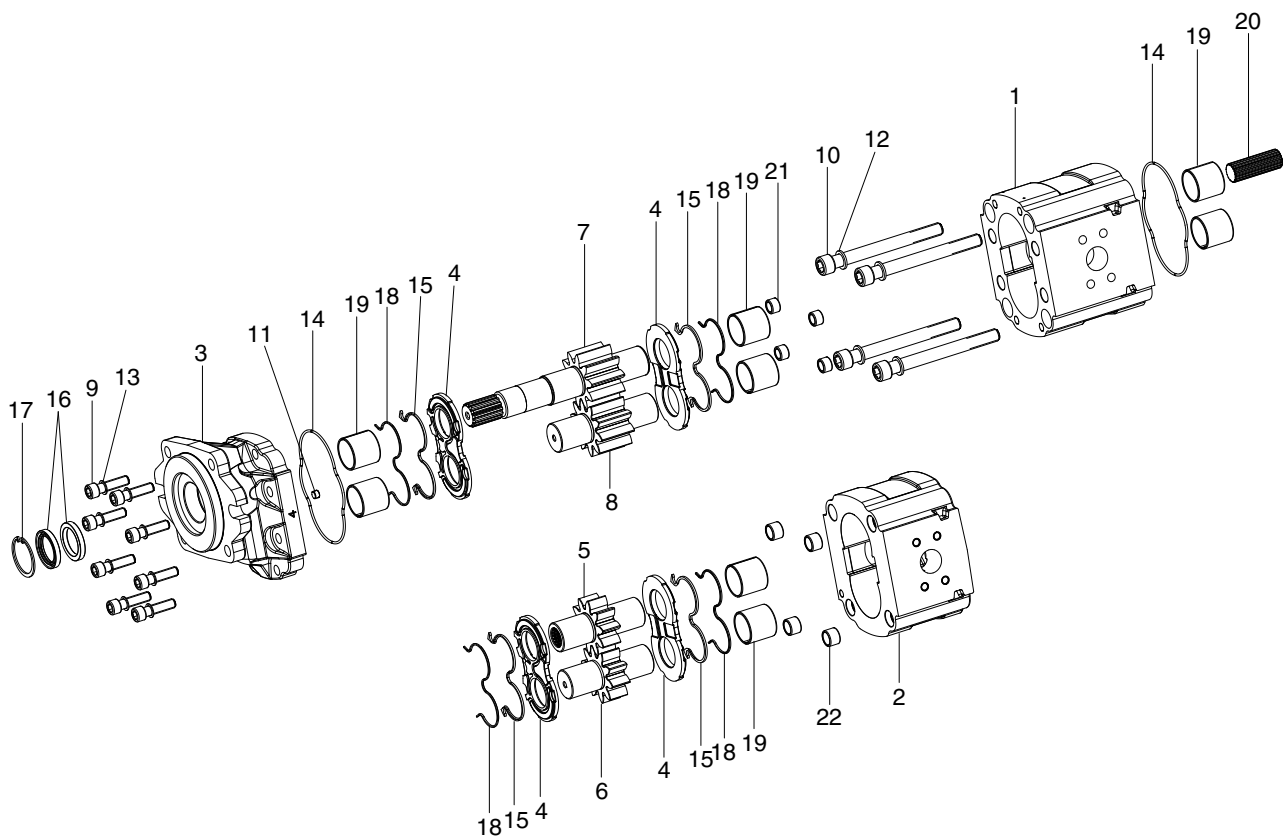
Flow from the steering pump is routed to the pilot supply unit where the steering pump outlet pressure is reduced to pilot circuit pressure. The pilot supply unit flow to the remote control valve. The remote control valve routed flow to either end of each spool valve section in the main control valve to control spool stroke.

A accumulator mounted on pilot supply unit supplies a secondary pressure source to operated remote control valve so the boom can be lowered if the engine is off.

The return circuit for the main hydraulic system have return filter inside the hydraulic tank. The return filter uses a filter element and a bypass valve. The bypass valve is located in the upside of filter.

