Operation & Maintenance Manual

EEAM008708

PC750SE-6K
PC750LC-6K

HYDRAULIC EXCAVATOR

SERIAL NUMBER

PC750SE-6K - K32030 and up

PC750LC-6K - K32030 and up

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 inside the cab for reference and periodically reviewed by all personel who will come into contact with the machine.

KOMATSU

FOREWORD

FOREWORD

This manual provides rules and guidelines which will help you use this machine safely and effectively. Keep this manual handy and have all personnel read it periodically. If this manual has been lost or has become dirty and can not be read, request a replacement manual from Komatsu or your Komatsu distributor.

If you sell the machine, be sure to give this manual to the new owners.

Continuing improvements in the design of this machine can lead to changes in detail which may not be reflected in this manual. Consult Komatsu or your Komatsu distributor for the latest available information for your machine or for questions regarding information in this manual.

⚠ WARNING

- **This operation & maintenance manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you require.**
- **This machine complies with EC directive (89/392/EEC) and following.**
- **Machines complying with this directive display the CE mark**.
- **Improper operation and maintenance of this machine can be hazardous and could result in serious injury or death.**
- **Operators and maintenance personnel should read this manual thoroughly before beginning operation or maintenance.**
- **Some actions involved in operation and maintenance of the machine can cause a serious accident, if they are not done in a manner described in this manual.**
- **The procedures and precautions given in this manual apply only to intended uses of the machine. If you use your machine for any unintended uses that are not specifically prohibited, you must be sure that it is safe for you and others. In no event should you or others engage in prohibited uses or actions as described in this manual.**
- **Komatsu delivers machines that comply with all applicable regulations and standards of the country to which it has been shipped. If this machine has been purchased in another country or purchased from someone in another country, it may lack certain safety devices and specifications that are necessary for use in your country. If there is any question about whether your product complies**

with the applicable standards and regulations of your country, consult Komatsu or your Komatsu distributor before operating the machine.

The description of safety is given in “SAFETY INFORMATION” on page 4 and in “SAFETY” on page 17.

SAFETY INFORMATION

Most accidents are caused by the failure to follow fundamental safety rules for the operation and maintenance of machines.

To avoid accidents, read, understand and follow all precautions and warnings in this manual and on the machine before performing operation and maintenance.

To identify hazards on the machine pictorial decals are used (see “POSITION FOR ATTACHING SAFETY LABELS” on page 52.)

⚠ RED WARNING TRIANGLE -This is used on safety labels where there is a high probability of serious injury or death if the hazard is not avoided. These safety messages or labels usually describe precautions that must be taken to avoid the hazard. Failure to avoid this hazard may also result in serious damage to the machine.

⚠ ORANGE WARNING TRIANGLE - This is used on safety labels where there is a potentially dangerous situation which could result in serious injury or death if the hazard is not avoided. These safety messages or labels usually describe precautions that must be taken to avoid the hazard. Failure to avoid this hazard may also result in serious damage of the machine

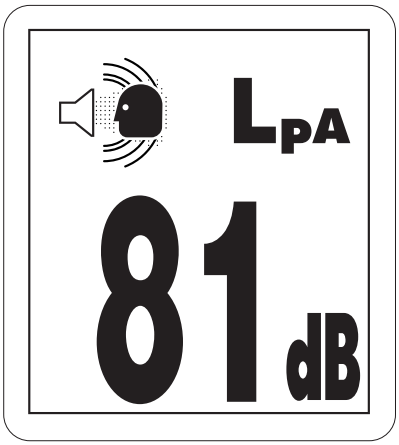
⚠ YELLOW SAFETY TRIANGLE-This is used on safety labels for hazards which could result in minor or moderate injury if the hazard is not avoided. This word might also be used for a hazard where the only result could be damage to the machine.

NOTICE
This word is used for precautions that must be taken to avoid actions which could shorten the life of the machine.

Safety precautions are described in “SAFETY” on page 17 Komatsu cannot predict every circumstance that might involve a potential hazard in operation and maintenance. Therefore the safety message in this manual and on the machine may not include all possible safety precautions. If any procedures or actions not specifically recommended or allowed in this manual are used, you must be sure that you and others can do such procedures and actions safely and without damaging the machine. If you are unsure about the safety of some procedures, contact Komatsu or your Komatsu distributor.

NOISE

- Sound pressure level at the operator’s station, measured according to ISO6396 (Dynamic test method,simulated working cycle).)



- Sound power level emmited. This is the guaranteed value as specified in the European directive 2000/14/EC

VIBRATION

- The weighted root mean square acceleration value to which the operator's arms are subjected does not exceed 2.5 m/s².
- The weighted root mean square acceleration value to which the operator's body is subjected does not exceed 0.5 m/s².

These results were obtained by accelerometers during trench digging.

INTRODUCTION

INTENDED USE

This Komatsu HYDRAULIC EXCAVATOR is designed to be used mainly for the following work:

- Excavation work
- Levelling work
- Ditching work
- Loading work

See the section see “WORK POSSIBLE USING HYDRAULIC EXCAVATORS” on page 138. for further details.

FEATURES

- This Komatsu HYDRAULIC EXCAVATOR is equipped with various controls operated by an advanced electronic system.
  - ❍ The monitor panel greatly facilitates daily maintenance and self-diagnosis
  - ❍ The working mode, travel speed, and swing priority are selectable.
  - ❍ The power can be increased at a touch.

  (For details, see “OPERATION” on page 59.)
- Adjustable wrist control levers make operations smooth and easy.
- Air-conditioned operator’s cab assures comfortable operation.
- Low-noise design, smart form and coloring allow trouble-free operations even urban areas
- Superb operating performance provided by powerful engine and high-performance hydraulic pumps.
- Low fuel consumption controlled by an electronic control system provides and environment-friendly machine.

RUNNING IN THE MACHINE

Your Komatsu machine has been thoroughly adjusted and tested before shipment.

However, operating the machine under severe conditions at the beginning can adversely affect the performance and shorten the machine life.

Be sure to run in the machine for the initial 100 hours (as indicated by the service meter.)

During running in:

- Idle the engine for 5 minutes after starting it up.
- Avoid operation with heavy loads or at high speeds.
- Avoid sudden starts, sudden acceleration, sudden steering and sudden stops except in cases of emergency.

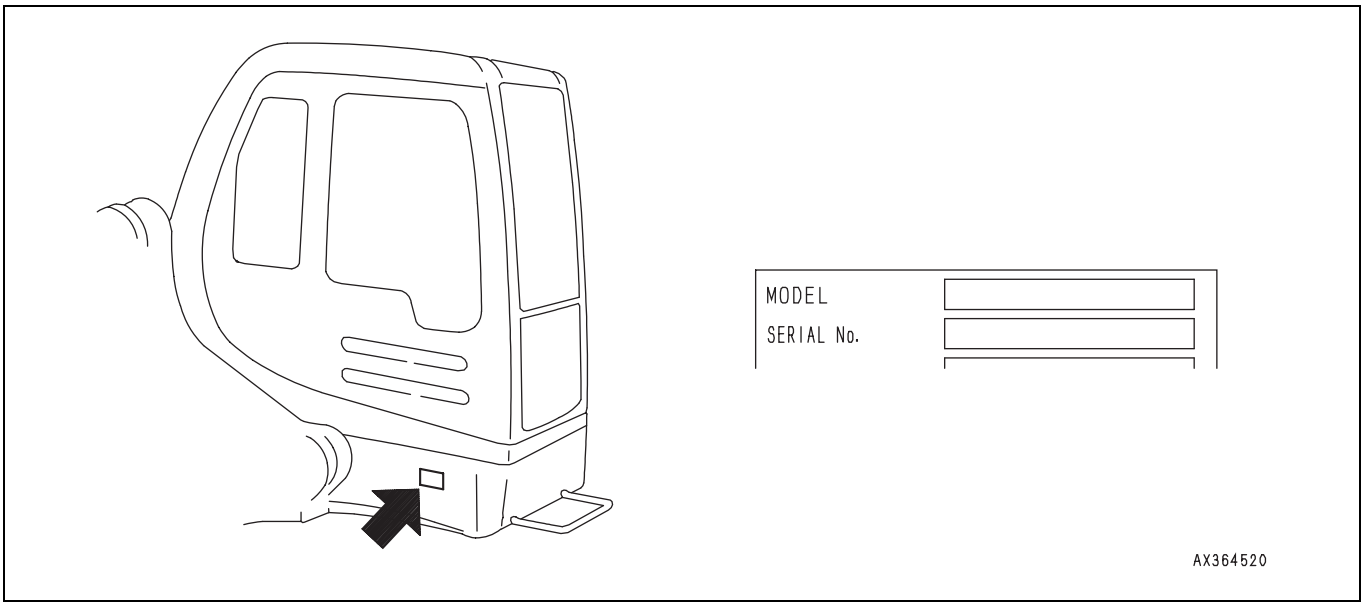
The precautions given in this manual for operating, maintenance, and safety procedures are only those that apply when this product is used for the specified purpose. If the machine is used for a purpose that is not listed in this manual, Komatsu cannot bear any responsibility for safety. All consideration of safety in such operations is the responsibility of the user.

Operations that are prohibited in this manual must never be carried out under any circumstances.

LOCATION OF PLATES, TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

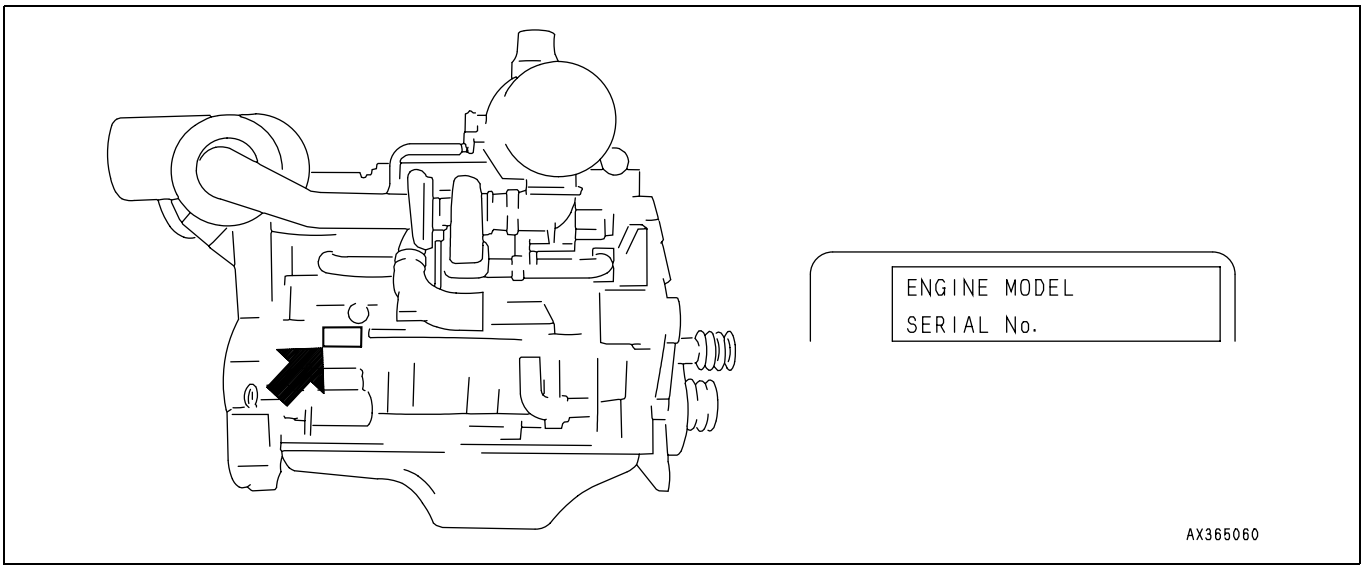
MACHINE SERIAL NO. PLATE POSITION

On the front bottom right of the operator's cab (side of upper frame)



ENGINE SERIAL NO. PLATE POSITION

On the upper side of the oil cooler housing located on the left side of the engine cylinder block viewed from the fan.



SERVICE METER POSITION

This is located at the upper side of machine monitor.

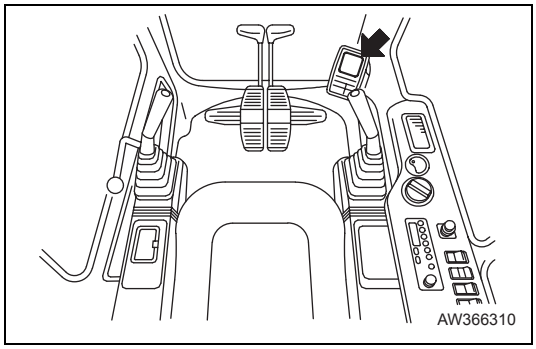
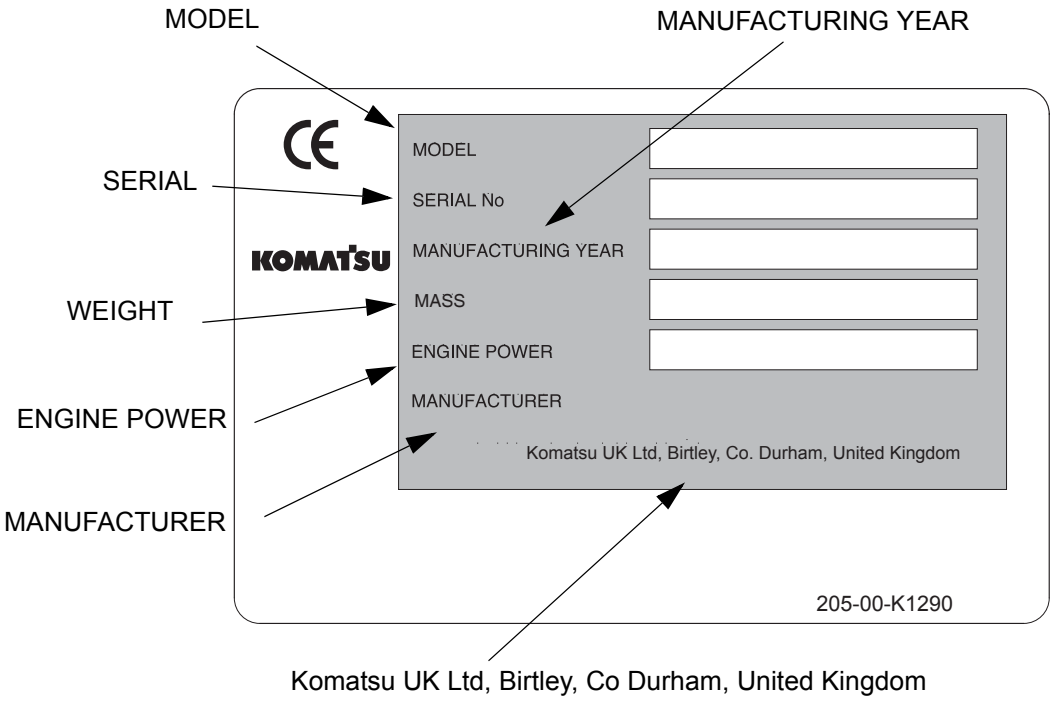


TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

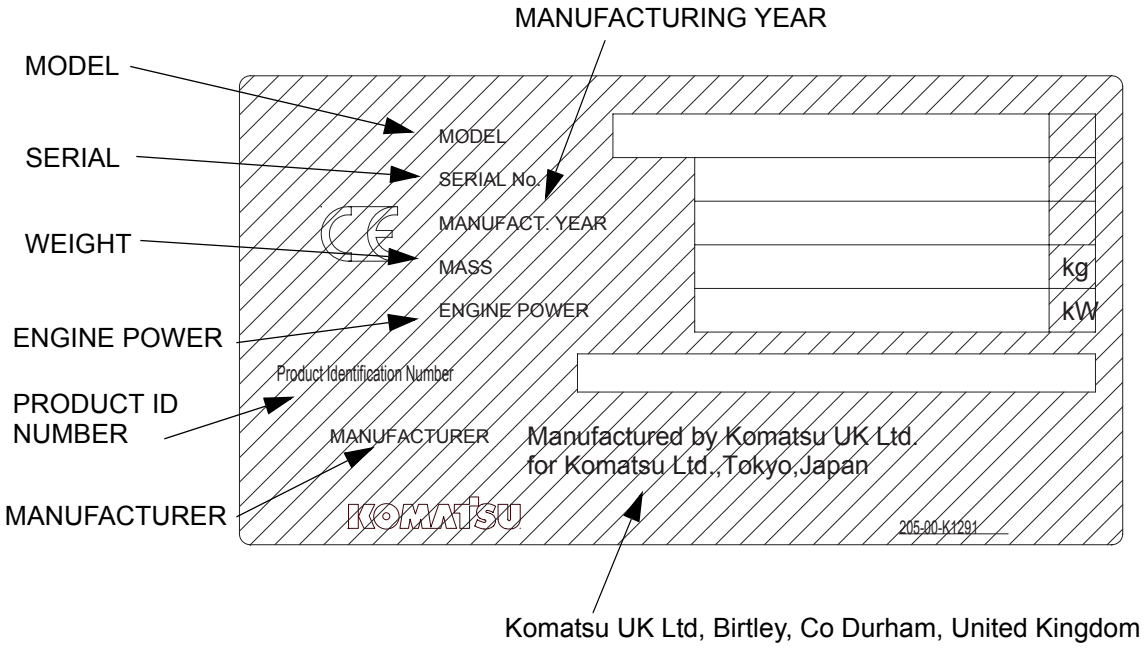
Machine serial No.	
Engine serial No.	
Product Identification Number	
Manufacturers name:	KOMATSU UK Ltd.
Address:	Durham Road Birtley Chester-Le street County Durham DH32QX United Kingdom
Distributor Address	
Phone	

MACHINE SERIAL PLATE

Valid until 31 December 2003



Valid as of 1 January 2004



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LOADING SHOVEL

SAFETY

⚠ WARNING

Read and follow all safety precautions. Failure to do so may result in serious injury or death.

This safety section also contains precautions for optional equipment and attachments.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

GENERAL PRECAUTIONS

SAFETY RULES

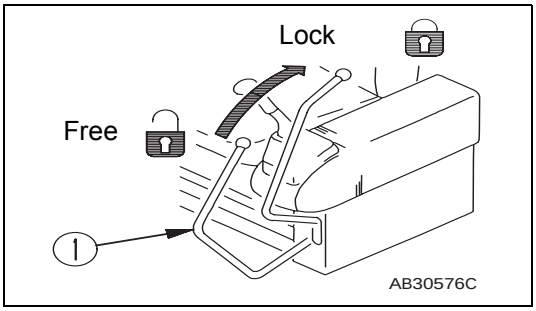
- Only trained and authorized personnel can operate and maintain the machine.
- Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.
- Do not operate the machine if you are not feeling well, or if you are taking medicine which will make you sleepy, or if you have been drinking. Operating in such a condition will adversely affect your judgement and may lead to an accident.
- When working with another operator or with a person on worksite traffic duty, be sure that all personnel understand all hand signals that are to be used.
- Always follow all rules related to safety.

SAFETY FEATURES

- Be sure that all guards and covers are in their proper position. Have guards and covers repaired if damaged.
- Use safety features such as the safety lock lever (1) and the seat belt (if installed) properly.
- Never remove any safety features. Always keep them in good operating condition.

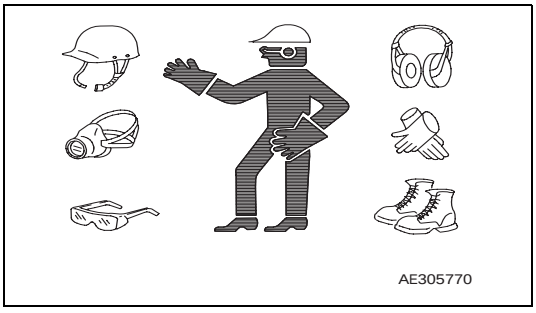
  Safety lock lever → see "PARKING MACHINE" on page 141.

  Seat belt (if installed) → see "ADJUST OPERATOR'S SEAT" on page 110.
- Improper use of safety features could result in serious injury or death.



CLOTHING AND PERSONAL PROTECTIVE ITEMS

- Avoid loose clothing, jewellery, and loose long hair. They can catch on controls or in moving parts and cause serious injury or death.
- Also, do not wear oily clothes, because they are flammable.
- Wear a hard hat, safety glasses, safety shoes, mask or gloves when operating or maintaining the machine. Always wear safety goggles, hard hat and heavy gloves if your job involves scattering metal chips or minute materials particularly when driving pins with a hammer and when cleaning the air cleaner element with compressed air. Check also that there is no one near the machine.



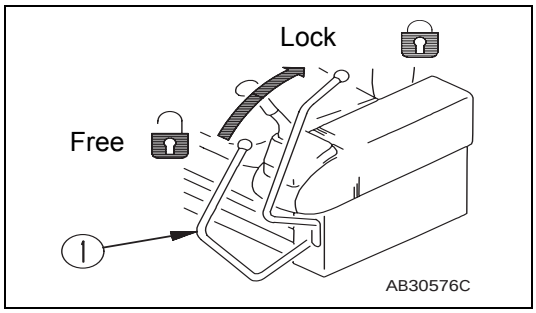
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- Check that all protective equipment functions properly before using.

UNAUTHORIZED MODIFICATION

Any modification made without authorization from Komatsu can create hazards. Before making a modification, consult your Komatsu distributor. Komatsu will not be responsible for any injury or damage caused by any unauthorized modification.

ALWAYS APPLY LOCK WHEN LEAVING OPERATOR'S SEAT

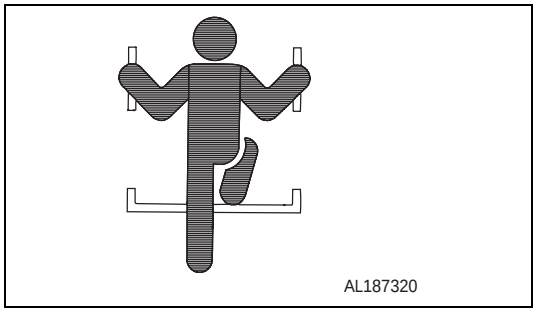


- When leaving the operator's seat, always place the safety lock lever (1) securely in the LOCK position. If you accidentally touch the levers when they are not locked, the work equipment may suddenly move and cause serious injury or damage.
- When leaving the machine, lower the bucket completely to the ground, set the safety lock levers (1) to the LOCK position, then stop the engine. Use the key to lock all the equipment. Always remove the key and take it with you.

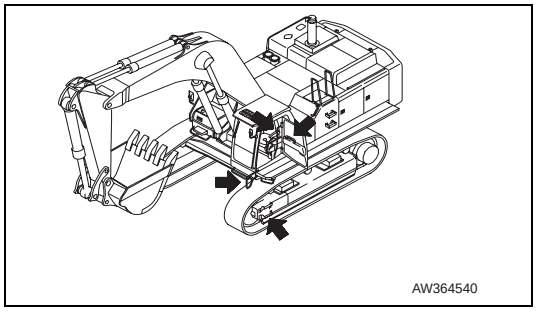
  Work equipment posture → see "PARKING MACHINE" on page 141.

  Locking → see "LOCKING" on page 144.

MOUNTING AND DISMOUNTING



- Never jump on or off the machine. Never get on or off a moving machine.
- When getting on or off the machine, always face the machine and use the handrails and steps.
- Never hold any control levers or lock levers when getting on or off the machine.
- To ensure safety, always maintain three-point contact (both feet and one hand, or both hands and one foot) with the handrails and steps to ensure that you support yourself.

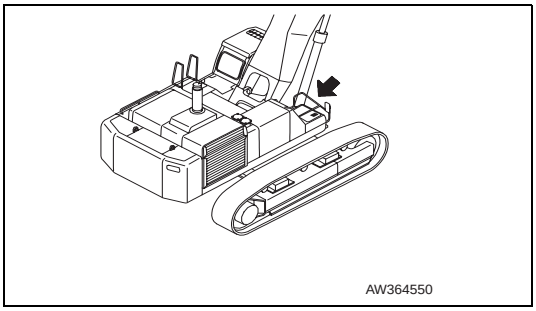


- If there is any oil, grease, or mud on the handrails or steps, wipe it off immediately. Always keep these parts clean. Repair any damage and tighten any loose bolts.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

- When getting on or off the machine, or when moving along the top of the track, if you hold the handrail inside the door when moving on top of the track shoe, and the door lock is not locked securely, the door may move and cause you to fall. Always lock the door securely.

  Method of locking door → see "LOCKABLE COMPARTMENTS AND FUEL CAP" on page 88.

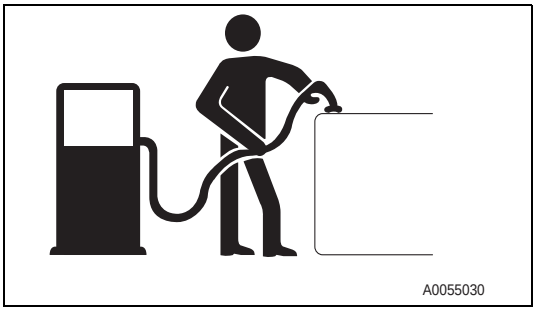


FIRE PREVENTION FOR FUEL AND OIL

Fuel, oil, and antifreeze can be ignited by a flame. Fuel is particularly flammable and can be hazardous.

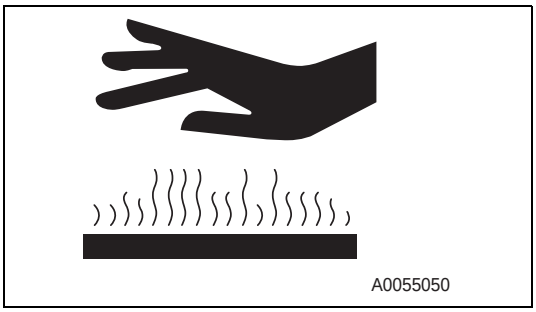
Always observe the following:

- Keep any flame or lighted cigarette away from flammable fluids.
- Stop the engine and do not smoke when refuelling.
- Tighten all fuel and oil caps securely.
- Use well-ventilated areas for adding or storing oil and fuel.
- Keep oil and fuel in the determined place and do not allow unauthorized persons to enter



PRECAUTIONS WHEN HANDLING AT HIGH TEMPERATURE

- Immediately after operations are stopped, the engine oil and hydraulic oil are at high temperature and are still under pressure. Attempting to remove the cap, drain the oil or water, or replace the filters may lead to serious burns. Always wait for the temperature to go down, and follow the specified procedures when carrying out these operations.



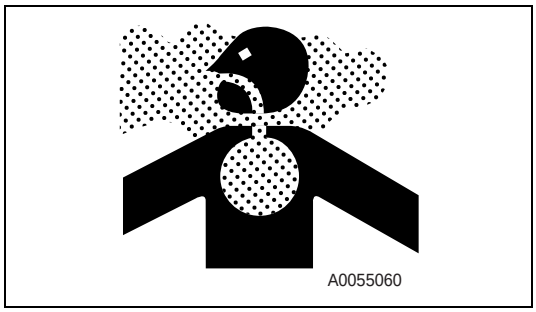
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- To prevent hot water from spurting out, stop the engine, wait for the water to cool, then loosen the cap slowly to relieve the pressure before removing the cap.
  (When checking if the water temperature has gone down, put your hand near the front face of the radiator and check the air temperature. Be careful not to touch the radiator.)

- To prevent hot oil from spurting out, stop the engine, wait for the oil to cool, then loosen the cap slowly to relieve the pressure before removing the cap.
  (When checking if the oil temperature has gone down, put your hand near the front face of the hydraulic tank and check the air temperature. Be careful not to touch the hydraulic tank.)

ASBESTOS DUST HAZARD PREVENTION

Asbestos dust can be hazardous to your health if it is inhaled.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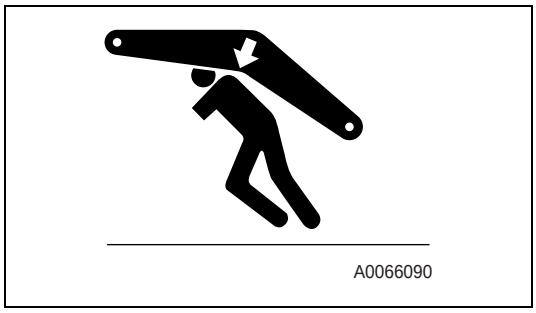
Komatsu does not use asbestos in its products, but if you handle materials containing asbestos fibres, follow the guidelines given below:

- Never use compressed air for cleaning.
- Use water to keep down the dust when cleaning.
- If there is danger that there may be asbestos dust in the air, operate the machine from an upwind position whenever possible.
- Use an approved respirator if necessary.

CRUSHING OR CUTTING PREVENTION

Do not enter, or put your hand or arm or any other part of your body between movable parts such as the work equipment and cylinders, or between the machine and work equipment.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If the work equipment is operated, the clearance will change and this may lead to serious damage or personal injury.

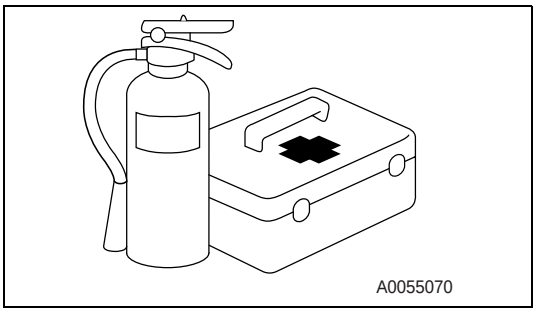
If it is necessary to go between movable parts, always lock the levers and be sure that the work equipment cannot move.

For details, see "PRECAUTIONS FOR MAINTENANCE" on page 40.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

FIRE EXTINGUISHER AND FIRST AID KIT

Always follow the precautions below to prepare for action if any injury or fire should occur.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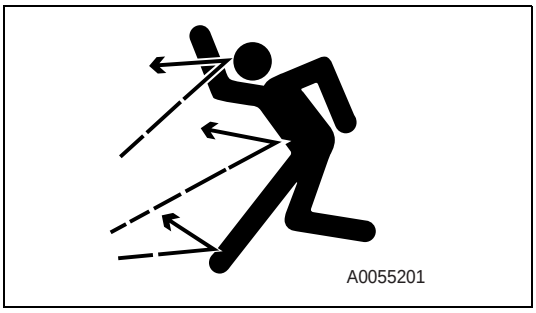
- Be sure that fire extinguishers have been provided and read the labels to ensure that you know how to use them.
- Provide a first aid kit at the storage point. Carry out periodic checks and add to the contents if necessary.
- Know what to do in the event of a fire or injury.
- List the phone numbers of persons (doctor, ambulance, fire station, etc.) to contact in case of an emergency. Post these contact numbers in specified places and make sure that all personnel know the numbers and correct contact procedures.

PROTECTION AGAINST FALLING OR FLYING OBJECTS

If there is any danger of falling or flying objects hitting the operator, install protective guards to protect the operator as required for each particular situation.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- For work with breakers, install a front guard on the windshield. Also, place a laminate coating sheet over the windshield.

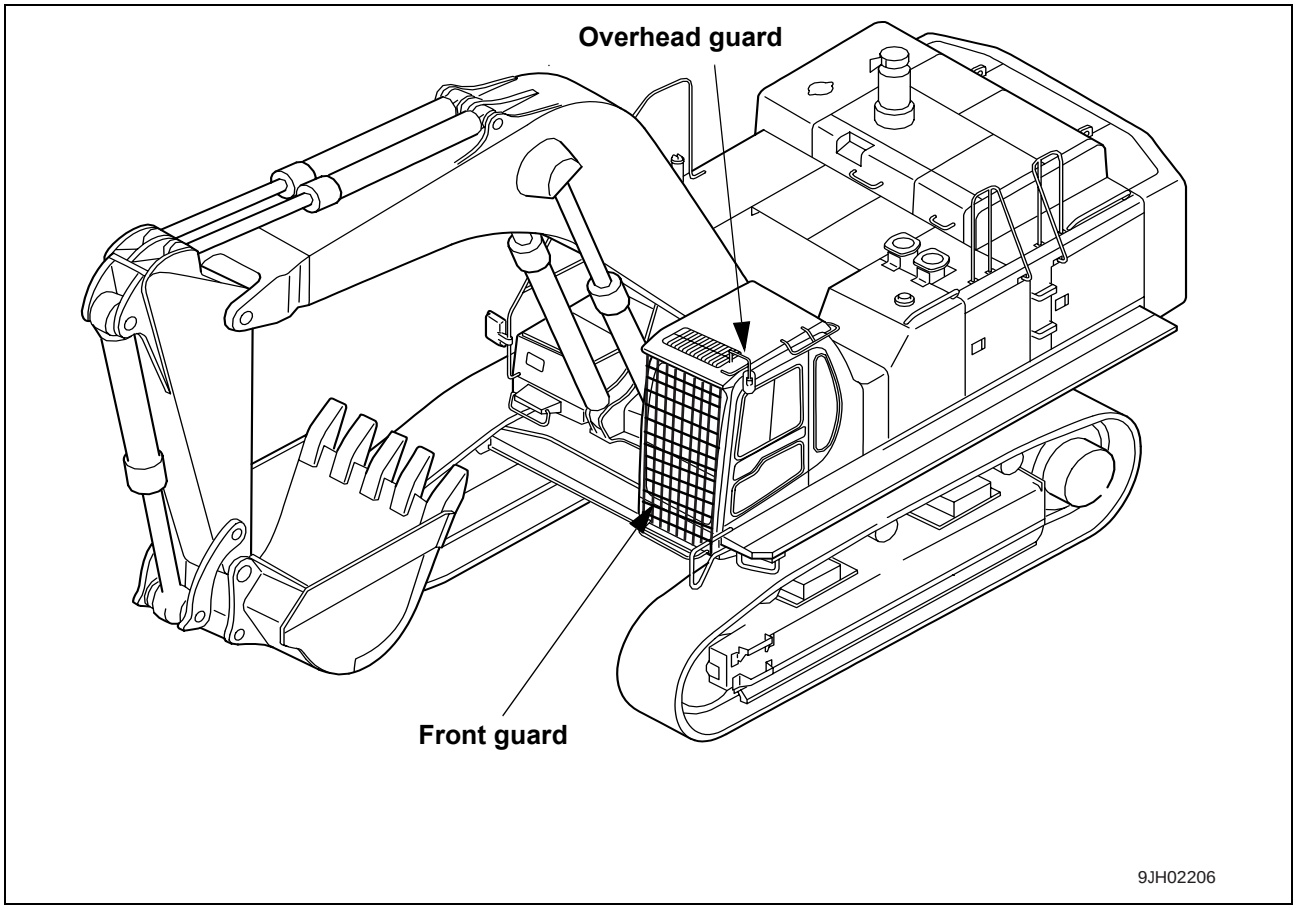
  The above comments are made with regards to typical working conditions. By all means you should put on other guards if required by conditions at your particular site.
  For details of safety guards, please contact your Komatsu distributor.

  Also, even for other types of work, if there is any danger of getting hit by falling or flying objects, or of objects entering the operator's cab, select and install a guard that matches the working conditions.

  Be sure to close the front window before commencing work.

  When carrying out the above operations, make sure to keep all persons other than the operator outside the range of falling or flying objects. Be particularly sure to maintain a proper distance when carrying out shear operations.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.



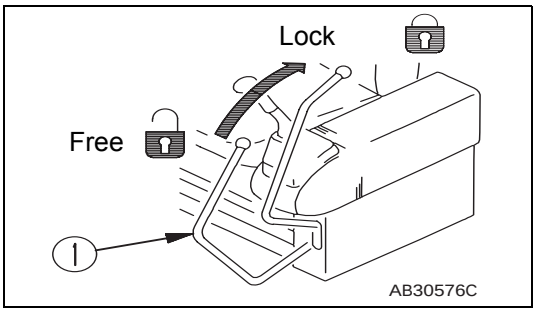
PRECAUTIONS FOR ATTACHMENTS

- When installing and using an optional attachment, read the instruction manual for the attachment and the information related to attachments in this manual.
- Do not use attachments that are not authorized by Komatsu or your Komatsu distributor. Use of unauthorized attachments could create a safety problem and adversely affect the proper operation and useful life of the machine.
- Any injuries, accidents, product failures resulting from the use of unauthorized attachments will not be the responsibility of Komatsu.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

MACHINES EQUIPPED WITH ACCUMULATORS

On machines equipped with an accumulator, for a short time after the engine is stopped, the work equipment will lower under its own weight when the work equipment control lever is shifted to LOWER. After the engine is stopped, set the safety lock lever to the lock position and also lock the attachment pedal with the lock pin.

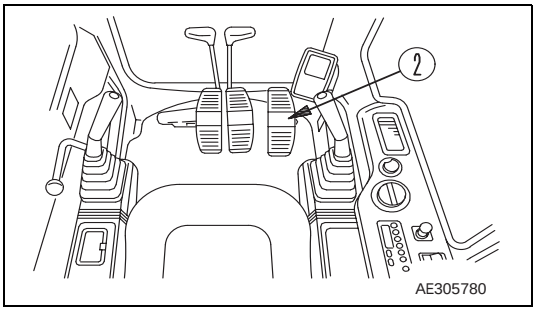


When releasing the pressure inside the work equipment circuit on machines equipped with an accumulator, follow the procedure given in the inspection and maintenance section.

Method of releasing pressure → see "ACCUMULATOR HANDLING" on page 100.

The accumulator is filled with high-pressure nitrogen gas, and it is extremely dangerous if it is handled in the wrong way. Always observe the following precautions.

- Never puncture the accumulator or expose it to flame or fire.
- Do not weld any boss to the accumulator.
- When carrying out disassembly or maintenance of the accumulator, or when disposing of the accumulator, it is necessary to release the gas from the accumulator. A special air bleed valve is necessary for this operation, so please contact your Komatsu distributor.

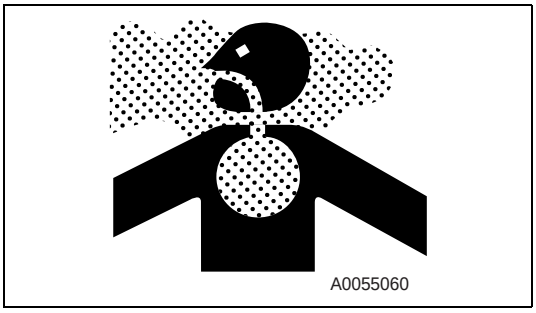


Gas in accumulator → see "ACCUMULATOR HANDLING" on page 100.

VENTILATION FOR ENCLOSED AREAS

Exhaust fumes from the engine can kill.

- If it is necessary to start the engine within an enclosed area, or you handle fuel, flushing oil, or paint, open the doors and windows to ensure that you provide adequate ventilation to prevent gas poisoning.
- If opening the doors and windows still does not provide adequate ventilation, set up fans.



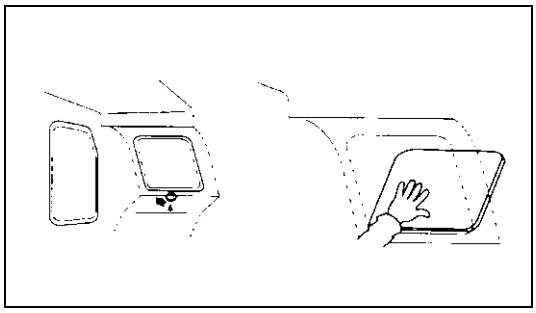
PRECAUTIONS WITH CAB GLASS

If by mistake the cab glass on the work equipment side should crack, there is danger of direct contact between the operator's body and the work equipment. This is extremely dangerous.

If the glass is cracked, stop operations immediately and replace the glass.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

EMERGENCY EXIT FROM OPERATOR'S CAB

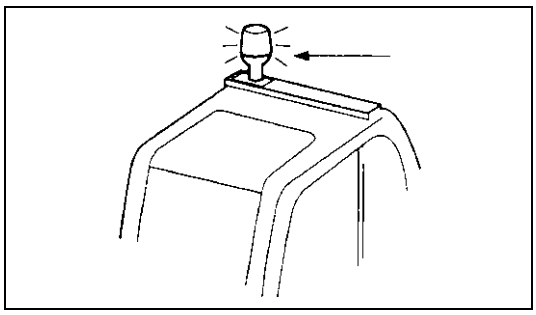


If it should become impossible to open the cab door, open the rear window and use it as an emergency escape. Remove the rear window as follows.

1. Pull ring (1) and completely remove seal (2) from the window frame rubber.
2. Push the corner of the rear window glass strongly to push it out and make it possible to remove.

Remove the rear window only when it is being used as an emergency escape.

ROTATING BEACON (OPTION)



When the machine is operated on or beside a road, a rotating beacon is required to avoid a traffic accident. Contact your Komatsu distributor to install beacon lamp.

ELECTROMAGNETIC INTERFERENCE

When this machine is operating close to a source of high electromagnetic interference, such as a radarstation, some abnormal phenomena may be observed.

- The display on the monitor panel may behave erratically.
- The warning buzzer may sound.

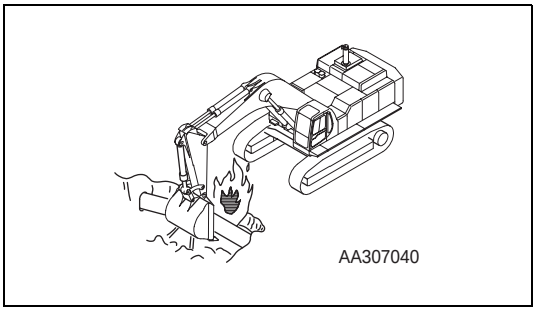
These effects do not signify a malfunction and the machine will return to normal as soon as the source of interference is removed.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

PRECAUTIONS DURING OPERATION

BEFORE STARTING THE ENGINE

SAFETY AT THE WORKSITE



- Before starting operations, thoroughly check the area for any unusual conditions that could be dangerous.
- Check the terrain and condition of the ground at the worksite, and determine the best and safest method of operation.
- Make the ground surface as hard and horizontal as possible before carrying out operations.
  If the jobsite is dusty, spray water before starting operations.
- If you need to operate on a road, protect pedestrians and cars by designating a person for worksite traffic duty or by installing fences and putting up No Entry signs around the worksite.
- If water lines, gas lines, or high-voltage electrical lines may be buried under the worksite, contact each utility and identify their locations. Be careful not to sever or damage any of these lines.
- Check the ground condition and 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 "PRECAUTIONS FOR OPERATION" on page 135.

CHECKS BEFORE STARTING THE ENGINE

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 personal injury or damage.

- Completely remove all flammable materials accumulated around the engine and battery, return all fuel containers, parts, and tools to their proper place, and remove any dirt from the mirrors, handrails, and steps.

  Checks around machine → see "WALK-AROUND CHECK" on page 102.

- Check the coolant level, fuel level, and oil level in the hydraulic tank, check for clogging of the air cleaner and for damage to the electric wiring.

  Checks before starting → see "CHECKS BEFORE STARTING ENGINE" on page 102.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- Adjust the operator's seat to a position where it is easy to carry out operations, and check for wear or damage to the seat belt (if installed) mounting equipment.

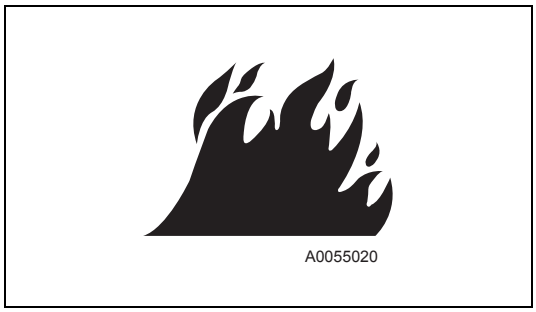
  Adjusting operator's seat → See "ADJUST OPERATOR'S SEAT".

  Handling seat belt → see "Seat Belt Adjustment" on page 113.

- Check that the gauges work properly, and check that the control levers are all at the parking position.

  Method for checking operation of gauges → See "CHECKS BEFORE STARTING ENGINE".

- Remove all dirt from the surface of the mirrors, windows, and lights so that there is a clear view.



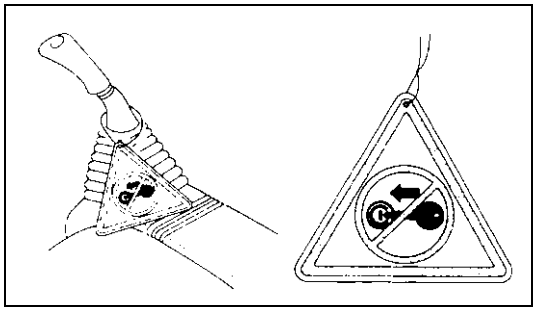
- Adjust the mirrors so that there is a clear view from the operator's seat.

  When adjusting, see "CHECKS BEFORE STARTING ENGINE" on page 102.

- If the mirrors are broken, replace them with new parts.

If any problems are found in the above checks, always carry out repairs immediately.

WHEN STARTING ENGINE



- Walk around your machine again just before mounting it, and check for people and objects that might be in the way.
- Never start the engine if a warning tag has been attached to the wrist control lever.
- When starting the engine, sound the horn as a warning.
- Start and operate the machine only while seated.
- The operator must not let any other person sit or stand anywhere in the cab. Do not allow anyone to ride on the machine body.
- Do not short circuit the starting motor circuit to start the engine. It is not only dangerous, but will also cause damage to the equipment.
- When after starting engine, do not lubricate or supply oil.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

AFTER STARTING ENGINE

CHECKS AFTER STARTING ENGINE

Failure to carry out the checks properly after starting the engine will lead to delays in discovery of abnormalities, and this may lead to serious injury or damage to the machine.

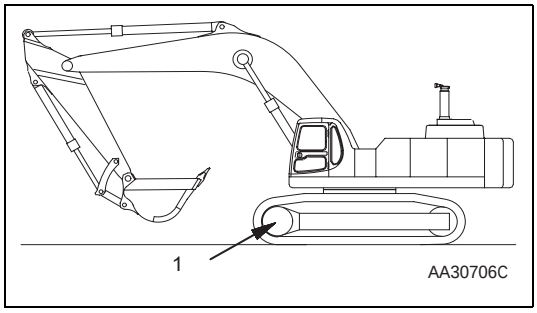
When carrying out the checks, use a wide area where there are no obstructions. Do not allow anyone near the machine.

- Check the operation of the gauges, work equipment and travel system.
- Check for any abnormality in the gauges, vibration, heat, smell, or sound of the machine. Check also that there is no leakage of oil, or fuel.
- If any abnormality is found, carry out repairs immediately.

  If the machine is used when it is not in proper condition, it may lead to serious injury or damage to the machine.

PRECAUTIONS WHEN STARTING OFF

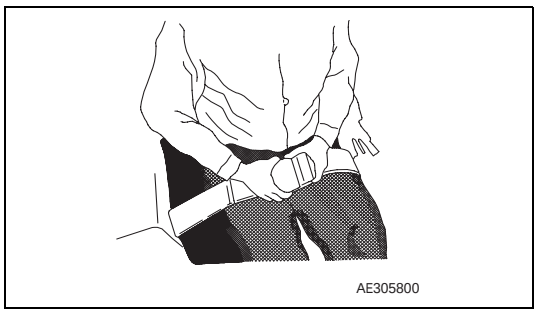
Check the direction of the track frame before operating the travel lever.



- When the sprocket (1) is at the front, the operation of the travel lever is reversed, so operate the machine carefully.

  Method of steering machine → see “TRAVELLING” on page 123.

  Before moving the machine off, check again that there are no persons or obstacles in the surrounding area.
- When moving the machine off, sound the horn to warn people in the surrounding area.
- Always sit in the operator’s seat when driving the machine.
- Fasten your seat belt (if installed) securely.
- The operator must not let any other person sit or stand anywhere in the cab.
- Check that the travel alarm (option) works properly.



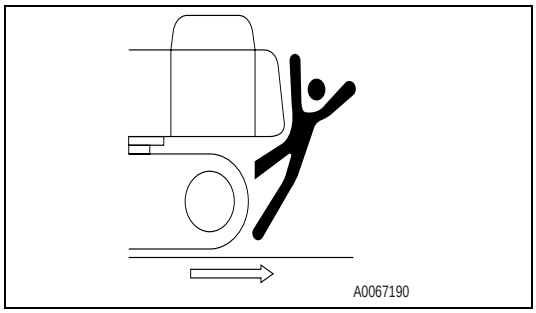
Always close the door of the operator’s cab or check that the door is locked in position securely.

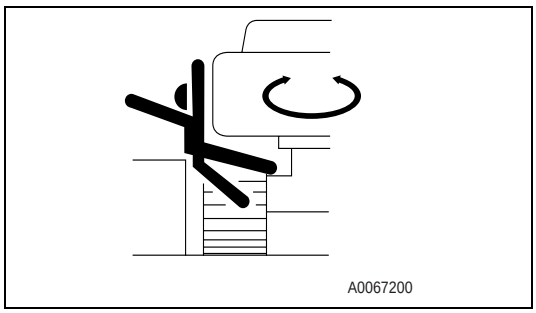
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

CHECK WHEN CHANGING DIRECTION

To prevent serious injury or death, always do the following before moving the machine or doing the levelling work.

- Before changing between forward and reverse, reduce speed and stop the machine.
- Before operating the machine, sound the horn to warn people in the area.
- Check that there is no one near the machine. Be particularly careful to check behind the machine.
- When operating in areas that may be hazardous or have poor visibility, designate a person to direct worksite traffic.
- Ensure that no unauthorized person can come within the direction of turning or direction of travel.

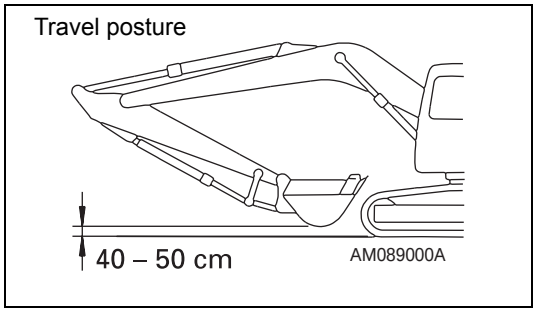




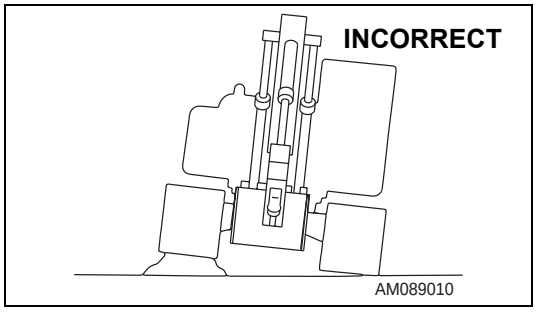
Always be sure to carry out the above precautions even when the machine is equipped with a backup alarm and mirrors.

PRECAUTIONS WHEN TRAVELLING

- Never turn the key in the starting switch to the OFF position when travelling.
  It is dangerous if the engine stops when the machine is travelling, because it becomes impossible to operate the steering.
- It is dangerous to look around you when operating. Always concentrate on your work.
- It is dangerous to drive too fast, or to start suddenly, stop suddenly, turn sharply, or zigzag.
- If you find any abnormality in the gauges, vibration, heat, smell, or sound of the machine, move the machine immediately to a safe place and look for the cause.



- Set the work equipment to a height of 40 - 50 cm from the ground level and travel on level ground.
- When travelling, do not operate the work equipment control levers. If the work equipment control levers have to be operated, never operate them suddenly.
- Do not operate the steering suddenly. The work equipment may hit the ground surface and cause the machine to lose its balance, or may damage the machine or structures in the area.
- When travelling on rough ground, travel at low speed, and avoid sudden changes in direction.



⚠ WARNING: For reasons of safety, always follow these safety precautions..

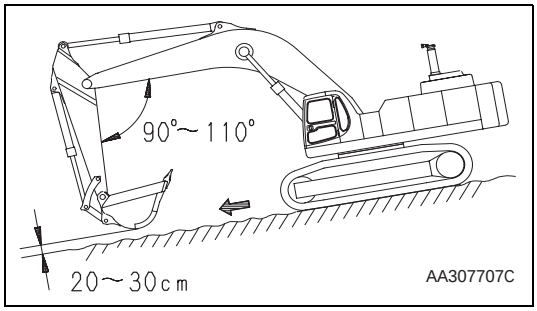
- Avoid travelling over obstacles as far as possible. If the machine has to travel over an obstacle, keep the work equipment as close to the ground as possible and travel at low speed. Never travel over obstacles which make the machine tilt strongly (10° or more).
- When travelling or carrying out operations, always keep your distance from other machines or structures to avoid coming into contact with them.
- NEVER be in water which is in excess of the permissible water depth.

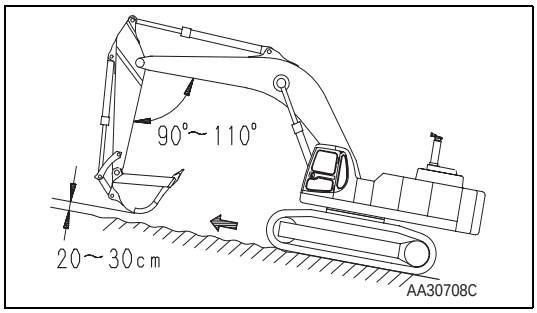
  Permissible water depth → See "PRECAUTIONS FOR OPERATION".
- When passing over bridges or structures on private land, check first that the structure is strong enough to support the mass of the machine. When travelling on public roads, check first with the relevant authorities and follow their instructions.

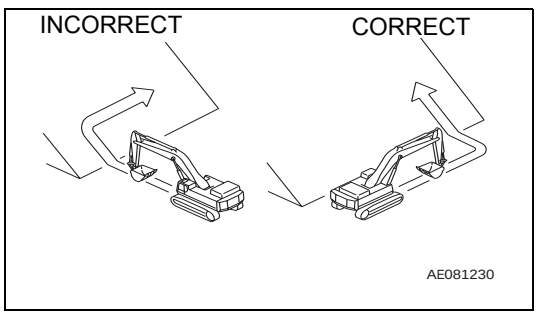
TRAVELING ON SLOPES

- Travelling on slopes could result in the machine tipping over or slipping to the side.
- When travelling on slopes, keep the bucket approximately 20 - 30 cm above the ground. In case of emergency, quickly lower the bucket to the ground to help the machine to stop.
- Do not turn on slopes or travel across slopes. Always go down to a flat place to perform these operations.

  Method of travelling on slopes → see “PRECAUTIONS WHEN TRAVELING UP OR DOWN HILLS” on page 136.
- Do not travel on grass, fallen leaves, or wet steel plates. Even slight slopes may cause the machine to slip to the side, so travel at low speed and make sure that the machine is always travelling directly up or down the slope.
- If the engine stops on a slope, place the travel lever at the neutral position and lower the bucket to the ground. Do not operate the steering. There is danger that the machine will turn under its own weight.



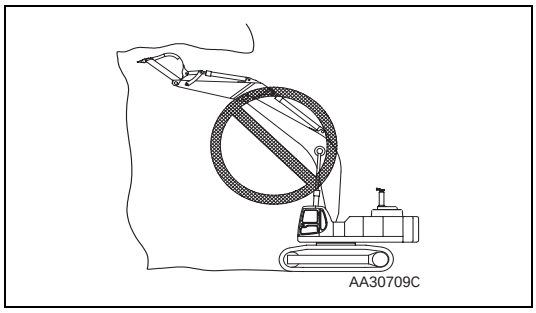




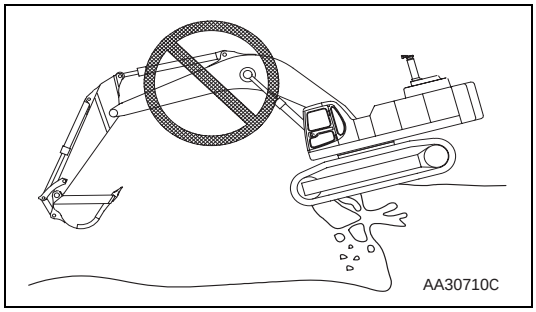
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

PROHIBITED OPERATIONS

- Do not dig the work face under an overhang. This may cause the overhang to collapse and fall on top of the machine.



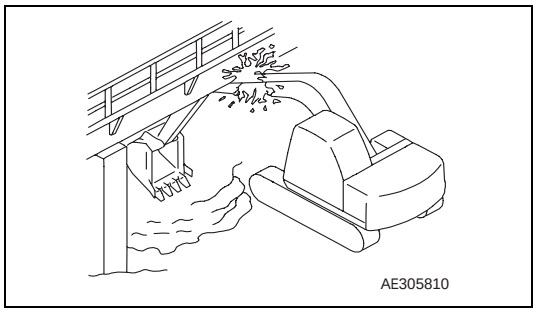
- Do not carry out deep digging under the front of the machine. The ground under the machine may collapse and cause the machine to fall. Take emergencies into consideration and set the travel motor at the rear and the track (undercarriage) at right angles to the road before digging to enable the machine to move back quickly. If the ground under the machine collapses and there is no time to drive in reverse, do not suddenly raise the arm and boom. In some cases, it may in fact be safer to lower the arm and boom.



- Do not swing the work equipment to the side when it is carrying a heavy load. The stability to the side is less than the stability to the front, so there is danger that the machine may turn over.
- Limits on use
  To prevent accidents caused by breakage of the work equipment or tipping over of the machine under excessive load, do not use the machine in excess of its capacity. Always be sure to keep within the maximum specified load and safe angle determined for the structure.

PRECAUTIONS WHEN OPERATING

- Be careful not to approach too close to the edge of cliffs.



- Carry out only work that is specified as the purpose of the machine.

  Carrying out other operations will cause breakdowns.

  Specified operations → see "WORK POSSIBLE USING HYDRAULIC EXCAVATORS" on page 138.

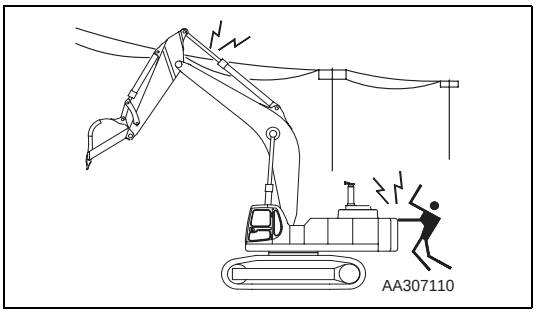
- Do the following to ensure good visibility.
  - ❍ When operating in dark places, turn on the working lamps and front lamps, and install lighting at the jobsite if necessary.
  - ❍ Do not carry out operations in fog, mist, snow, or heavy rain, or other conditions where the visibility is poor. Wait for the weather to clear so that visibility is sufficient to carry out work.
- Always do as follows to prevent the work equipment from hitting other objects.
  - ❍ When operating in tunnels, under bridges, under electric wires, or other places where the height is limited, be extremely careful not to let the bucket, boom, or arm hit anything.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

- ❍ To prevent accidents caused by hitting other objects, always operate the machine at a speed which is safe for operation, particularly in confined spaces, indoors, and in places where there are other machines.
- ❍ Never pass the bucket over the head of any worker or over the operator's cab on a dump truck.

DO NOT GO CLOSE TO HIGH-VOLTAGE CABLES

- Do not let the machine touch overhead electric cables. Even going close to high-voltage cables can cause electric shock. Always maintain the safe distance given below between the machine and the electric cable.
- To prevent accidents, always do as follows.
  - ❍ On jobsites where there is danger that the machine may touch the electric cables, consult the electricity company before starting operations to check that the actions determined by the relevant laws and regulations have been taken.
  - ❍ Wear rubber shoes and gloves. Lay a rubber sheet on top of the operator's seat, and be careful not to touch the chassis with any exposed part of your body.
  - ❍ Use a signalman to give warning if the machine approaches too close to the electric cables.
  - ❍ If the work equipment should touch the electric cable, the operator should not leave the operator's compartment.
  - ❍ When carrying out operations near high voltage cables, do not let anyone come close to the machine.
  - ❍ Check with the electricity company about the voltage of the cables before starting operations.



Voltage	Min. safety distance
6,600 V	3 m
33,000 V	4 m
66,000 V	5 m
154,000 V	8 m
275,000 V	10 m

OPERATE CAREFULLY ON SNOW

- When working on snow or icy roads, even a slight slope may cause the machine to slip to the side, so always travel at low speed and avoid sudden starting, stopping, or turning. There is danger of slipping particularly on uphill or downhill slopes.
- With frozen road surfaces, the ground becomes soft when the temperature rises, so the travel conditions become unstable. In such cases be extremely careful when travelling.
- When there has been heavy snow, the road shoulder and objects placed beside the road are buried in the snow and cannot be seen, so always carry out operations carefully.
  When travelling on snow-covered slopes, never apply the brakes suddenly. Reduce the speed and use the engine as a brake while applying the foot brake intermittently (depress the brake intermittently several times). If necessary, lower the bucket to the ground to stop the machine.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- The load varies greatly according to the characteristics of the snow, so adjust the load accordingly and be careful not to let the machine slip.

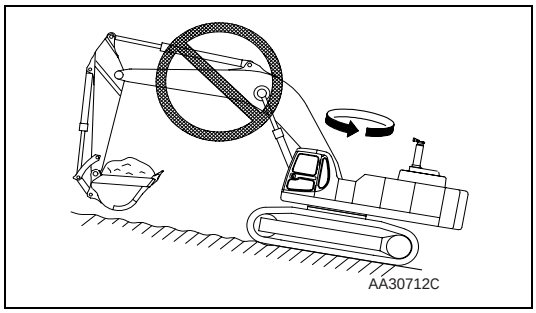
WORKING ON LOOSE GROUND

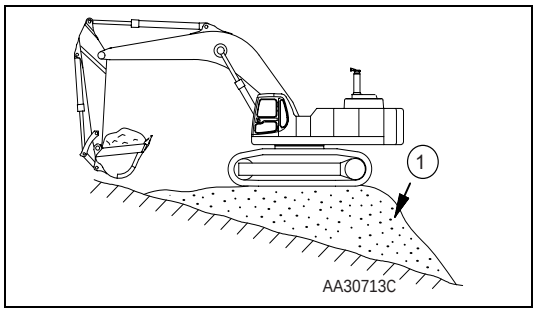
- Do not operate the machine on soft ground. It is difficult to get the machine out again.
- Avoid operating your machine too close to the edge of cliffs, overhangs, and deep ditches. If these areas collapse under the mass or vibration of your machine, it could fall or tip over and this could result in serious injury or death. Remember that the soil after heavy rain, blasting, or earthquakes is weakened in these areas.
- Earth laid on the ground and the soil near ditches is loose. It can collapse under the mass or vibration of your machine and cause your machine to tip over.
- Install the head guard (FOPS) when working in areas where there is danger of falling stones.
- Install the ROPS and wear the seat belt (if installed) when working in areas where there is danger of falling rocks, or the machine turing over.

PRECAUTIONS WHEN WORKING ON SLOPES

- When working on slopes, there is danger that the machine may lose its balance and turn over when the swing or work equipment are operated. Always carry out these operations carefully.
- Do not swing the work equipment from the uphill side to the downhill side when the bucket is loaded. This operation is dangerous.
- If the machine has to be used on a slope, pile the soil to make a platform (1) that will keep the machine as horizontal as possible.

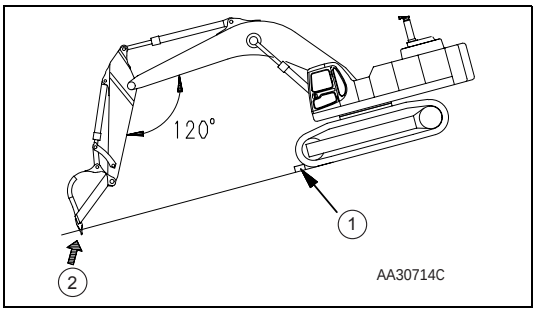
  Piled soil on slope → see "PRECAUTIONS WHEN TRAVELING UP OR DOWN HILLS" on page 136.





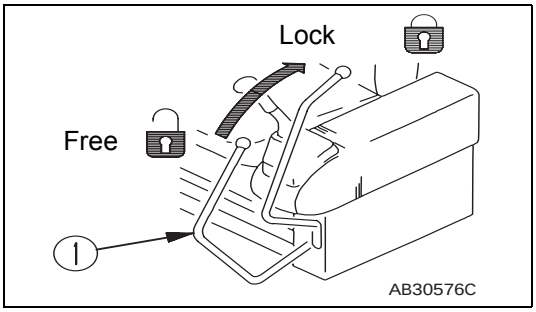
⚠ WARNING: For reasons of safety, always follow these safety precautions..

PARKING MACHINE



- Park the machine on level ground where there is no danger of falling rocks or landslides, or of flooding if the land is low, and lower the work equipment to the ground.
- If it is necessary to park the machine on a slope, set blocks(1) under the tracks to prevent the machine from moving, then dig the work equipment into the ground(2).
- After stopping the engine, operate the right work equipment control lever several times to the RAISE and LOWER positions to release the remaining pressure in the hydraulic circuit.
- When parking on public roads, provide fences, signs, flags, or lights, and put up any other necessary signs to ensure that passing traffic can see the machine clearly, and park the machine so that the machine, flags, and fences do not obstruct traffic.

  Parking procedure → see "PARKING MACHINE" on page 141.

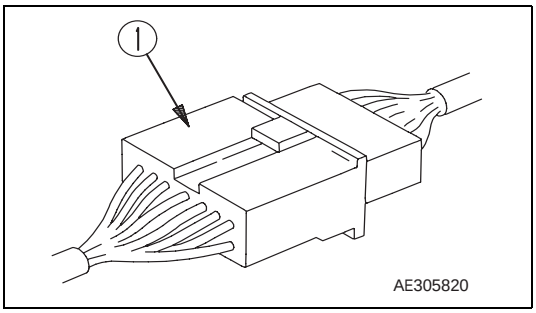


- When leaving the machine, set the safety lock lever (1) to the LOCK position, stop the engine, and use the key to lock all the equipment. Always remove the key and take it with you.

  Work equipment posture → see "PARKING MACHINE" on page 141.
  Locks → see "LOCKING" on page 144.

- Always close the door of the operator's compartment.

PRECAUTIONS IN COLD AREAS



- After completing operations, remove all water, snow, or mud stuck to the wiring harness, connector (1), switches, or sensors, and cover these parts.
- Carry out the warming-up operation thoroughly. If the machine is not thoroughly warmed up before the control levers are operated, the reaction of the machine will be slow, and this may lead to unexpected accidents.
- Operate the control levers to relieve the hydraulic pressure (raise to above the set pressure for the hydraulic circuit and release the oil to the hydraulic tank) to warm up the oil in the hydraulic circuit. This ensures good response from the machine and prevents malfunctions.
- If the battery electrolyte is frozen, do not charge the battery or start the engine with a different power source. There is danger that this will ignite the battery.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

When charging or starting the engine with a different power source, melt the battery electrolyte and check for leakage of battery electrolyte before starting.

Battery charge rate → see "COLD WEATHER OPERATION" on page 155.

TRANSPORTATION

PRECAUTIONS FOR TRANSPORTATION

- When transporting the machine, follow the relevant rules and regulations, and take steps to ensure safety.
- When selecting the transportation route, take into consideration the maximum width, height, and weight of the machine when loaded on the trailer.

  Height, width, weight when loaded → see "TRANSPORTATION" on page 145.
- When passing over bridges or structures on private land, check first that the structure is strong enough to support the weight of the machine. When travelling on public roads, check first with the relevant authorities and follow their instructions.
- For machines equipped with a cab, always lock the door securely.
- The machine can be divided into units for transportation, so please contact your Komatsu distributor when transporting.

  Transportation posture → see "TRANSPORTATION" on page 145.

  Do not lift the machine by crane. Lift points indicated are loose parts only.

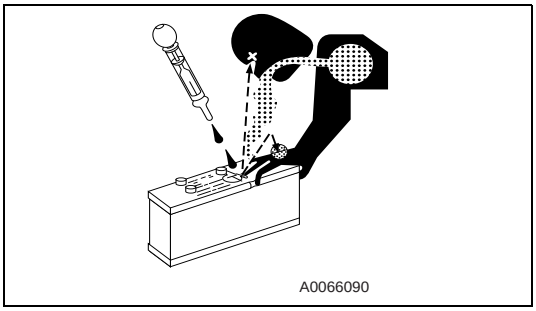
  Consult your Komatsu dealer for advice.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

BATTERY

BATTERY HAZARD PREVENTION

Battery electrolyte contains sulphuric acid, and batteries generate hydrogen gas, so incorrect handling can lead to serious injury or fire. For this reason, always observe the following precautions.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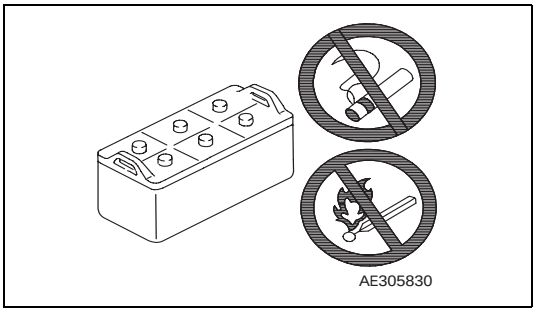
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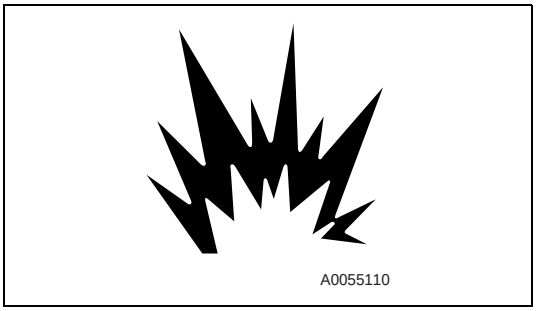
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- Never bring any lighted cigarette or flame near the battery.
- When working with batteries, ALWAYS wear safety glasses and rubber gloves.
- If you spill acid on your clothes or skin, immediately flush the area with large amounts of water.
- Battery acid could cause blindness if splashed into the eyes. If acid gets into your eyes, flush them immediately with large quantities of water and see a doctor at once.
- If you accidentally drink electrolyte, drink a large quantity of water or milk, beaten egg or vegetable oil. Call a doctor or poison prevention centre immediately.
- Before working with batteries, stop the engine and turn the starting switch to the OFF position.
- Avoid short-circuiting the battery terminals (between the positive (+) terminal and negative (-) terminal) through accidental contact with metal objects, such as tools.
- When installing the battery, connect the positive (+) terminal first, and when removing the battery, disconnect the negative (-) terminal (ground side) first.
- When removing or installing, check which is the positive (+) terminal and negative (-) terminal, and tighten the nuts securely.

  If the battery electrolyte is near the LOWER LEVEL, add distilled water. Do not add distilled water above the UPPER LEVEL.
- When cleaning the top surface of the battery, wipe it with a damp cloth. Never use gasoline, thinner, or any other organic solvent or cleaning agent.
- Tighten the battery caps securely.
- If the battery electrolyte is frozen, do not charge the battery or start the engine with a different power source. There is danger that this will ignite the battery.

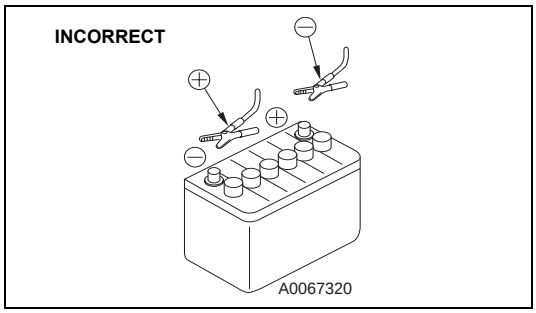
  When charging or starting the engine with a different power source, melt the battery electrolyte and check for leakage of battery electrolyte before starting.
- Always remove the battery from the chassis before charging it.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- Do not use or charge the battery if the battery electrolyte level is below the LOWER LEVEL line. This may cause an explosion. Always check the battery electrolyte level periodically and add distilled water to bring the electrolyte level to the UPPER LEVEL line.

STARTING WITH BOOSTER CABLES

If any mistake is made in the method of connecting the booster cables, it may cause a fire, so always do as follows.



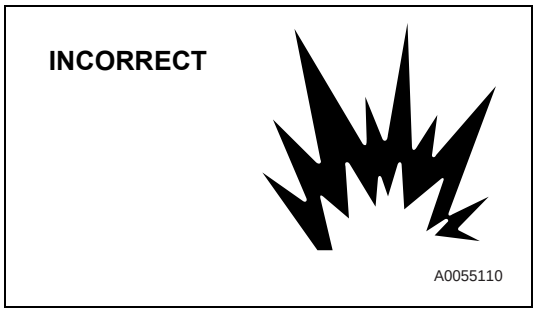
- Carry out the starting operation with two workers (with one worker sitting in the operator's seat).
- When starting from another machine, do not allow the two machines to touch.
- When connecting the booster cables, turn the starting switch OFF for both the normal machine and problem machine.
- Be sure to connect the positive (+) cable first when installing the booster cables. Disconnect the ground or negative (-) cable first when removing them.
- The final ground connection is the connection of the ground to the engine block of the problem machine. However, this will cause sparks, so be sure to connect it as far as possible from the battery.

  Starting procedure when using booster cables → see "IF BATTERY IS DISCHARGED" on page 161.

- When removing the booster cables, be careful not to let the booster cable clips touch each other or to let the clips touch the machine.

BATTERY CHARGING

If the battery is handled incorrectly when it is being charged, there is danger that the battery may explode, so follow the instructions in BATTERY HANDLING and in the instruction manual for the charger, and always observe the following precautions.



- Carry out the charging in a well-ventilated place, and remove the battery caps. This disperses the hydrogen gas and prevents explosion.
- Set the voltage on the charger to match the voltage on the battery to be charged. If the voltage setting is wrong, it will cause the charger to overheat and catch fire, and this may lead to an explosion.

  Connect the positive (+) charging clip of the charger to the positive (+) terminal of the battery, then connect the negative (-) charging clip to the negative (-) terminal of the battery. Be sure to tighten both terminals securely.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

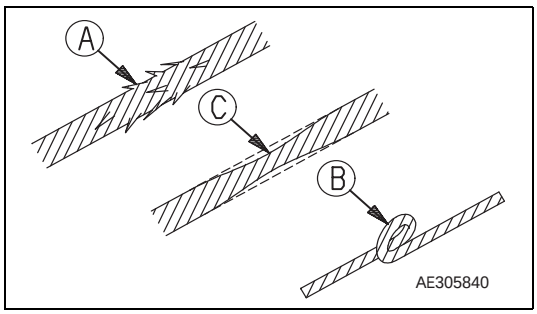
- If the battery charge is less than 1/10 of the rated charge, and high speed charging is carried out, set to a value below the rated capacity of the battery.

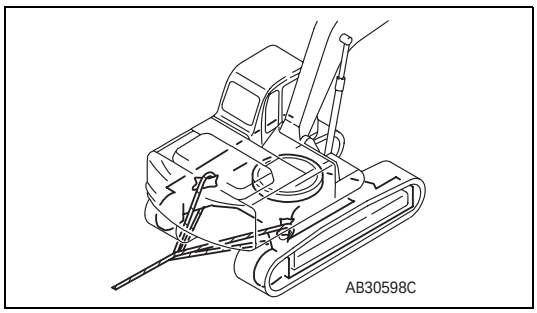
  If there is an excessive flow of charging current, it may cause leakage or evaporation of the electrolyte, which may catch fire and explode.

TOWING

WHEN TOWING

Injury or death could result if a disabled machine is towed incorrectly or if there is a mistake in the selection of the wire rope, so always do as follows.





- Do not tow in a different way from the method given in the section see “METHOD OF TOWING MACHINE” on page 160.
- Always wear leather gloves when handling wire rope.
- When carrying out the preparation for towing with another worker, agree on signals before starting the operation.
- If the engine on the problem machine will not start or there is a failure in the brake system, please contact your Komatsu distributor for repairs.
- It is dangerous to tow a machine on a slope, so choose a place where there is a gradual slope. If there is no place with a gradual slope, carry out work to make the slope as small as possible.
- If a problem machine is towed by another machine, ALWAYS use a wire rope with a sufficient towing capacity for the weight of the problem machine.
- Do not use a wire rope which has cut strands (A), kinks (B), or reduced diameter (C).

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

LIFTING OPERATIONS

⚠ WARNING

Do not under any circumstances carry out any lifting operations without boom safety valves fitted. If it is necessary to carry out lifting, please consult your KOMATSU distributor to purchase this option.

PROHITBITIONS FOR LIFTING OPERATIONS

Do not use the work equipment to carry out lifting operations.

In particular, do not do the following.

- Do not weld a hook to the bucket to lift a load.
- Do not fit a wire rope to the bucket teeth to lift a load.
- Do not wind a wire rope directly around the boom or arm to lift a load.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

PRECAUTIONS FOR MAINTENANCE

BEFORE CARRYING OUT MAINTENANCE

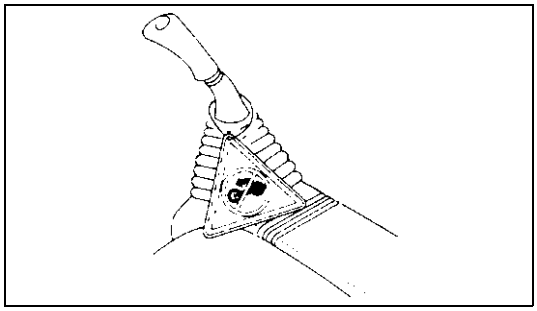
NOTIFICATION OF FAILURE

Carrying out maintenance not described in the Komatsu operation and maintenance manual may lead to unexpected failures.

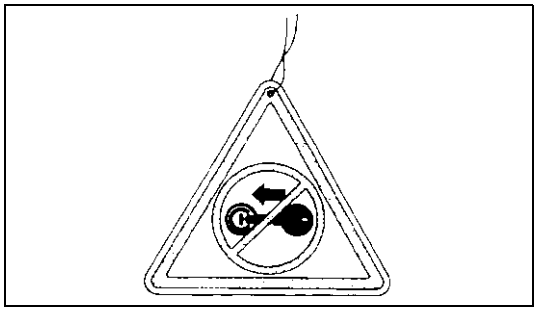
Please contact your Komatsu distributor for repairs.

WARNING TAG

- ALWAYS attach the "DO NOT OPERATE" warning tag to the blade 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.
- If others start the engine, or touch or operate the blade control lever while you are performing service or maintenance, you could suffer serious injury or death.



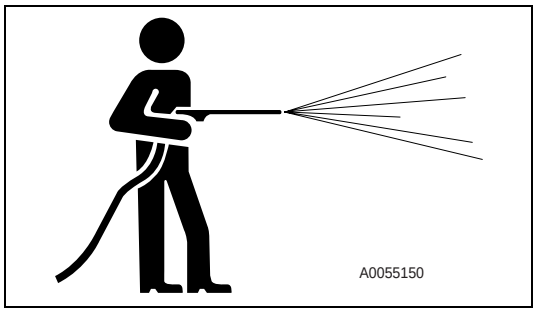
Warning tag Part No. 20E-00-K1340



⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

CLEAN BEFORE INSPECTION AND MAINTENANCE

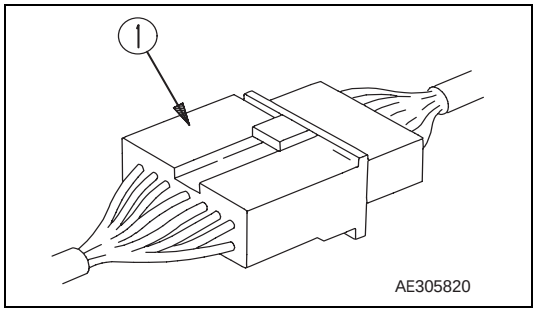
Clean the machine before carrying out inspection and maintenance. This will ensure that dirt does not get into the machine and will also ensure that maintenance can be carried out safely.



If inspection and maintenance are carried out with the machine still dirty, it will be difficult to find the location of problems, and there is also the danger that you will get dirty or mud in your eyes, and that you will slip and injure yourself.

When washing the machine, always do as follows.

- Wear non-slip shoes to prevent yourself from slipping on the wet surface.
- When using high-pressure steam to wash the machine, always wear protective clothing.
  This will protect you from being hit by high-pressure water, and cutting your skin or getting mud or dust into your eyes.
- Do not spray water directly on to the electrical system (sensors, connectors) (1). If water gets into the electrical system, there is danger that it will cause defective operation and malfunction.



KEEP WORK PLACE CLEAN AND TIDY

Do not leave hammers or other tools lying around in the work place. Wipe up all grease, oil, or other substances that will cause you to slip. Always keep the work place clean the tidy to enable you to carry out operations safely. If the work place is not kept clean and tidy, there is danger that you will trip, slip, or fall over and injure yourself.

