CEAM001400

Operation & Maintenance Manual

WA500-3

WHEEL LOADER

SERIAL NUMBERS **WA500-3LE - A70001** and up

It is our policy to improve our products whenever it is possible and practical to do so. We reserve the right to make changes or add improvements at any time without incurring any obligation to install such changes on products sold previously.

Due to this continuous program of research and development, periodic revisions may be made to this publication. It is recommended that customers contact their distributor for information on the latest revision.

March 1997

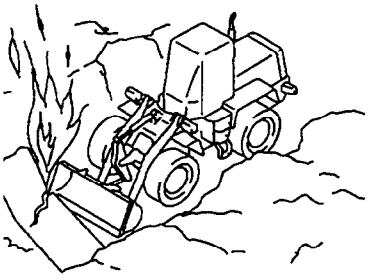
7. PRECAUTIONS DURING OPERATION

7.1 BEFORE STARTING ENGINE

(Also see "12.1.2 CHECKS BEFORE STARTING" on page 2-36)

SAFETY AT WORKSITE

- Before entering the operator's compartment, walk completely around the machine and clear the area of personnel and obstructions.
- Before starting the engine, thoroughly check the area for any unusual conditions that could be dangerous.
- Before starting the engine, examine the terrain and soil conditions of the worksite. Determine the best and safest method of operation.
- If you need to operate on a street, protect pedestrians and cars by designating a person for worksite traffic duty or by installing barriers around the worksite,
- If water lines, gas lines, telephone lines, and high-voltage electrical lines may be buried under the worksite, contact each utility and identify their locations. Be careful not to sever or cut any of these lines.
- Check the depth and flow of water before operating in water or crossing a river. NEVER be in water which is in excess of the permissible water depth.
  Permissible water depth → See "12.11 PRECAUTIONS FOR OPERATION" on page 2-60.



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FIRE PREVENTION

- Carry out the following checks before starting the engine at the beginning of the day's work. Failure to carry out these checks may lead to serious injury or damage.
- Completely remove all wood chips, leaves, grass, paper and other flammable materials accumulated in the engine compartment and around the battery. Check fuel, lubrication, and hydraulic system for leaks, and a have any leaks repaired. Wipe up any excess oil, fuel or other flammable fluids. Return all containers to their proper place,.
- Check for damage to the electrical wiring.
- Be sure a fire extinguisher is present and check the method of using it.
- Do not operate the machine near any fire or flame.

WALK AROUND CHECK

- Check that the coolant level, fuel level and oil level in the engine oil pan.
- Check for clogging of the air cleaner

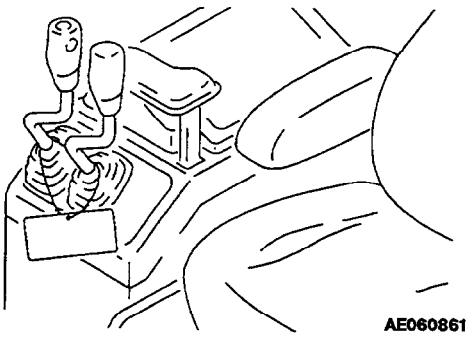
  Check points See "12.1.1 WALK AROUND CHECK" on page 2-33

8. PRECAUTIONS FOR MAINTENANCE

8.1 BEFORE CARRYING OUT MAINTENANCE

WARNING TAG

- If others start the engine or operate the controls while you are performing service or lubrication, you could suffer serious injury or death.
- ALWAYS attach the WARNING TAG to the control lever in the operator's cab to alert others that you are working on the machine. Attach additional warning tags around the machine, if necessary.
- These tags are available from your distributor. (Part No. 09963-03000)



PROPER TOOLS

- Use only tools suited to the task. Using damaged, low quality, faulty, or makeshift tools could cause personal injury.
  Tools → See "21.1 INTRODUCTION OF NECESSARY TOOLS" on page 3-18.

PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS

- Replace the following fire-related components periodically:
  Fuel system: Fuel hose, spilling hose, and fuel tube cap
  Hydraulic system: Pump outlet hose, and front and rear pump branch hoses
- Replace these components periodically with new ones, regardless of whether or not they appear to be defective. These components deteriorate over time.
- Replace or repair any such components if any defect is found, even though they have not reached the time specified.
  Replacement of safety critical components →See "22. PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS" on page 3-22.

1. Precautions before starting.

⚠ WARNING

Improper operation and maintenance can cause serious injury or death.

Read manual and labels before operation and maintenance.
Follow instructions and warnings in manual and in labels on machine.

Keep manual in machine cab near operator.
Contact Komatsu distributor for a replacement manual.

L02AD204

2. Precautions for safety lock lever.

⚠ WARNING

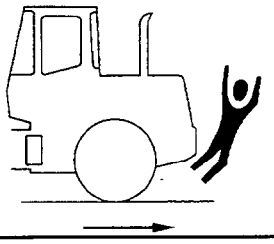
To avoid hitting unlocked operation levers, lower equipment to ground and move SAFETY LOCK LEVER (located near seat) to LOCK position before standing up from operator's seat.

Sudden and unwanted machine movement can cause serious injury or death.

L02AD205

3. Precautions when traveling in reverse.

⚠ WARNING



To prevent SEVERE INJURY or DEATH, do the following before moving machine or its attachments:

- Honk horn to alert people nearby.
- Be sure no one is on or near machine.
- Use spotter if view is obstructed.

Follow above even if machine equipped with back-up alarm and mirrors.

