CEAM003701

Operation & Maintenance Manual

WA420-3

WHEEL LOADER

SERIAL NUMBERS **WA420-3MC A31001 and up**

ENGINE **6D114E-1**

April 2016

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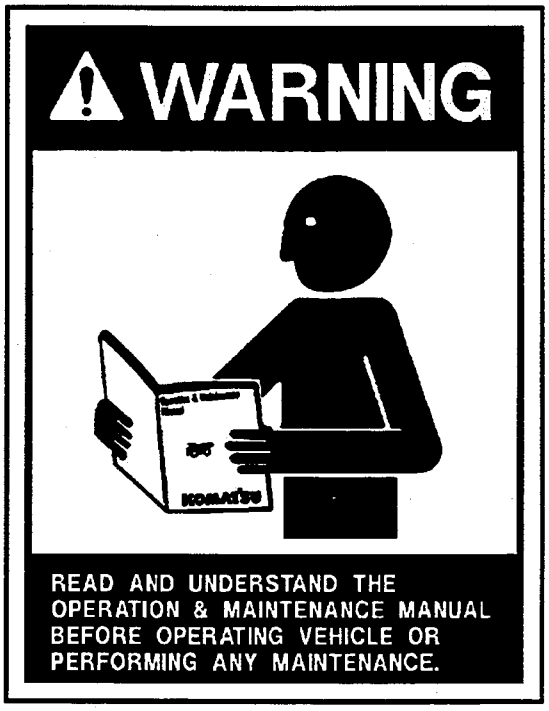
Komatsu America Corp.



⚠ WARNING

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

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

CALIFORNIA

Proposition 65 Warning

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer, birth defects and reproductive harm. Wash hands after handling.

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INTRODUCTION

1. FOREWORD

This manual describes procedures for operation, handling, lubrication, maintenance, checking, and adjustment. It will help the operator and maintenance personnel realize peak performance through effective, economical and safe machine operation and maintenance.

Keep this manual handy and have all personnel read it periodically. If this manual is lost or becomes dirty and can not be read, request a replacement manual from your local distributor.

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

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

⚠ WARNING

Improper operation and maintenance of this machine can be hazardous and could result in serious injury or death.

Operators and maintenance personnel must read this manual thoroughly before operating or maintaining this machine.

This manual should be kept near the machine for reference and periodically reviewed by all personnel who come across it.

Some actions involved in operation and maintenance can cause a serious accident, if they are not performed in the 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 America International Company 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 features 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 your local distributor or Komatsu America International Company before operating the machine.

See safety rules in SAFETY INFORMATION on page 0-2 and in SAFETY starting page 1-1.

2. 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 maintenance and machine operations.

To identify safety messages in thismanual and on machine product graphics, the following signal words are used.

DANGER! - This word is used on safety messages and product graphics where there is a high probability of serious injury or death if the hazard is not avoided. These safety messages and product graphics 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.

WARNING! - This word is used on safety messages and product graphics where there is a potentially dangerous situation, which could result in serious injury or death if the hazard is not avoided. These safety messages and product graphics 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.

CAUTION! - This word is used on safety messages and product graphics for hazards, which could result in minor or moderate injury if the hazard is not avoided. These safety messages and product graphics might also use this word for hazards where the only result could be damage to the machine.

NOTE - 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 beginning on page 1-1.

Komatsu America International Company 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 your local distributor or Komatsu America International Company.

3. INTRODUCTION

3.1 INTENDED USE

This WHEEL LOADER is designed to be used mainly for the following work:
- Digging
- Leveling
- Pushing
- Loading

For details of the operating procedures, SEE "12.10 WORK POSSIBLE USING WHEEL LOADER" on page 2-58

3.2 FEATURES

Curved glass and improved sealing for reduced noise, low vibration cab, viscous mount.
Console and steering post with unencumbered foot area providing the same comfort level as an automobile.
Fully hydraulic brake system, which does not require draining water or concerns of rust and freezing.
Maintenance-free, wet-type disc parking brake (acts also as emergency brake).
Large capacity pump and 2-stage hydraulic system for reduced cycle time and increased productivity.
One-touch panel control and optional air conditioner with new refrigerant.
Full fender system available to help prevent mud or water from splashing on or around the machine.

