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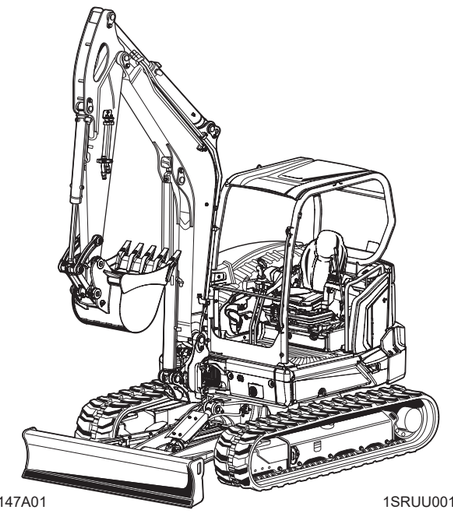
English (U.S.A./CANADA)
Code No. RD578-8121-3

KX057-5 • U55-5

OPERATOR'S MANUAL

KUBOTA EXCAVATOR

MODELS KX057-5 · U55-5



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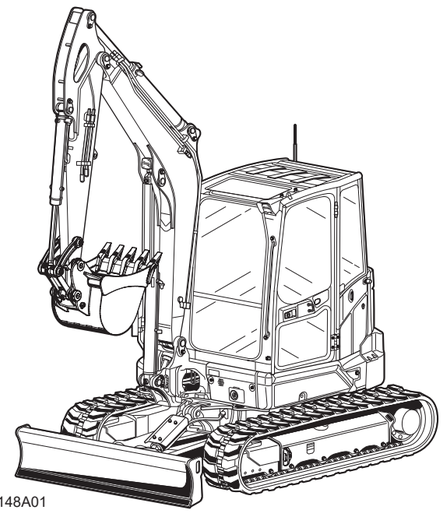

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READ AND SAVE THIS MANUAL

PRINTED IN JAPAN

LIST OF ABBREVIATION

Abbreviations	Description
AFS	Air Flow Sensor
AI	Auto Idle
API	American Petroleum Institute
ASTM	American Society for Testing and Materials, USA
CECE	Committee for European Construction Equipment
CRS	Common Rail System
DIN	Deutsches Institut für Normung, GERMANY (German Institute for Standardization)
DOC	Diesel Oxidation Catalyst
DPF	Diesel Particulate Filter
EGR	Exhaust Gas Re-circulation
EN	European Standard
FRONT	"Front" means the direction towards the boom and dozer
Hi	High speed
ISO	International Organization for Standardization
JIS	Japanese Industry Standard
L	Volume (Liter)
L/min	Liter per minute
Lo	Low speed
MAF	Mass Air Flow
MIL	Military Standard
OPG	Operator Protective Guards
OSHA	Occupational Safety and Health Administration
P/L	Pressure Limiter
PCV	Positive Crankcase Ventilation
ROPS	Roll-Over Protective Structure
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers, USA
TPSS	Two Pattern Selection System

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.

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 machine. These symbols are listed below with their respective descriptions.


Safety alert symbol


Warning lamp - *“Fuel level too low”*

System lamp


Warning lamp - *“Engine oil pressure”*


Warning lamp - *“Battery charge”*


Coolant temperature


Hydraulic oil temperature

Auto Idle (AI)


Indicator lamp - *“Glow”*


Working light


Horn


Wiper


Washer and wiper

Diesel


Hydraulic fluid


Gear oil


Fast


Slow


Machine - overhead movement toward the front


Machine - overhead movement toward the rear


Swivel - left


Swivel - right


Boom - up


Boom - down


Arm - up


Arm - crowd


Bucket - crowd


Bucket - dump


Boom - swing (left)


Boom - swing (right)


Dozer - raise


Dozer - lower


Dozer float


Operation direction of control lever


Operation direction of control lever


Read operator's manual


Lock


Unlock

Engine stop


DPF standby / regeneration

Engine rev up


Inhibit DPF regeneration

Service indicator

Menu switch

Return switch

Travel alarm cancel

Camera

Auxiliary port

Auxiliary port - one-way hold

Acknowledge

Cancel

Air conditioner

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

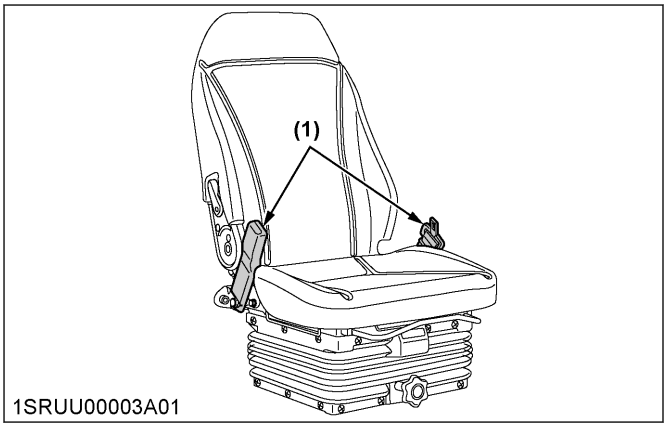
The best way to prevent accidents is to follow the safety instructions and warnings in this manual, regulations, and safe operating practices.
Read and understand this manual carefully before operating the machine.
Every user, however experienced, should carefully read and understand this manual and 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 back of the seat.
(See Where to keep the operator's manual on page 103.)

BEFORE OPERATING THE MACHINE

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

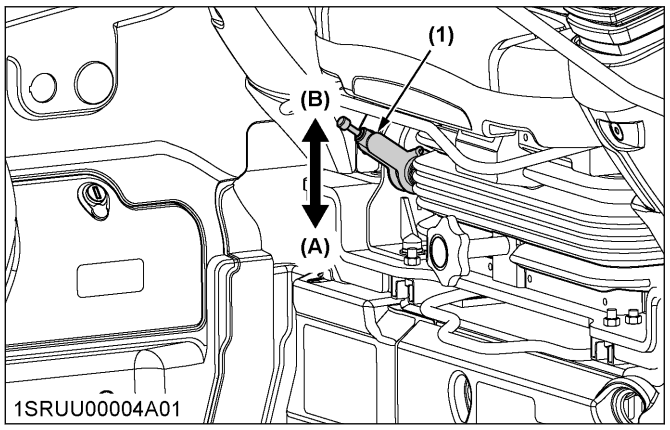
1. General

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



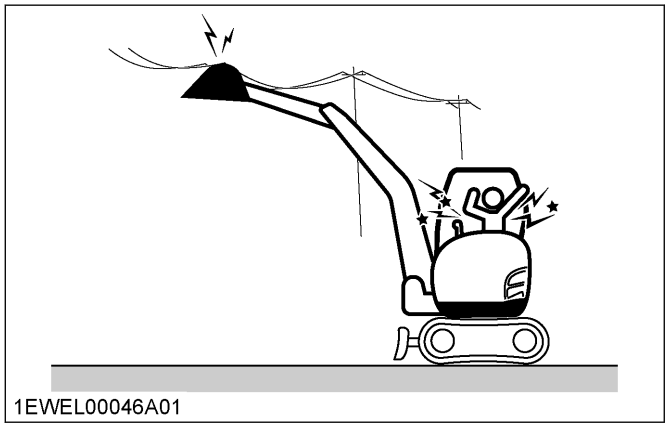
(1) Seat belt

- 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.
  – Engage the lever lock to prevent accidental pattern change.

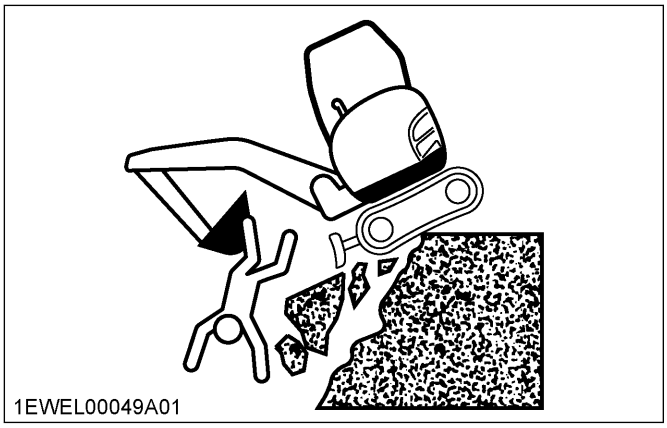


(1) Pattern selector lever (two pattern selection system:TPSS)
(A) Pattern A
(B) Pattern B

- 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 overhead clearances with electric wires.



  – Check for pipes and buried cables before digging.
  – Check for hidden holes, obstacles, soft underground, and overhangs.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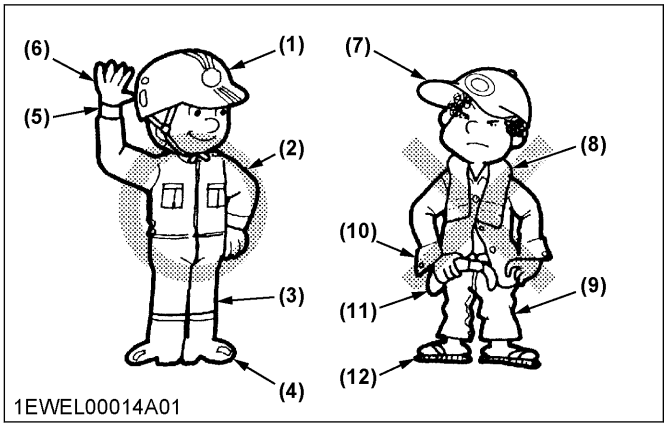
  - While using the machine, do not allow any persons within the working range.
  - Check local regulations and call 811 before digging.
- Do not allow other persons to use the machine before having informed them on the exact operation and work instructions, and make sure that they have read and fully understood the operator's manual.
- Do not wear baggy, torn or oversized clothing when working with the machine as such clothing can get caught in rotating parts or control elements which can cause 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.



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(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.
- Do not operate a hydraulic hammer on anything that is above the operator's seat level as objects may fall into the operator station.
- Make sure that attachments, particularly those utilizing quick attach systems, are securely mounted.
- Install protective guards on the machine when working in areas where objects may fall or be thrown.

2. ROPS and OPG

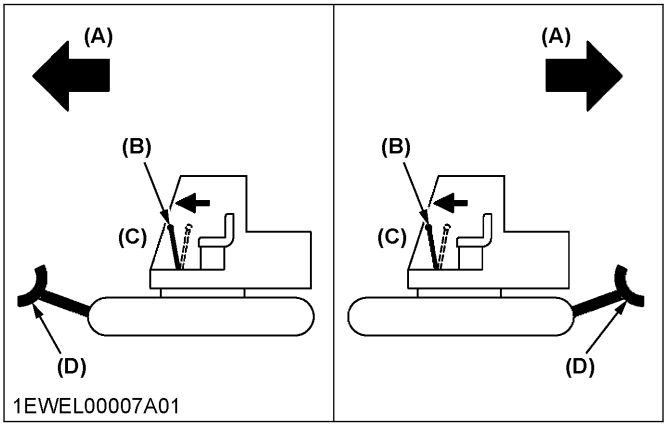
- For your safety, a roll-over protective structure (ROPS) with a seat belt or operator protective guard, top guard level I (OPG, top guard level I) with a seat belt is installed by Kubota.
  The OPG (top guard level I), in accordance with ISO10262, is equivalent in definition to a falling object protective structure (FOPS).
- Always use the seat belt when the machine is equipped with a ROPS or OPG (top guard level I) as this combination will reduce the risk of serious injury or death in case of machine tip-over or instability, or in case of falling objects.
- Do not modify any structural members of the ROPS or OPG (top guard level I) 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 or OPG (top guard level I) 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.
  The OPG (top guard level I) meets the requirements of OSHA 1926.1003 / ISO 10262.

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.

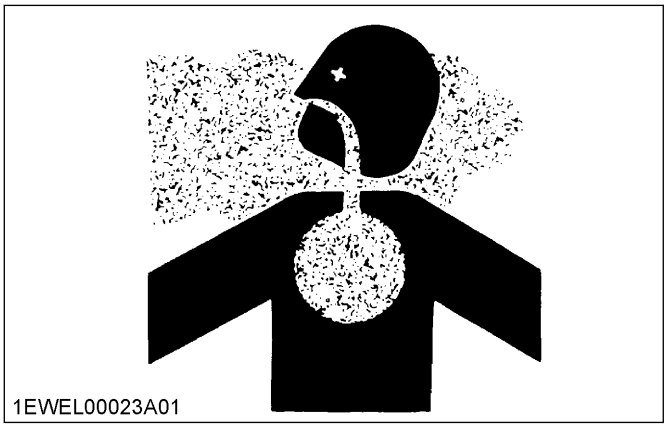
- Start and control the machine only from the operator's seat. The driver should not lean out of their seat when the engine is running.
- Before starting the engine, make sure that lock levers are in the LOCK positions, all control levers and pedals are in their *"NEUTRAL"* positions, and the seat belt 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 anything wrong is found, immediately pinpoint the cause and correct it.
- 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.
- When operating the machine, keep hands and body inside of the ROPS or OPG (top guard level I) protective envelope. Do not touch or depress the control levers or the pedals from outside the CAB while the engine is running.
- 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 way due to the weight of the machine.

Allowable climbing angle	36% (20 degrees)
Allowable angle cross	27% (15 degrees)

- Watch where you are going at all times.
  Watch for obstacles and avoid them. Remain alert to trees, wires, and other obstructions.

3. Safety for children

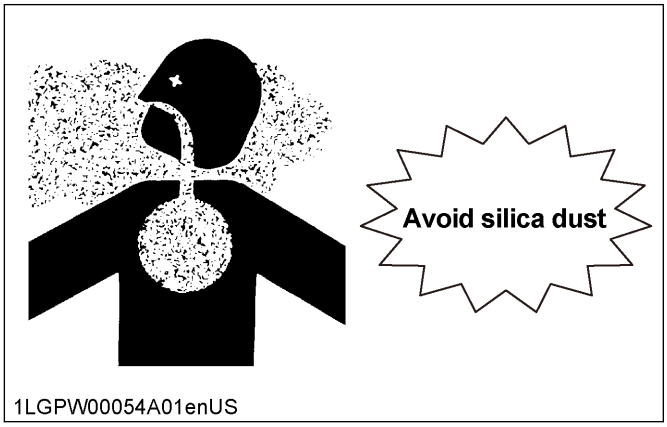
Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and the work they do.

- 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.

3.1 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.

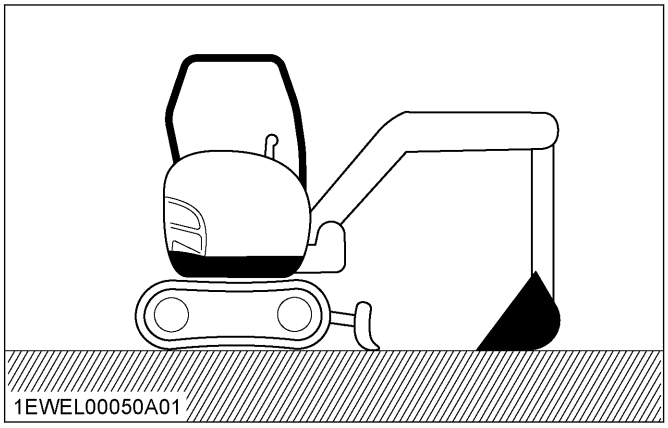


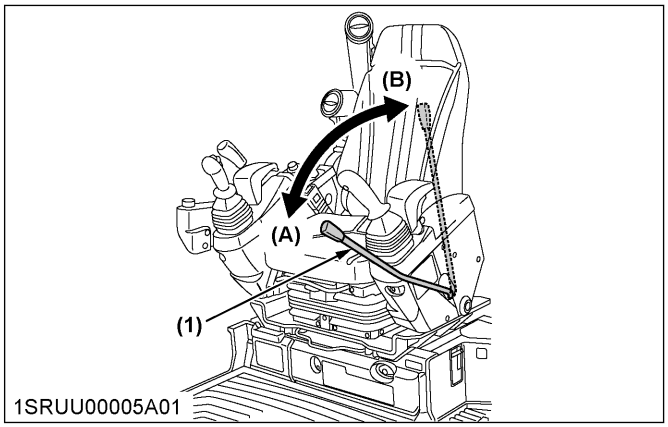
- If dust which contains crystalline silica is present, there are guidelines which should be followed:
  - Be aware of the potential health effects of crystalline silica and that smoking may add to the damage.
  - Be aware of and follow OSHA (or other local, State or Federal) guidelines for exposure 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.
  (See RELEASING PRESSURE TRAPPED IN THE HYDRAULIC SYSTEM on page 85.)
- Lock all control levers.
- Remove the key.
- Lock the CAB door (if equipped).