## 4. MAIN PUMP

### 1) STRUCTURE

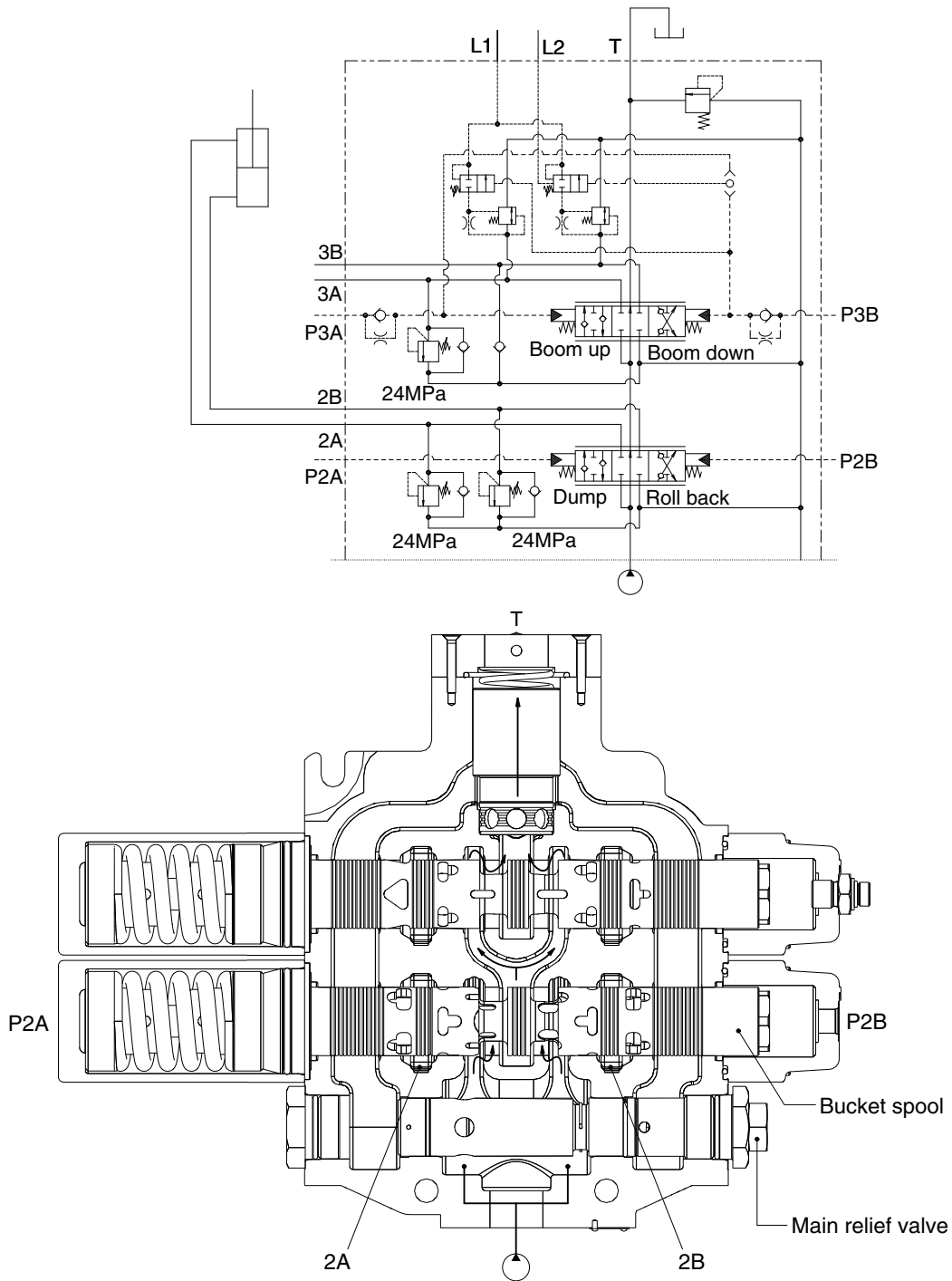


7759S6WE29

- |   |              |    |            |    |                |
|---|--------------|----|------------|----|----------------|
| 1 | Gear housing | 9  | Screw      | 17 | Ring           |
| 2 | Gear housing | 10 | Screw      | 18 | Back-up ring   |
| 3 | Front cover  | 11 | Grub screw | 19 | Sleeve bearing |
| 4 | Trust plate  | 12 | Washer     | 20 | Hub            |
| 5 | Drive gear   | 13 | Washer     | 21 | Steel bushing  |
| 6 | Driven gear  | 14 | O-ring     | 22 | Steel bushing  |
| 7 | Drive shaft  | 15 | Seal       |    |                |
| 8 | Driven gear  | 16 | Shaft seal |    |                |

### 3) BUCKET SECTION OPERATION

#### (1) Spool in neutral



7707WE75

If the remote control valve is not operated, the oil supplied from the pump port passage through the neutral passage to the low pressure passage at the outlet section, and then return to the tank port.

## GROUP 2 OPERATIONAL CHECKS AND TROUBLESHOOTING

### 1. OPERATIONAL CHECKS

This procedure is designed so the mechanic can make a quick check of the system using a minimum amount of diagnostic equipment. If you need additional information, read structure and function, Group 1.

A location will be required which is level and has adequate space to complete the checks.

The engine and all other major components must be at operating temperature for some checks.

Locate system check in the left column and read completely, following the sequence from left to right. Read each check completely before performing.

At the end of each check, if no problem is found(OK), that check is complete or an additional check is needed. If problem is indicated(NOT OK), you will be given repair required and group location.

If verification is needed, you will be given next best source of information:

- Chapter 2 : Troubleshooting
- Group 3 : Tests and adjustments

- 9) Disassemble and/or assemble the hydraulic equipment only in a clean place free of dust. When disassembling, be careful about the interchangeability of parts, and clean the disassembled parts with pure and clean mineral cleansing oil. Clean the internal passages as well. After the parts have dried, wipe them off with a clean lint-free cloth.
- 10) When overhauling the hydraulic equipment replace all O-rings, backup rings, etc. with new ones. Assemble O-rings with grease or vaseline applied.
- 11) After installing the equipment, add more hydraulic oil to make up for that lost during disassembly.
- 12) Tighten joints correctly. Loose joints will cause the hydraulic oil to leak. If the oil leaks, the tank oil level drops and air gets sucked in, so the pump will break down. Also loose joints in suction lines will take air in and might cause abnormal noise, malfunction or damage to pumps.

