TEN00442-07

Operation & Maintenance Manual

ARTICULATED
DUMP TRUCK

HM300-2

SERIAL NUMBERS 2790 and up

ecot3

⚠ WARNING

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who will come into contact with it.

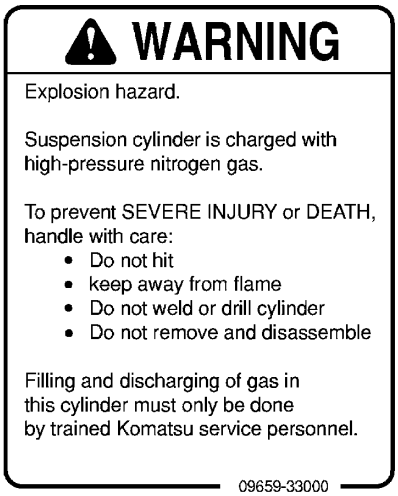
NOTICE

Komatsu has Operation & Maintenance Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

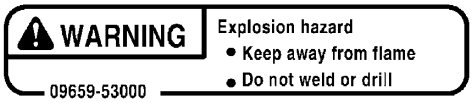
KOMATSU

(5) Caution for opening hydraulic tank cap (09653-03001)

(6) Caution for handling suspension (09659-33000)



(7) Caution for handling accumulator (09659-53000)

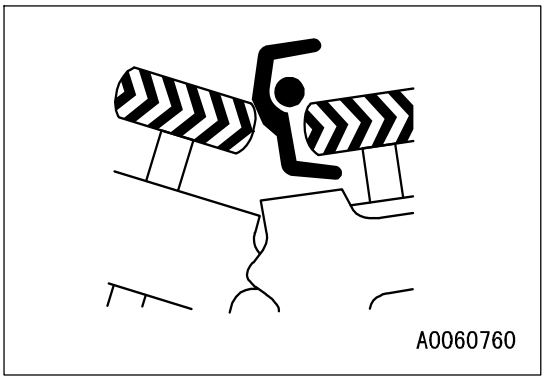


EMERGENCY EXIT FROM OPERATOR'S CAB

Machines equipped with a cab have doors on the left and right sides. If the door on the one side does not open, escape from the door on the other side.

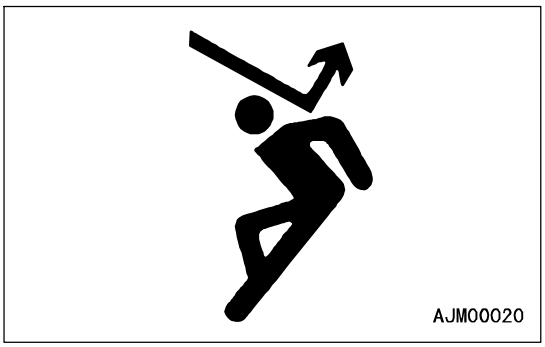
DO NOT GET CAUGHT IN ARTICULATING PORTION AND DUMP BODY

- If the clearance at the articulating portion changes and you get caught in it, you will suffer serious personal injury or death. Do not allow anyone to come inside the articulation range.
- The clearance in the area around the dump body changes according to the movement of the dump body. If you are caught, there is danger that you will suffer serious injury or death.
  Do not allow anyone near any of the rotating or telescopic parts.



PRECAUTIONS RELATED TO PROTECTIVE STRUCTURES

The operator's compartment is equipped with a structure (such as ROPS, FOPS) to protect the operator by absorbing the impact energy. As for the machine equipped with ROPS, if the machine weight (mass) exceeds the certified value (shown on the ROLL-OVER PROTECTIVE STRUCTURE (ROPS) CERTIFICATION plate), ROPS will not be able to fulfill its function. Do not increase machine weight beyond the certified value by modifying the machine or by installing attachments to the machine. Also, if the function of the protective equipment is impeded, the protective equipment will not be able to protect the operator, and the operator may suffer injury or death. Always observe the following.



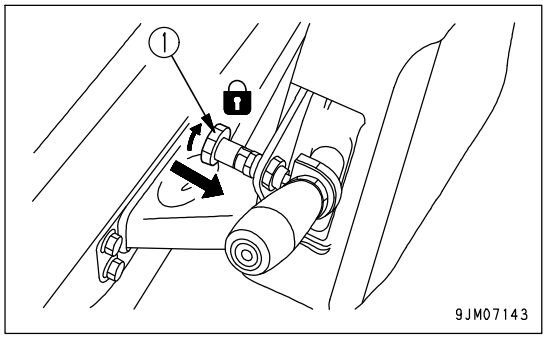
- If the machine is equipped with a protective structure, do not remove the protective structure and perform operations without it.
- If the protective structure is welded, or holes are drilled in it, or it is modified in any other way, its strength may drop. Consult your Komatsu distributor before performing any modifications.
- If the protective structure is damaged or deformed by falling objects or by rolling over, its strength will be reduced and it will not be able to fulfill its function properly. In such cases, always contact your Komatsu distributor for advice on the method of repair.
- Even if the protective structure is installed, always fasten your seat belt properly when operating the machine. If you do not fasten your seat belt properly, it cannot display its effect.

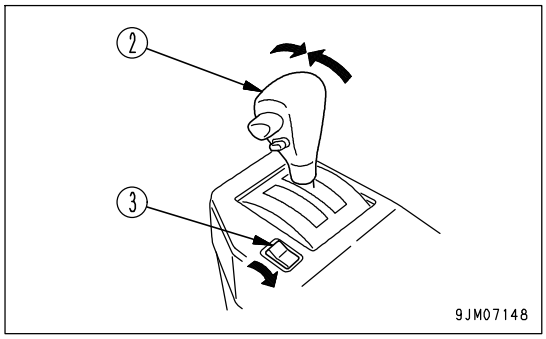
UNAUTHORIZED MODIFICATION

- Komatsu will not be responsible for any injuries or death, accidents, product failures or other property damages resulting from modifications made without authorization from Komatsu.
- Any modification made without authorization from Komatsu can create hazards. Before making a modification, consult your Komatsu distributor.
- Do not try to increase the capacity of the dump body or make any other modifications. Such modifications will cause a drop in the braking efficiency, the balance of the machine will become poor, and this may lead to an unexpected accident.

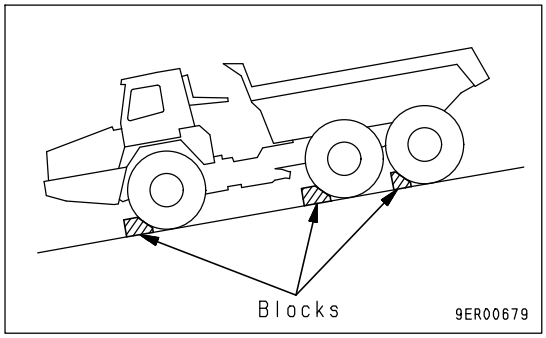
PARKING MACHINE

- Park the machine on firm, level ground.
- Select a place where there is no hazard of landslides, falling rocks, or flooding.
- When leaving the machine, always lower the dump body completely, lock with dump lever lock knob (1), set gear shift lever (2) to N (neutral) position, set parking brake switch (3) to PARKING position, then stop the engine.
- Always close the operator's cab door, and use the key to lock all the equipment in order to prevent any unauthorized person from moving the machine. Always remove the key, take it with you, and leave it in the specified place.





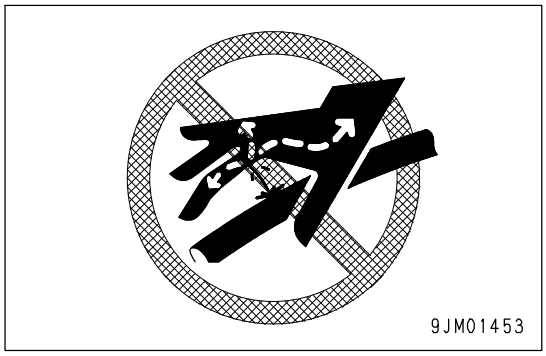
- If it is necessary to park the machine on a slope, set blocks under the wheels to prevent the machine from moving.



PRECAUTIONS WITH HIGH-PRESSURE OIL

The hydraulic system is always under internal pressure. In addition, the fuel piping is also under internal pressure when the engine is running and immediately after the engine is stopped. When performing inspection or replacement of the piping or hoses, check that the internal pressure in the circuit has been released. If this is not done, it may lead to serious personal injury or death. Always observe the following.

- Do not perform inspection or replacement work with the circuit under pressure.
- If there is any leakage from the piping or hoses, the surrounding area will be wet, so check for cracks in the piping and hoses and for swelling in the hoses.
  When perform inspection, wear protective eyeglasses and leather gloves.
- There is a hazard that high-pressure oil leaking from small holes may penetrate your skin or cause loss of sight if it contacts your skin or eyes directly. If you are hit by a jet of high-pressure oil and suffer injury to your skin or eyes, wash the place with clean water, and consult a doctor immediately for medical attention.



PRECAUTIONS WITH HIGH-PRESSURE FUEL

When the engine is running, high-pressure is generated in the engine fuel piping. When performing inspection or maintenance of the fuel piping system, stop the engine and wait for at least 30 seconds to allow the internal pressure to go down before starting the operation.

HANDLING HIGH-PRESSURE HOSES AND PIPING

- If oil or fuel leaks from high-pressure hoses or piping, it may cause fire or misoperation, and lead to serious personal injury or death. If the hose or piping mounts are loose or oil or fuel is found to be leaking from the mount, stop operations and tighten to the specified torque.
  If any damaged or deformed hoses or piping are found, consult your Komatsu distributor.