L02AD206

4. Precautions for parking brake.

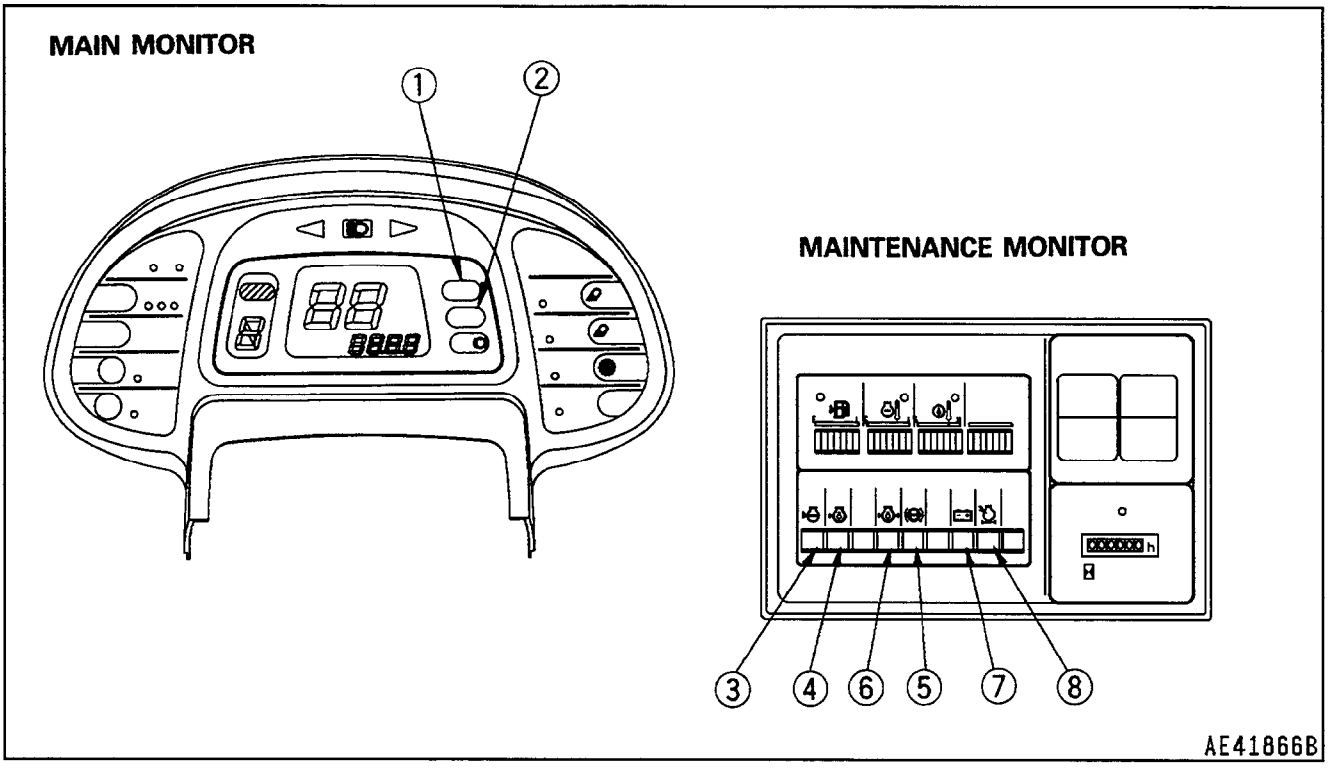
⚠ WARNING

If the switch is set to RELEASE, a serious accident could result, as this operation releases the parking brake and the machine may move off suddenly.
Never set the switch to RELEASE except when towing a disabled machine.
Before towing such machine, read its manual carefully and be sure to follow the instructions given therein.

L02AD207

Order 425-93-21210 for safety labels (1 - 4)

11.1.1 WARNING DISPLAYS



1. CENTRAL CHECK LAMP (CHECK)

⚠ WARNING

If this monitor flashes, carry out inspection and maintenance of the appropriate location as soon as possible

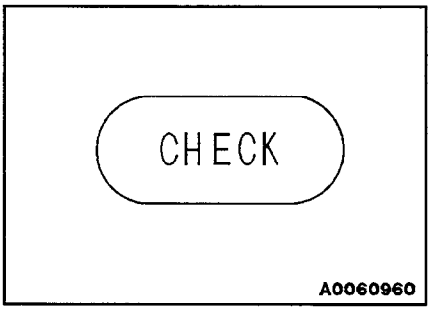
- If any abnormality is found in the CHECK items before starting the engine (engine oil level, engine water level), the monitor lamp for abnormal location will flash and the central CHECK lamp will also flash.

  Check the location where the monitor lamp is flashing and carry out the check before starting.

  When carrying out the checks before starting, do not rely simply on the monitor. Always carry out the specified maintenance items.

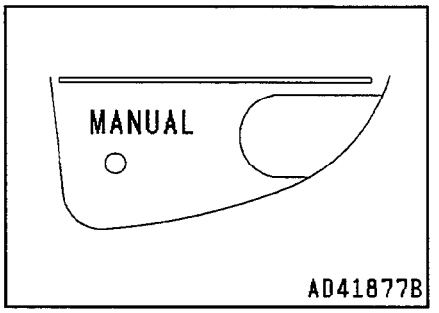
  When carrying out checks before starting, if the engine oil level is abnormal, the engine oil level will change when the engine is started, so even if there is any abnormality, the central CHECK lamp and monitor lamp will stop flashing.

  If there is any abnormality in the engine water level, the central CHECK lamp will go out when the engine is started, but instead of this, the central CAUTION lamp will flash and the alarm buzzer will sound intermittently.



5. TRANSMISSION MANUAL SELECTION SWITCH

Press the push button to turn ON or OFF. If the switch is pressed once, the pilot lamp lights up and the system is switched ON. If it is pressed again, the pilot lamp goes out and the system is switched OFF.



Normally, leave this switch in the OFF position.

OFF: Automatic gear shifting.
ON: Manual gear shifting.

If the switch is turned ON, the transmission manual selection pilot lamp lights up.

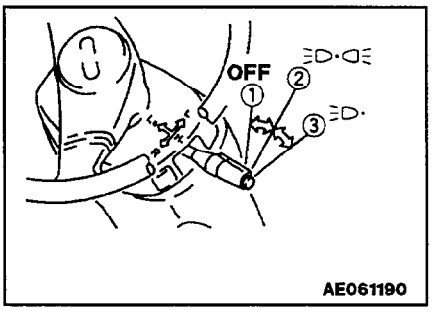
REMARKS

For details of manual gear shifting and automatic gear shifting, see **"11.3 "CONTROL LEVERS, PEDALS"** on page 2-22.

6. LAMP SWITCH

This is used to light up the head lamps, side clearance lamps, tail lamps, and instrument panel lighting.