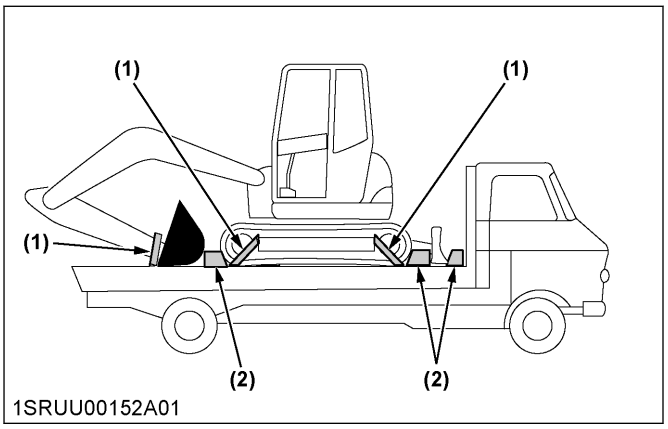




(1) Pilot control lock lever
(A) UNLOCK
(B) LOCK

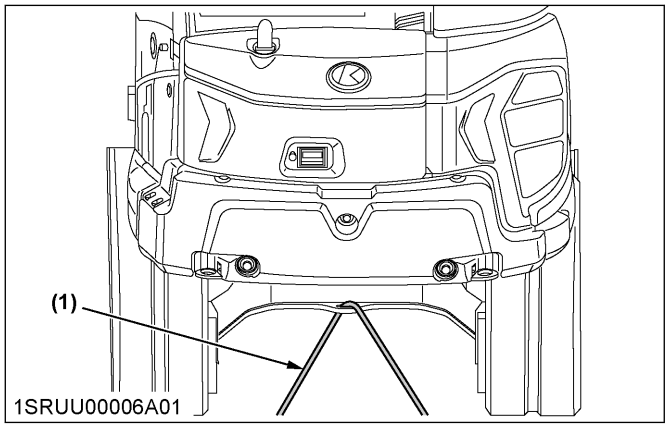
SAFE LOADING AND TRANSPORT OF THE MACHINE

- Observe all regulations concerning the transport of machine on public roads.
- Use adequately long and robust ramps when loading on the machine.
  (See TRANSPORTING THE MACHINE on page 89)
- Do not change the running direction. To avoid tipping over, do not try to swing the attachment crosswise to the loading ramps.
- 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 vehicle, securely chain down the undercarriage of the machine using suitable chains, tensioners, and approved methods.



(1) Chain
(2) Block

- Avoid abrupt braking of the vehicle with the machine loaded. Sudden braking causes the machine to move and may cause a serious accident.
- When towing another machine or pulling a load, the load must be less than the strength of the towing line attached to machine. The towing eye should not be used to tie down or lift the machine.



(1) Tow line

Maximum drawbar pull at coupling hook	88.9 kN (19986 lbf, 9065 kgf)
Maximum vertical load at coupling hook	15.4 kN (3462 lbf, 1570 kgf)

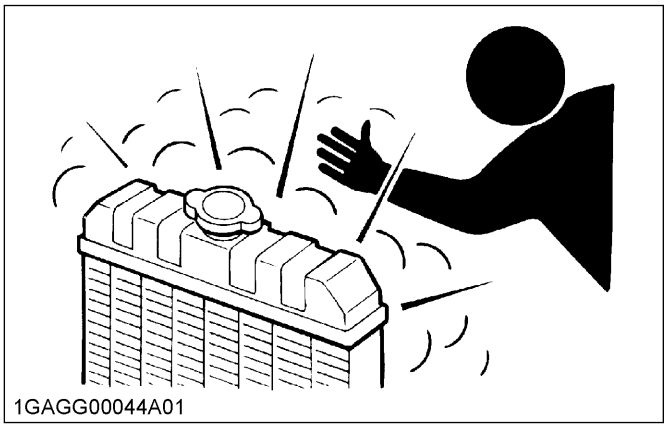
- Do not use the hooks on the roof of canopy and CAB for lifting the machine.

MAINTENANCE

Before doing maintenance work on the machine, place the machine on a firm, flat and level surface, lower the attachments to the ground, stop the engine, release pressure trapped in the hydraulic system, lock all control levers and remove the key. When dismantling hydraulic parts, make sure that the hydraulic oil has cooled down sufficiently to avoid burns. Start maintenance work carefully, such as loosening 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.
- Always turn off the engine when filling the fuel tank. Avoid spilling and over-filling 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 a 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.
- 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 59.)

- Keep a first aid box and a fire extinguisher handy 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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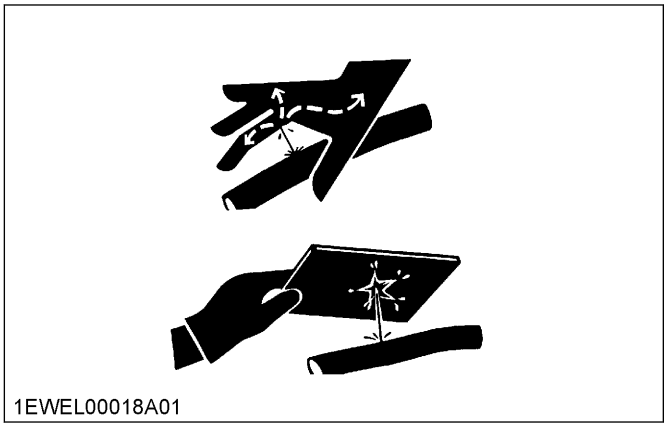
- To avoid short-circuiting the battery, always remove the ground cable first and attach the positive cable first.
- Oil under high pressure can penetrate the skin and may be harmful to your health if not treated immediately.
- Leaking hydraulic fluid has enough pressure to penetrate the skin and cause 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 that you use a face mask or eye protection.
  In case of injuries caused by leaking hydraulic fluid, contact a doctor immediately. This fluid can cause gangrene or serious allergic reactions.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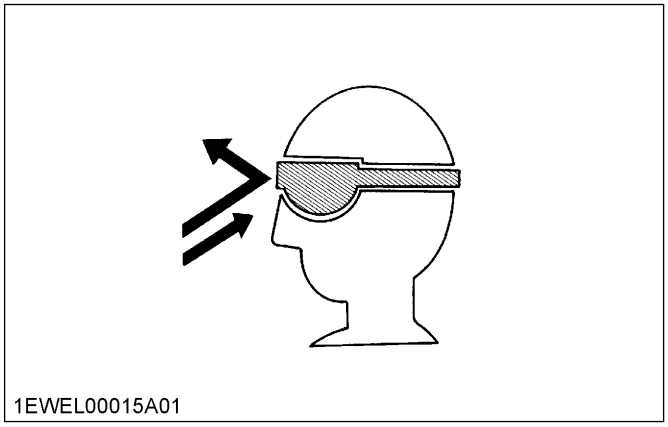
- To avoid environmental damage from acid and heavy metals, dispose of the battery appropriately.
- Observe all laws and regulations concerning the disposal of used oil, coolants, solvents, hydraulic fluids, battery acids and batteries.
- To avoid fire, do not heat the hydraulic components (tanks, pipes, hoses, cylinders) before they have been drained and washed.
- Use eye protection or a face mask to protect the eyes and respiratory system against dust and other foreign particles.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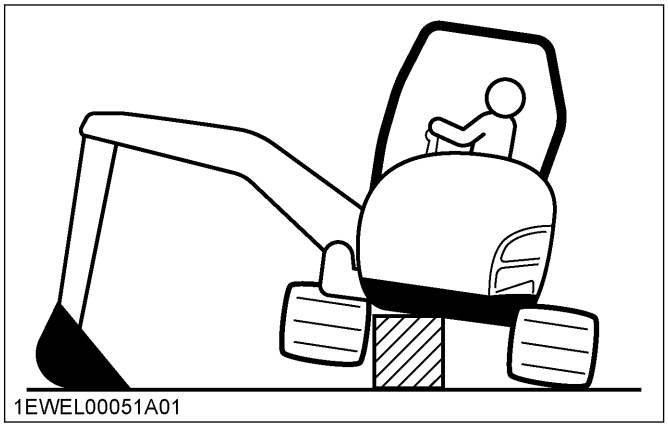
- Securely support the machine with stands or suitable blocking before working underneath. For your safety, do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered.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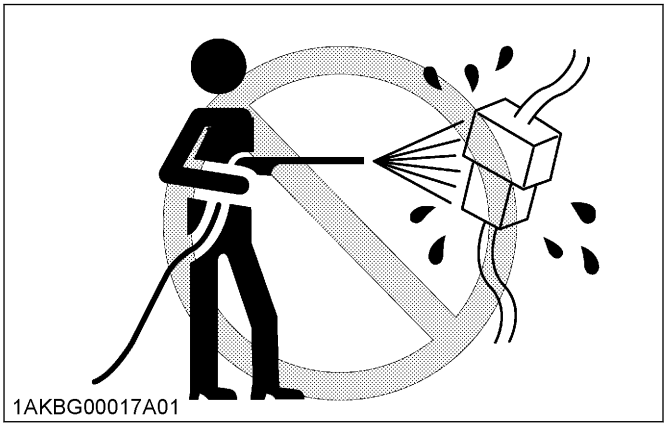
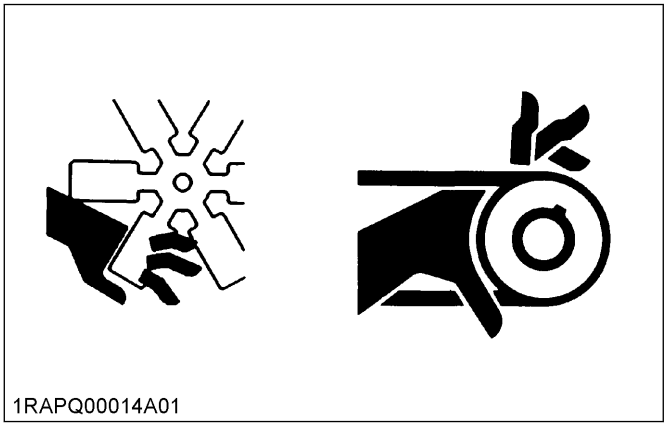
- Do not dismantle the spring of the track tensioner. If dismantling is necessary, contact your Kubota dealer where the machine was purchased, or a competent service shop. The assembly must be done according to the Kubota work shop manual (WSM) for the product involved.
- When lifting the machine itself 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/OPG (top guard level I) 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.

- Do not open high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury.
  Do not disconnect nor attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high-pressure common rail fuel system.
- To avoid hazardous high voltage, turn the starter switch to the **[STOP]** position if it is necessary to check to repair the computer, harness or connectors.
- To prevent personal injury or death, be sure to 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. Be sure to 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.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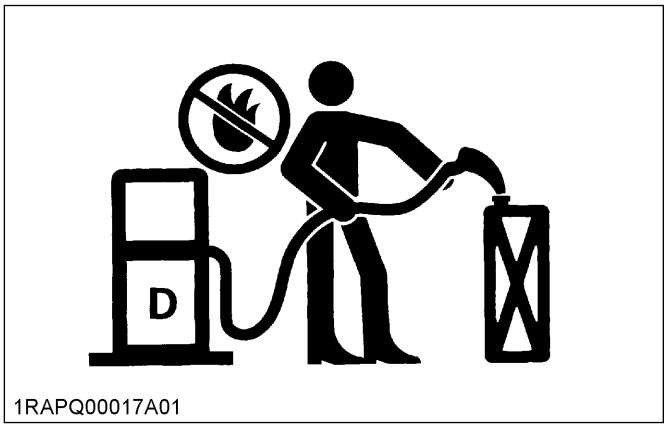
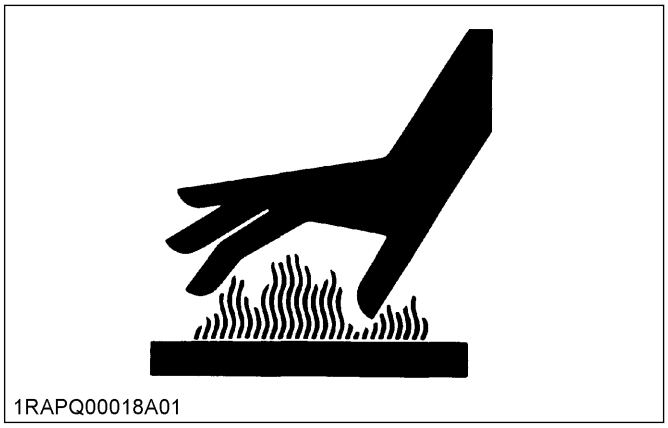
- For proceeding to regenerate the Diesel Particulate Filter (DPF), a warning indicator appears on the display to tell you to increase the engine rpm to its specified level. Follow that instruction.
- When the DPF is in the regenerating cycle, the exhaust gas and the DPF muffler become hot. During regeneration, take into account that the muffler will be very hot and keep the machine away from other people, animals, plants, and flammable material. Also keep the area near the DPF muffler clean and away from flammable material.
- The exhaust gas caused by DPF regeneration may adversely affect people, animals and plants. Before this action, look around the machine for added safety.
- During DPF regeneration keep the surrounding environment in mind. Do not allow the ambient temperature to rise excessively due to heat from the regeneration. If such occurs activate the inhibit switch.
- 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.

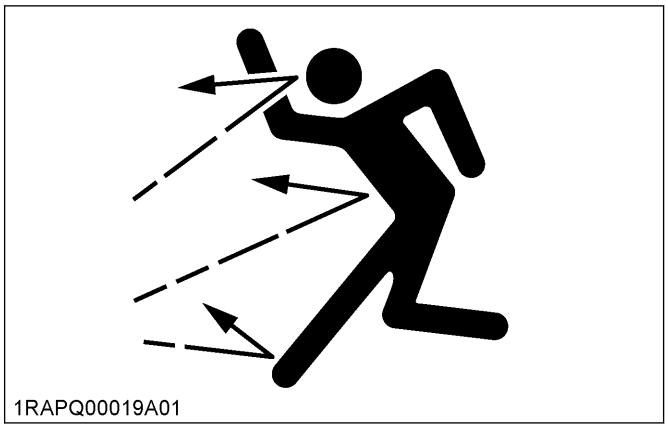


1RAPQ00017A01

• 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.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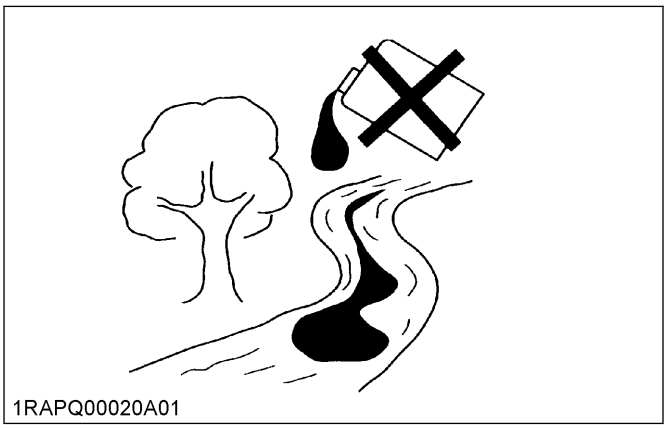
• Always carefully check the machine after performing any maintenance or repairs.