APPOINT LEADER WHEN WORKING WITH OTHERS

When repairing the machine or when removing and installing the work equipment, appoint a leader and follow his instructions during the operation. When working with others, misunderstandings between workers can lead to serious accidents.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

RADIATOR WATER LEVEL

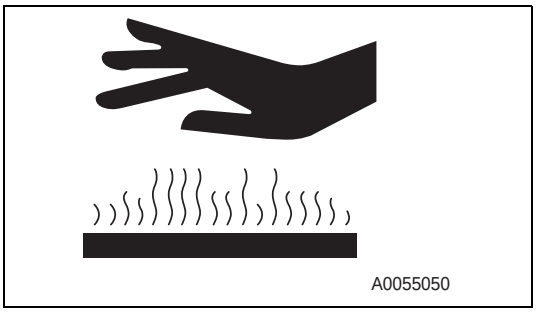
When inspecting the radiator water level, stop the engine, and wait for the engine and radiator to cool down. Check the water level in the sub-tank. Under normal conditions, do not open the radiator cap.

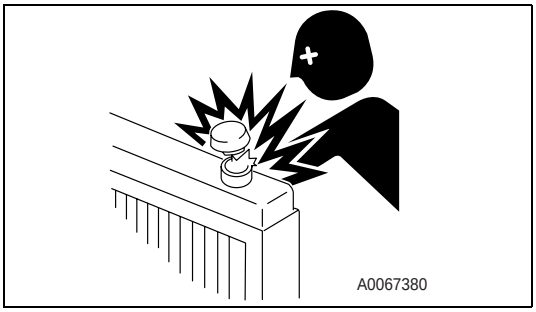
If there is no sub-tank, or the auxiliary cap must be removed, always do as follows.

- Wait for the radiator water temperature to go down before checking the water level.

  (When checking if the water temperature has gone down, put your hand near the engine or radiator and check the air temperature. Be careful not to touch the radiator or engine.)

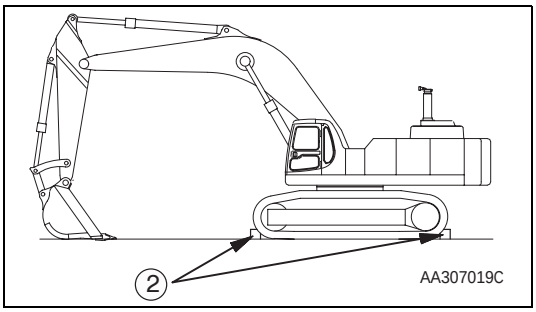
- Loosen the auxiliary cap slowly to release the pressure inside the radiator.

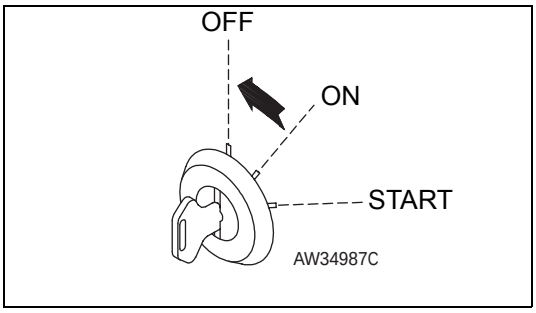


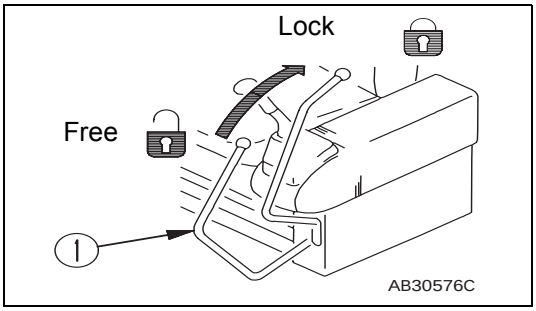


STOP ENGINE BEFORE CARRYING OUT INSPECTION AND MAINTENANCE

- When carrying out inspection and maintenance, park the machine on level ground where there is no danger of falling rocks or land slides, or of flooding if the land is low, then lower the work equipment to the ground and stop the engine.
- Operate the right work equipment control lever several times to the RAISE and LOWER positions to release the remaining pressure in the hydraulic circuit, then set safety lock lever (1) to the LOCK position.
- Put blocks (2) under the track to prevent the machine from moving.
- The worker carrying out the maintenance should be extremely careful not to touch or get caught in the moving parts.







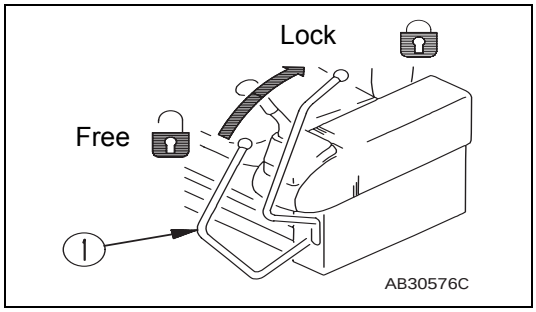
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

SAFETY DEVICES FOR WORK EQUIPMENT

Always lower all movable work equipment to the ground or to their lowest position before performing service repairs under the machine.

Never work under the machine if the machine is poorly supported.

Place the work equipment control levers at NEUTRAL, and set safety lock lever (1) to the LOCK position.

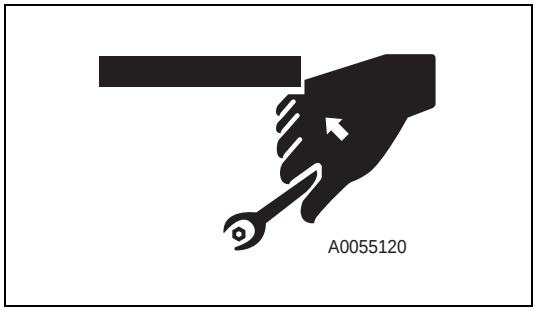


PROPER TOOLS

Use only tools suited to the task. Using damaged, low quality, faulty, or makeshift tools could cause personal injury.

Broken pieces of chisels or hammers could fly into your eyes and blind you.

Tools → "STANDARD TIGHTENING TORQUES FOR BOLTS AND NUTS" on page 188.



PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS

Hoses and other parts of the fuel, hydraulic, and brake system are critical parts for ensuring safety, so they must be replaced periodically.

Replacement of safety critical parts requires skill, so please ask your Komatsu distributor to carry out replacement.

- Replace these components periodically with new ones, regardless of whether or not they appear to be defective.

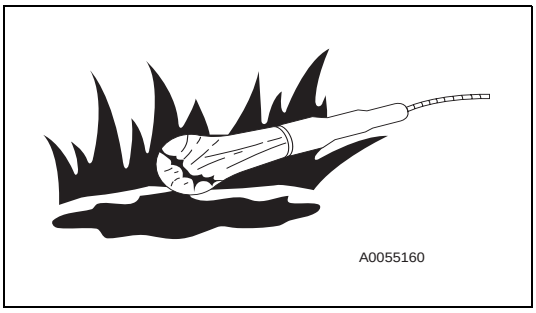
  These components deteriorate over time, and can cause fire because of oil leakage or failure in the work equipment system.

- Replace or repair any such components if any defect is found, even though they have not reached the time specified.

  Replacement of safety critical parts → see "PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS" on page 43.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

USE OF LIGHTING



- When checking fuel, oil, or battery electrolyte, always use lighting with anti-explosion specifications.

  If such lighting equipment is not used, there is danger of explosion.

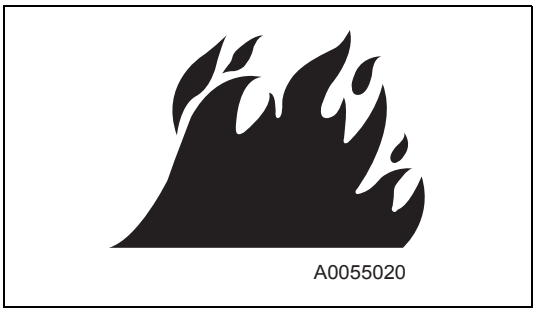
- If work is carried out in dark places without installing lighting, there is danger of injury, so always install proper lighting.

- Even if it is dark, do not use a lighter or flame instead of lighting. There is danger of starting a fire, and if the battery gas ignites, it may cause an explosion.

- When using the machine as the power supply for the lighting, follow the instructions in this Operation and Maintenance Manual.

PREVENTION OF FIRE

There is danger of the fuel and battery gas catching fire during maintenance, so always follow the precautions below when carrying out maintenance.



- Store fuel, oil, grease, and other flammable materials away from flame.

- Use non-flammable materials as the flushing oil for cleaning parts. Do not use diesel oil or gasoline. There is danger that they will catch fire.

- Never smoke when carrying out inspection or maintenance. Always smoke in the prescribed place.

- When checking fuel, oil, or battery electrolyte, always use lighting with anti-explosion specifications. Never use lighters or matches as lighting.

- When carrying out grinding or welding operations on the chassis, remove any flammable materials to a safe place.

- Be sure that a fire extinguisher is present at the inspection and maintenance point.

DURING MAINTENANCE

PERSONNEL

Only authorized personnel can service and repair the machine. Do not allow unauthorized personnel into the area. If necessary, employ an observer.

Extra precaution should be used when grinding, welding, and using a sledge-hammer.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

ATTACHMENTS

- Appoint a leader before starting removal or installation operations for attachments.
- Do not allow anyone other than the workers close to the machine or attachment.
- Place attachments that have been removed from the machine in a safe place so that they do not fall. Put a fence around the attachments, and set up No Entry signs to prevent unauthorized persons from coming close.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WORK UNDER THE MACHINE

- Stop the machine on firm, level ground, and always lower all work equipment to the ground before performing service or repairs under the machine.
- Always block the track shoes securely.
- It is extremely dangerous to work under the machine if the track shoes are off the ground and the machine is supported only by the work equipment. Never work under the machine if the machine is poorly supported.


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WORK ON TOP OF MACHINE

- When carrying out maintenance on top of the machine, make sure that the footholds are clean and free of obstructions, and follow the precautions below to prevent yourself from falling.
  - ❍ Do not spill oil or grease.
  - ❍ Do not leave tools lying around.
  - ❍ Mind your step when you are walking.
- Never jump down from the machine. When getting on or off the machine, always use the steps and handrails, and maintain three-point contact (both feet and one hand or both hands and one foot) at all times.
- Use protective equipment if necessary.


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LOCKING INSPECTION COVERS

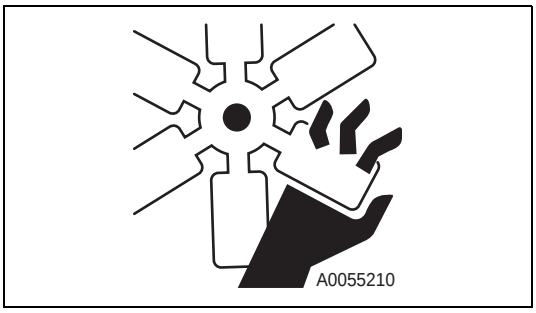
When carrying out maintenance with the inspection cover open, lock it securely with a lock bar.

If maintenance is carried out with the inspection cover open and not locked in position, it may close suddenly if knocked or blown by the wind, and may cause injury to the operator.

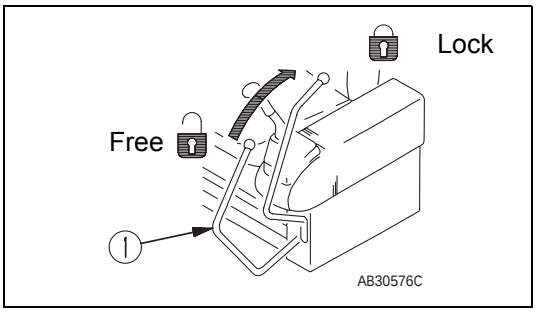
⚠ WARNING: For reasons of safety, always follow these safety precautions..

MAINTENANCE WITH ENGINE RUNNING

To prevent injury, do not carry out maintenance with the engine running. If maintenance must be carried out with the engine running, carry out the operation with at least two workers and do as follows.



- One worker must always sit in the operator's seat and be ready to stop the engine at any time. All workers must maintain contact with the other workers.
- When carrying out operations near rotating parts, there is danger of being caught in the parts, so be extremely careful.
- When cleaning inside the radiator, set safety lock lever (1) to the LOCK position to prevent the work equipment from moving.
- Do not touch any control levers. If any control lever must be operated, always give a signal to the other workers to warn them to move to a safe place.
- Never touch the fan blade or fan belt with any tool or any part of your body. There is danger of serious injury.



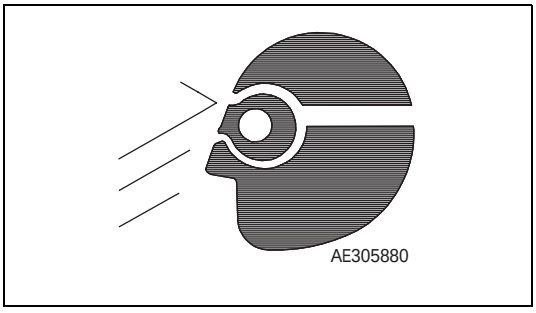
DO NOT DROP TOOLS OR PARTS INSIDE MACHINE

- When opening the inspection window or tank oil filler to carry out inspection, be careful not to drop any nuts, bolts, or tools inside the machine.

  If such parts are dropped into the machine, it will cause breakage of the machine, mistaken operation, and other failures. If you drop any part into the machine, always be sure to remove it from the machine.
- When carrying out inspection, do not carry any unnecessary tools or parts in your pocket.

PRECAUTIONS WHEN USING A HAMMER

When using a hammer, always wear safety glasses, safety helmet, and other protective clothing, and put a brass bar between the hammer and the part being hammered.



If hard metal parts such as pins, edges, teeth, or bearings are hit with a hammer, there is danger that broken pieces might fly into your eyes and cause injury.

REPAIR WELDING

Welding operations must always be carried out by a qualified welder and in a place equipped with a proper equipment. Gas is generated, and there is danger of fire or electrocution when carrying out welding, so never allow any unqualified personnel to carry out welding.

The qualified welder must follow the precautions given below.

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- Disconnect the battery terminals to prevent explosion of the battery.
- Remove the paint from the place being welded to prevent gas from being generated.
- If hydraulic equipment or piping, or places close to these are heated, flammable vapour or spray will be generated and there is danger of this catching fire. Avoid applying heat to such places.
- If heat is applied directly to rubber hoses or piping under pressure, they may suddenly burst, so cover them with fire-proof sheeting.
- Always wear protective clothing.
- Ensure that there is good ventilation.
- Clear up any flammable materials, and make sure that there is a fire extinguisher at the workplace.

BATTERY PRECAUTIONS

When repairing the electrical system or when carrying out electrical welding, remove the negative (-) terminal of the battery to stop the flow of current.

Battery handling → see "IF BATTERY IS DISCHARGED" on page 161.

WHEN AN ABNORMALITY IS FOUND

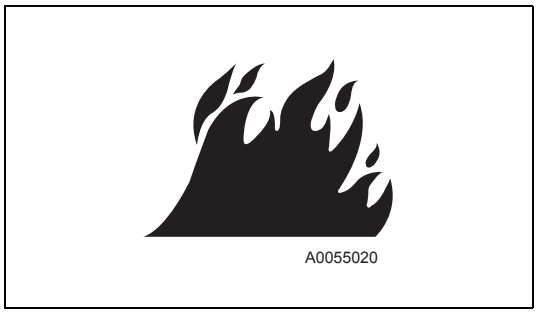
- If any abnormality is found during inspection, always carry out repairs. In particular, if the machine is used when there is any abnormality in the brakes or work equipment systems, it may lead to serious accident.
- Depending on the type of failure, please contact your Komatsu distributor for repairs.

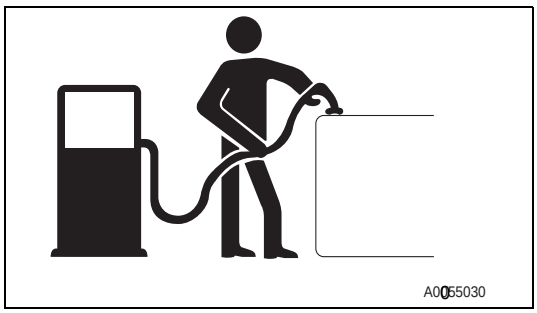
⚠ WARNING: For reasons of safety, always follow these safety precautions..

RULES TO FOLLOW WHEN ADDING FUEL OR OIL

If any flame is brought close to fuel or oil, there is danger that it will catch fire, so always follow the precautions below.

- Stop the engine when adding fuel or oil.
- Do not smoke.
- Spilled fuel and oil may cause you to slip, so always wipe it up immediately.
- Always tighten the cap of the fuel and oil fillers securely.
- Always add fuel and oil in a well-ventilated place.



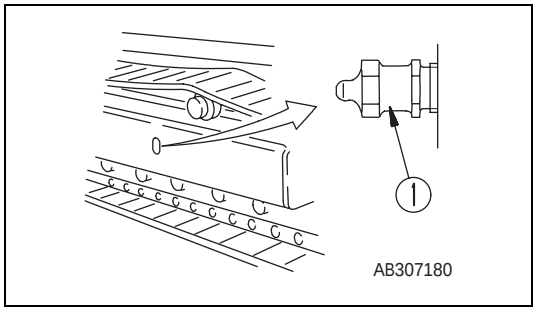


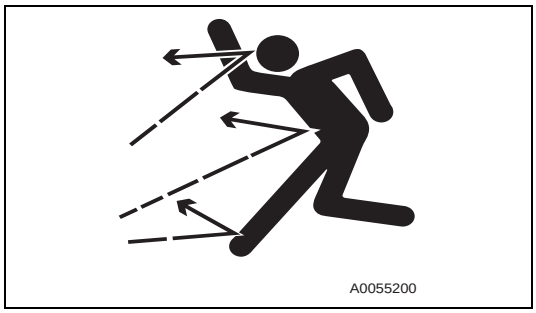
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

PRECAUTIONS WHEN USING HIGH-PRESSURE GREASE TO ADJUST TRACK TENSION

- Grease is pumped into the track tension adjustment system under high pressure.
  If the specified procedure for maintenance is not followed when making adjustment, valve (1) may fly out and cause damage or personal injury.
- When loosening grease drain valve (1), never loosen it more than one turn.
- Never put your face, hands, feet, or any other part of your body directly in front of any grease drain valve.

  Adjusting track tension → see "WHEN REQUIRED" on page 194.





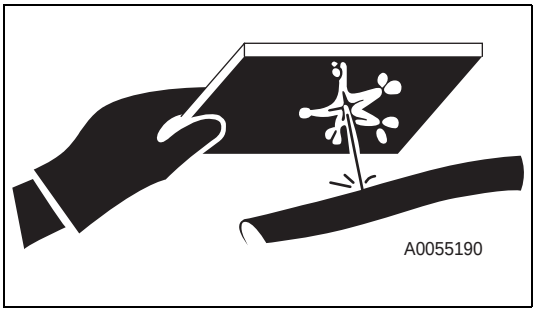
HANDLING HIGH-PRESSURE HOSES

- If oil or fuel leaks from high-pressure hoses, it may cause fire or defective operation, which may lead to personal injury or damage. If any damaged hoses or loose bolts are found, stop work and contact your Komatsu distributor for repairs.
- Replacing high-pressure hoses requires a high level of skill, and the torque is determined according to the type of hose and size, so please do not carry out replacement yourself. Ask your Komatsu distributor to carry out replacement.

⚠ WARNING: For reasons of safety, always follow these safety precautions..

PRECAUTIONS WITH HIGH-PRESSURE OIL

When inspecting or replacing high-pressure piping or hoses, always check that the pressure in the hydraulic circuit has been released. If the circuit is still under pressure, it will lead to serious injury or damage, so always do as follows.



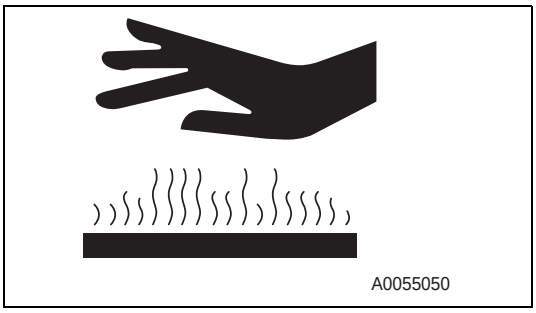
Releasing pressure → see "STOP ENGINE BEFORE CARRYING OUT INSPECTION AND MAINTENANCE" on page 42.

- Never carry out inspection or replacement before releasing the pressure completely.
- Wear safety glasses and leather gloves.
- If there is any leakage from the piping or hoses, the piping, hoses, and the surrounding area will be wet, so check for cracks in the piping and hoses and for swelling in the hoses.

  If it is difficult to locate the leakage, always please contact your Komatsu distributor for repairs.
- If you are hit by a jet of high-pressure oil, consult a doctor immediately for medical attention.

PRECAUTIONS WHEN CARRYING OUT MAINTENANCE AT HIGH TEMPERATURE

Immediately after stopping operations, the engine coolant, oil at all parts, the exhaust manifold, and the muffler are at high temperature.



In this condition, if the cap is removed, or the oil is drained, or the filters are replaced, this may result in burns or other injury. Wait for the temperature to go down, then carry out the inspection and maintenance in accordance with the procedures given in this manual.

Cleaning inside of cooling system → see "WHEN REQUIRED" on page 194.

Checking coolant level, oil level in hydraulic tank → see see "CHECK BEFORE STARTING" on page 103.

Checking lubricating oil level, adding oil → see "PERIODIC MAINTENANCE".

Changing oil, replacing filters → see "PERIODIC MAINTENANCE".

CHECKS AFTER INSPECTION AND MAINTENANCE

Failure to carry out inspection and maintenance fully, or failure to check the function of various maintenance locations may cause unexpected problems and may even lead to personal injury or damage, so always do as follows.

- Checks when engine is stopped

⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- ❍ Have all the inspection and maintenance locations been checked?
- ❍ Have all the inspection and maintenance items been carried out correctly?
- ❍ Have any tools or parts dropped inside the machine? It is particularly dangerous if they get caught in the lever linkage.
- ❍ Has water and oil leakage been repaired? Have bolts been tightened?

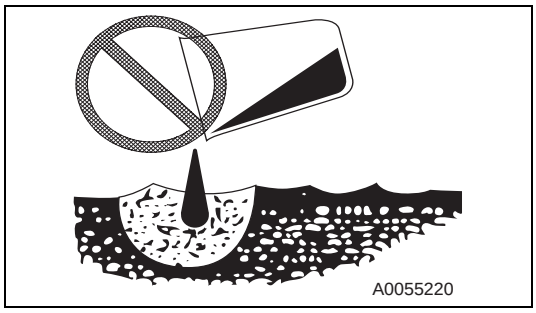
- Checks when engine is running

  For details of checks when the engine is running, see “MAINTENANCE WITH ENGINE RUNNING” on page 46. and be extremely careful to ensure safety.

- Do the inspection and maintenance locations work normally?
- Is there any oil leakage when the engine speed is raised and load is applied to the hydraulic system?

WASTE MATERIALS

To prevent pollution, particularly in places where people or animals are living, always follow the procedures given below.



- Never dump waste oil in a sewer system, rivers, etc.
- Always put oil drained from your machine in containers. Never drain oil directly onto the ground.
- Obey appropriate laws and regulations when disposing of harmful objects such as oil, fuel, coolant, solvent, filters, and batteries.

HANDLING AIR CONDITIONER GAS

When carrying out repair or inspection of the air conditioner or cooler, always follow the local regulations for the method of handling the air conditioner gas.

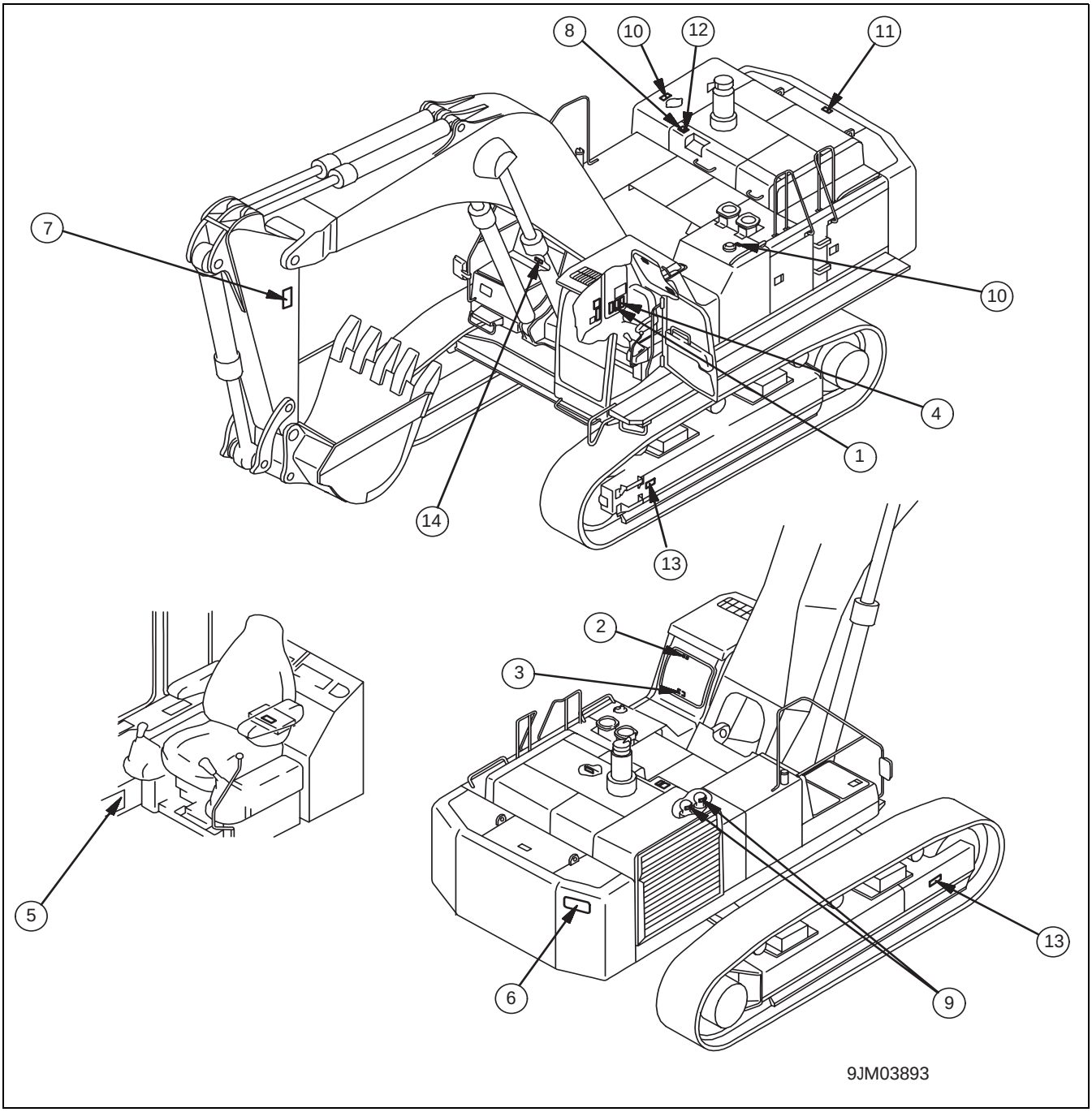
⚠ WARNING: For reasons of safety, always follow these safety precautions..

POSITION FOR ATTACHING SAFETY LABELS

Always keep these labels clean. If they are lost or damage, attach them again or replace them with a new label.

There are other labels in addition to the safety labels listed as follows, so handle them in the same way.

Safety labels are available from your Komatsu distributor.

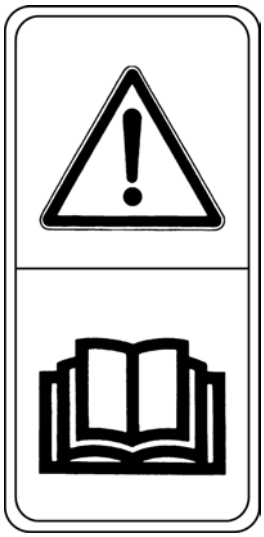


⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

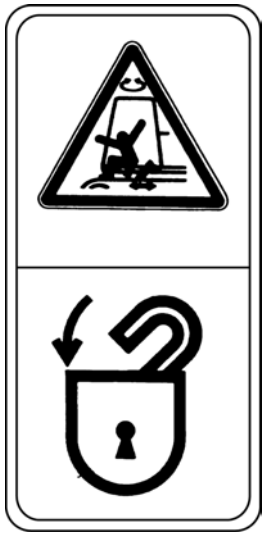
Warnings for operation, inspection and maintenance

1. 20E-00-K1170

- Improper operation and maintenance can cause serious injury or death.
- Read the manual and labels before operation and maintenance.
  Follow instructions and warnings in manual and in labels on machine.
- Keep the manual in machine cab near operator.
  If this manual is lost, please contact your Komatsu distributor for a replacement.



- Always apply lock when leaving operator's seat.



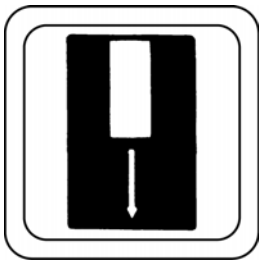
⚠ WARNING: For reasons of safety, always follow these safety precautions..

2. 20E-00-K1230
Warnings when opening front window

- When raising window, lock it in place with lock pins on both sides.
- Falling window can cause injury.

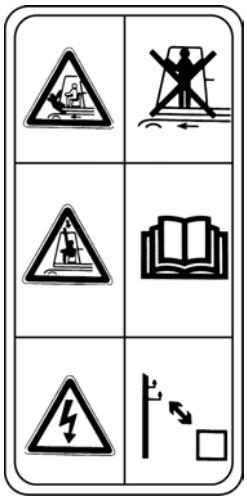
3. 20Y-00-K2220

- Emergency exit
- Read operation manual before operation



4. 20E-00-K1130

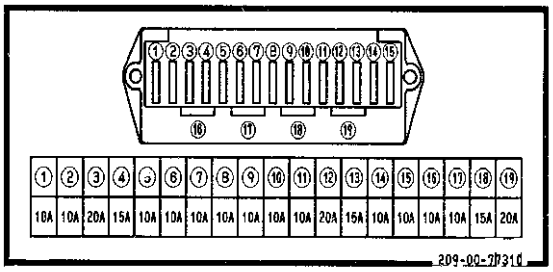
- WARNING - No passengers
No passengers allowed to ride on machine while it is moving
- WARNING - DANGER OF FALLING OBJECTS
Do not operate where a danger of falling objects exists.
Consult your dealer for fitting of FOPS protection.
- HAZARDOUS - Voltage hazard
Serious injury or death can occur if machine or attachments are not kept safe distance away from electric lines.



⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

5. 209-00-77310 (Located on inside of the cover)

- Fuses
  - ❍ Engine diagnostic switch
  - ❍ Pump control switch
  - ❍ Switch lock override switch
  - ❍ Read the operation manual before operation



6. 20E-00-K1150

Keeping out of moving area

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

- Sound horn to alert people nearby.
- Be sure no one is on or near machine or in the swing area.
- Rotate cab for full view of travel path if it can be done safely.
- Use spotter if view is obstructed.

Always follow the above

⚠ WARNING: For reasons of safety, always follow these safety precautions..

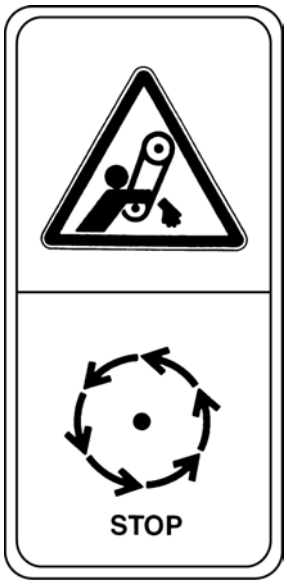
7. 20E-00-K1140

Keeping out of working range area.

- Make sure no one is in the work equipment swing area.

8. 20E-00-K1310

- Do not open cover while engine is running.



9. 20E-00-K1210 Warnings for handling the accumulator

Explosion hazard

- Keep away from flame.
- Do not weld or drill.
- Read operation manual before operation.

10. 20E-00-K1190

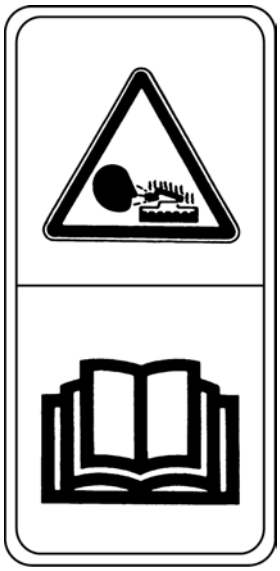
Warning for high temperature coolant and oil.

Hot water and oil hazard

To prevent hot water and oil from spurting out:

- Turn engine off.
- Allow water to cool.
- Slowly loosen cap to relieve pressure before removing.

Read operation manual before operation.

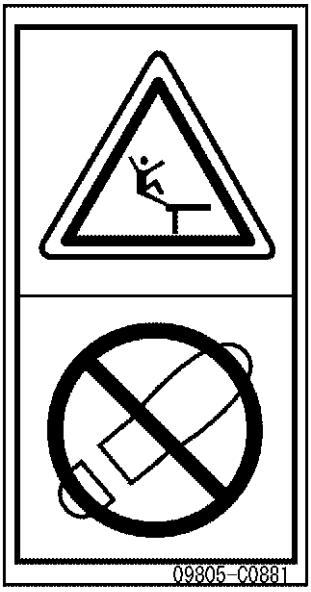


11. 20E-00-K1110

- Warning for falling from upper-structure.
- Keep away from sides of machine.
- Keep of counterweight.
- Do not ride on machine when it is moving

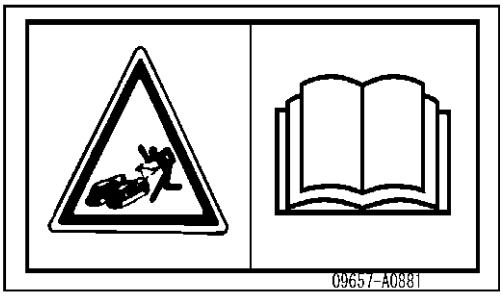
12. 09805-C0881

- Roll over precaution



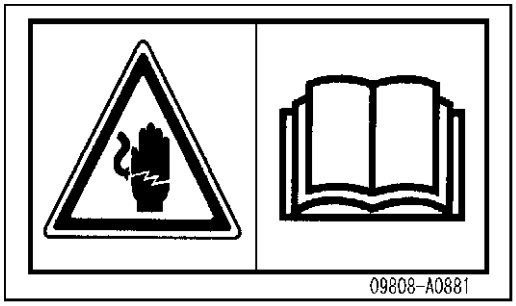
13. 09657-A0881

- Precautions when adjustment track tension



14. 09808-A0881

- Precautions when handling cable



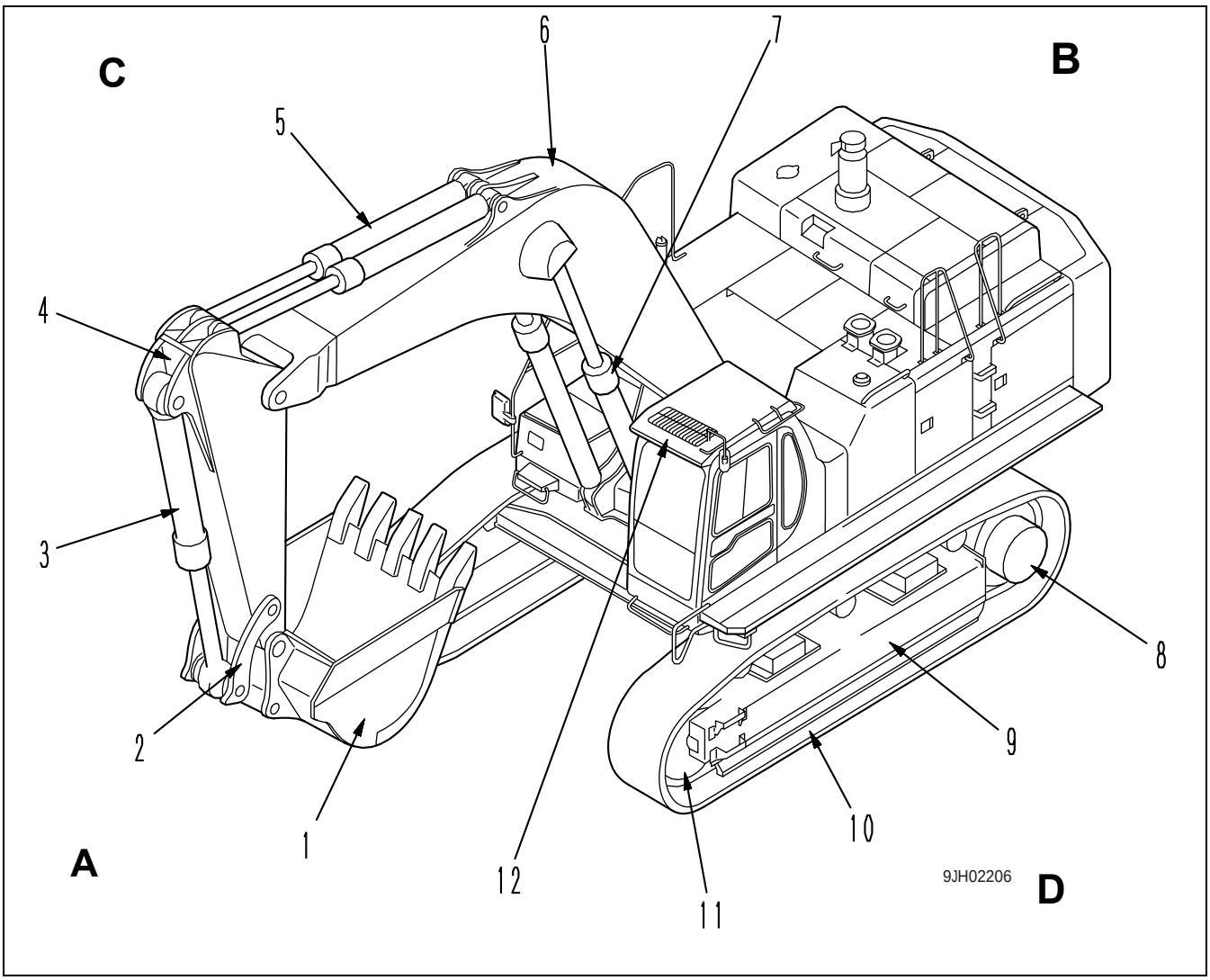
OPERATION

GENERAL VIEW

GENERAL VIEW OF MACHINE

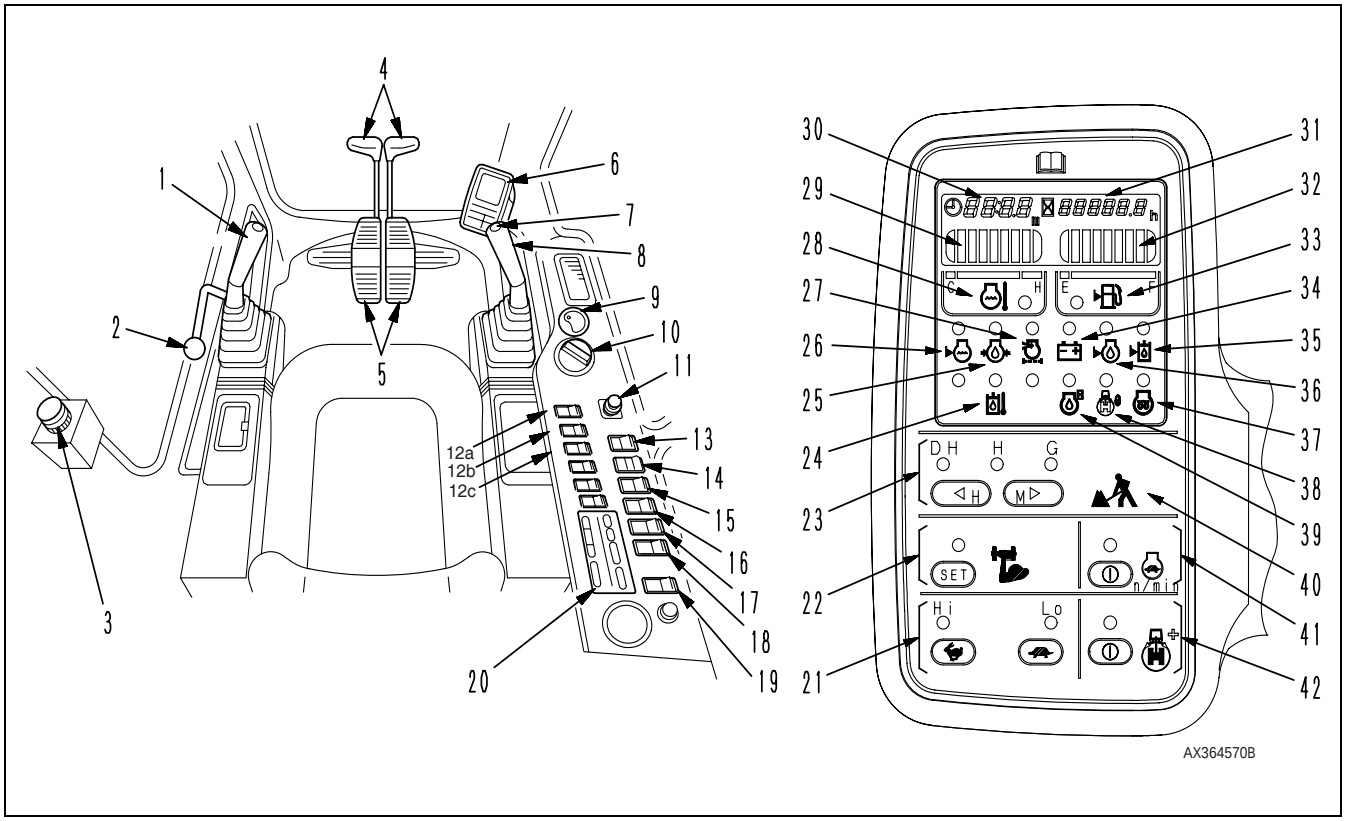
If directions are indicated in this section, they refer to the directions shown by the arrows in the diagram below.

A: FRONT	B: REAR	C: RIGHT	D: LEFT



1. Bucket
2. Bucket link
3. Bucket cylinder
4. Arm
5. Arm cylinder
6. Boom
7. Boom cylinder
8. Sprocket
9. Track frame
10. Track shoes
11. Idler
12. O.P.G (Operator Protection Guard)

EXPLANATION OF COMPONENTS

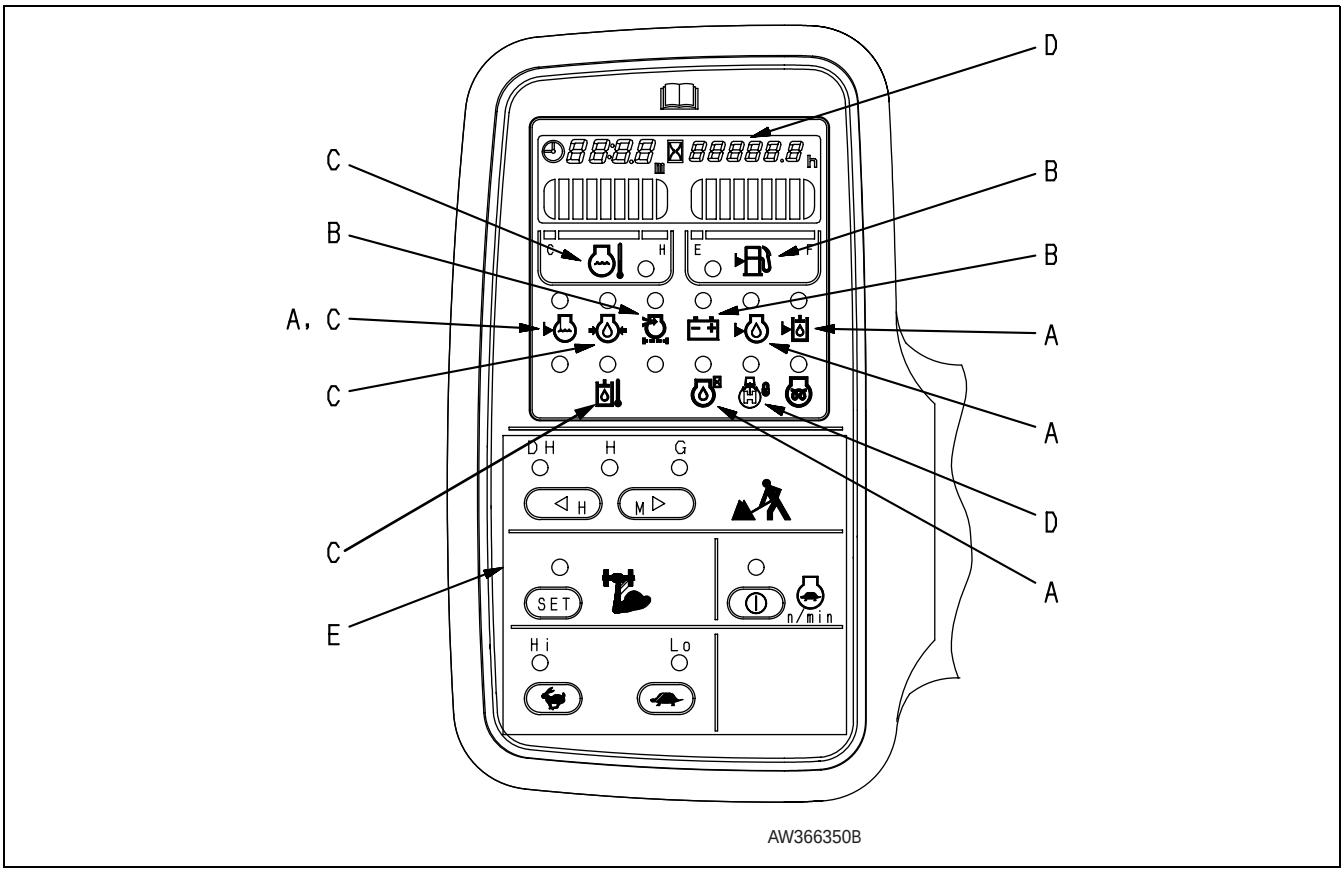


1. Left work equipment control lever
2. Safety lock lever
3. Step left switch
4. Travel lever
5. Travel pedal
6. Machine monitor
7. Horn switch
8. Right work equipment control lever
9. Starting switch
10. Fuel control dial
11. Cigarette lighter
12a. Beacon switch
12b. Overload caution switch
12c. Heated seat switch (option)
13. Swing lock switch
14. Wiper switch
15. Lamp switch (additional lamp switch)
16. Buzzer cancel switch
17. Lower wiper
18. Machine push up switch
19. Boom shockless control switch
20. Air conditioner control panel
21. Travel speed switch
22. Heavy lift switch
23. Working mode selector switch
24. Hydraulic oil temperature monitor
25. Engine oil pressure monitor
26. Radiator water level monitor
27. Air cleaner clogging monitor
28. Engine water temperature monitor
29. Engine water temperature gauge
30. Display (for clock and fault indication)
31. Service meter
32. Fuel gauge
33. Fuel level monitor
34. Charge level monitor
35. Hydraulic oil level monitor
36. Engine oil level monitor
37. Engine preheating monitor
38. Swing lock monitor
39. Engine oil change monitor
40. Working mode
41. Auto-deceleration switch
42. Swing priority mode switch

The following is an explanation of the devices needed for operating the machine.

To carry out suitable operations correctly and safely, it is important to understand fully the methods of operating the equipment and the meanings of the displays.

MACHINE MONITOR



This monitor system consists of monitor lamps (A), (B) and (C), meter group (D), switch group (E).

BASIC CHECK ITEMS (A)

This displays the basic items that should be checked before starting the engine.

If there is any abnormality, the appropriate monitor lamp will flash.

NOTICE
When carrying out checks before starting, do not simply rely on the monitor. Always refer to the periodic maintenance items or "OPERATION" page 102 to carry out the checks.

CAUTION ITEMS (B)

⚠ CAUTION

If these monitor items flash, check and repair the appropriate location as soon as possible.

These are items which need to be observed while the engine is running. If any abnormality occurs, items which need to be repaired as soon as possible are displayed.
If there is any abnormality, the appropriate monitor lamp will flash to indicate the location of the abnormality.

EMERGENCY STOP ITEMS (C)

⚠ CAUTION

If these monitor items flash, stop operations immediately, then check and repair the appropriate location.

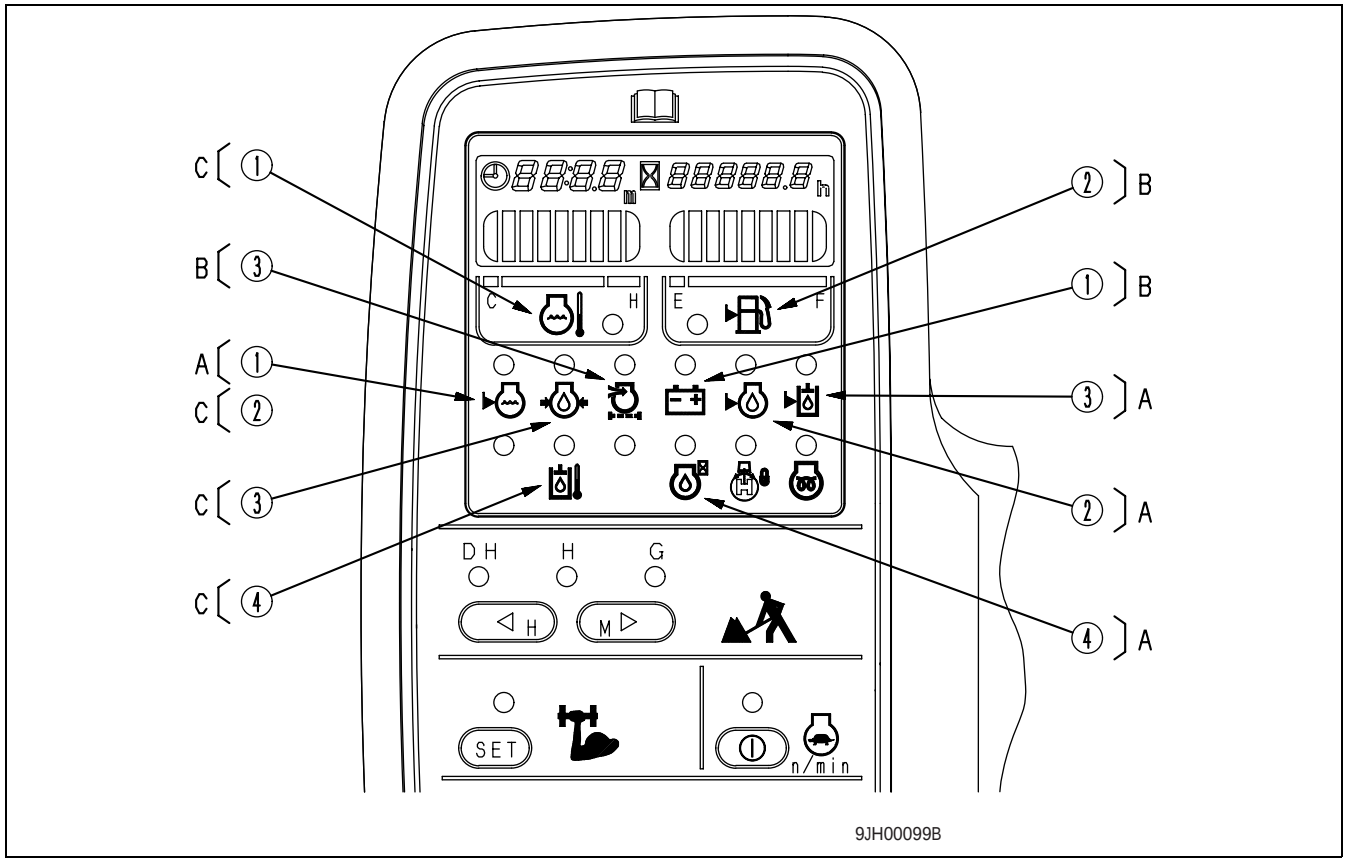
These are items which need to be observed while the engine is running. If any abnormality occurs, items which need to be repaired immediately are displayed.

METER DISPLAY PORTION (D)

This portion consists of pre-heating monitor, swing lock monitor, engine water temperature gauge, fuel gauge, service meter and display.

SWITCHES (E)

This select working mode, travel speed and time setting of clock.

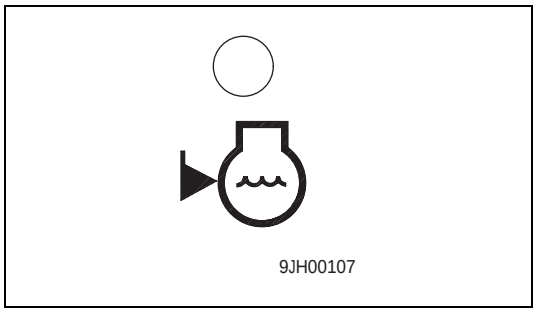


BASIC CHECK ITEMS (A)

NOTICE
Do not rely on the "BASIC CHECK ITEMS" only for the check before starting.
Always refer to the periodic maintenance items or "OPERATION" to carry out the checks.

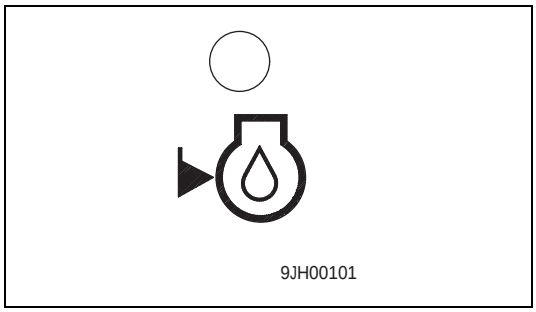
1. RADIATOR WATER LEVEL

This warns that the radiator cooling water level is too low.
If the monitor lamp flashes, check the cooling water level in the radiator and reserve-tank, and add water.



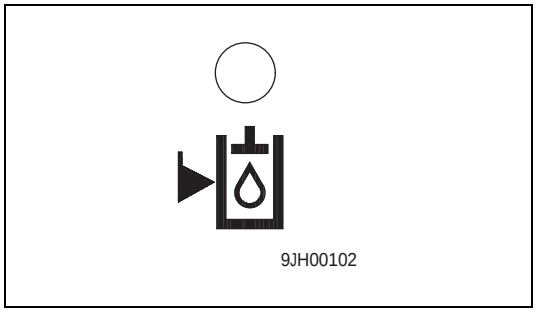
2. ENGINE OIL LEVEL

This warns that the oil level in the engine oil pan is too low.
If the monitor lamp flashes, check the oil level in the engine oil pan, and add oil.



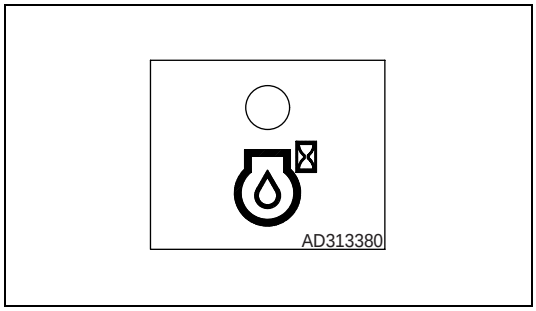
3. HYDRAULIC OIL LEVEL

This warns that the hydraulic oil level is too low.
If the monitor lamp flashes, check the hydraulic oil level, and add oil.



4. CHANGE ENGINE OIL (SET MACHINE ONLY)

After the engine oil has been changed, the lamp will light up after the pre-set time (125, 250, 500H) has elapsed since the previous oil change. If the lamp lights up, change the oil.

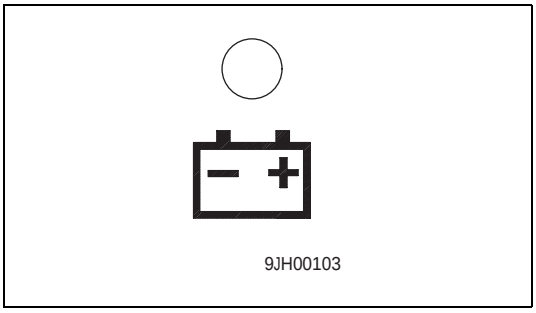


CAUTION ITEMS (B)

⚠ CAUTION

If the caution monitor lamp flashes, repair the problem as soon as possible.

1. CHARGE LEVEL



This monitor indicates an abnormality in the charging system while the engine is running.

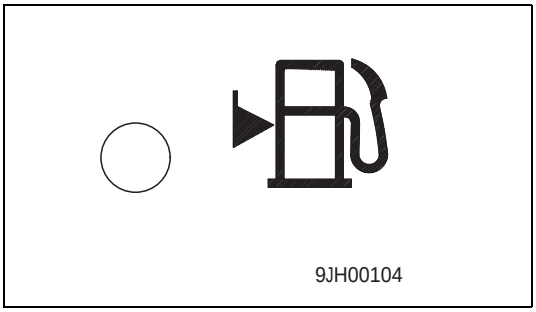
If the monitor lamp flashes, check the V-belt tension. If any abnormality is found

For details: see "OTHER TROUBLE" on page 164.

REMARK

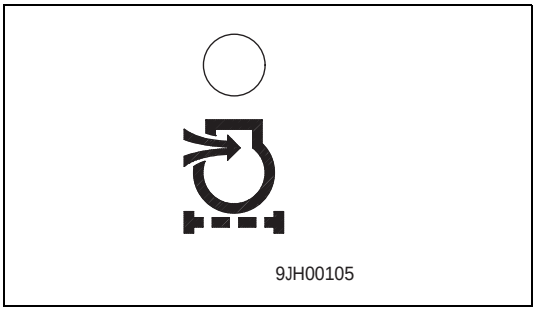
While the starting switch is ON, the lamp will remain lit and will go off once the engine is started.

2. FUEL LEVEL



If the fuel drops below 55 litres, the lamp will flash. Top up the fuel before this indication if possible.

3. AIR CLEAN CLOGGING



If the air cleaner element is clogged, the monitor lamp flashes.

Stop the engine, check the air cleaner element and clean it.

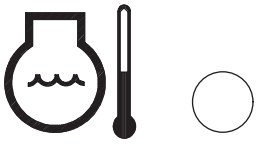
EMERGENCY STOP ITEMS (C)

⚠ CAUTION

If any monitor lamp flashes, stop the engine or run it at low idling, and take the following action.

1. ENGINE WATER TEMPERATURE

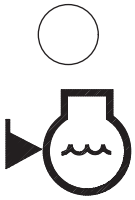
If the temperature of the engine cooling water becomes abnormally high, the monitor lamp flashes, and the overheat prevention system is automatically actuated to reduce the engine speed. Stop operations and run the engine at low idling until the engine water temperature gauge enters the green range.



9JH00106

2. RADIATOR WATER LEVEL

If the radiator water level drops, the monitor lamp flashes. Stop the engine, check the radiator water level, and add water if necessary.



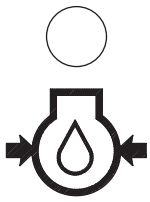
9JH00107

3. ENGINE OIL PRESSURE

If the engine oil pressure drops below the normal pressure, the monitor lamp flashes. At this item, stop the engine and inspect it according to "OTHER TROUBLE"page 164.

REMARK

While the starting switch is ON, the lamp remains lit and goes off once the engine is started. When the engine starts, the buzzer may sound for a short time, however, this does not indicate a fault.



9JH00108

4. HYDRAULIC OIL TEMPERATURE

This warns the operator that the hydraulic oil temperature is too high.

If it flashes during operations, stop the engine or run it at low idling and wait for the hydraulic oil temperature to go down.

REMARK

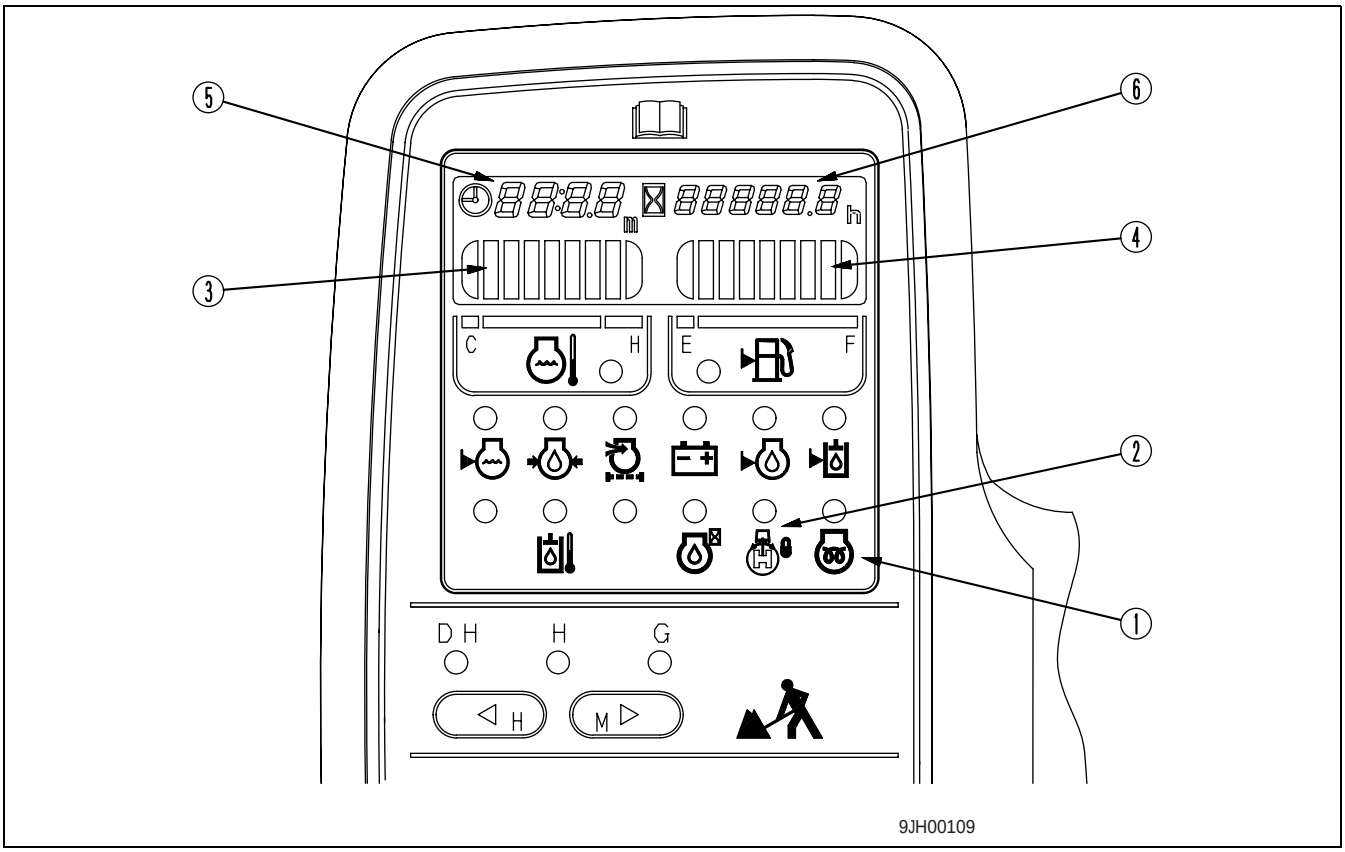
Stop the machine on level ground and check the monitor.

Stop the engine, then turn the starting switch to the ON position and check that the monitor lights up for 3 seconds.

If it does not light up, please contact your Komatsu distributor to have the monitor inspected.

9JH00272

METER DISPLAY PORTION (D)



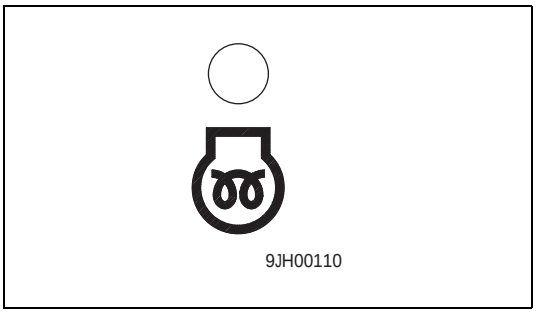
PILOT DISPLAY

When the starting switch is ON, the pilot display lights up when the display items are functioning.

1. ENGINE PRE-HEATING MONITOR

This monitor lamp indicates the pre-heating time required when starting the engine at an ambient temperature below 0°C.

The monitor lamp lights when the starting switch is turned to HEAT position and flashes after about 30 seconds to show that the pre-heating is completed. (The monitor lamp will go off after about 10 seconds.)



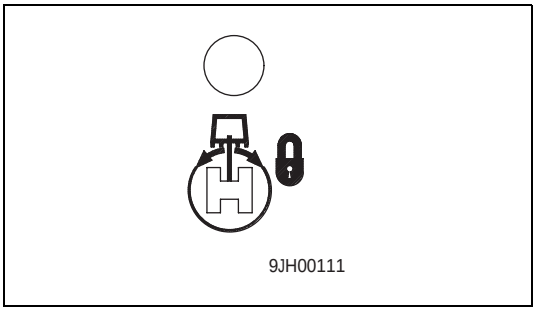
2. SWING LOCK MONITOR

This informs the operator that the swing lock is being actuated.

Actuated: Lights up

When the swing lock switch is turned ON (ACTUATED), the monitor lamp lights up.

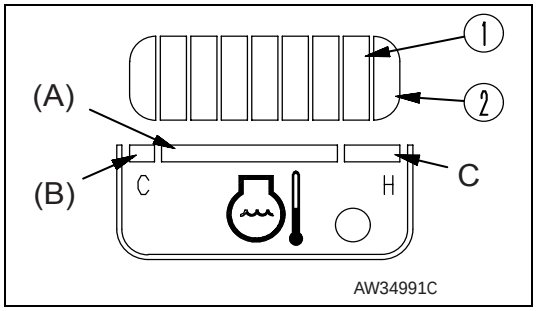
When the swing lock override switch is turned on, this monitor lamp flashes.



REMARK

A disc brake is installed in the swing motor to mechanically stop motor rotation.
The brake is always applied while the swing lock is actuated.

3. ENGINE WATER TEMPERATURE GAUGE

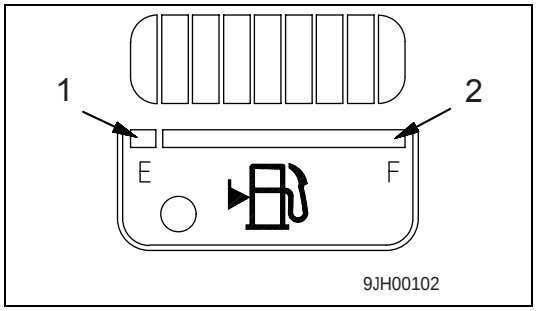


This gauge indicates the engine cooling water temperature.
If the temperature is normal during operation, the green range will light up.
If the red range lights up during operation, the overheat prevention system will be actuated.
If the red range (1) flashes, engine water temperature monitor (2) flashes and alarm buzzer sounds at same time, the overheat prevention system will be actuated.

The overheat prevention system is actuated until the temperature enters the green range.

When red range (1) lights, if the engine water temperature is reduced and the fuel control dial is turned to the low idling position, the display will be cancelled.
(A) Green
(B) White
(C) Red

4. FUEL GAUGE



This gauge indicates the amount of fuel in the fuel tank.

If the fuel level is normal during operation, the green range (2) will light up.

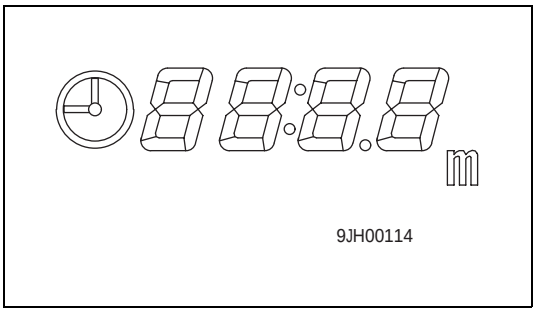
If only the red range (1) lights up during operation, there is less than 55 litres of fuel remaining in the tank, so stop and add fuel.

After the starting switch is turned ON, the correct level may not be displayed for a moment, but this does not indicate any abnormality.

When stopping the engine, turn the starting switch ON and check that the monitor lamps on items A, B, C and D and the meters light up.

5. DISPLAY

When the condition is normal, the time is displayed. If there is any abnormality, the type of failure is indicated when the starting switch is turned ON.



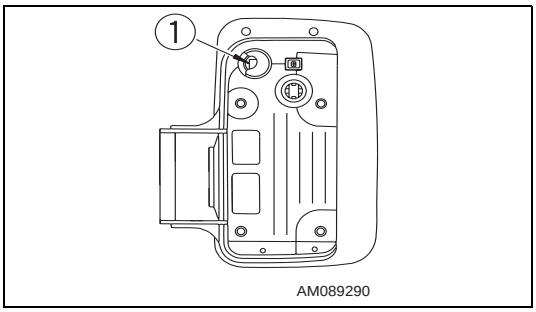
Method of setting manually

1. At the time display, keep time switch (1) pressed for at least 2.5 seconds.

2. “TIME” will flash.

3. If H switch (2) is pressed, the hour will advance, and if M switch (3) is pressed, the minute will advance. If switches (2) or (3) are kept pressed for more than 2.5 seconds, the time will advance continuously.

4. When the time is set, press time switch (1) to complete the setting.



Method of correcting time

1. At the time display, keep time switch (1) pressed for at least 2.5 seconds.

2. “TIME” will flash.

3. When SET switch (4) is pressed, if the time is 0 – 14 minutes, the minute reading is returned to 0, and if the time is 45 – 59 minutes, the minute reading is advanced to 0 (the hour advances by 1)

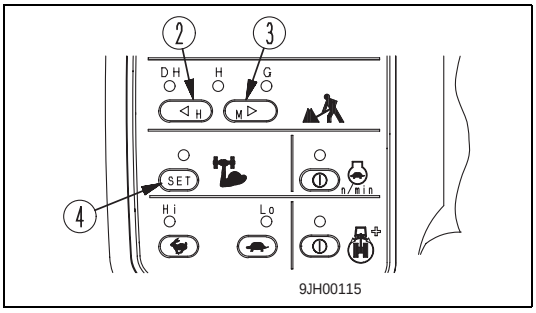
Example: 10:14 10:00 (minutes return to 0)

10:45 11:00 (time advances to next hour)

Use a the time signal or an accurate watch, and press SET switch (4). The time will return instantly to the correct time (X hour 00 min).

4. After setting the correct time, press time switch (1) to complete the setting.

If there is a failure on the machine, the type of failure is displayed when the starting switch is turned ON. The failures all flash in turn on the display.



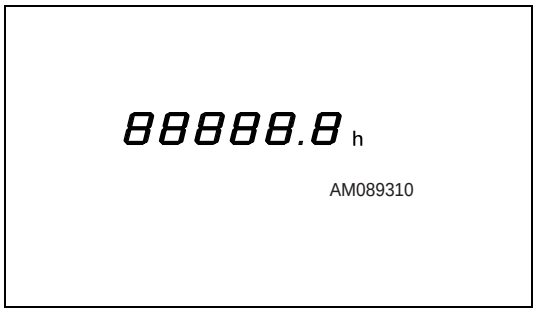
Failure notification

If there is a failure on the machine, the type of failure is displayed when the starting switch is turned ON. The failures all flash in turn on the display.

Monitor display	Failure mode
E02	TVC system error
E03	Swing brake system error
E05	Governor system error
CALL	Continuation of work impossible

If these displays flash, see "Electronic Control System" on page 168.

6. SERVICE METER



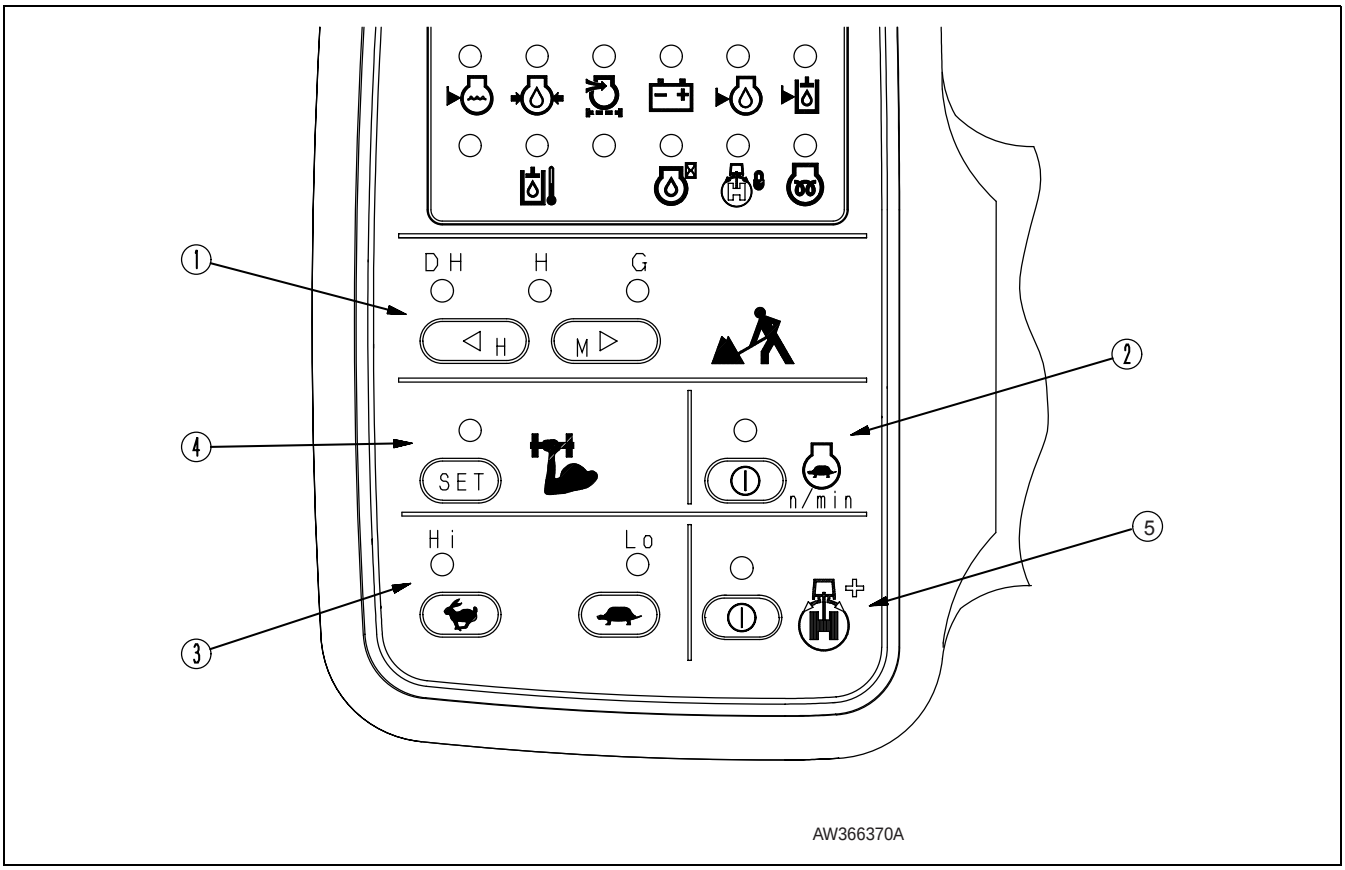
This displays the accumulated hours of operation of the machine.

Use the display to determine the intervals for periodic maintenance.

The service meter will advance while the engine is running even if the machine is not moving.

The service meter reading advances by 1 for every hour that the engine is running, regardless of the engine speed.

SWITCHES (E)



1. WORKING MODE SELECTOR SWITCH (Basic mode)

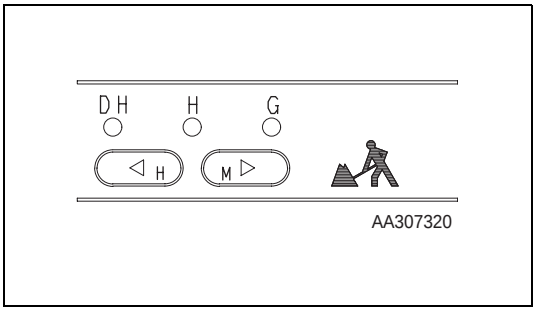
This switch is used to set the speed and power for the work equipment. By selecting the mode to match the working conditions, it is possible to carry out operations more easily.

DH lights up: Powerful operation for short time during heavy-duty operations

H lights up: Heavy-duty operations

G lights up: Normal operations

When starting the engine, H (heavy-duty operation) mode is automatically selected. Each time the switch is pressed, the mode selection changes.

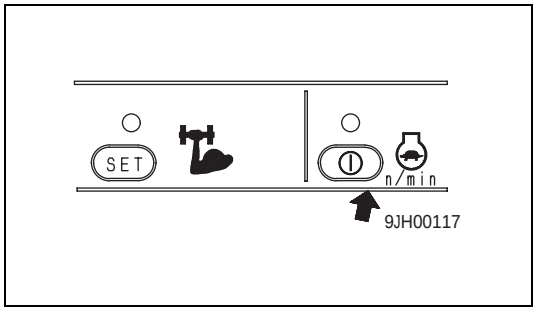


NOTICE
When using a breaker, do not set to H mode.

REMARK

The H switch is used for changing the hour when setting the time. The M switch is used for changing the minute when setting the time. For details: see “DISPLAY” on page 70.

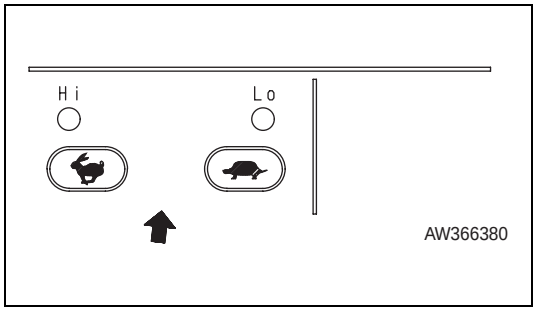
2. AUTO-DECELERATION



This switch acts to activate the function that automatically lowers the engine speed and reduces fuel consumption when the control lever is at neutral.
ON lights up: Auto-deceleration is actuated.
OFF lights up: Auto-deceleration is cancelled.

Each time the switch is pressed, the auto-deceleration is actuated or cancelled.

3. TRAVEL SPEED SWITCH



⚠ WARNING

If the Hi-Lo switch is operated when the machine is travelling, the machine may deviate even when travelling in a straight line. To prevent this, always stop the machine before operating the travel speed switch.

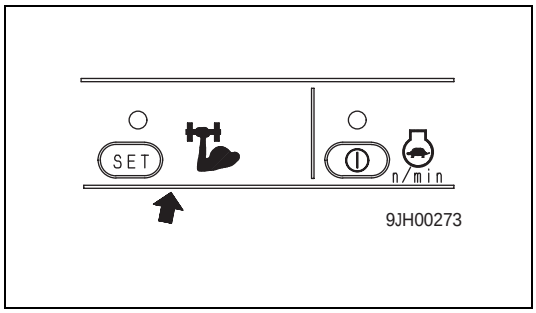
This is used to select the two travel speeds.

Lo: Low speed travel
Hi: High speed travel

When the engine is started, the travel speed is automatically set to Lo.

When travelling in high speed travel (Hi), the travel speed is automatically switched to low speed travel (Lo) to match the travel surface on soft ground or when travelling uphill, so there is no need to operate this switch. The Hi monitor panel light will remain lit. The machine will return to high speed when ground conditions permit.

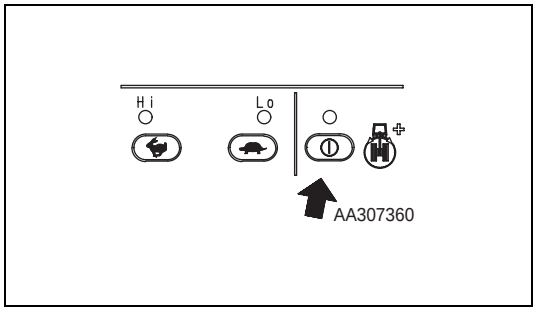
4. HEAVY LIFT SWITCH



Operate this switch to increase the lifting power during operations.

When the switch is turned ON during independent operations of the boom, the boom lifting power is increased.

