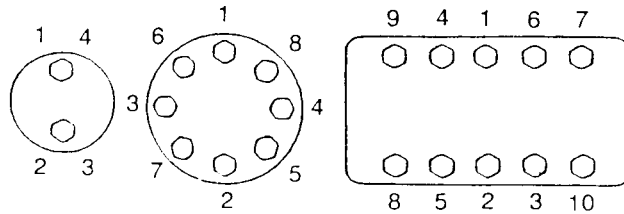


STANDARD TORQUE DATA FOR CAP SCREWS AND NUTS

Tightening of cap screws, nuts

Tighten alternately so that tightening torque can be applied evenly. The numbers in the figure below indicate the order of tightening.



JS00481A

Cap screws which have had Loctite used (white residue remains after removal) should be cleaned with light oil or suitable cleaning solvent and dried. Apply 2-3 drops of Loctite to the thread portion of the cap screw and then tighten.

Torque table

Tighten cap screws and nuts according to the table below if there are no other special instructions.

Cap Screw Name Size (Size)			M6	M8	M10	M12	M14	M16	M18	M20
Cap Screw	Spanner	[mm]	10	13	17	19	22	24	27	30
		[in.]	0.39	0.51	0.67	0.75	0.87	0.95	1.06	1.18
	Tightening torque	[Nm]	6.9	19.6	39.2	58.8	98.1	156.9	196.1	294.2
		[lb-ft]	5.1	14.5	28.9	43.4	72.3	115.7	144.6	217
Socket Head Cap Screw	Spanner	[mm]	5	6	8	10	12	14	14	17
		[in.]	0.20	0.24	0.32	0.39	0.47	0.55	0.55	0.67
	Tightening torque	[Nm]	8.8	21.6	42.1	78.5	117.7	176.5	245.2	343.2
		[lb-ft]	6.5	15.9	31.1	57.9	86.9	130.2	181	253.2

SPECIFICATIONS

Main data

Model name CX135SR (Mono Boom), CX135SR (Mono Boom with Blade), CX135SR (Offset Boom with Blade), CX135SR (2PC), CX135SR (2PC with blade) Hydraulic Excavator

Operating weight

CX135SR (Mono Boom)	13000 kg (28660 lbs)
CX135SR (Mono Boom with Blade).....	13900 kg (30644 lbs)
CX135SR (Offset Boom with Blade)	13900 Kg (30644 lbs)
CX135SR (2PC).....	13000 kg (28660 lbs)
CX135SR (2PC with Blade)	13900 Kg (30644 lbs)

Engine output 70.9 kW / 2000 rpm

Bucket capacity:

Heaped	0.5 m ³
Leveled.....	0.37 m ³

Performance

Swing speed 10.0 Tr/min.

Travel speed

Low Speed	3.1 km/h (1.93 mph)
High Speed	5.0 km/h (3.11 mph)

Maximum drawbar pull 122 kN (27426.69 lbf)

Grade ability 70% (35°)

Ground pressure

CX135SR (Mono Boom)	36 kPa (600 mm (23.62 in) grouser shoe)
CX135SR (Mono Boom with Blade).....	37 kPa (600 mm (23.62 in) grouser shoe)
CX135SR (Offset Boom with Blade)	39 kPa (600 mm (23.62 in) grouser shoe)
CX135SR (2PC).....	38 kPa (600 mm (23.62 in) grouser shoe)
CX135SR (2PC with Blade)	37 kPa (600 mm (23.62 in) grouser shoe)

Main body dimensions

Main body length

Mono Boom.....	3510 mm (138.20 in)
Mono Boom with Blade	4020 mm (138.27 in)
Offset Boom with Blade	4020 mm (138.27 in)
2PC	3510 mm (138.20 in)
2PC with Blade	4020 mm (138.27 in)

Main body width 2590 mm (101.97 in)

Upper side swing body width..... 2415 mm (95.08 in)

Cab width 1000 mm (39.37 in)

Main body height 2750 mm (108.27 in)

Tail swing radius 1480 mm (58.27 in)

Swing body tail distance

Mono Boom.....	1750 mm (68.90 in)
Mono Boom with Blade	2265 mm (89.17 in)
Offset Boom with Blade	2265 mm (89.17 in)
2PC	1765 mm (69.48 in)
2PC with Blade	2265 mm (89.17 in)

Swing body rear section bottom height 880 mm (34.65 in)

Distance between tumblers 2785 mm (109.64 in)

Overall track length..... 3510 mm (138.19 in)

Overall track width 2590 mm (101.97 in)

Distance between tracks 1990 mm (78.35 in)

Width of track shoe..... 600 mm (23.62 in), (Optional: 500 mm (19.68 in), 700 mm (27.56 in))

Minimum ground clearance (To bottom of lower frame) 455 mm (17.91 in)

Engine

Name ISUZU, AJ-4JJ1X

Type: water-cooled, 4-cycle diesel, 4-cylinder in-line, direct injection type
(electronic control), turbocharger with air cooled intercooler.

No. of cylinders - bore x stroke 4 - Ø95.4 mm x 104.9 mm (3.76 x 4.13 in)



2. Main Unit Diagnostic Trouble Code List

1) Electrical troubles (input) [7000-7199]

Trouble location	Trouble mode	Diagnostic trouble code		Judgment timing	Prerequisites	Occurrence judgment	Recovery judgment
		DTC	Display			Conditions	Conditions
Sensor; Pressure (P1)	Ground short/ disconnection	7000	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (P2)	Ground short/ disconnection	7001	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (N1)	Ground short/ disconnection	7002	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (N2)	Ground short/ disconnection	7003	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (Overload)	Ground short/ disconnection	7004	O	Immediately after key switched ON	EU selected as destination	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (Bottom)	Ground short/ disconnection	7005	O	Immediately after key switched ON	Liftcrane selected	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage > 4.75 V	
Sensor; Pressure (Rod)	Ground short/ disconnection	7006	O	Immediately after key switched ON	Liftcrane selected	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (Upper)	Ground short/ disconnection	7020	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (Swing)	Ground short/ disconnection	7021	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Pressure (Travel)	Ground short/ disconnection	7022	O	Immediately after key switched ON	None	Voltage ≤ 0.25 V	0.25 V < Voltage < 4.75 V
	Power supply short					Voltage ≥ 4.75 V	
Sensor; Fuel level	Disconnection	7040	O	Immediately after key switched ON	None	Resistance $\geq 100 \Omega$	$2\Omega < \text{Resistance} < 100\Omega$
	Short					Resistance $\leq 2 \Omega$	
Sensor; Oil temperature	Disconnection	7041	O	3 minutes after engine starts	None	Resistance $\geq 67\ 200 \Omega$ (Voltage ≥ 4.93 V)	$111 \Omega < \text{Resistance} < 67\ 200 \Omega$ (0.5 V < Voltage < 4.93 V)
	Short			Immediately after key switched ON		Resistance $\leq 111 \Omega$ (Voltage ≤ 0.5 V)	
Monitor thermistor (*1)	Disconnection	7045	X	Immediately after key switched ON	None	Trouble bit received from monitor	No trouble bit received from monitor
	Short						
Sensor; Angle (Boom)	Ground short/ disconnection	7060	O	Immediately after key switched ON	Liftcrane or interference prevention selected	Voltage ≤ 0.2 V	0.2 V < Voltage < 4.8 V
	Power supply short					Voltage ≥ 4.8 V	
Sensor; Angle (Arm)	Ground short/ disconnection	7061	O	Immediately after key switched ON	Liftcrane or interference prevention selected	Voltage ≤ 0.2 V	0.2 V < Voltage < 4.8 V
	Power supply short					Voltage ≥ 4.8 V	

8. Engine Screen Information

A) Purpose

It has been made possible to copy the engine information (Q adjustment, QR code, engine serial number) stored in the ECM to the new ECM when the ECM and injector are replaced.