## 9. BOOM AND BUCKET CYLINDER LEAKAGE TEST

### · SPECIFICATION

Oil temperature  $45 \pm 5^{\circ}\text{C}$  ( $113 \pm 9^{\circ}\text{F}$ )  
Engine speed Low idle  
Maximum leakage 15 ml/min (1/2 oz/min)

### · GAUGE AND TOOL

Temperature reader  
Stop watch  
Measuring container

1) Fasten temperature sensor to head end port of cylinder to be tested. Cover sensor with a shop towel.

2) Heat hydraulic oil to specifications (see hydraulic oil warm up procedure in this group).

**▲ Never work under raised equipment unless it is supported with a hoist or support stands.**

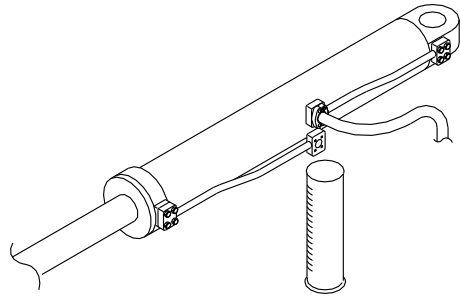
3) Full extend the cylinder to be tested. If testing the boom cylinders, restrain boom in the fully raised position using a hoist or a stand.

※ Check cylinders for leakage in the fully extended position only. In the retracted position contacts the end of the cylinder and seals off piston seal leakage.

4) Remove and plug cylinder rod end hose or line.

5) Run engine at slow idle. Activate control lever to extend cylinder for 1 minute over relief while measuring leakage for open port.

If leakage is within specification, excessive cylinder drift is caused by leakage in the loader control valve or circuit relief valve.

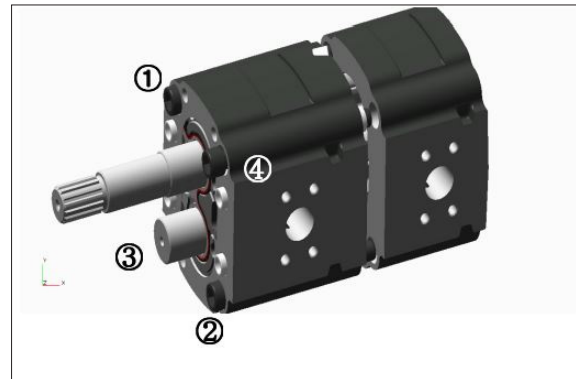


(770-3ATM) 6-56

## 2) Assembling

- (1) Assemble the bolts and tighten the bolts with in a crisscross pattern to a torque value of  $28.6\text{kgf} \cdot \text{m}$  ( $207\text{lbf} \cdot \text{ft}$ )

※ Pay attention not to miss through drive.



7759S6WE39

- (2) Assemble all preassembled mounting flange and working sections.

- (3) Assemble and tighten the nuts with in a crisscross pattern to a torque value of  $10.2\text{kgf} \cdot \text{m}$  ( $73.8\text{lbf} \cdot \text{ft}$ )

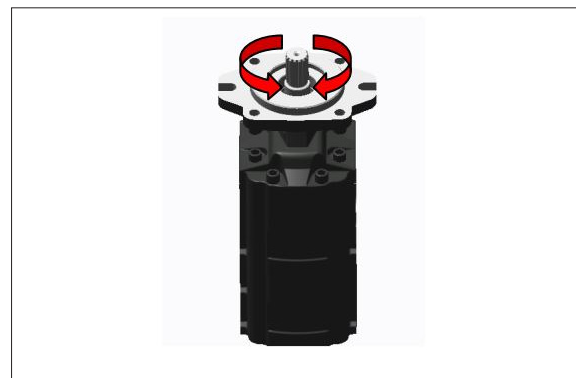
※ Take care not to give any damage on the shaft seals by sharp edge of shaft.

※ Smear clean grease on the lips of shaft seals before assembling.



7759S6WE40

- (4) Check that the pump rotates freely when the drive shaft is turned by hand, if not a possible, plate seal may be pinched.



7759S6WE41

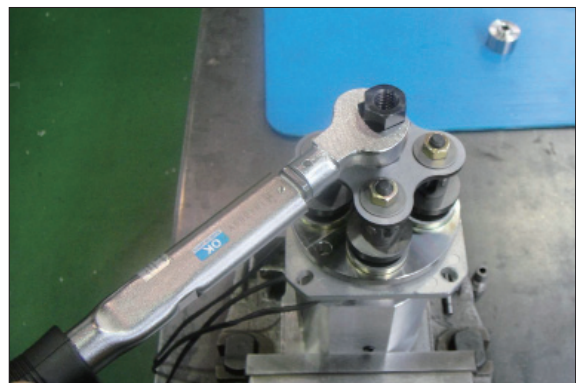
## 2) DISASSEMBLY

(1) Remove the boots (32) and loosen nut (31).