① OFF
② position: Side clearance lamp, tail lamps, and gauge lighting light up
③ position: Head lamps light up in addition to lamps at ② position



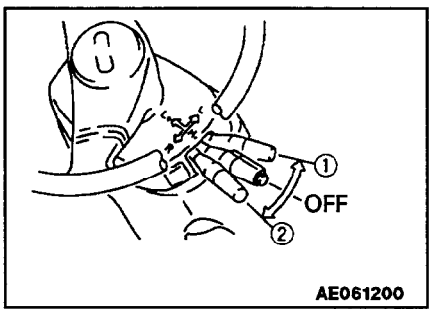
REMARKS

The lamp switch can be operated regardless of the position of the lever.

6. TURN SIGNAL LEVER

This lever operates the turn signal lamps.

① LEFT TURN: Push lever FORWARD.
② RIGHT TURN: Pull lever BACK.



REMARKS:

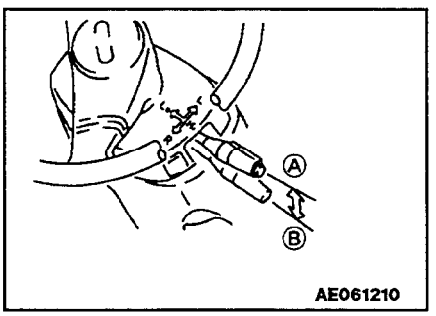
When the lever is operated, the turn signal pilot lamp will also light up.

When the steering wheel is turned to the neutral position, the turn signal lever will return automatically to OFF. If not, return the lever to OFF manually.

6. DIMMER SWITCH

This switches the head lamp between high beam an low beam.

Ⓐ Low beam
Ⓑ High beam



11.4 STEERING COLUMN TILT LEVER

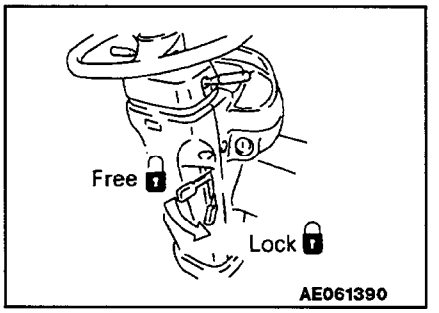
⚠ WARNING

Stop the machine before adjusting the angle of the steering wheel.

This lever allows the steering column to be tilted forward or backward.

Pull the lever up and move the steering wheel to the desired position. Then push the lever down to lock the steering wheel in position.

Range of adjustment: 125 mm (4.92 in) (stepless)

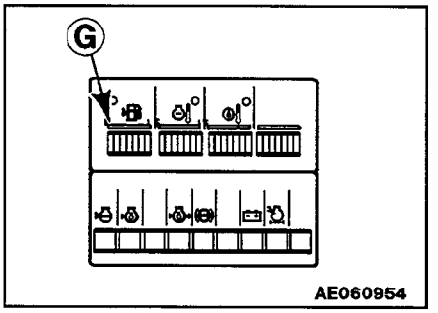


CHECK FUEL LEVEL, ADD FUEL

⚠ WARNING

When adding fuel, never let the fuel overflow. This could cause a fire, thoroughly clean up any spillage.

1. Turn the engine starting switch to the ON position, then check the fuel level on the fuel gauge (G).
   After checking, return the starting switch to the OFF position.

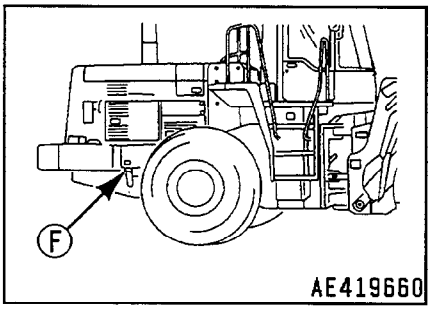


2. Add fuel through filler (F).

   For details of the method for opening and closing the cap, **see "11.5 CAP WITH LOCK" on page 2-28**

   For details of the fuel to use, **see "20. USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE" on page 3-10**

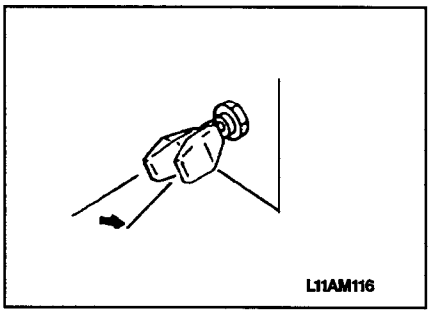
3. After adding fuel, tighten cap securely.



FUEL CAPACITY: 105.6 US gal (400 ℓ, 88 UK gal)

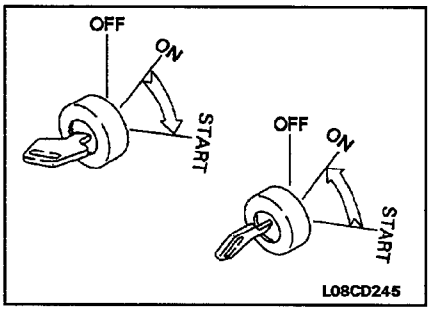
NOTE: **To eliminate moisture or corrosion in the fuel tank, it is recommended that fuel tank always be filled before storing the machine until the next work operation.**

12.2.3 COLD WEATHER STARTING



⚠ WARNING

Never use the ether start switch (3) except when starting engine.
Never give cylinder access to fire or throw in fire.
Never drill a hole in the cylinder.
Do not store where temperature rises over 40°C (104°F)
Never put ether gas on skin nor breath it in.
Do not leave cylinder where children can reach it.
NEVER use ether together with air intake preheating device.



NOTE: The ether cylinder can be used for about 230 times (Amount of ether injected: 3 cc, total capacity for one cylinder: 710 cc)

Remove the ether cylinder when it is unnecessary in summer.

When ambient temperature is below -25°C (-13°F) keep the ether cylinder in a place where the temperature is normal.