Replace the hose if any of the following problems are found.

- Damaged hose or deformed hydraulic fitting.
- Frayed or cut covering or exposed reinforcement wire layer.
- Covering swollen in places.
- Twisted or crushed movable portion.
- Foreign material embedded in covering.

NOISE

When performing maintenance of the engine and you are exposed to noise for long periods of time, wear ear covers or ear plugs while working.

If the noise from the machine is too loud, it may cause temporary or permanent hearing problems.

Check centralized warning lamp, alarm buzzer, monitor lamps, and meters.

Before starting the engine, turn the starting switch to ON position and check that the machine monitor does as follows.

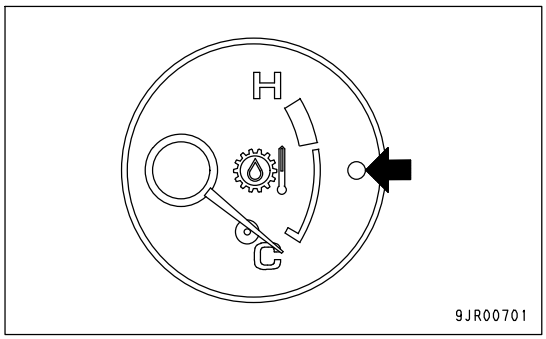
If the machine monitor does not work, there is probably a failure in the machine monitor system, so ask your Komatsu distributor to perform inspection.

- The centralized warning lamp is lit for 2 seconds, then goes out.
- The alarm buzzer sounds for 2 seconds, then stops.
- The machine monitor lamp is lit for 2 seconds and then goes out for 1 second.
- The shift indicator displays "88" for 2 seconds, then goes out for 1 second.
- The meters start the operations after the system is checked for 3 seconds.
- The character display displays "KOMATSU" for 3 seconds.

TORQUE CONVERTER OIL TEMPERATURE CAUTION LAMP

This lamp (2) warns the operator that the torque converter oil temperature has risen.

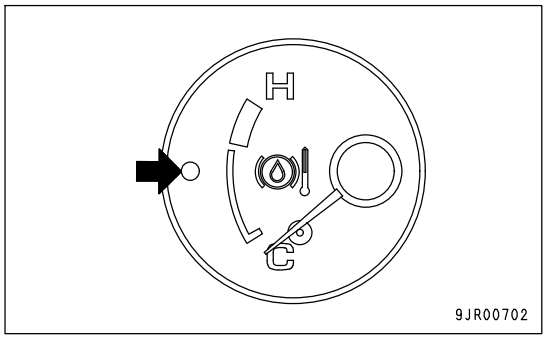
When it lights up, "E02 TC OVERHEAT" is displayed on the character display at the same time, so stop the machine in a safe place, set the shift lever to N (neutral) position, and run the engine under no load at a mid-range speed until the lamp goes out.



RETARDER OIL TEMPERATURE CAUTION LAMP

This lamp (3) warns the operator that the brake oil temperature has risen.

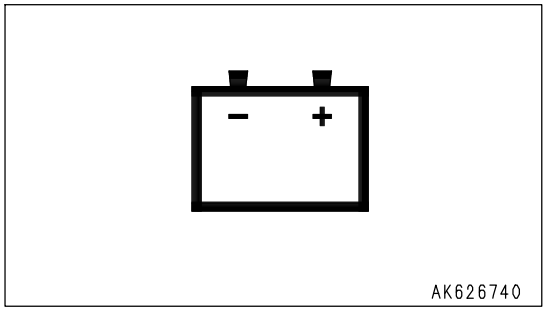
When it lights up, "E02 BRAKE OVERHEAT" is displayed on the character display at the same time , so stop the machine in a safe place, set the shift lever to N (neutral) position, and run the engine under no load at a mid-range speed until the lamp goes out.



BATTERY CHARGE CIRCUIT CAUTION LAMP

This lamp (4) lights up when the engine is running to warn the operator that there is an abnormality in the charging system.

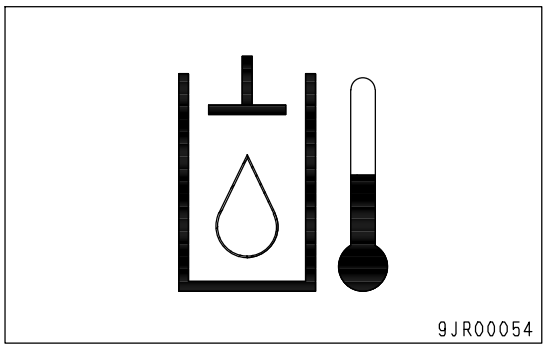
When it lights up, "E03 CHECK RIGHT NOW" is displayed on the character display, so move the machine immediately to a safe place, stop the engine, then check the charging circuit.



STEERING OIL TEMPERATURE CAUTION LAMP

This lamp (5) lights up to warn the operator that the steering oil temperature has risen.

When it lights up, "E02 STRG OVERHEAT" is displayed on the character display at the same time, so stop the machine in a safe place, set the shift lever to the N position, and run the engine under no load at a mid-range speed until the lamp goes out.

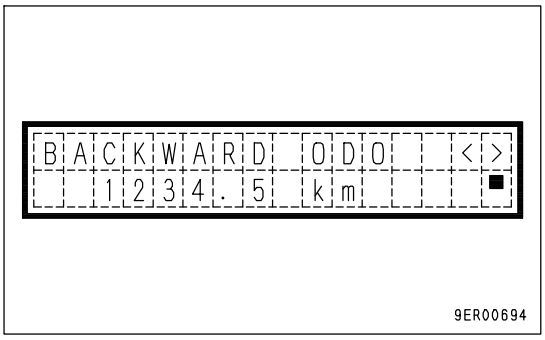


OTHER FUNCTIONS OF MACHINE MONITOR

DISPLAY METHOD FOR REVERSE TRAVEL ODOMETER

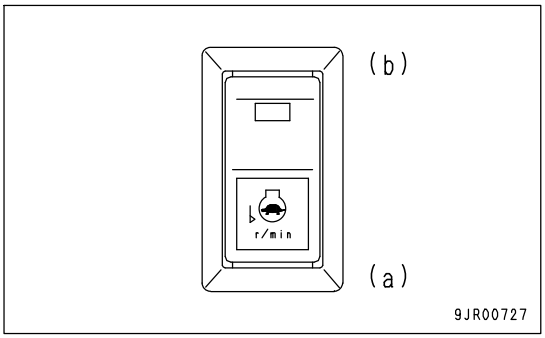
Use this when checking the overall distance that the machine has traveled in reverse.

1. Check that the character display is displaying the service meter/odometer reading, or is displaying an action code. If anything other than this is being displayed, turn the starting switch OFF, then turn the starting switch again to ON position and wait until the above display is given.
2. Press the (◇) of machine monitor mode selector switch 1. The reverse travel odometer reading is displayed.
3. When completing the operation, press (■) of machine monitor mode selector switch 1 or turn the starting switch OFF.



AISS LOW SWITCH

By using this switch (9), it is possible to switch the AISS freely between AUTO and LOW. Use each position as follows.



(a): AUTO position
For normal operations
(b): LOW position
When fine control of the machine is needed, such as when putting it into a garage.

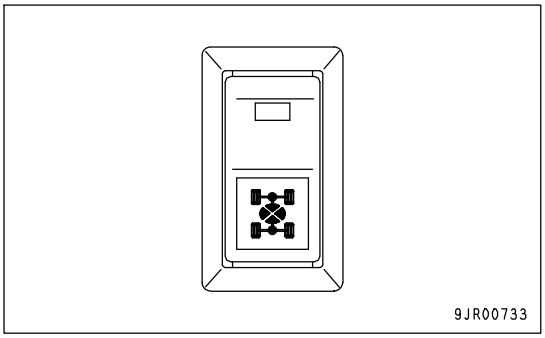
If the switch is at AUTO position:

- When the machine is stopped, if the parking brake or retarder brake are actuated, the idling speed is automatically adjusted to low speed. When the parking brake is released and the machine is moved off, the speed is automatically adjusted to high speed.
- The coolant temperature is detected, and when it is at low temperature, the idle is automatically adjusted to high speed to reduce the warming-up time.

When the lamp switch is turned ON, the icon inside the switch lights up, regardless of the position of the switch.

INTER-AXLE DIFFERENTIAL LOCK SWITCH

This switch (10) can be used to switch the actuating conditions for the inter-axle differential lock.
When this switch is pressed, the system is switched to MANUAL. When the switch is not pressed or is pressed to return it, the system is switched to AUTO.



AUTO: The inter-axle differential lock is automatically actuated to stabilize the machine when the brake is applied or the gear is shifted.
MANUAL: When the gear shift lever is at the F3, F2, F1, N, R1, or R2 position, the inter-axle differential lock is actuated.

Regardless of the position of the switch, when the differential lock is actuated, the inter-axle differential lock pilot lamp lights up.

When the lamp switch is turned ON, the icon inside the switch lights up, regardless of the position of the switch.

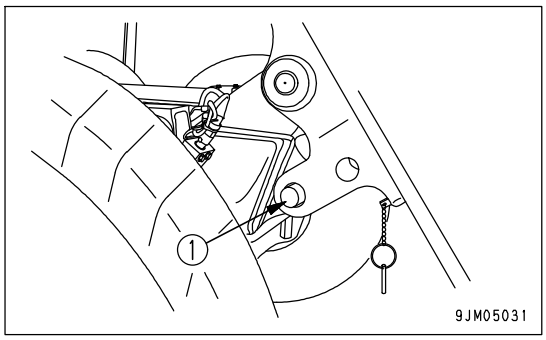
For details when using the differential lock, see "OPERATION USING DIFFERENTIAL LOCK (PAGE 3-104)".