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.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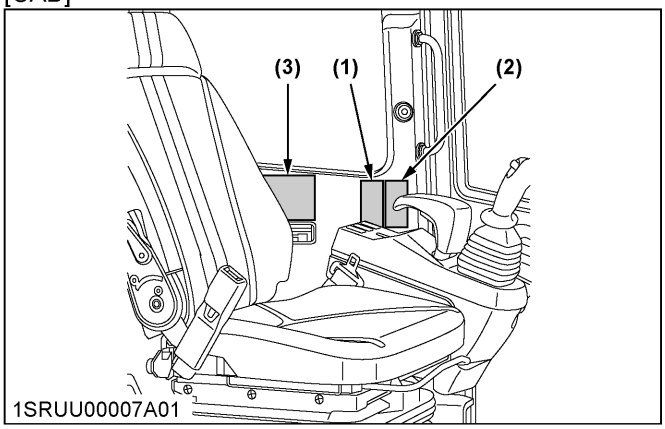
Fire prevention

- 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 the turbocharger, exhaust manifold, exhaust pipes and muffler. Do this 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 the 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 for 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 them 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

[CAB]



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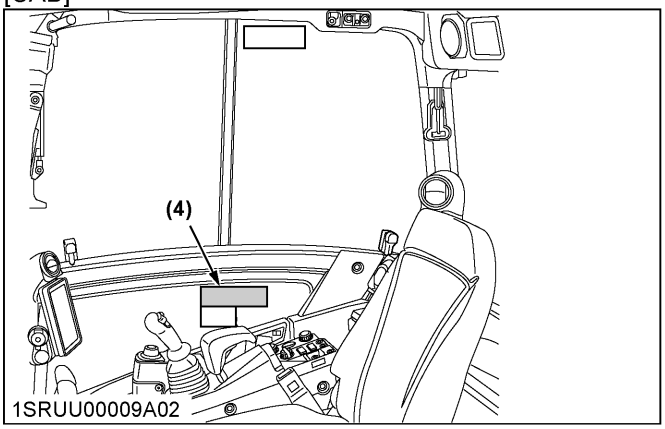

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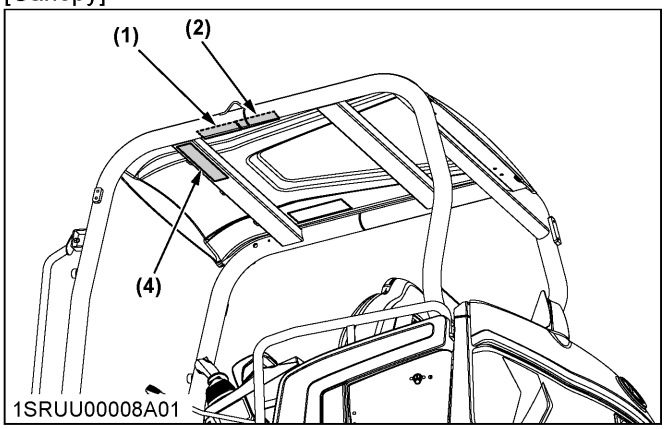

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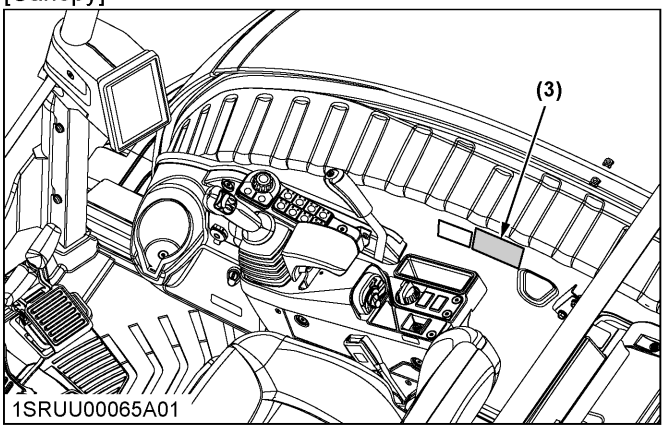

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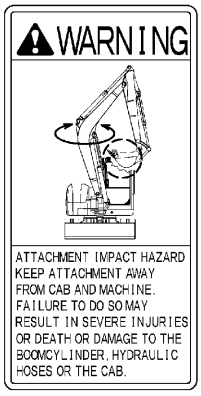

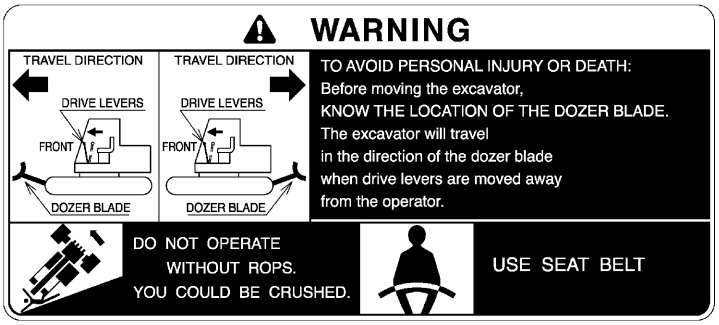

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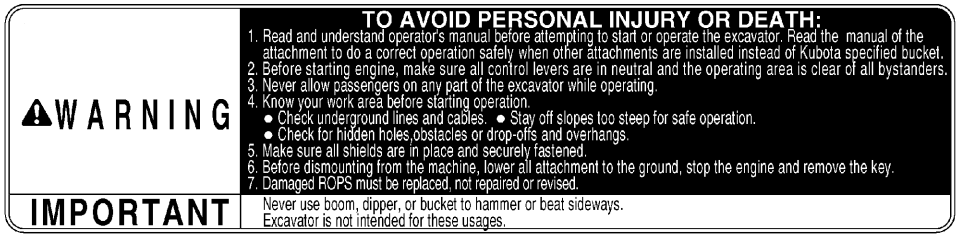

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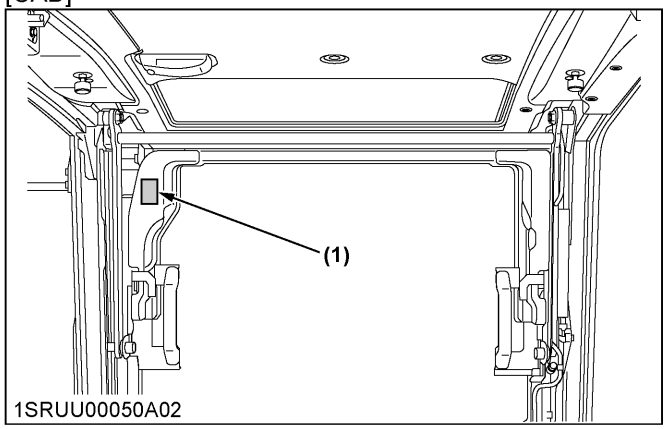

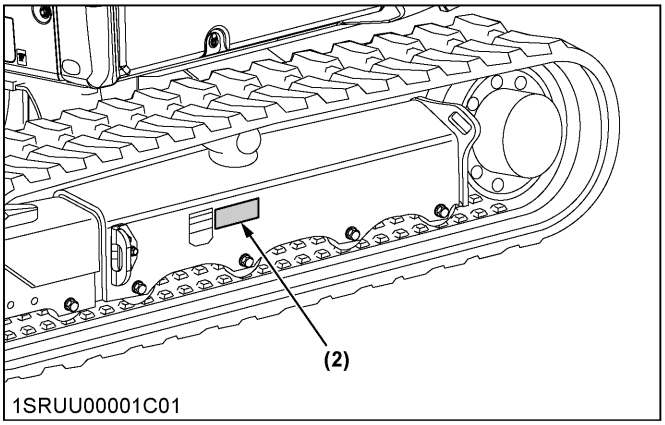

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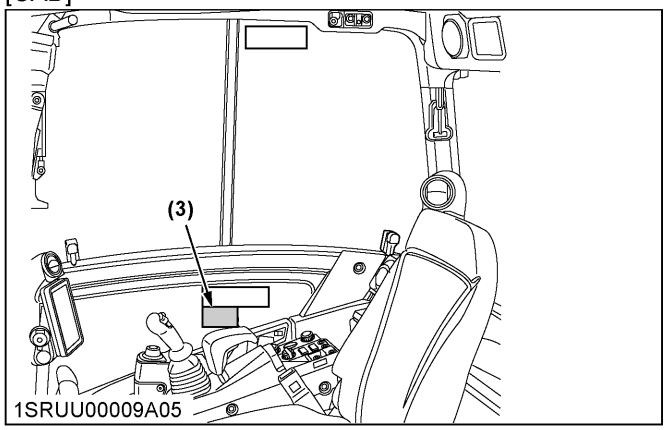

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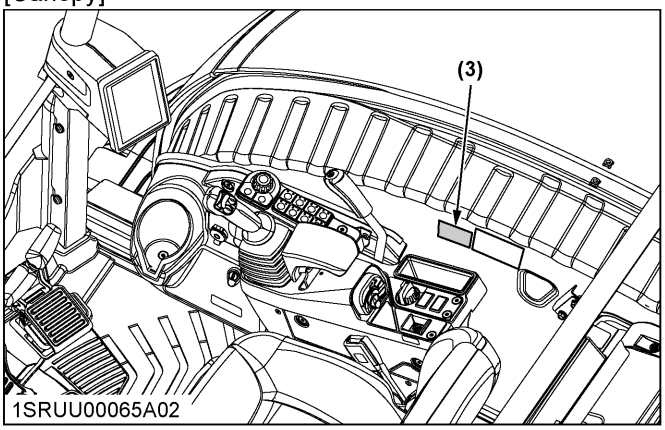
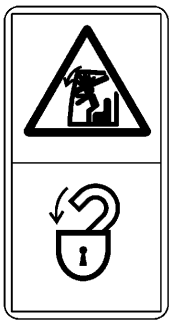
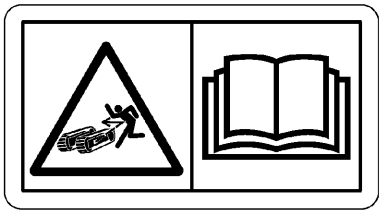


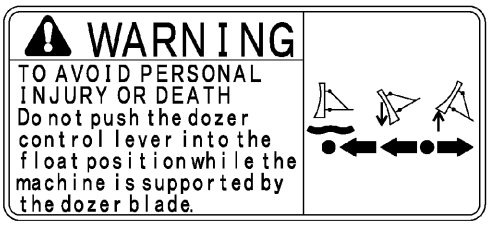
(1) Part No. RD579-5793-1 [CAB]
Do not forget to lock the front window.



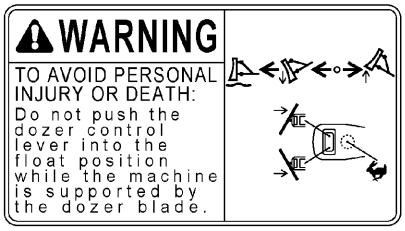
(2) Part No. RB456-5795-1 (both sides)
There is a risk of grease fittings flying off and causing injury.
When loosening the crawler, read the operator's manual and take the correct measures.



(3) Part No. RD358-5745-1
[Standard blade type]



(3) Part No. RD158-7596-1
[Angle blade type]



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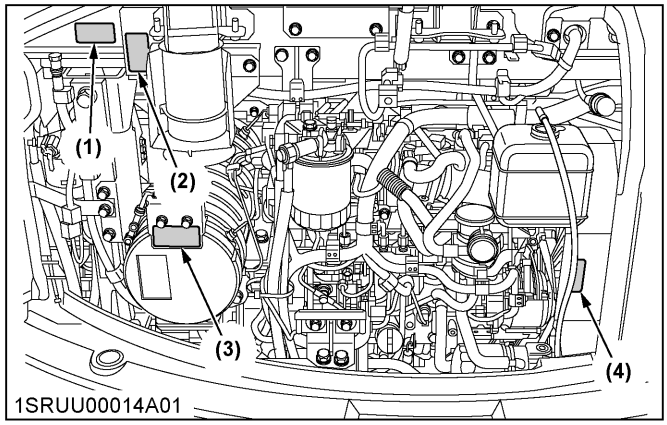
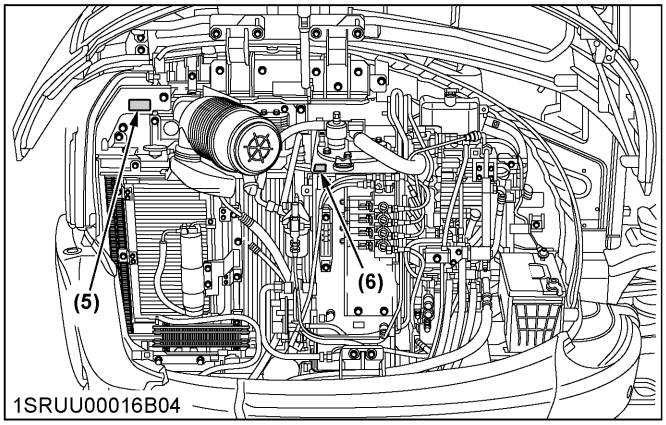
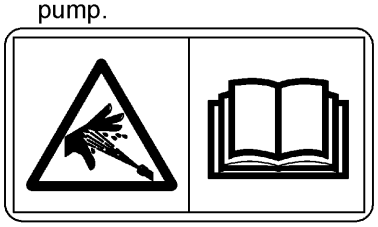




(1) Part No. RD579-5727-1

Read the operator's manual before removing the plug of the air bleed hose for the hydraulic pump.

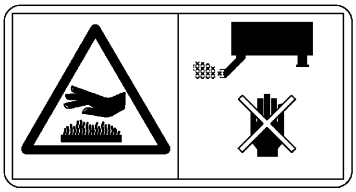


(2) Part No. RD579-5738-1

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.

(3) Part No. RD579-5745-1

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.



(4) 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.

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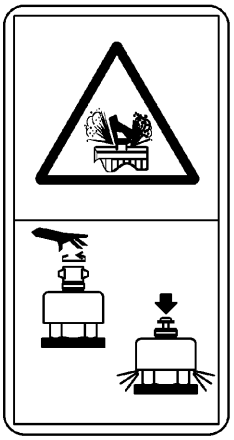
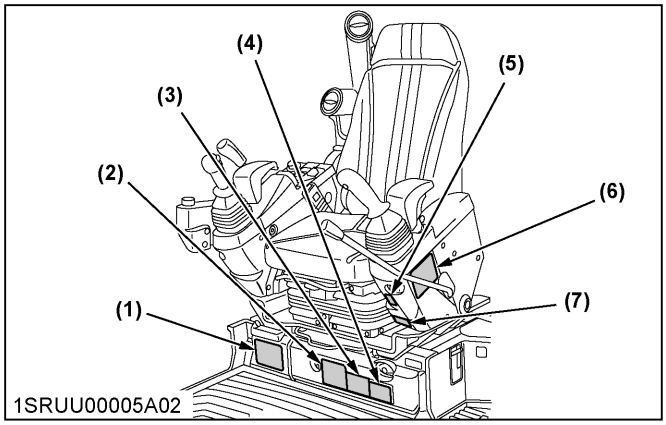
(5) Part No. RC488-5754-1

(6) Part No. RD579-5724-1

Release the pressure in the hydraulic oil tank before performing maintenance.





(1) Part No. RD578-5732-1

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 pattern selector lever in either the lowered position (pattern A) or the upward position (pattern B).
3. Engage lever lock to prevent accidental pattern change.
4. Familiarize yourself with the pattern selected by operating slowly.

Pattern B

Pattern A

(2) Part No. 3B791-9870-1

WARNING

TO AVOID EXPOSURE TO DUST CONTAINING SILICA PARTICLES:

- This dust can cause serious injury to the lungs under some exposure levels.
- Be aware of and follow the OSHA (or other regulatory body) guidelines for exposure to airborne crystalline silica.
- To meet OSHA silica guidelines, use appropriate Personal Protective Equipment and dust abatement systems, such as waterspray systems.

