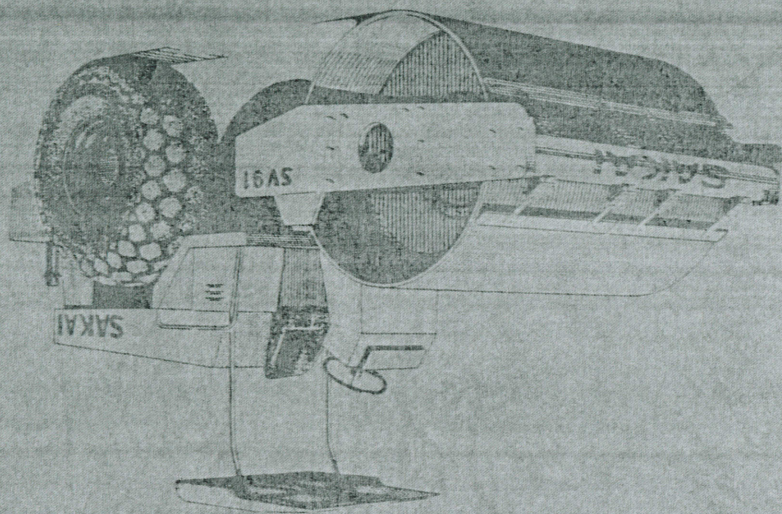


SAKAI



VIBRATING ROLLER

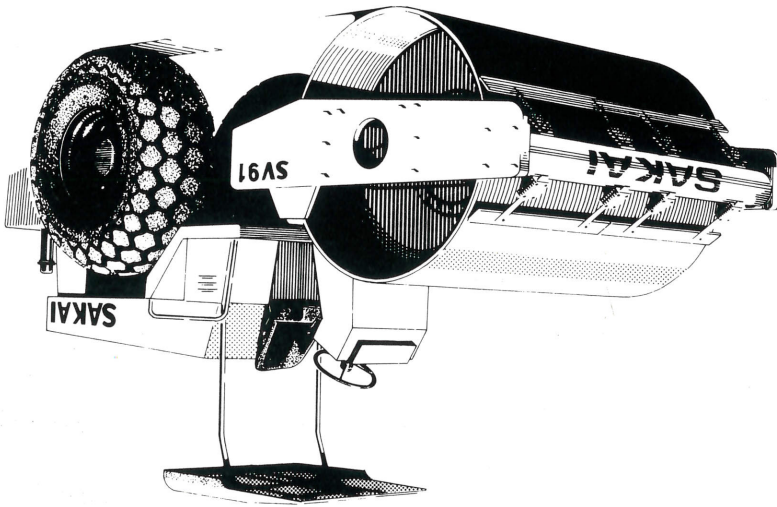
SV91
SV91A

MODEL

OPERATING INSTRUCTIONS

This manual is intended to provide essential information with regard to the operation and maintenance of SAKAI SV91 and SV91A Vibrating Roller. Careful handling, correct periodical inspections and are of vital importance to extend machine service life and maintain full performance. It is, therefore, hoped that the instructions in this manual be carefully followed by operator and other responsible persons.

For the instructions about the power unit, refer to the Engine Instruction Manual furnished separately.



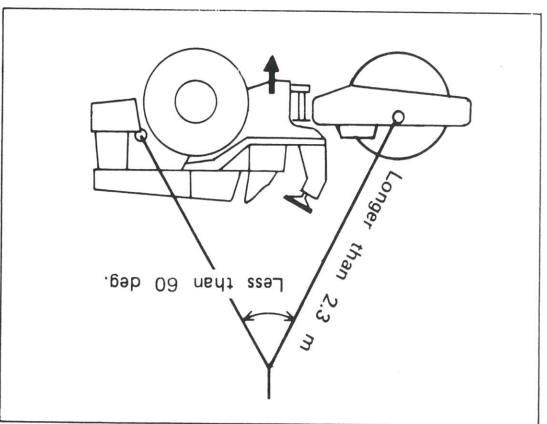
FOREWORD

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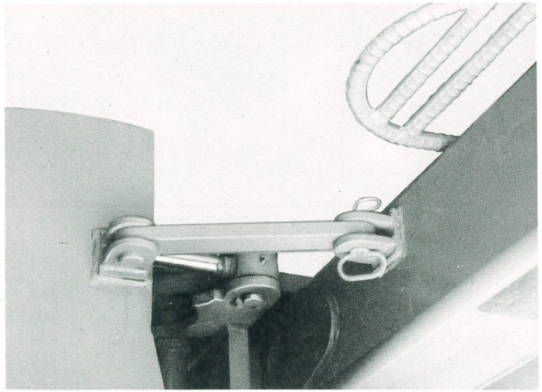
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SLINGING THE ROLLER FOR LOADING

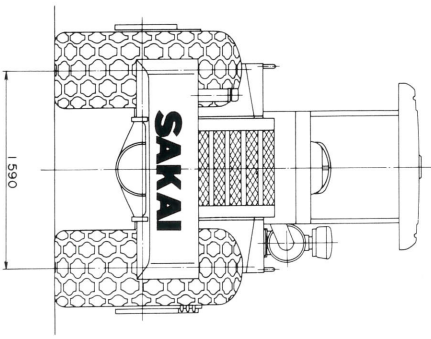
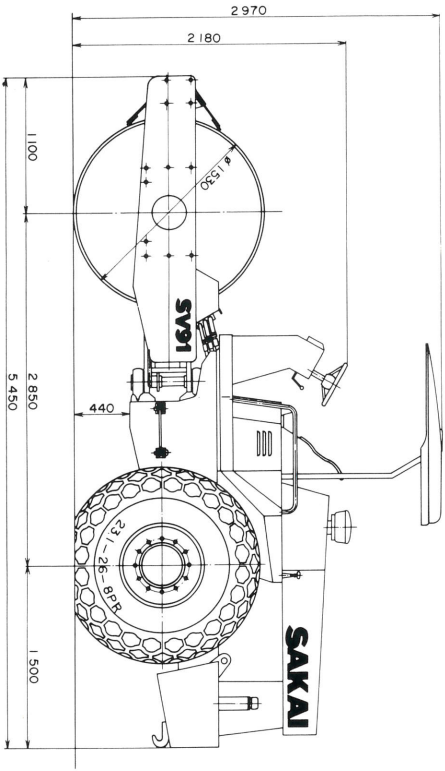
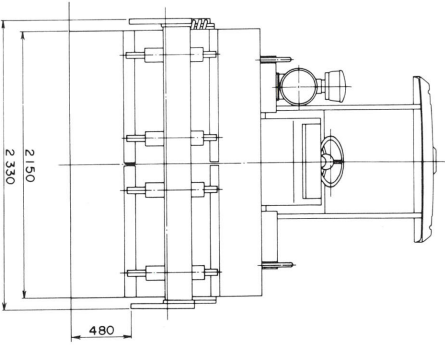
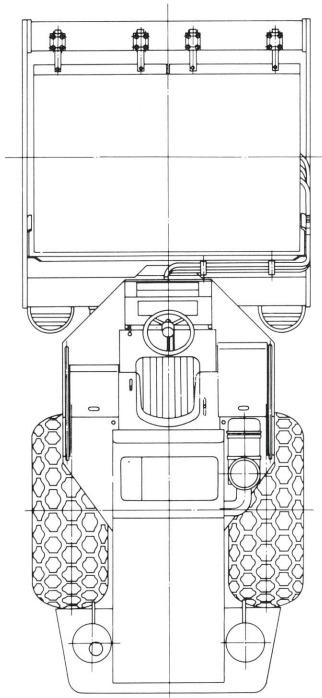
Sling the Machine at holes on the sides of the machine frame with wires strong enough.



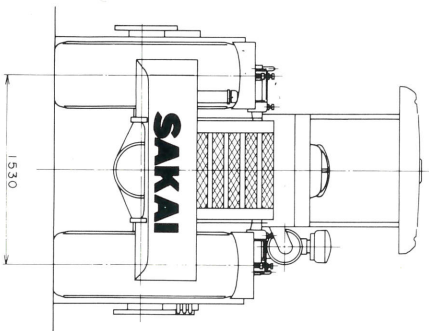
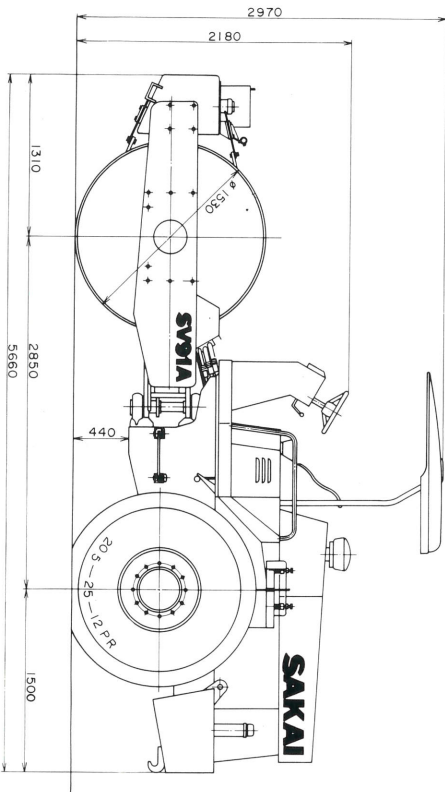
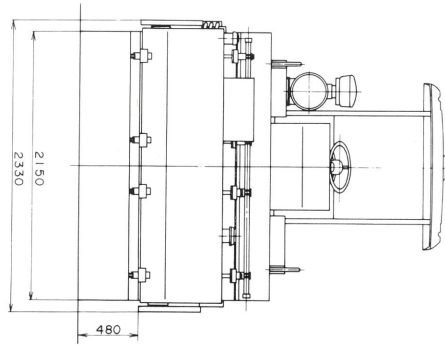
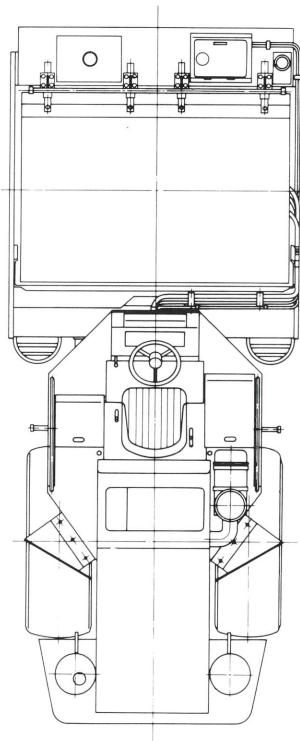
CAUTION: Never fail to lock the safety link with the lock pin.



DIMENSIONS
For Model SV91



DIMENSIONS
For Model SV91A



SPECIFICATIONS

Weight

SV91A	SV91
Gross weight 11,000kg	9,800kg
Front wheel 6,100kg	5,100kg
Rear wheel 4,900kg	4,700kg

Dimension

SV91A	SV91
Overall length 5,660mm	5,450mm
Overall width 2,330mm	2,330mm
Overall height 2,970mm	2,970mm
Wheelbase 2,850mm	2,850mm

Performance

Speed (km/h)	1st	2nd	3rd
	0~5	0~7	0~10
Forward and Reverse	Low	High	
	0~14	0~21	0~28

Vibrating Power

High Amplitude	1	2	High Amplitude
	1,700	2,400	1,300
Frequency (rpm)	8,500	17,000	11,000
Centrifugal force (kg)	21,000		

Gradability 36%

Turning radius 5.7m

Rolling width 2,150mm

Engine

Model ISUZU "6BDI" Diesel Engine (with turbo charger)

Type Water-cooled, 4-cycle, 6-cylinder vertical mounted direct injection type

Total displacement 5,785cc

Performance

Rated output 133 PS/2,200 r.p.m.

Fuel consumption 175g/PS h at rated speed

1. How to Handle a New Machine

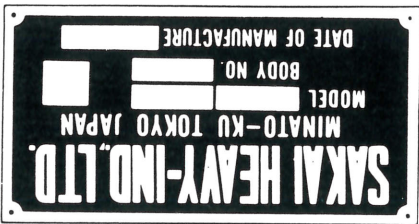
In a new machine, protective oil films between moving surfaces have a tendency to be destroyed by careless operation. A new machine should, therefore, be handled very carefully in its early life to avoid rapid lowering of performance and marked shortening of service life. Observe the following items particularly:

1. Run the engine at idle for about 5 minutes to warm it up adequately.
2. Check fasteners such as bolts and nuts for looseness and hydraulic lines for leakage prior to the first operation.
3. Drain and refill the engine crankcase after the first 50 hours of operation.

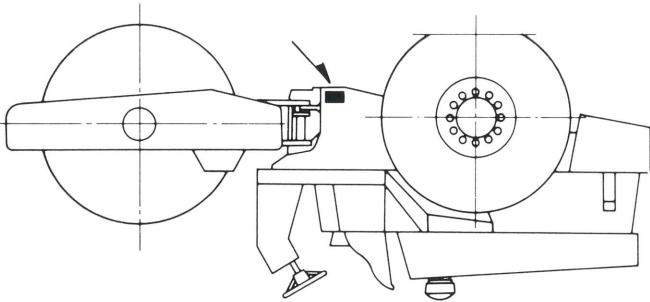
2. For Ordering Parts or in Case of Trouble

Give us the following:

