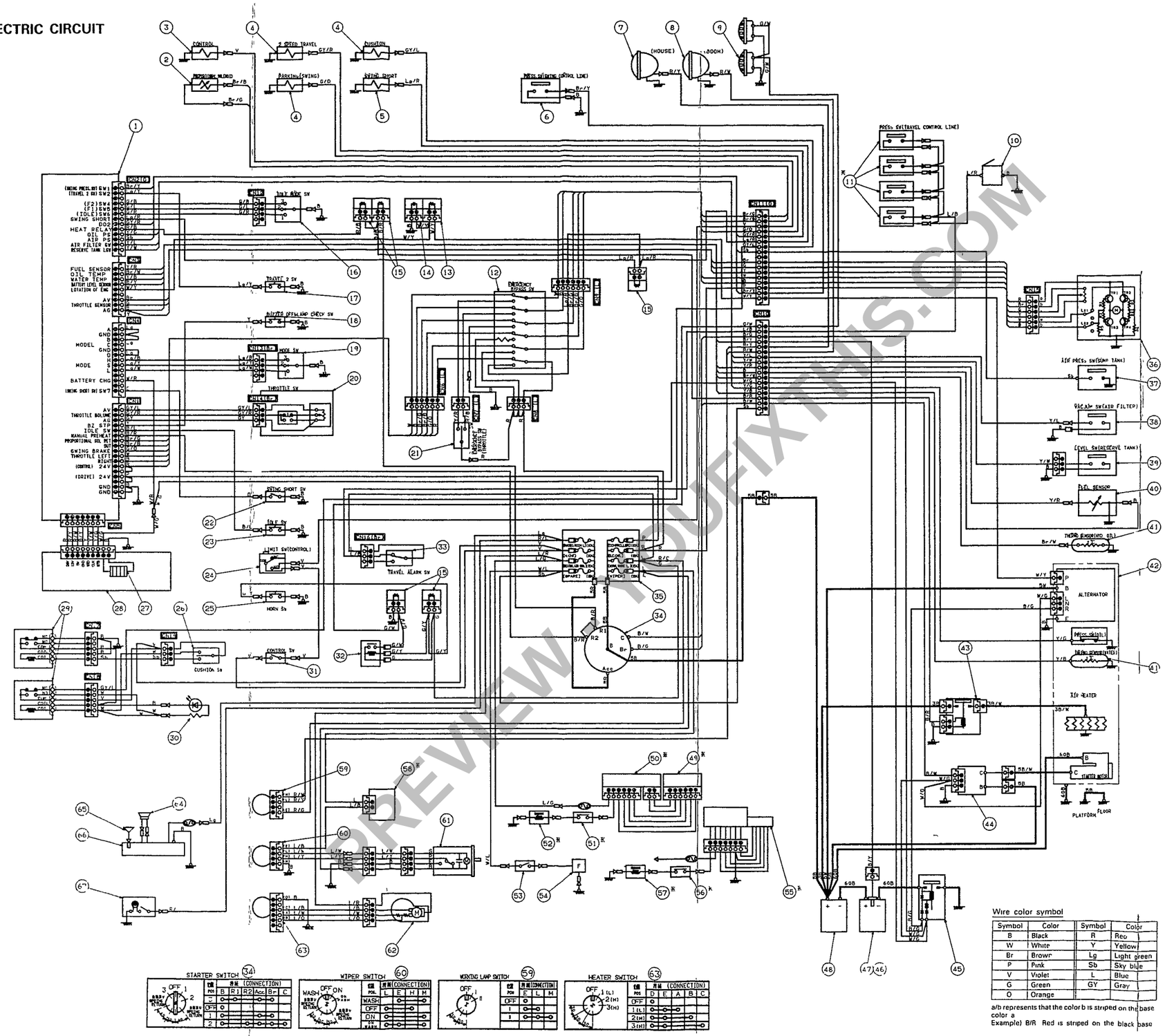
ELECTRIC CIRCUIT



SYM	DESCRIPTION	QTY
1	CONTROLLER	1
2	PUMP;HYD	1
3	VALVE;SOLENOID	1
4	VALVE;SOLENOID	3
5	VALVE;SOLENOID	1
A	SWITCH;PRESS	1
	LAMP;WORKING	1
	LAMP;WORKING	1
B	HORN;DOUBLE	1
	ALARM;SPL	1
10	SWITCH;PRESS	1
11	SWITCH(KICK UP)	1
12	RESISTOR	1
13	CONDENSER	1
14	DIODE	1
15	SWITCH;ROTARY(IDLE)	5
	SWITCH;PUSH BUTTON	1
17	SWITCH;PUSH BUTTON	1
18	SWITCH;ROTARY(MODE)	1
19	SWITCH(THROTTLE)	1
20	SWITCH;TOGGLE	1
21	SWITCH ROCKER(SWING)	1
22	KNOB(SWITCH)	1
23	SWITCH;LIMIT	1
24	KNOB(SWITCH)	1
25	SWITCH;ROCKER	1
26	METER;HOUR	1
27	MONITOR DISPLAY ASSY	1
28	RELAY	1
29	LAMP;PILOT	2
30	SWITCH ROCKER	1
31	RELAY;HORN	1
32	SWITCH;ROCKER	1
33	SWITCH;STARTER	1
34	BOX;FUSE	1
35	MOTOR;THROTTLE	1
36	SWITCH;PRESS	1
37	SENSOR;VACUUM	1
38	TANK;RESERVE	1
39	SENSOR;FUEL	1
40	SENSOR;THERMO	1
41	ENGINE;DIESEL	2
42	RELAY;HEATING	1
43	RELAY;SAFETY	1
44	RELAY;BATTERY	1
45	BATTERY(SENSOR)	1
46	SENSOR;SPL(LEVEL)	1
47	BATTERY	1
48	AIR CONDITIONER(UNIT)	1
49	AIR CONDITIONER(PANEL)	1
50	AIR CONDITIONER(COMPRESSOR)	1
51	SWITCH;TOGGLE	1
52	FAN	1
53	COOLER(UNIT)	1
54	COOLER(DRIER)	1
55	COOLER(COMPRESSOR)	1
56	WINDOW WASHER	1
57	SWITCH;ROTARY(LAMP)	1
58	SWITCH;ROTARY(WIPER)	1
59	MOTOR;WIPER	1
60	HEATER;CAR	1
61	SWITCH;ROTARY(HEATER)	1
62	SPEAKER	1
63	ANTENNA	1
64	RADIO SET	1
65	LAMP;ROOM	1
67		1