- Tool : spanner 19 mm



7607BRCV01



7607BRCV02

(2) Remove nut (29).

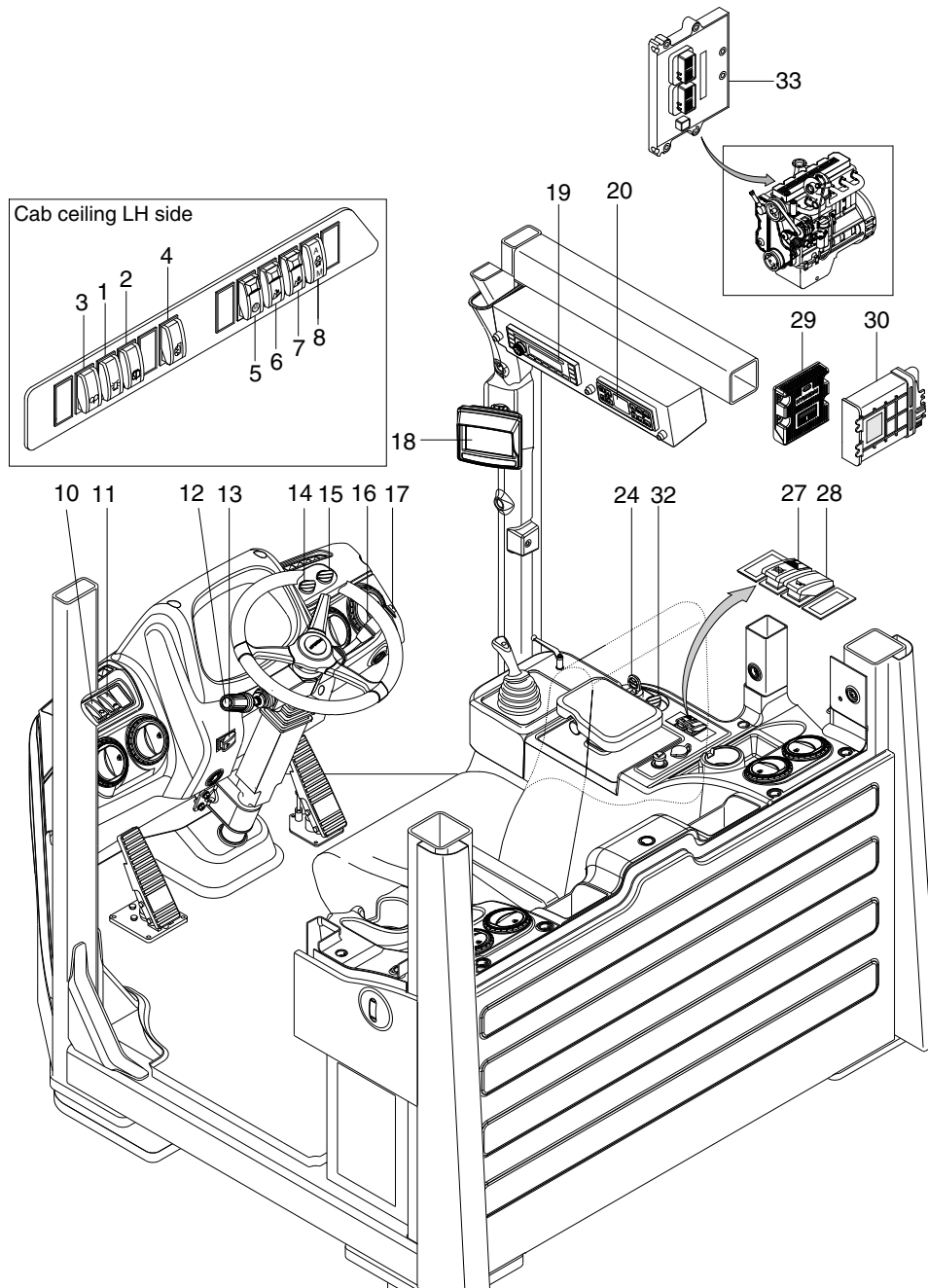


7607BRCV03

# SECTION 7 ELECTRICAL SYSTEM

## GROUP 1 COMPONENT LOCATION

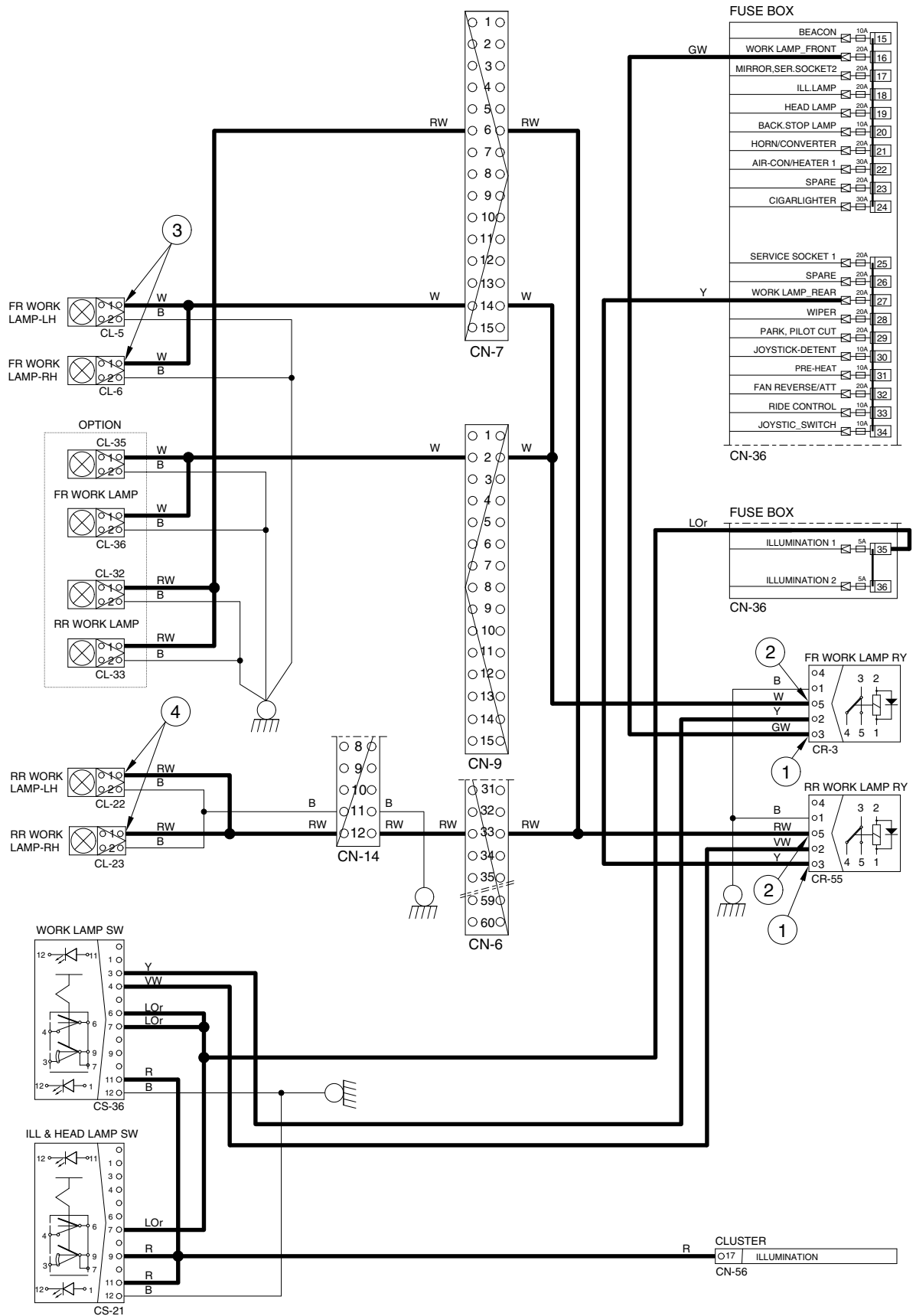
### 1. LOCATION 1



7759S7EL02B

- |   |                               |                               |
|---|-------------------------------|-------------------------------|
| 1 Beacon switch (opt)                     | 11 Work lamp switch           | 20 Aircon & heater switch     |
| 2 Rear wiper / washer switch              | 12 Kick down switch           | 24 Starting switch            |
| 3 Central grease lubrication switch (opt) | 13 Hazard switch              | 27 Parking brake switch       |
| 4 Mirror defrost switch                   | 14 T/M shift mode switch      | 28 Ride control switch (opt)  |
| 5 Emergency test switch (opt)             | 15 Clutch cut off mode switch | 29 Machine control unit (MCU) |
| 6 Attachment lock switch (opt)            | 16 Multi function switch      | 30 T/M control unit (TCU)     |
| 7 Attachment unlock switch (opt)          | 17 Horn switch                | 32 Engine mode switch         |
| 8 Fan control switch                      | 18 Monitor                    | 33 Engine control unit(ECU)   |
| 10 Main light switch                      | 19 Radio & USB player         |                               |

