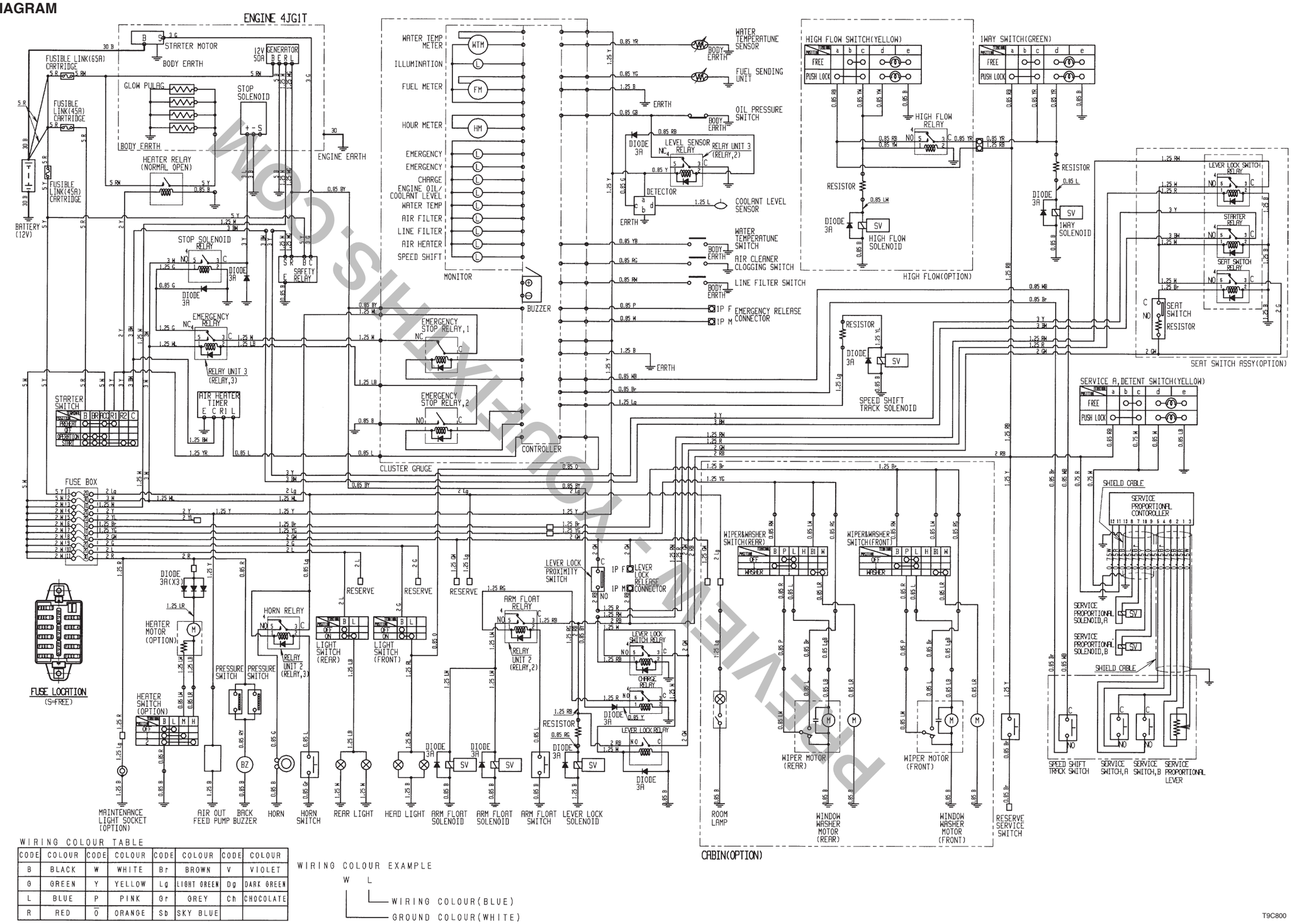
ELECTRICAL SYSTEM

ELECTRICAL WIRING DIAGRAM



WIRING COLOUR TABLE

CODE	COLOUR	CODE	COLOUR	CODE	COLOUR	CODE	COLOUR
B	BLACK	W	WHITE	Br	BROWN	V	VIOLET
G	GREEN	Y	YELLOW	Lg	LIGHT GREEN	Dg	DARK GREEN
L	BLUE	P	PINK	Gr	GREY	Ch	CHOCOLATE
R	RED	O	ORANGE	Sb	SKY BLUE		

WIRING COLOUR EXAMPLE

W L

WIRING COLOUR(BLUE)

GROUND COLOUR(WHITE)

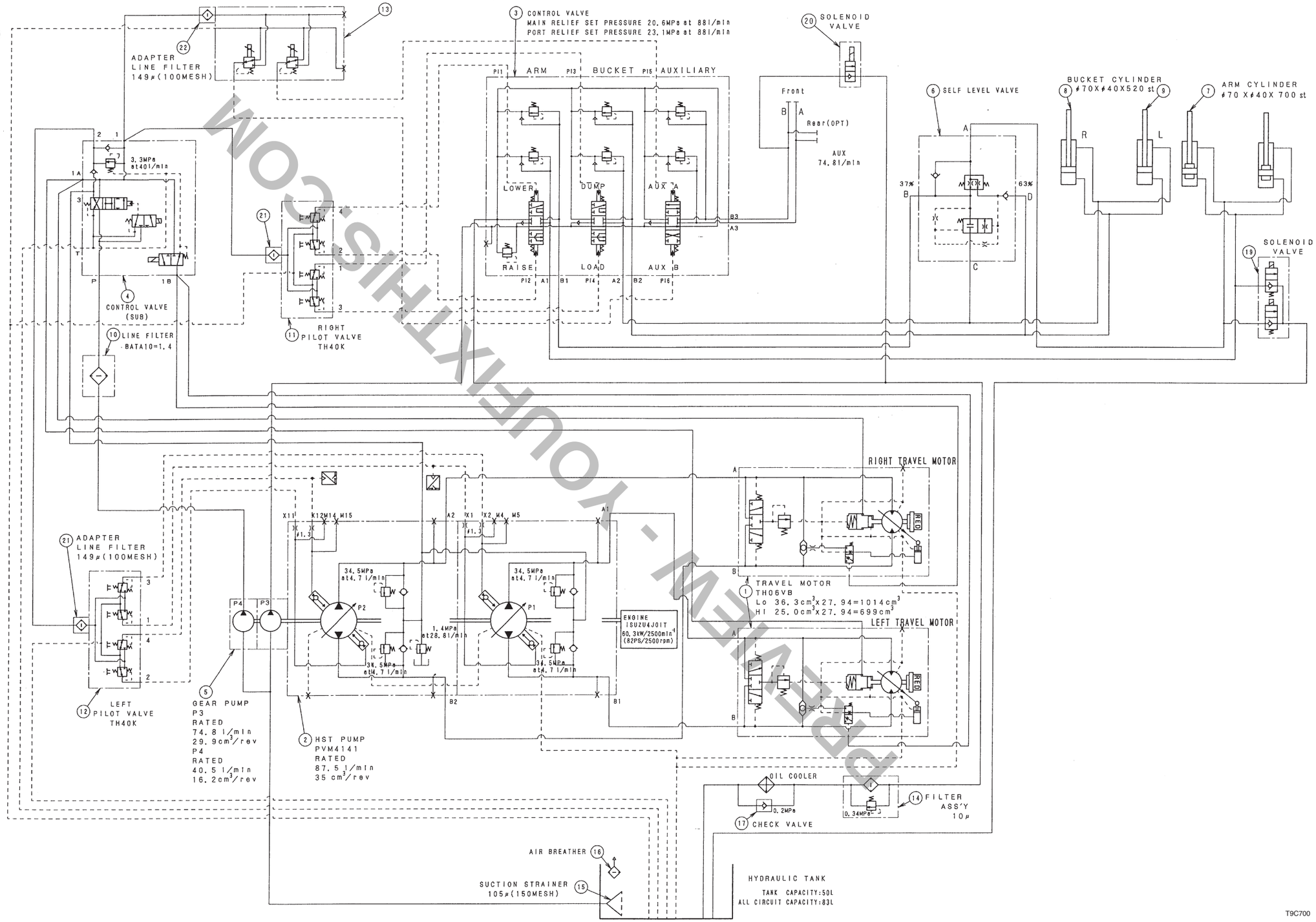
T9C800

WOO-SIHEXI-100
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HYDRAULIC SYSTEM