BODY PIVOT PIN

WARNING

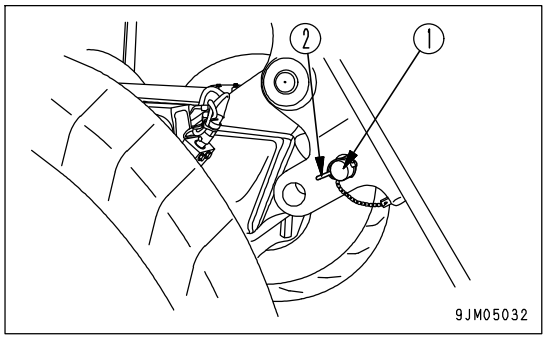
When performing inspection of the machine with the dump body raised, always set the dump lever to HOLD position, lock with the dump lever lock knob, then use the body pivot pin.

This is a safety device for the dump body. Use it when carrying out inspection and maintenance with the dump body raised.
Raise the dump body fully, insert body pivot pins (1).
Always insert the body pivot pin on both sides.



STOWING BODY PIVOT PIN

Store the body pivot pin under the rear of the dump body.
Insert body pivot pin (1), then insert lock pin (2) to stow the body pivot pin.



ARTICULATE LOCK

WARNING

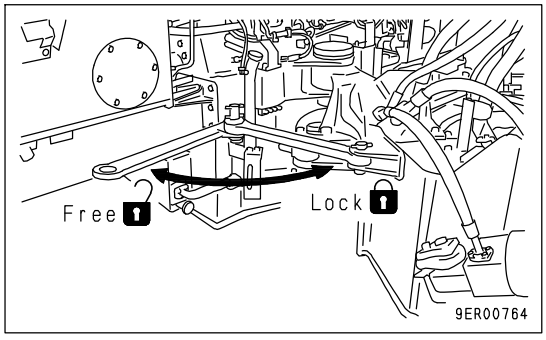
If the machine is transported or raised without applying the articulation lock, the machine may suddenly articulate. This may cause serious injury to persons in the surrounding area.

- **When transporting or raising the machine, always apply the articulation lock.**
- **Apply the articulation lock if necessary when performing maintenance.**

The articulation lock is a device to lock the front frame and rear frame to prevent the machine from articulating.

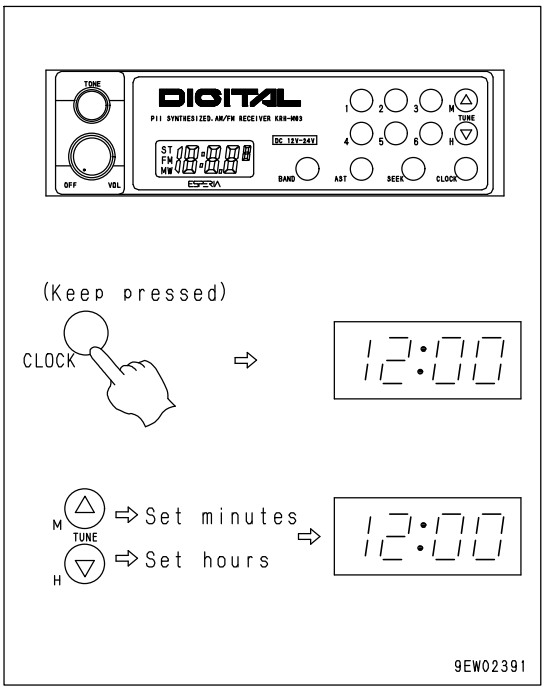
LOCK position: Always set to this position when transporting or raising the machine.
Set to LOCK position if necessary when performing maintenance.

FREE position: Always set to this position when traveling



ADJUSTING TIME

1. Turn the radio power ON. If the display shows the frequency, set CLOCK button to the time display.
2. To set the time, keep CLOCK button pressed and
   Press the △ button to change the minutes
   Press the ▽ button to change the hours



PRECAUTIONS FOR USE

- Stow the antenna when traveling in places with low overhead clearance.
- To ensure safety, always keep the sound to a level where it is possible to hear outside sounds during operation.
- If water gets into the speaker case or radio, it may lead to an unexpected failure, so be careful not to get water on the equipment.
- Do not wipe the scales or buttons with solvent such as benzene or thinner. Wipe with a dry soft cloth. If the dirt cannot be removed easily, soak the cloth with alcohol.

MODE SELECTOR SWITCH

Use this switch (4) to select the vents.
There are three combinations of vents: FACE, FACE/FOOT, and FOOT.
Each time the switch is pressed, the vent display on the air conditioner monitor changes in the order FACE, FACE/FOOT, FOOT, FACE.

REMARK
Air also blows out from the defroster vent in FOOT mode.

Air conditioner monitor display	Condition of vents
	FACE
	FACE/FOOT
	FOOT

DEF SWITCH

Use this switch (5) to change the vents to the DEF mode.
When the switch is pressed, the vent display on the air conditioner monitor changes as shown in the diagram on the right.

When the DEF switch is pressed in any of the FACE, FACE/FOOT, or FOOT modes, the system changes to the DEF mode. In addition, when the DEF mode is being used, if the mode selector switch is pressed, it will return to the mode being used before switching to the DEF mode.

REMARK
Air also blows out from the foot vent in DEF mode.

Air conditioner monitor display	Condition of vents
	DEF

FRESH/RECIRC SELECTOR SWITCH

Use this switch (6) to switch between recirculation of the internal air (RECIRC) or intake of external air (FRESH). When the switch is pressed, the display of FRESH/RECIRC selector symbol (C) on the air conditioner monitor changes.
(It changes in the order RECIRC, FRESH, RECIRC.)

RECIRC: Only the air inside the cab is circulated. Use this position when it is needed to perform quick heating or cooling of the cab, or when the outside air is dirty (smells or is dusty).

FRESH: Fresh air is taken in from the outside for normal heating or cooling of the cab. Use this position to make the air inside the cab fresh or to remove the mist from the cab windows. When the air conditioner takes in fresh air from the outside, the pressure inside the cab rises and this prevents the entry of dirt. The higher the position of the fan switch, the more efficient this becomes.

Air conditioner monitor display	Condition of vents
	RECIRC
	FRESH

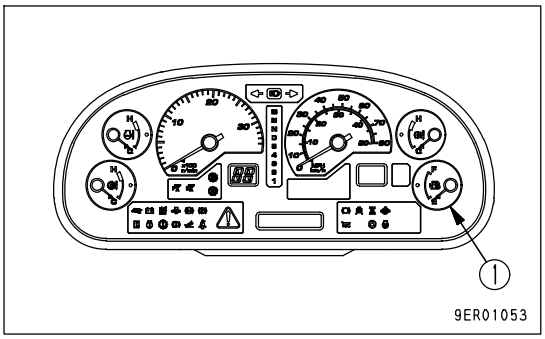
CHECK FUEL LEVEL, ADD FUEL

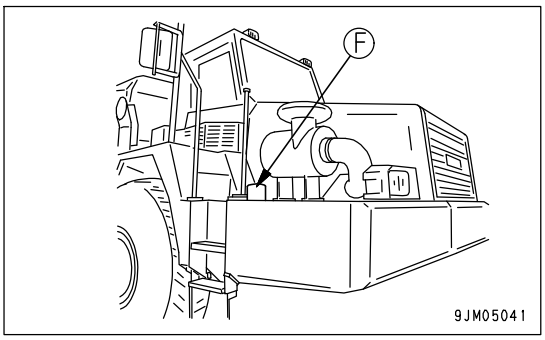
WARNING

- **When adding fuel, be careful not to let the fuel overflow. The fuel may cause fire. Always wipe up all the spilled fuel.**
- **If fuel spills onto dirt and sand sticking to the machine, remove it and dirt and sand together.**
- **Since fuel is flammable and dangerous, do not bring fire near it.**

1. Check with fuel gauge (1) on the machine monitor.
2. After completing operations, add fuel through fuel filler (F) to fill the tank.
   Fuel tank capacity: 384 liters (101.45 US gal)

3. After adding fuel, tighten the cap securely.





REMARK

- If the breather hole in the cap is clogged, the pressure inside the tank will go down and this may cause the fuel to stop flowing. To prevent this, clean the breather hole from time to time.
- To prevent air from being sucked into the engine, always pay careful attention to the fuel level in the tank.

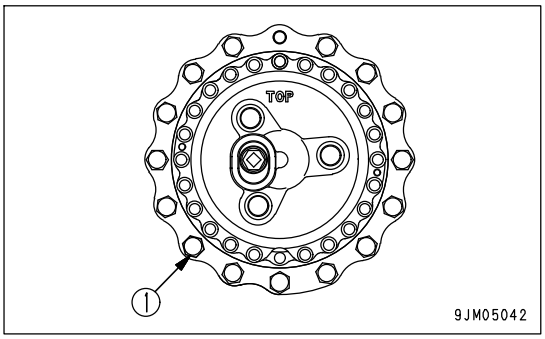
CHECK WHEEL HUB BOLTS, TIGHTEN

Check for loose wheel hub bolts (1). If any are found, tighten them.
Tightening torque: 824 to 1030 Nm
(84 to 105 kgm, 607.6 to 759.5 lbft)

Insert a socket wrench in a pipe, then apply a force of 932N {95 kg} at a point 1 meter from the fulcrum. This will give a tightening torque of 932Nm {95 kgm, 687.1 lbft}.