(3) 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.

(4) Part No. RC488-5737-1

WARNING

STOP

TO AVOID PERSONAL INJURY OR DEATH :
Do not open engine hood before stopping engine.
Only when engine does not stop with the key, Pull back this stop button and hold it until the engine stops.

(5) Part No. RC488-5753-1

WARNING

LOCK

UNLOCK

TO AVOID PERSONAL INJURY OR DEATH:
Lock control lever before leaving compartment.

(6) Part No. RC488-5763-1

HAND RAIL

STEP

WARNING

TO AVOID PERSONAL INJURY OR DEATH:
MOUNT AND DISMOUNT SAFELY WHEN ENTERING OR LEAVING THE OPERATOR'S COMPARTMENT.

1. Maintain a three-point contact with the steps and handrails.
2. Face the machine.
3. Never jump on or off the machine.
4. Never attempt to mount or dismount a moving machine.
5. Never use control levers as handles.

(7) Part No. RD579-5755-1

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

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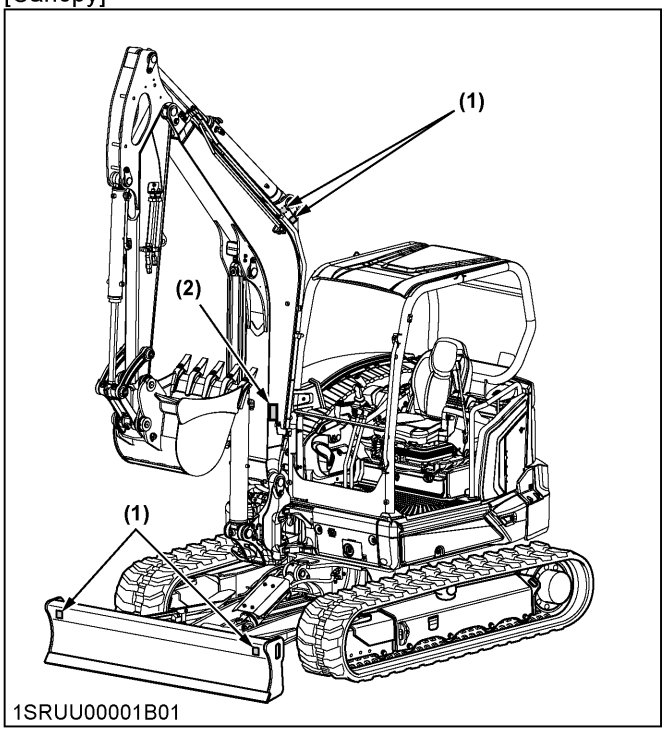

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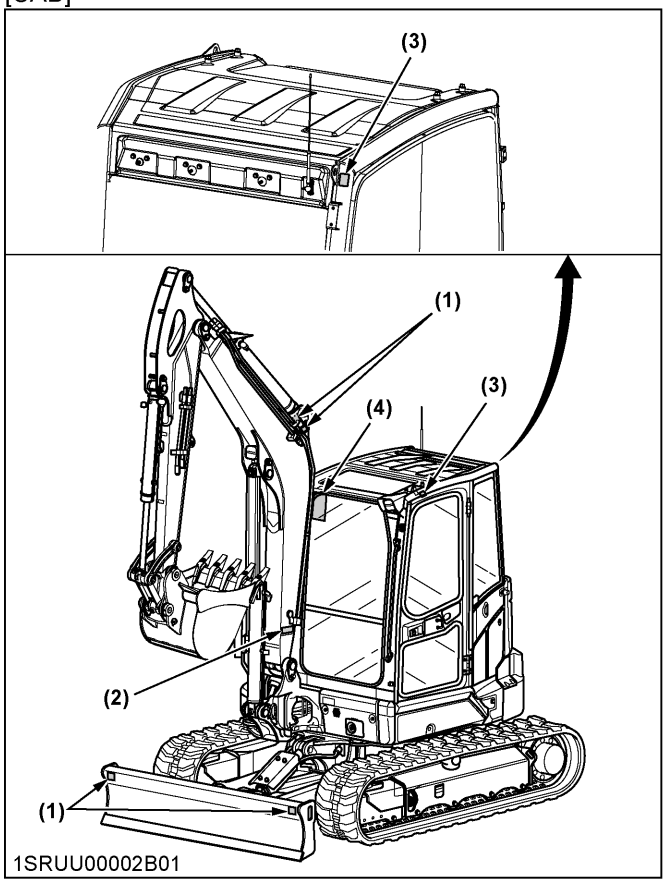

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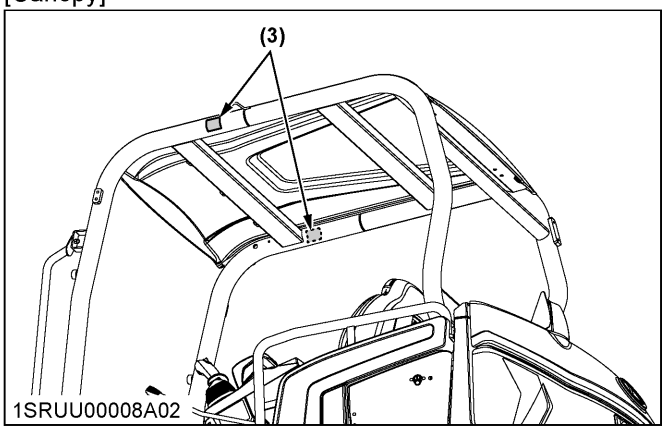
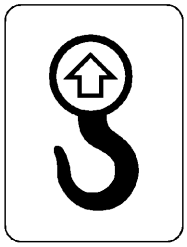
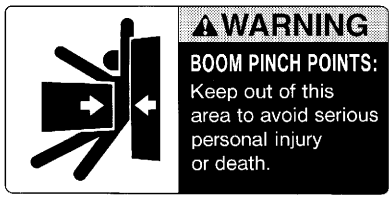


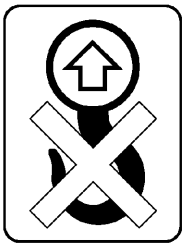
(1) Part No. RC108-5796-1
Lifting position



(2) Part No. 68328-5735-1 (both sides)



(3) Part No. RB419-5796-2
Prohibited for use in lifting the machine



(4) Part No. RC488-5785-1 [CAB]
Open the front window slowly to avoid being hit in the body.

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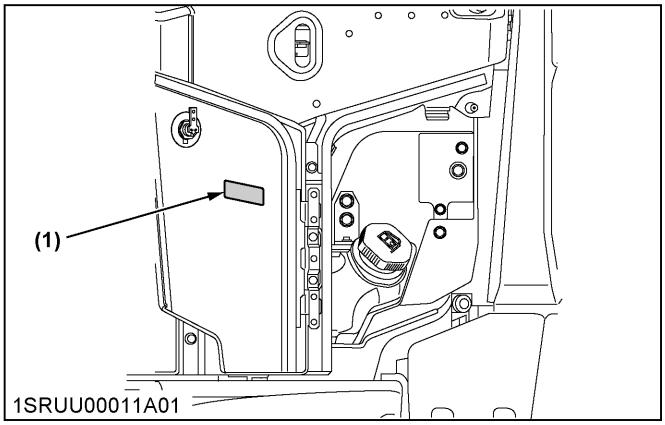
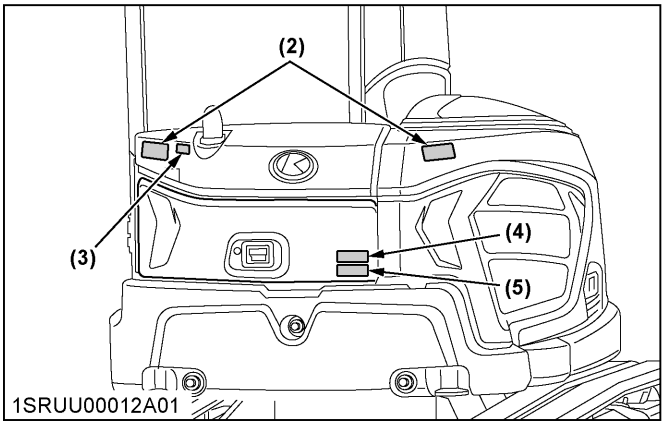
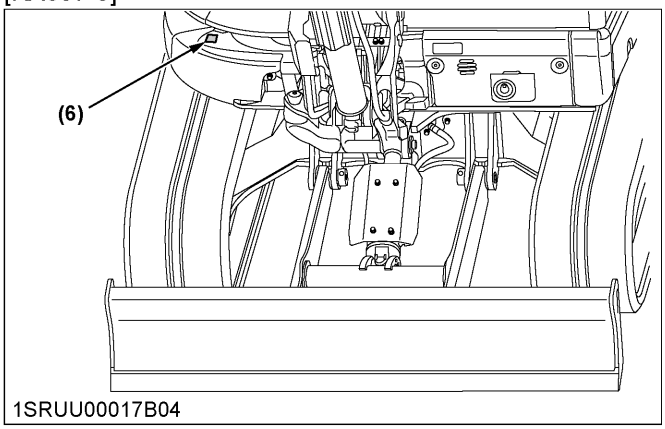




[KX057-5]



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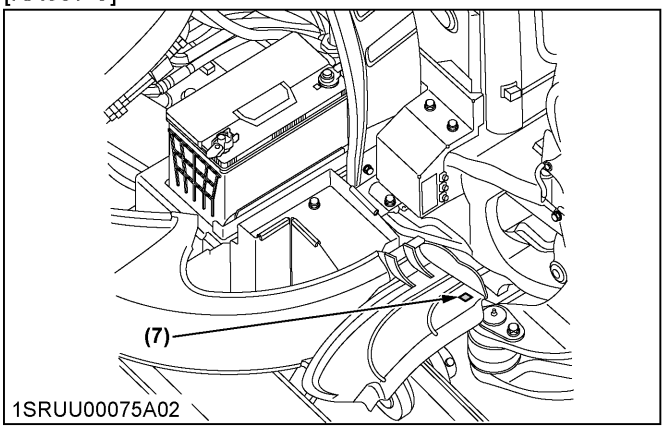


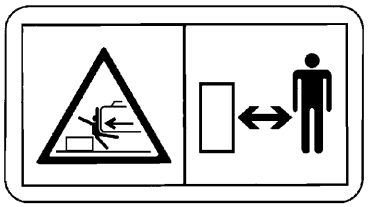
(1) Part No. RD578-5736-1

Diesel fuel only No fire

(2) Part No. RC788-5727-2

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.



(3) Part No. 3S205-9868-1

(4) Part No. RC488-5714-1

(5) Part No. RD578-5718-1

(6) Part No. RD378-5765-1 [KX057-5]

(7) Part No. RD379-5762-1 [KX057-5]

No heavy loads

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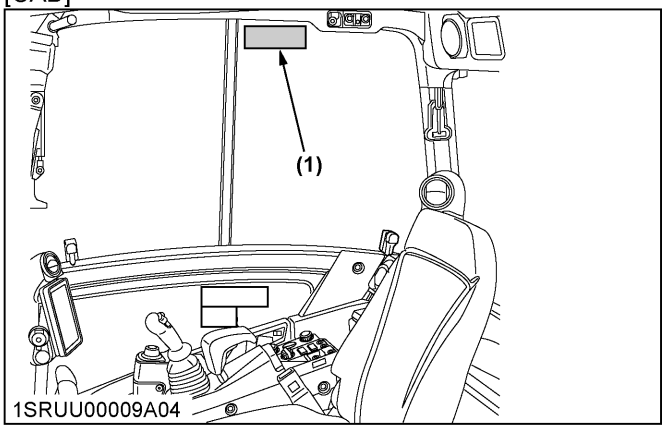
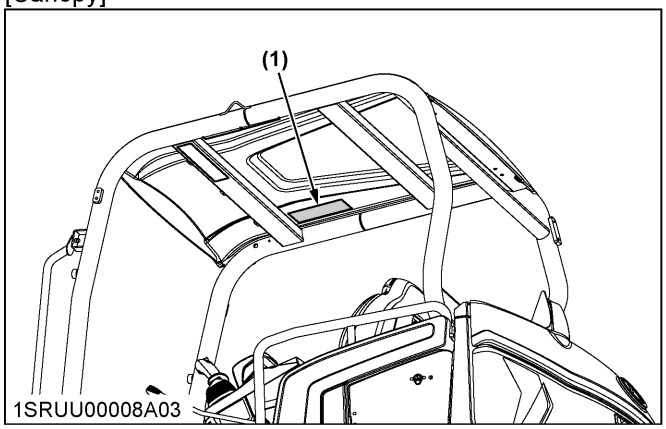
[CAB]



[Canopy]



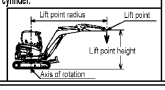
(1) Part No. RD378-5747-1 [KX057-5]

⚠ WARNING

TO AVOID PERSONAL INJURY OR DEATH:

- Do not move raised load over people.
- It is forbidden to lift loads greater than those values mentioned in the lifting capacity tables.
- The values mentioned in the table are valid only on even, hard grounds. 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.

1.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.
2.The strokes are as follows.
1)The load point corresponds to the front bolt part of the arm.
2)The machine positions are (i) over-front (Blade down), (ii) over-front (Blade up), and (iii) over-side.
3)The operating cylinder is the boom cylinder.
3.The bucket of the excavator,the hook,the sling and other lifting accessories are taken into consideration for the loads.



LIFT POINT HEIGHT (ft)		LIFTING CAPACITY OVER-FRONT BLADE DOWN Unit=1000 lbs					LIFTING CAPACITY OVER-FRONT BLADE UP Unit=1000 lbs					LIFTING CAPACITY OVER-SIDE Unit=1000 lbs				
		LIFT POINT RADIUS (ft)					LIFT POINT RADIUS (ft)					LIFT POINT RADIUS (ft)				
		MIN	4	10	16	MAX	MIN	4	10	16	MAX	MIN	4	10	16	MAX
GL	12															
	8			2.95	2.35	2.05			2.95	1.69	1.50			2.95	1.51	1.35
	4			4.35	2.56	2.16			3.29	1.63	1.39			2.87	1.46	1.25
	0			5.03	2.67	2.39			3.09	1.58	1.43			2.68	1.41	1.28
	−4	3.64	5.21	4.63			3.64	5.21	3.06			3.64	5.21	2.66		
	−8	8.87	8.71	2.95			8.87	8.71	2.95			8.87	8.71	2.75		

Machine with ROPS canopy and rubber crawler, without bucket.

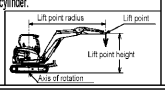
(1) Part No. RD578-5747-1 [U55-5]

⚠ WARNING

TO AVOID PERSONAL INJURY OR DEATH:

- Do not move raised load over people.
- It is forbidden to lift loads greater than those values mentioned in the lifting capacity tables.
- The values mentioned in the table are valid only on even, hard grounds. 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.

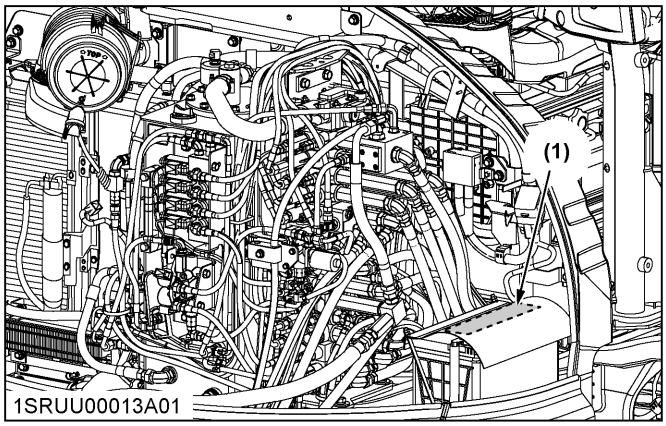
1.The lifting capacities are based on ISO 10567 and do not exceed 75% of the static tilt load of the machine or 87% of the hydraulic lifting capacity of the machine.
2.The strokes are as follows.
1)The load point corresponds to the front bolt part of the arm.
2)The machine positions are (i) over-front (Blade down), (ii) over-front (Blade up), and (iii) over-side.
3)The operating cylinder is the boom cylinder.
3.The bucket of the excavator,the hook,the sling and other lifting accessories are taken into consideration for the loads.