HYDRAULIC CIRCUIT DIAGRAM

Standard
Serial No. 21400011~21402000



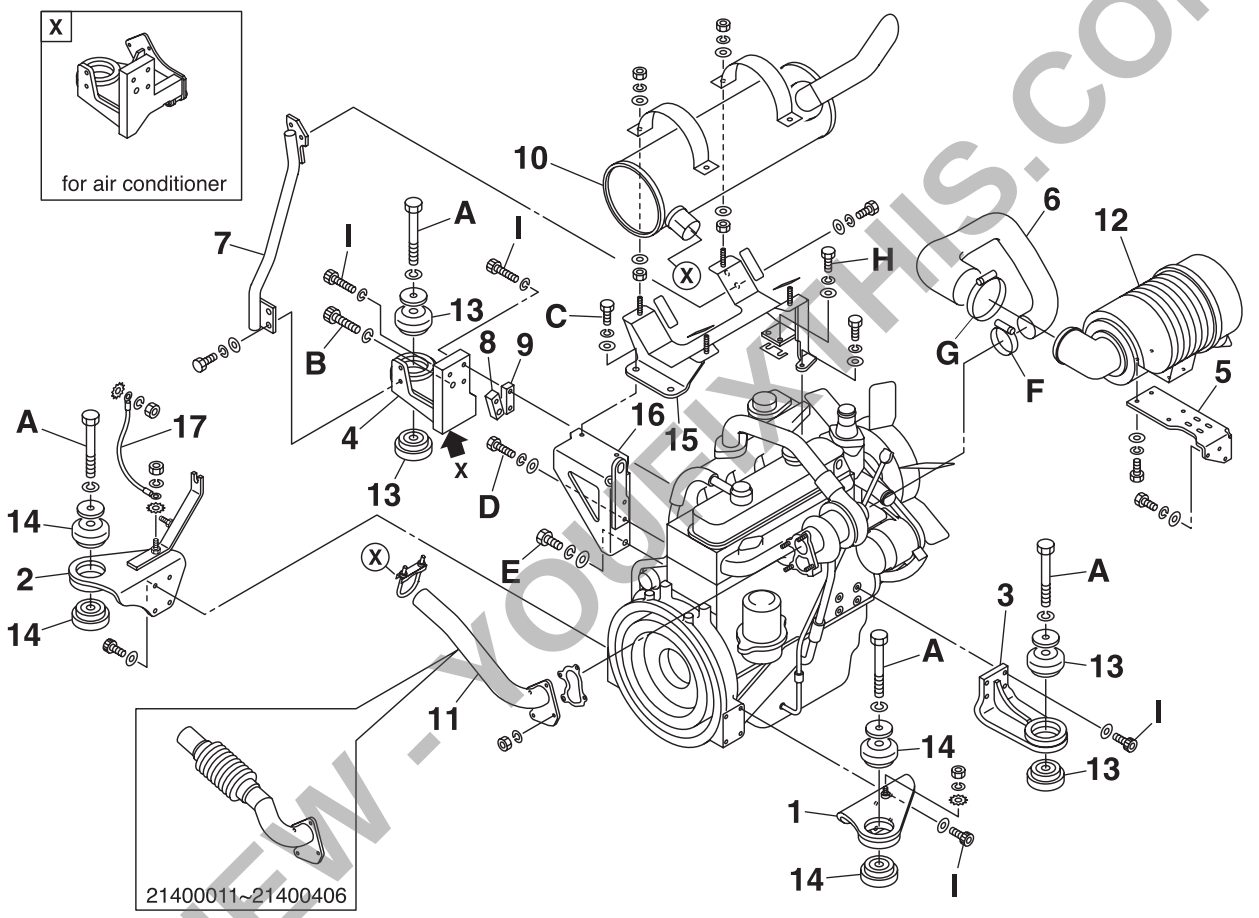
T9C700

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DRIVE SYSTEM

CONSTRUCTION

Engine Mount



T9C1001E

A: 256 N·m; Apply thread-locking compound.
B: 184 N·m; Apply thread-locking compound.
C: 55 N·m; Apply thread-locking compound.
D: 23 N·m
E: 158 N·m
F: 5.9 N·m
G: 3.9 N·m
H: 47 N·m
I : 66 N·m; Apply thread-locking compound.

1. Engine Foot FL
2. Engine Foot FR
3. Engine Foot RL
4. Engine Foot RR
5. Bracket
6. Hose
7. Pipe
8. Plate
9. Plate
10. Silencer
11. Exhaust Pipe
12. Air Cleaner
13. Cushion Rubber
14. Cushion Rubber
15. Bracket
16. Bracket
17. Ground Cable

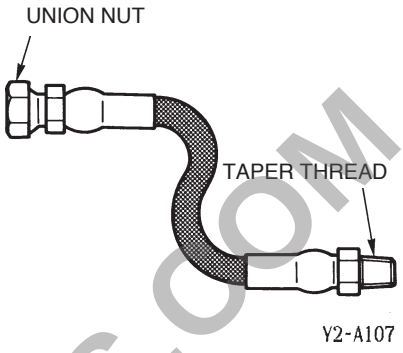
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TIGHTENING TORQUES

Hydraulic Hoses

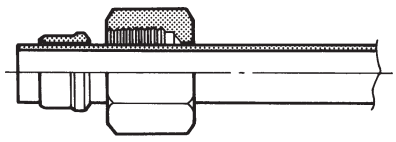
Hose Fitting Size	Torque			
	Union Nut (G)		Taper Thread (R)	
	N·m	ft-lb	N·m	ft-lb
1/8	9.8 $^{+4.9}_{0}$	7.3 $^{+3.5}_{0}$	11.8 ±1.2	8.7 ±0.8
1/4	24.5 $^{+4.9}_{0}$	18.1 $^{+3.5}_{0}$	29.4 ±2.9	21.7 ±2.1
3/8	49 $^{+4.9}_{0}$	36.2 $^{+3.5}_{0}$	53.9 ±5.4	39.8 ±3.9
1/2	58.8 $^{+4.9}_{0}$	43.4 $^{+3.5}_{0}$	88.3 ±8.8	65.1 ±6.4
3/4	117.7 $^{+4.9}_{0}$	86.8 $^{+3.5}_{0}$	147.1 ±14.7	108.5 ±10.7
1	137.3 $^{+4.9}_{0}$	101.3 $^{+3.5}_{0}$	196.1 ±19.6	144.7 ±14.3



Y2-A107

Bite Type Pipe Fitting for Steel Pipe

Pipe Outer Diameter (mm)	Torque	
	N·m	ft-lb
8	34.3 ±4.9	25.3 ±3.5
10	41.7 ±2.5	30.7 ±1.7
12	58.8 ±4.9	43.4 ±3.5
15	88.3 ±4.9	65.1 ±3.5
16	93.2 ±4.9	68.7 ±3.5
18	132.4 ±4.9	97.6 ±3.5
22	205.9 ±9.8	151.8 ±7.2
27.2	245.2 ±9.8	181.0 ±7.2
28	313.8 ±19.6	231.4 ±14.3
32	313.8 ±19.6	231.4 ±14.3
35	411.9 ±19.6	303.7 ±14.3


Y2-A108

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CONTENTS

OVERALL MACHINE

Complete failure of all systems. 4

All systems working, but with insufficient power. 8

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Movement of the lift arm cylinders is slow or lacks power. 21

Slowly pulling the control lever of the lift arms causes the lift arms to drop momentarily. 23

The amount of lift arms natural drop is great. 24

BUCKET

Bucket cylinders fail to move. 25

Movement of the bucket cylinders is slow or lacks power. 27

The amount of bucket natural drop is great. 29

AUXILIARY HYDRAULICS

The proportional control is impossible. 30

Switching between 2-way flow and 1-way flow is impossible. 31

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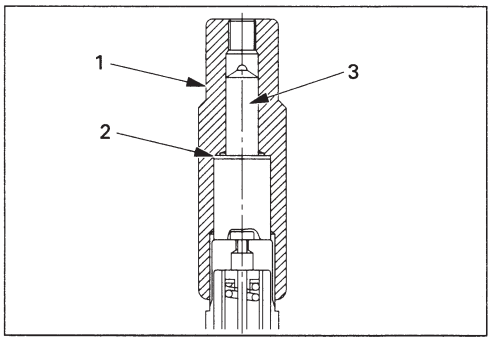
SPECIFICATION TABLES

SPECIFICATIONS

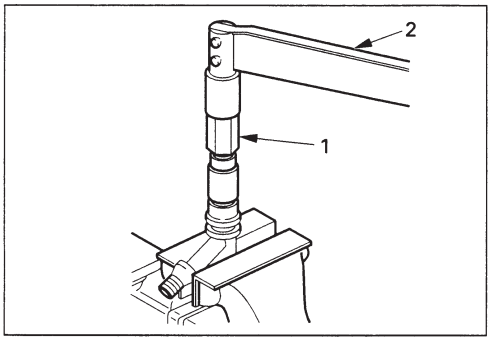
Serial Number		21400011~	
Machine Type		Canopy	Cab
Standard Bucket Capacity			
Rated Capacity	m^3	0.458	←
Struck Capacity	m^3	0.335	←
Machine Mass (not including operator)	kg	4275	4350
Dimensions			
Overall Lenght: with bucket/without bucket	mm	3710/2950	←
Overall Width: with bucket/without bucket	mm	1880/1770	←
Overall Height	mm	2270	←
Minimum Ground Clearance	mm	325	←
Front Clearance Radius: with bucket/without bucket	mm	2295/1500	←
Rear Clearance Radius	mm	1665	←
Overall Width of Crawler	mm	1770	←
Bucket Width	mm	1880	←
Angle of Departure	degree	30	←
Working Range			
Maximum Lift Height to Bucket Pin	mm	3120	←
Maximum Dumping Height	mm	2405	←
Maximum Dump Angle Fully Raised	degree	39	←
Maximum Bucket Rollback at Ground Level	degree	31	←
Reach Fully Raised	mm	875	←
Performance			
Breakout Force	kN	32.9	←
Travel Speed 1 st/2 nd	km/h	7.3/10.4	←
Gradeability	degree	30	←
Ground Pressure	kPa	28.2	←
Tipping Load	kg	2700	←
Cycle Time			
Raise-Full Load (Lift Arm)	Sec.	4.3	←
Lower-No Load (Lift Arm)	Sec.	2.9	←
Dump-Full Load (Bucket)	Sec.	3.2	←
Curl-Full Load (Bucket)	Sec.	2.2	←

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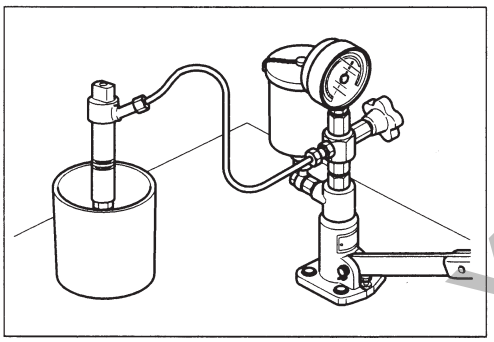
6. Hand-tighten the adjustment retaining nut (1) together with the gasket (2) to the nozzle holder.
   Retaining nut (1): 157892-5100 (★Bosch AS) (Special tool)
   Gasket (2) 026508-1140 (★Bosch AS)
   (★Bosch Automotive Systems Corporation)



7. Tighten the adjustment retaining nut (1) to the specified torque.

Retaining Nut Torque	N·m (kg·m/lb·ft)
29 – 39 (3.0 – 4.0/22 – 29)	

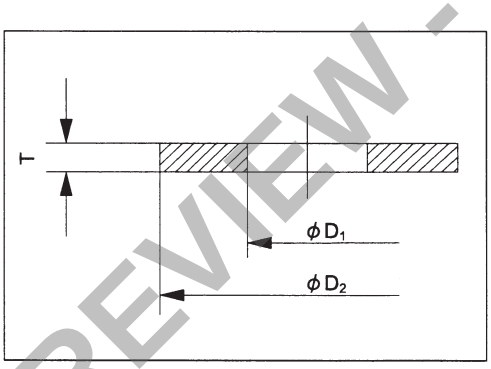
   Retaining nut (1): Special tool
   Torque wrench (2)



8. Set the nozzle holder to the nozzle tester.
9. Operate the nozzle tester and measure the first nozzle opening pressure.
10. If the first nozzle opening pressure is not as specified, disassemble the nozzle holder and replace the shim unit the pressure is as specified.