When tightening the hub bolts after replacing the tires, travel for 5 to 6 km, then check the tightening torque to ensure that there are no loose bolts.

If any wheel hub bolt is broken, replace all the wheel hub bolts for that wheel.



STARTING ENGINE

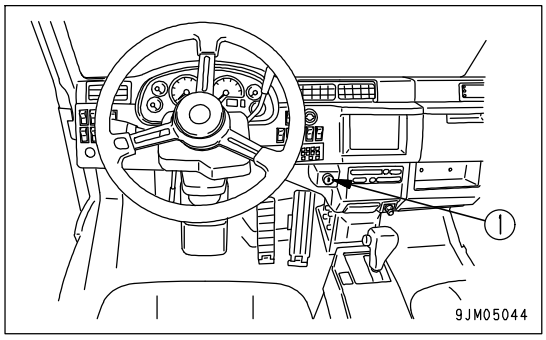
WARNING

- **Start the engine only after sitting down in the operator's seat.**
- **Do not attempt to start the engine by short-circuiting the engine starting circuit. Such an act may cause a serious bodily injury or fire.**
- **Check that there are no persons or obstacles in the surrounding area, then sound the horn and start the engine.**
- **Never use starting aid fluids as they may cause explosions.**
- **Exhaust gas is toxic. When starting the engine in confined spaces, be particularly careful to ensure good ventilation.**

NOTICE

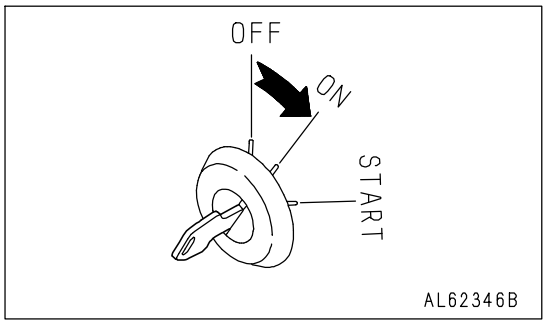
- **Do not accelerate the engine sharply until it is warmed up.**
- **Do not operate the starting motor continuously for more than 20 seconds.**
- **If the engine fails to start, wait for 2 minutes or so, and then try to start again.**
- **When starting the engine, do not depress the accelerator pedal. Even if the accelerator pedal is depressed just after the engine is started, the engine speed is limited by the turbo protect function. After the turbo protect time, however, the engine speed rises sharply and the turbocharger may be damaged.**

1. Turn the key of starting switch (1) to ON position.
   The engine preheating pilot lamp lights up according to the engine coolant temperature, and preheating of the engine starts. When the preheating is completed, the engine preheating pilot lamp goes out.



The pre-heating times are as shown below.

Engine water temperature	Preheating time
above - 5˚C (23˚F)	–
- 5˚C to - 20˚C (23˚F to - 4˚F)	20 to 40 sec
below - 20˚C (- 4˚F)	40 sec

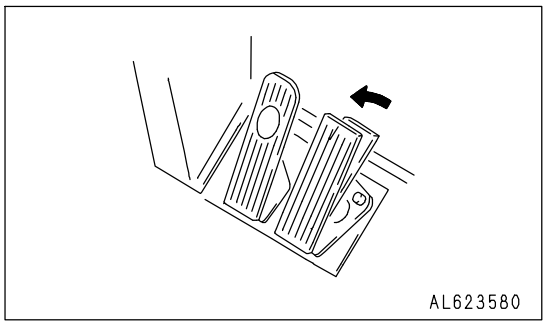


REMARK

When the starting switch is turned to ON position, if the engine coolant temperature is above -5°C (23°F), though preheating of the engine is carried out. In this case, it is possible to start the engine immediately.

SHIFTING DOWN

If accelerator pedal (2) is released, the machine speed will be reduced, and the transmission will automatically shift down.



DOWN SHIFT INHIBIT

If the gear shift lever is operated when the machine is traveling, the travel speed may be faster than the maximum speed allowed for the new speed range. In this case, do not shift gear immediately. Reduce the travel speed and then shift down. This will prevent the engine from overrunning.

SHIFTING DOWN WHEN USING FOOT BRAKE

When using the foot brake to reduce speed, 3rd speed is held for longer than normal to reduce the shock when shifting gear.

OVERRUN PROTECTION DEVICE

If the engine speed reaches the red range of the tachometer when the machine is traveling, the centralized warning lamp will light up and the alarm buzzer will sound. If the travel speed and engine speed continue to rise, the brake is automatically applied to reduce the travel speed of the machine in order to prevent the engine speed from rising too far.

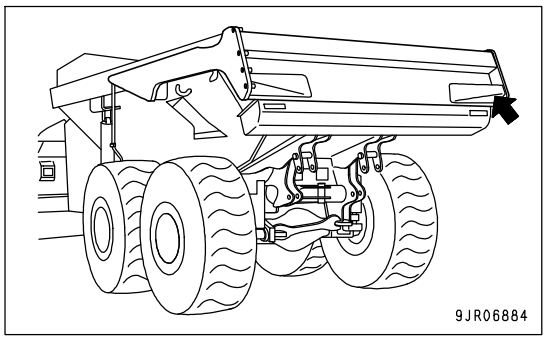
HANDLING TAILGATE

(if equipped)

WARNING

When hauling rocks or materials with high viscosity, always remove the tailgate.

When removing or installing the tailgate, consult your Komatsu distributor.



NOTICE

- **Install a tailgate when hauling fluid materials such as finely crushed soil.**
- **Do not use a tailgate if the dump body is loaded with rocks, gravel, or materials of high viscosity. There is danger that the tailgate may be damaged, the loaded material may get caught in the tailgate during dumping operations, or that the operator's cab may come off the ground.**

DETERMINING AND MAINTAINING TRAVEL ROAD

Determining and traveling the road in the jobsite is an extremely important factor both for reasons of safety and for reducing the cycle time. To ensure safety in operations, do as follows.

DETERMINING TRAVEL ROAD

- As far as possible, restrict the travel road to one-way travel.
- If it is impossible to keep to one-way traffic, make the road with ample width to enable trucks traveling in opposite directions to pass each other. If it is impossible to provide a sufficient road width, provide passing places at various points along the road.
- Always design the road so that the loaded truck passes on the side closest to the hill face.
- If there are curves with poor visibility along the road, set up mirrors.
- In places where the road should is weak or likely to collapse, set up a sign at a point at least 1.5 m (4 ft 11 in) from the road shoulder to warn of the danger.
- It is important to set up lighting or reflectors to enable the road to be traveled at night.
- The grade of slope should be kept within 10% (approx. 6 deg.) as far as possible, and emergency escape points should be set up on downhill slopes in case of any brake failure.
- Increase the number of places where the road continues in a straight line. If there are curves in high-speed travel areas, make the radius of the curve as large as possible.
- Small S curves are particularly dangerous, so avoid such curves. The radius of the curve must be a minimum of 12 to 15 m (39 ft 4 in to 49 ft 3 in).
- Make the radius of curves as large as possible.
- Make the road wider at curves than it is in straight areas.
- Make the surface of the road slightly higher on the outside of curves.
- Be particularly careful to strengthen the road shoulder on the outside of curves.
- Design the travel road as far as possible so that it does not cross any other travel road. In particular, when roads cross at an angle on slopes, there is danger that a difference in height will be created in the road, and this will make the machine sway strongly when traveling at high speed.
- Cut the slope face to provide a special road for the trucks.

MAINTAINING TRAVEL ROAD

Perform the necessary action according to the conditions to insure that the road can always be traveled in safety.

- Remove any unevenness in the travel surface, sloping to the left or right, or drooping of the road shoulder. Make the road of ample strength and remove such obstacles as rocks and tree stumps.
- Maintain the road from time to time with a bulldozer or motor grader.
- Spray the road with water at suitable intervals to prevent dust from rising and reducing the visibility.

LONG-TERM STORAGE

BEFORE STORAGE

When keeping in long-term storage (more than 1 month), store as follows.

- Wash and clean all parts and house the machine in a dry building. Never leave it outdoors.
  If the machine must be stored outdoors, select a flat area and cover the machine with a waterproof sheet.
- Completely fill the fuel tank. This prevents moisture from collecting.
- Lubricate and change the oil before storage.
- Coat the exposed portion of the hydraulic cylinder piston rod with grease.
- Disconnect the negative terminals of the battery and cover it or remove it from the machine and store it separately.
- Apply the parking brake.
- Set the tire inflation pressure for each tire to within the range of the specified inflation pressure for the type of tire.
- Push the retarder control lever forward to OFF position.
- Place the gear shift lever at N (neutral) position and turn the starting switch OFF.
- To prevent rust, fill with coolant to give a density of at least 30% for the engine coolant.

DURING STORAGE

⚠ WARNING

If it is necessary to perform the rust-prevention operation while the machine is indoors, open the doors and windows to improve ventilation and prevent gas poisoning.

During the storage period, operate the machine once a month to prevent loss of the oil film at the lubricated parts.
At the same time, charge the battery.
Before operating the work equipment, wipe off all the grease from hydraulic piston rods.

AFTER STORAGE

NOTICE

If the machine has been stored without performing the monthly rust-prevention operation, consult your Komatsu distributor before using it.

When using the machine after long-term storage, do as follows before using it.

- Wipe off the grease from the hydraulic cylinder rods.
- Add oil and grease at all lubrication points.
- When the machine is stored for a long period, moisture in the air will mix with the oil. Check the oil before and after starting the engine. If there is water in the oil, change all the oil.