LIFT POINT HEIGHT (ft)		LIFTING CAPACITY OVER-FRONT BLADE DOWN Unit=1000 lbs					LIFTING CAPACITY OVER-FRONT BLADE UP Unit=1000 lbs					LIFTING CAPACITY OVER-SIDE Unit=1000 lbs				
		LIFT POINT RADIUS (ft)					LIFT POINT RADIUS (ft)					LIFT POINT RADIUS (ft)				
		MIN	4	10	16	MAX	MIN	4	10	16	MAX	MIN	4	10	16	MAX
GL	12															
	8			3.17	2.45	2.22			3.17	1.48	1.38			2.76	1.32	1.23
	4			4.62	2.63	2.34			2.88	1.43	1.27			2.49	1.27	1.13
	0			5.18	2.68	2.50			2.72	1.39	1.31			2.34	1.23	1.16
	−4	3.77	5.69	4.58			3.77	5.69	2.71			3.77	5.69	2.33		
	−8			2.38					2.38					2.38		

Machine with ROPS canopy and rubber crawler, without bucket.

1SRUU00146A01enUS



(1)

1SRUU00156A01enUS

⚠ SAFE OPERATION

1. Care of safety labels

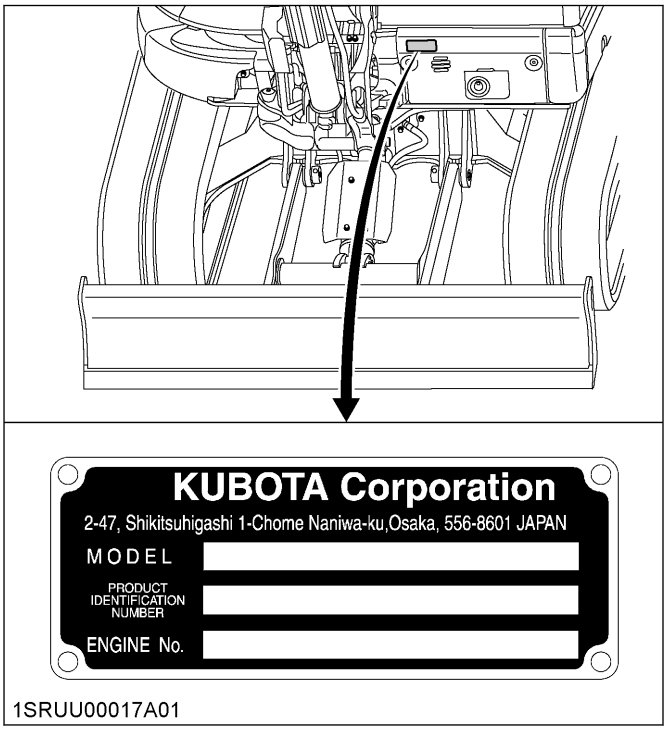
- Keep safety labels clean and free from obstructing material.
- Clean safety labels with soap and water, and dry with a soft cloth.
- Replace damaged or missing safety labels with new labels from your Kubota dealer.
- If a component with safety label(s) affixed is replaced with new part, make sure new 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

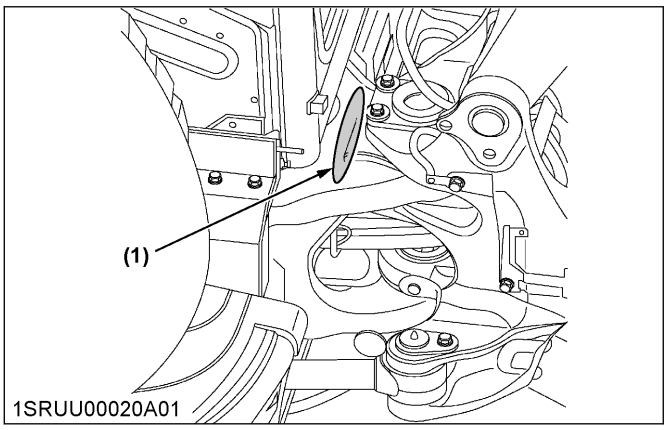
Your Kubota dealer is always ready to help so that your machine offers the best performance. After having carefully read these instructions, you will realize that much of the routine maintenance can be done by yourself. For service, contact the Kubota dealer shop from which you purchased your product, or your local Kubota dealer. When ordering spare 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		

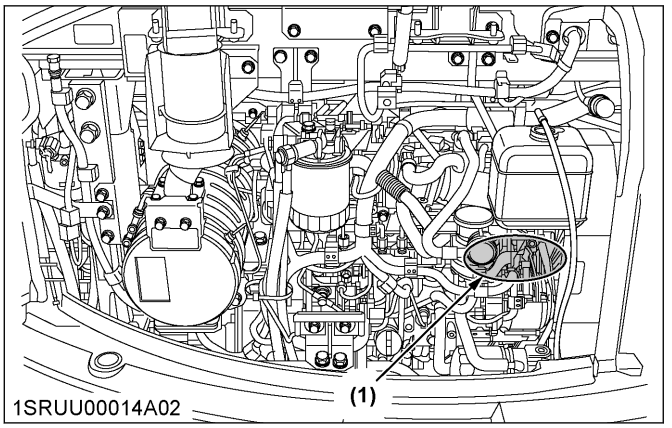


1SRUU00017A01



1SRUU00020A01

(1) Product identification number



1SRUU00014A02

(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 handled 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				**KX057-5**			
Type				Canopy	CAB	Angle blade type	
						Canopy	CAB
Operating weight (including operator's weight)			kg (lbs.)	5600 (12350)	5705 (12580)	5815 (12820)	5920 (13050)
Engine	Type			Water cooled 4 cycle diesel engine with 4 cylinder			
	Model name			(Canopy) **V2607-CR-E5-BH1** (CAB) **V2607-CR-E5-BH2**			
	Total displacement		cc (cu.in)	2615 (159.6)			
	Engine power	SAE J1995 gross	kW (HP)	35.5 (47.6)			
		SAE J1349 net	kW (HP)	34.6 (46.4)	33.9 (45.5)	34.6 (46.4)	33.9 (45.5)
	Rated speed		rpm	2200			
	Low idle speed		rpm	1100			
Performance	Swivel speed		rpm	9.2			
	Travel speed	Fast	km/h (mph)	4.8 (3.0)			
		Slow	km/h (mph)	2.8 (1.7)			
	Ground pressure (with operator)		kPa (kgf/cm^2) [psi]	31.6 (0.322) [4.58]	32.2 (0.328) [4.67]	32.8 (0.334) [4.76]	33.4 (0.341) [4.84]
	Maximum climbing angle		% (deg)	36 (20) *1*2*3			
	Angle in case of crossing slope		% (deg)	27 (15) *1*2*3			
Dozer	Width x height		mm (in.)	1960 × 410 (77.16 × 16.2)		1960 × 425 (77.16 × 16.7)	
	Maximum swing angle	Left	deg	–		25	
		Right	deg	–		25	
Boom swing angle		Left	rad (deg)	1.20 (70)			
		Right	rad (deg)	0.92 (53)			
Pressure connection for attachments	Maximum displacement (theoretical)		L (U.S.gals)/ min	75 (20) (AUX 1 port) 37 (9.8) (AUX 2 port)			
	Maximum pressure		MPa (kgf/cm^2) [psi]	17.2 (175) [2500] (AUX 1 port) 17.2 (175) [2500] (AUX 2 port)			
Fuel tank capacity			L (U.S.gals)	73 (19)			

*1 Firm compacted soil.

*2 Operators must exercise extra caution and follow the operator's manual instructions.

*3 Worse conditions or heavier attachments will decrease climbing angle.

NOTE :

- **The dimensions are based on the machine with quick attach coupler (K7915A) and quick attach bucket (K7919A).**
- **The dimensions are based on the machine with rubber track.**
- **Specifications are subject to change without notice.**
- **ROPS/OPG (Top Guard Level I) structure complies with ISO 3471, ISO 10262 and OSHA regulations.**

				Kubota excavator			
Model name				**U55-5**			
Type				Canopy	CAB	Angle blade type	
						Canopy	CAB
Operating weight (including operator's weight)			kg (lbs.)	5555 (12250)	5650 (12460)	5770 (12720)	5865 (12930)
Engine	Type			Water cooled 4 cycle diesel engine with 4 cylinder			
	Model name			(Canopy) **V2607-CR-E5-BH1** (CAB) **V2607-CR-E5-BH2**			
	Total displacement		cc (cu.in)	2615 (159.6)			
	Engine power	SAE J1995 gross	kW (HP)	35.5 (47.6)			
		SAE J1349 net	kW (HP)	34.6 (46.4)	33.9 (45.5)	34.6 (46.4)	33.9 (45.5)
	Rated speed		rpm	2200			
	Low idle speed		rpm	1100			
Performance	Swivel speed		rpm	9.2			
	Travel speed	Fast	km/h (mph)	4.8 (3.0)			
		Slow	km/h (mph)	2.8 (1.7)			
	Ground pressure (with operator)		kPa (kgf/cm^2) [psi]	31.4 (0.320) [4.55]	31.9 (0.325) [4.63]	32.6 (0.332) [4.73]	33.1 (0.338) [4.80]
	Maximum climbing angle		% (deg)	36 (20) *1*2*3			
	Angle in case of crossing slope		% (deg)	27 (15) *1*2*3			
Dozer	Width x height		mm (in.)	1960 × 410 (77.16 × 16.2)		1960 × 425 (77.16 × 16.7)	
	Maximum swing angle	Left	deg	—		25	
		Right	deg	—		25	
Boom swing angle		Left	rad (deg)	1.20 (70)			
		Right	rad (deg)	0.92 (53)			
Pressure connection for attachments	Maximum displacement (theoretical)		L (U.S.gals)/ min	75 (20) (AUX 1 port) 37 (9.8) (AUX 2 port)			
	Maximum pressure		MPa (kgf/cm^2) [psi]	17.2 (175) [2500] (AUX 1 port) 17.2 (175) [2500] (AUX 2 port)			
Fuel tank capacity			L (U.S.gals)	66 (17)			

*1 Firm compacted soil.

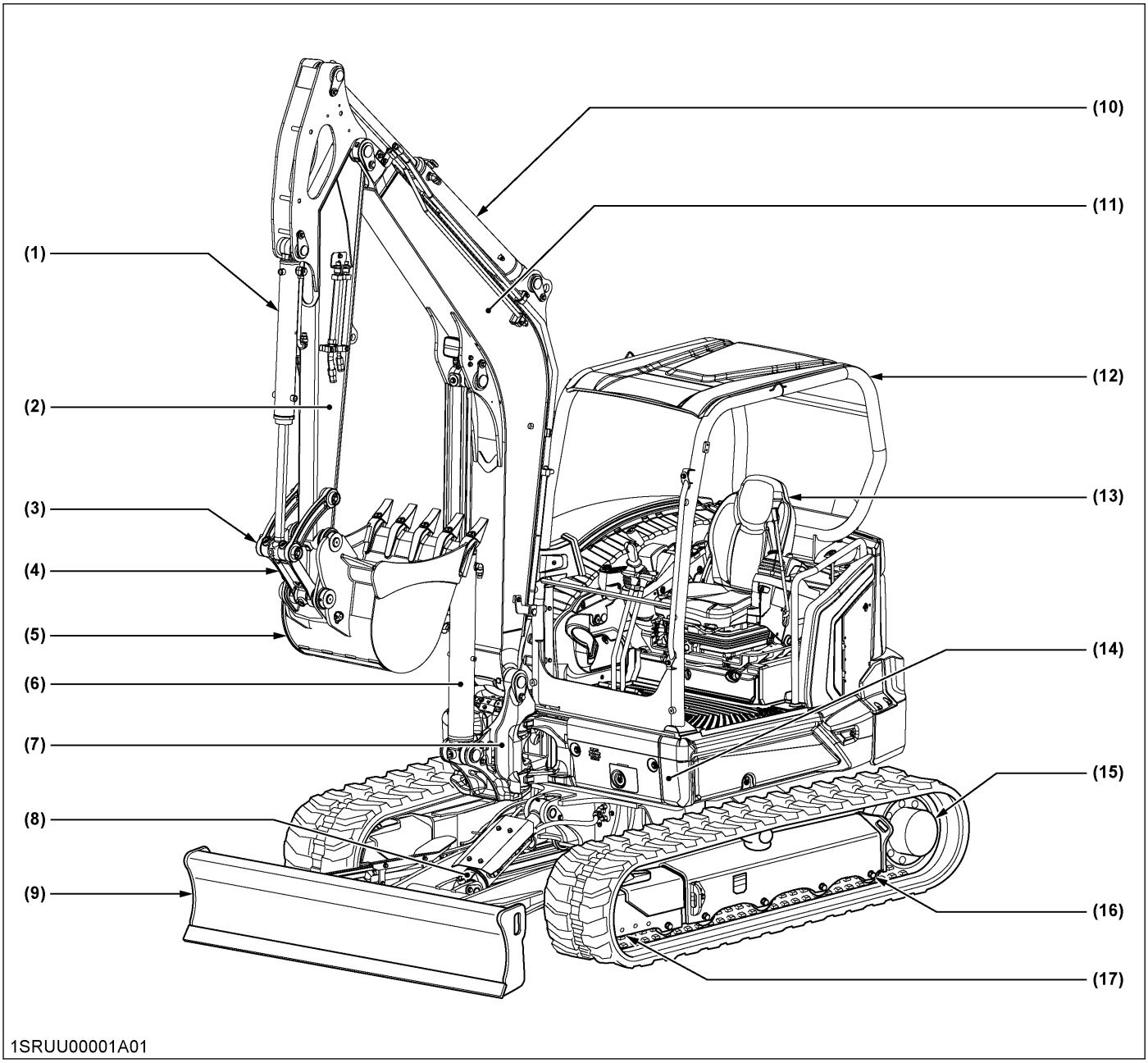
*2 Operators must exercise extra caution and follow the operator's manual instructions.

*3 Worse conditions or heavier attachments will decrease climbing angle.