1. Month and year of manufacture
See on the instrument panel

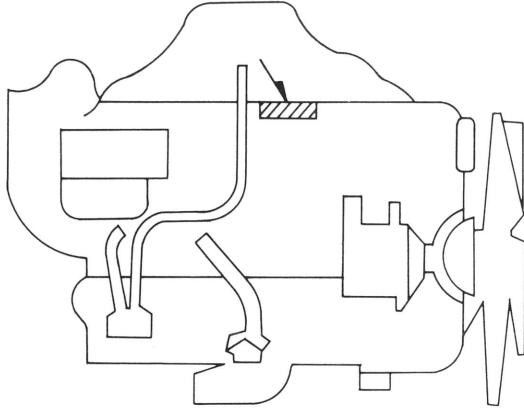


2. Chassis number



Location of chassis number SV91-0000
NUMBER

3. Engine number



Location of engine number 6BD1-000000
MODEL NUMBER

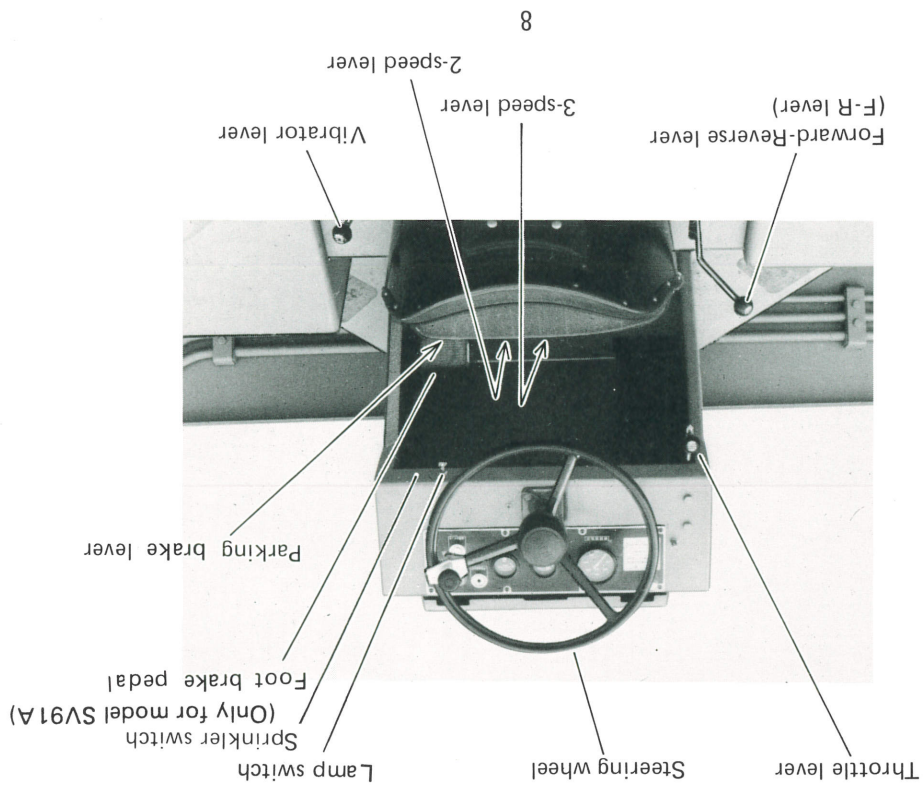
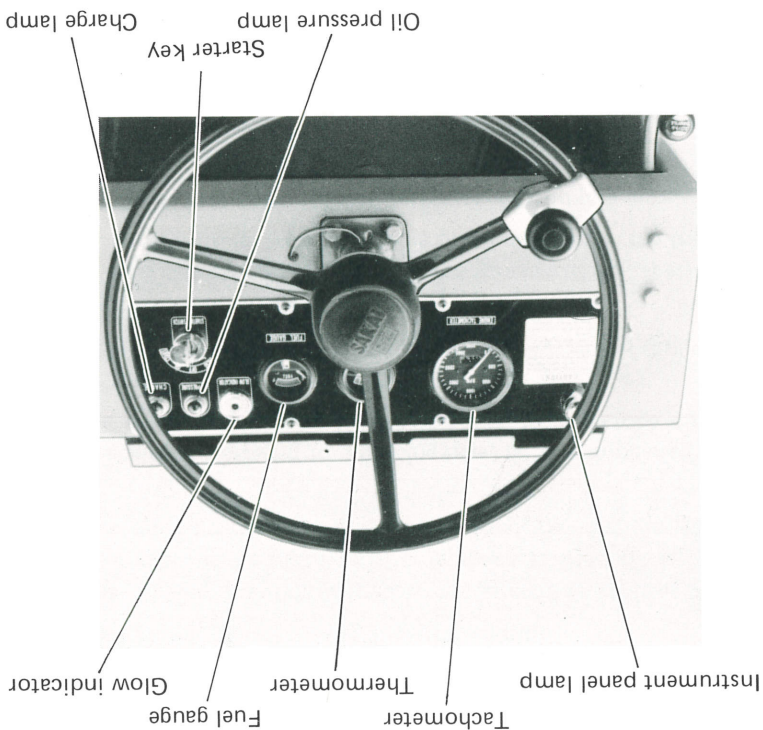
3. Operation

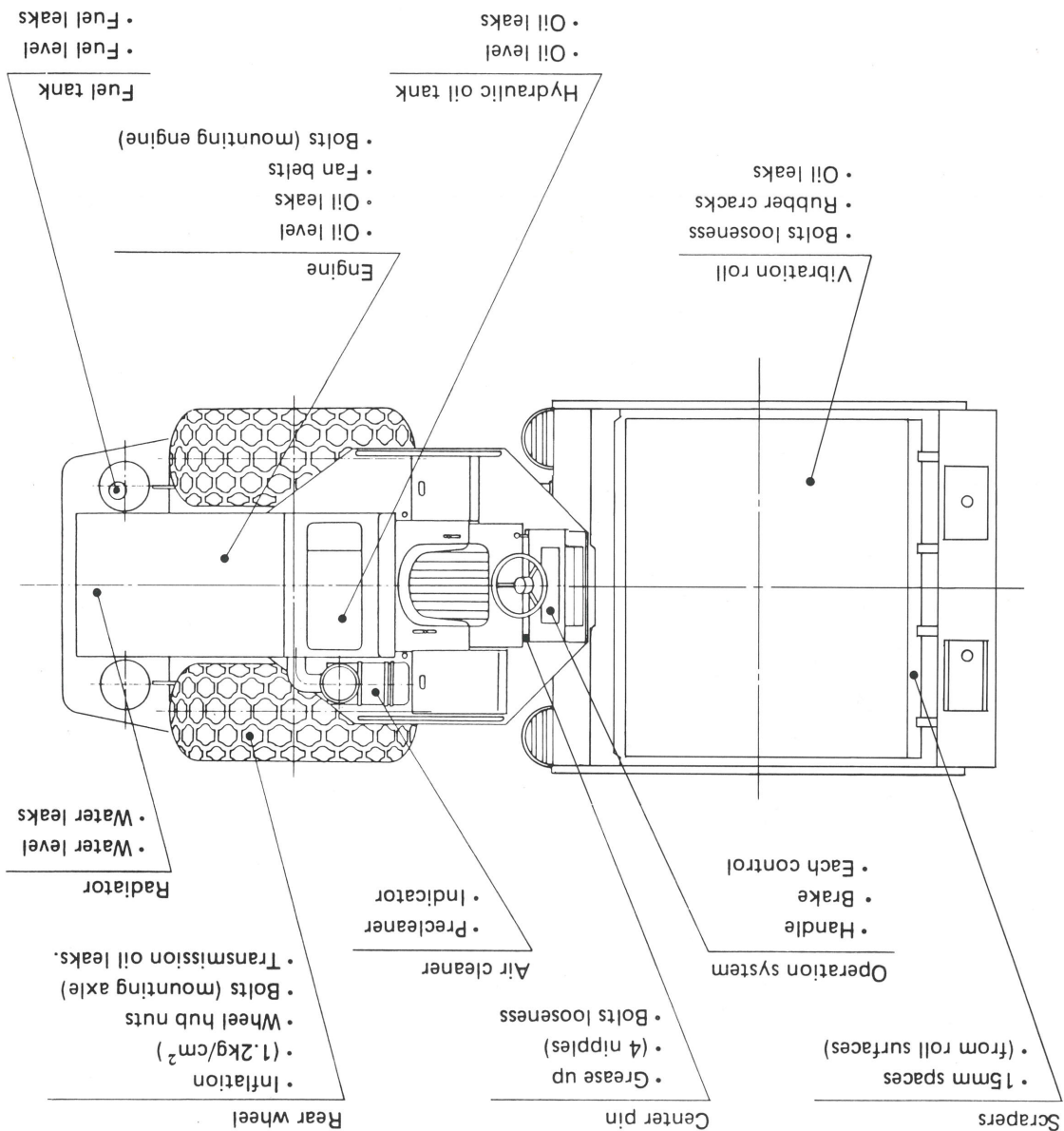
General Cautions

Exercise special care while operating the Roller, as this type of compaction equipment is generally used on rough, slippery or soft grounds.

1. Only authorized person should be permitted to operate the Roller.
2. Always operate the Roller only from the operator's station.
3. Operate the Roller paying attention to pedestrians and other vehicles when starting to move or backing in particular, as the Machine is, in many cases, used in sites where traffic is heavy. In addition, there are considerably wide areas around the Machine which are not visible to the operator.
4. Avoid turning, backing, or moving to adjoining lane, all of a sudden, as these may cause undue stress on the power train of the Machine or these may damage the surface layer of material being compacted.
5. Check out height restrictions for a locality in particular when the Roller is loaded on a trailer for transportation.
6. When loading on and unloading from a trailer for transportation, special care must be taken as follows to prevent the Roller from collapsing or dropping from the trailer:
 - 1) Perform loading and unloading operations on a hard and level ground.
 - 2) It is advisable to employ a trailer equipped with a winch. If the winch is not available, let the Roller climb on or off by itself carefully with its engine running at idle and with its 3-speed lever shifted into 1st and 2-speed lever shifted into low.
 - 3) The loading ramp to be used for loading or unloading must be strong enough to support the Roller. In addition, the ramp must be placed at proper angle for safe operation.
7. Keep the engine stopped while refuelling in order to avoid fire hazard.
8. Provide proper support under the machine frame to avoid possible accident, when an attempt is made to raise the Roller for checking or repair.

Instruments and Controls



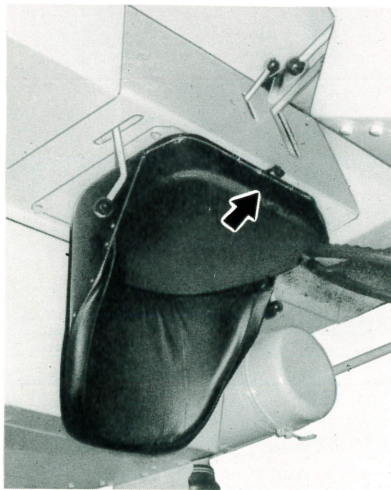


Walk-Around Checks

For safety, and maximum service life of the Machine, a thorough walk-inspection should be made before starting. In addition to checks directed below, check for loose bolts and nuts, damaged parts and mud accumulation.

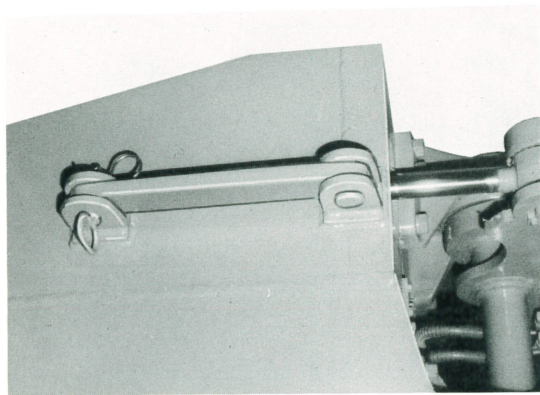
Operator's Seat Adjustment

To make forward and rearward seat adjustment, lift the positioner lever and slide the seat as desired.



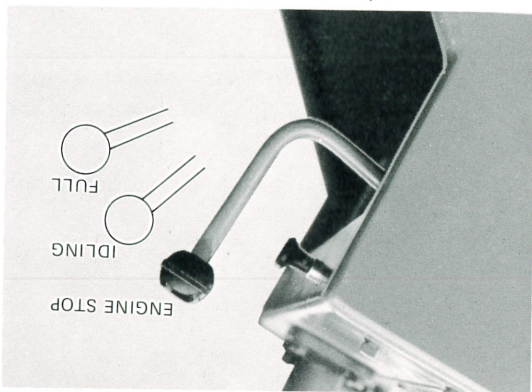
Before-Operation Inspections

CAUTION: Never fail to pull out the steering lock pin.
The pin is for loading only.



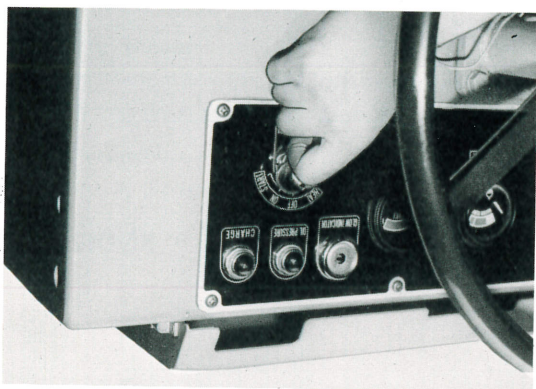
1. Check the levels in the following and add fluids as necessary:
 - Engine oil pan
 - Radiator
 - Fuel tank
 - Hydraulic tank
2. Check the following:
 - Tension of belts
 - Leakage at oil lines
 - Tire inflation
 - Tire damage
 - Wheel hub nut looseness

1. Move the throttle lever slightly past the "IDLING" position.



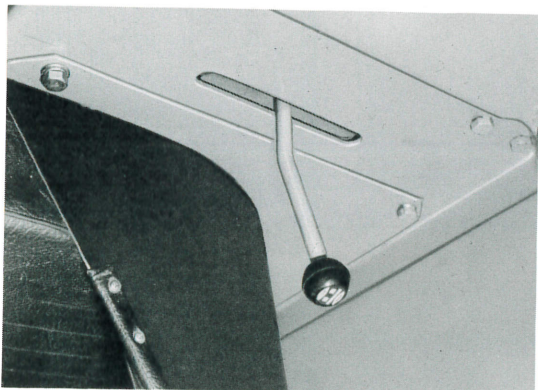
Starting the Engine

2. Turn the starter key to "ON" and check that the charge lamp and oil pressure warning lamp COME ON.



- CAUTION:**
- Be sure the F-R lever and the vibrator lever are in neutral. The engine can not be started when the F-R lever is in any other position.
 - If the starter key is turned to "ON" with the parking brake applied and with the F-R lever not in neutral, the alarm horn blows.

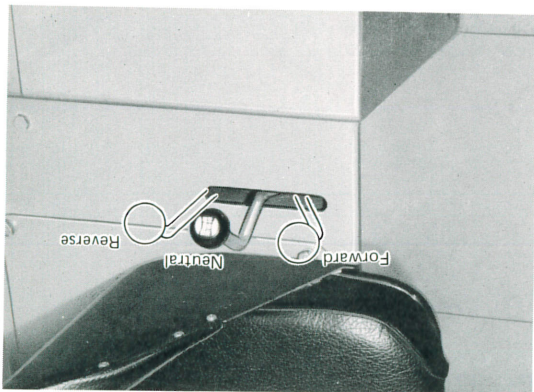
- The vibrator lever is in neutral.



The engine can not be started unless the F-R lever is in neutral position.

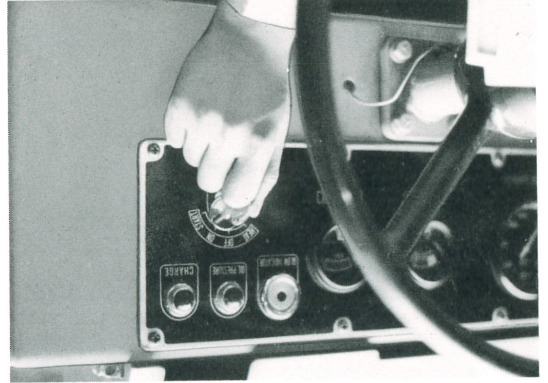
CAUTION:

3. Make certain that:
 - The F-R lever is in neutral.

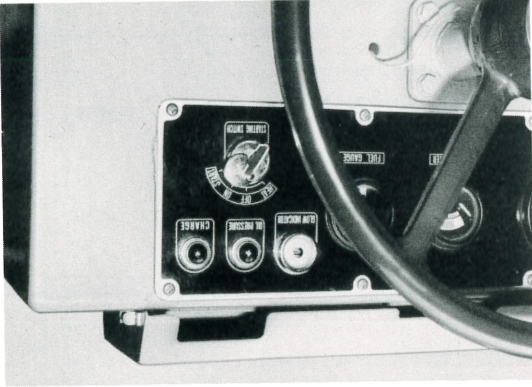


- (1) Do not let the starter key stay in the "START" position after the engine starts. This will damage the starter.
- (2) Do not keep the starter running continuously for more than 15 seconds. If the engine does not start, allow a 1-minute interval before trying again. This will prevent the batteries from running down sooner.
- (3) Do not turn the starter switch "OFF" while the engine is running. This will damage the electrical system components.
- (4) Check that the charge and oil pressure warning lamps come on when the starter key is turned to "ON". If they do not light, determine the cause.

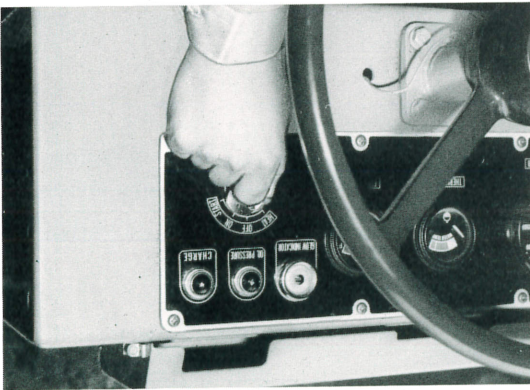
CAUTIONS:



- 4. Turn farther to "START". The starter will then crank the engine. Release the key as the engine has started. The key will automatically return to "ON", however, make sure of its return to "NO".