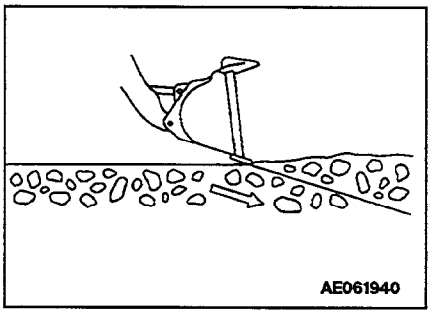
Before changing the ether cylinder always clean out the valve area where the cylinder is installed, and replace the gasket at the same time.

1. Turn the key in the starting switch (1) to the ON position.
2. Do not depress accelerator pedal (2). (Keep your foot off the throttle.)
3. Turn key (1) to the START position to start the engine.
4. Move ether start switch (2) to the ON position, then release it immediately. **DO NOT** hold it at the on position for more than 5 seconds. This will cause failure of the ether start valve solenoid.

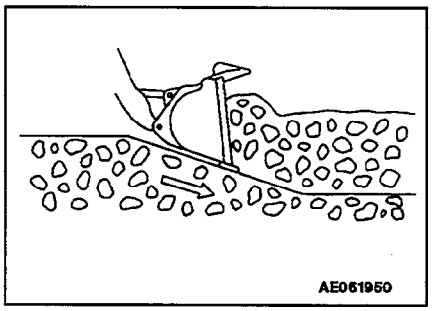
NOTE: **If the engine does not start, repeat this 2-3 times. Then if it doesn't start wait 2 minutes before trying again.**

When digging and loading on level ground, set the bucket edge facing down slightly as follows and drive the machine forward.
Always be careful not to load the bucket on one side and cause an unbalance load.
This operation should be carried out in first gear.

1. Set the edge of the bucket facing slightly down.

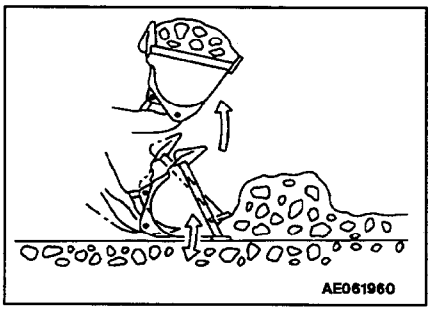


2. Drive the machine forward and operate the lift arm control lever forward to cut a thin layer of the surface each time when excavating the soil.

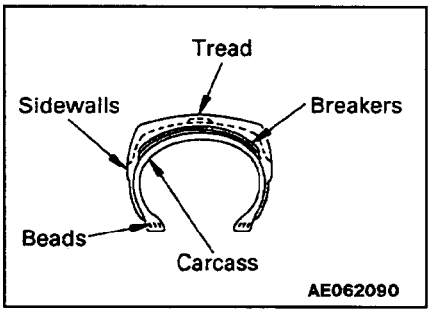


3. Operate the lift arm control lever slightly up and down to reduce the resistance when driving the machine forward.

   When digging with the bucket, avoid imposing the digging force onto only one side of the bucket.



12.18 HANDLING THE TIRES



12.18.1 PRECAUTIONS WHEN HANDLING TIRES

If the following defects are found in a tire, for safety reason the tire should be replaced with a new one.

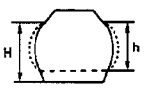
- Bead wire is broken or bent, or the tire is greatly deformed.
- Wear is excessive and the carcass ply (excluding breaker) is exposed for more than 1/4 of the circumference.
- Damage to the carcass exceeds 1/3 of the tire width.
- Tire layers are separated.
- Radial cracks reach the carcass.
- Deformation or damage which makes the tire unsuitable for use.

12.18.2 TIRE PRESSURE

Measure the tire pressure before starting operations, when the tires are cool.

If the tire inflation pressure is too low, the tire will be overloaded; if it is too high, it will cause tire cuts and shock burst. To prevent these problems, adjust the tire inflation pressure according to the table on the next page.

Deflection ratio = $\frac{H - h}{H} \times 100$



As a guideline that can be check visibly, the deflection ratio of the front tire (deflection/free height) is as follows.

When carrying normal load (lift arm horizontal): Approximately 15 - 25 %

When digging (rear wheels off ground): Approximately 25 - 35 %

When checking the tire inflation pressure, check also for small scratches or peeling of the tire, for nails or pieces of metal which may cause punctures, and for any abnormal wear.

Clearing fallen stones and rocks from the operating area and maintaining the surface will extend the life of the tires.

- For operations on normal road surfaces, rock digging operations:.....High end of range in air pressure chart
- Stockpile operations on soft ground:.....Average pressure in air pressure chart
- Operations on sand (operation not using much digging force)..... Low end of range in air pressure chart

14.1.3 BATTERY

⚠ WARNING

To avoid gas explosions, do not bring fire or sparks near the battery.

Battery electrolyte is dangerous. If it gets in your eyes or on your skin, wash it off with large amounts of water, and consult your doctor.

When the ambient temperature drops, the capacity of the battery will also drop. If the battery charge ratio is low the battery electrolyte may freeze. Maintain the battery charge as close as possible to 100%, and insulate it against cold temperature so that the machine will start easy the next morning.

REMARKS

Measure the specific gravity and calculate the rate of charge from the following conversion table.

Rate of charge	Temperature of fluid				
	20°C (68°F)	0°C (32°F)	-10°C (14°F)	-20°C (-4°F)	-30°C (-22°F)
100%	1.28	1.29	1.30	1.31	1.32
90%	1.26	1.27	1.28	1.29	1.30
80%	1.24	1.25	1.26	1.27	1.28
75%	1.23	1.24	1.25	1.26	1.27

14.2 PRECAUTIONS AFTER COMPLETION OF WORK

To prevent mud and water in and on the machine from freezing and making it impossible for the machine to move on the following morning, observe the following precautions.

- Mud and water in and on the machine should be completely removed.
- Park the machine on hard, dry ground. If this is not possible, park the machine on wooden boards. The boards will help protect the machine from freezing to the soil.
- Drain any water collected in the fuel system, to prevent it from freezing.
- Because the battery capacity drops in low temperatures, cover the battery or remove it from the machine, keep it in a warm place, and install it again the next morning.