B) How to go to this screen

See the service support screen operation.

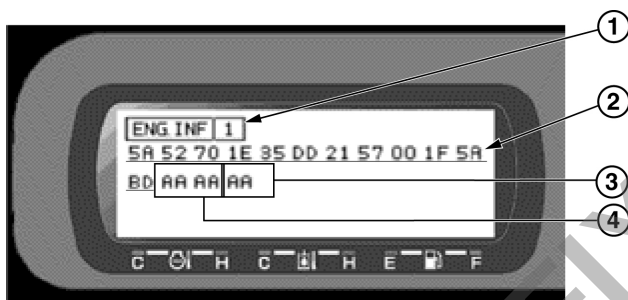
C) Engine start restriction

When this screen is displayed, the engine cannot be started.

D) Screen

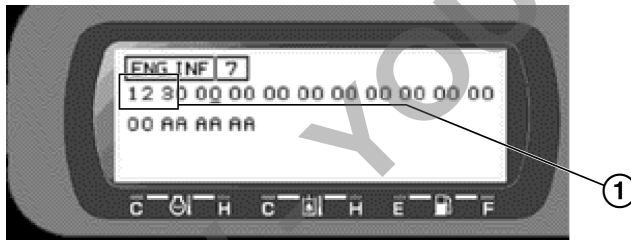
The engine information held in computer A can be checked as follows.

- Pages 1 to 4: Injector cylinder 1 to 4 QR code (Pages 5 and 6 are not used and cannot be input).



- 1) Page
- 2) QR code 24 digits
- 3) Error code
- 4) Indicates the display mode. Currently displays the information in computer A

2. Page 7: Q resistance data



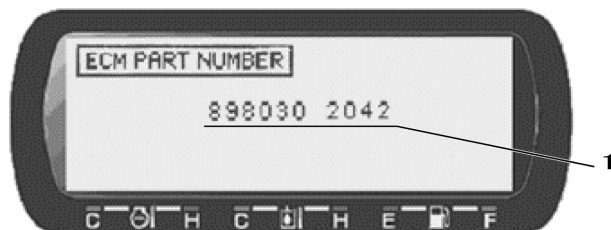
- 1) Q resistance data 3 digits

3. Page 8: Engine serial (number)



- 1) Engine serial number 6 digits

4. ECM Part Number



- 1) ECM part number

E) Operating method

See the Engine Maintenance Standards

Display	Message type	Display ON timing	Display OFF timing
SWITCH TO 1-PUMP	Alert	When the breaker mode is ON and 2nd speed flow is ON	When the conditions on the left are no longer met
ENGINE STOP	Alert	When the engine emergency stop switch is ON	
WATCH OUT FOR THE LOAD!	Alert	When a hanging load 90 % or more of the rated load is hung (crane)	
OVERLOAD!	Alert	When a hanging load 100 % or more of the rated load is hung (crane)	
HANGING GEAR INTERFERENCE!	Alert	When the hanging height exceeds the crane's rated height (crane)	
WATCH OUT FOR CAB INTERFERENCE!	Alert	When the interference prevention function is ON and the attachment comes close to the cab	
INTERFERENCE PREVENTION DEVICE OFF!	Alert	When the interference prevention function is switched OFF	
OVER LOAD	Alert	When the boom cylinder bottom pressure exceeds the set pressure	When the conditions on the left are no longer met
ENGINE IDLING	Icon	During one-touch idling or auto idling	
POWER UP	Icon	During auto power boost	
ENG. PRE HEAT	Icon	When power ON to glow plug	
AUTO WARM UP	Icon	During auto warm up	When the conditions on the left are no longer met
INITIAL SETTINGS INCOMPLETE	Status	When the crane interference prevention initial adjustment has not been completed	
SERVICE DUE	Status	When the key is ON and the hour meter has reached the regulation time	After 1 minute after the key was switched ON

(*1) Even if one of the following troubles occurs, "ELEC. PROBLEM" is not issued.

"BZ travel alarm", "Monitor thermistor", "Air conditioner coolant signal output"

Message type:

1. Status (Message only)
2. Alert (The intermittent alarm continues to sound at one-second intervals)
3. Warning (The continuous alarm sounds for just 5 seconds)
4. Icon (Only an icon is displayed).

SAFETY



This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier



WARNING: Read the operator's manual to familiarize yourself with the correct control functions.



WARNING: Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.



WARNING: This is a one man machine, no riders allowed.



WARNING: Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.

It is your responsibility to understand and follow manufacturers instructions on machine operation, service and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from your Case dealer.



WARNING: If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.



WARNING: When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.



WARNING: When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.



WARNING: When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.

TABLE OF CONTENTS

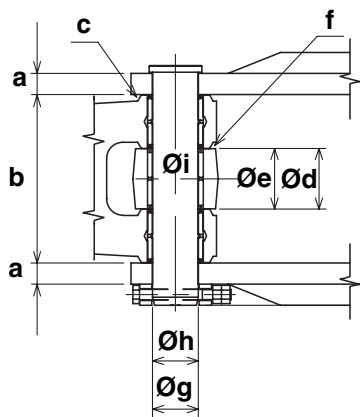
GENERAL INFORMATION 3

SAFETY 4

STANDARD TORQUE DATA FOR CAP SCREWS AND NUTS..... 6

**WARNING** : *This symbol is used in this manual to indicate important safety messages. Whenever you see this symbol, carefully read the message that follows, as there is a risk of serious injury.*

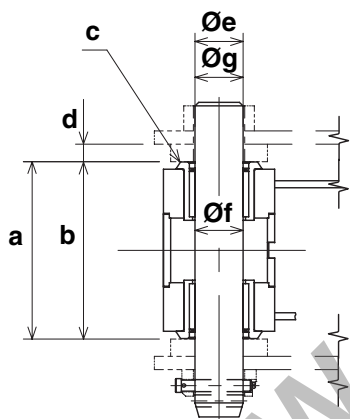
10. Connecting rod/Compensator/Bucket cylinder head



MR22001-005

Mark	Dimension (mm)	
a (connecting rod)	Standard	32
	Limit	30
b (compensator)	Standard	254
	Limit	252
c (play)	Standard	1.0 to 1.5
	Limit	Shims
d (connecting rod)	Standard	92
	Limit	94
e (cylinder)	Standard	91
	Limit	89
f (d - e)	Standard	1.0 to 2.0
	Limit	Shims
Ø g (shaft)	Standard	70
	Limit	69
Ø h (compensator)	Standard	70
	Limit	71.5
Ø i (cylinder)	Standard	70
	Limit	71.5

11. Dipper/Bucket



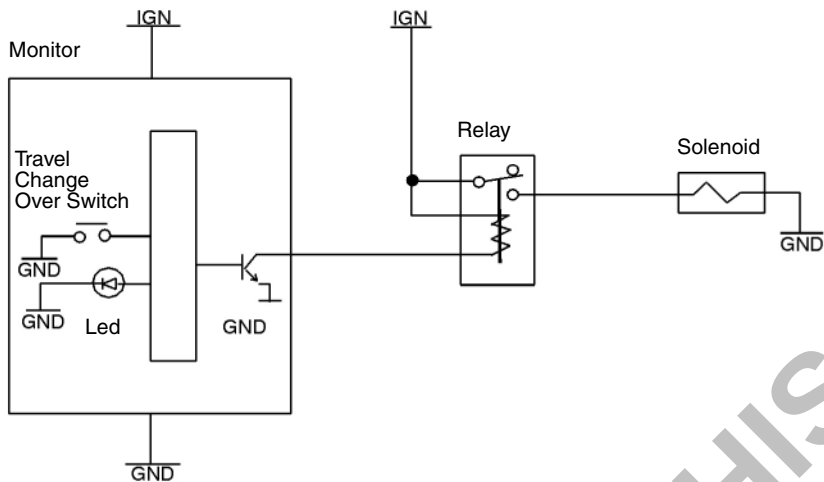
MQ19001-014

Mark	Dimension (mm)	
a (bucket)	Standard	255
	Limit	261
b (dipper)	Standard	254
	Limit	252
c (a - b)	Standard	1.0 to 3.5
	Limit	Shims
d (bucket) Standard	Standard	16
	Limit	8
d (bucket) 2PC	Standard	25
	Limit	17
Ø e (shaft)	Standard	65
	Limit	64
Ø f (dipper)	Standard	65
	Limit	66.5
Ø g (bucket)	Standard	65
	Limit	66.5