- 3. In cold weather, turn the key to "HEAT" and hold it until the glow indicator becomes bright (10 to 15 seconds).



After the Engine Has Started, Check That:

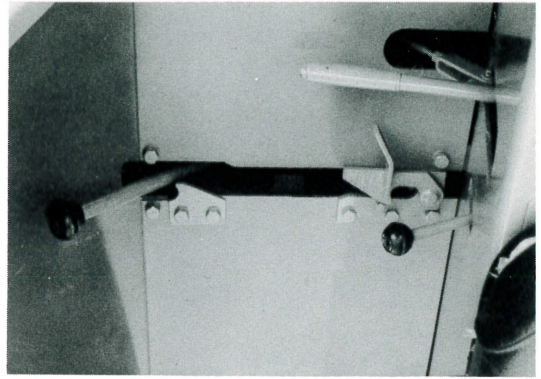
1. The oil pressure lamp and charge lamp have "GONE OUT". If they have not gone out, turn off the engine immediately and find out the cause.
2. Unusual noise
3. The color of exhaust gas

CAUTIONS:

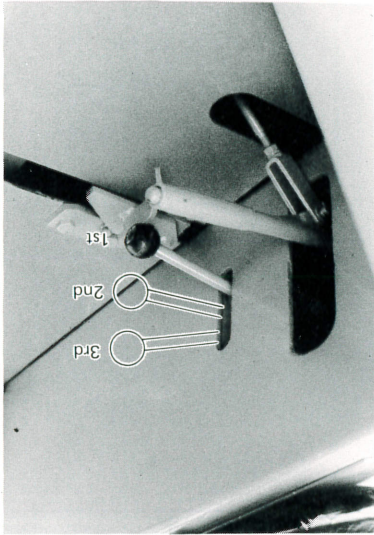
- (1) Run the engine at about 1,200 rpm for about 5 minutes to warm up adequately.
- (2) While in operation, never slow down the engine with the throttle lever moved past the "IDLING" position to prevent stalling.

Putting the Roller in Motion

1. Check the following before driving the Roller.
 - Steering wheel free play
 - Operation of lamps
2. Now the Roller is ready to start to travel. Proceed as follows:



- 1.) Shift the 2-speed lever into "L" or "H" as required. If hard to shift, operate the lever while slightly moving the F-R lever in either direction. For normal rolling operation, place the lever in "L" (low speed).



- 2.) Move the 3-speed lever to the desired speed position. The position "1" is for normal working speed (0 to 5 km/h).

Speed selection table

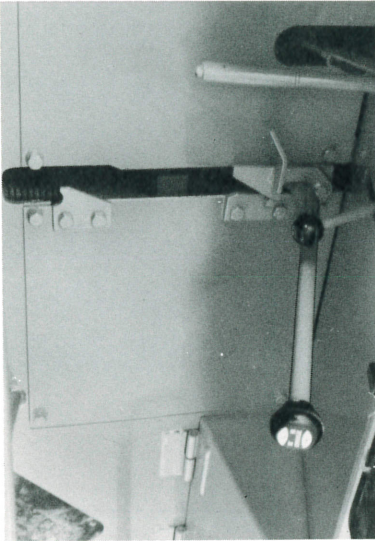
2-speed lever		
	L	0 ~ 5 0 ~ 7 0 ~ 10
	H	0 ~ 14 0 ~ 21 0 ~ 28
3-speed lever		
	1	0 ~ 5
	2	0 ~ 7
	3	0 ~ 10

CAUTIONS:

(1) Speed changing is possible DURING TRAVELLING with the 3-speed lever. But, to shift the 2-speed lever, bring the Roller to a stop before shifting.

(2) Shifting the 2-speed lever to "H" (high speed) should be limited to travelling for transportation purpose on a smooth and straight road. In that case, select proper vehicle speeds by the use of the 3-speed lever, F-R lever and throttle lever according to road conditions. Take special care for braking at high vehicle speeds, as the stopping distance tends to lengthen with high vehicle speeds.

(3) Lock the 2-speed lever in "H" or "L".

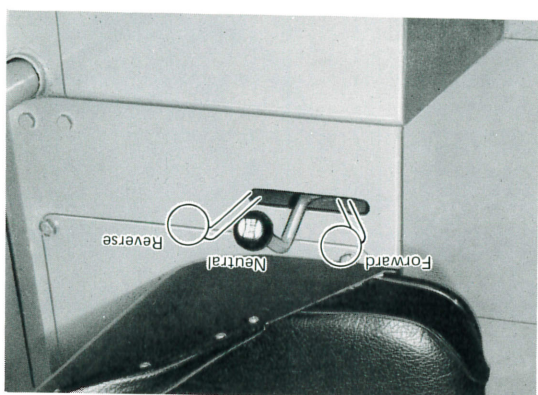


(4) Avoid quick braking with the F-R lever at the highest speed (28 km/h), as this will cause the engine to overrun. While travelling on a downhill, properly operate the throttle lever, 3-speed lever and F-R lever not to allow the engine to run beyond 2,300 rpm.

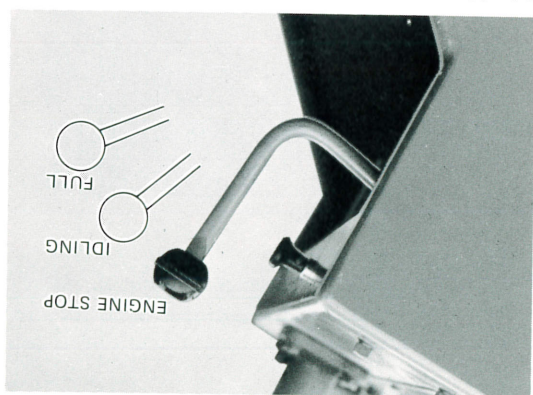


- (2) Be sure no one is close to or under the Machine before starting to travel.
- (1) Avoid quick shifting of the F-R lever particularly when starting.

CAUTIONS:

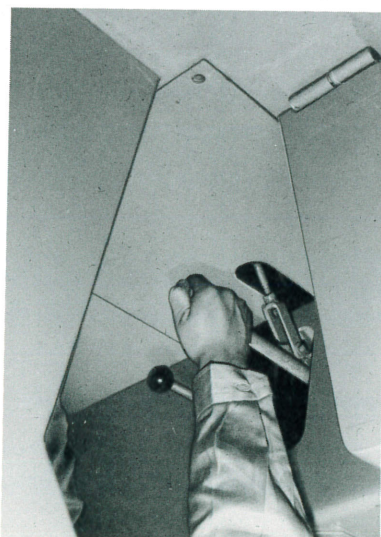


- 5.) Move the F-R lever slowly to the required direction, forward or reverse, and the Roller will start to travel.
 - Release the parking brake without fall when starting to travel.
 - If the F-R lever is shifted without releasing the parking brake, the alarm buzzer blows. check and adjust the brake before propelling again.
- CAUTION:**•The Roller has so powerful a tractive force as to be capable of moving with the parking brake applied. If the Vehicle has travelled some distance without releasing the brake, the engine up to a medium speed.



- 3.) Move the throttle lever farther to accelerate the engine up to a medium speed.

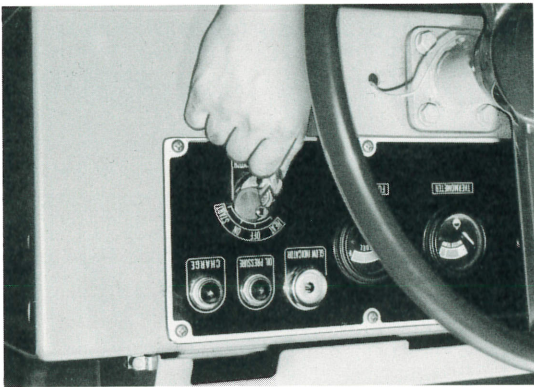
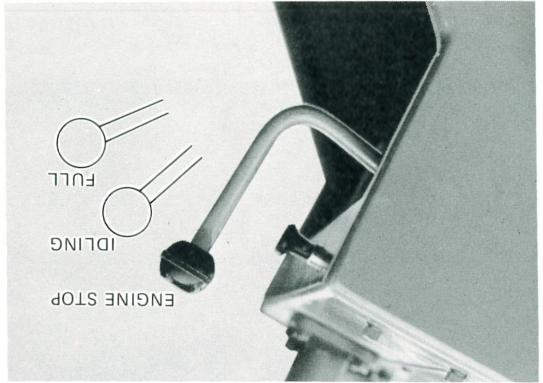
- 4.) Release the parking brake.



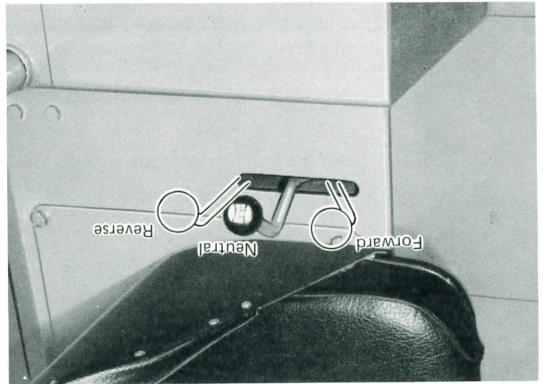
- (1) Never turn the starter switch "OFF" before the engine comes to a complete stop.
- (2) When parking on a slope, place proper wedges under the Roller to prevent moving down.

CAUTIONS:

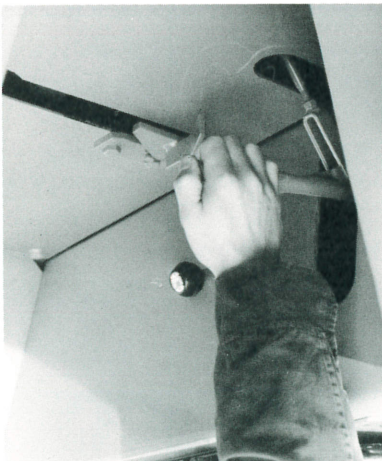
- 4. Move the throttle lever to "STOP", and the engine will be shut off.
- 3. Place the throttle lever in "IDLING" and keep it running for about 5 minutes.
- 5. When the engine has completely stopped, turn the starter switch "OFF" and take off the key.



- 1. Bring the Machine to a halt by shifting the F-R lever into neutral.



- 2. Engage the parking brake.

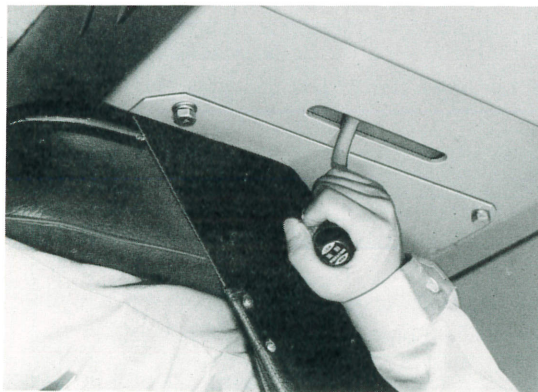


Bringing the Roller and Engine to a Stop

- (3) Normally, the machine can be braked or brought to a stop by operating the F-R lever. When applying the foot-operated brake, place the F-R lever in neutral beforehand.
- (4) To operate the foot brake, return the F-R lever to neutral in advance. Then depress the brake pedal.
- (5) If the Roller has been brought to a stop by means of foot brake without moving the F-R lever to neutral, return the F-R lever to neutral immediately. If this is neglected, the Machine will start to travel when the brake pedal is released.

Compaction

1. Run the engine at above 1,800 rpm.
2. Placing the vibrator lever in "LOW" and "HIGH" allows low- and high-amplitude vibration respectively. Set the lever in the detent position, "1" or "2" for vibratory rolling.



3. Amplitude selection is dependent upon the conditions of layers to be rolled. Generally speaking, "HIGH" amplitude is recommended for embankment and thick layer rolling; "LOW" amplitude is effective for compacting thin lifts.
4. Normally, working speed is 2 to 5 km/h, however, select proper speeds depending upon rolling conditions.

CAUTIONS:

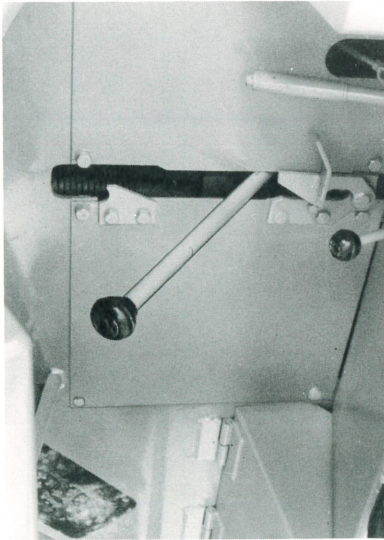
- (1) Do not let the vibrator work while the Roller is stationary. Attempt to put the Machine in motion before starting the vibrator, and to turn the vibrator off before the Vehicle comes to a stop.
- (2) When the Machine has fallen in the mire during vibratory rolling, shut off the vibrator immediately.

The Machine is capable of self-climbing up or down a trailer using a loading ramp strong enough to support the Vehicle. The angle at which the ramp sets against the trailer should be less than 20 degrees.

Loading and Unloading

Towing

1. To tow the Roller in such a case as getting out of the mud, let the Roller run at the same speed as the towing vehicle.
2. In case of engine failure, carefully tow the Roller with the 2-speed lever placed in neutral after checking the brake and steering operations.



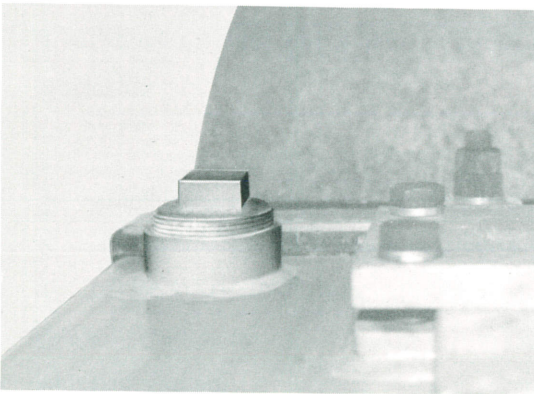
Sprinkling (Only for model SV91A)

A switch provides intermittent and continuous sprinkling. In normal rolling operation, continuous intermittent sprinkling. Sprinkling and idling duration are controlled operationally within 0~60 seconds.



CAUTION:

After operation in freezing weather, drain fully the front, rear and auxiliary water tanks, sprinkler pipes and sprinkler pump.



After-Operation Cautions

After the day's operation, clean the Roller and check the conditions as described below so that the Machine is ready for operation at anytime.

1. Cleaning
Remove mud, excess oil or grease from around the Machine using a cleaning brush and cloth. Wash clean if necessary.

2. Check that:

- 1) Fuel, lubricant, coolant, and hydraulic reservoirs are at proper levels.

- 2) Fluid leakage

- 3) Loosened bolts, nuts and fallen off parts

- 4) Other abnormalities

3. Draining water

In cold weather, drain the engine cooling system completely (unless antifreeze is in use) to avoid freezing hazard.

4. Electric System

General Cautions

1. The generator, starter and voltage regulator should be checked in the repair shop.
2. Turn off the starting switch when removing or repairing any electric part.
3. Regular checkings of the terminals and wirings are important.