CAUTION:

- **Use a micrometer to measure shim thickness.**
- **Use some combination of adjusting shims to adjust the pressure.**



- First nozzle opening pressure adjusting shims

Part No.	Thickness mm (in)
115349-0440	0.52 (0.0205)
115349-0450	0.54 (0.0213)
115349-0460	0.56 (0.0220)
115349-0470	0.58 (0.0228)
115349-0480	0.60 (0.0236)
115359-0490	0.70(0.0276)
115349-0040	1.20 (0.0472)

$D_1 = \phi 2.6$
$D_2 = \phi 6.2$

NOTE:

A shim thickness of 0.01 mm corresponds to a nozzle opening pressure about 147 kPa (about 1.5 kg/cm²/21.3 psi).

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STANDARDS FOR JUDGING PERFORMANCE

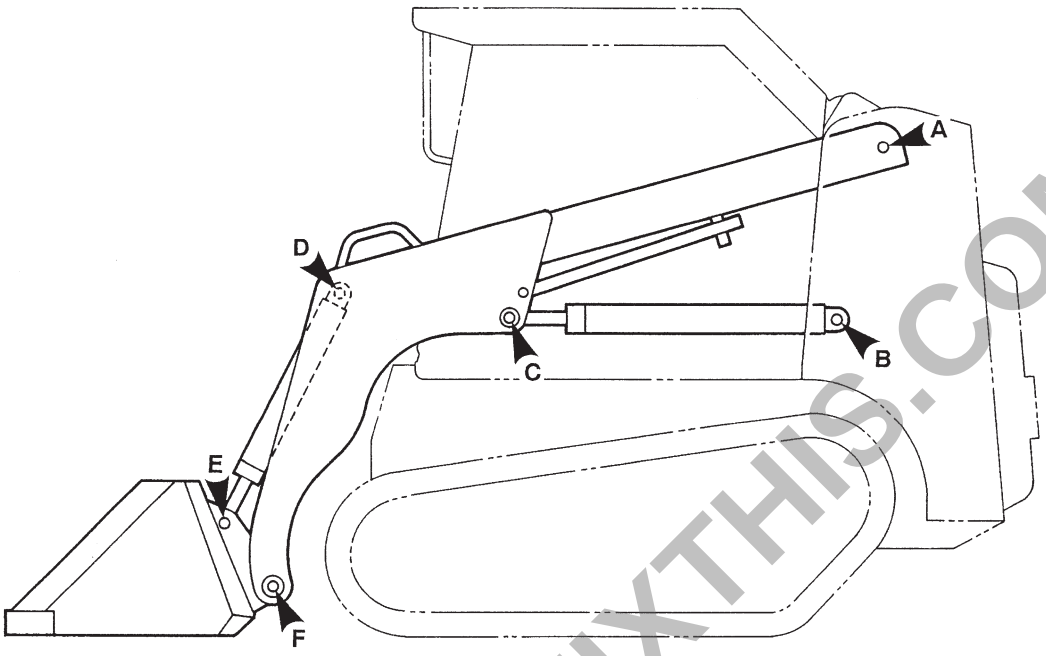
REFERENCE VALUE TABLE

Serial Number			21400011~21402000		21402001~	
Item		Unit	Standard Values	Allowable Values	Standard Values	Allowable Values
Hydraulic Oil Pressure						
Travel		MPa	$34.3^{+4.9}_{-1.0}$	—	$34.3^{+4.9}_{0}$	—
Lift Arm		MPa	—	—	—	—
Bucket		MPa	$20.6^{+0.5}_{-1.0}$	—	$20.6^{+0.5}_{-1.2}$	—
Charge Pressure						
Low		MPa	1.3 ±0.3	—	1.6 ±0.2	—
Hight		MPa	1.8 ±0.3	—	2.0 ±0.2	—
Pilot Pressure		MPa	3.0 ±0.4	—	3.1 ±0.4	—
Travel						
Travel Speed (5 rev.)						
Low Speed		s	11.1 ±0.8	13.0	11.0 ±0.6	12.7
Hight Speed		s	7.8 ±0.7	9.6	7.9 ±0.5	9.5
Travel Speed (10 m)						
Low Speed		s	4.7 ±0.6	5.8	4.7 ±0.5	5.7
Hight Speed		s	3.3 ±0.5	4.3	3.2 ±0.4	4.0
Travel Curve		mm	125^{0}_{-125}	500	125^{0}_{-125}	500
Natural Travel Drop	Engages Parking Brake	mm	0	—	0	—
	Releases Parking Brake	mm	—	—	—	—
Cylinders						
Cylinder Speed						
Arm	Extended	s	4.3 ±0.5	5.2	4.4 ±0.4	5.2
	Retracted	s	2.9 ±0.5	3.7	3.0 ±0.4	3.7
Bucket	Extended	s	2.2 ±0.5	2.9	2.3 ±0.4	2.9
	Retracted	s	3.2 ±0.5	4.0	3.2 ±0.4	3.9
Natural Cylinder Drop						
Arm		mm	8^{0}_{-8}	16	8^{0}_{-8}	16
Bucket		mm	7^{0}_{-7}	14	7^{0}_{-7}	14
Bucket Tip		mm	70^{0}_{-70}	200	70^{0}_{-70}	200
Levers						
Lever Operating Force						
Arm		N	10 ±4		10 ±4	
Bucket		N	10 ±4		10 ±4	
Travel		N	10 ±4		10 ±4	
Lever Play						
Arm		mm	4^{0}_{-4}		4^{0}_{-4}	
Bucket		mm	4^{0}_{-4}		4^{0}_{-4}	
Travel		mm	4^{0}_{-4}		4^{0}_{-4}	
Crawler						
Crawler Tension		mm	15~25	—	15~25	—
Level of Front Edge of Bucket		mm	10.0^{0}_{-10}	—	10.0^{0}_{-10}	—

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Pin and Bushing Clearance



T5-B206

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Unit: mm

Code	Item	Designated Standard					Servicing Procedure
		Basic Dimensions	Allowable Tolerance		Standard Clearance	Allowable Clearance	
			Shaft	Hole			
A	Lift Arm & Frame	45	-0.02 -0.05	+0.17 +0.12	0.14~0.22	1.0	Replace
B	Arm Cylinder & Frame	40	-0.06 -0.09	+0.15 +0.05	0.11~0.24	1.0	
C	Arm Cylinder & Lift Arm	40	-0.02 -0.05	+0.15 +0.05	0.07~0.20	1.0	
D	Bucket Cylinder & Lift Arm	40	-0.02 -0.05	+0.15 +0.05	0.07~0.20	1.0	
E	Bucket Cylinder & Quick Attachment	40	-0.02 -0.05	+0.15 +0.05	0.07~0.20	1.0	
F	Lift Arm & Quick Attachment	40	-0.02 -0.05	+0.15 +0.10	0.12~0.20	1.0	

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RECOMMENDED LUBRICANTS

Use different fuels, lubricants and greases according to the temperature, referring to the chart below.

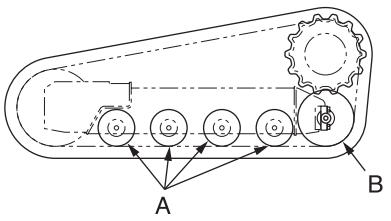
- Change the lubricant earlier than as show in the table if it is extremely dirty or its performance has deteriorated severely.
- Whenever possible, use the same brand of lubricant as before. If changing with a different brand, replace the entire quantity – do not mix different brands.

Part	Type	Type by temperature -22 -4 14 32 50 68 86 104°F -30 -20 -10 0 10 20 30 40°C	Replacement interval	Capacity
Engine oil pan	Diesel engine oil API service CD	SAE 5W-20 SAE 10W-30 SAE 15W-40	After first 50 hrs. Every 250 hrs.	Upper limit: 9.6 L Lower limit: 7.6 L
Hydlaulic tank	Diesel engine oil API service CD	SAE 10W-30	Every 1000 hrs.	Total system: 83 L Tank level: 52 L
Fuel tank	Diesel fuel	Use a clean, Quality fuel for performance and optimum engine life. • To prevent fuel flow problems in cold weather, use diesel fuel with a pour point of at least -12°C (10°F) below the lowest expected ambient temperature. • Minimum cetane number is 45. Low temperature or high altitude operation may require the use of fuel with a higher cetane number.		Tank level: 90 L
Engine cooling system	Coolant (water**+Coolant***)	30% coolant mixture 50% coolant mixture	Every 1000 hours	15 L
Travel reduction gear	Gear oil API-GL-4	SAE 90	After first 500 hrs.* Every 1000 hrs.	21400011~ 21402000: 1.1 L 21402001~: 2.2 L
Track Roller A	Diesel engine oil API service CD	SAE 30	—	180 mL
Track Roller B	Mobil gear SHC 680	——	—	170 mL
Idler		——	—	170 mL
Working equipment	Lithium grease EP-2 NLGI No. 2	——	Daily or erery 10 hrs.	As required
Levers		——	When required	

*: If the percentage of the traveling time within the total operating time is high, replace the gear oil earlier than the specified time.