MONITOR OUTPUT CONTROL

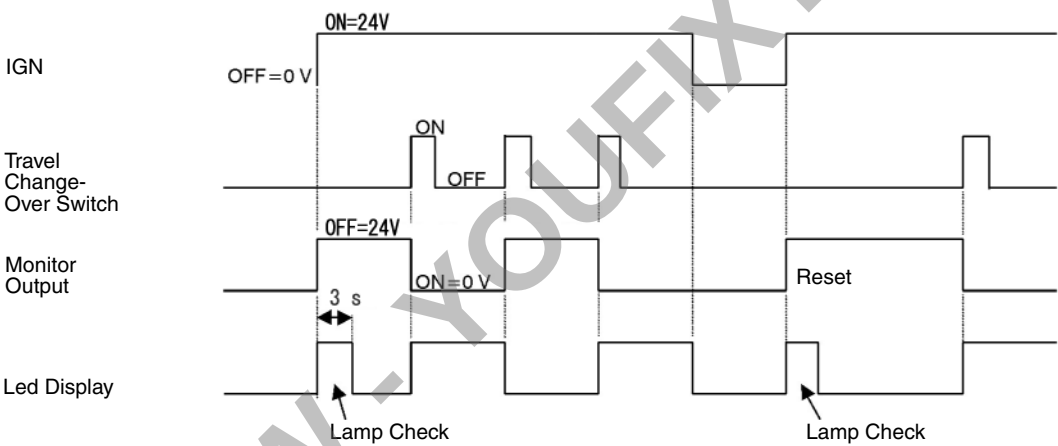
1. 2-speed Travel

[1] Configuration



M028001

[2] Operation



M028001

- If the key switch is turned ON again after it was turned OFF, the low travel speed is always selected.

2. Displays the time at which the trouble under the cursor first occurred

1st **0010** hr ...Occurred first at 10 hours

3. Displays the time at which the trouble under the cursor last occurred

Last **0901** hr ...Occurred last at 901 hours

4. Diagnostic trouble code

The troubles are sorted with the last one to occur at the top of the list.

The diagnostic trouble code under the cursor is displayed in (1) - (3).

DTC1 **7002** ...7002 (faulty N1 pressure sensor)

DTC2 **0238** ...0238 (Boost pressure sensor abnormally high voltage)

DTC3 ----

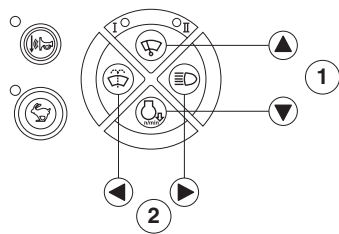
DTC4 ----

For details on diagnostic trouble code, see the Main Unit Diagnostic Trouble Code List.

Maximum display count

4 codes per page X 16 pages = 64 diagnostic trouble codes are displayed. From the 65th code onward, the oldest code is erased. However, even though these codes are not displayed, the data is retained.

B) Operation



- 1) Cursor up/down:
Up operation ... wiper switch
Down operation ... auto idle switch
- 2) Page forward / back:
Forward operation ... light switch
Back operation ... washer switch

C) Reset

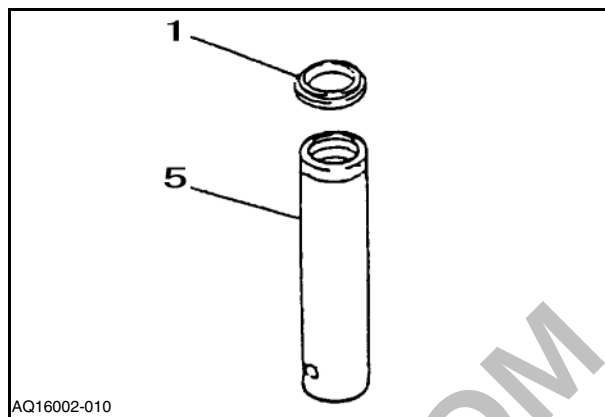
If the washer switch and the light switch are held down for 10 seconds, the trouble log is reset.

TABLE OF CONTENTS

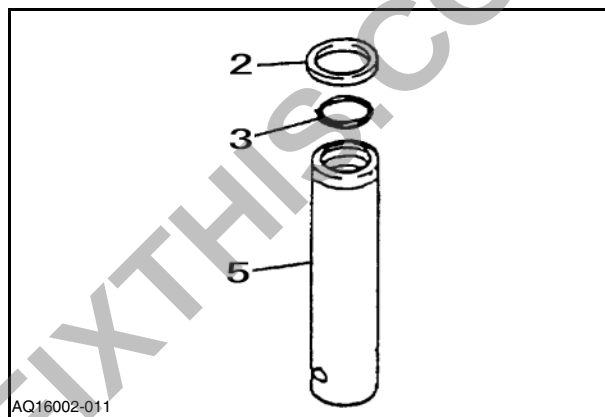
TRACK SHOE..... 3
 Removal 4
 Installation 5
TRACK LINK CHANGING PROCEDURE 6

PREVIEW - YOUFIXTHIS.COM

- 3) Remove dust seal (1) from grease cylinder (5) using pulling jig.



- 4) Remove back-up ring (2) and O-ring (3) from grease cylinder (5).



4 Assembly instructions

[1] Prior to assembly

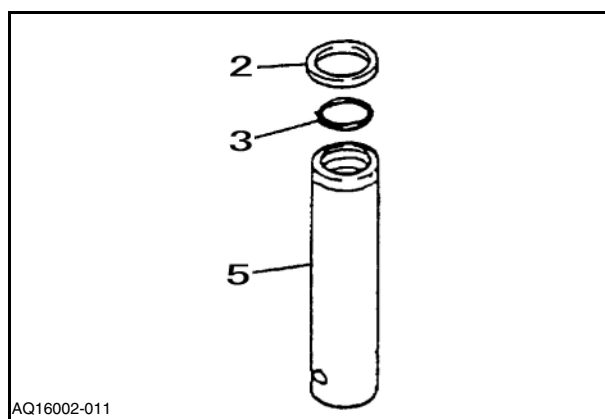
- Clean all the parts.
- Polish scratches, flashes or burrs using oil stone.
- Change sealing parts such as O-rings with new ones.

[2] Assembling instructions

1)

- 1) Install grease-applied O-ring (3) to grease cylinder (5).
- 2) Install back-up ring (2).