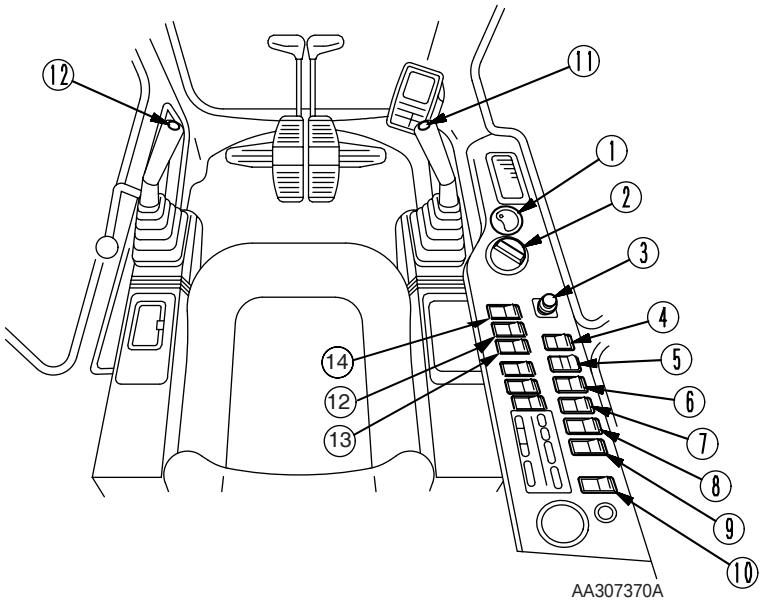
5. SWING PRIORITY MODE SWITCH (selector switch)



This is used for changing the distribution of speed to give priority to the swing when operating the boom and swing together.

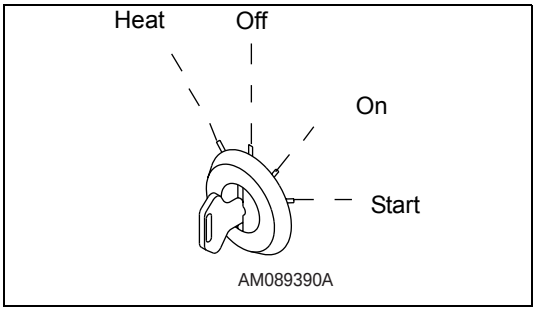
When ON lights up : effective for 180° swing and loading.
When ON goes out : for normal operations (90° swing and loading).

SWITCHES



1. STARTING SWITCH

This switch is used to start or stop the engine.



OFF position

The key can be inserted or withdrawn. The switches for the electric system except the cab lamp and clock, are all turned off and the engine is stopped.

ON position

Electric current flows in the charging and lamp circuits.

Keep the starting switch key at the ON position while the engine is running.

Electricity flows to all electrical circuits except the START and HEAT circuit.

START position

This is the engine-start position. Keep the key at this position during cranking. Immediately after starting the engine, release the key which will automatically return to the ON position.

HEAT (preheat) position

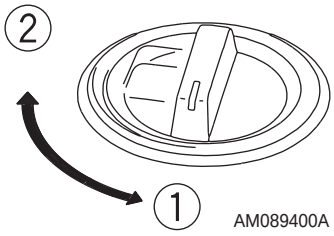
When starting the engine in winter, set the key to this position. When the key is set to the HEAT position, the pre-heating monitor lights up. Keep the key at this position until the monitor lamp goes off. Immediately after the pre-heating monitor goes off, release the key. The key automatically returns to the OFF position. Then, start the engine by turning the key to the START position.

2. FUEL CONTROL DIAL (WITH AUTO-DECELERATION MECHANISM)

This adjusts the engine speed and output.

(1) Low idling (MIN): Turned fully to the left

(2) Full speed (MAX): Turned fully to the right



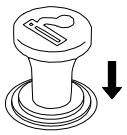
AM089400A

3. CIGARETTE LIGHTER

This is used to light cigarettes. To use, push the lighter in. After a few seconds it will spring back.

Pull out the lighter and light your cigarette.

By removing the cigarette lighter, the socket is available as a power source. Max. current is 3.5 A (85 W).


AM089410

4. SWING LOCK SWITCH

⚠ WARNING

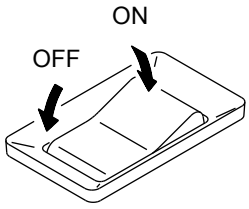
- **When the machine is travelling under its own power, or when the swing is not being operated, always set the switch to the ON (ACTUATED) position.**
- **On a slope, the work equipment may swing to the down side even if the swing lock switch is located at the ON position. Be careful concerning this point.**

This switch is used to lock the upper structure so that it cannot swing.

(1) ON position (actuated): the swing lock is always applied, and the upper structure will not swing even if the swing is operated. In this condition, the swing lock lamp lights up.

(2) OFF position (cancelled): the swing lock is applied only when all work equipment control levers are at neutral; when any work equipment control lever is operated, it is cancelled.

The swing lock is actuated approx. 4 seconds after all work equipment control lever is placed in neutral.



AM089420B

5. WIPER SWITCH

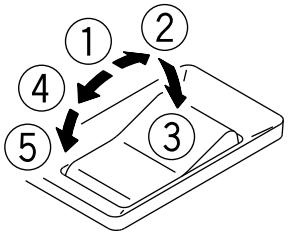
This actuates the wiper for the front glass.

(1) OFF: Wiper stops

(2) ON: Wiper moves continuously

(3) Window washer jet activated. When switch is released it returns to position (2).

(4) INT: Wiper moves intermittently



AM089430

(5) Window washer jet activated. When switch is released it returns to position (4).

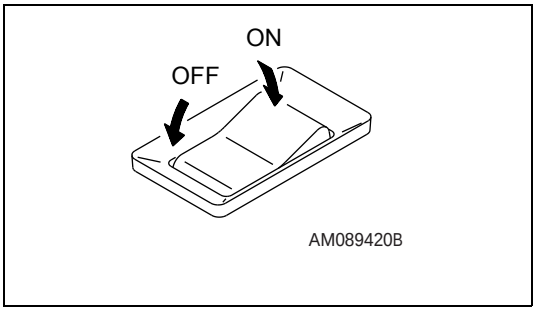
6. LIGHT SWITCH

This switch is used to turn on the front light, working light, additional lights on the cab roof, rear lights, and monitor lighting.

(1) OFF

(2) LH revolving frame lamp and LH boom lamp

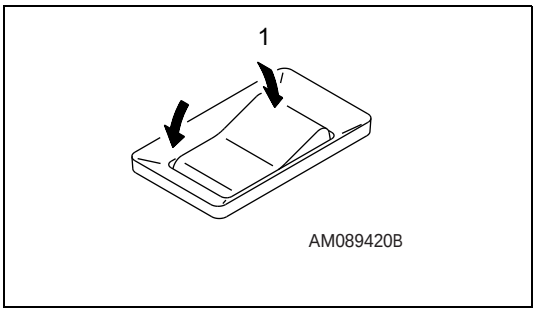
(3) As (2) with RH revolving frame lamp and RH boom lamp.



7. ALARM BUZZER CANCEL

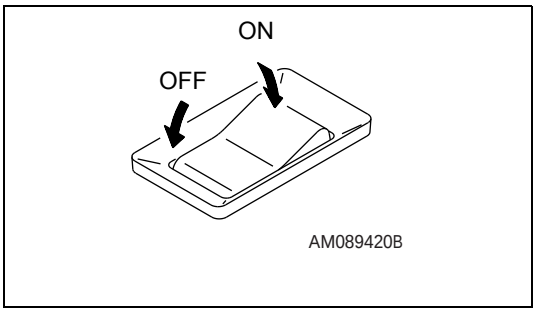
This is used to cancel the alarm buzzer if it sounds to warn of an abnormality during operation.

(1) CANCEL



8. LOWER WIPER

This switch activates the lower front wiper.

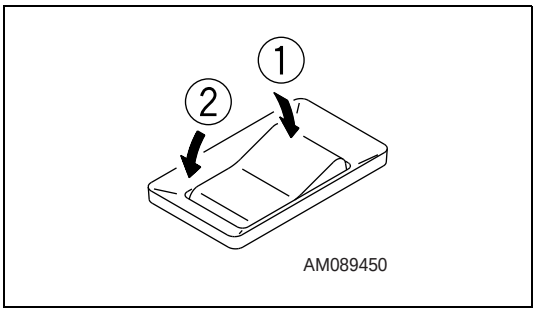


9. MACHINE PUSH-UP SWITCH

This switch is used to switch the safety valve set pressure at the head end of the boom cylinder to two levels.

1 Low pressure setting:

The boom thrust force is weak, so the swaying of the chassis is small during digging operations, and digging operations can be carried out smoothly.
This is used for general digging operations on normal ground, soft rock, or blasted rock.

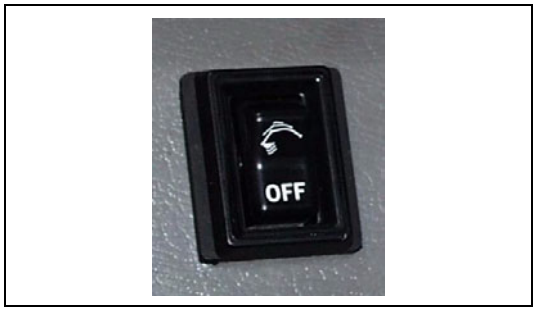


2 High pressure setting:

The thrusting force of the boom becomes more powerful, so it is easy to twist and swing or escape from soft ground. It is effective in carrying out digging operations using the bucket and the weight of the machine in confined areas.

10. SHOCKLESS BOOM CONTROL SWITCH

This controls the shaking of the work equipment when the boom is stopped.



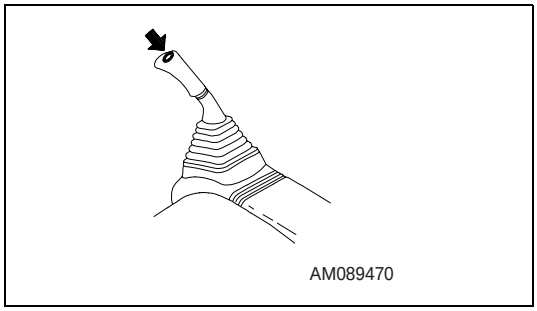
- Effect
  - ❍ The shaking and spillage of load from the bucket is reduced.
  - ❍ Operator fatigue when operating for long periods is reduced, so operations can be carried out in safety.

REMARK

When the switch is at the ON position and the boom is stopped, the movement of the boom until it stops will increase slightly. Be careful when using this operation until you become accustomed to it.

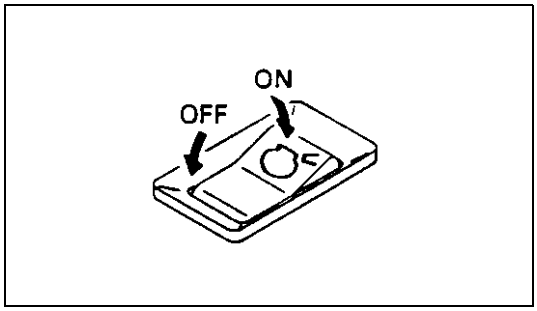
11. HORN SWITCH

Press the switch on the right work equipment control lever to sound the horn.
At the same time, the flashing light (option) at the low front of the cab will flash for approx. 5 seconds to give a signal to the dump truck.



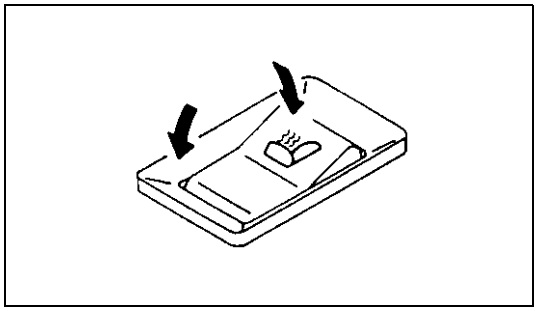
12. OVERLOAD CAUTION SWITCH

This switch enables the overload caution system



13. HEATED SEAT SWITCH (OPTION)

This switch is used to switch on the heated seat.
OFF: seat not heated
ON: seat heated

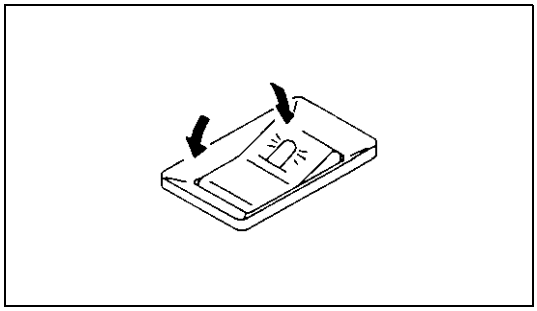


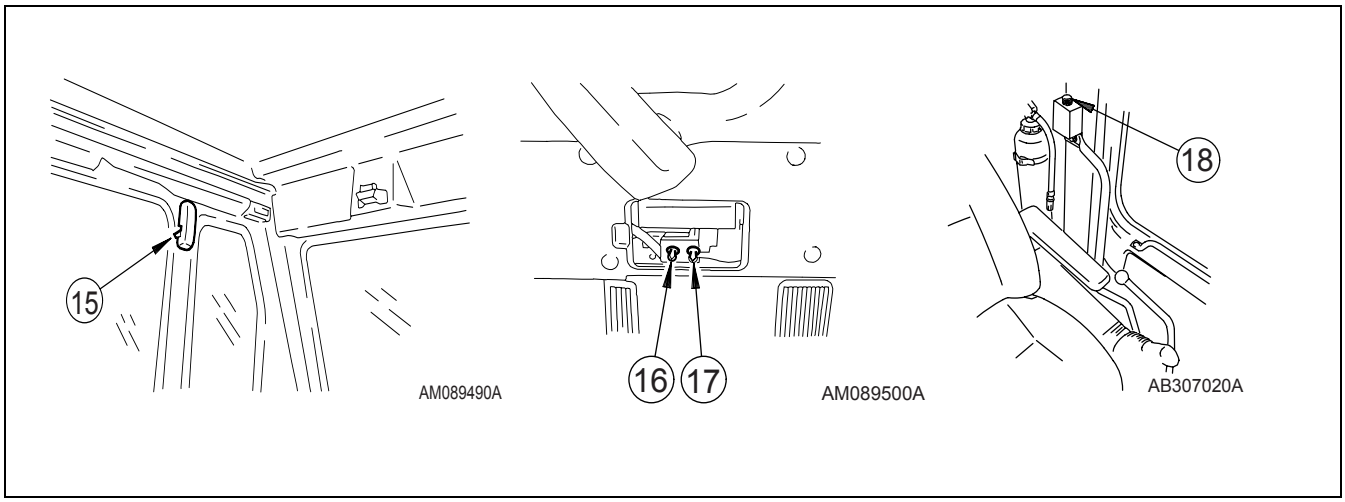
14. BEACON SWITCH

This switch is used to switch on the rotating beacon.

OFF

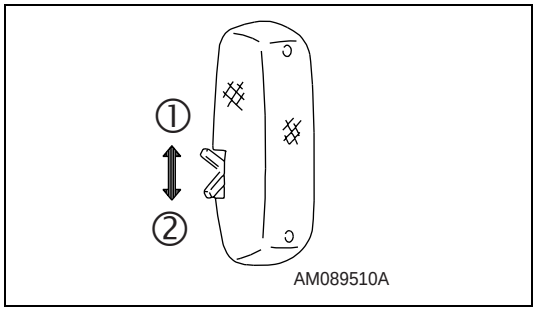
ON: Beacon lights and rotates





15. INTERIOR CAB LIGHT

(1) ON
(2) OFF: It is possible to turn on the room lamp even when the starting switch is at the OFF position, so be careful not to forget to turn it off.

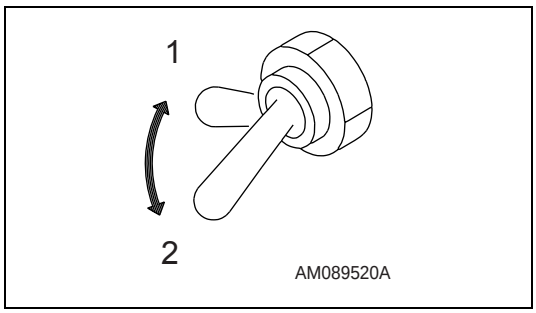


16. PUMP PROLIX SWITCH

(2) Normal: Switch is pushed down

(1) Abnormal: When the monitor display shows E02 (TVC valve system error), move the switch up to make it possible to carry out work.

This switch is provided to make it possible to carry out work for a short time when there is a failure in the pump control system (TVC valve system error). It is necessary to repair the fault as soon as possible.

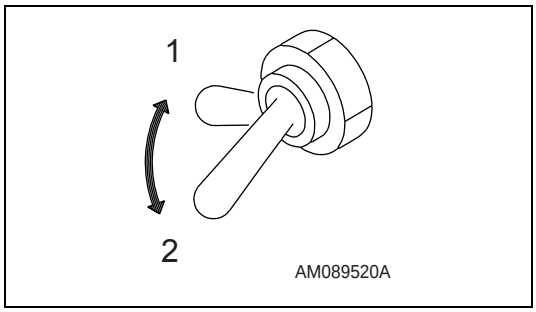


17. SWING PROLIX SWITCH

(2) Normal: Switch is pushed down

(1) Abnormal: When the monitor display shows E03 (Swing brake system error), the brake is cancelled, and it becomes possible to actuate the swing and carry out normal operations. However, the swing brake remains released.

This switch is provided to make it possible to carry out swing operations for a short time even when there is an abnormality in the swing brake electric system. It is necessary to repair the fault as soon as possible.

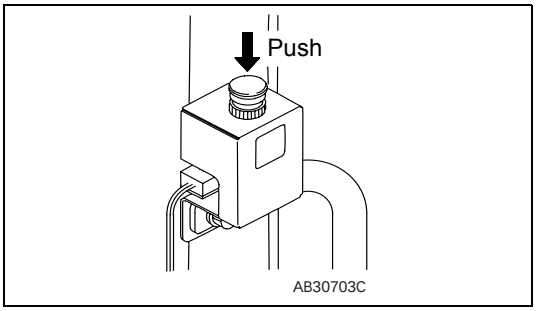


18. STEP LIGHT SWITCH

Use this switch when getting off the machine at night.

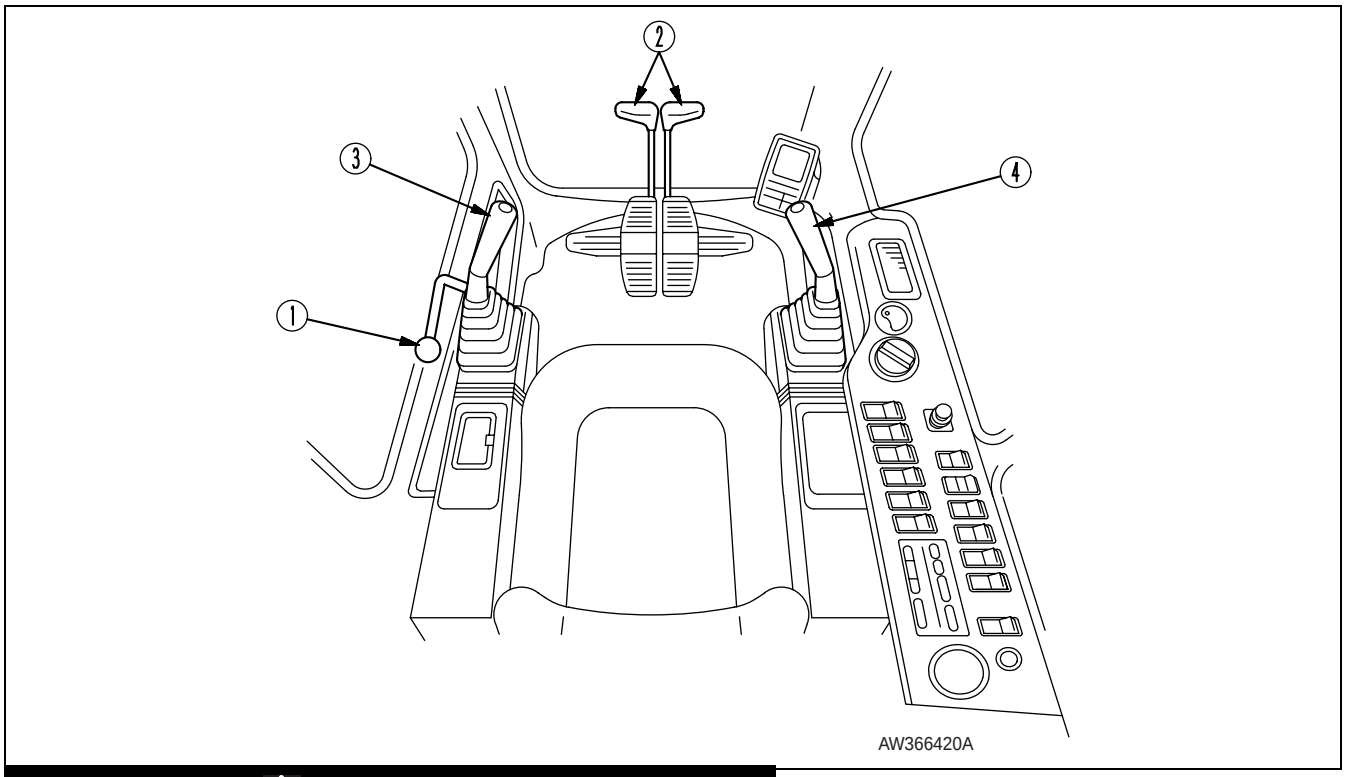
When the switch is pressed, the step light will light up for approx. 60 seconds.

Even if the starting switch key is at the OFF position, the step light will light up for approx. 60 seconds when the switch is pressed.



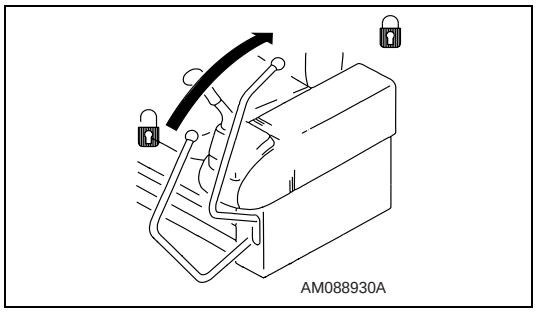
CONTROL LEVERS, PEDALS

1. SAFETY LOCK LEVER



⚠ WARNING

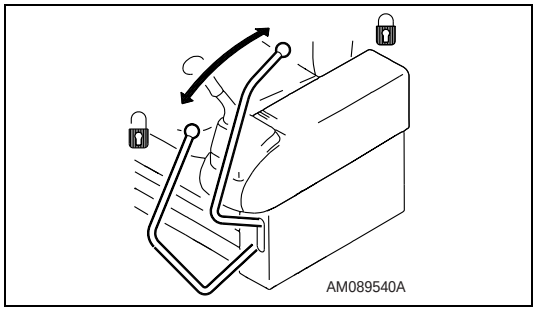
- **When leaving the machine, set the safety lock lever securely to the LOCK position. If the control levers are not locked, and they are touched by mistake, this may lead to a serious accident.**
  If the safety lock lever is not placed securely in the LOCK position, the control levers may not be properly locked. Check that the situation is as shown in the diagram.
- **When the safety lock lever is raised, take care not to touch the work equipment control lever. If the safety lock lever is not properly locked at the up position, the work equipment and swing will move, creating a potentially dangerous situation.**
- **When the safety lock lever is lowered, take care not to touch the work equipment control lever.**



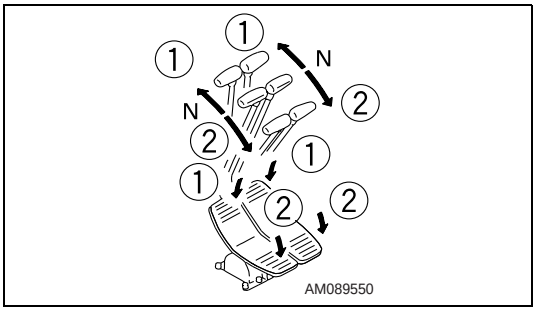
This lever locks the controls for the work equipment, swing, travel, and optional attachments.

Pull the lever up to apply the lock (1).

This lock lever is a hydraulic lock, so even if it is in the lock position, the work equipment control lever and travel lever will move, but the work equipment, travel motor, and swing motor will not work.



2. TRAVEL LEVERS (WITH PEDAL, AUTO-DECELERATION)



⚠ WARNING

- **Do not put your foot on the pedal unless the machine is travelling. If you leave your foot on the pedal and press it by mistake, the machine will move suddenly, and this may lead to a serious accident.**
- **With the track frame facing to the rear, the machine will move in the reverse direction by forward travelling and in the forward direction by reverse travelling.**
  When the travel lever is used, check to see if the track frame is facing forward or backward. (If the sprocket is located to the rear, the track frame is facing forward.)

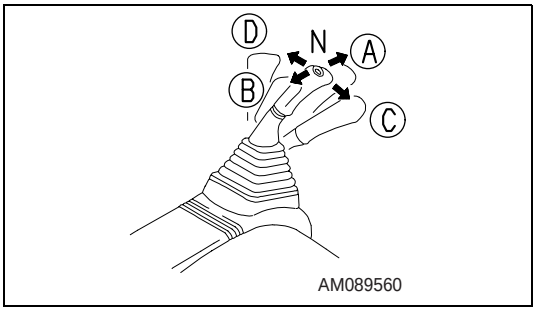
(1) FORWARD:
The lever is pushed forward
(The pedal is angled forward)
(N) NEUTRAL: The machine stops
(2) REVERSE:
The lever is pulled back
(The pedal is angled back)

REMARK

Machines equipped with travel alarm (Option)

If the lever is shifted to the advance or reverse position from the neutral position, the alarm sounds to warn that the machine is starting to advance.

3. LEFT WORK EQUIPMENT CONTROL LEVER (with auto-deceleration device)



⚠ WARNING

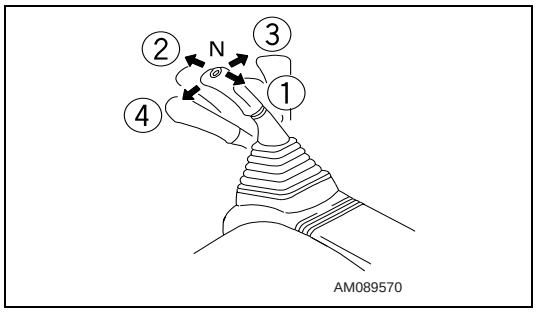
If any lever is operated when in the deceleration range, the engine speed will suddenly increase, so be careful when operating the levers.

This lever is used to operate the arm and upper structure.

Arm operation	Swing operation
(A) Arm OUT	(C) Swing to right
(B) Arm IN	(D) Swing to left
N (Neutral)	

When the lever in neutral, the upper structure and the arm will be retained in the position in which they stop.

4. RIGHT WORK EQUIPMENT CONTROL LEVER (with auto-deceleration device)



⚠ WARNING

If any lever is operated when in the deceleration range, the engine speed will suddenly increase, so be careful when operating the levers.

This lever is used to operate the boom and bucket.

Boom operation	Bucket operation
(1) RAISE	(3) DUMP
(2) LOWER	(4) CURL
N (Neutral)	

(When the lever in neutral, the boom and the bucket will be retained in the position in which they stop.

REMARK

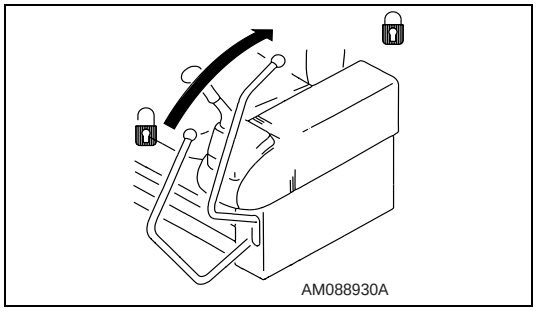
For levers 2, 3 and 4, the engine speed changes as follows because of the auto-deceleration mechanism.

- When the travel lever and work equipment control levers are at neutral, even if the fuel control dial is above the mid-range position, the engine speed will drop to a mid-range speed.
  If any of the levers are operated, the engine speed will rise to the speed set by the fuel control dial.
  If all control levers are set to neutral, the engine speed will drop by approx. 100 rpm, and after approx. 4 seconds, the engine speed will drop to low speed (approx. 1300 - 1400 rpm).

CEILING WINDOW

⚠ WARNING

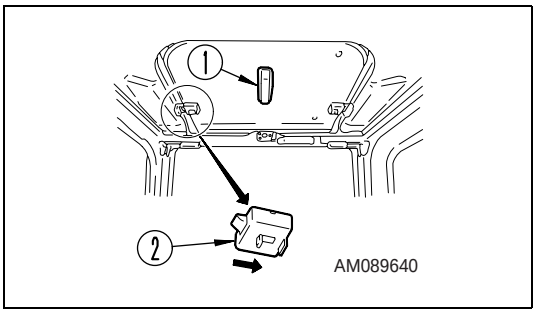
When leaving the operator's compartment, set the safety lock lever securely to the LOCK position.



If the control levers are not locked, and they are touched by mistake, this may lead to a serious accident.

When opening

1. Lock the safety lock lever securely.
2. Pull back catches (2) located on each side of the roof hatch, then push up and open the ceiling window while holding handle (1).



When closing

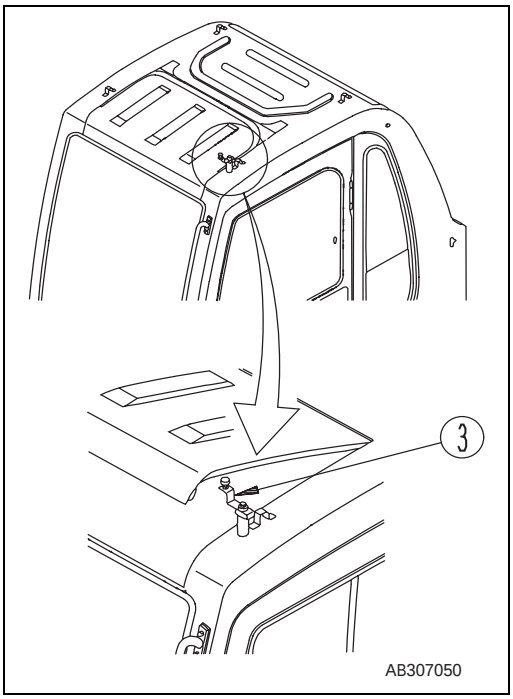
Pull down the roof hatch by holding handle (1) until the catches (2) engage on each side. If the catches do not engage, open and close the roof hatch again.

CEILING WINDOW STOPPER (for machines equipped with FOPS)

When the ceiling window is opened, it is opened partially.

Extend lock (3) (installed to the right side at the top of the cab) to the inside of the ceiling window to lock the window in position. This prevents the ceiling window from closing because of vibration.

To close the ceiling window, extend lock (3) to the outside, then close the window.



FRONT WINDOW

⚠ WARNING

When opening the front window, always hold the grip firmly with both hands and pull up. If you use only one hand, your hand may slip and get caught.

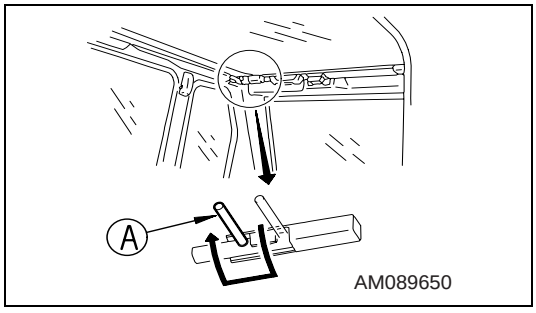
- It is possible to store (pull up) the front window (top) in the roof of the operator's compartment.

When opening

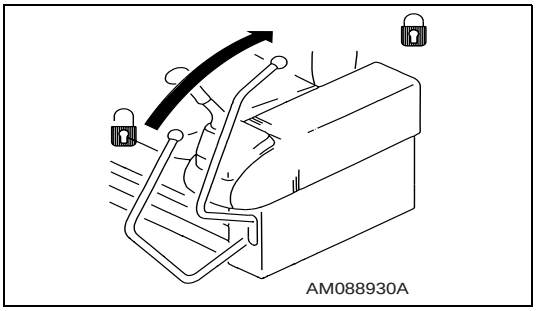
⚠ WARNING

When the front window is open, there is danger that it will fall, so always lock it with left and right lock pins (A).

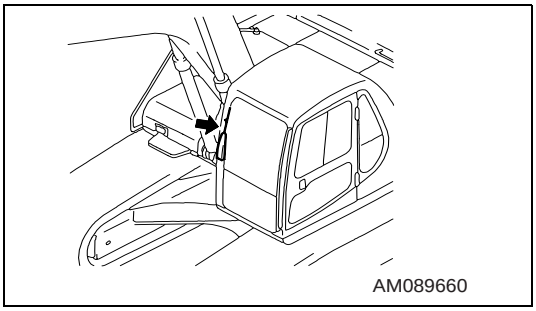
1. Place the work equipment on flat ground and stop the engine.



2. Securely lock the safety lock lever.

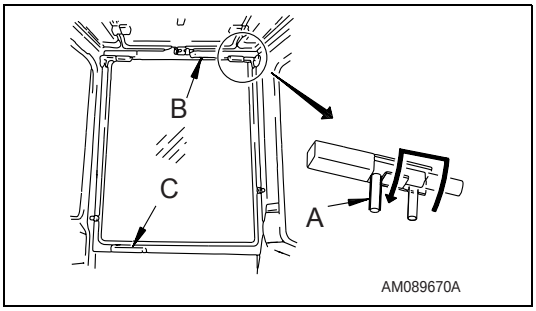


3. Check that the wiper is stowed in the right stay.

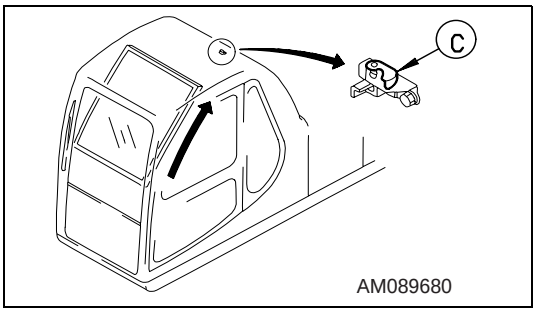


4. Pull lock pins (A) at the top left and right sides of the front window to the inside to release the lock.

B	Top grip
C	Bottom grip



5. From the inside of the operator's cab, hold the bottom grip with the left hand and the top grip with the right hand, pull up the window, and push it in fully until it is locked by catch (C).
6. Lock with lock pins (A) on the left and right sides.

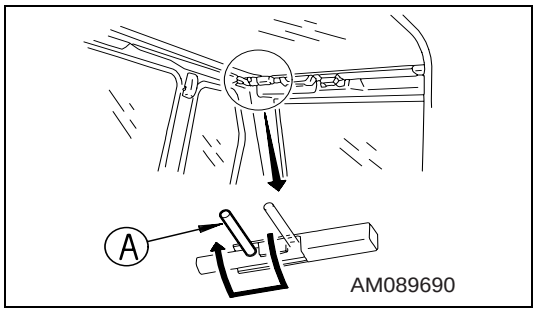


When closing

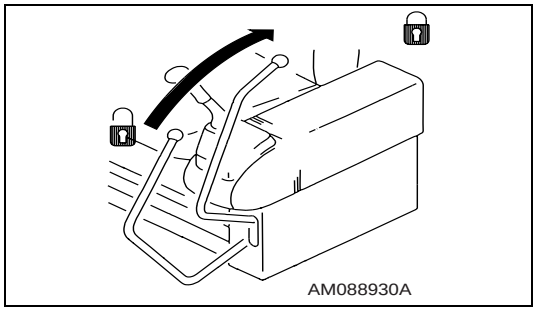
⚠ WARNING

When closing the window, lower it slowly and be careful not to get your hand caught.

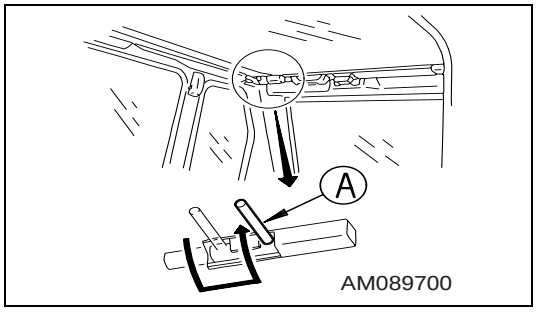
1. Place the work equipment on flat ground and stop the engine.



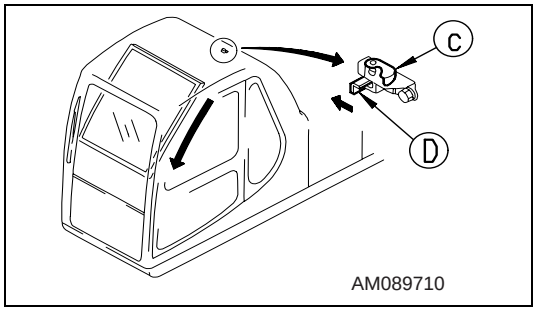
2. Securely lock the safety lock lever.



3. Release the lock pin (A).



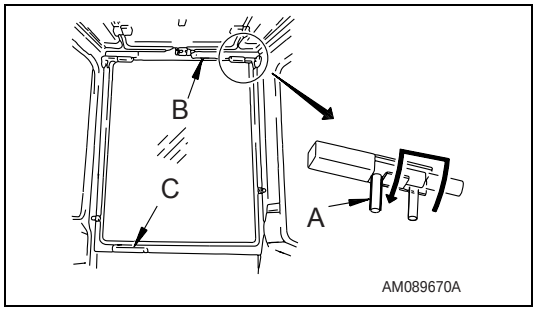
4. Hold the grip at the bottom of the front window with your left hand and the grip at the top with your right hand, release the lock of catch (C) with your right thumb, then pull the top grip slowly and lower the front window. When releasing the lock of catch (C), push release lever (D) in the direction of the arrow to release the lock.



5. Lock securely with lock pins (A) at the left and right sides.

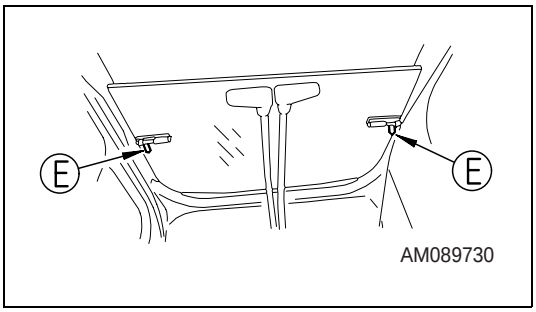
   (B) Top grip

   (C) Bottom grip



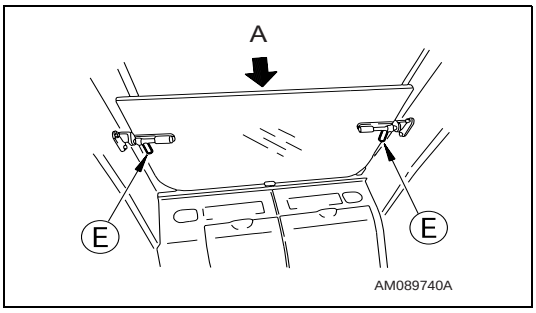
Removing front window (bottom)

With the front window open, remove lock pins (E), and the bottom part of the front window can be removed.



Store the removed bottom part of the front window at the rear of the operator's cab and lock with lock pins (E).

A: Store location

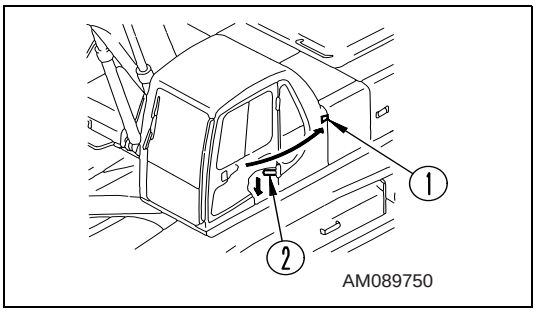


DOOR LOCK

Use the door lock to fix the door in position after opening it.

1. The door will become fixed in place when it is pressed against catch (1).
2. To release the lock, press knob (2) down at the left side of the operator's seat to release the catch.

When fixing the door, fix it firmly to the catch.



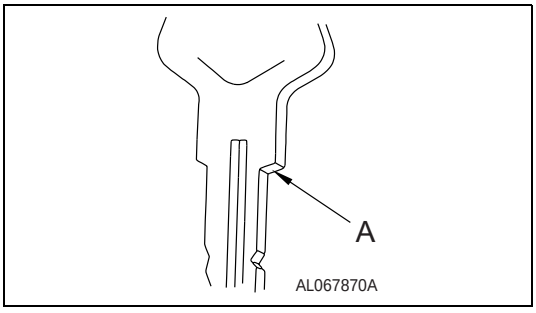
LOCKABLE COMPARTMENTS AND FUEL CAP

The fuel filler, operator's cab, engine hood, tool box cover, battery box cover, right side door and left side door of the machine body are fitted with locks.

Use the starting key to lock or unlock these compartments.

(A) shoulder

Insert the key as far as it will go. If the key is turned before it is inserted all the way, it may break.

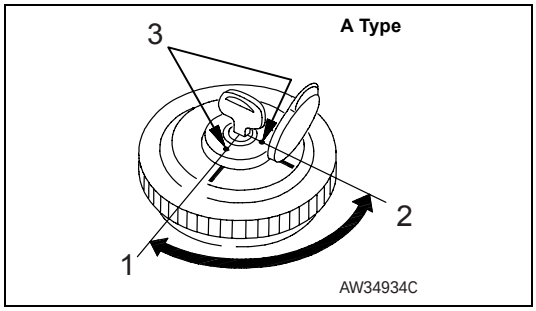


OPENING AND CLOSING CAP WITH LOCK (for the fuel tank filler port)

To open the cap (1)

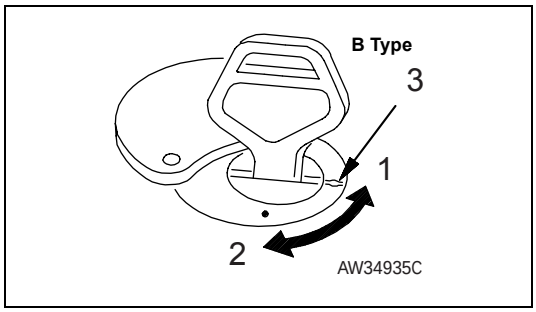
Insert the key into the cap

turn clockwise, align with the match on the cap with the rotor groove, then remove the cap.



To lock the cap (2)

Screw the cap into place and insert the key into the key slot. Turn the key counter clockwise and then remove the key.



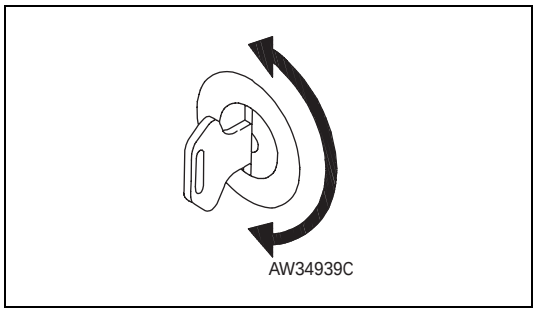
OPENING AND CLOSING LOCKABLE COMPARTMENTS

To open the cover (locked cover)

1. Insert the key into the key slot.
2. Turn the key counter clockwise and open the cover by pulling the cover grip.

To lock the cover

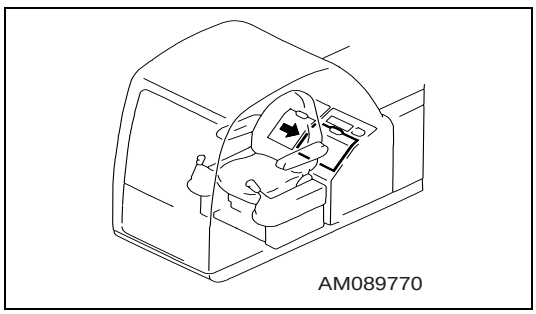
1. Close the cover and insert the key into the key slot.
2. Turn the key clockwise and take the key out.



LUGGAGE BOX

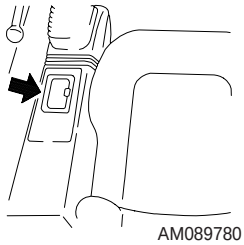
This is on the left side at the rear of the operator's seat.

Keep the Operation and Maintenance Manual in this box so that it can be taken out and read whenever necessary.



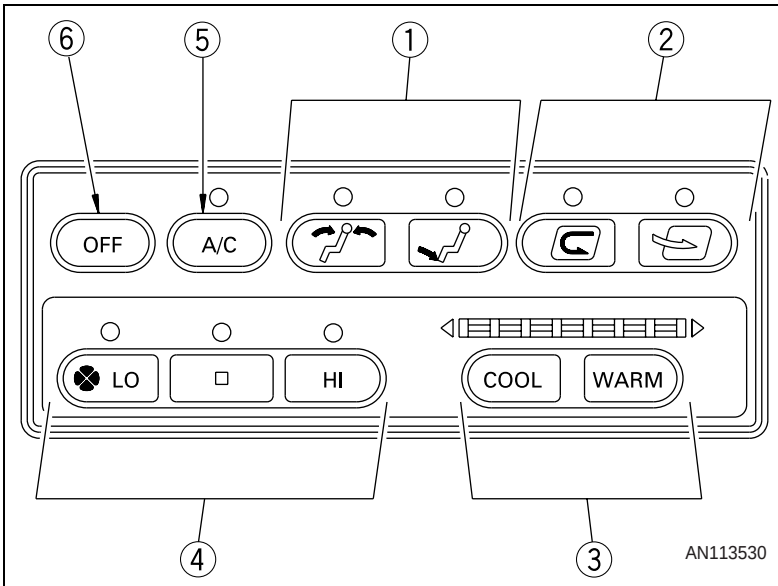
ASHTRAY

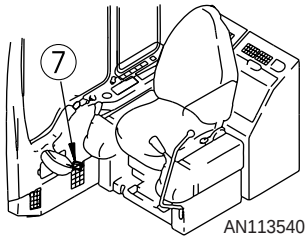
This is on the left side of the operator's seat. Always make sure that you extinguish the cigarette before closing the lid.



HANDLING AIR CONDITIONER

GENERAL LOCATIONS ON CONTROL PANEL

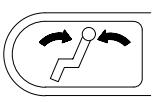
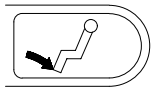


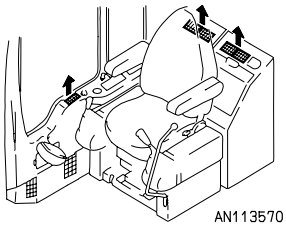
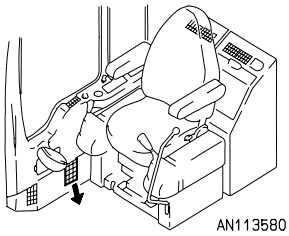


The pilot lamp for the switches light up to indicate that the switch is functioning.

1. VENT SELECTOR SWITCH

This is used to direct the air flow as required.

	Air flow to face and body	Air flow to foot space
Switch selection	 AN113550	 AN113560

	Air flow to face and body	Air flow to foot space
Air flow	 AN113570	 AN113580

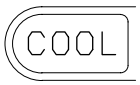
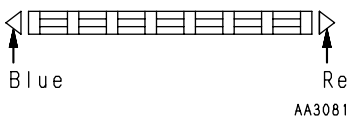
2. FRESH/RECIRC SELECTOR SWITCH

This switch is used to intake fresh air or recirculate the internal air.

Function	Recirculating Use this position to heat or cool the operator's cab quickly or when the outside air is dirty.	Fresh air intake Use this position when taking in clean, fresh air or when demisting.
Switch selection	 AN113590	 AN113600

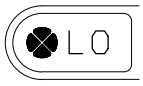
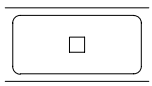
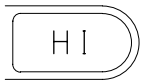
3. TEMPERATURE CONTROL SWITCH

This switch is used to adjust the temperature steplessly between low and high.

	Cooling	Heating
Switch selection	 AN113610	 AN113620
Function	 AA30813B The more lamps in the blue range light up, the lower the temperature becomes; the more lamps in the red range light up, the higher the temperature becomes. The range is divided into 7 levels, and each range is steplessly further divided.	

4. FAN SPEED SELECTION

The wind flow can be adjusted to 3 levels.

Function	Low	Medium	High
Switch selection	 AN1136	 AN1136	 AN1136

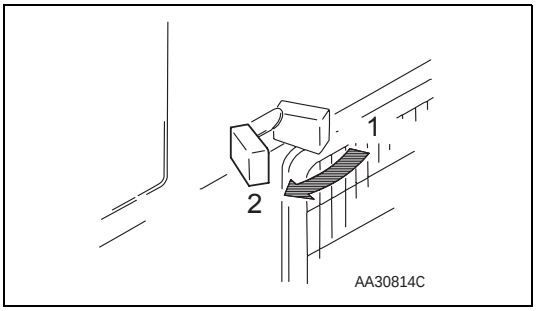
5. AIR CONDITIONER SWITCH 

This is used to switch the air conditioner ON/OFF.

6. OFF SWITCH 

This switch is use to stop the fan.

7. DEFROSTER SELECTOR LEVER



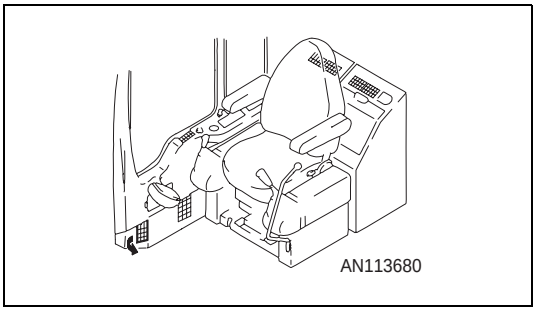
This is used to demist from the front window in cold or rainy conditions.

(1) Selector lever back: Foot space

(2) Selector lever forward: Defroster

The defroster can be used when the vent selector panel is at the position.

PRECAUTIONS WHEN USING AIR CONDITIONER



Carry out ventilation from time to time when using the cooler.

- If you smoke when the cooler is on, the smoke may start to hurt your eyes, so turn the lever to FRESH to remove the smoke while continuing the cooling.
- When running the air conditioner for a long time, turn the lever to the FRESH position once an hour to carry out ventilation and cooling.

Be careful not to make the temperature in the cab too low.

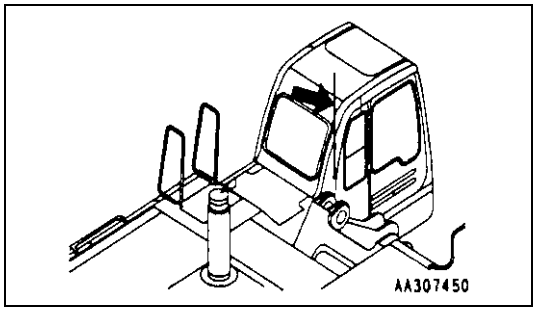
- When the cooler is on, set the temperature so that it feels slightly cool when entering the cab (5 - 6°C lower than the outside temperature). This temperature difference is considered to be the most suitable for your health, so always be careful to adjust the temperature properly.

RADIO-CASSETTE (OPTION)

Refer to the separate operation manual

REMARK

Ensure the radio is switched off when leaving the machine for long periods to prevent battery drainage.



Antenna

If the reception is weak or generates noise, extend the antenna. If the reception is too strong, adjust the sensitivity by retracting the antenna.

NOTICE

When transporting the machine or parking it in a garage, always fully retract the antenna to avoid damage.

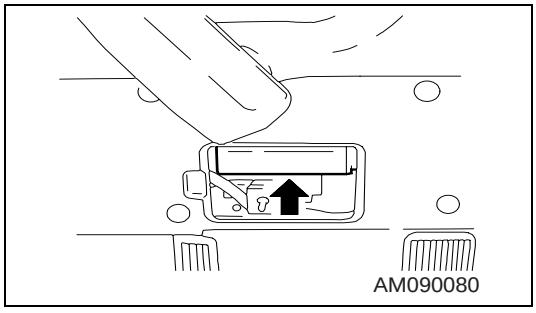
PRECAUTION DURING USE

- To ensure safe operation, adjust the volume level so that external noise is still audible.
- Ensure no water is splashed over the speaker case or radio-cassette to prevent malfunction.
- Never use solution such as benzine or tinners to clean the dial or buttons. These should be wiped with a dry, soft cloth. (Use a cloth dipped alcohol for very dirty surfaces).
- At battery replacement, all the memory pre-sets will be cleared. Refer to the separate operation manual for details of memory pre-sets.

FUSE

NOTICE

Before replacing a fuse, be sure to turn off the starting switch.



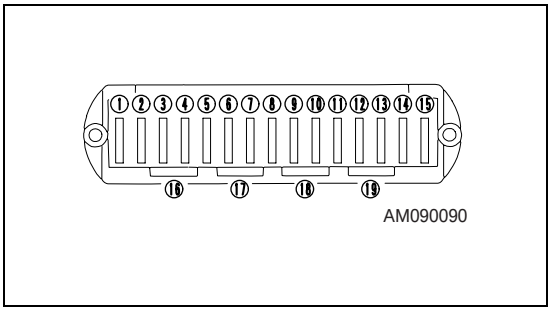
The fuses protect the electrical equipment and wiring from burning out.

If the fuse becomes corroded, or white powder can be seen, or the fuse is loose in the fuse holder, replace the fuse.

Replace a fuse with another of the same capacity.

Fuse Capacities and Circuit Names

No.	Fuse capacity	Circuit name
1	10A	Prolix circuit
2	10A	Machine push-up, Electromagnetic valve for boom shockless control
3	20A	Air conditioner (motor)
4	15A	Option, lower wiper
5	10A	Radio, cigarette lighter, air conditioner panel, heater
6	10A	Horn, flash light (option)
7	10A	Window washer, auto-lubrication (option)
8	10A	Option
9	10A	Option, lower wiper switch
10	10A	Key switch signal
11	10A	Option
12	20A	Spare fuse
13	15A	Spare fuse
14	10A	Step light
15	10A	Room lamp, radio
16	10A	Spare fuse
17	10A	Spare fuse
18	15A	Spare fuse
19	20A	Spare fuse

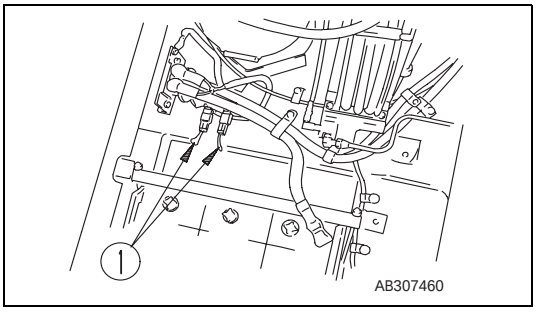


FUSIBLE LINK

If the starting motor will not rotate when the starting switch is turned ON, a possible cause is disconnection of wire-type fusible link (1). Inspect the fusible link in battery box cover at right side of machine and, if necessary, replace it.

REMARK

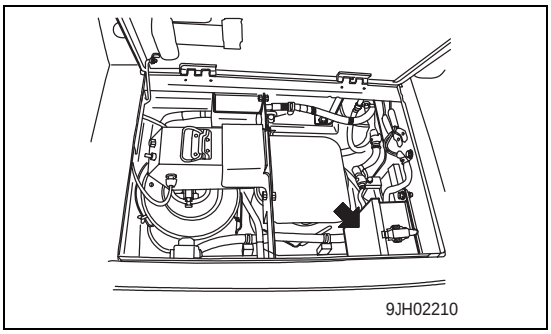
A fusible link refers to the large-sized fuse wiring installed in the high current flow portion of the circuit to protect electrical components and wiring from burning similar to an ordinary fuse.



CIRCUIT BREAKER

NOTICE

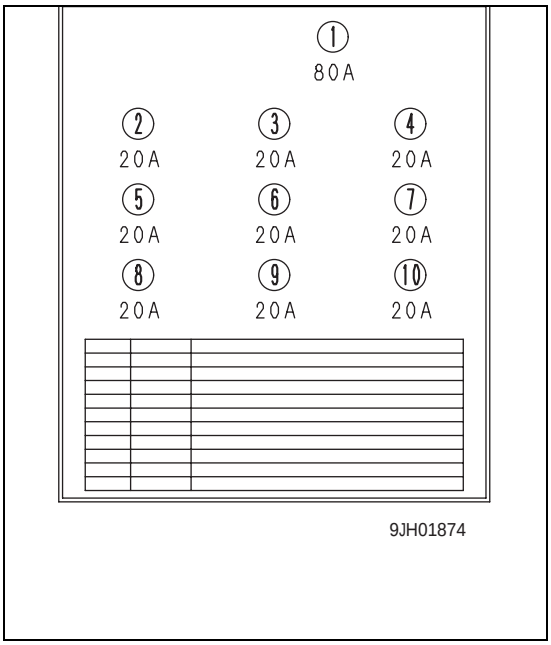
When resetting the circuit breaker, always turn the starting switch OFF first.



- If the starting switch does not work even when the starting switch is turned on, open the circuit breaker box inside the grease pump box at the front right of the machine and carry out inspection.
- If an excess current is generated, the circuit breaker cuts off the electric circuit to protect the electrical components and wiring from damage.
- To reset the circuit breaker after it has shut off, push in buttons (1) - (10) until a click is heard.

REMARK

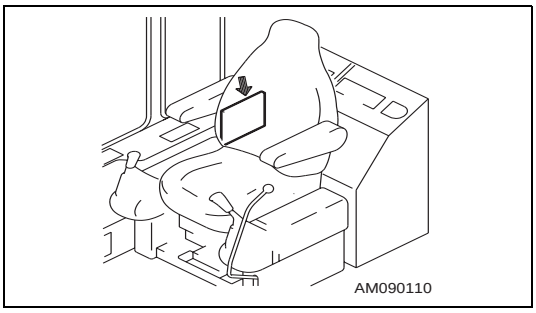
- The circuit breaker is a circuit protection device installed to circuits where large current flows. It protects the electrical components and wiring from damage caused by an abnormal current in the same way as a normal fuse. After repairing and restoring the location of the abnormality, there is no need to replace the breaker. It can be used again.
- If the starting motor does not work even when the starting switch is turned to the ON position, breaker (7) has probably cut off the circuit, so check and restore circuit breaker (7).
- If the electrical equipment does not work even when the fuse is replaced, breaker (1) or (10) has probably cut off the circuit, so check and restore circuit breaker (1) or (10).



No.	Fuse capacity	Circuit name
1	80A	Fuse box inside operator's cab
2	20A	Wiper, travel alarm
3	20A	Working lamp
4	20A	Power supply grease pump
5	20A	Pump controller
6	20A	Front light of machine
7	20A	Starting switch, engine controller (control)
8	20A	Engine controller (power supply)
9	20A	Alarm buzzer, monitor
10	20A	Fuse box inside operator's cab (direct from battery)

CONTROLLERS

A pump controller and electronic governor controller are located in the cab as shown.

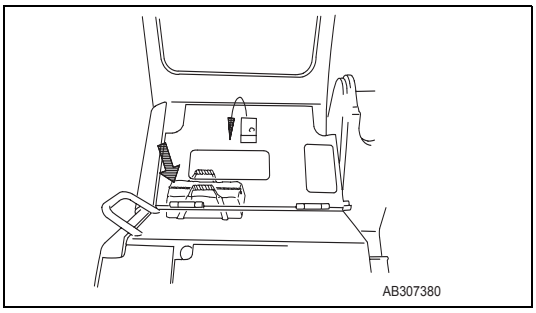


NOTICE

- **Never splash or spill water, mud or drink over the controllers as this may cause a fault.**
- **If a fault occurs in the controller, do not attempt repair, but consult your Komatsu distributor.**

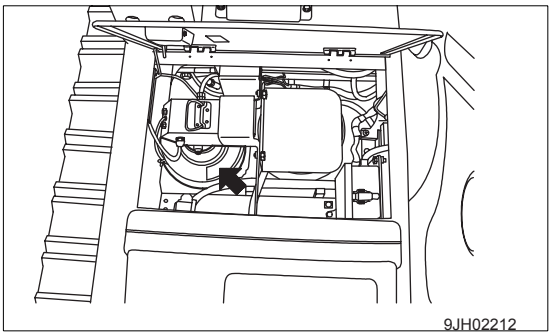
TOOLKIT HOLDER (CLOTH BAG)

This is inside the utility box behind the cab.



GREASE PUMP

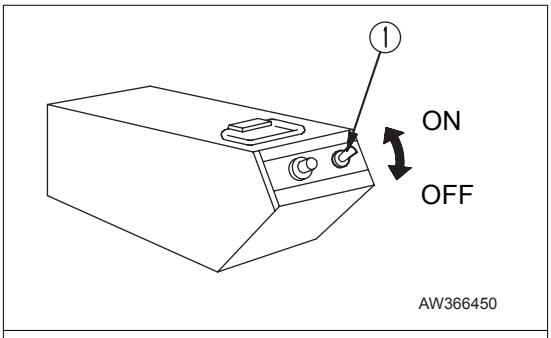
This is stored inside the grease pump box on the right side of the chassis.

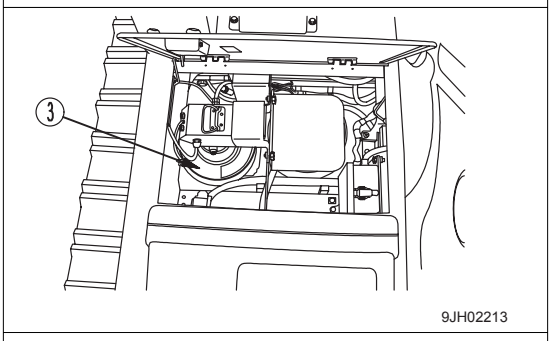


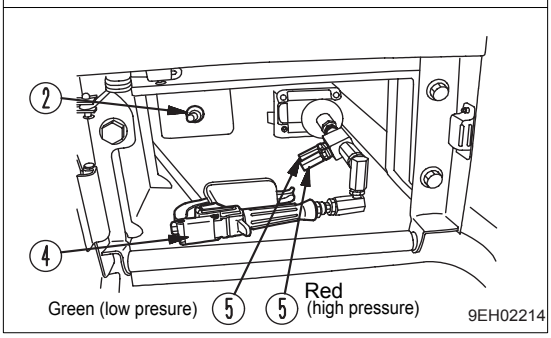
Method of Use

1. When the engine is started, and the power switch (1) and remote switch (2) are turned to the ON position, pump (3) is actuated and grease is sent under pressure to grease gun (4).

2. When the lever of grease gun (4) is pulled, it is set to the greasing condition and grease is discharged.







- The greasing condition can be checked with pressure gauge (5).

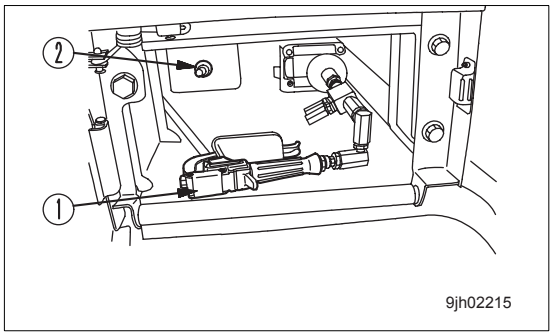
3. When the lever of grease gun (4) is released, the supply of grease stops.

4. After using, turn only remote switch (2) OFF.

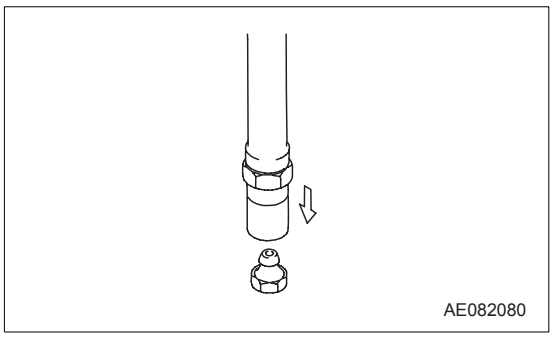
	Pressure gauge	
Greasing condition	Green color (low pressure)	Red color (high pressure)
When grease gun is empty		
Greasing in progress		
When tip is clogged		

Precautions when Using

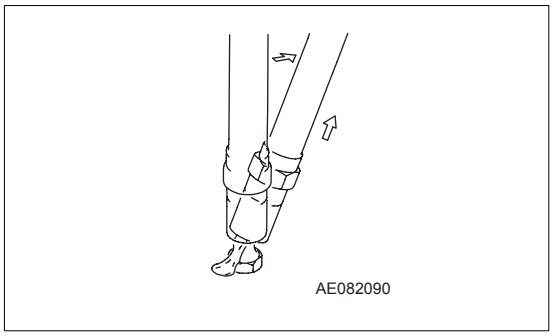
NOTICE
When not using the grease pump, always turn off only remote switch (2) to prevent pressure from building up inside grease gun (1).



- Set so that the nipple and the nozzle at the tip of the grease gun are perpendicular.

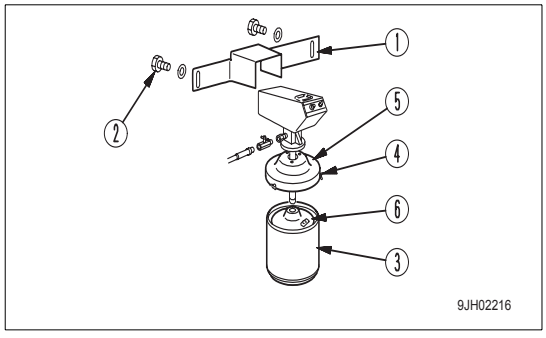


- When removing the nozzle at the tip of the grease gun from the nipple, carefully angle the tip of the nozzle slightly and remove it.
- When there is only a small amount of grease left in the grease can, the pump will not pump out grease, so move the grease to the center or fill the can with new grease.



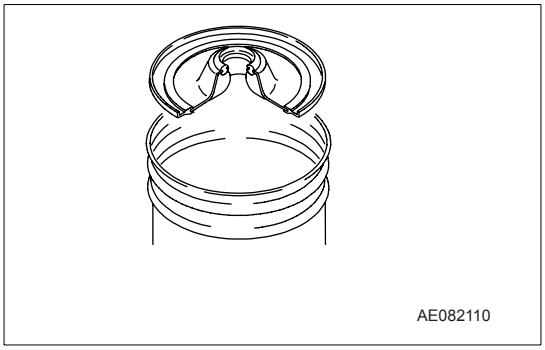
Supplying Grease

1. Remove bolts (2) at 2 places, then remove grease pump holder bracket (1).
2. Remove wing bolts (4) of grease can (3) at 3 places, then remove cover (5) together with the grease pump.
3. Remove follow plate (6) inside the grease can.



- Place follow plate (6) flat on top of the grease, use your hand to push it into the grease, and push down until grease comes out from the packing portion in the center of follow plate (6).

4. Fill the grease can with new grease, then set follow plate (6) on top of the grease.



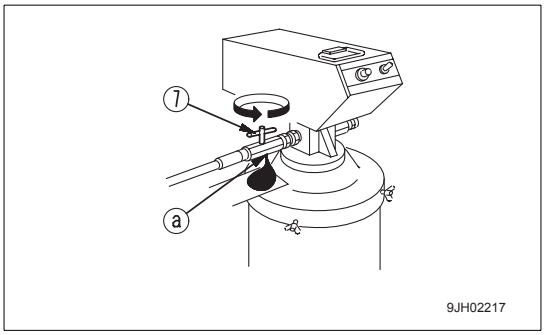
- When putting follow plate (6) on top of the grease, first fill the hollow in the center of the follow plate with grease to enable the operation to be carried out smoothly.

5. Insert the grease pump into the packing portion at the center of follow plate (6), set cover (5) on grease can (3), then tighten 3 wing bolts (4) uniformly to hold in position.

6. After fitting grease pump holder bracket (1) into the head of the grease pump, install with 2 bolts (2).

- The pump will operate for a short time and then stop, but the first grease includes air inside the pump, so it is cloudy white and not suitable for use.

7. Loosen check valve (7), and pump out all the grease which has air in it from hole (a) at the bottom of check valve (7).



8. After bleeding the air, close check valve (7) securely.

9. After bleeding the air inside the pump, pull the lever of the grease gun to completely discharge the grease mixed with air from inside the hose and grease gun.

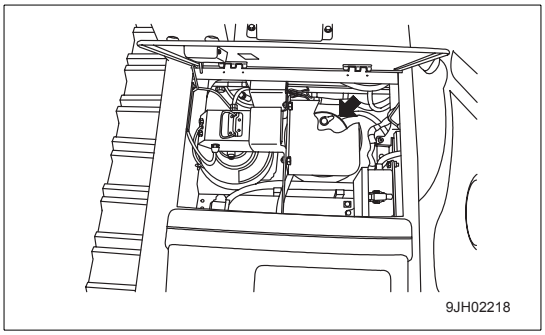
- When filling with grease, be extremely careful not to let sand or dirt stick to follow plate (6) or the suction portion of the grease pump.

- If there is ample grease, but the pump does not pump out any grease, follow plate (6) may not be correctly set in position, so set it in position again correctly.

  The standard grease can contains 18 liters. If a 20-liter can is used, there will be more grease left.

REMARK

Keep the spare grease in the grease can storage location in the grease pump chamber.



ACCUMULATOR HANDLING

⚠ WARNING

On machines equipped with an accumulator, for a short time after the engine is stopped, if the work equipment control lever is moved to the LOWER position, the work equipment will move down under its own weight.

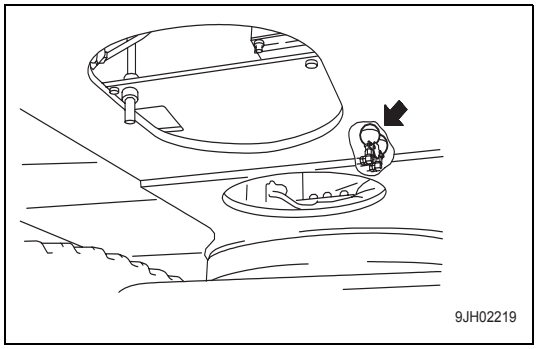
After stopping the engine, always place the safety lock lever in the LOCK position and lock the attachment control pedal with the lock pin.

The accumulator is filled with high-pressure nitrogen gas, and it is extremely dangerous if it is handled in the wrong way. Always observe the following precautions.

- **Never make any hole in the accumulator or expose it to flame or fire.**
- **Do not weld any boss to the accumulator.**
- **When disposing of the accumulator, it is necessary to release the gas from the accumulator, so please contact your Komatsu distributor.**

This machine is equipped with the accumulator in the control circuit.
The accumulator is a device to store the pressure in the control circuit, and when it is installed, the control circuit can be operated for a short time even after the engine is stopped. Therefore, if the control lever is moved in the direction to lower the work equipment, it is possible for the work equipment to move under its own weight.

The accumulator is installed to the position shown in the diagram on the right.



RELEASING PRESSURE IN THE CONTROL CIRCUIT ON MACHINES EQUIPPED WITH AN ACCUMULATOR

1. Place the work equipment on the ground. Close the crusher attachment jaws, etc.
2. Stop the engine.
3. Move the safety lock lever to the free position. Move the work equipment control lever and the attachment control pedal (option) to full stroke back and forth, right and left so as to release the pressure in the control circuit.
4. Start the engine again, stop the engine after 2 - 3 seconds, then carry out the operation in Step 3.
5. Continue the operation in Step 4 until the hissing noise of pressure oil can no longer be heard. (Approx. 2 - 3 times)

6. Move the safety lock lever to the lock position. Lock the control lever and attachment control pedal. The pressure, however, will not be completely released, so when the accumulator is removed in the control circuit, gradually loosen the screws. Never stand in the oil ejection direction.

OPERATION

CHECKS BEFORE STARTING ENGINE

Perform the following checks for operator safety and to ensure correct machine performance.

WALK-AROUND CHECK

⚠ WARNING

Leakage of oil or fuel, or accumulation of flammable material around high temperature parts, such as the engine muffler or turbocharger, may cause fire.
Check carefully, and if any abnormality is found, repair it or contact your Komatsu distributor.

Before starting the engine, look around the machine and under the machine to check for loose nut or bolts, or leakage of oil, fuel, or coolant, and check the condition of the work equipment and hydraulic system. Check also for loose wiring, play, and collection of dust at places which reach high temperatures.

Always carry out the items in this section before starting the engine each day.

1. Check for damage, wear, play in work equipment, cylinders, linkage, hoses
   Check that there are no cracks, excessive wear, or play in the work equipment, cylinders, linkage, or hoses. If any abnormality is found, repair it.

2. Remove dirt and dust from around engine, battery, radiator
   Check if there is any dirt or dust accumulated around the engine or radiator. Check also if there is any flammable material (dead leaves, twigs, grass, etc.) accumulated around the battery or high temperature engine parts, such as the engine muffler or turbocharger. Remove all such dirt or flammable material.

3. Check for leakage of water or oil around engine
   Check that there is no leakage of oil from the engine or leakage of water from the cooling system. If any abnormality is found, repair it.

4. Check for oil leakage from hydraulic equipment, hydraulic tank, hoses, joints
   Check that there is no oil leakage. If any abnormality is found, repair the place where the oil is leaking.

5. Check the undercarriage (track, sprocket, idler, guard) for damage, wear, loose bolts, or leakage of oil from rollers

6. Check for damage to handrail, loose bolts
   Repair any damage and tighten any loose.

7. Check for damage to gauges, monitor, loose bolts
   Check that there is no damage to the gauges and monitor in the operator's cab. If any abnormality is found, replace the parts. Clean off any dirt on the surface.

8. Clean rear view mirror, check for damage
   Check that there is no damage to the rear view mirror. If it is damaged, replace it with a new mirror. Clean the surface of the mirror and adjust the angle so that the view to the rear can be seen from the operator‘s seat.

9. Seat belt and mounting clamps
   Check that there is no abnormality in the seat belt or mounting clamps. If there is any damage, replace with new parts.

10. Check bucket with hook (if equipped) for damage.
    Check the hook, catcher and hook foot for damage. If damage is found, contact your Komatsu distributor for repair.

CHECK BEFORE STARTING

Always carry out the items in this section before starting the engine each day.

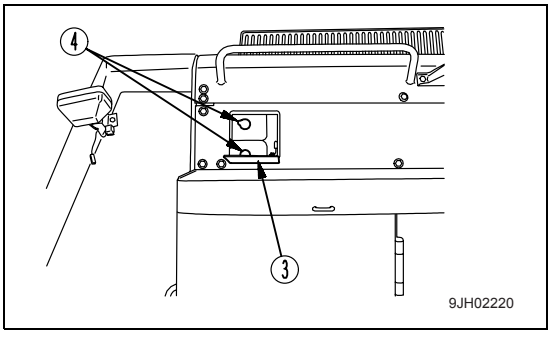
CHECK COOLANT LEVEL, ADD WATER

⚠ WARNING

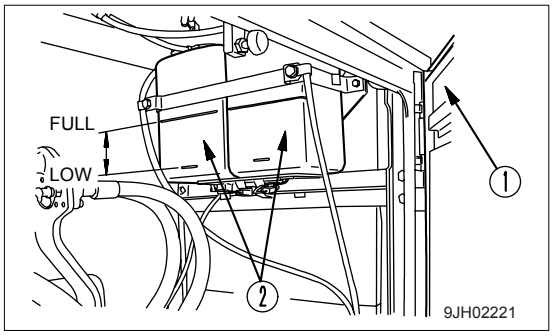
- **Do not open the radiator cap unless necessary. When checking the coolant, always check the radiator reserve tank when the engine is cold.**
- **Do not remove the cap when the radiator water is hot. Boiling water may spurt out. After the water temperature goes down, turn the cap slowly to release the pressure, then remove it.**

1. Open rear cover (1) at the left side of the machine, and check that the cooling water level is between the FULL and LOW lines in sub tank (2). If the level is low, open top cover (3) and add water through the water filler of sub tank (4) to the FULL line.

2. After adding water, tighten the cap securely.

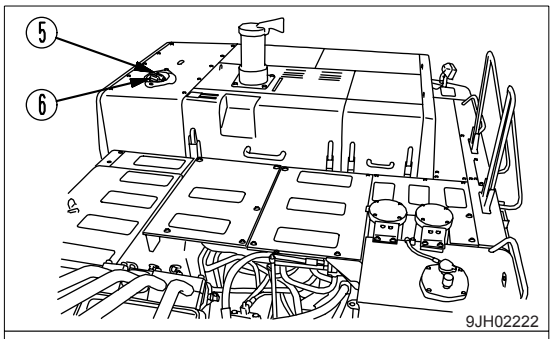


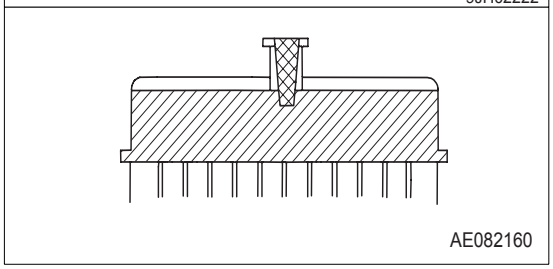
3. If sub tank (2) is empty, check for water leakage, then check the water level in the radiator. If the water level is low, add water to the radiator, then add water to sub tank (2).



REMARK

- When adding water to the radiator, remove cover (5), slowly loosen radiator cap (6), and check that the pressure has been released. Then push in the cap, hold it in this position, then loosen it further, and remove it.
- Check that the cooling water is above the shaded portion in the diagram on the right. If the water level is low, add water through the water filler.
- After adding water, install radiator cap (6) again.
- For details of the procedure in cold weather, see ““COLD WEATHER OPERATION” on page 155“.



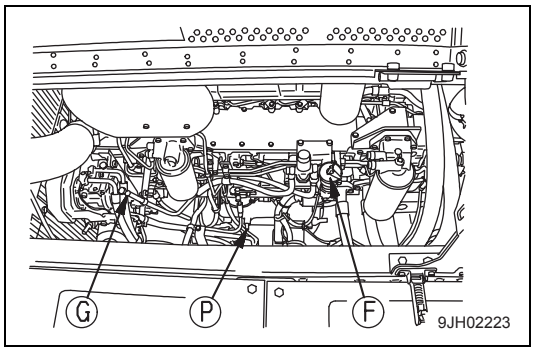


Engine Crankcase Oil Level - Check/Add

⚠ WARNING

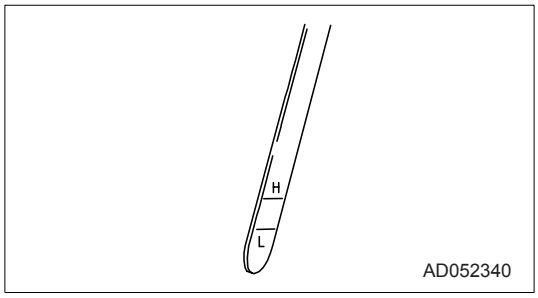
The parts and oil are at high temperature immediately after the engine is stopped, and may cause serious burns, Wait for the temperature to go down before starting the operation.

1. Open the front cover in the center of the engine hood.
2. Remove dipstick (G), and wipe the oil off with a cloth.
3. Insert dipstick(G) fully in the oil filler pipe, then take it out again.



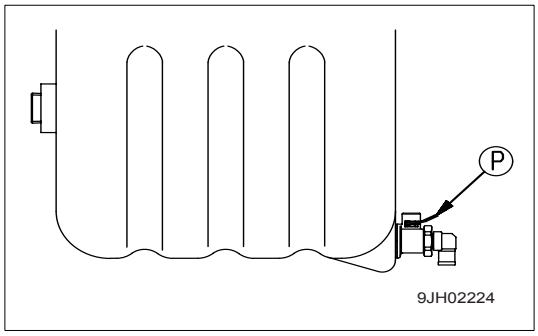
4. The oil level should be between the H and L marks on dipstick (G).

   If the oil level is below the L mark, add engine oil through oil filler (F).



5. If the oil is above the H mark, drain the excessive engine oil from drain plug (P) at the bottom of the engine oil pan, then check the oil level again.

6. If the oil level is correct, tighten the oil filler cap securely and close the engine hood.



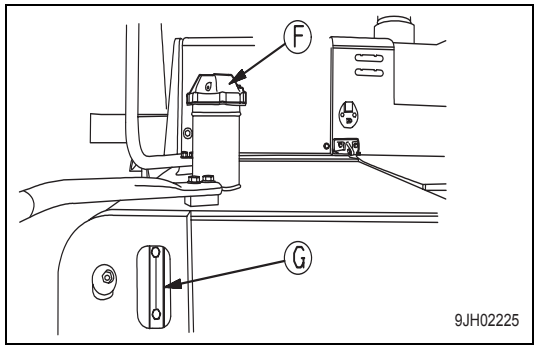
REMARK

When checking the oil level after the engine has been operated, wait for at least 15 minutes after stopping the engine before checking.
If the machine is at an angle, make it horizontal before checking.