Note
1 * IS OPTIONAL
2 Earth symbols and wire crossing symbols are as illustrated below

Bind wire | Body earth | with earth wires | Two wires are connected | Two wires are not connected

3 The codes above wires represent wire colors, and numbers before the codes represent cross sectional areas of the wires Unless otherwise specified the areas are 0 5sq
4 Connectors are indicated as illustrated below

Connector (male) Terminal (female) | Connector (female) Terminal (male)

Connector No CN— ( ) Connector color (Unless otherwise specified it represents W)

Wire color symbol

Symbol	Color	Symbol	Color
B	Black	R	Red
W	White	Y	Yellow
Br	Brown	Lg	Light green
P	Pink	Sb	Sky blue
V	Violet	L	Blue
G	Green	GY	Gray
O	Orange		

a/b represents that the color b is striped on the base color a
Example) B/R Red is striped on the black base

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HYDRAULIC SYSTEM

This machine carries out all functions such as traveling, swing, excavation, etc. by hydraulic pressure. The system can be roughly divided in two

- Hydraulic actuator
- Control device

Hydraulic actuator

This is composed of main hydraulic device which directly actuates traveling, swinging and excavating devices, and two hydraulic devices

No. 1 pump → Control valve → Right travel, Boom II-speed, Swing, Arm I-speed

No. 2 pump → Control valve → Left travel, Spare, Boom I-speed, Bucket, Arm II-speed

No 3 pump → Pilot valve

(Pilot pump)

Hydraulic system

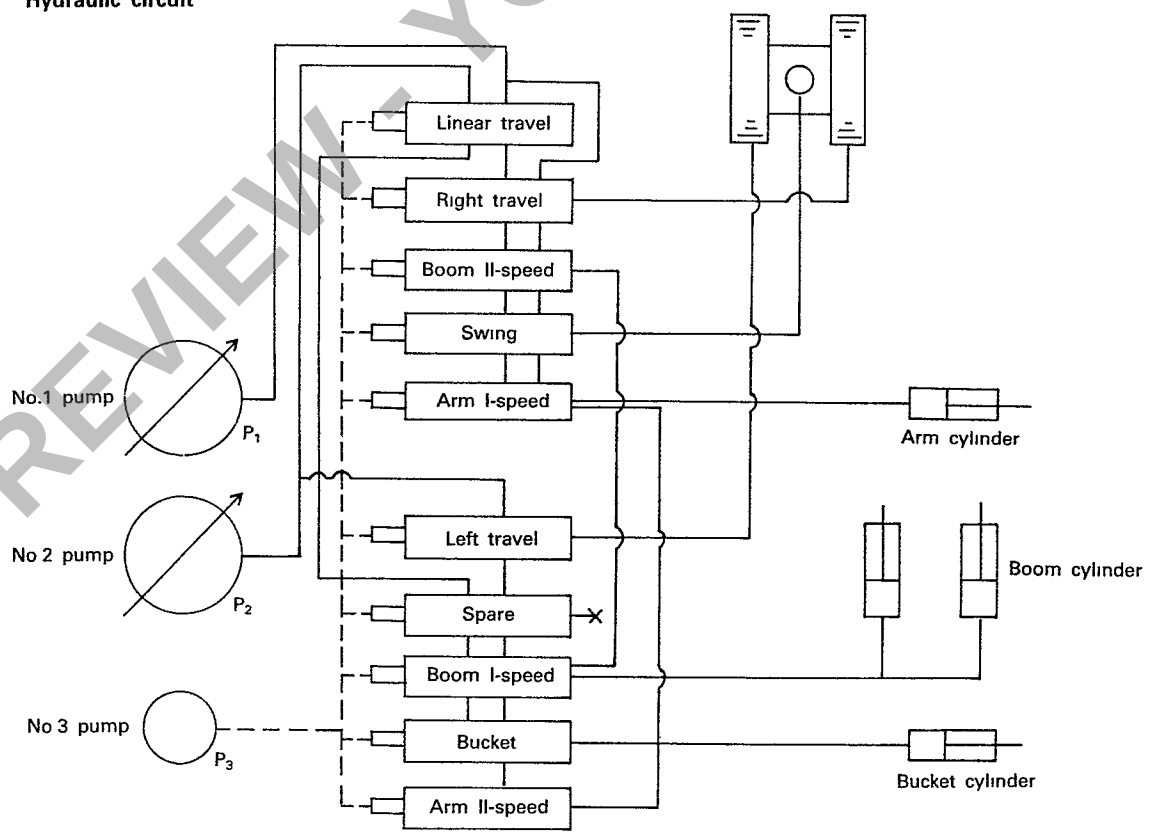
To carry out the functions described to the left, actuate the control valve to supply hydraulic oil to the device.

The control valve uses the pilot method to operate the hydraulic system, and can be operated with a light touch.

No 3 Pump → Shutoff valve → Pilot valve → Control valve

When the shutoff valve is in the OFF position (the control switch is at OFF, or the console box is raised up), pilot pressure is stopped and no operations are possible.

Hydraulic circuit



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(Every 50 hour maintenance)

Perform the following after first 50 hours of operation.

- Change engine oil. (ISUZU Engine)
- Change engine oil filter (Full flow & By-pass) element. (ISUZU Engine)
- Change pilot oil filter element.
- Change hydraulic oil return filter element.
- Change drain filter element.

  Refer to the section entitled **"Every 500 hour maintenance"** for procedure.
- Retightening of bolts and nuts.

  Check fixing bolt for each attachment pin and clamps for muffler and air cleaner for looseness. Retighten if necessary.

  Refer to the section entitled **"Every 250 hour maintenance"** for bolt tightening torque.

(Every 50 hour maintenance)

Greasing of front attachment pins.