**: For water, use tap water (soft). Do not use well or river water.

***: When the ambient temperature drops below 0°C, add coolant (antifreeze). Follow the coolant manufacture's instructions to determine the mixture ratio.



T8B002

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DISASSEMBLY AND ASSEMBLY

Removing the Engine

1. Disconnect the negative battery cable (1) from the battery.

2. Remove the canopy.
   ☞ "Removing the Canopy"

3. Remove the floor frame.
   ☞ "Removing the Floor Frame"

4. Disconnect the electrical wiring from the air cleaner (2). Next, remove the bracket (3) together with the air cleaner.

5. Remove the silencer (4) from the bracket.

6. Remove the radiator.
   ☞ "Removing the Radiator"

7. Disconnect the coolant drain hoses (5).

8. Remove the hydraulic pump.
   ☞ "Removing the Hydraulic Pump"

9. Remove the valves (6) and the filter (7).

10. Remove the fuel inlet pipe (8).

11. Disconnect the fuel hoses (9).

12. Disconnect the battery cable (1) and all the connections on the engine side of the electric wirings (10).
    - Attach identification labels to individual wirings.
    - Disconnect the wirings from the clamp and the band.

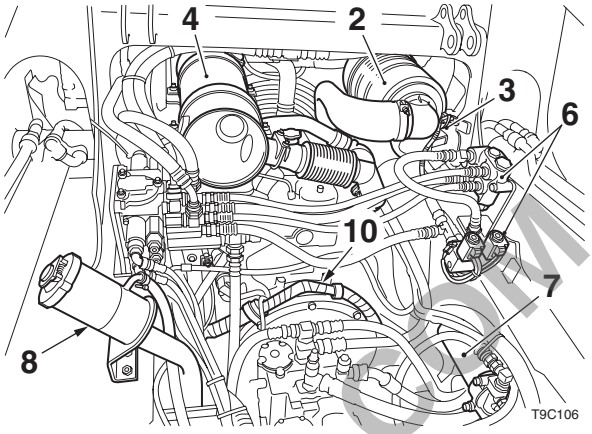
13. Disconnect the engine ground cable (11) and accelerator wire (12).

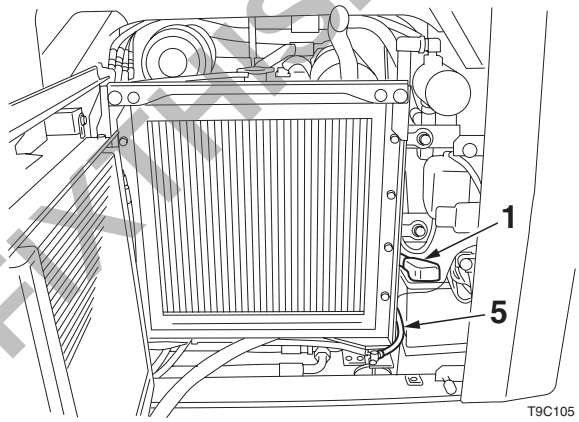
14. Remove the bolts (13) and then the cushion rubbers.
    ⊂ Bolt: 256 N·m; Apply thread-locking compound.

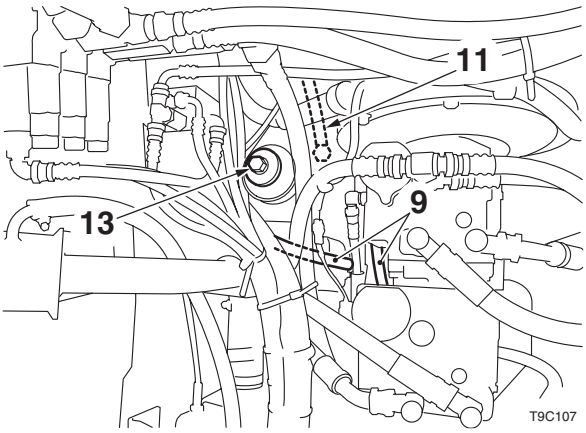
15. Suspend the engine temporarily, and remove the engine.
    ⏢ Engine: 260 kg

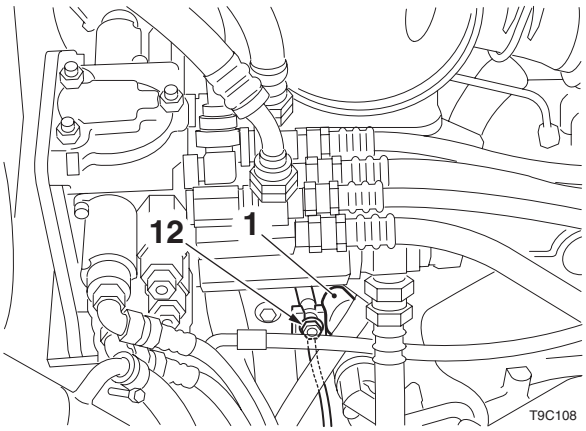
Installing the Engine

Follow the same procedure as for removal in the reverse order.









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Experienced troubleshooters talk to the operator if they can, then personally verify the symptoms of the problem whenever possible. They attempt quick fixes on the basis of their knowledge of common system problems and causes when appropriate. They know where components are located, and make repairs when they have a good idea of what the problem is. They fix the cause or causes as well as the problem. They are confident of their knowledge and ability.

Note: **The best troubleshooters all know who to call when they get stuck.** They know someone who knows more than they do and are not too proud to ask for help or suggestions when needed. The key—understanding system function

The Key–Understanding System Function

Your complete understanding of AC and heater systems and how they work, plus what can go wrong, is the key to troubleshooting and repair. We have talked about components and system function before. Now let's take a little different approach in describing what happens when the air conditioner is turned on. In Figure 8-1 we have used numbers on the illustration to track normal air conditioner function.

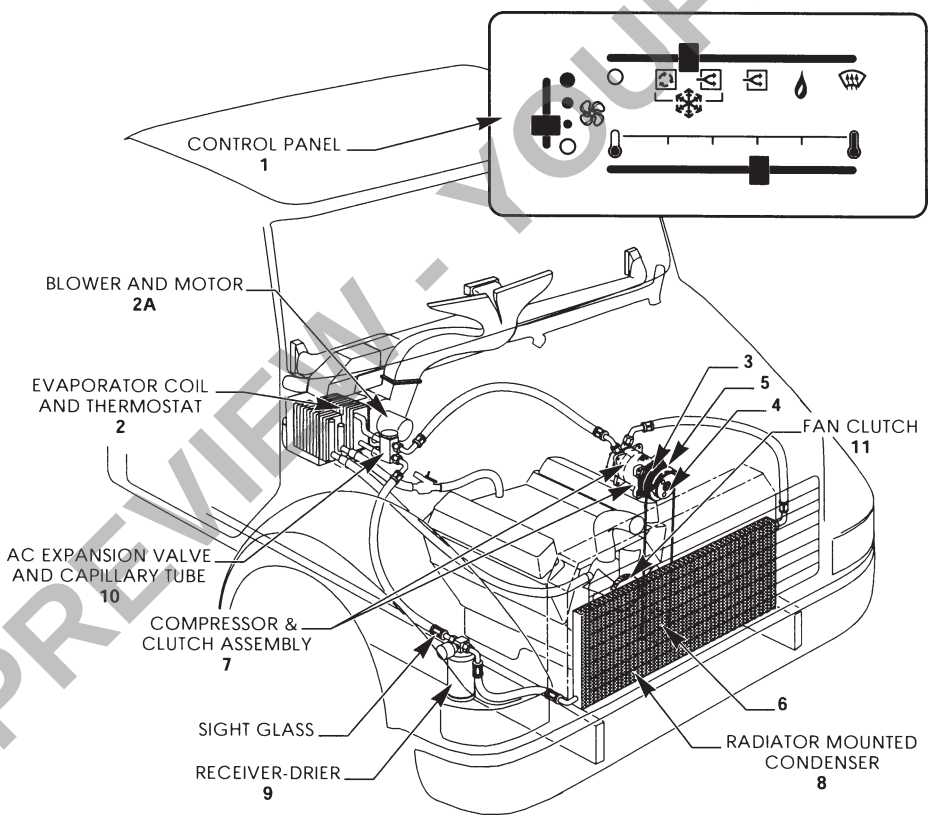


Figure 8-1
An illustration of the typical HVAC system. The numbers follow the action when the AC part of the system is working properly (moving heat out of the cab and into the outside air).

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FOREWORD

This manual is intended for persons who engage in maintenance operations, and explains procedures for disassembly and reassembly of the machine, check and maintenance procedures, maintenance reference values, troubleshooting and outline specifications, etc. Please use this manual as a reference in service activities to improve maintenance techniques.
Further, please be advised that items contained in this manual are subject to change without notice due to design modifications, etc.

MACHINE FRONT AND REAR, LEFT AND RIGHT

The end where the bucket is mounted is the front and the end with the travel motors is the rear. Also the right and left sides of the operator when he is seated in the driver's seat are the right and left sides of the machine.

MACHINE SERIAL NUMBER

The machine serial number is stamped on the identification plate. When sending reports and inquiries, and when ordering parts, etc., be sure to include this number.