CHECK FUEL LEVEL, ADD FUEL

⚠ WARNING

When adding fuel, never let the fuel overflow. This may cause a fire. If you spill fuel, thoroughly clean up any spillage.



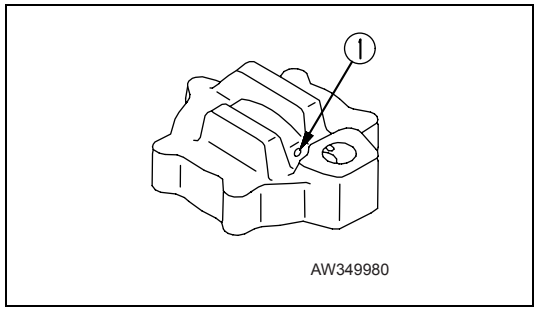
1. Use sight gauge (G) on the front face of the fuel tank to check that the tank is full.

2. if the fuel level is not within the sight gauge, add fuel through filler port (F) while watching sight gauge (G).

   Fuel capacity: 880 litres

   For details of the fuel to use: see “USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE” on page 184.

3. After adding fuel, tighten the cap securely.



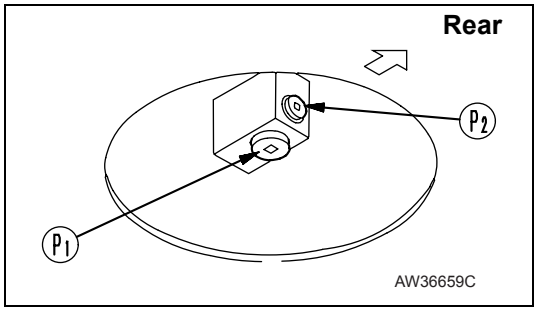
REMARK

If breather hole (1) on the cap is clogged, the pressure in the tank will drop and fuel will not flow.
Clean the hole from time to time.

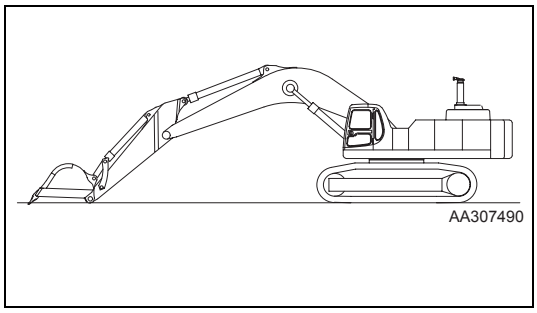
CHECKING OIL LEVEL IN HYDRAULIC TANK

⚠ WARNING

- **When removing the oil filler cap, oil may spurt out, so turn the cap slowly to release the internal pressure before removing the cap.**
- **If the oil is above the H level, stop the engine, wait for the hydraulic oil to cool down, then drain the excess oil from drain plug (P_1). When draining the oil, loosen bottom drain plug (P_1), then loosen the side drain plug (P_2) and drain the oil. After draining the oil, tighten drain plugs (P_1) and (P_2).**

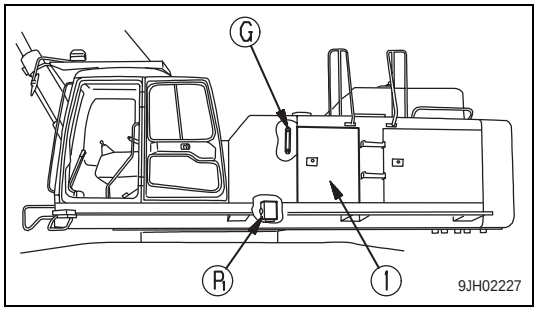


1. If the work equipment is not in the condition shown in the drawing on the right, start the engine, run the engine at low speed, retract the arm and bucket cylinders, then lower the boom, set the bucket teeth in contact with the ground, and stop the engine.



2. Within 15 seconds after stopping the engine, move each control lever (for work equipment and travel) to the full stroke in all directions to release the internal pressure.

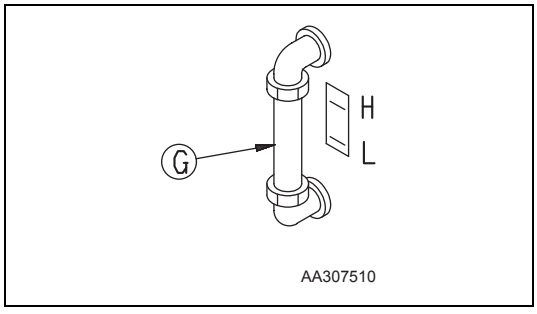
3. Open left door (A) of the machine and check sight gauge (G) at the front of the machine. The oil level is normal if between the H and L marks.



NOTICE
Do not add oil if the level is above the H line. This will damage the hydraulic equipment and cause the oil to spurt out.

4. If the level is below the L mark, open the upper cover (1) of the hydraulic tank and add oil through oil filler (F).

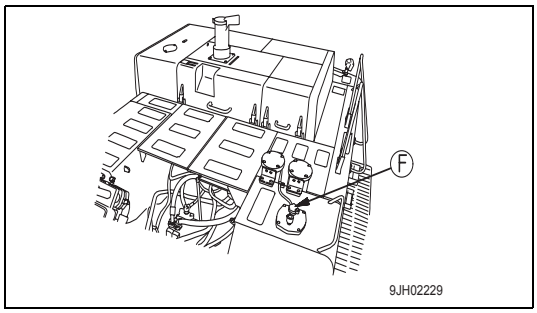
   For details of the oil to use: see "USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE" on page 184.



REMARK

The oil level will vary depending upon the oil temperature. Accordingly, use the following as a guide:

- Before operation: around L level
  (Oil temperature 10 to 30°C)
- Normal operation: around H level
  (Oil temperature 50 to 80°C)

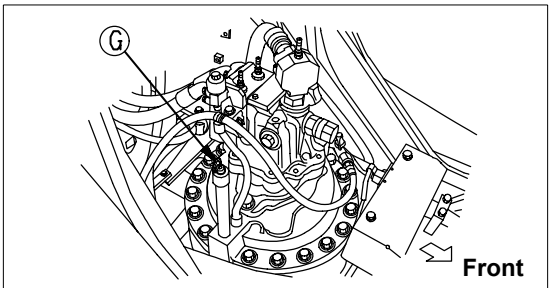


Swing Machinery Case Oil - Check/Add

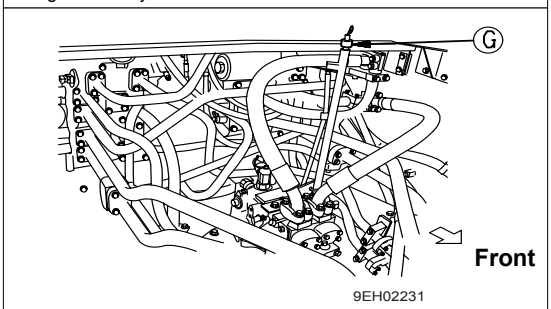
⚠ WARNING

The parts and oil are at high temperature immediatley after the engine is stopped,and may cause serious burns.Wait for the temperature to go down before starting the operation

1. Remove dipstick (G) and wipe the oil from the dipstick with a cloth.
2. Insert dipstick (G) fully in the guide.

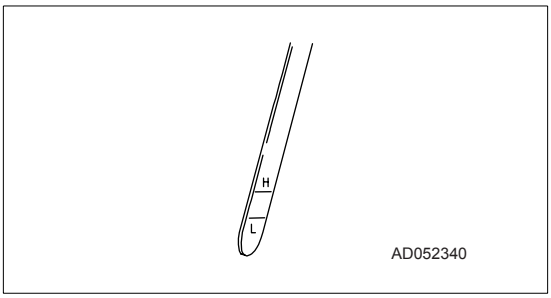


9EH02230
Swing machinery at front of machine



9EH02231
Swing machinery at rear of machine

3. When dipstick (G) is pulled out, if the oil level is between the H and L marks of the gauge, oil level is proper.



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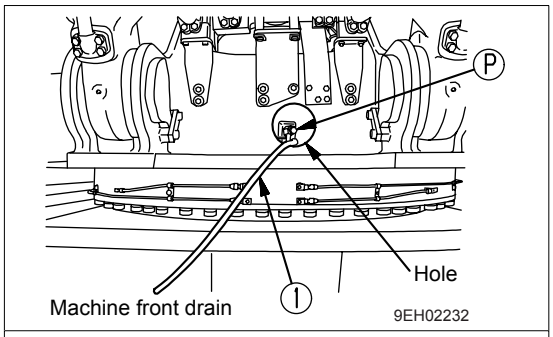
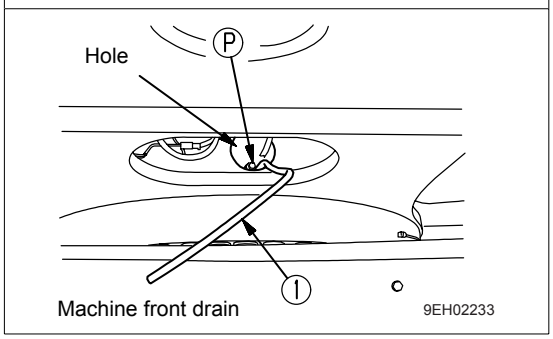
4. If the oil does not reach the L mark on dipstick (G), add engine oil through dipstick insertion hole (F).

5. If the oil is above the H mark on the oil level gauge, loosen drain plug (P) and drain the excess oil.

   ❍ When draining the oil, pull tube (1) out, then loosen plug (P). After draining the oil, wind in tube (1) and store it inside the hole.

After checking oil level or adding oil, insert dipstick (G) into the hole.



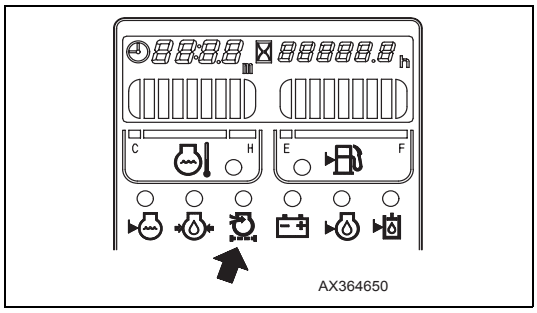


CHECK AIR CLEANER FOR CLOGGING

1. Confirm that the air cleaner clogging monitor does not flash.

2. If it flashes, immediately clean or replace the element.

   For details of method of cleaning the element, see "Air Cleaner Element - Check/Clean/Replace" on page 194.



CHECK ELECTRIC WIRINGS

⚠ WARNING

- **If fuses are frequently blown or if there are traces of short circuit on the electrical wiring, locate the cause and carry out repair.**
- **Accumulation of flammable material (dead leaves, twigs, grass, etc.) around the battery may cause fire, so always check and remove such material.**
- **Keep the top surface of the battery clean and check the breather hole in the battery cap. If it is clogged with dirt or dust, wash the battery cap to clean the breather hole.**

Check for damage and wrong capacity of the fuse and any sign of disconnection or short circuit in the electric wiring. Check also for loose terminals and tighten any loose parts.

Check the wiring of the "battery", "starting motor" and "alternator" carefully in particular.

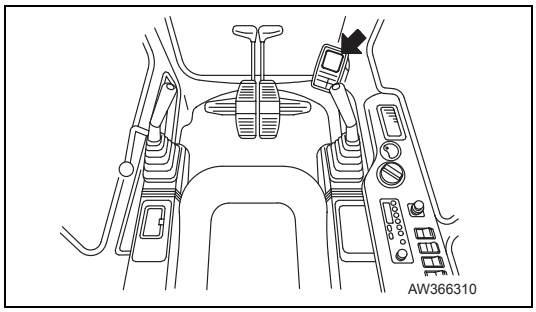
When carrying out walk-around checks or checks before starting, always check if there is any accumulation of flammable material around the battery, and remove such flammable material.

Please contact your Komatsu distributor for investigation and correction of the cause.

CHECK FUNCTION OF HORN

1. Turn the starting switch to the ON position.
2. Press the horn switch and check that the horn sounds immediately.
   If the horn does not sound, please contact your Komatsu distributor for repairs.

CHECK CENTRAL MONITOR



To prevent any failure to give a warning caused by a blown lamp bulb on the central monitor or defective operation of the buzzer, carry out the following checks.

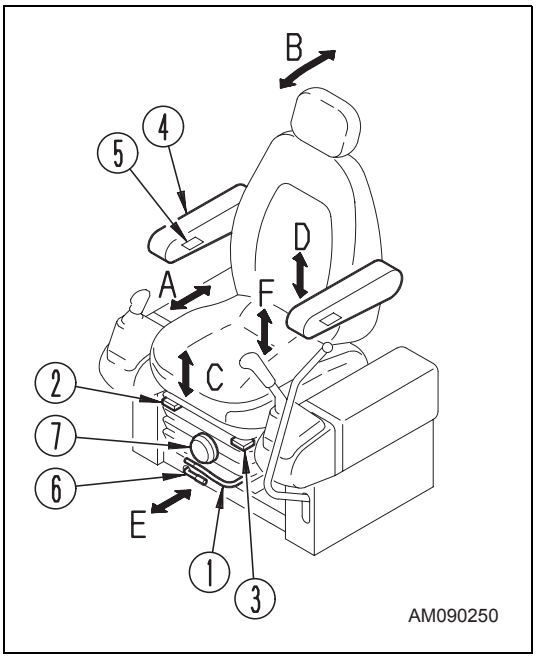
1. Before starting the engine, turn the starting switch to the ON position and check that all monitors and gauges light up for approx. 3 seconds and that the alarm buzzer sounds for approx. 1 second.

   If any lamp does not light up during this time or the buzzer does not sound, there is probably a blow bulb or disconnection, so please contact your Komatsu distributor for inspection.

ADJUST OPERATOR'S SEAT

⚠ WARNING

- **Adjust the seat position before starting operations or after changing the operator.**
- **Adjust the seat so that the brake pedal can be depressed fully with the operator's back against the backrest.**



A: Fore-and-aft adjustment

Move lever (1) to right. After the seat is set to the desired position, release the lever.

Adjustable distance: 100 mm in 10 steps

B: Adjusting reclining

NOTICE
The seat can be reclined to a large angle when the seat is pushed fully forward, but the reclining angle is reduced when the seat is moved back, so when moving the seat to the rear, return the seat back to its original position.

Pull lever (2) and set the seat back to a position which is comfortable for operation, then release the lever.

Sit with your back against the seat back when adjusting. If your back is not touching the seat back, the seat back may suddenly move forward.

C: Adjusting seat tilt

1. Forward tilt ( )

Push lever (3) down to adjust the angle of the front of the seat. (4 stages)

1. To raise the angle at the front of the seat, keep the lever pushed down and apply your weight to the rear of the seat.
2. To lower the angle at the front of the seat, keep the lever pushed down and apply your weight to the front of the seat.

2. Rear tilt ( )

Pull lever (3) up to adjust the angle of the rear of the seat. (4 stages)

1. To raise the angle at the rear of the seat, keep the lever pulled up and stand up slightly to remove your weight from the seat.
2. To lower the angle at the rear of the seat, keep the lever pulled up and apply your weight to the rear of the seat.

Amount of tilt: Up 13°, down 13°

3. Adjusting seat height

It is possible to move the seat up or down by combining adjustments 1 and 2.

After setting the forward tilt or rear tilt to the desired height, operate the opposite part to set the seat horizontal then secure in position.

Height adjustment: 60 mm

D: Adjusting armrest angle

Armrest (4) can be made to spring up by hand approx. 90°.

In addition, by turning the bottom dial (5) of the armrest by hand it is possible to make fine vertical adjustments of the armrest angle.

Armrest adjustment angle: 25°

REMARK

If the seat back is tipped to the front without raising the armrest, the armrest will rise automatically.

E: Overall fore-and-aft adjustment of seat

Pull up lever (6), set to the desired position, then release the lever. In this case, the operator's seat, left and right control levers, and safety lock lever all slide together.

Fore-and-aft adjustment: 120 mm

F: Adjusting suspension

Turn knob (7) to the right to make the suspension harder, or to the left to make the suspension softer. Adjust the reading of the dial to match the operator's weight and select the optimum suspension.

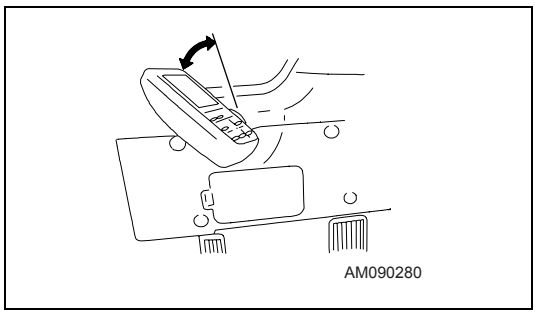
REMARK

To obtain the optimum adjustment, turn the knob so that the indicator of the weight display (kg) in the transparent portion of knob (7) is the same as the operator's weight.

ADJUSTMENT OF MONITOR PANEL ANGLE

Turn the monitor panel so that the operator can view the monitor with ease. When adjusting the angle, the panel should be set to the desired position using both hands. The panel is automatically locked at that position.

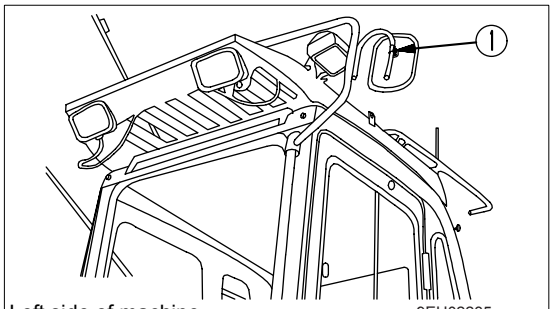
Amount of adjustment: 30° (stepless)


AM090280

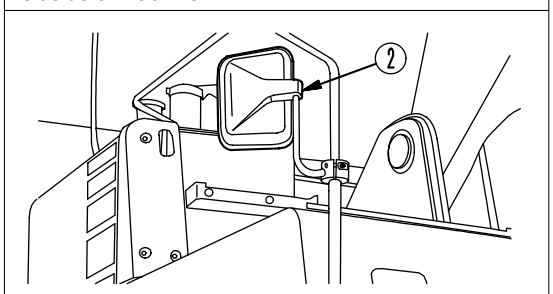
Rearview Mirrors

Loosen screw (1) and screw (2) of the mirrors and adjust the mirrors to an angle which gives the best view from the operator's seat.

In particular, adjust the mirrors so that you can see persons on both the left and right sides at the rear of the machine.



Left side of machine 9EH02235



9EH02236
Right side of machine

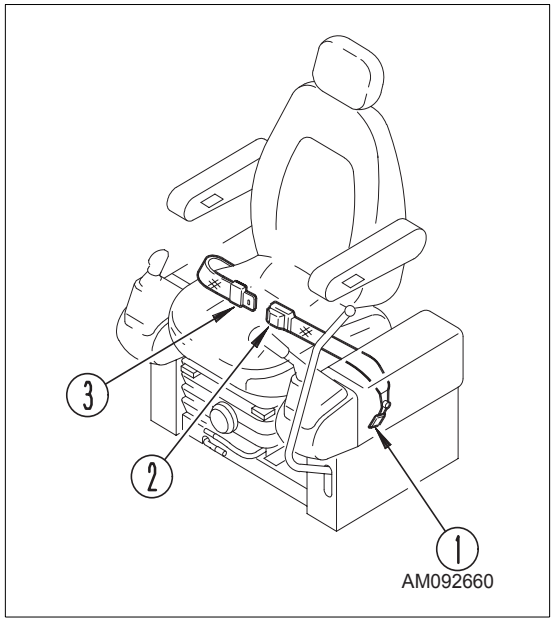
Seat Belt

⚠ WARNING

- **Before fastening the seat belt, inspect the securing brackets and belt for abnormal conditions.**
- **Replace any worn or damaged seat belt or the securing brackets.**
- **Even if there appears to be no abnormality in the belt, always replace the seat belt once every 3 years. The date of manufacture is shown on the back of the belt.**
- **Adjust and fasten the seat belt before operating the machine.**
- **Always use seat belt when operating the machine.**
- **Do not use seat belt with either half of the belt kinked.**

Fastening and Removing

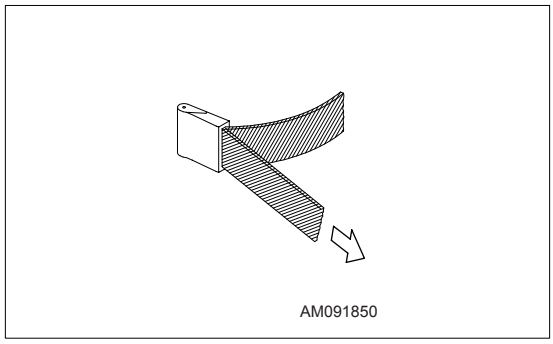
1. Sit in the seat and adjust the seat to a position where it is easy to carry out operations with your back against the back-rest.
2. For machines with a suspension seat,adjust the position of the seat, then adjust tether belt (1). Install the tether belt so that it is tensed when no one is sitting in the seat. (Only machines equipped with suspension seat)
3. After adjusting the seat, sit in the seat, take buckle (2) and tongue (3) in your left and right hands, insert tongue (3) into buckle (2), then pull the belt to check that it is securely locked.
4. When removing the belt, raise the tip of buckle (2) lever to release it. Fasten belt along your body without kinking it. Adjust the lengths of the belt on both the buckle and the tongue sides so that the buckle is located at the mid-point of your body front.



Seat Belt Adjustment

Shortening

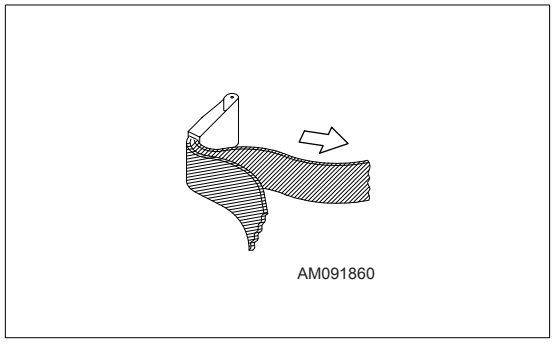
Pull the free end of the belt on either the buckle body or tongue side.



Lengthening

Pull the belt while holding it at a right angle to the buckle or tongue.

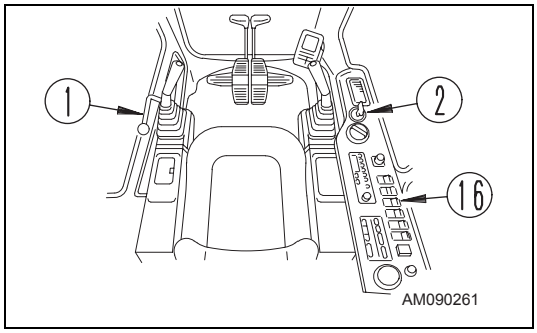
Check the mounting bolts of the belt fitting on the machine body for looseness, and re-tighten them if necessary. The tightening torque for the mounting bolt is 24.5 ± 4.9 N·m (2.5 ± 0.5 kgf·m). If the belt surface is scratched or frayed or if the fittings are broken or deformed, replace the seat belt unit.



OPERATIONS AND CHECKS BEFORE STARTING

⚠ WARNING

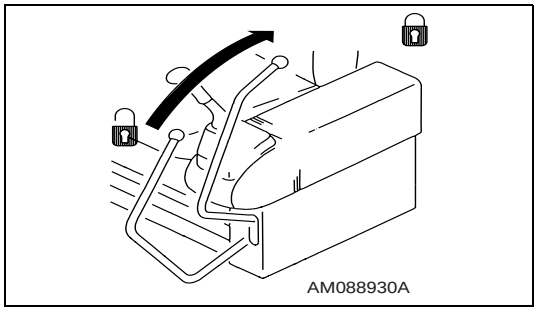
If the control lever is touched by accident, the work equipment or the machine may move suddenly. When leaving the operator's compartment, always set the safety lock lever securely to the LOCK position.

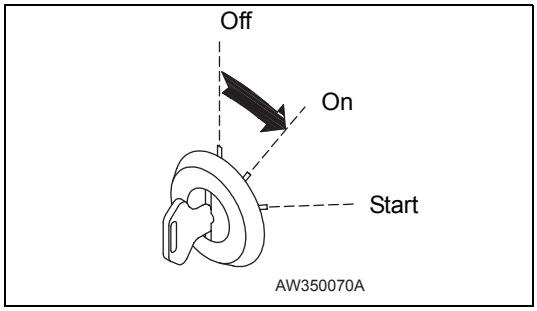


1. Check that safety lock lever (1) is at the LOCK position.
2. Check the position of each lever.

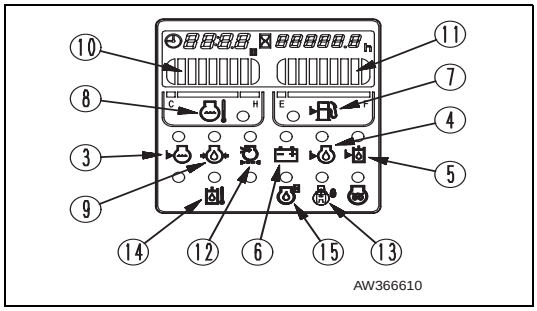
   Set the control lever to the neutral position.

   When starting the engine, never touch the knob button.
3. Insert the key in starting switch (2), turn the key to the ON position, then carry out the following checks.





1. The buzzer will sound for approx. 1 sec, and the following monitors and gauges will light up for approx. 3 sec.
   - ❍ Radiator water level monitor (3)
   - ❍ Engine oil level monitor (4)
   - ❍ Hydraulic oil level monitor (5)
   - ❍ Charge level monitor (6)
   - ❍ Fuel level monitor (7)
   - ❍ Engine water temperature monitor (8)
   - ❍ Engine oil pressure monitor (9)
   - ❍ Engine water temperature gauge (10)
   - ❍ Fuel gauge (11)
   - ❍ Air cleaner clogging (12)
   - ❍ Swing lock lamp (13)
   - ❍ Hydraulic oil temperature monitor (14)
   - ❍ Engine oil change monitor (set machine only) (15)

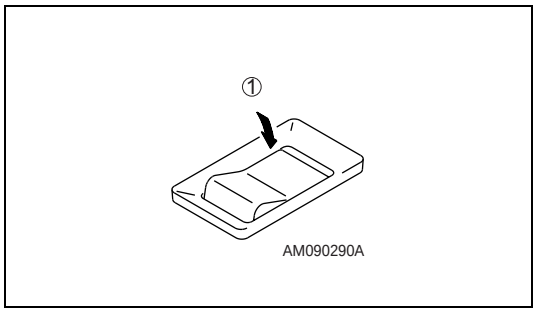


If the monitors or gauges do not light up or the buzzer does not sound, there is probably a broken bulb or disconnection in the monitor wiring, so contact your Komatsu distributor for repairs.

After approx. 3 sec, the following gauges will remain on and the other monitors will go out.

- Engine water temperature gauge (10)
- Fuel gauge (11)

2. Press lamp switch (16) to turn on the head lamps.
   If the lamps do not light up, there is probably a broken bulb or disconnection in the wiring, so contact your komatsu distributor for repair.

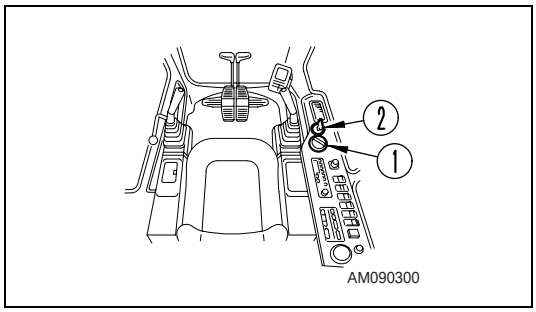


STARTING ENGINE

NORMAL STARTING

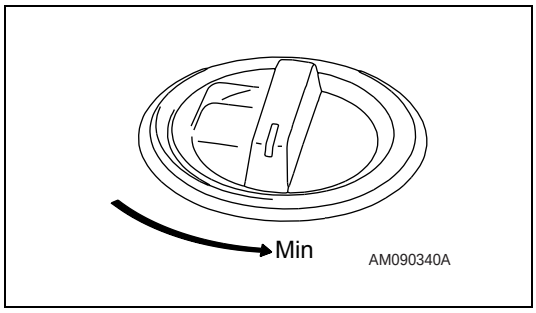
⚠ WARNING

Check that there are no persons or obstacles in the surrounding area, then sound the horn and start the engine.

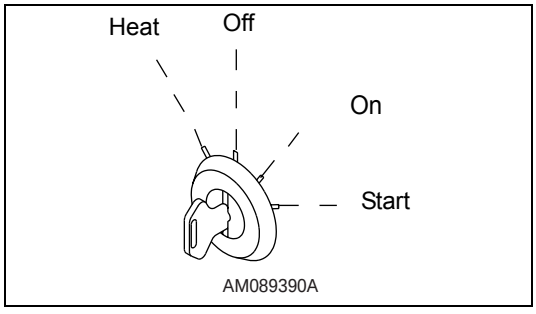


NOTICE
Do not keep the starting motor rotating continuously for more than 20 seconds.
If the engine will not start, wait for at least 2 minutes before trying to start the engine again.

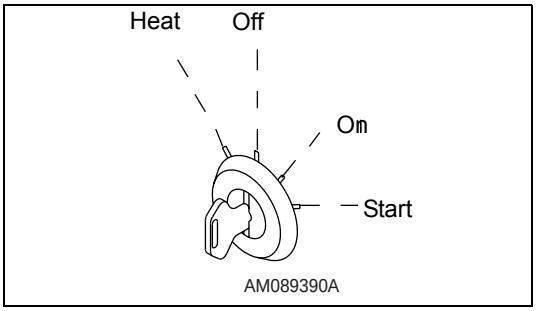
1. Set fuel control dial (1) at the low idling (MIN) position.



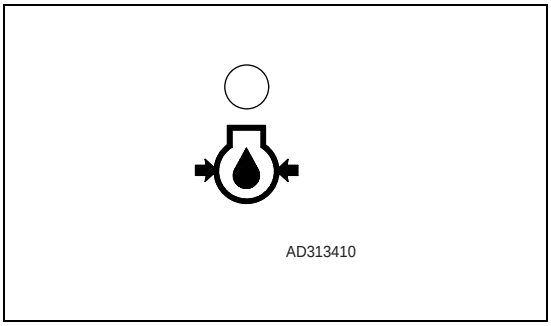
2. Turn the key in starting switch (2) to the START position. The engine will start.



3. When the engine starts, release the key in starting switch (2). The key will return automatically to the ON position.



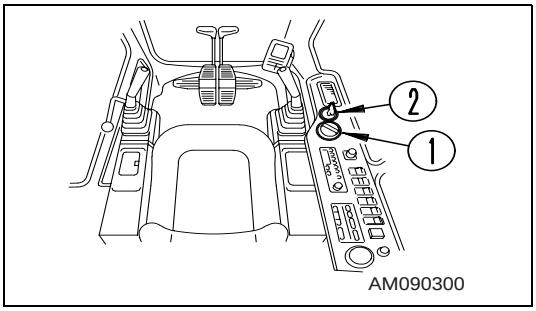
4. Even if the engine has started, if the engine oil pressure monitor lamp is lighted up, do not touch the work equipment control levers or travel pedal.



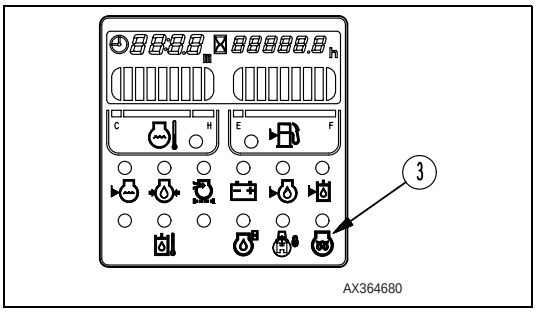
STARTING IN COLD WEATHER

⚠ WARNING

- **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.**

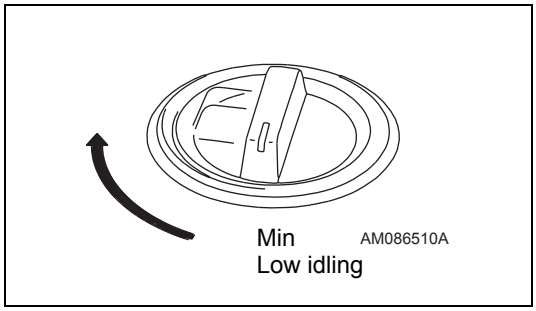


NOTICE
Do not keep the starting motor rotating continuously for more than 20 seconds.
If the engine fails to start, repeat from step 2 and after waiting for about 2 minutes.



When starting in low temperatures, do as follows.

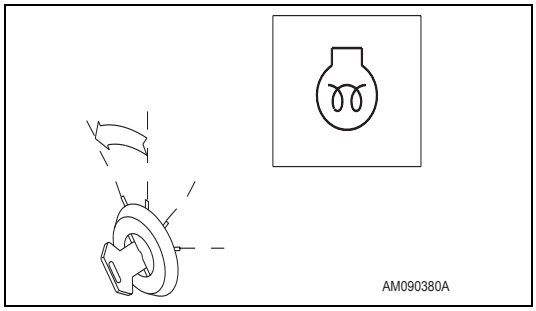
1. Set fuel control dial (1) at (3) notch from the low idling (MIN) position.



REMARK

There are 10 notches for the dial rotation, and the click can be felt by hand.

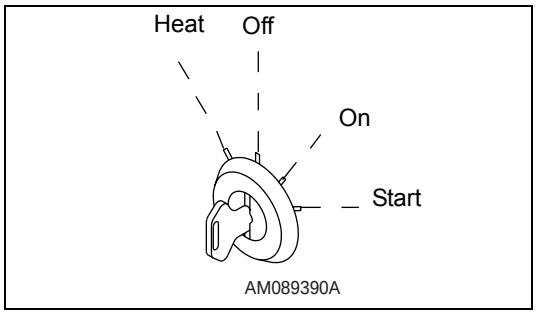
2. Hold the key in starting switch (2) at the HEAT position, and check that preheating monitor (3) lights up.
   After about 30 seconds, preheating monitor lamp (3) will flash for about 10 seconds to indicate that preheating is finished.



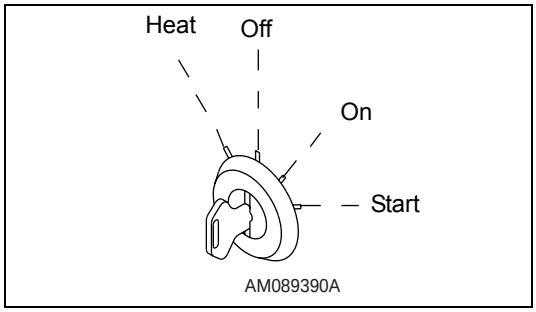
REMARK

The monitor and gauge also light up when the key is at the HEAT position, but this does not indicate any abnormality.

3. When preheating monitor 3 flashes, turn the key in starting switch 2 to the START position to start the engine.



4. When the engine starts, release the key in starting switch 2. The key will return automatically to the ON position.



OPERATIONS AND CHECKS AFTER STARTING ENGINE

⚠ WARNING

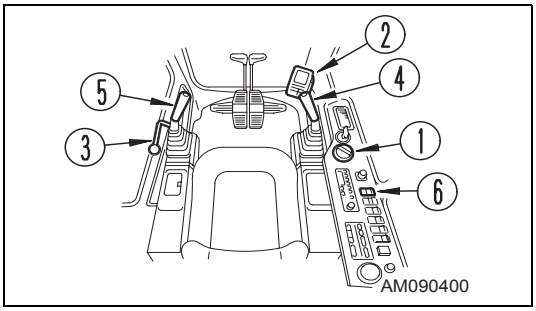
- **Emergency stop**
  If there has been any abnormal actuation or trouble, turn the starting switch key to the OFF position.
- **If the work equipment is operated without warming the machine up sufficiently, the response of the work equipment to the movement of the control lever will be slow, and the work equipment may not move as the operator desires, so always carry out the warming-up operation. Particularly in cold areas, be sure to carry out the warming-up operation fully.**

WHEN NORMAL

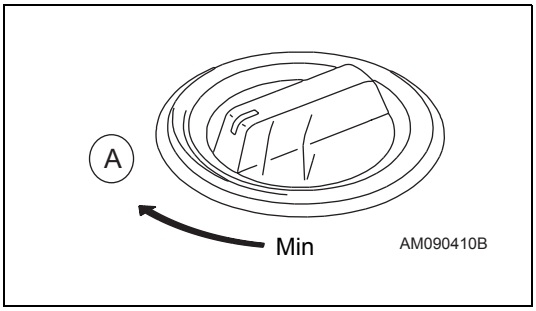
NOTICE

- **When the hydraulic oil is at a low temperature, do not carry out operations or move the levers suddenly. Always carry out the warming-up operation. This will help to extend the machine life.**
- **Do not suddenly accelerate the engine before the warming-up operation is completed. Do not run the engine at low idling or high idling continuously for more than 20 minutes. This will cause leakage of oil from the turbocharger oil supply piping. If it is necessary to run the engine at idling, apply a load from time to time or run the engine at a mid-range speed.**

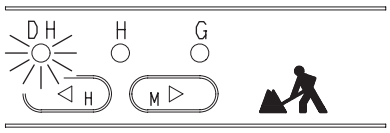
After starting the engine, do not immediately start operations. First, carry out the following operations and checks.



1. Turn fuel control dial (1) to the centre position (A) between LOW IDLING (MIN) and HIGH IDLING (MAX) and run the engine at medium speed for about 5 minutes with no load.



2. While running the engine at medium speed, press working mode switch (2) until the heavy-duty operation mode lamp is turned on.



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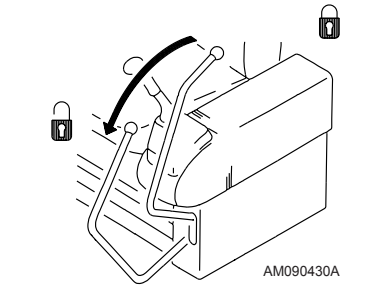
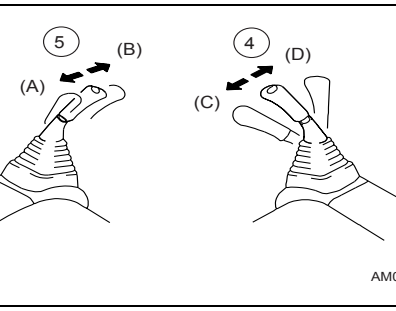
3. Set the safety lock lever (3) to the FREE position, and raise the bucket from the ground.


AM090430A

4. Operate bucket control lever (4) and arm control lever (5) slowly to move the bucket cylinder and arm cylinder to the end of the stroke.

Arm operation	Bucket operation
(A) IN	(C) CURL
(B) OUT	(D) DUMP



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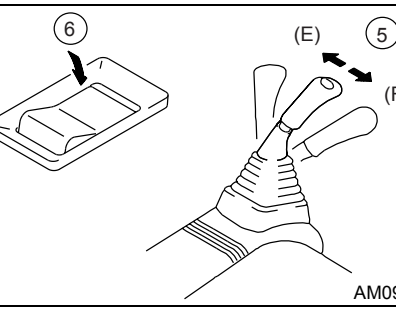
5. Carry out bucket and arm operation for 5 minutes at full stroke, alternating between bucket operation and arm operation at 30 second intervals.

If the swing lock switch (6) is set to the ON position and swing control lever (5) is operated at full stroke, oil temperature-rise can be increased earlier.

(E) Left swing	(F) Right swing



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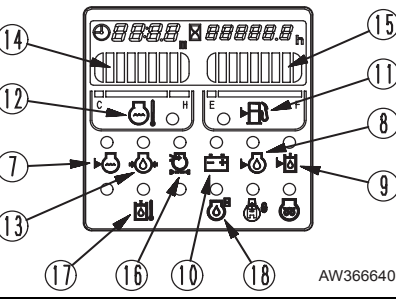
NOTICE
When the work equipment is retracted, take care that it does not interfere with the machine body or ground.

6. After carrying out the warming-up operation, check that each gauge and monitor lamp is in the following condition.

- Radiator water level monitor (7): OUT
- Engine oil level monitor (8): OUT
- Hydraulic oil level monitor (9): OUT
- Charge level monitor (10): OUT
- Fuel level monitor (11): OUT



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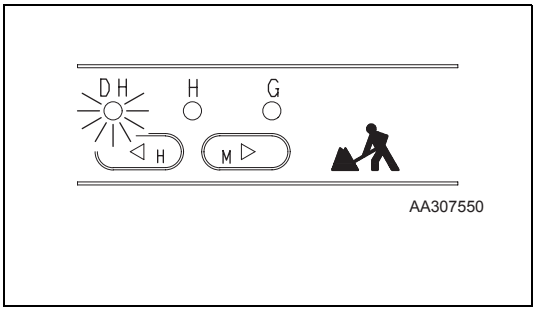
- Engine water temperature monitor (12): OUT
- Engine oil pressure monitor (13): OUT
- Engine water temperature gauge (14): Inside green range
- Fuel gauge (15): Inside green range
- Air cleaner clogging monitor (16): OUT
- Hydraulic oil temperature monitor (17): OUT
- Engine oil change monitor (set machine only) (18): OUT

7. Check that there is no abnormal exhaust gas colour, noise, or vibration. If any abnormality is found, repair it.
8. Press working monitor mode switch (2) until required operation mode lamp is turned on.



IN COLD AREAS (AUTOMATIC WARMING-UP OPERATION)

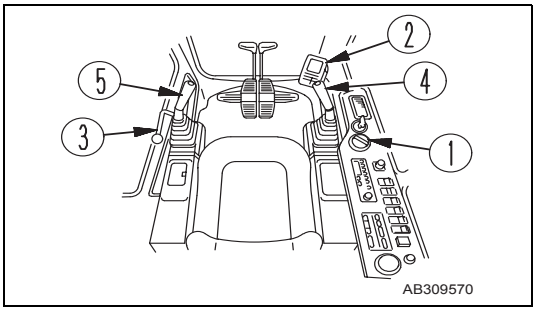
When starting the engine in cold areas, carry out the automatic warming-up operation after starting the engine.

When the engine is started, if the engine water temperature is low (below 30°C), the warming-up operation is carried out automatically.

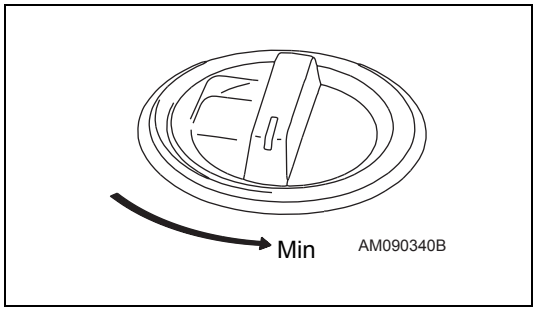
The automatic warming-up operation is cancelled if the engine water temperature reaches the specified temperature (30°C) or if the warming-up operation is continued for 10 minutes. If the engine water temperature or hydraulic oil temperature are low after the automatic warming-up operation, warm the engine up further as follows.

NOTICE

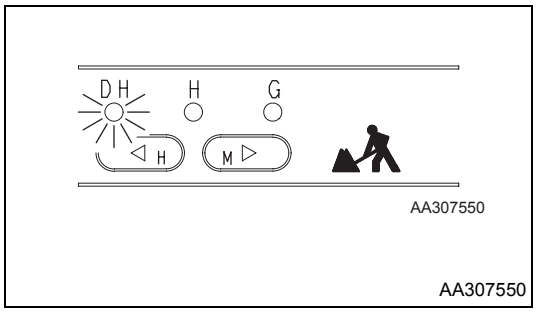
- **When the hydraulic oil is at a low temperature, do not carry out operations or move the levers suddenly. Always carry out the warming-up operation. This will help to extend the machine life.**
- **Do not suddenly accelerate the engine before the warming-up operation is completed.**
  Do not run the engine at low idling or high idling continuously for more than 20 minutes. This will cause leakage of oil from the turbocharger oil supply piping. If it is necessary to run the engine at idling, apply a load from time to time or run the engine at a mid-range speed.



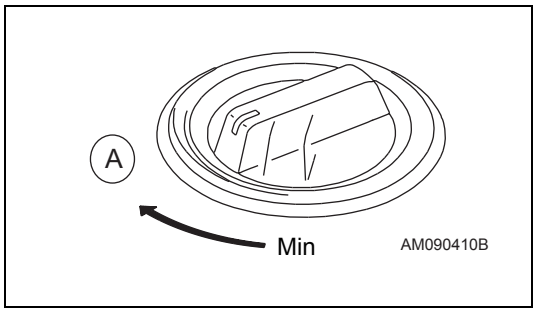
1. Set fuel control dial (1) to the low idling (MIN) position and run the engine for about 5 minutes without load.



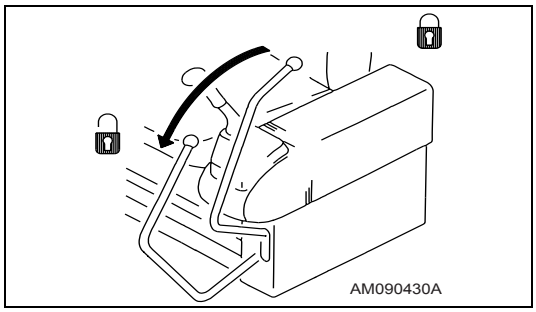
2. Press working mode switch (2) on the monitor panel until the H.O (heavy-duty operation) mode lamp lights up.



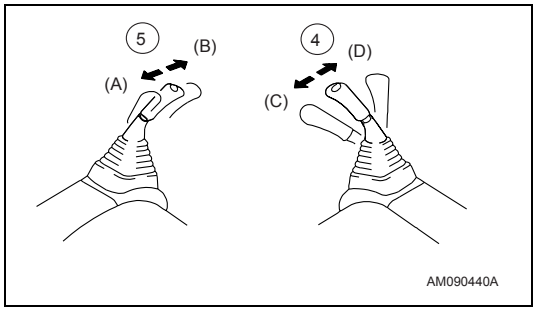
3. Turn fuel control dial (1) to the medium speed (A) position.



4. Set safety lock lever (3) to the FREE position and raise the bucket from the ground.



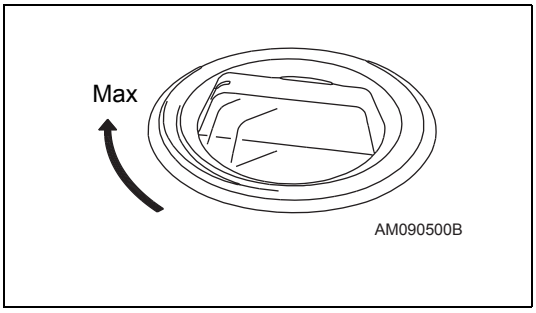
5. Operate bucket control lever (4) and arm control lever (5) slowly to move the bucket cylinder and arm cylinder to the end of their stroke.
6. Operate the bucket for 30 seconds and the arm for 30 seconds in turn fully for 5 minutes.



Arm operation	Bucket operation
(A) IN	(C) CURL
(B) OUT	(D) DUMP

NOTICE
When the work equipment is retracted, take care that it does not interfere with the machine body or ground.

7. Turn fuel control dial (1) to the full speed (MAX) position and carry out the operation is Step 6 for 3 - 5 minutes.



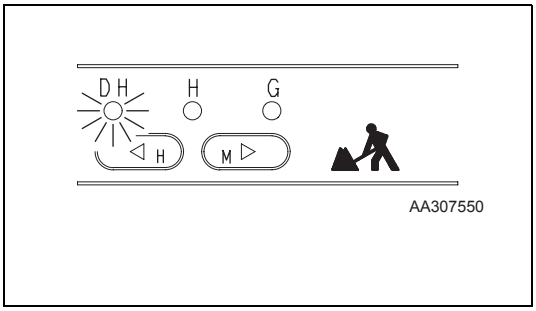
8. Repeat the following operation 3 - 5 times and operate slowly.

- Boom operation RAISE ↔ LOWER
- Arm operation IN ↔ OUT
- Bucket operation CURL ↔ DUMP
- Swing operation LEFT ↔ RIGHT
- Travel (Lo) operation FORWARD ↔ REVERSE

REMARK

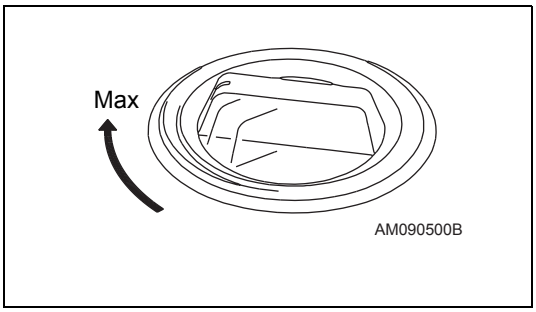
In the above operation is not carried out, there may be a delay in response when starting or stopping each actuator, so continue the operation until it becomes normal.

9. Use working mode switch (2) on the monitor panel to select the working mode to be used.

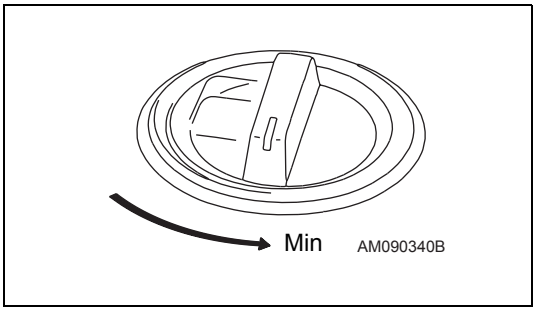


NOTICE
Cancelling automatic warming-up operation.
If it becomes necessary in an emergency to lower the engine speed to low idling, cancel the automatic warming-up operation as follows.

1. Turn fuel control dial (1) to the full speed (MAX) position and hold it for 3 seconds.



2. When fuel control dial (1) is returned to the low idling (MIN) position, the engine speed will drop.

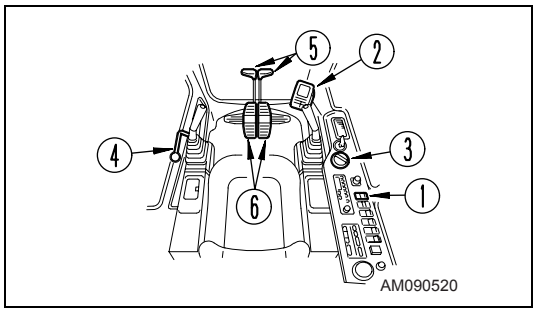


TRAVELLING

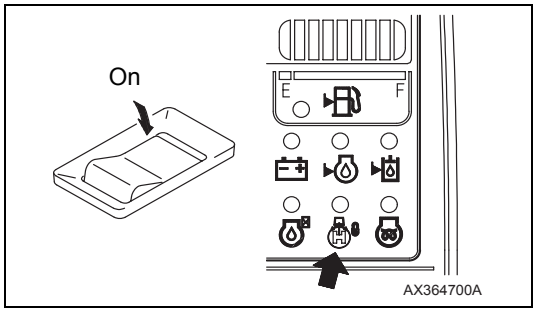
TRAVELLING FORWARD

⚠ WARNING

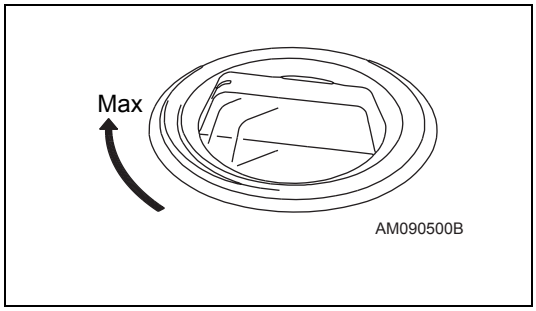
- **Before operating the travel levers, check the direction of the track frame. If the sprocket is at the front, the operation of the travel levers is reversed.**
- **When moving off, check that the area around the machine is safe, and sound the horn before moving.**
- **Clear all personnel from the machine and the area.**
- **Clear all obstacles from the path of the machine.**
- **If the lever is moved inside the deceleration range, engine speed will rise suddenly. Operate the levers carefully.**
- **For machines equipped with the travel alarm (option), check that the alarm works properly.**



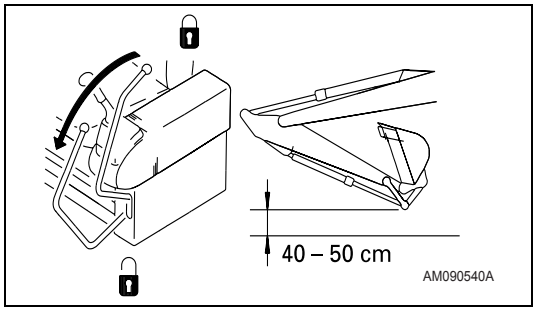
1. Set swing lock switch (1) to the ON (actuated) position and confirm that swing lock monitor lamp (2) lights up.



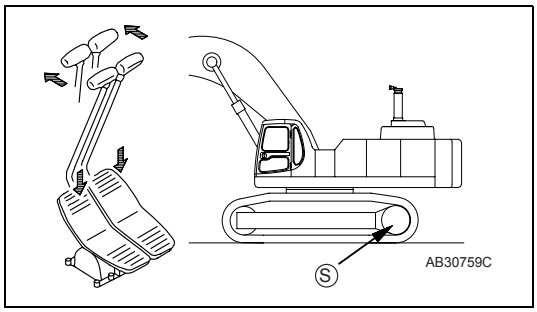
2. Turn fuel control dial (3) towards the full speed (MAX) position to increase the engine speed.



3. Set safety lock lever (4) in the FREE position, fold the work equipment, and raise it 40 - 50 cm from the ground.

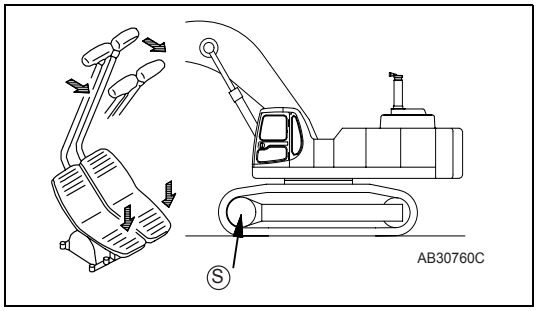


4. Operate right and left travel levers (5) or right and left travel pedals (6) as follows.



- **When the sprocket (S) is at the rear of the machine**

  Push levers (5) forward slowly or depress the front part of pedals (6) slowly to move the machine off.



- **When the sprocket (S) is at the front of the machine**

  Pull levers (5) backward slowly or depress the rear part of pedals (6) slowly to move the machine off.

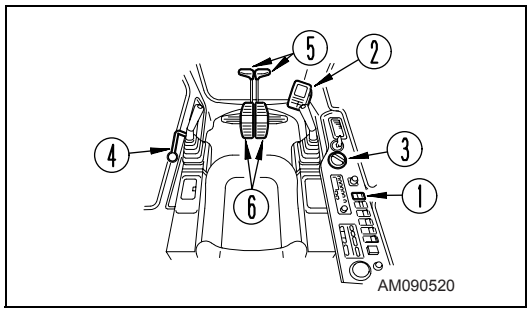
5. For machines equipped with the travel alarm (option), check that the alarm sounds.

   If the alarm does not sound, please contact your Komatsu distributor for repairs.

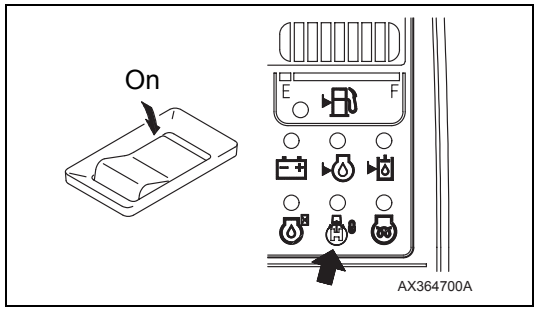
TRAVELLING BACKWARD

⚠ WARNING

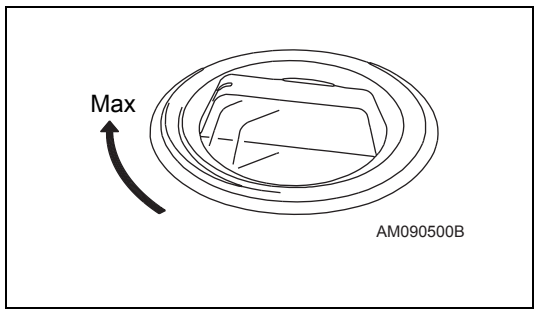
- **Before operating the travel levers, check the direction of the track frame. If the sprocket is at the front, the operation of the travel levers is reversed.**
- **When moving off, check that the area around the machine is safe, and sound the horn before moving.**
- **Clear all personnel from the machine and the area.**
- **Clear all obstacles from the path of the machine.**
- **Use extreme care when reversing the machine. Note there is an blind spot behind the machine.**
- **If the lever is moved inside the deceleration range, engine speed will suddenly rise. Operate the levers carefully.**
- **For machines equipped with the travel alarm (option), check that the alarm works properly.**



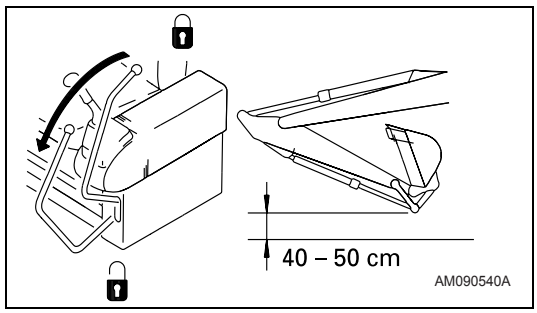
1. Set swing lock switch (1) to the ON (actuated) position and confirm that swing lock monitor lamp (2) lights up.



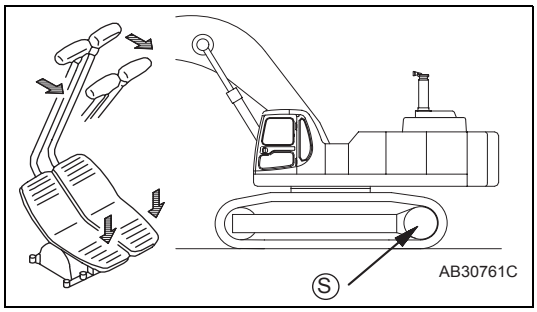
2. Turn fuel control dial (3) towards the full speed (MAX) position to increase the engine speed.



3. Set safety lock lever (4) in the FREE position, fold the work equipment, and raise it 40 - 50 cm from the ground.

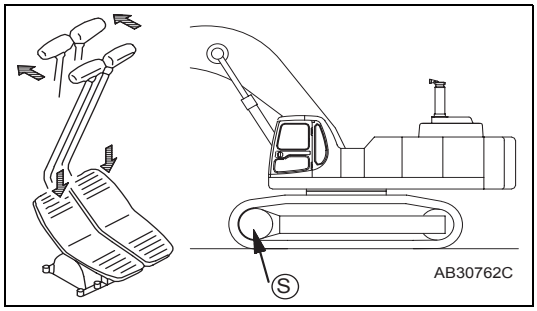


4. Operate right and left travel levers (5) or right and left travel pedals (6) as follows.



- **When the sprocket (S) is at the rear of the machine**

  Pull levers (5) backward slowly or depress the rear part of pedals (6) to move the machine off.



- **When the sprocket (S) is at the front of the machine**

  Push levers (5) forward slowly or depress the front part of pedals (6) to move the machine off.

5. For machines equipped with the travel alarm (option), check that the alarm sounds.

   If the alarm does not sound, please contact your Komatsu distributor for repairs.

CHANGING DIRECTION

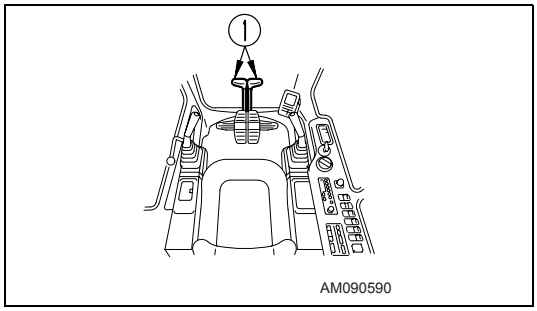
⚠ WARNING

Before operating the travel levers, check the position of the sprocket. If the sprocket is at the front, the operation of the travel levers is reversed.

Use the travel levers to change direction.

Avoid sudden changes of direction as far as possible. In particular, when carrying out counter-rotation (spin turn), stop the machine first before turning.

Operate two travel levers (1) as follows.



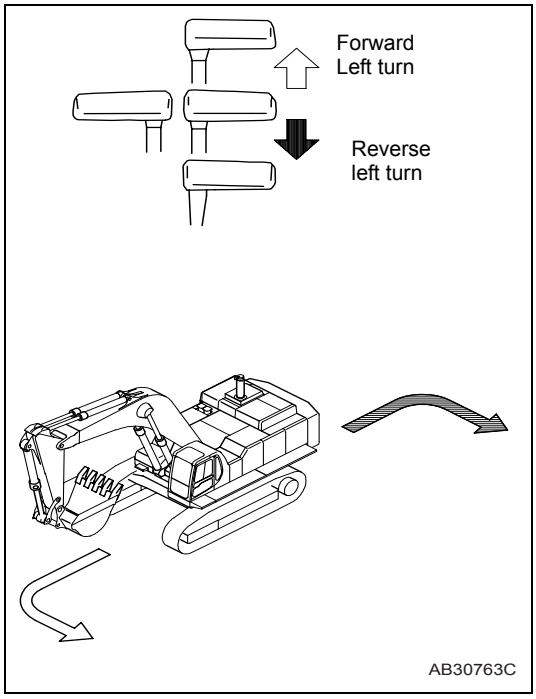
Changing direction of machine when stopped

When turning to the left:

Push the right travel lever forward to travel left when travelling forward; and pull it back to turn left when travelling in reverse.

REMARK

When turning to the right, operate the left travel lever in the same way.



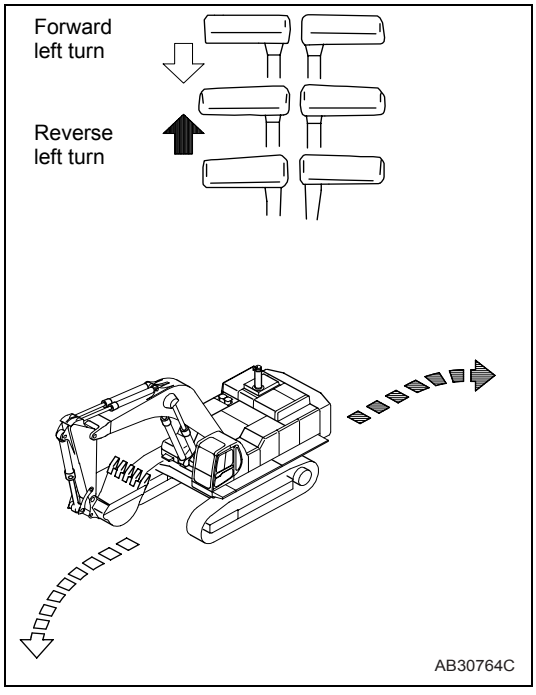
Steering when travelling (left and right travel levers both operated in same direction)

When turning to the left:

If the left travel lever is returned to the neutral position, the machine will turn to the left.

REMARK

When turning to the right, operate the right travel lever in the same way.

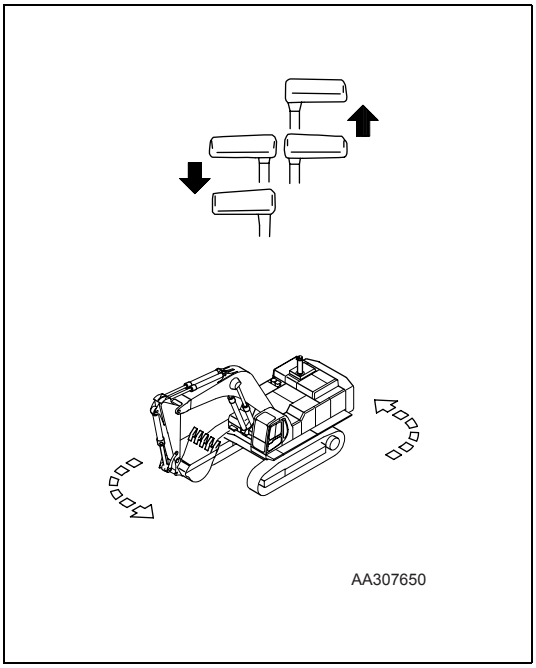


When making counter-rotation turn (spin turn)

When turning left using counter-rotation, pull the left travel lever back and push the right travel lever forward.

REMARK

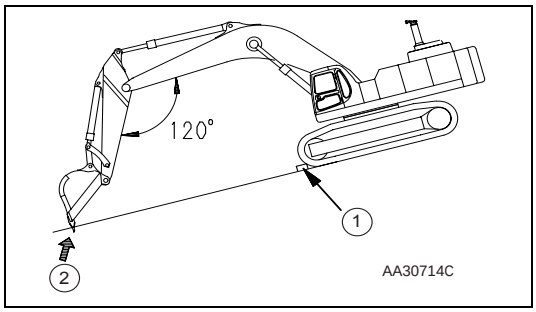
When turning right using counter-rotation, pull the right travel lever back and push the left travel lever forward.

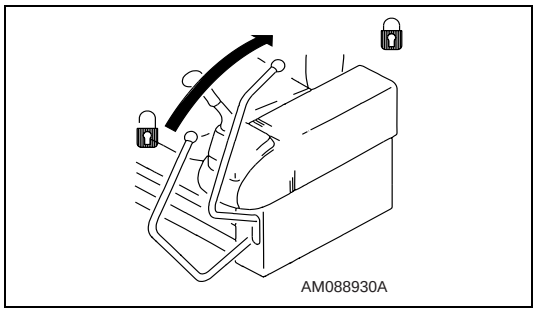


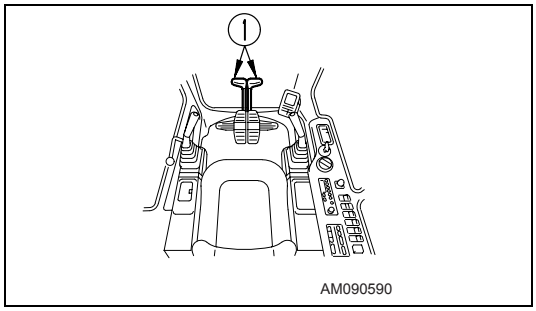
STOPPING MACHINE

⚠ WARNING

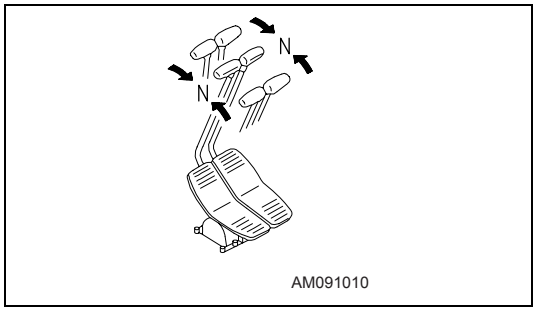
- **Avoid stopping suddenly. Give yourself ample room when stopping.**
- **When stopping the machine, select flat hard ground and avoid dangerous places. If it is unavoidably necessary to park the machine on a slope, insert blocks (1) underneath the track shoes. As an additional safety measure, thrust the bucket into the ground (2).**
- **If the control lever is touched by accident, the work equipment or the machine may move suddenly, and this may lead to a serious accident. Before leaving the operator's compartment, always set the safety lock lever securely to the LOCK position.**







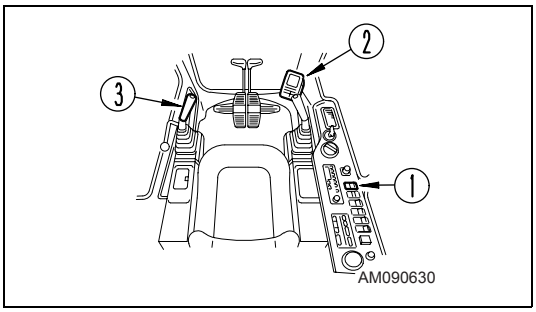
1. Put the left and right travel levers (1) in the neutral position, then stop the machine.



SWINGING

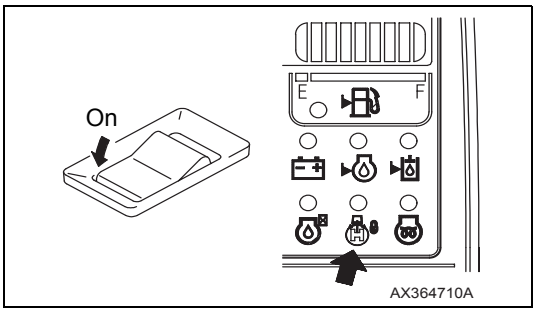
⚠ WARNING

When operating the swing, check that the area around the machine is safe.



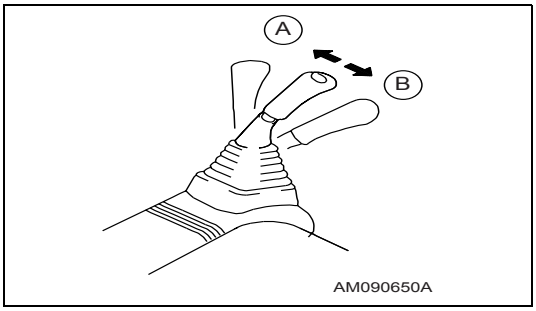
1. Before operating the swing, turn swing lock switch (1) OFF (CANCELLED).

NOTICE
Check that swing lock monitor (2) goes out at the same time.

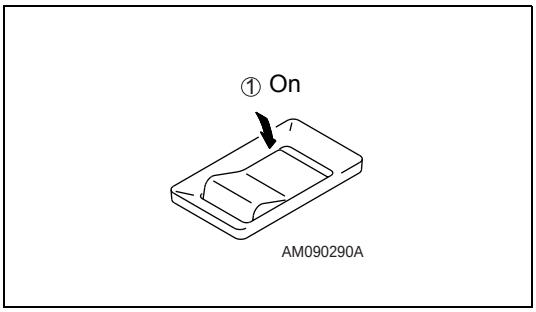


2. Operate left work equipment control lever (3) to swing the upper structure.

(A) Left swing	(B) Right swing



3. When not operating the swing, turn swing lock switch (1) ON (ACTUATED).



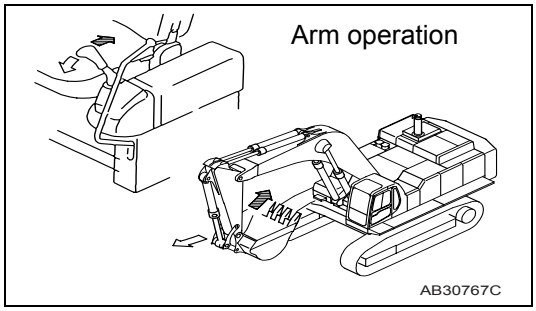
OPERATION OF WORK EQUIPMENT

⚠ WARNING

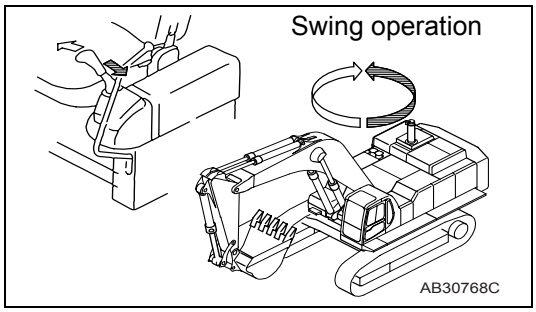
If any lever is operated when in the deceleration range, the engine speed will suddenly increase, so be careful when operating the levers.

The work equipment is operated by the left and right work equipment control levers. The left work equipment control lever operates the arm and swing, and the right work equipment control lever operates the boom and bucket.

The movements of the lever and work equipment are as shown in the diagrams on the right. When the levers are released, they automatically return to the neutral position and the work equipment is held in place.

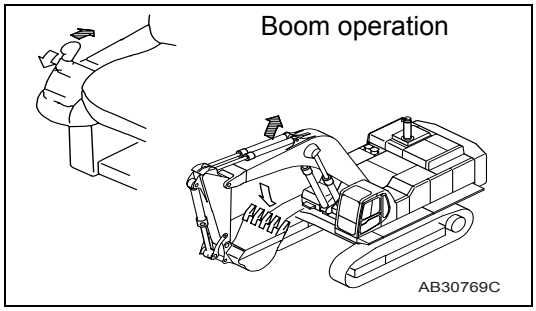


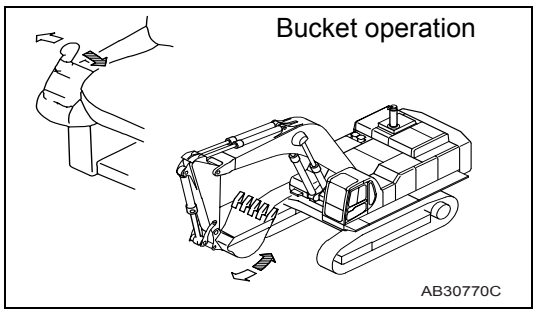
- If the work equipment control lever is returned to the neutral position when the machine is stopped, even if the fuel control dial is set to FULL, the auto-deceleration mechanism will act to reduce the engine speed to a mid-range speed.



REMARK

If the levers are operated within 15 seconds after stopping the engine, it is possible to lower the work equipment to the ground. In addition, the levers can also be operated to release any remaining pressure inside the hydraulic cylinder circuit and to lower the boom after loading the machine on a trailer.





WORKING MODE OPERATION

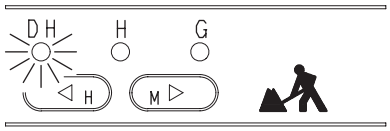
WORKING MODE

The mode selector switch can be used to switch the mode to match the operating conditions and purpose, thereby enabling work to be carried out efficiently.

Make effective use of each mode as follows.

When the starting switch is turned ON, the working mode is set to the most commonly used general operation mode, so normal operations can be carried out without setting the mode.

Use the working mode switch to set the mode to the most efficient mode to match the type of work.



AA307550

Working mode	Applicable operation
DH mode	Powerful digging and loading for short time in quarry
H mode	Normal digging and loading operations
G mode	Leveling, finishing operations, hauling operations

NOTICE
Do not use DH mode for breaker operations. If breaker operations are carried out in the heavy-duty operation mode, there is danger that the hydraulic equipment may be damaged or broken.

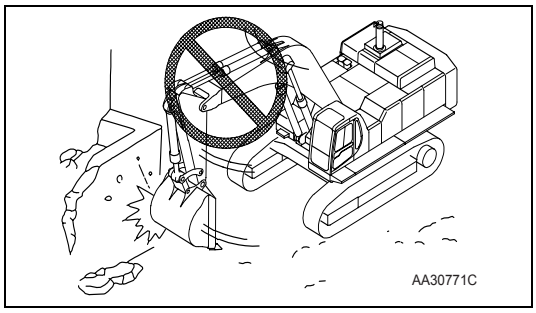
PROHIBITIONS FOR OPERATION

⚠ WARNING

- **If it is necessary to operate the work equipment control lever when the machine is travelling, stop the machine before operating the work equipment control lever.**
- **If the lever is moved inside the deceleration range, engine speed will suddenly rise. Operate the levers carefully.**
- **Never operate the machine on a rock bed (hard or soft rock).**

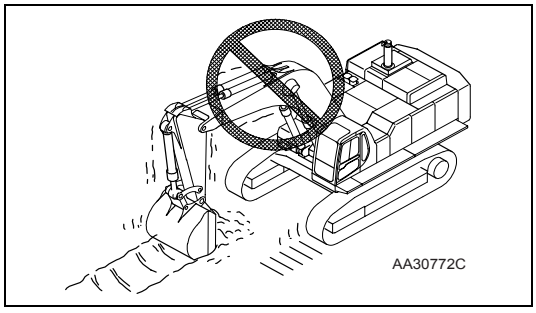
Prohibited operations using swing force

Do not use the swing force to compact soil or break earth mounds or walls.
When swinging, do not dig the bucket teeth into the soil.
These operations will damage the work equipment.



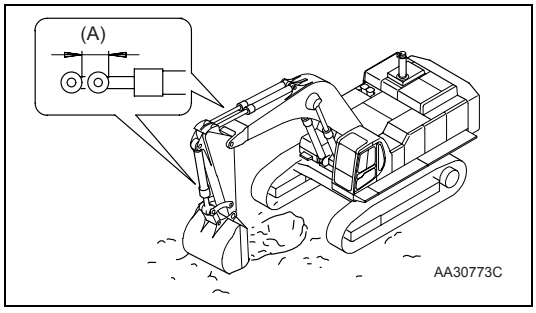
Prohibited operations using travel force

Do not leave the bucket dug into the ground and use the travel force to excavate. This will bring excessive force to bear on the machine and the work equipment.



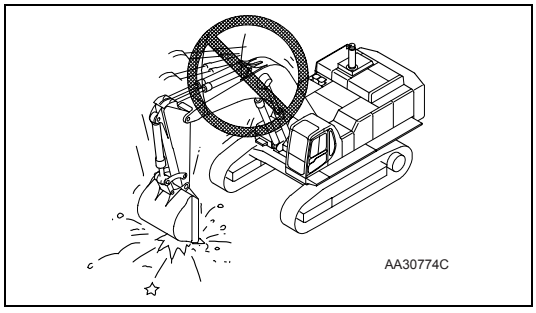
Precautions when operating hydraulic cylinders to end of stroke

If the cylinder is operated to the end of its stroke during operations, force will be applied to bear on the stopper inside the cylinder, and this will reduce the life of the machine. To prevent this, always leave a small safety margin (A) when operating the cylinders.



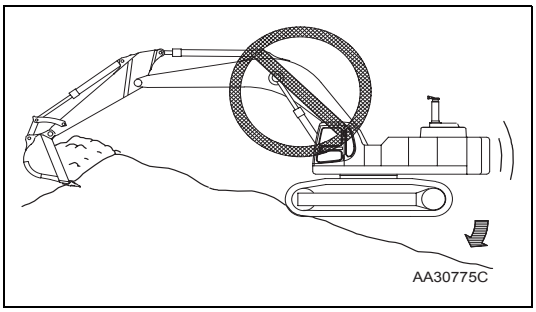
Prohibited operations using dropping force of bucket

Do not use the dropping force of the bucket as a pickaxe, breaker, or pile driver. This will apply excessive force on the rear of the machine, and will not only damage the machine, but is also dangerous.



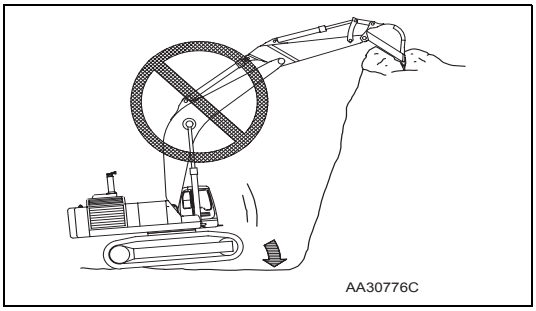
Prohibited operations using dropping force of machine

Do not use the dropping force of the machine for digging.



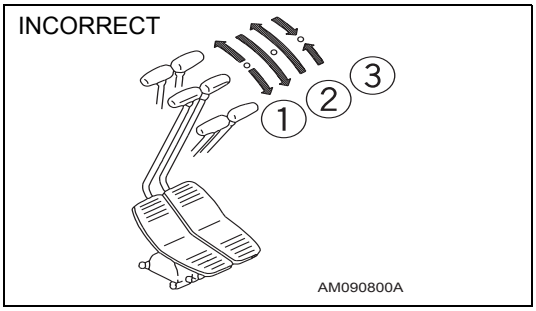
Digging rocky ground

It is better to excavate hard rocky ground after breaking it up by some other means. This will not only reduce damage to the machine but make for better economy.