PRECAUTIONS BEFORE TRAVELING AFTER LONG-TERM STORAGE

1. Check all the oil and water levels before traveling.
2. When traveling after long-term storage, travel forward at a speed of 10 to 15 km/h (6.2 to 9.3 MPH) for 5 minutes or 1 km to run the machine in, then change to normal travel.

STARTING THE ENGINE

CAUTION

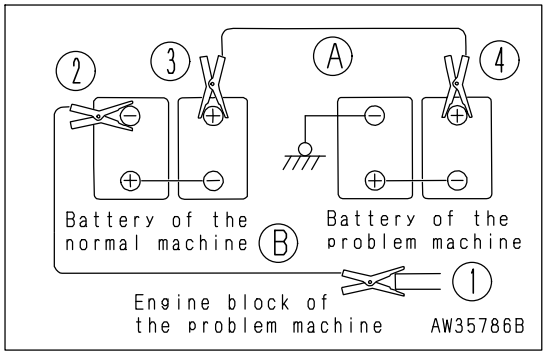
Make sure that the parking brake switch is at PARKING position and the gear shift lever is at N (neutral) position for both normal machine and the problem machine.

1. Make sure the clips are firmly connected to the battery terminals.
2. Start engine of the normal machine and run it at High idle (MAX).
3. Turn the starting switch of the failed machine to START position and start the engine.
   If the engine doesn't start at first, try again after 2 minutes or so.

DISCONNECTING THE BOOSTER CABLES

After the engine has started, disconnect the booster cables in the reverse of the order in which they were connected.

1. Remove 1 clip of booster cable (B) from the engine block of the problem machine.
2. Remove the other clip of booster cable (B) from the negative (-) terminal of the normal machine.
3. Remove 1 clip of booster cable (A) from the positive (+) terminal of the normal machine.
4. Remove the other clip of booster cable (A) from the positive (+) terminal of the problem machine.



OUTLINE OF SERVICE

- Always use Komatsu genuine parts for replacement parts, grease or oil.
- When changing the oil or adding oil, do not mix different types of oil. When changing the type of oil, drain all the old oil and fill completely with the new oil. Always replace the filter at the same time. (There is no problem if the small amount of oil remaining in the piping mixes with the new oil.)
- Unless otherwise specified, when the machine is shipped from the factory, it is filled with the oil and coolant listed in the table below.

Item	Type
Engine oil pan	Engine oil EO15W40DH (Komatsu genuine parts)
Transmission case (incl. brake oil tank)	Power train oil TO10 (Komatsu genuine parts)
Hydraulic oil tank	Power train oil TO10 (Komatsu genuine parts)
Front suspension Rear suspension	Hydraulic oil HO-MVK (Komatsu genuine parts)
Front differential case Center differential case Rear differential case Front final drive case Center final drive case Rear final drive case	Axle oil AXO80 (Komatsu genuine parts)
Radiator	Supercoolant (AF-NAC) (Komatsu genuine parts) (Density:30% or above)

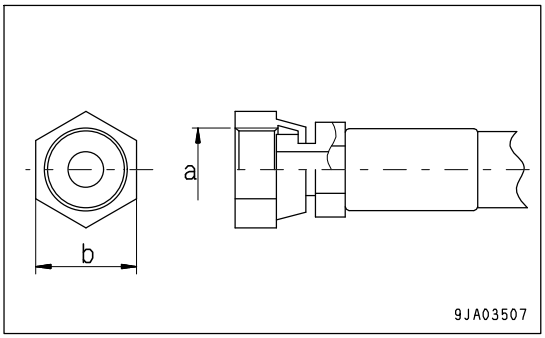
HANDLING OIL, FUEL, COOLANT, AND PERFORMING OIL CLINIC

OIL

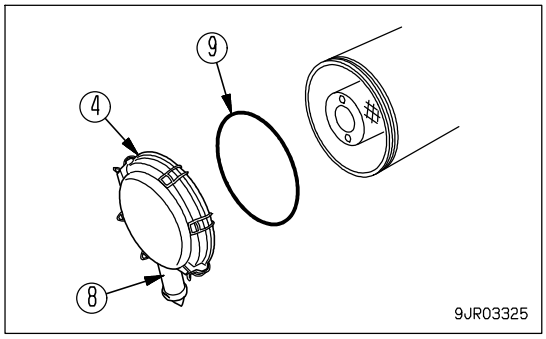
- Oil is used in the engine and hydraulic equipment under extremely severe conditions (high temperature, high pressure), and deteriorates with use.
  Always use oil that matches the grade and maximum and minimum ambient temperatures recommended in the Operation and Maintenance Manual. Even if the oil is not dirty, always change the oil at the specified interval.
- Oil corresponds to blood in the human body, always be careful when handling it to prevent any impurities (water, metal particles, dirt, etc.) from getting in.
  The majority of problems with the machine are caused by the entry of such impurities.
  Take particular care not to let any impurities get in when storing or adding oil.
- Never mix oils of different grades or brands.
- Always add the specified amount of oil.
  Having too much oil or too little oil are both causes of problems.
- If the oil in the work equipment is not clear, there is probably water or air getting into the circuit. In such cases, consult your Komatsu distributor.
- When changing the oil, always replace the related filters at the same time.
- We recommend you have an analysis made of the oil periodically to check the condition of the machine. For those who wish to use this service, consult your Komatsu distributor.
- When using commercially available oil, it may be necessary to reduce the oil change interval.
  We recommend that you use the Komatsu oil clinic to perform a detailed checks of the characteristics of the oil.

• Face seal

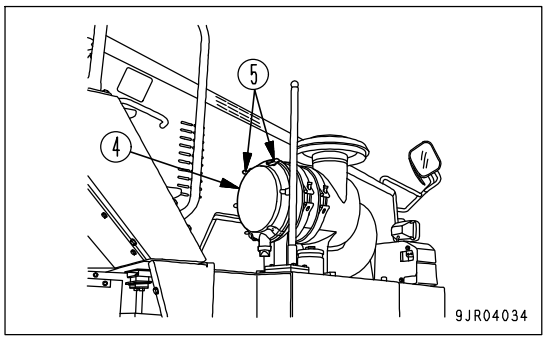
Nominal - No. of threads (a)	Width across flats (b) (mm)	Tightening torque					
		Target value			Permissible range		
		Nm	kgm	lbft	Nm	kgm	lbft
9/16 -18UNF	19	44	4.5	32.5	34 to 63	3.5 to 6.5	25.3 to 47.0
11/16 -16UN	22	74	7.5	54.2	54 to 93	5.5 to 9.5	39.8 to 68.7
13/16 -16UN	27	103	10.5	75.9	84 to 132	8.5 to 13.5	61.5 to 97.6
1 -14UNS	32	157	16.0	115.7	128 to 186	13.0 to 19.0	94.0 to 137.4
13/16 -12UN	36	216	22.0	159.1	177 to 245	18.0 to 25.0	130.2 to 180.8



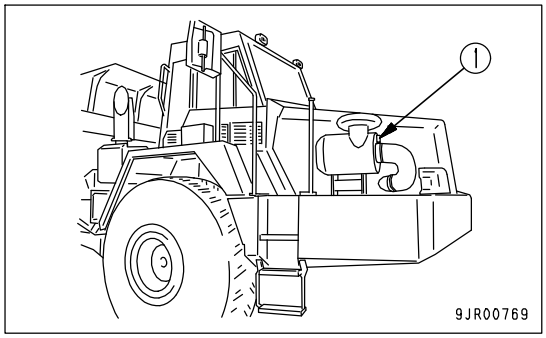
9. Replace O-ring (9) with a new part.
   Next, set so that vacuator valve (8) of dust cup (4) is at the bottom, and insert it into the air cleaner body.

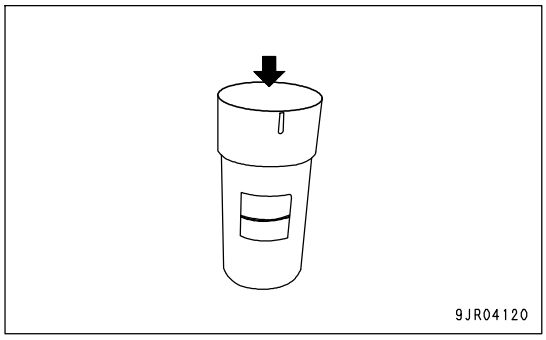


10. Fit 6 hooks (5) of dust cap (4) to the protruding parts of the air cleaner body to lock in position.



11. Push the head of dust indicator (1) to return the red line to its original position.



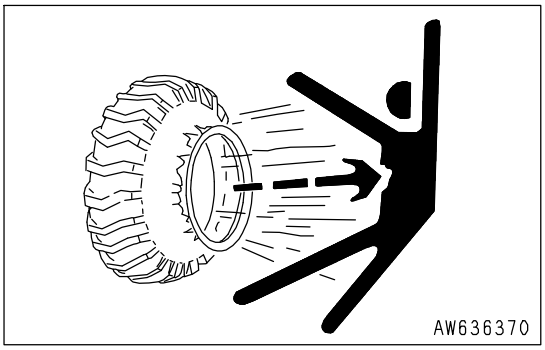


SELECTION AND INSPECTION OF TIRES

WARNING

If a tire or a rim is handled improperly, the tire may burst or may be damaged and the rim may be broken and scattered, and that can cause serious injury or death.

- **Since maintenance, disassembly, repair and assembly of the tires and rims require special equipment and skill, be sure to ask a tire repair shop to do the work.**
- **Never carry out welding or light a fire near the tire.**



SELECTION OF TIRES

WARNING

Select the tires according to the conditions of use and the weight of the attachments on the machine. Use only specified tires and inflate them to the specified pressure.