3.3 BREAKING IN A NEW MACHINE

Your 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 break in the machine for the initial 100 hours (as indicated by the service meter).

During break in:

After starting, let the engine idle for five minutes to allow proper engine warm-up prior to actual operation.

Avoid operation with heavy loads or at high speeds.

Avoid sudden starts or acceleration, unnecessarily abrupt stops and sharp steering 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 America International Company cannot bear any responsibility for safety. All consideration of safety in such operations is the responsibility of the user.

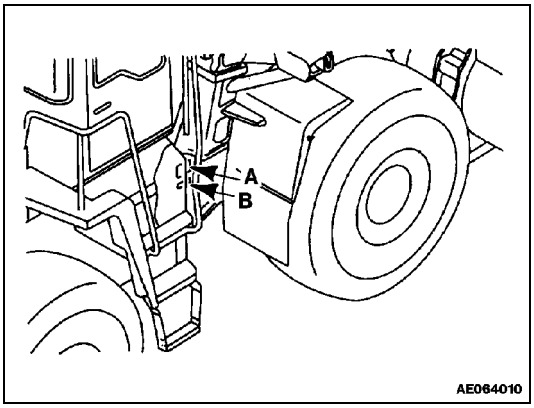
Operations that are prohibited in this manual must never be carried out under any circumstance.

4. LOCATION OF PLATES, TABLE FOR SERIAL NUMBER AND DISTRIBUTOR

4.1 MACHINE SERIAL NO. PLATE POSITION

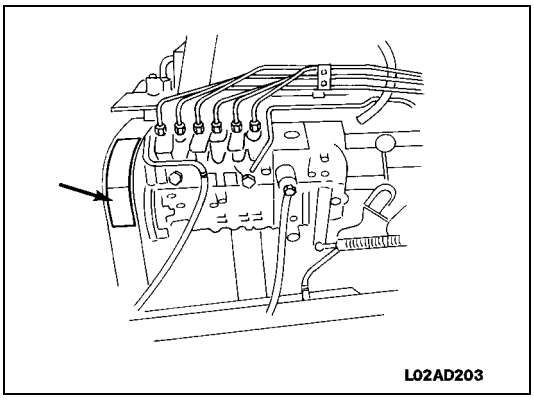
(A) Position of plate
On the center right of the front frame.

(B) Position of stamp
This is stamped on the center of the front frame on the right hand side of the machine.



4.2 ENGINE SERIAL NO. PLATE POSITION

Position of plate
On the upper right of the cylinder block, when seen from the fan side.



4.3 TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

Machine serial No.:
Engine serial No.:
Distributor name: Address: Phone: Service personnel for your machine:

REMARKS

5. TABLE OF CONTENTS

TABLE OF CONTENTS

MEMORANDA

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.

6. GENERAL PRECAUTIONS

SAFETY RULES

ONLY trained and authorized personnel should be allowed to operate and service this machine.

Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.

The owner and/or operator must replace any and all safety and warning product graphics if they are defaced or removed from the machine.

Think before you act. Careful operators and service personnel are the best insurance against accidents.

Do not rush. Hurrying can lead to accidents. Haste, carelessness and lack of training are the primary causes of equipment-related injuries.

The operator must be alert, physically fit and free from the influences of alcohol, drugs and medications that might affect his eyesight, hearing or reactions.

Safety must always be the operator's most important concern. He must refuse to operate when he knows it is unsafe and consult his supervisor when safety is in doubt.

When working with another operator or a person on work site traffic duty, be sure all personnel understand all hand signals that are to be used.

SAFETY FEATURES

Be sure all guards and covers are in their proper position. Be sure to replace them after servicing the machine. Have guards and covers repaired immediately if damaged.
Proper position

Use safety features such as safety lock lever and seat belt properly.

A seat belt is required by OSHA in almost all applications. DO NOT operate this machine without a seat belt.

NEVER remove any safety features. ALWAYS keep them in good operating condition.

Safety lock lever
Seat belts

Improper use of safety features could result in serious bodily injury or death.

Be sure the machine has the correct equipment required by local rules and regulations.

UNAUTHORIZED MODIFICATION

Any modification made without authorization from Komatsu America International Company can create hazards.