Sudden lever shifting during Hi-speed travel prohibited

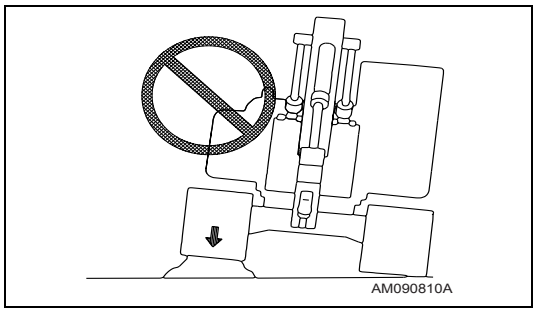
1. Never carry out sudden lever shifting as this may cause sudden starting.
2. Avoid sudden lever shifting from forward to reverse (or vice versa).
3. Avoid sudden lever shifting change such as sudden stopping from near top speed (lever release operation).



PRECAUTIONS FOR OPERATION

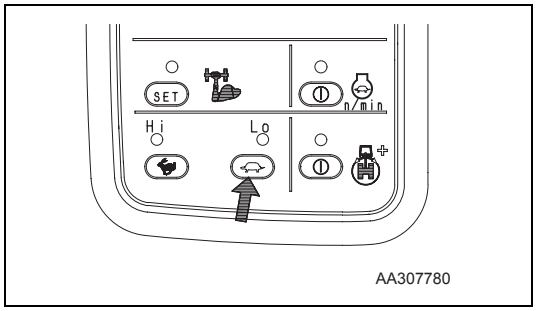
PRECAUTIONS WHEN TRAVELING

When travelling over obstacles such as boulders or tree stumps, the machine (in particular, the undercarriage) is subjected to a large shock, so reduce the travel speed and travel over the obstacle at the centre of the tracks. As far as possible, remove such obstacles or avoid travelling over them.



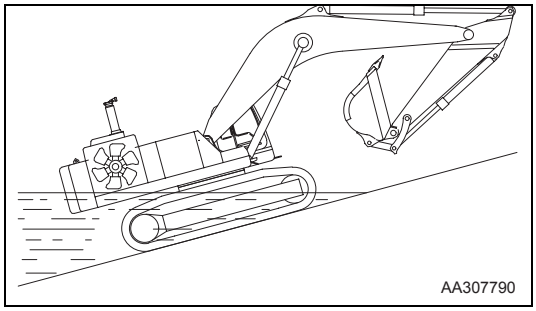
PRECAUTIONS AT Hi-SPEED TRAVEL

On uneven roadbeds such as rock beds or uneven roads with large locks, travel at Lo speed. When Hi-speed travelling, set the idler in the forward direction.

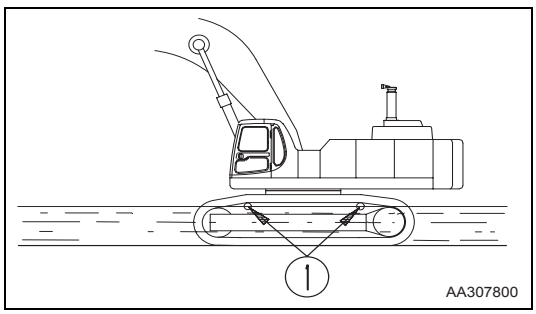


PERMISSIBLE WATER DEPTH

NOTICE
When driving the machine out of water, if the angle of the machine exceeds 15°, the rear of the upper structure will go under water, and water will be thrown up by the radiator fan. This may cause the fan to break.
Be extremely careful when driving the machine out of water.



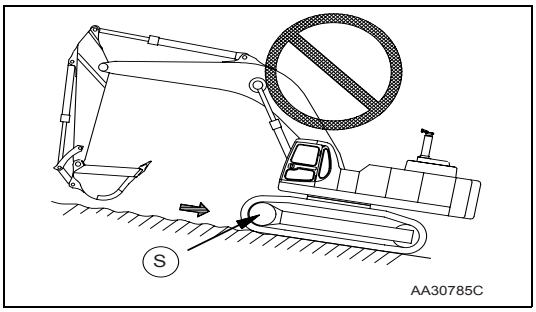
Do not immerse the machine in water by more than the permissible depth (under centre of carrier roller (1)).
In addition, for parts that have been immersed in water for a long time, pump in grease until the old grease comes out from the bearings. (Around the bucket pins)

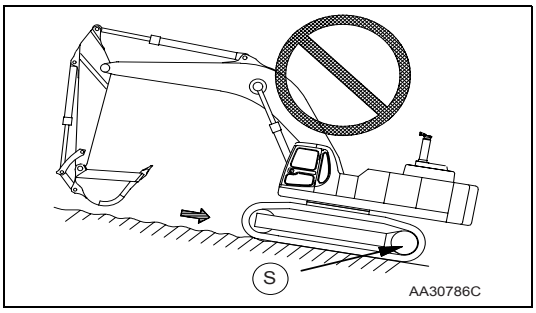


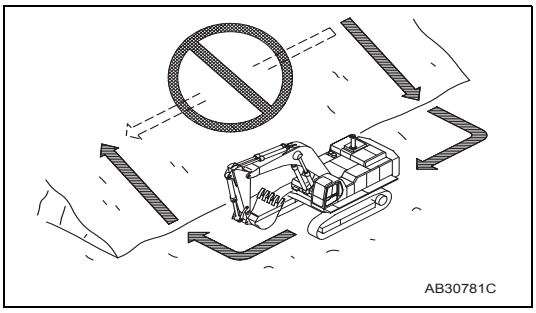
PRECAUTIONS WHEN TRAVELING UP OR DOWN HILLS

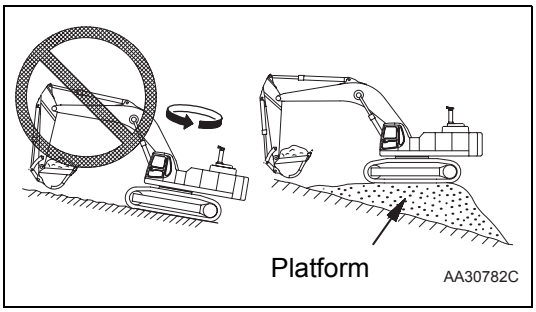
⚠ WARNING

- **When travelling, raise the bucket approx. 20 - 30 cm from the ground.**
  Do not travel downhill in reverse.
- **When travelling over ridges or other obstacles, keep the work equipment close to the ground and travel slowly.**
- **It is dangerous to turn on slopes or to travel across slopes. Always go down to a flat place to perform these operations. It may be longer, but it will ensure safety.**
- **If the machine starts to slide or loses stability, lower the bucket immediately and brake the machine.**
- **Turning or operating the work equipment when working on slopes may cause the machine to lose its balance and turn over, so avoid such operations. It is particularly dangerous to swing downhill when the bucket is loaded.**
- **If such operations have to be carried out, pile soil to make platform on the slope so that the machine can be kept horizontal when operating.**
- **Do not travel on slopes of over 30° as there is danger that the machine may overturn.**





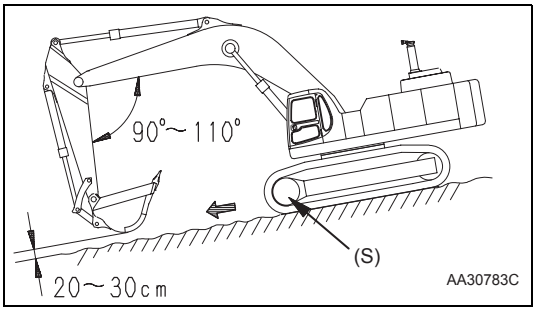




1. When travelling down steep hills, use the travel lever and fuel control lever to keep the travel speed low.

   When travelling down slopes of more than 15°, set the work equipment in the posture shown in the figure on the right, and lower the engine speed.

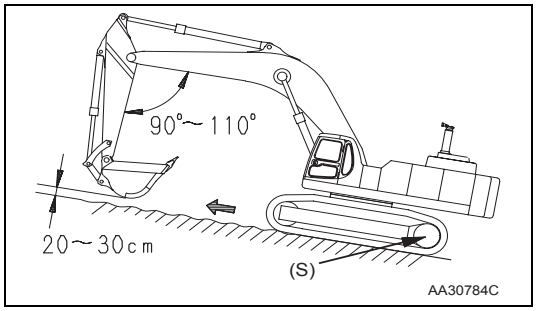
   (S) Sprocket



REMARK

When travelling downhill, set the sprocket at the downhill end. If the machine travels downhill with the sprocket at the uphill end, the track may come loose and the track may jump.

2. When travelling up a steep hill of more than 15°, set the work equipment in the posture shown in the diagram on the right.



Braking when travelling downhill

To brake the machine during downhill runs, put the travel lever in the neutral position. This will cause the brake to be automatically applied.

If shoes slip

When travelling uphill, if the shoes slip or it is impossible to travel uphill using the force of the track only, it is possible to use the pulling force of the arm to help the machine travel uphill.

If engine stops

If the engine stops when travelling uphill, move the travel levers to the neutral position, lower the bucket to the ground, stop the machine, then start the engine again.

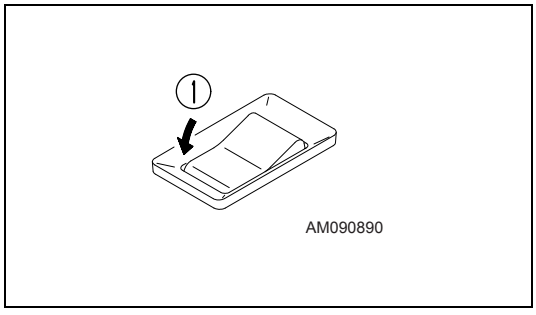
Precautions on slopes

- If the engine stops when the machine is on a slope, never use the left work equipment control lever to carry out swing operations. The upper structure will swing under its own weight.
- Do not open or close the door on the cab if the machine is on a slope. This may cause a sudden change in the operating force.
  Always keep the door locked.

HOW TO ESCAPE FROM MUD

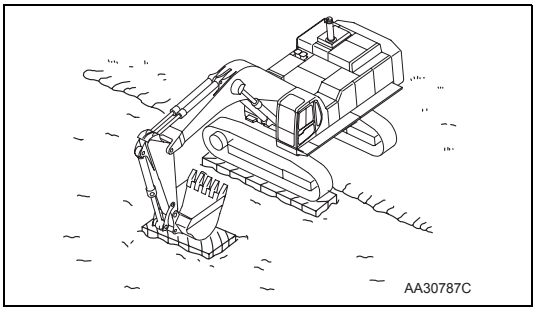
Always operate carefully to avoid getting stuck in mud. If the machine does get stuck in mud, use the following procedures to get the machine out.

Be careful not to get stuck in mud when operating. If you do get stuck in mud, do as follows to escape.



- Place the machine push-up switch at position (1). This will increase the pushing power of the boom and make it easier to escape.

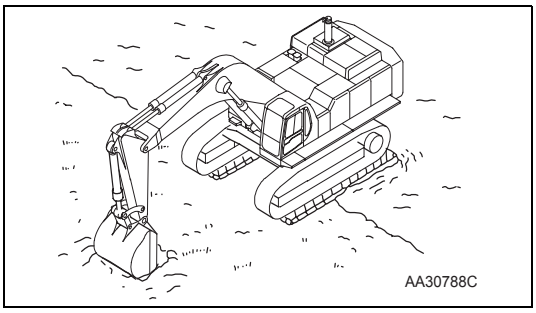
WHEN ONE SIDE IS STUCK



When only one side is stuck in mud, use the bucket to raise the track, then lay boards or logs and drive the machine out. If necessary, put a board under the bucket also.

NOTICE
When using the boom or arm to raise the machine, always have the bottom of the bucket in contact with the ground. (Never push with the teeth). The angle between the boom and arm should be 90° to 110°.
The same applies when using the inverting bucket.

WHEN BOTH SIDES ARE STUCK

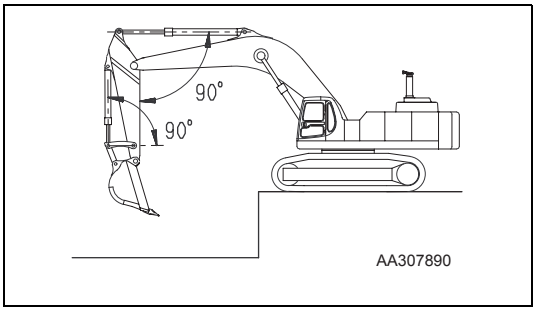


When the tracks on both sides are stuck in mud and the machine will not move, lay boards as explained above, and dig the bucket into the ground in front. Then pull in the arm as in normal digging operations and put the travel levers in the FORWARD position to pull the machine out.

WORK POSSIBLE USING HYDRAULIC EXCAVATORS

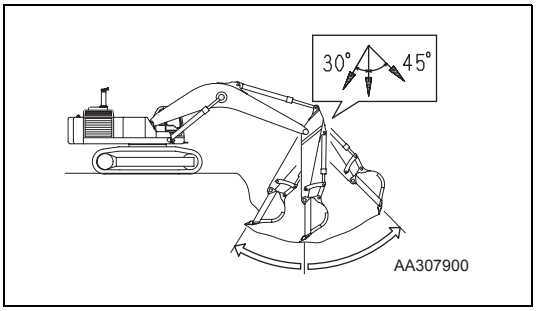
In addition to the following, it is possible to further increase the range of applications by using various attachments.

BACKHOE WORK



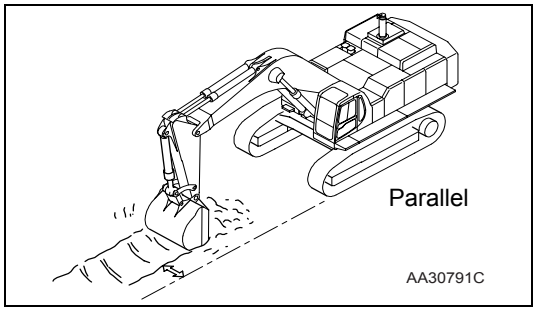
When condition of the machine is as shown in the diagram at right, each cylinders maximum pushing excavation force is obtained when the bucket cylinder and link, arm cylinder and arm are at 90°.

When excavating, use this angle effectively to optimize your work efficiency.
The range for excavating with the arm is from a 45° angle away from the machine to a 30° toward the machine.



There may be some differences depending on the excavation depth, but try to use within the above range rather than going all the way to the extreme end of the cylinder stroke.

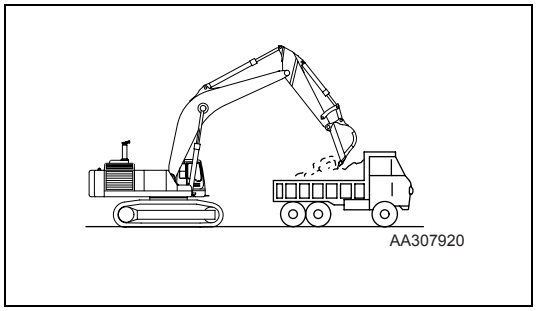
DITCHING WORK



Ditching work can be performed efficiently by attaching a bucket to match the width of the ditch and then setting the tracks parallel to the line of the ditch to be excavated.

To excavate a wide ditch, first dig out both sides and then finally remove the centre portion.

LOADING WORK



In places where the swing angle is small, work efficiency can be enhanced by locating the dump truck in a place easily visible to the operator.

Loading is easier and capacity greater if you begin from the front of the dump truck body than if loading is done from the side.

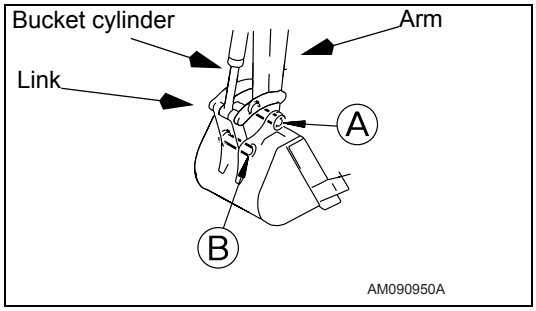
REPLACEMENT OF BUCKET

⚠ WARNING

- **When knocking the pin in with a hammer, metal particles may fly and cause serious injury, particularly if they get into your eyes. When carrying out this operation, always wear goggles, helmet, gloves, and other protective equipment.**
- **When the bucket is removed, place it in a stable condition.**

Stop the machine on a firm, flat surface. When performing joint work, make clear signals to each other and work carefully for safety's sake.

REPLACEMENT

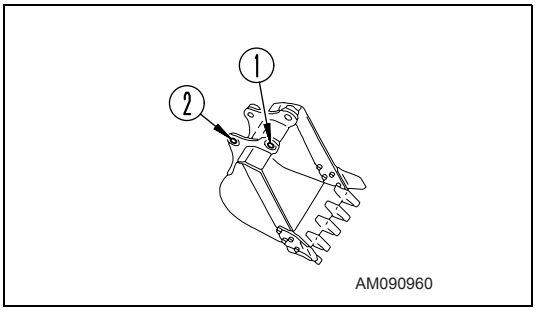


1. Place the bucket in contact with a flat surface.

REMARK

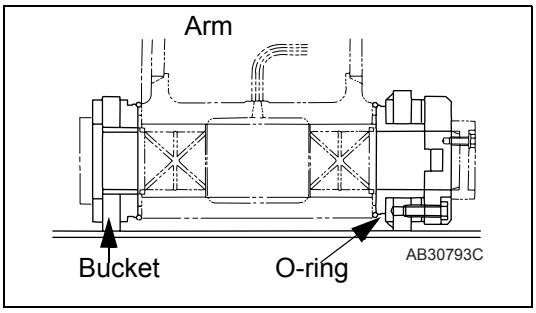
When removing the pins, place the bucket so that it is in light contact with the ground.
If the bucket is lowered strongly to the ground, the resistance will be increased and it will be difficult to remove the pins.

2. Remove the stopper bolts and nuts, then remove pins (A) and (B), and remove the bucket.



NOTICE
After removing the pins, make sure that they do not become contaminated with sand or mud and that the seals of bushing on both sides do not become damaged.

3. Align the arm with holes (1) and the link with holes (2), then coat with grease and install pins (A) and (B).



REMARK

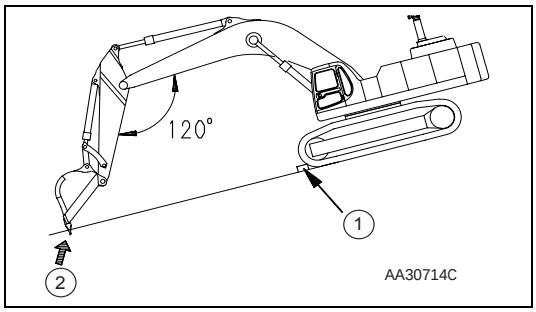
When installing the bucket, the O-rings are easily damaged, so fit the O-rings on the boss of the arm end as shown in the diagram. When knocking in the pins, move the O-ring down to the regular groove.

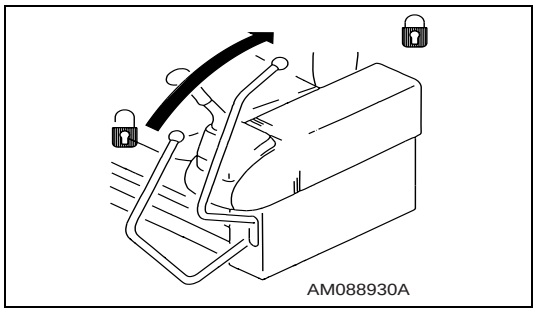
4. Install the stopper bolts and nuts for each pin, then grease the pin.

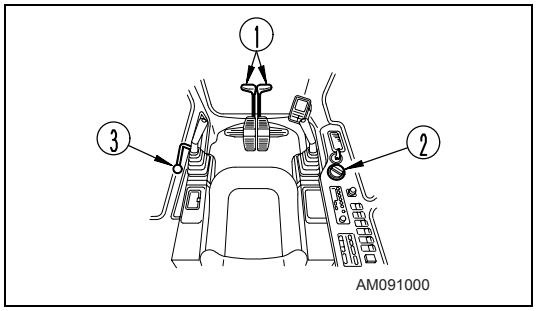
PARKING MACHINE

⚠ WARNING

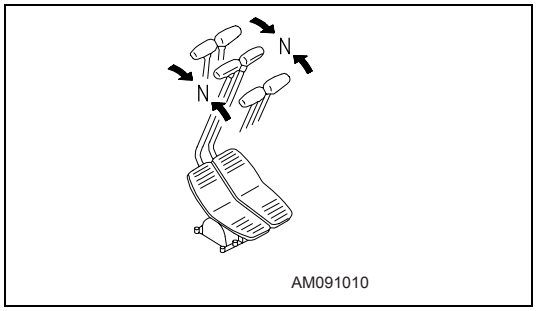
- **Avoid stopping suddenly. Give yourself ample room when stopping.**
- **When stopping the machine, select flat hard ground and avoid dangerous places. If it is unavoidably necessary to park the machine on a slope, insert blocks (1) underneath the track shoes. As an additional safety measure, thrust the bucket into the ground (2).**
- **If the control lever is touched by accident, the work equipment or the machine may move suddenly, and this may lead to a serious accident. Before leaving the operator's compartment, always set the safety lock lever securely to LOCK position.**



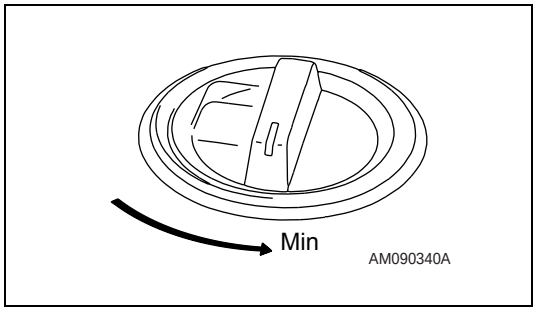




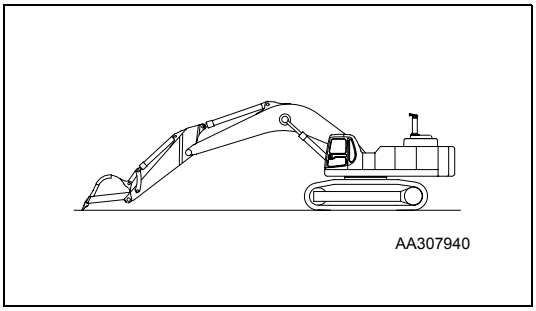
1. Put left and right travel levers (1) in the neutral position. The machine stops.



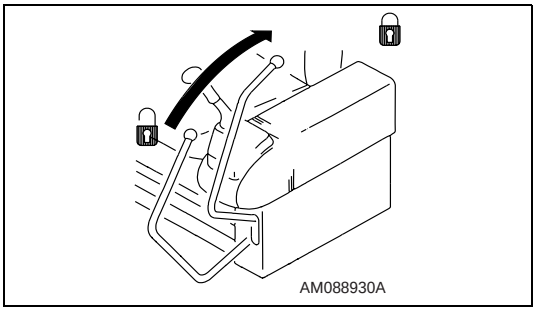
2. Turn fuel control dial (2) to lower the engine speed to low idling.



3. Lower the bucket horizontally until the bottom touches the ground.

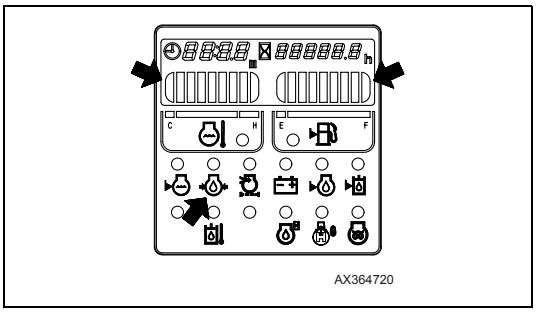


4. Set safety lock lever (3) in the LOCK position.



CHECK AFTER FINISHING WORK

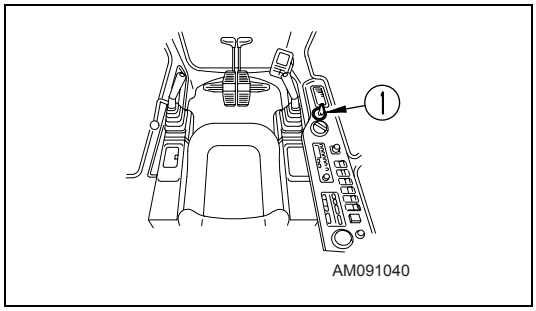
Check the engine water temperature, engine oil pressure and fuel level on the monitor.



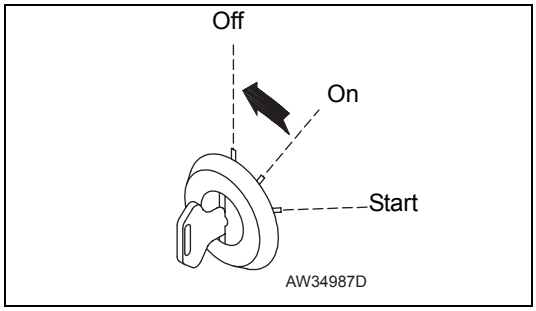
STOPPING ENGINE

NOTICE
If the engine is abruptly stopped before it has cooled down, engine life may be greatly shortened. Consequently, do not abruptly stop the engine apart from an emergency.
In particular, if the engine has overheated, do not abruptly stop it but run it at medium speed to allow it to cool gradually, then stop it.

1. Run the engine at low idling speed for about 5 minutes to allow it go gradually cool down.



2. Turn the key in starting switch (1) to the OFF position and stop the engine.
3. Remove the key from starting switch (1).

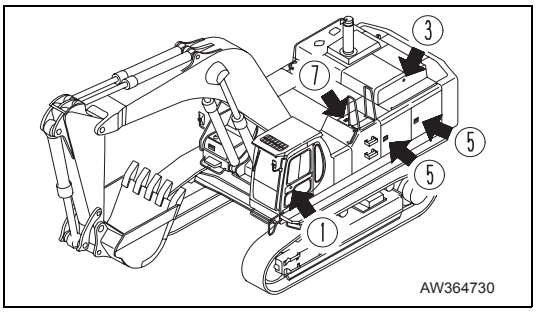


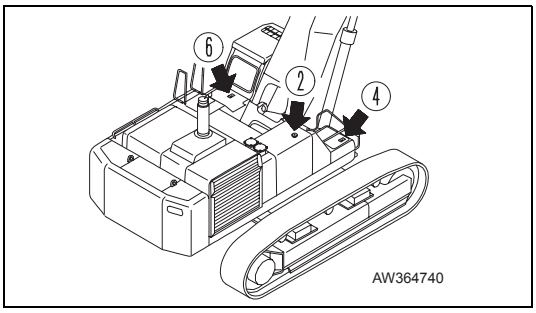
CHECK AFTER STOPPING ENGINE

1. Walk around the machine and check the work equipment, paint-work, and undercarriage, and check also for leakage of oil or water. If any abnormalities are found, repair them.
2. Fill the fuel tank.
3. Check the engine compartment for paper and debris. Clean out any paper and debris to avoid a fire hazard.
4. Remove any mud stuck to the undercarriage.

LOCKING

Always lock the following places.





(1) Door of operator's cab
Always remember to close the window.

(2) Fuel tank filler port

(3) Engine hood

(4) Battery box cover

(5) Left side door of the machine (2 places)

(6) Tool box side door

(7) Hydraulic tank filler port

REMARK

Use the starting switch key to open and close all these places.

TRANSPORTATION

When transporting the machine, observe all related laws and regulations, and be careful to assure safety.

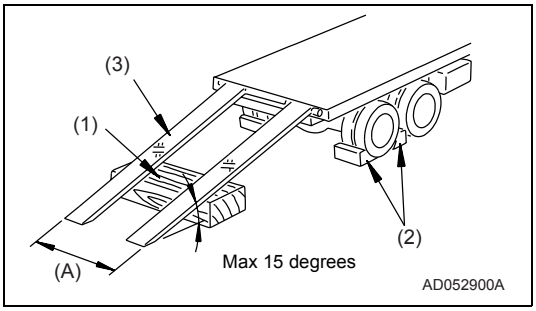
LOADING, UNLOADING WORK

⚠ WARNING

- **Loading or unloading the machine can be a dangerous operation, so be particularly careful.**
  When loading or unloading the machine, run the engine at low idling and travel at low speed.
- **Make sure the ramp has sufficient width, length and thickness to enable the machine to be safely loaded and unloaded. If the ramp sags appreciably, reinforce it with blocks, etc.**
- **When loading and unloading the machine, park the trailer on a flat firm roadbed. Keep a fairly long distance between the road shoulder and the machine.**
- **Remove the mud from the undercarriage to prevent the machine from slipping to the side on slopes.**
  Be sure the ramp surface is clean and free of grease, oil, ice and loose materials.
- **Never change the direction of travel when on the ramps. If it is necessary to change direction, drive off the ramps and correct the direction, then drive on to the ramps again.**
- **When turning the machine on the trailer, the machine's footing is unstable, so carry out the operation slowly.**
- **Always check that the door on the cab is locked, regardless of whether it is open or closed.**
  Do not open or close the door on ramps or on a platform. This may cause a sudden change in the operating force.
- **When loading or unloading the machine with the automatic warming-up operation mode, if the automatic warming-up is released, the speed may change suddenly. Avoid loading or unloading during automatic warming-up operation.**
- **Do not lift complete machine by crane. Lifting points indicated are for loose parts only. Consult your Komatsu dealer for advice.**

When loading or unloading, always use ramps or a platform and carry out the operations as follows.

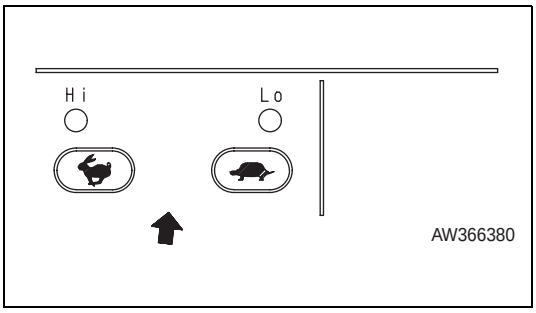
1. Properly apply the brakes on the trailer and insert blocks (1) (2) beneath the tires to ensure that it does not move. Then fix the ramps (3) in line with the centres of the trailer and the machine. Be sure that the two sides are at the same level as one another.



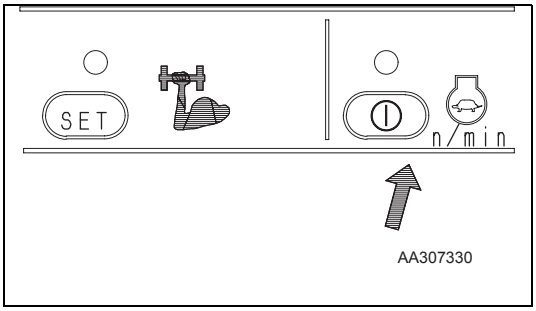
Make the angle of the ramps a maximum of 15°.

Set the distance (A) between the ramps to match the centre of the tracks.

2. Set the travel speed switch to the Lo position.



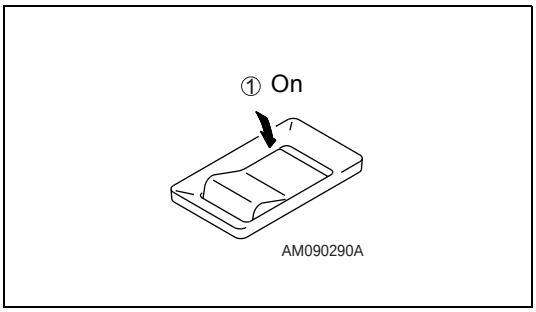
3. Turn the auto-deceleration switch OFF, and return the fuel control dial to reduce the engine speed.



4. Turn the swing lock switch ON to apply the swing lock.

5. Set in the direction of the ramps, lower the work equipment as far as possible without letting it hit the trailer, then travel slowly to load or unload the machine.

When on the ramps, do not operate any lever other than the travel lever.



6. Load the machine correctly in the specified position on the trailer.

REMARK

When the work equipment is installed, load the machine from the front; when the work equipment is not installed, load the machine from the rear.

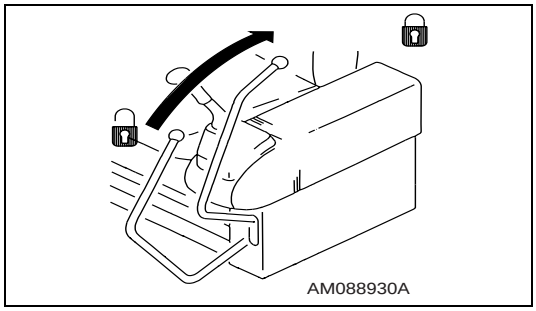
PRECAUTIONS FOR LOADING

⚠ WARNING

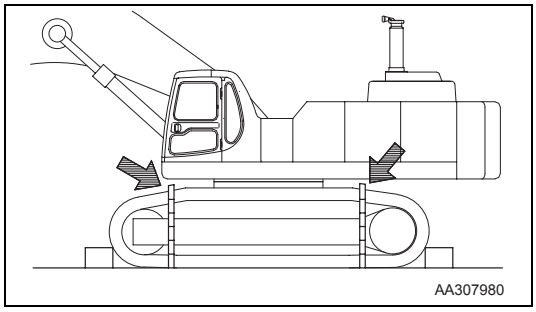
When loading the machine, park the trailer on a flat firm roadbed. Keep a fairly long distance between the road shoulder and the machine.

After loading to the specified position, secure the machine as follows.

1. Fully extend the bucket and arm cylinders, then slowly lower the boom.
2. Stop the engine and remove the key from the starting switch.
3. Lock all the control levers securely with the safety lock lever.



4. When transporting the machine, place rectangular timber underneath the front and rear track shoes to prevent the machine from moving about. Also, hold it down with chains or rope. Be particularly careful to ensure that the machine does not slip sideways.



NOTICE
When transporting the machine, place rectangular timber under one end of the bucket cylinder to prevent it touching the ground, thereby saving it from possible damage.

PRECAUTIONS FOR TRANSPORTATION

⚠ WARNING

- **Determine the route for transporting the machine by taking into account the width, height and weight of the machine.**
- **Always check that the door on the cab is closed and locked before transporting the machine.**

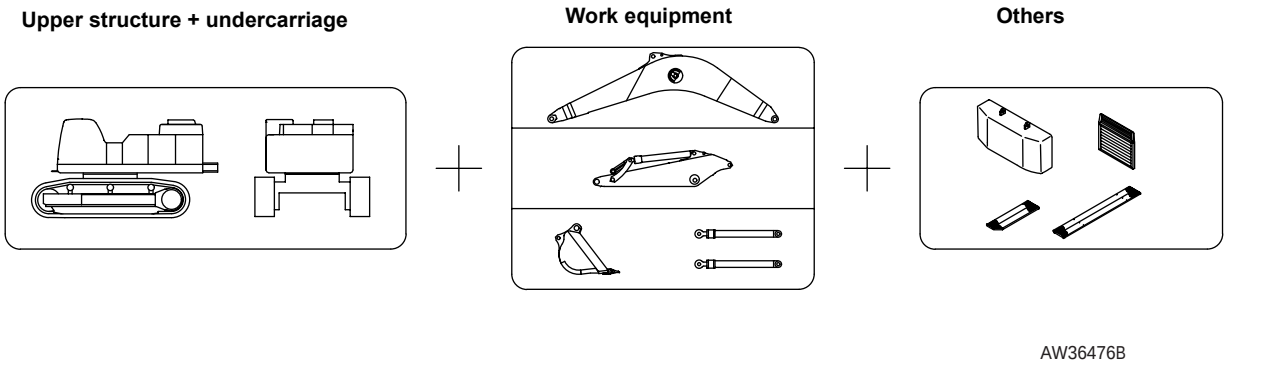
NOTICE
Always retract the radio antenna.

Obey all state and local laws governing the weight, width and length of a load. Observe all regulations governing wide loads.

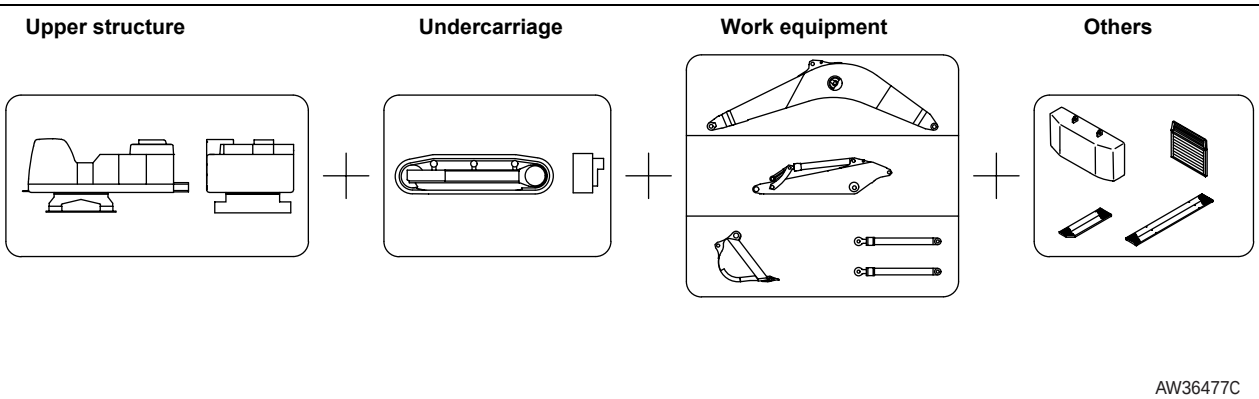
TRANSPORTATION POSTURE

This machine can be divided into three units or four units for transportation. When transporting the machine please contact your Komatsu distributor.

Three units for transportation

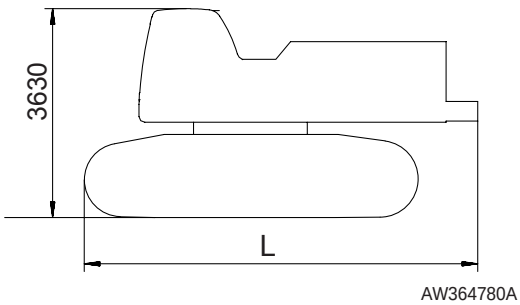


Four units for transportation



Posture for each unit

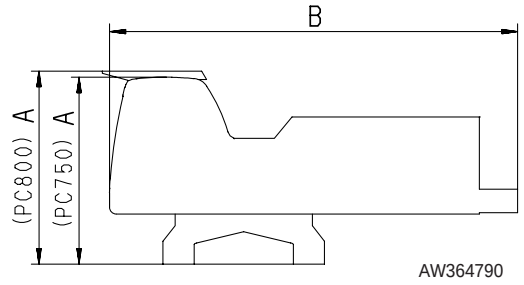
- Upper structure + undercarriage



Unit	Model	
	PC750LC-6	PC750SE-6
L (mm)	7,100	6,840
Overall width (mm)	3,490	3,490
Weight (kg)	48,220	46,300

- **Upper structure**

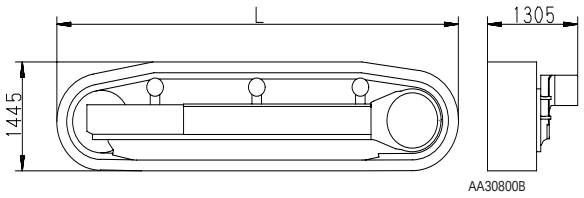
Secure the upper structure to the platform with a chain and block.



Unit	PC750SE-6 PC750LC-6
Overall width (mm)	3,195
A (mm)	2,745
B (mm)	5,970
Weight (kg)	24,800

- **Undercarriage**

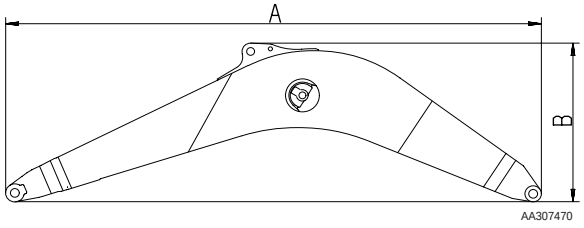
.



Unit	PC750SE-6	PC750LC-6
Q'ty	2	2
L (mm)	6,330	5,810
Weight (kg)	23,420 (11,710 x 2)	21,500 (10,750 x 2)

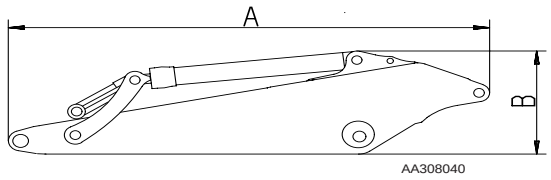
- **Work equipment**

(1)Boom



Unit	Optional work equipment	Standard work equipment
A (mm)	8,345	7,405
B (mm)	2,600	2,465
overall width (mm)	1,500	1,500
Weight (kg)	7,660	6,840

(2)Arm

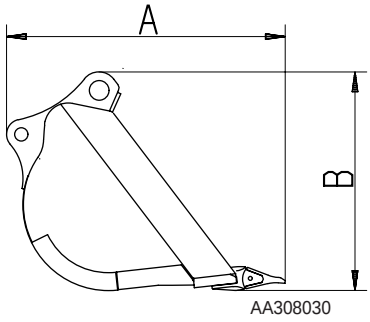


Unit	Optional work equipment	Standard work equipment
A (mm)	5,105	4,075
B (mm)	1,324	1,696
overall width (mm)	749	753
Weight (kg)	3,950	4,850

(3)Bucket (excluding side cutters

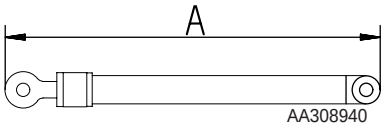
REMARK

Dimensions and weight of locally supplied bucket may be different. Please check with your Komatsu distributor for details.



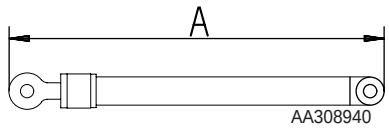
Unit	PC750SE-6	PC750LC-6
A (mm)	2,362	2,200
B (mm)	1,852	1,950
Overall width (mm)	1,700	2,105
Weight (kg)	2,960	3,420

(4) Boom cylinder



Unit	PC750SE-6/ PC750LC-6
Number	2
A (mm)	3,235
Weight (kg)	1,580 (790 x 2)

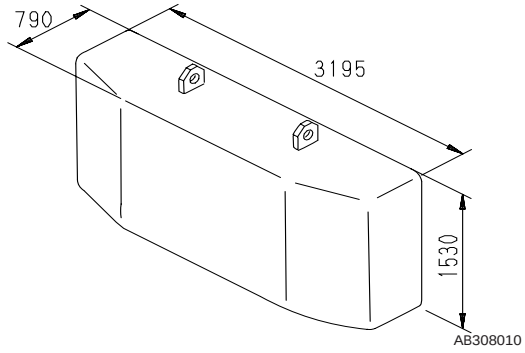
(5) Arm cylinder



Unit	Optional work equipment	Standard work equipment
Number	2	2
A (mm)	2,595 mm	2,595 mm
Weight (kg)	994 kg (497 x 2)	994 kg (497 x 2)

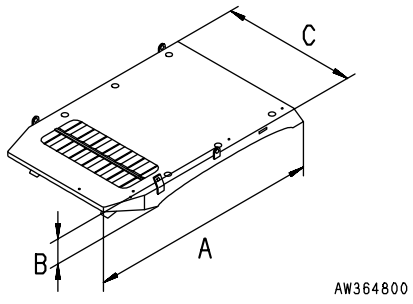
- **Others**

(1) Counterweight



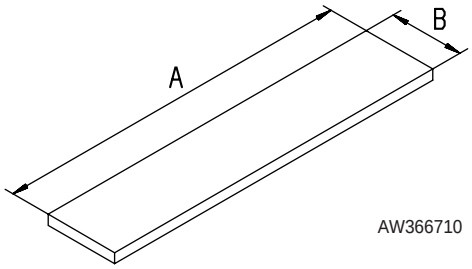
Unit	PC750SE/LC-6
Weight (kg)	12,040

(2) Canopy



Weight: 53kg

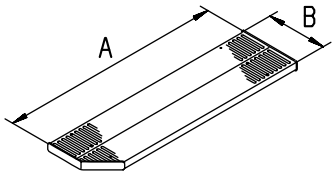
(3) Catwalk 1



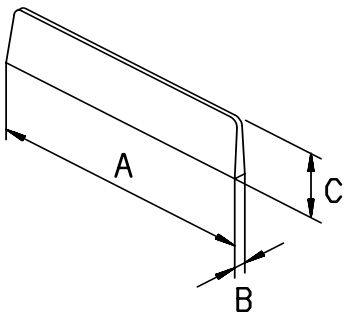
Unit	PC750SE-6 PC750LC-6
A (mm)	3,370
B (mm)	510
Weight (kg)	50 kg

(4) Catwalk 2

Weight: 29kg



(5) Radiator duct



Unit	PC750SE-6 PC750LC-6
Weight (kg)	37

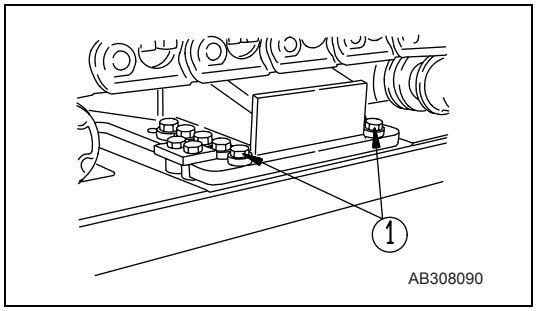
PROCEDURE FOR INCREASING OR REDUCING TRACK FRAME GAUGE

⚠ WARNING

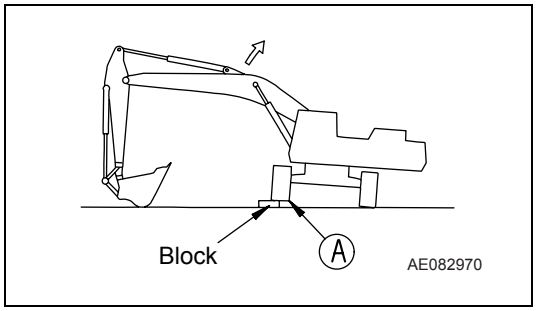
Never use the machine for operations with the track frame retracted.

REDUCING TRACK GAUGE

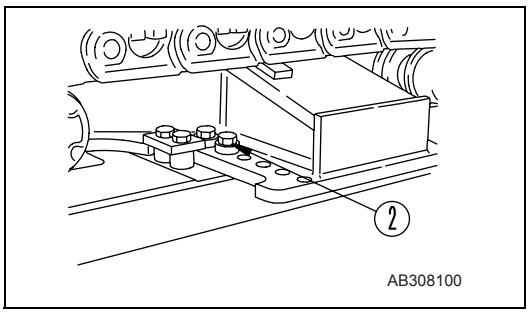
1. Remove centre frame mounting bolts (1). (one side, front + rear: 16 bolts)



2. Swing the upper structure to the track frame (A) side to be retracted until the upper structure is at a right angle to the tracks. Then, jack up the track frame, making use of the work equipment.
3. Put the block (20 to 30 cm square) from outside of track frame (A). Using the boom cylinder, slowly lower the machine until the track frame reaches the stoppers.

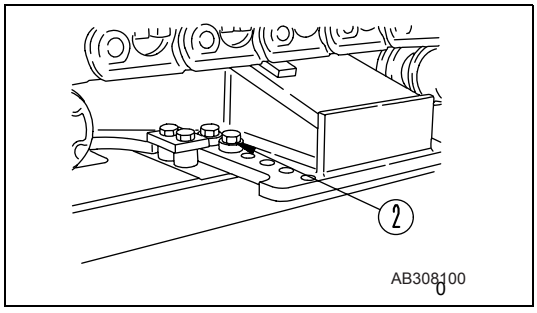


4. Lower the machine carefully and install bolts (2). (one side, front + rear: 8 bolts out of bolts (1))
5. Tightening torque: 2750 - 3000 N•m
   (280 - 300 kgf•m)Follow the same procedure to retract the track frame on the other side.



INCREASING TRACK GAUGE

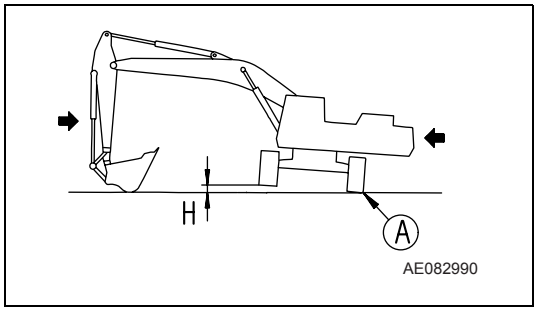
1. Remove centre frame mounting bolts (2) (one side, front + rear: 8 bolts) from the front and rear of the track frame on the side to be extended.



2. Swing the upper structure to the side opposite track frame (A) to be extended until the upper structure is at a right angle to the tracks.

REMARK

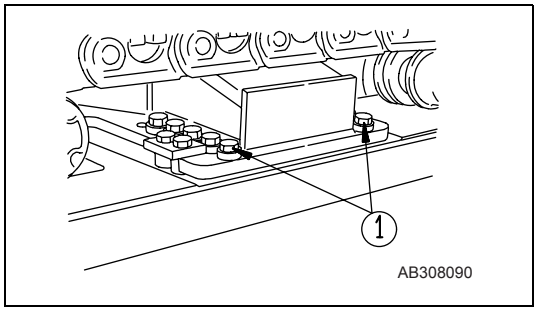
Height H of the track frame being raised should be less than 50 mm. Take care not to raise the track frame so much that the stopper bolt is distorted.



3. Pull the machine forward with the arm, and the track frame will slide sideways.

4. Extend the track frame until it comes into contact with the stopper, then lower the machine slowly to the ground. Install bolts (1) (one side, front + rear: 20 bolts) and tighten to specified torque.

   Tightening torque: 2750 - 3000 N•m
   (280 - 200 kgf•m)



5. Follow the same procedure to extend the track frame on the other side.

- The track gauge should be changed on level, hard ground.
- When changing the track gauge, it is dangerous to operate any cylinder suddenly. Always operate the control levers slowly.

COLD WEATHER OPERATION

PRECAUTIONS FOR LOW TEMPERATURE

If the temperature becomes low, it becomes difficult to start the engine, and the coolant may freeze, so do as follows.

FUEL AND LUBRICANTS

Change to fuel and oil with low viscosity for all components.

For details of the specified viscosity, see "USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE" on page 184.

COOLANT

⚠ WARNING

Keep antifreeze fluid away from an open flame. Never smoke when using antifreeze.

NOTICE

- **Never use methanol, ethanol or propanol based antifreeze.**
- **Absolutely avoid using any water leak preventing agent irrespective of whether it is used independently or mixed with an antifreeze.**
- **Do not mix one antifreeze with a different brand.**

For details of the antifreeze mixture when changing the coolant, see "WHEN REQUIRED" on page 194.

Use a Permanent Antifreeze (ethylene glycol mixed with corrosion inhibitor, antifoam agent, etc.) meeting the standard requirements as shown below. With permanent antifreeze, no change of coolant is required for a year. If it is doubtful that an available antifreeze meets the standard requirements, ask the supplier of that antifreeze for information.
Standard requirements for permanent antifreeze

- SAE J1034
- FEDERAL STANDARD O-A-548D

REMARK

Where no permanent antifreeze is available, an ethylene glycol antifreeze without corrosion inhibitor may be used only for the cold season. In this case, clean the cooling system twice a year (in spring and autumn). When refilling the cooling system, add antifreeze in autumn, but do not add any in spring.

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 a 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 can be started easily the next morning.

REMARK

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

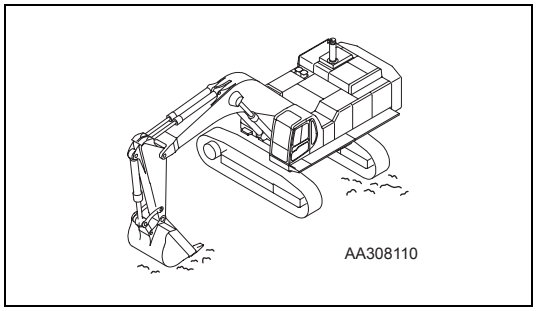
Temp. of fluid Rate of charge	20°C	0°C	-10°C	-20°C
100%	1.28	1.29	1.30	1.31
90%	1.26	1.27	1.28	1.29
80%	1.24	1.25	1.26	1.27
75%	1.23	1.24	1.25	1.26

PRECAUTIONS AFTER COMPLETION OF WORK

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

- Mud and water on the machine body should be completely removed. This is to prevent damage to the seal caused by mud or dirt getting inside the seal with frozen drops of water.
- Park the machine on hard, dry ground. If this is impossible, park the machine on wooden boards. The boards help protect the tracks from being freezed in soil and the machine can start next morning.

- Open the drain valve and drain any water collected in the fuel system to prevent it from freezing.
- After operation in water or mud, remove water from undercarriage as described below, to extend undercarriage service life.



⚠ WARNING

Performing idle-running of tracks is potentially dangerous so stay well away from tracks at this time.

1. Swing by 90° with engine at low idle and bring work equipment beside track.
2. Slightly float track by slowly pushing the ground and cause track to idle-run. Perform this for the opposite track, too.

- As the battery capacity drops markedly 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.
- If electrolyte level is found low, add distilled water in the morning before beginning work. Do not add the water after the day's work so as to prevent fluid in the battery from freezing in the night.

AFTER COLD WEATHER

When season changes and the weather becomes warmer, do as follows.

- Replace the fuel and oil for all parts with oil of the viscosity specified.

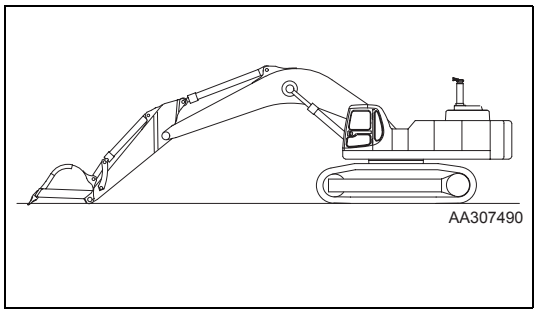
  For details, see “USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE” on page 184.

- If for any reason permanent antifreeze cannot be used, and an ethyl glycol base antifreeze (winter, one season type) is used instead, or if no antifreeze is used, drain the cooling system completely, then clean out the inside of the cooling system thoroughly, and fill with fresh water.

LONG-TERM STORAGE

BEFORE STORAGE

NOTICE
To protect the cylinder rod when the machine is not being used, set the work equipment in the posture shown in the diagram.
(This prevents rusting of the cylinder rod)



When putting the machine in storage for a long time, do as follows.

- After every part is washed and dried, the machine shall be housed in a dry building. Never leave it outdoors.
  In case it is indispensable to leave it outdoors, park the machine on flat ground free from flooding or other danger and cover it with canvas etc.
- Completely fill the fuel tank, lubricate and change the oil before storage.
- Apply a thin coat of grease to metal surface of the hydraulic piston rods.
- Disconnect the negative terminals of the battery and cover it, or remove it from the machine and store it separately.
- If the ambient temperature is expected to drop below 0°C, always add antifreeze to the cooling water.
- Lock each control lever and pedal with the lock lever and pedal lock.
- Set the stop valve to the "lock" position on machines ready for attachments. Install the blind plugs to the elbows.
- Set the selector valve to the "When not use" position on machines ready for attachments.

DURING STORAGE

⚠ WARNING

If it is unavoidably necessary to carry out the rust preventive operation while the machine is indoors, open the doors and windows to improve ventilation and prevent gas poisoning.

Operate the engine and move the machine for a short distance once a month so that a new film of oil will be coated over movable parts and component surfaces. At the same time, also charge the battery.
Also carry out cooler operation in the case of machines equipped with an air conditioner.

AFTER STORAGE

NOTICE
If the machine is stored without carrying out the monthly rust prevention operation, request your Komatsu distributor for service.

Carry out the following procedure when taking the machine out of long-term storage.

- Wipe off the grease from the hydraulic cylinder rods.
- Add oil and grease to all places.

STARTING MACHINE AFTER LONG-TERM STORAGE

When starting the machine after a long-term storage, first cancel the automatic warming-up function as follows.

1. Turn the starting switch key to the ON position.
2. Turn the fuel control dial from the low idling (MIN) position to the full (MAX) position, hold it there for 3 seconds, then return it to the low idling (MIN) position and start the engine.

TROUBLESHOOTING

WHEN MACHINE RUNS OUT OF FUEL

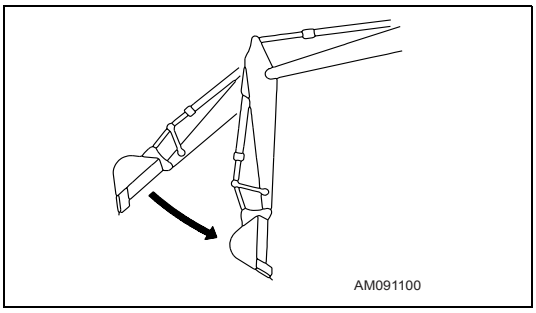
If the machine has run out of fuel, add fuel, then bleed the air from the system before starting the engine.

For details of method of bleeding air, see "BLEEDING AIR FROM CIRCUIT" on page 179.

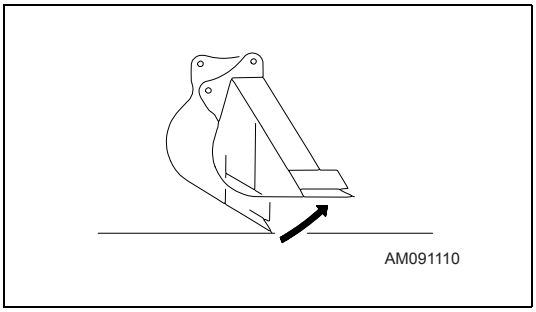
PHENOMENA THAT ARE NOT FAILURES

Note that the following phenomena are not failures:

1. When the arm is pulled in, the speed of movement will drop momentarily when the arm is more or less vertical.



2. The arm speed will drop momentarily when the bucket teeth are more or less horizontal.
3. When starting or stopping the swing, noise will be emitted from the brake valve.
4. When going down a steep slope at low speed, a noise will be emitted from the travel motor.

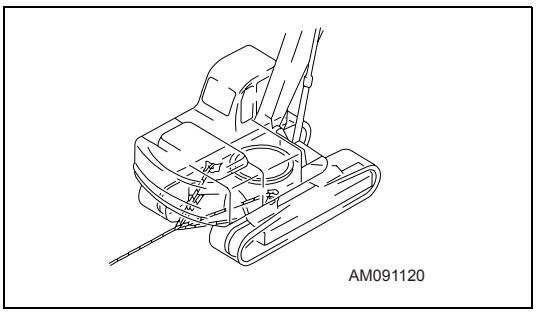


METHOD OF TOWING MACHINE

⚠ WARNING

When towing the machine, use a wire rope that has ample strength for the weight of the machine that is being towed.

If the machine sinks in mud and cannot get out under its own power, or if the drawbar pull of the excavator is being used to tow a heavy object, use a wire rope as shown in the diagram on the right.
Place pieces of wood between wire ropes and body to prevent damage to ropes and body.
At this time, never use the hole for light-weight towing.



PRECAUTIONS ON PARTICULAR JOBSITES

1. When carrying out digging operations in water, if the work equipment mounting pin goes into the water, carry out greasing every time the operation is carried out.

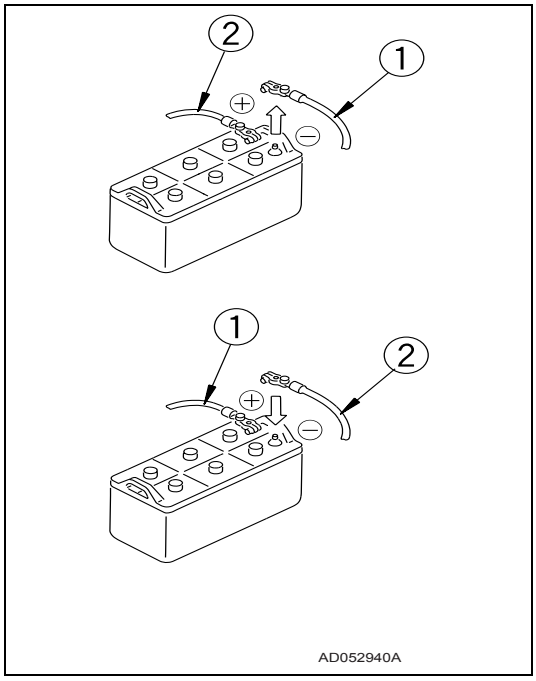
2. For heavy-duty operations and deep digging, carry out greasing of the work equipment mounting pins every time before operation.

After greasing, operate the boom, arm and bucket several times, then grease again.

IF BATTERY IS DISCHARGED

⚠ WARNING

- **When checking or handling the battery, stop the engine and turn the starting switch key to the OFF position before starting.**
- **The battery generates hydrogen gas, so there is danger of explosion. Do not bring lighted cigarettes near the battery, or do anything that will cause sparks.**
- **Battery electrolyte is dilute sulphuric acid, and it will attack your clothes and skin. If it gets on your clothes or on your skin, wash it immediately off with large amounts of water. If it gets in your eyes, wash it out with fresh water, and consult a doctor.**
- **When handling battery, always wear protective goggles.**
- **When removing the battery, first disconnect the cable from the ground (normally, from the negative (-) terminal). When installing, install the positive (+) terminal first. If a tool touches the cable connecting the positive terminal and the chassis, there is danger that it will cause sparks.**
- **If the terminals are loose, there is danger that the defective contact may generate sparks that will cause an explosion. When installing the terminals, install them tightly.**
- **When removing or installing, check which is the positive (+) terminal and negative (-) terminal.**



REMOVAL AND INSTALLATION OF BATTERY

- When removing the battery, remove the cable from the ground side first (normally the negative (-) terminal).
  If any tool contacts between the positive (+) terminal and the chassis, a spark will be caused. This is dangerous.
- When installing, connect the ground cable last.

- Tightening torque for battery holder: 9.8 - 19.6 N•m (1.0 - 2.0 kgf•m)

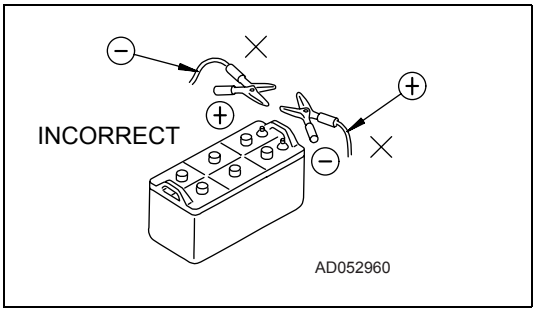
STARTING ENGINE WITH BOOSTER CABLE

When starting the engine with a booster cable, do as follows:

Precautions when connecting and disconnecting booster cable

⚠ WARNING

- **When connecting the cables, never contact the positive (+) and negative (-) terminals.**
- **When starting the engine with a booster cable, always wear safety glasses.**
- **Be careful not to let the normal machine and problem machine contact each other. This prevents sparks from generating near the battery which could ignite the hydrogen gas given off by the battery. If hydrogen gas explodes, it could cause serious injury.**
- **Make sure that there is no mistake in the booster cable connections. The final connection is to the revolving frame, but sparks will be generated when this is done, so connect to a place as far as possible from the battery. (However, avoid connecting the cable to the work equipment, as conduction is poor.)**
- **Use care when removing the cables from the machine that has been started. Do not allow the cable ends to contact each other or the machine, to avoid hydrogen explosion.**



NOTICE

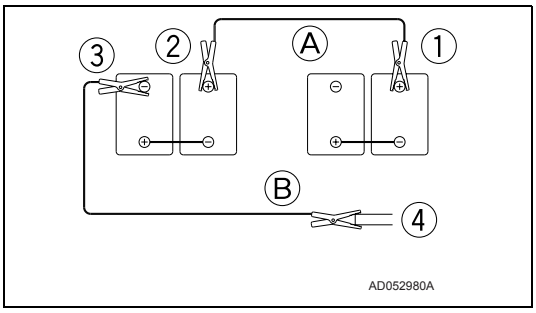
- **The size of the booster cable and clip should be suitable for the battery size.**
- **The battery of the normal machine must be the same capacity as that of the engine to be started.**
- **Check the cables and clips for damage or corrosion.**
- **Make sure that the cables and clips are firmly connected.**

Connecting the booster cables

Keep the starting switch at the OFF position.

Connect the booster cable as follows, in the order of the numbers marked in the diagram.

1. Make sure that the starting switches of the normal machine and problem machine are both at the OFF position.



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

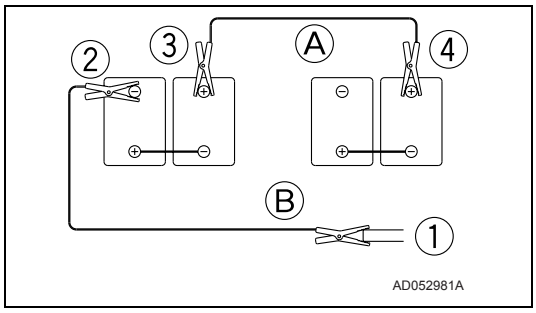
Starting the engine

1. Make sure the clips are firmly connected to the battery terminals.
2. Start the engine of the normal machine and keep it to run at high idling speed.
3. Turn the starting switch of the problem machine to the 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 one clip of booster cable (B) from the engine block of the problem machine (1).
2. Remove the other clip of booster cable (B) from the negative (-) terminal of the normal machine (2).
3. Remove one clip of booster cable (A) from the positive (+) terminal of the normal machine (3).
4. Remove the other clip of booster cable (A) from the positive (+) terminal of the problem machine (4).



OTHER TROUBLE

ELECTRICAL SYSTEM

- ( ): Always contact your Komatsu distributor when dealing with these items.
- In cases of abnormalities or causes which are not listed below, please contact your Komatsu distributor for repairs.

Problem	Main causes	Remedy
Lamp does not glow brightly even when the engine runs at high speed	● Defective wiring ● Defective adjustment of V belt tension	(● Check, repair loose terminals,disconnections) ● Adjust V belt tension. For details, see EVERY 250 HOURS SERVICE
Lamp flickers while engine is running		
Charge level monitor does not go out even when engine is running	● Defective alternator ● Defective wiring	(● Replace) (● Check, repair)
Abnormal noise is generated from alternator	● Defective alternator	(● Replace)
Starting motor does not turn when starting switch is turned to ON	● Defective wiring ● Insufficient battery charge ● Defective starting motor ● Defective safety relay	(● Check, repair) ● Charge (● Replace) (● Replace)
Pinion of starting motor keeps going in and out	● Insufficient battery charge ● Defective safety relay	● Charge (● Replace)
Starting motor turns engine sluggishly	● Insufficient battery charge ● Defective starting motor	● Charge (● Replace)
Starting motor disengages before engine starts	● Defective wiring ● Insufficient battery charge	(● Check, repair) ● Charge
Oil pressure monitor does not light up when engine is stopped (starting switch at ON position)	● Defective monitor ● Defective sensor ● Defective wiring	(● Replace) (● Replace) (● Check, repair)
Charge level monitor does not light up when engine is stopped (starting switch at ON position)	● Defective monitor ● Defective wiring	(● Replace) (● Check, replace)

CHASSIS

- ( ): Always contact your Komatsu distributor when dealing with these items.
- In cases of abnormalities or causes which are not listed below, please contact your Komatsu distributor for repairs.

Problem	Main causes	Remedy
Speed of travel, swing, boom, arm, bucket is slow	● Lack of hydraulic oil	● Add oil to specified level, see CHECK BEFORE STARTING
Pump generates abnormal noise	● Clogged element in hydraulic tank strainer	● Clean, see EVERY 2000 HOURS SERVICE
Excessive rise in hydraulic oil temperature	● Loose fan belt ● Dirty oil cooler ● Lack of hydraulic oil	● Check fan belt tension, see EVERY 500 HOURS SERVICE ● Clean, see EVERY 500 HOURS SERVICE ● Add oil to specified level, see CHECK BEFORE STARTING
Track comes off	● Track too loose	● Adjust track tension, see WHEN REQUIRED
Abnormal wear of sprocket		
Bucket rises slowly, does not rise	● Lack of hydraulic oil	● Add oil to specified level, see CHECK BEFORE STARTING
Does not swing	● Swing lock switch still applied	● Turn swing lock switch OFF

Engine

- ( ): Always contact your Komatsu distributor when dealing with these items.
- In cases of abnormalities or causes which are not listed below, please contact your Komatsu distributor for repairs.
- If user codes [02] or [04] are displayed, stop the machine at a safe place, apply the safety lock lever, then check the service code and contact your Komatsu distributor.

Problem	Main causes	Remedy
Engine oil pressure monitor lights up	•Engine oil pan oil level is low (sucking in air) •Clogged oil filter cartridge •Defective tightening of oil pipe joint, oil leakage from damaged part •Disconnection, broken wiring to sensor	•Add oil to specified level, see CHECK BEFORE STARTING •Replace cartridge, see EVERY 500 HOURS SERVICE (•Check, repair) (•Repair, connect wiring)
Steam is emitted from top part of radiator (pressure valve) Radiator water level monitor lights up Engine water temperature gauge is in red range Engine water temperature monitor lights up	•Cooling water level low, water •Loosen fan belt •Dirt or scale accumulated in cooling system •Clogged radiator fin or damaged fin •Defective engine water temperature gauge •Defective thermostat •Defective thermostat seal •Loose radiator filler cap (high altitude operation) •Disconnection, broken wiring to sensor	•Add cooling water, repair, see leakage CHECK BEFORE STARTING •Check fan belt tension, see EVERY 500 HOURS SERVICE •Change cooling water, clean inside of cooling system, see WHEN REQUIRED •Clean or repair, see EVERY 500 HOURS SERVICE (•Replace engine water temperature gauge) (•Replace thermostat) (•Replace thermostat seal) •Tighten cap or replace packing (•Repair, connect wiring)
Engine water temperature gauge display stays at lowest level and does not rise	•Defective water temperature gauge monitor •Defective thermostat •In cold weather, cold wind is blowing strongly against engine	(•Replace water temperature gauge monitor) •Replace thermostat (•Install radiator curtain)

Problem	Main causes	Remedy
Engine does not start even when starting motor is turned	•Lack of fuel •Air in fuel system •No fuel in fuel filter •Starting motor cranks engine too slowly •Starting motor does not turn •Defective valve clearance (defective compression)	•Add fuel, see CHECK BEFORE STARTING (•Repair place where air is sucked in) •Fill filter with fuel. See EVERY 500 HOURS SERVICE. •See ELECTRICAL SYSTEM •See ELECTRICAL SYSTEM (•Adjust valve clearance)
Fuel stops from time to time	•Crushed fuel tank breather tube	(•Replace breather tube)
Excessive oil consumption	•Oil leakage •Excessive oil in il pan	(•Check, repair) •Add oil to specified level. See CHECK BEFORE STARTING.
Exhaust gas is white or blue	•Worn piston, ring, cylinder liner •Improper fuel •Defective turbocharger	(•Replace) •Replace with specified fuel (•Check, replace)
Exhaust gas is black	•Clogged air cleaner element •Worn piston, ring, cylinder liner •Defective compression •Defective turbocharger •Defective exchaust brake •Defective injector	•Clean or replace. See WHEN REQUIRED. (•Check, repair) •See adjustment of clearance above (•Check, replace) (•Check, replace, repair) (•Check, adjust, repair)
Engine hunts	•Air entering suction side of fuel line	
There is knocking (combustion or mechanical)	•Poor quality fuel being used •Overheating	
Error code is displayed on monitor	Please contact your Komatsu distributor	
Alarm buzzer sounds		
Engine suddenly loses power (entered delayed mode)		

Electronic Control System

If an error code is displayed on the machine monitor display (normally this displays the time), follow the self-diagnostic remedy table below.

Machine Monitoring System

Monitor display	Failure mode	Remedy
E02	TVC valve system error	When pump prolix switch is turned ON, normal operations become normal, but carry out inspection immediately. (*)
E03	Swing brake system error	Turn the swing holding brake cancel switch ON to release the brake. When applying the swing brake, operate it manually with the swing lock switch. Depending on the cause of the problem, it may not be possible to release it. In any case, have it inspected immediately.(*)
E10	Abnormality in electronic governor system (engine stopped)	Carry out inspection immediately.
E11	Abnormality in electronic governor system (abnormality in engine protection output)	It is possible to carry out normal working operations, but have inspection carried out immediately.
E14	Abnormality in throttle (abnormality in fuel control dial)	Move machine to a safe posture, and carry out inspection immediately.
E15	Abnormality in electronic governor system	It is possible to carry out normal driving operations, but have inspection carried out immediately.
E,OE	Abnormality in network	•If the engine can be operated, set the machine to a safe posture, then have inspection carried out immediately. •If the engine is operated and stalls, turn the TVC emergency switch ON, set the machine to a safe posture, then have inspection carried out immediately. •Even if the engine is stopped, have inspection carried out immediately.
CALL	Operation cannot be continued	Move machine to a safe posture, and carry out inspection immediately.
If no error code is displayed but work equipment or swing cannot be operated		Carry out inspection immediately.

(*)For details of handling the emergency pump drive switch and swing holding brake cancel switch, see ““SWITCHES” on page 74“.

MAINTENANCE

⚠ WARNING

Before carrying out maintenance, always attach the WARNING TAG to the control lever in the operator's cab.

GUIDES TO MAINTENANCE

Do not carry out any inspection and maintenance operation that is not given in this manual.
Perform maintenance work on hard, flat ground.

Check service meter:

Check the service meter reading every day to see if the time has come for any necessary maintenance to be carried out.

Komatsu genuine replacement parts:

Use Komatsu genuine parts specified in the Parts Book as replacement parts.

Komatsu genuine oils:

Use Komatsu genuine oils and grease. Choose oils and grease with proper viscosities specified for ambient temperature.

Always use clean washer fluid:

Use automobile window washer fluid and be careful not to let any dirt get into it.

Always use clean oil and grease:

Use clean oil and grease. Also, keep containers of the oil and grease clean. Keep foreign materials away from oil and grease.

Keeping the machine clean:

Always keep the machine clean. This makes is easier to find parts causing problems. Keep in particular grease fittings, breathers and oil level gauges clean and avoid foreign matters from getting in them.

Be careful of hot water and oil:

Draining hot oils and coolants and removing their filters immediately after the engine stops are hazardous. Allow the engine to cool.

If the oil has to be drained when it is cold, warm up the oil to a suitable temperature (approx. 20 - 40°C) before draining it.

Checking foreign materials in drained oil and on filter:

After oil is changed or filters are replaced, check the oil and filters for metallic particles and foreign materials. If large quantities of metallic particles or foreign materials are found, contact your Komatsu distributor.

Fuel strainer:

If your machine is equipped with a fuel strainer, do not remove it while fuelling.

Oil change:

Check or change oils in the places where dust is scarce to keep foreign materials away from oils.

Warning tag:

Attach the warning tag to the starting switch or other appropriate control lever to avoid someone who is not aware of the circumstances from starting the engine.

Obey precautions:

During the operation, always obey the precautions on the safety label attached to the machine.

Welding instructions:

- Turn off the engine starting switch.
- Do not apply more than 200 V continuously.
- Connect grounding the cable within 1 m from the area to be welded.
- Avoid seals or bearings from being between the area to be welded and the position of grounding point.
- Do not use the area around the work equipment pins or the hydraulic cylinders as the grounding point.

Fire prevention:

Use nonflammable cleaner or light oil for cleaning parts. Keep flame or cigarette light away from light oil.

Clamp faces:

When O-rings or gaskets are removed, clean the clamp faces and replace the O-rings and gaskets with new ones. Be sure to fit O-rings and gaskets when assembling.

Objects in your pockets:

Keep your pockets free of loose objects which can fall out and drop into the machinery; especially when you work on the machinery while bending over it.

Checking undercarriage:

When working in rocky areas, check for damage to the undercarriage and for looseness, flaws, wear and damage in bolts and nuts. Loosen the track tension a little when working in such areas.

Precautions when washing machine:

- Never spray steam or water directly on the connectors and mechatronics parts.
- Do not allow water to get on the monitors and controllers inside the operator's cab.
- Never spray steam or water directly at the radiator or oil cooler portions.

Pre-and post-work checks:

Before starting work in mud, rain, snow or at seashore, check plugs and valves for tightness.

Wash the machine immediately after the work to protect components from rusting.

Lubricate components more frequently than usual. Be sure to lubricate work equipment pins daily if they are submerged in water.

Dusty worksites:

When working at dusty worksites, do as follows:

- Inspect the air cleaner clogging monitor to see whether the air cleaner is blocked up.
- Clean the radiator core frequently to avoid clogging.
- Clean and replace the fuel filter frequently.
- Clean electrical components, especially the starting motor and alternator, to avoid accumulation of dust.

Avoid mixing oils:

Never mix oils of different brands. If you have only oil which is a different brand from the one that is used in the machine, do not add it but replace all the oil.

OUTLINES OF SERVICE

- Use Komatsu genuine parts for replacement.
- When changing or adding oil, do not use a different type of oil.
- Unless otherwise specified, the oil and coolant used at the time of shipment from the factory are as shown in the table below.

Item	Kind of fluid
Engine oil pan	SAE 15W-40 API classification CE or CF-4
Swing machinery case Final drive case Damper case	SAE 30 API classification CD
Hydraulic tank	SAE 10W API classification CD
Fuel tank	ASTM D975 No. 2 (However, ASTM D975 No. 1 is used for the winter season (October to March)
Radiator	Komatsu Super Coolant (AF-ACL) 50% added to water

OUTLINE OF OIL, FUEL, COOLANT

OIL

- Oil is used in the engine and work equipment under extremely severe conditions (high temperature, high pressure), and it deteriorates with use.
  Always use oil that matches the grade and temperature for use given in the Operation and Maintenance Manual. Even if the oil is not dirty, always replace the oil after the specified interval.

NOTICE
When using biogegradable oil, preferably use synthetic esters (Hees type).
For this type of oil the maximum hydraulic oil interval is at 2500 hours.
Please contact your Komatsu dealer for more information.

- Oil corresponds to blood in the human body, so always be careful when handling it to prevent any impurities (water, metal particles, dirt, etc.) from getting in.
  The majority of problems with 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, please contact your Komatsu distributor.
- When changing the oil, always replace the related filters at the same time.
- We recommend you to have an analysis made of the oil periodically to check the condition of the machine. For those who wish to use this service, please contact your Komatsu distributor.

USE OF BIO-DEGRADEABLE OIL

Special care must be taken when using bio-degradable oil in the hydraulic system of the hydraulic excavator.

When the machine is supplied from the factory with bio-degradable oil, the following change intervals should be used. The oil supplied from the factory is classed as BO46-G3. (If the machine has been filled with any other type of bio-degradable oil, then contact your Komatsu distributor for advice on change intervals).

Filter changes

1. The first filter change should be made 50 hours after first use.
2. The second, and subsequent changes should be made at the standard changing intervals.
3. If an abnormality is found in the characteristics of the oil, change the filter immediately.

Oil changes

1. Change the bio-degradable oil every 2500 hours.
2. If an abnormality is found in the characteristics of the oil, change the oil immediately.

FUEL

- The fuel pump is a precision instrument, and if fuel containing water or dirt is used, it causes problems.
- Be extremely careful not to let impurities get in when storing or adding fuel.
- Always use the fuel specified in the Operation and Maintenance Manual.
  Fuel may congeal depending on the temperature when it is used (particularly in low temperature below-15°C), so it is necessary to change to a fuel that matches the temperature.

- To prevent the moisture in the air from condensing and forming water inside the fuel tank, always fill the fuel tank after completing the day's work.
- Before starting the engine, or when 10 minutes have passed after adding fuel, drain the sediment and water from the fuel tank.
- If the engine runs out of fuel, it is necessary to bleed the air from the circuit.

COOLANT

- River water contains large amounts of calcium and other impurities, so if it is used, scale will stick to the engine and radiator, and this will cause defective heat exchange and overheating.
  Do not use water that is not suitable for drinking.
- When using anti-freeze, always observe the precautions given in the Operation and Maintenance Manual.
- Komatsu machines are supplied with Komatsu original anti-freeze in the coolant when the machine is shipped.
  This anti-freeze is effective in preventing corrosion of the cooling system.
  The anti-freeze can be used continuously for two years or 4000 hours. Therefore, it can be used as it is even in hot areas.
- Anti-freeze is inflammable, so be extremely careful not to expose it to flame or fire.
- The proportion of anti-freeze to water differs according to the ambient temperature.
  For details of the mixing proportions: see "Cooling System Coolant - Clean/Change" on page 200.
- If the engine overheats, wait for the engine to cool before adding coolant.
- If the coolant level is low, it will cause overheating and will also cause problems with corrosion from the air in the coolant.