# WORK LIGHT SWITCH



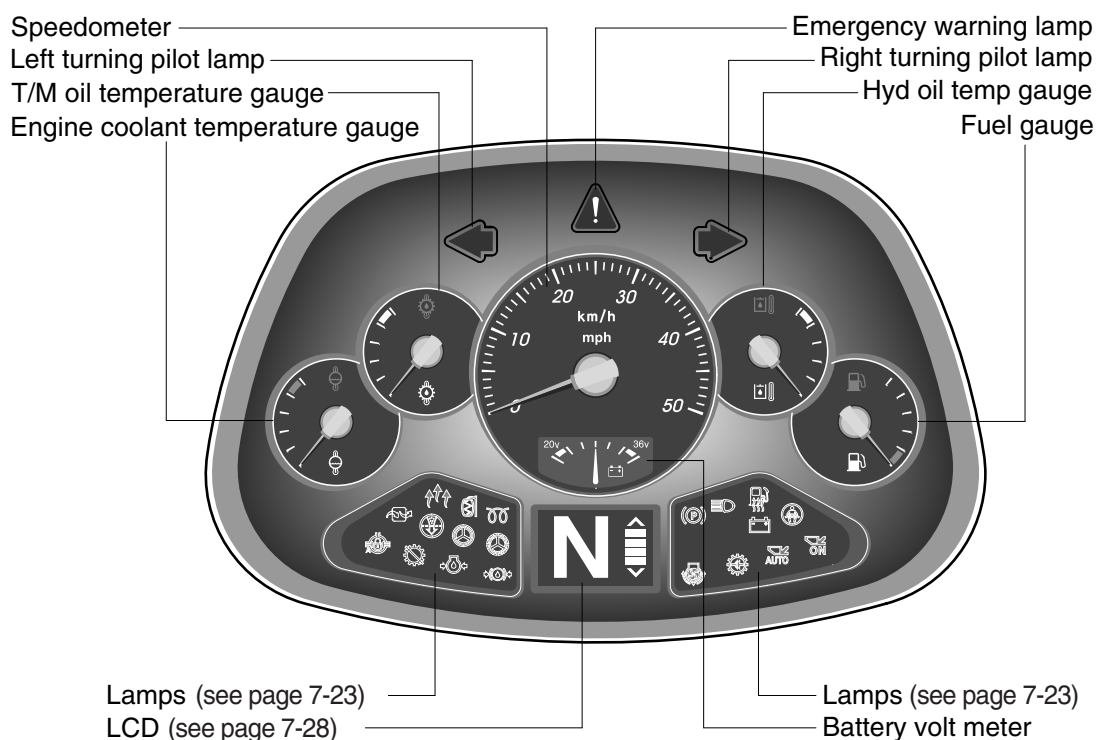
## GROUP 3 MONITORING SYSTEM

### 1. CLUSTER

#### 1) STRUCTURE

The cluster consists of gauges, lamps and LCD as shown below, to warn the operator in case of abnormal machine operation or conditions for the appropriate operation and inspection.

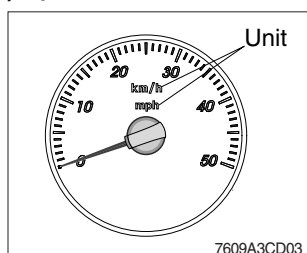
- Gauges : Indicate operating status of the machine.
  - Warning lamps : Indicate abnormality of the machine.
  - Pilot lamps : Indicate operating status of the machine.
  - LCD : Indicates selected the driving speed and direction.
- ※ The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, MAINTENANCE.
- ※ When the cluster provides a warning immediately check the problem, and perform the required action.



7809S3CD02A

### 2) GAUGE

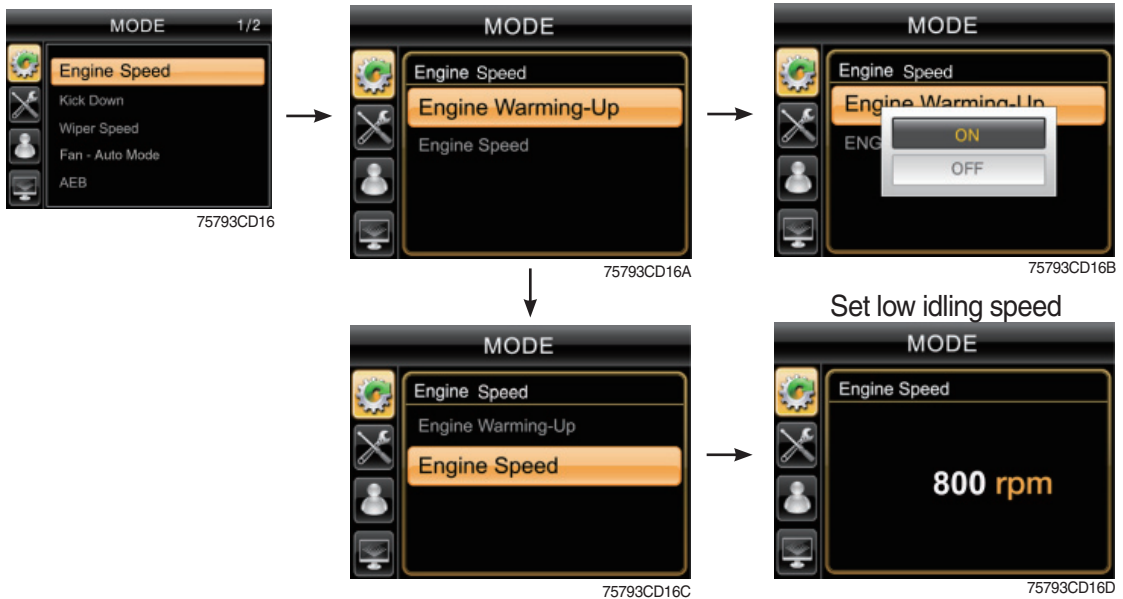
#### (1) Speedometer



- ① The speedometer displays the speed of machine in mph and km/h.
- ※ The unit (km/h or mph) can be set by the display set up menu of the monitor and selected unit is displayed. Refer to page 3-23.