Select the tires according to the conditions of use and the weight of the attachments of the machine. Use the following table.
Since the travel speed indicated on the speedometer varies with the tire size, consult your Komatsu distributor when using optional tires.

	Maximum load [kg (lb)]	Tire size	Remarks
Front tire	8250 (18191)	23.5-R25	Type 1 for construction equipment
Center tire	8250 (18191)	23.5-R25	
Raer tire	8250 (18191)	23.5-R25	

CHECK LEVEL OF BATTERY ELECTROLYTE

Perform this procedure before operating the machine.

⚠ WARNING

- **Do not use the battery if the battery electrolyte level is below LOWER LEVEL line. This will accelerate deterioration of the inside of the battery and reduce the service life of the battery. In addition, it may cause an explosion.**
- **The battery generates flammable gas and there is danger of explosion, do not bring open flame or sparks near the battery.**
- **Battery electrolyte is dangerous. If it gets in your eyes or on your skin, wash it off with a large amount of water and consult a doctor.**
- **When adding distilled water to the battery, do not allow the battery electrolyte to go above UPPER LEVEL line. If the electrolyte level is too high, it may leak and cause damage to the paint surface or corrode other parts.**

NOTICE

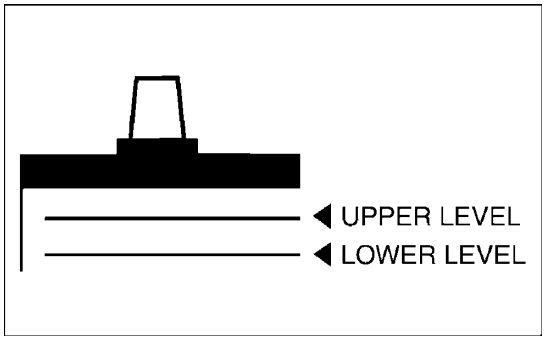
If there is a fear that the battery water may freeze after refilling with purified water (e.g. commercially available replenishment water for a battery), do the replenishment before the day's work on the next day.

Inspect the battery electrolyte level at least once a month and follow the basic safety procedures given below.

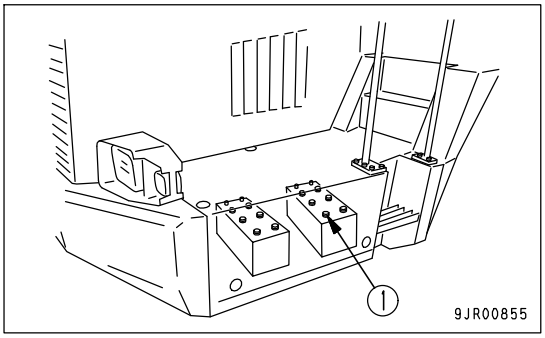
WHEN CHECKING ELECTROLYTE LEVEL FROM SIDE OF BATTERY

If it is possible to check the electrolyte level from the side of the battery, check as follows.

1. Use a wet cloth to clean the area around the electrolyte level lines and check that the electrolyte level is between UPPER LEVEL (U.L.) and LOWER LEVEL (L.L.) lines.
   If the battery is wiped with a dry cloth, static electricity may cause a fire or explosion.



2. If the electrolyte level is below the midway point between the U.L and L.L lines, remove cap (1) and add distilled water to the U.L line.
3. After adding distilled water, tighten cap (1) securely.



REMARK

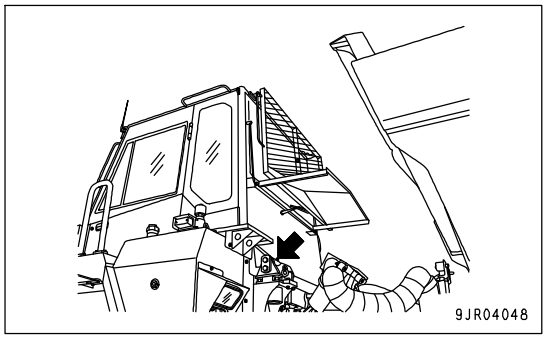
If distilled water is added to above U.L. line, use a syringe to lower the level to U.L. line. Neutralize the removed fluid with baking soda (sodium bicarbonate), then flush it away with a large amount of water or consult your Komatsu distributor or battery maker.

9. When installing, tighten until the packing surface contacts the seal surface of the filter head, then tighten it 3/4 of a turn.
   If the filter cartridge is tightened too far, the packing will be damaged and this will lead to leakage of fuel. If the filter cartridge is too loose, fuel will also leak from the packing, so always tighten the correct amount.
   • When tightening with a filter wrench, be extremely careful not to dent or damage the filter.
10. Check that the drain plug at the bottom of the water separator cup is tightened securely.
    Tightening torque: 0.2 to 0.45 Nm (0.02 to 0.046 kgm, 0.1 to 0.3 lbft)
11. Start the engine, check that there is no leakage of fuel from the filter seal surface or water separator mounting surface, then run for approximately 10 minutes at low idle.

LUBRICATE CAB MOUNT PIN (LEFT AND RIGHT: 1 PLACE EACH)

1. Stop the engine.
2. By using a grease pump, pump in grease through the grease fittings shown by arrows.
3. After greasing, wipe off any old grease that was pushed out.

   Perform the greasing operation every day when operating in places where the grease flows out easily, such as when traveling through mud or water.

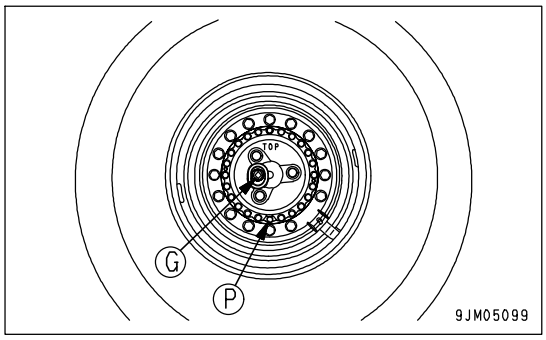


CHECK OIL LEVEL IN FINAL DRIVE CASE, ADD OIL

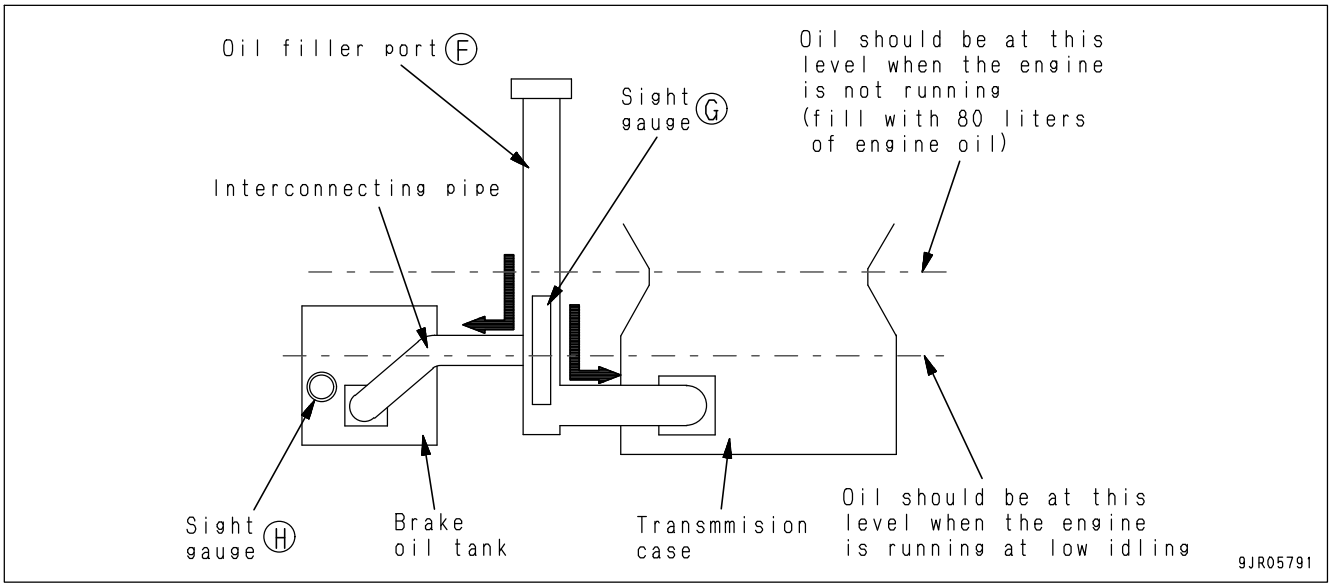
⚠ WARNING

- **Immediately after the engine is stopped, the oil and parts are at high temperature, and this will cause burns. Wait for the temperature to go down before starting the operation.**
- **If there is still pressure remaining inside the case, the oil or plug may fly out. Turn the plug slowly to release the pressure, then remove it carefully.**

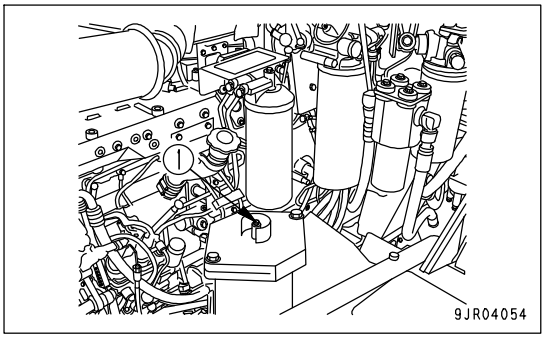
1. Stop the machine so that the TOP casting mark is at the top and drain plug (P) is at the bottom.
2. Remove plug (G) and check that the oil is near the bottom edge of the plug hole.
3. If the oil level is too low, add oil through the plug hole until the oil overflows.
4. Repeat the procedure in steps 1 - 3 and check the oil level and add oil to all the final drive cases (front, center, rear).