Batteries

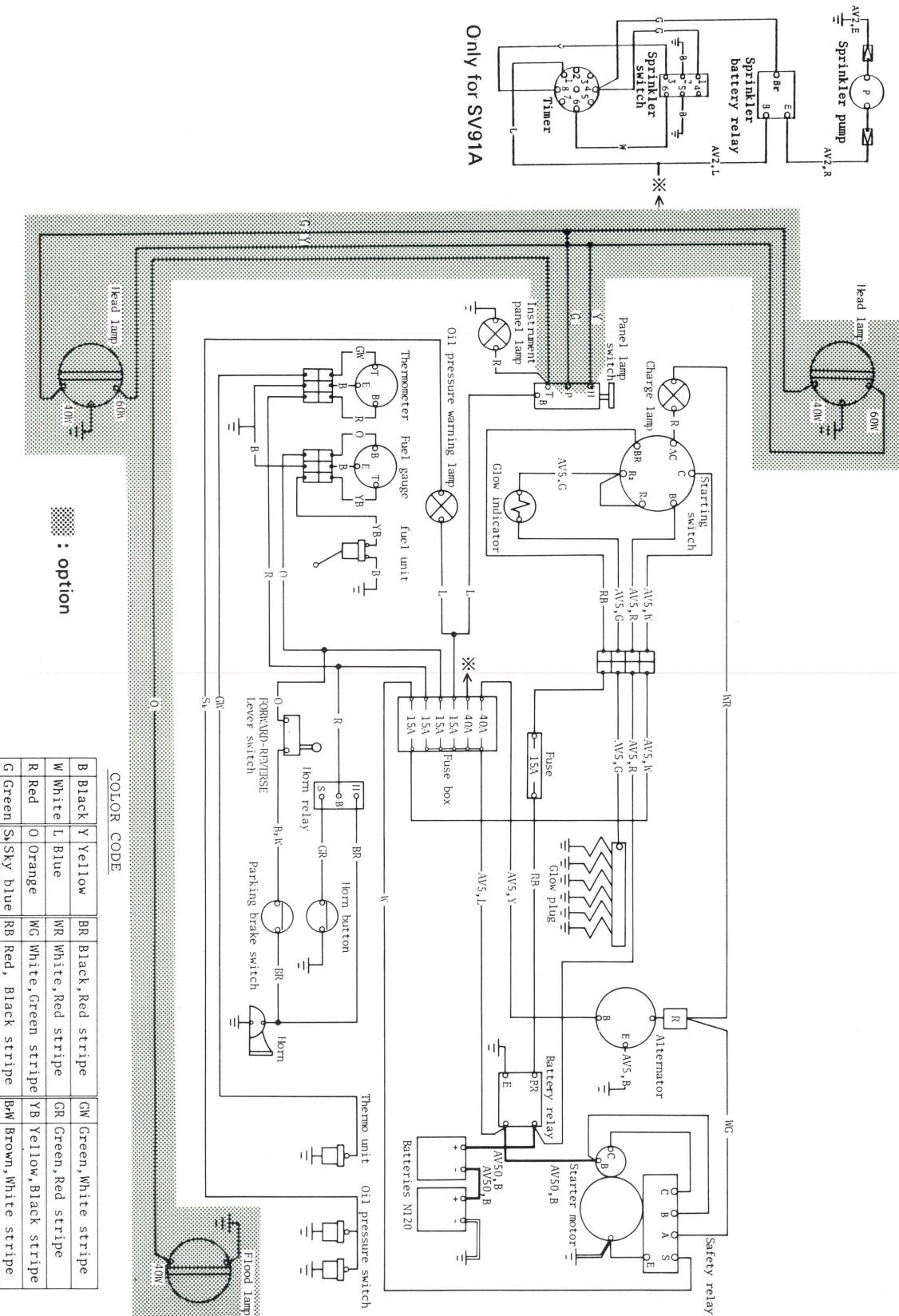
1. Leaving the batteries unused for a long period of time, or abnormal overloading of the batteries may cause damage to the plates in the cells, thus considerably shortening the life of the batteries.
2. Keep the terminals clean and dry. To remove corrosion over the terminals, sprinkle soda solution, clean off with wire brush and then flush off with clean water. After that, coat them with petrolatum to retard the formation of corrosion.
3. To leave the batteries unused for long, add distilled water to a somewhat higher level, charge fully, take off connections and store them in a dry and cool place. Recharge at 30-day intervals.
4. To determine the state of charge, measure the specific gravity of the electrolyte using a hydrometer and the following table.

State of temp.	State of charge (%)	
	Ambient	20°C
100	1.28	1.29
90	1.26	1.27
80	1.24	1.25
75	1.23	1.24
70	1.22	1.23
		0°C
		-10°C

CAUTIONS:

- (1) Do not let the soda solution get into the cells, as this will neutralize the electrolyte.
- (2) Avoid starting the engine with less than 75% charged.
- (3) Always keep the batteries charged in excess of 70%.
- (4) Take special care not to let the electrolyte get on the skin and other things, because it is very destructive.
- (5) Do not bring open flame close to the batteries. While the batteries are being charged, explosive gasses are forming.
- (6) Avoid overfilling the batteries.

ELECTRIC WIRING DIAGRAM



option

COLOR CODE

B	Black	Y	Yellow	BR	Black, Red stripe	GW	Green, White stripe
W	White	L	Blue	WR	White, Red stripe	GR	Green, Red stripe
R	Red	O	Orange	WG	White, Green stripe	YB	Yellow, Black stripe
G	Green	S	Sky blue	RB	Red, Black stripe	BW	Brown, White stripe

Only for SV91A

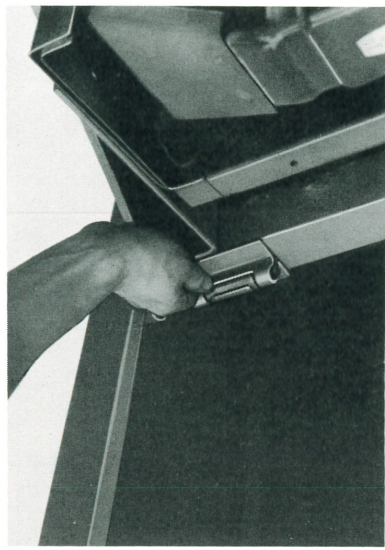
5. Periodical Maintenance Services

General Precautions

1. Use SAKAI genuine parts.
2. Use lubricants recommended by SAKAI. Do not mix a lubricant together with lubricants of different brands.
3. To keep out of dust, use special care for refilling hydraulic fluid, checking hydraulic fluid level, cleaning and replacing hydraulic filters, and for applying lubricants. Particularly observe the following:
 - Clean around the hydraulic reservoir.
 - Use clean funnel or oil jug.
 - Use clean tools.
 - Do not perform services described above in dusty atmosphere.
4. Place the Roller on a level ground when checking, refilling or draining oils.
5. Drain oils while they are hot.
6. If the Machine is left unused for long, fill the fuel tank, lubricate portions as necessary and operate it for at least 20 minutes at a 30-day interval.
7. For cold weather operation, use antifreeze for cooling system.

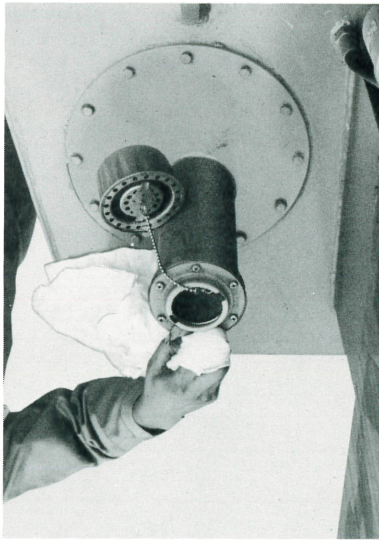
Temperature (°C)	-5	-10	-20	-30	-40
Quantity of antifreeze (ℓ)	4.5	7	11	13	16

8. When the bonnet is opened, lock it securely.



Precautions for Refilling Fuel

1. Keep out water and dirt.
2. Use the filter without fail.
3. Clean around the fill hole.
4. Fill the fuel tank at the end of the day's work.



Precautions for Refilling Vibrator Casing

The vibrator casing capacity is 15ℓ.
NEVER supply fluid in excess of 15ℓ.

Recommended Fuel and Lubricants

1. Fluid Capacities

Points to be lubricated	Lubricant	Capacity (ℓ)
Engine crank case	Engine oil	20 ℓ
Transmission	Gear oil	2.7 ℓ
Power divider	Gear oil	2.0 ℓ
Hydraulic reservoir	Hydraulic oil	80 ℓ
Vibrator	Gear oil	15 ℓ
Radiator	Water	28 ℓ
Final drive	Gear oil	1.8 ℓ × 2
Differential case	Gear oil	11.7 ℓ
Fuel tank	Diesel fuel	280 ℓ

2. Recommended Fuel and Lubricants

Lubricant	Service rating	Standard	Viscosity rating
Engine oil	* (1) API grade "CD"	* (2) MIL-L-45199B MIL-L-2104C	* (3)
Gear oil	API grade "GL-4"	MIL-L-2105	* (4) SAE 90 * (5)
Hydraulic oil	Wear resisting hydraulic oil		* (6) ISO VG-56
Grease	Lithium type extreme-pressure grease		* (7) NLGI-2
Diesel fuel		* (8) ASTM D975-2D	

NOTES:

* (1) American Petroleum Institute.

* (2) Military Specifications and Standards.

* (3) See the "Engine Instruction Book" furnished separately.

* (4) Society of Automotive Engineers.

(1) Fill the fluid reservoirs with the filters installed.
 (2) Use recommended fuels and lubricants only.

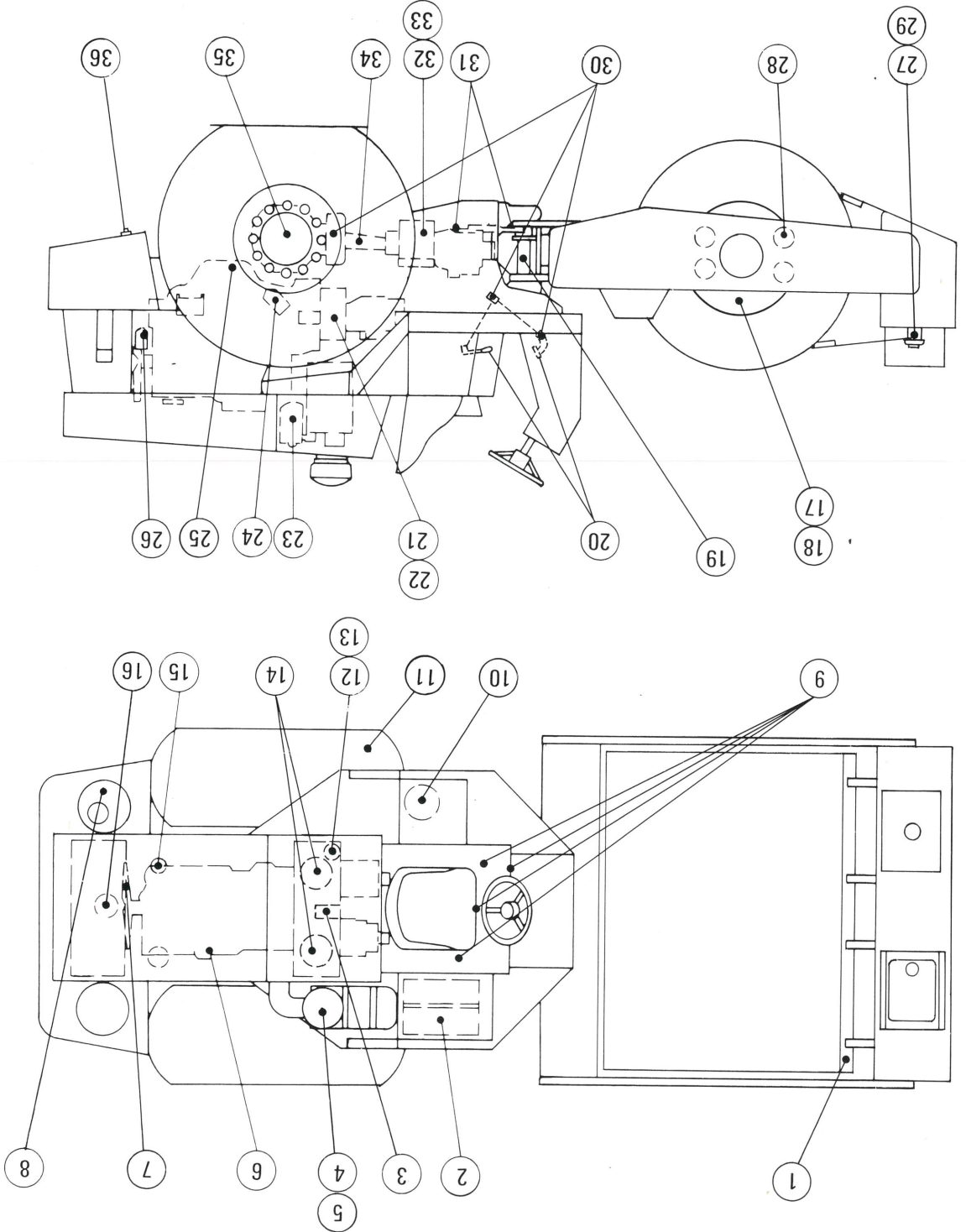
CAUTIONS:

Lubricant	Engine oil	Gear oil	Hydraulic oil	Grease
Oil company	Shell Rimula CT Oil	Shell Spirax 90 EP	Shell Tellus Oil 56	Shell Alvania EP Grease 2
MOBIL	Mobil Delvac 1300	Mobil Pegasus Gear Oil 90	Mobil DTE Oil 26	Mobil Super Heavy Duty Brake Fluid
ESSO	Esso Lube D-3	Esso Gear Oil GP 90	Nuto H 68	Beacon EP 2
CALTEX	RPM DELO 300 Oil	Universal Thuban 90	Rand Oil HD 46	Martak EP 2

3. Brands of Lubricants

- * (5) In hot weather (above +30°C), use an SAE 140 gear oil.
- * (6) In cold weather (below 0°C), use an wear resisting hydraulic oil with rating ISO VG-32 or VI-150.
- * (7) National Lubricating Grease Institute.
- * (8) American Society of Testing and Materials.

NOTE: Maintenance intervals described in this book are the averaged hours based on the hour-meter readings. Perform maintenance operations more often depending on working conditions.