## (2) Mode

### ① Engine speed



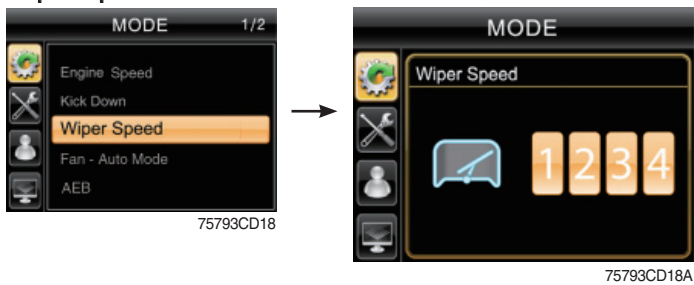
### ② Kick down



- Mode 1 (down/up) : Press kick down button once, shift down and press button again, shift up.
- Mode 2 (down only) : Press kick down button every time, shift to lower gear respectively.

※ Refer to page 7-47.

### ③ Wiper speed



- Setting wipe speed 1 to 4.

### ④ Fan-auto mode

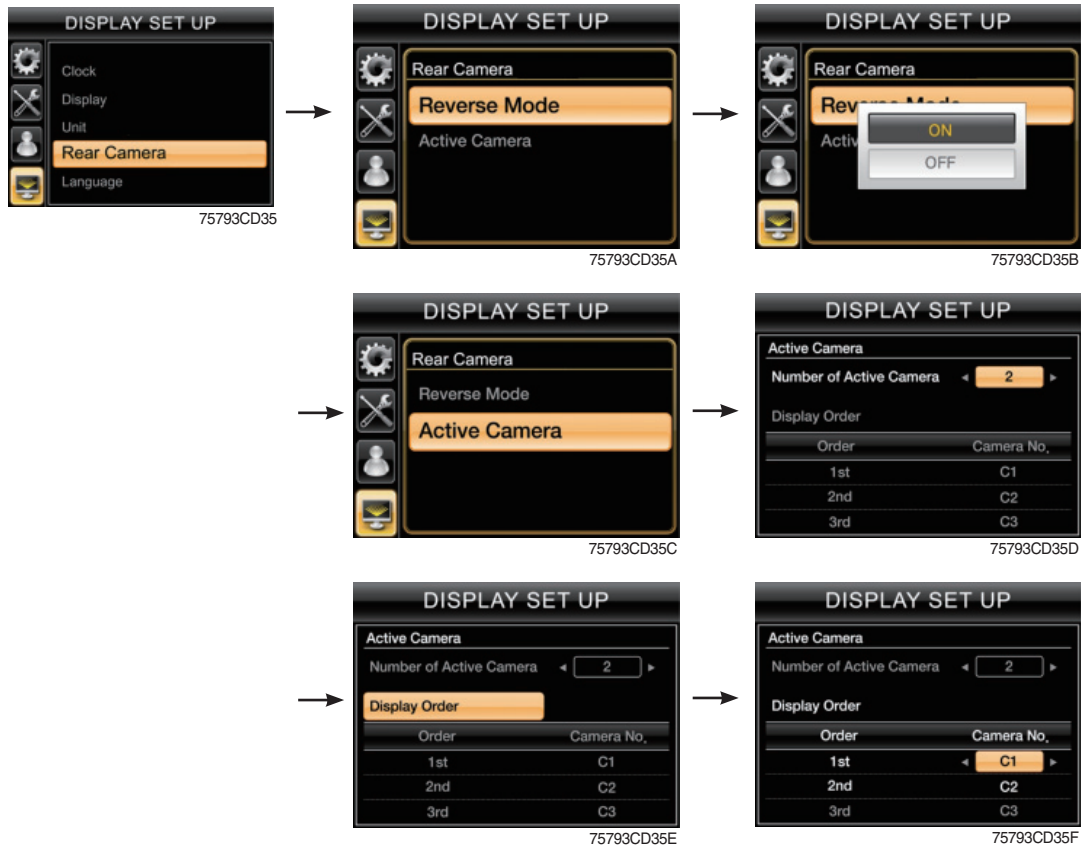


- Select reverse interval or reverse time.
- Set reverse interval (30~300 min) or reverse time (30~300 sec).

※ Default : Interval (60 min), time (120 sec)

※ Refer to page 7-44, fan control switch.