9. Add oil through oil filler port (F) until the oil level is between the H and L marks on sight gauge (G).
When running the engine at low idle, be careful not to let the oil level in the brake oil tank go below sight gauge (H).
If the oil level goes below sight gauge (H), stop the engine to raise the oil level in the brake oil tank.



10. Remove the cap from bleeder screw (1) and insert a vinyl hose. (Use a commercially available vinyl hose.)
11. Put the other end of the vinyl hose approx. 50 mm into a container of oil.
12. Loosen bleeder screw (1) approx. 3/4 turns and run the engine at low idle until no more bubbles come out from the vinyl hose.
13. When no more bubbles come out, tighten bleeder screw (1) securely, remove the vinyl hose, then install the cap.



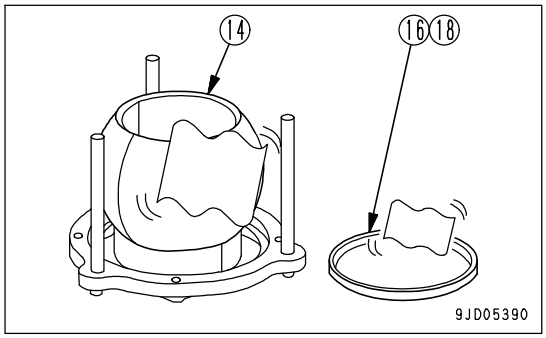
14. Perform the warming-up operation of the engine until the torque converter oil temperature gauge goes above 40°C (104°F).
15. When the torque converter oil temperature gauge rises to 40°C (104°F), bleed the air from the brakes.
    Front brake: See "BLEED AIR FROM FRONT BRAKE (PAGE 4-31)".
    Center brake: See "BLEED AIR FROM CENTER BRAKE (PAGE 4-32)".

NOTICE

- **Do not re-use the oil drained when bleeding the air. It will cause damage to the equipment.**
- **Be careful not to let the oil level in the brake oil tank go below sight gauge (H) during the air bleed operation. This will cause damage to the pump.**

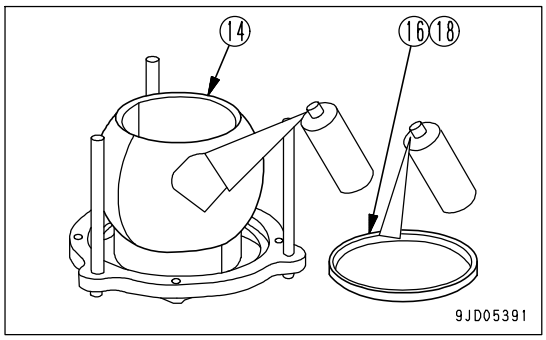
16. After completely bleeding the air from the brakes, stop the engine for approx. 2 - 3 minutes. After that, check the oil level in the transmission case and add oil to bring it to the specified level. For details, see "CHECK OIL LEVEL IN TRANSMISSION CASE, ADD OIL (PAGE 3-75)".

10. Clean the surface of ball joint (14) and surfaces of seal rings (16) and (18) removed at step 8, which contact to the ball joint.

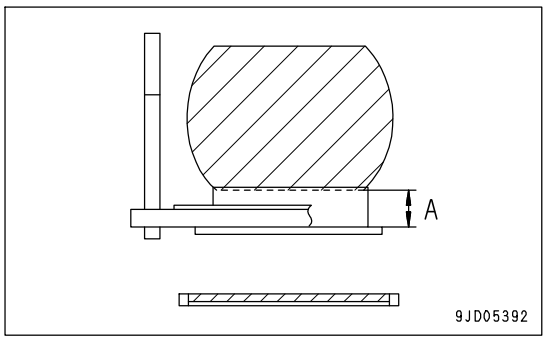


11. Apply spray lubricant to the range shown in the following figure of spherical surface of ball joint (14) and the ball contact surfaces of seal rings (16) and (18) thoroughly until base surfaces are not seen any more. Then, dry them out for 1 hour.

    Part number of spray lubricant: 56-98-21370



REMARK
Be careful not to touch with sharp tool to where lubricant has been applied, or the lubricant will be peeled off.



EVERY 4000 HOURS SERVICE

Maintenance for every 50, 250, 500, 1000 and 2000 hours service should be carried out at the same time.

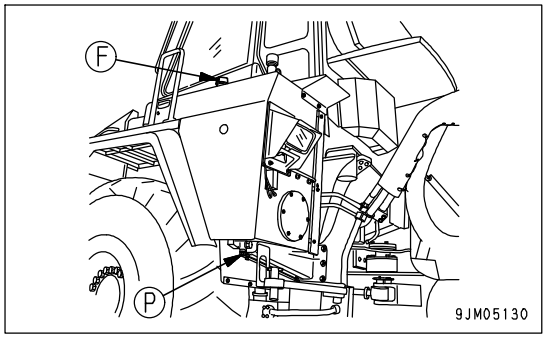
CHANGE OIL IN HYDRAULIC TANK

⚠ WARNING

- **Immediately after the engine is stopped, its parts and oil are still very hot, and may cause burn injury. Accordingly, wait until they have cooled down before starting the work.**
- **When removing the oil filler cap, turn it slowly to release the internal pressure, then remove it.**

- Refill amount of oil: 120 liters (31.70 US gal)

1. Lower the dump body and stop the engine.
2. Turn the cap of oil filler (F) to release the internal pressure before removing the cap.
3. Taking care not to get any oil on you, remove drain plug (P), drain the oil, then tighten the plug again.
4. Pour in the specified amount of engine oil from oil filler (F).
5. After adding oil, check that the oil is at the specified level. For details of the oil to use, see "CHECK OIL LEVEL IN HYDRAULIC TANK, ADD OIL (PAGE 3-75)".



CHECK STARTING MOTOR

The brushes may be worn or the bearing may have run out of grease, ask your Komatsu distributor for inspection and repairs.
If the engine is started frequently, have this inspection performed every 1000 hours.

CHECK WATER PUMP

Check around the water pump for water leakage. If any part is leaking, ask your Komatsu distributor for inspection/repair.

CHECK AIR COMPRESSOR

Ask your Komatsu distributor to perform this work.

CHECK FAN PULLEY AND TENSION PULLEY

Check for play of the pulley and leakage of grease. If any problem is found, contact your Komatsu distributor.

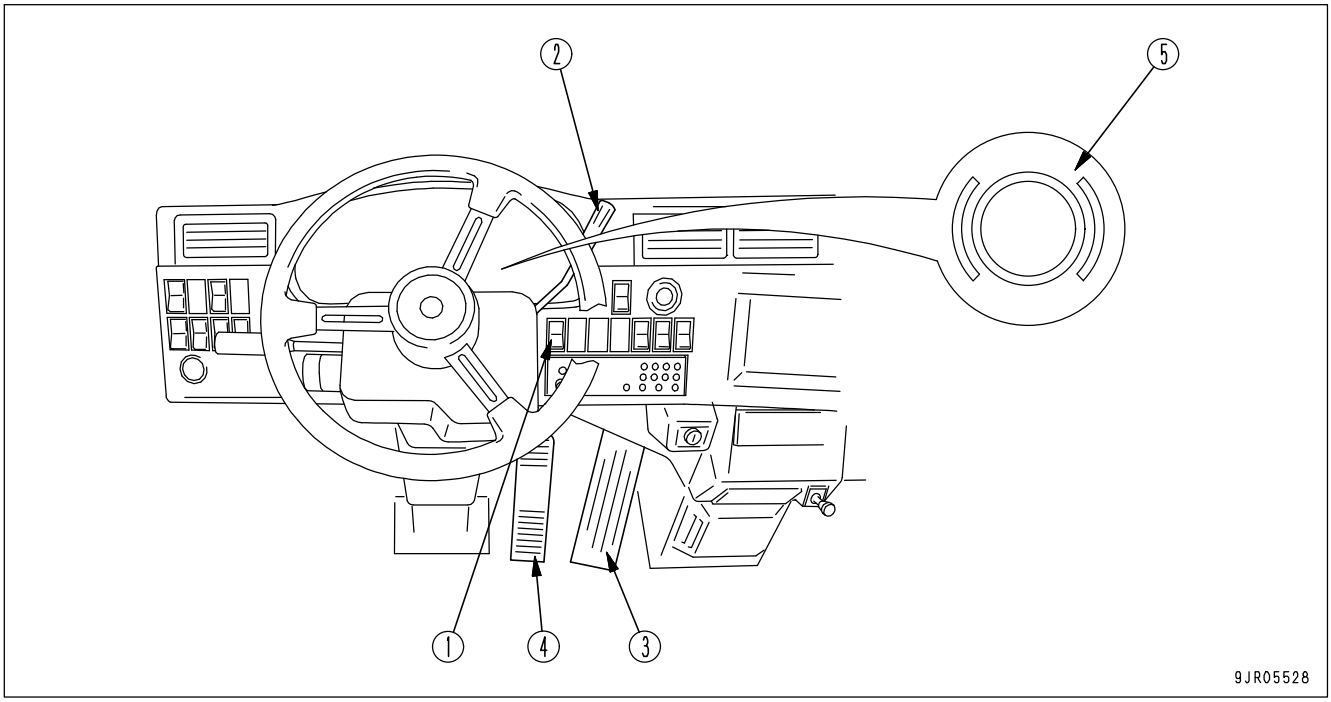
HANDLING AUTOMATIC RETARDER, ACCELERATOR CONTROL(ARAC)

This is a system to automatically activate the retarder when an operator wants to use it on a downslope or slow down on a flat hauling road. It enables the retarder to automatically function according to the present selected gear speed and engine revolution, thus making it easier for an operator to use the retarder.