Portions to Be Checked or Serviced

INTERVAL	NO.	ITEM	SERVICE	LUBRICANT	PAGE
Every 10 Service hours or daily	6	Engine oil level gauge	Check oil level		29
	19	Center pin and tilt pin bearings	Apply grease	Grease	29
	27	Sprinkler filter (for model SV91A)	Clean		29
Every 50 Service hours	2	Battery	Check electrolyte level		30
	4	Air cleaner	Check precleaner and indicator		30
	7	Fan belts	Check tension and adjust		30
	12	Hydraulic oil level gauge	Check oil level		31
	16	Radiator	Check cooling water level		31
	20	Brake	Check function and adjust		31
Every 250 Service hours	11	Tires	Check condition and inflation		32
	17	Vibrator	Check oil level		32
	21	Power divider	Check oil level		32
	24	Engine oil filter	Change filter element		33
	25	Engine oil pan	Change engine oil	Engine oil	33
	26	Fuel filter (Tank side)	Clean filter element		34
	28	Shock mountings	Check condition		35
	30	Brake links	Apply grease	Grease	35
	31	Cylinder head pin and anchor pin (Steering)	Apply grease	Grease	35
	32	Transmission	Check oil level		36
	34	Drive shaft	Apply grease	Grease	36
Every 500 Service hours	9	Control links	Check loose bolts, nuts and adjust rods		36
	10	Partial oil filter (Available up to chassis No. 30366)	Change filter element		37
	14	Hydraulic oil suction filter	Change filter element		37
	15	Fuel filter (engine side)	Change filter element		38
	23	Hydraulic oil return filter	Change filter element		38

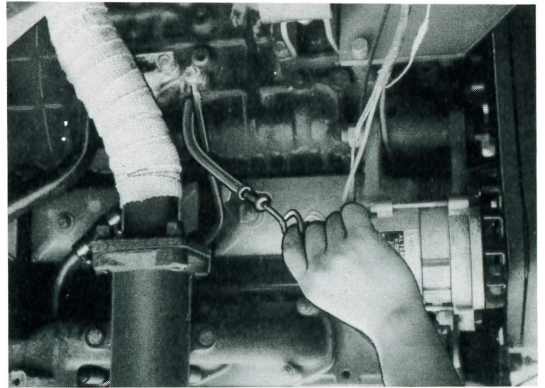
When required					
Every 1000 Service hours	3	Hydraulic oil suction filter (Steering)	Clean filter element	39	39
	13	Hydraulic oil tank	Change hydraulic oil	Hydraulic oil	39
	8	Fuel tank	Clean inside		40
	18	Vibrator	Change oil	Gear oil	41
	22	Power divider	Change oil	Gear oil	41
	29	Sprinkler tank (for model SV91 A)	Clean		42
	33	Transmission	Change oil	Gear oil	42
	35	Differential and final drive	Change oil	Gear oil	43
	1	Scrapers	Adjust blade		44
	5	Air cleaner	Clean element		44
	36	Fuel tank	Drain water and dirt		45

* NO. 14, 23, 24, 25: change oil and filter in 50 service hours for the initial operation.
 * Ensure the 10 service hours maintenance and that there are no loose bolts, nuts and oil leak before starting.

Every 10 Service Hours or Daily.

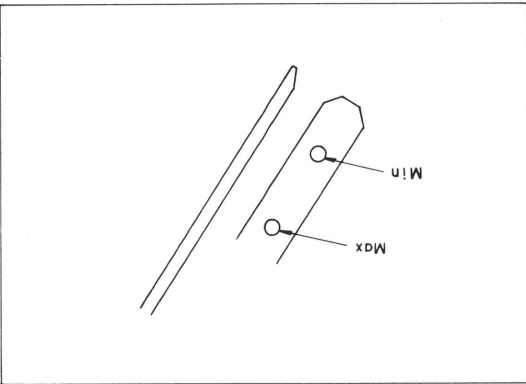
NOTE : Each encircled number corresponds to that on page 27.

⑥ Engine oil level gauge



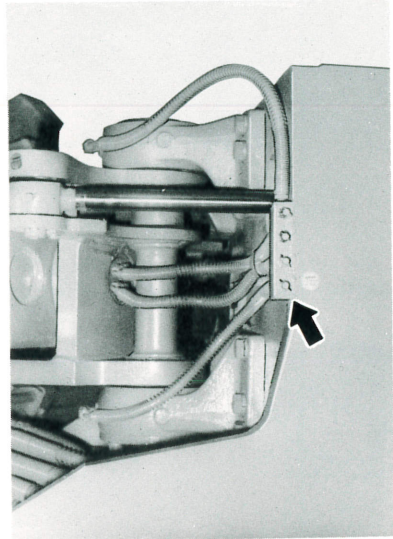
1. Check the oil level with the engine stopped.

2. Bring the level up to 2/3 the distance between the two marks.



⑱

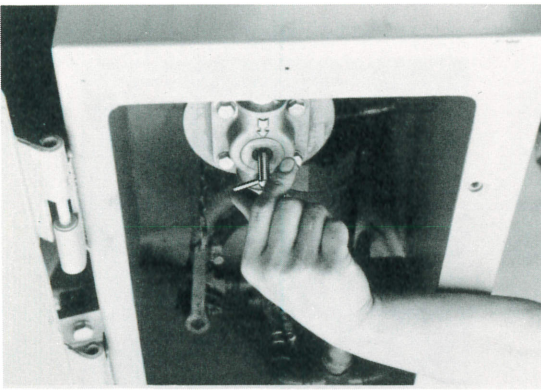
Center pin and tilt pin bearings.



Apply grease to 4 fittings.

⑳

Sprinkler filter (Only for model SV91A)



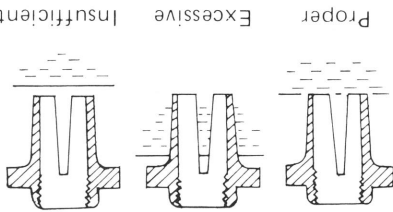
To clean the filter, rotate the filter handle 2~3 turns.

Every 50 Service Hours

CAUTION: Drain and refill the engine oil pan after the first 50 hours of operation. See the

Engine Instruction Book.

Batteries

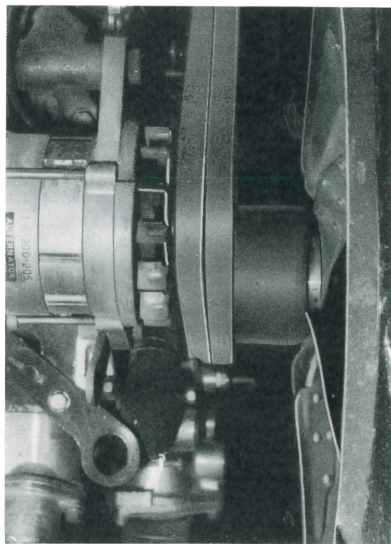


②

Check the electrolyte level.

Add distilled water as necessary.

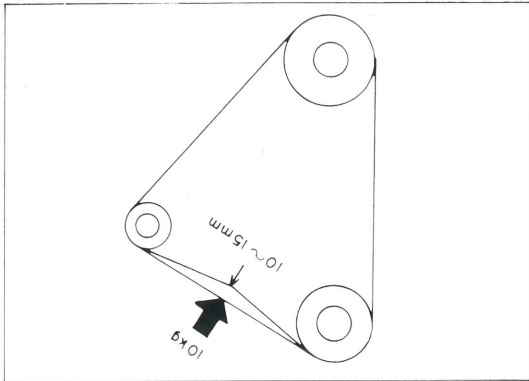
Fan belts



⑦

1. Check for wear and cuts.

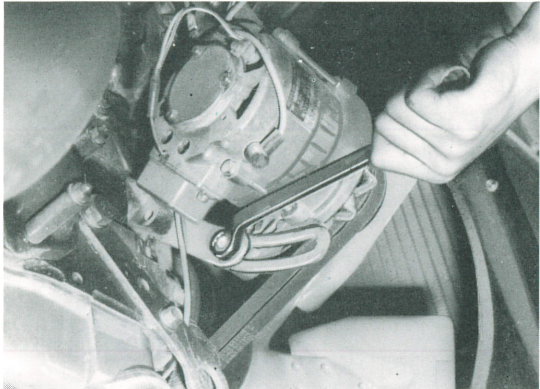
2. Check tension.



3. Tension is proper if each belt deflects 10 to 15 mm in the middle between the shafts with a push of 10 kg.

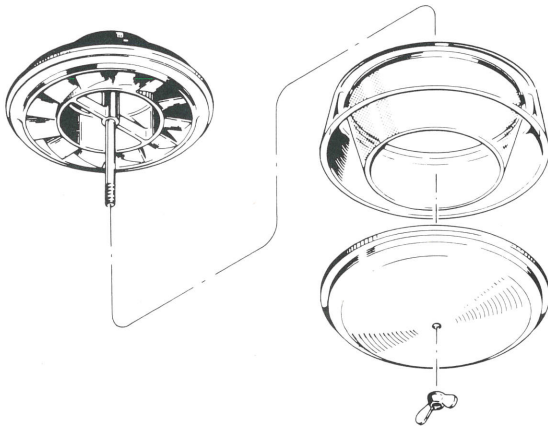
30

4. To adjust, loosen the bracket mounting bolt and move the alternator to obtain a correct tension.

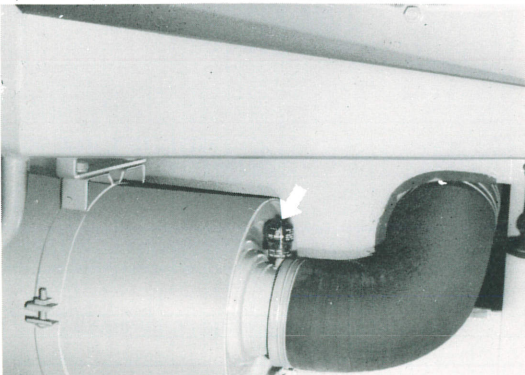


1. Remove the cleaner cover and inspect for dust.

2. Take off the body and clean when required.



When the red piece of the dust indicator has reached the service level (occupied the entire space in the sight glass), take out and clean the filter element thoroughly in the following manner:

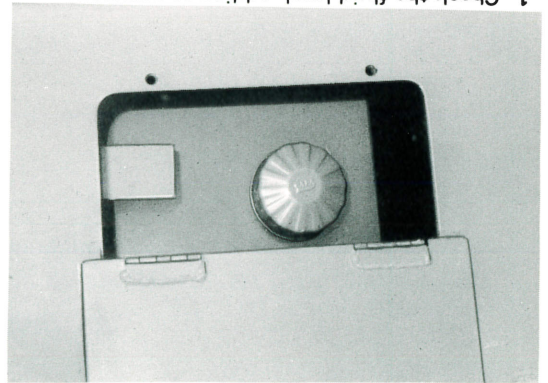


Air cleaner

④

12

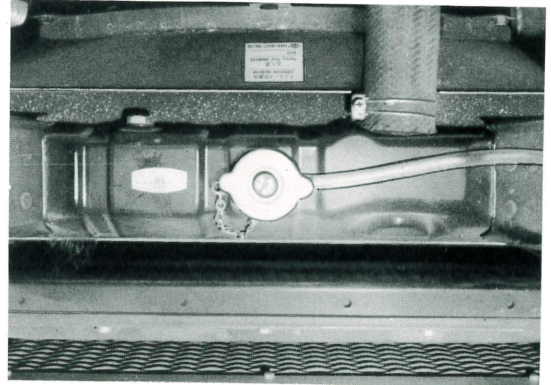
Hydraulic oil level gauge



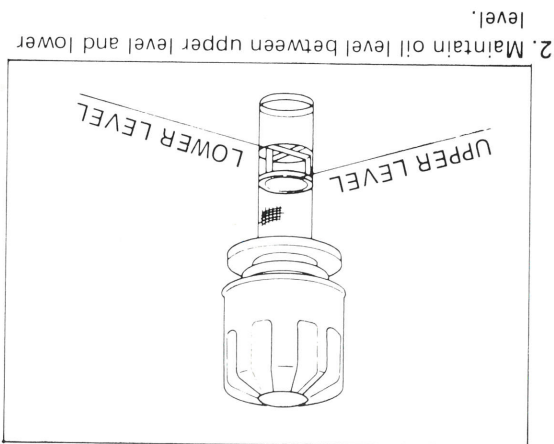
1. Check the fluid level, adding as necessary.

16

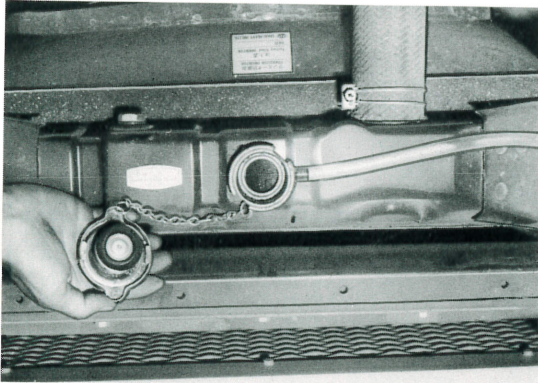
Radiator



1. Carefully push the button to reduce pressure.



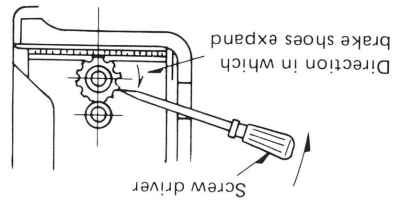
2. Maintain oil level between upper level and lower level.



2. Bring the water level to the neck of the filler cup.

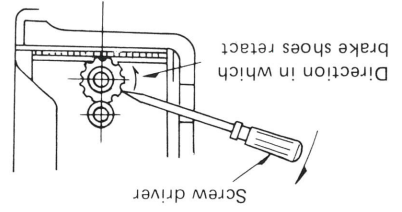
20

Brake



2.

By using a screw driver, turn the adjusting screw clockwise in such a manner as shown so that the brake shoes may expand and come into close contact with the brake drum.

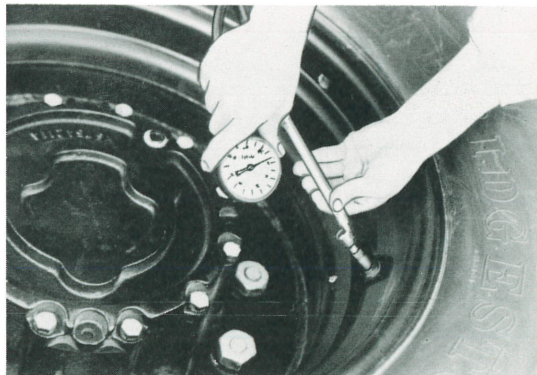


3.

Turn the adjusting screw back by 4 clicks and a correct clearance will be obtained.

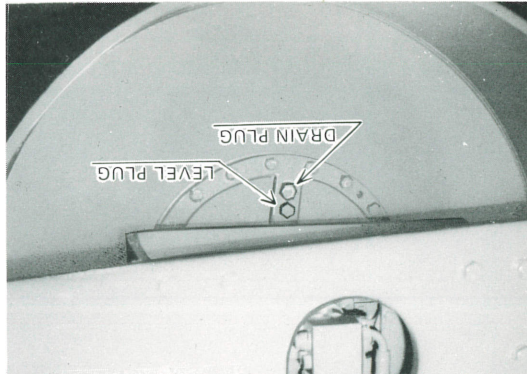
Every 250 Service Hours

11 Tires



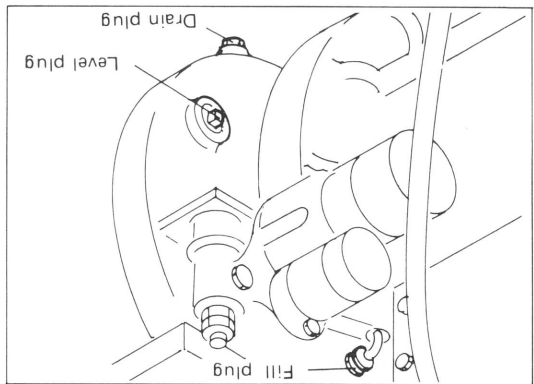
1. Check wear and cuts.
2. Check inflation pressure. Maintain 1.2 kg/cm², (allowable range is 0.9 ~ 1.4 kg/cm²)

17 Vibrator



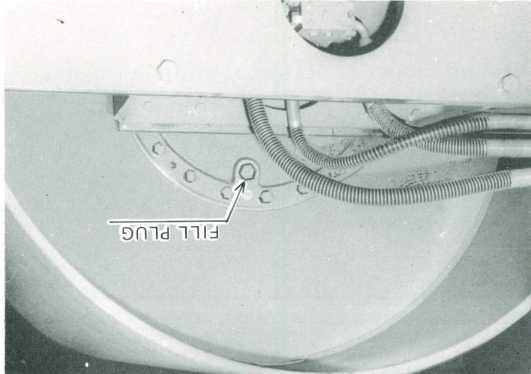
1. Rotate the roll until drain plug in the vibrator case comes to the bottom.
2. Remove the drain plug.