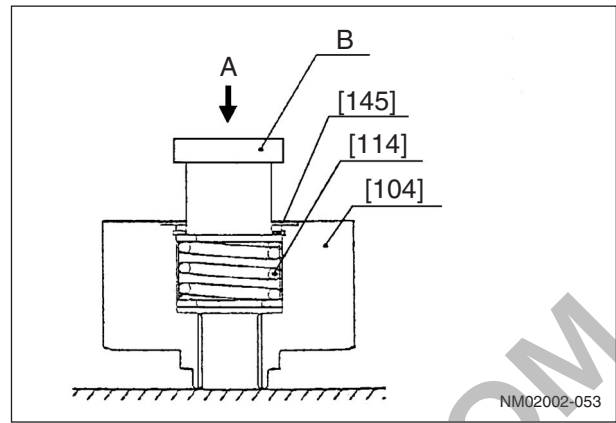
NOTE: Do not reuse back-up ring (2) and O-ring (3).



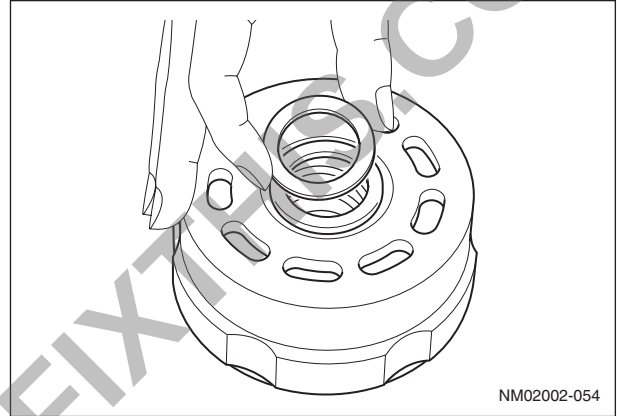
- 2) Place the holder fitting (I) (B) on the washer (110) and remove the snap ring (145) from the snap ring groove of the cylinder block (104) using the snap ring pliers while pressing down on the holder fitting (I) with the press (A).

Caution:

If the press is suddenly loosened, the spring (114) can fly out and cause injury. Loosen the press slowly.



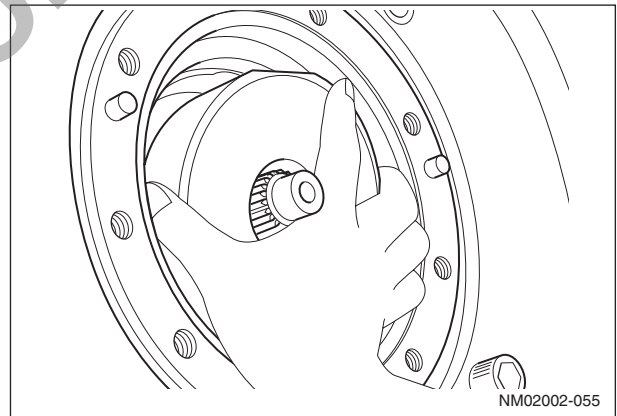
- 3) Remove the snap ring (145), washer (110), spring (114) and washer (110) inside the cylinder block (104).



[22] Removal of swash plate.

- 1) Remove the swash plate (103) from the shaft (102).

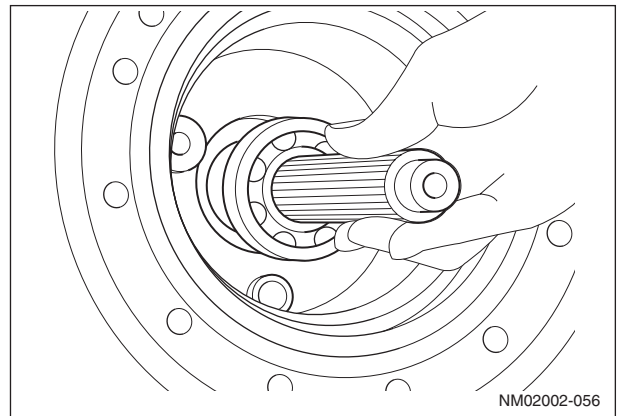
NOTE: Be careful when removing the swash plate, as pivots (167) are sometimes attached to it

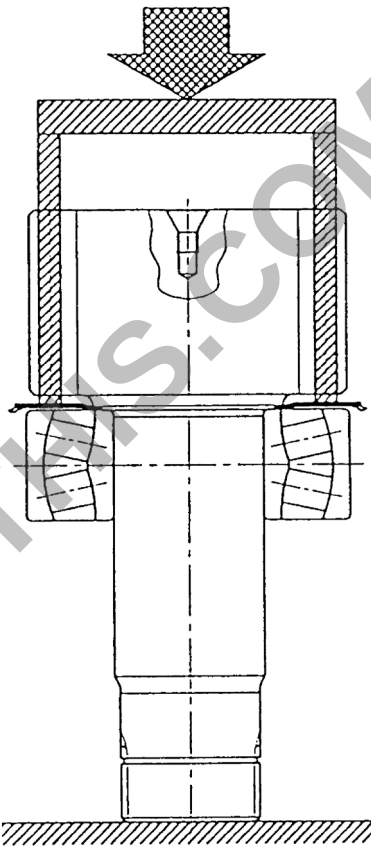


- 2) Remove the shaft (102) from the spindle (2). At this time, the ball bearing (149) attached to the shaft is also removed.

NOTE: The shaft (102) can easily be removed if the shaft end on the reduction gear side is first struck lightly with a plastic hammer. Be careful as the shaft can fly out if it is struck forcefully.

- 3) Remove the 2 pivots (167) and 2 parallel pins (171) from the spindle (2).

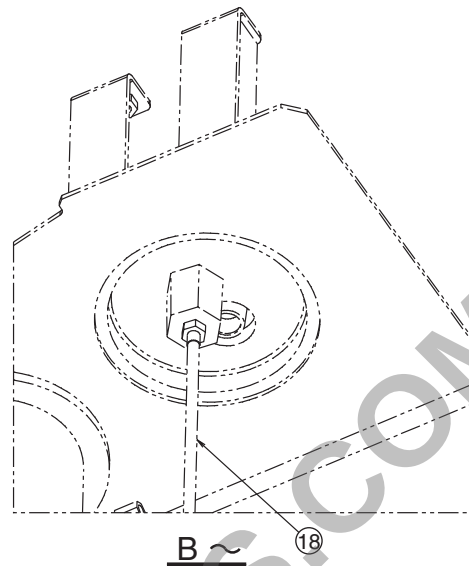
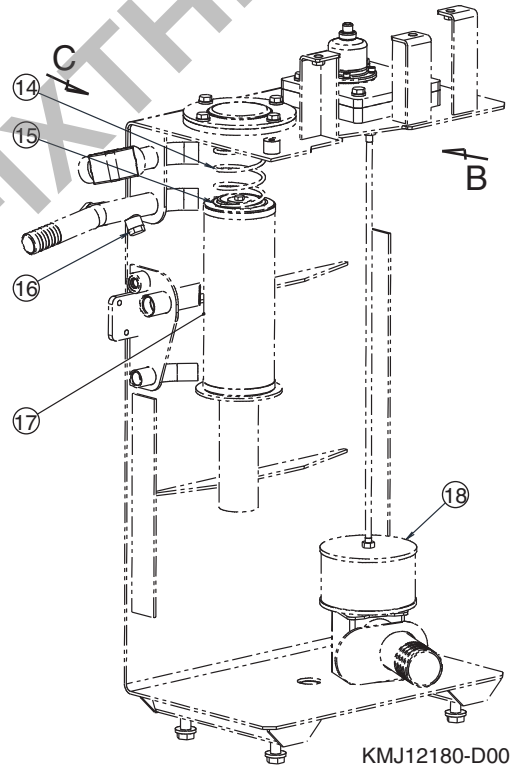