⚠ WARNING

- **The ARAC system begins to function when the automatic retarder, accelerator control switch is in ON position. Check that this switch is turned on before running down on a slope.**
- **The ARAC system may not assure thorough braking force to slow down, depending on a slope inclination, load weight and selected gear speed. In that case, use the retarder control lever and brake pedal to slow down to a safety speed.**
- **The tires may be locked when the dump truck is running on a slippery hauling road and the ARAC system is in service. If that happens, stop using the ARAC system.**
- **Should some anomaly happen on the ARAC system and disable an operator from secure control of the dump truck, the system is put in OFF condition and released, while the alarm buzzer sounds. In that case, keep control of the dump truck, using the retarder control lever and brake pedal, bring the truck to a halt in a safe place and turn off the automatic retarder, accelerator control switch.**

EXPLANATION OF COMPONENTS



(1) Automatic retarder, accelerator control switch
(2) Retarder control lever
(3) Accelerator pedal
(4) Brake pedal
(5) Retarder pilot lamp

EXTERNAL DISPLAY LAMPS

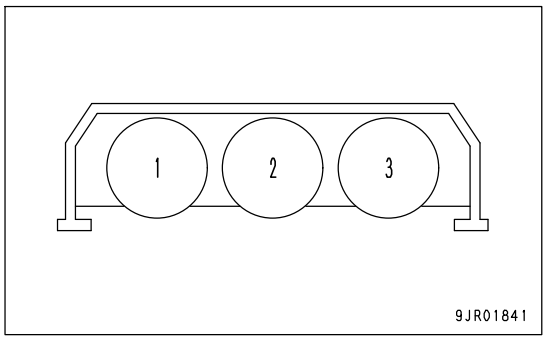
DISPLAY LEVEL FOR LAMPS

WARNING

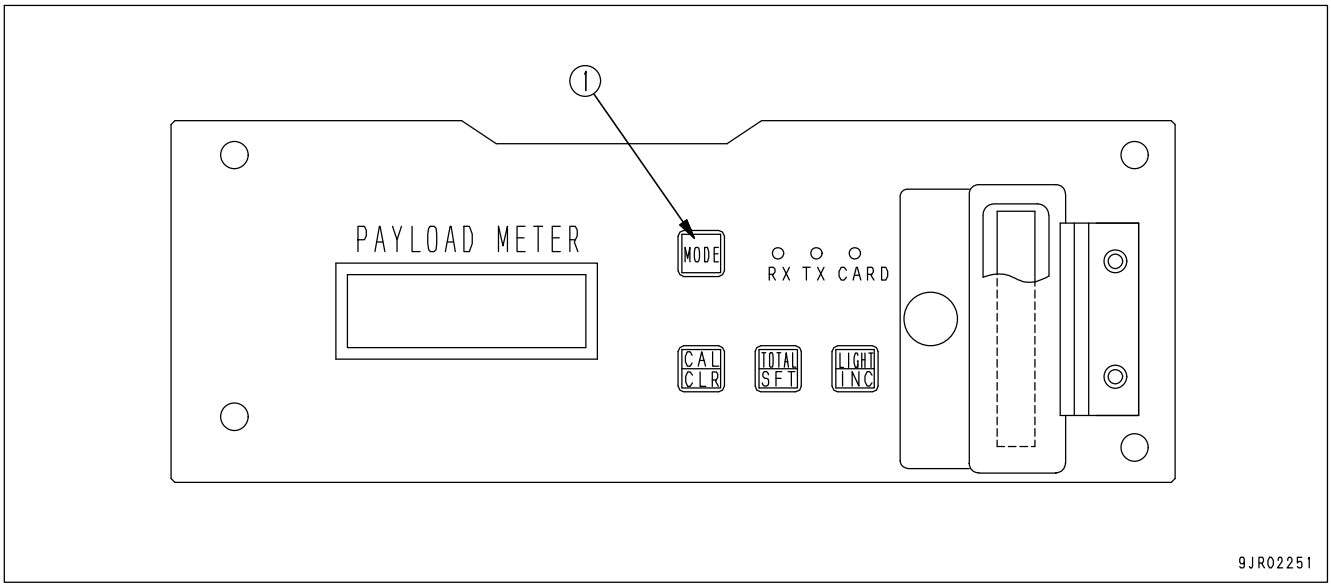
If the red lamp lights up, the machine is overloaded. Do not haul a load under this condition. To prevent overloading, we recommend loading only up to a range where the yellow lamp lights up.

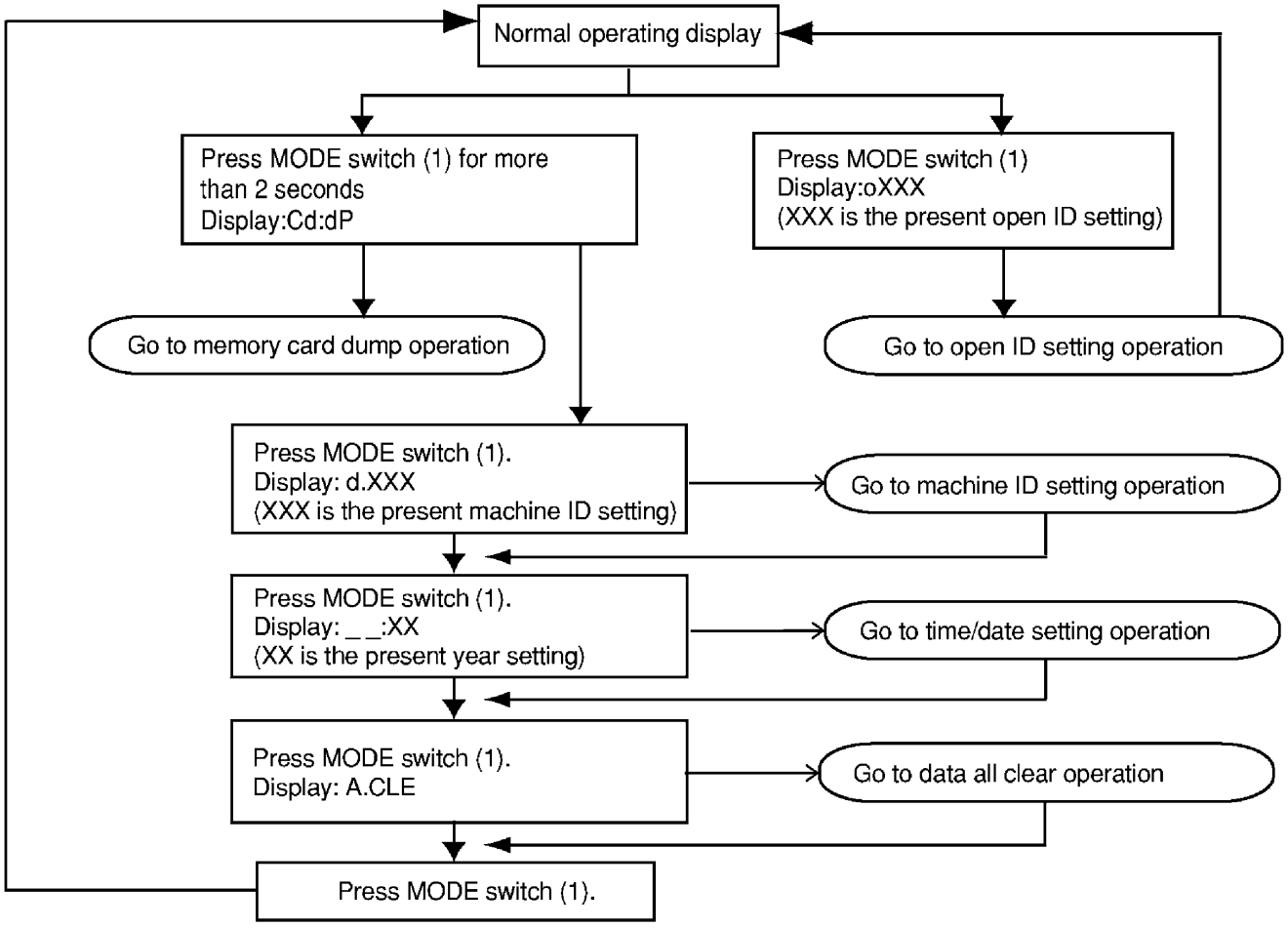
- The external lamps display the payload as follows.

	Color of lamp	HM300-2
1	Green	13.7 tons and up
2	Yellow	24.6 tons and up
3	Red	28.7 tons and up



METHOD OF OPERATION





PROCEDURE WHEN DOWNLOADING

⚠ CAUTION

- **When handling the cables, be careful not to damage them or pull them by force.**
- **Do not leave the connectors disconnected.**
- **Take steps to prevent dirt from entering the connector portion.**
- **Do not let any metal objects touch the connector portion.**

Download the recorded data to a personal computer which has the separately sold special software installed.

DOWNLOADING FROM DOWNLOAD CONNECTOR INSIDE CAB

1. Connect the download cable supplied with the special software. Connect the other end of the cable to the RS232C port of the personal computer.

2. Turn the starting switch to ON position.

3. Start up the personal computer and use the special software to download the data.

4. After completing the download, remove the download cable and fit the connector cap.