Apply grease at the points indicated by the arrows

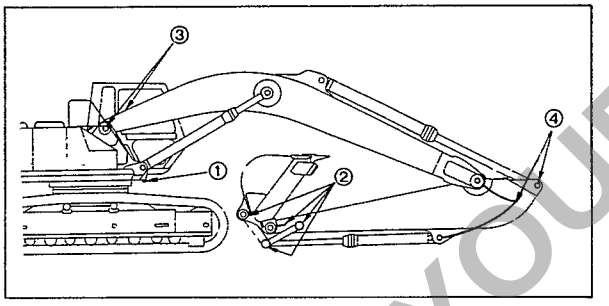


Fig. ①

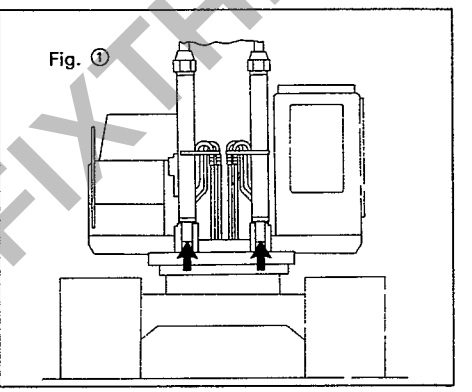


Fig. ③

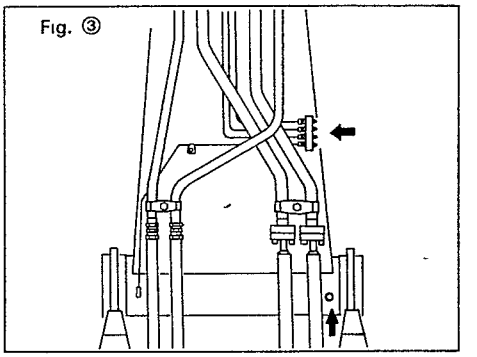


Fig ②

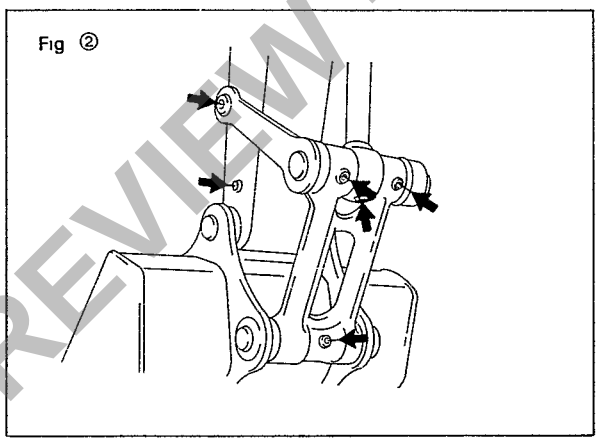
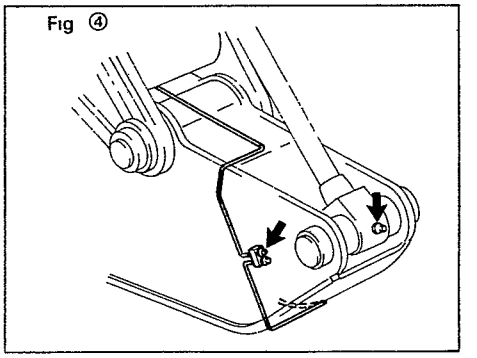


Fig ④



★ As for front attachment pin, daily lubrication is recommended in case of severe operation in water

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Every 250 hour maintenance

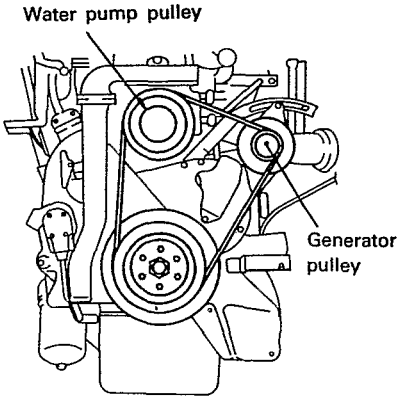
Fan belt tension checking and adjustment: (ISUZU Engine)

Push (about 22lb, 10kg) the fan belt at a point between the generator and the water pump. The standard bending is 0.4in (10mm). Adjust the tension by using the adjusting nut.

(Refer to "Operation manual for engine")

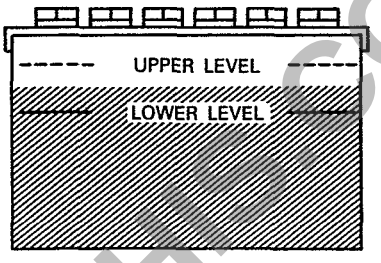
★ If the fan belt is so extended that there is no allowance for adjustment, replace it with a new belt.

★ When the belt is replaced, run the engine for about 1 hour, and then recheck the tension.



Checking the battery solution level

Since the battery solution decreases with repeated charging and discharging, check to see that the solution is at the proper level.



Bolt tightening

Check the torque on every bolt and nut and, if necessary, tighten them in accordance with the following table, otherwise a serious accident may be caused.

Bolt tightening torque table

	Bolt to be tightened	Bolt size	Hex size	Tightening torque	
1	Turntable bearing mounting bolt	M24	36 mm	665~774 ft lb	92.0~107.0 kg m
2	Swing reduction gear mounting bolt	M24	36 mm	665~774 ft·lb	92 0~107 0 kg·m
3	Engine mounting bolt				
	Radiator side	M12	19 mm	40~47 ft·lb	5 5~6 5 kg·m
	Pump mounting side	M20	30 mm	213~249 ft lb	29.5~34 4 kg·m
4	Radiator mounting bolt	M16	24 mm	105~127 ft·lb	14 5~17.5 kg·m
5	Hydraulic pump mounting bolt				
	Pump mounting	M10	17 mm	46~54 ft lb	6.4~7 4 kg·m
	Coupling hub mounting	M16	Hexagon hole	72~87 ft lb	10.0~12 0 kg·m
6	Oil tank mounting bolt	M16	24 mm	137~152 ft lb	19.0~21.0 kg·m
7	FUEL tank mounting bolt	M16	24 mm	137~152 ft lb	19.0~21.0 kg·m
8	Control valve mounting bolt	M16	24 mm	105~127 ft·lb	14 5~17 5 kg·m
9	Operator's cab mounting nut	M16	24 mm	105~127 ft lb	14.5~17.5 kg m
10	Travel reduction gear mounting bolt				
	Planetary section	M24	36 mm	664~775 ft·lb	91 8~107.2 kg·m
	Final stage reduction section	M20	30 mm	384~448 ft·lb	58.1~62.0 kg·m
11a	Shoe mounting bolt	3/4"	1 1/8"	579~651 ft lb	80.0~90 0 kg m
11b	Shoe mounting bolt	7/8"	1 5/16"	752~825 ft·lb	104 0~114 0 kg·m
12	Carrier roller mounting bolts	M20	30 mm	664~775 ft·lb	91.8~107.2 kg m
13	Track roller mounting bolt	M20	30 mm	384~448 ft lb	53.1~62 0 kg·m
14	Counterweight mounting bolts	M27	41 mm	506~651 ft·lb	70.0~90.0 kg·m