21 Power divider



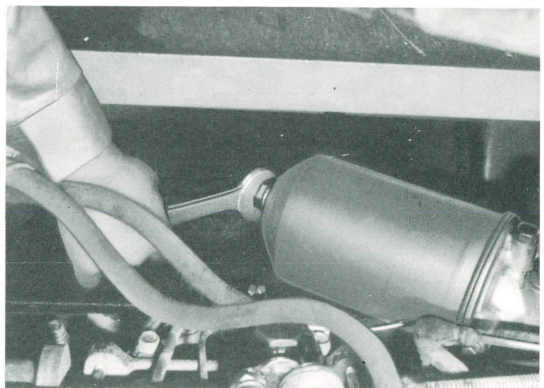
Check the oil level, adding as necessary.

3. Remove fill plug on top of the vibrator case, and level plug, and drain the case.



CAUTION:

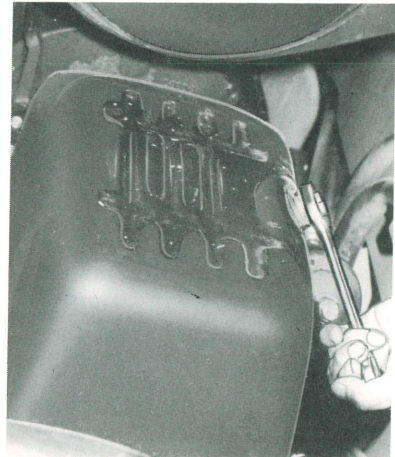
For engine services, see the Engine Instruction Book.



Engine oil filter

24

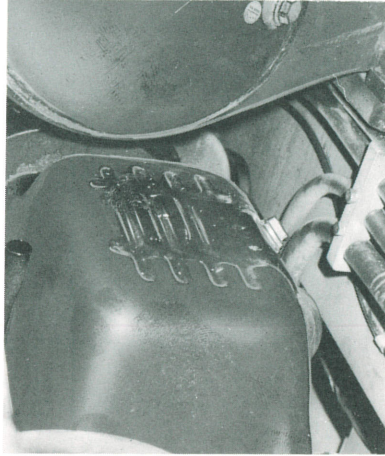
1. Remove the center bolt.
2. Remove the filter housing and element.



Engine oil pan

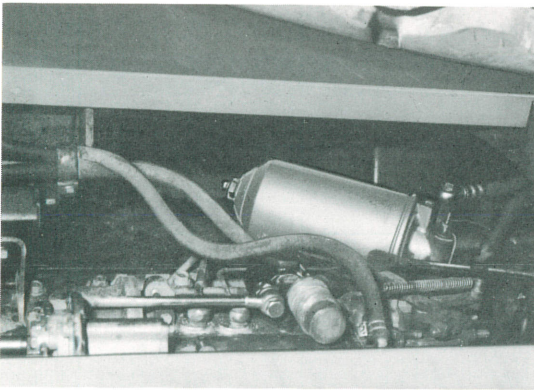
25

1. With the engine stopped and oil being warm, drain the oil pan.

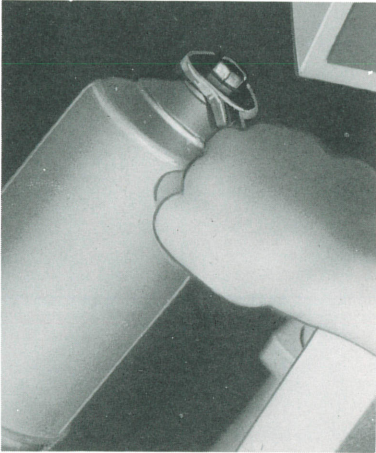


3. Reinstall the oil pan drain plug and oil filter drain plug.

3. Check the housing seal; replace with a new one if necessary.

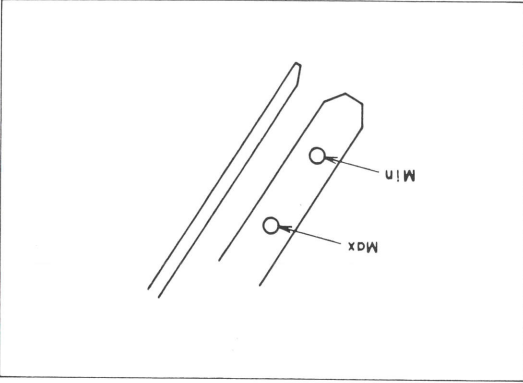


4. Install a new element.
5. Reinstall the disassembled parts.

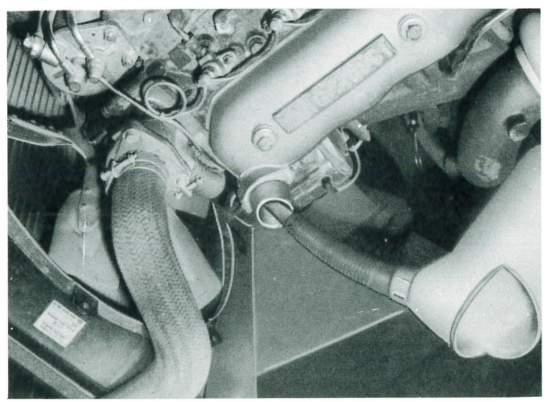


2. Drain the oil filter by removing the drain plug.

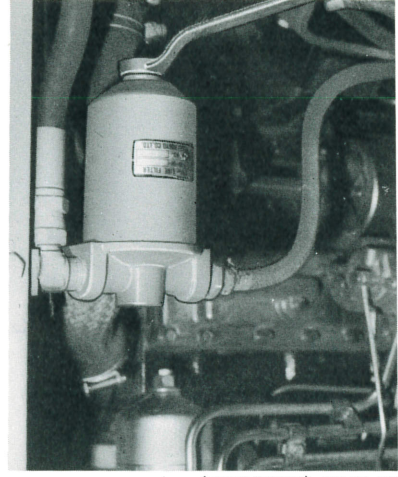
4. Fill the oil pan up to, at least, 2/3 the distance between the level marks.



5. Start and keep the engine running for about two minutes. Stop and leave the engine stationary for a few minutes. After that, recheck the oil level and add oil if necessary.



26 Fuel filter (tank side)

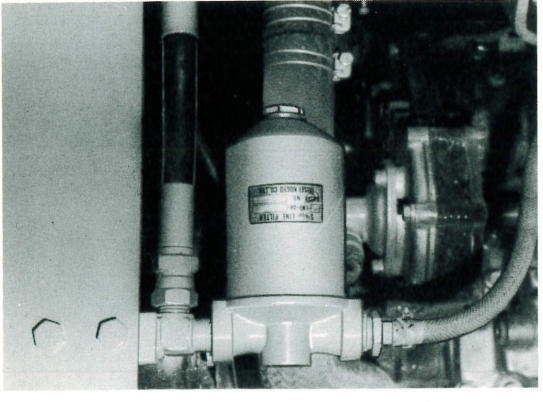
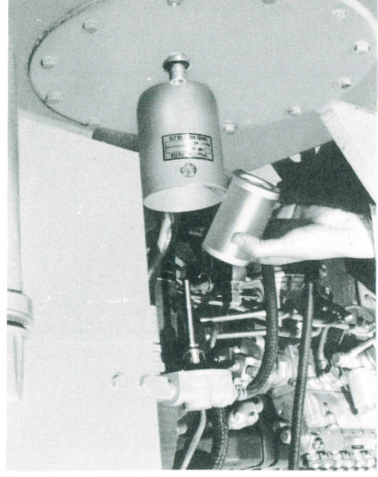


1. Remove the center bolt.

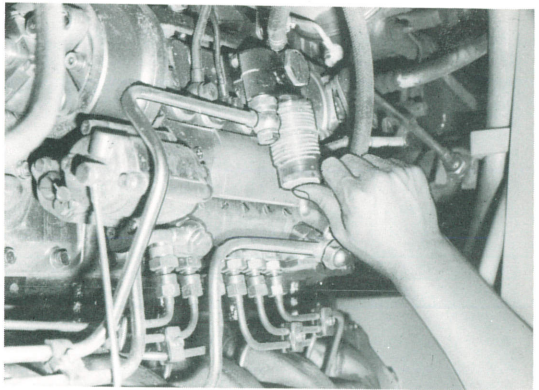


4. Wash clean the element and housing in a solvent.

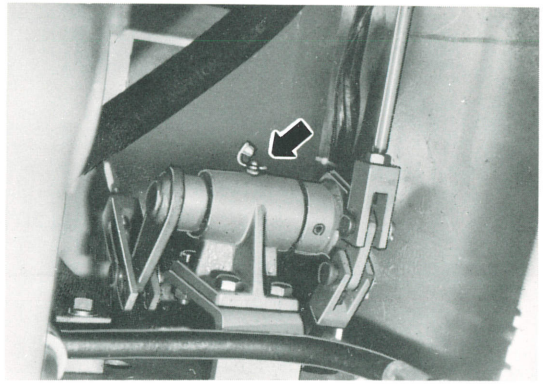
2. Remove the filter housing and element.
3. Check the filter housing seal, replace it with a new one if necessary.



5. Reinstall the cleaned element and housing in place.

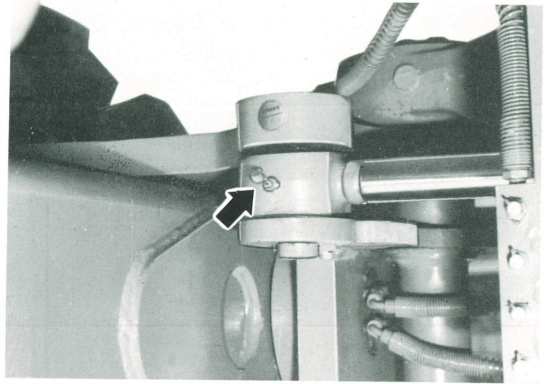


6. Bled the fuel system.

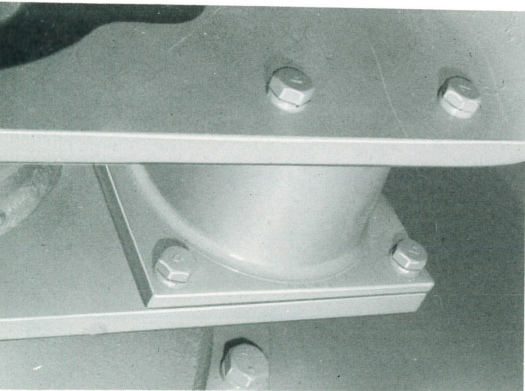


30 Brake links

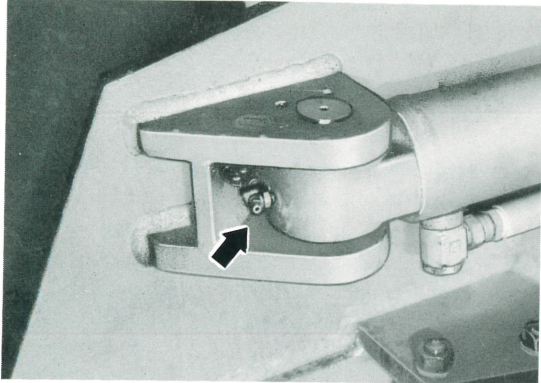
31 Cylinder head pin and anchor pin (steering)



Apply grease to 2 fittings.

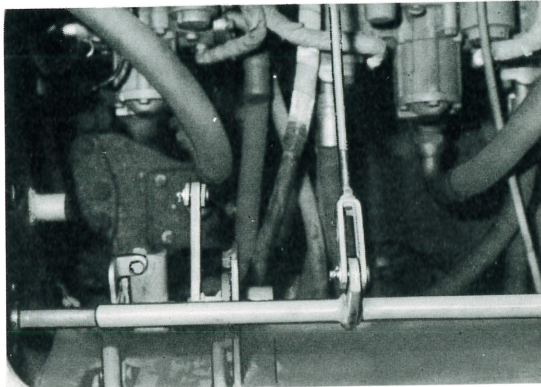


28 Shock mountings



Apply grease to 2 fittings.

Check the rods, bolts and nuts for looseness. If the Roller tends to move with the F-R lever in neutral, make the correct adjustment by shortening or lengthening the rod in the pump control linkage.

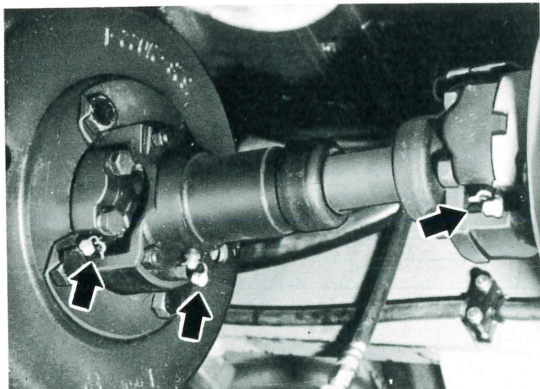


9 Control links

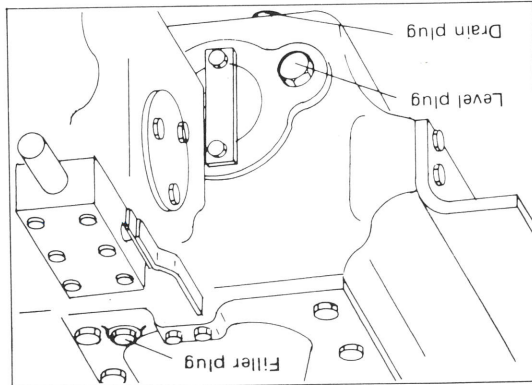
NOTE: For the engine services, refer to the ISUZU INSTRUCTION BOOK furnished separately.

Every 500 Service Hours

1. Apply grease to 3 fittings.
2. Check bolt looseness.



34 Drive shaft

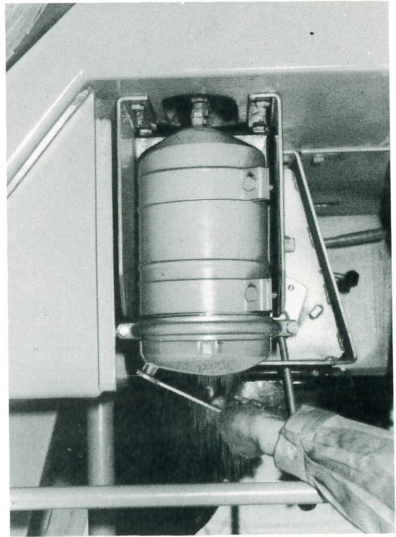


32 Transmission

Check the oil level, adding as necessary.

10

Partial oil filter (Available up to chassis No. 30366)



1. Remove the drain plug and air breather plug.

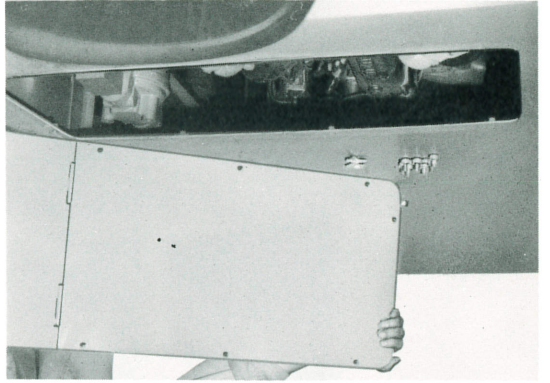
2. Remove the cramp band and filter cover.