16.3.2 PRECAUTIONS FOR CHARGING BATTERY

CHARGING BATTERY WHEN MOUNTED ON MACHINE

- Before charging, disconnect the cable from the negative (-) terminal of the battery. Otherwise, an unusually high voltage could damage the alternator.

- While charging the battery, remove all battery plugs for satisfactory ventilation.
  To avoid gas explosions, do not bring fire or sparks near the battery.

- If the electrolyte temperature exceeds 45°C, stop charging for a while.

- Turn off the charger as soon as the battery is charged.
  Over charging the battery may cause the following:

  1) Overheating the battery
  2) decreasing the quantity of electrolyte
  3) Damaging the electrode plate

- Do not mix the cables (positive (+) to negative (-) or negative (-) to positive (+)), as this could damage the alternator.

- When performing any service to the battery besides checking the electrolyte level or measuring the specific gravity, disconnect cables from the battery.

REMARKS:

The batteries are on both sides at the rear of the machine. The battery used for the ground is on the left side of the machine.

TRANSMISSION CONTROL SYSTEM

Error Code	Item	Problem system	
		Short circuit	Disconnection
10	Back-up lamp relay	o	o
11	None	-	-
12	FECMV Solenoid	o	o
13	RECMV Solenoid	o	o
14	1st ECMV Solenoid	o	o
15	2nd ECMV Solenoid	o	o
16	3rd ECMV Solenoid	o	o
17	4th ECMV Solenoid	o	o
18	None	-	-
19	Joystick direction switch	o	o
20	Direction switch signal	o	o
21	Range switch signal	o	o
22	Travel speed sensor	X	o
23	Engine speed sensor	o	o
24	Abnormality in EEP RAM	o	o
25	Transmission oil pressure sensor	o	X
26	F ECMV fill switch	o	X
27	R ECMV fill switch	o	X
28	1st ECMV fill switch	o	X
29	2nd ECMV fill switch	o	X
30	3rd ECMV fill switch	o	X
31	4th ECMV fill switch	o	X
32	R or F ECMV fill switch	X	o
33	1st, 2nd, 3rd, or 4th ECMV fill switch	X	o

19. WEAR PARTS LIST

Wear parts such as filter elements, bucket teeth, etc. are to be replaced at the time of periodic maintenance or before their abrasion limits.
The wear parts should be changed correctly in order to use the machine economically.
For part replacement, genuine Komatsu parts of excellent quality should be used.

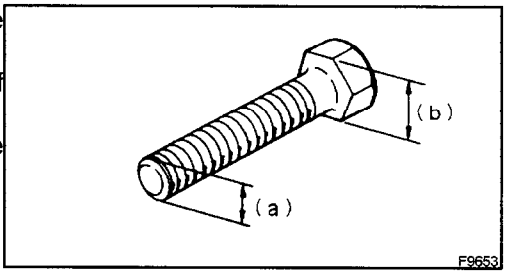
Use the parts book to write in the current part number.

The parts in parentheses are to be replaced at the same time.

Item	Part Number	Part Name	Qty	Replacement frequency
Engine oil filter		Cartridge	1	Every 250 Hours Service
Coolant corrosion resistor cartridge		Cartridge	1	Every 250 Hours Service
Fuel filters		Cartridge	2	Every 500 Hours Service
Transmission oil filter		Element (O-ring) (O-ring) (O-ring) (Gasket)	1 (1) (1) (1) (1)	Every 500 Hours Service
Transmission strainer		O-ring	1	Every 1000 Hours Service
Hydraulic oil filter		Element (O-ring)	1 (1)	Every 2000 Hours Service
Hydraulic tank breather		Element	1	Every 2000 Hours Service
Air cleaner		Element assy. Outer element assy.	1 1	When required
Air conditioner recirculation & fresh air filters - If equipped		Element	2	Every 2000 Hours Service
Bucket cutting edges and mounting bolts		Center edge side edge (Bolt) (Nut) (Washer)	1 2 (8) (8) (8)	When required

21.2 TORQUE LIST

Unless otherwise specified, tighten the metric bolts and nuts to the torque shown in the table.
The tightening torque is determined by the width across the flats of the nut and bolt.
If it is necessary to replace any nut or bolt, always use a genuine Komatsu part of the same size as the part that was replaced.
N•m (newton meter): 1 N•m ≒ 0.1 kgm
≒ 0.74 lbf ft



Thread diameter of bolt (mm) (a)	Width across flat (mm) (b)	Ⓣ		Ⓗ
		N•m	kgm	lbf ft
6	10	13.2 ± 1.4	1.35 ± 0.15	97.3 ± 1.03
8	13	31.4 ± 2.9	3.2 ± 0.3	23.2 ± 2.1
10	17	65.7 ± 6.8	6.7 ± 0.7	48.5 ± 5.0
12	19	112 ± 9.8	11.5 ± 1.0	82.6 ± 7.2
14	22	177 ± 19	18.0 ± 2.0	131 ± 14
16	24	279 ± 29	28.5 ± 3	206 ± 21
18	27	383 ± 39	39 ± 3	282 ± 29
20	30	549 ± 58	56 ± 6	405 ± 43
22	32	745 ± 78	76 ± 8	549 ± 58
24	36	927 ± 98	94.5 ± 10	684 ± 72
27	41	1320 ± 140	135 ± 15	973 ± 100
30	46	1720 ± 190	175 ± 20	1270 ± 140
33	50	2210 ± 240	225 ± 25	1630 ± 180
36	55	2750 ± 290	280 ± 30	2030 ± 210
39	60	3280 ± 340	335 ± 35	2420 ± 250

NOTICE

When tightening panels or other parts having tightening fixtures made of plastic, be careful not to use excessive tightening torque: doing so will damage the plastic parts.