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TROUBLESHOOTING

In order to extend the life of the machinery and raise the operation rate, along with daily inspections as well as oiling and greasing, should any problem be noticed, the cause should be found, and the problem fixed immediately. If operation continues with this problem, it could cause an even greater problem, and extensive damage

If there is trouble, check the cause, from the items given below, and make the necessary adjustments or repairs. When the cause is uncertain, consult your distributor.

Engine and its auxiliary parts

(Refer to the manufacturer's manual for details.)

Problem	Probable cause	Solution
Starter motor will not turn	Improper electrical wiring Insufficient battery charging	Repair Charge
Starter motor turns but the engine will not start	There is air or water mixed in the fuel Insufficient fuel (FUEL lamp flashing) Insufficient engine warm-up (GLOW lamp flashing)	Check, replace Add fuel Warm up
The BATT lamp flickers	Insufficient battery fluid Battery is out of order	Add fluid Replace
The charging lamp comes on	The alternator is out of order	Repair
The oil lamp comes on	Insufficient engine oil amount Clogging of the oil filter Defective pressure oil switch	Add oil Clean or replace Replace
Over heating of the water (More than 8 bar graph segments are illuminated)	Improper adjustmentor or damaged fan belt Insufficient coolant, leakage (LEVEL lamp is on) Defective thermostat (HEAT lamp is on) Engine over-heating (HEAT lamp is on)	Adjust tension replace Add coolant Replace See Engine Manual
Water temperature gauge will not rise (No bar graphs visible)	Defective thermostat (Flashing W-UP lamp)	Replace
White engine exhaust	Excessive engine oil Insufficient fuel	Adjust to the designated amount Replace
Black engine exhaust	Defective nozzle Clogged air cleaner (FILTER lamp is on)	Replace Clean or replace
Abnormal noise (in engine or machinery)	Low-quality fuel Damage to muffler	Replace Repalce

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LUBRICATION CHART

LS-4300CII LUBRICATION CHART (ISUZU Engine)

REF. NO.	DESCRIPTION	NO. POINTS	SPECIFICATION	INTERVAL (hr)					
				50	100	250	500	1000	2000
①	FRONT ATTACHMENT PIN	12	EP GREASE	○					
②	TURNTABLE BEARING	3			○				
③	SWING RING GEAR	27kg, 59 5lb					○		
④	ENGINE OIL PAN	33ℓ, 8 7gal	ENGINE OIL	△		◎			
⑤	SWING GEAR REDUCER	14 5ℓ, 3 8gal	GEAR OIL			△		◎	
⑥	TRAVEL GEAR REDUCER	8.5ℓ×2, 2 2gal×2				△		◎	
⑦	HYDRAULIC SUMP TANK	152ℓ, 40 2gal	HYDRAULIC OIL						◎
⑧	ENGINE RADIATOR	34ℓ, 9 0gal	WATER WITH LONG LIFE COOLANT	EVERY 2 YEARS					
⑨	FUEL TANK	500ℓ, 132 1gal	LIGHT OIL	WHEN REQUIRED					
Ⓐ	PILOT LINE FILTER	1	ELEMENT	△			◎		
Ⓑ	FUEL FILTER	1	ELEMENT				◎		
Ⓒ	ENGINE OIL FILTER FULL FLOW	1	ELEMENT	△		◎			
Ⓓ	ENGINE OIL FILTER BY-PASS	1	ELEMENT	△		◎			
Ⓔ	RETURN FILTER	1	ELEMENT	△			◎		
Ⓕ	SUCTION FILTER	1	ELEMENT				□		◎
Ⓖ	DRAIN FILTER	1	ELEMENT	△			◎		
Ⓗ	AIR CLEANER	1	ELEMENT			□		◎	

○ . LUBRICATE GREASE
△ CHANGE INITIALLY
◎ CHANGE OIL OR REPLACE ELEMENT
□ CLEAN

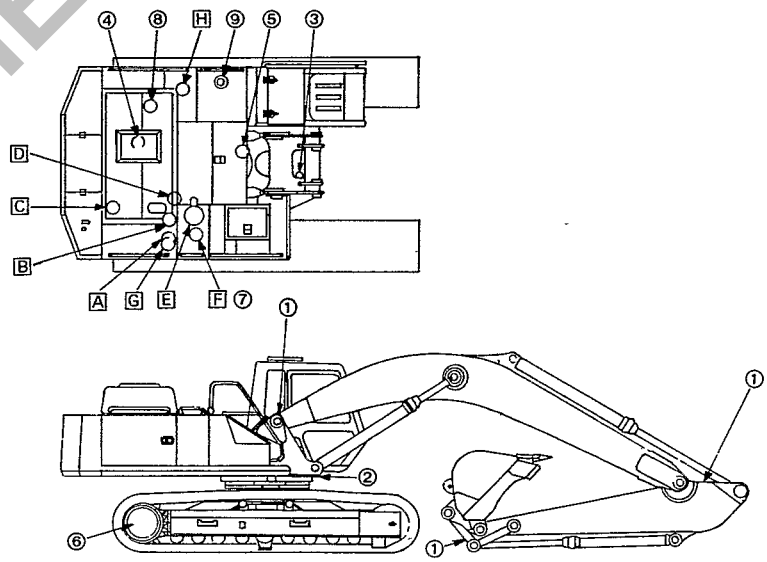
RECOMMENDED GREASE AND OIL SPEC ARE AS FOLLOWS.