3. Take out the filter element from the filter housing.

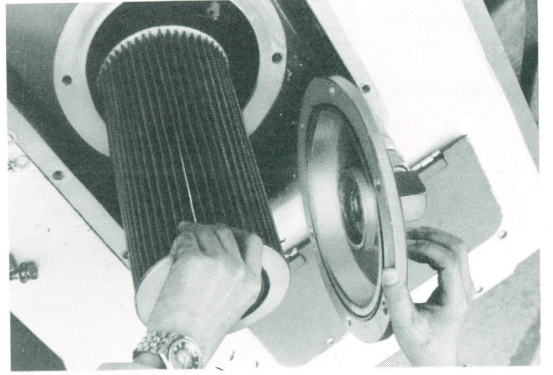
4. Wash clean the housing and nozzle in the housing.

14

Hydraulic oil suction filter



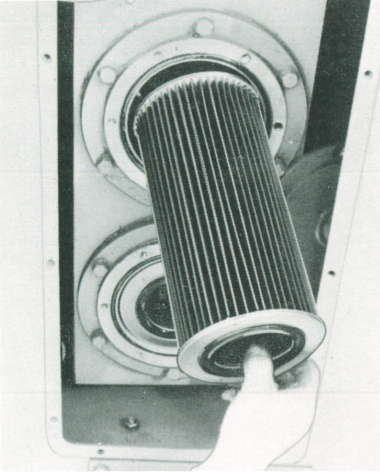
1. Remove the cover.



4. Take out the filter element.

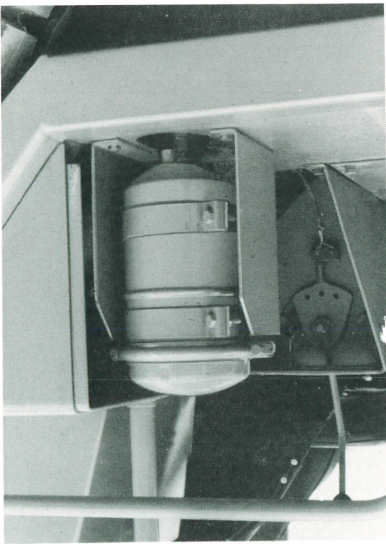
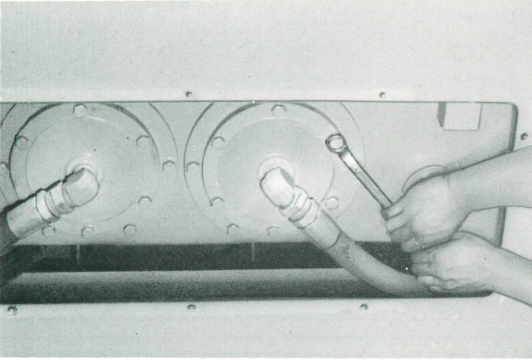
37

5. Install a new filter element.



2. Wipe clean the tank top.

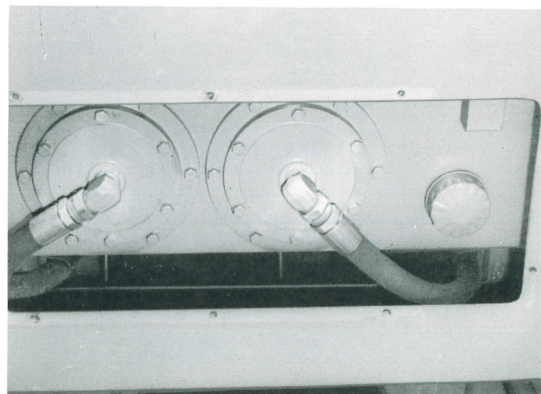
3. Remove the oil filter cover.



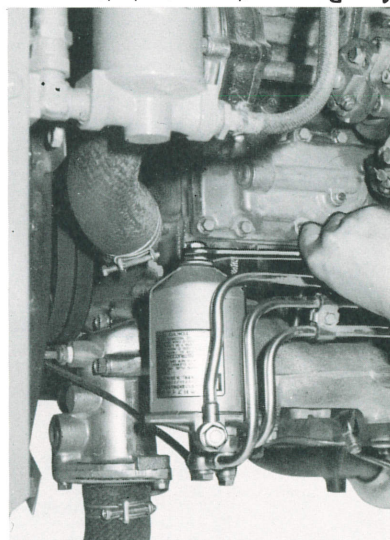
5. Install a new element.

6. Reinstall the disassembled parts.

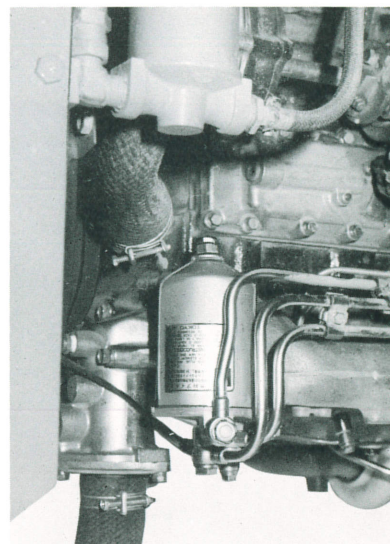
6. Check and clean the filter cover packing, replace it with a new one if necessary.
7. Reinstall the filter cover.



15 Fuel filter (engine side)

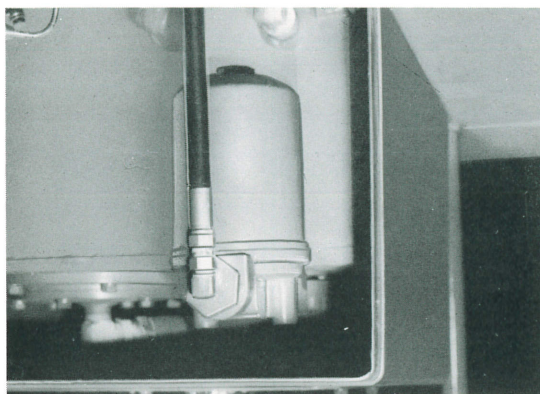


1. Remove the center bolt.



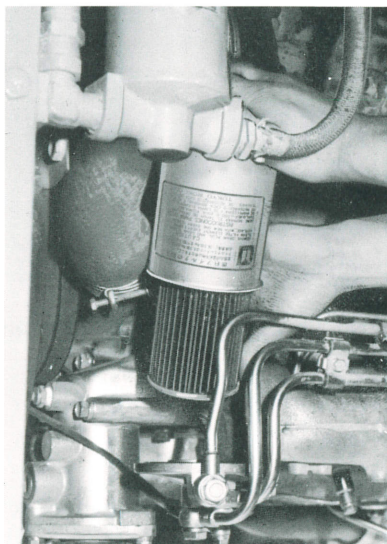
4. Reinstall the new element and filter housing in place.

Change filter cartridge.



23 Hydraulic oil return filter

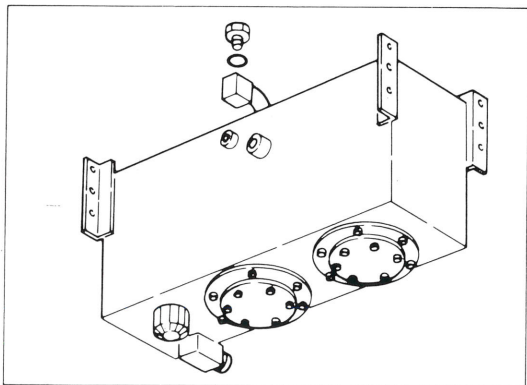
2. Take out the filter element from the filter housing.
3. Check the housing seal, replace it with a new one if necessary.



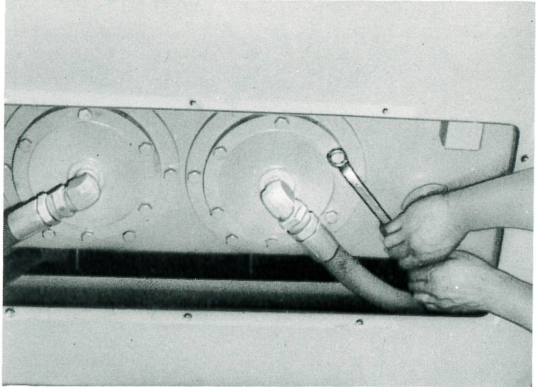
Every 1000 Service hours

③ Hydraulic Oil Suction Filter (Steering)

⑬ Hydraulic Oil Tank

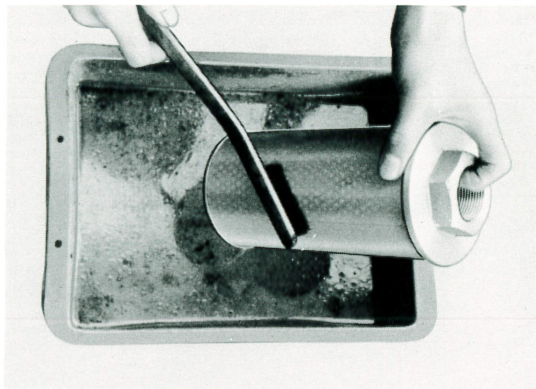


1. Remove the hydraulic tank drain plug with the engine stopped and drain oil while it is worm.



3. Wipe clean the tank top.

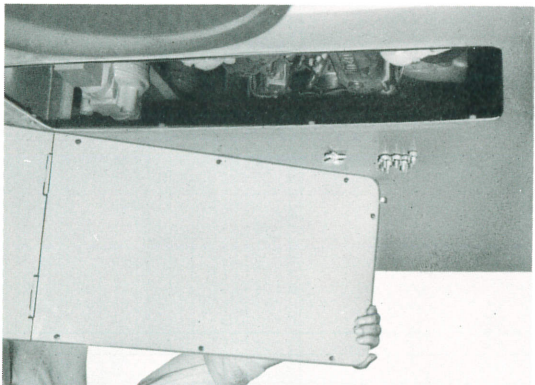
4. Remove the filter cover and take out the filter element.



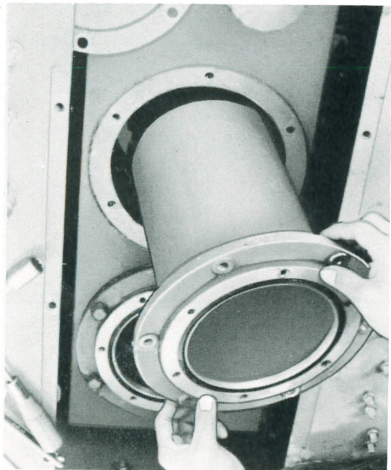
6. Take out the steering filter element.

7. Wash the filter element in a clean solvent.

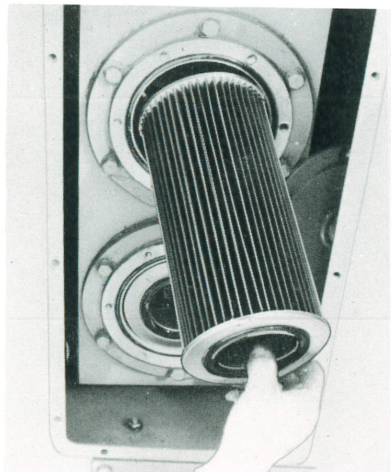
2. Remove the cover.



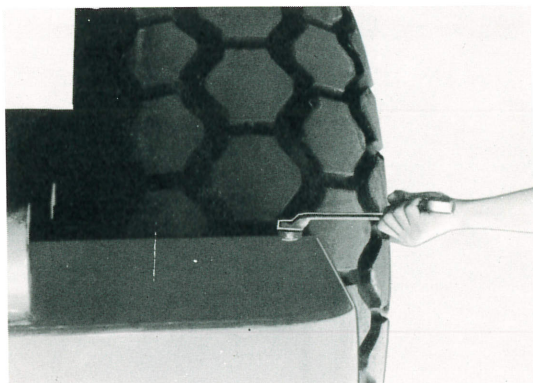
5. Take out the filter case.



8. Clean and inspect inside of the tank.

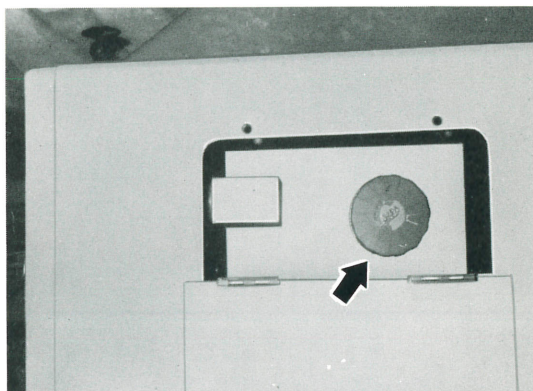


9. Reinstall the filter.



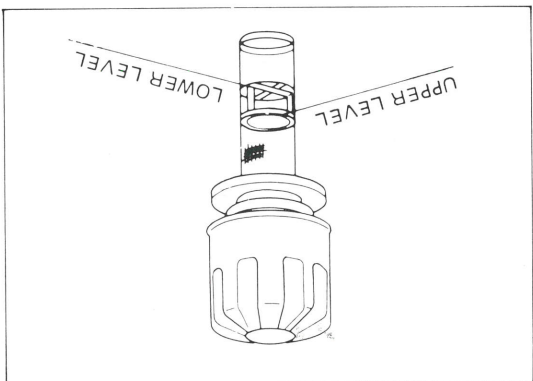
8 Fuel tank

1. Remove the plugs on both sides.
2. Drain water and sediment.
3. Remove the tank covers on both sides.
4. Clean inside.
5. Reinstall the plugs and covers.

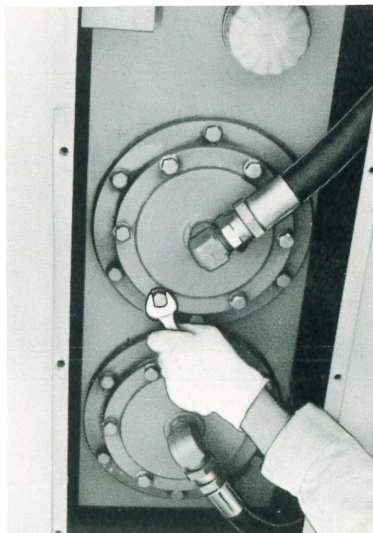


15. Reinstall the oil filler cap.

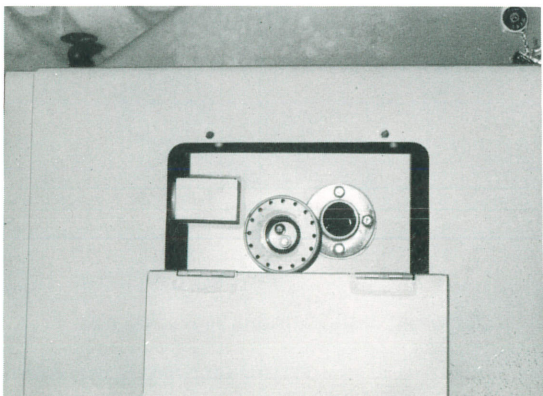
16. Maintain oil level between upper level and lower level.

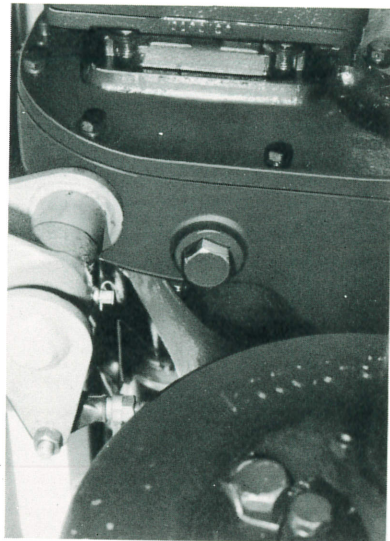


10. Bolt the cover after installing a new filter element.
11. Reinstall the drain plug.



12. Remove the filler cap.
13. Fill the tank to the specified level. Start and keep the engine running at idling speed. When the air bubbles disappear from the oil, stop the engine and recheck the oil level.
14. Add oil if the level is low.