24.2 WHEN REQUIRED

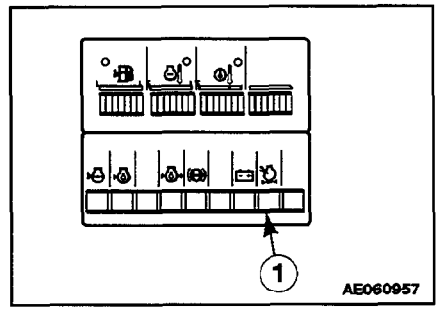
24.2.1 CHECK, CLEAN, OR REPLACE AIR CLEANER ELEMENT

⚠ WARNING

- **Never clean or replace the air cleaner element with the engine running.**
- **When using pressurized air to clean the element wear safety glasses or goggles to protect the eyes.**

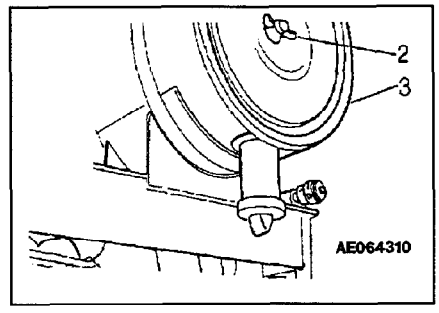
Checking

If air cleaner clogging caution lamp on the maintenance monitor flashes, clean the air cleaner element.

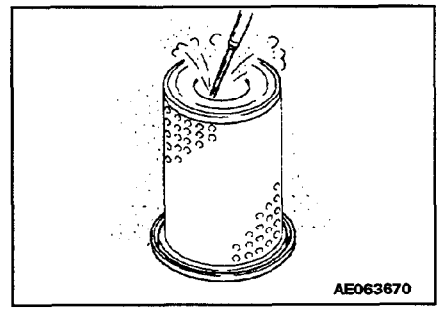


Cleaning or replacing outer element

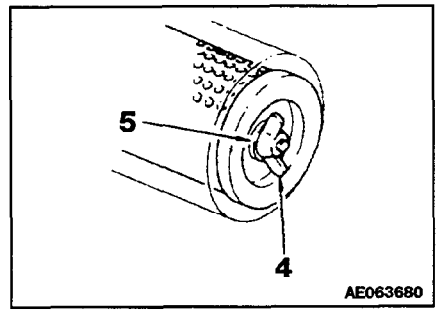
1. Remove wing nut , and cover , take out outer element.
2. Clean the inside of the air cleaner body.



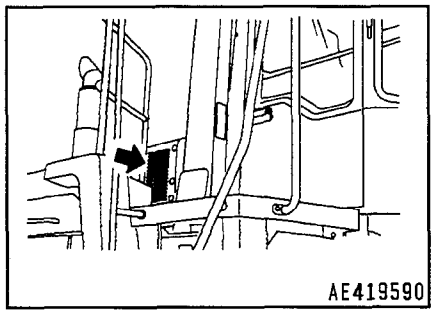
3. Direct dry compressed air (less than 700 kPa (7 kg/cm^2, 100 psi)) to element from inside along its folds, then direct it from outside along its folds and again from inside.
   1) Remove one seal from the outer element whenever the outer element has been cleaned.
   2) Replace the outer element which has been cleaned 6 times repeatedly or used throughout a year. Replace the inner element at the same time.



   3) If the dust indicator display red immediately after the outer element has been cleaned, replace both inner and outer elements, even if the outer element has not been cleaned 6 times.
   4) Check inner element mounting nuts for looseness and, if necessary, re-tighten.
   5) Replace seal washer or wing nut with new parts if they are broken.



24.2.10 CLEAN CONDENSER OF AIR CONDITIONER



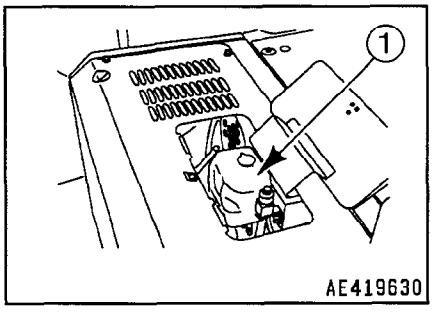
⚠ WARNING

Do not wash the condenser with a steam cleaner. Otherwise, the condenser will get hot and could break down

If there is mud or dust on the air conditioner condenser, clean it with water.

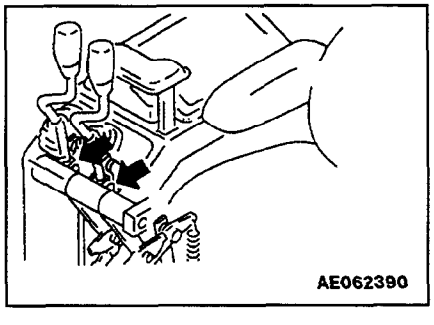
When washing with a high pressure machine, apply the water from a reasonable distance if the water pressure is too high it could deform the fins.

24.2.11 CHECK WINDOW WASHING FLUID LEVEL, ADD FLUID



Check the washing fluid level in washer tank (1). When the fluid is low, add automotive window washing fluid.
To prevent the nozzle from clogging, be careful not to let dust get into the fluid.

24.2.12 LUBRICATE WORK EQUIPMENT CONTROL VALVE LINKAGE (2 POINTS)



If the work equipment control lever is stiff or does not move smoothly, apply grease.

1. Using a grease pump, pump in grease through the grease fittings shown by the arrows.
2. After greasing, wipe any old grease that was pushed out.

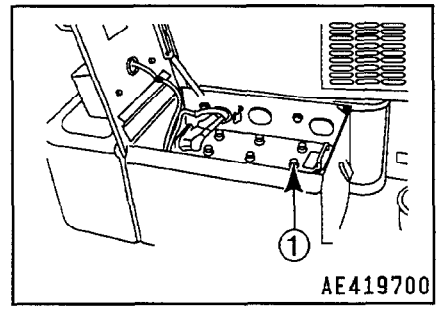
24.6.6 CHECK BATTERY ELECTROLYTE LEVEL

⚠ WARNING

- **To avoid gas explosions, do not bring fire or spark near the battery.**
- **Battery electrolyte is dangerous. If it gets in your eyes or on your skin, wash it off with lots of water, and imedately consult a doctor.**

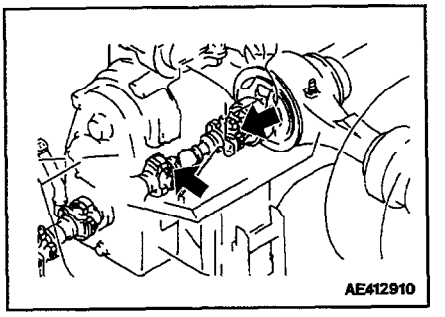
Carry out this check before operating the machine.