EP GREASE	LITHIUM GREASE NO 2
ENGINE OIL	API CD SAE 30
GEAR OIL	API GL-4 SAE 90
HYDRAULIC OIL	ISO VG 32

NOTES 1 AS FOR FRONT ATTACHMENT PIN, DAILY LUBRICATION IS RECOMMENDED IN CASE OF SEVERE OPERATION IN THE WATER
2 THIS CHART IS PRIOR TO THE ENGINE INSTRUCTION MANUAL
3 INTERVAL HOURS ON THIS CHART ARE BASED ON SAE J752b AS FOLLOWS

50 (OR WEEKLY) *	500 (OR 3 MONTHS) *
100 (OR 2 WEEKS) *	1000 (OR 6 MONTHS) *
250 (OR MONTHLY) *	2000 (OR YEARLY) *

*WHICHEVER OCCURS FIRST



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OPERATIONS

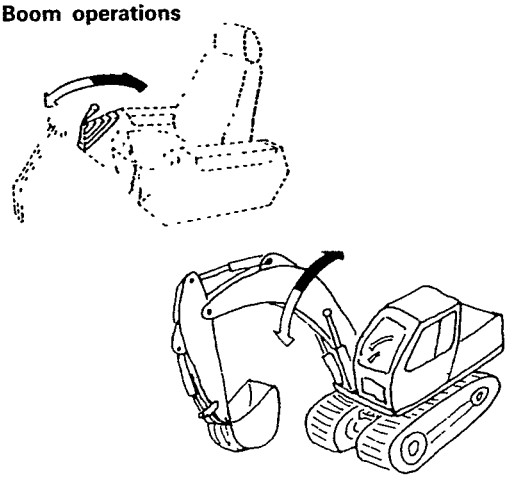
The work unit is operated by the right and left operation levers. The operations controlled by these levers are as follows:

Right operation lever· boom and bucket operations

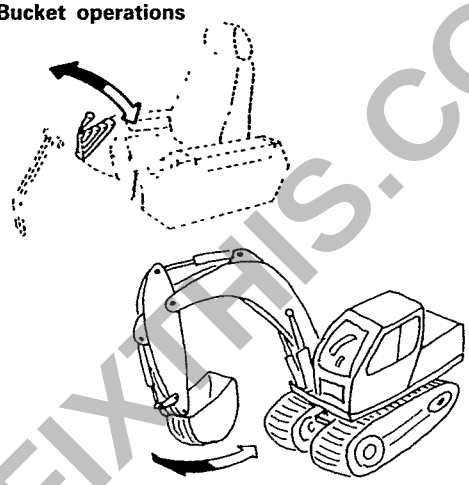
Left operation lever. Arm and swing operations

The levers will return to the neutral position when released, the function will stop, and the work unit will be maintained at that position.

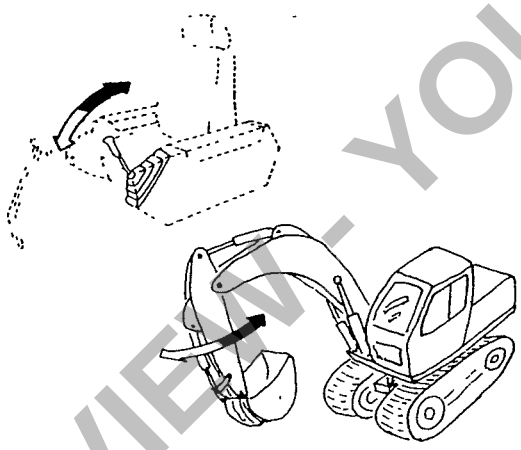
Boom operations



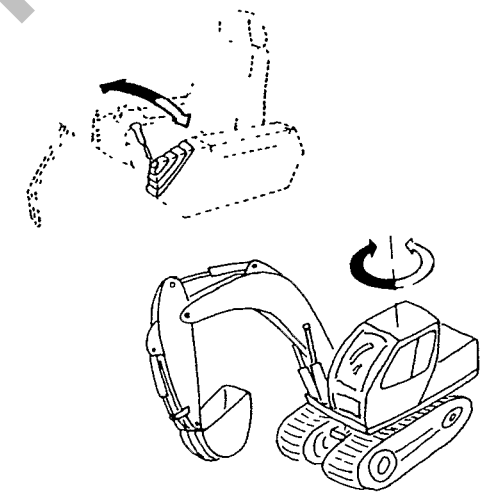
Bucket operations



Arm operations



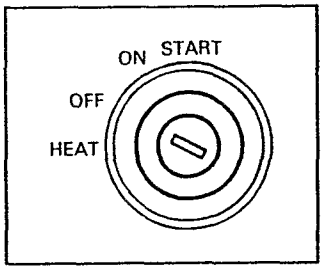
Swing operations



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Starter switch



Machines 265U2–5368, 270U2–5302, 280U2–5557, 340U2–5473, 430U2–5547 and before

OFF
Key can be inserted or removed in this position. All the power is off.

ON
Used while engine is running.

⚠ CAUTION

◆ Be sure to keep the key in ON position while engine is running. Moving it to OFF position may damage the electric system.

Machines 265U2–5369, 270U2–5303, 280U2–5558, 340U2–5474, 430U2–5548 and after

OFF
Key can be inserted or removed in this position. All the power is off.
To stop the engine, turn the key to OFF.

ON
Used while engine is running.

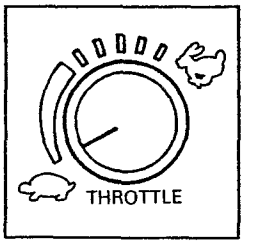
START
Cranks the starter motor to start the engine. Release it as soon as engine starts. Key will automatically return to ON position

⚠ CAUTION

◆ If the engine dose not start on the first attempt, crank the starter for 10 – 15sec., then allow it to cool for 10 – 15 sec. If the engine starting performance is poor during cold weather, it is O. K. to crank the starter continuously for about 30 sec.

HEAT (Machines 430U2-5610 and before)
Used for preheating the air intake when engine is difficult to start in winter. (Only when preheating manually.) Returns to OFF position when released.

Throttle Dial
Position is the setting for the lowest engine rpm. Turning the switch to the right gradually increases engine rpm, and position is the maximum rpm setting.