Operation	Precautions
<p>11. Place it on the workbench, supporting the flange so that the end of the shaft faces downward. Remove the shaft downwards by tapping the center of the shaft with a plastic hammer.</p> <p>NOTE: Do not disassemble further unless other serious problems are found. Inspect the parts without disassembling them, following the instructions for inspection shown in the (2). As stated above, it is recommended that the drive shaft assembly be replaced as a set if possible. However, when partial replacement is unavoidable, follow the instructions below.</p> <p>If no problems are found during inspection at this stage, further disassembly is not required.</p> <p>12. Withdraw bearing seal (915) and self-aligning roller bearing (401) with a press, as shown in the figure to the right, while supporting the drive shaft assembly.</p> <p>13. Remove oil seal (801) from casing (102).</p>	<p>Cylindrical roller bearing (402) will remain in the casing. Because the shaft drops out downwards, be careful not to damage it.</p>  <p>MQ22001-012</p> <p>Do not reuse removed oil seals and bearing seals.</p>

1. Hydraulic reservoir
2. Sems bolt M10 x 20
3. Air breather
4. Hex bolt soc HD M6 x 16
5. Spring washer
6. Sems bolt M10 x 30
7. Oil gauge level
8. Sems bolt M16 x 55
9. Bond #262
10. Plate shim (T=0.8)
11. Plate shim (T=2)
12. Plug G3/4
13. Plug G3/4
14. Compression spring
15. Relief valve
16. Plug G3/8
17. Return filter
18. Strainer

NOTE:

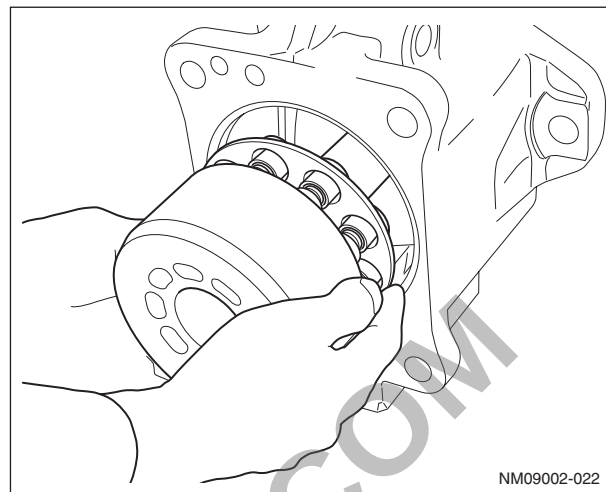
- 1) Tighten bolts (8) to the indicated torque after applying Loctite #262 (9) to the tread.
- 2) Be careful that paint and gasoline not adhere to hyd. oil gauge (7).
No use thinner and light oil etc when paint and gasoline adhere to hyd. oil gauge (7).
- 3) Be careful of direction when attaching oil gauge (7) to the hydraulic reservoir.
- 4) Make sure the air breather (3) is located toward front of machine when attaching the cover.



KMJ12180-D00

Inside of hydraulic reservoir

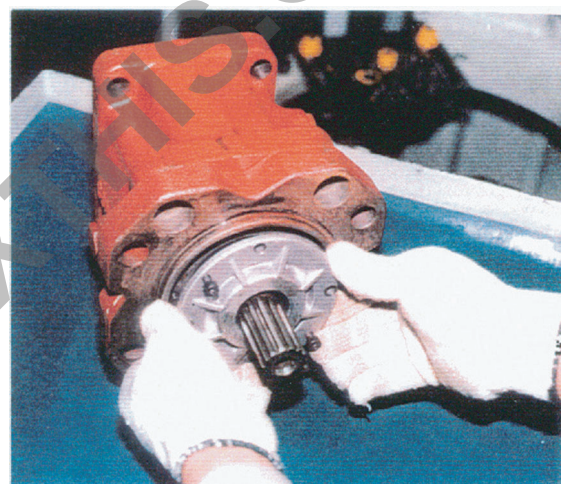
- [9] Pull out the cylinder block (141) from the pump casing (271) along the direction of the drive shaft (111) and remove the piston (151), set plate (153), spherical bush (156), and cylinder spring (157) at the same time.
- Be careful not to damage the sliding surfaces of the cylinder block, spherical bush, shoes, and swash plate.



NM09002-022

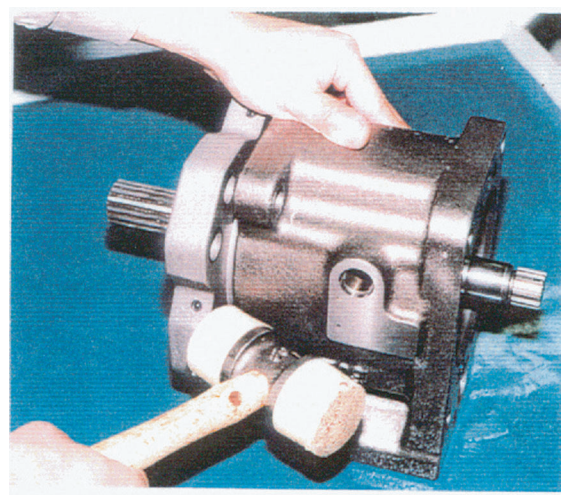
- [10] Remove the screws (406), and remove the seal cover (F) (261).

- The seal cover (F) can be easily removed by inserting a flathead screwdriver into the notch on the seal cover (F) and pulling it out.
- The seal cover (F) has an oil seal, so be careful not to damage the oil seal when removing the seal cover (F).



330-7-01-01-58f

- [11] Tap lightly from the pump casing side on the mounting flange part on the swash plate support (251) and detach the swash plate support from the pump casing.



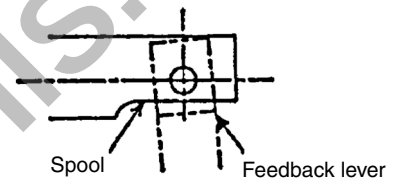
330-7-01-01-58g

3 Assembly Procedure

The assembly procedure is the reverse of the disassembly procedure. However, follow the precautions below.

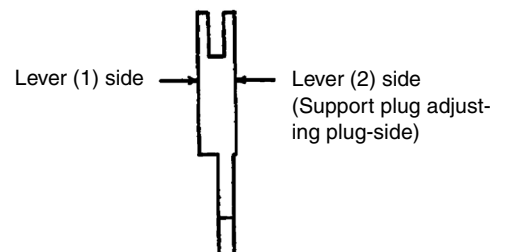
- 1) Be sure to repair any parts damaged during disassembly, and prepare replacement parts in advance.
- 2) Any foreign matter entering the equipment can create a malfunction. Therefore, after thoroughly cleaning the equipment with cleaning oil, air blow the equipment, and perform assembly in a clean location.
- 3) Be sure to apply clean hydraulic oil to sliding sections before assembly.
- 4) As a rule, perform replacement for all O-rings and other seal parts.
- 5) Use a torque wrench to tighten all installation bolts and plugs to the torque specified in «Maintenance Standards».

- [1] Assemble the compensation rod (623) into the compensation opening on the casing (601).
- [2] The pin that is press-fitted onto the lever (1) (612) is to be inserted in the compensating groove. After you insert the pin, install lever (1) onto the pin that is press-fitted onto the casing.
- [3] Assemble the spool (652) and sleeve (651) into the pressure relief hole on the casing (601).
 - Check that the spool (652) and sleeve (651) slide smoothly into the casing (601) without catching.
 - Be careful to assemble the spool (652) in the correct direction.