Before making a modification, consult your local distributor. Komatsu America International Company will not be responsible for any injury or damage caused by any unauthorized modification.

CLOTHING AND PERSONAL PROTECTIVE ITEMS

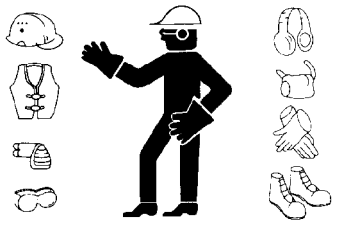
Avoid loose clothing, jewelry, and loose long hair. They can catch on controls or in moving parts and cause serious injury or death. Also, do not wear oily clothes because they are flammable.

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 - this is particularly important when driving pins with a hammer and when cleaning the air filter element with compressed air.

Also check that there are no other personnel near the machine.

Cleaning of air cleaner element

Check that all protective equipment functions properly before using the machine.



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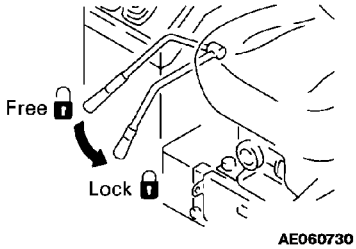
ALWAYS APPLY LOCK WHEN LEAVING OPERATOR'S SEAT

When standing up from the operator's seat, always place the safety lock lever securely in the LOCK position. If you accidentally touch the equipment levers when they are not locked, the machine or work equipment may move and cause serious injury or damage.

When leaving the machine, lower the work equipment completely to the ground, set the safety lock lever to the LOCK position, then stop the engine and use the key to lock all the equipment locks. Always take the key with you.

Work equipment posture

Locks



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MOUNTING AND DISMOUNTING

Climbing on the machine improperly can cause injury. NEVER jump on or off the machine. NEVER get on or off a moving machine.

When mounting or dismounting, always face the machine and use the handrails and steps.

Do not use the machine's controls or hoses as supports when climbing on or off the machine. Controls and hoses can move and do not provide solid support. Movement of the controls may cause unexpected machine movement and injury.

Ensure safety by always maintaining at least three-point contact of hands and feet with the handrails and steps.

Always remove any oil or mud from the handrails and steps. If they are damaged, repair them and tighten any loose hardware.


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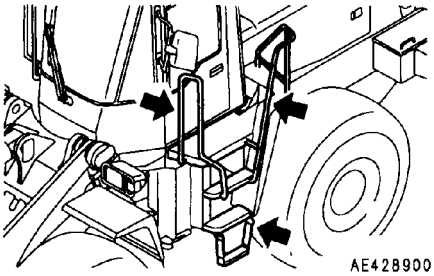
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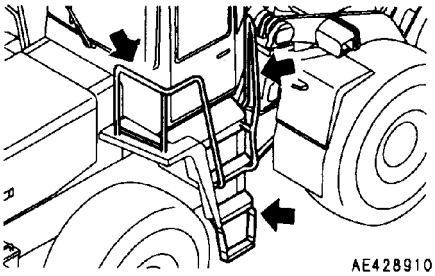
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FIRE PREVENTION FOR FUEL AND OIL

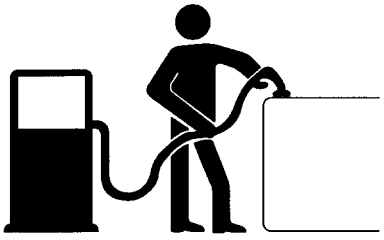
Fuel, oil, and antifreeze can be ignited by a flame. Fuel is particularly FLAMMABLE and can be HAZARDOUS. Keep any flame away from flammable fluids.

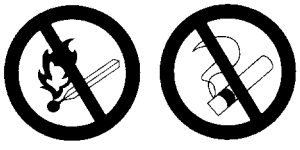
Stop the engine and do not smoke when refueling.

Tighten all fuel and oil caps securely.

Refueling and lubricating should be done in well ventilated areas.

Keep oil and fuel in the determined place and do not allow unauthorized persons to enter.

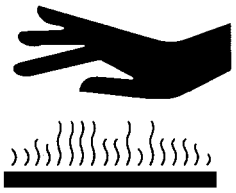




PRECAUTIONS WHEN HANDLING AT HIGH TEMPERATURES

Engine coolant, engine oil, and hydraulic oil can reach high temperatures, and are under pressure during operation. Attempting to remove the cap, drain the oil or water, or replace the filters may lead to serious burns. Stop the engine and wait for the temperature and pressure to subside, and follow the specified procedures when carrying out these operations.

To prevent hot water from spurting out:
1) Turn engine off.
2) Allow water to cool.
3) Slowly loosen cap to relieve pressure before removing.



To prevent hot oil from spurting out:
1) Turn engine off.
2) Allow oil to cool.
3) Slowly loosen cap to relieve pressure before removing.

ASBESTOS DUST HAZARD PREVENTION

Asbestos dust is HAZARDOUS to your health if inhaled.
If you handle materials containing asbestos fibers, follow these guidelines as given below:

NEVER use compressed air for cleaning.

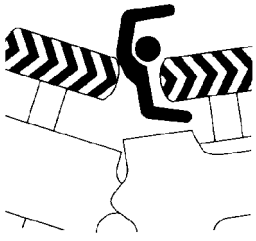
Use water for cleaning to keep down the dust.

Operate the machine with the wind to your back, whenever possible.

Use an approved respirator.

CRUSHING OR CUTTING PREVENTION

Keep hands, arm and all other parts of the body away from movable parts such as between the work equipment and cylinders, or between the machine and work equipment. If the work equipment is operated, the clearance will change and this may lead to serious damage or personal injury.



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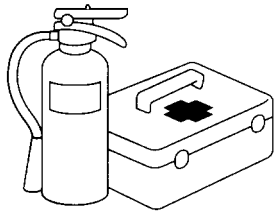
FIRE EXTINGUISHER AND FIRST AID KIT

Make sure fire extinguishers of the correct type are kept in good condition and convenient to the operators and other personnel. Make sure the appropriate personnel have been trained in their use.

Provide a first aid kit at the storage point.

Know what to do in the event of a fire.

Be sure you know the phone numbers of persons you should contact in case of an emergency.



PRECAUTIONS WHEN USING ROPS

Never operate the machine without a ROPS (ROLL OVER PROTECTIVE STRUCTURE) properly installed and in good condition.

The ROPS is installed to protect the operator if the machine should roll over. It is designed not only to support the load if the machine should roll over, but also to absorb the impact energy.

The ROPS fulfills all the regulations and standards for all countries, but if it is rebuilt without authorization or is damaged when the machine rolls over, its strength may suffer and it may be unable be able to fulfill its function properly. It can perform if it is repaired or modified in the specified way.

When modifying or repairing the ROPS, always contact your Komatsu America International Company distributor.

Even if the ROPS is installed, it cannot show its full effect if the operator does not fasten the seat belt properly. Always fasten the seat belt when operating.

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 your distributor or Komatsu America International Company. 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 America International Company.

PRECAUTIONS WHEN HANDLING ACCUMULATOR

If the travel damper switch is turned ON when the machine is traveling or when the work equipment is raised, the hydraulic accumulator in the travel damper will instantaneously be connected with the lift cylinder bottom circuit. Be careful when doing this, because the oil then will flow in or out in the direction to balance the oil pressure at the accumulator and lift cylinder bottom , so the work equipment will move.

When releasing the pressure or charging with gas for the work equipment circuit of machines equipped with an accumulator, be careful to follow the instructions given for handling the accumulator.

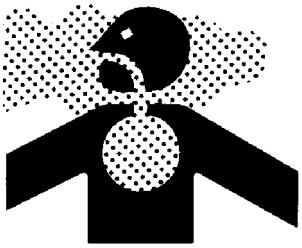
Method of releasing the pressure or charging with gas.

The accumulator is charged with high-pressure nitrogen gas, which is extremely dangerous, so heed the following advice and handle the accumulator carefully.
Do not make any holes in the accumulator.
Keep flames and heat away from the accumulator.
Do not weld anything (such as bosses) to the accumulator.
Gas must be released from an accumulator before it can be discarded; consult your Komatsu America International Distributor.

VENTILATION FOR ENCLOSED AREAS

Be sure to provide adequate ventilation to prevent gas poisoning.
If it is necessary to start the engine, or handle fuel, flushing oil or paint with an enclosed or poorly ventilated area, open doors and windows.

Operate fans or similar devices to circulate air if opening doors and windows fails to provide sufficient ventilation.



PRECAUTIONS FOR MIRRORS, WINDOWS AND LIGHTS

Remove all dirt from the surface of the windows and lights to ensure good visibility.

Adjust the side mirror so you can see clearly from the operator's seat, and always keep the surface of the mirror clean. Replace broken glass with a new replacement part(s).

Check that all head lamps and working lamps operate properly.

7. PRECAUTIONS DURING OPERATION

7.1 BEFORE STARTING ENGINE

CHECKS BEFORE STARTING ENGINE

Carry out the following checks before starting the engine at the beginning of the work shift.
Failure to carry out the checks may lead to serious injury or damage.

Completely remove all wood chips, leaves, grass, paper and other flammable materials accumulated in the engine compartment and near the battery. Check fuel, lubrication and hydraulic systems for leaks, and have leaks repaired. Clean up excess oil, fuel or other flammable fluids. Return all fuel containers to their proper storage place, remove all parts and tools from the operator's compartment, and remove dirt from the mirrors, handrails and steps.

Check points

Check the coolant level, fuel level, and oil level in the engine. Check for clogged air cleaner, and check for damage to the electric wiring.

Checks before starting

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 and seat belt mounting equipment.

Adjusting operator's seat

Handling seat belt

Check that the gauges work properly, and check that the control levers are at the PARKING position.

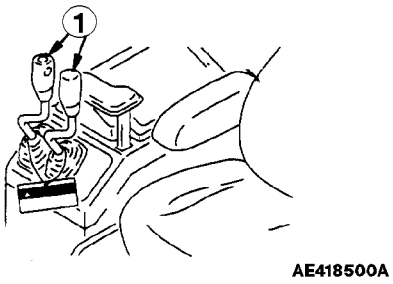
Method of checking operation of gauges

Remove all dirt from the surface of the window glass and lights to ensure good visibility.
Adjust the side mirror to a position that gives best view from the operator's seat, and clean the mirror surface. Replace broken mirror glass.
Check that the front lamps and working lamps operate properly. Repair broken lamps promptly.
Check that the safety lock is in the LOCK position before starting the engine.
Check that a fire extinguisher of the proper type is present and check the method of using it.
Do not operate the machine near fire or flame.

7.2 OPERATING MACHINE

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 a control lever (1).
When starting the engine, sound the horn to alert nearby personnel.
Start and operate the machine only when seated.
An additional worker may ride in the machine only when sitting in a passenger seat. Do not allow anyone to ride on the machine body.



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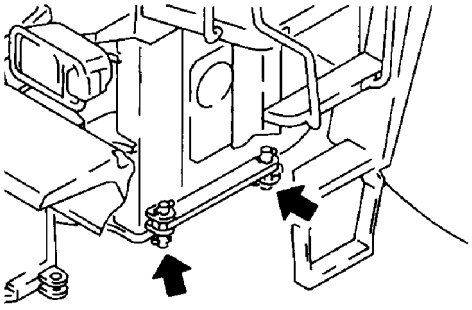
CHECKS AFTER STARTING ENGINE

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 and equipment, and check the operation of the bucket, lift arm, brakes, travel system and steering system.
Listen for abnormality in the sound of the machine; check for vibration, heat, and/or smell; check gauges.
Check also that there is no leakage of air, oil or fuel.
If any abnormality is found, carry out repairs promptly.
If the machine is used when it is not in proper condition, it may lead to serious injury or damage to the machine.
Before traveling or starting operations, check that safety bar is securely locked in the FREE position.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PRECAUTIONS WHEN STARTING TO MOVE

Before starting to move, check again that there is no one in the surrounding area and that there are no obstacles.
When starting, sound the horn to alert nearby personnel.
Always operate the machine only when seated in the operator's seat.
Always fasten the seat belt.
Do not allow anyone to ride on the machine body.
Check that the backup alarm works properly.

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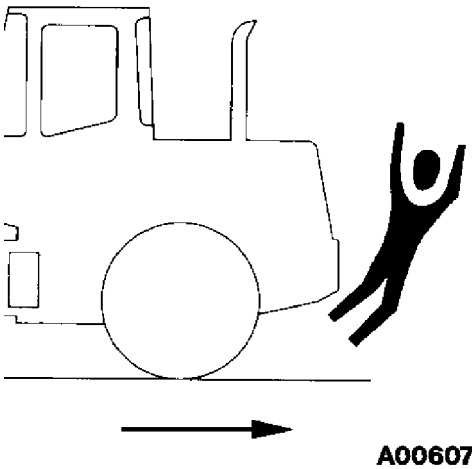
CHECK WHEN CHANGING DIRECTION

Be aware of the area surrounding the machine before moving the machine or its work equipment.

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. A clear view of this area is obscured by the engine cover.
When operating in the areas that may be hazardous or have poor visibility designate a person to direct work site traffic.
Ensure that no unauthorized person can come within the direction of turning or direction of travel. Always be sure to carry out these precautions even if the machine is equipped with mirrors and a backup alarm.



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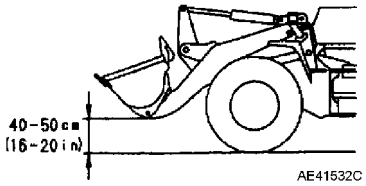
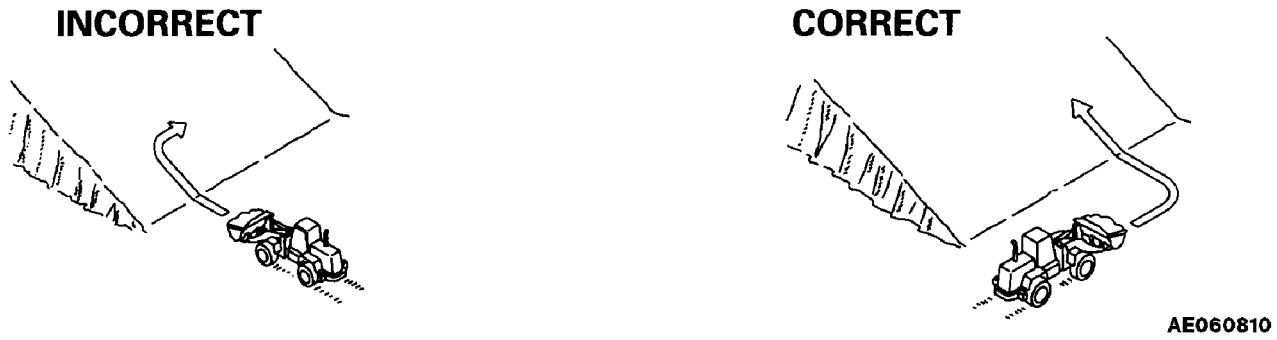
PRECAUTIONS WHEN TRAVELING

Never turn the key to the OFF position in the starting switch when traveling.
It is dangerous if the engine stops when the machine is traveling, because the steering becomes heavy. If the engine stops, apply the brake immediately to stop the machine.
It is dangerous to look around excessively when operating. Concentrate on your work.
It is dangerous to drive too fast, or to start suddenly, stop suddenly, turn sharply or zig zag.
If you find any abnormality in the machine during operation (noise, vibration, smell, incorrect gauge readings, air leakage, oil leakage, etc.) move the machine immediately to a safe place and investigate the cause of the problem.
Set the work equipment to a height of 40-50 cm (16-20 in) from the ground level and travel on level ground.
When traveling, do not operate the work equipment control levers. If the work equipment control levers have to be operated, stop the machine first, then operate the levers.
Do not operate the steering wheel 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 traveling on rough ground, travel at low speed, and avoid sudden changes in direction.
Avoid traveling over obstacles. IF the machine has to travel over an obstacle, keep the work equipment as close tot he ground as possible, and travel at low speed.
When traveling or carrying out operations, always keep your distance from other machines or structures to avoid collisions.
NEVER enter water deeper than the permissible water depth. **Permissible water depth PRECAUTIONS FOR OPERATION" on page 2-63.**
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 traveling on public roads, check first with the relevant authorities and follow their instructions.
Always obey the traffic regulations when traveling in public roads. This machine travels at a lower speed than automobiles, so keep to the side of the road and be careful to leave the center of the road free for other vehicles.
The tires can overheat and develop excess pressure if subjected to sustained high speed use, for which they were not designed. Tires then may fail, causing loss of control.
If you must travel continuously consult Komatsu America International, or your distributor.



TRAVELING ON SLOPES

Traveling on a slope can allow the machine to tip over or slip to the side.
When traveling on slopes, keep the bucket approximately 20 - 30 cm (8-12 in) above the ground. In case of emergency, quickly lower the bucket to the ground to help the machine stop.
Do not travel on grass, fallen leaves, or wet steel plates. With these slippery coverings, even slight slopes may cause the machine to slip to the side, so travel at low speed and be sure the machine travels only directly up or directly down the slope.
When traveling downhill, never shift gear or place the transmission at neutral. It is dangerous to coast without the braking force of the engine. Always place the transmission in a low gear before starting to travel downhill.
When traveling downhill, use the engine braking and travel slowly. If necessary, use engine braking along with the vehicle brake to control the travel speed.
If the engine stops with the machine on a slope immediately depress the brake pedal fully to apply the brakes. Then lower the bucket to the ground and apply the parking brake to hold the machine in position.
When traveling up or down hills with a loaded bucket, always travel with the bucket facing uphill (travel forward when going uphill; travel in reverse when going downhill).
Traveling on a slope with a loaded bucket alters the vehicle's balance, increasing the chance it can tip.

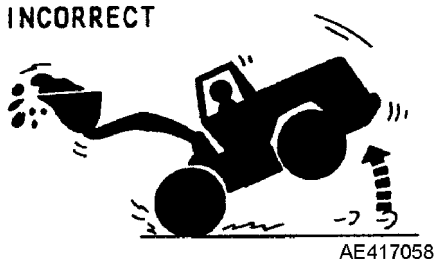


PROHIBITED OPERATIONS

To prevent the machine from turning over or the work equipment being damaged because of overload, always keep the load below the maximum specified for the machine. Never use the machine beyond its capacity.

PRECAUTIONS WHEN OPERATING

Be careful not to approach too close to the edge of cliffs. When making embankments or landfills, or when dropping soil over a cliff, dump one pile, then use the next pile to push the first pile.
The load suddenly becomes lighter when a load is pushed over a cliff or when the machine reaches the top of a slope. When this happens there is danger in that the travel speed may suddenly increase, so be sure to reduce the travel speed prior to the danger.
Use caution when the bucket is fully loaded. Never start, turn, or stop the machine suddenly.
Use caution when handling unstable loads, such as round or cylindrical objects, or piled sheets. If the work equipment is raised high there is danger the load may fall on the operator's compartment and cause serious damage or injury. Avoid raising the work equipment too high or tipping the bucket back too much.
If the work equipment is suddenly lowered or suddenly stopped, the reaction may cause the machine to tip.



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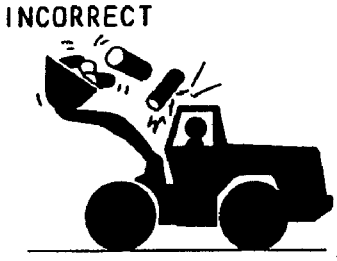

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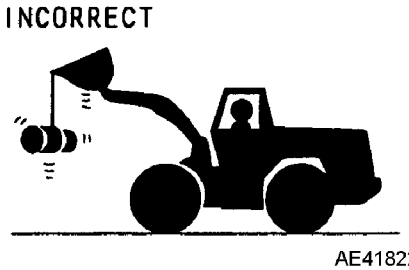
Use particular care when carrying a load.
Do not use the bucket or lift arm for crane work.
Carry out only work that is specified as the purpose of the machine. Carrying out other operations will cause breakdowns.
Specified operations **See "12.10 WORK POSSIBLE USING WHEEL LOADER" on page 2-58.**
Ensure good visibility:
When operating in dark areas, turn on the working lamps and front lamps. Install job site lighting when necessary.
Limit operations in fog, mist, snow or heavy rain, or other conditions where visibility is poor. If necessary, wait for the weather to clear so visibility is sufficient for work.
Avoid collisions:
Use care positioning the bucket, especially when operating in tunnels, under bridges, under electric wires or other places where height is limited.



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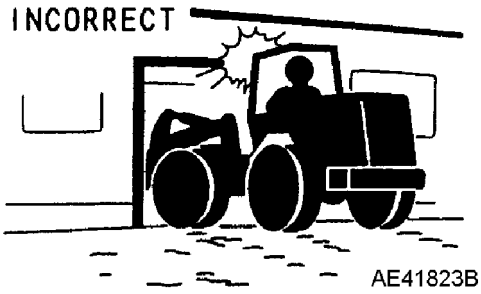

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DO NOT GO CLOSE TO HIGH-VOLTAGE CABLES

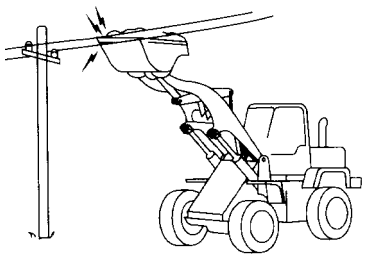
Going close to high-voltage cables can cause electrical shock. Always maintain the safe distance given below between the machine and the electric cable.
The following actions are effective in preventing accidents:
1) Wear shoes with rubber or leather soles.
2) Use a signalman to give a warning if the machine approaches too close to the electric cable.

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 electric utility company about the voltage of the cables before starting operations.

Voltage	Minimum Safety Distance	
50 kV or Less	3.1 m	10 ft.
50 kV to 200 kV	4.6 m	15 ft.
200 kV to 350 kV	6.1 m	20 ft.
350 kV to 500 kV	7.7 m	25 ft.
500 kV to 750 kV	10.7 m	35 ft.
750 kV to 1,000 kV	13.8 m	45 ft.



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ENSURE GOOD VISIBILITY

When working in dark places, install working lamps and head lamps, and set up lighting in the work area if necessary.
Stop operations if the visibility is poor, such as in mist, snow, or rain, and wait for the weather to improve to a condition that allows the operation to be carried out safely.

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.
After a heavy snowfall, the road shoulder and objects placed beside the road are buried in the snow and cannot be seen, so always carry out snow-clearing operations carefully.
When traveling on snow-covered roads, always install tire chains.
When traveling on snow-covered slopes, never use the brakes to stop the machine suddenly. Lower the bucket to the ground to stop the machine.
The load may change greatly, according to the type of snow, reduce the load and be careful not to let the machine slip.

DO NOT HIT WORK EQUIPMENT

When working in places where there are height limits, such as in tunnels, under bridges, under electric cables, or in garages, be extremely careful not to hit the work equipment.

METHOD OF USING BRAKES

Do not put your foot on the brake pedal unless necessary.
Do not depress the brake pedal repeatedly unless necessary
When traveling downhill, use the engine as a brake, and always use the right brake pedal.
Note for machines with boosters: when the engine stops, the brake pedal effort becomes 3.5 times heavier.

WORKING ON LOOSE GROUND

Do not operate the machine on soft ground. It is difficult to extract the machine after it gets stuck.
Avoid operating your machine too close to the edge of cliffs, overhangs, and deep ditches. If these areas collapse, your machine could fall or tip over and result in serious injury or death. Remember that the soil after heavy rain, earthquake, or blasting is weakened in these areas.
Earth laid on the ground and the soil near ditches are loose. They can collapse under the weight or vibration of your machine.
Install the HEAD GUARD (FOPS, or Fallen Object Protective Structure) if working in areas where there is danger of falling rocks and dirt.
When operating in places where there is danger of falling rocks or danger of the machine turning over, always install ROPS and seat belt.

PARKING THE MACHINE

Park on level ground where danger of falling rocks, flooding and/or landslides is minimal. If the machine must be parked on a slope, block the wheels to prevent the machine from moving. Then dig the work equipment into the ground.

When parking on public roads, provide fences and signs, such as flags or lights, so the machine can be seen clearly. Park the machine so it doesn't obstruct traffic.

Parking procedure

When leaving the machine, lower the work equipment completely to the ground, set the safety lock lever to the LOCK position, then stop the engine and use the key to lock all the equipment.

Always take the key with you.

Work equipment posture

Places to lock