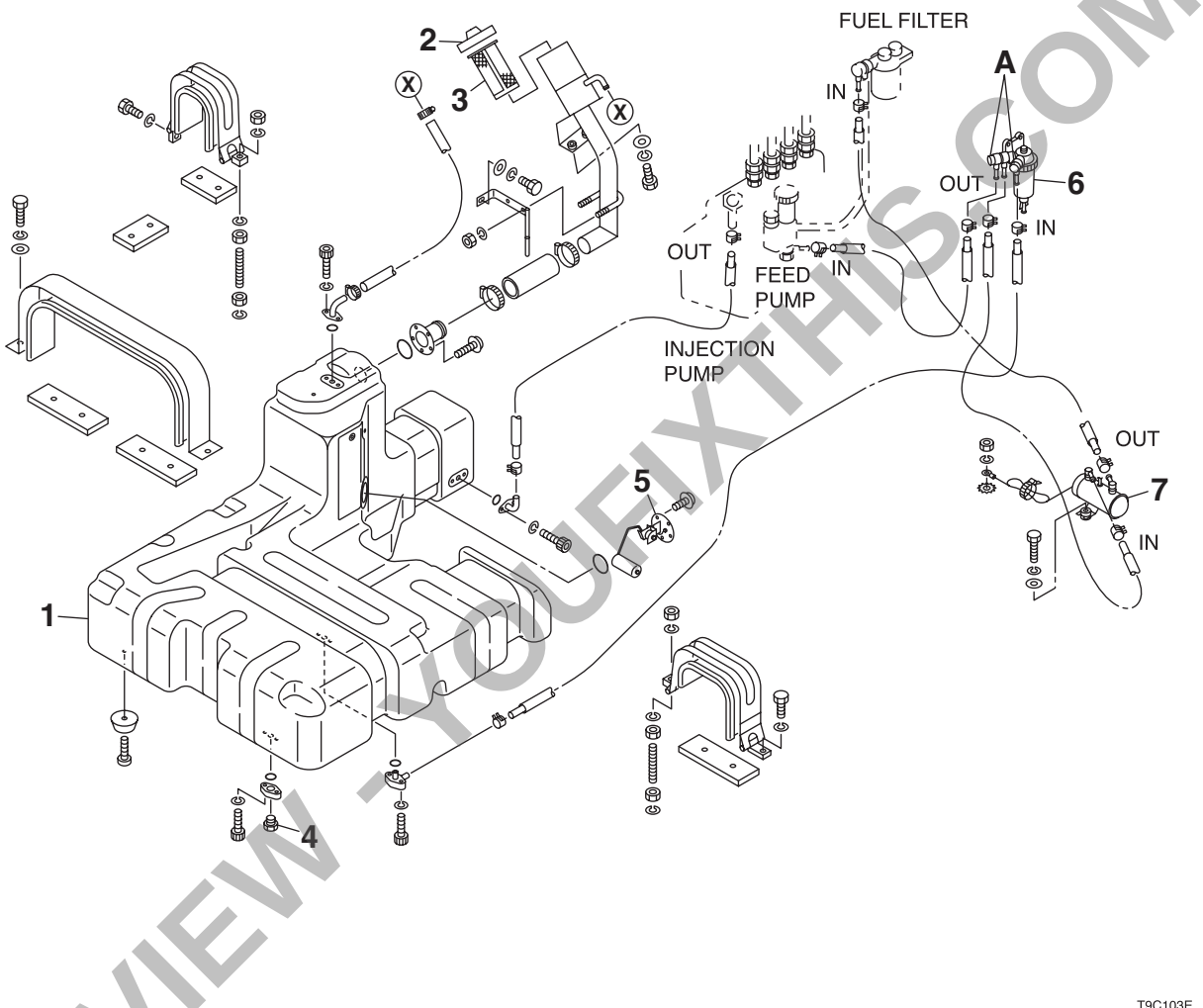
MANUAL CONTROL

Information on those to whom this manual is distributed is recorded in the ledger in the section in charge at this company, so please decide on a person to be in charge of it and control it. When there are updates or additions, etc., we will notify the person in charge.

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Fuel Tank and Lines



T9C103E

A: 22.6 N·m

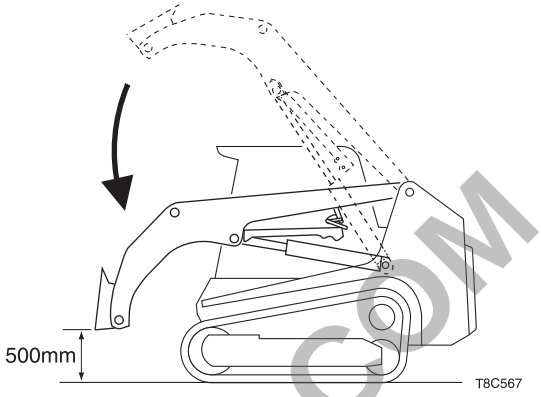
1. Fuel Tank
2. Cap
3. Strainer
4. Drain Cock
5. Fuel Sender
6. Water Separator
7. Feed Pump

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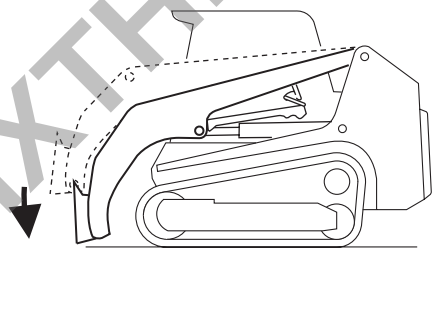
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3. Remove the lift arm stopper (2).
☞ "III-27~28"

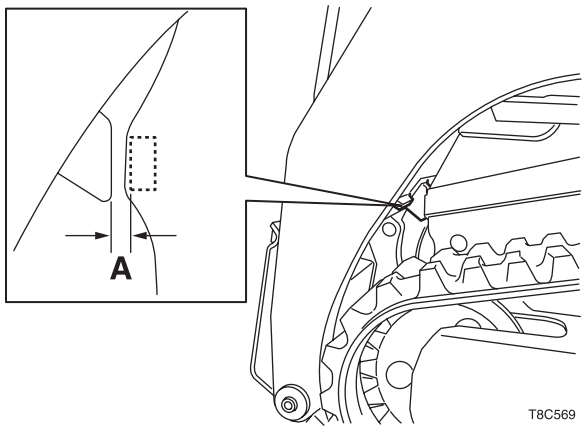
4. Start the engine, and lower the lift arm.
   - The lift arm must be positioned at the height of approximately 500 mm above the ground.



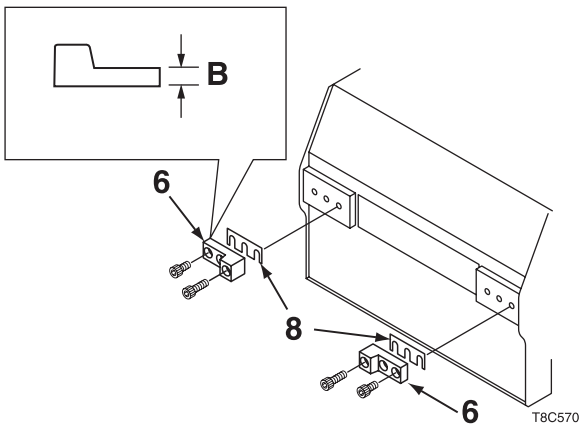
5. Press the float switch of the right control lever to lower the lift arm, and stop the engine.



6. Measure and take note of the clearance A on the right and the left side.



7. Install the stopper (6) and the shim (8) to each of the right and left frames, and fasten them with the Allen bolts.
   - The shim must be such that the thickness of the section B (26 mm thick) of the stopper (6) plus the shim is one millimeter larger than the clearance A measured in Step 3.
   - Make sure that the lift arm presses against the right and left stoppers at the same time.
   - Allen bolts: Apply the thread-locking compound (ThreeBond #1324).
   - Allen bolt tightening torque: 476 N·m



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When you turn on the air conditioner at the control panel (1), the thermostat (2), is supposed to sense a warm temperature at the evaporator. A circuit in the thermostat should close, allowing current to flow through the thermostat to the compressor clutch field coil (3). When this happens, the clutch field coil becomes an electromagnet and pulls the clutch drive plate (4) tight against the clutch pulley (5).

Note: The same AC switch (1) may also turn on the fan or blower motor (2a) to circulate air in the cab. The air feels warm at first but will cool quickly.

A belt connects the clutch pulley to a drive pulley (6) on the engine. The engine provides the power to turn the clutch pulley and drive the compressor (7) when the clutch is engaged. When operating, the compressor compresses and pushes refrigerant gas to the condenser (8), through the receiver-drier (9), and to the expansion valve (10) orifice. When it does, it puts a lot of pressure on the gas. The compressor raises the temperature and pressure of the refrigerant inside the high side of the system.

At the same time, the compressor is also sucking in low pressure refrigerant gas from the expansion valve orifice, evaporator and through the low side of the system. The movement of the refrigerant inside the system transfers heat energy from the cab to the outside air for occupant comfort.

The automatic functions of the thermostat (or the pressure valve on some accumulators), and the expansion valve, help maintain pressures and temperatures inside the system at safe and efficient operating levels. Pressure and temperature are constantly changing due to compressor and expansion valve action, the amount of heat energy being moved and the environment or weather conditions.

The engine cooling system fan and clutch (11), and the evaporator blower motor (2a), move a sufficient amount of air through the condenser and evaporator. On the road, vehicle speed provides most of the (ram) air required for the condenser to work right. In a parked or slow moving vehicle the engine fan (or roof or remote mounted condenser and fans) moves sufficient air through the condenser fins.