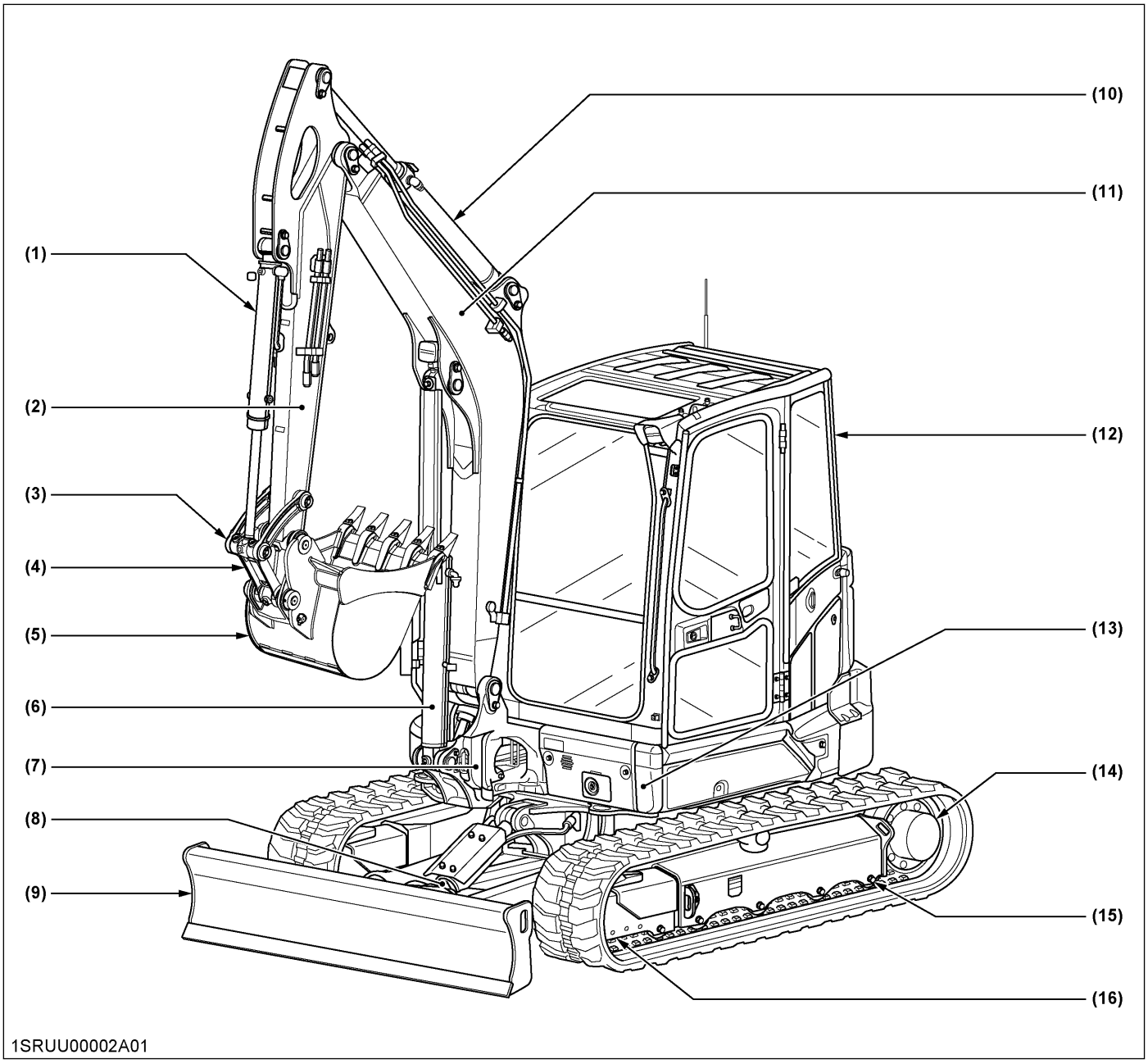
NOTE :

- **The dimensions are based on the machine with quick attach coupler (K7915A) and quick attach bucket (K7919A).**
- **The dimensions are based on the machine with rubber track.**
- **Specifications are subject to change without notice.**
- **ROPS/OPG (Top Guard Level I) structure complies with ISO 3471, ISO 10262 and OSHA regulations.**

EXCAVATOR PARTS



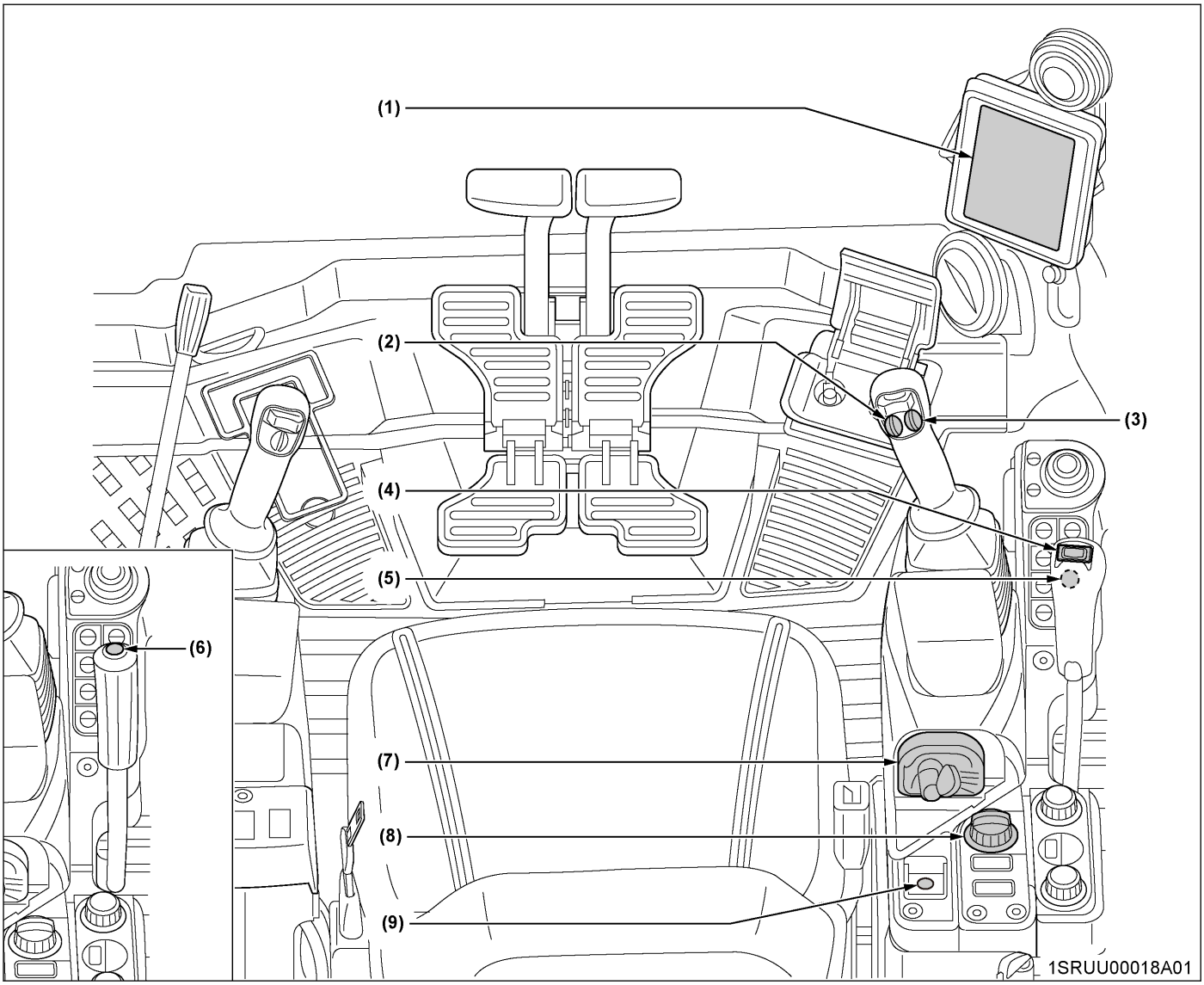
(1) Bucket cylinder
(2) Arm
(3) Bucket link 2 and 3
(4) Bucket link 1
(5) Bucket
(6) Boom cylinder
(7) Swing bracket
(8) Dozer cylinder
(9) Dozer blade
(10) Arm cylinder
(11) Boom
(12) Canopy
(13) Seat
(14) Swivel frame
(15) Drive sprocket
(16) Track roller
(17) Front idler

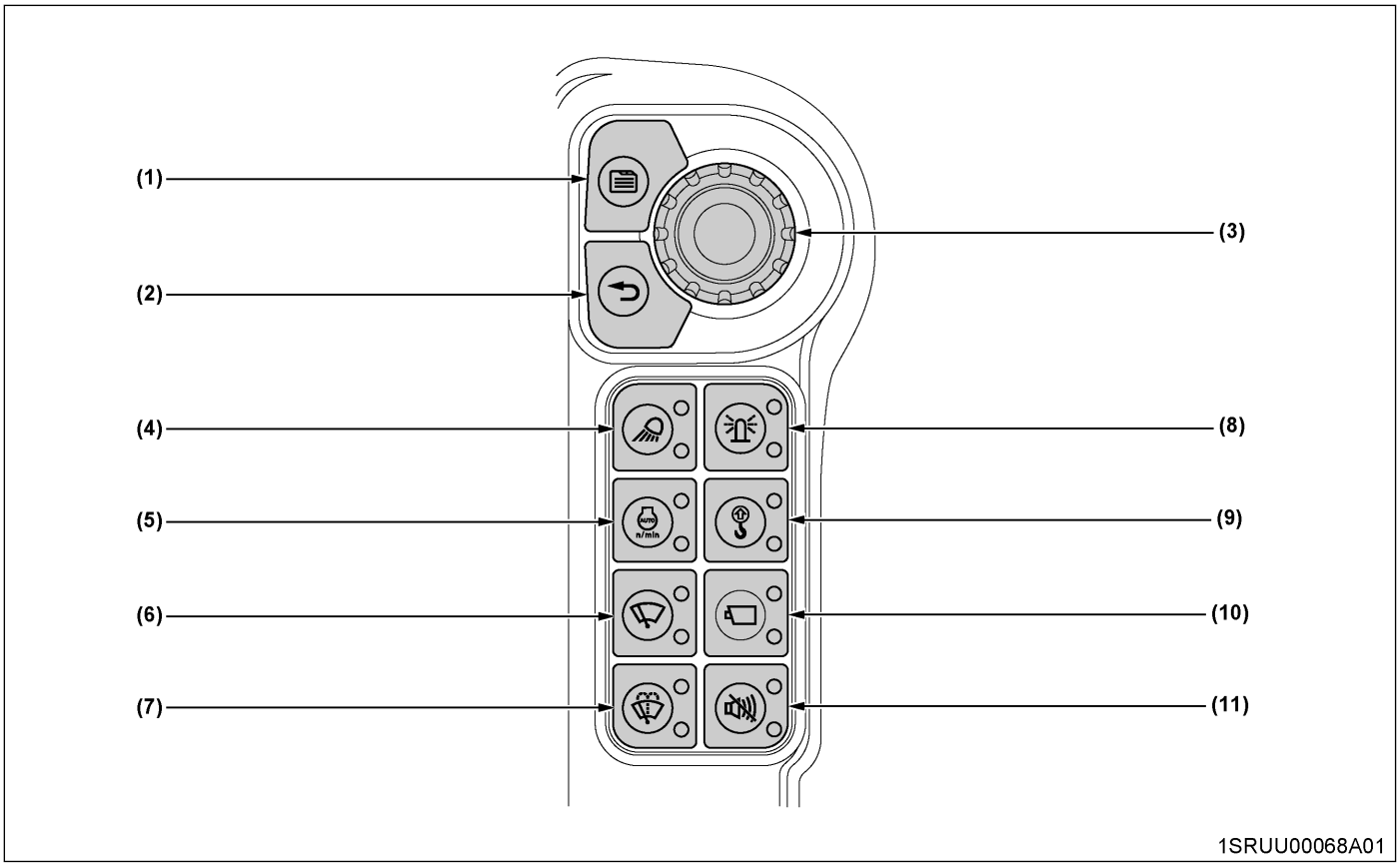


(1) Bucket cylinder
(2) Arm
(3) Bucket link 2 and 3
(4) Bucket link 1
(5) Bucket
(6) Boom cylinder
(7) Swing bracket
(8) Dozer cylinder
(9) Dozer blade
(10) Arm cylinder
(11) Boom
(12) CAB
(13) Swivel frame
(14) Drive sprocket
(15) Track roller
(16) Front idler

INSTRUMENT PANEL AND CONTROLS

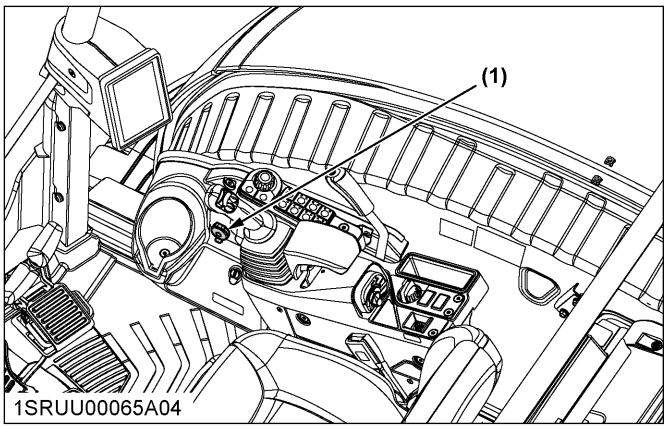
INSTRUMENT PANEL AND SWITCHES





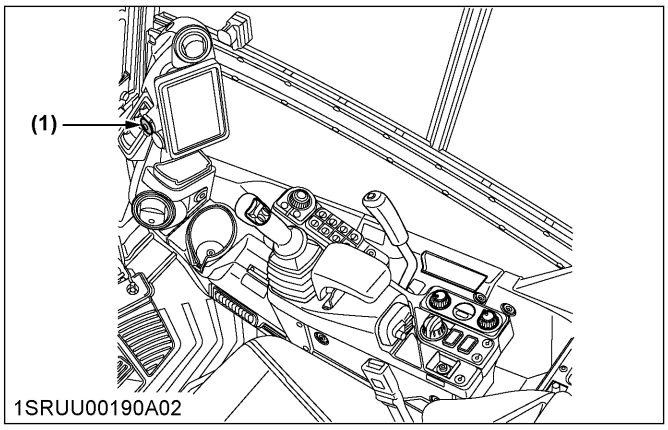
(1) Menu switch
(2) Return switch
(3) Jog dial
(4) Light switch
(5) Auto idle control switch
(6) Wiper switch
(7) Washer switch
(8) Beacon light switch
(9) -
(10) Camera switch (option)
(11) Travel alarm cancel switch (option)

[Canopy]



(1) Electrical outlet

[CAB]



(1) Electrical outlet

HANDLING THE INSTRUMENT PANEL AND SWITCHES

1. Starter switch

[STOP]

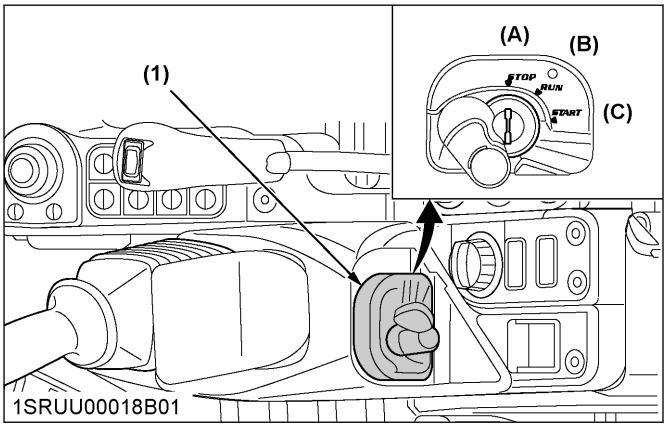
- The key can be inserted at the **[STOP]** position.

[RUN]

- Turn the key one click from the **[STOP]** position to the **[RUN]** position. All the circuitry gets energized to start preheating. The message "Preheating" appears on-screen.
  When checking for any lamp breakage, keep in mind that the lamp lights up and stays on for about 1 second.

[START]

- Move the pilot control lock lever to the LOCK position. Turn the key one more click from the **[RUN]** position to the **[START]** position. The starter motor is then activated to start the engine.
  When you let go of the key, the key returns to the **[RUN]** position. Therefore, once the engine has started, be sure to let go of the key.