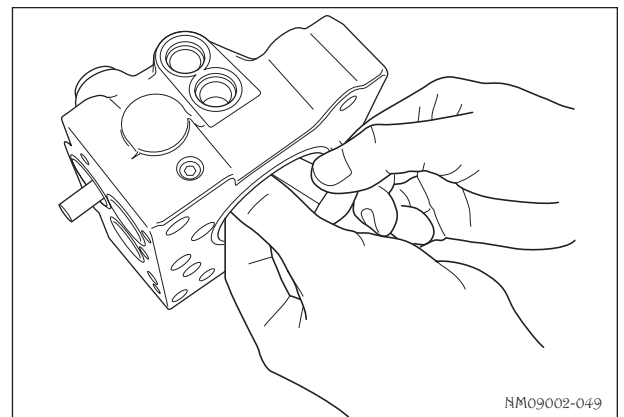
330-7-01-02-271

- [4] Assemble the feedback lever (611), and insert the pin (874) while aligning it with the pin opening on the feedback lever (611).
 - (1) This is easier to assemble by inserting the pin (874) into the feedback lever (611) in advance.
 - (2) Be careful to assemble the feedback lever (611) in the correct direction.
- [5] Assemble the pilot piston (643) into the pilot opening on the casing (601).
 - Check that the pilot piston (643) slides smoothly without catching.



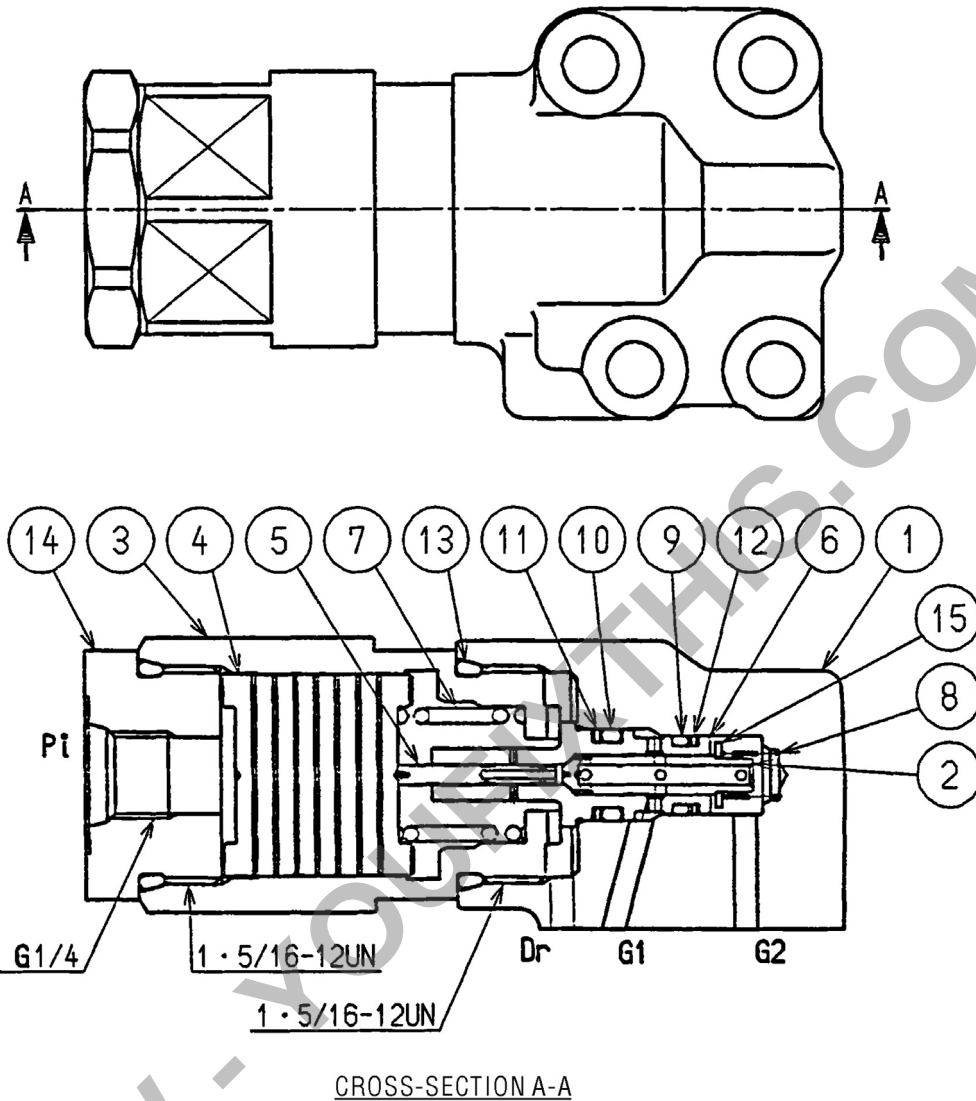
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- [6] Insert the pin (875) press fitted in the lever (2) (613) into the groove on the pilot piston (643), and assemble the lever (2) (613).



NM09002-049

13 Reference number (30): Anti-drift valve assembly

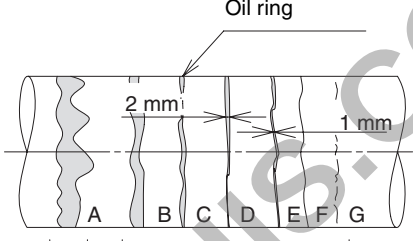


1. Body (1)
2. Poppet (1)
3. Plug (1)
4. Piston (1)
5. Spool (1)
6. Sleeve (1)
7. Spring (1)
8. Spring (1)

9. O-ring (1)
10. O-ring (1)
11. Backup ring (1)
12. Backup ring (1)
13. O-ring (1)
14. Plug assembly (1)
15. Spring seat (1)

MQ23001-017

4) Inspection after assembly

Dimension inspection	Check the fully retracted length and stroke as instructed on the diagram.				
Pressure withstand inspection	Check for looseness, permanent deformation, and external leaks when the test pressure instructed on the diagram is applied to each stroke end for at least 3 min.				
External leak inspection	<p>Check the amount of oil leak at the rod section. Judgment value for rod section oil leak Move the piston rod back and forth 20 times with the oil at a temperature from 20 °C to 40 °C, and then judge by the state of the oil ring formed on the rod surface. If the oil ring is in a broken down A state, this is judged to be trouble. See "5. Trouble Diagnostics" for information on how to solve this.</p>  <p style="text-align: right;">R</p>				
Internal leak inspection	Oil leak unit: ml/10 min.				
	Interior diameter mm	Oil leak amount	Interior diameter mm	Oil leak amount	Interior diameter mm
	32	0.4			160
	40	0.6	100	4.0	180
	50	1.0	125	5.6	200
	63	1.6	140	6.0	220
	80	2.3			250

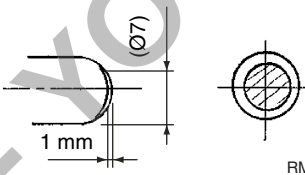
ASSEMBLY/DISASSEMBLY OF OPERATION CONTROL VALVE

1 Maintenance Procedures

1 Required tools and tightening torque

Tool	Dimensions (mm)	Part number	Part name	Screw size	Tightening torque (Nm)
Hexagon bar wrench	6	125	Hexagon socket head bolt	M8	20.6±1.5
Wrench	22	312	Adjusting nut	M14	68.6±4.9
	32	302	Disk	M14	
Special jig (diagram in Attached diagram 2. Joint disassembly jig)	24	301	Joint	M14	47.1±2.9

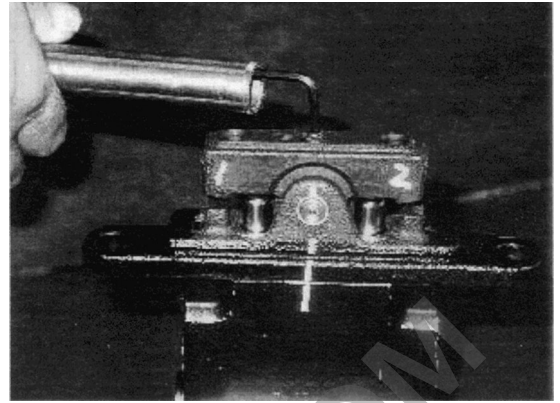
2 Maintenance standards

Maintenance inspection item	Standard	Remarks
Leak amount	When handle is in neutral: 1000 cc/min or more During operation: 2000 cc/min or more If either condition occurs, replace the remote control valve as one unit.	Conditions Primary pressure 2.94 MPa Oil viscosity 23 mm ² /s
Spool	When wear on the sliding sections exceeds wear on the non-sliding sections by 10 µm or more, replace the remote control valve as one unit.	The same approximate conditions as those listed above for leak amount are expected when the condition on the left occurs.
Push rod	If the end section is worn by 1 mm or more, perform replacement.  RM10001-005	
Operation section backlash	Replace the operation section disk (302) and joint section (301) if there is backlash of 2 mm or more due to wear.	Make adjustments if the backlash is due to looseness in the tightening sections.
Operation stability	If abnormal noise, hunting, or a drop in primary pressure occurs and the problem cannot be resolved with "4. Causes of Trouble and Countermeasures", replace the remote control valve as one unit.	