Note: Clean refrigerant and refrigeration oil should be inside the system in the amount specified by the manufacturer. Moisture, sludge (moisture combined with refrigerant oil or desiccant), or desiccant particles will prevent the correct performance of the system and may cause component damage.

A Troubleshooting Example

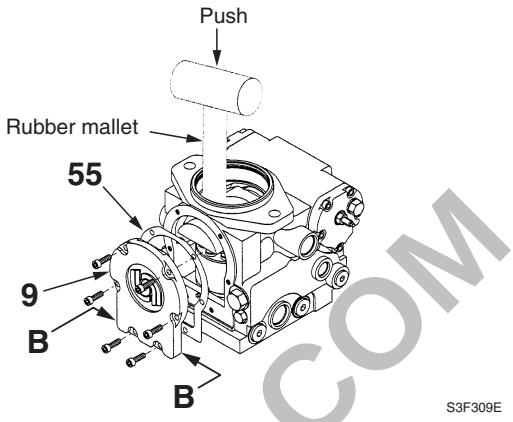
Remember the story at the beginning of this chapter? The vehicle operator pulled in off the road and asked you to repair the rig. He was in such a hurry he didn't tell you anything except that the air conditioner wasn't cooling. Here is the best way to handle that kind of situation.

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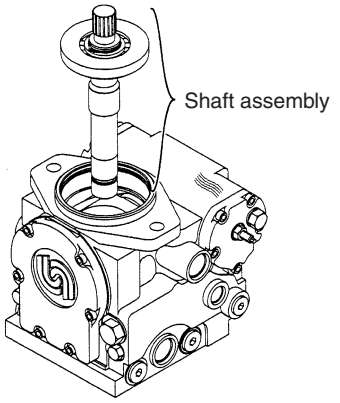
16. Install the side cover.
    a. Push down the swash plate to mate with the bearing of the side cover (9).
    b. Install the gasket (55) and the side cover (9).
       • Install the two bolts (that are longer than the Allen screws for securing the side cover) temporarily as the positioning guides.
    c. Mate the side cover (9) with the housing installation hole.
       • Tap the side cover lightly with a rubber hammer.
    d. Remove the two bolts used as the positioning guide, and install the six cap screws.
       • Tighten the cap screws, starting from the one at the lower-left corner counterclockwise.
       • Make sure the swash plate does not interfere with the side cover and the needle bearing.

       Cap Screw: 15~17.5 N·m



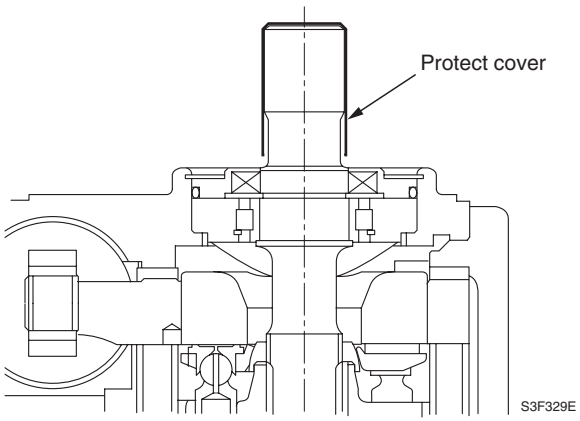
S3F309E

17. Install the shaft assembly to the housing.
    • Make sure the cylinder block's hold-down pin is installed at right angles in the gutter.



S3F308E

18. Install the cover to the shaft spline to protect the seal carrier.
    • Use a plastic sleeve or its equivalent.



S3F329E

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INSPECTION AND ADJUSTMENT

Checking the Parts

Part	Judgment Criteria	Treatment
Coil assembly	• When the solenoid is burned, short-circuited, or has a wire break • Wiring short-circuit or wire break	• Replace • Replace
Housing	• Scratches, rust, or corrosion at the sliding parts with the spool • Scratches, rust, or corrosion of the seal part in contact with the O-ring • Other damage considered to impair the normal functions	• Replace • Replace • Replace
Spool	• Damage on the outer circumference which catches a fingernail • No smooth movement	• Replace • Adjust or replace
Spring	• Rust, corrosion, deformation, breakage, or other notable damage	• Replace
O-ring	——	• Replace

TROUBLESHOOTING

Symptom	Main Causes	Remedy
Solenoid valve does not operate	• Wiring short-circuit or wire break • Coil assembly short-circuit or wire break • Catching of foreign matter by the spool • Damage on the outer circumference of the spool • Defective the proportional controller • Primary pressure is insufficient	• Replace • Replace • Overhaul and repair or replace • Overhaul and repair or replace • Repair or replace • Keep the primary pressure
Oil leakage from solenoid valve	• Damaged O-ring • Damaged seal nut	• Replace • Replace

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OPERATION

Hydraulic Motor

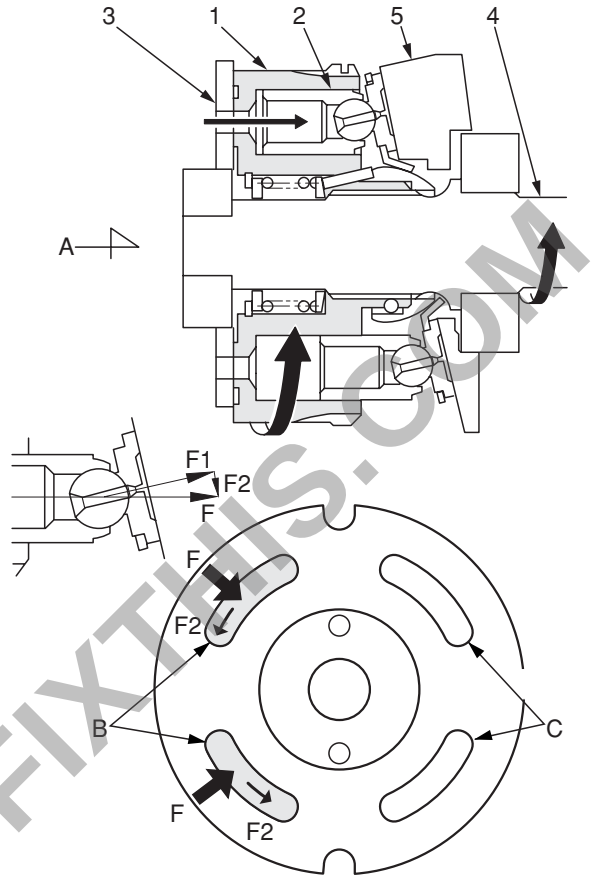
9 pistons (2) are fitted in the cylinder block (1) and there is a valve plate (3) with two half moon ports, B and C in the end. Also, the cylinder block (1) rotates freely and is joined to the shaft (4) via the spline. On the other band, the swash plate (5) is fastened to the housing.

When high pressure oil is introduced into port B, one piston (2) makes contact and force F bears on the swash plate (5).

F = P × A P: Pressure A: Piston Sectional Area

The force F which the piston (2) applies to the swash plate (5) is divided into force F1, which pushes the plate, and force F2, which rotates the cylinder block (1). The total sum of the components in the direction of rotation of the high pressure side piston generates a rotational force in the cylinder block (1) and via the spline, torque is transmitted to the shaft (4), turning it.

Conversely, if high pressure oil is introduced to port C, rotation is the reverse of the above.



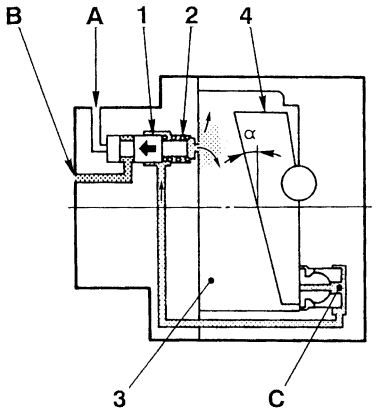
C4D553

2-Speed Mechanism

1st speed

When the pilot pressure is not supplied from port A, the valve (1) is pushed to the left side by the force of the spring (2) and the hydraulic oil of supply port B is cut off. At this time, the oil in chamber C is released into the motor case (3) via the valve (1).

Because of this, the swash plate (4) is set to the maximum angle of inclination a, the motor's piston stroke capacity is the maximum, and the motor turns at 1st (low) speed.



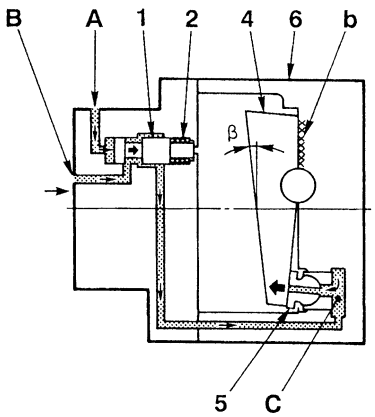
T7D503

2nd speed

When the pilot pressure is supplied from port A, the pilot pressure overcomes the force of the spring (2), and the valve (1) is pushed to the right side. The hydraulic oil of supply port B flows into chamber C through the valve (1), the piston (5) pushes up the swash plate (4) until it touches surface "b" of the spindle (6) and keeps it against this surface.

At this time, the swash plate (4) is set to the minimum angle of inclination β, the motor's piston stroke capacity is the minimum, and the motor turns at 2nd (high) speed.

When the engine is stopped, the pilot pressure is cut off, so the speed switches to 1st.



T7D504

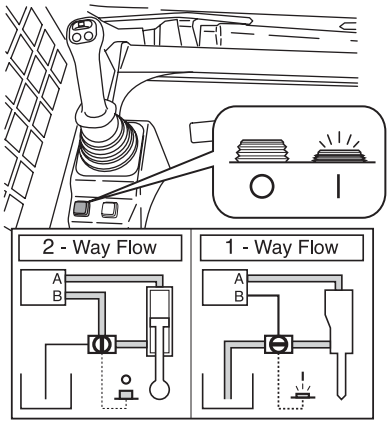
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SWITCHING BETWEEN 2-WAY FLOW AND 1-WAY FLOW IS IMPOSSIBLE.