1. Open the cover of the battery box. There are two battery boxes: One on each side at the rear of the machine.
2. Remove caps (1), and check each cell, the electrolyte should be at a specified level (10 to 12 mm (0.40 to 0.47 in) above the plate). If the electrolyte level is low, add distilled water to the specified level.
3. Clean the air hole in each battery cap, then tighten securely.

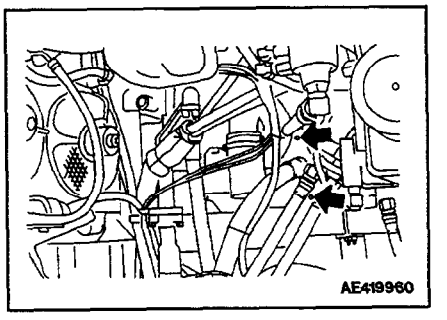


NOTE: When adding distilled water in cold weather, add it just before operating the machine, to prevent the electrolyte from freezing.

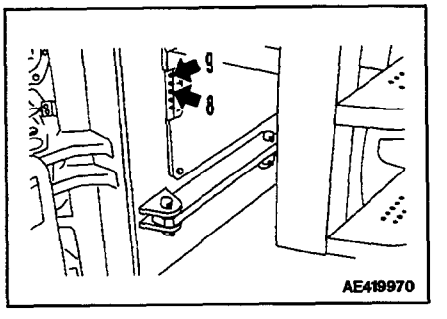
5. Rear drive shaft (2 places)



6. Upper drive shaft (2 places)



7. Damper (1 place)
8. Transmission mount trunnion (1 place)

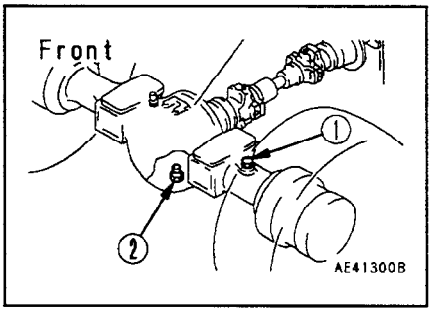


24.10.4 CHANGE AXLE OIL

⚠ WARNING

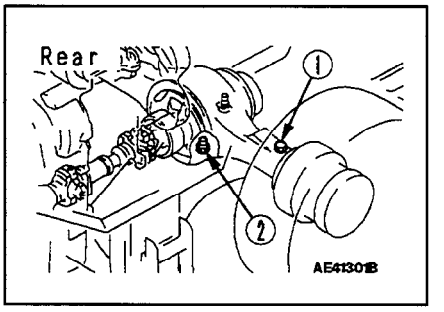
The oil is hot if the machine has just been operated. Wait for the oil to cool down before changing it.

★ For oil recommendations/specifications, refer to "20. LUBRICANTS, FUEL, AND COOLANT" (on page 3-10).
★ Refill, capacity (front and rear): 20.5 US gal. (78ℓ)



1. Remove front and rear oil filler plugs (1), then remove drain plugs (2) to drain oil.

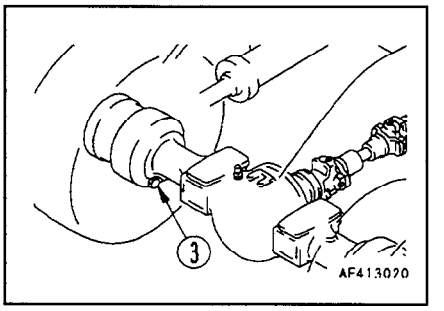
2. Remove drain plud (3) to drain oil.



3. Stop the machine so that drain plug (4) of the final drive is at the bottom. Remove oil filler plug (5) and drain plug (4), and drain the oil.

4. After draining the oil, clean drain plugs (2), (3), and (4), then install them.

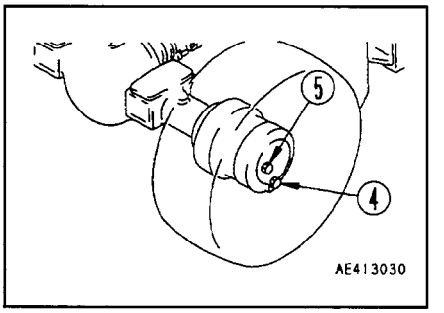
5. Add oil to the specified level through filler ports (1) and (5) of the axle housing and left and right final drives.



6. After adding oil, check that the oil is at the specified level. For details, refer to "24.2.3 CHECK AXLE OIL LEVEL" (on page 3-34)