NOTE: It is desirable for seal materials such as O-rings to be replaced with each disassembly, but it is acceptable to reuse these after it is confirmed that they are not damaged.

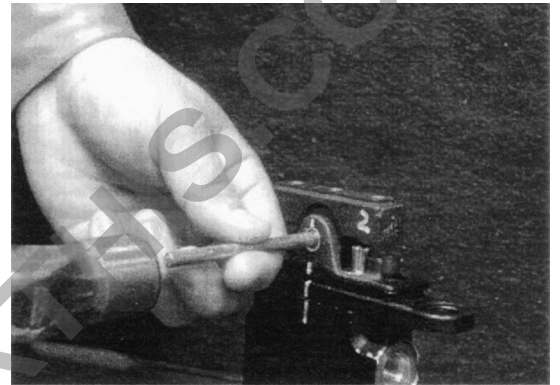
Always replace seal washer (121) when a hexagon socket head bolt (125) is loosened.

- [3] Use a hexagon wrench on the hexagon socket head locking screws (423) to loosen them.
Be careful, as application of Loctite #241 makes the loosening torque high.



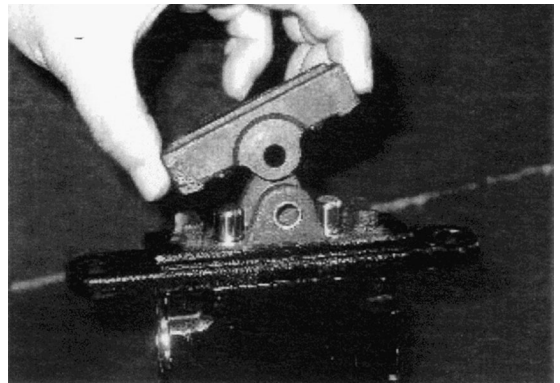
MQ25001-059

- [4] Place a round rod (Ø7 mm or less) against one end of the cam shafts (413) and lightly strike it with a hammer to remove the shafts.



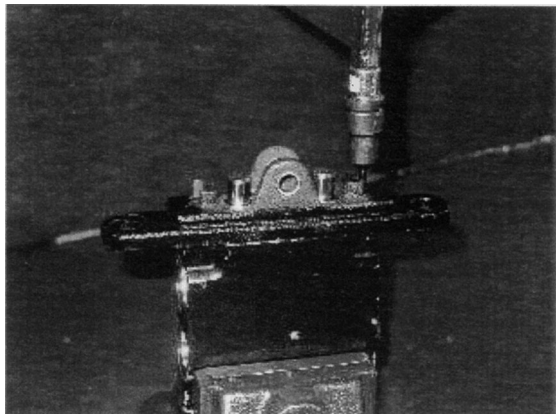
MQ25001-060

- [5] Remove the cams (420).
Handle the cam and steel ball (471) together as an assembly.
Record the positions of the cams in relation to the covers (201).



MQ25001-061

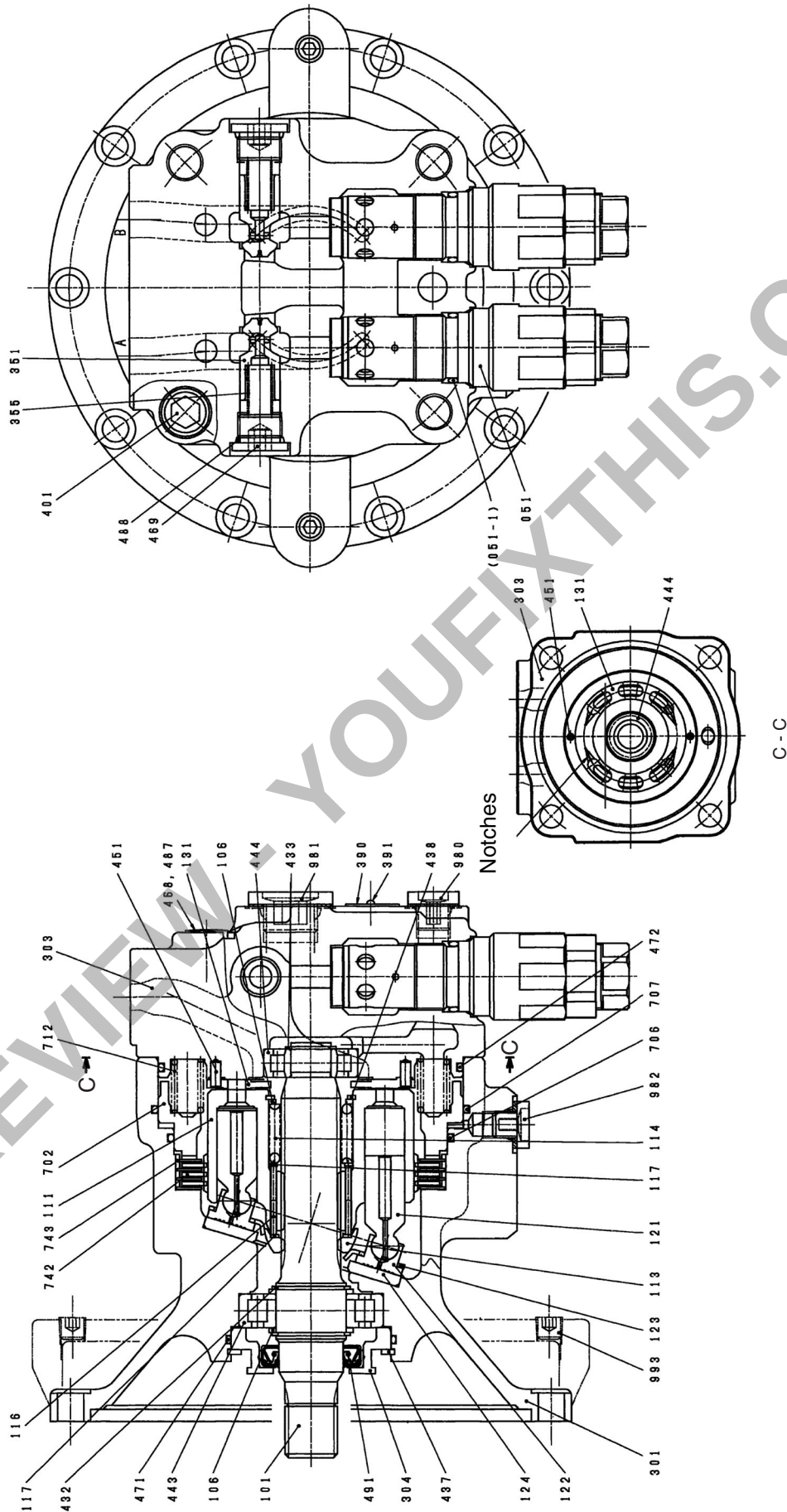
- [6] Use a hexagon wrench on the hexagon socket head bolts (271) to loosen and remove them.