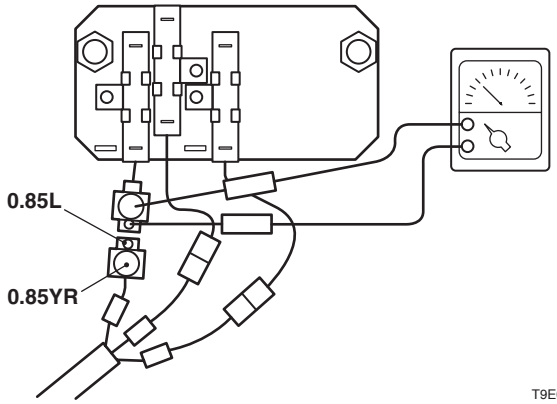
1	Inspect the flow selector switch.	Faulty	Repair or replace the selector switch.
2	Inspect the resistor.	Faulty	Replace the resistor.
3	Inspect the flow selector solenoid.	Faulty	Repair or replace the flow selector solenoid.

1. Inspect the flow selector switch.
   Set the safety bar to the driving position and turn the proximity switch and the starter switch to the "ON" position. Push the flow selector switch to "ON". If the green lamp lights, the switch is normal.



T9E008E

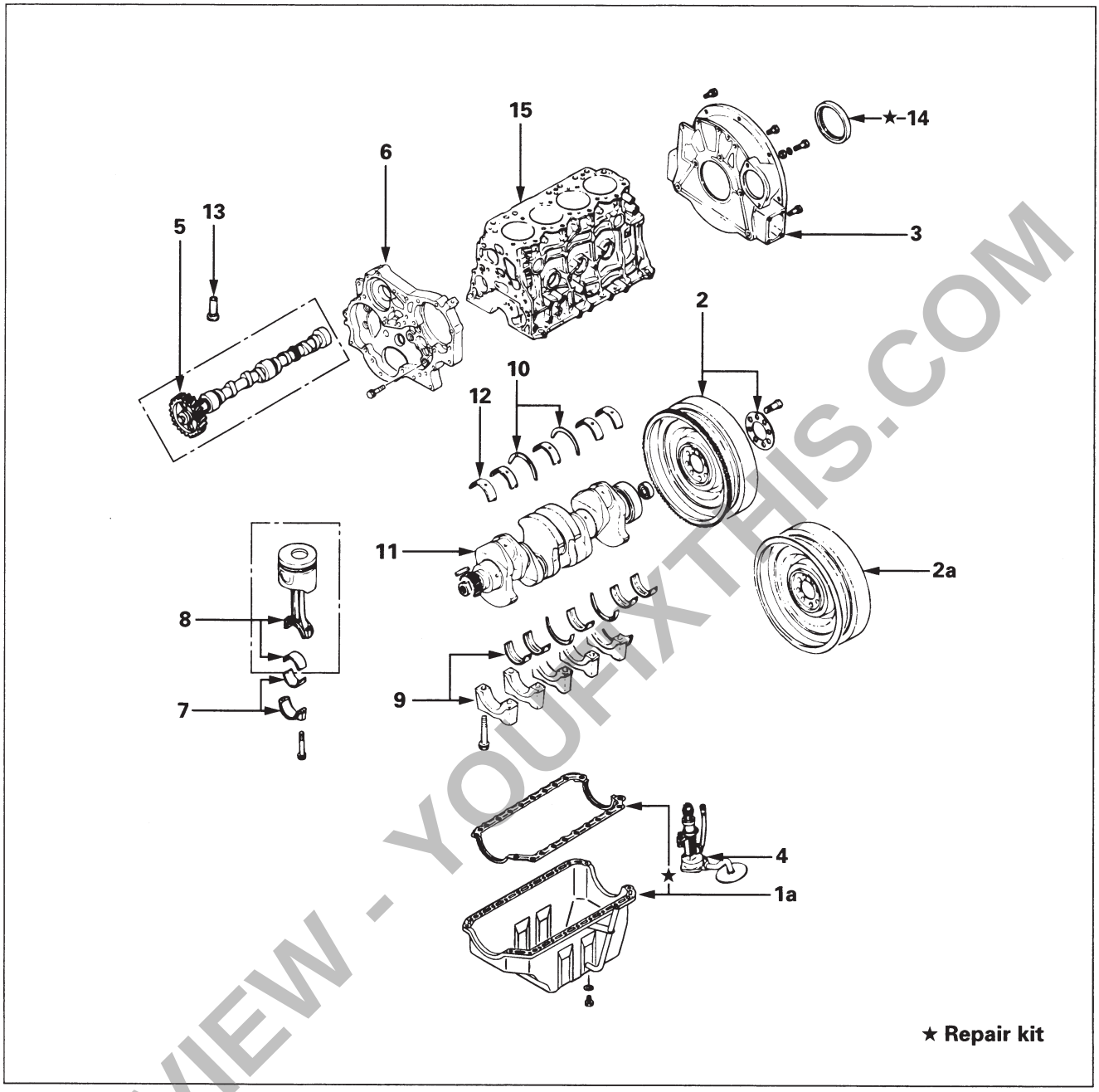
2. Inspect the resistor.
   Disconnect the wirings (0.85YR, 0.85L) from the resistor and check for continuity with a tester.



T9E009

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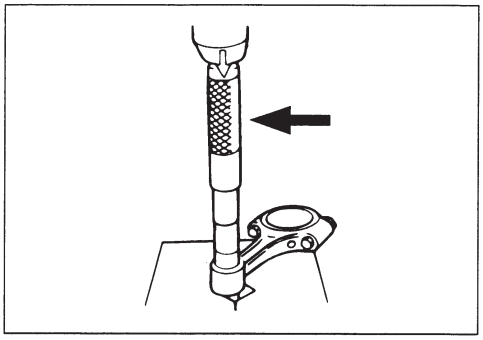


Disassembly Steps - 3

1. Oil pan
▲ 2. Flywheel
2a. Rear flywheel (If so equipped)
3. Flywheel housing
4. Oil pump with oil pipe
▲ 5. Camshaft with camshaft timing gear and thrust plate
6. Timing gear case
▲ 7. Connecting rod cap with lower bearing
▲ 8. Piston and connecting rod with upper bearing
▲ 9. Crankshaft bearing cap with lower bearing
10. Crankshaft thrust bearing
11. Crankshaft with crankshaft timing gear
▲ 12. Crankshaft upper bearing
▲ 13. Tappet
14. Crankshaft rear oil seal
15. Cylinder body

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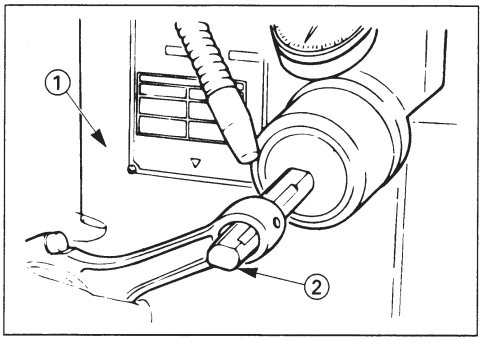
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Connecting Rod Bushing Installation

1. Clamp the connecting rod in a vice.
2. Use the connecting rod bushing installer to install the connecting rod bushing.

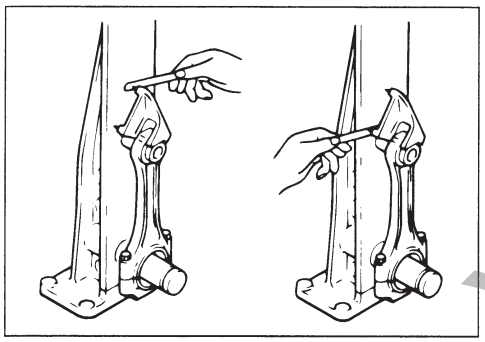
Connecting Rod Bushing Replacer:



3. Use a piston pin hole grinder ① fitted with a reamer ② to ream the piston pin hole.

Inner Diameter of Small End Bushing mm(in)

Standard
34.008 – 34.015 (1.3389 – 1.3392)



CONNECTING ROD

Connecting Rod Alignment

Use a connecting rod aligner to measure the distortion and the parallelism between the connecting rod big end hole and the connecting rod small end hole.

If either the measured distortion or parallelism exceed the specified limit, the connecting rod must be replaced.