GREASE

- Grease is used to prevent twisting and noise at the joints.
- The nipples not included in the maintenance section are nipples for overhaul, so they do not need grease.
  If any part becomes stiff after being used for long time, add grease.
- Always wipe off all of the old grease that is pushed out when greasing. Be particularly careful to wipe off the old grease in places. Where sand or dirt sticking in the grease would cause wear of the rotating parts.

STORING OIL AND FUEL

- Keep indoors to prevent any water, dirt, or other impurities from getting in.
- When keeping drum cans for a long period, put the drum on its side so that the filler port of the drum can is at the side. (To prevent moisture from being sucked in)
  If drum cans have to be stored outside, cover them with a waterproof sheet or take other measures to protect them.
- To prevent any change in quality during long-term storage, be sure to use in the order of first in - first out (use the oldest oil or fuel first).

FILTERS

- Filters are extremely important safety parts. They prevent impurities in the fuel and air circuits from entering important equipment and causing problems.
  Replace all filters periodically. For details, see the Operation and Maintenance Manual.
  However, when working in severe conditions, it is necessary to consider replacing the filters at shorter intervals according to the oil and fuel (sulphur content) being used.
- Never try to clean the filters (cartridge type) and use them again. Always replace with new filters.
- When replacing oil filters, check if any metal particles are stuck to the old filter. If any metal particles are found, please contact your Komatsu distributor.
- Do not open packs of spare filters until just before they are to be used.
- Always use Komatsu genuine filters.

OUTLINE OF ELECTRICAL SYSTEM

- If the wiring gets wet or the insulation is damaged, the electric system leaks and this could result in hazardous malfunction of the machine.
- Services relating to the electric system are (1) check of fan belt tension, (2) check of damage or wear in the fan belt and (3) check of battery fluid level.
- Never remove or disassemble any electric components installed in the machine.
- Never install any electric components other than these specified by Komatsu.
- Be careful to keep the electric system free of water when washing the machine or when it rains.

- Since the controller for the control system may cause malfunction due to external wave interference, before installing a radio receiver and a walkie-talkie or citizen band, consult your Komatsu distributor.
- When working on the seashore, carefully clean the electric system to prevent corrosion.
- When installing a car cooler or any other electrical equipment, connect it to an independent power source connector. The optional power source must never be connected to the fuse, starting switch, or battery relay.

OUTLINE OF HYDRAULIC SYSTEM

- During operation and immediately after operation is ended, the temperature of the hydraulic system still remains high.
  In addition, high hydraulic pressure is applied to the system. Take care when inspecting and maintaining the hydraulic system.
  - ❍ Stop the machine on level ground, lower the bucket to the ground, then set so that there is no pressure applied to the cylinder circuit.
  - ❍ Always stop the engine.
  - ❍ Immediately after operations, the hydraulic oil and lubricating oil are at high temperature and high pressure, so wait for the oil temperature to go down before starting maintenance.
    Even when the temperature goes down, the circuit may still be under internal pressure, so when loosening the plug or screw, or the hose joint, do not stand in front of the part. Loosen it slowly to release the internal pressure before removing it.
  - ❍ When carrying out inspection or maintenance of the hydraulic circuit, always bleed the air form the hydraulic tank to remove the internal pressure.
- Periodic maintenance includes the inspection of the hydraulic oil level, replacement of the filter and refilling of hydraulic oil.
- When the high pressure hose, etc. is removed, check the O-ring for damage. If necessary, replace it.
- After the hydraulic filter element and strainer are cleaned or replaced, or after the hydraulic system is repaired or replaced or the hydraulic piping is removed, bleed air from the hydraulic circuit.
- The accumulator is charged with high-pressure nitrogen gas. Incorrect handling may be dangerous. For the handling procedure, **see "ACCUMULATOR HANDLING" on page 100.**

RELEASING PRESSURE

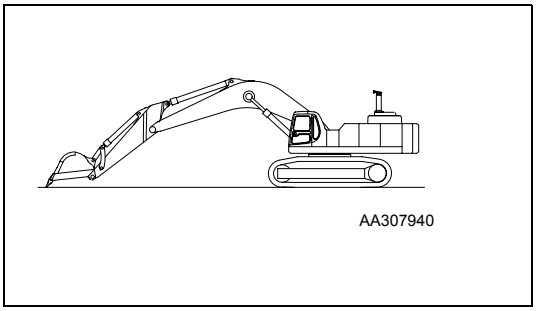
When disassembling the machine or removing the piping during inspection or maintenance, always release the pressure as follows.

RELEASING PRESSURE FROM WORK EQUIPMENT CIRCUIT, SWING CIRCUIT, TRAVEL CIRCUIT

⚠ WARNING

When removing the oil filler cap of the hydraulic tank, turn it slowly to release the internal pressure before taking off the cap.

1. Lower the work equipment to the ground in a stable flat place as shown in the diagram, then stop the engine.



- Set the lock lever to the FREE position.

2. After stopping the engine, move each work equipment control lever to the end of its travel within 5 to 6 seconds.

- Leave the starting switch ON.

3. Remove the cap of the hydraulic tank.

4. Start the engine, run it for approx. 10 seconds, then stop the engine again.

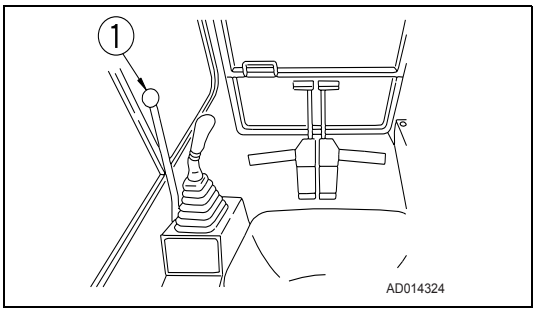
- When running the engine, do not raise the speed above 1000 rpm.
- Set the work equipment control levers to neutral.

5. After stopping the engine, move each work equipment control lever to the end of its travel within 5 to 6 seconds.

- Repeat Steps 4. to 5. three times.

RELEASING PRESSURE IN ACCUMULATOR CIRCUIT

Stop the engine, set lock lever (1) to the FREE position, then move each work equipment control lever 3 to 4 times to the end of its travel. After 1 minute passes, the pressure is relieved.



- Do not loosen the piping less than 1 minute after releasing pressure.

BLEEDING AIR FROM CIRCUIT

After assembling piping disconnected during inspection and maintenance, always bleed the air from the circuit as follows.

PRECAUTIONS WHEN BLEEDING AIR

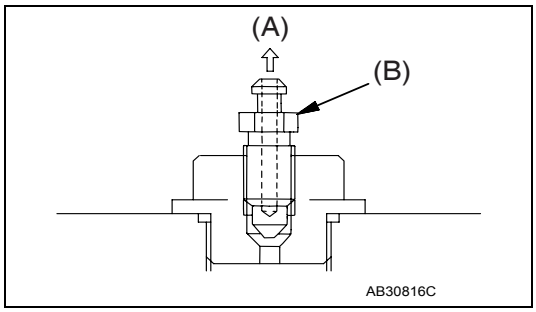
- Bleed the air in order as follows.
  - ❍ Hydraulic pump and swing pump
  - ❍ Hydraulic circuit
- Run the engine at less than 1000 rpm and operate the cylinders slowly.
- Do not raise the pressure inside the cylinder by suddenly operating the cylinder, and do not operate the cylinder to the end of its stroke.
- For the first return movement of each cylinder, be particularly careful to operate the cylinder slowly.
- During the first stroke of the cylinder, there is a large amount of air inside the circuit, so the work equipment will not move for more than 10 seconds.
  However, do not move the lever to the end of its travel.

REMARK

When adding oil to the pump and motor, be careful not to let dirt get into the circuit.

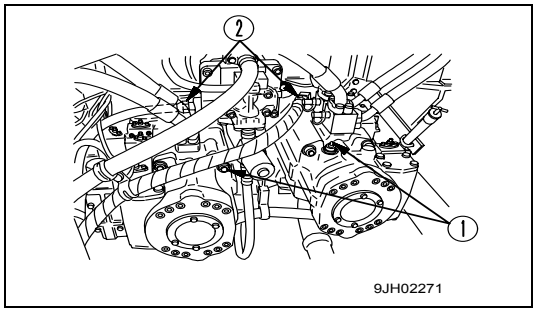
Procedure for bleeding air

Bleed the air from the various components in the order below (1 - 6).



1. Bleeding air from pump

- Loosen air bleed plug (1) and check that oil (A) oozes out from the air bleeder (B).
- If no oil oozes out, remove the drain hoses from the pump case, and add hydraulic oil through drain port (2) to fill the pump case. Oil will come out when the drain hose is removed, so secure the hose mouthpiece at a position higher than the level of the oil in the hydraulic tank.
- After completing the air bleed operation, tighten air bleed plug (1) and install the drain hose



NOTICE

If the drain hose is installed first, oil will spurt out from plug (1) hole. If the pump is operated without filling the pump case with hydraulic oil, abnormal heat will be generated and this may cause premature damage to the pump.

2. Starting engine

Start the engine. For details, see “STARTING ENGINE” on page 115. Run the engine for 10 minutes at low idling, then go on to the next operation.

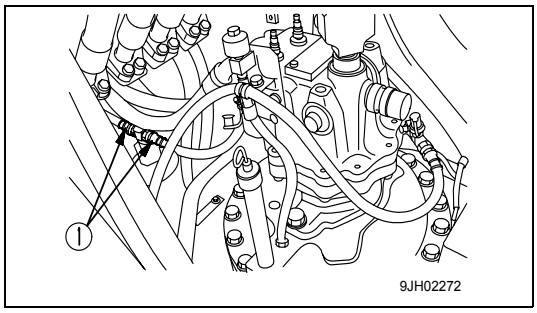
3. Bleeding air from cylinders

- Run the engine at low idling, and extend and retract each cylinder 4 - 5 times. Do not operate the cylinder to the end of its stroke. (Stop at a point approx. 100 mm before the end of the stroke.)
- Next, operate each cylinder 3 - 4 times to the end of its stroke.
- Finally, operate each cylinder 4 - 5 times to the end of its stroke to completely remove the air.

NOTICE
If the engine is run immediately at high speed or the cylinder is operated to the end of its stroke, the air inside the cylinder may cause damage to the piston packing.

4. Bleeding air from swing motor
(Carry out this operation only when the oil in the swing motor case has been drained.)

- Run the engine at low idling, remove air hose (1) and check that oil oozes out from air hose (1).



NOTICE
When doing this, do not operate the swing.

- If no oil oozes out, stop the engine, remove air hose (1), then fill the motor case with hydraulic oil.
- After completing the air bleed operation, tighten air hose (1).
- Run the engine at low idling, and slowly swing the upper structure at least 2 times uniformly to the left and right.

NOTICE
If the air is not bled from the swing motor, the motor bearings may be damaged.

5. Bleeding air from attachment (when installed)

If an attachment has been installed, run the engine at low idling and operate the attachment pedal repeatedly (approx. 10 times) until the air has been bled from the attachment and circuit.

NOTICE
If the method of bleeding the air from the attachment itself is specified by the manufacturer, bleed the air according to those specifications.

6. Operation

- After completing the air bleed operation, stop the engine and wait for at least 5 minutes before starting operations. This will allow the bubbles in the oil inside the tank to escape.
- Check that there is no leakage of oil, and wipe up any oil that has been spilled.

WEAR PARTS

Wear parts such as the filter element, air cleaner element, 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.

When changing parts, use Komatsu genuine parts of excellent quality.

When ordering parts, please check the part number in the parts book.

WEAR PARTS LIST

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

Item	Part No.	Part Name	Q'ty	Replacement frequency
Hydraulic oil filter	07063-51210 (07000-05180)	Element (O-ring)	2 (2)	Every 500 hours service
Drain filter	209-60-76210	Cartridge	1	Every 500 hours service
Pilot filter	424-16-11140 (424-15-14860) (424-16-11130) (419-15-14860) (419-15-14870)	Element (O-ring) (O-ring) (O-ring) (Gasket)	1 (1) (1) (1) (1)	-
Engine oil filter	600-211-1340	Cartridge	1	Every 500 hours service
Bypass filter (if equipped)	600-211-1340	Cartridge	1	Every 500 hours service
Fuel filter	600-311-3110	Cartridge	1	Every 500 hours service
Corrosion resistor	600-411-1171	Cartridge	1	Every 1000 hours service
Air cleaner	600-185-6110	Element assembly	1	-
	600-185-6100 (600-184-1671)	Outer Element assembly (O-ring)	1 (1)	-

Item	Part No.	Part Name	Q'ty	Replacement frequency
Bucket	209-70-54210 (209-70-54240)	Horizontal pin type Tooth (Pin)	5 (5)	-
	•PC750-6 209-70-14181 209-70-14191 209-70-14210 21T-32-11320 01643-33080 •PC750SE-6 209-70-54610 01011-83015 01643-33080 01580-13024	 Side cutter (Left) Side cutter (Right) Bolt Nut Washer Shroud Bolt Nut Washer	 1 1 (12) (12) (12) 4 (12) (24) (12)	-
Hydraulic tank breather	285-62-17320 (20Y-60-21470)	Element (Element)	1 (1)	Every 1000 hours service
Line filter	21N-62-31221 (07000-12055) (07000-12070) (07001-02070)	Element (O-ring) (O-ring) (Back-up ring)	2 (2) (2) (2)	-

USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE

PROPER SELECTION OF FUEL, COOLANT AND LUBRICANTS

RESERVOIR	KIND OF FLUID	AMBIENT TEMPERATURE °C		Type of oil	Capacity	
		Min. Temp	Max Temp		Specified	Refil
Engine oil pan	Engine oil	0° C -20° C -20° C -15° C	30° C 10° C 40° C 50° C	SAE 30 SAE 10W SAE 10W-30 SAE 15W-40	61liters	55 liters
P.T.O. case		0 -30	40 20	SAE30 SAE10W	13.5 liters	13.5 liters
Swing machinery case		0° C -20° C	50° C 30° C	SAE 50 SAE 30	24.5 liters	24.5 liters
Final drive case (each)		0° C -20° C	50° C 30° C	SAE 50 SAE 30	20 liters	20 liters
Hydraulic system		-20° C -20° C -15° C	40° C 40° C 50° C	SAE 10W SAE 10W-30 SAE 15W-40	800 liters	440 liters
Fuel tank	Diesel fuel	-6° C -20° C		ASTM D975 N° 2 ASTM N° 1 for winter	880 Liters	-
Cooling system	Water	-30° C		**Add antifreeze**	85 liters	-

REMARK

When fuel sulphur content is less than 0.5%, change oil in the oil pan at every periodic maintenance interval given in this manual.
Change oil according to the following table if fuel sulphur content is above 0.5%.

Fuel sulphur content	Change interval of oil in engine oil pan
0.5 to 1.0%	1/2 of regular interval
Above 1.0%	1/4 of regular interval

- When starting the engine in an atmospheric temperature of under 0°C, be sure to use engine oil of SAE10W, SAE10W-30 and SAE15W-40, even though atmospheric temperature goes up to 10°C more or less in the day time.

- Use API classification CD as engine oil and if API classification CC, reduce the engine oil change interval to half.
- There is no problem if single grade oil is mixed with multi grade oil (SAE10W-30, 15W-40), but be sure to add single grade oil that matches the temperature in the table.
- We recommend Komatsu genuine oil which has been specifically formulated and approved for use in engine and hydraulic work equipment applications.

Specified capacity: Total amount of oil including oil for components and oil in piping.

Refill capacity: Amount of oil needed to refill system during normal inspection and maintenance.

ASTM: American Society of Testing and Material

SAE: Society of Automotive Engineers

API: American Petroleum Institute

SPECTRUM XXX
KOMATSU GENUINE LUBRICANTS

TYPE	CLASS	VISCOSITY	REF.NO
Engine oil	CF - 4	SAE15W - 40	EO - 1510
	CF - 4	SAE10W - 30	EO - 1030
TRANSMISSION OIL	CD	SAE10W	TO - 10
& GEAR BOX OIL	CD	SAE10W	STO - 10
			HEAVY DUTY
	CD	SAE30	TO - 30
	CD	SAE30	TO - 50
HYDRAULIC OIL	CD	SAE10W	HO - 10
BIO HYDRAULIC OIL		SAE10W	BO - 10
GREASE			LG - N2
BIO GREASE			BIO - R2
ANTI FREEZE			AF - 03
BIO ANTI FREEZE			BIO - AF - 0

No.	Supplier	Engine Oil [CD or CE] SAE10W, 30, 40 10W30, 15W40 (The 15W40 oil marked * is CE.)	Gear Oil [GL-4 or GL-5] SAE80, 90, 140	Grease [Lithium-Base] NLGI No. 2	Anti-freeze Coolant [Ethylene Glycol Base] Permanent Type
1	KOMATSU	EO10-CD EO30-CD EO10-30CD EO15-40CD	GO90 GO140	G2-LI G2-LI-S	AF-ACL AF-PTL AF-PT (Winter, one season type)

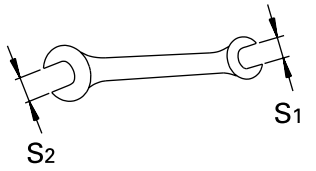
No.	Supplier	Engine Oil [CD or CE] SAE10W, 30, 40 10W30, 15W40 (The 15W40 oil marked * is CE.)	Gear Oil [GL-4 or GL-5] SAE80, 90, 140	Grease [Lithium-Base] NLGI No. 2	Anti-freeze Coolant [Ethylene Glycol Base] Permanent Type
2	AGIP	Diesel sigma S Super diselmulti-grade *Sigma turbo	Rotra MP	GR MU/EP	-
3	AMOCO	*Amoco 300	Multi-purposegear oil	RYKON premium grease	-
4	ARCO	*Arcofleet S3 plus	Arco HD gear oil	Litholine HEP 2 Arco EP moly D	-
5	BP	Vanellus C3	Gear oil EP Hypogear EP	Energrease LS-EP2	Antifreeze
6	CALTEX	*RPM delo 400 RPM delo 450	Universal thuban Universal thuban EP	Marfak all purpose 2 Ultra-duty grease 2	AF engine coolant
7	CASTROL	*Turbomax *RX super CRD	EP EPX Hypoy Hypoy B Hypoy C	MS3 Spheerol EPL2	Anti-freeze
8	CHEVRON	*Delo 400	Universal gear	Ultra-duty grease 2	-
9	CONOCO	*Fleet motor oil	Universal gear lubricant	Super-sta grease	-
10	ELF	Multiperformance 3C Performance 3C	-	Tranself EP Tranself EP type 2	Glacelf
11	EXXON (ESSO)	Essolube D3 *Essolube XD-3 *Essolube XD-3 Extra *Esso heavy duty Exxon heavy duty	Gear oil GP Gear oil GX	Beacon EP2	All season coolant
12	GULF	Super duty motor oil *Super duty plus	Multi-purpose gear lubricant	Gulfcrown EP2 Gulfcrown EP special	Antifreeze and coolant
13	MOBIL	Delvac 1300 *Delvac super 10W-30, 15W-40	Mobilube GX Mobilube HD	Mobilux EP2 Mobilgrease 77 Mobilgrease special	-
14	PENNZOIL	*Supreme duty fleet motor oil	Multi-purpose 4092 Multi-purpose 4140	Multi-purpose white grease 705 707L White - bearing grease	Anti-freeze and summer coolant
15	PETROFINA	FINA kappa TD	FINA potonic N FINA potonic NE	FINA marson EPL2	FINA tamidor

No.	Supplier	Engine Oil [CD or CE] SAE10W, 30, 40 10W30, 15W40 (The 15W40 oil marked * is CE.)	Gear Oil [GL-4 or GL-5] SAE80, 90, 140	Grease [Lithium-Base] NLGI No. 2	Anti-freeze Coolant [Ethylene Glycol Base] Permanent Type
16	SHELL	Rimula X	Spirax EP Spirax heavy duty	Albania EP grease	-
17	SUN	-	Sunoco GL5 gear oil	Sunoco ultra prestige 2EP Sun prestige 742	Sunoco antifreeze and summer coolant
18	TEXACO	*Ursa super plus Ursa premium	Multigear	Multifak EP2 Starplex 2	Code 2055 startex antifreeze coolant
19	TOTAL	Rubia S *Rubia X	Total EP Total transmission TM	Multis EP2	Antigel/antifreeze
20	UNION	*Guardol	MP gear lube LS	Unoba EP	-
21	VEEDOL	*Turbostar *Diesel star MDC	Multigear Multigear B Multigear C	-	Antifreeze

STANDARD TIGHTENING TORQUES FOR BOLTS AND NUTS

LIST OF NECESSARY TOOLS

The following tools are needed when carrying out maintenance.

No.	Name of tool	Part No.	Remarks
1	Wrench	09002-01417 09002-01922 09002-02427 09002-03032	Applicable width across flats (S1-S2) 14mm - 17mm 19mm - 22mm 24mm - 27mm 30mm - 32mm  AD053370
2	Wrench	09002-03641	Applicable width across flats 36 mm - 41 mm
3	Screwdriver	09033-00190	Interchangeable flat-head and cross-head type
4	Socket wrench set	09020-10284	Applicable width across flats 10 mm, 13 mm, 14 mm, 17 mm, 19 mm, 22 mm, 24 mm, 27 mm, 30 mm, 32 mm, 36 mm Extension, Handle, Joint, Bar
5	Hexagonal wrench	09002-00836	Applicable width across flats 8 mm
6	Filter wrench	09019-08035	
7	Grease pump	07950-10450	For greasing work
8	Nozzle	07951-31400	
9	Grease cartridge	07950-90403	(Lithium base grease, 400 g)
10	Hammer	09039-00150	
11	Pinch bar	09055-10390	

If any of the above tools are broken, please order them from your Komatsu distributor.

TIGHTENING TORQUE LIST

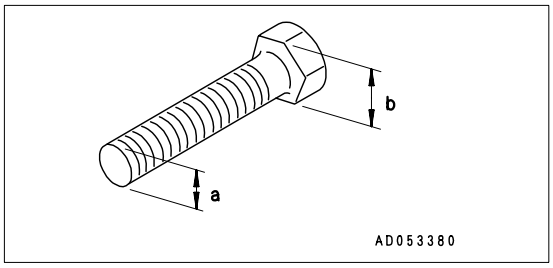
⚠ CAUTION

If nuts, bolts, or other parts are not tightened to the specified torque, it will cause looseness or damage to the tightened parts, and this will cause failure of the machine or problems with operation.
Always pay careful attention when tightening parts.

Unless otherwise specified, tighten the metric nuts and bolts to the torque shown in the table below.

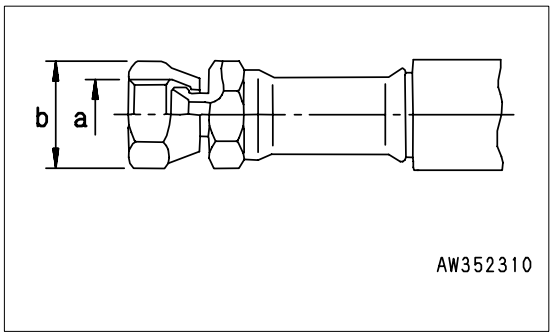
The tightening torque is determined by the width across the flats of the nut and bolt.

If it is necessary to replace any nut or bolt, always use a Komatsu genuine part of the same size as the part that was replaced.



Thread diameter of bolt (a)(mm)	Width across flats (b)(mm)	Tightening torque [N·m (kgf·m)]	
		Target value	Permissible range
6	10	13.2 (1.35)	11.8 - 14.7 (1.2 - 1.5)
8	13	31 (3.2)	27 - 34 (2.8 - 3.5)
10	17	66 (6.7)	59 - 74 (6.0 - 7.5)
12	19	113 (11.5)	98 - 123 (10.0 - 12.5)
14	22	177 (18.0)	157 - 196 (16.0 - 20.0)
16	24	279 (28.5)	245 - 309 (25.0 - 31.5)
18	27	382 (39.0)	343 - 425 (35.0 - 43.5)
20	30	549 (56.0)	490 - 608 (50.0 - 62.0)
22	32	745 (76.0)	662 - 829 (67.5 - 84.5)
24	36	927 (94.5)	824 - 1030 (84.0 - 105.0)
27	41	1320 (135.0)	1180 - 1470 (120.0 - 150.0)
30	46	1720 (175.0)	1520 - 1910 (155.0 - 195.0)
33	50	2210 (225.0)	1960 - 2450 (200.0 - 250.0)
36	55	2750 (280.0)	2450 - 3040 (250.0 - 310.0)
39	60	3280 (335.0)	2890 - 3630 (295.0 - 370.0)
42	65	3830 (390.0)	3430 - 4220 (350.0 - 430.0)

Apply the following table for Hydraulic Hose.



Thread diameter a(mm)	Width across flat b(mm)	Tightening torque [N·m (kgf·m)]	
		Target value	Permissible range
10	14	14.7 (1.5)	12.7 - 16.7 (1.3 -1.7)
14	19	29.4 (3.0)	27.5 - 39.2 (2.8 - 4.0)
18	24	78.5 (8.0)	58.8 - 98.1 (6.0 - 10.0)
22	27	117.7 (12.0)	88.3 - 137.3 (9.0 - 14.0)
24	32	147.1 (15.0)	117.7 - 176.5 (12.0 - 18.0)
30	36	215.7 (22.0)	176.5 - 245.2 (18.0 - 25.0)
33	41	255.0 (26.0)	215.7 - 284.4 (22.0 - 29.0)

SAFETY CRITICAL PARTS

To ensure safety at all times when operating or driving the machine, the user of the machine must always carry out periodic maintenance. In addition, to further improve safety, the parts in the safety-critical parts list on the next page must also be replaced at the specified interval. These parts are particularly closely connected to safety and fire prevention, so please contact your Komatsu distributor to have them replaced.

With these parts, the material changes as time passes, or they easily wear out or deteriorate. However, it is difficult to judge the condition of the parts simply by periodic maintenance, so they should always be replaced after a fixed time has passed, regardless of their condition. This is necessary to ensure that they always maintain their function completely.

However, if these parts show any abnormality before the replacement interval has passed, they should be repaired or replaced immediately.

If the hose clamps show any deterioration, such as deformation or cracking, replace the clamps at the same time as the hoses.

In addition, carry out the checks for the hydraulic hoses other than periodic replacement parts. If any abnormality is found, tighten the clamps or replace the parts.

When replacing the hoses, always replace the O-rings, gaskets, and other such parts at the same time.

Ask your Komatsu distributor to replace the critical parts.

When carrying out the following periodic inspections, also check the hydraulic hoses and the fuel hose.

SAFETY CRITICAL PARTS LIST

NO.	Safety critical parts for periodic replacement	Q'ty	Replacement interval
1	Fuel hose (fuel tank - strainer)	1	Every 4000 hours or 2 years, whichever comes sooner
2	Fuel hose (strainer - priming pump)	1	
3	Fuel hose (priming pump - supply pump)	1	
4	Fuel return hose (injection pump - fuel cooler)	1	
5	Fuel return hose (fuel cooler - fuel tank)	1	
6	Fuel spill hose (engine - fuel tank)	1	
7	Fuel drain hose	1	
8	Heater hose (heater - engine)	2	
9	Fuel hose (strainer - water separator)	1	Every 4000 hours or 2 years, whichever comes sooner (if equipped water separator)
10	Fuel hose (water separator - priming pump)	1	
11	Water separator (case, O-ring, plug)	1	
12	Front pump outlet hose	2	Every 4000 hours or 2 years, whichever comes sooner
13	Rear pump outlet hose	2	
14	Swing hose	4	
15	Sustion hose	4	
16	Boom cylinder line hose (B/H)	4	
17	Arm cylinder line hose (B/H)	4	
18	Bucket cylinder line hose (B/H)	4	
19	Boom cylinder line hose (L/S)	4	
20	Arm cylinder line hose (L/S)	2	
21	Bucket cylinder line hose (L/S)	6	
22	Bottom dump cylinder line hose (L/S)	10	
23	Injector nozzle tip	6	Every 4000 hours
24	High-pressure piping clamp	15	Every 8000 hours
25	Fuel spray prevention cap	16	
26	Seat belt	1	Every 3 years

MAINTENANCE SCHEDULE

MAINTENANCE SCHEDULE CHART

Initial 100 Hours Maintenance (Only after the first 100 hours)

Initial 500 Hours Maintenance (Only after the first 500 hours)

When Required

Checks Before Starting

Every 10 Hours Maintenance

Every 100 Hours Maintenance

Every 250 Hours Maintenance

Every 500 Hours Maintenance

Every 1000 Hours Maintenance

Every 2000 Hours Maintenance

Every 4000 Hours Maintenance

Every 5000 Hours Maintenance

Every 8000 Hours Maintenance

SERVICE PROCEDURE

INITIAL 100 HOURS SERVICE

Carry out the following maintenance only after the first 100 hours.

- CLEAN STRAINER OF P.T.O LUBRICATING OIL FILTER

  For detail of method of replacing or maintaining, see the section on EVERY 500 HOURS SERVICE.

INITIAL 250 HOURS SERVICE

Carry out the following maintenance only after the first 250 hours.

- REPLACE FUEL FILTER CARTRIDGE
- CHANGE OIL IN SWING MACHINERY CASE
- CHANGE OIL IN P.T.O CASE
- CHANGE OIL IN FINAL DRIVE CASE
- CHECK ENGINE VALVE CLEARANCE, ADJUST

  For details of the method of replacing or maintaining, see the section on EVERY 500 HOURS, 1000 HOURS and 2000 HOURS SERVICE.

WHEN REQUIRED

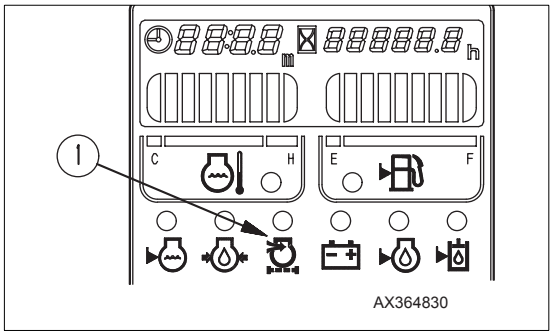
Air Cleaner Element - Check/Clean/Replace

⚠ WARNING

- **If inspection, cleaning, or maintenance is carried out with the engine running, dirt will enter the engine and cause damage to the engine. Always stop the engine before carrying out these operations.**
- **When using compressed air, there is danger of dirt flying and causing personal injury.**
- **Always wear protective glasses, dust mask, or other protective equipment.**
- **When removing the outer element from the air cleaner body, it is dangerous to pull it out by force. When working at high places or where the foothold is poor, be careful not to fall because of the reaction when pulling out the outer element.**

Checking

If air cleaner clogging monitor(1) of the monitor panel flashes, clean the air cleaner element.



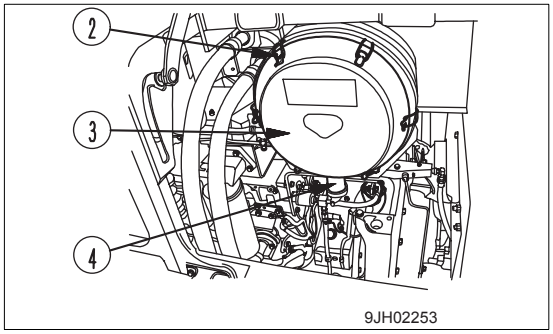
Replacing

- Replacing element, O-ring, If one year has passed since installing the element or if air cleaner clogging monitor (1) on the monitor panel flashes immediately after the element is cleaned, replace the outer element, inner element, and O-ring.
- Replacing evacuator valve, Replace it, if it is damaged or the rubber is markedly deformed.

NOTICE
Do not clean the air cleaner element until the air cleaner clogging monitor on the monitor panel flashes. If the element is cleaned frequently before the clogging monitor flashes, the air cleaner will not be able to display its performance fully, and the cleaning efficiency will also go down. In addition, during the cleaning operation, more dirt stuck to the element will fall inside the inner element.

Outer Element - Clean

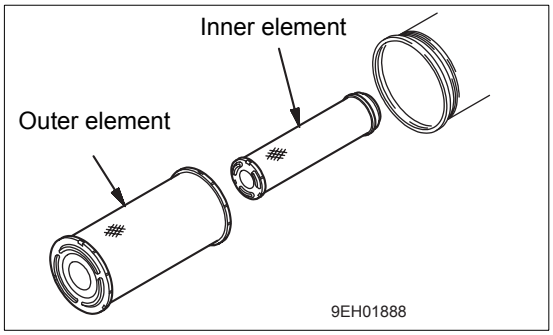
1. Open the engine hood at the front side of the machine, remove 6 hooks (2), then remove cover (3).



NOTICE
Before and after cleaning the element, do not leave or keep it in direct sunlight.

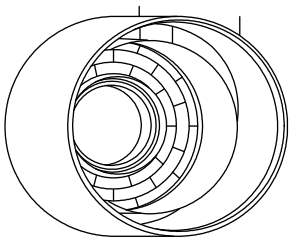
2. Hold the outer element, rock it lightly up and down and to the left and right, and rotate the element to the left and right to pull it out.

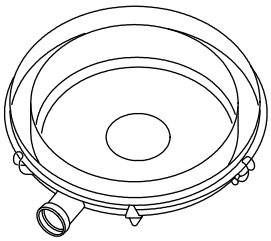
NOTICE
- **Never remove the inner element. It will allow dirt to enter and cause failure of the engine.**
- **Do not use a screwdriver or other tool.**



3. After removing the outer element, cover the air connector inside the air cleaner body with a clean cloth or tape to prevent dirt or dust from entering.

4. Wipe off or brush off the dirt stuck to cover (3) and the inside of the air cleaner body.


Air cleaner body 9EH01889


③ Cover 9EH01890

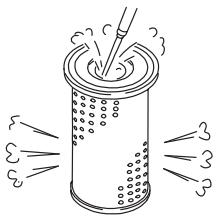
9EH01890

5. Remove any dirt or dust that is accumulated to evacuator valve (4) installed to cover (3).


Evacuator valve
9EH01891

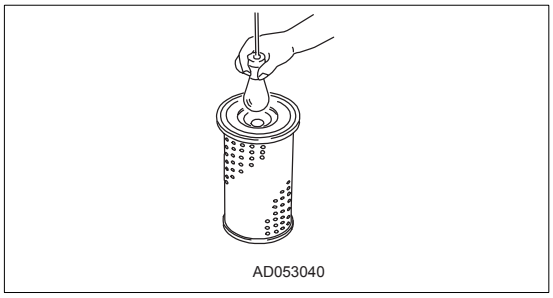
6. Direct dry compressed air (less than 0.69MPa (7kgf/cm2)) to the outer element(4) from inside along its folds, then direct it from outside along its folds and again from inside.

   - Remove one seal from the element whenever the element has been cleaned.
   - Replace the outer element which has been cleaned 5 times repeatedly or used throughout a year. Replace the inner element at the same time.
   - Replace both inner and outer elements when the monitor lamp (1) flashed soon after installing the cleaned outer element even though it has not been cleaned 5 times.
   - Check that there is no play in the inner element. If any play is found, push it in properly.


AD053020

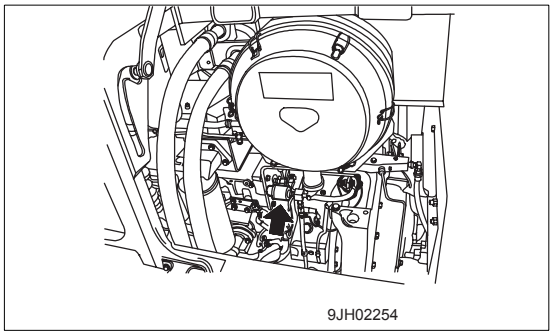
7. Remove the cloth or tape cover installed in Step 3.

8. If small holes or thinner parts are found on the element when it is checked by shining a light through it after cleaning, replace the element.


AD053040

NOTICE
- **When cleaning the element, do not hit or beat it against anything.**
- **Do not use an element whose folds or gasket or seal are damaged.**

9. When replacing the element, push the indicator button at the bottom of the air cleaner to reset it.


9JH02254

Air Cleaner Element - Install

NOTICE
- **Do not use any damaged gasket or seal or element with damaged pleats.**
- **Cleaning the element or O-ring after one year has passed and using them again will cause problems. Always replace them with new parts.**
- **The seal portion on imitation parts lacks precision, and allows the entry of dust, which leads to damage of the engine. Do not use such imitation parts.**
- **Do not run the engine with the inner element removed. It will cause damage to the engine.**

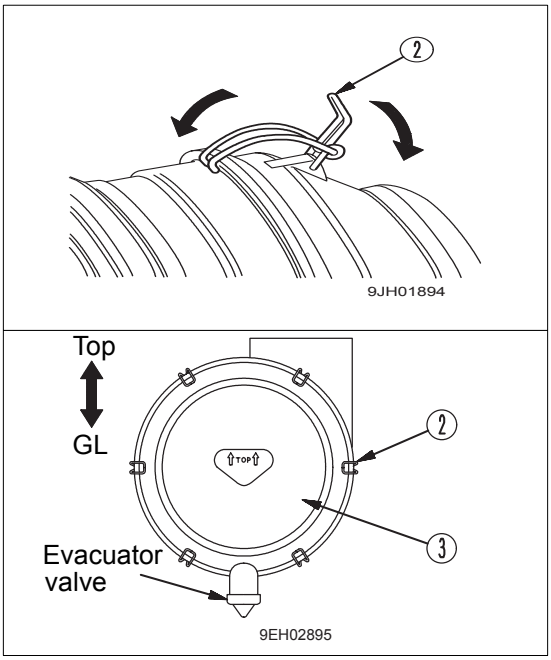
1. Check that there is no dirt or oil stuck to the seal portion of the new element or cleaned element. Wipe off any dirt or oil.

2. When the outer element has been removed, check that the inner element has not come out of position and is not at an angle. If is is at an angle, insert your hand and push it in straight.

3. Push the outer element in straight with your hand when installing it to the air cleaner body.If the element is held and rocked lightly up and down and to the left and right while pushing it in, the element can be inserted easily.

NOTICE
When inserting the element, if the rubber at the tip is swollen or the outer element is not pushed in straight, and cover (3) is assembled by force to hook (2), there is danger that the hook and air cleaner body may be damaged, so be careful when assembling.

4. Install cover (3) as follows.
   - ❍ Align cover (3) with the element.
   - ❍ Hook the tip of hook (2) to the protruding part of the air cleaner body and lock it in position.
   - ❍ When locking hooks (2) in position, apply the hooks in turn on opposite sides (top, bottom, left, right) in the same way as when tightening bolts.
   - ❍ Always install cover (3) so that the evacuator is facing the ground.
   - ❍ When cover (3) is installed, check that the clearance between the air cleaner body and cover (3) is not too large. If it is too large, install again.

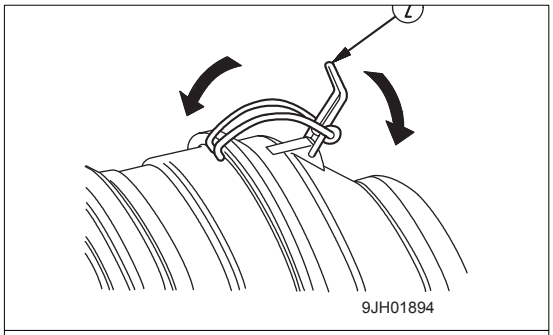


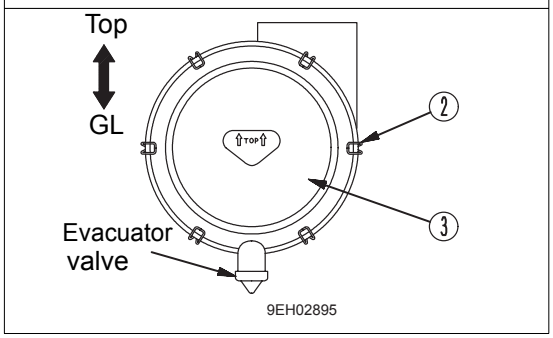
Air Cleaner Inner Element - Replace

1. First remove the outer element, and then remove the inner element.
2. Cover the air connector side (outlet side) with a clean cloth or tape.
3. Clean the air cleaner body interior, then remove the cover from the air intake port in Step 2.
4. Install a new inner element to the connector, then tighten the nut.

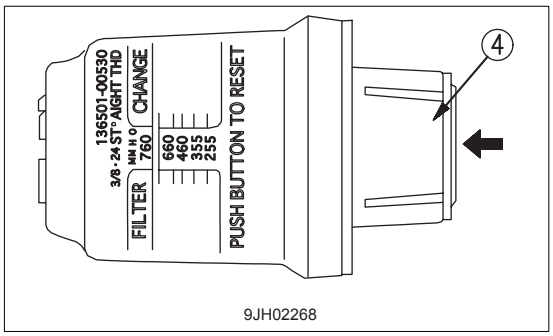
NOTICE
The inner element must not be cleaned and used again. When replacing the outer element, replace the inner element at the same time.

5. Set the outer element in position, then lock cover (3) with hooks (2).





6. After replacing the element, press reset button (4) of the dust indicator to return the yellow display to its original position.



Cooling System Coolant - Clean/Change

⚠ WARNING

- **Immediately after the engine is stopped, the coolant is at a high temperature and the radiator is under high internal pressure. If the cap is removed to drain the coolant in this condition, there is a hazard of burns. Wait for the temperature to go down, then turn the cap slowly to release the pressure before removing it.**
- **Cleaning is carried out with the engine running. When standing up or leaving the operator's seat, set the safety lock lever to the LOCK position.**
- **For details of starting the engine, see““BEFORE STARTING THE ENGINE” on page 26“ and ““STARTING ENGINE” on page 115“ in the OPERATION section.**
- **There is danger of touching the fan if the undercover is left removed.**
- **Never enter behind the machine when the engine is running.**

Clean the inside of the cooling system, change the coolant and replace the corrosion resistor according to the table below.

Kind of coolant	Cleaning inside of cooling system and changing coolant	Replacing corrosion resistor
Permanent type antifreeze (All season type)	Every year (autumn) or every 2000 hours, whichever comes first	Every 1000 hours and when cleaning the inside of the cooling system and when changing coolant
Non permanent type ethylene glycol (winter, one season type)	Every 6 months (spring,autumn) (Drain antifreeze in spring, add it in autumn)	
Wehn no using antifreeze	Every 6 months or every 1000 hours, whichever come first	

Stop the machine on level ground when cleaning or changing the coolant.

Use a permanent type of antifreeze.

If, for some reason, it is impossible to use permanent type antifreeze, use an antifreeze containing ethylene glycol.

Super Coolant (AF-ACL) has an anti-corrosion effect as well as an antifreeze effect.

The ratio of antifreeze to water depends on the ambient temperature, but to obtain the corrosion resistance effect, a minimum ratio of 30% by volume is necessary.

When deciding the ratio of antifreeze to water, check the lowest temperature in the past, and decide from the mixing rate table given below.

It is actually better to estimate a temperature about 10°C lower when deciding the mixing rate.

Mixing rate of water and antifreeze

Min. atmospheric temperature	°C	- 10	- 15	- 20	- 25	- 30
Amount of antifreeze	liters	25.5	30.5	34.8	39.0	42.5
Amount of water	liters	59.5	54.5	50.2	46.0	42.5

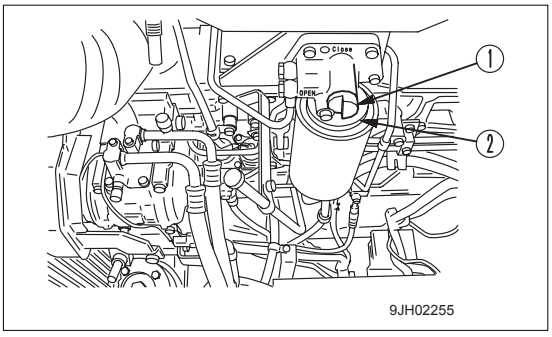
⚠ WARNING

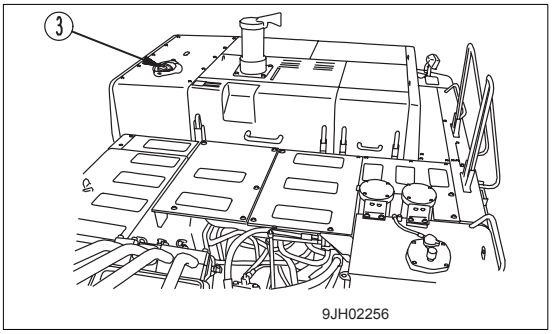
Antifreeze is flammable, so keep it away from flame. Antifreeze is toxic. When removing the drain plug, be careful not to get water containing antifreeze on you. If it gets in your eyes, flush your eyes with large quantities of fresh water and see a doctor at once.

Use city water for the cooling water. If river water, well water or other such water supply must be used, contact your Komatsu distributor. We recommend use of an antifreeze density gauge to control the mixing proportions.

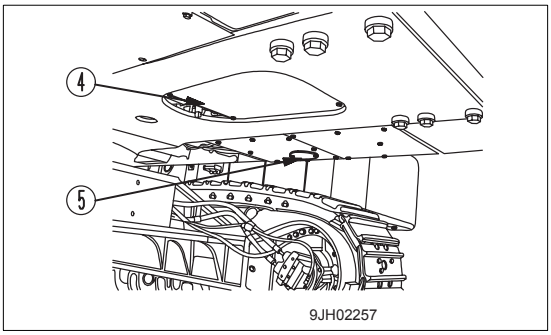
- Prepare a container to catch drained coolant: Min 85 liters capacity.

1. Stop the engine, then turn valve (1) of corrosion resistor (2) to the CLOSE stopper position.
2. After removing the small cover (fastened with two bolts) of the engine hood on top of the radiator cap, turn the radiator cap (3) slowly and remove it.





3. Remove undercovers (4) and (5).



4. Set a container under drain valves (6) and (7) to catch the coolant, then open drain valves (6) and (7) and drain the coolant.

- When draining the coolant, install the drain hose (kept in the toolbox) to drain valves (6) and (7) and be careful not to let the coolant splash.

5. After draining the water, tighten drain valves (6) and (7), and fill with tap water. When the radiator is full, start the engine and run at low idling. Keep the engine running at low idling for 10 minutes until the water temperature reaches more than 90°C.

6. Stop the engine, open drain valves (6) and (7), and drain the water.

7. After draining the water, clean the radiator with detergent. When carrying out the flushing operation, follow the instructions given with the flushing agent.

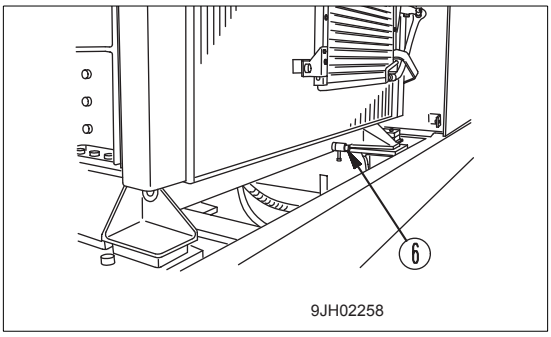
8. Close drain valves (6) and (7).

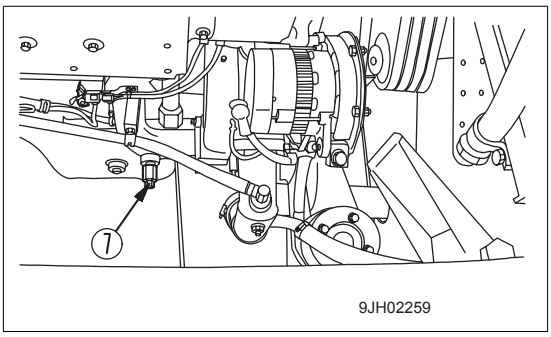
9. Replace the corrosion resistor, and turn valve (1) to the OPEN stopper position.For details of the method for replacing the corrosion resistor cartridge, see ““Corrosion Resister Cartridge - Replace” on page 238“.

10. Install undercovers (4) and (5).

11. Fill with antifreeze and tap water until the water overflows from the water filler. Determine the proportions of antifreeze and water in accordance with the water and antifreeze mixture table.

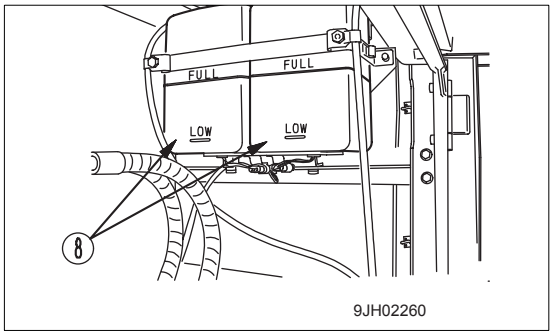
12. After the engine warming up, check that each gauge and caution lamp are in normal condition. If any abnormality is found, carry out adjustment or repairs.Operate the machine under a light load until the engine water temperature gauge (2) points to the white range (monitor panel spec.) or the green range(gauge panel spec.). To remove the air in the cooling water, run the engine for 5 minutes at low idling, then for another 5 minutes at high idling. (While doing this, leave the radiator cap removed).





13. Open the cover at the left side at the rear of the machine, drain the coolant from sub tank (8), wash the inside of the sub tank, remove cap (9), then fill with water to between the FULL and LOW marks.

14. Stop the engine and tighten the cap. Check the coolant level, and add water if necessary.



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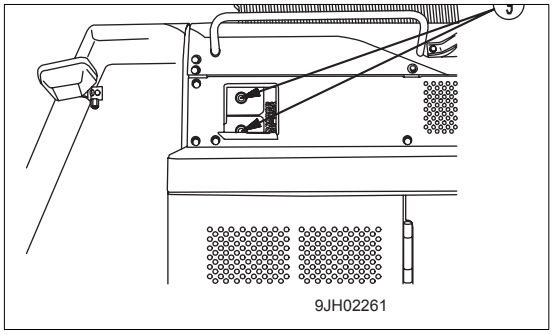
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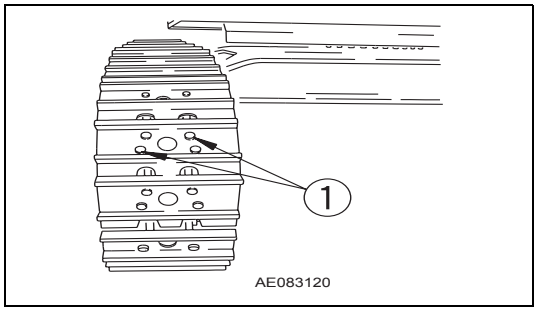
CHECK AND TIGHTEN TRACK SHOE BOLTS

Shoe bolts (1) which secure track shoes to links will break if used in a loosened state, so loose bolts must always be re tightened.



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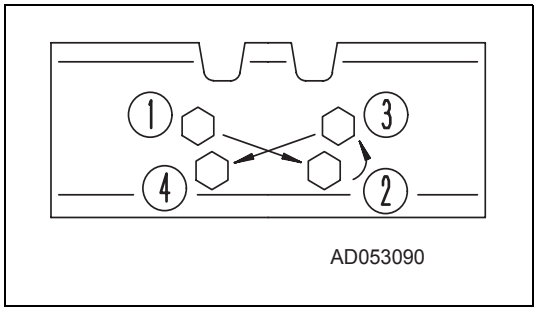
Tightening torque:

Tighten to an initial torque of 784.5 ± 78.4 N•m, check that the mating surfaces are in contact, then tighten a further 120° ± 10°.

Order for tightening:

Tighten the bolts in the order shown in the diagram. After tightening, check that the nut and shoe are in close contact with the link mating surface.



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CHECK AND ADJUST TRACK TENSION

⚠ WARNING

Carry out this operation with two workers. The operator must move the machine in accordance with the signals from the other worker. The track tension is checked with the chassis raised, so it is extremely dangerous if the machine is lowered by mistake during the inspection. Never move the machine while anyone is carrying out measurements.

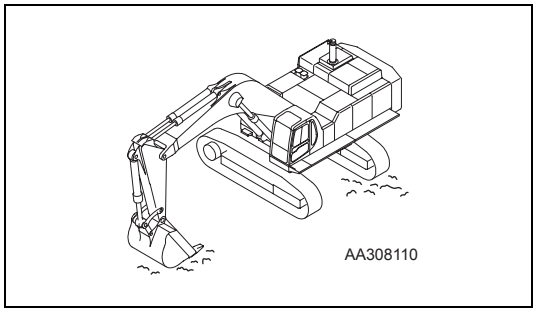
The wear of pins and bushings on the undercarriage will vary with the working conditions and soil properties. It is thus necessary to continually inspect the track tension so as to maintain the standard tension.

Carry out the check and adjustment under the same conditions as when operating (on jobsites where the track becomes clogged with mud, measure with the track clogged with mud).

Inspection

1. Raise the chassis with the boom and arm.
   When doing this, operate the levers slowly.

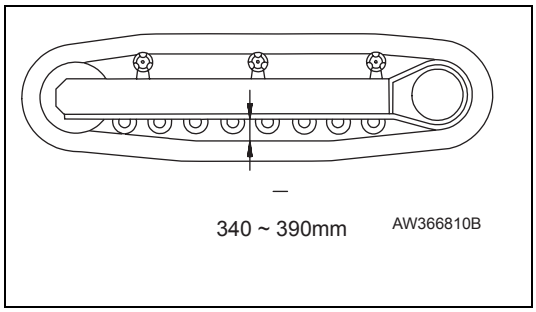
2. Measure the clearance between the sprocket and the top of the track shoe at a position that is safe even if the chassis should come down.



3. Measure the clearance between under face of the track frame and the shoe attached surface of the track link between the 4th and 5th track roller. The standard tension is a clearance of 340 - 390 mm.

REMARK
For standard tension, greasing value is 500 cc per one side.

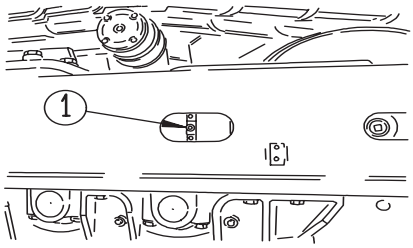
If the track tension is not at the standard value, adjust it in the following manner.



Adjustment

⚠ WARNING

Grease inside the adjusting mechanism is under high pressure. Grease coming from plug (1) under pressure can penetrate the body causing injury or death. For this reason, do not loosen plug more than one turn. Do not loosen any part other than plug. Furthermore, do not bring your face in front of the plug.
If the track tension is not relieved by this procedure, please contact your Komatsu distributor.



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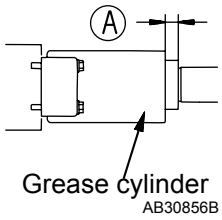
When increasing tension

Prepare a grease gun.

1. Pump in grease through grease fitting (1) with a grease gun.
2. To check that the correct tension has been achieved, move the machine slowly forwards.



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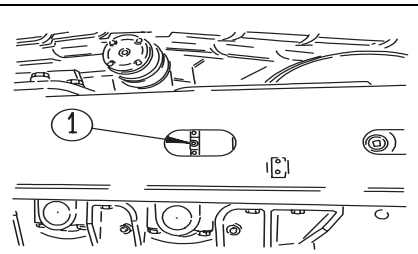
3. Check the track tension again, and if it is not correct, adjust it again.
4. Continue to pump in grease until (A) becomes 148 mm. If the tension is still loose, the pin and bushing are excessively worn, so they must be either turned or replaced. Please contact your Komatsu distributor.

When reducing tension

⚠ WARNING

It is extremely dangerous to release the grease by any method except the procedure given below. If the track tension is not relieved by this procedure, please contact your Komatsu distributor.



ae083160

1. Loosen plug (1) gradually to release the grease.
2. Turn plug (1) a maximum of one turn.
3. If the grease does not come out smoothly, move the machine backwards and forwards a short distance.
4. Tighten plug (1).
5. To check that the correct tension has been achieved, move the machine backwards and forwards.

6. Check the track tension again, and if the tension is not correct, adjust it again.

CHECK ELECTRICAL INTAKE AIR HEATER

Before the start of the cold season (once a year), contact your Komatsu distributor to have the electrical intake air heater repaired or checked for dirt or disconnections.

Remove the electrical intake air heater from the engine intake connection, and check it for possible open-circuits and dirt.

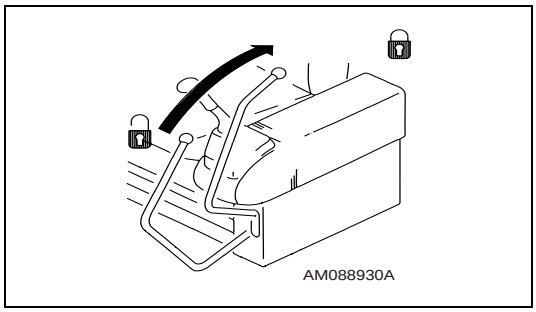
When inspecting and replacing the electrical intake air heater, replace the gasket with new one.

REPLACE BUCKET TEETH (HORIZONTAL PIN TYPE)

Replace the teeth before the wear reaches the adapter.

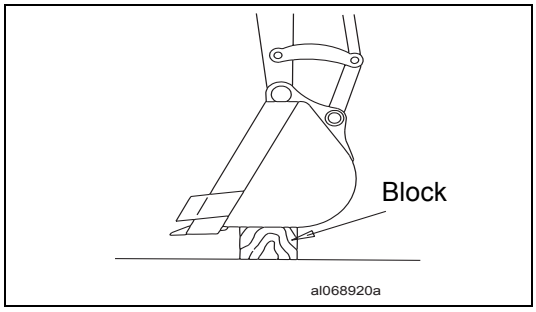
⚠ WARNING

It is dangerous if the work equipment moves by mistake when the teeth are being replaced. Set the work equipment in a stable condition, then stop the engine and apply the locks securely to the levers.



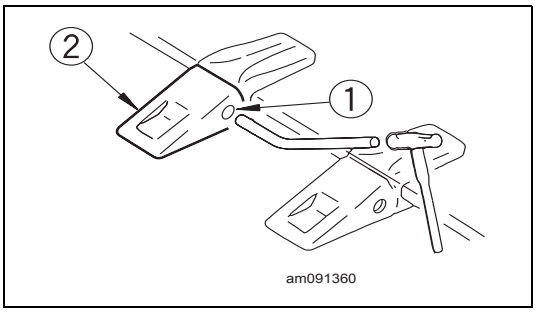
1. Place a block under the bucket bottom so that the pin of tooth (2) can be knocked out with a hammer. Carry out full stroke operation of the control levers within 15 seconds after the engine has stopped. After confirming that the work equipment is in a stable condition, lock the safety lock lever.

   Set so that the bottom face of the bucket is horizontal.

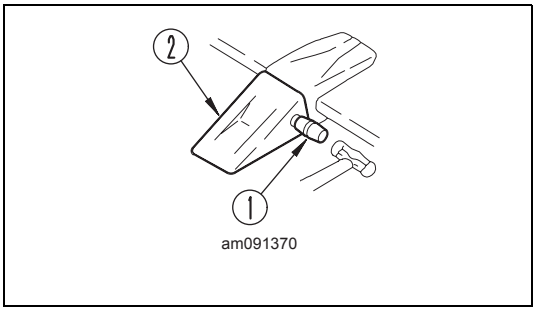


2. Place a bar on the pin head and strike the bar with a hammer to knock out pin (1). Remove tooth (2).

REMARK
Use a round bar with a smaller diameter than that of the pin.



3. Clean the mounting face. Fit a new tooth (2) in the adapter, push in pin (1) partially by hand, then lock it with a hammer to install the tooth to the bucket.

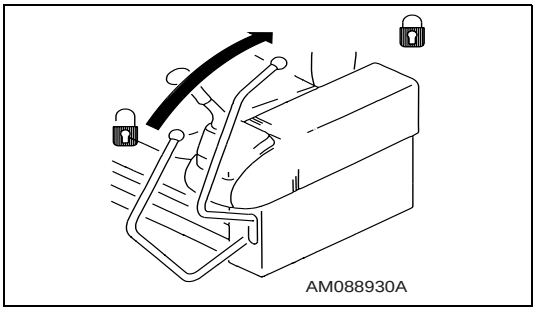


ADJUST BUCKET CLEARANCE

⚠ WARNING

It is dangerous if the work equipment moves by mistake when the clearance is being adjusted.Set the work equipment in a stable condition, then stop the engine and lock the lever securely.

If there is excessive free play on the coupling section of the bucket and arm, adjust the bucket clearance in the following manner.

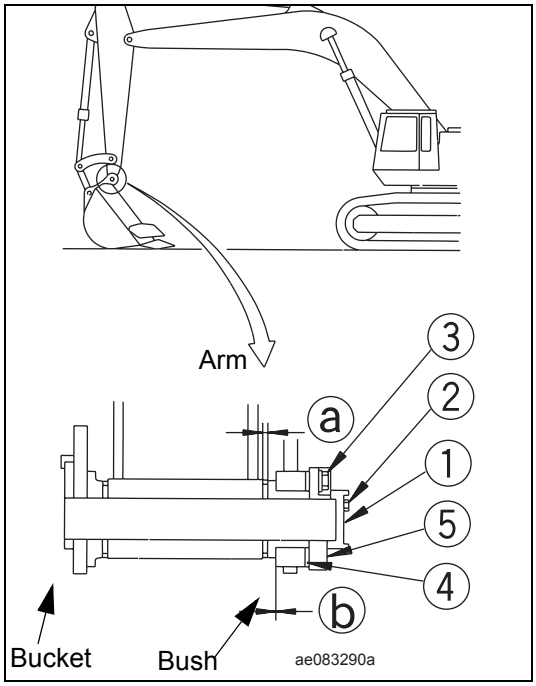


1. Set the work equipment to the position shown in the diagram at right, stop the engine and set the lock lever to the locked position.
2. Loosen 3 bolts (2), 6 bolts (3), plate (1) and plate (5).
3. Take out shims (4) equivalent in size to free play (a).

   Thickness of shim (4) is 0.5 mm or 1.0 mm.

   When free play (a) is less than a thickness of shim, do not compress the shims by tightening bolt (2).
4. Tighten 3 bolts (2) and 6 bolts (3).

   With this adjustment, clearance (b) becomes larger, but play (a) is removed.

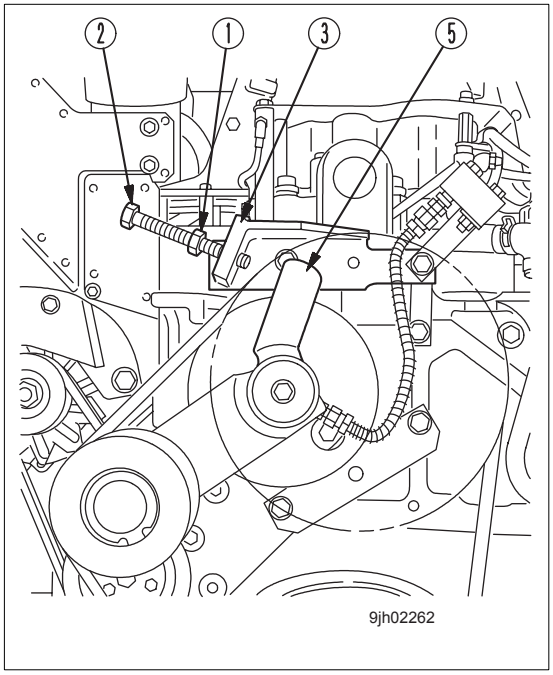


Replacement of Fan Belt and Adjustment of Auto Tensioner

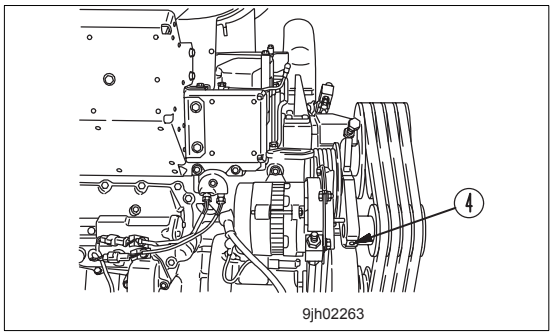
An auto-tensioner is installed, so there is no need to adjust until the belt is replaced.

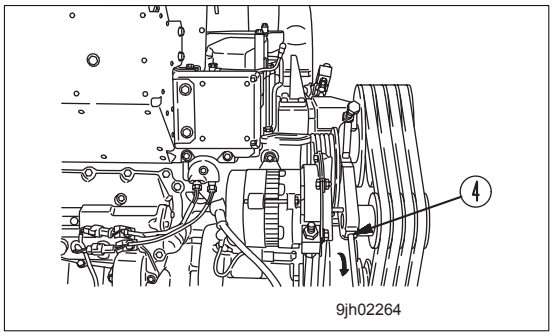
Replacement

1. After loosening locknut (1), loosen adjustment screw (2) and pull back to bracket (3).



2. Insert a bar of a length of approx. 50 cm into hole (4) of the tension pulley bracket, then pull strongly.
3. The tension of the spring is extended and the tension pulley is moved to the inside, so remove the old belt and fit a new belt. Replace the V-belts as a set of 4.

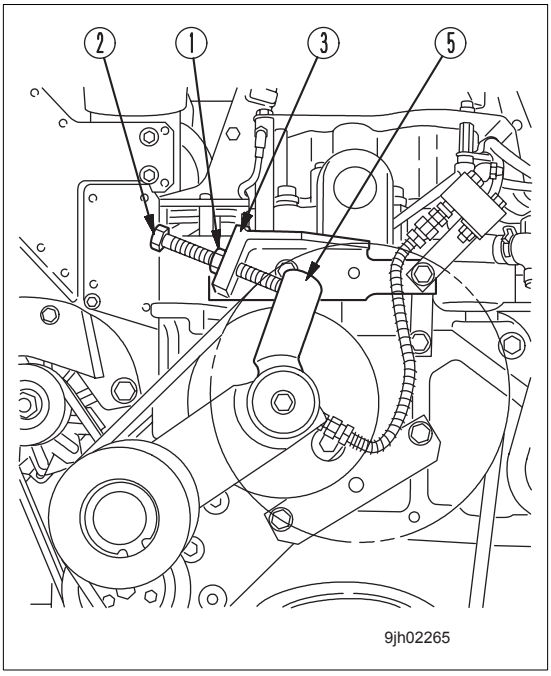




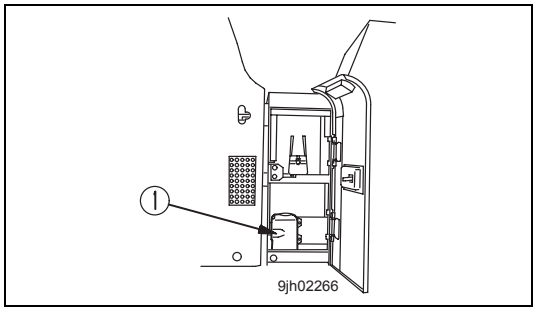
Adjustment

1. Tighten adjustment screw (2), bring the tip of the adjustment screw into contact with tension pulley lever (5), then tighten the adjustment screw a further 2 turns and hold it in position with locknut (1).
2. If a gap forms between the tip of adjustment screw (2) and tension pulley lever (5) during operation, repeat the adjustment procedure in Step 1.

   If the fan belt screeches, use the same procedure to adjust.



CHECK WINDOW WASHER FLUID LEVEL, ADD FLUID



If air is ejected with the window washer fluid, check the fluid level in window washer tank (1). If showing under the level, fill with automobile window washer fluid.

When adding fluid, be careful not to let dirt or dust get in.

- Mixture ratio of pure washer fluid and water
  Since the ratio should be varied depending on atmospheric temperature, replenish washer fluid at the following mixture ratio, taking temperature into account.

Operation area and season	Mixture ratio	Freezing temperature
Normal	Pure washer fluid 1/3: water 2/3	- 10°C
Winter in cold region	Pure washer fluid 1/2: water 1/2	- 20°C
Winter in extremely cold region	Pure washer fluid	- 30°C

Pure washer fluid comes in two types: for -10°C (for general use) and for -30°C (cold regions).

Use pure washer fluid according to operation area and season.

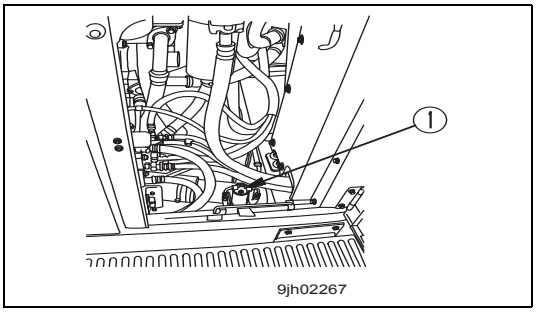
AIR CONDITIONER CHECK AND MAINTENANCE

CHECK LEVEL OF REFRIGERANT (GAS)

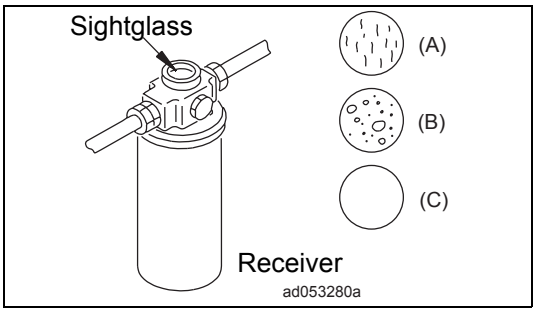
⚠ WARNING

- **When handling the refrigerant (gas), always follow the local regulations.**
- **If the refrigerant used in the cooler gets into your eyes or on your hands, it may cause loss of sight or frostbite, so never loosen any part of the refrigerant circuit.**

If the level of the refrigerant (gas) is low, the cooling effect will be reduced. Run the engine at high idling, and check the flow of the refrigerant gas (freon 134a) in the refrigerant circuit through the sight glass (inspection window) of the receiver (1) when the cooler is running at high speed.



- (A) No bubbles in refrigerant flow : suitable
- (B) Some bubbles in flow (bubbles pass continuously) : lack of refrigerant
- (C) Colorless, transparent : no refrigerant



REMARK

When there are bubbles, the refrigerant gas level is low, so contact your refrigerant dealer to have refrigerant added. If the air conditioner is run with the refrigerant gas level low, it will cause damage to the compressor.

INSPECTION DURING OFF-SEASON

Even when not required, run the compressor at low speed for 3 - 5 minutes once a month to prevent the loss of the oil film at the lubricated parts of the compressor.

Table of cooler check and maintenance items

Check, maintenance items	Content of check, maintenance	Guideline for maintenance interval
Refrigerant (gas)	Charge amount	Twice a year (spring, autumn)
Condenser	Clogged fins	Every 500 hours
Compressor	Operating condition	Every 4000 hours
V-belt	Damage, tension	Every 250 hours
Blower motor, fan	Operating condition (does it make abnormal noise?)	When required
Control mechanism	Operating condition (does it function normally?)	When required
Piping mounts	Mounting condition, looseness at tightening or connecting portions, leakage of gas, damage	When required

Clean Line Filter, Remove Dirt

If there is any abnormality in the pump or other hydraulic equipment, remove the dirt from inside the line filter as follows.

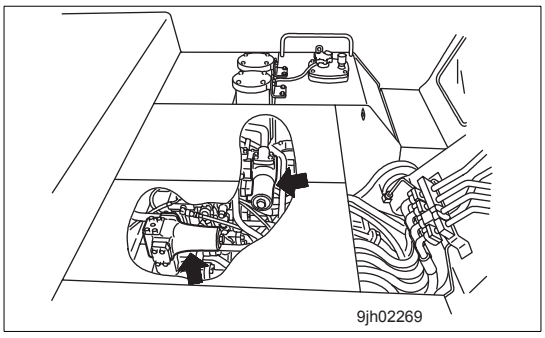
Before removing the line filter, release the pressure inside the hydraulic circuit. For details, see ““RELEASING PRESSURE” on page 178“.

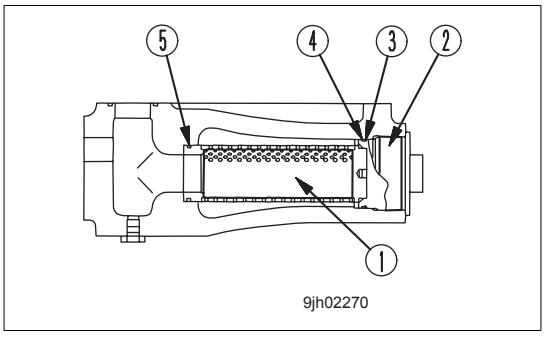
1. Remove plug (2).
2. Using a bolt (10 mm), remove filter (1).
3. Wash filter (1).

   Be careful to remove the dirt stuck to the side face of the filter when washing it.
4. Replace backup ring (3) and O-rings (4) and (5) with new parts.
5. Assemble filter (1) after washing it.

   Tightening torque for plug (2): 181 ± 18.1 N·m (18.5 ± 1.85 kgf·m)

After assembling the line filter again, bleed the air. For details, see ““Procedure for bleeding air” on page 179“.





CHECK BEFORE STARTING

CHECK COOLANT LEVEL

see “CHECK COOLANT LEVEL, ADD WATER” on page 103.

CHECK OIL LEVEL IN ENGINE OIL PAN

see “Engine Crankcase Oil Level - Check/Add” on page 104.

CHECK FUEL LEVEL

see “CHECK FUEL LEVEL, ADD FUEL” on page 105.

CHECK OIL LEVEL IN HYDRAULIC TANK

see “CHECK OIL LEVEL IN HYDRAULIC TANK” on page 213.

CHECK FOR CLOGGING OF AIR CLEANER

see “CHECK AIR CLEANER FOR CLOGGING” on page 108.

CHECK ELECTRICAL WIRING

see “CHECK ELECTRIC WIRINGS” on page 108.

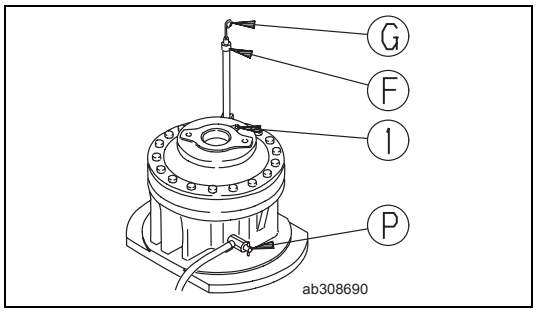
CHECK FUNCTION OF HORN

see “CHECK FUNCTION OF HORN” on page 109.

CHECK OIL LEVEL IN SWING MACHINERY CASE, ADD OIL

⚠ WARNING

The oil is at high temperature immediately after the machine has been operated. Wait for the oil to cool down before carrying out maintenance.



1. Remove dipstick (G) and wipe the oil from the dipstick with a cloth.
2. Insert dipstick (G) fully in the guide.
3. When dipstick (G) is pulled out, if the oil level is between the H and L marks of the gauge, oil level is proper.
4. If the oil does not reach the L mark on dipstick (G), add engine oil through dipstick insertion hole (F).
   When refilling, remove bleeding plug (1).

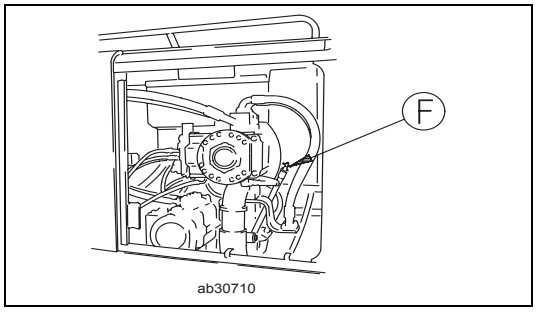
   For details of the oil to use, see "USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE" on page 184.
5. If the oil level exceeds the (H) mark on the dipstick, loosen drain valve (P) to drain the excess oil.
6. After checking oil level or adding oil, insert the dipstick into the hole and install air bleeding plug (1).

CHECK OIL LEVEL IN P.T.O. CASE, ADD OIL

⚠ WARNING

The oil is at high temperature immediately after the machine has been operated. Wait for the oil to cool down before carrying out maintenance.

NOTICE
Park the machine on flat ground and stop the engine. After waiting for more than 30 minutes after stopping the engine, check the oil level.



1. Open the left side cover and use dipstick F to check the oil level.
2. The oil level should be between the L and H marks. If necessary, add engine oil at the dipstick guide hole.

   For details of the oil to use, see "USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE" on page 184.

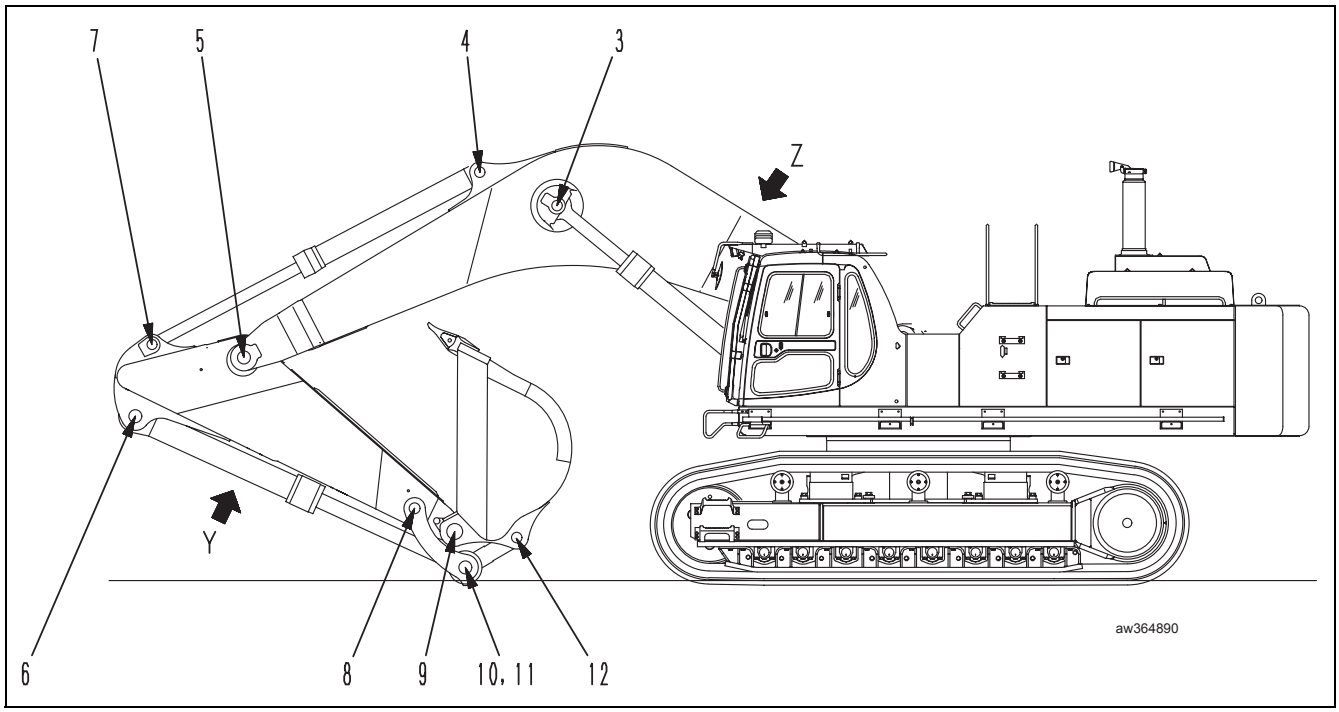
EVERY 10 HOURS SERVICE

⚠ WARNING

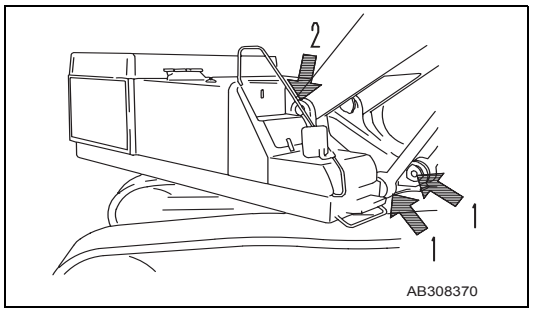
If any abnormal noise comes from the greasing points of the work equipment, apply grease regardless of the service interval.

LUBRICATING

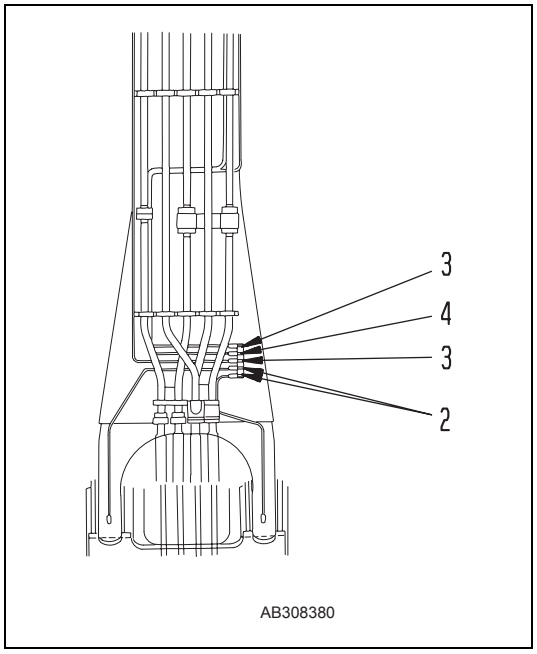
1. Set the work equipment in the greasing posture below, then lower the work equipment to the ground and stop the engine.
2. Using a grease pump, pump in grease through the grease fittings shown by arrows.
3. After greasing, wipe off any old grease that was pushed out.