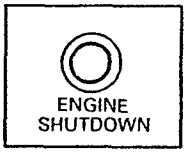
◆ Resonating when the engine speed is lowered can cause vibrations. Vibration can be stopped by slightly increasing rpm.

Lamp Check/Buzzer Stop Switch
All lamps on the monitor should come on when this switch is pressed. Any lamp which does not come on at this time, check the system or lamp. It may by defective and should be replaced.



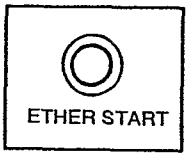
This switch can also be pressed to stop the buzzer from sounding.

Engine Stop Switch (Machines 430U2-5610 and before)
The engine will stop when this switch is pressed.



◆ The throttle speed dial should be turned to its lowest setting when stopping the engine.

Ether Start button (Machines 430U2-5611 and after)
Used in cold weather only, to inject starting fluid (ether) in the intake manifold to did in starting the engine.



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HYDRAULIC HAMMER ATTACHMENT

General Information And Precautions

Special attachments, including the hydraulic hammer are used quite often on some machines. Pay particular attention to the additional precautions listed here when using a hydraulic hammer.

1. Read and understand the machine and the hammer operator's manual before beginning installation or operation.
2. Select the right attachment for the job
3. Follow the recommended, more frequent maintenance schedule for hydraulic oil and filters given later in this section
4. Follow the recommended installation and operation procedures for the hammer given later in this section.
5. Use the machine and attachment for jobs which they are designed to do.

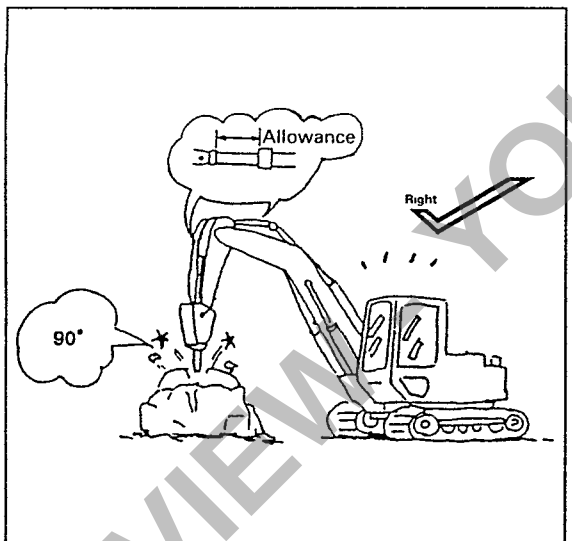


Figure 1
Correct operation.

6. Keep the chisel at a right angle to the surface being broken. Do not operate with any attachment cylinder extended or retracted to the stroke end

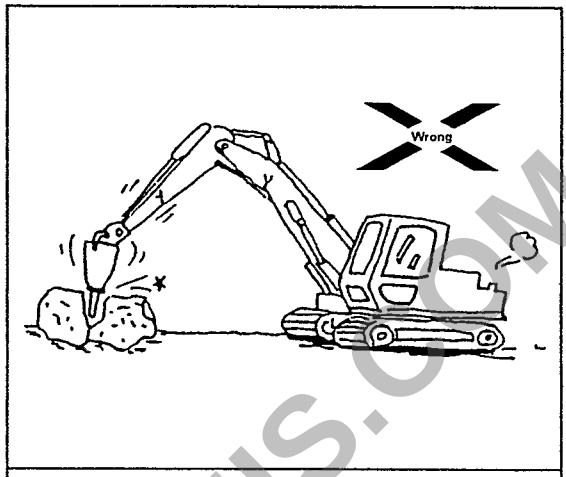


Figure 2
Do not pry.

7. Do not use the hammer to pry. Prying leads to hammer and machine damage.

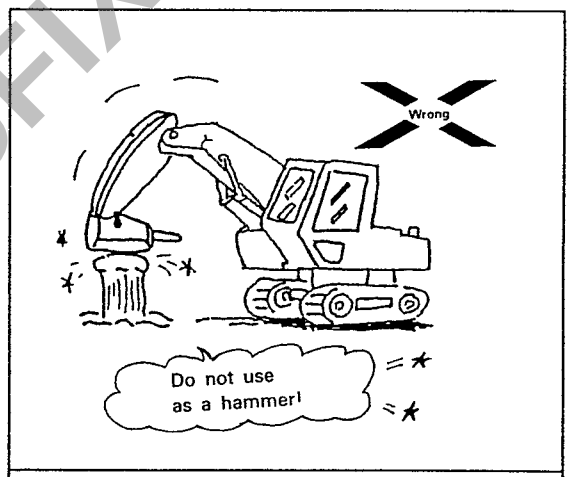


Figure 3
Do not use as a hammer.

8. Use the hammer as a "breaker". Do not use it to "hammer".
9. Do not use the swing force to attempt to break materials. This might damage the swing mechanism.
10. Do not operate the hammer under water. Water will enter the seals and damage the hammer and machine.
11. Do not operate the hammer in the same position for more than 1 minute. If material is not broken in less than 1 minute, change positions. Continued operations in the same position will overheat the hammer (chisel) and the hydraulic oil which will damage the hammer and the machine.

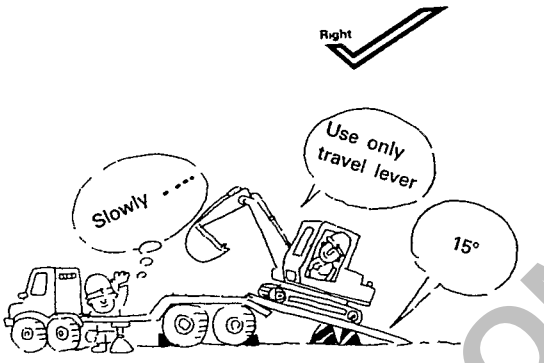
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Loading

- Be sure to attach the ramp boards

⚠ WARNING

Never attempt to load or unload by jacking up with own attachment instead of using a ramp This is very hazardous