(1) Starter switch
(A) STOP
(B) RUN
(C) START

NOTE :

- **Even with the starter key not yet inserted, press the jog dial, and the display shows the hour meter, fuel gauge, water temperature gauge, hydraulic oil temperature gauge, and clock for 10 seconds.**

2. Display for normal operation

IMPORTANT :

- **When cleaning the display screen, wipe with a soft cloth like those used for cleaning eyeglasses.**
- **Using a coarse cloth or rubbing too hard may damage the surface.**
- **Cleaning the display screen with alkaline, acidic, or organic solvents such as alcohol or benzene can damage the screen.**

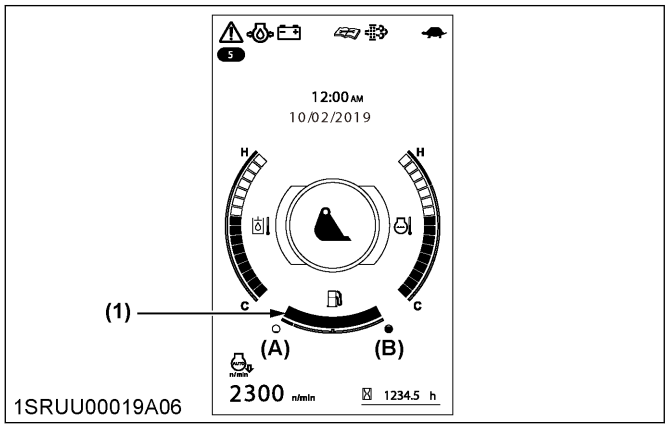
2.1 Fuel gauge

⚠ WARNING

To avoid personal injury or death:

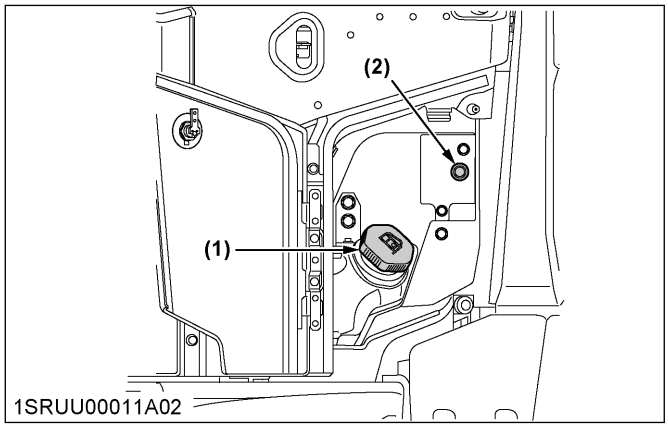
- **Before adding fuel, be sure to stop the engine.**
- **Be sure to keep open flames away from the machine, or it may cause a fire.**
- **Be sure to tighten the fuel cap after refueling.**

With the starter key at the **[RUN]** position, the fuel remaining in the fuel tank is indicated.



(1) Fuel gauge
(A) EMPTY
(B) FULL

If the fuel runs short, open the cap and refuel the tank.



(1) Fuel cap
(2) Fuel level audible indication switch

IMPORTANT :

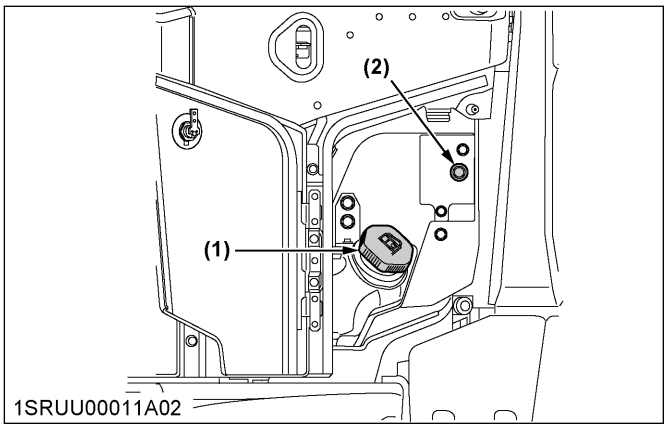
- **If the fuel gauge indicator is near the *"Empty"*, or if the "Feed fuel" message appears, add fuel as soon as possible. If the indicator is near *"Empty"* and the machine is operated on a slope, the engine may run out of fuel.**

- **Users must take appropriate actions to insure fuel is not contaminated during the refueling operation.**

2.2 Fuel level audible indication switch (when refueling)

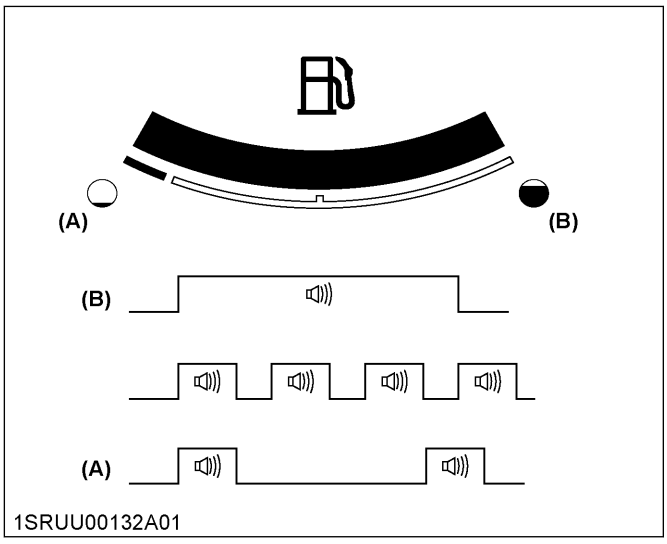
The fueling progress can be monitored by a buzzer sound.

1. With the starter key at the **[OFF]** position, press the fuel level audible indication switch.



(1) Fuel cap
(2) Fuel level audible indication switch

2. Start refueling the machine. The buzzer beeping intervals change according to how much fuel is poured into the tank. As the fuel tank is filled up, the buzzer sound becomes almost continuous.



(A) EMPTY
(B) FULL

3. While refueling the machine, listen to the buzzer to know how much the fuel tank is filled.

NOTE :
- **If fuel is poured too slowly, the buzzer will stop beeping. When resumed normally, the buzzer will start beeping.**

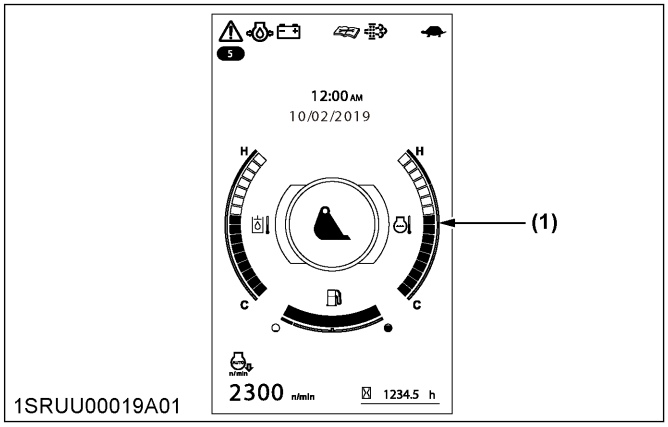
4. To stop refueling halfway (before filling up), press the fuel level audible indication switch or simply stop refueling for a while. The buzzer will stop sounding.

2.3 Coolant temperature gauge

⚠ WARNING

To avoid personal injury or death:
- **Do not open the radiator cap during or just after operation. Hot coolant may gush out and scald you. Wait for the coolant to cool down before opening the cap.**

The coolant temperature is indicated when the starter key is at the **[RUN]** position.



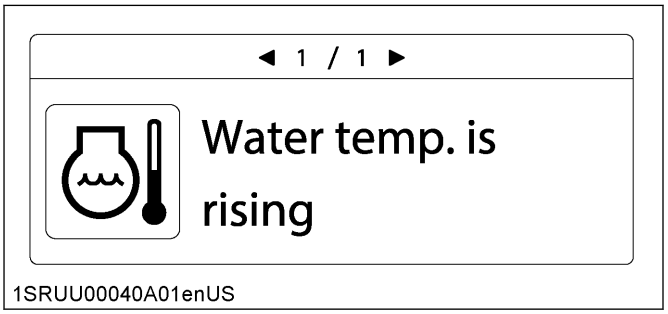
(1) Coolant temperature gauge

If the coolant temperature indicator is near **[H]**, take the following steps. Depending on the coolant temperature, the warning message "`Water temp. is rising`" or "`Overheat forced idling`" appears. In either case, follow the same procedure:

1. Discontinue the job.
2. Reduce engine's rpm to idle and keep it at idle for 5 minutes.
3. Stop the engine and check the following points:
   a. Low coolant level or leakage
   b. Fan belt tension
   c. Mud or dust deposits on radiator
   d. Hydraulic oil leakage

2.4 Overheat warning

- If the coolant temperature becomes too high, the message "`Water temp. is rising`" appears on-screen for a certain period of time.



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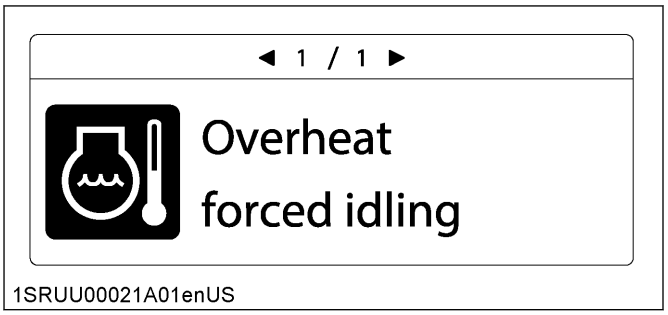
IMPORTANT :
- **If this message is displayed, interrupt the work and lower the engine rpm. This will reduce the coolant temperature.**
- The overheat warning appears on-screen. Also, the following message shows up on the display and the engine automatically starts idling. Acceleration is not operative.



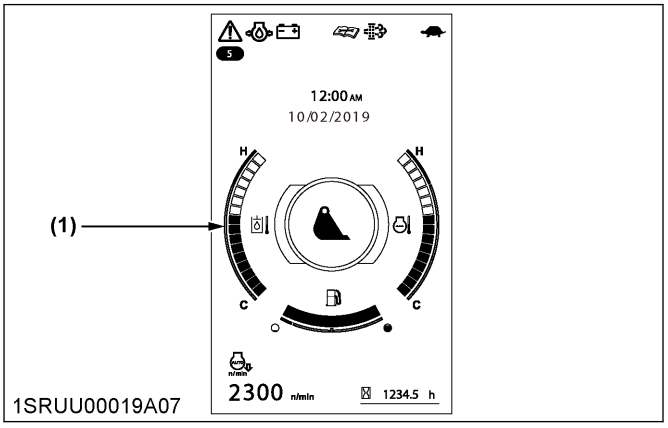
1SRUU00021A01enUS

If this message appears, take corrective measures. (See Overheating countermeasures on page 67.)

NOTE :
- **Acceleration can be automatically enabled when the coolant temperature has dropped.**

2.5 Hydraulic oil temperature gauge

The hydraulic oil temperature is indicated when the starter key is in the **[RUN]** position.



1SRUU00019A07

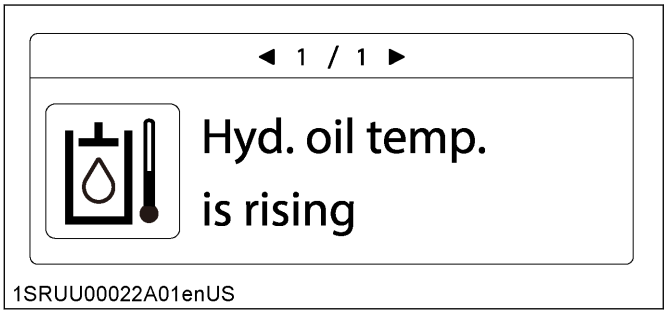
(1) Hydraulic oil temperature gauge

If the hydraulic oil temperature indicator is near "H", take the following steps. Depending on the coolant temperature, the warning message "Hyd. oil temp. is rising" or "Overheat forced idling" appears. In either case, follow the same procedure:

1. Discontinue the job.
2. Reduce engine rpm's to idle and keep it at idle for 5 minutes.
3. Stop the engine and check the following points.
   a. Low hydraulic oil level or leakage
   b. Fan belt tension
   c. Mud or dust deposits on the oil cooler
   d. Coolant leakage

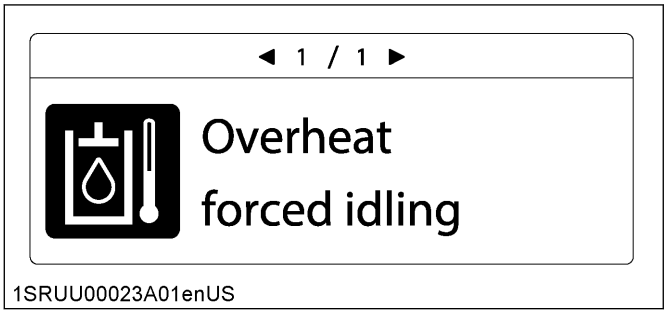
2.6 Hydraulic oil overheat warning

If the hydraulic oil temperature becomes too high, the message "Hyd. oil temp. is rising" appears on-screen for certain period of time.



1SRUU00022A01enUS

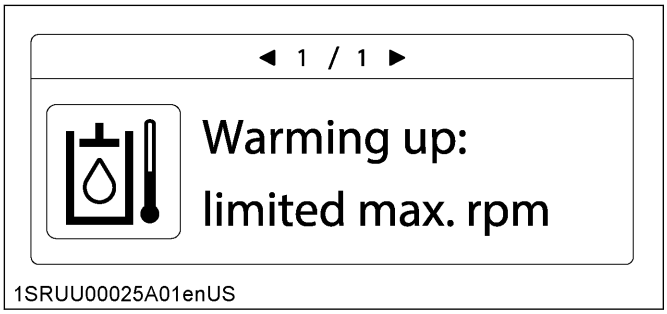
IMPORTANT :
- **If this message is displayed, interrupt the work and lower the engine rpm. This will reduce the hydraulic oil temperature.**
- **The overheat warning appears on-screen. Also, the following message shows up on the display and the engine automatically starts idling. Acceleration is not operative.**



1SRUU00023A01enUS

2.7 Temperature drop indication of hydraulic oil

If the hydraulic oil temperature is too low at a start of the engine, the following message appears.

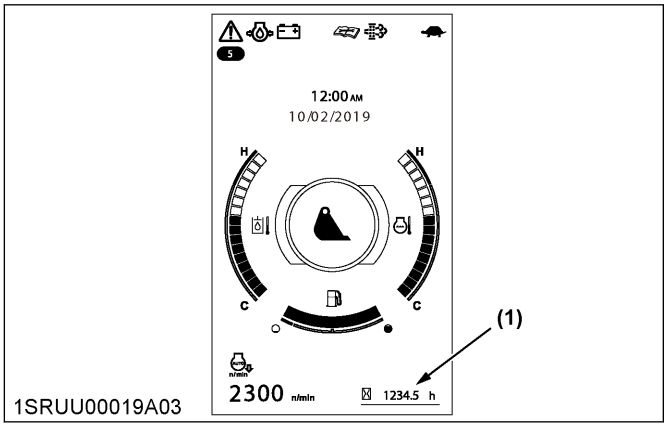


If this message appears, warm up the engine at lower than the medium speed.
(For warming-up instructions, see CHECK POINTS AFTER STARTING THE ENGINE on page 66.)
While this message is displayed, the engine rpm can only turn at up to the medium speed until the hydraulic oil temperature rises to an appropriate level.
When the hydraulic oil temperature has risen to the appropriate level, the engine rpm may be raised to maximum level accordingly by turning the throttle potentiometer.

2.8 Hour meter

The hour meter indicates the total operating hours of the machine.
How it works:

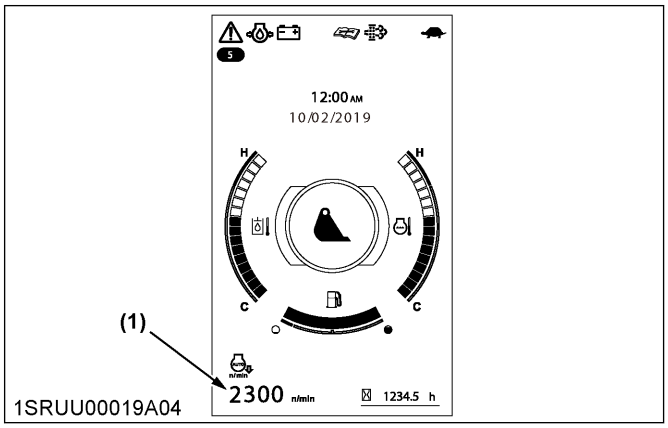
- The meter advances one hour after an hour of operation regardless of the engine rpm.