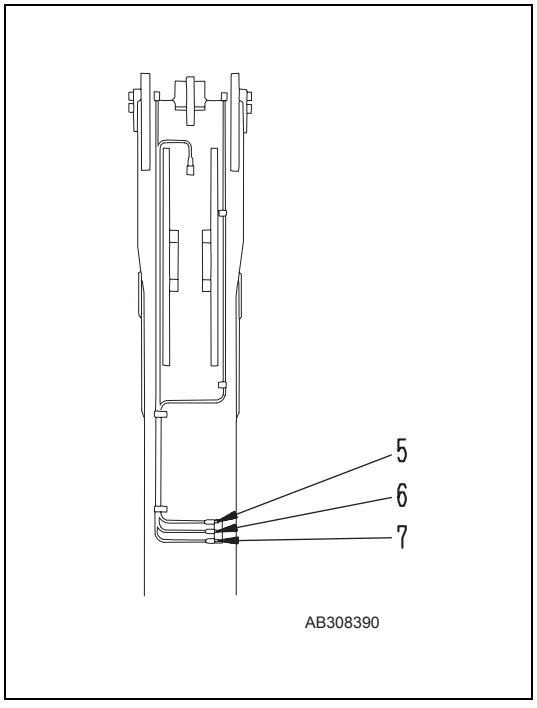
1. Boom cylinder foot pin (2 points)



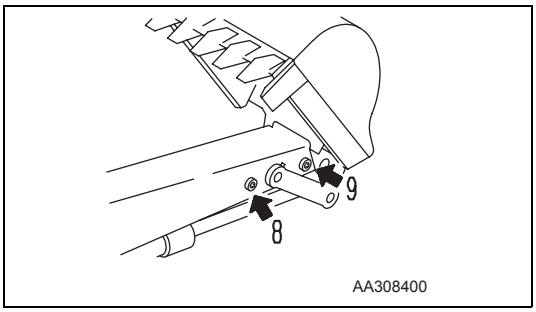
2. Boom foot pin (2 points)
3. Boom cylinder rod end pin (2 points)
4. Arm cylinder foot pin (1 point)



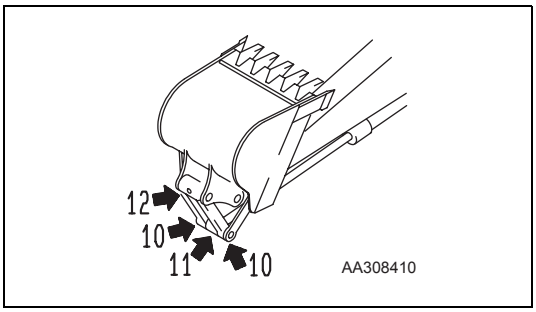
5. Boom-Arm coupling pin (1 point)
6. Bucket cylinder foot pin (1 point)
7. Arm cylinder rod end pin (1 point)



8. Arm-Link coupling pin (1 point)
9. Arm-Bucket coupling pin (1 point)



10. Link coupling pin (2 points)
11. Bucket cylinder rod end pin (1 point)
12. Bucket-Link coupling pin (1 point)

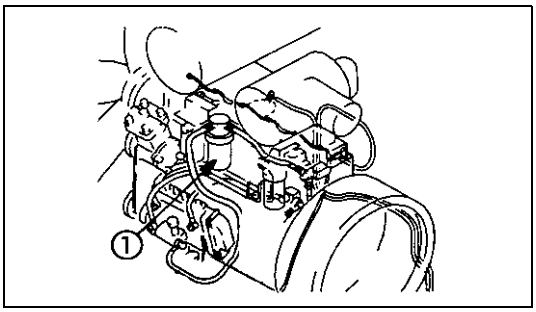


DRAIN FUEL - WATER SEPARATOR

⚠ WARNING

- **Engine is at high temperature immediately after the machine has been operated. Wait for engine to cool down before replacing the filter.**
- **Do not bring fire or sparks near the fuel.**

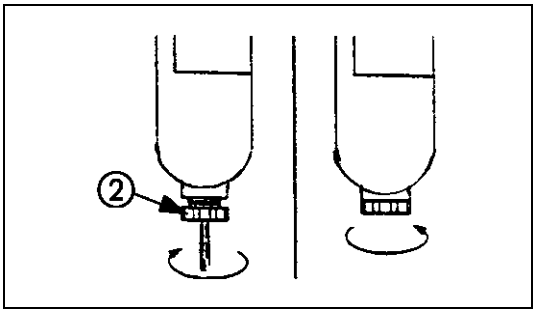
1. Shut the engine OFF. Use your hand to open the drain valve (2) on water separator (1). Turn the valve counter clockwise approximately 2-1/2 turns until draining occurs. Drain the filter sump of water until clear fuel is visible.



⚠ WARNING

Do not overtighten the valve. Overtightening can damage the threads.

2. Turn to valve clockwise approximately 2-1/2 turns to close the drain valve.



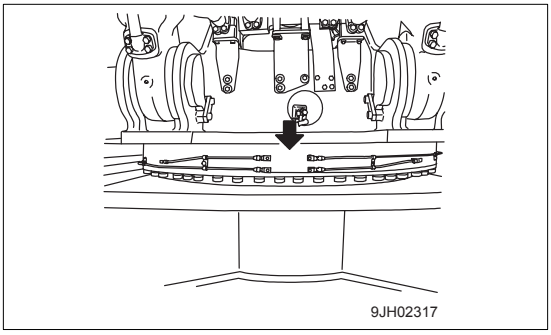
EVERY 100 HOURS MAINTENANCE

Maintenance for every 10 hours service should be carried out at the same time.

Swing Circle - Lubricate

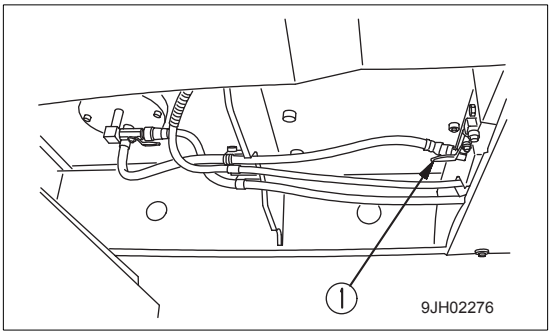
(4 points)

1. Lower the work equipment to the ground.
2. 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.



Fuel Tank - Drain

1. Carry out this procedure before operating the machine.
2. Prepare a container to catch the fuel that is drained.
3. Open valve (1) at the bottom of the tank and drain the sediment and water that has accumulated at the bottom together with fuel. When doing this, be careful not to get fuel on yourself.
4. When only clean fuel comes out, close drain valve (1).



EVERY 250 HOURS MAINTENANCE

Maintenance for every 10 hours service should be carried out at the same time.

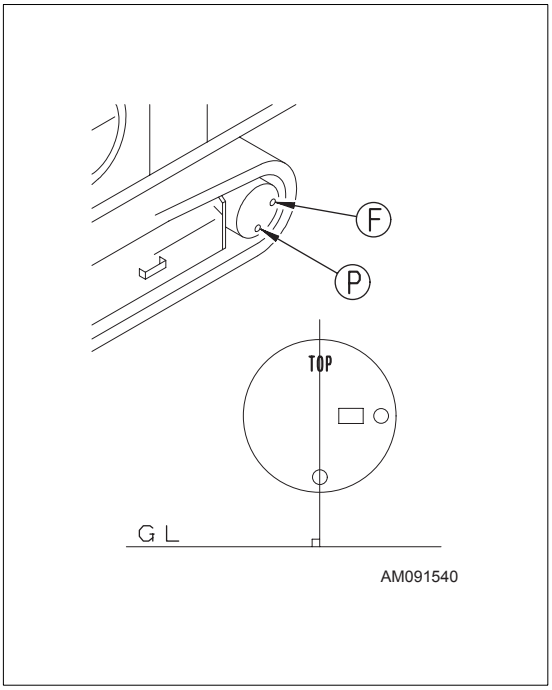
Final Drive Case Oil Level - Check/Add

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause serious 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.**
- **Loosen the plug slowly to release the pressure.**

- Prepare a handle.

1. Set the TOP mark at the top, with the UP mark and plug (P) perpendicular to the ground surface.
2. Using a handle, remove plug (F) and check that the oil level is within a range of 10 mm (0.4 in) below the bottom edge of the plug hole.
3. If the oil level is low, check again. Install plug (F), operate the travel lever, travel in FORWARD or REVERSE, and rotate the sprocket one turn. Carry out the inspection for Procedure 2 again.
4. If the oil level is still too low, add engine oil through the hole in plug (F) until the oil overflows.
5. After checking, install plug (F).



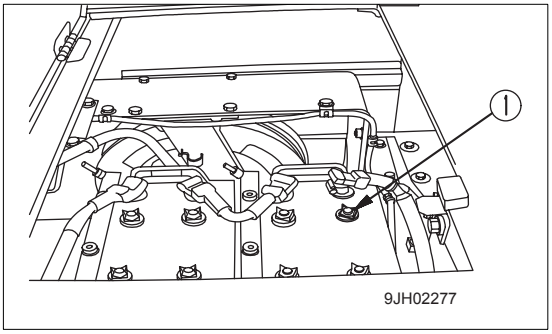
Battery Electrolyte Level - Check

⚠ 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 a doctor.**

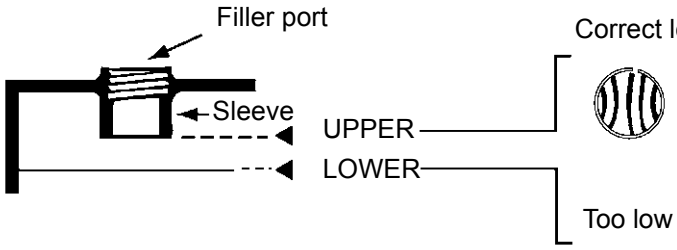
Carry out this check before operating the machine.

1. Open the battery box cover on the right side of the machine.
2. Remove cap (1) and check that the battery electrolyte is up to the UPPER LEVEL line. If the level is low, add distilled water to the UPPER LEVEL line.Do not add water above the UPPER LEVEL line. This may cause leakage of the electrolyte, which may cause fire.
3. Clean the air breather in the battery cap, then tighten cap (1) securely. Keep the top of the battery clean and wipe with a damp cloth.When adding distilled water in cold weather, add it before starting operations in the morning to prevent the electrolyte from freezing.



Check the line for the battery electrolyte level as follows.

1. To judge the position of the electrolyte level, remove cap (1), look through the filler port, and check if the electrolyte level reaches the sleeve.



Correct level

The electrolyte level is up to the bottom of the sleeve,so the surface tension causes the surface to rise and the plate appears to be warped.

Too low

The electrolyte level is not up to the bottom of the sleeve,so that the plate appears normal.

NOTICE
When adding distilled water in cold weather, add it before starting operations in the morning to prevent the electrolyte from freezing.

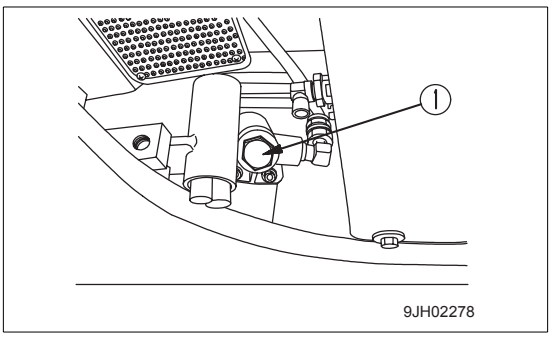
2. Clean the air breather in the battery cap, then tighten cap (1) securely. Keep the top of the battery clean and with a damp cloth.When adding distilled water, wait until starting operations next morning in order to prevent the electrolyte from freezing.

REMARK

If water is added to above the bottom tip of the sleeve, use a pipette to remove electrolyte. Neutralize the removed electrolyte with sodium bicarbonate, then flush it away with a large amount of water. If necessary, contact your Komatsu distributor or your battery maker.

Fuel tank Strainer - Check/Clean

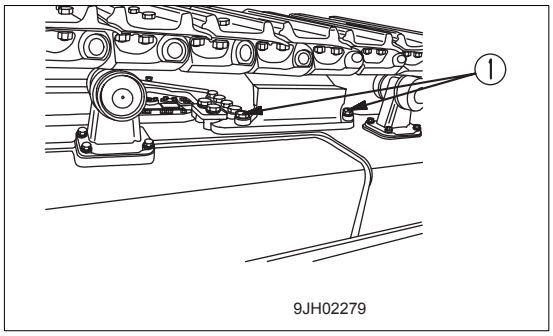
Remove cap (1) of the strainer case at the bottom of the oil pan, take out the strainer, then wash the strainer and strainer case.



Track Frame and Axle Connecting Bolts - Check/ Tighten

Bolts (1) connecting the track frame and axle will break if they remain loose, so loose bolts must always be retightened.

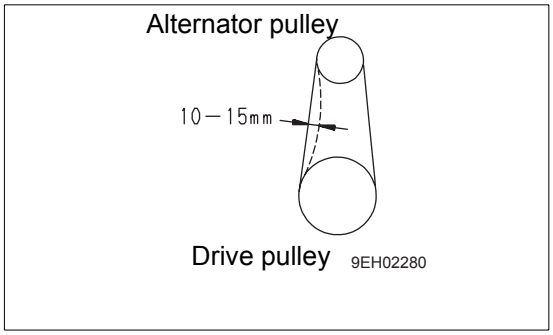
- Tightening torque: 2746 ± 294 N·m (280 ± 30 kgf·m)



Alternator Belt Tension - Inspect/Adjust

Inspection

The standard deflection for the drive belt is 10 - 15 mm when pressed with a thumb [at approx. 58.8 N (approx. 6 kgf)] at a point midway between the drive pulley and alternator pulley.



Adjustment

1. Loosen bolts and nuts (1) - (5) in number order, and move the alternator.

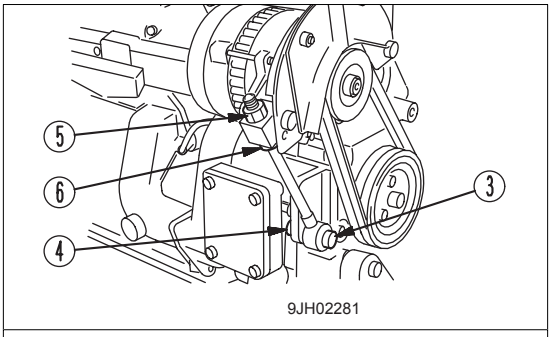
   If nut (6) is tightened, the belt tension will increase; if nut (6) is loosened, the belt will become loose.

2. After adjusting the belt, tighten bolts and nuts (1) - (5) in reverse number order from (5) to (1). Finally, tighten nut (6).

   Check each pulley for damage, wear of the V-groove, and wear of the V-belt. Check in particular that the V-belt does not contact the bottom of the V-groove.

   If the V-belt is elongated and there is no more allowance for adjustment, or if the belt is cracked or cut, replace the belt.

   When the V-belt has been replaced, adjust again after running for 1 hour.



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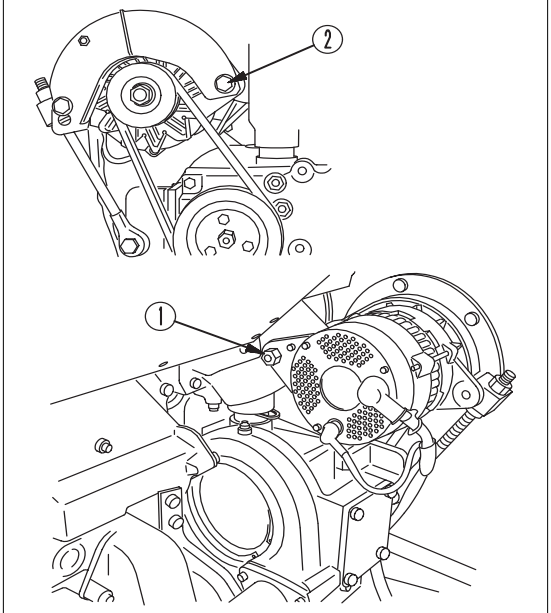

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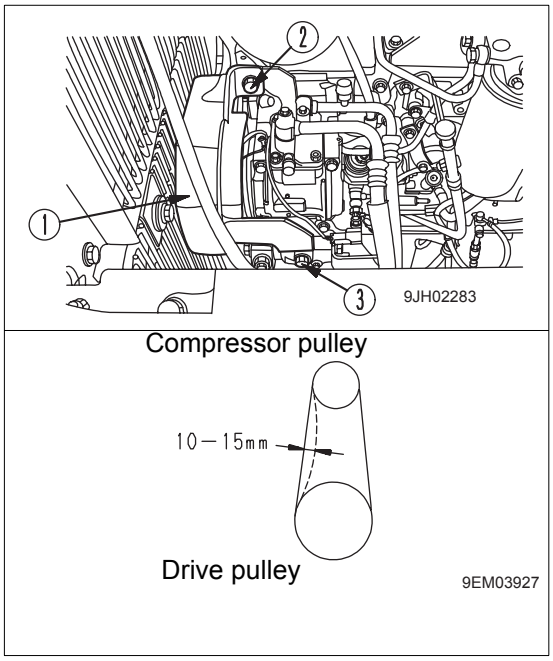
Air Conditioner Compressor Belt Tension - Inspect/Adjust

Inspection

1. Remove bolts (2) and (3), then remove cover (1).
2. The standard deflection for the drive belt is approx. 10 - 15 mm when pressed with a thumb [at approx. 58.8 N (approx. 6 kgf)] at a point midway between the drive pulley and air conditioner compressor pulley.



Adjustment

1. Loosen bolts and nuts (4) - (8) in number order, and move the compressor.

   If bolt (8) is tightened, the belt tension will increase; if bolt (8) is loosened, the belt will become loose.

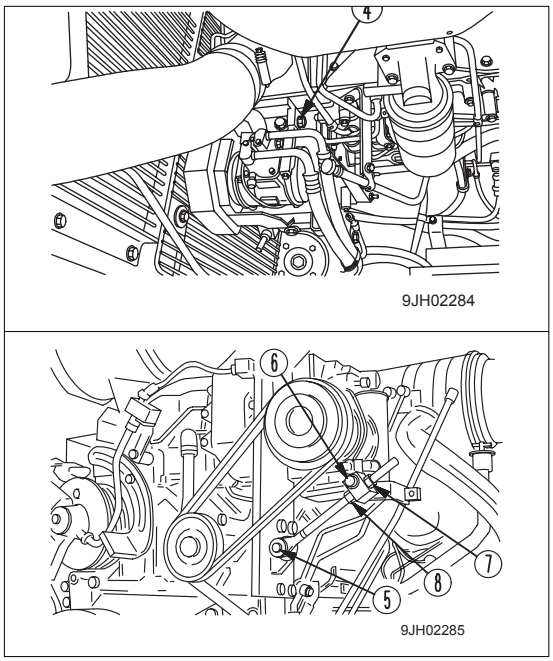
2. After adjusting the belt, tighten bolts and nuts (4) - (7) in reverse number order from (7) to (4). Finally, tighten nut (8).

   Check each pulley for damage, wear of the V-groove, and wear of the V-belt. Check in particular that the V-belt does not contact the bottom of the V-groove.

   If the V-belt is elongated and there is no more allowance for adjustment, or if the belt is cracked or cut, replace the belt.

   When the V-belt has been replaced, adjust again after running for 1 hour.

3. Install cover (1).



EVERY 500 HOURS MAINTENANCE

Maintenance for every 10, 100 and 250 hours service should be carried out at the same time.

Fuel Filter Cartridge - Replace

⚠ WARNING

After the engine has been operated, all parts are at high temperature, so do not replace the filter immediately. Wait for all parts to cool down before starting the operation.

- **High pressure is generated inside the engine fuel piping system when the engine is running.**
- **When replacing the filter, wait for at least 30 seconds after stopping the engine to let the internal pressure go down before replacing the filter.**
- **Do not bring any fire or flame close.**

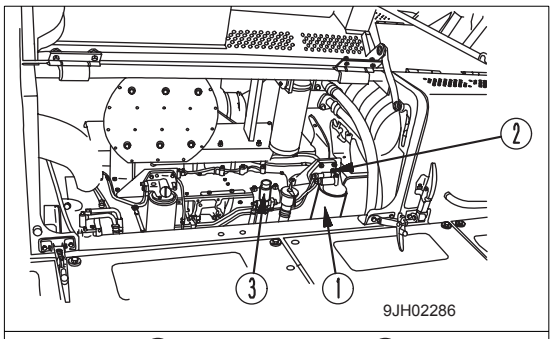
NOTICE

- **Genuine Komatsu fuel filter cartridges use a special filter that has highly efficient filtering ability. When replacing the filter cartridge, always use a genuine Komatsu part.**
- **The common rail fuel injection system used on this machine consists of more precise parts than the conventional injection pump and nozzle.**
- **If any part other than a genuine Komatsu filter cartridge is used, dust or dirt may get in and cause problems with the injection system. Always avoid using substitute parts.**
- **When carrying out inspection or maintenance of the fuel system, pay more attention than normal to the entry of dirt. If dirt is stuck to any part, use fuel to wash it off completely.**
- Container to catch the oil
- Filter wrench

1. Set the container to catch the fuel under the filter cartridge.

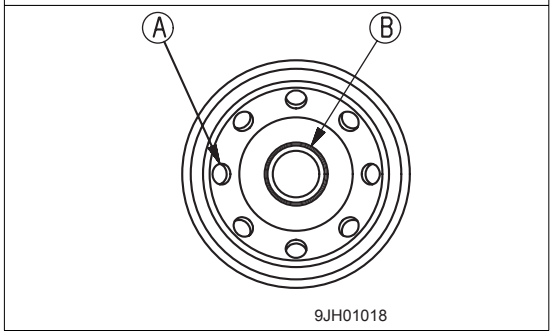
2. Using a filter wrench, turn filter cartridge (1) counterclockwise to remove it.

3. Clean the filter holder, fill the new filter cartridge with clean fuel, coat the packing surface thinly with engine oil, then install to the filter holder.



NOTICE

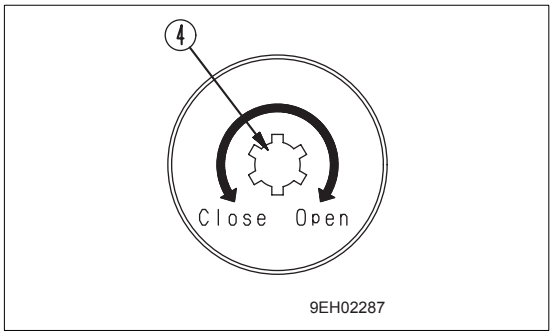
- **When filling with fuel, use clean fuel and be careful not to let any dust or dirt get in. Portion (B) at the center is the clean side, so be particularly careful not to let any dust or dirt get in.**
- **When adding fuel, always add from small hole (A) at eight places on the dirty side.**



When replacing with a new fuel filter, check that plug (4) is fitted securely in the bottom of the filter case.

4. When installing, tighten until the packing surface contacts the seal surface of the filter holder, then tighten it up 1/2 to 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 to the correct amount.

   When tightening with a filter wrench, be extremely careful not to dent or damage the filter.



5. After completion of the replacement of fuel filter cartridge (1), bleed the air.

Bleed the air as follows.

6. Add fuel to the fuel tank until full (to FULL mark on the fuel gauge).

7. After replacing filter cartridge (1), loosen air bleed plug (2).

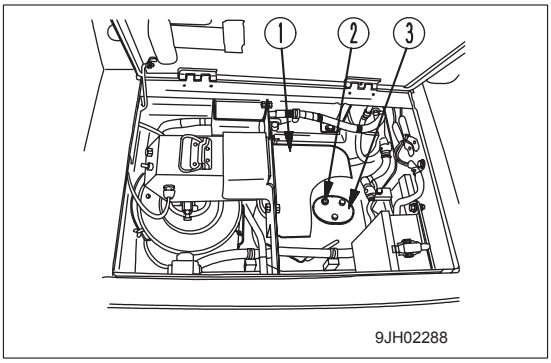
8. Loosen the knob of priming pump (3), move it up and down, and continue until no more bubbles come out with the fuel.

9. Tighten air bleed plug (2), push in the knob of priming pump (3), then tighten it. Use a genuine Komatsu part for the fuel filter cartridge. After replacing the filter cartridge, run the engine, and check for any leakage of oil from the filter seal surface.

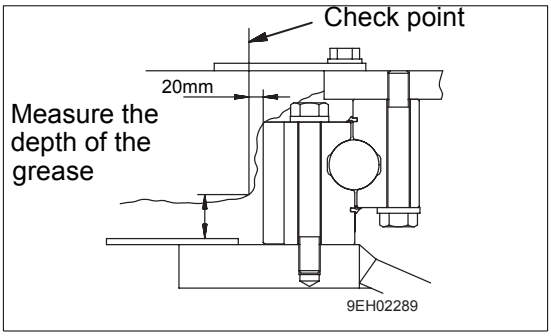
Swing Pinion Gear Oil Level - Check/Add

- Prepare a scale.

1. Open the grease pump box at the right side of the machine, then remove spare grease can holder cover (1) and spare grease can.
2. Remove 3 bolts (2), then remove cover (3).



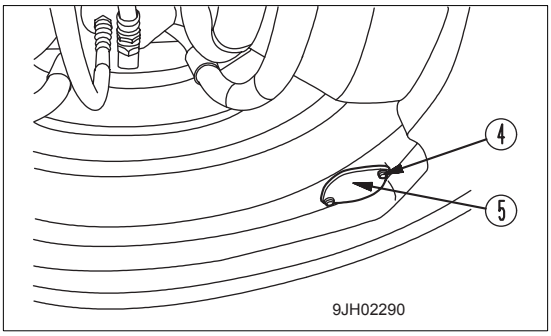
3. Insert a scale into the grease and check that the depth of the grease is approx. 60 mm. Add grease if necessary. Insert the scale in the position shown in the diagram on the right when measuring.



If the grease is particularly milky due to ingress of water, etc., then remove bolts (4) and cover (5) from the bottom of the track frame and remove the grease. Replace all of the grease with new grease.

The total amount of grease is 65 liters (60 kg).

4. Install cover (3) with bolts (2).

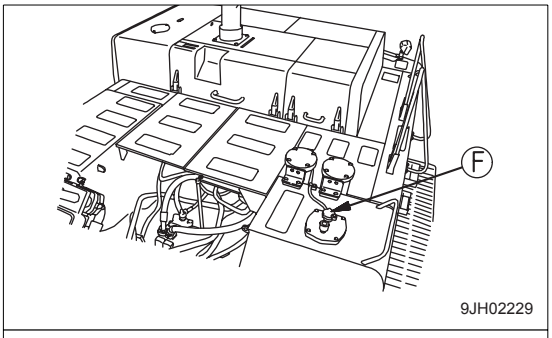


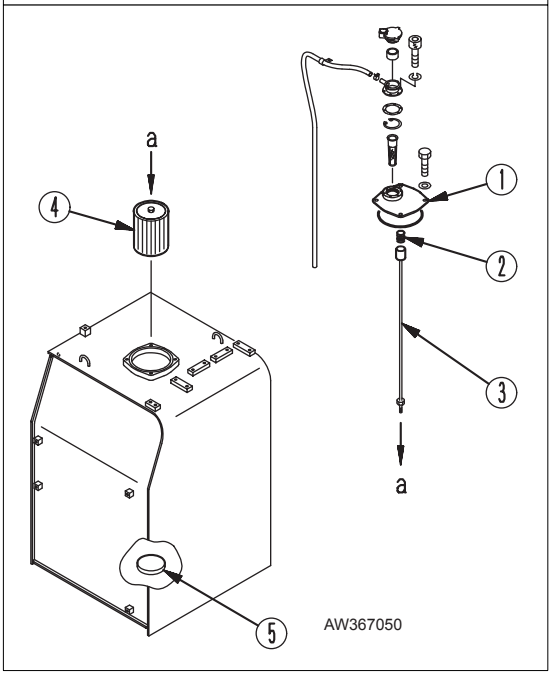
Hydraulic Tank Strainer - Clean

⚠ WARNING

- **After the engine is stopped, the parts and oil are at high temperature, so there is danger of burns. Wait for the temperature to go down before starting the operation.**
- **When the cap of the oil filler port is removed, oil may spurt out, so turn it slowly to release the internal pressure, then remove it carefully.**
- **When removing cover (1), the cover may fly off under the force of spring (2), so loosen the 4 bolts slowly.**

1. Remove the cap from oil filler (F) on top of the hydraulic tank.
2. Remove cover (1) and lift up the top of rod (3) from above to take out spring (2) and strainer (4).
3. Remove any dirt stuck to strainer (4), then wash it in clean diesel oil or flushing oil. If strainer (4) is damaged, replace it with a new part.
4. When installing, check that the O-ring at the bottom of strainer (4) is not out of place or twisted, then coat the surface of the O-ring with grease, insert it on to tank protrusion (5), and install.
5. Install cover (1) with bolts.





Hydraulic Oil Filter Element - Replace

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause burns.Wait for the temperature to go down before starting the work.**
- **When removing the oil filler cap, turn it slowly to release the internal pressure, then remove it.**

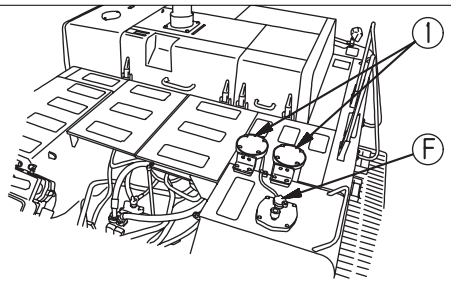
1. Remove the cap from oil filler (F) on top of the hydraulic tank, and release the internal pressure.
2. Loosen 4 bolts, then remove cover (1). When doing this, the cover may fly out under the force of spring (2), so hold the cover down when removing the bolts.
3. After removing spring (2), valve (3) and strainer (5), take out element (4).

   If there are metal particles or foreign material inside strainer (5), please contact your Komatsu distributor.
4. Clean the removed parts in diesel oil.
5. Install the new element in the place where old element (4) was installed.
6. Set valve (3), strainer (5) and spring (2) on top of the element.
7. Set cover (1) in position, push it down by hand, and install the cover with the mouning bolts.
8. Install the cap of oil filler port (F).
9. To bleed the air, start the engine according to ““STARTING ENGINE” on page 115“ and run the engine at low idling for 10 minutes.
10. Stop the engine.

REMARK

Operate the machine after halting for more than 5 minutes to eliminate bubbles in the oil inside the tank.

11. Check for oil leakage and wipe off any spilled oil.



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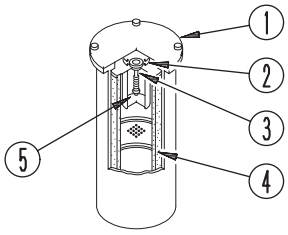

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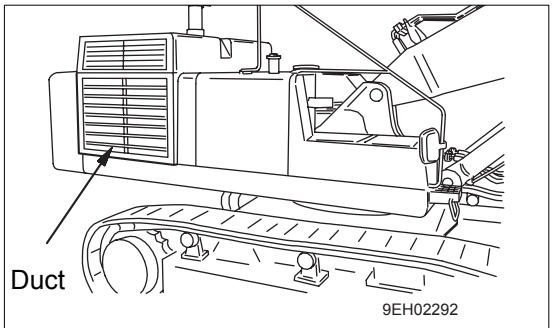
Radiator Fins, Oil Cooler Fins, After Cooler Fins, Fuel Filter Fins and Condenser Fins (Only for Machines Equipped with Air Conditioner) - Clean/ Inspect

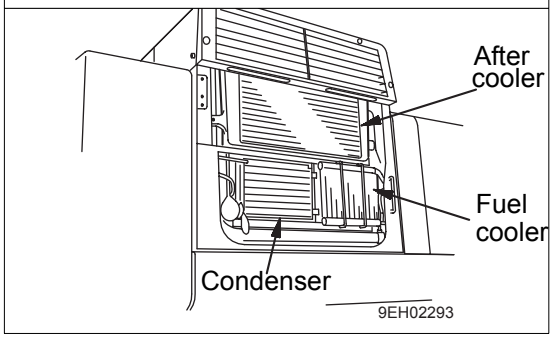
⚠ WARNING

If compressed air, high-pressure water, or steam hit your body directly, or they cause dirt or dust to be blown up, there is a hazard of serious injury. Always use safety glasses, dust mask, or other protective equipment.

NOTICE
When using compressed air, use from a distance to prevent damage to the fins. In particular, with the fuel cooler and aftercooler, blow with compressed air at an angle of 45° with the nozzle at a distance of at least 300 mm). Never blow the compressed air at right angles to the core. If the fins are damaged, it may cause water leakage or overheating. On dusty jobsites, check the fins daily, irrespective of the maintenance interval.

1. Open the engine hood and rear duct on the right side of the-machine.
2. Use compressed to blow off mud, dust, or leaves clogging the radiator fins, oil cooler fins, fuel cooler fins and after cooler fins. At the same time, clean the net in front of the oil cooler. On machines equipped with an air conditioner, clean the condenser fins also. Steam or water can be used in place of compressed air.
3. Check the rubber hose. Replace with a new one if the hose is found to have cracks or to be hardened by ageing. Further, check hose clamps for looseness. Aftercooler hose clamp tightening torque: 9.81 ± 0.49 N·m (1.0 ± 0.05 kgf·m).





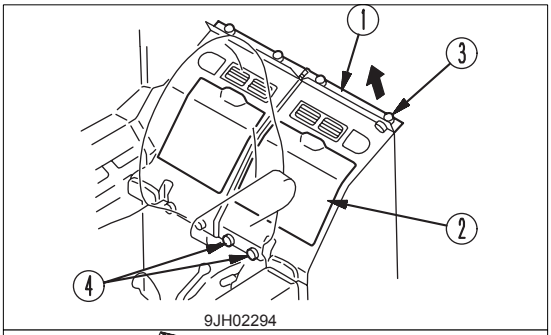
Air Conditioner FRESH/RECIRC Air Filters (Only for Machines Equipped with Air Conditioner) - Clean

⚠ WARNING

If compressed air is used, there is danger that dirt may fly and cause personal injury. Always wear safety glasses, dust mask, and other protective equipment.

NOTICE
As a guideline, the filters should be cleaned every 500 hours, but on dusty jobsites, clean the filters more frequently.

1. Remove 2 bolts (3) from frame (1) at the top of the luggage box, then lift up frame (1).
2. Remove 2 bolts (4) at the bottom of the luggage box, then pull up box (2) and remove it.
3. Remove stopper (5), open covers (6) and (7), then pull up recirculation air filter (8) and fresh air filter (9) and remove them.
4. Clean filters (8) and (9) with compressed air. If there is oil on the filters or they are extremely dirty, wash them in a neutral washing agent.After washing them, dry them completely before using them again.If the dirt clogging the filter cannot be removed by blowing it with air or washing it in water, replace the filter with a new part.



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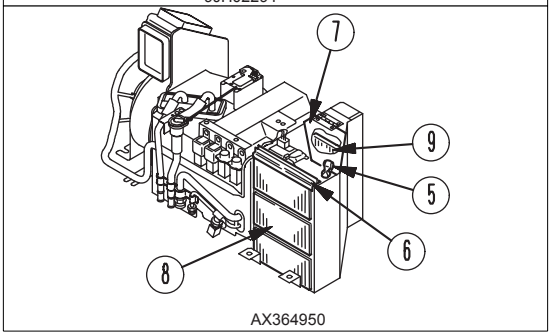

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REMARK
If the filter becomes clogged, the air flow will be reduced, and there will be an abnormal noise from the air conditioner unit.

Pilot Filter Element - Replace

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before cleaning the engine breather.**
- **When using compressed air, there is a hazard that dirt may be blown up and cause serious injury.**
- **Always use safety glasses, dust mask, or other protective equipment.**

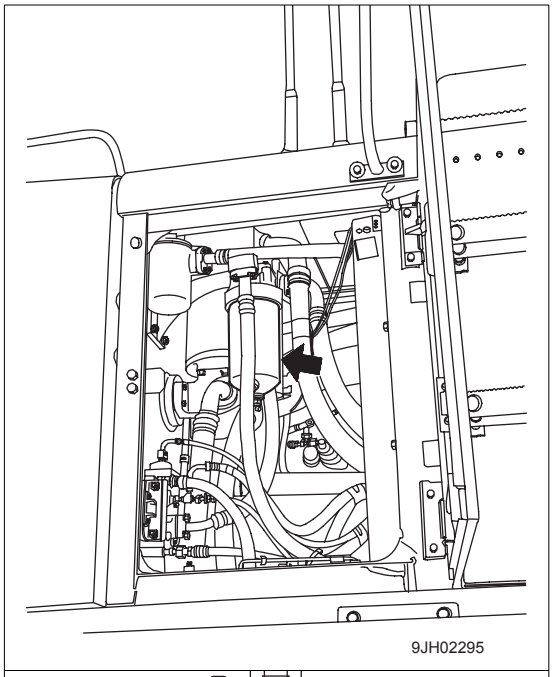
1. Remove drain plug (1) and drain the oil.
2. Loosen bolt (2), then remove filter case (3).
3. Replace filter element (4).
4. Tighten drain plug (1).

   Tightening torque: 14.7 - 19.6 N·m

   (1.5 - 2.0 kgf·m)
5. Install the new filter element together with filter case (3), then tighten with bolt (2).

   Tightening torque: 65 - 88 N·m (6.6 - 9.0 kgf·m)

   When replacing the filter element, check O-rings (5) and (6) and gaskets (7) and (8). If any abnormality is found, replace with new parts.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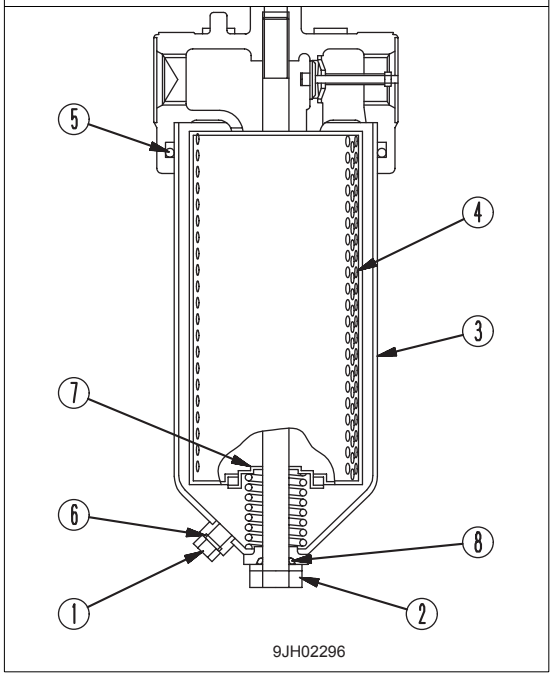

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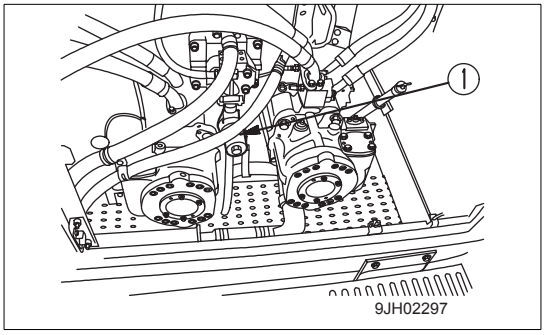
P.T.O Case Oil Strainer - Clean

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before cleaning the engine breather.**
- **When using compressed air, there is a hazard that dirt may be blown up and cause serious injury.**
- **Always use safety glasses, dust mask, or other protective equipment.**

1. Remove filter case (1).
2. Take out the strainer, remove any dirt stuck to the strainer, then wash it in flushing oil.If the strainer is damaged, replace it with a new part.
3. Install the strainer and filter case (1).



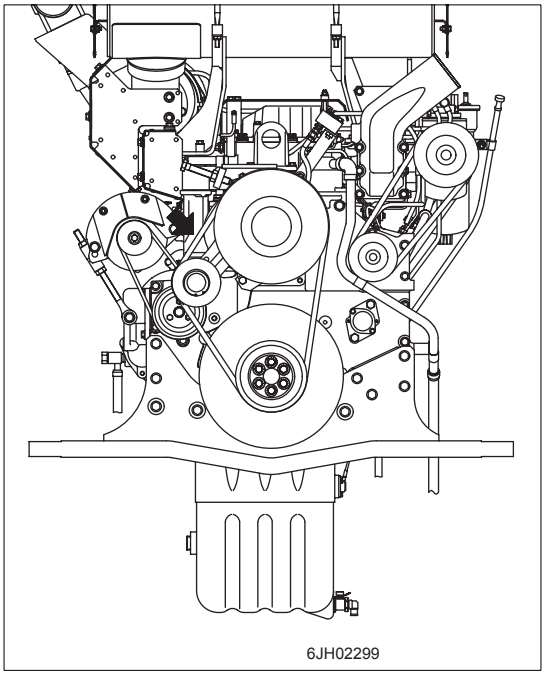
Fan Belt - Inspect

Check the V-belt and when the following conditions exist, replace the V-belt:

- When the V-belt makes contact with the bottom of the groove in each pulley.
- When the V-belt is worn, and its surface is lower than the outer diameter of the pulley.
- When cracking and peeling of the V-belt occurs.

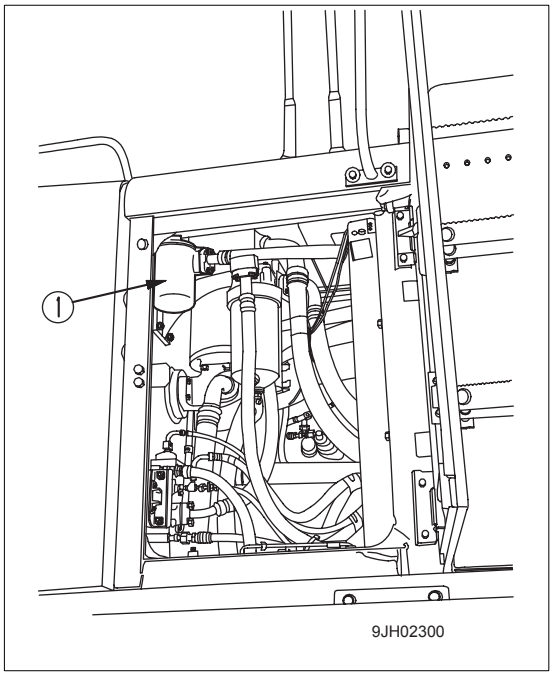
A device is installed to maintain the tension constant regardless of any elongation of the V-belt, so there is no need to carry out adjustment until the V-belt is replaced.

For details of the replacement procedure, see ““Replacement of Fan Belt and Adjustment of Auto Tensioner” on page 209“.



Drain Filter Cartridge - Replace

1. Using a filter wrench, turn the filter cartridge (1) to the left to remove it.
2. Fill the new filter cartridge with hydraulic oil, coat the packing surface with oil, then install it. When installing it, bring the packing surface into contact with the seal surface of the filter holder, then tighten a further 1/2 - 3/4 turns.



Change Oil In Engine Oil Pan, Replace Engine Oil Filter Cartridge

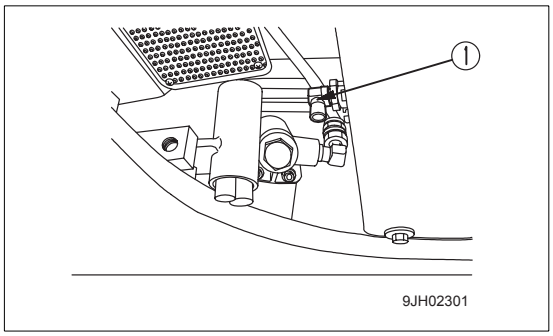
For machines equipped with a bypass filter (if equipped), carry out this maintenance every 250 hours.

⚠ WARNING

The parts and oil are at high temperature immediately after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before starting the operation.

- Oil pan refill capacity: 55 liters
- Filter wrench

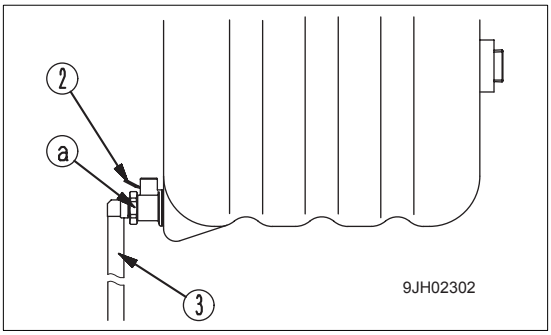
1. Set a container immediately under drain valve (1) at the bottom of the engine to catch the drained oil.



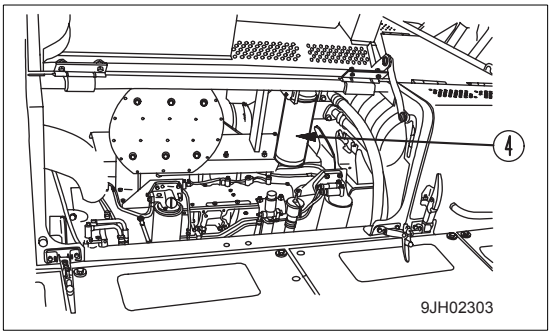
2. Install hose (3) (kept in the toolbox) to drain valve (1), then move lever (2) of the drain valve down slowly and drain the oil. After draining the oil, move the lever up to close the valve.

   Never loosen plug (a). Even if it is not loosened, the oil will come out when the lever is operated.

   When not using hose (3), keep it in the toolbox.



3. Open the front cover of the engine hood, use a filter wrench from the top of the engine, turn filter cartridge (4) to the left, and remove it.



4. Clean the filter holder, fill the new filter cartridge with clean engine oil, coat the thread and packing surface of the new filter cartridge with clean engine oil (or coat it thinly with grease), then install it to the filter holder.

5. Confirm that no remnants of old packing still adhere to the filter holder as this may result in oil leakage. Check that there is no old packing affixed to the filter holder. If there is any old packing affixed to the filter, it will cause leakage of oil.Clean the filter holder, fill the new filter cartridge with clean engine oil, coat the thread and packing surface of the new filter cartridge with clean engine oil (or coat it thinly with grease), then install it to the filter holder.

REMARK

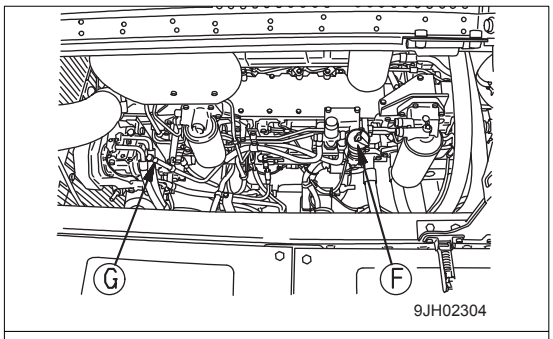
Confirm that no remnants of old packing still adhere to the filter holder as this may result in oil leakage.Check that there is no old packing affixed to the filter holder. If there is any old packing affixed to the filter, it will cause leakage of oil.

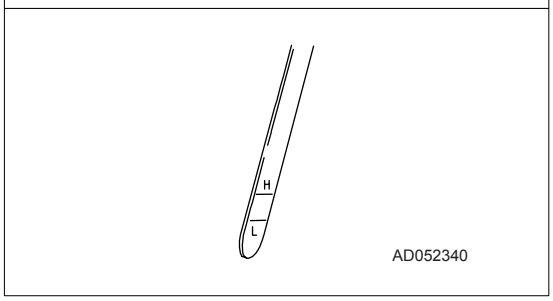
6. When installing, bring the packing surface into contact with the seal surface of the filter holder, then tighten a further 3/4 - 1 turn.

   When tightening with a filter wrench, be extremely careful not to dent or damage the filter.

7. After replacing the filter cartridge, add engine oil through oil filler port (F) so that the oil level is between the H and L marks on dipstick (G).

   Run the engine for a short time at low idling, then stop the engine. Check that the oil level gauge is between the H and L marks. For details, see ““Engine Crankcase Oil Level - Check/Add” on page 104“.





EVERY 1000 HOURS MAINTENANCE

Maintenance for every 10, 100, 250 and 500 hours service should be carried out at the same time.

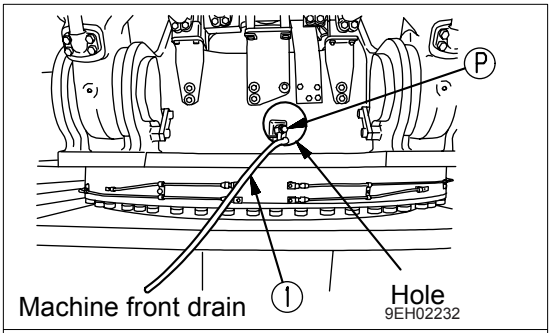
Swing Machinery Case Oil - Change

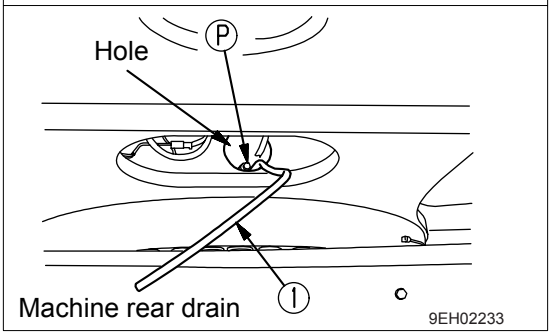
⚠ WARNING

The parts and oil are at high temperature immediately after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before starting the operation.

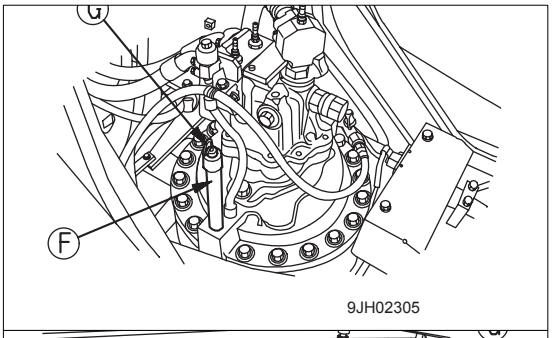
- Refill capacity: 24.5 liters

1. Set a container under drain hose (1) at the bottom of the machine to catch the oil.
2. Loosen drain valve (P) under the machine body, drain the oil, then tighten the drain plug again.





3. Remove dipstick (G), then add the specified amount of engine oil through filler port (F) of the dipstick guide.
4. Wipe off the oil on the dipstick with a cloth.
5. Insert dipstick(G) fully in the oil filler pipe, then take it out again.



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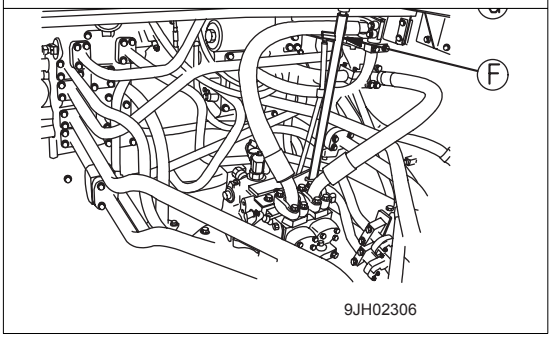

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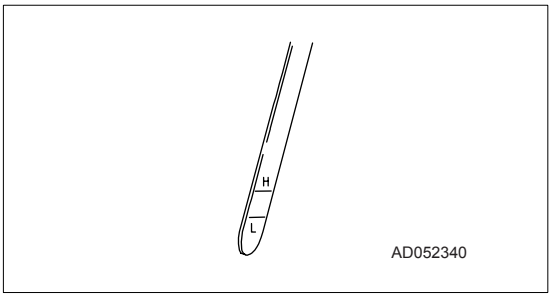
6. The oil level should be between H and L marks on the dipstick (G). If the oil does not reach the L mark, add engine oil through oil filler port (F).
7. If the oil is above the H mark, pull tube (1) out, then loosen plug (P). After draining the excess oil, check the oil level again. If the oil level is correct, wind in tube (1) and store it inside the hole.
8. Immediately after changing the oil, oil level is variable.
9. So operate for one hour, then check the oil level again.



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P.T.O Case Oil - Change

⚠ WARNING

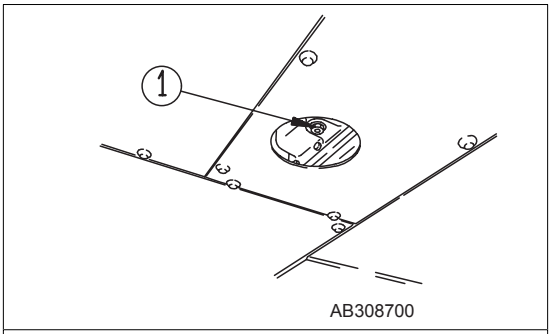
The parts and oil are at high temperature immediately after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before starting the operation.

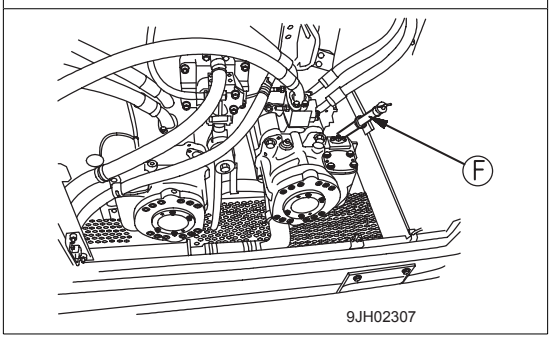
NOTICE
Park the machine on flat ground and stop the engine. After waiting for more than 30 minutes after stopping the engine, check the oil level.

- Refill capacity: 13.5 liters

1. Loosen drain plug (1) at the bottom of the PTO case, drain the oil, then tighten the plug again.
2. Refill the specified quantity of engine oil through oil filler(F).

NOTICE
If excess oil is supplied, drain it to the specified amount to avoid overheating.





Turbocharger Fastening Parts - Inspect/Tighten

Please contact your Komatsu distributor to have the tightening portions checked.

Turbocharger Rotor Play - Inspect

Please contact your Komatsu distributor to have the rotor play checked.

Corrosion Resister Cartridge - Replace

⚠ WARNING

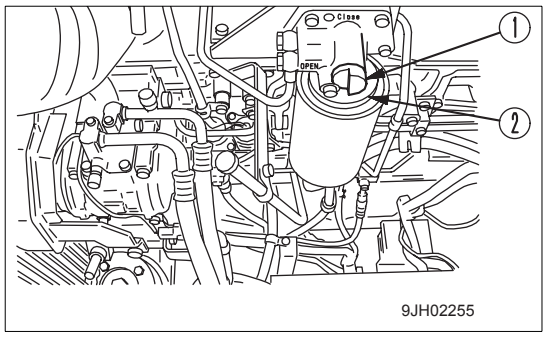
The oil is at high temperature after the engine has been operated, so never replace the cartridge immediately after finishing operations. Wait for the oil to cool down before replacing cartridge.

- Container to catch coolant
- Filter wrench

1. Turn valve (1) of corrosion resistor (2) to the CLOSE stopper position.
2. Set a container under the cartridge to catch the coolant.
3. Using a filter wrench, turn cartridge (2) to the left to remove it.
4. Clean the filter holder, coat the seal surface of the new cartridge thinly with engine oil, then install the cartridge.

   Always use a genuine Komatsu part for the cartridge.
5. When installing the cartridge, bring the packing surface into contact with the seal surface of the filter holder, then tighten a further 2/3 times.

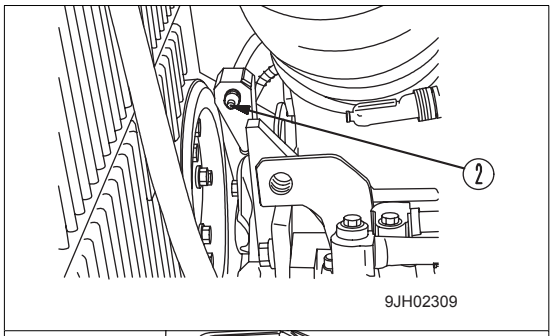
   If the filter cartridge is tightened too far, the gasket will be damaged and water will leak. If it is too loose, water will leak from the gap in the gasket, so always keep to the proper tightening angle.
6. Turn valve (1) of corrosion resistor (2) to the OPEN stopper position.
7. After replacing the cartridge, run the engine, and check for any leakage of water from the filter seal surface. If any water leakage is found, check the tightening of the filter cartridge.

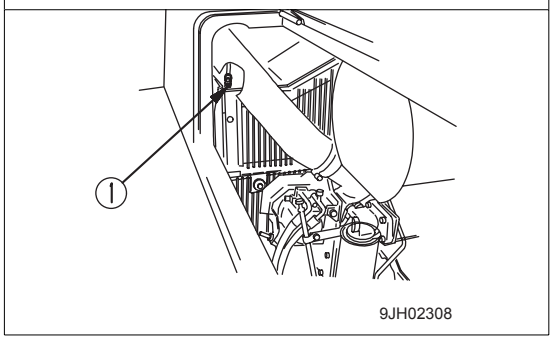


Fan Pulley Assembly and Tension Pulley Assembly - Lubricate

Using a grease gun, pump in grease through the grease fittings shown by arrows.

1. Tension pulley assembly (1 points)
2. Fan pulley assembly (1 points)



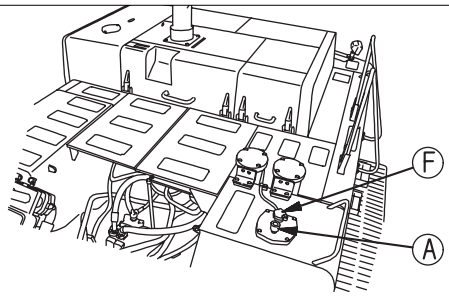


Hydraulic Tank Breather Filter Element - Replace

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause burns.Wait for the temperature to go down before starting the work.**
- **When removing the oil filler cap, turn it slowly to release the internal pressure, then remove it.**

1. After pulling out snap ring (2) of breather assembly (A) at the top of the hydraulic tank, remove cover (3).
2. Replace filter element (4) with a new element.
3. Install cover (3) and snap ring (2).



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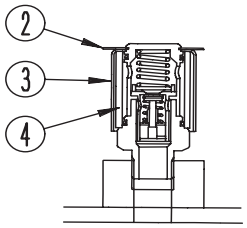

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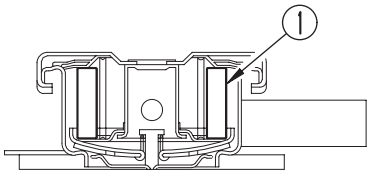
4. Remove cap assembly (F) of the filler port, then replace element (1) inside the cap.



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Welded Structure - Check

(Color check)

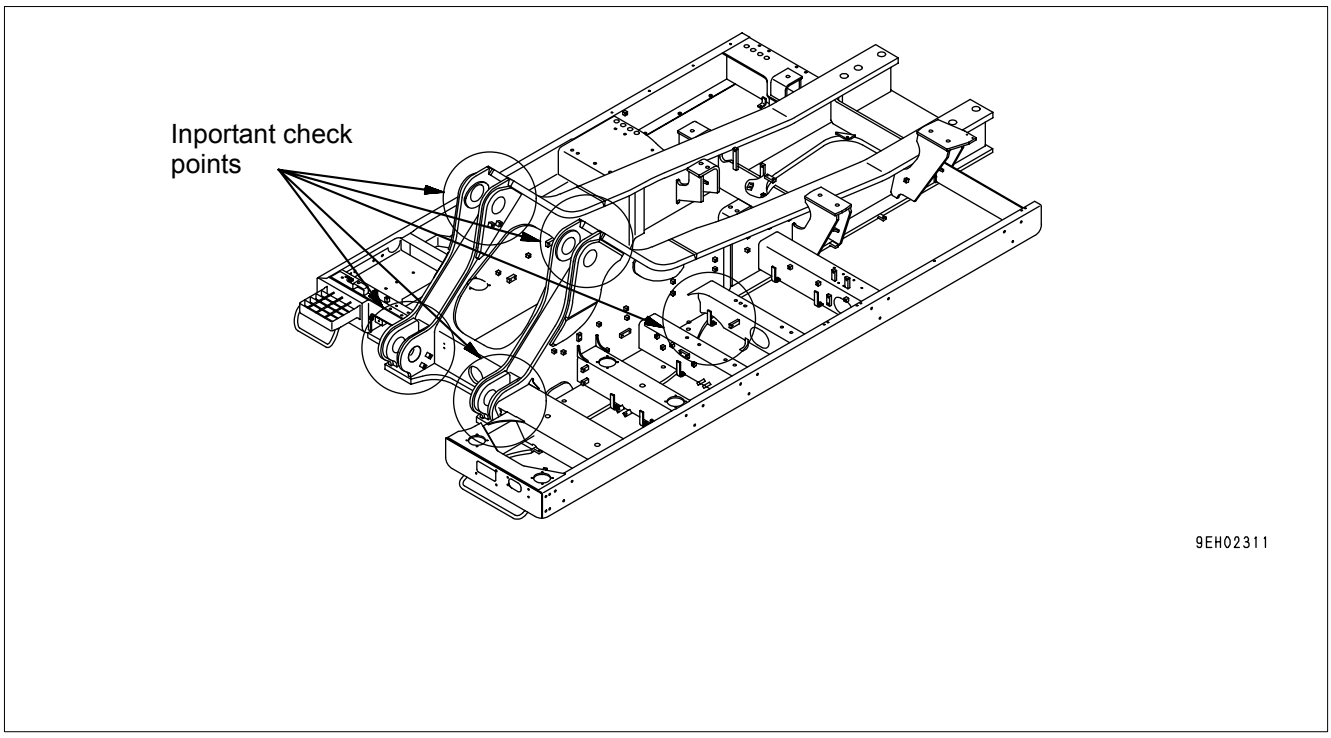
Cracks in welded structures can be seen easily with a color check. Check the revolving frame, center frame, boom, and arm every 1000 hours.

In particular, carry out a color check on the important check points (marked with a circle).

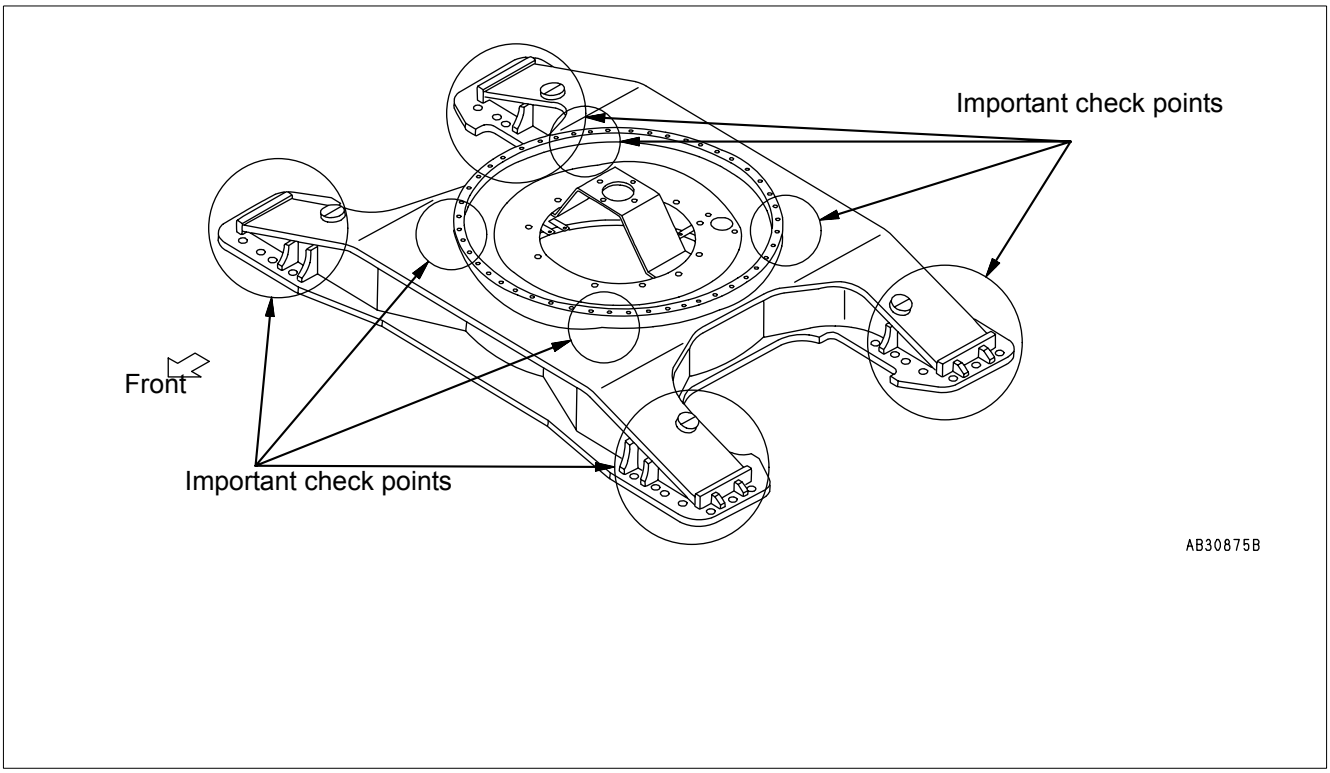
The procedure for the color check is as follows.

1. Prepare the materials needed for the color check. (Detergent, penetrating agent, developing solution)
2. Spray with detergent and wash to remove all the dirt and oil from the place to be checked.
3. After washing, dry the area, then spray with penetrating agent and leave for 5 - 20 minutes.
4. Spray with detergent, then clean the surface with a cloth.
5. Clean the surface again, then spray with developing solution.
6. Leave for 15 - 20 minutes, then check visually for cracks.
7. If there are any cracks, color can be seen.
8. If there are any cracks, carry out the repair procedure to repair.

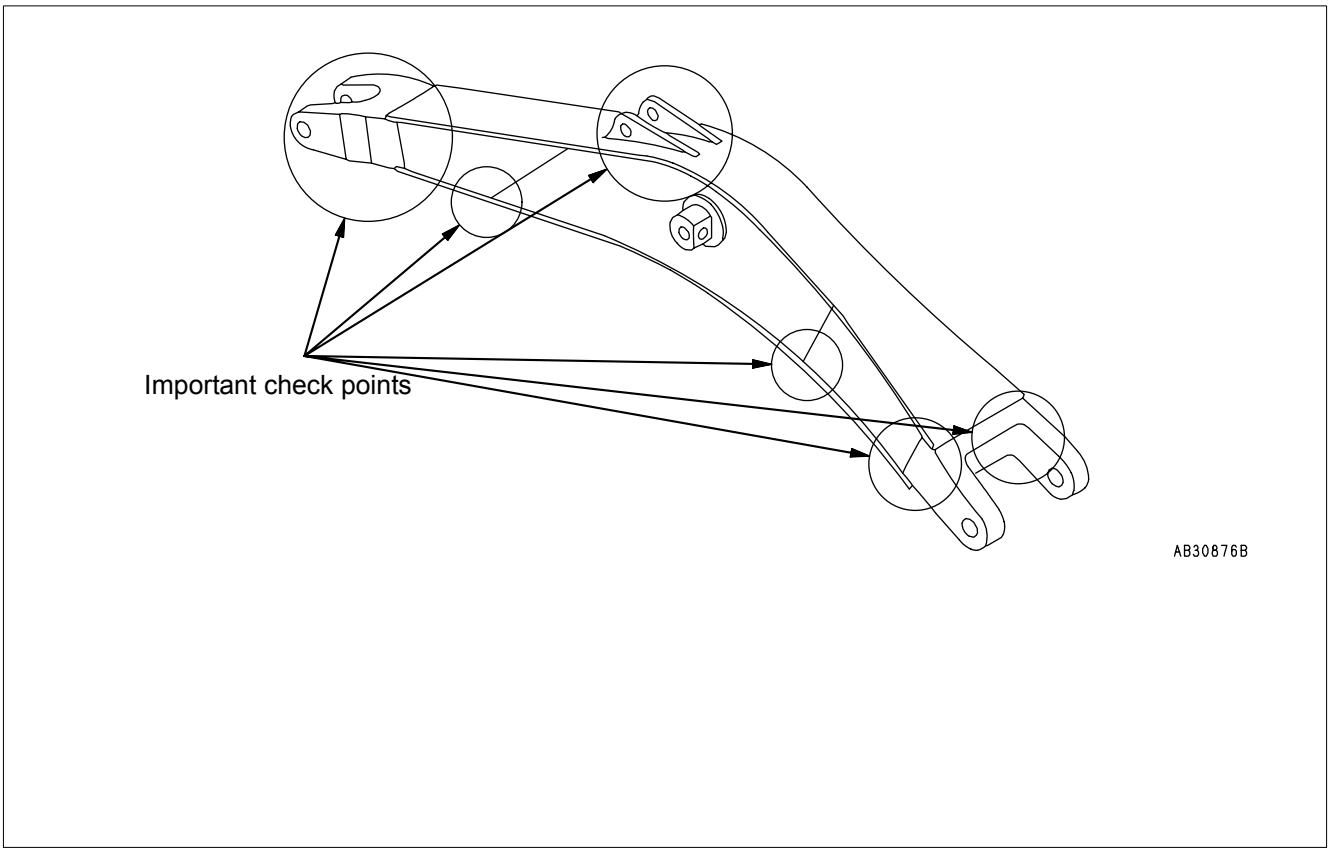
- Revolving frame



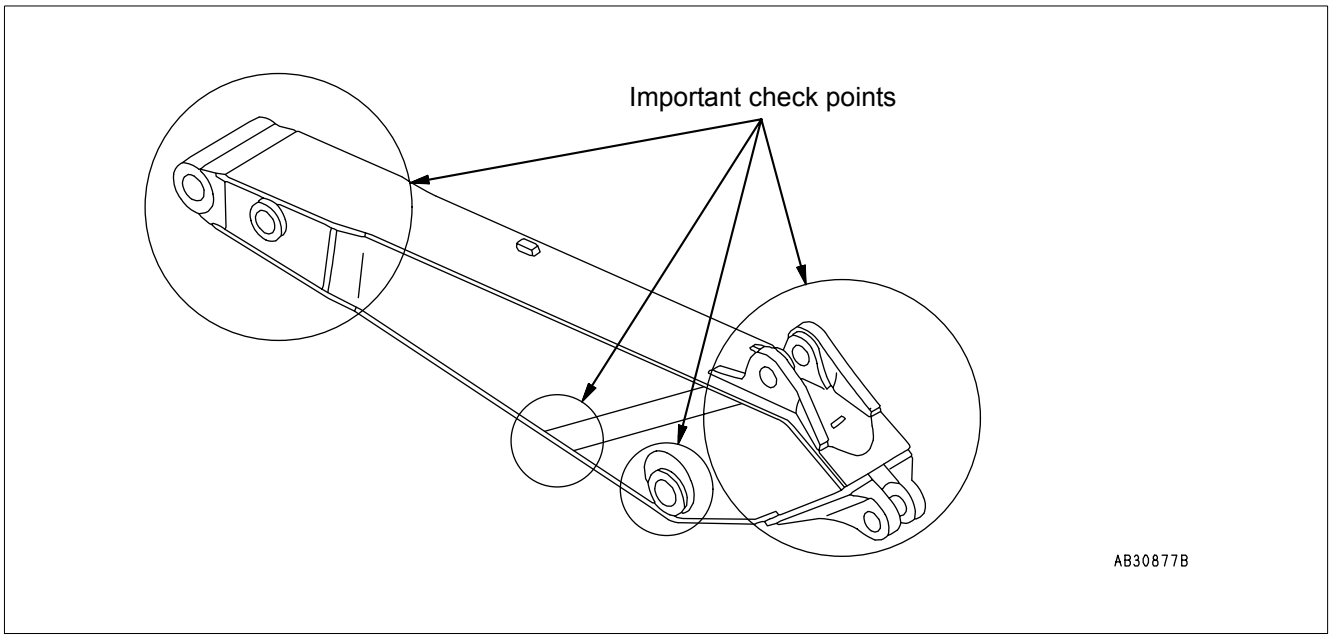
- Center frame



- Boom



- Arm



EVERY 2000 HOURS MAINTENANCE

Maintenance for every 10, 100, 250, 500 and 1000 hours service should be carried out at the same time.

Final Drive Case Oil - Change

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause serious 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.**
- **Loosen the plug slowly to release the pressure.**

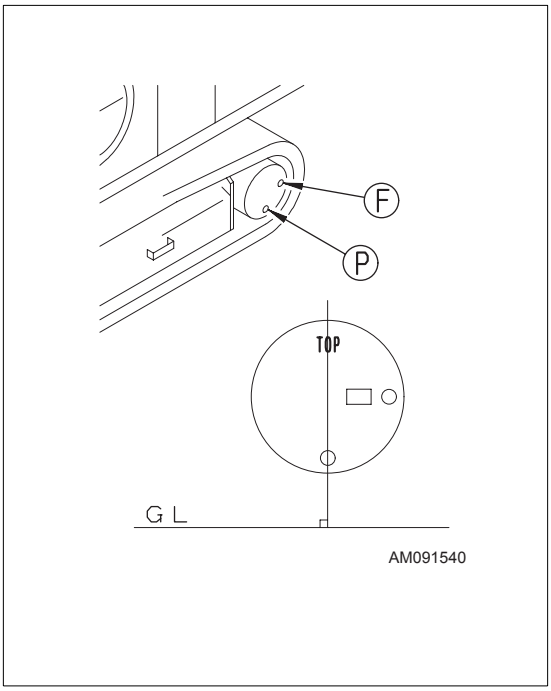
- Refill capacity: Each 20 liters
- Prepare a handle.

1. Set the TOP mark at the top, with the TOP mark and plug (P) perpendicular to the ground surface.
2. Remove plugs (P) and (F) with the handle and drain the oil.

REMARK

Check the O-rings in the plugs for damage. If necessary, replace with new ones.

3. Tighten plug (P).
4. Add engine oil through the hole of plug (F).
5. When the oil overflows from the hole of plug (F), install plug (F). Tightening torque of plugs (P) and (F) : 68.6 ± 9.8 N·m (7 ± 1 kgf·m)



Injector - Check

Check the color of the exhaust gas visually. If there is any abnormality in the exhaust gas color, contact your Komatsu distributor for inspection.

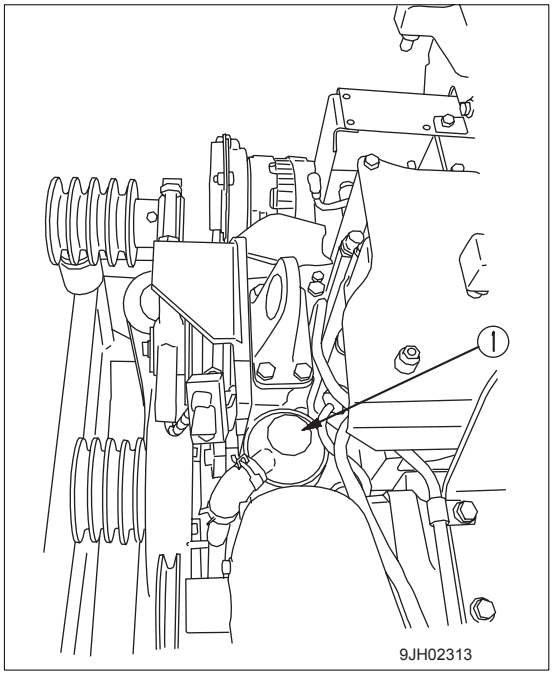
For details, see ““Engine” on page 166“ “Exhaust gas is black“.

Engine Crankcase Breather - Clean

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before cleaning the engine breather.**
- **When using compressed air, there is a hazard that dirt may be blown up and cause serious injury.**
- **Always use safety glasses, dust mask, or other protective equipment.**

1. Wipe away dust around the breather.
2. Remove breather (1).
3. Rinse the whole breather in diesel oil or flushing oil. Dry with compressed air, then install it.
4. Replace O-ring with new one. Coat a new O-ring with engine oil, set it, then install breather (1).



Turbocharger - Inspect

Contact your Komatsu distributor for cleaning and inspection.

Alternator and Starting Motor - Inspect

The brushes may be worn,or the bearing may have run out of grease, so contact your Komatsu distributor for inspection or repair.

When the engine is frequently started, ask for inspection every 1000 hours or every 6 months, whichever comes sooner.

Engine Valve Clearances - Inspect

As special tool is required for removing and adjusting the parts, you shall request Komatsu distributor for service.

EVERY 4000 HOURS MAINTENANCE

Maintenance for every 10, 100, 250, 500, 1000 and 2000 hours service should be carried out at the same time.

Water Pump - Inspect

Check if there is oil leakage, water leakage, or clogging of the drain hole. If any abnormality is found, contact your Komatsu distributor for disassembly and repair or replacement.

Vibration Damper - Inspect

There may be leakage from the damper, dents, or face runout, so please contact your Komatsu distributor for replacement.

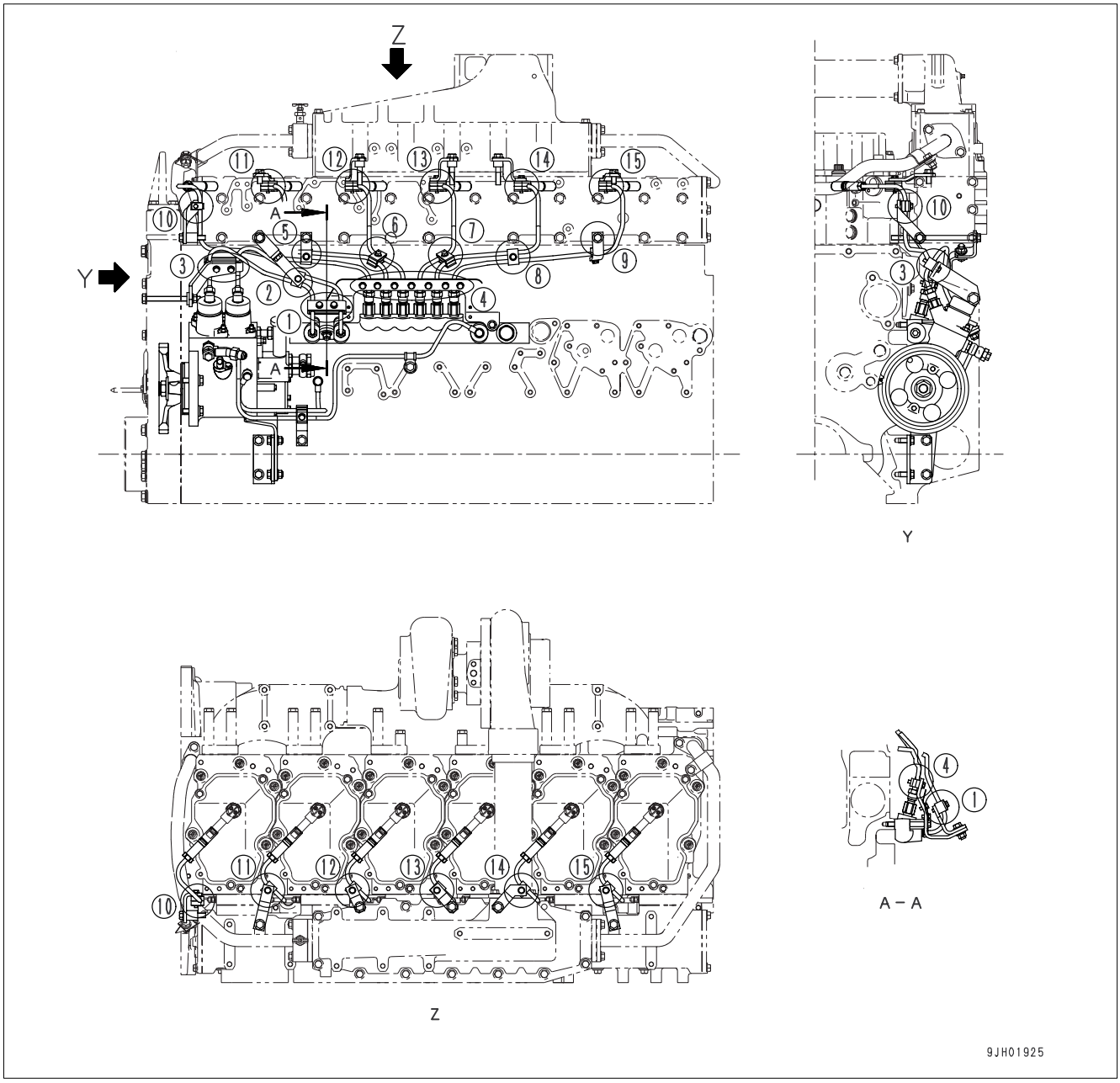
Fan Pulley and Tension Pulley - Check

Inspect the pulley for play and grease leakage.