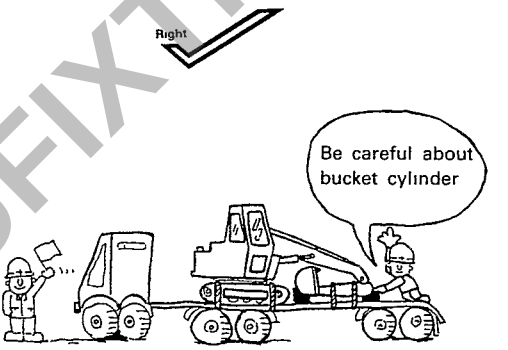
- Do not operate any lever or pedal except travel lever to avoid turning. It is very hazardous because the machine may fall Before climbing, determine correct direction and position with sufficiently decreased speed
- When the machine goes over the area between the ramp and the trailer bed, be careful about the machine operation because the center of gravity transfers in that area

⚠ WARNING

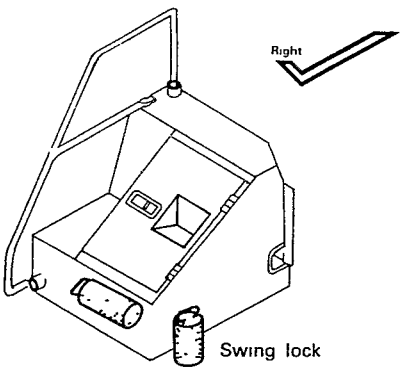
Load or unload at sufficiently decreased speed Do not stop halfway

Trailer loading

- Stop the excavator at appropriate position on trailer bed, and swing slowly to transporting position
- Fold the bucket and then arm Place blocks on the bed and lower the boom so that the bucket and arm settle right on the block
- Engage the swing lock and stop the engine, tie the excavator down securely
- It is safest to use the bucket to provide support at 3 different locations
- Do not transport the excavator with any cylinders in fully extended position Road shocks and flexing of the hauler may damage the cylinder



Examine obstruction (road width, height, weight limit of bridge) along the roads you will drive. Make sure of the maximum height and study the obstacles on the road before starting



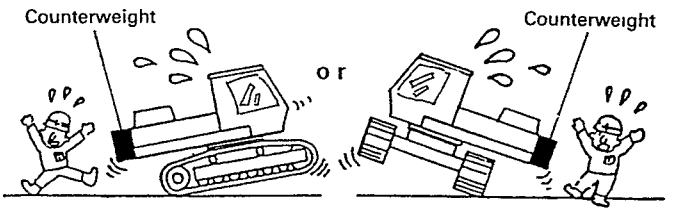
Cautions for removing front attachment

If the front attachment is removed with the counterweight loaded as shown in the picture at the right, the center of gravity moves further backward



⚠ DANGER

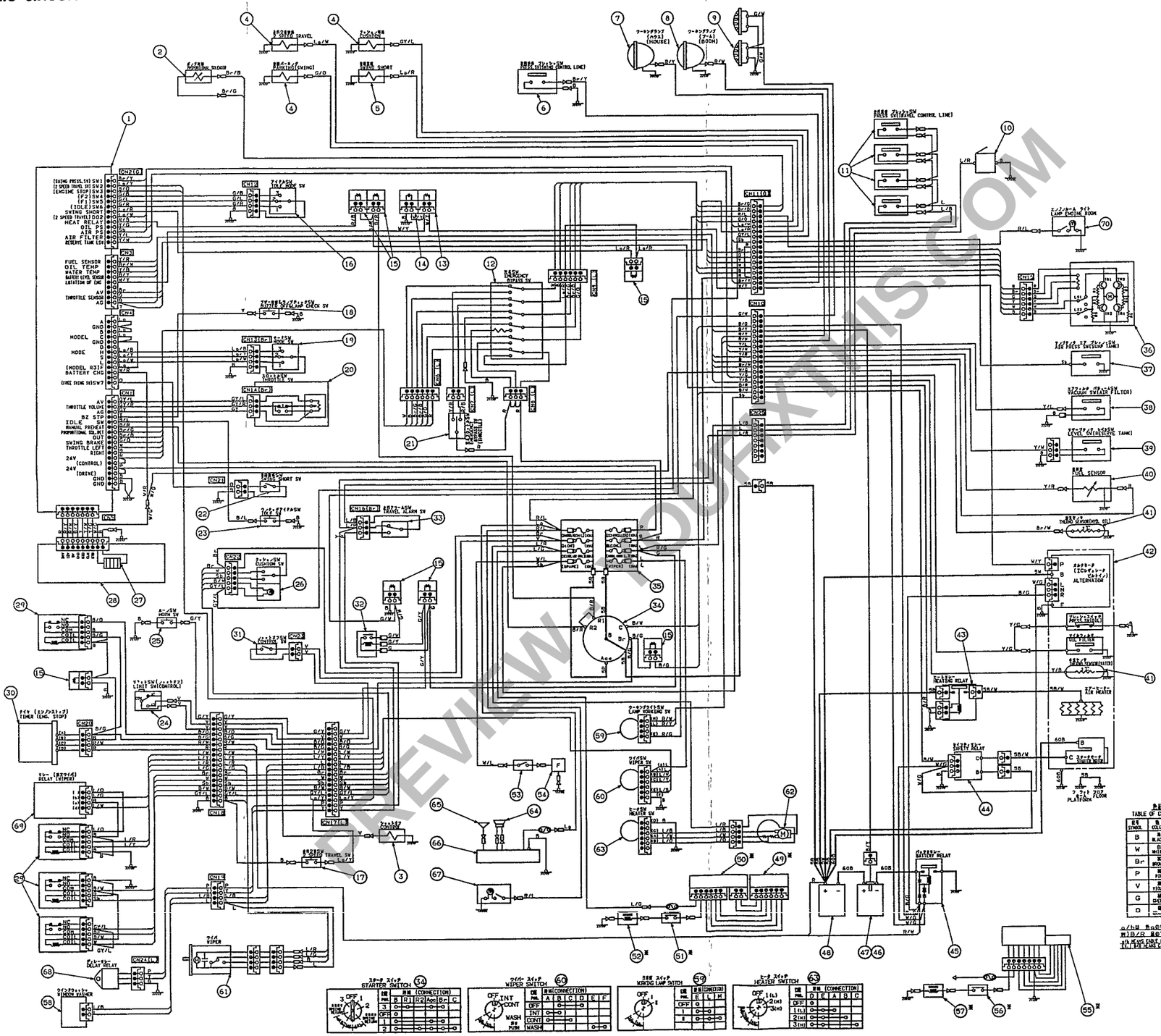
- Never travel or transport the machine in this condition since it is extremely hazardous.
- If necessity to travel the machine with the front attachment removed arises, be sure to remove the counterweight before traveling