22 Power divider

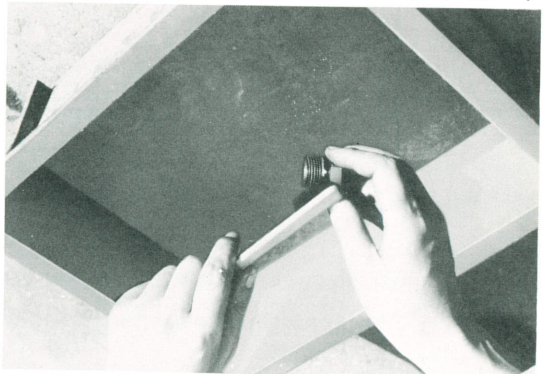
1. Remove the level plug and filler plug.
2. Remove the drain plug and drain oil.
3. Reinstall the drain plug.
4. Fill the case through the fill hole until the oil starts overflowing from the level plug hole.
5. Reinstall the level plug and fill plug.

41

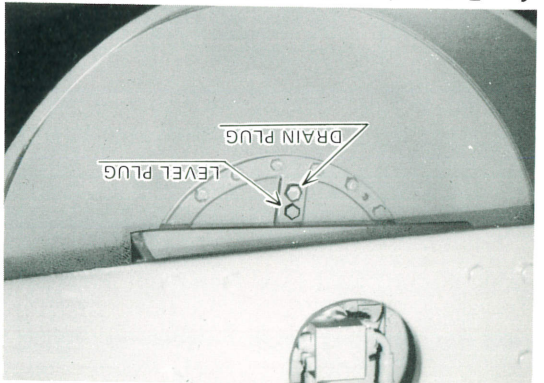
CAUTION

- The vibrator case must be filled with only the accurately amount of oil (15 liters). Never exceed 15 liters.
- To drain, tilt roll with drain plug down so as to drain throughout.

4. Wash clean the removed plugs.
5. Reinstall the drain plugs.

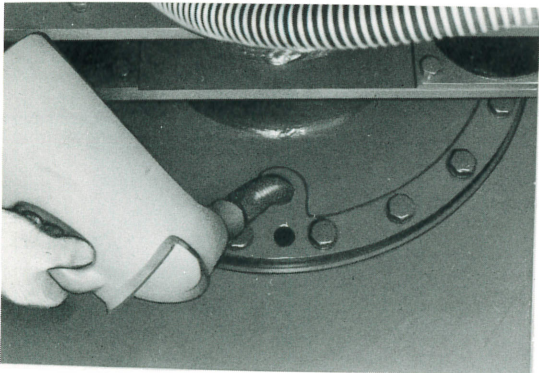


2. Remove the drain plug.
3. Rotate the roll until drain plug in the vibrator case comes to the bottom.

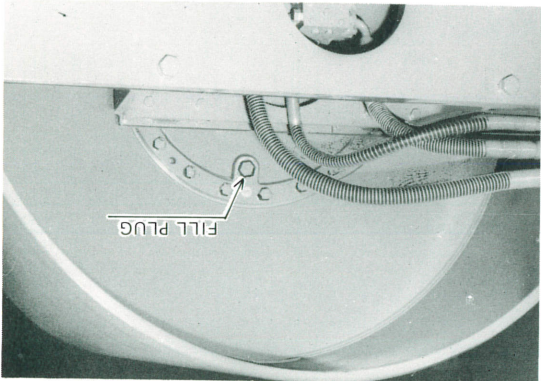


18 Vibrator

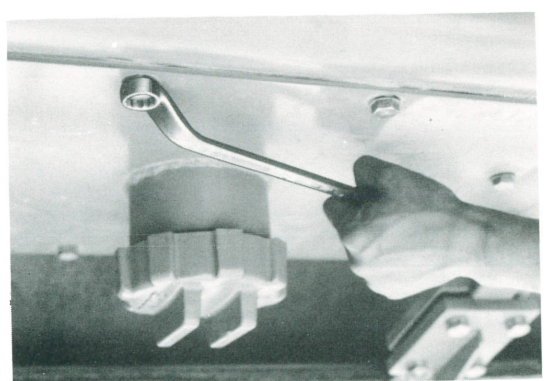
6. Fill the case through the fill plug hole until the oil starts overflowing from the level plug hole.
7. Reinstall the plugs.



3. Remove fill plug on top of the vibrator case, and level plug, and drain the case.

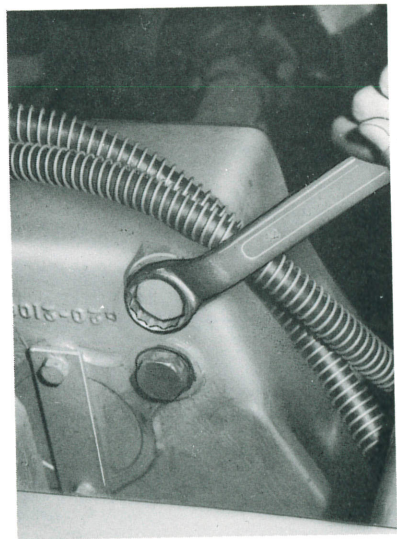


29 Sprinkler tank (Only for model SV91 A)



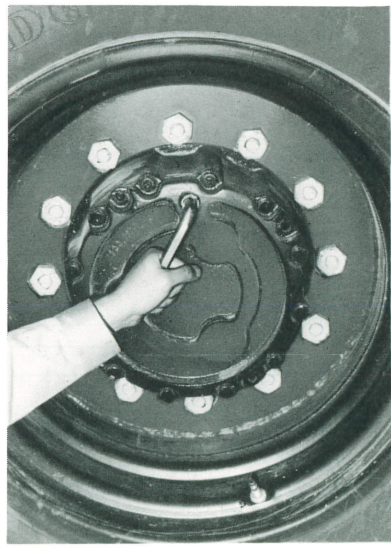
1. Clean the interior after removing the top cover.
2. Reinstall the cover.

33 Transmission



1. Remove the level plug and filler plug.
2. Remove the drain plug and drain oil.
3. Reinstall the drain plug.
4. Fill the case through the fill port until the oil starts overflowing from the level plug port.
5. Reinstall the level plug and filler plug.

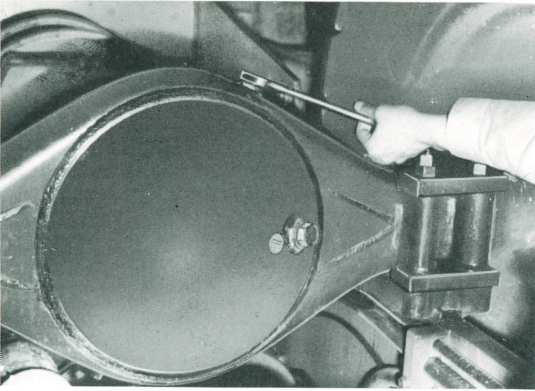
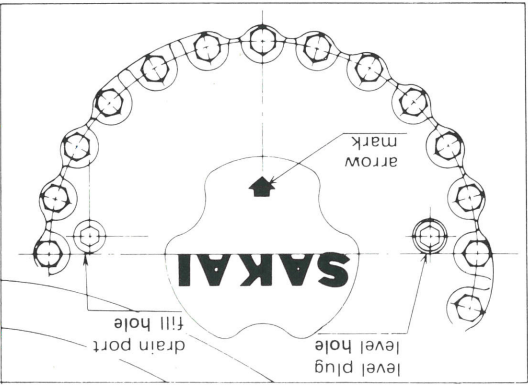
Differential and final drive



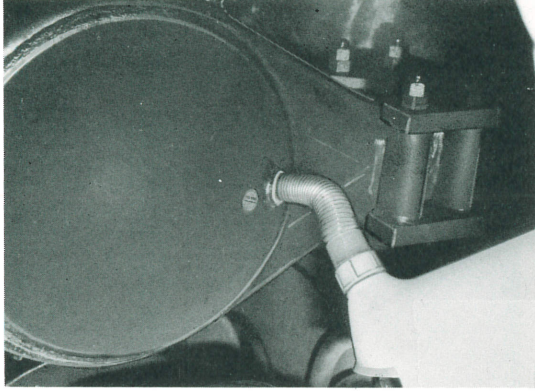
- 1. Rotate each wheel until the drain plug in the final drive comes to the bottom. Remove the level plug and drain plug to drain oil.



- 2. Rotate the wheel to let the arrow mark point to the bottom.
- 3. Fill the final drive housing through the drain hole until the oil starts overflowing from the level hole.
- 4. Reinstall the drain plug and level plug.

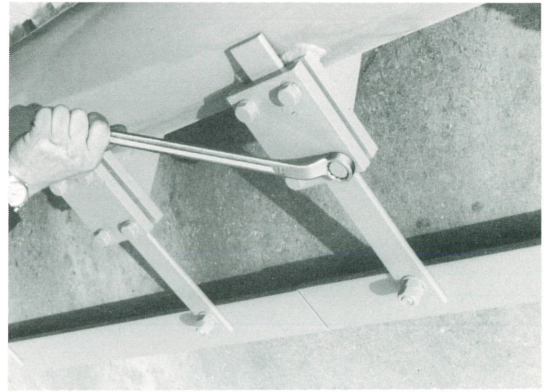


- 5. Remove the drain plug, and filler plug to drain the differential housing.
- 6. Reinstall the drain plug.

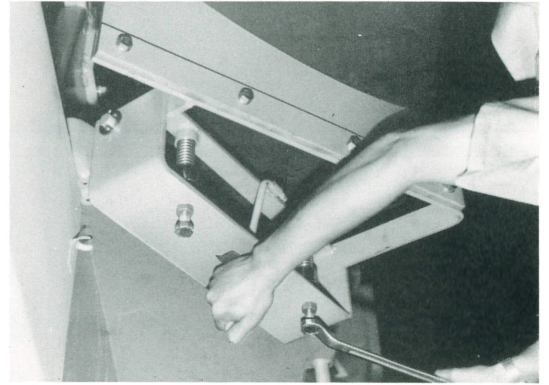


- 7. Fill the differential housing through the fill hole until the oil starts overflowing from the fill hole.
- 8. Reinstall the fill hole and filler plug.

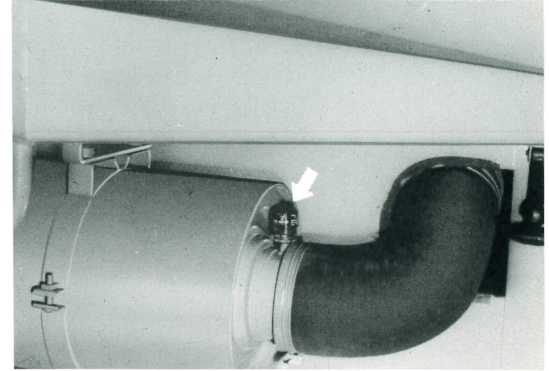
When Required ①
Scrapper



- Front**
1. Loosen the bolts and adjust the blades about 15 mm spaces from roll surface.
 2. After adjustment, tighten the bolts.



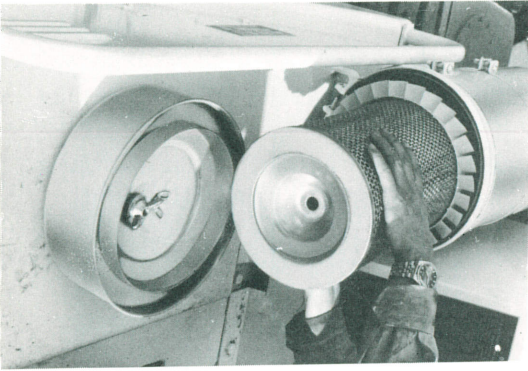
- Rear**
- (Only for model SV91 A)
Take off the lockpin and adjust the blades by tightening or loosing the adjusting bolts.



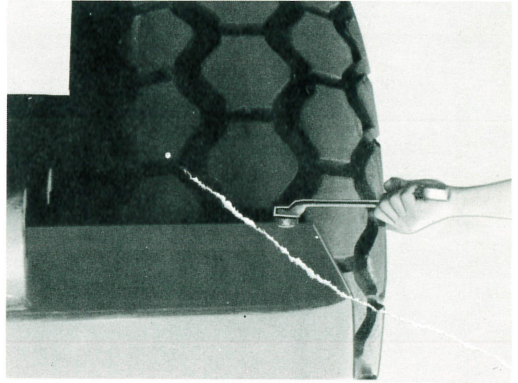
⑤ **Air cleaner**

When the red piece of the dust indicator has reached the service level (occupied the entire space in the sight glass), take out and clean the filter element thoroughly in the following manner:

1. Remove and clean the dust cup.
2. Take out the outer element by removing the wing nut.
3. Clean the filter body interior.



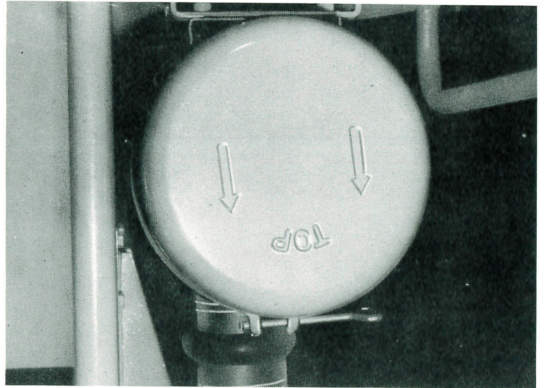
1. Remove the plugs on both sides.
2. Drain water and sediment.
3. Install plugs.



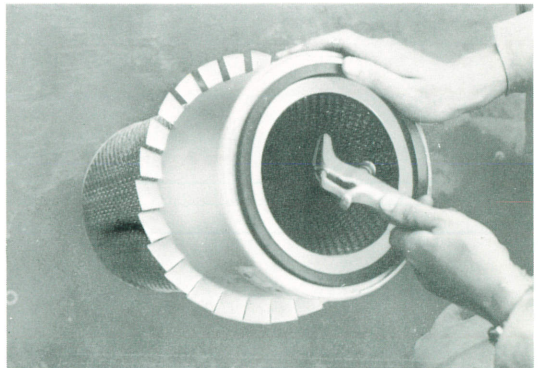
36 Fuel tank

CAUTION: If the red piece remains in the service level with the element that has been cleaned as described above, replace either the primary or the secondary element with a new one. In normal operation, replace the primary element shortly after cleaning 6 times or every 12 months of operation. The secondary element should be replaced shortly after the primary element has been cleaned 4 times.

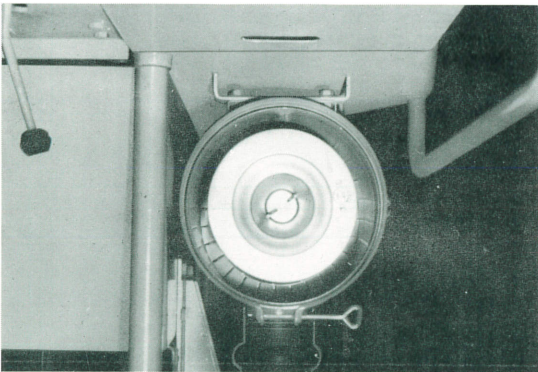
7. Reinstall the cleaned dust cup with the arrows on the cup pointing upward.



4. Clean the element with compressed air.
5. Check the element for pinholes or breakage. Replace the element, if found to be defective.



6. Reinstall the cleaned element in place.



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