Connecting Rod Alignment

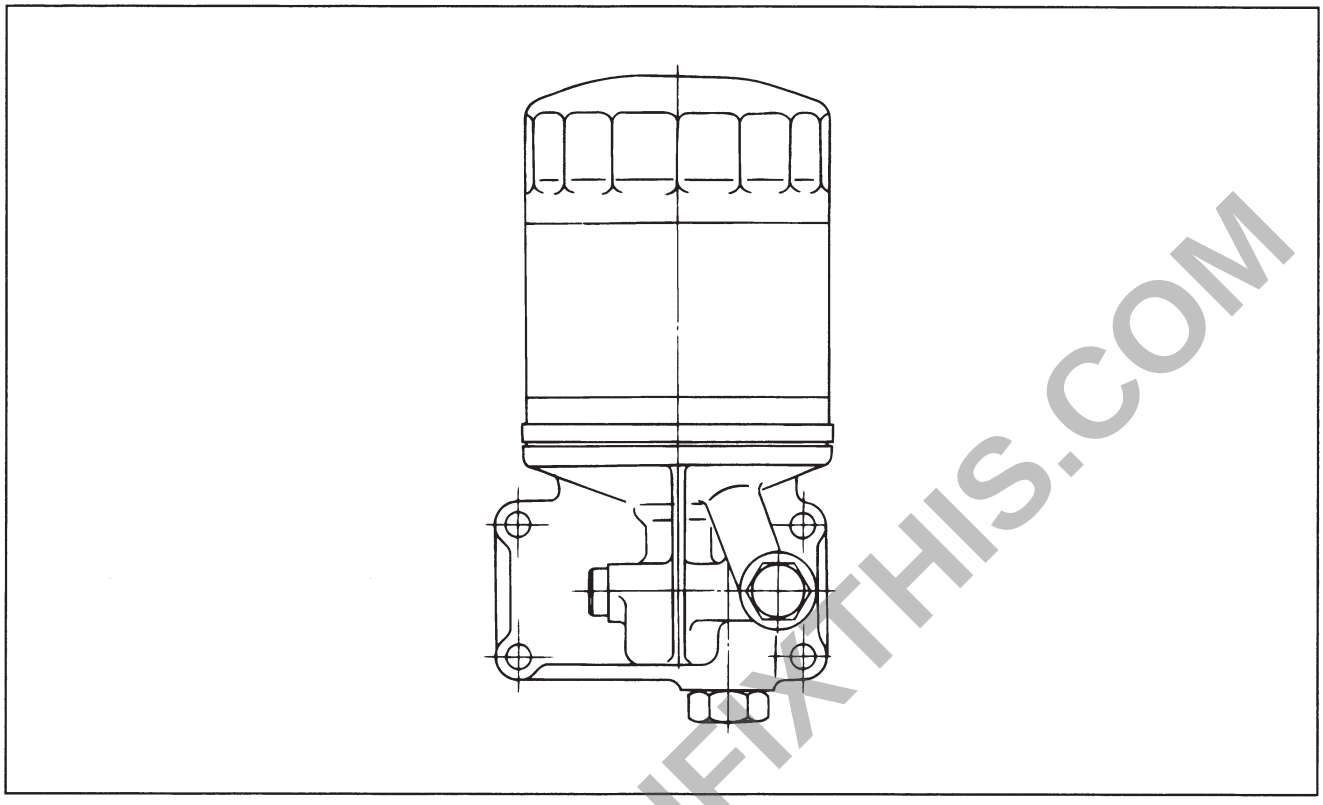
Per Length of 100 mm (3.94 in) mm(in)

	Standard	Limit
Distortion	0.05 or Less (0.002)	0.20 (0.008)
Parallelism		0.15 (0.006)

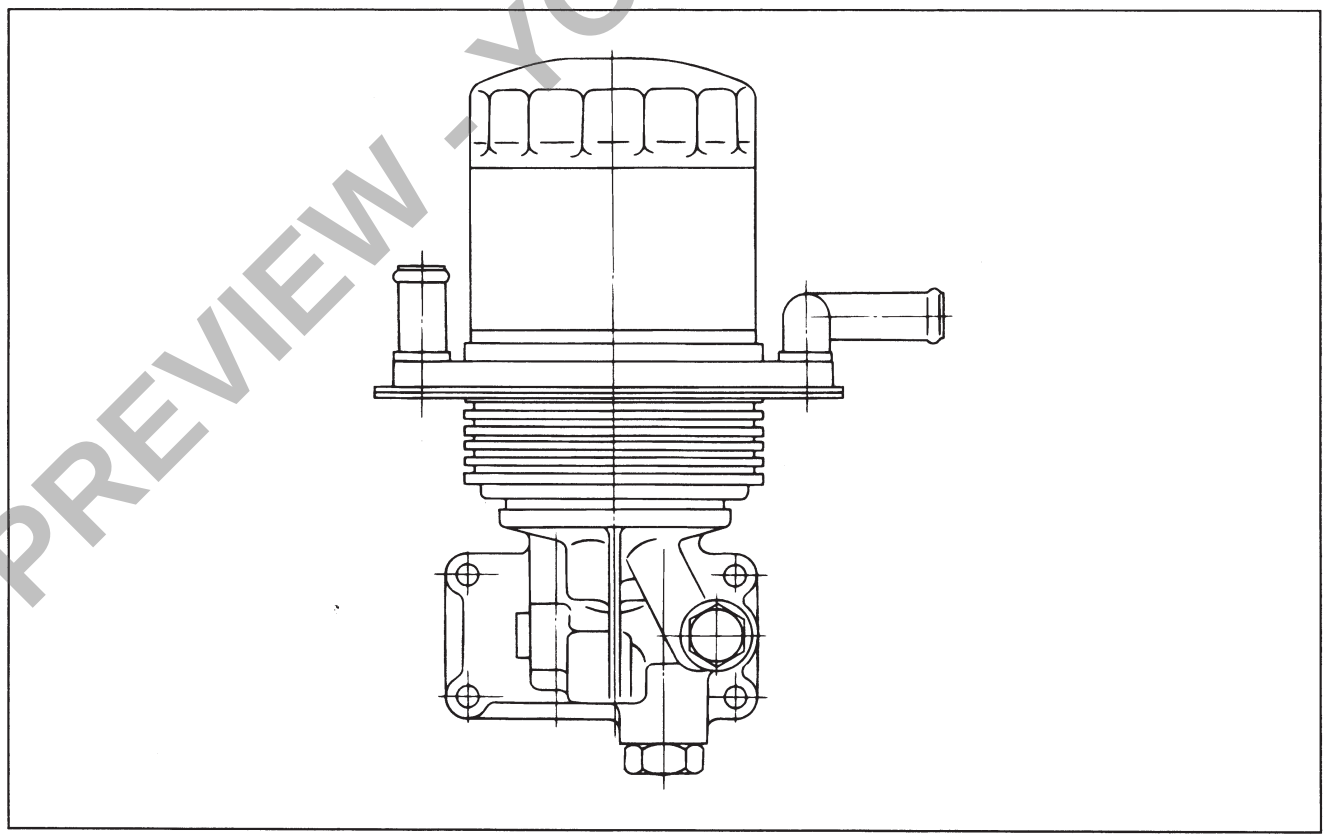
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MAIN OIL FILTER



OIL FILTER WITH BUILT-IN OIL COOLER



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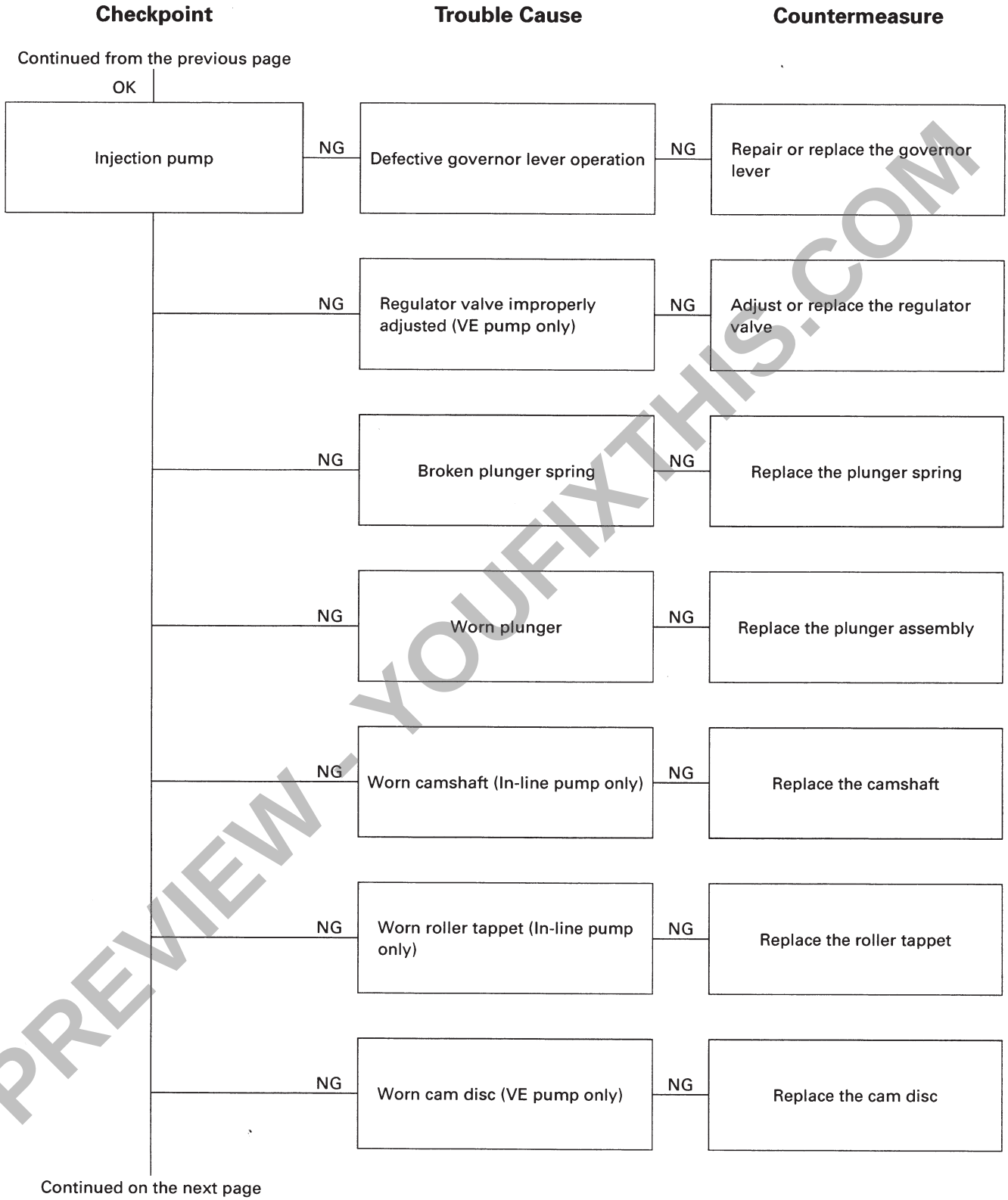
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