If any fault is detected, ask Komatsu distributor to disassemble and repair or replace.

Checking for Looseness of High-pressure Clamp, Hardening of Rubber

Check that there is no looseness in the high-pressure clamp mounting bolts (1) - (15) in the drawing on the next page. Check visually and feel with your finger to check that the rubber has not hardened. If there is any problem, the problem part must be replaced. In such a case, please contact your Komatsu distributor.



NOTICE

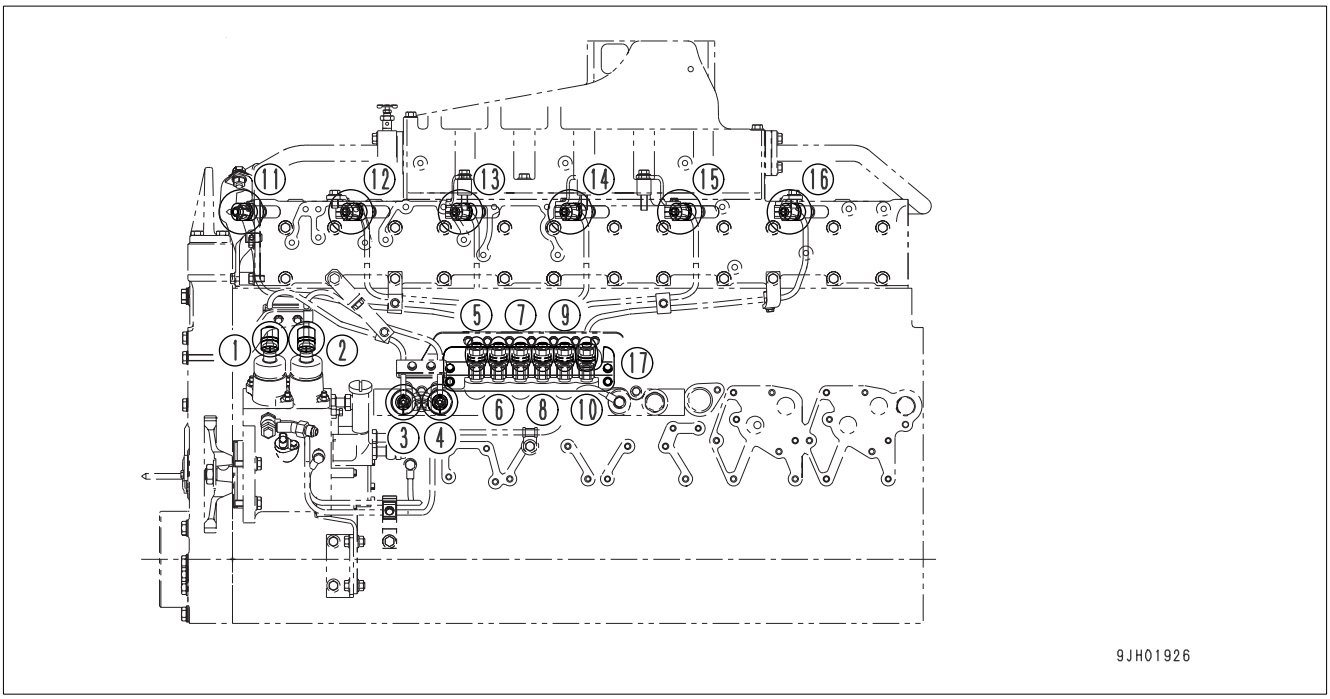
If the engine continues to be used when there are loose bolts, hardened rubber, or missing parts, there is danger of damage or breakage occurring due to vibration and wear at the connections of high-pressure piping. Always check that the proper high-pressure piping clamps are correctly installed.

Injector Nozzle Assembly - Replace

Please contact your Komatsu distributor to have the injector nozzle assembly replaced.

Checking for Missing Fuel Spray Prevention Cap, Hardening of Rubber

Fuel spray prevention caps (1) - (16) and fuel spray prevention cover (17) are protective parts installed to prevent fire caused by fuel leaking and spraying out on to high temperature parts of the engine. Check visually that there are no missing caps or loose bolts, and feel with your finger to check that the rubber has not hardened. If there is any problem, the problem part must be replaced. In such a case, please contact your Komatsu distributor.



EVERY 5000 HOURS MAINTENANCE

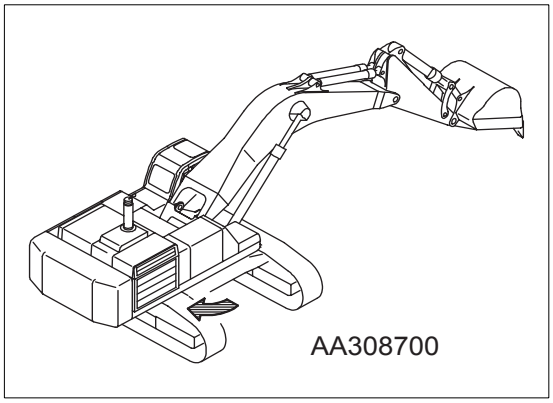
Maintenance for every 10, 100, 250, 500, 1000 and 2000 hours service should be carried out at the same time.

⚠ WARNING

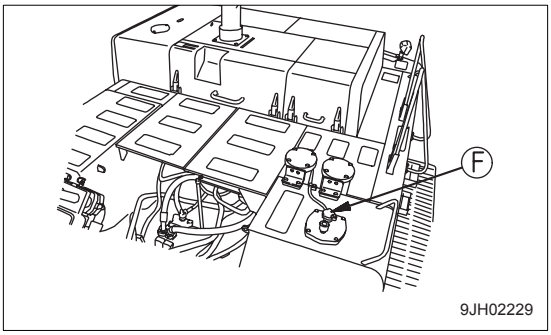
- **Hydraulic Oil - Change**
- **The parts and oil are at high temperature after the engine is stopped, and may cause burns.Wait for the temperature to go down before starting the work.**
- **When removing the oil filler cap, turn it slowly to release the internal pressure, then remove it.**

- Refill capacity: 440 liters)
- Prepare a handle for socket wrench set

1. Swing the upper structure so that the drain plug under the hydraulic tank will be between both tracks.
2. Retract the arm and bucket cylinders, then lower the boom and put the teeth in contact with the ground.
3. Set the safety lock lever to the LOCK position and stop the engine.



4. Remove the cap of oil filler (F) at the top of the hydraulic tank.



5. Set the container to catch the oil under the drain plug at the bottom of the chassis. Remove drain plug (P1), then loosen plug (P2) and drain the oil. After draining the oil, tighten drain plugs (P1) and (P2).

   Tightening torque: 70 ± 10 N·m (7 ± 1 kgf·m)

6. Remove the 10 mounting bolts of cover (2), take off the cover, then remove drain plug (3) at the bottom of the pump suction tube.

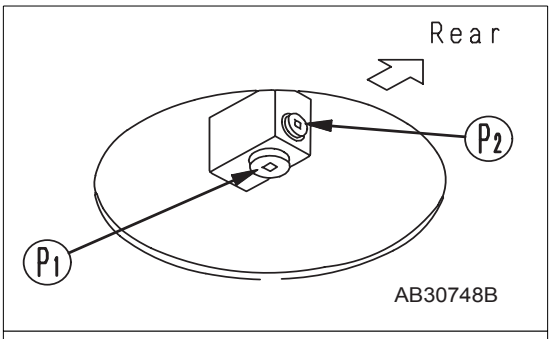
7. After draining the oil, tighten drain plug (3) and install cover (2).

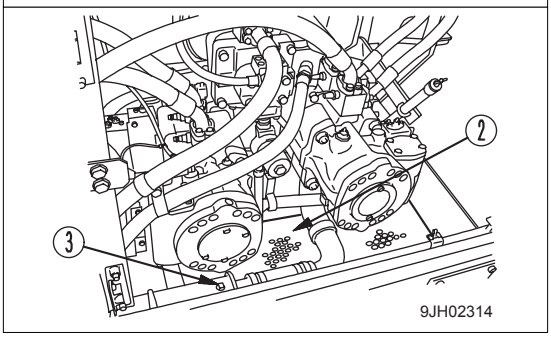
   When loosening drain plug (P2) be careful not to get oil on yourself.

8. Tighten the bolts to install cover (2).

9. Add the specified amount of new and clean engine oil (for hydraulic system) through oil filler port (F). Check that the oil level is between H and L on the sight gauge.

10. Bleed the air from the circuit after cleaning or replacing the filter element or strainer, or after changing the oil.





EVERY 8000 HOURS MAINTENANCE

Maintenance for every 10, 100, 250, 500, 1000, 2000 and 4000 hours service should be carried out at the same time.

High-pressure Piping Clamp - Replace

Please contact your Komatsu distributor to have the engine high-pressure clamp replaced.

Fuel Spray Prevention Cap - Replace

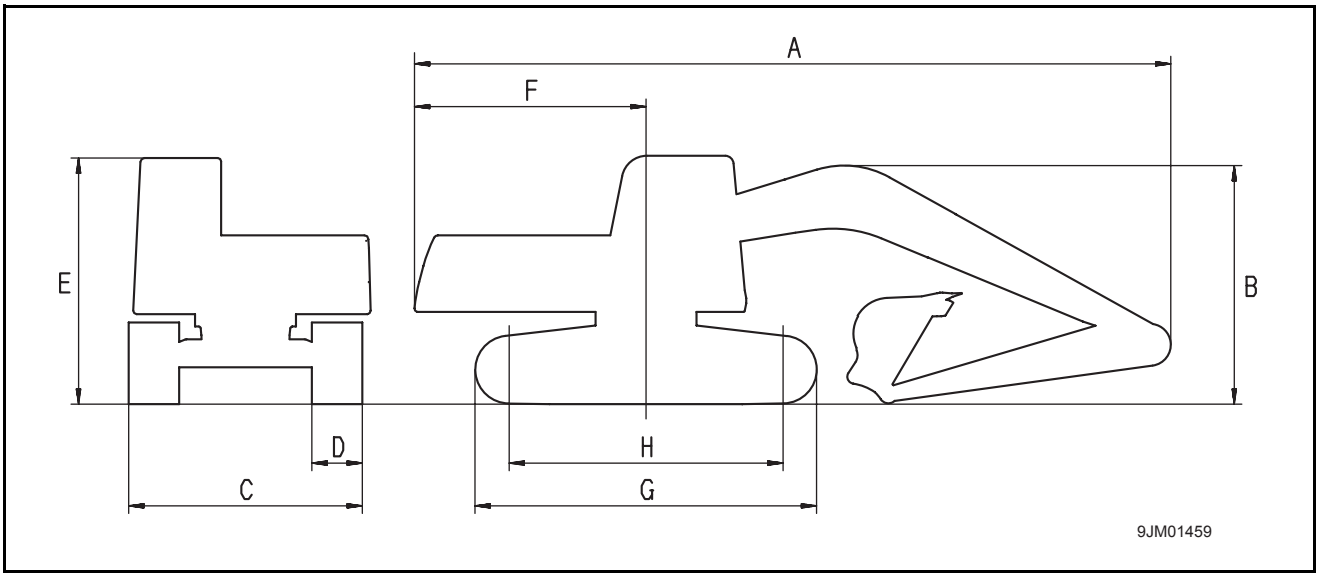
Please contact your Komatsu distributor to have the fuel spray prevention cap replaced.

SPECIFICATIONS

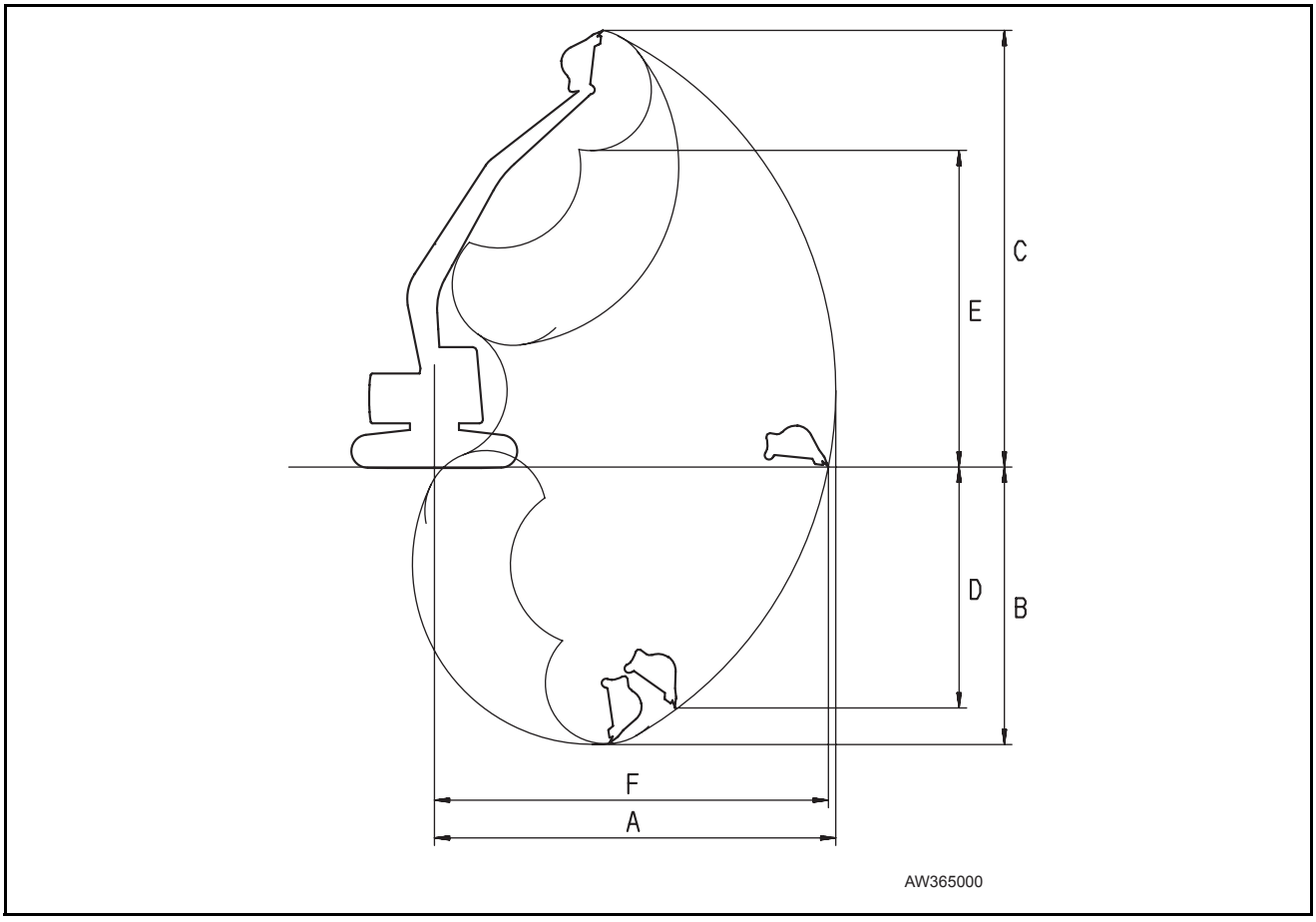
SPECIFICATIONS

PC750SE-6 / PC750LC-6

	Item	PC750SE-6 (with standard work equipment)	PC750LC-6 (with optional work equipment)
	Operating weight	75,500 kg	78,040 kg
	Engine model	Komatsu SAA6D140E-3 Diesel engine	
	Flywheel horsepower	338kW (444 HP)/1,800 rpm	
	Starting motor	24V 7.5 kW	
	Alternator	24 V 50 A	
	Battery	12 V 170 Ah x 2 pieces	
A	Overall length	13,030 mm	13,895 mm
B	Overall height	4,615 mm	4,850 mm
C	Overall width	4,210 mm	4,310 mm
D	Track shoe width	710 mm	810 mm
E	Height of cab	3,520 mm	
F	Radius of upper structure	4,245 mm	
G	Length of track	5,810 mm	6,330 mm
H	Tumbler center distance	4,500 mm	5,020 mm
	Min. ground clearance	840 mm	
	Travel speed (Low/High)	2,7/4,2 km/h	
	Swing speed	6,8 rpm	



	Working range	Standard work equipment	Optional work equipment
A	Maximum digging reach	12,265 mm	13,660 mm
B	Maximum digging depth	7,130 mm	8,445 mm
C	Maximum digging height	11,330 mm	11,955mm
D	Vertical wall depth	4,080 mm	5,230 mm
E	Maximum dumping height	7,525 mm	8,235 mm
F	Maximum digging reach at ground level	11,945 mm	13,400 mm



MEMO

OPTIONS AND ATTACHMENTS

GENERAL PRECAUTIONS

PRECAUTIONS RELATED TO SAFETY

If attachments or options other than those authorized by Komatsu are installed, this will not only affect the life of the machine, but will also cause problems with safety.

When installing attachments not listed in this Operation and Maintenance Manual, please contact your Komatsu distributor first.

If you do not contact Komatsu, we cannot accept any responsibility for any accident or failure.

⚠ WARNING

Precautions for removal and installation operations

When removing or installing attachments, obey the following precautions and take care to ensure safety during the operation.

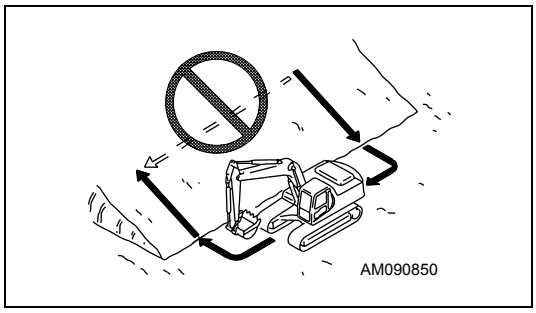
- **Carry out the removal and installation operations on a flat, firm ground surface.**
- **When the operation is carried out by two or more workers, determine signals and follow these during the operation.**
- **When carrying heavy objects (more than 25 kg), use a crane.**
- **When removing heavy parts, always support the part before removing it.**
  When lifting such heavy parts with a crane, always pay careful attention to the position of the center of gravity.
- **It is dangerous to carry out operations with the load kept suspended. Always set the load on a stand, and check that it is safe.**
- **When removing or installing attachments, make sure that they are in a stable condition and will not fall over.**
- **Never go under a load suspended from a crane.**
  Always stand in a position that is safe even if the load should fall.

NOTICE
Qualifications are required to operate a crane. Never allow the crane to be operated by an unqualified person.
For details of the removal and installation operations, please contact your Komatsu distributor.

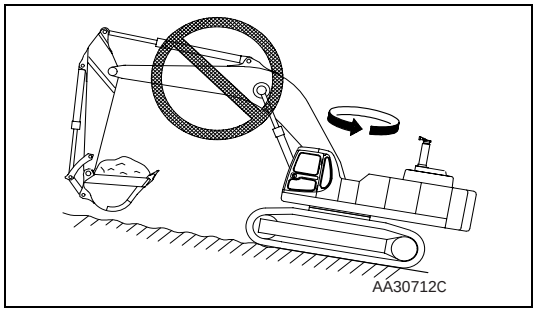
PRECAUTIONS WHEN INSTALLING ATTACHMENTS

⚠ WARNING

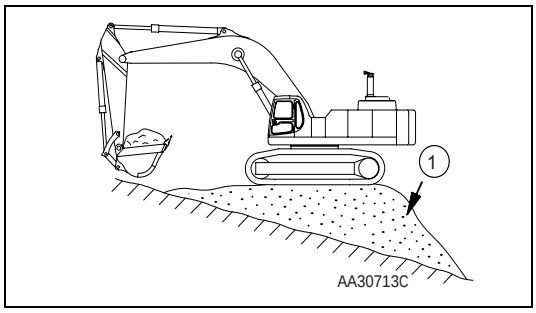
Long work equipment reduces the stability of the chassis, so if the swing is operated on a slope, or when going down a steep hill, the machine may lose its balance and overturn. The following operations are particularly dangerous, so never operate the machine in these ways.



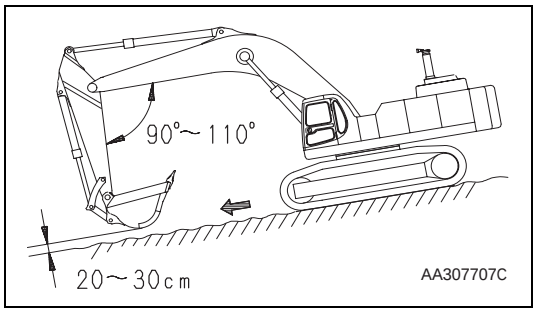
- **If heavy work equipment is installed, the overrun of the swing becomes greater (the distance from the point where the operator operates the control levers to stop the swing to the point where the upper structure stops completely), so there is danger of mistaking the distance and hitting something.**



- **Always operate so that there is an ample margin to the stopping point.**
  Furthermore, the hydraulic drift also becomes larger (when the work equipment is stopped in mid-air, it will gradually move down under its own weight).
- **Always follow the correct procedure when installing the boom and arm. If the correct procedure is not followed, this may lead to serious damage or injury, so please consult your Komatsu distributor before carrying out installation.**



- **If long work equipment is installed, the working range will suddenly become larger, so there is danger of mistaking the distance and hitting something.**
  Always operate the work equipment so that there is ample space from any obstacles in the area.



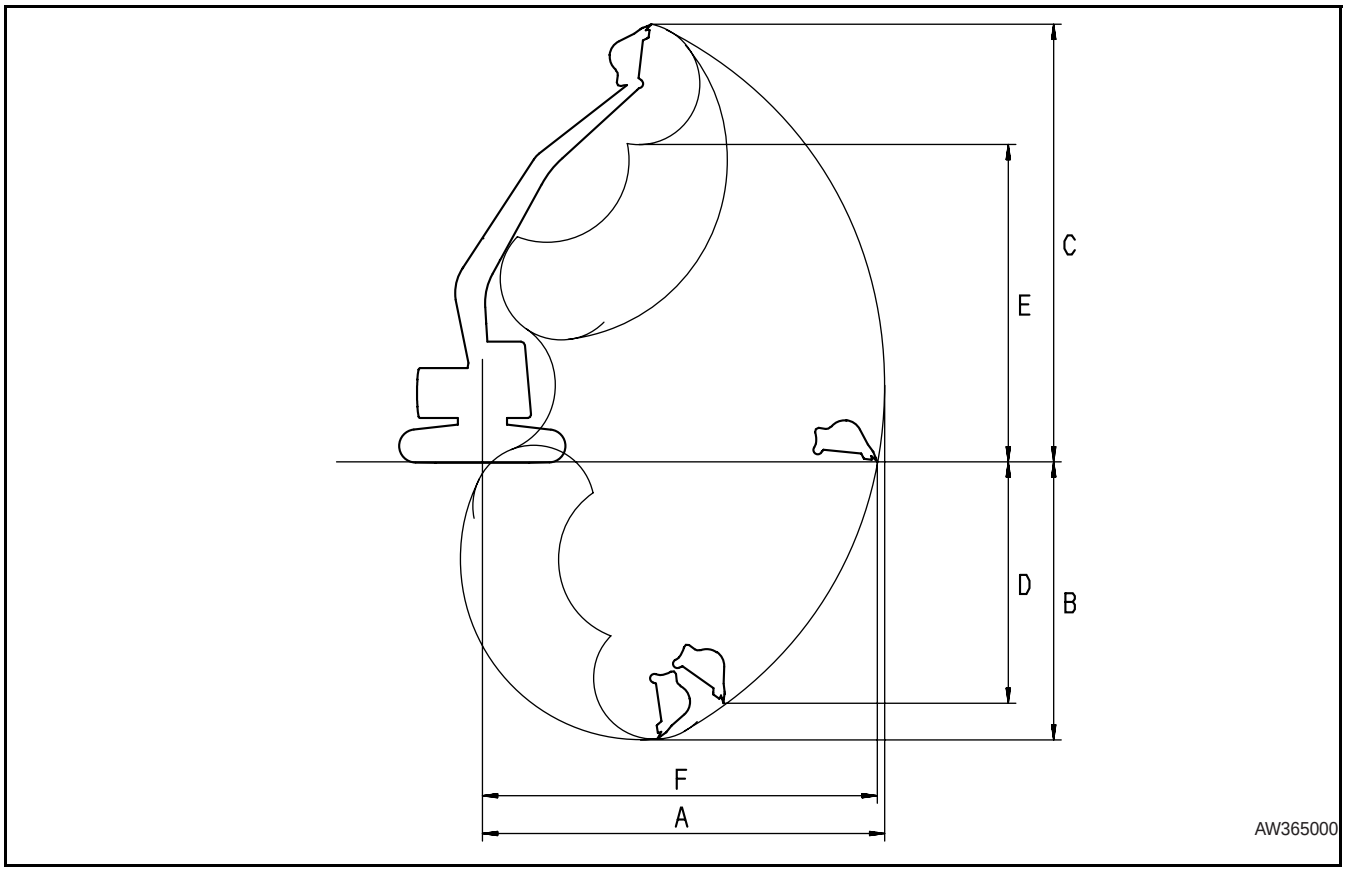
OPTIONAL PARTS AND ATTACHMENTS

WORK EQUIPMENT COMBINATIONS

Select the combination of boom, arm, and bucket from the combinations shown in the table below.

	Model		PC750LC-6	PC750SE-6		Bucket operation	
	Boom		Strengthened boom 8.2 m	SE boom 7.1 m	Strengthened boom 8.2 m		
Work equipment	Arm		Strengthened arm 3.6 m	SE arm 2.9 m	Strengthened arm 3.6 m	With side cutter (excluding side shroud)	With side cutter (including side shroud)
	Bucket	Standard 3.1 (2.8) m³	✶	✶	✶	1,700	1,845
		Lock 3.4 (3.0) m³	▲	✶	▲	1,820	1,925
		Lock strength 3.5 (3.0) m³	●	✶	●	1,820	1,925
		Wide 4.0 (3.5) m³	✶	●	✶	2,000	2,105
		Wide 4.3 (3.8) m³	✶	▲	✶	2,150	2,250
		Wide 4.5 (4.0) m³	✶	▲	✶	2,220	2,335
Working range	Max. digging reach A		13,660	12,265	13,660	● For standard operations ▲ Possible to use only for light work ✶ Impossible to use	
	Max. digging depth B		8,445	7,130	8,445		
	Max. digging height C		11,955	11,330	11,955		
	Max. vertical wall depth D		5,230	4,080	5,230		
	Max. dumping height E		8,235	7,525	8,235		
	Max. reach at ground level F		13,400	11,945	13,400		

Unit : mm



SELECTION OF TRACK SHOES

Select the most suitable track shoe to match the operating conditions. Check the use in the table below, and select the shoe from the table on the next page.

Category	Use	Precautions when using	Remarks
A	Rocky ground, river bed, normal soil	1.Travel in Lo speed when traveling on rough ground with obstacles such as large boulders and fallen trees.	Categories "B" and "C" are wide shoes, so there are restrictions on their use. Therefore, before using, check the restrictions and consider carefully the conditions of use before recommending a suitable shoe width. If necessary, give the customer guidance in their use. When selecting the shoe width, select the narrowest shoe possible within the range that will give no problem with flotation and ground pressure. If a wider shoe than necessary is used, there will be a large load on the shoe, and this may lead to bending of the shoe, cracking of the links, breakage of the pins, loosening of the shoe bolts, or other problems.
B	Normal soil, soft land	1.Cannot be used on rough ground where there are large obstacles such as boulders and fallen trees. 2.Travel in Hi speed only on flat ground; when it is impossible to avoid traveling over obstacles, lower the travel speed to approx. half of Lo speed.	
C	Extremely soft ground (swampy ground)	1.Use only for ground where "A" and "B" sink and are impossible to use. 2.Cannot be used on rough ground where there are large obstacles such as boulders and fallen trees. 3.Travel in Hi speed only on flat ground; when it is impossible to avoid traveling over obstacles, lower the travel speed to approx. half of Lo speed.	
D	Paved surface	The shoes are flat, so they have low gradeability.	

Types of track shoe

Shoe		Double grouser shoe				
Model		PC750 SE-6				
Shoe width	mm	610 (std)	710	810	910	1010
Overall width of crawler	mm	4,110	4,210	4,310	4,410	4,510
Ground pressure	kg/cm²	1.19	1.04	0.92	0.82	0.75
Category of use		A	A	B	B	C

Shoe		Double grouser shoe				
Model		PC750 LC-6				
Shoe width	mm	610	710	810 (STD)	910	1010
Overall width of crawler	mm	4110	4210	4310	4410	4510
Ground pressure	kg/cm²	1.20	1.04	0.92	0.83	0.76
Category of use		A	A	A	B	C

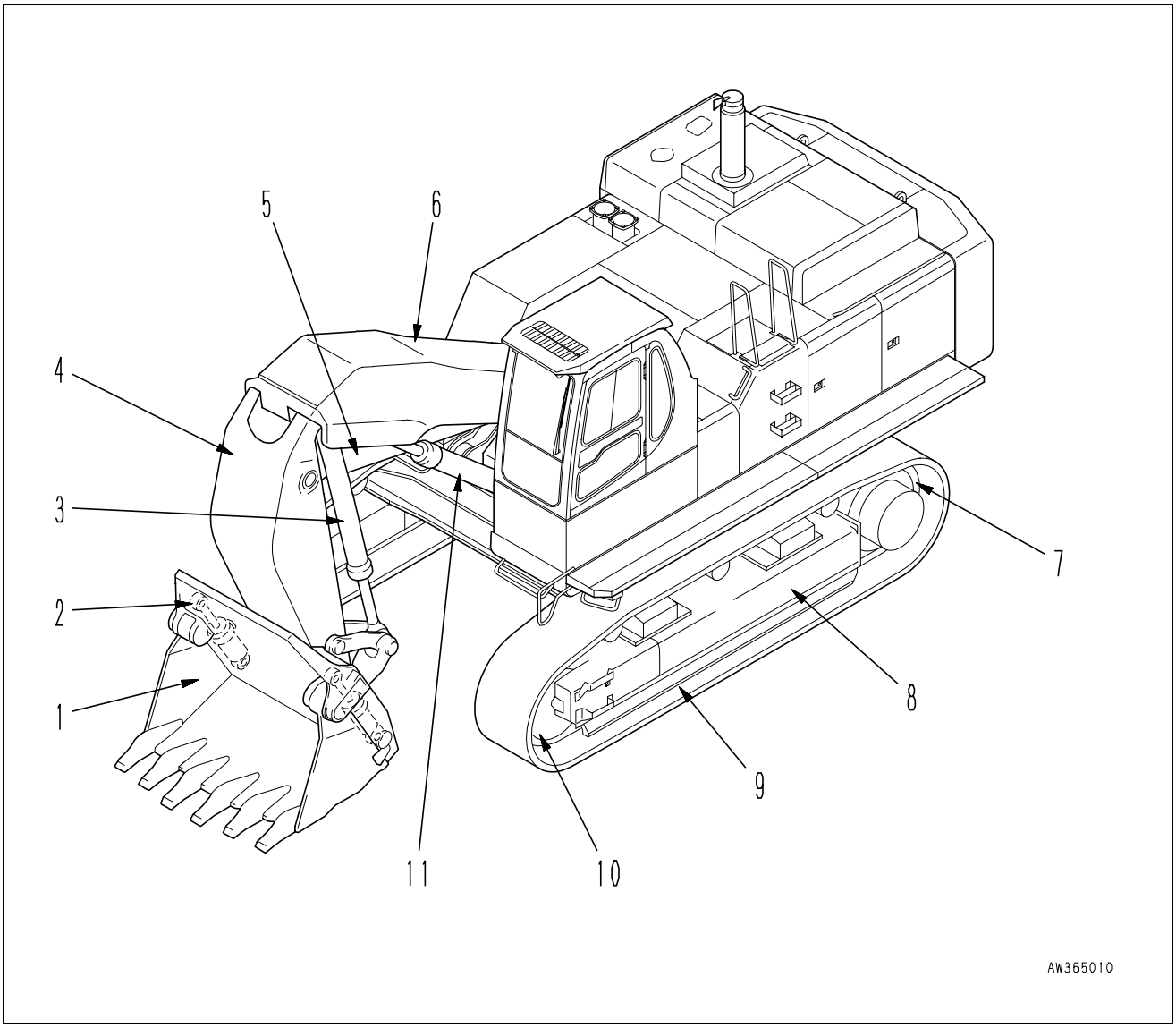
MEMO

LOADING SHOVEL

REMARK

This section applies when a loading shovel is installed.
Only the portions which differ from the back hoe type are noted.

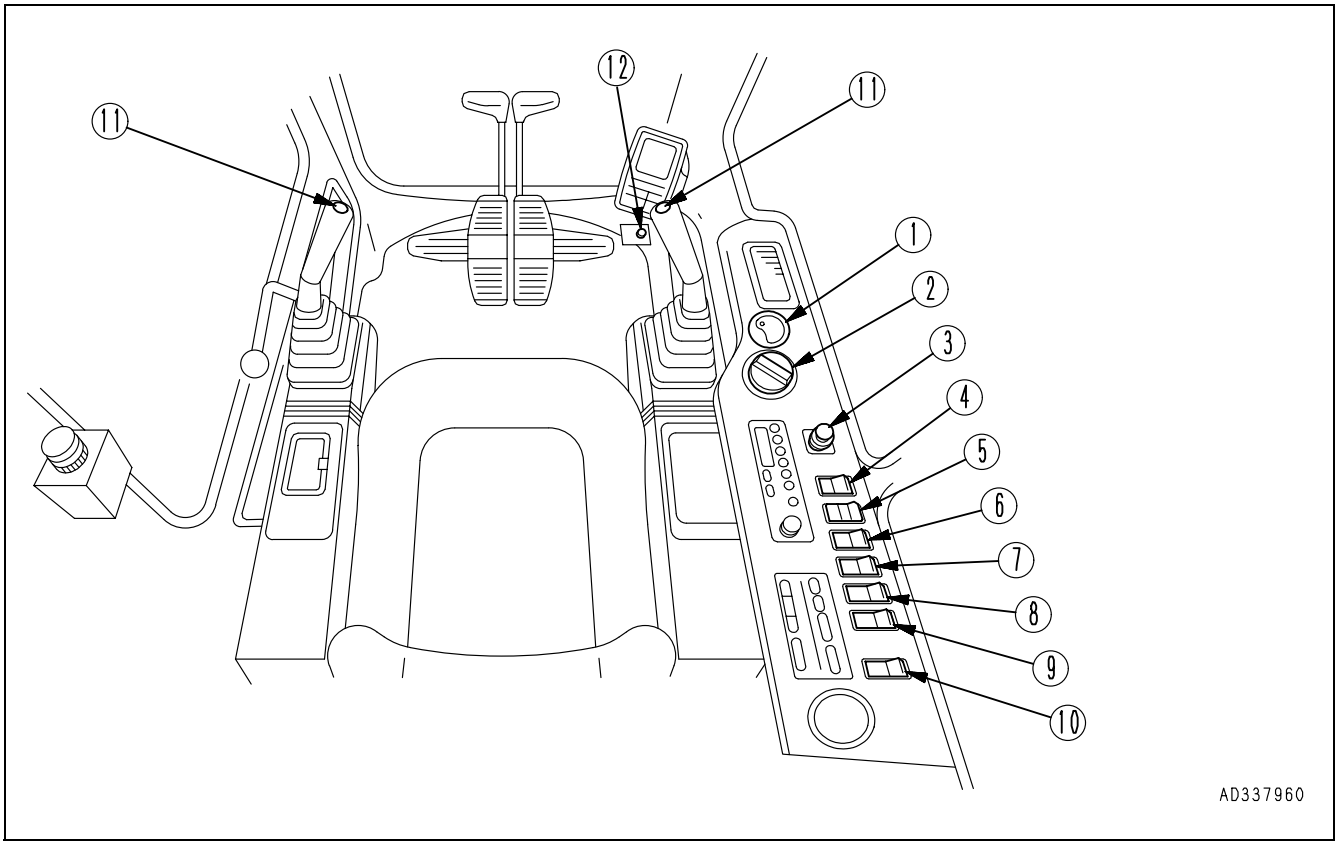
GENERAL LOCATIONS



1.Bucket	7. Sprocket
2. Bottom dump cylinder	8. Track frame
3. Bucket cylinder	9. Track shoe
4. Arm	10.Idler
5. Arm cylinder	11.Boom cylinder
6. Boom	

INSTRUMENTS AND CONTROLS

SWITCHES



1. STARTING SWITCH

2. FUEL CONTROL DIAL (WITH AUTO-DECELERATION MECHANISM)

3. CIGARETTE LIGHTER

4. SWING LOCK SWITCH

5. WIPER SWITCH

6. LAMP SWITCH

7. ALARM BUZZER STOP SWITCH

8. CAR HEATER FAN SWITCH (OPTION)

9. MACHINE PUSH-UP SWITCH

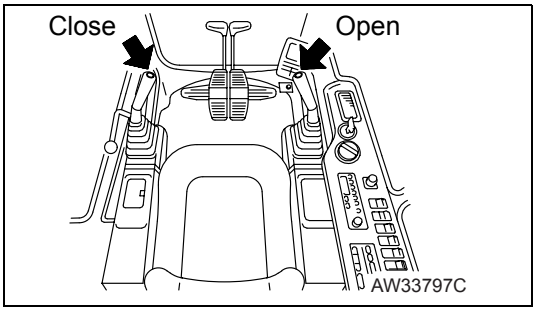
10. SHOCKLESS BOOM CONTROL SWITCH

For details, See “EXPLANATION OF COMPONENTS” on page 61.

11. BOTTOM DUMP SWITCH

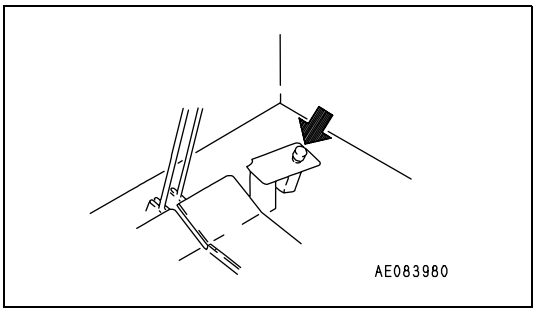
These switches open and close the front bucket.

Press the button at the tip of the left work equipment control lever to CLOSE the front bucket; press the button at the tip of the right work equipment control lever to OPEN the front bucket.



12. HORN SWITCH

When the horn button located at the right foot rest is depressed, the horn sounds.



OPERATION OF WORK EQUIPMENT

⚠ WARNING

For machine with auto-deceleration device, if any lever is operated when in the deceleration range, the engine speed will suddenly increase, so be careful when operating the levers.

The work equipment is operated by left and right control levers, and the bottom dump switches.
The LEFT work equipment control lever controls SWING, ARM and bottom dump closing.

The RIGHT work equipment control lever controls BOOM, BUCKET and bottom dump opening.

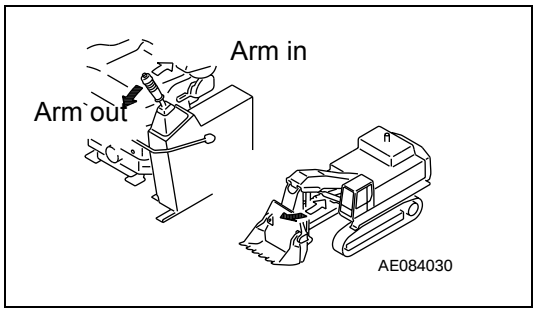
The levers and switches, and movement of the work equipment are as shown in the diagrams. If the levers and switches are released, they will return to the NEUTRAL position, and the work equipment will be held in position.

If the work equipment control lever is returned to the neutral position when the machine is stopped, even if the fuel control lever is set to FULL, the auto-deceleration mechanism will act to reduce the engine speed to a mid-range speed (for the machine with auto-deceleration device).

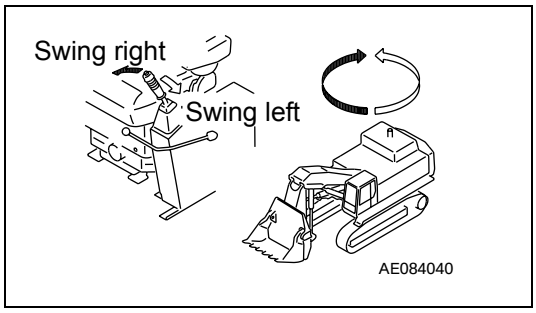
REMARK

If the levers are operated within 15 seconds after stopping the engine, it is possible to lower the work equipment to the ground. In addition, the levers can also be operated to release any remaining pressure inside the hydraulic cylinder circuit and to lower the boom after loading the machine on a trailer.

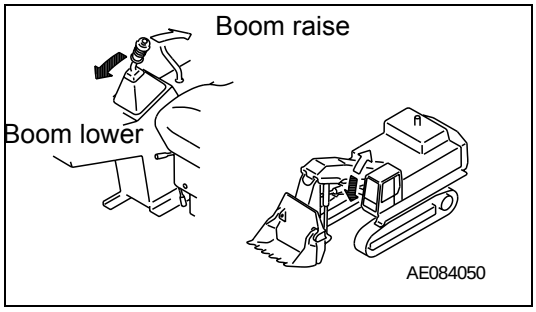
Arm operation



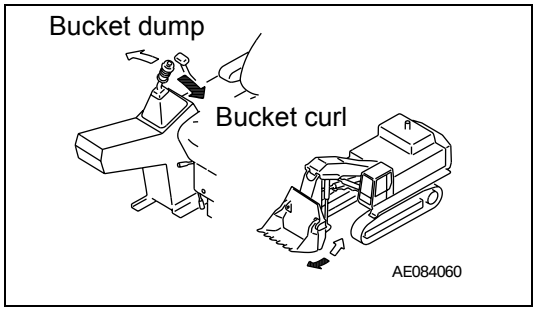
Swing operation



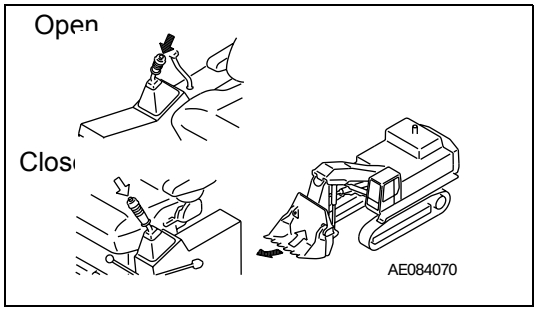
Boom operation



Bucket operation



Bottom dump operation

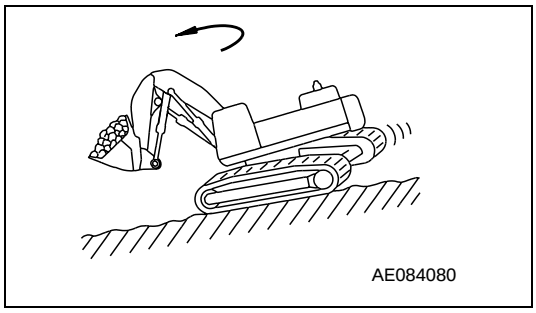


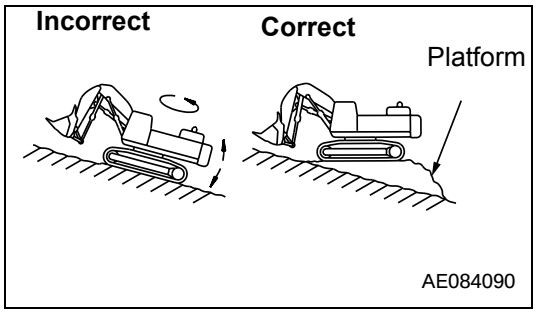
PRECAUTIONS FOR MACHINE OPERATION

PRECAUTONS DURING OPERATION

⚠ WARNING

- **For machine with autodeceleration device, if the lever is operated inside the deceleration range, the engine speed will rise suddenly.**
- **Turning or operating the work equipment when working on slopes may cause the machine to lose its balance and turn over, so avaoid such operations. It is particularly dangerous to swing downhill when the bucket is loaded. If such operations have to be carried out, pile soil to make a platform on the slope so that the machine can be kept horizontal when operating.**
- **Never carry out digging operations with the track gauge retracted.**

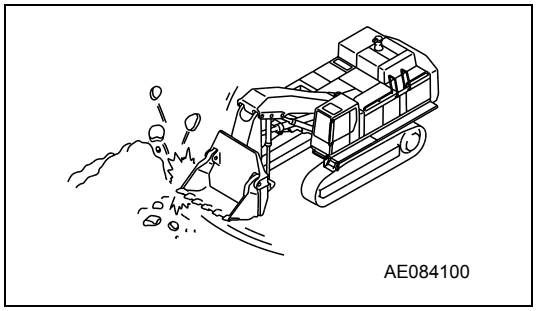

AE084080



AE084090

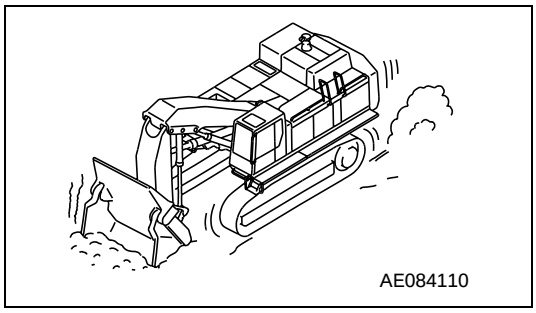
It is prohibited to use the swing force for operations.

Be careful not to compact the soil or damage earth mounds as a result of the swinging force. When swinging, do not dig the bucket teeth into the soil.


AE084100

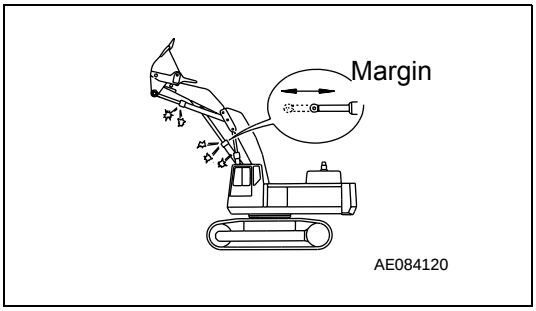
It is prohibited to use the travel force for operations.

Do not move off and excavate with the bucket left dug into the ground.


AE084110

Do not carry out operations with the hydraulic cylinder at the end of its stroke.

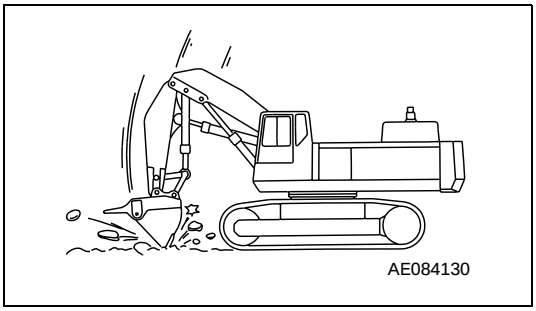
When working with the machine, do not move the cylinder to the end of its stroke but leave a small safety margin.



It is prohibited to use the dropping force of the bucket for operations.

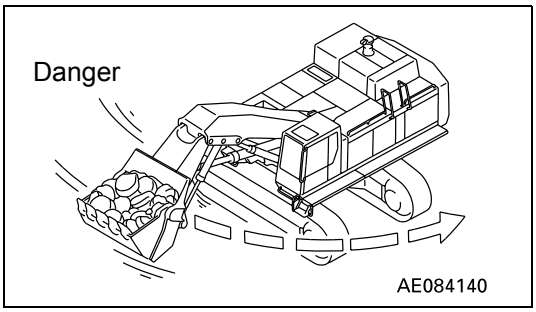
Do not use the dropping force of the bucket for digging.

Do not use the dropping force of the bucket as a pickaxe, breaker, or pile driver.



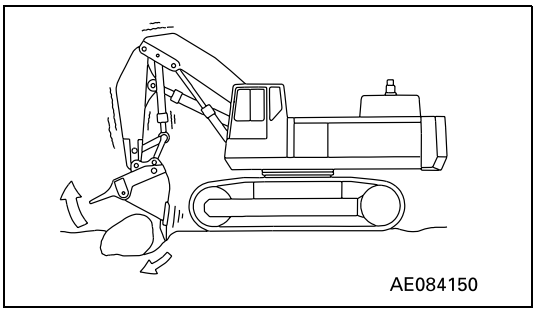
Be careful of stability when swinging.

During swing operations, the stability of the machine differs to the front, rear, left and right, and there is danger that it may tip over.



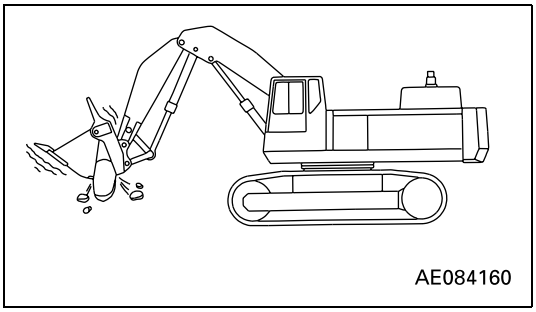
It is prohibited to use the tilt operation for digging.

Do not set the teeth vertically when the bucket is pulled in, and then use the tilt operation to carry out digging.



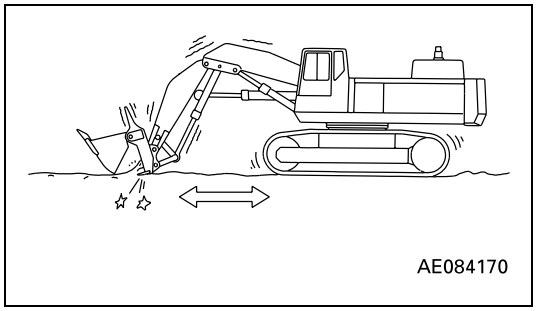
It is prohibited to grip rocks.

Do not use the bottom dump bucket to grip rocks.



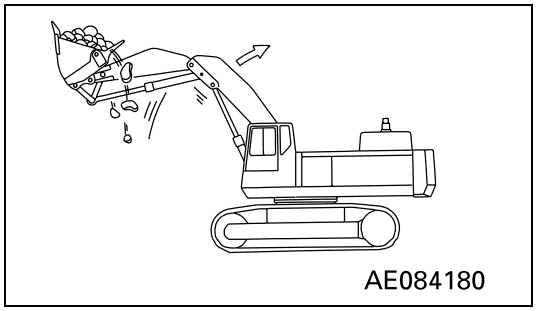
It is prohibited to use the bucket for leveling operations.

Using the rear bucket to carry out leveling operations will bring an excessive force to bear on the work equipment, so do not use the rear bucket in this way.



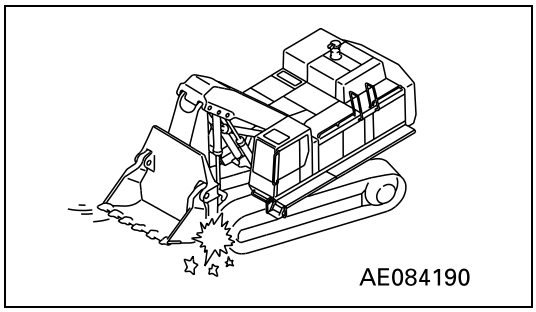
Be careful not to spill the load.

When the bucket is fully loaded, do not raise the boom fully. If the boom is raised fully, the load will spill to the rear and cause danger to the operator.



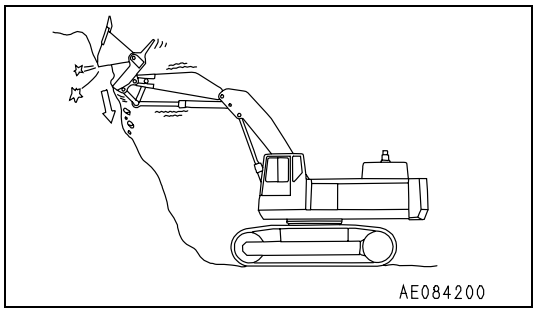
Be careful not to hit the undercarriage.

If the upper structure is set diagonally to the track frame when carrying out digging operations, the work equipment will hit the track links.



Scraping-down operations are prohibited.

Never use the front bucket of a bottom-dump bucket to scrap down rocks or soil.



Digging rocky ground

It is better to excavate hard rocky ground after breaking it up by some other means.

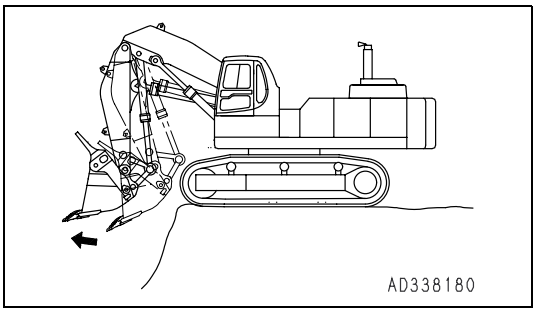
This will not only reduce damage to the machine but make for better economy.

Phenomena that do not indicate failure

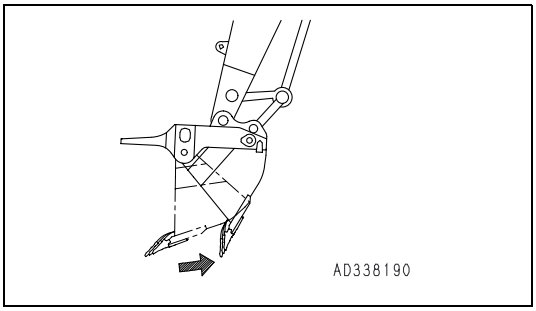
REMARK

That the following phenomena are not faults:

- At the beginning and end of a swinging, a noise may sometimes be emitted from the brake valve.
- When descending a steep slope at low speed, a noise may sometimes be emitted from the travel motor.
- The arm may sometimes stop when the bucket teeth become more or less horizontal.



- The bottom dump of the bucket may sometimes stop at the bottom horizontal position when the bottom dump control lever changes from open to close.



PRECAUTIONS WHEN DISASSEMBLING MACHINE

RELEASING PRESSURE

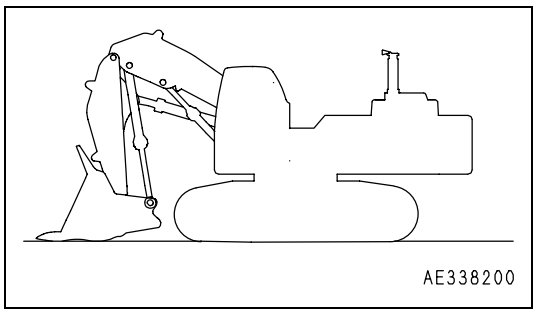
When disassembling the machine or removing the piping during inspection or maintenance, always release the pressure as follows.

RELEASING PRESSURE FROM WORK EQUIPMENT CIRCUIT, SWING CIRCUIT, TRAVEL CIRCUIT

⚠ WARNING

When removing the oil filler cap of the hydraulic tank, turn it slowly to release the internal pressure before taking off the cap.

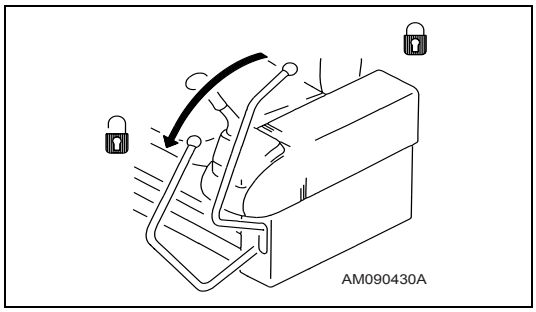
1. Lower the work equipment to the ground in a stable flat place as shown in the diagram, then stop the engine.
   Set the lock lever to the FREE position.
2. After stopping the engine, move each work equipment control lever to the end of its travel within 5 to 6 seconds.
   Leave the starting switch ON.
3. Remove the cap of the hydraulic tank.
4. Start the engine, run it for approx. 10 seconds, then stop the engine again.
   When running the engine, do not raise the speed above 1000 rpm.
   Set the work equipment control levers to neutral.
5. After stopping the engine, move each work equipment control lever to the end of its travel within 5 to 6 seconds.
   Repeat Steps 4 to 5 three times.



RELEASING PRESSURE IN ACCUMULATOR CIRCUIT

Stop the engine, set lock lever 1 to the FREE position, then move each work equipment control lever 3 to 4 times to the end of its travel. After 1 minute passes, the pressure is relieved.

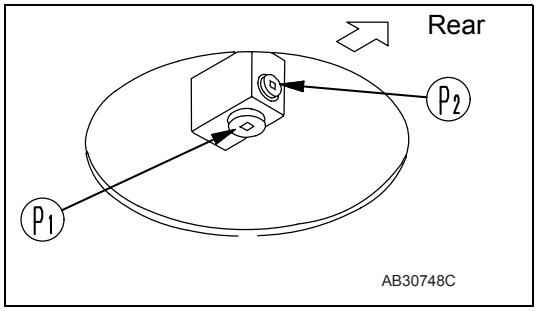
- Do not loosen the piping less than 1 minute after releasing pressure.



MAINTENANCE

CHECK BEFORE STARTING

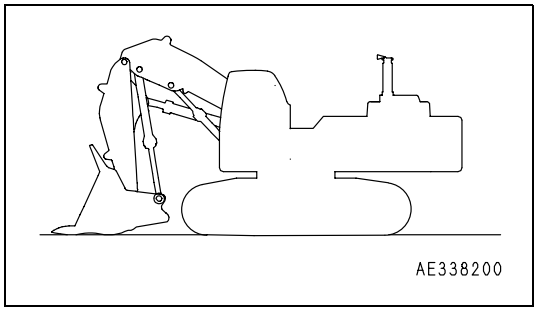
CHECK OIL LEVEL IN HYDRAULIC TANK, ADD OIL



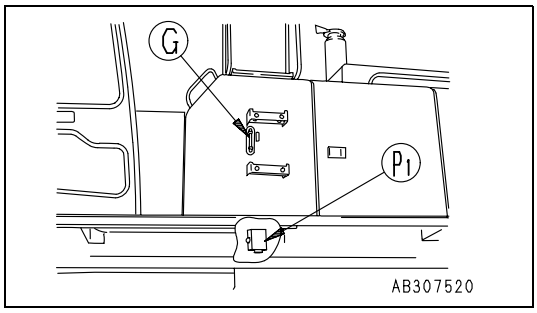
⚠ WARNING

- **When removing the oil filler cap, oil may spurt out, so turn the cap slowly to release the internal pressure before removing the cap.**

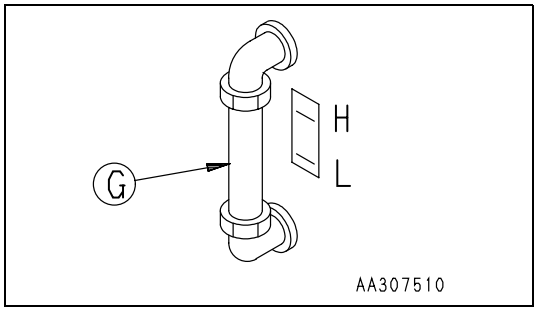
- **If the oil is above the H level, stop the engine, wait for the hydraulic oil to cool down, then drain the excess oil from drain plug (P1). When draining the oil, loosen bottom drain plug (P1) , then loosen the side drain plug (P2) and drain the oil. After draining the oil, tighten drain plugs (P1) and (P2).**



1. If the work equipment is not in the condition shown in the diagram on the right, start the engine, run the engine at low speed, retract the arm and bucket cylinders, then lower the boom, set the bucket teeth in contact with the ground, and stop the engine.
2. Within 15 seconds after stopping the engine, move each control lever (for work equipment and travel) to the full stroke in all directions to release the internal pressure.
3. Check sight gauge G. The oil level is normal if between the H and L marks.



NOTICE
Do not add oil if the level is above the H line. This will damage the hydraulic equipment and cause the oil to spurt out.



4. If the level is below the L mark, open the upper cover 1 of the hydraulic tank and add oil through oil filler F.

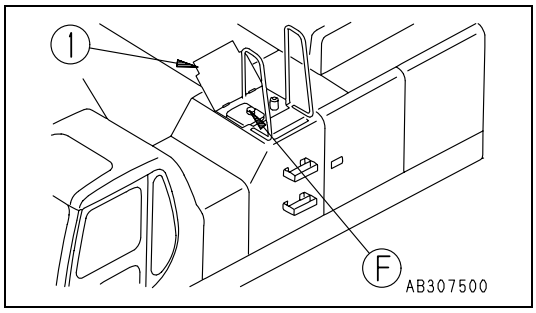
   For details of the oil to use, See “USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE” on page 184.

REMARK

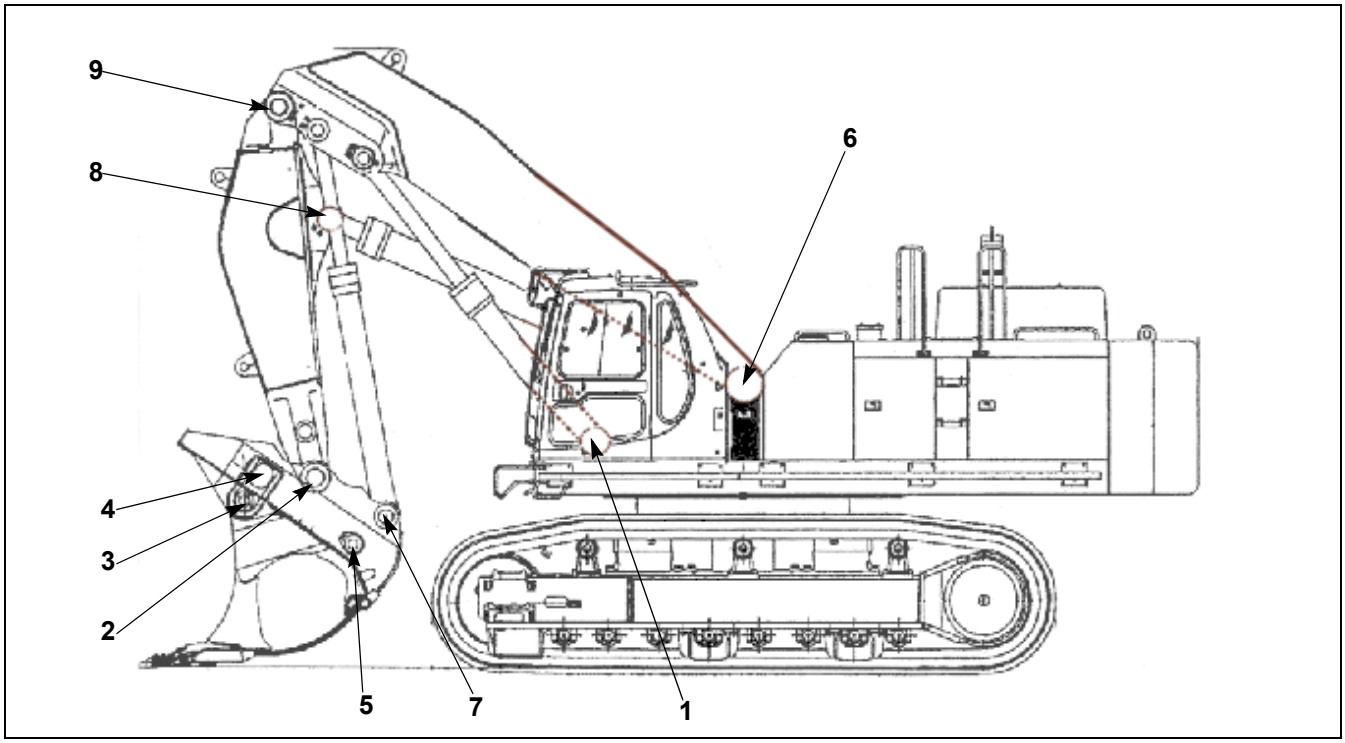
The oil level will vary depending upon the oil temperature.

Accordingly, use the following as a guide:

- Before operation: around L level
  (Oil temperature 10 to 30°C)
- Normal operation: around H level
  (Oil temperature 50 to 80°C)



EVERY 10 HOURS SERVICE



LUBRICATING

Apply grease to the grease fittings shown by arrows.

If any abnormal noise comes from the greasing points of the work equipment, apply grease regardless of the service interval.

1. Boom cylinder foot pin	(2 points)
2. Arm – Bucket coupling pin	(2 points)
3. Bucket hinge pin	(2 points
4. Bottom dump cylinder rod end	(2 points)
5. Bottom dump cylinder foot pin	(2 points)
6. Boom centralized greasing block	(7 points)
● Boom foot pin	
● Arm cylinder foot pin	
● Boom cylinder rod end	
● Bucket cylinder rod end	
7. Bucket cylinder foot pin	(2 points)
8. Arm cylinder rod end	(1 point)
9. Boom – Arm coupling pin	(2 points)

CHANGE OIL IN HYDRAULIC TANK, CLEAN STRAINER

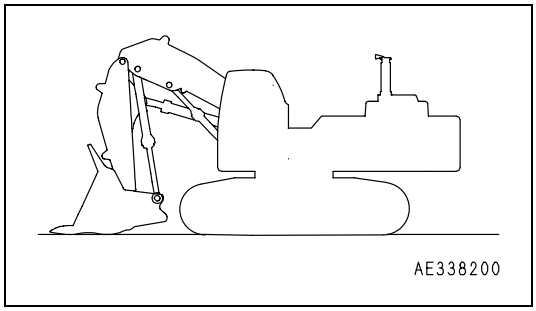
⚠ WARNING

The oil is at high temperature immediately after the machine has been operated. Wait for the oil to cool down before changing the oil. When removing the oil filler cap, turn it slowly to release the internal pressure, then remove it carefully.

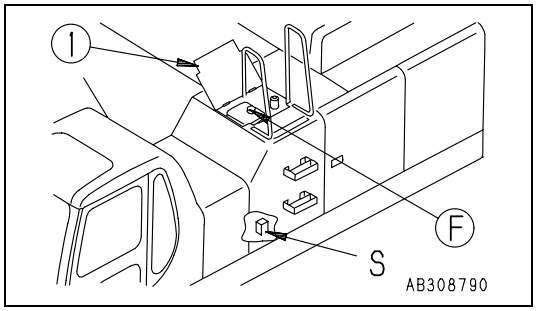
Prepare the following.

- ❍ Container to catch drained oil: min. 440 liter capacity
- ❍ Refill, capacity: 440 L
- ❍ Handle for socket wrench set

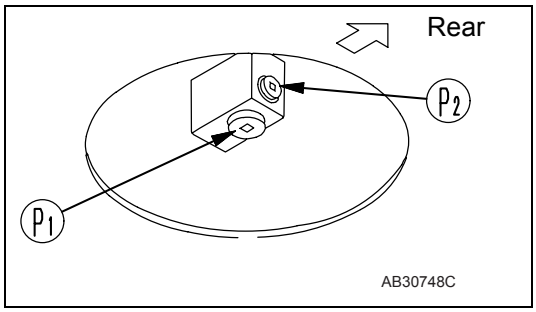
1. Retract the arm cylinder, extend the bucket cylinder, lower the boom to set the bottom of the bucket in contact with the ground, then stop the engine.
2. Set the safety lock lever to the LOCK position and stop the engine.
3. Open cover 1 on top of the hydraulic tank, then remove the cap of oil filler port F.



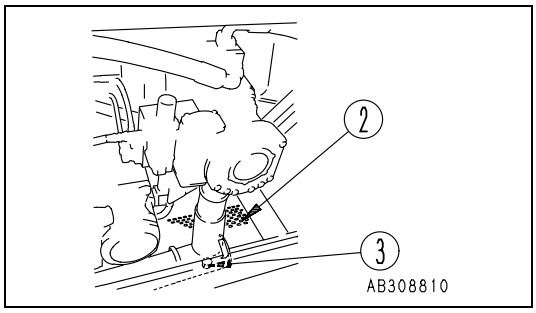
4. Set the container to catch the oil under the drain plug at the bottom of the chassis. Remove drain plug (P1), then loosen plug (P2) and drain the oil. After draining the oil, tighten drain plugs (P1) and (P2).
   Tightening torque: 70 ± 10 Nm (7 ± 1 kgm)



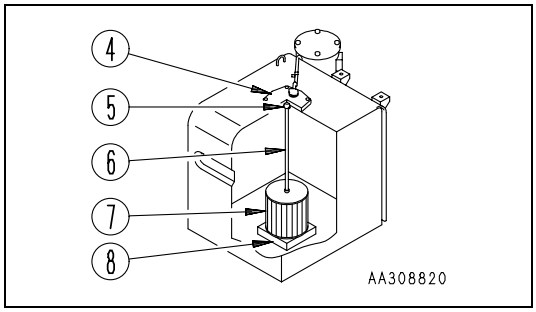
5. Remove the 10 mounting bolts of cover 2, take off the cover, then remove drain plug 3 at the bottom of the pump suction tube.
6. After draining the oil, tighten drain plug 3 and install cover 2.



When loosening drain plugs (P2) and 3, be careful not to get oil on yourself.



7. Remove 4 bolts, then remove cover 4. When doing this, cover 4 may fly off because of the force of spring 5, so keep the cover pushed down when removing the bolts.
8. Hold the top of rod 6 and pull up to remove spring 5 and strainer 7.
9. Remove any dirt stuck to strainer 7, then wash in clean diesel oil or flushing oil. If strainer 7 is broken, replace it with a new part.
10. When installing, insert strainer 7 into protruding part 8 of the tank, and assemble.



11. Tighten the bolts to install cover 2.

12. Add engine oil through oil filler F to the specified level. Check that the oil level is between the H and L marks on the sight gauge.

    For details, See “USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE” on page 184.

NOTICE
Bleed the air from the circuit after cleaning or replacing the filter element or strainer, or after changing the oil.

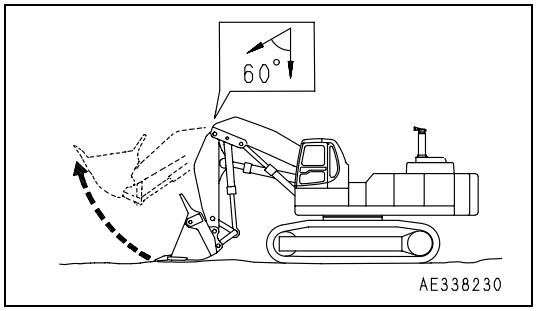
For details of the procedure for bleeding the air,See “OUTLINES OF SERVICE” on page 173.

EXCAVATOR WORK

In addition to the following, it is possible to further increase the range of applications by using various attachments.

SHOVEL WORK

This is suitable for digging a place which is higher than the machine's position. It is most efficient if the arm's digging angle is from vertical to 60° forward, and the arm cylinder is used effectively.

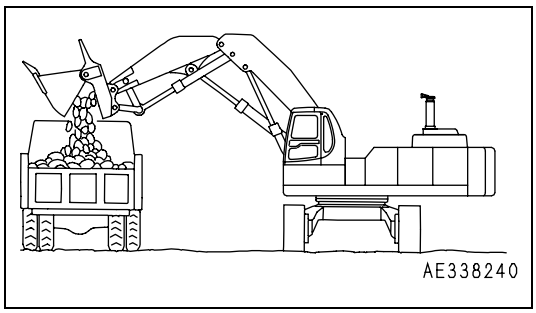


LOADING WORK

About half the time taken for digging and loading operations is used for swinging.

The most efficient method of operation is to keep the swing angle as small as possible but conforming to topography.

Loading is easier if the excavator is placed beside the dump truck for loading. This way means more earth can be loaded more effectively than by a loader working behind the truck.



TRANSPORTATION

For ease of transport, the machine may be disassembled into the parts shown in the diagrams: the body, operator's cab, track frames, platform, attachments and counterweight.

Ask your Komatsu distributor to carry out the disassembly work.

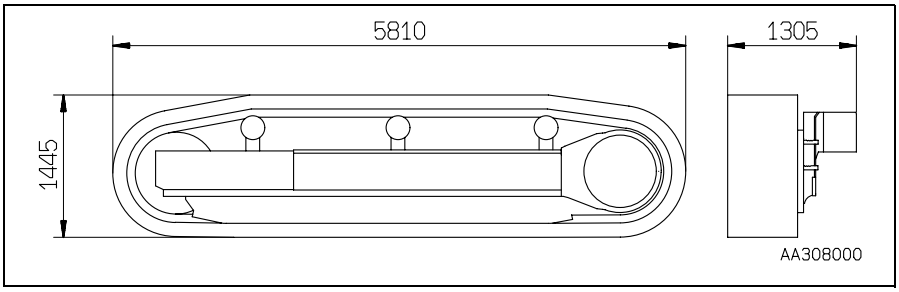
PARTS FOR TRANSPORT

The dimensions in the diagrams are given in millimeters.

PC750-6 (Loading shovel)

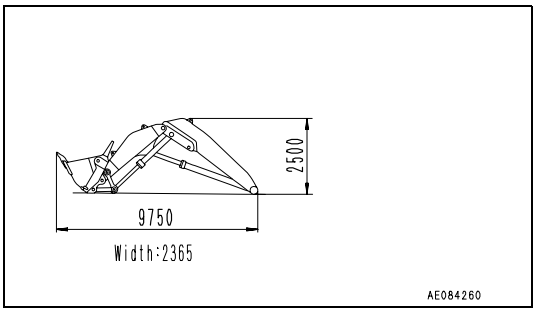
Undercarriage

Weight: 22,500 kg (11,250 x 2)



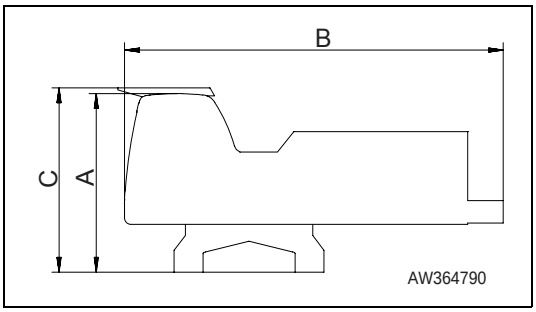
Work equipment

Weight: 18,700 kg



Low cab

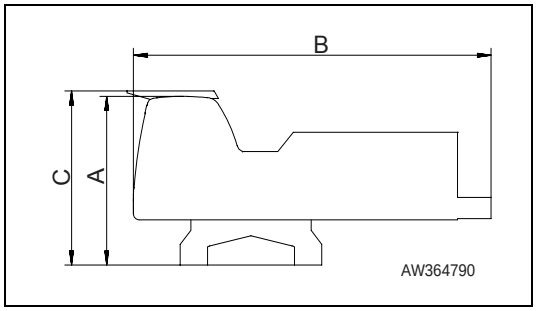
Weight: 23.700 kg



Overall width (mm)	3,195
A (mm)	2,640
B (mm)	5,970
C (mm)	3,090

High cab (option)

Weight: 24,100 kg



Overall width (mm)	3,195
A (mm)	3,840
B (mm)	5,970
C (mm)	4,290

Secure the body to the shipping support with chains, blocks, etc.

CONSUMABLE PARTS LIST

Consumable parts such as the filter element, bucket tooth, etc., are to be replaced at the time of periodic maintenance or before their abrasion limits.

The consumable parts should be changed correctly in order to use the machine economically.

For part change, Komatsu genuine parts should be used.

When ordering parts, please check the part number in the parts book.

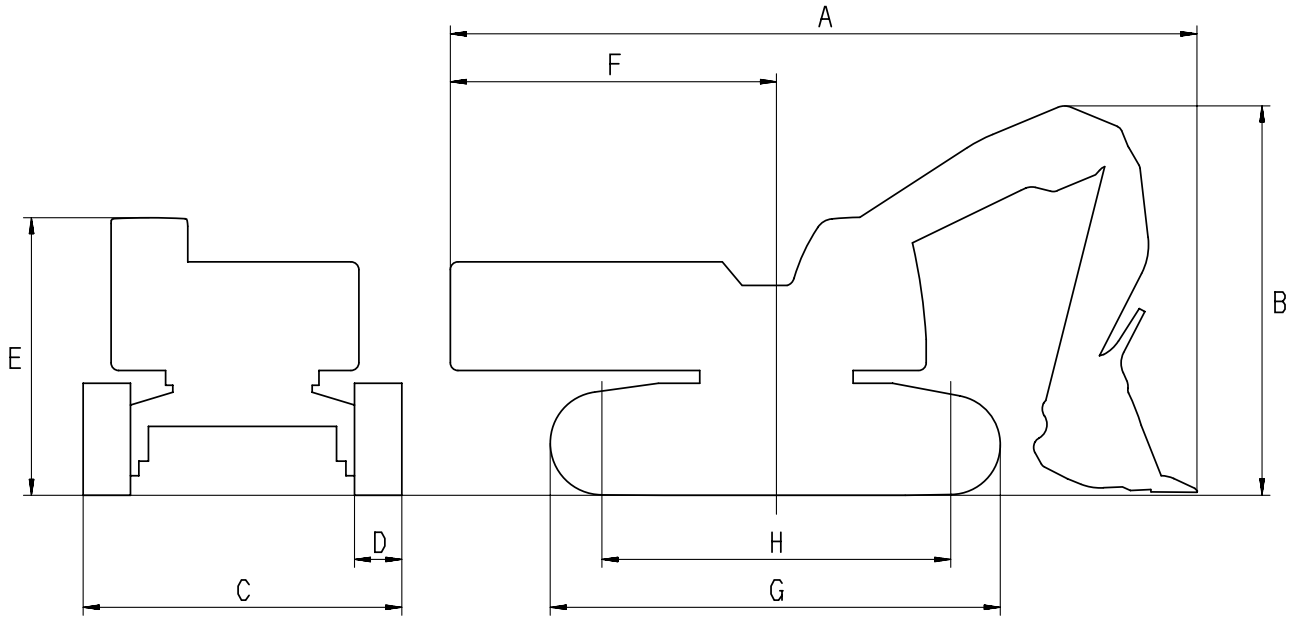
The parts in parentheses are to be replaced at the same time.

Item	Part No.	Part Name	Q'ty	Replacement frequency
Hydraulic oil filter	07063-01210 (07000-05180)	Element (O-ring)	3 (3)	Every 250 hours service
Drain filter	113-60-23160	Cartridge	1	Every 250 hours service
Engine oil filter	600-211-1230	Cartridge	1	Every 250 hours service
Fuel filter	600-311-7130	Cartridge	1	Every 500 hours service
Corrosion resistor	600-411-1170	Cartridge	1	Every 1000 hours service
Air cleaner	6128-81-7042	Element ass'y	1	-
	600-181-4400	Outer element ass'y	1	
Bucket (PC750-6) LOADING SHOVEL	HLX550RC (HLK550R)	Point (Pin)	6 (6)	-

SPECIFICATIONS

PC750-6 (LOADING SHOVEL)

	Item	PC750-6 Loading shovel
	Operating weight (without operator)	76,800 kg
	Bucket capacity (Standard bucket)	5.1 m³
	Engine model	SAA6D140E-2
	Flywheel horsepower	444 hp/1800 rpm
A	Overall length	9,865 mm
B	Overall height	5,640 mm
C	Overall width	4,110 mm
D	Track shoe width	610 mm
E	Height of cab	3,520 mm
F	Radius of upper structure	4,245 mm
G	Length of track	5,810 mm
H	Tumbler center distance	4,500 mm
	Min. ground clearance	840 mm
	Travel speed (Low/High)	2.7/4.2 km/h
	Swing speed	5.7 rpm



AW365030

COMBINATIONS OF WORK EQUIPMENT

COMBINATIONS OF WORK EQUIPMENT

Select the combination of boom, arm, and bucket from the combinations shown in the table below.
For dimensions A to F, see the working range diagram on the next page.

	Model		PC750-6 Loading Shovel			Remarks
Work equipment	Boom		4.6 m			
	Arm		3.4 m			
	Bucket capacity		3.8 m³	4.2 m³	4.5 m³	
	Bucket width		2,320 mm	2,320 mm	2,320 mm	
Material	Loose specific Gravity	2.0	❍	✷	✷	❍ Possible to use ✷ Impossible to use
		1.8	❍	❍	✷	
		1.6	❍	❍	❍	
Working range	Max. digging reach	A	10,305 mm			
	Max. digging reach at ground level	B	9,920 mm			
	Max. digging height	C	10,635 mm			
	Max. digging depth	D	3,535 mm			
	Min. digging reach at ground level	E	5,625 mm			
	Min. swing radius of work equipment	F	5,940 mm			

Working range diagram