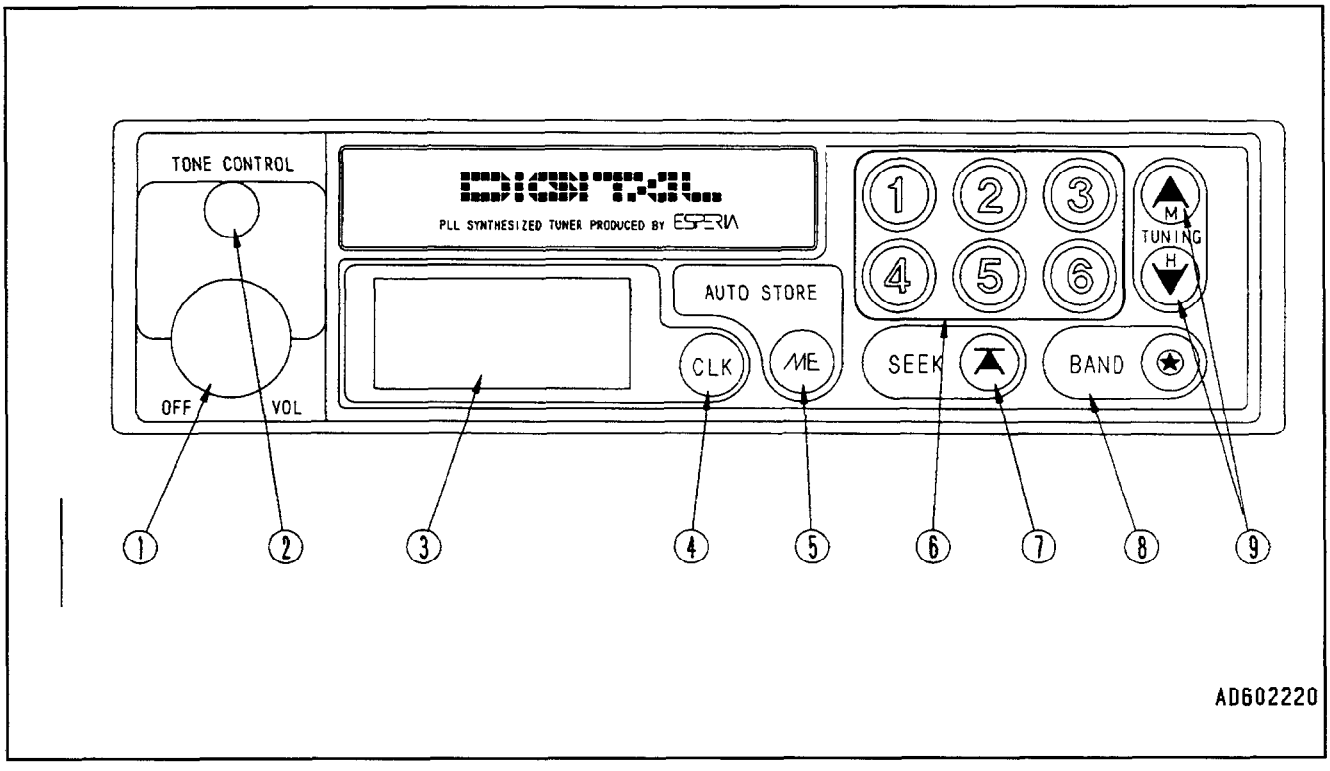
Remark:

For operations where the brakes are applied frequently, change the axle oil at shorter intervals.

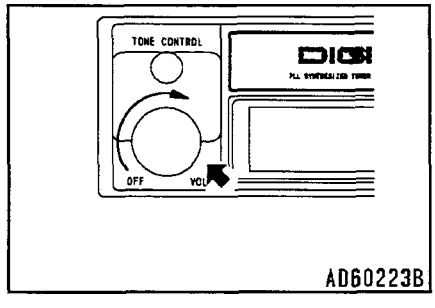


28. RADIO

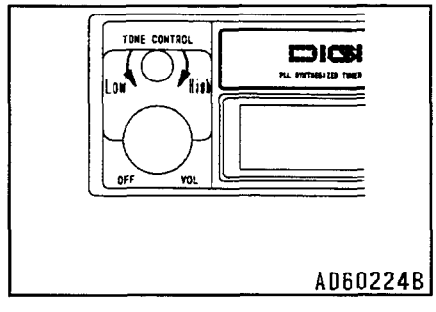
28.1 EXPLANATION OF PARTS



1. **POWER SWITCH / VOLUME CONTROL KNOB**
   Push this knob to switch on the radio.
   Turn the knob clockwise to increase the sound level, and counterclockwise to reduce the sound level.



2. **TONE CONTROL KNOB (TONE)**
   Turn this knob clockwise from the center position to emphasize the high sounds, and counterclockwise to emphasize the low sounds.



30.1.2 SETTING GREASING TIME

The set time and greasing frequency limit differs according to the operating condition and greasing plan for the machine, so set the following items to carry out suitable centralized greasing.

- Greasing intervals (Hr): Greasing intervals for automatic operation
- Greasing time (min): Length of time pump is operated for each greasing operation
- Greasing frequency limit (times): No. of times for operating pump before the 1000 cc grease cartridge becomes empty

The settings when shipped from the factory are as follows.

Greasing intervals:	3 hours
Greasing time:	7 minutes
Greasing frequency limit:	100 times

The grease level alarm is set to sound after 300 hours on the hourmeter (when normal operation).

Setting greasing time in cold areas

In cold temperatures, the viscosity of the grease increases and the resistance inside the piping becomes greater, so it is necessary to extend the length of greasing operations in order to ensure that the greasing is carried out properly.

If the machine is used in ambient temperatures below -20°C (-4°F), set the greasing time to 20 minutes (code No. 7). In addition, use lithium-based grease No. 0.

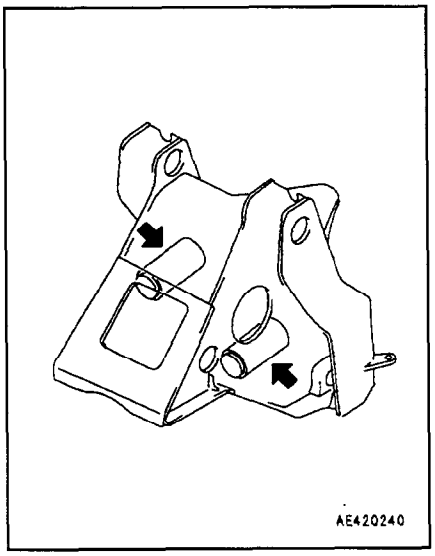
For details of setting the time, **see "30.1.3 METHOD OF SETTING" on page 5-15.**

When changing the set value, contact your distributor.

31.4 PRECAUTIONS WHEN HANDLING ACCUMULATOR

⚠ WARNING

The accumulator is charged with high-pressure nitrogen gas, which is extremely dangerous, so read the following items and be careful to handle the accumulator properly.



- If any problem or failure occurs with the accumulator, contact your distributor immediately.
- The gas must be charged into the accumulator only by a qualified serviceman from your distributor or by a person licensed to handle high-pressure gas.
- Do not bring any flame or heat close to the accumulator when it is charged with gas.
- Do not make any hole in; or weld anything to, the accumulator.
- Always release the gas before disposing of the accumulator or disassembling it for maintenance.
- Use the air bleed valve to release the gas
- Every 2000 hours or once a year, have your distributor check the gas pressure.