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ELECTRIC CIRCUIT



SYM	DESCRIPTION	QTY
	CONTROLLER	1
	PUMP,HYDRAULIC	1
	VALVE,SOLENOID	1
	VALVE,SOLENOID	1
	VALVE,SOLENOID	1
	SWITCH,PRESSURE	1
	LAMP,WORKING	1
	LAMP,WORKING	1
	HORN,DOUBLE	1
	LAMP,SPL	1
	SWITCH,PRESSURE	1
	SWITCH,PUSH [BACK UP]	1
	RESISTOR	1
	CONDENSER	1
	DIODE	7
	SWITCH,ROTARY[IDLE]	1
	SWITCH,PUSH BUTTON	1
	SWITCH,PUSH BUTTON	1
	SWITCH,ROTARY[MODE]	1
	SWITCH,THROTTLE	1
	SWITCH,TOGGLE	1
	SWITCH ROCKER[SWING]	1
	KNOB[SWITCH]	1
	SWITCH,TIMER	1
	SWITCH ROCKER	1
	METER,HOUR	1
	HORN,FOR DISPLAY ASST	1
	RELAY	4
	TIMER DELAY RELAY	1
	SWITCH ROCKER	1
	RELAY,HORN	1
	SWITCH ROCKER	1
	SWITCH,STARTER	1
	BOX,FUSE	1
	MOTOR,THROTTLE	1
	SWITCH,PRESSURE	1
	SENSOR,VACUUM	1
	TANK,RESERVE	1
	SENSOR,FUEL	1
	SENSOR,THERMO	2
	ENGINE,DIESEL	1
	RELAY,HEATING	1
	RELAY,SAFETY	1
	RELAY,BATTERY	1
	BATTERY,SENSOR	1
	SENSOR,SPL(LEVEL)	1
	BATTERY	1
X	AIR CONDITIONER(UNIT)	1
X	AIR CONDITIONER(PANEL)	1
X	AIR CONDITIONER(RELAY)	1
X	AIR CONDITIONER(COMPRESSOR)	1
	SWITCH,TOGGLE	1
	FUSE	1
X	COOLER(UNIT)	1
X	COOLER(DRIER)	1
X	COOLER(COMPRESSOR)	1
	TANK,WASHER	1
	SWITCH,ROTARY[LAMP]	1
	SWITCH,ROTARY[WIPER]	1
	MOTOR,WIPER	1
	HEATER,CAR	1
	SWITCH,ROTARY[HEATER]	1
	BREAKER	1
	ANTENNA	1
	RADIO SET	1
	LAMP,ROOM	1
	RELAY,DELAY	1
	RELAY,INTERVAL	1
	LAMP,ROOM	1

TABLE OF COLOR SYMBOLS

ER SYMBOL	B COLOR	ER SYMBOL	B COLOR
B	BLACK	R	RED
W	WHITE	Y	YELLOW
Br	BROWN	Lg	LIGHT GREEN
P	PINK	Sb	SKY BLUE
V	VIOLET	L	BLUE
G	GREEN	Gy	GRAY
O	ORANGE		

NOTES

1) ( ) IS OPTIONAL

2) EARTH LINE SYMBOLS AND CROSS POINT OF LINES IN THIS DRAWING SHOWS THE FOLLOWING

3) THE SYMBOL AT EACH LINE SHOWS COLOUR OF CABLE AND THE FIGURE BEFORE THE SYMBOL SHOWS THE AREA OF CABLE THE AREA OF CABLE NOT INDICATED IS 0.85 mm²

4) THE SYMBOL OF CONNECTER IN THIS DRAWING SHOWS THE FOLLOWING

430U2-5548~5610

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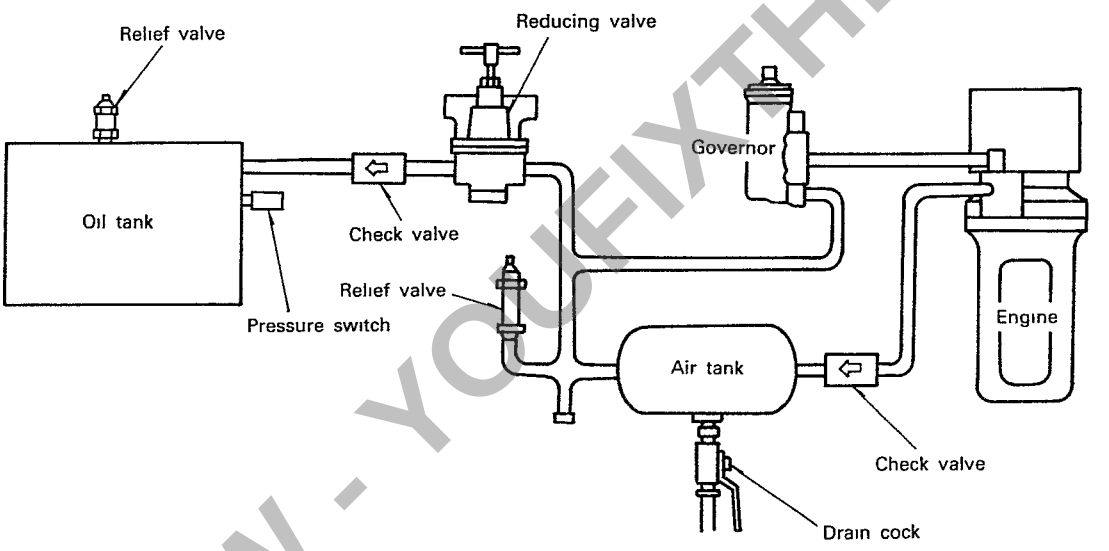
AIR PRESSURE LINE

Pneumatic device

This Machine is equipped with a pneumatic device for the following functions.

To pressurize hydraulic oil tank:

The pneumatic device pressurizes the inside of the hydraulic oil tank and forces oil into the pump so that the pump can easily get its oil supply.



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