#### ④ Rear camera

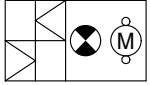
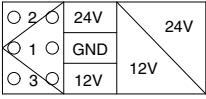
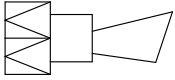
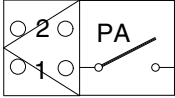
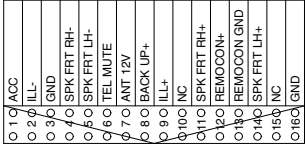
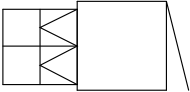


- **Reverse mode**
  - If transmission engages the reverse gear (R1~R3), the camera mode is displayed automatically in main display.
- **Active camera**
  - Three cameras can be installed on the machine.
  - The display order can be set by this menu.
  - If the camera was not equipped, this menu is not useful.
  - In main display, if the /ESC button is pushed, the first ordered display camera will be viewed.

#### ⑤ Language

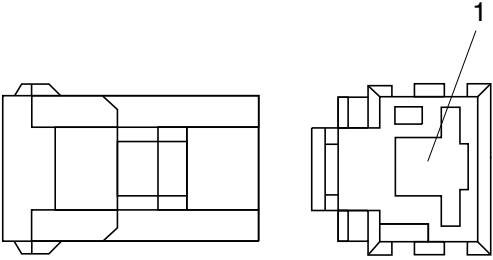
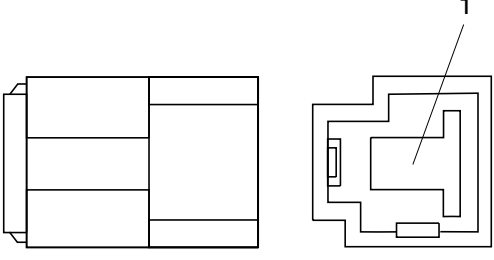
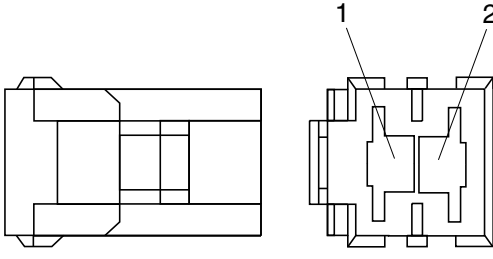
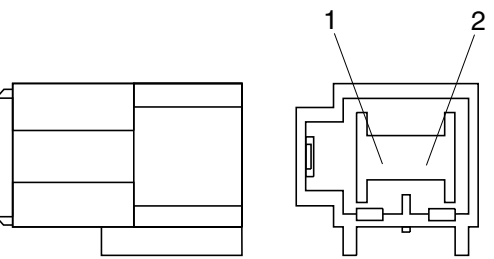


- User can select preferable language and all display are changed the selected language.

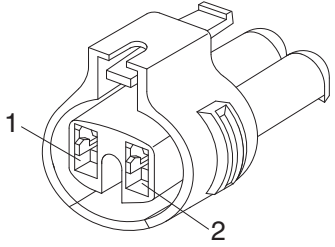
Part name	Symbol	Specifications	Check item
Beacon lamp	 CL-7	24V 70W (H1 TYPE)	Resistance normal : 1.1 Ω
DC/DC Converter	 CN-138	12V 3A	Resistance 8.8 Ω (for pin A-B) 7.7 Ω (for pin B-C)
Horn	 CN-20 CN-25	24V 2A	Operation by external power source - connct 24V power to (+) terminal - ground the (-) terminal
Receiver dryer	 CN-29	24V 2.5A	Resistance 0 Ω : 2.1 ± 0.3 ~ 27 ± 2 kgf/cm <sup>2</sup> ∞ Ω : ~2.1 ± 0.3, 27 ± 2 ~ kgf/cm <sup>2</sup>
Radio & USB player	 CN-27	24V 20W+20W	Resistance Power ON : 4 Ω + 4 Ω (for pin 1-6, 4-8)
Back up buzzer	 CN-65	24V 0.5A 110dB	Resistance normal : 5.2 Ω

## 2. CONNECTION TABLE FOR CONNECTORS

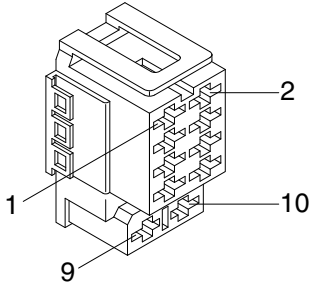
### 1) 58-L TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 <p data-bbox="699 725 842 757">S813-030100</p>	 <p data-bbox="1265 725 1409 757">S813-130100</p>
2	 <p data-bbox="699 1137 842 1169">S813-030200</p>	 <p data-bbox="1265 1137 1409 1169">S813-130200</p>

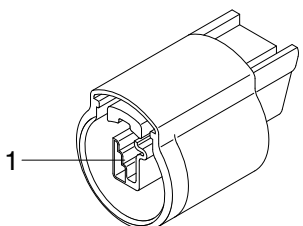
### 12) KET 090 WP CONNECTORS

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p style="text-align: right;">MG640795</p>	

### 13) ITT SWF CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
10	 <p style="text-align: right;">SWF593757</p>	

### 14) MWP NMWP CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 <p style="text-align: right;">NMWP01F-B</p>	

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL