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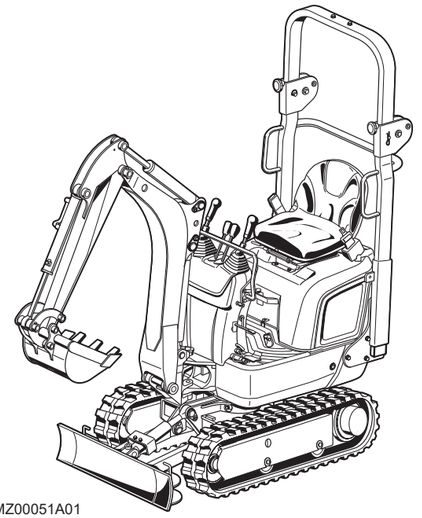
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K008-5•U10-5

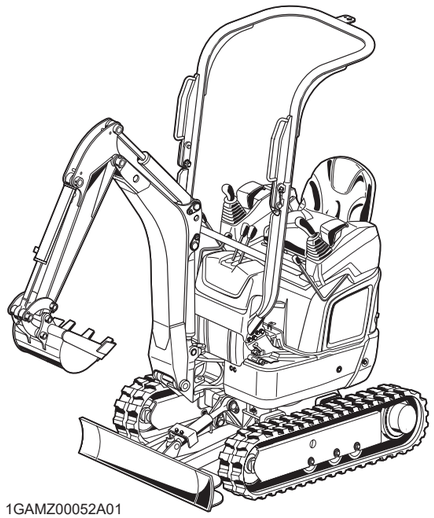
OPERATOR'S MANUAL

KUBOTA EXCAVATOR

MODELS K008-5 · U10-5



1GAMZ00051A01



1GAMZ00052A01

READ AND SAVE THIS MANUAL

PRINTED IN JAPAN

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LIST OF ABBREVIATION

Abbreviations	Description
API	American Petroleum Institute
ASTM	American Society for Testing and Materials, USA
DIN	Deutsches Institut für Normung, GERMANY (German Institute for Standardization)
FRONT	"Front" means the direction towards the boom and dozer
ISO	International Organization for Standardization
JIS	Japanese Industry Standard
L	Volume (Liter)
L/min	Liter per minute
MIL	Military Standard
ROPS	Roll-Over Protective Structure
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers, USA

California Proposition 65

⚠ WARNING ⚠

Engine exhaust, some of its constituents, certain vehicle components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

IMPORTANT

The engine in this machine is not equipped by the manufacturer with a standard spark arrester.
It is a violation of California Public Resource Code Section 4442 to use or operate this engine on or near any forest-covered, brush-covered land, or grass- covered land unless the exhaust system is equipped with a working spark arrester meeting state laws. Other states or federal areas may have similar laws.

Canadian Electromagnetic Compatibility (EMC):
This machine complies with Industry Canada ICES-002.

UNIVERSAL SYMBOLS

The instruments and operation elements have been marked with a series of symbols in order to simplify the operation of the excavator. These symbols are listed below with their respective descriptions.


Safety alert symbol


Warning lamp - *“Fuel level too low”*


Warning lamp - *“Engine oil pressure”*


Warning lamp - *“Coolant temperature”*


Warning lamp - *“Battery charge”*


Horn


Diesel


Hydraulic fluid


Gear oil


Fast


Slow


Excavator - overhead movement toward the front


Excavator - overhead movement toward the rear


Boom - up


Boom - down


Arm - up


Arm - crowd


Bucket - crowd


Bucket - dump


Boom - swing (left)


Boom - swing (right)


Dozer - raise


Dozer - lower


Read operator's manual


Operation direction of control lever


Operation direction of control lever


Lock


Unlock


Decreasing / Increasing track width

FOREWORD

Thank you for the purchase of a Kubota product.
Before using this product, read this manual carefully and use the product correctly. After reading, keep the manual in a safe and easy-to-access place for future reference. Note that product specifications are subject to change without prior notice. The product delivered to you may differ slightly from the product described in the manual.

SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

DANGER:	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING:	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION:	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
IMPORTANT:	Indicates that equipment or property damage could result if instructions are not followed.
NOTE:	Gives helpful information.

CONTENTS

SAFE OPERATION 5

DEALER SERVICE 23

WARRANTY POLICY 23
SCRAPPING THE PRODUCT AND ITS PROCEDURE 24

TECHNICAL DATA 25

EXCAVATOR PARTS 27

INSTRUMENT PANEL AND CONTROLS 29

INSTRUMENT PANEL AND SWITCHES 29
HANDLING THE INSTRUMENT PANEL AND SWITCHES 31
1. Starter switch 31
2. Hour meter 31
3. Warning lamps 31
4. Horn switch 32
5. Working light switch 32
5.1 Night operation 32
CONTROL PEDALS AND LEVERS 33
HANDLING THE SAFETY DEVICES 35
1. Pilot control lock lever 35
2. Swivel lock pin 35

PRE-OPERATION CHECK 36

DAILY CHECK 36

OPERATING THE ENGINE 37

STARTING THE ENGINE 37
1. Checkpoints after starting the engine 38
STARTING THE ENGINE UNDER COLD CONDITIONS 39
STOPPING THE ENGINE 39
1. Engine stop button 39
STARTING WITH AN AUXILIARY BATTERY 39
OVERHEATING COUNTERMEASURES 40

OPERATING THE EXCAVATOR 41

CONTROL OBSERVATIONS DURING OPERATION 41
OPERATION OF A NEW MACHINE 41
PREPARATIONS BEFORE STARTING THE MACHINE 41
1. Using the seat belt 41
2. Adjusting the operator's seat 42
STARTING THE MACHINE 42
1. Pilot control lock lever 42
DRIVING 43
1. Drive levers (right, left) 43
TURNS 44
1. Pivot turn 44
2. Spin turn 45
UPHILL AND DOWNHILL DRIVING 45
PARKING ON A SLOPE 46
ATTACHMENT OPERATION 46
1. Pattern change (switching from Pattern A to Pattern B) **[K008-5]** 47
2. Pattern change (switching from Pattern B to Pattern A) **[K008-5]** 47
3. Pattern change (switching from Pattern A to Pattern B) **[U10-5]** 48
4. Pattern change (switching from Pattern B to Pattern A) **[U10-5]** 49

OPERATING THE BOOM 49
OPERATION OF THE ARM 50
OPERATION OF THE BUCKET 50
SWIVEL AND BOOM SWING OPERATION 51
1. Swivel operation 51
2. Boom swing operation 51
TRACK WIDTH ADJUSTMENT AND DOZER OPERATION 52
1. Adjusting the track width 52
2. Adjusting the dozer width 53
3. Operating the dozer 54
TRAVEL SPEED PEDAL 54
SERVICE PORT PEDAL 54
1. Locking the service port pedal 55
IMPORTANT INFORMATION ON MACHINE OPERATION 55
FOLDABLE ROPS **[K008-5]** 56
1. Folding the ROPS 56
2. Raising the ROPS to the upright position 57
3. Adjustment of the foldable ROPS 57
ROPS BAR **[U10-5]** 57
1. Folding the ROPS bar 58
2. Setting the ROPS bar upright 58

TRANSPORTING THE MACHINE ON A VEHICLE 60

TRANSPORTING ON A VEHICLE 60

LIFTING THE EXCAVATOR 62

BASIC POINTS WHEN LIFTING WITH CABLES OR STRAPS 62
SAFETY ASPECTS WHEN LIFTING WITH CABLES OR STRAPS 62
LIFTING THE MACHINE 62

MAINTENANCE 64

PRECAUTIONS WHEN WASHING THE MACHINE 64
MAINTENANCE INTERVALS 65
OPENING AND CLOSING THE COVERS 67
1. Opening the engine hood 67
2. Where to store the operator's manual 67
DAILY CHECKS 67
1. Checking the coolant level 67
2. Checking the fuel Level 68
3. Checking the engine oil level 68
4. Checking the hydraulic oil level 69
5. Greasing the front attachments 69
6. Checking the radiator 70
7. Checking and cleaning the engine and electrical wiring 71
8. Washing the whole machine 71
9. Checking the seat belt and ROPS 71
10. Checking the engine hood lock 71

REGULAR CHECKS AND MAINTENANCE WORK 72

EVERY 50 SERVICE HOURS 72
1. Draining water from the fuel tank 72
2. Draining of the fuel filter 72
3. Checking the battery condition 72
3.1 Battery charging 73
4. Greasing the swivel bearing teeth 74
EVERY 200 SERVICE HOURS 74
1. Checking and adjusting the fan belt tension 74
2. Checking the radiator hoses and clamps 75
3. Inspecting and cleaning the air filter element 75

4. Greasing the swivel bearing 76
5. Checking the fuel line and intake air line 76
EVERY 500 SERVICE HOURS 77
1. Changing the engine oil 77
2. Replacing the engine oil filter cartridge 77
3. Replacing the fuel filter element 77
EVERY 800 SERVICE HOURS 78
1. Checking the engine valve clearance 78
EVERY 1000 SERVICE HOURS 78
1. Changing the hydraulic oil (including replacing the suction filter in the hydraulic tank) 78
2. Hydraulic oil checks (hydraulic breaker operation) 79
EVERY 1000 SERVICE HOURS OR ONCE A YEAR 79
1. Replacing the air filter element 79
EVERY 1500 SERVICE HOURS 80
1. Checking the fuel injection nozzle (injection pressure) 80
EVERY 2000 SERVICE HOURS 80
1. Checking the dynamo and starter motor 80
EVERY 3000 SERVICE HOURS 80
1. Checking the injection pump 80
ANNUAL SERVICING 80
1. Checking the electrical wiring and fuses 80
BIENNIAL SERVICING 80
1. Replacing radiator hoses and hose clamps 80
2. Changing the radiator coolant 80
3. Replacing the fuel hose 81
4. Replacing the intake air line 81
SERVICING AS REQUIRED 81
1. Cleaning the track frame telescopic beams 81
2. Cleaning the plastic parts and synthetic leather 82

OTHER ADJUSTMENTS AND REPLACEMENTS 83

PURGING THE FUEL SYSTEM 83
ADJUSTING THE TRACKS 83
1. Loosening the tracks 83
2. Tensioning the tracks 84
3. Special information regarding the use rubber tracks 84
CHANGING THE BUCKET 84
REPLACING FUSES 85
1. Slow blow fuse 86

TROUBLESHOOTING 87

TROUBLESHOOTING OF THE ENGINE AND OTHER SYSTEMS 87

OPERATION IN COLD WEATHER 88

PREPARATION FOR WORK IN COLD WEATHER 88
AFTER WORKING IN COLD WEATHER 88

LONG-TERM STORAGE 89

STORING THE MACHINE 89
OPERATING THE MACHINE AFTER LONG-TERM STORAGE 89
PERIODIC REPLACEMENT OF PARTS 89

RECOMMENDED OILS AND FUELS 91

BIODIESEL FUEL (BDF) 93

APPENDICES 95

MAIN DIMENSIONS 95

LIFTING CAPACITY 97

IMPORTANT INFORMATION 97

LIFTING CAPACITY OF K008-5 (RUBBER TRACK) 98
LIFTING CAPACITY OF U10-5 (RUBBER TRACK) 98
INDEX.....99

SAFE OPERATION

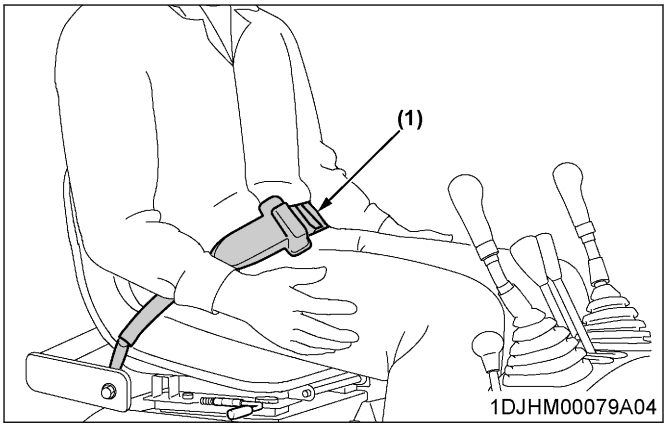
The best way to prevent accidents is to follow the safety instructions and warnings in this manual, regulations, and safe operating practices.
Read and understand this manual carefully before operating the machine.
Every user, however experienced, should carefully read and understand this manual and those of the attachments and accessories before operating the machine. The owner is obliged to inform the operators of these instructions in detail.
Store this manual in the toolbox.

BEFORE OPERATING THE MACHINE

Familiarize yourself with the machine and be aware of its limits. Read the operating instructions carefully before starting the machine.

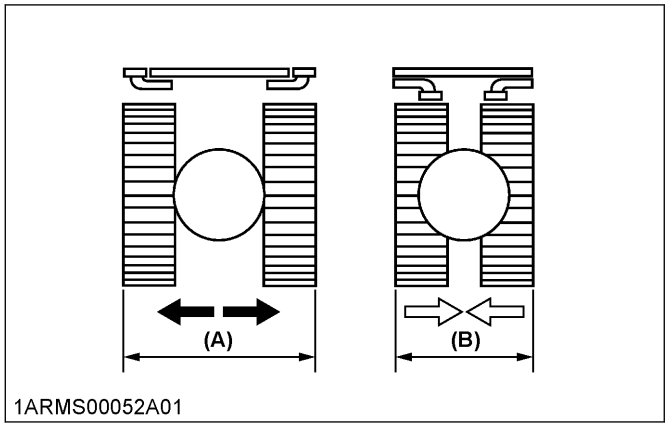
1. General

- Obey the safety labels on the machine.
- The seat belt must be inspected regularly and replaced if damaged.



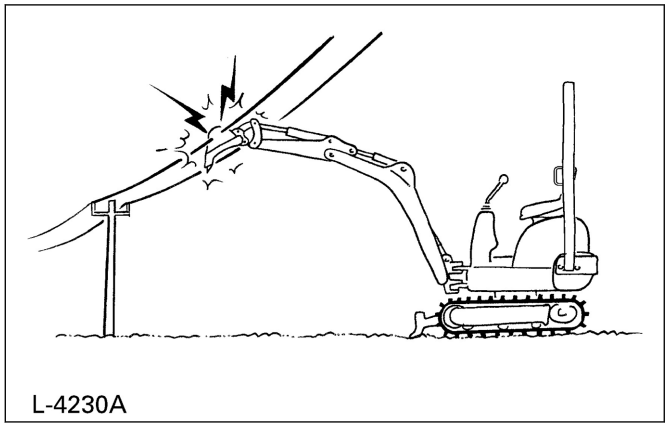
(1) Seat belt

- Always sit in the operator's seat when starting the engine or operating levers or controls.
- Study control lever pattern A and pattern B. Then choose the one which feels most familiar. Familiarize yourself with the pattern selected by operating the machine slowly and at low engine speed.
- The tracks can be set to narrow width (700 mm/ 27.6 in. [K008-5], 750 mm/ 29.5 in. [U10-5]) or to standard width (860 mm/ 33.9 in. [K008-5], 990 mm/ 39.0 in. [U10-5]).
  (See TRACK WIDTH ADJUSTMENT AND DOZER OPERATION on page 52.)
- Do not operate in narrow track width (700 mm/ 27.6 in. [K008-5], 750 mm/ 29.5 in. [U10-5]), as there is a risk of the machine tipping over.
- Always operate in standard track width (860 mm/ 33.9 in. [K008-5], 990 mm/ 39.0 in. [U10-5]), except to pass through narrow spaces on even ground.

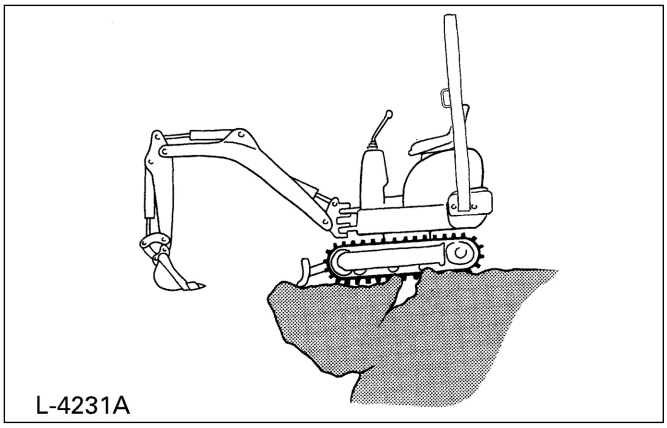


(A) 860 mm (33.9 in.) [K008-5]
990 mm (39.0 in.) [U10-5]
(B) 700 mm (27.6 in.) [K008-5]
750 mm (29.5 in.) [U10-5]

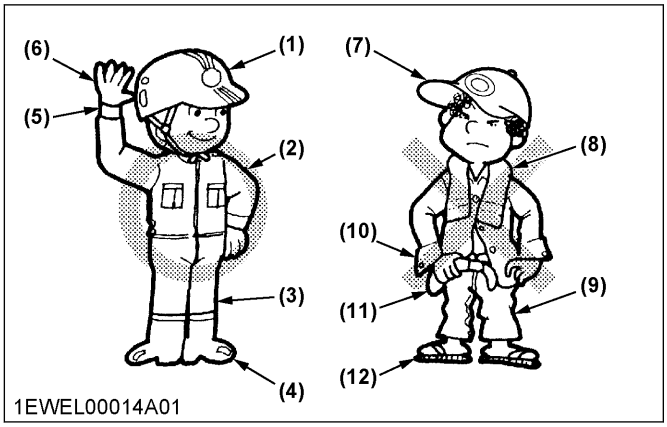
- Do not operate the machine while under the influence of alcohol, medication, controlled substances, or while fatigued.
- Check the surroundings carefully before using the machine or when attachments are being attached.
  – Pay attention to the overhead clearance with electric wires.



  – Check for pipes and buried cables before digging.
  – Check for hidden holes, hindrances, soft underground, and overhangs.


L-4231A

  - While using the machine, do not allow any persons within the working range.
  - Check local regulations and call 811 before digging.
- Do not allow other persons to use the machine before having informed them on the exact operation and work instructions, and make sure that they have read and fully understood the operator's manual.
- Do not wear baggy, torn, or oversized clothing when working with the machine. Clothing can get caught in rotating parts or control elements, resulting in accidents or injuries. Wear adequate safety clothing, such as a safety helmet, safety shoes, eye protection, ear protection, working gloves, and so on, as necessary and as prescribed by law or other standards or regulations.



1EWEL00014A01

(1) Helmet
(2) Clothing fit for work
(3) Tight seams
(4) Good grip footwear
(5) Well-fitting cuffs
(6) Working gloves
(7) Soft hat
(8) Towel
(9) Baggy trousers
(10) Loose cuffs of the shirt
(11) Baggy shirt
(12) Sandals or open-toed shoes

- Do not allow passengers to ride on any part of the machine at any time. The operator must remain in the machine seat during operation.
- Check mechanical parts for wear, and make sure that they are correctly adjusted. Replace worn or damaged parts immediately. Check nuts and bolts regularly to make sure that they are tightened to the correct torque.
- Keep your machine clean. Heavy soiling, grease, dust and grass can cause fires, accidents or injuries.
- Use only Kubota's authorized attachments.
- Before starting the machine, be absolutely sure that the machine has been filled with fuel, lubricated, greased, and undergone all necessary maintenance.
- Do not modify the machine, otherwise it could lead to unforeseen safety problems.

2. ROPS

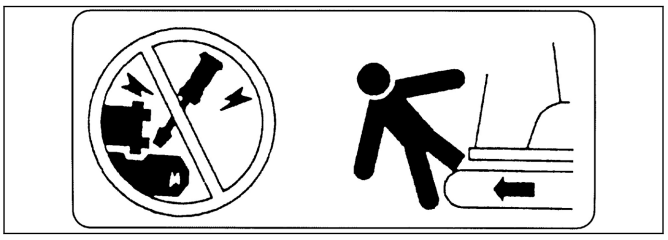
- For your safety, a roll-over protective structure (ROPS) with a seat belt is installed.
- Always use the seat belt when the machine is equipped with a ROPS as this combination will reduce the risk of serious injury or death in case of machine tip-over or instability.
- Do not modify any structural members of the ROPS by welding, drilling, bending, grinding or cutting, as this may weaken the structure.
- If any component is damaged, replace it. Do not attempt repairs.
- If the ROPS is loosened or removed for any reason, make sure all parts are reinstalled correctly. Tighten the mounting bolts to the proper torque.
- The ROPS meets the requirements of ISO 3471.

OPERATING THE EXCAVATOR

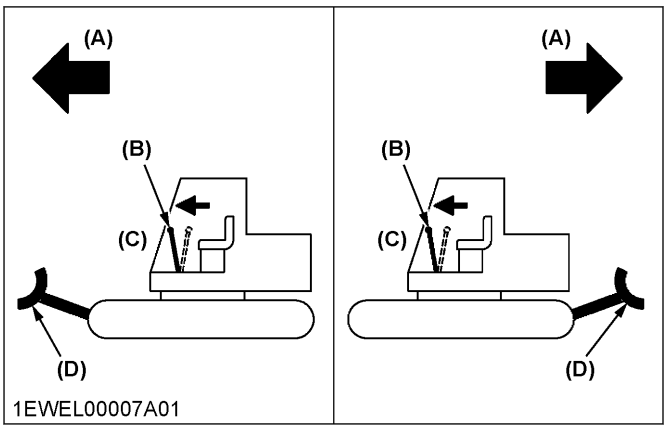
1. Starting to operate the machine

- Get into and out of the machine safely. Always face the machine. Always use handrails and available steps and keep yourself well balanced. Do not hold any of the control levers or switches. Do not jump on or off the machine, whether stationary or in motion.
- Start and control the machine only from the operator's seat. The driver should not lean out of their seat when the engine is running.
- Before starting the engine, make sure that lock levers are in the LOCK position, all control levers and pedals are in their *"NEUTRAL"* positions, and the seat belt is fastened correctly.
  Before starting the engine, make sure that the control levers, travel lever, pedals, and other control elements are not stuck and can be moved smoothly.
  If stuck, for example, a lever may fail to return, possibly putting the user in danger.
  If anything wrong is found, immediately pinpoint the cause and correct it.
- Do not start the engine by jumping the starter connections.

Do not try to circumvent using the starter switch, otherwise the engine could start suddenly and the machine could move.



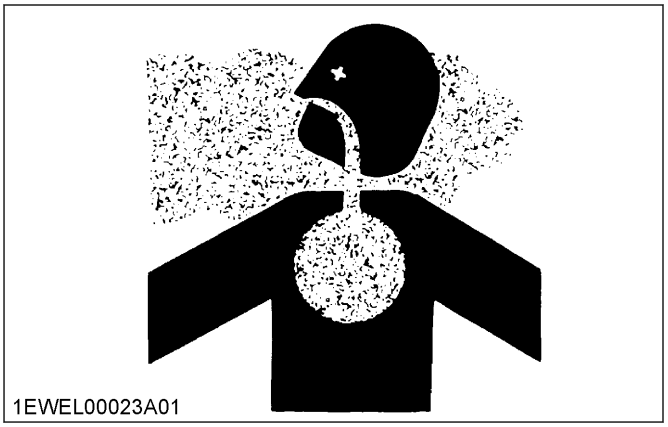
- Make sure that the dozer blade is in front of the user (the dozer must be raised). If the levers are activated with the dozer blade at the rear, the tracks will move in the opposite direction of the drive levers.



(A) Travel direction
(B) Drive levers
(C) Front
(D) Dozer blade

2. Working the machine

- Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly. If you experience the initial symptoms of low to moderate CO poisoning, which include headaches, fatigue, shortness of breath, nausea, or dizziness, stop operation and seek medical attention.



- Keep all safety equipment and covers in place. Replace damaged or missing safety devices.
- Operate the machine so that it does not tip over. Keep away from steep slopes and embankments. Do not swing the bucket downhill. Lower the dozer during digging. Keep the bucket as low as possible while driving uphill. Turn slowly on slopes (at reduced speed). Do not place the machine near the edges of trenches and banks, as the earth can give away due to the weight of the machine.
- Always pay close attention to the area to which the machine is being moved.
- Keep enough distance from trench and bank edges.

3. Safety for children

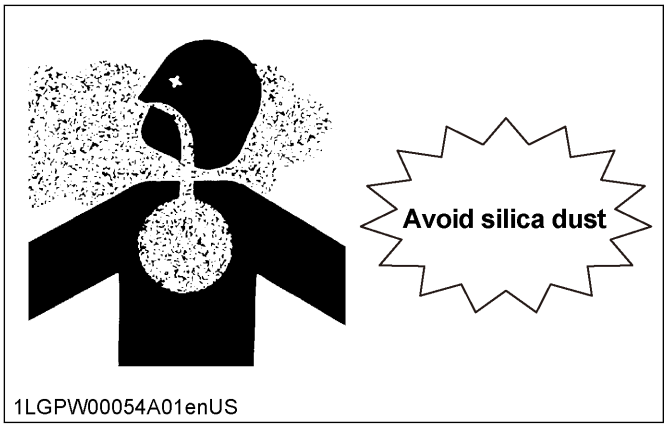
Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and the work they do.

- Never assume that children will remain where you last saw them.
- Keep children out of the work area and under the watchful eye of another responsible adult.
- Be alert and shut your machine down if children enter the work area.
- Never carry children on your machine. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the machine.
- Never allow children to operate the machine even under adult supervision.
- Never allow children to play on the machine or on the attachments.
- Use extra caution when backing up. Look behind and down to make sure the area is clear before moving.

4. Avoiding crystalline silica (quartz) dust

To avoid serious injury or death from silica dust:

- Avoid exposure to dust containing crystalline silica particles.
  This dust can cause serious injury to the lungs (silicosis).
  Because crystalline silica is a basic component of sand and granite, many activities at construction sites produce dust containing crystalline silica.
  Trenching, sawing and boring of material containing crystalline silica can produce dust containing crystalline silica.

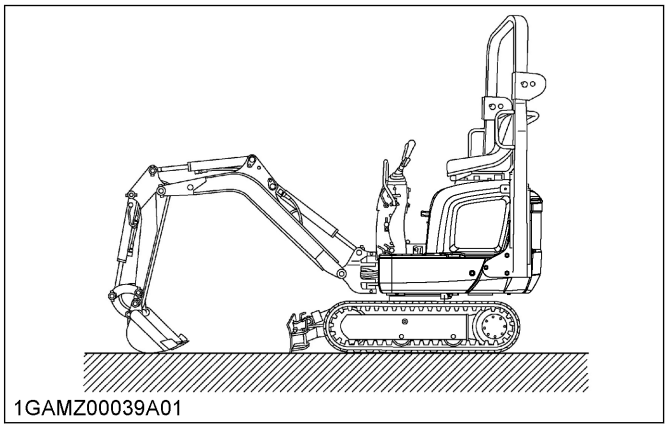


- If dust which contains crystalline silica is present, there are guidelines which should be followed:
  - Be aware of the potential health effects of crystalline silica and that smoking may add to the damage.
  - Be aware of and follow OSHA (or other local, State or Federal) guidelines for exposure to airborne crystalline silica.
  - Know the work operations where exposure to crystalline silica may occur.
  - Participate in air monitoring or training programs offered by the employer.
  - Be aware of and use optional equipment controls such as water sprays, local exhaust ventilation, and enclosed CABs with positive pressure air conditioning, if the machine has such equipment. Otherwise respirators shall be worn.
  - Where respirators are required, wear a respirator approved for protection against crystalline silica containing dust. Do not alter the respirator in any way. Workers who use tight-fitting respirators cannot have beards/ mustaches which interfere with the respirator seal to the face.
  - If possible, change into disposable or washable work clothes at the work site; shower and change into clean clothing before leaving the work site.
  - Do not eat, drink, use tobacco products, or apply cosmetics in areas where there is dust containing crystalline silica.
  - Store food, drink and personal belongings away from the work area.
  - Wash hands and face before eating, drinking, smoking, or applying cosmetics after leaving the exposure area.

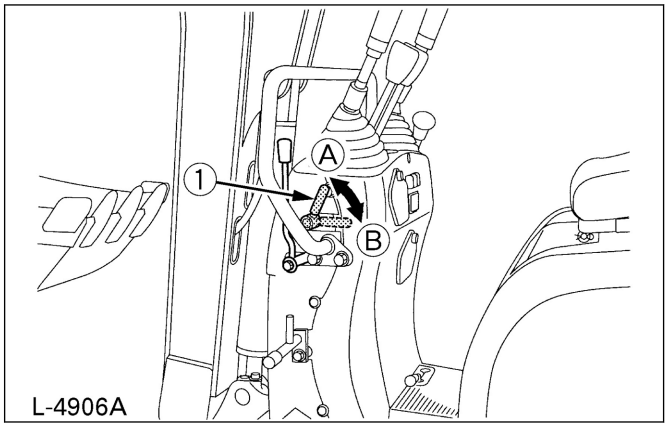
AFTER OPERATION

Before leaving the machine:

- Park the machine on a firm, flat and level surface. If this is not possible, park across the slope. Do not park the machine anywhere there are combustible materials such as dried grass or straw.
- Lower the attachments and the dozer blade to the ground.
- Stop the engine.
- Release the pressure from the hydraulic system.
- Lock all control levers.
- Remove the key.

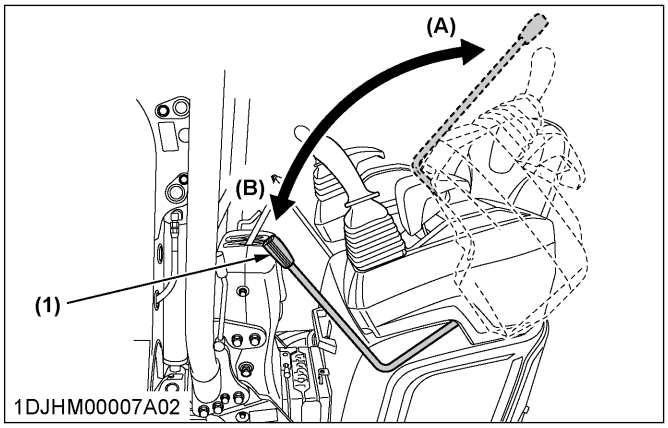


[K008-5]



(1) Pilot control lock lever *(A) LOCK* *(B) UNLOCK*

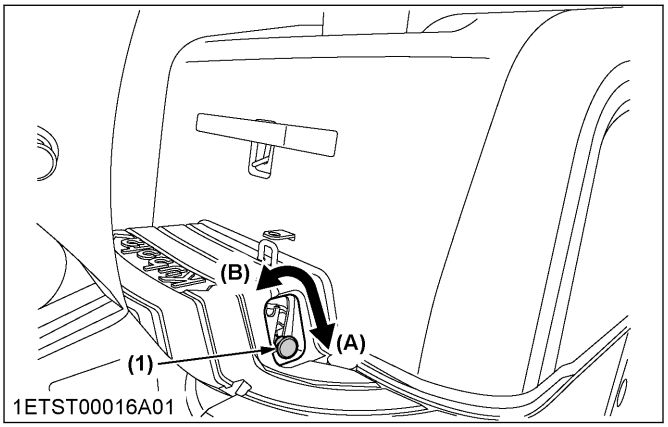
[U10-5]



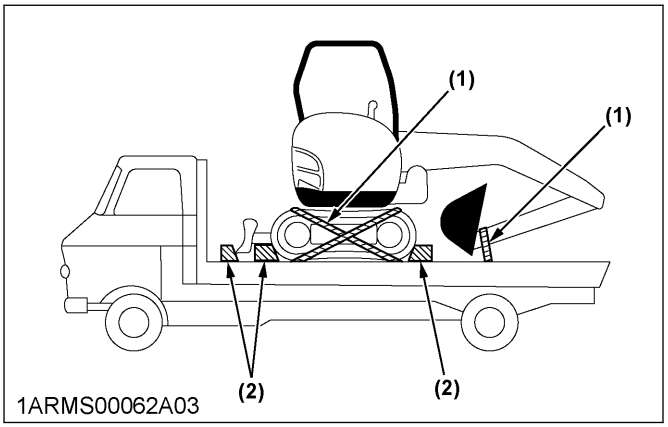
(1) Pilot control lock lever *(A) LOCK* *(B) UNLOCK*

SAFE LOADING AND TRANSPORT OF THE MACHINE

- Observe all regulations concerning the transport of machines on public roads.
- Use adequately long and robust ramps when loading on the truck.
  (See TRANSPORTING THE MACHINE ON A VEHICLE on page 60.)
- Do not change the running direction. To avoid tipping over, do not try to swing the attachment crosswise to the loading ramps.
- After loading the machine on a truck, engage the swivel lock pin.
  Lower the attachment on the loading bed and release the pressure from the hydraulic system.
  Block the tracks with blocks and chain down the machine. After loading the machine on the truck, securely chain down the undercarriage of the machine using suitable chains, tensioners, and approved methods (check appropriate state regulation).



(1) Swivel lock pin
(A) Lock
(B) Release



(1) Chain
(2) Block

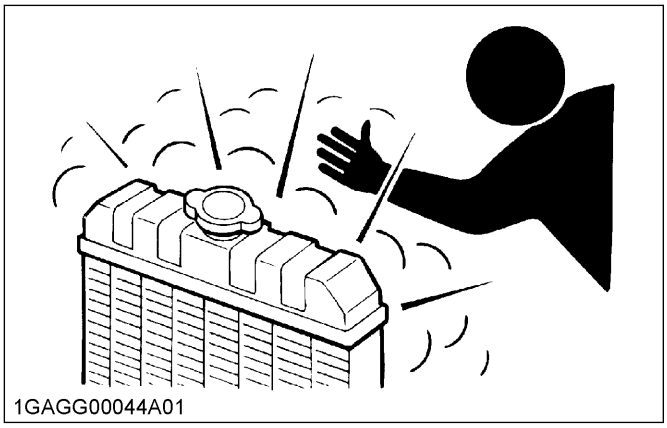
- Avoid abrupt braking of the truck with the machine loaded. Sudden braking causes the machine to move and may cause a serious accident.
- If the machine is to tow another machine, make sure the load is smaller than the strength of the hook, tow chain, or cable.

Maximum drawbar pull at coupling hook	**K008-5**	15.4 kN (3462 lbs.)
	U10-5	17.6 kN (3957 lbs.)
Maximum vertical load at coupling hook	**K008-5**	2.7 kN (607 lbs.)
	U10-5	3.1 kN (697 lbs.)

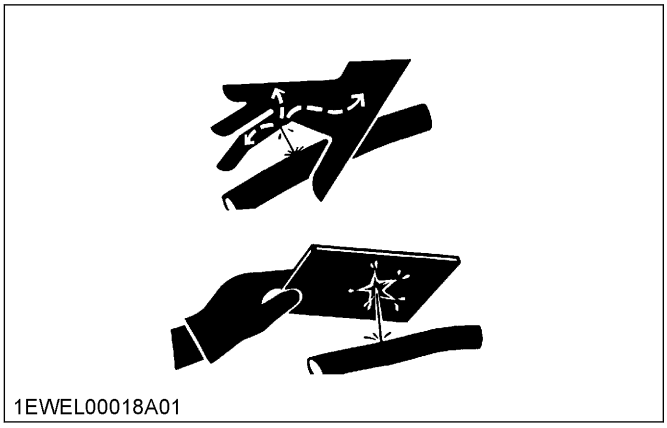
MAINTENANCE

Before doing maintenance work on the machine, park the machine on even and solid ground, lower the attachment to the ground, stop the engine and release pressure trapped in the hydraulic system by actuating the levers. When dismantling hydraulic parts, make sure that the hydraulic oil has cooled down sufficiently to avoid burns.
Start maintenance work carefully, for example loosen a plug slowly so that oil will not squirt out.

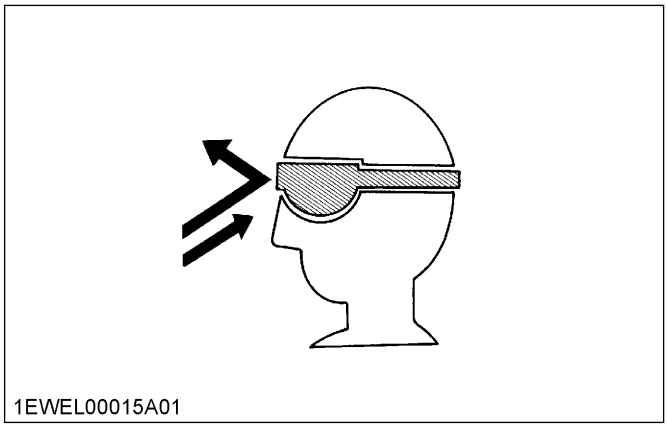
- Before doing work on the engine, the exhaust system, the radiator, and the hydraulics, let the machine cool down sufficiently.
- Turn off the engine at all times when filling with fuel. Avoid spilling and overfilling of fuel.
- Smoking is prohibited while refueling or handling the battery. Keep sparks and fire away from the fuel tank and battery. Flammable gases escape from the battery, especially during charging.
- Do not use or charge the refillable type battery if the fluid level is below the **[LOWER]** (lower limit level) mark. Otherwise, the battery component parts may be prematurely deteriorated, which may shorten the battery's service life or cause an explosion. Check the fluid level regularly and add distilled water as required so that the fluid level is between the **[UPPER]** and **[LOWER]** levels.
- To avoid sparks from an accidental short circuit, always disconnect the ground cable (-) of the battery first and reconnect it last.
- Read and follow the instructions when starting with an auxiliary battery.
  (See STARTING WITH AN AUXILIARY BATTERY on page 39.)
- Keep a first-aid box and a fire extinguisher at hand at all times.
- Do not open the radiator cap before the radiator has cooled down sufficiently.
  First loosen the cap to the first stop and allow the system enough time to release the remaining pressure. Then loosen the cap completely.


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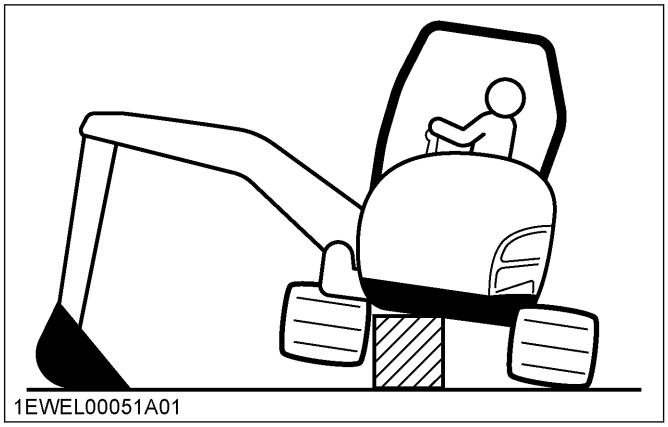
- To avoid short circuit, always remove the ground cable first when removing the battery, and attach the positive cable first when installing the battery.
- Oil under high pressure can penetrate the skin and may be harmful to your health if not treated immediately.
- Leaking hydraulic fluid has enough pressure to penetrate the skin and cause serious injuries. Leakages from pin holes can be totally invisible. Do not use hands for checking for leaks. Always use a piece of wood or cardboard. It is strongly recommended to use a face mask or eye protection.
  In the event of injuries caused by leaking hydraulic fluid, contact a doctor immediately. This fluid can cause gangrene or serious allergic reactions.


1EWEL00018A01

- To avoid environmental damage from acid and heavy metals, do not throw the battery away.
- Observe all laws and regulations concerning the disposal of used oil, coolants, solvents, hydraulic fluids, battery acids, and batteries.
- To avoid fire, do not heat the hydraulic components (tanks, pipes, hoses, cylinders) before they have been drained and washed.
- Use a face mask or eye protection to protect the eyes and respiratory system against dust and other foreign particles.


1EWEL00015A01

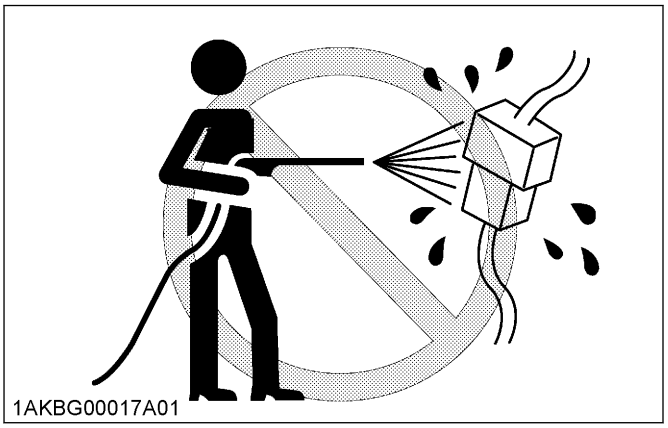
- Securely support the machine with stands or suitable blocking before working underneath. For your safety, do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered.


1EWEL00051A01

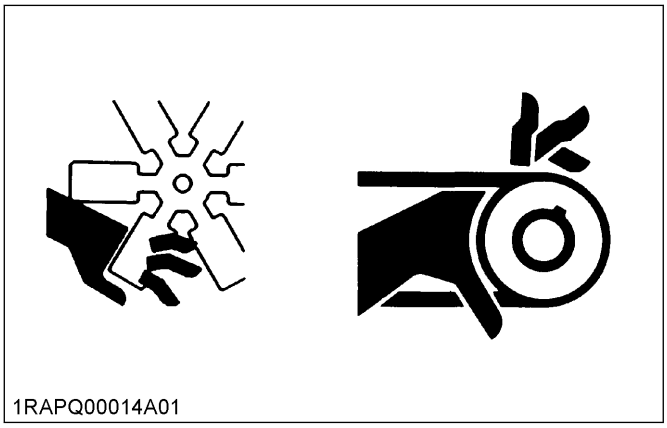
- Do not dismantle the spring of the track tensioner. If dismantling is necessary, contact your Kubota dealer where the machine was purchased, or other competent service shop. The assembly must be done according to the Kubota workshop manual (WSM) for the product involved.
- When lifting the machine itself with an attachment, place a safety block or safety post to prevent the machine from rolling over. Keep the pilot control lock lever in the LOCK position.
- Inspect ROPS for damage and if damage is found contact your Kubota dealer for repairs.
- Kubota does not use components which contain asbestos and recommends against the use of such components.
  Components containing asbestos should be handled in accordance with applicable regulations and industry practice.
- To avoid hazardous high voltage, turn the starter switch to the **[OFF]** position if it is necessary to check to repair the harness or connectors.
- To prevent personal injury or death, use explosion-proof lighting when working on, inspecting, or using fuel, oil, coolant, battery fluid, and so on.

If you do not use the explosion-proof lighting or if it should break, it can ignite and cause fire, injury, or death.

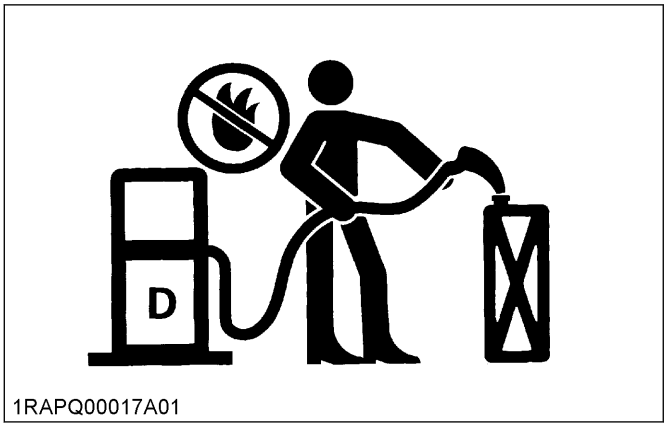
- Prohibit unauthorized persons from entering the work area to prevent injury caused by debris flying off of machine parts during grinding, welding, using a hammer, or other tasks.
- Make sure that the work area is clear and safe. Work on a firm, level surface with adequate lighting. Work in well-ventilated area if you work indoors.
  Make sure that the area is free from any potentially dangerous conditions such as obstacles, slippery surfaces, and so on.
- Make sure that the machine is clean and free of debris.
  – Always remove any debris from the machine and clean it before performing maintenance or repair work.
  – Before washing or cleaning the machine using water, stop engine and make sure that all of the electrical parts and devices are covered. Any water seepage into the electrical wiring on the machine can cause a short circuit or cause the controls to malfunction. Never use water or steam to clean any of the electrical parts and devices, such as the battery, the sensors, or the connectors.


1AKBG00017A01

- Always make sure that the engine is stopped before performing any maintenance or repairs.
  – Do not lubricate or mechanically adjust while the machine is in motion or while the engine is running even if stationary.
  – Always stay clear of moving parts. Clothing, hands, or other parts of the body can become caught in moving parts of the machine and cause personal injury or death.
  – Make sure to avoid any rotating fans, V-belt, and other moving parts. Never insert tools, fingers, hands, and so on while these parts are running.