MQ25001-062

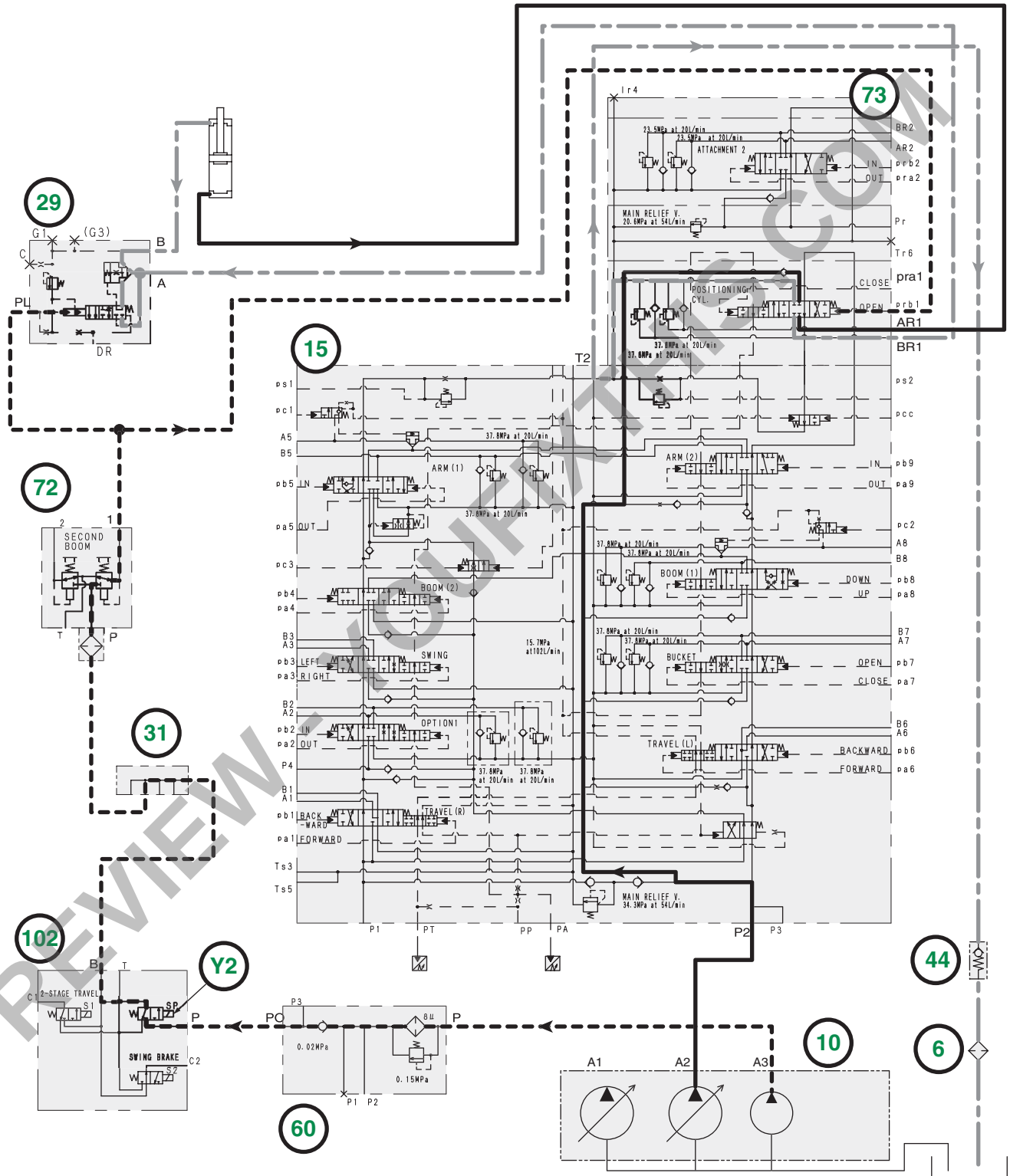
SWING MOTOR

1 Structural drawing



MQ22001-001

Second Boom Close Circuit (Single)



MR21001-002

8) Neutral Cut Spool Changeover (extra combination) (Fig.15)

Neutral cut spool is furnished in the bottom flow portion (upper stream portion of low relief valve) of the neutral passage (R1).

When pressurize port pcc and changeover neutral cut spool (R), neutral passage (R1) closes, due to which, flow to nega-con relief valve (Rc1) closes, and pressure of signal ps2 changes. Meanwhile, oil supplied from port P2 runs through P3 (Fig.17) being connected from outside piping, and goes to P4 (Fig.5) through outside fitted check valve. Then it goes through hollow portion of poppet (S2-1) of the extra (Section 2), and joins to passage (S2-2).

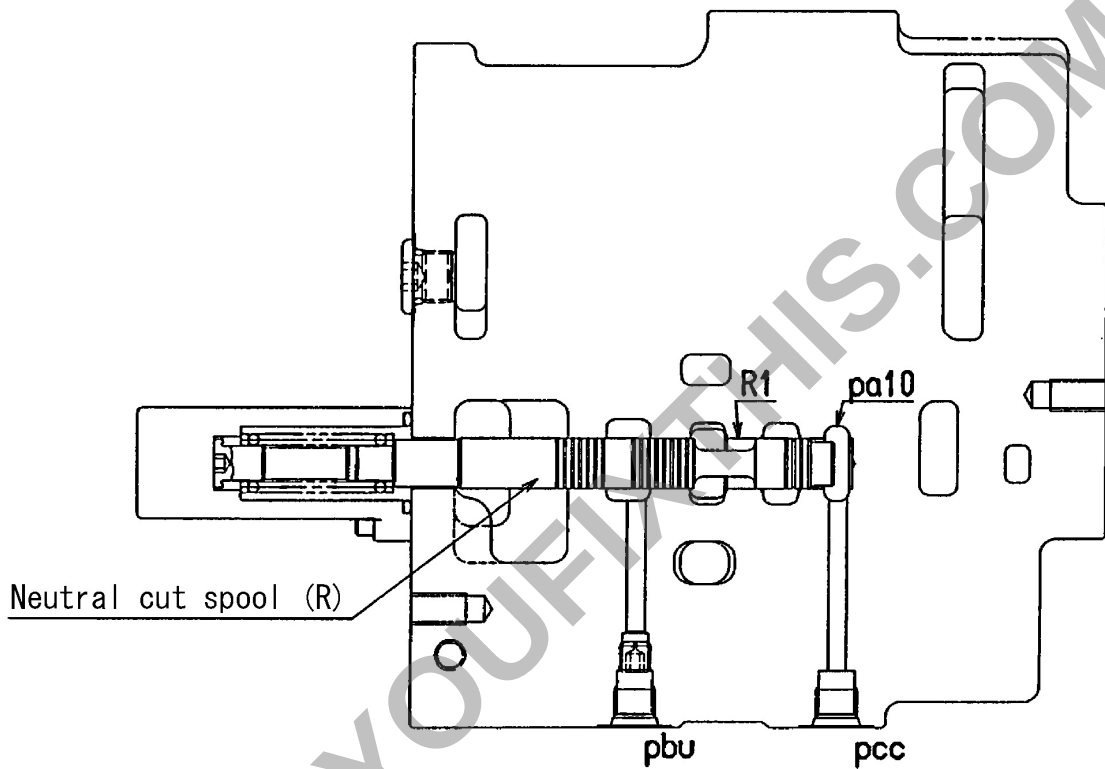


Fig.15

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