1RAPQ00014A01

- Exercise caution when refueling.
  – Never smoke cigarettes or permit the use of fire while refueling or in the vicinity of refueling.
  – Always make sure that the engine is off and cool before removing the fuel cap to refuel the tank. Avoid getting fuel on any hot components.
  – Keep control of the fuel-filler-nozzle while refueling.
  – Never overfill the tank with fuel. Leave room for thermal expansion.
  – Always remove any excess or spilled fuel immediately.
  – Always make sure that the fuel-tank-cap is securely reinstalled.
    Replace the fuel-tank-cap only with a manufacturer-approved cap whenever it becomes damaged. Use of the wrong type of cap may not allow for proper venting, causing pressure in the tank to build up.
  – Never use fuel to clean the machine.
  – Always use the correct type of fuel for the machine and the temperature in which it is being operated.
  – Always use a properly grounded fueling system.

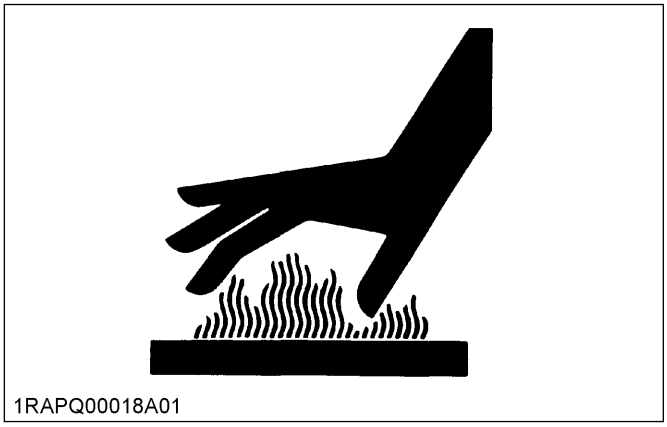


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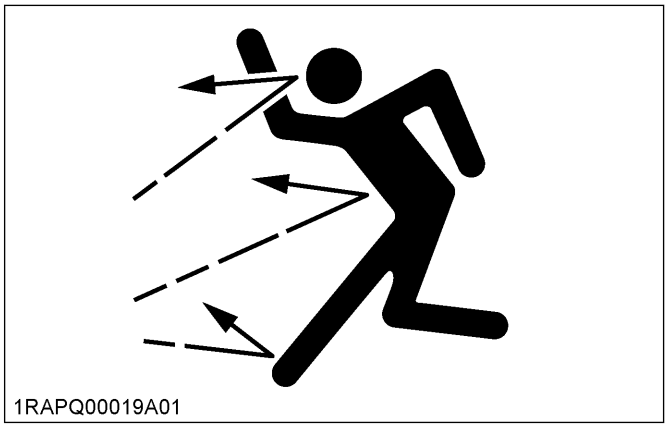
- Use caution when working around hot and pressurized components.
  – Always allow the engine to cool sufficiently before performing any maintenance, inspection, or repairs.
  – Never touch any parts such as the engine, the muffler, the radiator, the hydraulic lines, the

sliding parts, and so on as they may be very hot immediately after the machine has been running and can cause burning. Allow the engine, the muffler, the radiator, the hydraulic lines, the sliding parts, and so on to cool sufficiently before touching them.

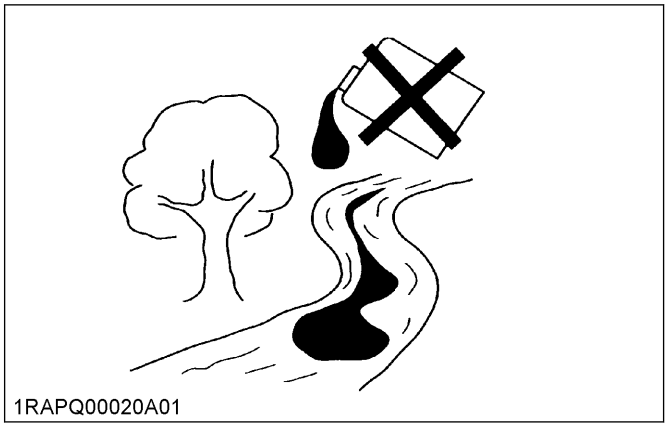
– Always use sufficient care whenever removing the caps and plugs on the coolant, oil, and hydraulic fluid as they are hot and pressurized and can causing burning and injury from spraying of hot fluid.


1RAPQ00018A01

- Make sure that pressure from all of systems is sufficiently released before performing any maintenance or repairs. Oil or other fluids could be released when caps or filters are removed before the pressure has been stabilized in the hydraulic system.
  – Gradually release internal pressure build-up by standing out of the line of any possible spray and slowly removing plugs, screws, or disconnect hoses.
- Always use care whenever using grease that is pressurized.
  – Always follow the proper procedure to adjust tension.
  Grease in the track adjuster is pressurized and improper release can cause the discharge valve to fly off, causing personal injury or death.
  – Always loosen the grease fitting slowly.
  – Avoid standing in front of, or putting any parts of the body in the line of the grease fitting.
  – If no grease is released when the grease fitting is loosened, the machine has a malfunction. Do not perform repairs of any kind yourself and contact the nearest dealer for repairs. If no grease is released when the grease fitting is loosened, any operation of the machine can be very dangerous.


1RAPQ00019A01

- Always carefully check the machine after performing any maintenance or repairs. Confirm that no oil, water, and so on is leaking from any parts that had been serviced by carefully inspecting the parts. Gradually speed up the engine from a low speed to higher speed to check operation.
- Waste material:
  – Always make sure that any material and waste products from the repair and maintenance of the machine are collected into proper containers using a funnel, or other device. Dispose of waste material properly to avoid pollution and contamination of the environment.
  – Consult local regulations and codes when disposing of oil, fuel, engine coolant, refrigerant, solvents, filters, batteries, and any other potentially harmful and hazardous material or substance.


1RAPQ00020A01

Fire prevention

The machine and some attachments have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcing or sparks.

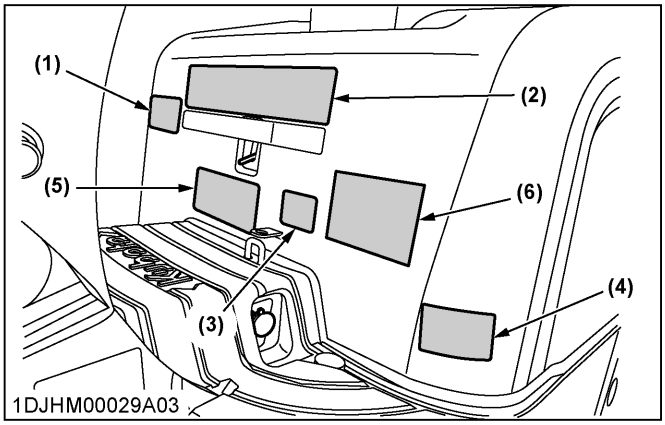
The following fire prevention guidelines will help to keep your equipment up and running efficiently and keep the risk of fire to a minimum.

- Blow off all accumulated debris near hot engine exhaust components such as turbocharger and exhaust manifold as well as exhaust pipes and

muffler more frequently when working in severe conditions.

- Clean out all accumulated flammable debris such as leaves, straw, pine needles, branches, bark, small wood chips, and any other combustible materials from inside the machine belly pans or lower unit structures as well as from area in proximity to the engine.
- After use and pressure-washing, make sure there is nothing flammable near the exhaust pipe. Grass, twigs, or other organic debris under the hood may cause fire.
- Inspect all fuel lines and hydraulic hoses for wear or deterioration. Replace them immediately if they begin to leak.
- Examine electrical wiring and connectors frequently for damage. Repair any wires that are loose or frayed before operating the machine. Clean all electrical connections and tighten all electrical connections as necessary.
- Inspect the exhaust system daily for any signs of leakage. Check for broken pipes and muffler and also for loose or missing bolts, nuts and clamps. If any exhaust leaks or fractured parts are found, repairs must be completed prior to operation.
- Always keep a multipurpose fire extinguisher on or near the machine. Be familiar with the operation of the fire extinguisher.

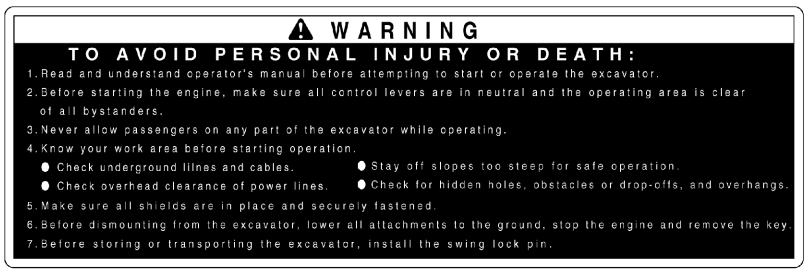
SAFETY LABELS



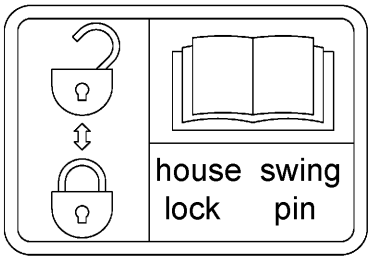
(1) Part No. RD578-5718-1



(2) Part No. RA059-5773-1



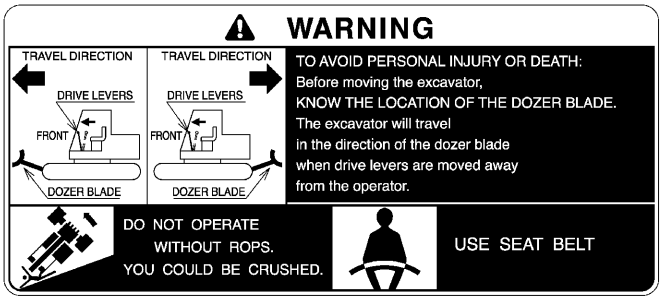
(3) Part No. RA028-5717-2



(4) Part No. RD578-5736-1



(5) Part No. RD578-5727-1

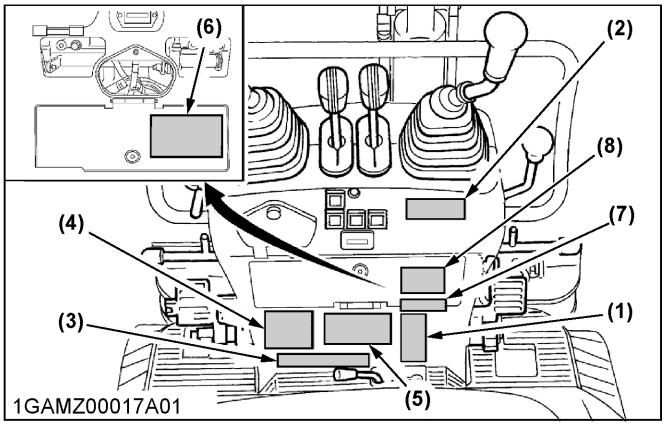


(6) Part No. 3B791-9870-2



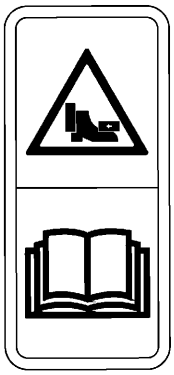
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[K008-5]



(1) Part No. RA118-5776-3

When the machine swings, there is a risk of legs being crushed by the attachments.
Read the operator's manual and take the correct measures.



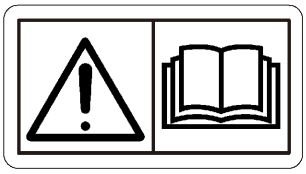
(2) Part No. RA059-5771-1

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
Damaged ROPS must be replaced, not repaired or revised.

(3) Part No. 69198-5784-2

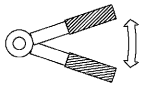
Read and understand the operator's manual before attempting to start or operate the excavator



(4) Part No. RA059-5763-1

WARNING

LOCK LEVER
for control levers
LOCK



UNLOCK

TO AVOID PERSONAL INJURY OR DEATH:
Mount and dismount safely when entering or leaving the operator's compartment.
1. Lock control levers before leaving compartment.
2. Face the machine.
3. Do not jump on or off the machine.
4. Do not attempt to mount or dismount a moving machine.
5. Do not use control levers as handles.

(5) Part No. RA059-5776-1

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
Do not operate in narrow track width, it makes risk of the excavator tipping over, operate always in standard track width, except to pass through narrow space on a even ground.

(6) Part No. RA059-5793-1

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
1. Study control lever pattern A and pattern B. Then choose the one which is most familiar.
2. Position the connecting rods in either left (pattern A) or right (pattern B).
3. Fasten the connecting bolts to prevent irregular operation.
4. Familiarize yourself with the pattern selected by operating.

(7) Part No. TC650-6597-1

California Proposition 65

WARNING

Engine exhaust, some of its constituents, certain vehicle components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

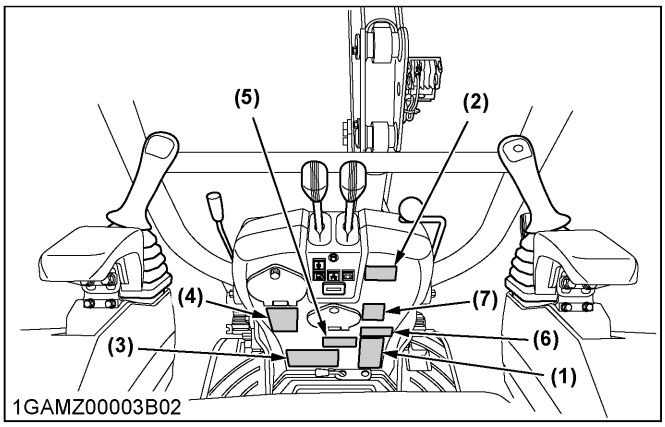
(8) Part No. 6C300-4744-1

WARNING

Operation of this equipment may create sparks that can start fires around dry vegetation.
A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

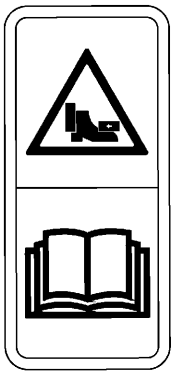
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[U10-5]



(1) Part No. RA118-5776-3

When the machine swings, there is a risk of legs being crushed by the attachments.
Read the operator's manual and take the correct measures.



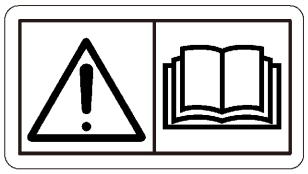
(2) Part No. RA059-5771-1

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
Damaged ROPS must be replaced, not repaired or revised.

(3) Part No. 69198-5784-2

Read and understand the operator's manual before attempting to start or operate the excavator



(4) Part No. RD818-5734-2

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
1. Study control lever pattern A and pattern B. Then choose the one which is most familiar.
2. Position the pattern selector lever in either pattern A or pattern B.
3. Engage lever lock to prevent accidental pattern change.
4. Familiarize yourself with the pattern selected by operating slowly.

(5) Part No. RA059-5776-1

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
Do not operate in narrow track width, it makes risk of the excavator tipping over, operate always in standard track width, except to pass through narrow space on a even ground.

(6) Part No. TC650-6597-1

California Proposition 65

WARNING

Engine exhaust, some of its constituents, certain vehicle components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

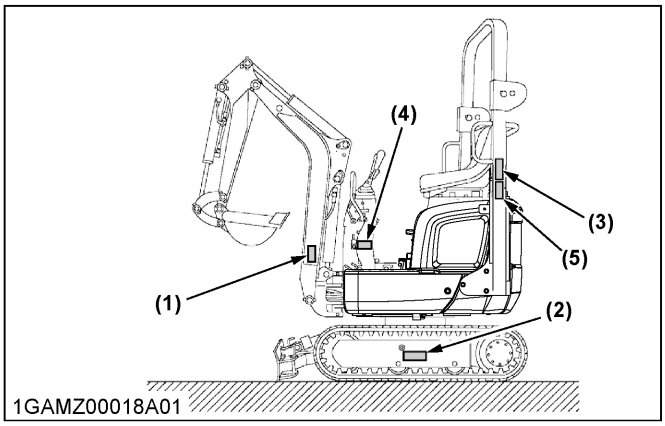
(7) Part No. 6C300-4744-1

WARNING

Operation of this equipment may create sparks that can start fires around dry vegetation.
A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

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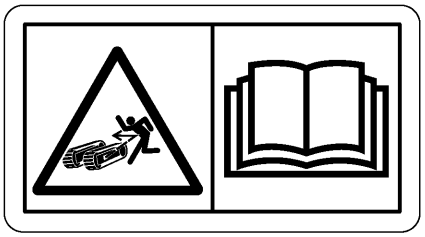
[K008-5]



(1) Part No. 68328-5735-1
[both sides]
Do not enter the boom swing area.



(2) Part No. RB456-5795-1
[both sides]
There is a risk of grease fittings flying off and causing injury.
When loosening the crawler, read the operator's manual and take the correct measures.



(3) Part No. RA059-4514-1



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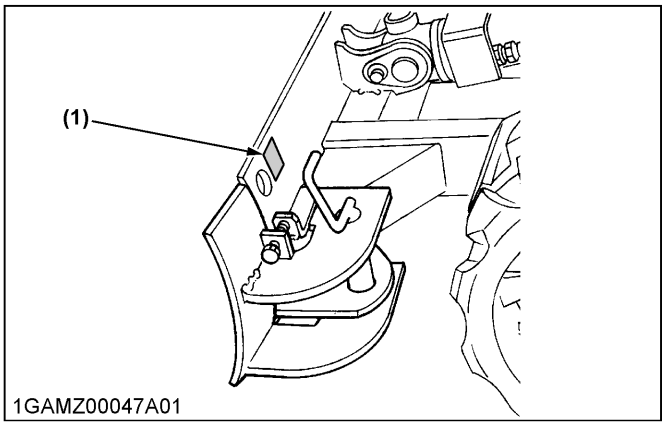
(4) Part No. RC488-5737-1

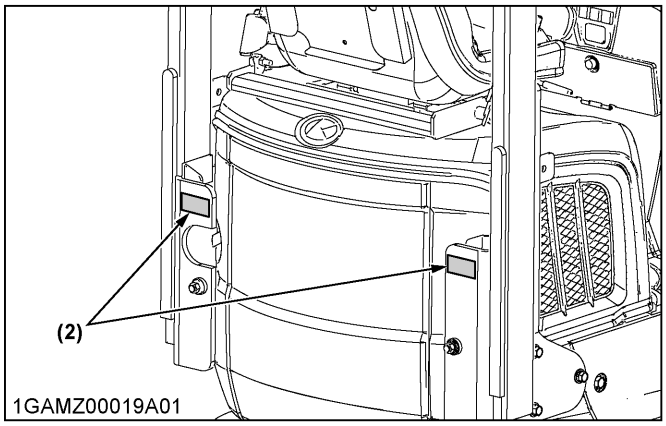


(5) Part No. RD809-5736-1

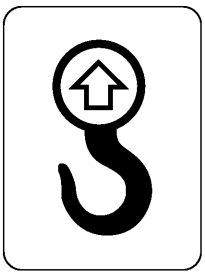


[K008-5]

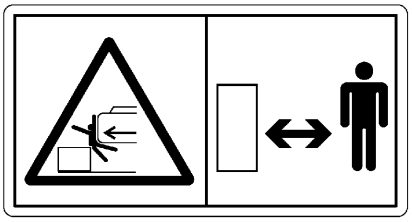




(1) Part No. RC108-5796-1
[both sides]
Lifting position

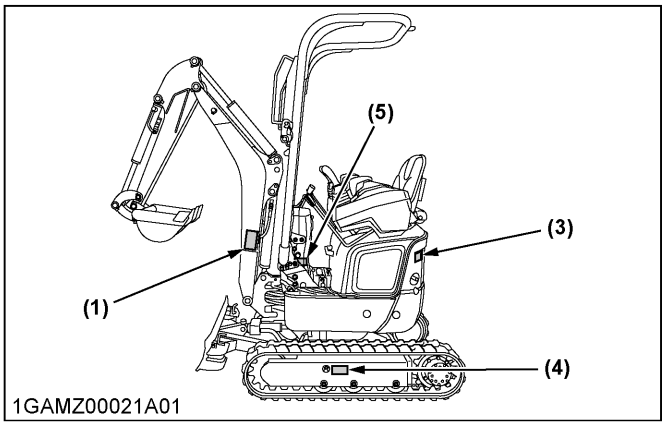


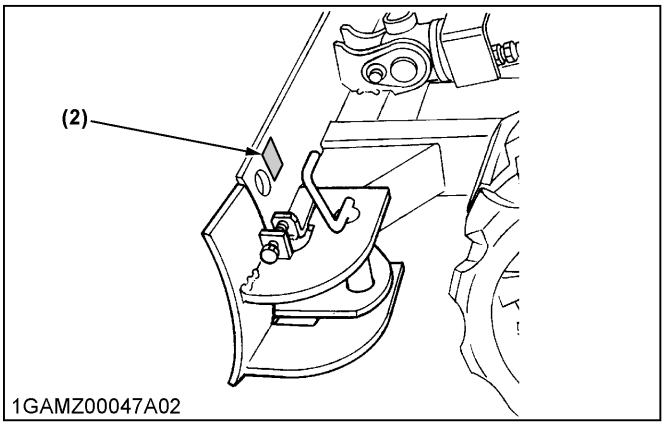
(2) Part No. RA028-5728-4
[both sides]
When the machine swivels, there is a risk of being crushed by the upper rotating body.
Do not stand within the machine's working range.



1GAMZ00028A01enUS

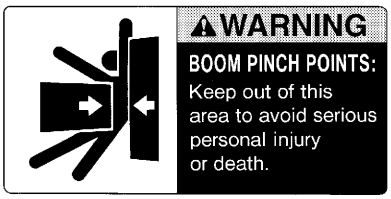
[U10-5]





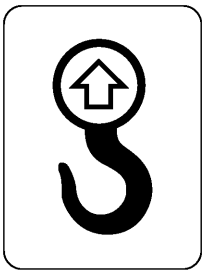
(1) Part No. 68328-5735-1
[both sides]

Do not enter the boom swing area.



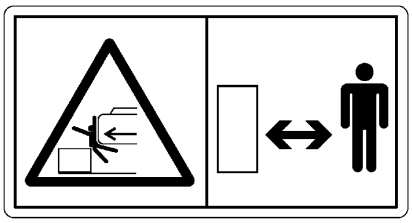
(2) Part No. RC108-5796-1
[both sides]

Lifting position



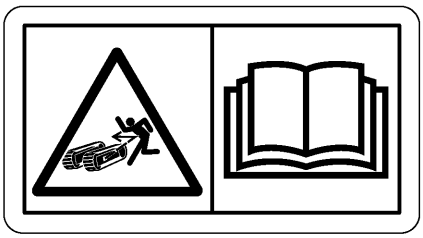
(3) Part No. RA028-5728-4
[both sides]

When the machine swivels, there is a risk of being crushed by the upper rotating body.
Do not stand within the machine's working range.



(4) Part No. RB456-5795-1
[both sides]

There is a risk of grease fittings flying off and causing injury.
When loosening the crawler, read the operator's manual and take the correct measures.

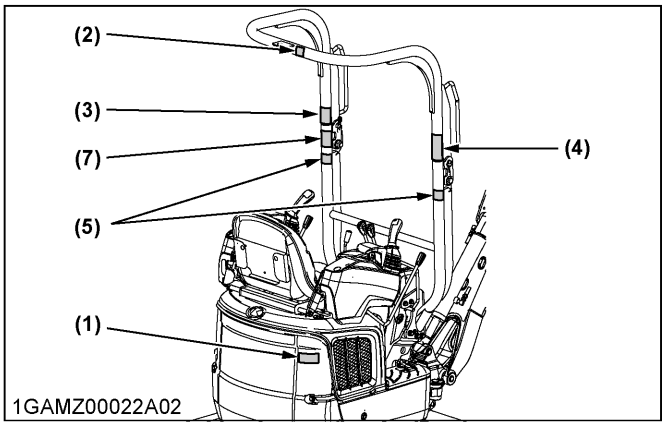


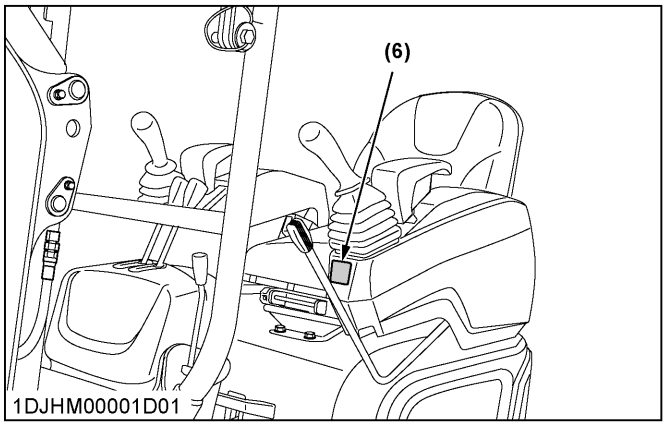
(5) Part No. RC488-5737-1



1GAMZ00029A01enUS

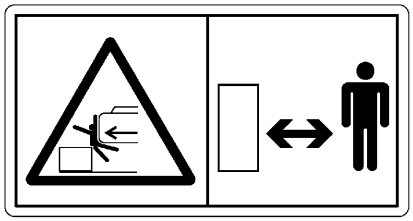
[U10-5]





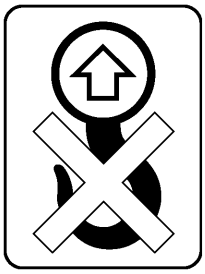
(1) Part No. RA028-5728-4
[both sides]

When the machine swivels, there is a risk of being crushed by the upper rotating body.
Do not stand within the machine's working range.

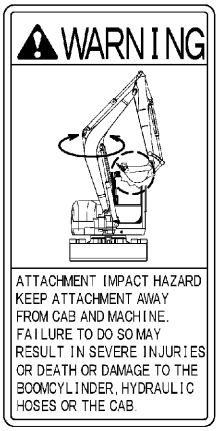


(2) RB419-5796-2

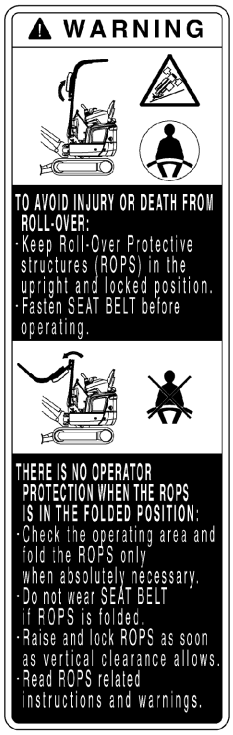
Prohibited for use in lifting the machine



(3) Part No. RD809-5738-2

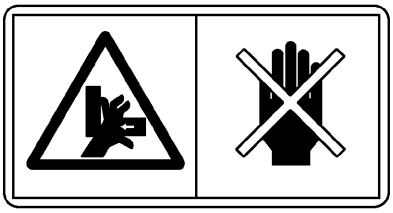


(4) Part No. RA169-4514-1



(5) Part No. RD579-5755-1
[both sides]

Never put your hands and fingers in the gap under the left console.



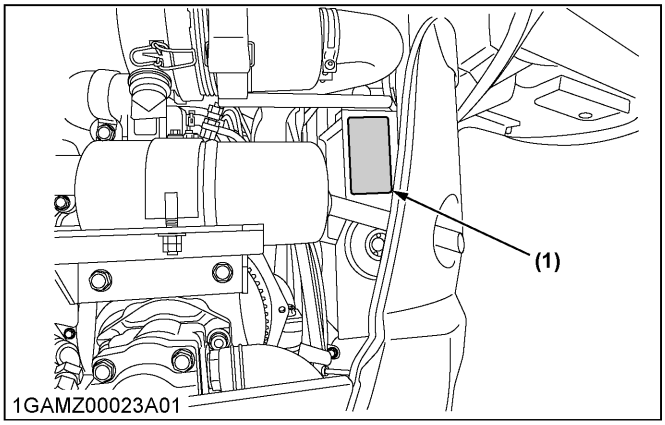
(6) Part No. RA169-5753-1
[both sides]

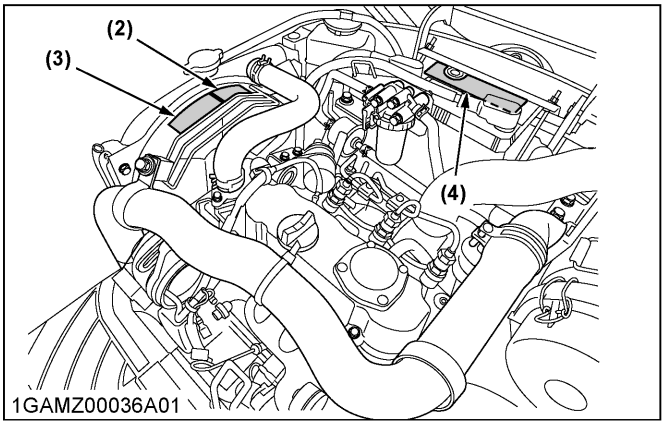


(7) Part No. RD809-5736-1



1GAMZ00030A01enUS





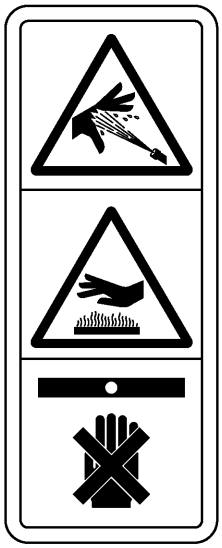
(1) Part No. RD579-5738-1

Touching the muffler or other high-temperature sections of the machine during operation or after stopping can cause burns.
Do not touch the high-temperature sections of the machine.



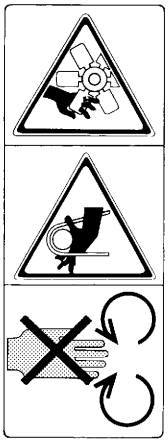
(2) RA058-5722-1

Radiator: Be aware of danger of burning.



(3) Part No. 6C090-4958-2

There is a risk of being caught in the rotating section of the fan belt, causing injury.
When performing inspections and maintenance, completely stop the rotation.



(4) Part No. RA058-5324-1



1GAMZ00031A01enUS

⚠ SAFE OPERATION

1. Care of safety labels

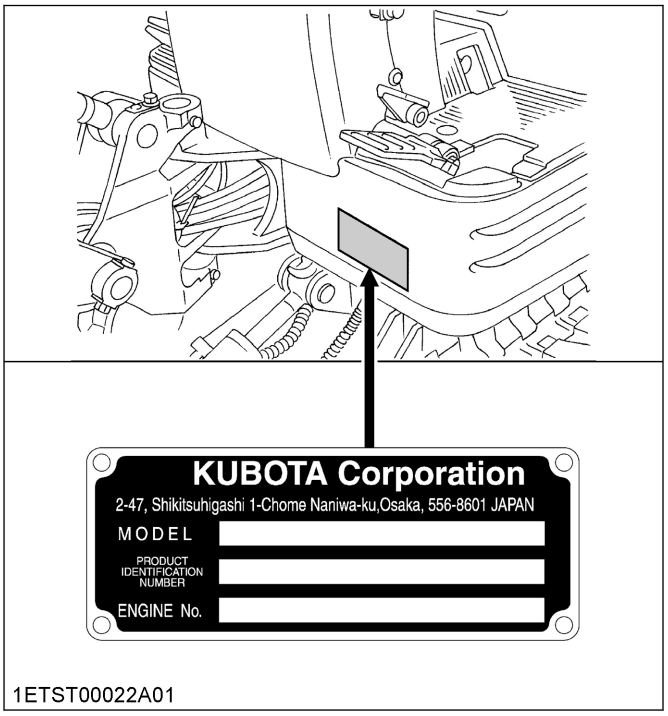
- Keep safety labels clean and free from obstructing material.
- Clean safety labels with soap and water, and dry with a soft cloth.
- Replace damaged or missing safety labels with new labels from your Kubota dealer.
- If a component with safety label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
- Mount new safety labels by applying on a clean dry surface and pressing any bubbles to outside edge.

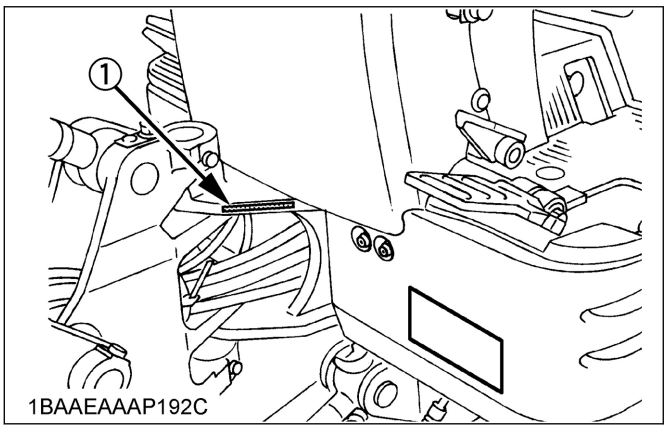
DEALER SERVICE

Your Kubota dealer is always ready to help so that your machine offers the best performance. After having carefully read these instructions, you will realize that much of the routine maintenance can be done by yourself. For service, contact the Kubota dealer shop from which you purchased your product, or your local Kubota dealer. When ordering parts from your Kubota dealer, always mention the product identification number of the machine and the serial number of the engine.
Note these numbers right away in the space provided.

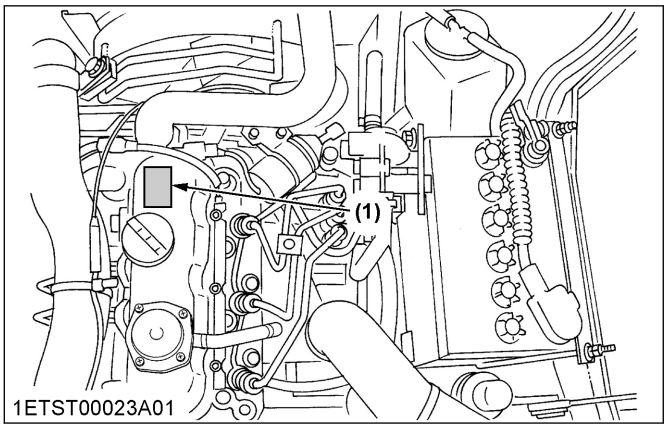
Machine product identification number	
Dealer's name (To be filled in by the owner)	
Date of purchase	

	Model	Serial number
Engine		





(1) Product identification number



(1) Engine serial number

WARRANTY POLICY

This product is warranted under the **Kubota Limited Express Warranty**, a copy of which may be obtained from your selling dealer. No warranty shall, however, apply if the product has not been used and maintained according to the instructions given in the operator's manual, even if it is within the warranty period.
The product(s) described in this operator's manual are designed and manufactured only for the country in which they are initially wholesaled by Kubota or one of its affiliated companies. Neither Kubota Corporation nor its affiliated companies provide warranty for any product which is resold or retailed in any country other than the country for which the product(s) were designed or manufactured.

SCRAPPING THE PRODUCT AND ITS PROCEDURE

To put the product out of service, follow the local rules and regulations of the country or territory where you reside. If you have questions, consult your local Kubota dealer.

TECHNICAL DATA

				Kubota excavator
Model name				**K008-5**
Type				Rubber tracks
Machine weight			kg (lbs.)	975 (2150)
Engine	Type			Water cooled 3 cylinder Diesel
	Model name			**KUBOTA D722-E4-BH-4US**
	Total displacement		cm^3 (cu.in.)	719 (44)
	Engine power	SAE J1995 Gross	kW (HP)	7.7 (10.3)
		SAE J1349 Net	kW (HP)	7.5 (10.1)
	Rated speed		rpm	2050
	Low idle speed		rpm	1300
Performance	Swivel speed		rpm	8.3
	Travel speed		km/h (mph)	2.0/4.0 (1.2/2.5)
	Ground pressure (with operator)		kPa (kgf/cm^2) [psi]	28.1 (0.29) [4.08]
	Climbing angle		% (deg)	27 (15)
Dozer (width & height)			mm (in.)	700 (27.6) x 200 (7.9) 860 (33.9) x 200 (7.9)
Boom swing angle	Left		rad (deg)	0.96 (55)
	Right		rad (deg)	0.96 (55)
Pressure connection for attachments	Displacement		L/min (GPM)	21.0 (5.55)
	Max. pressure		MPa (kgf/cm^2) [psi]	16.2 (165) [2350]
Fuel tank capacity			L (U.S.gals)	12 (3.2)

NOTE :

- **The dimensions are based on the machine with the bucket K9776.**

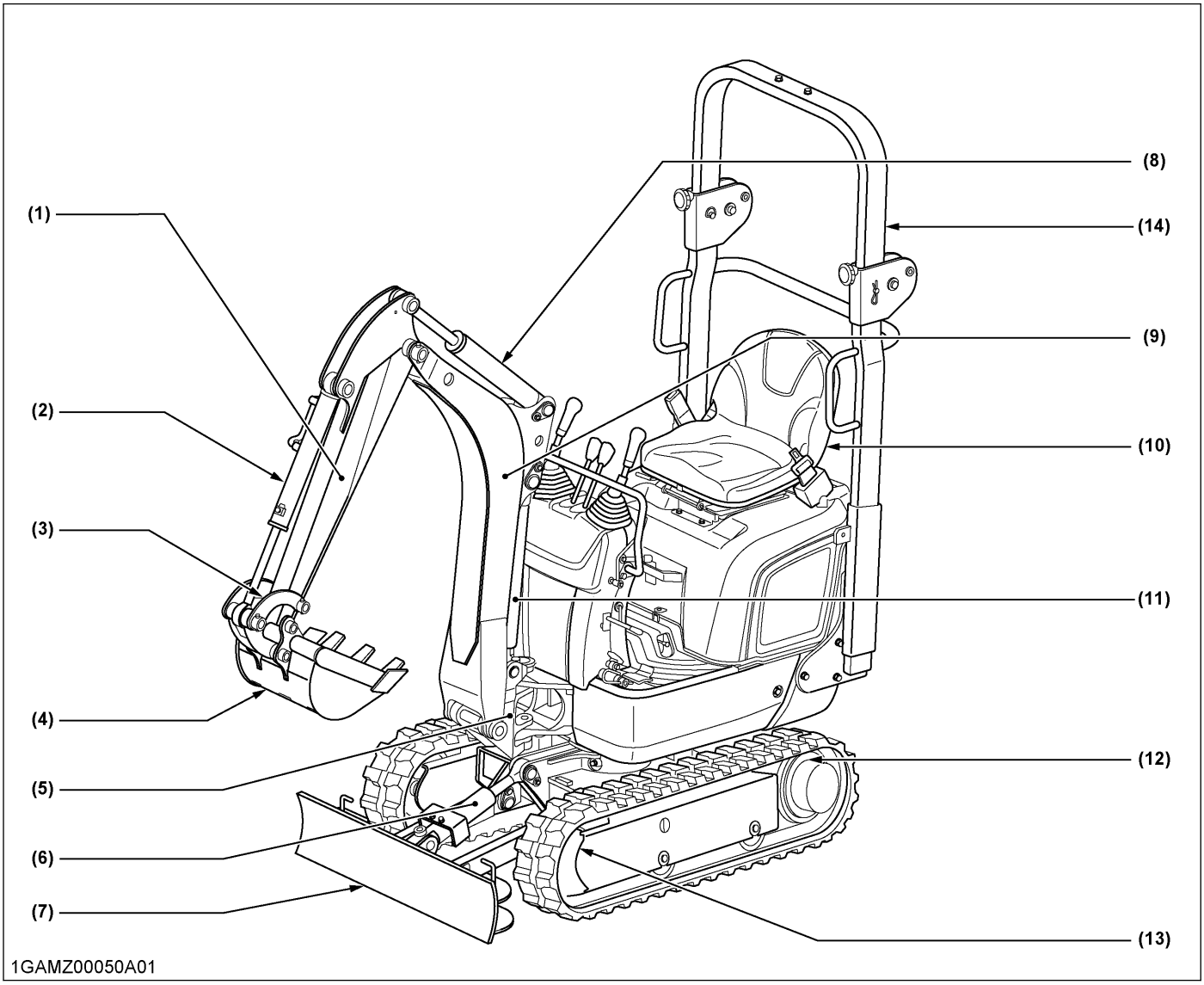
				Kubota excavator
Model name				**U10-5**
Type				Rubber tracks
Machine weight			kg (lbs.)	1125 (2480)
Engine	Type			Water cooled 3 cylinder Diesel
	Model name			**KUBOTA D722-E4-BH-5US**
	Total displacement		cm^3 (cu.in.)	719 (44)
	Engine power	SAE J1995 Gross	kW (HP)	7.7 (10.3)
		SAE J1349 Net	kW (HP)	7.5 (10.1)
	Rated speed		rpm	2050
	Low idle speed		rpm	1300
Performance	Swivel speed		rpm	8.3
	Travel speed		km/h (mph)	2.0/4.0 (1.2/2.5)
	Ground pressure (with operator)		kPa (kgf/cm^2) [psi]	29.1 (0.30) [4.2]
	Climbing angle		% (deg)	27 (15)
Dozer (width & height)			mm (in.)	750 (29.5) × 200 (7.9) 990 (39.0) × 200 (7.9)
Boom swing angle	Left		rad (deg)	0.96 (55)
	Right		rad (deg)	0.96 (55)
Pressure connection for attachments	Displacement		L/min (GPM)	21.0 (5.55)
	Max. pressure		MPa (kgf/cm^2) [psi]	17.2 (175) [2495]
Fuel tank capacity			L (U.S.gals)	12 (3.2)

NOTE :

- **The dimensions are based on the machine with the Kubota original bucket.**

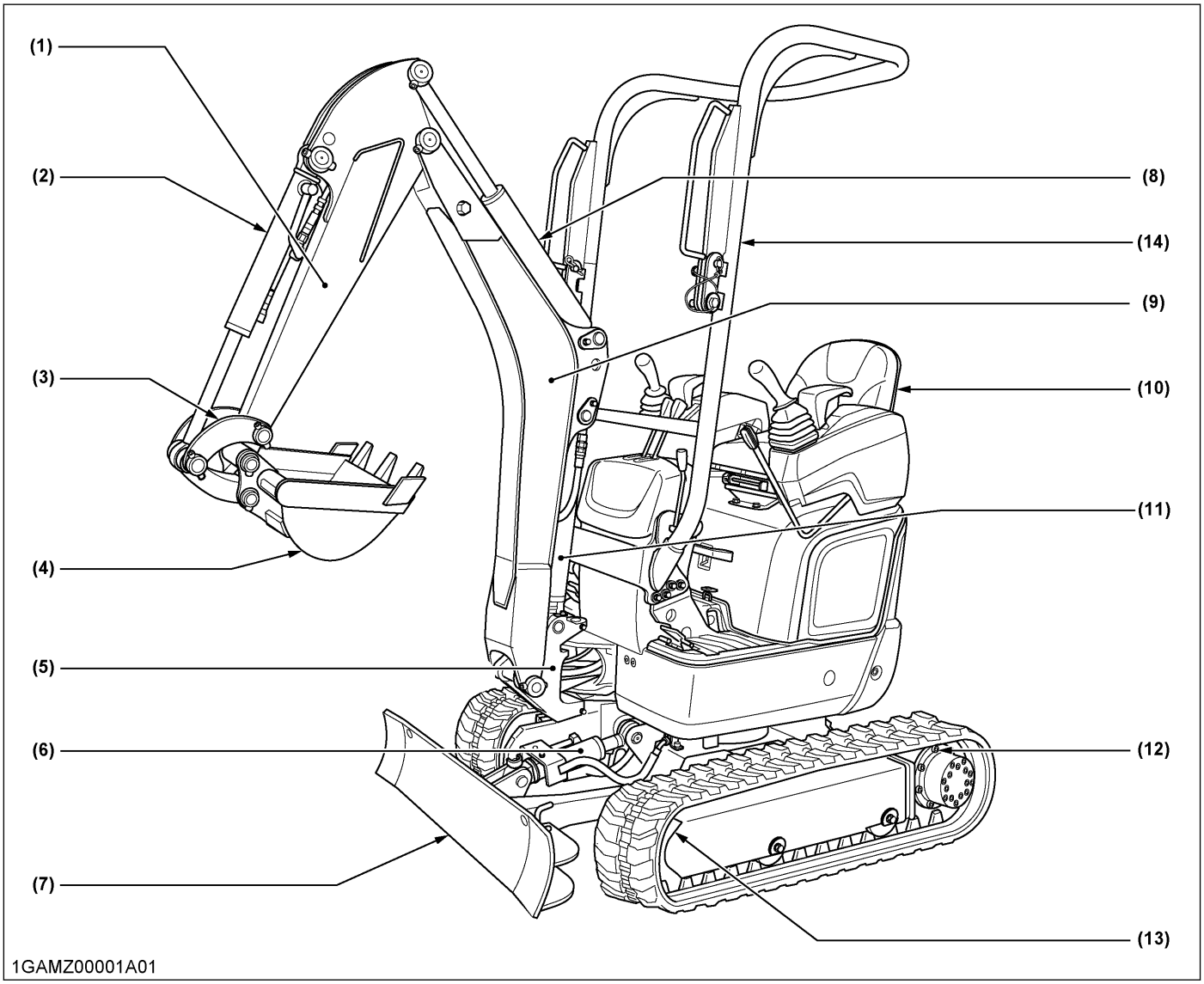
EXCAVATOR PARTS

[K008-5]



(1) Arm
(2) Bucket cylinder
(3) Bucket link
(4) Bucket
(5) Swing bracket
(6) Dozer cylinder
(7) Dozer
(8) Arm cylinder
(9) Boom
(10) Operator's seat
(11) Boom cylinder
(12) Drive sprocket
(13) Front idler
(14) ROPS

[U10-5]

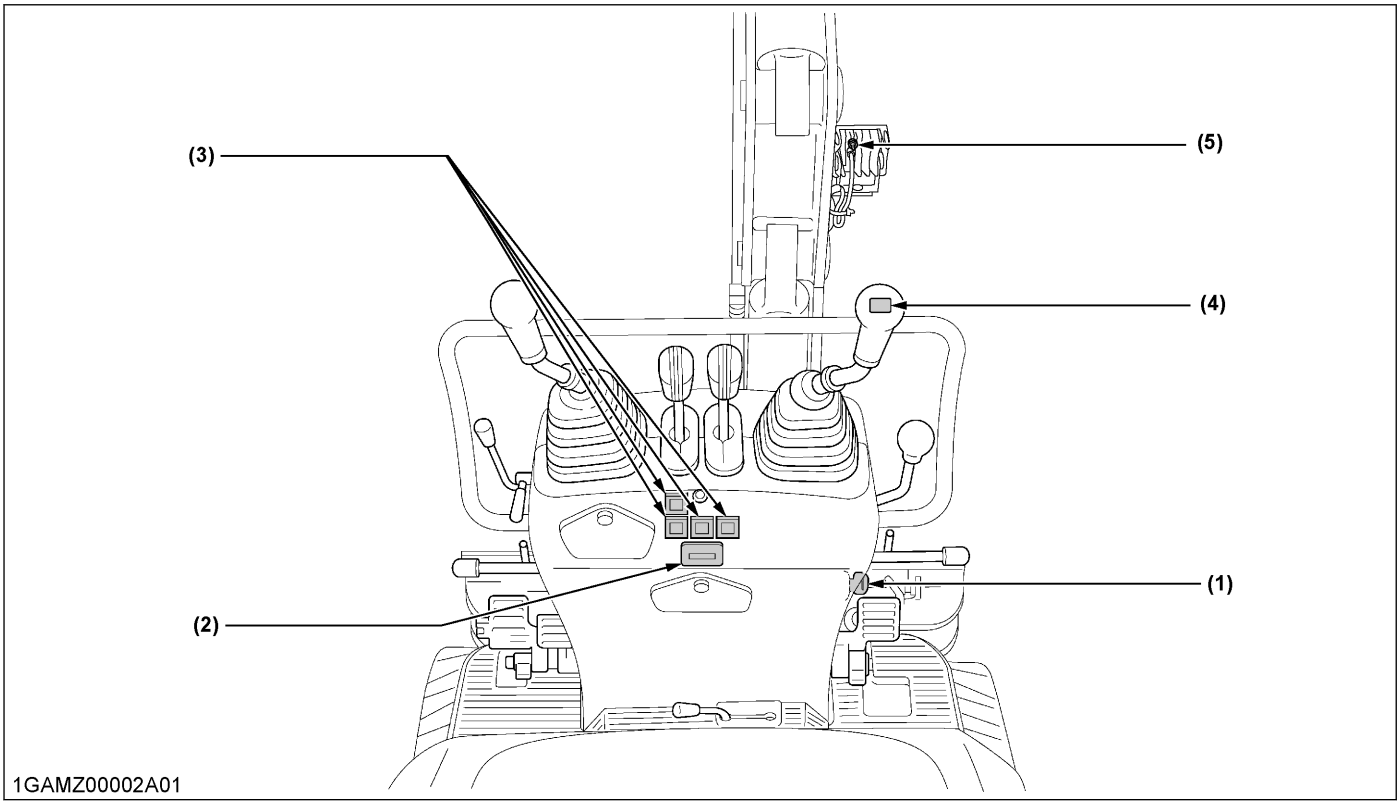


(1) Arm
(2) Bucket cylinder
(3) Bucket link
(4) Bucket
(5) Swing bracket
(6) Dozer cylinder
(7) Dozer
(8) Arm cylinder
(9) Boom
(10) Operator's seat
(11) Boom cylinder
(12) Drive sprocket
(13) Front idler
(14) ROPS

INSTRUMENT PANEL AND CONTROLS

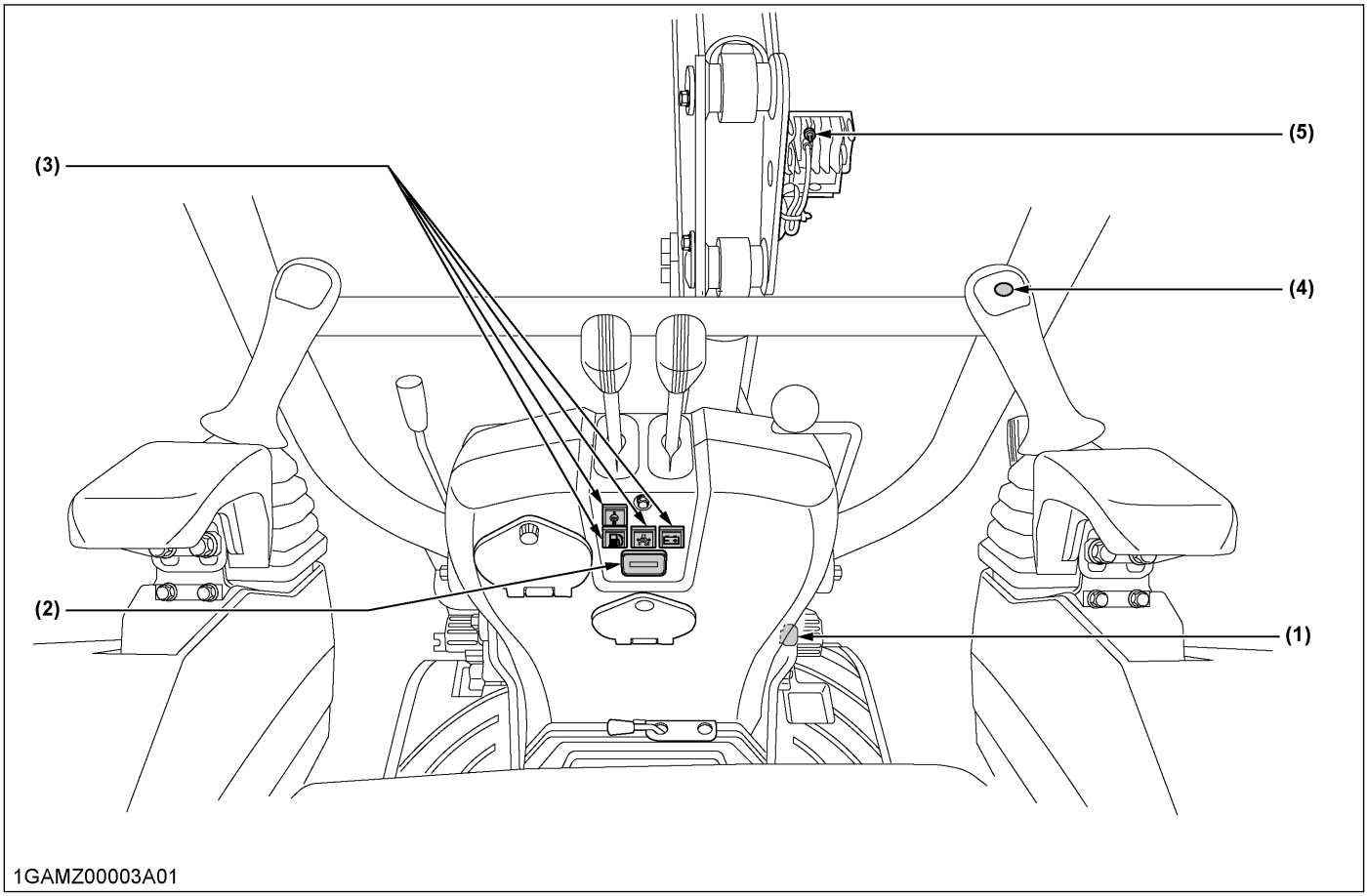
INSTRUMENT PANEL AND SWITCHES

[K008-5]



(1) Starter switch 31
(2) Hour meter 31
(3) Warning lamp 31
(4) Horn switch 32
(5) Working light switch 32

[U10-5]



(1) Starter switch 31
(2) Hour meter 31
(3) Warning lamp 31
(4) Horn switch 32
(5) Working light switch 32

HANDLING THE INSTRUMENT PANEL AND SWITCHES

1. Starter switch

[OFF]

- With the starter switch in the **[OFF]** position, the key can be inserted. All the electrical system switches remain off.

[ON]

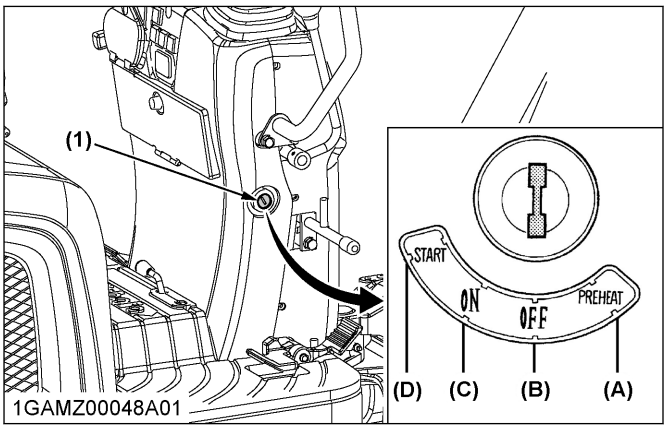
- Turn the key one click from the **[OFF]** to the **[ON]** position, and all the electrical circuits get energized and the lamps light up and remain on for a few seconds to check for lamp failure.

[START]

- Turn the key 1 more click from the **[ON]** position to the **[START]** position. The starter motor is then activated to get the engine started.
  Release your hand from the key, and the key returns to the **[ON]** position. Once the engine has started, let go of the key.

[PREHEAT]

- Turn the key one click from the **[OFF]** to the **[PREHEAT]** position, and the heater signal circuit is powered on.
  Release your hand from the key, and the key returns to the **[OFF]** position.



(1) Starter switch

*(A) **[PREHEAT]***
*(B) **[OFF]***
*(C) **[ON]***
*(D) **[START]***

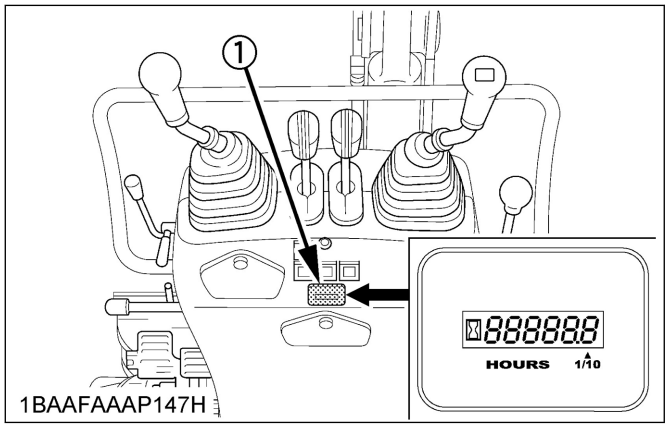
2. Hour meter

The hour meter shows the total operating hours of the machine.

Meter reading

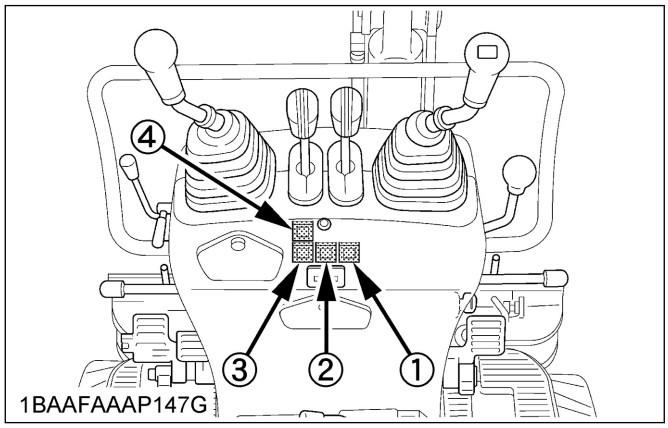
The meter advances by 1 whole number for each operating hour.

The electric meter continues to count if the engine stops but the key is in the **[ON]** position.



(1) Hour meter

3. Warning lamps



(1) Battery charge lamp
(2) Engine oil pressure warning lamp
(3) Remaining fuel warning lamp
(4) Coolant temperature warning lamp

Battery charge lamp

This lamp lights up when there is a malfunction in the electrical system. The lamp lights up when the key is in the **[ON]** position and goes out as soon as the engine starts.

Engine oil pressure warning lamp

This lamp lights up when there is an abnormality in the engine oil circulation.

It lights up when the key is in the **[ON]** position and goes out as soon as the engine starts running. If the lamp is lit up while the engine is running, check the engine oil level.

Remaining fuel warning lamp

This lamp lights up when the fuel level in the fuel tank is lower than 2 L (0.58 U.S.gals). The lamp lights up for 3 seconds to confirm that the lamp is working when the key is in the **[ON]** position while the engine is stopped.

Turning the key to the **[START]** position during this 3 second period causes the lamp to go out.

Coolant temperature warning lamp

This lamp lights up when the cooling system experiences trouble while the engine is running. The lamp lights up for 3 seconds to confirm that the lamp is working when the key is in the **[ON]** position while the engine is stopped.

Turning the key to the **[START]** position during this 3 second period causes the lamp to go out.

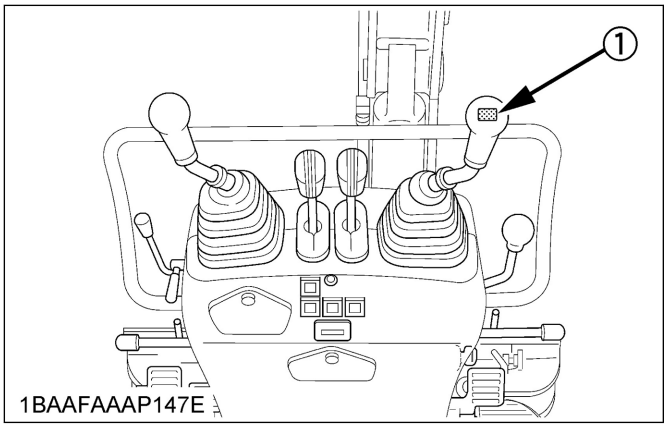
If the lamp stays lit with the engine running, stop the operation and keep the engine at idling speed for about 5 minutes and then stop the engine and check the following points:

- Check for cooling water shortage and leak.
- Check the fan belt for looseness.
- See if the radiator is covered with mud or dirt.

4. Horn switch

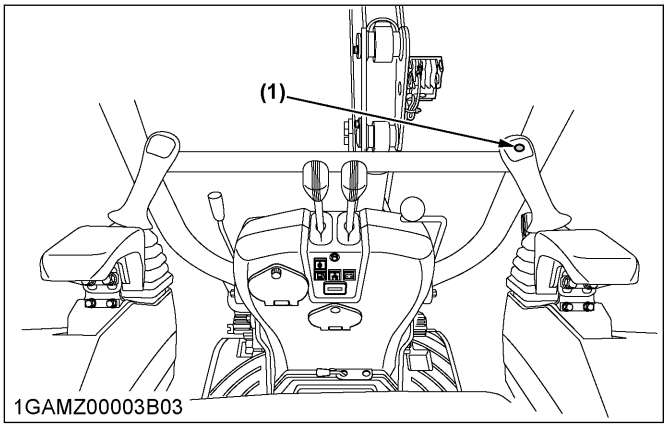
Pressing the horn switch when the starter key is in the **[ON]** position sounds the horn.

[K008-5]



(1) Horn switch

[U10-5]

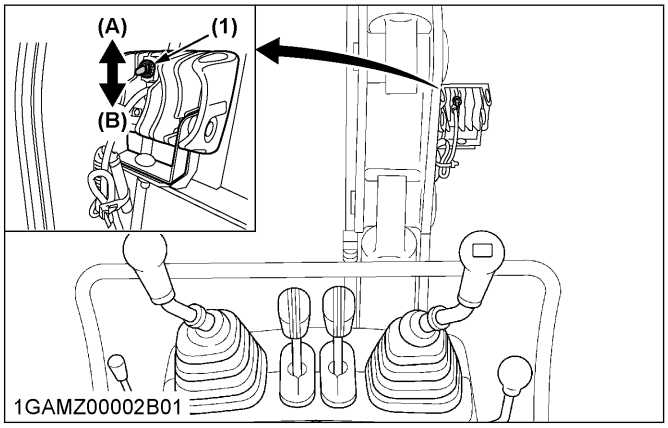


(1) Horn switch

5. Working light switch

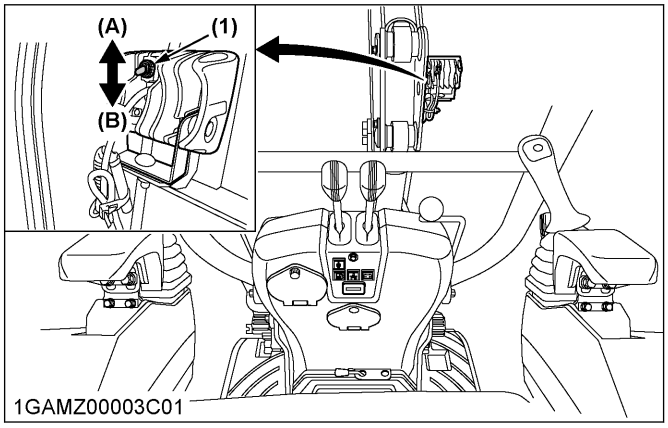
When the starter switch is in the **[ON]** position, the lights can be switched on by pressing the switch.

[K008-5]



(1) Working light switch *(A) "ON"* *(B) "OFF"*

[U10-5]



(1) Working light switch *(A) "ON"* *(B) "OFF"*

5.1 Night operation

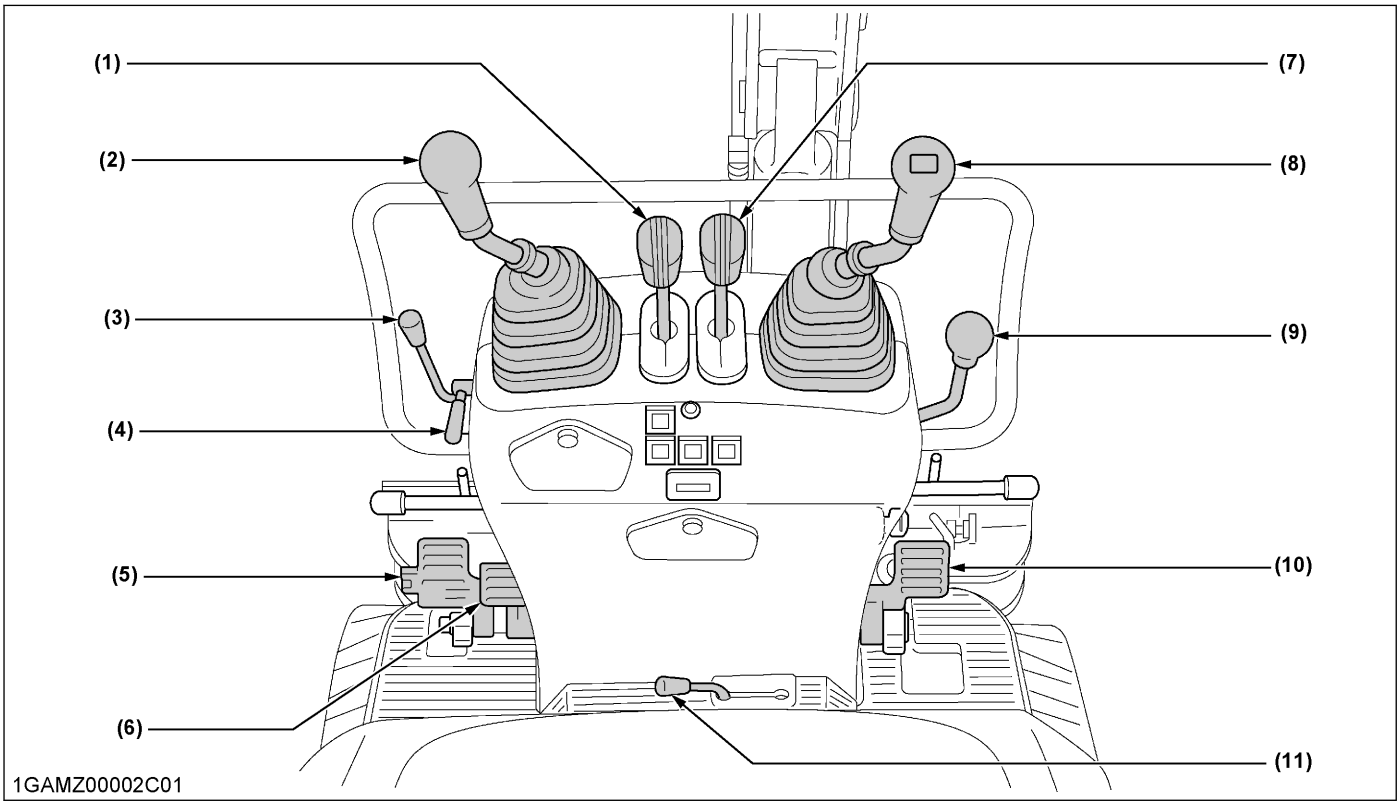
WARNING

To avoid personal injury or death:

- **Visibility is reduced in darkness, therefore the work light alone may not be enough. Use additional artificial lighting as necessary and follow all safety rules and special regulations for working at night.**

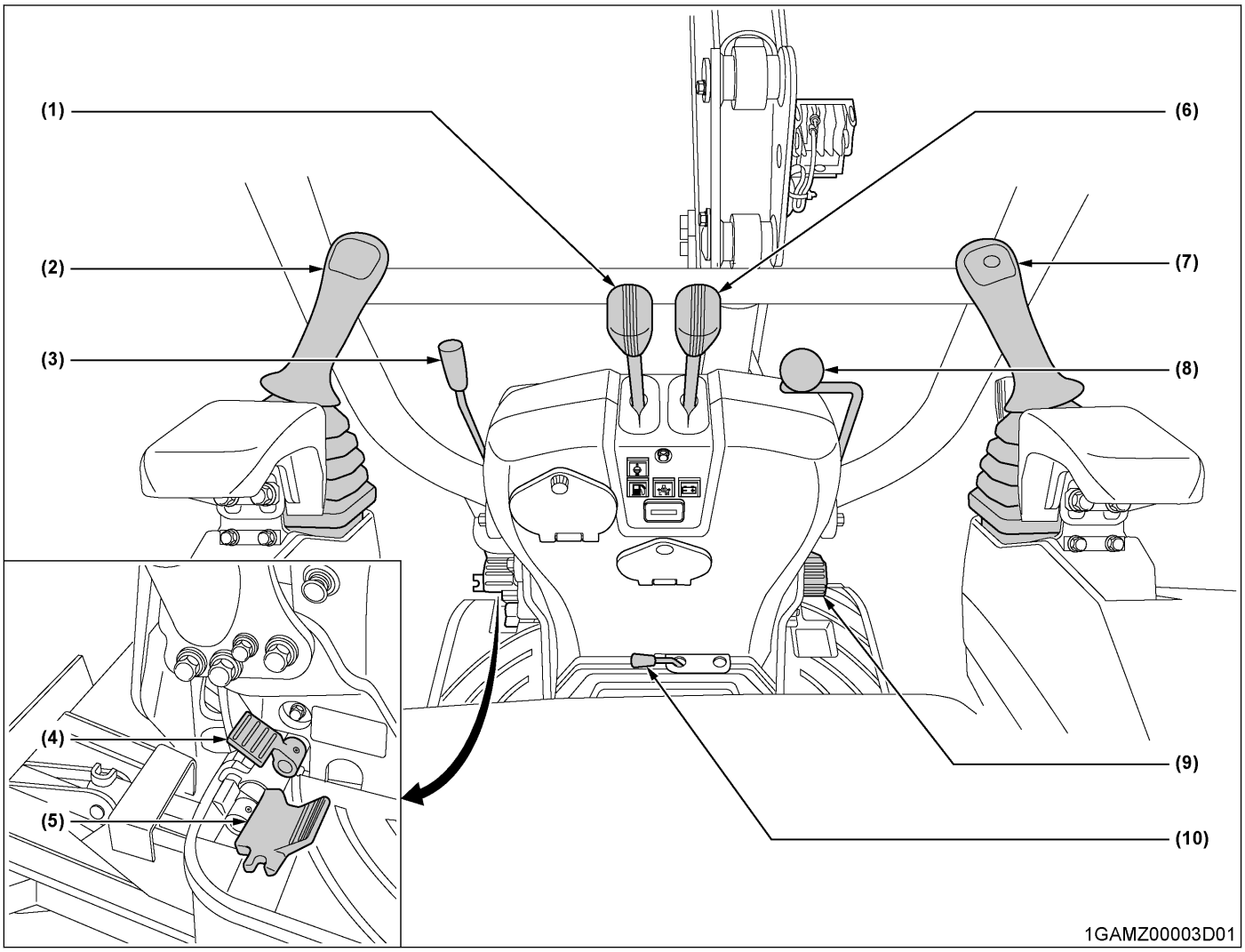
CONTROL PEDALS AND LEVERS

[K008-5]

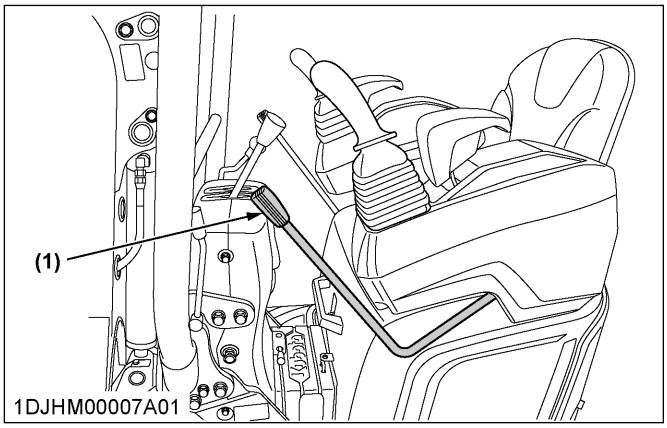


(1) Drive lever (left) 43
(2) Attachments control lever (left) 46
(3) Throttle lever 37
(4) Pilot control lock lever 35
(5) Service port pedal 54
(6) Travel speed pedal 54
(7) Drive lever (right) 43
(8) Attachments control lever (right) 46
(9) Control lever for dozer or track width 52
(10) Swing pedal 51
(11) Track width change / dozer select lever 52

[U10-5]



(1) Drive lever (left) 43
(2) Attachments control lever (left) 46
(3) Throttle lever 37
(4) Travel speed pedal 54
(5) Service port pedal 54
(6) Drive lever (right) 43
(7) Attachments control lever (right) 46
(8) Control lever for dozer or track width 52
(9) Swing pedal 51
(10) Track width change / dozer select lever 52



(1) Pilot control lock lever 35

HANDLING THE SAFETY DEVICES

1. Pilot control lock lever

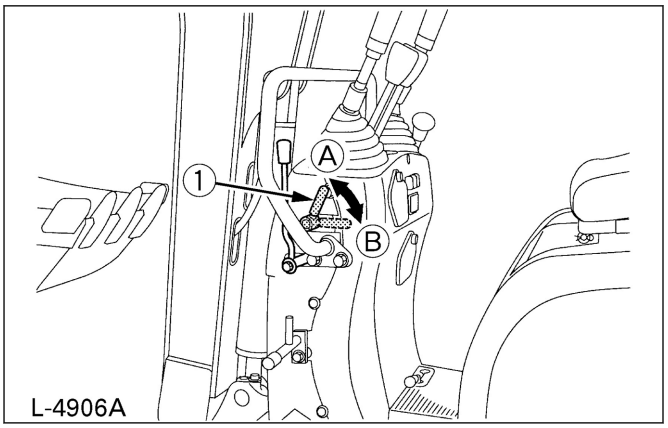
⚠ WARNING

To avoid personal injury or death:

- **When the machine is not used or left unattended, remove the key, place the bucket on the ground, and lock the control levers.**

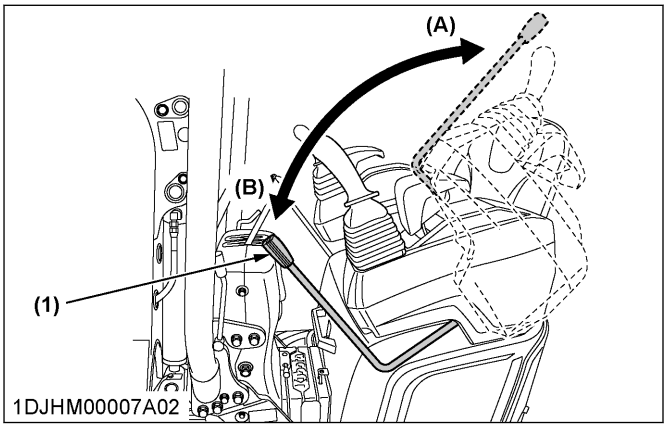
The pilot control lock lever lock is located on the left side.

[K008-5]



(1) Pilot control lock lever
(A) LOCK
(B) UNLOCK

[U10-5]



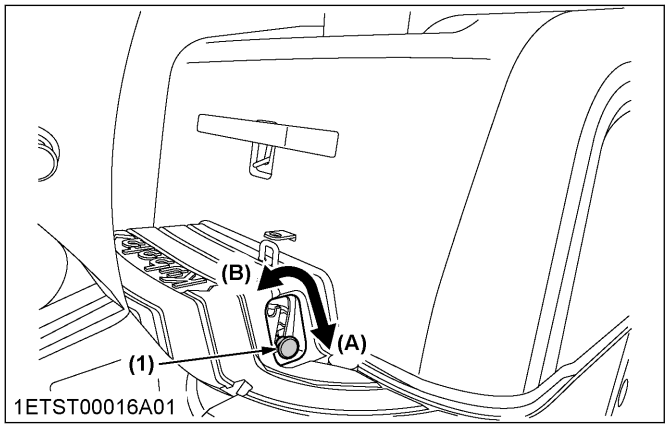
(1) Pilot control lock lever
(A) LOCK
(B) UNLOCK

2. Swivel lock pin

This pin is used to lock the swivel frame. Set the lock pin to the "Lock" position and the swivel frame gets locked to the track frame.

IMPORTANT :

- **Before locking the lock pin, place the swivel frame and the track frame parallel with each other.**



(1) Swivel lock pin
(A) Lock
(B) Release

PRE-OPERATION CHECK

DAILY CHECK

In order to avoid damage, it is important to check the condition of the machine before starting.

WARNING

To avoid personal injury or death:

- **Perform maintenance work on the machine only on level ground with the engine off and the safety devices in the LOCK position.**

Check list

1. Go around the machine and check for visual damage and wear.
2. Check coolant level.
   (See Checking the coolant level on page 67.)
3. Check fuel level.
4. Check engine oil level.
5. Check hydraulic fluid level.
6. Check air filter for clogging.
7. Check all grease points.
8. Check all warning lamps and hour meter.
9. Check the light system.
10. Check the seat belt and the ROPS.
11. Check the condition of the safety labels.
    (See SAFETY LABELS on page 14.)
12. Check the engine hood lock.

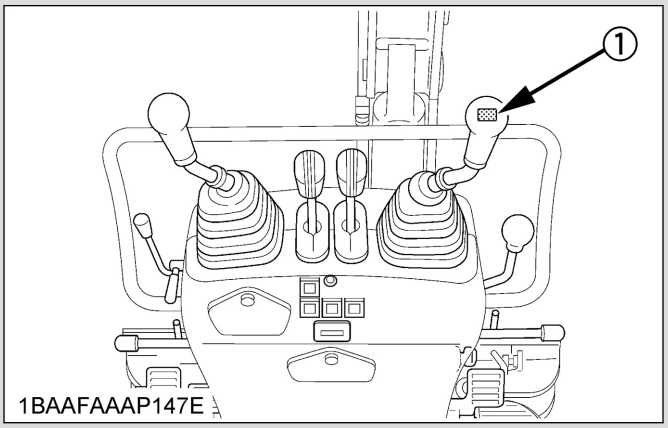
OPERATING THE ENGINE

⚠ WARNING

To avoid personal injury or death:

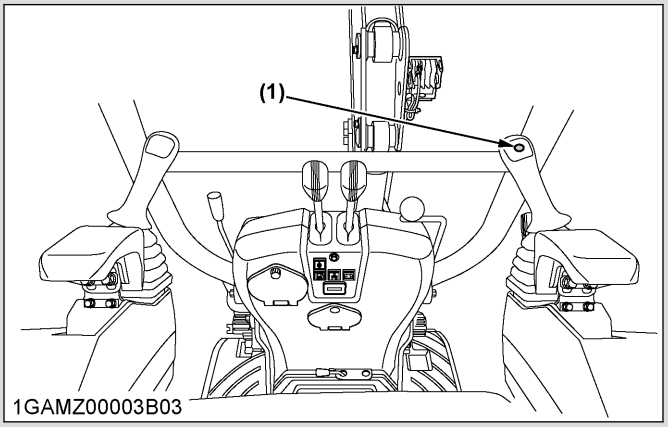
- **Read and understand the safe operation section.**
  (See SAFE OPERATION on page 5.)
- **Obey the safety labels on the machine.**
- **To avoid the danger of exhaust fume (carbon monoxide) poisoning, do not operate the machine indoors without proper ventilation.**
- **Always start the engine from the operator's seat. Do not start the engine while standing next to the machine. Before starting the engine, sound the horn to get the attention of people standing nearby.**

[K008-5]



(1) Horn switch

[U10-5]



(1) Horn switch

IMPORTANT :

- **Do not use starting fluid or ether.**
- **To prevent overloading the battery and starter, avoid engaging the starter for more than 10 seconds.**
- **If the engine does not start in 10 seconds, please wait 20 seconds or more, before attempting to restart.**

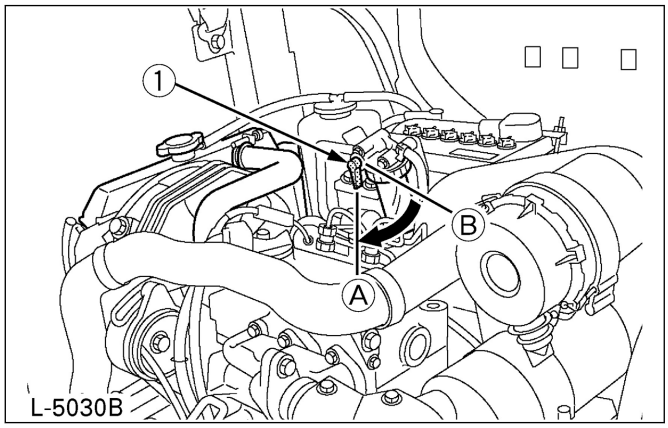
STARTING THE ENGINE

⚠ WARNING

To avoid personal injury or death:

- **The operator should not depend solely on the warning lamps, but should always conduct the routine checks.**
  (See MAINTENANCE on page 64.)

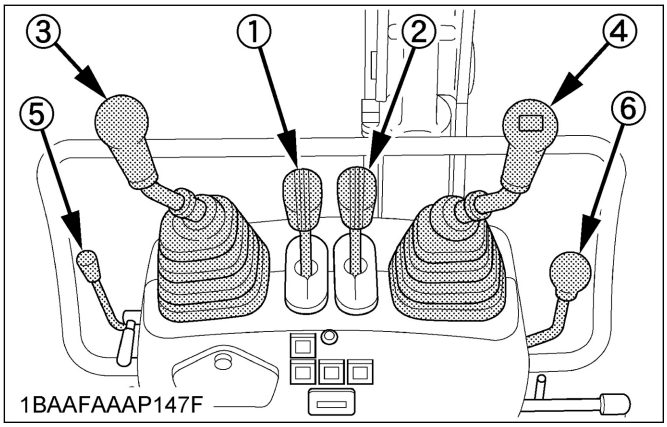
1. Make sure that the fuel shutoff-valve is in the *"Open"* position.



(1) Fuel shutoff-valve
(A) Open
(B) Closed

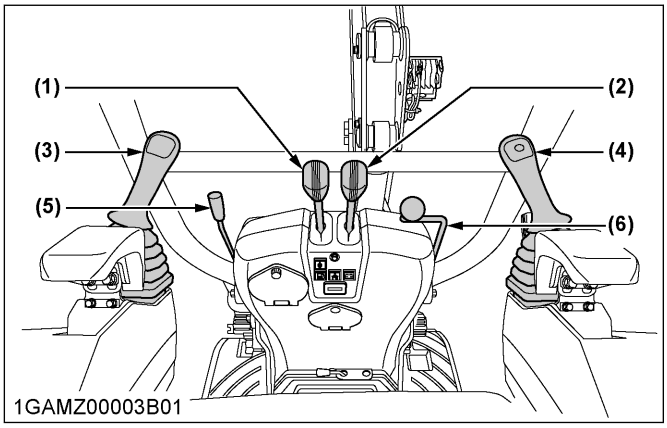
2. Make sure that all control levers are in their *"NEUTRAL"* positions.

[K008-5]



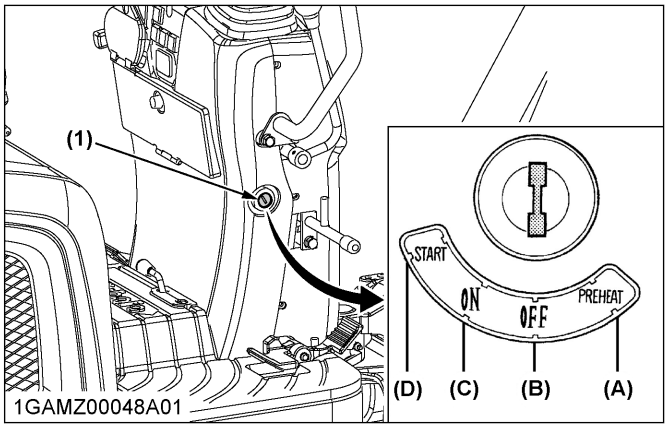
(1) Drive lever (left)
(2) Drive lever (right)
(3) Attachment control lever (left)
(4) Attachment control lever (right)
(5) Throttle lever
(6) Control lever for dozer or track width

[U10-5]



(1) Drive lever (left)
(2) Drive lever (right)
(3) Attachment control lever (left)
(4) Attachment control lever (right)
(5) Throttle lever
(6) Control lever for dozer or track width

3. Put the throttle lever all the way forward ( ).
4. Insert the key into the starter switch and turn it to the **[ON]** position.



(1) Starter switch

*(A) **[PREHEAT]***
*(B) **[OFF]***
*(C) **[ON]***
*(D) **[START]***

5. Turn the key to the **[PREHEAT]** position and hold it there for approximately 5 seconds.
6. Turn the key to the **[START]** position and release after the engine has started. The key will automatically return to the **[ON]** position.
7. Check that all of the warning lamps have gone out. If a warning lamp is still lit up, stop the engine, and check for the cause.
(See Warning lamps on page 31.)

1. Checkpoints after starting the engine

After starting the engine, but before starting operation, check the following points:

1. Put the throttle lever all the way forward ( ) and let the engine idle for approximately 5 minutes. This allows the engine lubricant to warm up and penetrate every part of the engine.

   NOTE :
   - **This idling is usually called *"Warm-up"*.**

2. Once the engine has warmed up, check the following:
   - The engine oil pressure warning lamp has gone out.
   - The battery charge lamp goes out when accelerating the engine.
   - The color of the exhaust gas is normal and no abnormal noises or vibrations are heard or felt.
   - No fluid is leaking from pipes or hoses.

IMPORTANT :

- **If any of the following conditions occur, stop the engine immediately.**
  - **The engine rpm increases or decreases suddenly.**
  - **Sudden abnormal noises are heard, such as engine knocking.**
  - **Exhaust is black.**

  - **– Warning lamp for engine oil lights up during operation.**
- **In these cases, the machine must be checked and serviced by your local Kubota dealer.**

STARTING THE ENGINE UNDER COLD CONDITIONS

⚠ WARNING

To avoid personal injury or death:

- **Make sure that the pilot control lock lever is in the LOCK position during warm-up.**

1. Put the throttle lever all the way forward (🐢).
2. Turn the key to the **[PREHEAT]** position for approximately 10 seconds.
3. Turn the key to the **[START]** position. The engine will start.
4. Release the key after the engine has started. It will automatically return to the **[ON]** position.

IMPORTANT :

- **Let the engine warm up after start-up for approximately 10 minutes under no load conditions. If the hydraulic fluid temperature is too low, the operation will be affected.**
  Do not operate the machine under full load before the engine is warmed up enough.

STOPPING THE ENGINE

⚠ WARNING

To avoid personal injury or death:

- **Lower all work attachments to the ground.**

Let the engine idle for approximately 5 minutes to let it cool down.

1. Put the throttle lever all the way forward (🐢).
2. Lower the work attachments carefully to the ground by activating the levers.
3. To stop the engine, turn the key to the **[OFF]** position and remove the key.

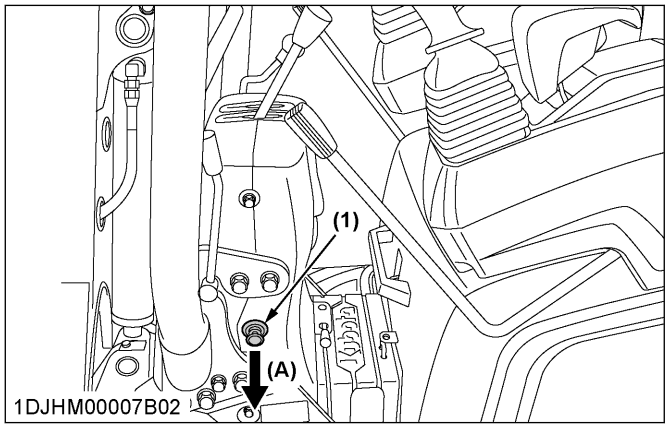
1. Engine stop button

⚠ WARNING

To avoid personal injury or death:

- **Keep hands away from rotating parts.**

The engine stops when the starter key is turned to the **[OFF]** position. If the engine does not stop, pull the stop button to stop the engine.



(1) Engine stop button (A) "Pull"

IMPORTANT :

- **Return the stop button to its original position after the engine stops.**
- **If the engine does not stop with the key, contact your Kubota dealer.**

STARTING WITH AN AUXILIARY BATTERY

⚠ WARNING

To avoid personal injury or death:

- **Battery gases can explode.**
  Do not smoke and keep sparks and flames away.
- **Do not start the engine with an auxiliary battery if the machine battery is frozen.**
- **Do not connect the black jumper cable to the negative (-) terminal of the machine's battery.**

IMPORTANT :

- **This machine has a negative (-) ground 12 V starting system.**
- **Use only the same voltage when using an auxiliary battery.**
- **Using a higher voltage will cause damage to the electrical system. When using an auxiliary battery, only the compatible (same) voltage is permitted.**

Observe the following guidelines when starting with an auxiliary battery.

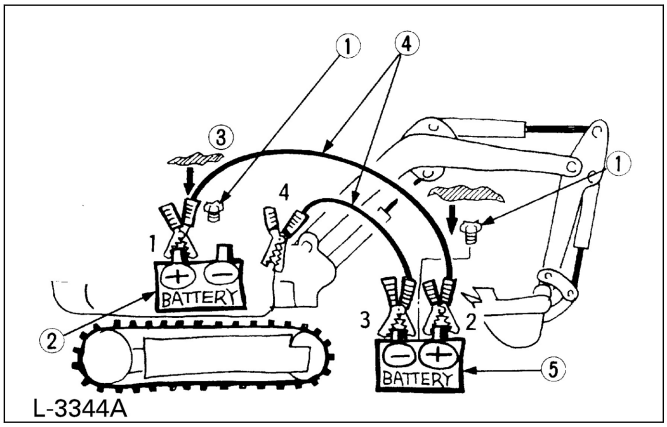
1. Bring another machine with the same battery voltage as close as possible to the machine.

   IMPORTANT :

   - **The machines must not come in contact with each other.**

2. Set the levers and pedals of both machines in their neutral positions and put the pilot control lock lever in the LOCK position.

3. Wear eye protection and rubber gloves.
4. Remove the battery caps from both batteries. (If present)
5. Cover the battery opening with a cloth, making sure that the cloth does not touch the battery terminals.
6. Connect the terminal of the red jumper cable with the plus (+) terminal of the low battery and connect the other end of the cable to the plus (+) terminal of the auxiliary battery.
7. Connect the black negative cable to the minus (-) terminal of the auxiliary battery.
8. Connect the other end of the black negative cable (coming from the auxiliary battery) to the machine frame as far away as possible from the low battery.
9. Start the engine of the helping machine and let it run for a while. Start the machine with the low battery.
10. Disconnect the jumper cables in the reverse sequence (steps 8, 7, 6).
11. Remove the cloth and replace the vent caps.



(1) Remove battery caps (if present)
(2) low battery
(3) Put a cloth over the battery openings
(4) Jumper cables
(5) Auxiliary battery

OVERHEATING COUNTERMEASURES

WARNING

To avoid personal injury or death:

- **Do not open the radiator cap during operation or just after shut-down. Otherwise, steam or very hot coolant may gush out, getting you scalded. Make sure the radiator has cooled down enough before opening its cap.**

If the coolant temperature rises close to, or above, the boiling point (overheat condition) causing the whistle at the reserve tank drain hose end to blow, take the following steps:

1. Stop operating the machine and relieve the engine of any load.
2. Do not stop the engine suddenly. Keep the engine idling under no load for about 5 minutes and then turn it off.
3. Stay away from the engine or overflow for 10 minutes or until the steam overflow stops.
4. Make sure there is no hazard of getting burned. Check and remove the cause of overheat.
   (See TROUBLESHOOTING on page 87.)
   Once the trouble is resolved, the engine can be restarted.

OPERATING THE EXCAVATOR

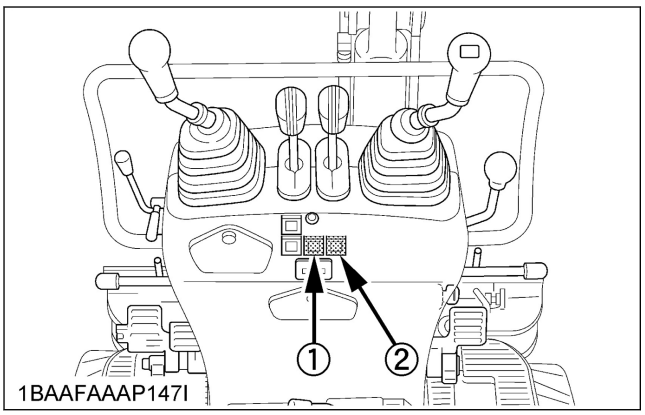
CONTROL OBSERVATIONS DURING OPERATION

Stop the Engine immediately if any of the following occur:

- Sudden increase or decrease in engine revolution
- Sudden abnormal noises
- Exhaust gases suddenly turn very dark

Warning lamps

If a warning lamp lights up during operation, stop the engine immediately and check for the cause as follows. Do not use the machine when a warning lamp is lit up.
(See STARTING THE ENGINE on page 37.)



(1) Engine oil pressure lamp
(2) Battery charge lamp

Engine oil pressure

When the engine oil pressure sinks below the prescribed level, the warning lamp lights up. If the engine oil pressure lamp lights up during operation, and does not go out even when the engine revolution is increased by 1000 rpm, check the engine oil level.
(See Checking the engine oil level on page 68.)

Battery charge

If the battery is not charged by the generator, the alarm lamp lights up. If the battery charge lamp lights up during operation, check the electrical system or contact your Kubota dealer.
(See TROUBLESHOOTING on page 87.)

OPERATION OF A NEW MACHINE

The operation and maintenance of the new machine influences its life span. Your new machine has been carefully checked and tested before leaving the factory. In spite of this, all movable components must be run-in during the first 50 work hours. Do not work with full rpm and full loads during this period. It is most important to run-in your machine properly in order to achieve its full performance and longevity. During the running-in, the following points should be adhered to in all cases.

Do not work with full engine rpm or full loads during the first 50 working hours

- Let the engine warm up sufficiently in the cold season.
- Do not let the engine rev-up more than necessary.

Oil change in the run-in stage

The lubrication oil plays a specific and important role during the run-in phase of the machine. The numerous movable parts are not yet run-in, so many fine metal particles are generated and cause damage and shorten the life of many components. Pay attention to the oil-change intervals and complete them sooner rather than later.
Details regarding oil change intervals can be found in a different section.
(See Changing the engine oil on page 77.)

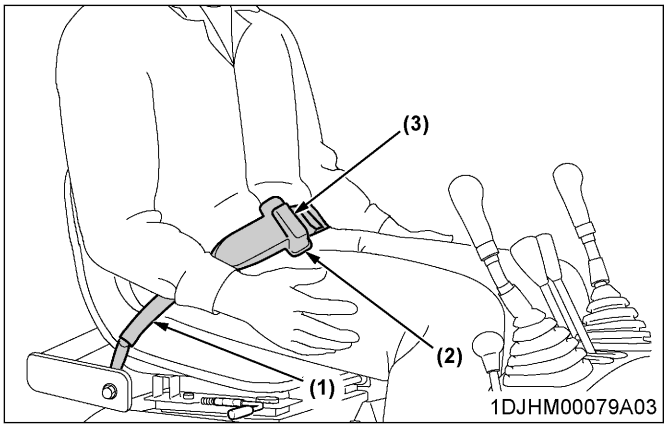
PREPARATIONS BEFORE STARTING THE MACHINE

1. Using the seat belt

WARNING

To avoid personal injury or death:

- **Always use the seat belt with a ROPS protection structure. Adjust the operator's seat to the optimal position and buckle it up.**
- **Always fasten the seat belt securely before starting the engine.**



(1) Seat belt
(2) Socket
(3) Button

Fastening the seat belt

1. Pull the seat belt from the retractable (left) side of the operator's seat.
2. Insert the fixture of the seat belt into the socket at the right side of the operator's seat until the fixture clicks deep into position.

Releasing the seat belt

1. Press the red button of the socket to release the seat belt.
   The seat belt reels itself in and gets retracted to the left side.

IMPORTANT :

- **When removing the seat belt, store the belt straight.**
  If you store the belt without straightening it, the seat belt locking mechanism may not work properly.

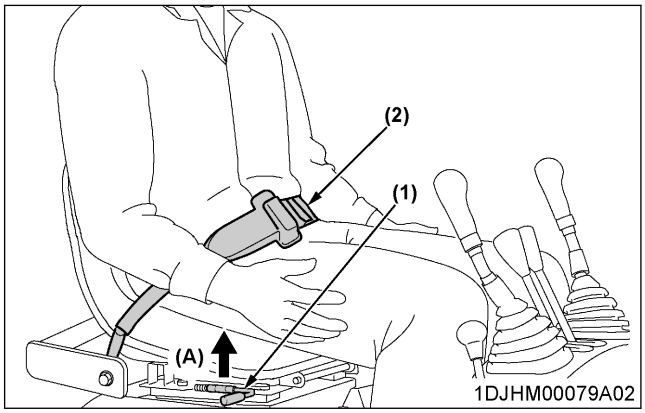
2. Adjusting the operator's seat

⚠ WARNING

To avoid personal injury or death:

- **Before adjusting the operator's seat, make sure that no one puts hands on the engine bonnet behind the seat.**
- **After having adjusted the seat, make sure that the seat adjuster has clicked into position.**

1. Pull and hold up the travel adjustment lever.
2. Slide the seat back and forth until it is in a position which will allow you to maneuver the machine easily.
3. Release the travel adjustment lever to lock the seat in place.



(1) Travel adjust lever
(2) Seat belt
(A) "Hold up"

STARTING THE MACHINE

⚠ WARNING

To avoid personal injury or death:

- **Nobody, other than those who have read and understood this manual and who are familiar with the machine, should be allowed to use the machine.**
- **Do not allow any person other than the operator to ride on the machine.**

1. Pilot control lock lever

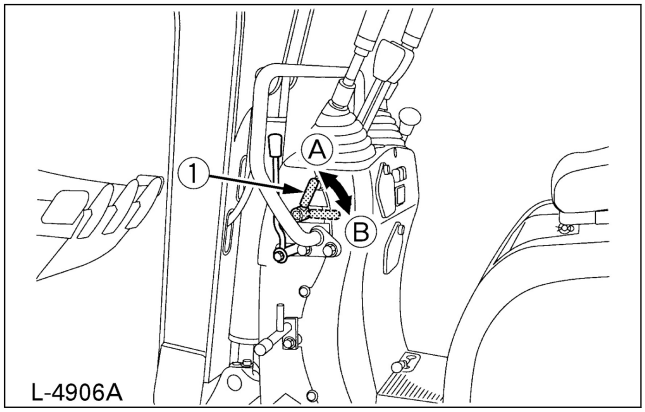
⚠ WARNING

To avoid personal injury or death:

- **Check safety aspects all around the machine.**

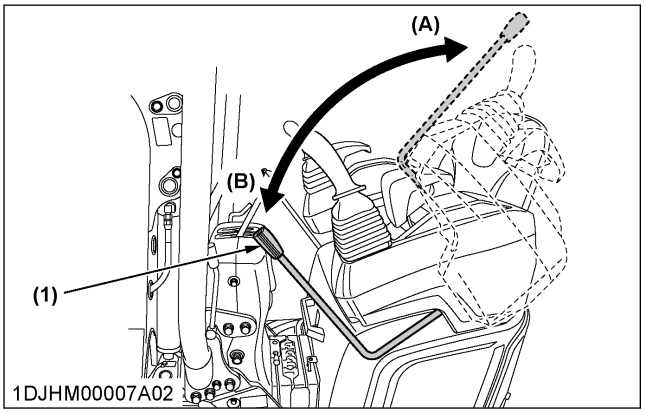
After starting the engine, bring the pilot control lock lever into the UNLOCK position, and raise the lower side of the bucket from the ground by 20 cm to 40 cm (7.9 in. to 15.6 in.).

[K008-5]



(1) Pilot control lock lever
(A) LOCK
(B) UNLOCK

[U10-5]



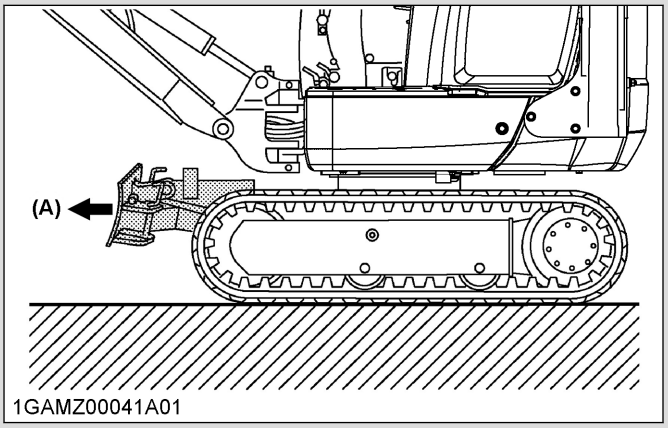
(1) Pilot control lock lever *(A) LOCK*
(B) UNLOCK

DRIVING

⚠ WARNING

To avoid personal injury or death:

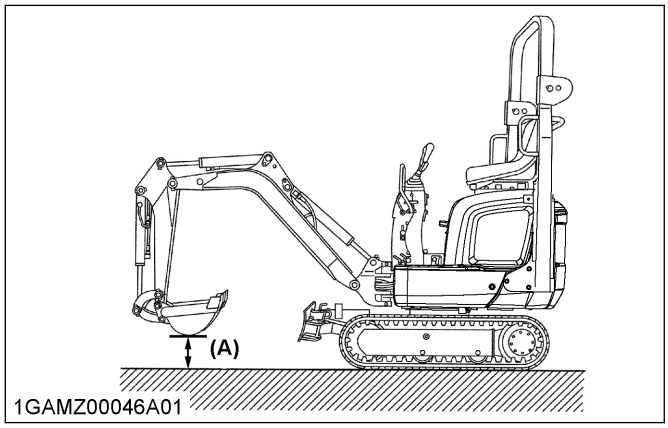
- **Before starting the engine, make sure that no one is near the machine.**
- **Before operating the machine, check the track direction (front idler and dozer blade to the front of the machine).**



(A) "Front"

- **Be extra cautious when traveling across a slope or working sideways on a slope.**

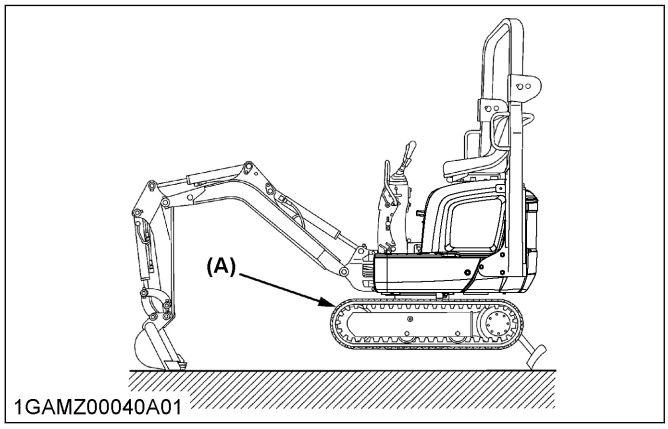
1. Lock the swivel frame to the track frame by engaging the swivel lock pin.
2. Adjust the engine speed from idling to an intermediate speed.
3. Raise the dozer and hold the bucket about 20 cm to 40 cm (7.9 in. to 15.6 in.) off the ground.



(A) 20 cm to 40 cm (7.9 in. to 15.6 in.)

IMPORTANT :

- **If the track is clogged with sand or gravel while working on soft ground, lift up one track with the help of the boom, arm and bucket and let the track rotate to shake off the sand and gravel.**



(A) "Rotate to shake off sand and gravel"

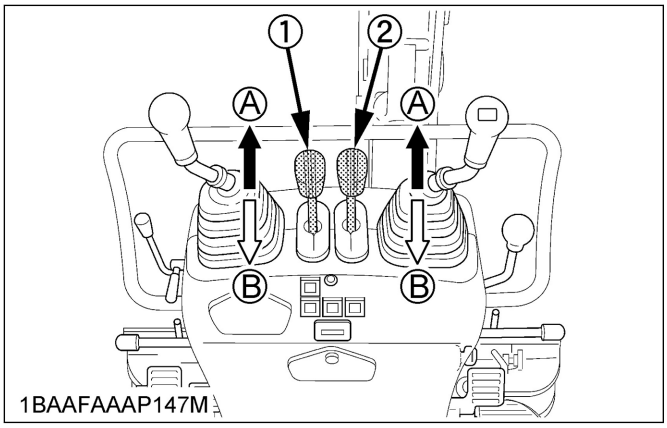
1. Drive levers (right, left)

⚠ WARNING

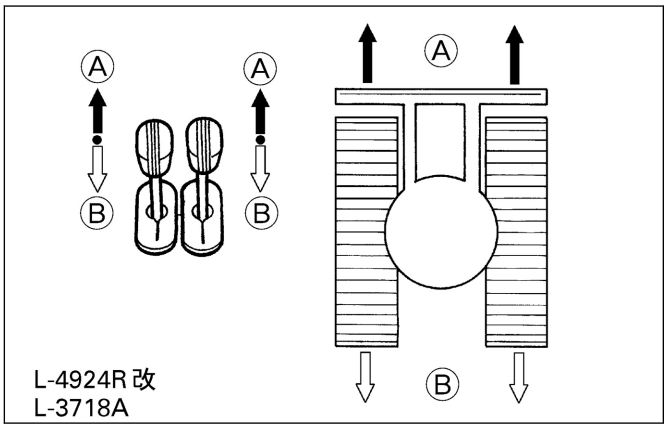
To avoid personal injury or death:

- **When driving the machine, keep the dozer blade in the front. To move the machine forward, move the drive levers to (A). To move in reverse, move the drive levers to (B) with dozer blade in front.**
  If the dozer blade is behind the operator station, then the controls are reversed. Moving the machine forward will require (B) and moving the machine backward will require (A), but this is not recommended.

Pushing the drive levers forward moves the machine forward and vice-versa. The dozer is located at the front of the machine.



(1) Drive lever (left)
(2) Drive lever (right)
(A) "Forward"
(B) "Backward"



(A) "Forward"
(B) "Backward"

TURNS

⚠ WARNING

To avoid personal injury or death:

- **Do not change direction on steep slopes, or the machine could tip over.**
- **Before changing direction, beware of people and obstacles in the work area.**

1. Pivot turn

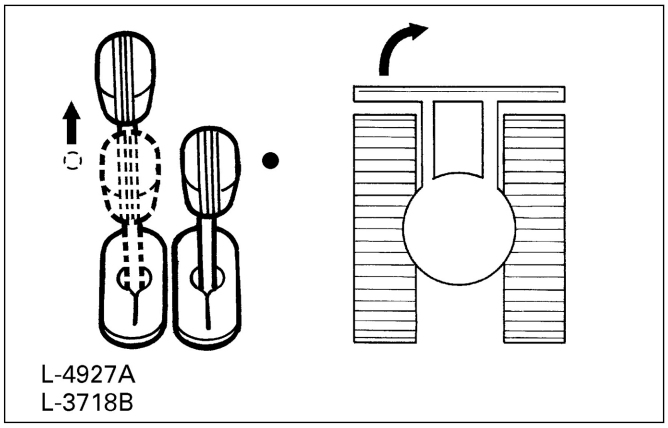
NOTE :

- **Movement as illustrated is done with the dozer blade in front of the operator.**

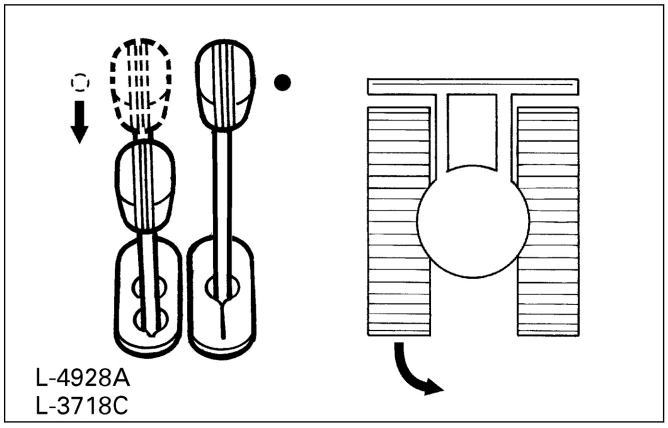
When the dozer is in the back, the steering direction is reversed (for example, when the left drive lever is pushed forward, the machine turns right, since the left track, seen from the operator, moves backward from the operator).

Change of direction while stationary

- Push the left drive lever forward, and the machine turns to the right.

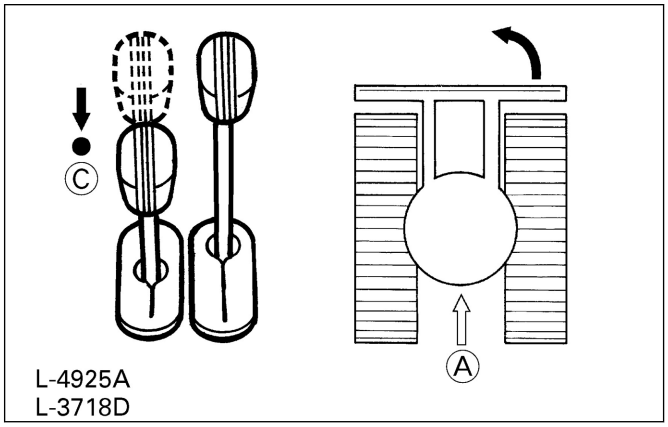


- Pull the left drive lever backward, and the machine turns to the left.



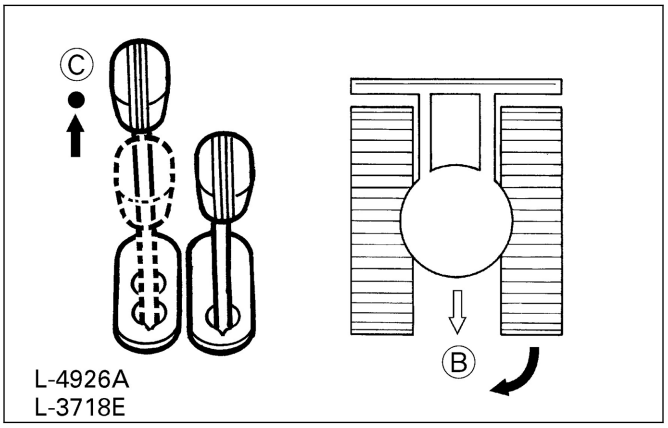
Change of direction while traveling

- While traveling forwards, bring the left drive lever into the *"NEUTRAL"* position, and the machine turns to the left.



(A) "Traveling forward"
(C) "NEUTRAL" position

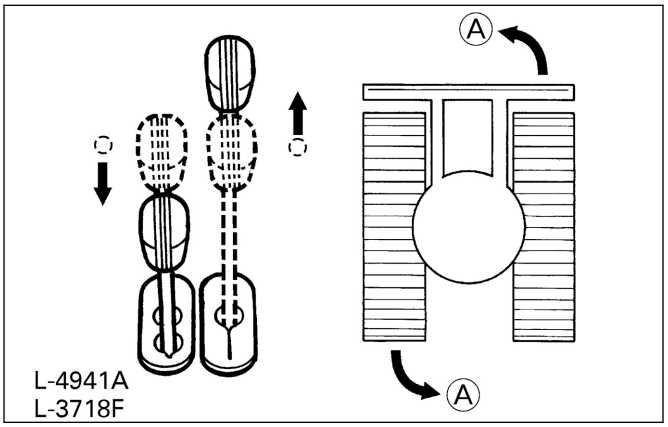
- While traveling backwards, bring the left drive lever into the *"NEUTRAL"* position, and the machine turns to the right.



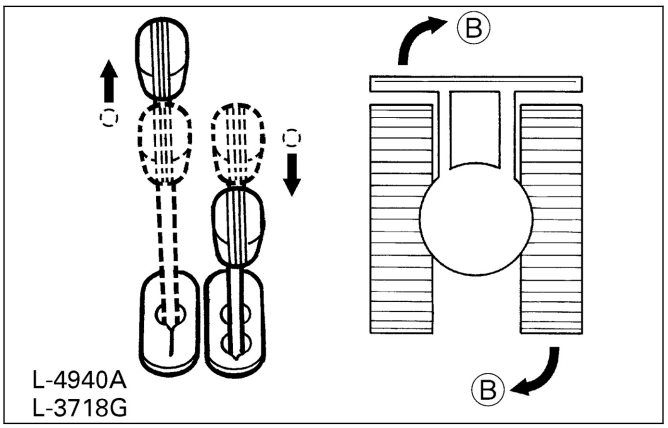
(B) "Traveling backward"
(C) "NEUTRAL" position

2. Spin turn

When both drive levers are activated in the opposite directions, both tracks will rotate with the same speed but in opposite directions. The center of rotation is the center of the machine.



(A) "Left spin turn"



(A) "Right spin turn"

UPHILL AND DOWNHILL DRIVING

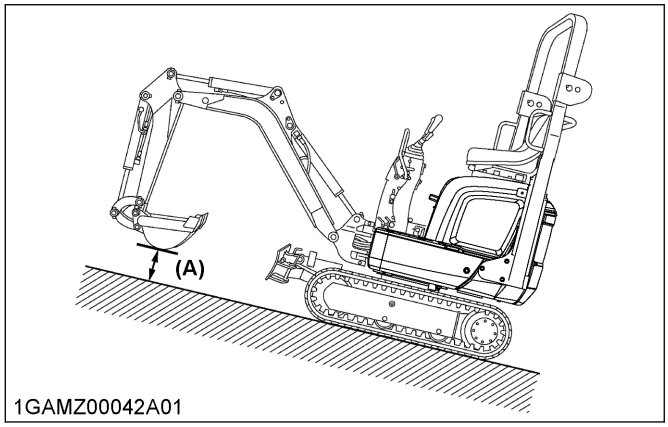
⚠ WARNING

To avoid personal injury or death:

- **Before traveling up or downhill, make sure that the tracks are set to standard track width (860 mm/ 33.9 in. [K008-5], 990 mm/ 39.0 in. [U10-5]).**
- **When traveling up or down a slope for long periods of time, engage the swivel lock pin. Also engage the swivel lock pin when standing on a slope for a long time or whilst the machine is being transported.**

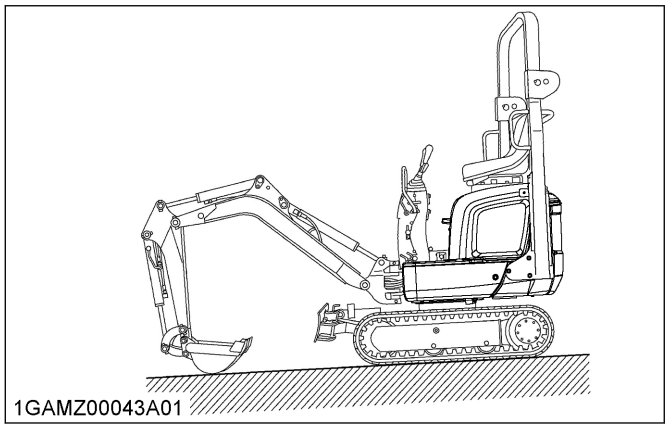
While traveling uphill, keep the lower edge of the bucket approximately 20 cm to 40 cm (7.9 in. to 15.6 in.) above the ground. Although the excavator will not slip easily because of the tracks, it is safer to let the bucket slide over the ground while traveling downhill. Always choose slow speed for uphill and downhill traveling.

Traveling uphill



(A) 20 cm to 40 cm (7.9 in. to 15.6 in.)

Traveling downhill

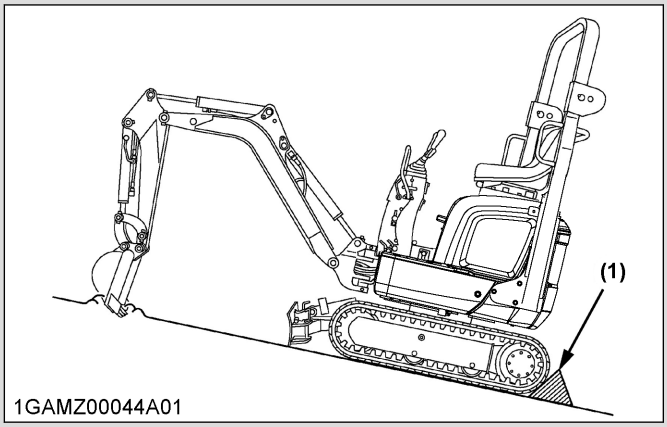


PARKING ON A SLOPE

WARNING

To avoid personal injury or death:

- **When the machine is parked or left unattended on a slope, put the bucket on the ground and place all control levers in their *"NEUTRAL"* positions, then brace the tracks with chocks.**



(1) Chock

ATTACHMENT OPERATION

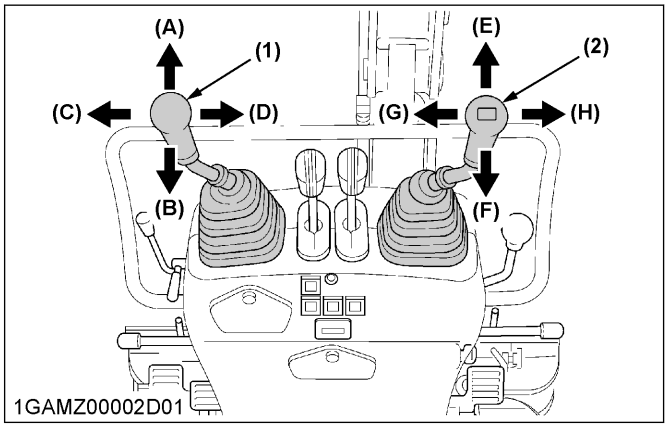
The levers move the boom, arm and bucket as well as the swing frame. The lever positions and functions are as follows:

WARNING

To avoid personal injury or death:

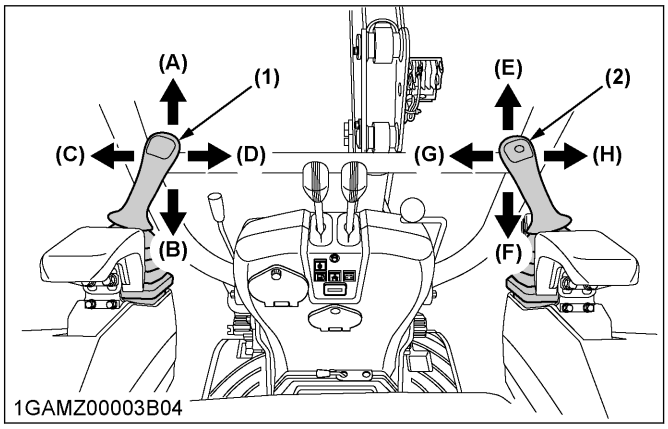
- **The control lever pattern on this machine is changeable. Before operation, check the current pattern setting.**
- **Before changing the control lever pattern, stop the engine.**
- **Before operation, check the surrounding area to ensure safety. Move the levers slowly.**
- **Make sure the control lever pattern has been changed as specified.**

[K008-5]



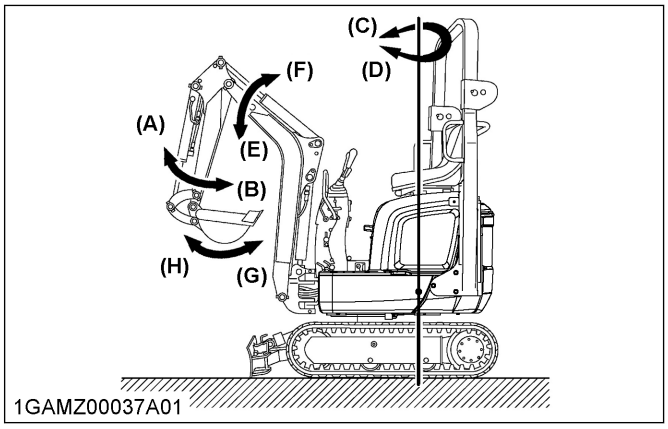
(1) Attachment control lever (left)
(2) Attachment control lever (right)

[U10-5]



(1) Attachment control lever (left)
(2) Attachment control lever (right)

Pattern B (ISO)



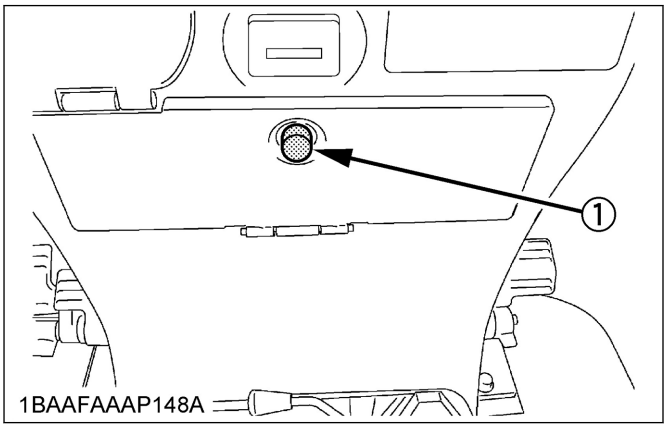
NOTE :

- **The machine has been factory set to pattern B (ISO).**

Lever position		Movement	
		Pattern A (JD)	Pattern B (ISO)
Left front attachment control lever	(A) (B) (C) (D)	Boom down Boom up Swivel left Swivel right	Arm up Arm crowd Swivel left Swivel right
Right front attachment control lever	(E) (F) (G) (H)	Arm up Arm crowd Bucket crowd Bucket dump	Boom down Boom up Bucket crowd Bucket dump

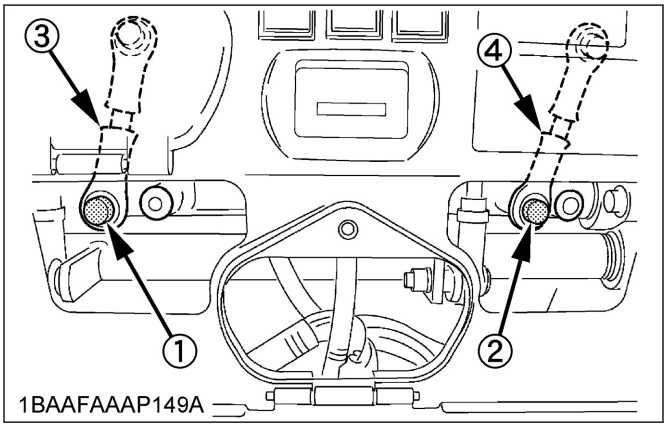
1. Pattern change (switching from Pattern A to Pattern B) [K008-5]

1. Stop the engine, lower the attachments to the ground, and release the pressure from the cylinders.
2. Turn the knob on the control box to open the cover.



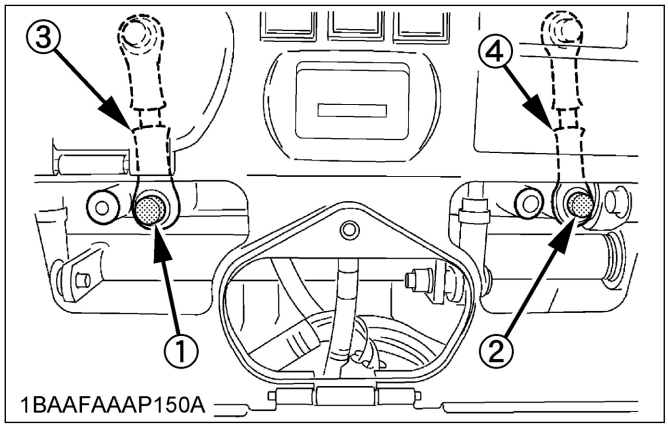
(1) Knob

3. Remove bolts (1) and (2).



(1) Bolt
(2) Bolt
(3) Joint
(4) Joint

4. Shift joints (3) and (4) to the right.



(1) Bolt
(2) Bolt
(3) Joint
(4) Joint

5. Reinsert and tighten bolts (1) and (2).

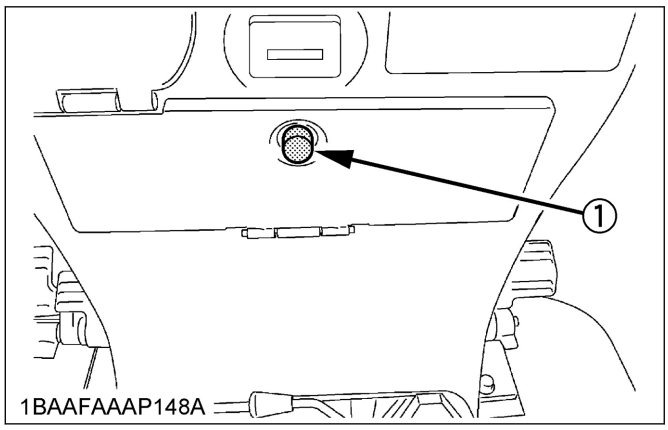
⚠ WARNING

To avoid personal injury or death:

- **The bolts (1) and (2) are a special type of bolt. Do not replace them with general bolts, because doing so can cause the machine to malfunction and become damaged.**

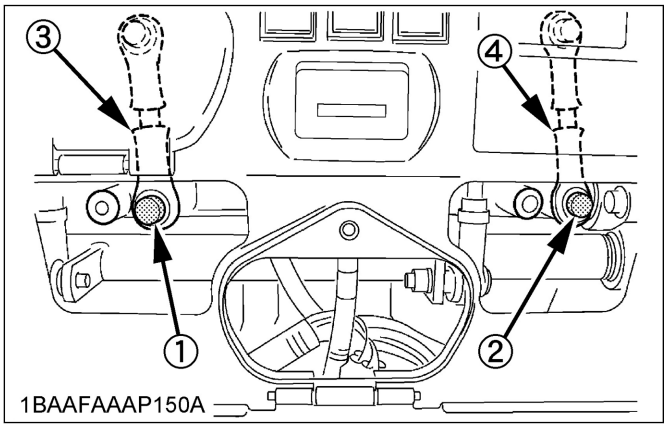
2. Pattern change (switching from Pattern B to Pattern A) [K008-5]

1. Stop the engine, lower the attachments to the ground, and release the pressure from the cylinders.
2. Turn the knob on the control box to open the cover.



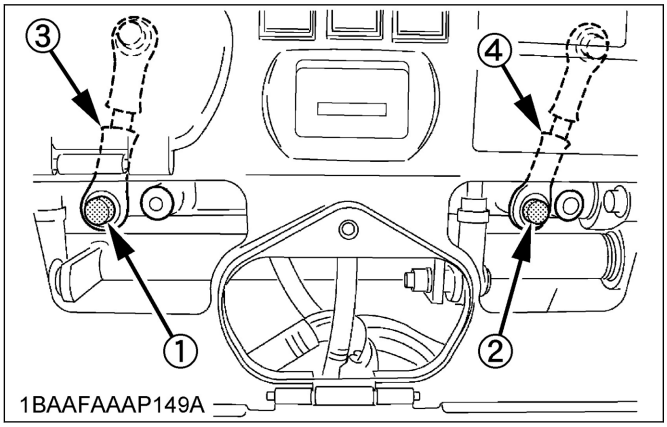
(1) Knob

3. Remove bolts (1) and (2).



(1) Bolt
(2) Bolt
(3) Joint
(4) Joint

4. Shift joints (3) and (4) to the left.



(1) Bolt
(2) Bolt
(3) Joint
(4) Joint

5. Reinsert and tighten bolts (1) and (2).

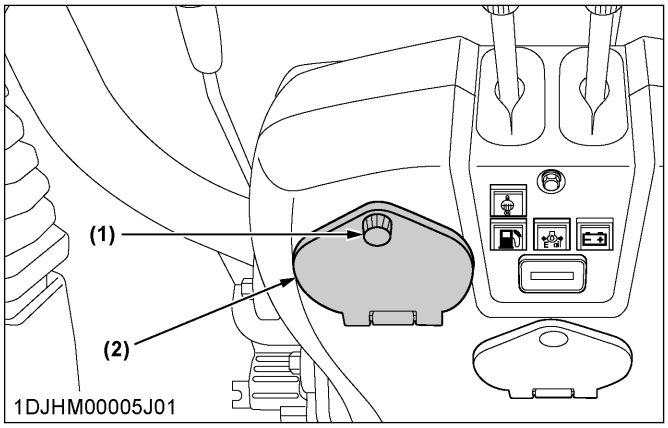
⚠ WARNING

To avoid personal injury or death:

- **The bolts (1) and (2) are a special type of bolt. Do not replace them with general bolts, because doing so can cause the machine to malfunction and become damaged.**

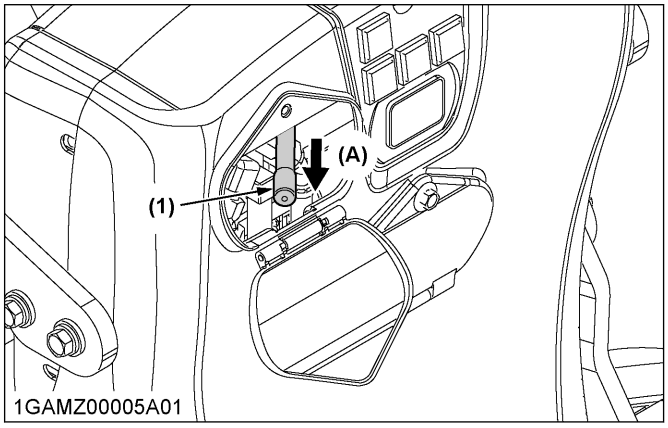
3. Pattern change (switching from Pattern A to Pattern B) [U10-5]

1. Stop the engine, lower the attachments to the ground, and release the pressure from the cylinders.
2. Turn the knob on the control box to open the cover.



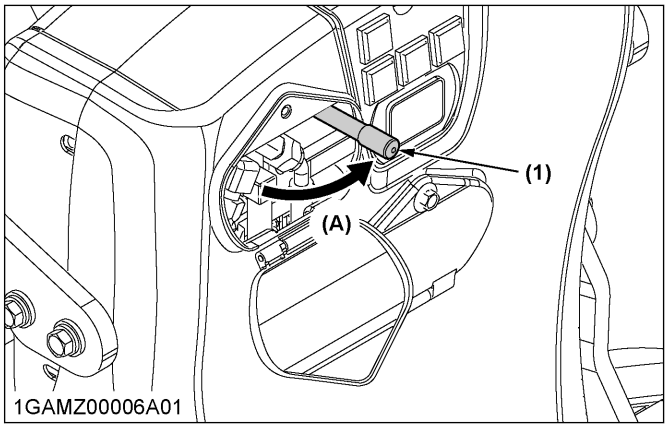
(1) Knob
(2) Cover

3. Pull out the lever.



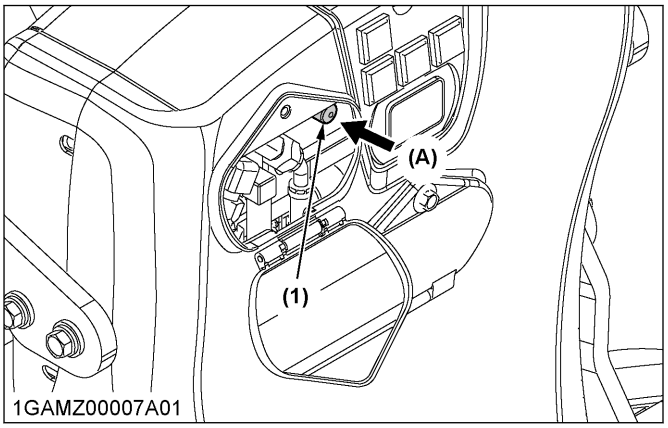
(1) Lever *(A) "Pull out"*

4. Move the lever as shown in the following illustration.



(1) Lever *(A) "Move"*

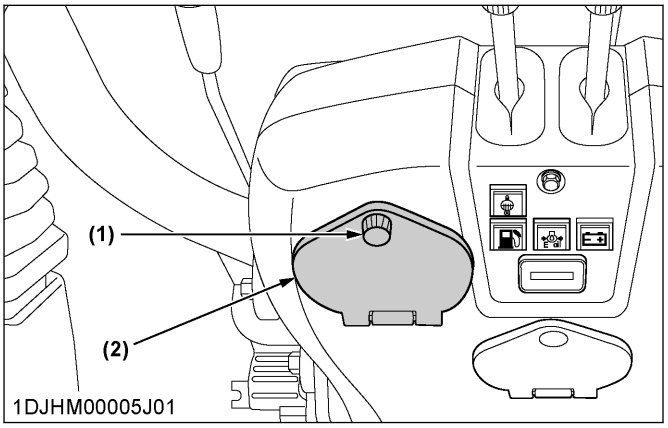
5. Reinsert the lever and close the cover.



(1) Lever (A) "Reinsert"

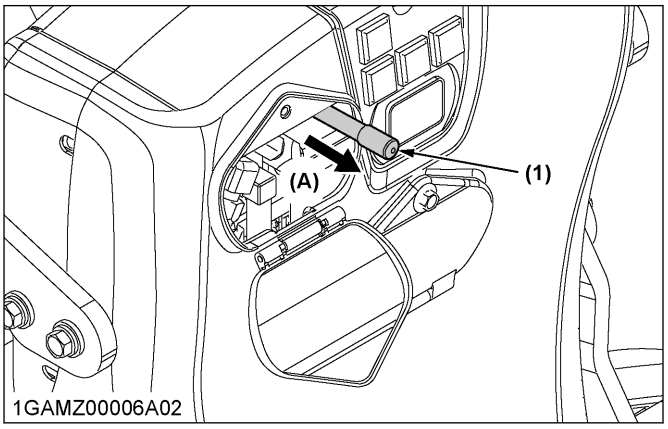
4. Pattern change (switching from Pattern B to Pattern A) [U10-5]

1. Stop the engine, lower the attachments to the ground, and release the pressure from the cylinders.
2. Turn the knob on the control box to open the cover.



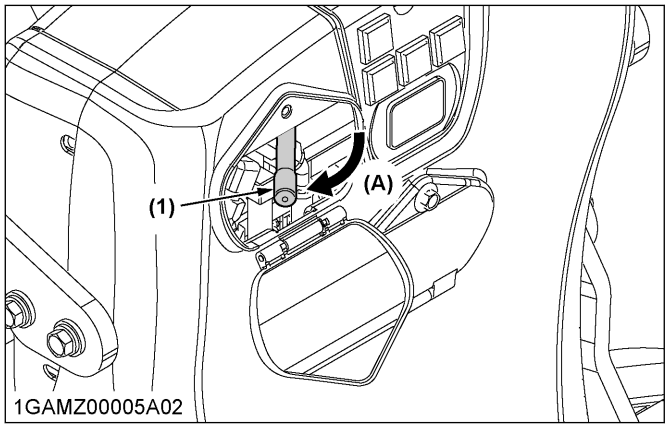
(1) Knob
(2) Cover

3. Pull out the lever.



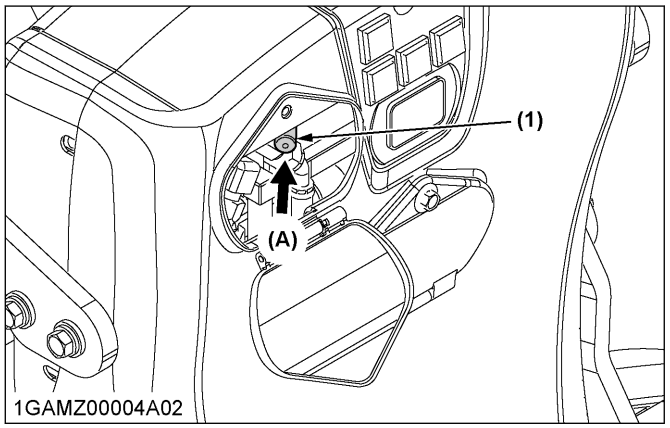
(1) Lever (A) "Pull out"

4. Move the lever as shown in the following illustration.



(1) Lever (A) "Move"

5. Reinsert the lever and close the cover.



(1) Lever (A) "Reinsert"

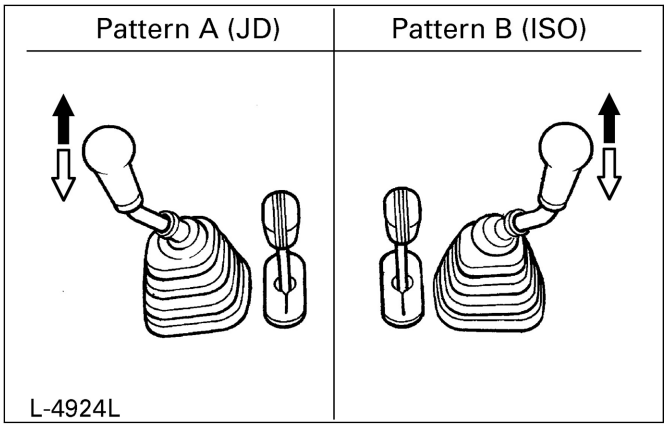
OPERATING THE BOOM

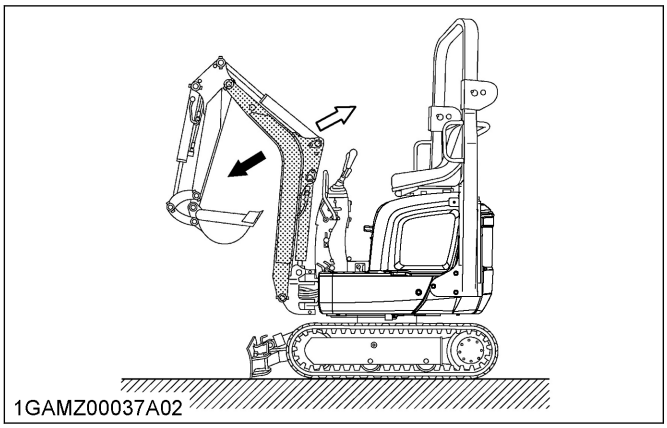
To raise the boom, pull the attachment control lever backward.

The boom is equipped with a cushion cylinder which helps prevent excavated material in the bucket from falling out. At low hydraulic oil temperature, for instance after starting the engine in cold weather, the cushioning function will be affected for a short period of time (approximately 3 to 5 seconds). This condition results from the viscosity of the hydraulic oil and is not a sign of malfunction.

The cushion cylinder will operate normally as the oil warms up.

To lower the boom, push the attachment control lever forward.



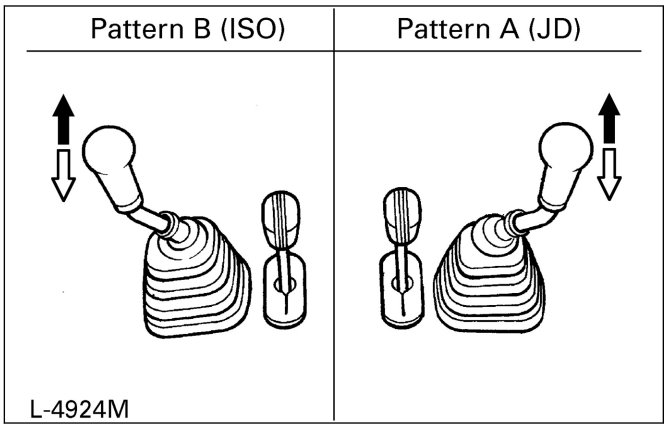


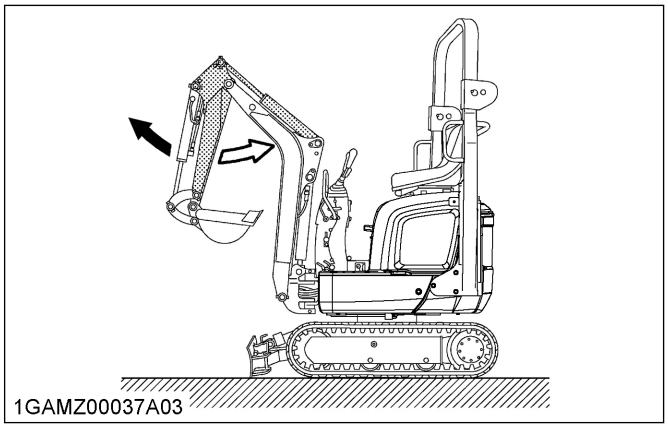
IMPORTANT :

- **When lowering the boom, make sure that it does not hit the dozer and that the bucket teeth do not touch the dozer.**

OPERATION OF THE ARM

- Pulling the attachment control lever back pulls the arm in.
- Pushing the attachment control lever forward moves the arm out.



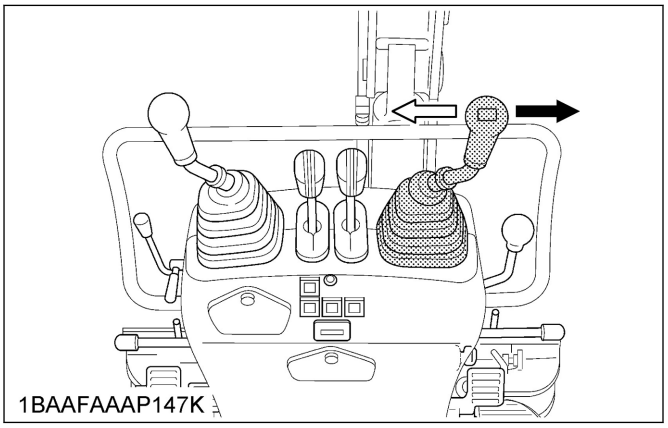


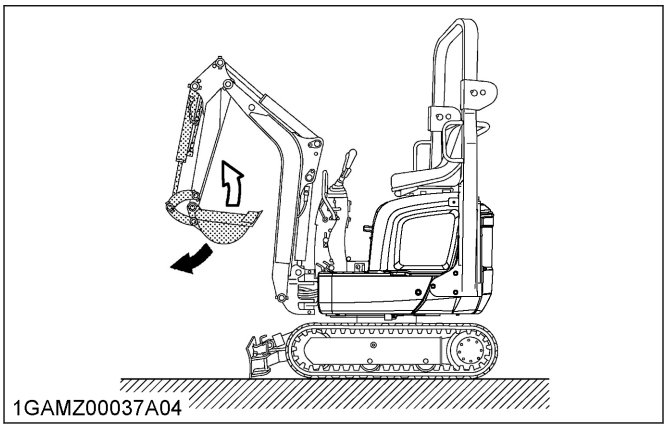
NOTE :

- **When pulling in the arm, the movement may stop for a short moment when the arm is in its vertical position. This is caused by the combined load of the arm and bucket moving the cylinder piston away from the hydraulic flow causing a delay in the cylinder action, until the flow catches up with cylinder piston. This is a characteristic of the hydraulic system and is not a sign of a malfunction.**

OPERATION OF THE BUCKET

- To dig using the bucket, move the right attachment control lever left from the *"NEUTRAL"* position.
- Moving the control lever right moves the bucket outwards and empties its contents.





SWIVEL AND BOOM SWING OPERATION

WARNING

To avoid personal injury or death:

- **When working in groups, always let the others know the operation which is going to be performed before operating the machine.**
- **Keep others away from the machine working area.**
- **Lock the boom swing pedal when the boom swing function is not used.**

1. Swivel operation

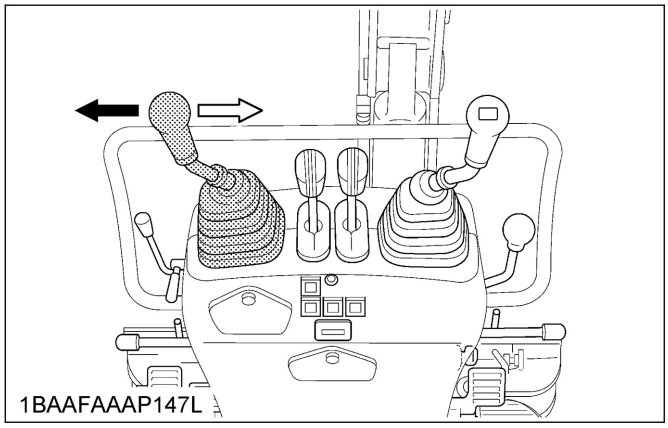
WARNING

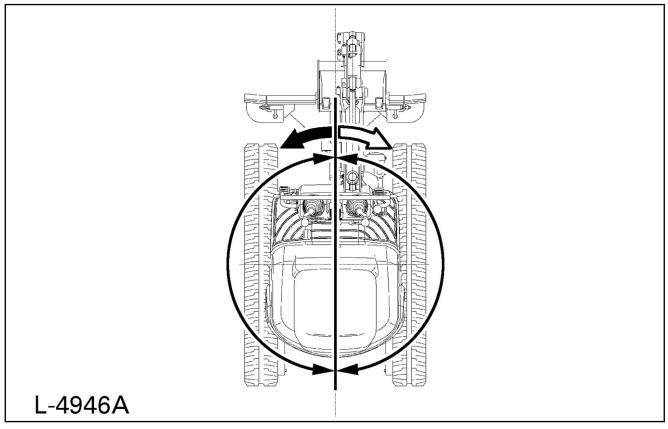
To avoid personal injury or death:

- **When working in groups, always let the others know what you are going to do before you do it.**
- **Keep away from the working area.**

IMPORTANT :

- **Do not operate the left attachment control lever abruptly from right to left (or vice versa). This causes high impact loading on the swivel gear and the swivel motor, shortening the life of the machine.**
- **Unlock the swivel lock pin before carrying out swivel operations.**
- Move the control lever to the left and the upper structure will turn to the left.
- Move the control lever to the right and the upper structure will turn to the right.



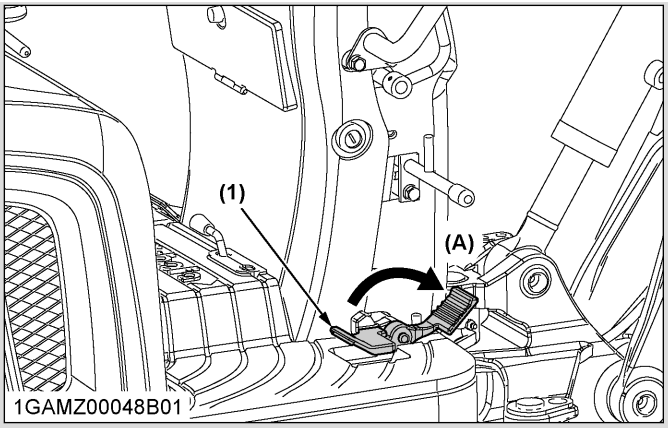


2. Boom swing operation

WARNING

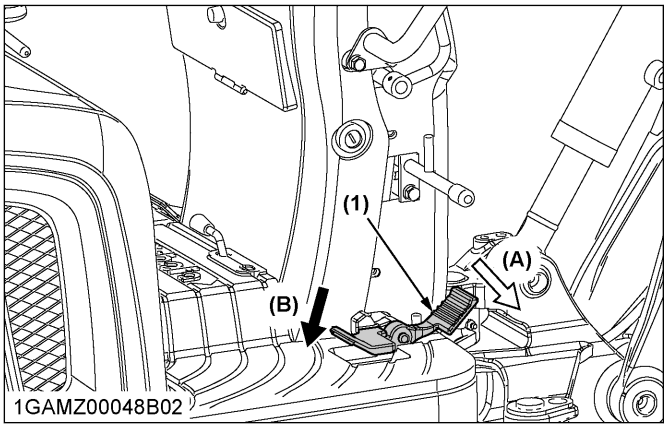
To avoid personal injury or death:

- **Always keep your toes within the edge of foot step, otherwise your toes can get caught between the swing frame and the boom or boom cylinder.**
- **When boom swing operation is not in use, fold the boom swing pedal forward to fix the pedal in place to avoid unexpected movement.**

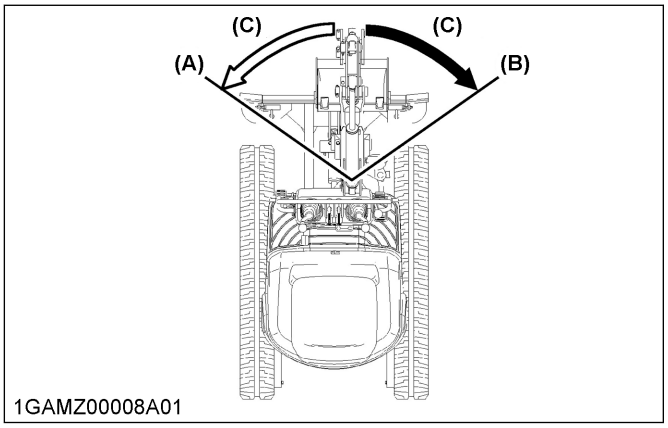


(1) Boom swing pedal *(A) "Fix"*

- Step on the front of the pedal to swing the boom to the left.
- Step on the rear of the pedal to swing the boom to the right.



(1) Boom swing pedal *(A) Swing left*
(B) Swing right



(A) Swing left
(B) Swing right
(C) 55°

TRACK WIDTH ADJUSTMENT AND DOZER OPERATION

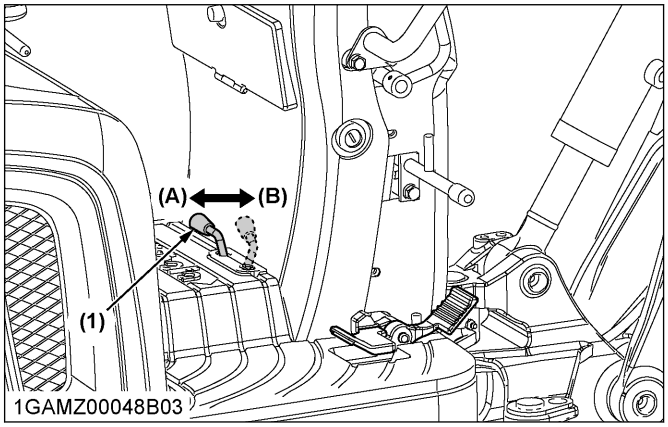
⚠ WARNING

To avoid personal injury or death:

- **Do not operate in narrow track width, as there is a risk of the machine tipping over. Always operate in standard track width, except when passing through narrow spaces on even ground.**
- **To change the track width or use the dozer, set the track width change and dozer selection lever fully to the desired position. If the lever is not positioned firmly, an unexpected portion of the machine may move.**

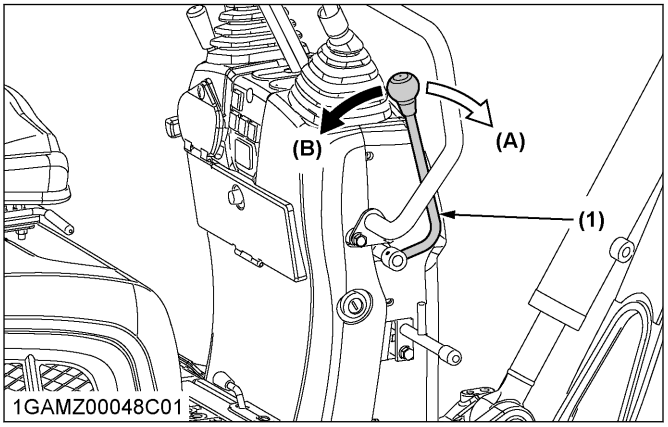
1. Adjusting the track width

1. Set the track width change and dozer selection lever to the *"Track width change"* position (B).



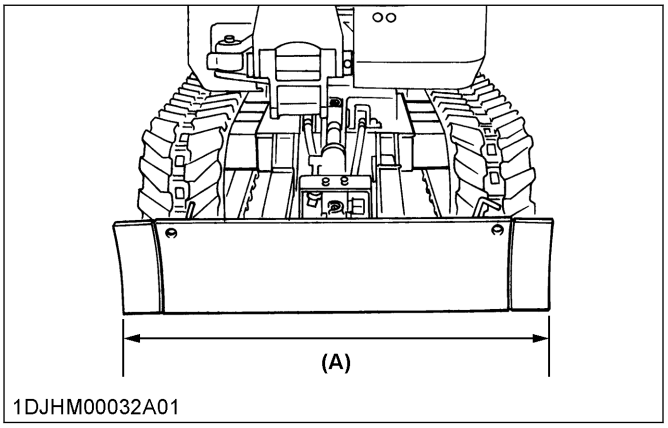
(1) Track width change and dozer selection lever *(A) "Dozer"*
(B) "Track width change"

2. Adjust the track width as follows:
   - Push the control lever forward to decrease the track width from standard width to narrow width.
   - Pull the control lever backward to increase the track width from narrow width to standard width.



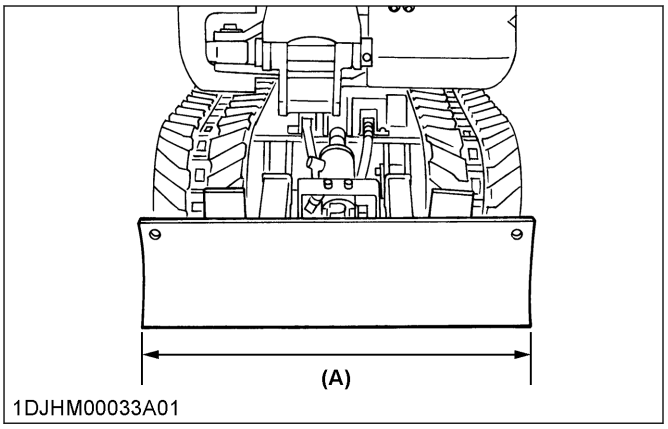
(1) Control lever
(A) "Decrease"
(B) "Increase"

Standard width



(A) 860 mm/ 33.9 in. [K008-5]
990 mm/ 39.0 in. [U10-5]

Narrow width



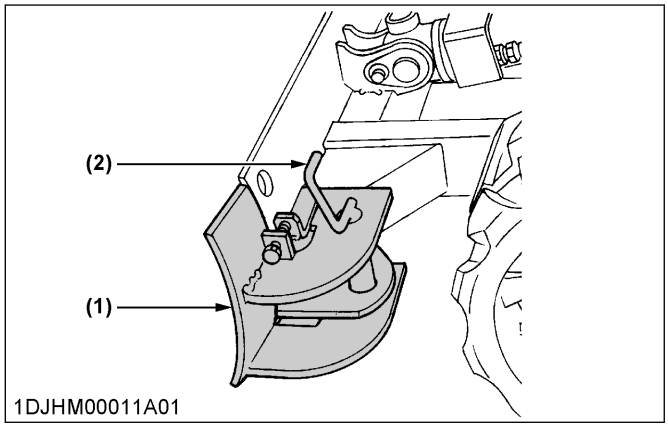
(A) 700 mm/ 27.6 in. [K008-5]
750 mm/ 29.5 in. [U10-5]

3. After changing the track width, set the track width change and dozer selection lever to the *"Dozer"* position (A).

2. Adjusting the dozer width

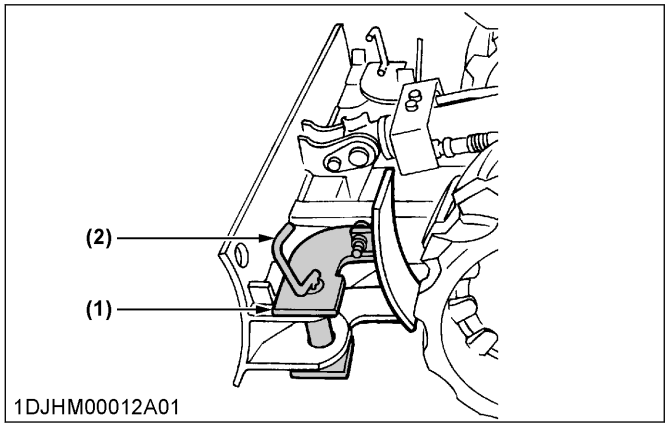
To change from standard width to narrow width:
1. Pull out the fixing pin (2) and remove the extension dozer (1).
2. Set the extension dozer (1) as in the following illustrations and insert the fixing pin (2).
3. Perform the same operations on the opposite side (left or right).

Standard width



(1) Extension dozer
(2) Fixing pin

Narrow width



(1) Extension dozer
(2) Fixing pin

Dozer widths

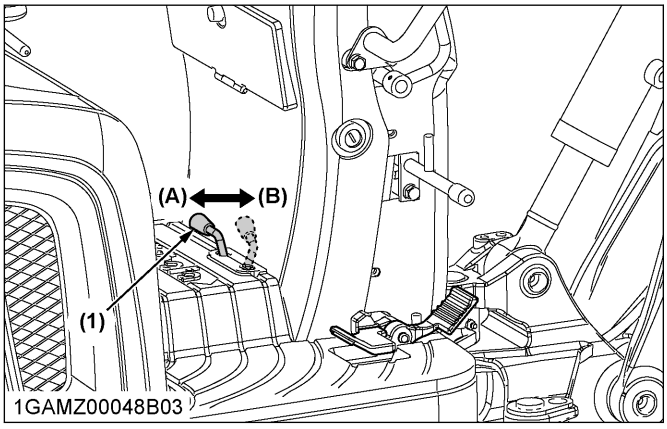
K008-5	Standard width	860 mm (33.9 in.)
	Narrow width	700 mm (27.6 in.)
U10-5	Standard width	990 mm (39.0 in.)
	Narrow width	750 mm (29.5 in.)

NOTE :
- **The operation for changing from standard width to wide width is the same.**

3. Operating the dozer

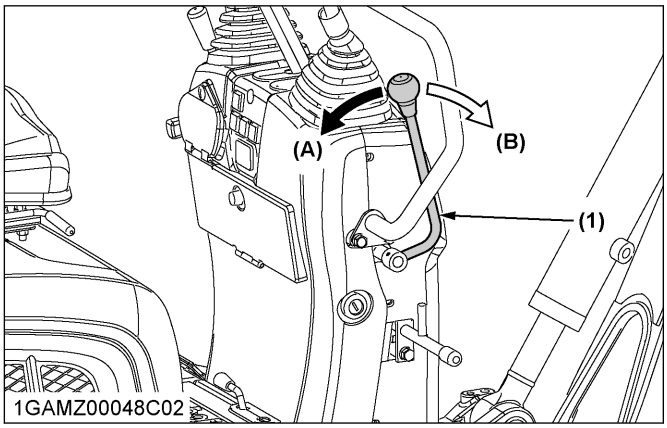
NOTE :

- **While operating the dozer, the track width change and dozer selection lever must be in set position (A).**

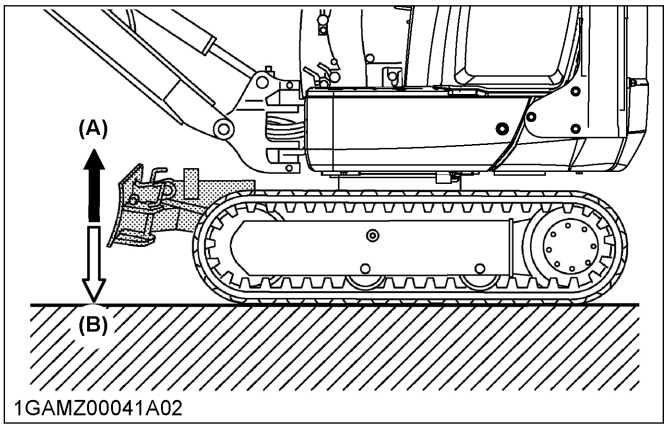


(1) Track width change and dozer selection lever
(A) "Dozer"
(B) "Track width change"

- Pulling the control lever back raises the dozer.
- Pushing the control lever forward lowers the dozer.



(1) Control lever
(A) "Raise"
(B) "Lower"



(A) "Raise"
(B) "Lower"

- While undertaking earth moving work, control both drive levers with the left hand and the control lever with the right hand.

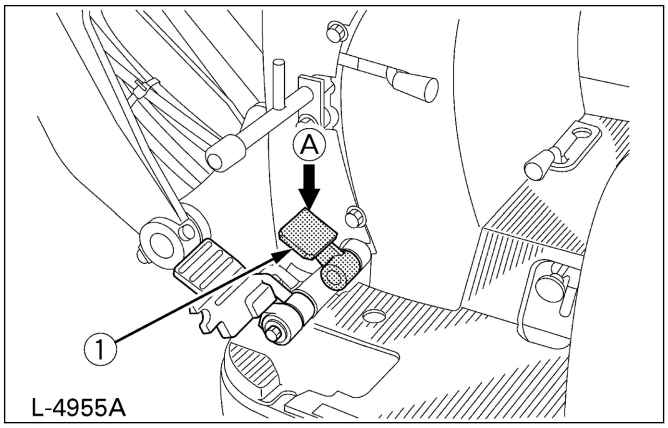
TRAVEL SPEED PEDAL

⚠ WARNING

To avoid personal injury or death:

- **Do not use the drive speed pedal when traveling uphill, on uneven terrain, or when the travel resistance is high.**

- While operating the drive levers, step on the travel speed pedal, and the travel speed increases.
- Release the pedal, and the machine reverts from acceleration mode back to normal speed.

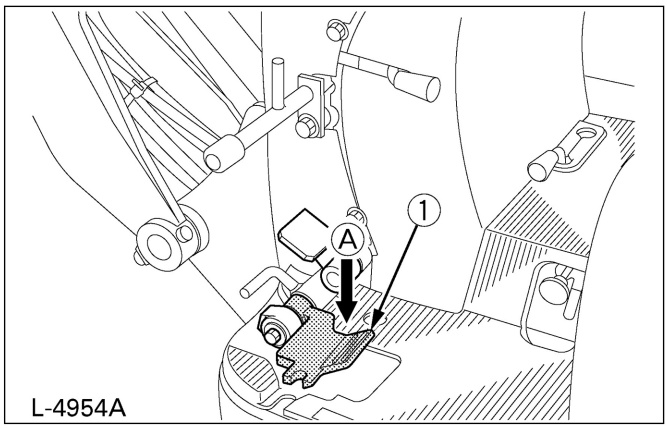


(1) Travel speed pedal
(A) "Push down"

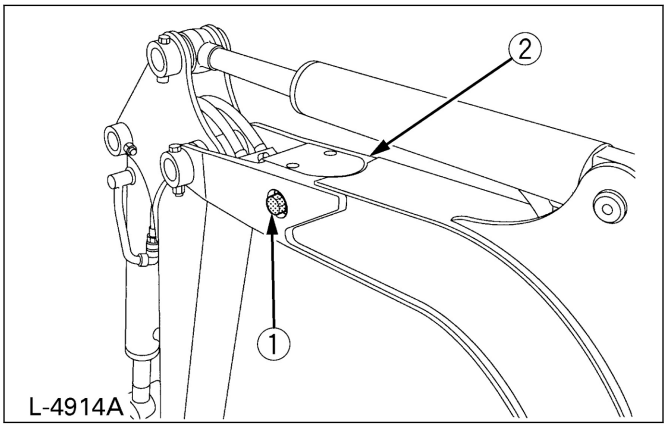
SERVICE PORT PEDAL

This pedal is used to operate attachments that require hydraulic power.

Step on the service port pedal and pressured oil starts flowing through the *"P"* port from the control valve. The oil then returns through the *"T"* port into the tank.



(1) Service port pedal
(A) "Operate"



(1) "P" (Pressure) port
(2) "T" (Return) port

NOTE :

- **When the service port is not in use, put the cover on the pedal. The pedal gets fixed in place and can be used as footrest.**

1. Locking the service port pedal

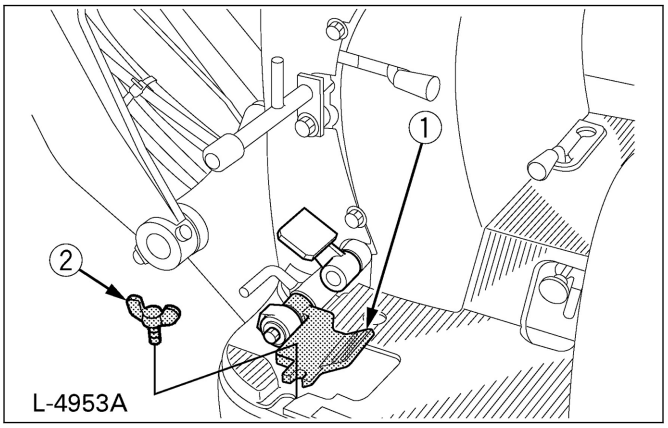
⚠ WARNING

To avoid personal injury or death:

- **If the service port function needs to be stopped urgently while the service port pedal is locked, such as when a person approaches the machine, turn the starter key to the [OFF] position to stop the engine.**

The service port pedal can be locked down in order to use attachments that require hydraulic power.
In order to be able to lock the service port pedal, it is necessary to make a hole in the floor mat using a knife or other such tool so that the bolt can pass through.

1. Retrieve the bolt from the tool kit.
2. Insert the bolt and tighten it until the service port pedal is fully depressed.



(1) Service port pedal
(2) Bolt

IMPORTANT :

- **Do not lock the service port pedal when the service port is not in use.**
  Locking the pedal can cause the hydraulic oil temperature to rise, which leads to problems with the hydraulic components.

IMPORTANT INFORMATION ON MACHINE OPERATION

⚠ WARNING

To avoid personal injury or death:

- **After operation, clean the machine, lubricate all of the movable parts, and check the oil level.**

- Do not try to crush concrete or boulders using side swings with the bucket. Also avoid using side sweeps of the bucket to move earth piles.
- Under all circumstances avoid the following operations:
  - Excavation using the gravitational impact of the machine
  - Compacting of gravel or soil using the dropping action of the bucket
  - Excavation using the traveling power of the machine
- If soil adheres to the bucket, do not try to violently shake off the soil. This can cause damage to the machine. Instead, use the following technique:
  Shake off adhering soil when the bucket is being emptied by moving the bucket out to the maximum stroke of the cylinder. Should this not suffice, swing out the arm as far as possible and operate the bucket back and forth.
- Do not hit the dozer with the boom cylinder.
  Make sure that the boom cylinder does not hit the dozer when carrying out deep excavation. If necessary, swivel the upper structure so that the dozer is at the back of the machine.
- Pay attention when pulling in the bucket.
  When pulling in the bucket (for driving or transportation) avoid hitting the dozer.
- Avoid collisions.
  When moving the machine, pay attention so that the dozer does not collide with boulders or other such obstructions.
  Such collisions substantially shorten the life span of the dozer and the cylinder.
- Support the machine correctly.
  When stabilizing the machine with the dozer, lower the whole dozer fully to the ground.
- If the water or mud level reaches higher than the top of the tracks, the swivel bearing, swivel motor gear, and ring gear may be exposed to mud, water, and other foreign objects.

The machine must be properly pressure washed after each use.
- Thoroughly clean the area around the swivel bearing, swivel motor gear, and ring gear to remove foreign objects.
- Inspect the swivel motor oil sump (if equipped) for water contamination. If water is present, refer to operator's manual for lubricant replacement procedure.
- Refer to operator's manual for proper swivel bearing, swivel motor gear, and ring gear lubrication procedures.
- Reinstall any protective covering if removed earlier.

FOLDABLE ROPS [K008-5]

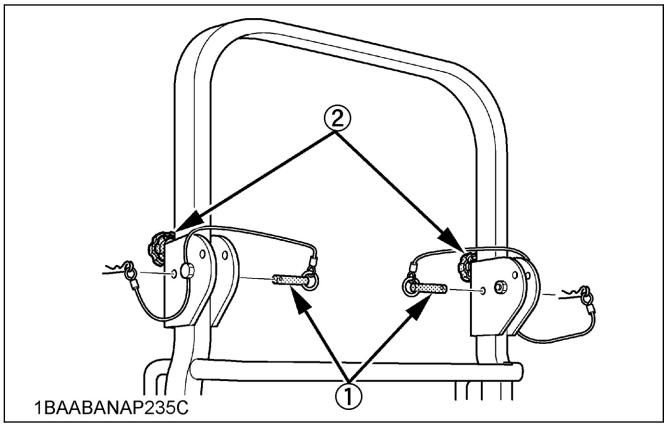
⚠ WARNING

To avoid personal injury or death:
- **When raising or folding the ROPS, stop the engine and remove the key.**
  Always perform this function from a stable position at the rear of the machine.
- **Fold the ROPS down only when absolutely necessary. After folding the ROPS, raise it back up and lock it again as soon as possible.**
- **When operating the machine with the ROPS folded, observe the following points:**
  - **Do not wear the seat belt.**
  - **Operate with the tracks at the widest width possible.**
  - **Avoid steep or uneven terrain.**

  Kubota recommends operating the machine with the ROPS up and the seat belt fastened in almost all situations.

1. Folding the ROPS

1. Loosen both looseness-preventing-knob bolts.
2. Remove both set pins.

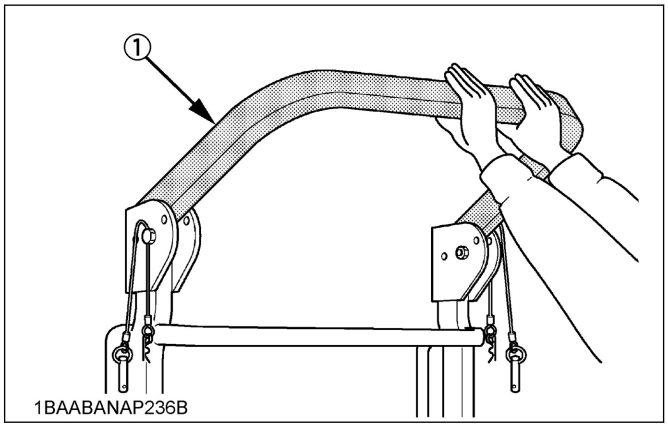


(1) Set pin
(2) Looseness-preventing-knob bolt

3. Fold the ROPS as shown in the following illustration.

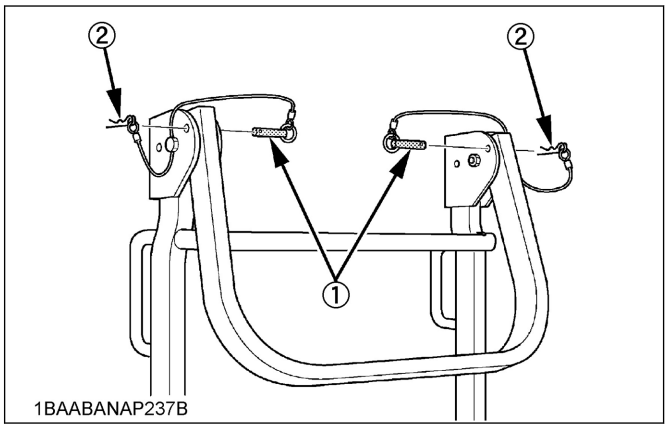
⚠ WARNING

To avoid personal injury or death:
- **Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.**



(1) ROPS

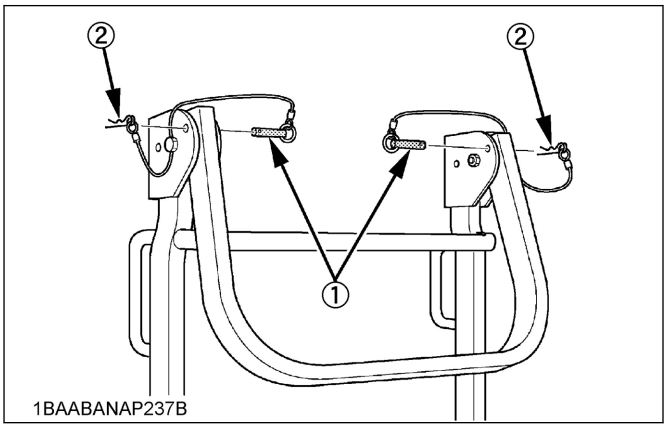
4. Align the set pin holes and insert the set pins.
5. Slightly tighten the set pins and secure them with the hair pin cotters.



(1) Set pin
(2) Hair pin cotter

2. Raising the ROPS to the upright position

1. Remove the hair pin cotters and the set pins.



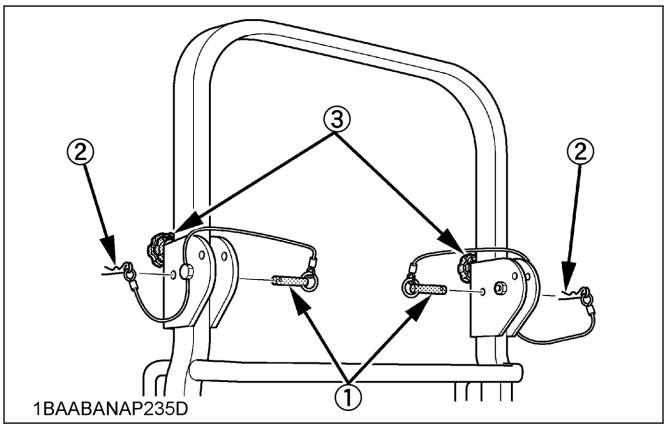
(1) Set pin
(2) Hair pin cotter

2. Raise the ROPS to the upright position.

⚠ WARNING
To avoid personal injury or death:
- **Raise the ROPS slowly and carefully.**

3. Align the set pin holes and insert the set pins.
4. Secure them with the hair pin cotters.
5. Tighten both looseness-preventing-knob bolts.

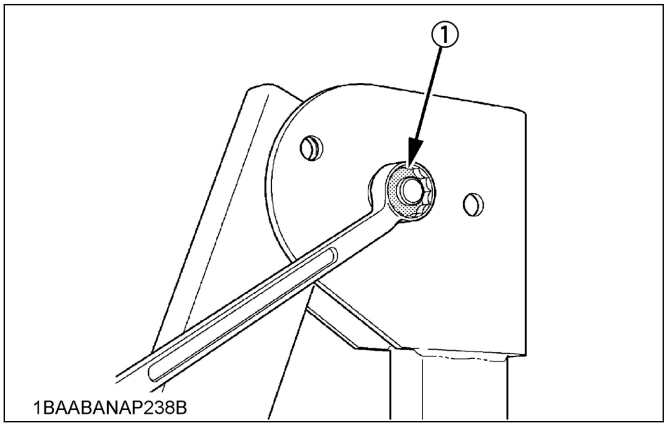
⚠ WARNING
To avoid personal injury or death:
- **Make sure that both set pins are properly installed as soon as the ROPS is in the upright position and secured with the hair pin cotters.**



(1) Set pin
(2) Hair pin cotter
(3) Looseness-preventing-knob bolt

3. Adjustment of the foldable ROPS

- Adjust the free fall of the ROPS upper frame regularly.
- If you feel less friction than before when folding the ROPS, tighten the self locking nut until you feel the normal amount of friction.



(1) Self locking nut

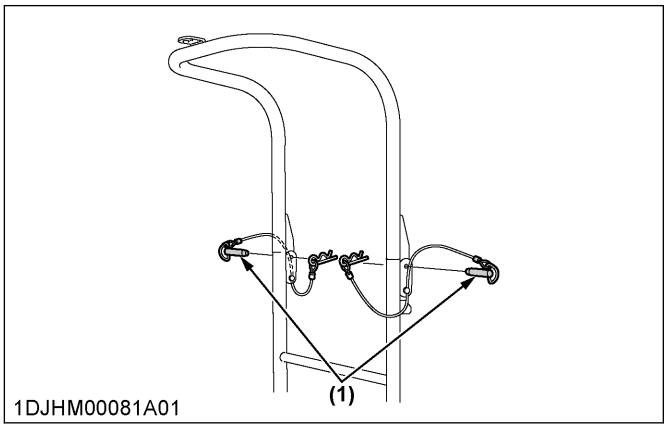
ROPS BAR [U10-5]

⚠ WARNING
To avoid personal injury or death:
- **Before extending or folding the ROPS bar, stop the engine and remove the key.**
  Perform this task on flat, stable ground.
- **Fold the ROPS down only when absolutely necessary. After folding the ROPS, raise it back up and lock it again as soon as possible.**
- **When extending or folding the ROPS bar, be careful not to get your hands caught by the joints.**
- **Before folding the ROPS bar, keep the front attachment at the center of swing and the bucket on the ground.**
- **When operating the machine with the ROPS folded, observe the following points:**
  - **Do not wear the seat belt.**
  - **Operate with the tracks at the widest width possible.**
  - **Avoid steep or uneven terrain.**

  Kubota recommends operating the machine with the ROPS up and the seat belt fastened in almost all situations.

1. Folding the ROPS bar

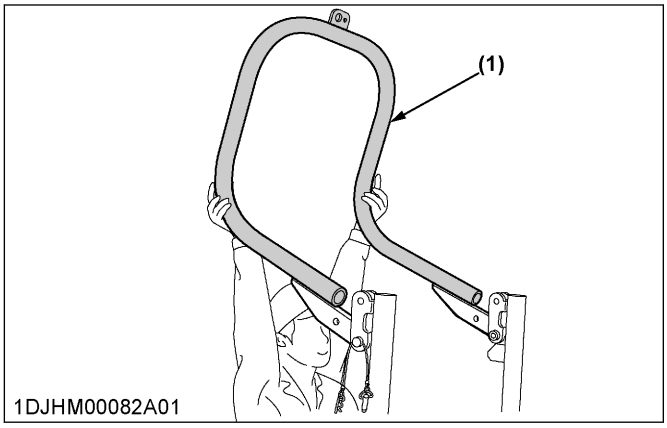
1. Remove both the lock pins.



(1) Lock pins

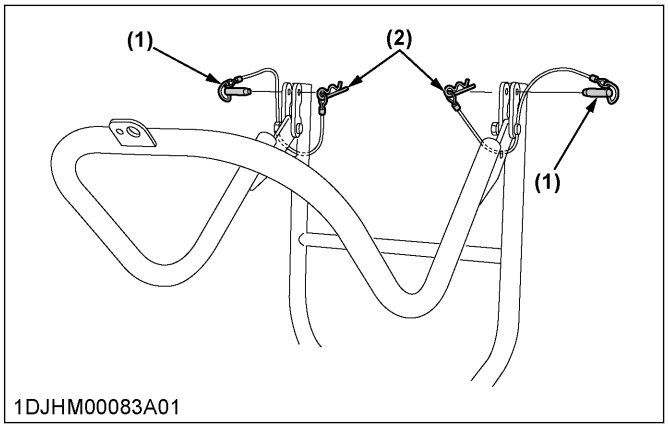
2. Fold the ROPS bar.

⚠ WARNING
To avoid personal injury or death:
- **Grip the ROPS bar firmly with both hands, and slowly pull it down.**



(1) ROPS bar

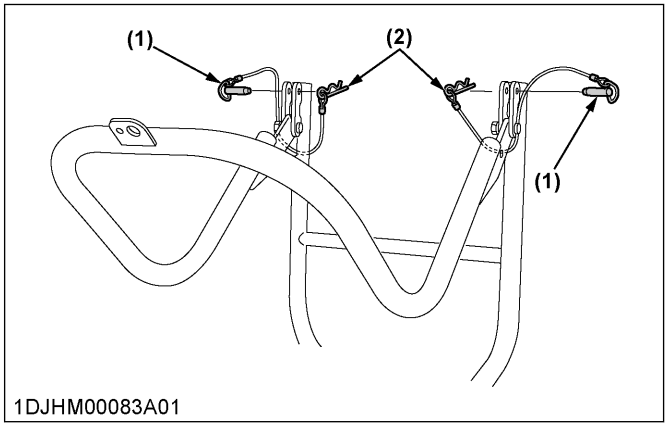
3. Line up the lock pin holes and insert both of the lock pins.
4. Apply the snap pins to fix the lock pins.



(1) Lock pins
(2) Snap pins

2. Setting the ROPS bar upright

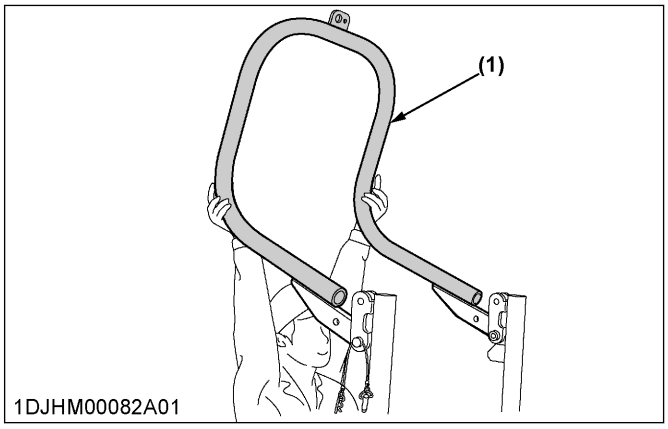
1. Remove both of the snap pins and both of the lock pins.



(1) Lock pins
(2) Snap pins

2. Lift the ROPS bar upright.

⚠ WARNING
To avoid personal injury or death:
- **Lift the ROPS bar slowly.**



(1) ROPS bar

3. Line up the lock pin holes and insert both of the lock pins.
4. Apply the snap pins to fix the lock pins.

WARNING

To avoid personal injury or death:

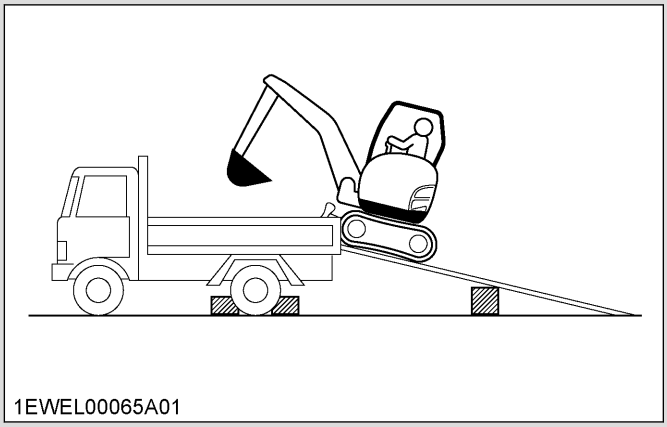
- **Set the ROPS bar upright and fix it with the lock pins. Immediately make sure that both the snap pins are correctly positioned.**

TRANSPORTING THE MACHINE ON A VEHICLE

⚠ DANGER

To avoid personal injury or death:

- **No directional changes should be made when the machine is on the ramp. Should a change of direction be necessary, drive off the ramp completely and make the turn.**
- **When driving forwards or backwards onto the vehicle, or when swiveling the upper body, make sure that the gates of the vehicle will not be damaged.**



- **When the machine reaches the point between the ramp and the bed, halt and then move very slowly until the machine reaches the horizontal position.**
- **Move the machine onto the vehicle only with the arm completely pulled in.**
- **Do not jack up the machine using its boom to load or unload the machine from the vehicle. Doing this is dangerous.**
- **Make sure that the ramp is of sufficient capacity and securely connected to the vehicle to safety support the machine throughout the loading / unloading operation.**

TRANSPORTING ON A VEHICLE

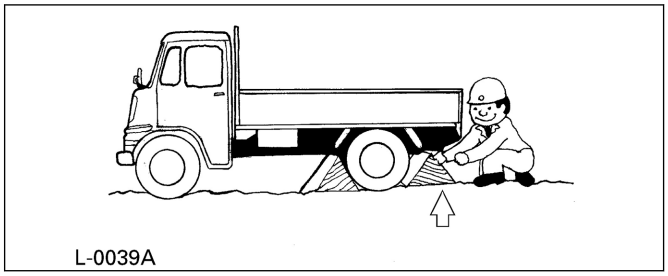
⚠ WARNING

To avoid personal injury or death:

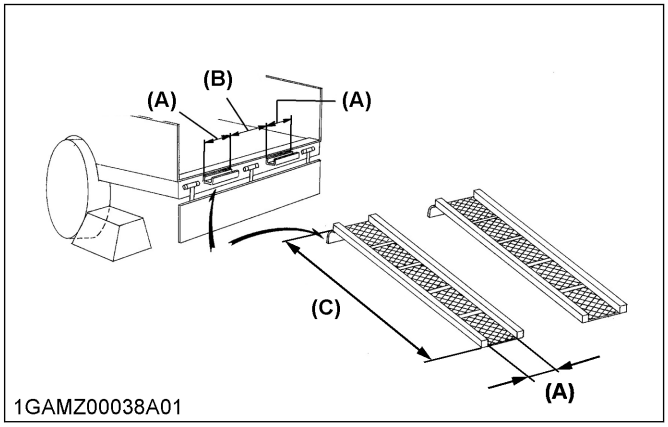
- **After loading the machine on the vehicle, lower the bucket and dozer onto the bed. Lock the swivel frame with the swivel lock pin.**

Prepare a platform to load or unload the machine.
Take following steps when using ramps.

1. Apply the parking brakes of the vehicle, and block the drive wheels from both sides.

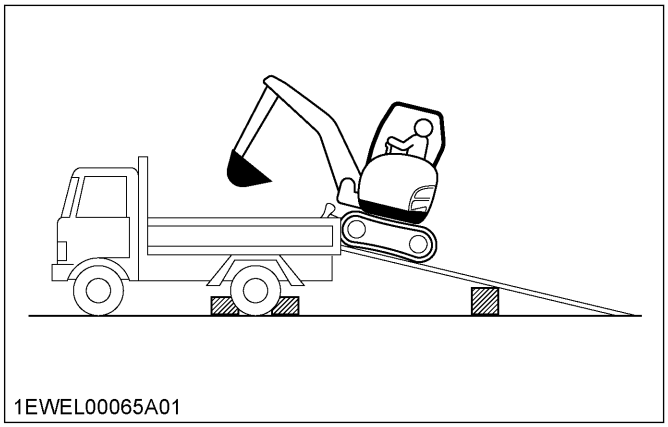


2. Use mounting brackets to secure the ramp properly. Connect the ramp directly to the bed.



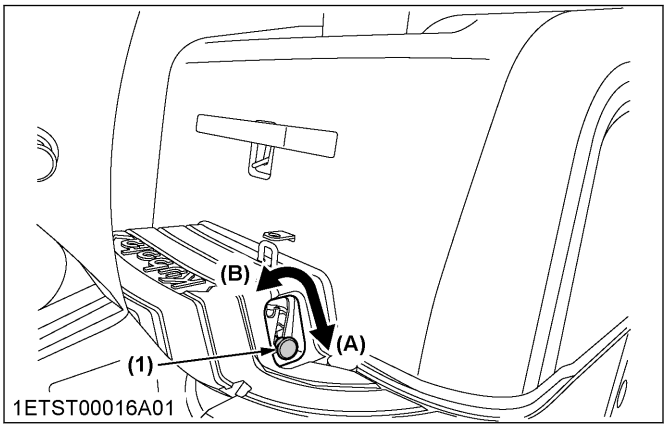
(A) 250 mm to 300 mm (9.8 in. to 11.8 in)
(B) 350 mm (13.8 in.)
(C) 5000 mm (16 ft. 4.9 in.)

3. For additional safety, use blocks or supports under the ramp and the bed.



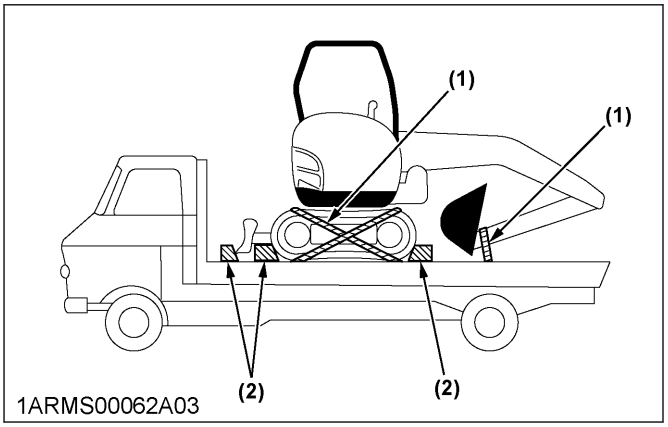
4. Completely align the ramp and the tracks and then drive the machine slowly up the ramp with the dozer in the front.
5. After ensuring that the tracks are completely on the bed, swivel the upper body around to the back of the vehicle.

6. Lock the swivel frame with the swivel lock pin.



(1) Swivel lock pin
(A) Lock
(B) Release

7. Block the tracks and chain down the machine.



(1) Chain
(2) Block

8. Before unloading, remove the swivel lock pin and then raise the dozer and bucket from the bed.

LIFTING THE EXCAVATOR

DANGER

To avoid serious injury or death:

- **The correct instructions for safe handling are described here. Read these instructions carefully before moving the machine. Make sure that the operating personnel has read the operator's manual carefully.**

BASIC POINTS WHEN LIFTING WITH CABLES OR STRAPS

- The lifting and crane operation is to be undertaken according to the safe operation guidelines described.
- The equipment used for lifting mentioned in these instructions are only given as reference. The standards concerning strength, control and other details are based on the respective applicable guidelines.

SAFETY ASPECTS WHEN LIFTING WITH CABLES OR STRAPS

Abide by the following steps when lifting:

- Do not lift loads that exceed the maximum load capacity of the crane.
- Choose correct equipment suitable to the weight, size and form of the load.
- Do not use steel cables or straps that show signs of wear and tear.
- First, assess the center of gravity of the load, position the hook directly over the load and lift the load so that the center of gravity of the load is as low as possible.
- The steel cables or straps must be fixed in the middle of the hook.
- The load must be lifted vertically from the ground.
- Do not enter the working area under suspended loads and do not move the load over people. The load must only be moved in an area where the balance can be easily maintained.

LIFTING THE MACHINE

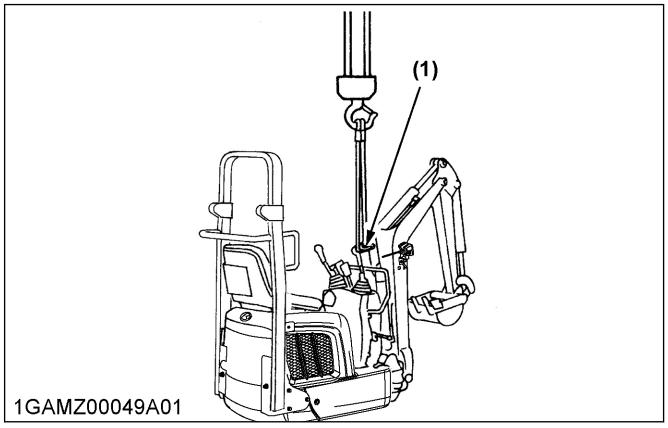
WARNING

To avoid personal injury or death:

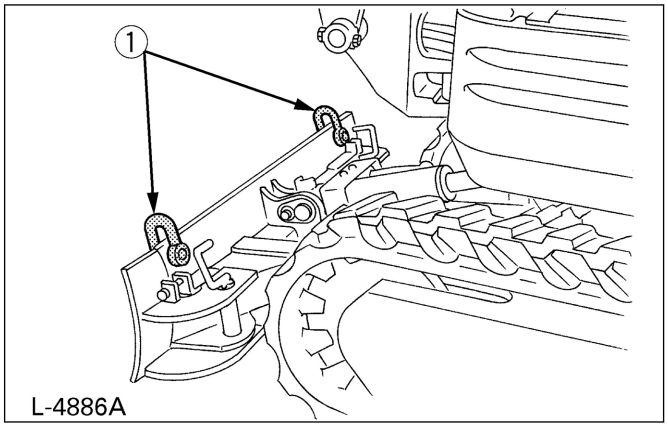
- **Do not lift the machine from any point other than at the 3 points shown in the following illustrations.**
- **Do not use the ROPS for lifting the machine.**

General guidelines for lifting

1. Prepare the machine for lifting as follows (see illustration for correct lifting position):
   a. Pull in the boom completely towards the rear.
   b. Pull in the arm completely.
   c. Pull in the bucket completely.
   d. Swing the boom 10° to 15° (0.17 radius to 0.26 radius) to the right from the central position.
   e. Insert the swivel lock pin.

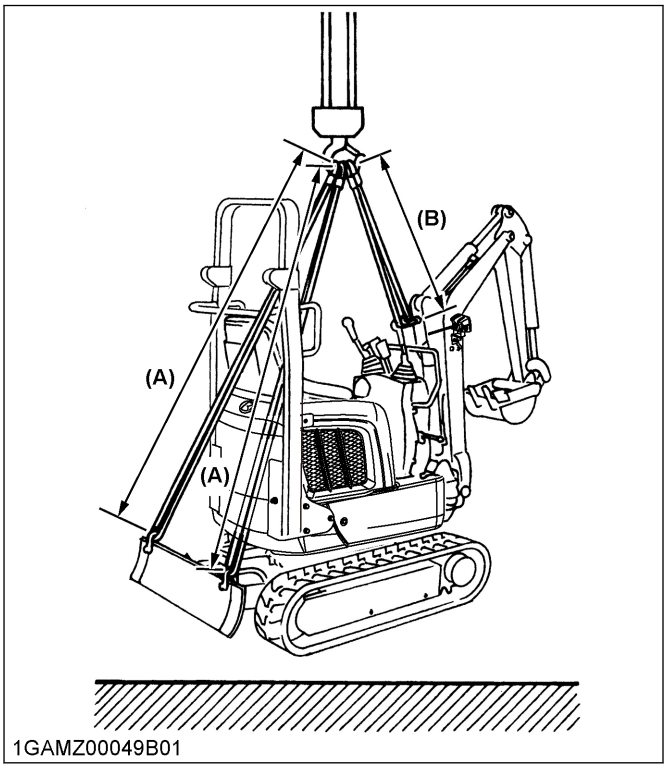


(1) Shackle



(1) Shackle

2. Attach the cables or straps while observing the following safety points:
   - Always hook the machine at 3 points (one on the boom and one on each side of the dozer).
   - Always use a shackle on each lifting hole when attaching the cables or straps.
   - Use cushioning material at all places where the cables or straps contact the machine.



(A) 2160 mm (7 ft. 1 in.)
(B) 1000 mm (3 ft. 4 in.)

   - Tackle
     Choose components with enough strength.

3. Lift the machine while observing the following safety points:
   - Lift slowly and safely.
   - Do not enter the machine area when lifting.
   - Lift the machine horizontally (modify cable or strap connections according to needs).

MAINTENANCE

WARNING

To avoid personal injury or death:

- **Before refueling or performing maintenance on the machine, take the following steps:**
  1. **Park the machine on a firm, flat, and level surface.**
  2. **Lower the attachments and the dozer blade to the ground.**
  3. **Stop the engine.**
  4. **Release the pressure from the hydraulic system.**
  5. **Remove the key.**
  6. **Check the machine and the surrounding area for any potential safety issues.**
- **Thoroughly read and understand the safety warnings in this manual before performing any work on the machine.**
  (See MAINTENANCE on page 9.)

PRECAUTIONS WHEN WASHING THE MACHINE

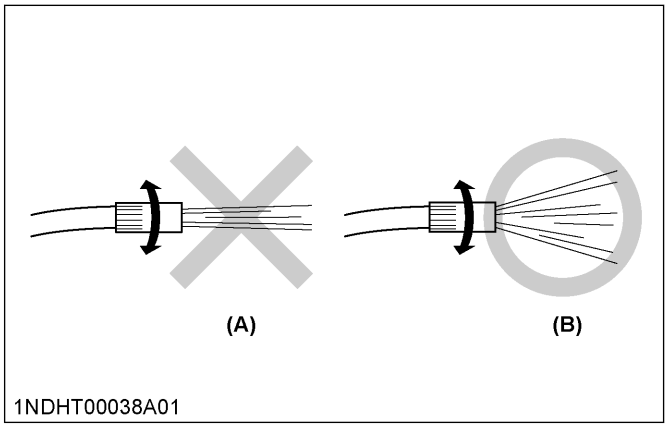
WARNING

To avoid personal injury or death:

- **To prevent damage to the machine, set the nozzle of the pressure washer to a low-pressure setting or use a low-pressure nozzle, and maintain a distance of at least 2 m from the machine when washing it. If the spray is concentrated in a single spot, or if the machine is washed from too close with a high-pressure flow, the following accidents, machine damage, and malfunctions may occur:**
  - **The wire coverings may be damaged or the wiring may be severed, causing a fire.**
  - **The hydraulic hoses may be damaged, causing a high-pressure oil blowout, which may cause injury.**
  - **The stickers or safety labels may peel off.**
  - **Water may seep into the electronic components, the engine compartment, the CAB, or other parts of the machine, leading to damage or malfunctions.**
  - **The water may cause damage to the rubber based components such as the tracks and the oils seals, to the decorative covers and other plastic-based components, or to the windows and other glass-based components.**
  - **The paint, coatings, and plating may peel off.**

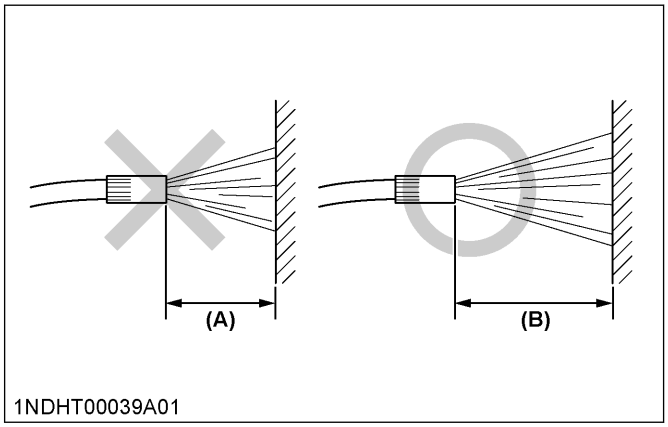
When misused, pressure washers can cause personal injury and machine damage. Always operate the pressure washer correctly and safely in accordance with its operator's manual and safety labels.

Do not use a high-pressure nozzle or setting



(A) High pressure *(B) Low pressure*

Do not wash from close range



(A) Less than 2 m *(B) 2 m or more*

MAINTENANCE INTERVALS

No.	Check points		Measures	Hour meter indicator														Interval	Ref. page	
				50	100	150	200	250	300	350	400	450	500	550	600	1000	2000			
1	Fuel		Check	Daily check															68	
2	Engine oil		Check	Daily check															68	
			Change										○			○	○	Every 500 hrs	77	
3	Hydraulic oil*1		Check	Daily check															69	
			Change													○	○	Every 1000 hrs	78, 79	
4	Coolant		Check	Daily check															67	
			Change															Every 2 years	80	
5	Front attachments		Grease	Daily check															69	
6	Radiator		Check	Daily check															70	
7	Battery condition		Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	72	
8	Electrical lines		Check	Daily check, Annual servicing															71, 80	
9	Whole machine		Wash	Daily check															71	
10	Seat belt and ROPS		Check	Daily check															71	
11	Engine hood lock		Check	Daily check															71	
12	Fuel tank		Drain	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	72	
13	Swivel bearing teeth		Grease	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	74	
14	Fan belt tension		Adjust				○				○				○	○	○	Every 200 hrs	74	
15	Radiator hoses and clamps		Check				○				○				○	○	○	Every 200 hrs	75	
			Replace															Every 2 years	81	
16	Air filter element*2	Outer element	Clean				○				○				○	○	○	Every 200 hrs	75	
			Replace													○	○	Every 1000 hrs	79	@
		Inner element	Replace													○	○	Every 1000 hrs	79	
17	Swivel ball bearings		Grease				○				○				○	○	○	Every 200 hrs	76	
18	Fuel line and intake air line		Check				○				○				○	○	○	Every 200 hrs	76	
			Replace															Every 2 years	81	
19	Engine oil filter		Replace										○			○	○	Every 500 hrs	77	
20	Fuel filter		Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	72	
			Replace										○			○	○	Every 500 hrs	77	@
21	Engine valve clearance		Check															Every 800 hrs	78	
22	Hydraulic return filter element		Replace													○	○	Every 1000 hrs	78, 79	

(Continued)

No.	Check points	Measures	Hour meter indicator													Interval	Ref. page	
			50	100	150	200	250	300	350	400	450	500	550	600	1000	2000			
23	Hydraulic suction filter element	Replace													○	○	Every 1000 hrs	78, 79	
24	Dynamo and starter motor	Check														○	Every 2000 hrs	80	
25	Radiator system	Rinse															Every 2 years	80	
26	Fuel injection nozzle (Injection pressure)	Check															Every 1500 hrs	80	@
27	Injection pump	Check															Every 3000 hrs	80	@
28	Track frame telescopic beams	Clean															Service as required	81	
29	Plastic parts and synthetic leather	Clean															Service as required	82	

*1 When using a hydraulic breaker, change hydraulic oil and return filter according to the table. (See Changing the hydraulic oil (including replacing the suction filter in the hydraulic tank) on page 78.)

*2 Clean the air filter more frequently if used in dusty conditions. With heavy soiling, replace the filter.

IMPORTANT :

- **The items listed above (@ marked) are registered as emission related critical parts by Kubota in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.**
- **When using biodiesel, check the maintenance requirements of biodiesel fuel as the intervals will change in some of the items. (See BIODIESEL FUEL (BDF) on page 93.)**

OPENING AND CLOSING THE COVERS

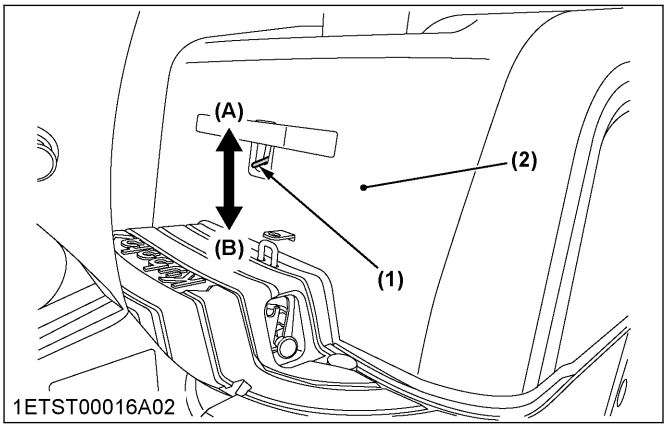
1. Opening the engine hood

⚠ WARNING

To avoid personal injury or death:

- **Do not open the engine hood with the engine running, unless it is an emergency.**
- **Do not touch the exhaust muffler or the exhaust pipe. This can cause serious burns.**
- **Securely lock the hood after closing.**

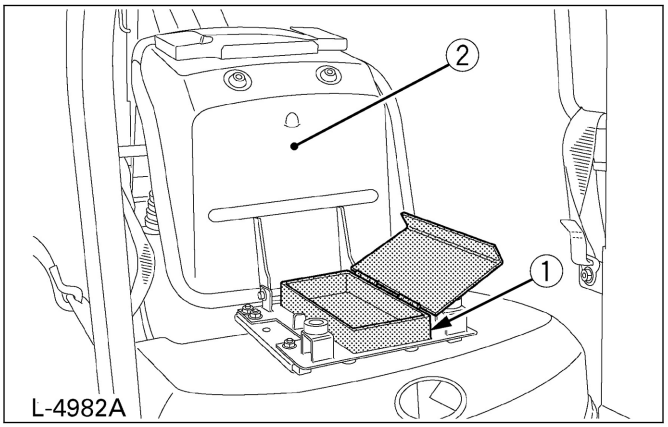
1. Pull up the lever.
2. Open the hood.



(1) Lever
(2) Engine hood
(A) "Open"
(B) "Close"

2. Where to store the operator's manual

Store the operator's manual in the toolbox, which is located under the operator's seat.



(1) Toolbox
(2) Operator's seat

DAILY CHECKS

For your own safety and to assure the long life of your machine, perform a thorough check before each operation.

⚠ WARNING

To avoid personal injury or death:

- **When operating, keep hands and body inside the ROPS.**
- **Do not touch the control levers and the pedals from outside the machine while the engine is running.**

1. Checking the coolant level

⚠ WARNING

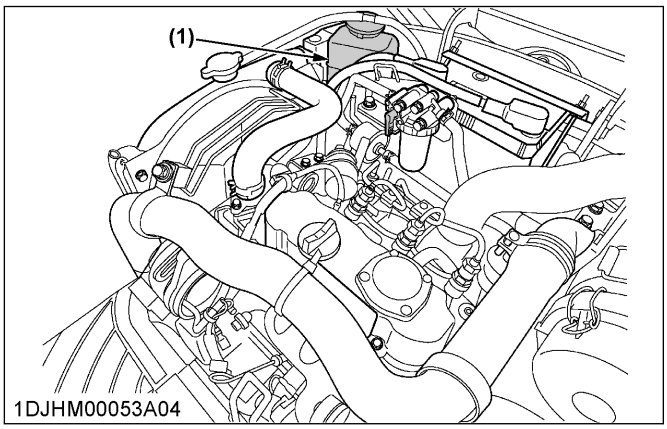
To avoid personal injury or death:

- **Move the machine to even ground.**
- **Make sure that the engine is turned off.**
- **Do not open the radiator cap right after the engine has been stopped. Serious burns can occur from contact with escaping hot coolant fluid.**
- **Check the coolant level in the recovery tank only after the engine has cooled down.**
- **Remove the radiator cap only if absolutely necessary.**

The radiator has a recovery tank. If the coolant level in the radiator drops, the water will be automatically forwarded to the radiator.

1. Open the engine hood.

2. Check the coolant level in the recovery tank and fill up if necessary. The coolant level should be between the marks **[FULL]** and **[LOW]**.



(1) Reserve tank

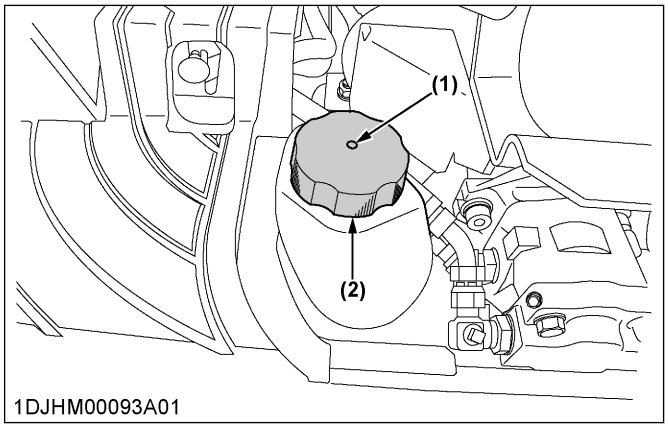
IMPORTANT :
- **Before delivery coolant was filled with 50 % water and 50 % antifreeze.**
- **Do not fill with dirty or salty water.**

2. Checking the fuel Level

⚠ WARNING
To avoid personal injury or death:
- **Stop the engine before fueling.**
- **Do not smoke while fueling.**
- **Tighten the fuel cap after refueling.**

IMPORTANT :
- **With temperatures over -5℃ (23℉), use No.2-D diesel fuel, while with temperatures under -5℃ (23℉), use No.1-D diesel fuel.**
- **Do not run the fuel tank empty. Air enters into the fuel system, and must be purged before restarting.**

1. Check the fuel level in the fuel tank.
2. If necessary, open the cap and fill with fuel.



(1) Air breather
(2) Fuel tank cap

Fuel tank capacity	12 L (3.2 U.S.gals)

IMPORTANT :
- **Always fill up fuel after a day's work. (See PURGING THE FUEL SYSTEM on page 83.)**
- **The fuel tank cap has an air breather. Clean the air breather when filling up with fuel. If the air breather is clogged with mud or other substances, the fuel tank becomes under-pressurized.**

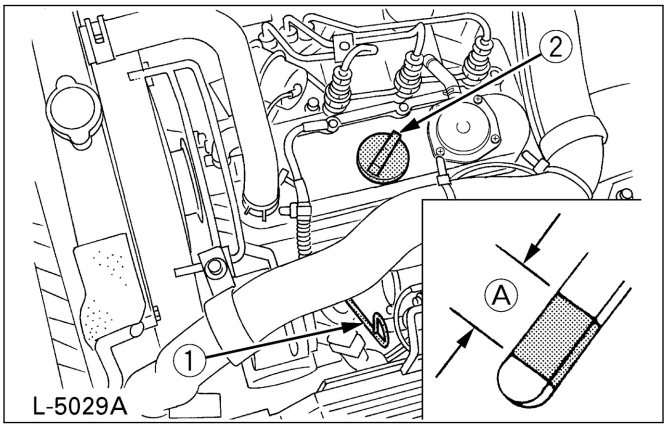
3. Checking the engine oil level

⚠ WARNING
To avoid personal injury or death:
- **Stop the engine before checking the oil level.**

IMPORTANT :
- **Use engine oil with the correct viscosity (according to the outside temperature).**
- **After stopping the engine, wait for 5 minutes and then check oil level. The machine must be on the level ground.**

1. Park the machine on a firm, flat, and level surface, and stop the engine.
2. Insert the engine oil dipstick fully into the opening.
3. Remove the dipstick and check the oil level.

4. Add oil into the filling port if necessary.



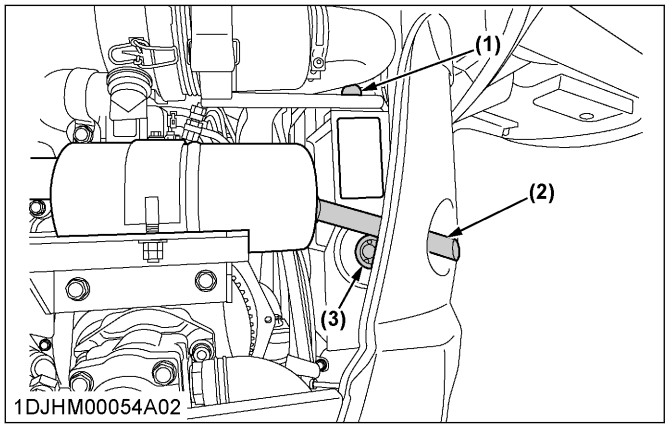
(1) Engine oil dipstick *(A) Required level*
(2) Filling port

4. Checking the hydraulic oil level

⚠ WARNING
To avoid personal injury or death:
- **First lower all attachments on the ground then stop the engine.**

IMPORTANT :
- **Before filing with oil, wipe away all sand and dust from around the oil port. Make sure to use an identical type of hydraulic fluid.**
- **The machine has been filled with hydraulic fluid before delivery. Do not mix different oils. (See RECOMMENDED OILS AND FUELS on page 91.)**

1. Set the track width to standard width (860 mm/ 33.9 in. [K008-5], 990 mm/39.0 in. [U10-5]). (See Adjusting the track width on page 52.)
2. Park the machine on a firm, flat and level surface, extend every cylinder rod up to its center position, lower the attachment and dozer blade to the ground, and stop the engine.
3. Check the oil level, making sure that it lies at the center of the gauge at under normal temperature (10℃ to 30℃/ 50℉ to 86℉).
   Enough oil is present if the oil level lies between the markings.
4. If the oil level is too low, fill with oil through the oil port before starting the engine.
   This step is important for the protection of the hydraulic system.



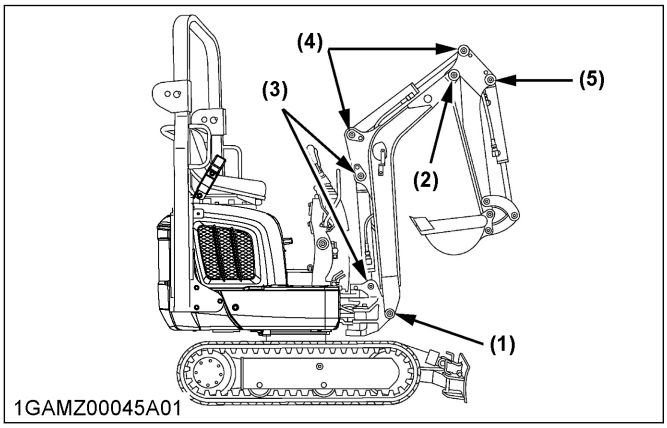
(1) Filling port
(2) Muffler pipe
(3) Gauge

5. Greasing the front attachments

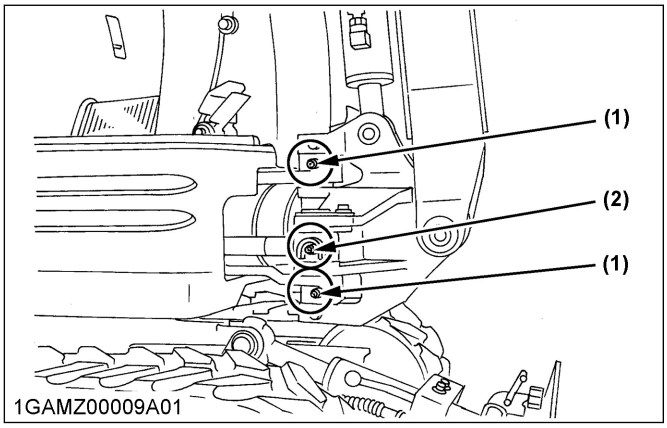
⚠ WARNING
To avoid personal injury or death:
- **First, lower all attachments to the ground, and stop the engine.**
- **While greasing, do not step on the bucket teeth.**

IMPORTANT :
- **When doing excavation work in water, generously grease the following points. Grease once again after finishing the work.**

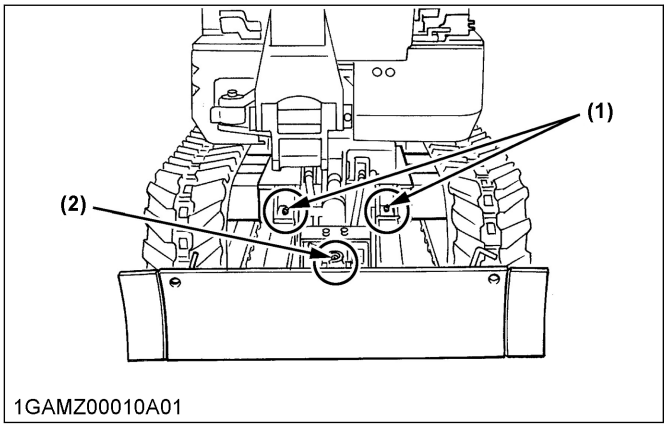
1. Grease the marked grease fittings shown in the following illustrations.



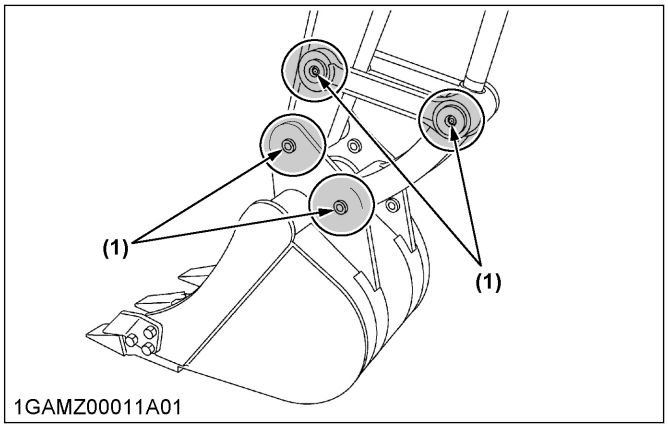
(1) Boom bottom linkage (1 place)
(2) Arm bottom linkage (1 place)
(3) Boom cylinder boss (2 places)
(4) Arm cylinder boss (2 places)
(5) Bucket cylinder pin (1 place)



(1) Boom swing fulcrum (2 places)
(2) Wing cylinder boss (1 place)



(1) Dozer linkage pin (2 places)
(2) Dozer cylinder boss (1 place)



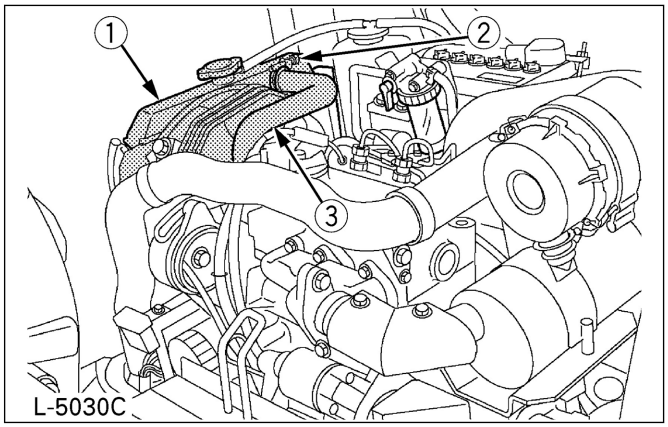
(1) Bucket link pin (4 places)

6. Checking the radiator

⚠ WARNING

To avoid personal injury or death:

- **Always stop the engine before checking the radiator.**
- **Wear eye protection when cleaning with compressed air.**



(1) Radiator
(2) Hose clamps
(3) Rubber hoses

Checking the fins

1. Check to see if the fins are clogged.
2. If the fins are clogged, clean them with compressed air or steam.

IMPORTANT :

- **In order to allow free flow of air through the cooling elements and prevent the engine from overheating, radiator fins and ribs must be kept clean.**

Checking the rubber hoses and clamps

1. Check the rubber hoses for damage and replace if cracked or old.
2. Check that the hose clamps are tight enough.

7. Checking and cleaning the engine and electrical wiring

⚠ WARNING

To avoid personal injury or death:

- **Always stop the engine before cleaning the wiring, cables and engine.**

1. Check whether flammable substances have gathered on the battery, cables, wiring, muffler, or engine, and thoroughly remove any such substances.
2. Check the electrical circuitry for disconnections, shorts, or loose terminals.

8. Washing the whole machine

IMPORTANT :

- **Do not wash the machine with the engine running. Water could enter the air filter and damage the engine. Make sure that the air filter is kept dry.**
- **Remove the mud before washing the machine.**

1. Stop the engine.
2. Wash the machine.

9. Checking the seat belt and ROPS

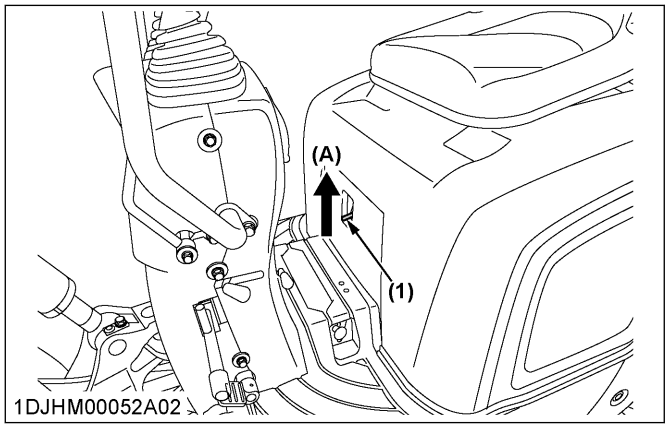
1. Check condition of seat belt and ROPS before operating the machine.
2. Replace if damaged.

10. Checking the engine hood lock

IMPORTANT :

- **When the engine hood is closed, make sure that it is securely locked.**
  (See Opening the engine hood on page 67.)

1. Check that the engine hood only opens when the lever is pulled up.



(1) Lever *(A) "Open"*

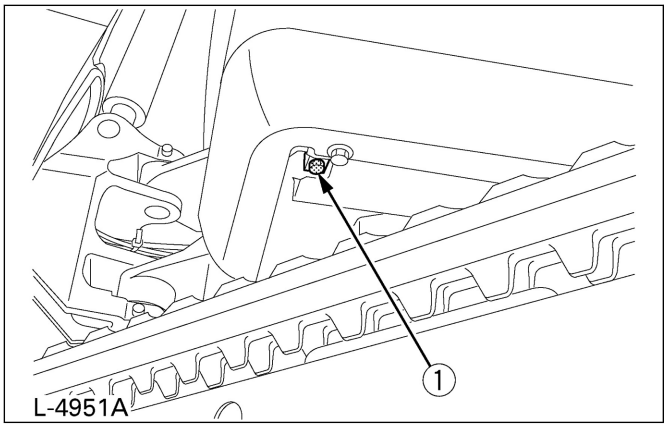
REGULAR CHECKS AND MAINTENANCE WORK

⚠ WARNING
To avoid personal injury or death:
- **When operating, keep hands and body inside the ROPS.**
- **Do not touch the control levers and the pedals from outside the machine while the engine is running.**

EVERY 50 SERVICE HOURS

1. Draining water from the fuel tank

1. Loosen the drain plug at the bottom of the fuel tank and let sediment, impurities, and water drain out of the tank.
2. Retighten the drain plug.

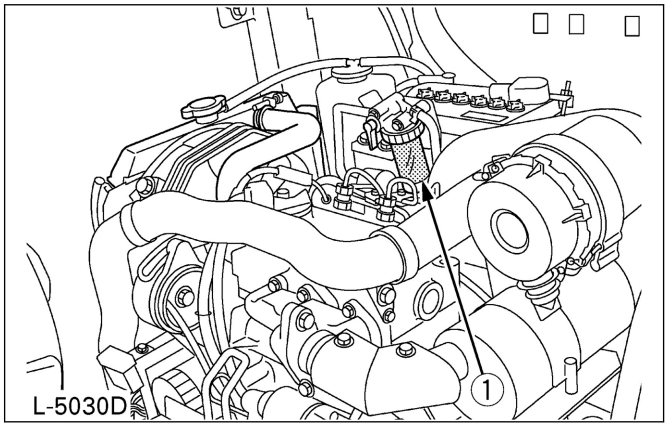


(1) Drain plug

2. Draining of the fuel filter

⚠ WARNING
To avoid personal injury or death:
- **Before draining the fuel filter, stop the engine.**
- **Do not smoke during inspection.**

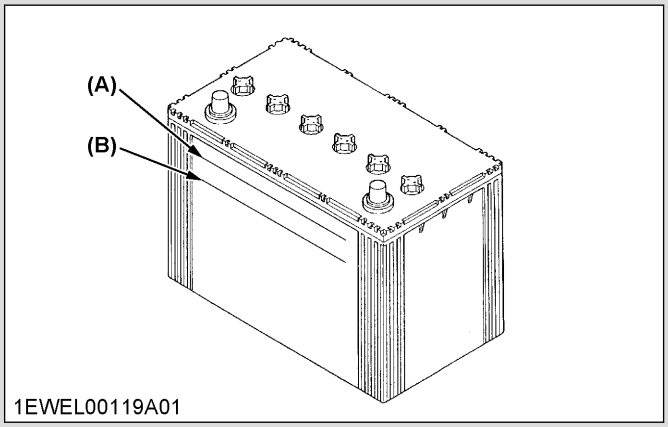
1. Check for any water or impurities in the fuel filter cup.
2. If water or impurities are present, clean inside of cup with light oil.
   (See Replacing the engine oil filter cartridge on page 77).



(1) Fuel filter cup

3. Checking the battery condition

⚠ DANGER
To avoid the possibility of a battery explosion:
For the refillable type battery, observe the following instructions:
- **Do not use or charge the refillable type battery if the fluid level is below the [LOWER] (lower limit level) mark. Otherwise, the battery component parts may prematurely deteriorate, which may shorten the battery's service life or cause an explosion. Check the fluid level regularly and add distilled water as required so that the fluid level is between the [UPPER] and [LOWER] levels.**

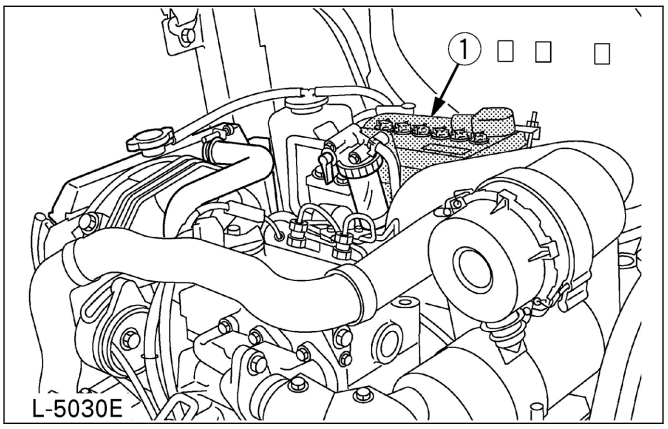


*(A) **[UPPER]** level*
*(B) **[LOWER]** level*

⚠ WARNING
To avoid personal injury or death:

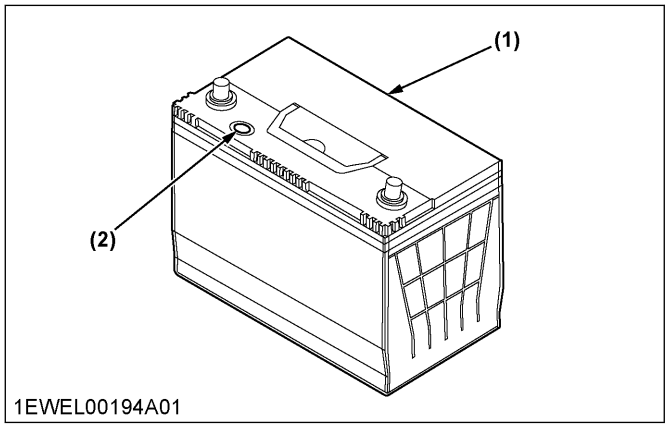
- **Never remove the vent caps while the engine is running.**
- **Keep electrolyte away from eyes, hands, and clothes. If you are spattered with it, immediately wash it away completely with water and get medical attention.**
- **Wear eye protection and rubber gloves when working around the battery.**
- **Before inspecting or dismounting the battery, turn off the engine and turn the starter switch to the [OFF] position.**
- **When removing the battery, always disconnect the negative ground cable first. When installing a battery, always connect the ground cable last. This prevents a possible explosion caused by sparks.**
- **Always wear eye protection when working with the battery.**

NOTE :
- **Mishandling the battery shortens the service life.**
- **The original battery is maintenance-free, but needs some servicing.**
- **If the battery charge is low, it will be difficult to start the engine and the lights will be dim. It is important to check the battery periodically.**



(1) Battery

1. Check the battery condition by reading the indicator.



(1) Battery
(2) Indicator

2. Refer to the following table, and charge the battery if necessary.

State of indicator display	
Green	Specific gravity of electrolyte and quality of electrolyte are both in good condition.
Black	The battery needs charging.
White	The battery needs replacing.

NOTE :
- **The factory-installed battery is a non-refillable type battery. If the indicator turns white, do not quick-charge the battery but replace it with a new one.**

3.1 Battery charging

⚠ WARNING

To avoid personal injury or death:
- **When the battery is active, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.**
- **If equipped with vent plugs, remove the vent plugs before charging the battery.**
- **When disconnecting the cable from the battery, start with the negative terminal first.**
  When connecting the cable to the battery, start with the positive terminal first.
- **Do not check the battery charge by placing a metal object across the posts.**
  Use a voltmeter or hydrometer.

- To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.

- A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time.
  When using a boost-charged battery, it is necessary to recharge the battery as early as possible.
  Failure to do this will shorten the battery's service life.
- The battery is charged if the indicator display turns green from black.
- When exchanging an old battery for a new one, use a battery of equal specification.

Battery Type	44B19L
Volts (V)	12
Capacity at 5H.R(A.H)	33
Reserve capacity (minimum)	60
Cold cranking amps	380
Normal charging rate (A)	3.3

Directions for storage

- When storing the machine for long periods of time, remove the battery from the machine, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
- The battery self-discharges while it is stored.
  Recharge it once every three months in hot seasons and once every six months in cold seasons.

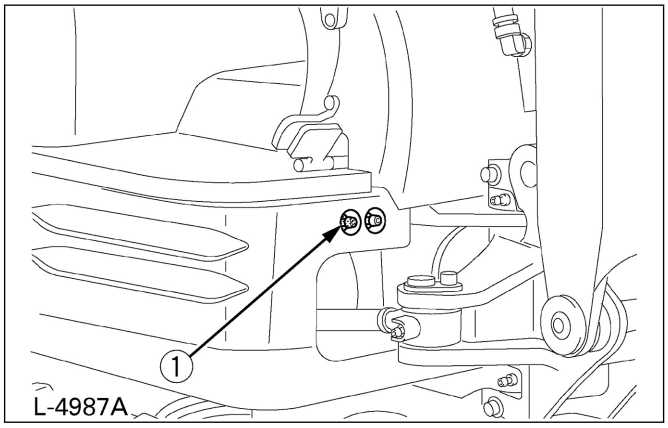
4. Greasing the swivel bearing teeth

1. Pump grease with a grease gun through the grease fitting (at the right end side).
2. Grease at each 90° (1.58 radius) position of the swivel frame.

NOTE :

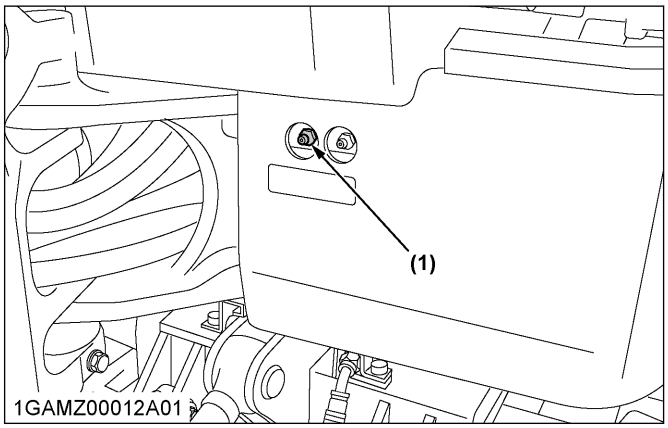
- **Fill with approximately 0.11 lbs. (50 g) of grease (approximately 20 pumps with the grease gun).**
  Distribute the grease over the teeth.

[K008-5]



(1) Grease fitting (for bearing teeth)

[U10-5]



(1) Grease fitting (for bearing teeth)

EVERY 200 SERVICE HOURS

Carry out all 50 hours servicing at the same time.

1. Checking and adjusting the fan belt tension

⚠ WARNING

To avoid personal injury or death:

- **First stop the engine.**
- **After servicing, replace the belt cover in its original position.**

IMPORTANT :

- **If the engine is run with a loose fan belt, the belt could slip and cause overheating of the engine or insufficient battery charging. Check fan belt tension regularly.**
- **If the fan belt snaps or jumps out, the lamp for battery charge will light up. Stop the engine immediately.**

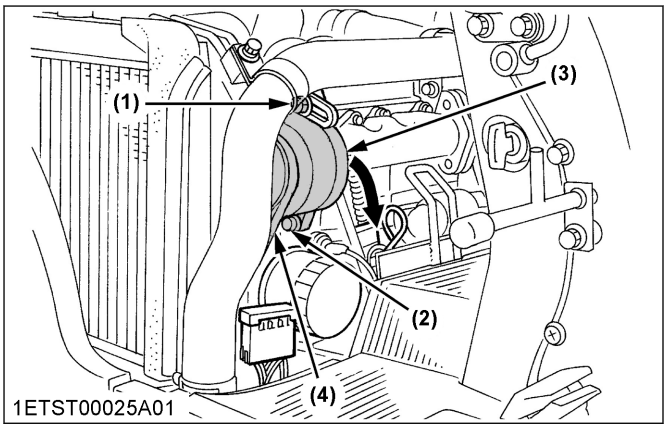
Checking

1. Press the fan belt (D) down in the middle, with a force of approximately 10 kg (22 lbs). The belt tension is correct if it deflects about 8 mm (0.31 in.).
2. Inspect the condition of the fan belt, and replace the fan belt if it is worn out, cracked, or torn.

Adjusting

If the belt tension is not correct take the following steps:

1. Loosen bolts (A) and (B).
2. Shift the dynamo (C) in the direction shown by the arrow.
3. Check the tension again.



(1) Bolt
(2) Bolt
(3) Dynamo
(4) Fan belt

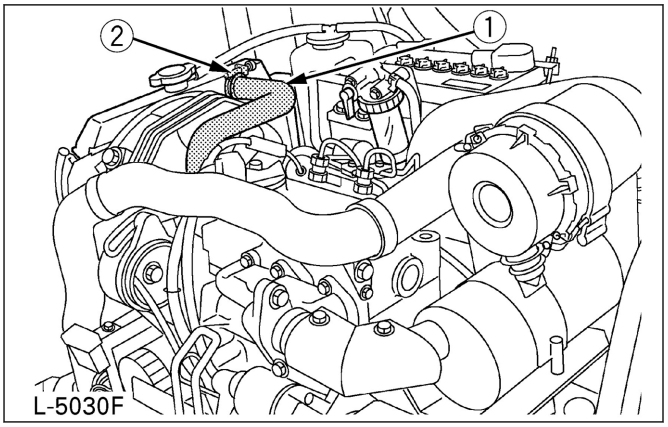
2. Checking the radiator hoses and clamps

Check the radiator hoses and clamps every 200 hours or every 6 months, whichever comes first.

⚠ WARNING

To avoid personal injury or death:

- **Wait long enough for the radiator coolant to cool down.**



(1) Radiator hoses
(2) Hose clamps

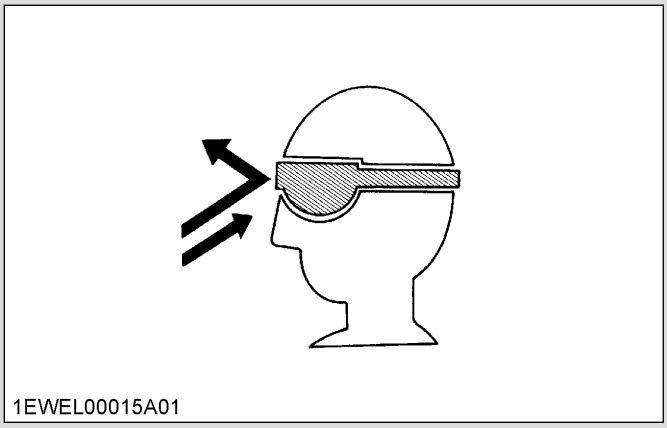
1. Check the coolant hoses for proper connection.
2. If the hose clamps become loose or if coolant leaks, tighten the hose clamps properly.
3. If the radiator hoses become swollen, worn out, or cracked, they must be replaced and the hose clamps must be tightened again properly.

3. Inspecting and cleaning the air filter element

⚠ WARNING

To avoid personal injury or death:

- **Wear eye protection when cleaning the air filter element.**



IMPORTANT :

- **Should the machine be used in extremely dusty areas, the air filter element must be inspected and cleaned more frequently than instructed in the specified maintenance periods.**
- **The air filter has a dry element so keep it free from oil.**
- **Do not run the engine without the air filter.**

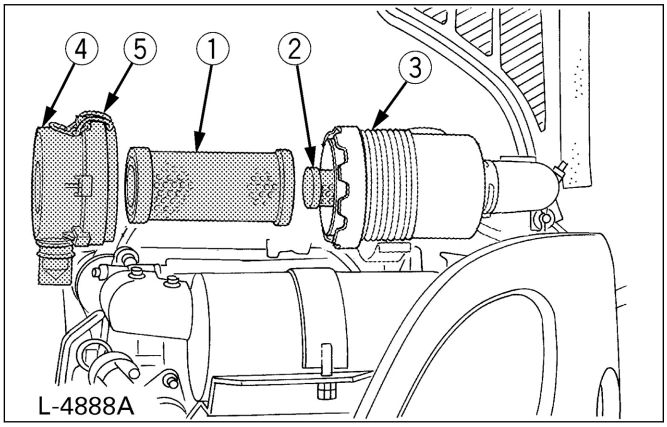
NOTE :

- **The quickest and safest method of maintenance is to replace the paper cartridge with a new one.**

1. Open the engine hood and remove the dust cover. (See Opening the engine hood on page 67.)

2. Remove only the outer element.

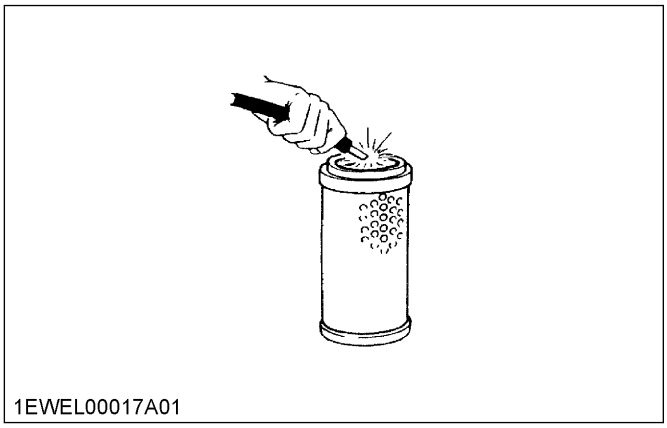
NOTE :
- **Do not remove the inner element.**



(1) Outer element
(2) Inner element
(3) Case
(4) Dust-cover
(5) Clamps

3. Clean the interior of the element case as follows:
   a. Blow off any dust attached to the outside of the cartridge using compressed air.
   b. Blow the cartridge clean from inside to outside until the dust deposits are noticeably reduced.

Air pressure	205 kPa (2.1 kgf/cm^2, 30 psi) or less



IMPORTANT :
- **If the air suction is still inadequate, or the color of the exhaust gases is abnormal even after the cleaning, the air filter cartridge must be replaced.**

4. Reassemble the element and install the dust cover so that the *"TOP"* mark (arrow) points upwards.

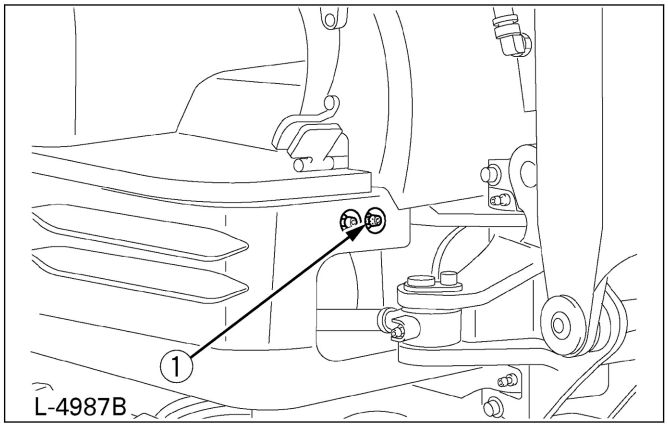
IMPORTANT :
- **Turn the dust cover slightly counterclockwise so that it does not touch the muffler.**

4. Greasing the swivel bearing

1. Pump grease with a grease gun through the grease fitting indicated in the following illustration.
2. Grease at each 90° (1.58 rad) position of the swivel frame.

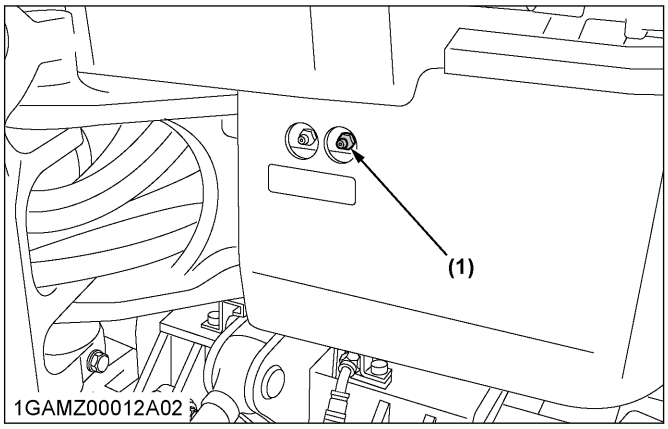
NOTE :
- **Apply 5 shots with a grease gun at each position.**

[K008-5]



(1) Grease fitting

[U10-5]



(1) Grease fitting

5. Checking the fuel line and intake air line

1. Check that all lines and hose clamps are tightened and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

EVERY 500 SERVICE HOURS

Carry out all the 50 hours servicing at the same time.

1. Changing the engine oil

Change the engine oil every 500 hours or every year, whichever comes first.

⚠ WARNING

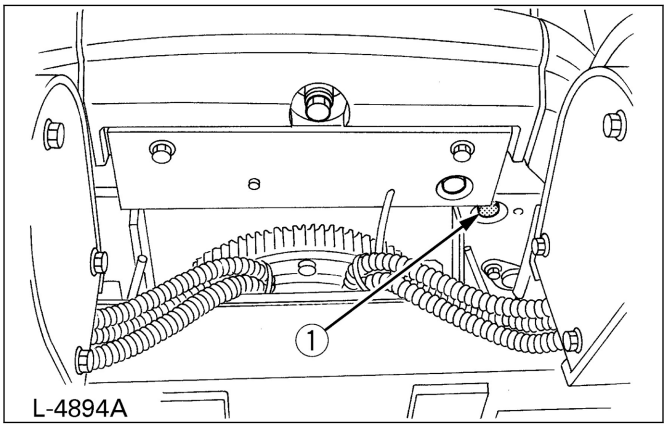
To avoid personal injury or death:

- **First, stop the engine and wait long enough for the oil to cool down.**

IMPORTANT :

- **Regardless of the service hours, the engine oil change is due every year.**

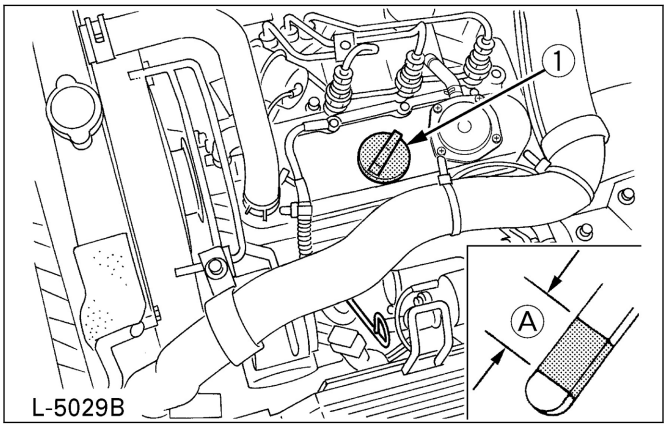
1. Remove the drain plug on the underside of the engine, and drain the oil completely.
2. Retighten the drain plug.



(1) Drain plug

3. Fill up with new oil through the filing port up to the specified level.

Engine oil volumes (with engine oil filter)	Approximately 2.8 L (0.7 U.S.gals)



(1) Oil filing port (A) Required level

4. Let the engine idle for approximately 5 minutes.
5. Check the engine oil level by inserting the engine oil dipstick completely into the respective port opening and then pulling the dipstick out. If the oil level lies between the 2 markings, do not add any additional oil.

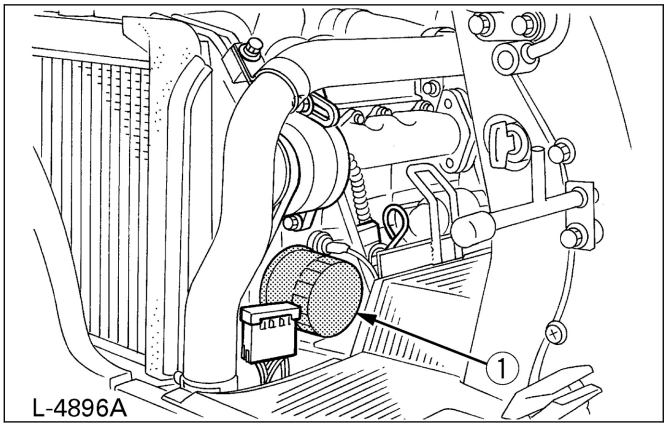
2. Replacing the engine oil filter cartridge

Replace the engine oil filter cartridge at the same time as replacing the engine oil every 500 hours or every year, whichever comes first.

IMPORTANT :

- **Always check the oil level after exchanging the filter.**

1. Remove the cartridge with the supplied filter wrench.



(1) Oil filter cartridge

2. Oil the O-ring of the new oil filter cartridge lightly. Then tighten the oil filter cartridge by hand.
3. Fill engine oil to the specified level.
4. Let the engine run for approximately 5 minutes and make sure that the engine oil indicator lamp does not light up.
5. Stop the engine.
6. As the engine oil level is reduced by the amount of the filter capacity after the engine is started, add oil as necessary.

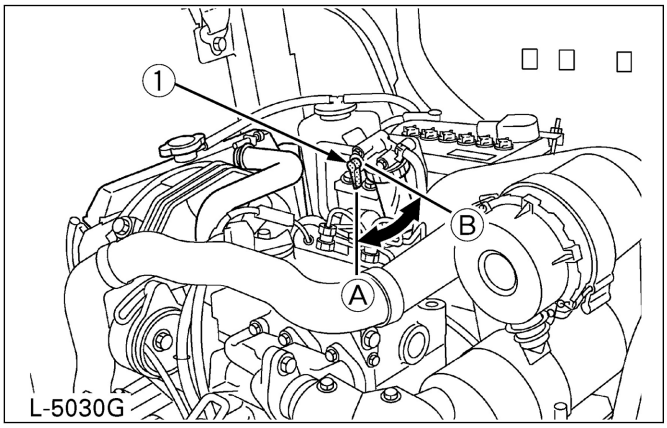
3. Replacing the fuel filter element

⚠ WARNING

To avoid personal injury or death:

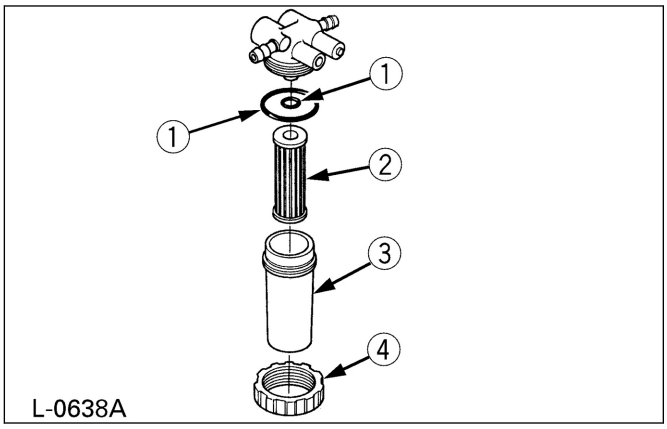
- **Keep away from fire.**

1. Close the fuel shutoff-valve.



(1) Fuel shutoff-valve
(A) "Open"
(B) "Closed"

2. Remove the retaining ring and remove the filter cup.
3. Clean the inside of the cup with light oil.
4. Remove the element and replace it with a new one. Tighten up the new element by hand.
5. Reassemble the filter cup and the retaining ring.
6. Open the fuel shutoff-valve again.



(1) O-rings
(2) Element
(3) Filter cup
(4) Retaining ring

IMPORTANT :
- **After replacement of the element, the fuel system must be purged.**

EVERY 800 SERVICE HOURS

Carry out all the 50 and 200 hours servicings at the same time.

1. Checking the engine valve clearance

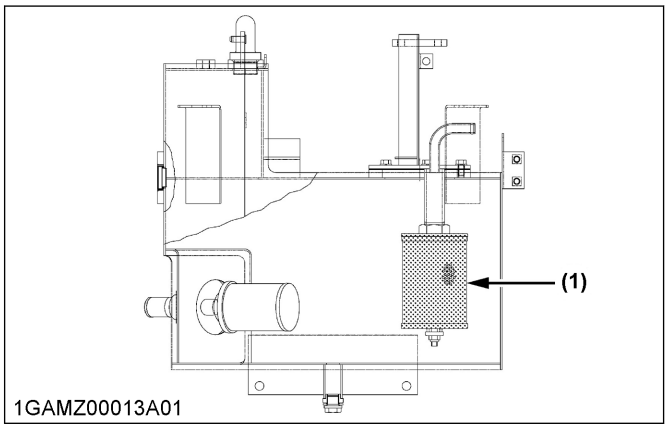
Consult your local Kubota dealer for this service.

EVERY 1000 SERVICE HOURS

Carry out all the 50, 200, and 500 hours servicing at the same time.

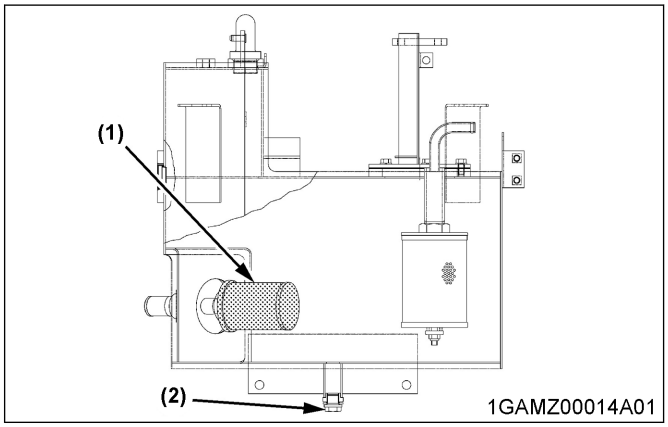
1. Changing the hydraulic oil (including replacing the suction filter in the hydraulic tank)

NOTE :
- **Contact your Kubota dealer for details.**



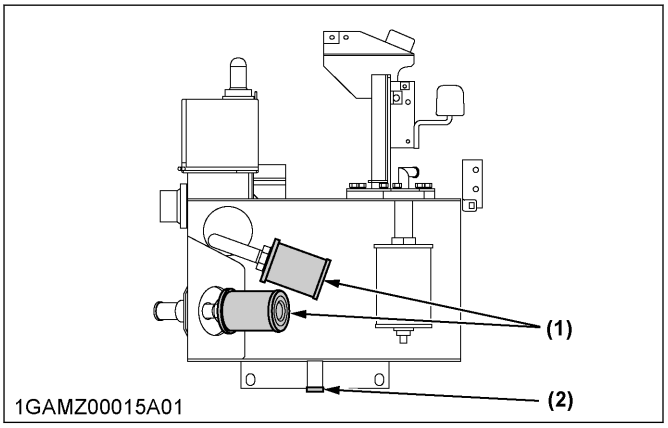
(1) Return filter

[K008-5]

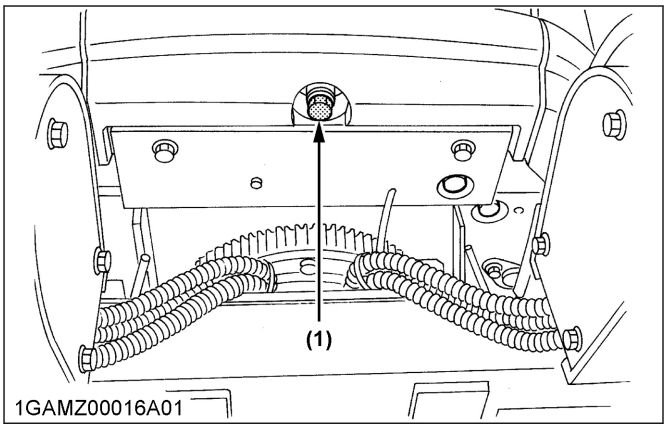


(1) Suction filter
(2) Drain plug

[U10-5]



(1) Suction filter
(2) Drain plug



(1) Drain plug

Hydraulic oil volume

Hydraulic tank	**K008-5**	Approximately 13.5 L (3.6 U.S.gals)
	U10-5	Approximately 12.6 L (3.3 U.S.gals)
Whole oil volume	**K008-5**	Approximately 18 L (4.8 U.S.gals)
	U10-5	Approximately 17.1 L (4.5 U.S.gals)

2. Hydraulic oil checks (hydraulic breaker operation)

Hydraulic oil change after 1000 hours of operation is based on the normal machine work using the bucket only.
When using hydraulic breakers, follow the inspection measures below instead.

Changing and filling up of hydraulic oil

- The hydraulic oil must be changed more often when breakers are used because the machine is subject to harder conditions than normal excavating work.
- Use only the recommended oils mentioned in the operator's manual when changing or filling with oil.
- When filling up oil, never mix oils from different makers.

Changing the return filter and oil

- The filter must be changed more often because of contamination resulting from the frequent assembly and disassembly of the hoses.
- Use the correct replacement filter.
- Change oil according to operating hours.

		Hydraulic oil Return filter	Suction filter
Normal excavator work		Every 1000 hrs	1000 hrs
Breaker work portion	20 %	Every 800 hrs	
	40 %	Every 600 hrs	
	60 %	Every 400 hrs	
	More	Every 200 hrs	

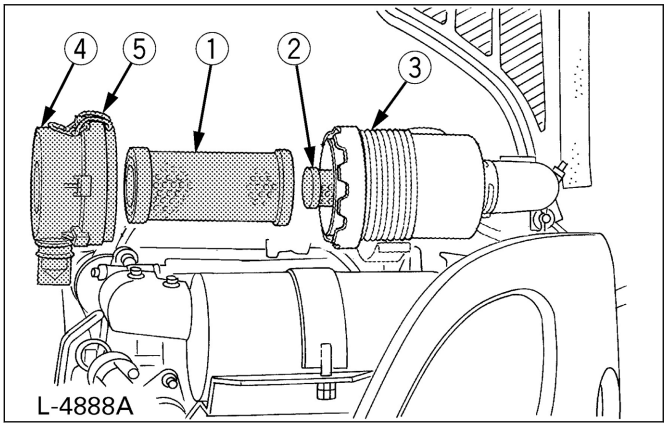
EVERY 1000 SERVICE HOURS OR ONCE A YEAR

1. Replacing the air filter element

IMPORTANT :

- **Shorten the replacement period if the machine is used in dusty or sandy areas.**

1. Open the engine hood and remove the dust cover.
2. Remove and replace the outer element and inner element with new elements.



(1) Outer element
(2) Inner element
(3) Case
(4) Dust-cover
(5) Clamps

3. When reassembling, install the dust cover so that the *"TOP"* mark (arrow) points upward.

IMPORTANT :

- **Turn the dust cover slightly counterclockwise so that it does not touch the muffler.**

EVERY 1500 SERVICE HOURS

Carry out all 50 and 500 hour servicing at the same time.

1. Checking the fuel injection nozzle (injection pressure)

Consult your local Kubota dealer for this service.

EVERY 2000 SERVICE HOURS

Carry out all the 50, 200, 500, and 1000 hours servicing at the same time.

1. Checking the dynamo and starter motor

Consult your local Kubota dealer for this service.

EVERY 3000 SERVICE HOURS

Carry out all 50, 200, 500, 1000, and 1500 hour servicing at the same time.

1. Checking the injection pump

Consult your local Kubota dealer for this service.

ANNUAL SERVICING

1. Checking the electrical wiring and fuses

1. Check the terminals periodically for proper connections.

   NOTE :
   - **Loose wiring or damaged cables can cause improper functioning or short-circuiting of the electrical system.**

2. Check the wiring and replace any damaged components immediately.

   NOTE :
   - **If a fuse blows out soon after being replaced, contact your nearest Kubota dealer.**
   - **Never use a fuse other than the specified type.**

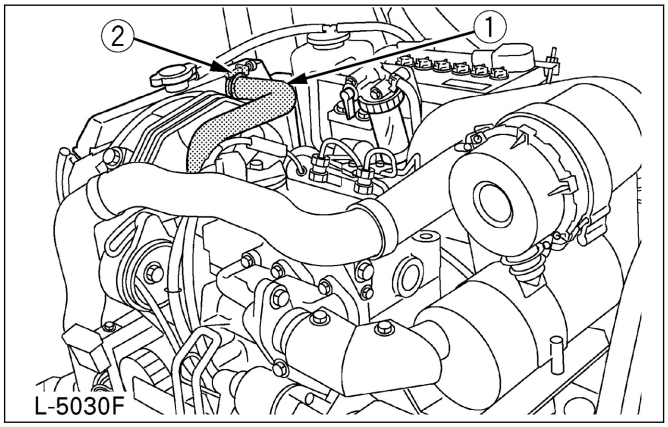
BIENNIAL SERVICING

1. Replacing radiator hoses and hose clamps

⚠ WARNING
To avoid personal injury or death:

- **Do not loosen the radiator cap before the radiator has cooled down sufficiently. Loosen the cap only after allowing enough time for the pressure in the system to be reduced. Thereafter, the cap can be removed completely.**

- Replace the radiator hoses and hose clamps every 2 years.
- If the hoses or pipes become swollen, hard, or cracked before 2 years has passed, replace them immediately.



(1) Radiator hoses
(2) Hose clamps

2. Changing the radiator coolant

⚠ WARNING
To avoid personal injury or death:

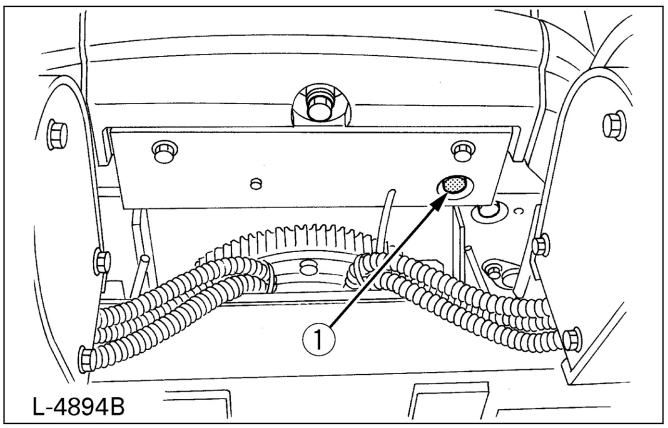
- **When using antifreeze, use protective clothing such as rubber gloves. Antifreeze is poisonous.**
- **If you accidentally swallowed antifreeze, seek medical attention immediately.**
- **When antifreeze comes in contact with the skin or clothing, wash it off immediately.**
- **Do not mix different types of antifreeze. The mixture can produce a chemical reaction resulting in harmful substances.**
- **Antifreeze is extremely flammable and explosive under certain conditions. Keep antifreeze away from fire and children.**
- **When draining fluids from the engine, use a container underneath the engine body to catch the fluids.**
- **Do not pour waste onto the ground, down a drain, or into any water source.**
- **Also, observe the relevant environmental protection regulations when disposing of antifreeze.**
- **If swallowed, antifreeze is poisonous to people, animals, and birds.**

(In case of long-life coolant fluid)

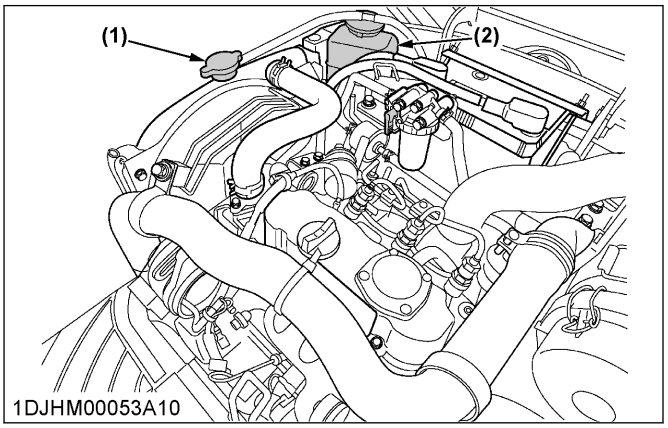
Stop the engine and wait until it has cooled down completely.

1. Open the drain plugs on the bottom of the radiator and drain coolant completely.
2. Clean the radiator by rinsing it with water.
3. Close the drain plug, and fill the radiator and the recovery tank with coolant fluid.
4. Let the engine idle for about 5 minutes.
5. Stop the engine and check the coolant level.

NOTE :
- **The machine has been shipped filled with 50 % anti-freeze solution.**



(1) Drain plugs



(1) Radiator cap
(2) Recovery tank

Radiator	Approximately 2.3 L (0.61 U.S.gals)
Recovery tank	Approximately 0.5 L (0.13 U.S.gals)

IMPORTANT :
- **Do not operate the engine without coolant.**
- **To fill the radiator system use fresh water and anti-freeze fluid.**
- **When the anti-freeze is mixed with water, the ratio must not exceed 50 %. (a 50/50 mix is recommended)**
- **Tighten the radiator cap properly. If the cap is loosely or not properly fitted, overheating of the engine can result due to coolant fluid loss.**

3. Replacing the fuel hose

1. Replace the hoses and clamps.
(See Checking the fuel line and intake air line on page 76.)

4. Replacing the intake air line

1. Replace the hoses and clamps, if necessary.
(See Checking the fuel line and intake air line on page 76.)

SERVICING AS REQUIRED

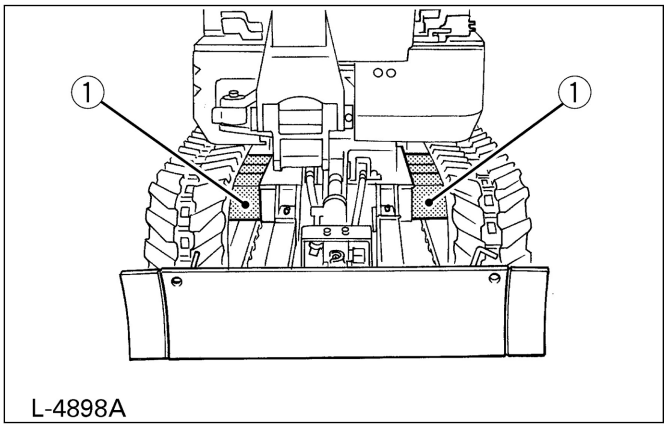
1. Cleaning the track frame telescopic beams

When the track frame telescopic beams are clogged or covered with soil or sand, clean the slide pipes as follows according to need.

⚠ WARNING
To avoid personal injury or death:
- **Place the machine on even ground when cleaning the track frame telescopic beams.**

1. Lift the machine off the ground using the dozer blade and boom functions.
2. Switch the track width change / dozer select lever to the *"Track width change"* position.
3. Pull the control lever backward, and expand the track width to standard width (860 mm/ 33.9 in. [K008-5], 990 mm/ 39.0 in. [U10-5]).
4. Remove soil and sand adhered to the telescopic beams, then put grease evenly around the pipes. Make sure all 4 telescopic beams are greased.
5. Retract and expand the track width repeatedly a few times by moving the control lever, so that the grease is spread adequately.
6. Switch the track width change / dozer select lever to the *"Dozer"* position.

7. Place the machine down on the ground carefully by moving the dozer blade and the boom.



(1) Track frame telescopic beams

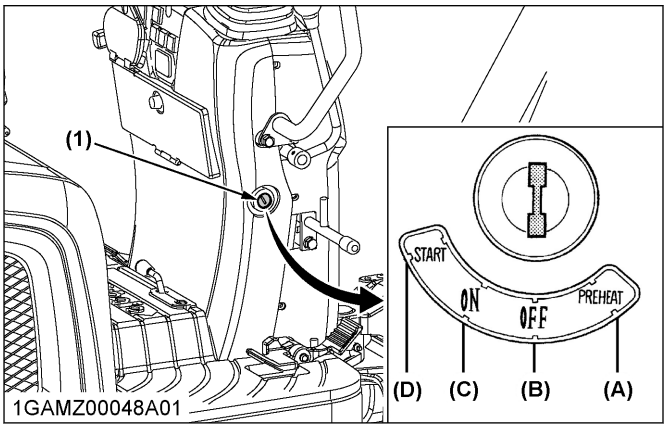
2. Cleaning the plastic parts and synthetic leather

- Use a soft cloth when wiping plastic parts or synthetic leather.
- If the plastic or synthetic leather is very dirty, use a soft cloth dipped in a mild detergent that has been diluted with water.
- Wipe off any remaining moisture or detergent with a soft cloth that has been moistened with water and then thoroughly wrung out.
- Cleaning the plastic parts with alkaline, acidic, or organic solvents such as alcohol or benzene can damage them.

OTHER ADJUSTMENTS AND REPLACEMENTS

PURGING THE FUEL SYSTEM

1. Fill up the fuel tank with fuel.
2. Turn the starter key to the **[ON]** position.
   The air in the fuel system will automatically be purged within 1 minute.



(1) Starter switch

*(A) **[PREHEAT]***
*(B) **[OFF]***
*(C) **[ON]***
*(D) **[START]***

IMPORTANT :

- **If the purging was insufficient, the engine stops right after starting. In this case, repeat steps 2 to 3.**

ADJUSTING THE TRACKS

IMPORTANT :

- **If the tracks are too tight, wear is increased.**
- **If the tracks are too loose, the track shoes may collide with the sprocket, and wear is increased. The track may dislocate or come off.**
- **Clean the track after every use.**
- **If the track tension is heightened due to mud sticking, lift the track with the help of the boom, arm and bucket, idle the engine and remove the mud from the track, especially from the openings of the link plate, carefully.**
- **Make sure that no obstacles, such as stones, are caught in the track. Remove such obstacles before adjusting the track tension.**
- **Track seam**
  The ends of the rubber track are joined with a seam. When adjusting the tracks, the seam must be positioned on the top center between the idler and the sprocket.
  If the seam is positioned incorrectly, the tracks will be tensioned to loosely, and a further readjustment will be necessary.
- **Rotate the track after adjustment one to two times to check the tension.**
- **Additionally the following points are to be observed when adjusting rubber tracks.**
  - **If the track slackens more than 25 mm (0.98 in.), readjust them.**
  - **Check track tension 30 hours after initial use and readjust if necessary. Check and adjust thereafter every 50 service hours.**

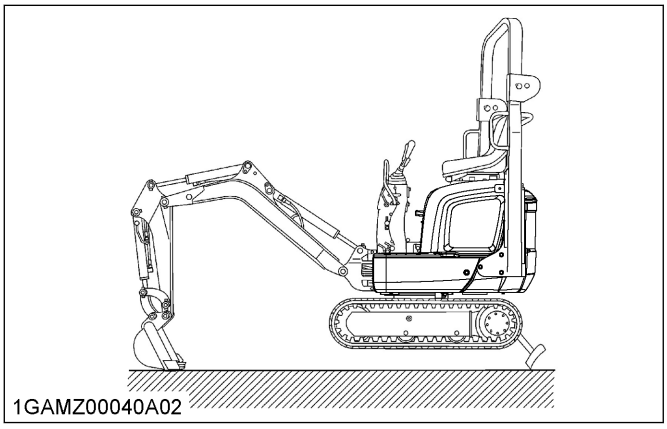
1. Loosening the tracks

⚠ WARNING

To avoid personal injury or death:

- **Do not loosen the grease fitting completely or too quickly. Otherwise grease under high pressure in the tension cylinder could squirt out.**
- **Do not crawl under the machine.**

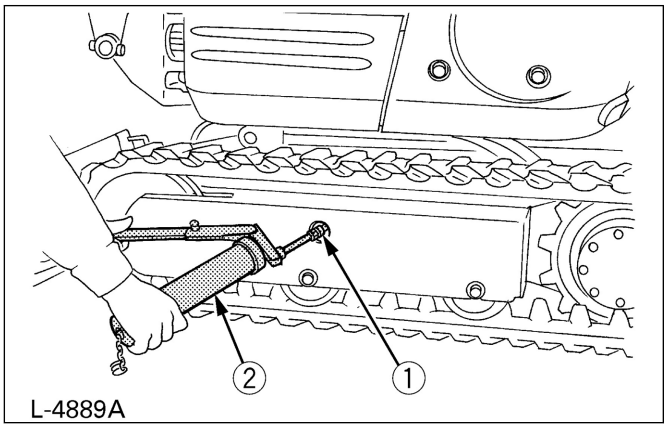
1. Using a socket wrench, loosen the grease fitting a few turns.
2. When grease oozes out from the thread, rotate the track and loosen the track in the lifted position (see illustration).



3. After adjustment is completed, tighten the grease fitting using the socket wrench.
   Tightening torque must be between 98 N·m and 108 N·m (10 kgf·m and 11 kgf·m/ 72.3 ft·lbs and 79.6 ft·lbs).

2. Tensioning the tracks

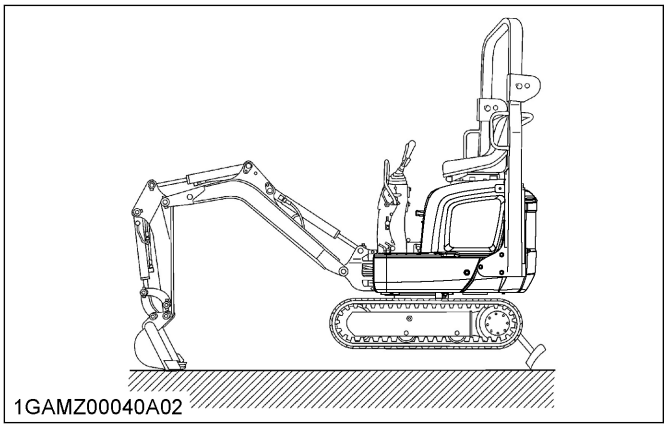
1. Apply grease to the grease fitting (1).

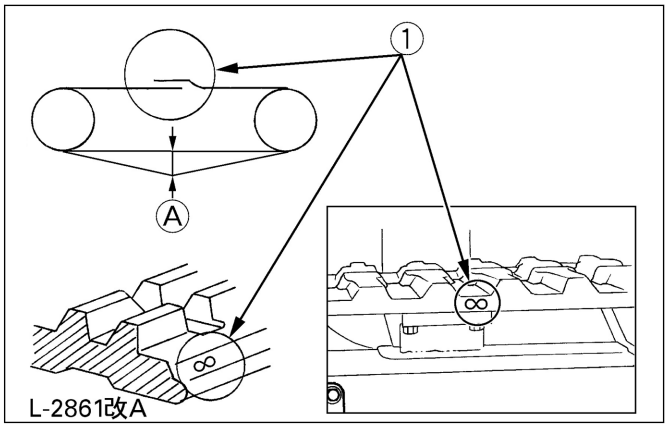


(1) Grease fitting
(2) Grease gun

2. Tension the track in the lifted position, so that the distance *"A"* (clearance between the track roller and the inside surface of the track) is 10 mm to 15 mm (0.39 in. to 0.59 in.) (see illustration). In this case, the track seam is positioned on the top center between the idler and the sprocket.

⚠ DANGER
To avoid serious injury or death:
- **Do not work under the machine in this condition.**
- **For your safety, do not rely on hydraulically supported devices. They may leak down and suddenly drop or be accidentally lowered.**





(1) Seam (Marked ∞)
(A) 10 mm to 15 mm (0.39 in. to 0.59 in.)

3. Special information regarding the use rubber tracks

- When turning, make a slow swivel turn.
  Avoid spin turns to lessen lug wear and entry of dirt.
- The relief valve may be activated if too much dirt and sand clog the tracks. In this case move the machine for a short distance straight backwards to let the earth and sand fall off, then a turn can be made.
- Avoid using rubber track on riverbeds, stony underground, ferro-concrete and on iron plates. The rubber can damage as well as increase wear on the tracks.

CHANGING THE BUCKET

⚠ WARNING
To avoid personal injury or death:
- **Two people are required to replace the bucket. One person operates the excavator, and the other one mounts the bucket.**
  The person who mounts the bucket must command and guide the movements of the front end attachments. The operator should move the front end attachments only according to the commands of the person who mounts the bucket. Continuous visibility between both persons is indispensable. If there is no visibility, stop working immediately.
- **When replacing the bucket, wear eye protection, a helmet, and protective gloves.**
- **During attaching and detaching, chippings and burns may occur at the bolts or bushings.**
  These may cause severe injuries.
- **Never use your fingers for the alignment of the components (linkage, bucket, and arm). The components may sever your fingers due to the uncontrolled movements.**

- **When other attachments are installed instead of a Kubota specified bucket, read the manual of the attachment to do a correct operation safely.**

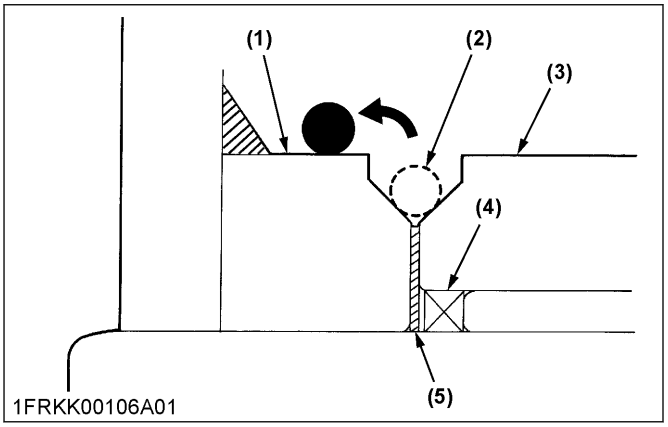
IMPORTANT :

- **Be sure that the pulled-out pins are carefully kept free from sand and mud.**
- **The dust seals are attached at both ends of the bushing. When drawing out the pins, be careful not to damage these seals.**

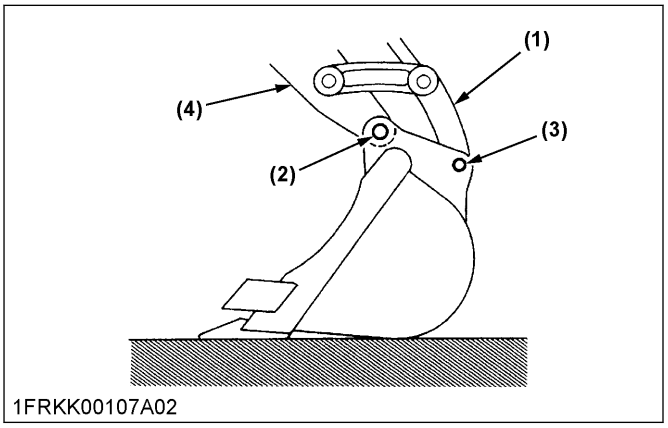
To change the bucket, conduct the following procedure.

Detaching the bucket

1. Place the bucket on a flat, level spot.
2. Stop the engine and relieve the pressure out of the hydraulic system.
3. Remove the O-ring out of the groove, and draw the pins out of the holes A and B.



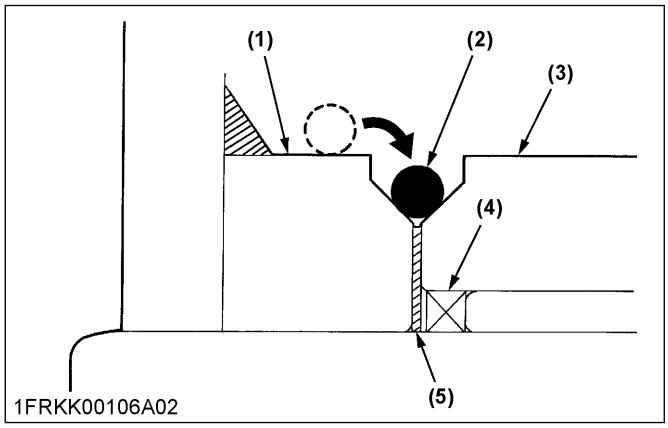
(1) Bucket
(2) O-ring
(3) Arm (or link)
(4) Dust seal
(5) Shim



(1) Link
(2) Hole A
(3) Hole B
(4) Arm

Attaching the bucket

1. Install the O-ring on the bucket boss.
2. Fit the arm into hole A, insert the shims into both ends of the arm, and couple them with the pins.
3. Fit the link into hole B, insert the shims into both ends of the link, and couple them with the pins.
4. Install and tighten up the lock bolts to secure the pins in position.
5. Install the O-ring into the groove.



(1) Bucket
(2) O-ring
(3) Arm (or link)
(4) Dust seal
(5) Shim

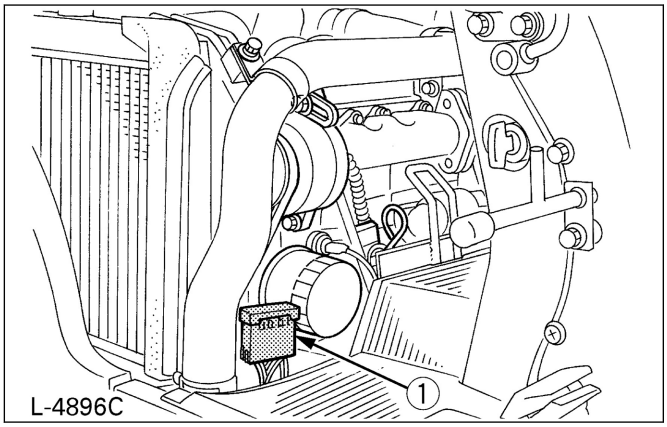
6. Apply grease to the pins.

REPLACING FUSES

1. Remove the cover of the fuse box.

2. Replace the burnt out fuse with a fuse which has the same capacity.

Fuse capacities and circuits

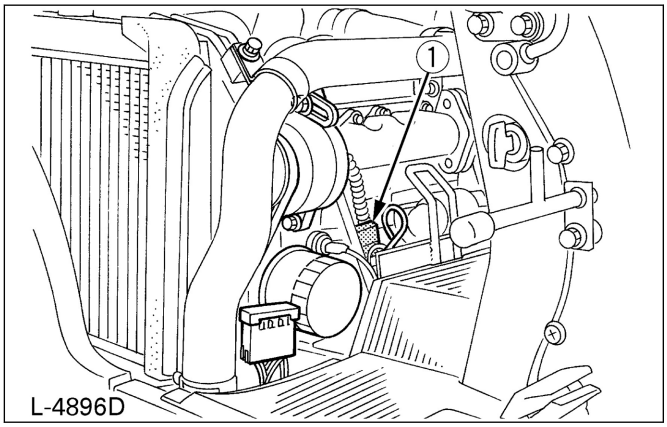


(1) Fuse box

No.	Capacity	Circuit
1	30 A	Fuel cut solenoid
2	10 A	Working lamp, Horn
3	10 A	Hour meter, Fuel pump, Regulator, Lever lock
4	5 A	Fuel cut solenoid relay
	30 A, 10 A, 5 A	Spare fuses

1. Slow blow fuse

Slow blow fuse is provided to protect the electrical circuits. If the fusible link is blown, check the electrical circuits for trouble and then replace with a new compatible slow blow fuse.



(1) Slow blow fuse

TROUBLESHOOTING

TROUBLESHOOTING OF THE ENGINE AND OTHER SYSTEMS

If the machine does not perform as desired, or when trouble arises, refer to the following table and carry out the appropriate measures.

Trouble		Cause	Countermeasure
Engine	Starting difficulties	Fuel is too viscous or dirty.	• Check the fuel tank and filter. • Remove impurities and water. • If necessary, replace the filter.
		Air or water is in the fuel system.	• Remove water from the fuel tank. • Check the fuel pipe joints for looseness. • Purge of the fuel system. Details regarding the purging operation for fuel filter and injection pump can be found in a different section. (See PURGING THE FUEL SYSTEM on page 83)
		Oil viscosity is too high and the engine runs sluggishly in the winter.	Pour hot water over the radiator.
		Battery is almost dead. Insufficient compression	Recharge the battery.
	Insufficient engine power	Low fuel level	Check the fuel level and add fuel if necessary.
		Clogged air filter	Clean the air filter element.
	Engine suddenly stops.	Low fuel level	• Check the fuel level and add fuel if necessary. • Purge the fuel system.
	Abnormal exhaust gas color	Poor quality fuel	Use high quality fuel.
		Too much engine oil	Drain the engine oil to the prescribed oil level.
	Water temperature warning lamp ON (overheating)	Worn or torn fan belt	Adjust or replace.
		Coolant level is too low.	Fill to the prescribed level.
		Radiator grill or fins are clogged.	Clean.
		Coolant is contaminated with rust from the cylinder head or crank case.	Replace the coolant fluid and add anti-rust.
		Radiator cap is damaged. (evaporation)	Replace.
		Corroded coolant pipes	Clean.
		Continuous operation under full load	Reduce load.
		Engine oil level is too low.	Fill to the prescribed level.
		Use of poor fuel	Use the prescribed fuel.
Hydraulic system	Boom, arm, bucket, drive, swivel and dozer power is too low.	Hydraulic oil level is too low.	Add oil.
		Leakage of hoses and/or joints.	Replace the hose or joint.
	Swivel motor does not work.	Swivel lock pin is in the lock position.	Remove swivel lock pin in unlock position.
Drive system	Deviation of drive direction	Blocked with stones	Remove.
		Track is too loose or too tight.	Adjust accordingly.

OPERATION IN COLD WEATHER

PREPARATION FOR WORK IN COLD WEATHER

- Replace engine oil and hydraulic oil with those of viscosities suitable for cold weather.
- In cold weather, battery power drops, and the battery fluid may freeze if the battery is not sufficiently charged. To prevent the battery fluid from freezing, keep the battery charged at least 75% or more of its capacity after operation. So that the machine starts easily next time, it is recommended to keep the battery stored in closed or heated rooms. If the battery fluid level is too low, do not add after operation, but add with the engine running before the next operation.
- Add antifreeze to coolant in the radiator and recovery tank, if the ambient temperature is expected to drop below 0 ℃ (32 ℉). Mixing ratio of water and antifreeze depends on the expected ambient temperature.

Mixing ratio between water and antifreeze

Ambient temperature	℃ (℉)	-5 (+23)	-10 (+14)	-15 (+5)	-20 (-4)	-25 (-13)	-30 (-22)	-35 (-31)
Antifreeze	%	30	30	30	35	40	45	50
Water	%	70	70	70	65	60	55	50

IMPORTANT :

- **Use permanent antifreeze or long-life coolant.**
- **Drain the coolant completely and clean the inside of the radiator, then fill with the water and antifreeze mixture.**
- **The antifreeze acts as an anti-corrosive, it is not necessary to add an additive to the water and antifreeze mixture.**
- **Details regarding the radiator fill volumes can be found in a different section.**
  (See Checking the coolant level on page 67.)

AFTER WORKING IN COLD WEATHER

- Clean the machine thoroughly after work and wipe dry. Otherwise mud and earth on the tracks could freeze if the temperature drops below the 0℃ (32℉) mark. Operation of the machine is then not possible.
- Store the machine in a dry place. If not possible, store on wooden planks or on mats. If the machine is kept on damp or muddy ground, the tracks could freeze overnight. Operation of the machine is then not possible. Furthermore the drive unit may be damaged.
- The piston rods of the hydraulic cylinders must be rubbed dry. Otherwise severe damage could occur if dirty water seeps through the seals.

LONG-TERM STORAGE

⚠ WARNING

To avoid personal injury or death:

- **Do not clean the machine while the engine is running.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine indoors without proper ventilation.**
- **When storing, remove the key from the starter switch to avoid unauthorized people from operating the machine and getting injured.**
- **Park the machine on a firm, flat, and level surface. Lower the attachments and dozer blade to the ground.**

STORING THE MACHINE

If the machine is stored for a longer period of time, observe the following procedures:

1. The whole machine should be cleaned thoroughly and should be stored indoors in all cases. If the machine has to be kept outdoors, arrange wooden planks on even ground, place the machine on the planks, and cover it completely.
2. Change the oil and grease the machine.
3. Heavily grease the visible section of the cylinder rods.
4. Remove the battery and store indoors.
5. If it is expected that the temperature will sink below the 0 ℃ (32 ℉) mark, add antifreeze or drain the coolant completely.

   IMPORTANT :
   - **Wash the machine after stopping the engine.**
     If you wash the machine while the engine is running, water can splash and get into the air cleaner through its intake and cause engine damage.
     Wash carefully and do not splash water over the air cleaner while the engine is running.

OPERATING THE MACHINE AFTER LONG-TERM STORAGE

1. Wipe off the grease from the hydraulic cylinder rods.
2. Thoroughly inspect the machine and clean off any debris.
3. Turn on the engine. Operate the attachment and the drive mechanisms under no load in order to circulate the hydraulic oil.
   If the machine is stored for longer than 1 month, carry out steps 1 and 2 once every month.

PERIODIC REPLACEMENT OF PARTS

To ensure safe operation, inspect and service the machine at regular intervals. For added safety, ask your Kubota dealer to replace the following important parts.

These parts are prone to material degradation or subject to wear and tear with time. It is difficult to judge how much they have been affected at a regular inspection. Therefore, it is necessary to replace them with new ones, regardless of whether wear is visible or not after a specified time of use.
If any of them are found worn even before the specified time of use, they must be repaired or replaced the same way as other parts.
If any of the hose clamps are found deformed or cracked, they must also be replaced.
For the hydraulic hoses other than the ones to be replaced periodically, inspect them for the following points. If found in an unusual condition, tighten them up or replace them.
When replacing the hydraulic hoses, change their O-rings and sealings with new ones.
For replacement of the important parts, contact your local Kubota dealer.

While performing the following periodic inspections, check the fuel hoses and hydraulic hoses also.

Inspection interval	Check points
Daily checks	Oil leak at fuel and hydraulic hose connections and points
Every month	Oil leak at fuel and hydraulic hose connections and points Damage at fuel and hydraulic hose (cracks, chafing)
Every year	Oil leak at fuel and hydraulic hose connections and points Interference, deformation, degradation, twist and other damage (cracks, chafing) of fuel and hydraulic hoses

List of important component parts

No.	Component parts	Period
1	Fuel hose	Every 2 years or 4000 hours
2	Hydraulic hose (suction)	
3	Hydraulic hose (delivery)	
4	Hydraulic hose (boom cylinder)	
5	Hydraulic hose (arm cylinder)	
6	Hydraulic hose (bucket cylinder)	
7	Hydraulic hose (swing cylinder)	
8	Hydraulic hose (dozer cylinder & track cylinder)	
9	Hydraulic hose (service port)	
10	Hydraulic hose (swivel motor)	

To prevent serious damage to the hydraulic system, use only a Kubota genuine hydraulic hose.

RECOMMENDED OILS AND FUELS

IMPORTANT :

- **Before delivery, the hydraulic oil used was Shell Tellus S2M46**
- **Use engine oil API service classification CF/CF-4 or better and SAE10W-30.**
- **Use SAE 90 (API, GL-4/GL-5) as drive unit oil for all seasons.**
- **To change the engine oil, hydraulic oil, gear oil or the like, drain all of the oil and replace it with fresh oil. When adding oil, use the same brand and same type of oil.**
- **Other than the oil mentioned below, JCMAS HK certified oil and GK certified grease can also be used. Check the Japan Lubricating Oil Society (JALOS) website for more details.**

	Application	Viscosity	KTC *1 recommends	Shell	ExxonMobil
Gear oil	All-weather gear oil	**SAE 90**	Excavator gear oil 90	**Shell Spirax HD80W-90**	**Mobilube HD Plus 80W-90**
Hydraulic oil	In winter or in low temperatures	**ISO 32**	Excavator hydraulic fluid 32	**Shell Tellus S2M32** or **Shell Tellus S2MX32**	
	In summer or in high ambient temperatures	**ISO 46**	Excavator hydraulic fluid 46	**Shell Tellus S2M46** or **Shell Tellus S2MX46**	
Grease				**Shell Alvania EP2**	**Mobilux EP2**
Fuel				Diesel fuel **No.2-D S15**	
Fuel under -5 ℃ (23 ℉)				Diesel fuel **No.1-D S15**	

***1 KTC is an abbreviation for Kubota Tractor Corporation.**

	Application	Viscosity	KCL *1 recommends	Shell	Esso
Gear oil	All-weather gear oil	**SAE 90**		**Shell Spirax HD75W-90**	**Mobilube HD80W-90**
Hydraulic oil	In winter or in low temperatures	**ISO 32**	KUBOTA ALL SEASON HYDRAULIC EXCAVATOR OIL	**Shell Tellus S2M32** or **Shell Tellus S2MX32**	
	In summer or in high ambient temperatures	**ISO 46**		**Shell Tellus S2M46** or **Shell Tellus S2MX46**	
Grease				**Shell Alvania EP2**	**Mobilux EP2**
Fuel				Diesel fuel **No.2-D S15**	
Fuel under -5 ℃ (23 ℉)				Diesel fuel **No.1-D S15**	

***1 KCL is an abbreviation for Kubota Canada Ltd.**

Engine oil:

Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE engine oil according to the ambient temperatures.

Above 25 ℃ (77 ℉)	**SAE 30** or **SAE 10W-30**, **SAE 10W-40**
-10 ℃ to +25 ℃ (14 ℉ to 77 ℉)	**SAE 20** or **SAE 10W-30**, **SAE 10W-40**
Below -10 ℃ (14 ℉)	**SAE 10W** or **SAE 10W-30**, **SAE 10W-40**

Refer to the following table for the suitable API classification engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the fuel.

Fuel used	Engine oil classification (API classification)
	Oil class of engines without EGR
Ultra low sulfur fuel [<0.0015 % (15 ppm)]	**CF**, **CF-4**, **CG-4**, **CH-4** or **CI-4**

EGR: Exhaust Gas Re-circulation
The CJ-4 engine oil is intended for DPF (Diesel Particulate Filter) type engines, and cannot be used on this machine.

Fuel:

- Cetane number of 45 is minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20 ℃ (-4 ℉) or elevations above 1500 m (5000 ft).
- Diesel fuels specified to **EN 590** or **ASTM D975** are recommended.
- **No.2-D** is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (**SAE J313 JUN87**)

BIODIESEL FUEL (BDF)

B0-B20 Biodiesel fuels (BDF): mixed diesel fuels containing 20% or less biodiesel can be utilized under the following conditions.

IMPORTANT :

- **Refueling and handling fuel should be done with caution in order to avoid contact with the fuel and spillage that could create a potential environmental or fire hazard. Wear appropriate protective equipment when refueling.**

Applicable BDF:

- Blended diesel fuels containing 6% through 20% BDF (B6 - B20) which comply with American Society for Testing and Materials (ASTM) D7467 Standard, as revised, can be used without adversely affecting the performance and durability of the engine and fuel system components.
- Any mineral oil diesel fuel, if used, must conform to ASTM D975 (or the European EN590) Standard, as revised.
  B100 fuel used to make Biodiesel blended fuels must meet ASTM D6751 (or EN14214) Standard, as revised.
  The final blended fuel B20 must conform to ASTM D7467 Standard, as revised.
  Straight vegetable oil is not allowed in any blended fuel.
- Allowable blended fuel is mineral oil diesel fuel blended with B100 (meaning, 100% BDF).
  The blended fuel ratio shall be less than 20% B100 and 80% or more diesel fuel.
  The B100 source used for Biodiesel blends must be purchased from an accredited BQ-9000 marketer or producer.
  More information about qualified marketer(s) and producer(s) can be found at http://www.bq-9000.org .

Preparation:

- Before using BDF concentrations greater than B5, you are advised to replace the engine oil, engine oil filter and fuel filter with new oil and filters. Details regarding the replacement procedures can be found in a different section. (See Changing the engine oil on page 77 and Replacing the engine oil filter cartridge on page 77.)

Product warranty, emission and other precautions:

- The engine emission control system was certified according to current regulations based on the use of non-BDF. When using BDF, the owner is advised to check applicable local and federal emission regulations and comply with all of them.
- BDF may cause restricted or clogged fuel filters during cold weather conditions, resulting in the engine not operating properly.
- BDF encourages the growth of microorganisms which may cause degradation of the fuel.
  This in turn may cause fuel line corrosion or reduce fuel filter flow earlier than expected.
- BDF inherently absorbs moisture which may cause degradation of the fuel earlier than expected.
  To avoid this, drain the water separator and fuel filter port often.
- Do not use Biodiesel concentrations higher than 20% (namely, greater than B20).
  Engine performance and fuel consumption will be affected, and degradation of the fuel system components may occur.
- Do not readjust the engine fuel control system as this will violate emission control levels for which the equipment was approved.
- Compared with soybean-based and rapeseed-based feedstock, palm oil-based feedstock has a thicker consistency (that is, higher viscosity) at lower temperatures.
  Consequently, fuel filter performance may be reduced, particularly during cold weather conditions.
- The Kubota Warranty, as specified in the owner's warranty information guide, only covers defects in product materials and workmanship. Accordingly, any problems that may arise due to the use of poor quality fuels that fail to meet the above requirements, whether biodiesel or mineral oil based, are not covered by the Kubota Warranty.

Routine handling:

- Avoid spilling BDF onto painted surfaces as this may damage the finish.
  If fuel is spilled immediately wipe clean and flush with soapy water to avoid permanent damage.
- When using BDF, you are advised to maintain a full tank of fuel, especially overnight and during short term storage, to reduce condensation within the tank. Be sure to tighten the fuel cap after refueling to prevent moisture build up within the tank. Water in the biodiesel mixture will damage fuel filters and may damage engine components.

Maintenance requirements when using BDF B0 through B5:

Follow the recommended oil change intervals. (See MAINTENANCE INTERVALS on page 65.)

Extended oil change intervals may result in premature wear or engine damage.

Maintenance requirements when using BDF B6 through B20:
The maintenance intervals for fuel related parts changes.
See the following table for the new maintenance intervals.

Items		Interval	Remarks
Fuel filter element	Replace	Every 250 hrs	
Fuel line	Check	Every 100 hrs	
	Replace	Every 1 year	Consult your local Kubota dealer for this service.

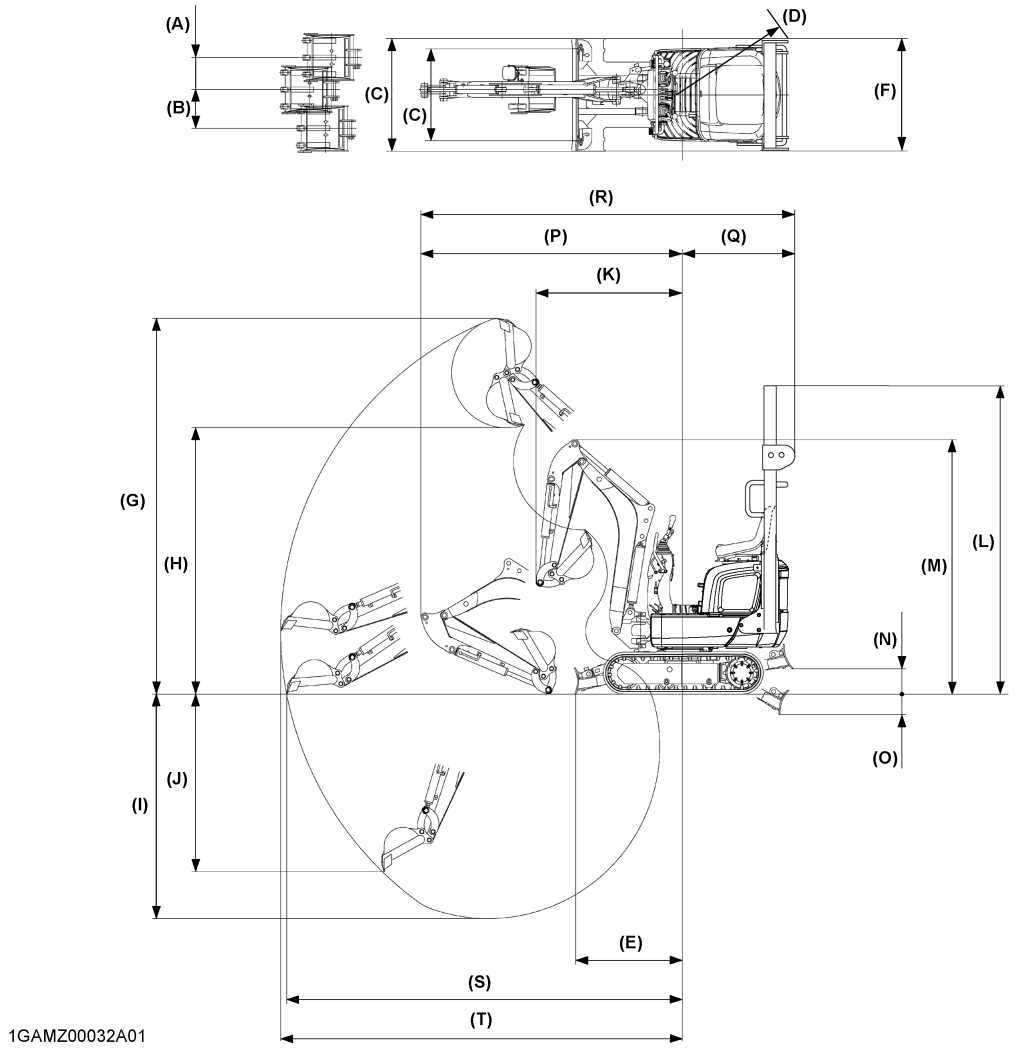
Long term storage:

- BDF easily deteriorates due to oxygen, water, heat and foreign substances.
  Do not store B6 through B20 longer than 1 month and B5 longer than 3 months.
- When using B6 through B20 and storing the machine longer than 1 month, drain the fuel from the tanks and replace with light mineral oil diesel fuel.
  Subsequently, run the engine at least 30 minutes to remove all of the Biodiesel from the fuel lines.
- When using B5 fuel and storing machine longer than 3 months, drain the fuel from the tanks and replace with light mineral oil diesel fuel.
  Subsequently, run the engine at least 30 minutes to remove all of the Biodiesel from the fuel lines.

APPENDICES

MAIN DIMENSIONS

[K008-5]



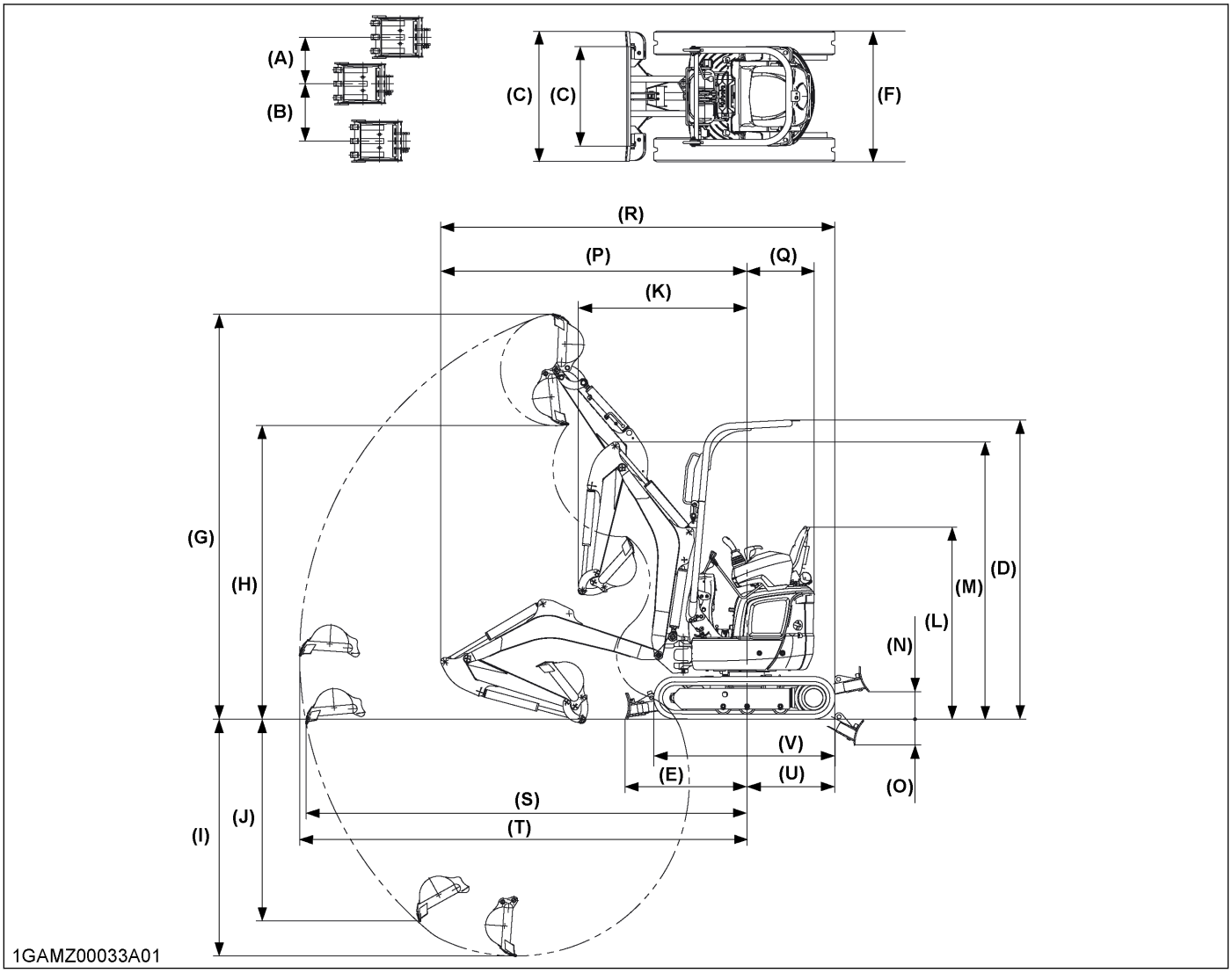
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
K008-5	245 (9.7)	300 (11.8)	700/860 (27.6/33.9)	880 (34.6)	825 (32.5)	800 (31.4)	2870 (113)	2035 (80.1)	1715 (67.5)	1375 (54.1)
	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)
	1120 (44.1)	2230 (87.8)	1945 (76.6)	200 (7.9)	180 (7.1)	2000 (78.7)	790 (31.1)	2790 (109.8)	3025 (119.1)	3075 (121.1)

mm (in.)

NOTE :

- **The dimensions are based on the machine with the bucket K9776.**

[U10-5]



U10-5	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	355 (14.0)	435 (17.1)	750/990 (29.5/39.0)	2260 (89.0)	920 (36.2)	750/990 (29.5/39.0)	3050 (120.1)	2210 (87.0)	1800 (70.9)	1550 (61.0)	1260 (49.6)
	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)
	1450 (57.1)	2100 (82.7)	215 (8.5)	190 (7.5)	2310 (90.9)	510 (20.1)	2980 (117.3)	3330 (131.1)	3380 (133.1)	670 (26.4)	1340 (52.8)

mm (in.)

NOTE :

- **The dimensions are based on the machine with the Kubota original bucket.**

LIFTING CAPACITY

IMPORTANT INFORMATION

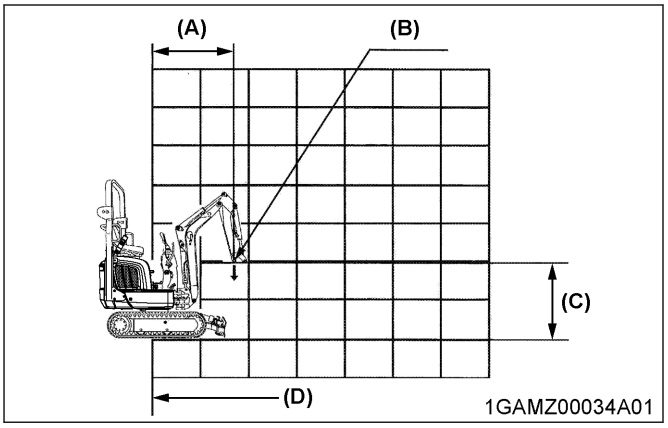
⚠ WARNING

To avoid personal injury or death:

- **Do not lift loads greater than those values mentioned in the lifting capacity tables.**
- **The values mentioned in the table are valid only on even, hard ground. When lifting on soft ground, the machine can tilt over due to the fact that the load is concentrated only on one side of the machine.**
  The table values are calculated at the end of the arm without the bucket. In order to find the allowable loads for machines with bucket, the bucket weight must be subtracted from the values in the table.

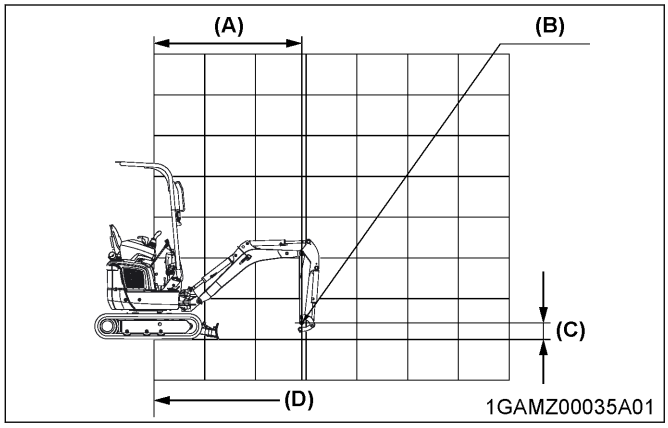
- The lifting capacities are based on ISO 10567 and do not exceed 75 % of the static tilt load of the machine or 87 % of the hydraulic lifting capacity of the machine.
- The strokes are as follows:
  - The load point corresponds to the front bolt part of the arm.
  - The machine positions are
    - over-front (blade up)
    - over-front (blade down)
    - over - side
  - The operating cylinder is the boom cylinder.
- The bucket of the machine, the hook, the sling, and other lifting accessories are taken into consideration for the loads.
  The following illustration shows machine condition without the bucket and all the other conditions are according to standard regulations.

[K008-5]



(A) Lift point radius
(B) Lift point
(C) Lift point height
(D) Axis of rotation

[U10-5]



(A) Lift point radius
(B) Lift point
(C) Lift point height
(D) Axis of rotation

LIFTING CAPACITY OF K008-5 (RUBBER TRACK)

Lifting capacity over-front (blade up)

Lift point height (ft)		Load radius (ft)					
		0	2	4	6	8	10
GL*1	10						
	8						
	6				0.38		
	4				0.39	0.24	
	2			0.67	0.36	0.23	
	0			0.61	0.34	0.23	
	-2			0.61	0.33		
	-4			0.50			
	-6						

Unit=1000 lbs

Lifting capacity over-front (blade down)

Lift point height (ft)		Load radius (ft)					
		0	2	4	6	8	10
GL*1	10						
	8						
	6				0.38		
	4				0.44	0.39	
	2			1.02	0.56	0.40	
	0			1.04	0.58	0.37	
	-2			0.81	0.47		
	-4			0.50			
	-6						

Unit=1000 lbs

Lifting capacity over-side (track width 33.9 in.)

Lift point height (ft)		Load radius (ft)					
		0	2	4	6	8	10
GL*1	10						
	8						
	6				0.33		
	4				0.32	0.20	
	2			0.53	0.29	0.19	
	0			0.48	0.27	0.18	
	-2			0.47	0.26		
	-4			0.48			
	-6						

Unit=1000 lbs

*1 Ground level

LIFTING CAPACITY OF U10-5 (RUBBER TRACK)

Lifting capacity over-front (blade up)

Lift point height (ft)		Load radius (ft)					
		0	2	4	6	8	10
GL*1	10						
	8						
	6					0.30	
	4				0.46	0.29	
	2				0.43	0.28	
	0			0.75	0.40	0.27	
	-2			0.76	0.40	0.27	
	-4				0.36		
	-6						

Unit=1000 lbs

Lifting capacity over-front (blade down)

Lift point height (ft)		Load radius (ft)					
		0	2	4	6	8	10
GL*1	10						
	8						
	6					0.42	
	4				0.49	0.42	
	2				0.68	0.45	
	0			1.18	0.68	0.44	
	-2			0.95	0.56	0.35	
	-4				0.36		
	-6						

Unit=1000 lbs

Lifting capacity over-side (track width 39.0 in.)

Lift point height (ft)		Load radius (ft)					
		0	2	4	6	8	10
GL*1	10						
	8						
	6					0.26	
	4				0.40	0.25	
	2				0.37	0.24	
	0			0.61	0.34	0.23	
	-2			0.62	0.33	0.22	
	-4				0.34		
	-6						

Unit=1000 lbs

*1 Ground level

INDEX

A

after working in cold weather..... 88
air filter element
  cleaning.....75
  inspecting.....75
  replacing.....79
arm
  operating..... 50
attachment operation..... 46

B

battery
  charging..... 73
  checking condition.....72
biodiesel fuel (BDF).....93
boom
  operating..... 49
boom swing operation..... 51
bucket
  operating..... 50

C

clamps
  checking.....75
control observations during operation..... 41
coolant level
  checking.....67

D

daily check..... 36
  checking and cleaning electrical wiring.....71
  checking and cleaning engine.....71
  checking coolant level.....67
  checking hydraulic oil level.....69,71
dealer service.....23
downhill
  driving.....45
dozer
  operating..... 54
dozer operation..... 52
dozer width
  adjusting.....53
drive lever (right, left)
  operating..... 43
dynamo
  checking.....80

E

electrical wiring
  checking.....71,80
  cleaning.....71
engine
  checkpoint after starting.....38
  operating..... 37
  starting..... 37
  starting with an auxiliary battery.....39
  stopping.....39
engine and electrical wiring
  checking.....71
  cleaning.....71
engine hood
  opening..... 67
engine hood lock
  checking.....71
engine oil
  changing.....77
engine oil filter cartridge
  replacing.....77
engine oil level
  checking.....68
engine stop button.....39
engine valve clearance
  checking.....78
excavator
  driving instructions..... 43
  lifting (warning information).....62
  scrapping procedure..... 24
  storing long-term (warning information)..... 89
  warranty policy..... 23
excavator main dimensions.....95
excavator parts.....27

F

fan belt
  adjusting the tension..... 74
  checking the tension..... 74
foldable ROPS..... 56
  Adjustment..... 57
front attachment
  greasing..... 69
fuel filter
  draining water.....72
fuel filter element
  replacing.....77
fuel hose
  replacing.....81
fuel injection nozzle
  checking.....80
fuel Level
  checking.....68
fuel line
  checking.....76
fuel system
  purging..... 83

fuel tank
draining water....72
fuels (recommended).... 91
fuses
checking....80
replacing....85

H

horn switch
checking....32
hour meter....31
hydraulic oil
changing....78
hydraulic oil checks (hydraulic breaker operation)..... 79
hydraulic oil level
checking....69

I

important information on machine operation....55
injection pump
checking....80
instrument panel....29
intake air line
checking....76
replacing....81

L

levers (control).... 33
lifting capacity (important information).... 97
lifting capacity [K008-5].... 98
lifting capacity [U10-5].... 98

M

machine
lifting....62
lifting (basic points).... 62
lifting (safety aspects).... 62
operating (after long-term storage).... 89
parking on slope (warning information)....46
precautions when washing....64
safe loading....9
safe transport.... 9
storing.... 89
technical data....25
washing the whole machine....71
maintenance intervals.... 65
maintenance work (warning information).... 72

N

new machine
operating.... 41

O

oils (recommended).... 91
operation
spinning....45
operator's manual
storing.... 67
operator's seat
adjusting....42
overheating countermeasures....40

P

parts (periodic replacement).... 89
pattern change
switching from Pattern A to Pattern B [K008-5].....47
switching from Pattern A to Pattern B [U10-5]..... 48
switching from Pattern B to Pattern A [K008-5].....47
switching from Pattern B to Pattern A [U10-5]..... 49
pattern selection....46
pedals (control).... 33
pilot control lock lever....35,42
pivot turn.... 44
plastic parts
cleaning....82
preparation for work in cold weather.... 88

R

radiator
checking....70
radiator coolant
changing....80
radiator hose
replacing....80
radiator hose clamp
replacing....80
radiator hoses
checking....75
regular checks (warning information).... 72
ROPS
checking....71
folding....56
raising to the upright position.... 57
ROPS bar....57
folding....58
setting upright....58

S

safety
avoiding crystalline silica (quartz) dust....7
general information.... 5
maintenance....9
post-operation.... 8
ROPS....6
starting to operate the machine....6
working the machine.... 7
safety for children....7
safety labels
taking care of the labels.... 22
safety labels (danger, warning and caution)....14

seat belt
checking....71
service port pedal....54
locking....55
Slow blow fuse....86
special information regarding the use rubber tracks....84
starter motor
checking....80
starter switch
checking....31
starting the engine under cold conditions....39
starting the machine....42
suction filter
replacing....78
switches....29
swivel bearing
greasing....76
swivel bearing teeth
greasing....74
swivel lock pin....35
swivel operation....51
synthetic leather
cleaning....82

T

track
attaching....84
changing....84
detaching....84
loosening....83
tensioning....84
track frame telescopic beams
cleaning....81
track width
adjusting....52
track width adjustment....52
tracks
adjusting....83
transporting on a vehicle....60
travel speed pedal....54
troubleshooting....87

U

uphill
driving....45
using the seat belt....41

W

warning lamp
checking....31
warranty policy....23
working light switch....32