(1) Hour meter

2.9 Engine tachometer

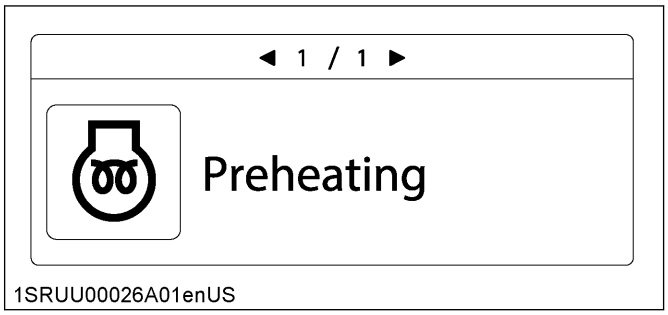
The engine tachometer indicates the current rpm of the engine.



(1) Engine tachometer

2.10 Glow indication

The message "Preheating" appears on-screen when the starter key is turned to the **[RUN]** position but the engine requires preheating. Wait until the message disappears, and then start the engine.



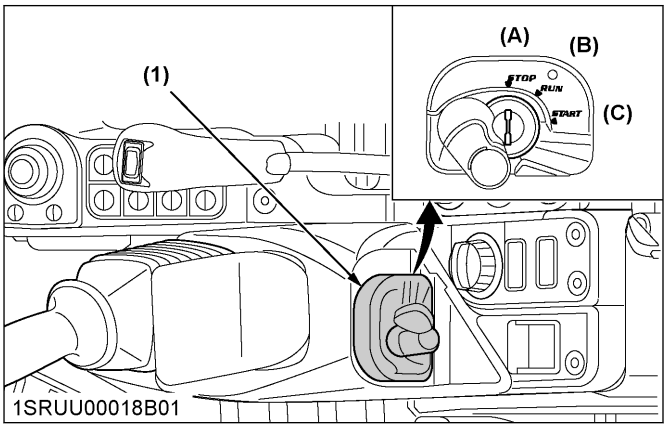
2.11 User settings

NOTE :

- **If you have any questions, consult your local Kubota dealer.**

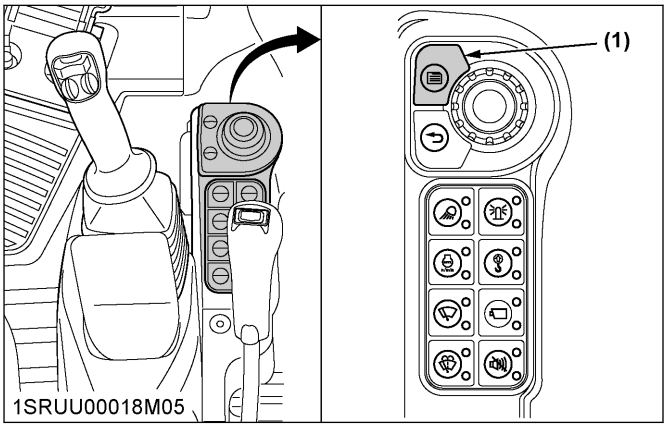
2.11.1 Setting the clock

1. Turn the starter key to the **[RUN]** position.



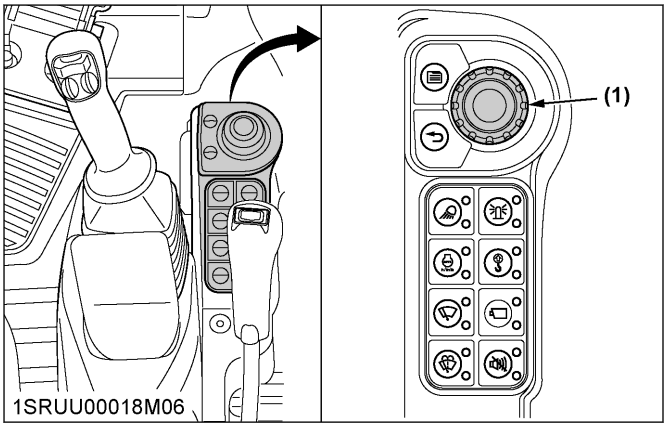
(1) Starter switch
(A) STOP
(B) RUN
(C) START

2. Press the menu switch to make the menu bar appear.

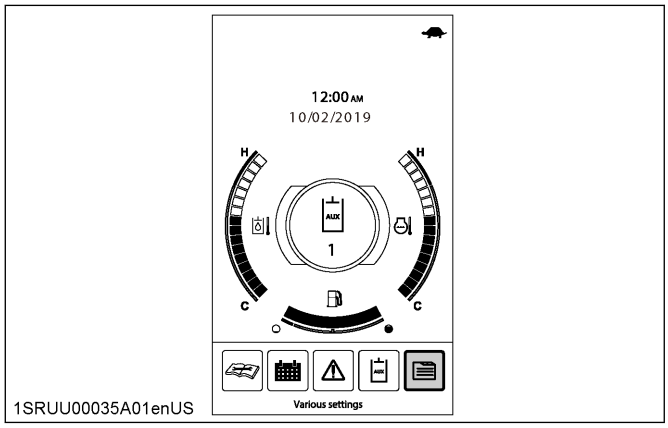


(1) Menu switch

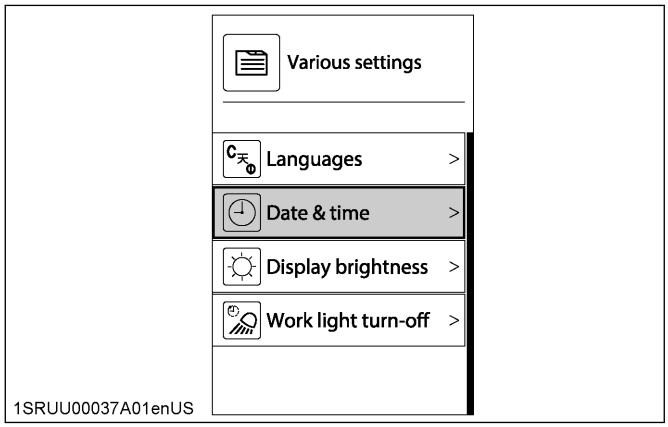
3. Rotate the jog dial to the right to select "`Various settings`", and press the jog dial.



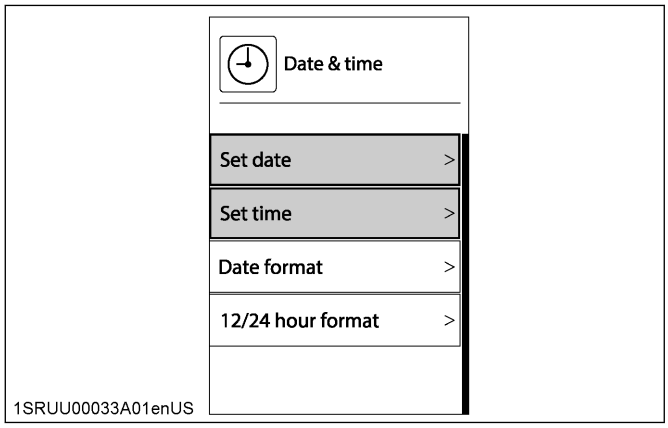
(1) Jog dial



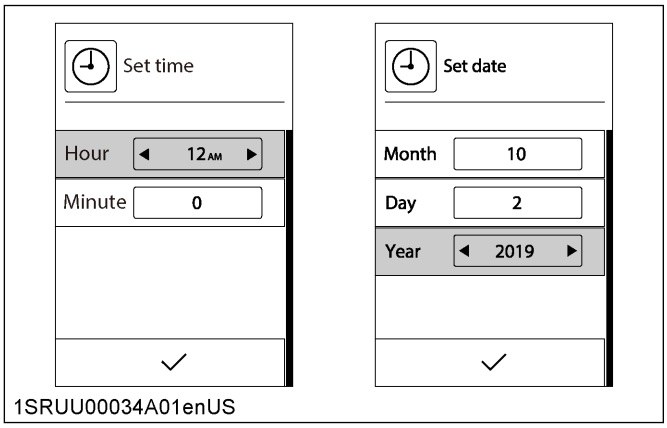
4. Rotate the jog dial to the right to select "`Date & time`", and press the jog dial.



5. Rotate the jog dial to the right to select "`Set date`" or "`Set time`", and press the jog dial.

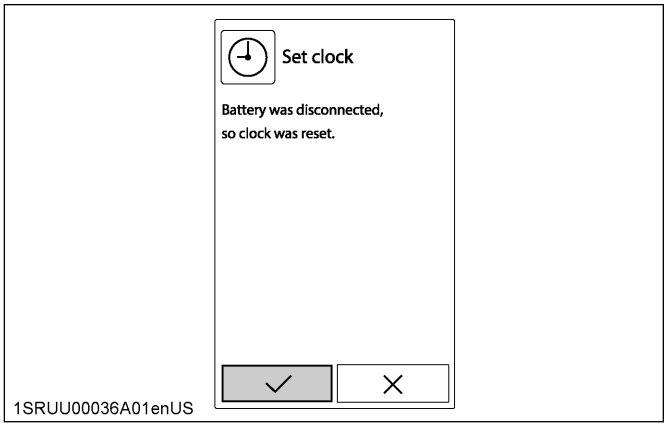


6. Adjust the numerical values as follows:
   a. Rotate the jog dial to the right or to the left to select the item you wish to change and press the jog dial.
   b. Rotate the jog dial to the right or to the left to increase or decrease the numerical value.
   c. Press the jog dial to confirm the value.



7. Rotate the jog dial to the right to select "✔" and press the jog dial to save the new settings.

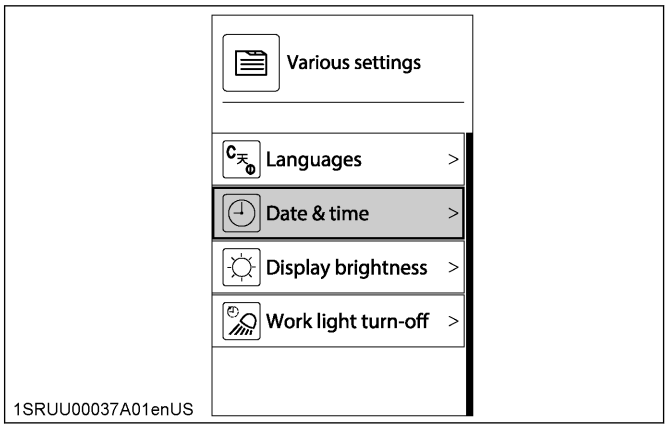
NOTE :
- **Be careful not to accidentally press the jog dial when "✔" is selected on the clock setting screen. Otherwise, the seconds will be set to [00] and the clock will show the wrong time.**
- **If the clock is interrupted, for example when the battery is disconnected, the following message appears on-screen. Select "✔" to set the clock again.**

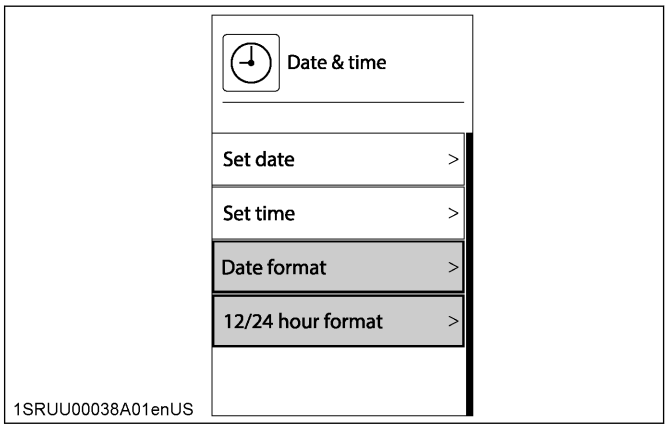


NOTE :
- **When the return switch is pressed on the clock setting screen, the clock is not readjusted and returns to the previous menu screen.**

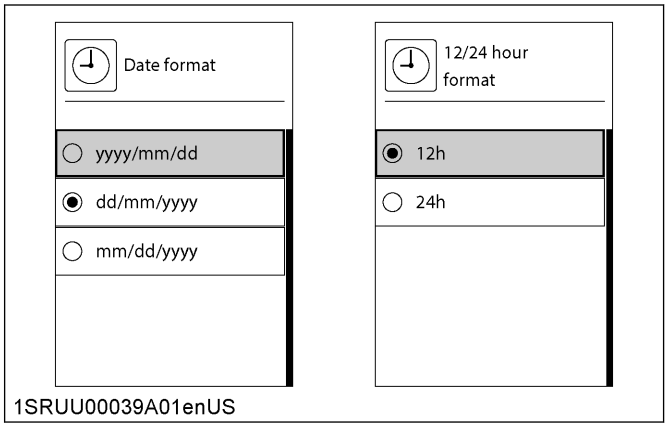
2.11.2 Reordering year/month/day and selecting AM/PM or 24-hour

1. On the "Date & time" screen, select "Date format" or "12/24 format".





2. Press the jog dial, and one of the following screens appears.



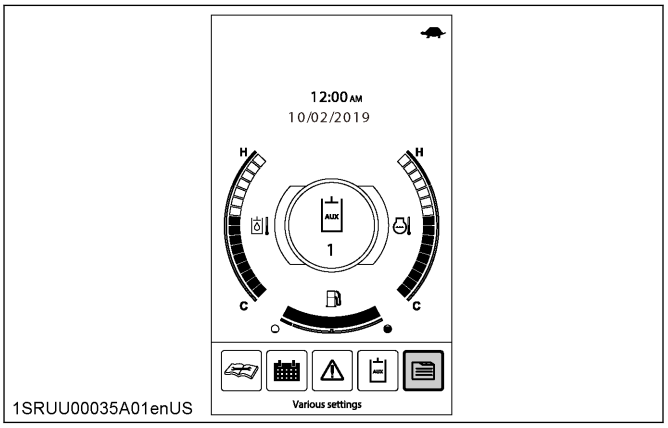
3. Rotate the jog dial to the right or to the left to move the cursor. Select the desired format.
4. Press the jog dial to save the new settings, or press the return switch to retain the previous settings.

2.11.3 Setting the display brightness

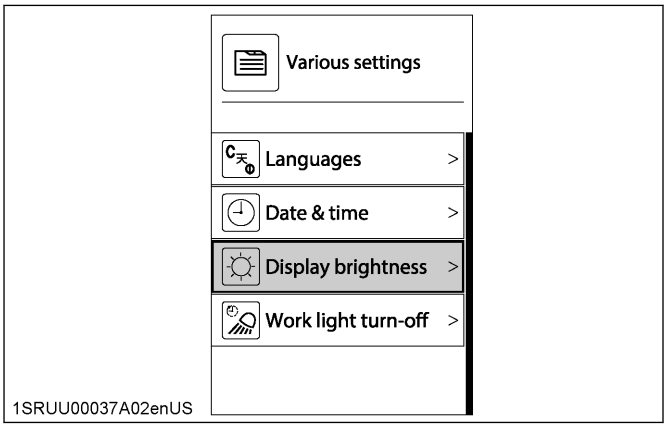
The display brightness can be set to one of 10 levels. It is possible to register separate brightness settings for

when the working light is on and when the working light is off.

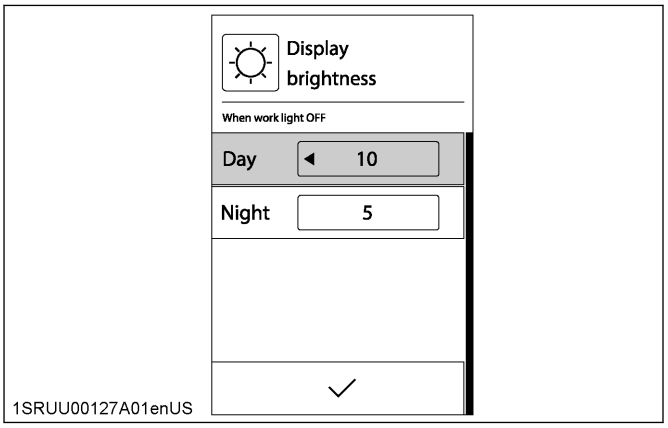
1. Press the menu switch to make the menu bar appear on the display.
2. Rotate the jog dial to the right to select "Various settings", and press the jog dial.



3. Rotate the jog dial to the right to select "Display brightness", and press the jog dial.



4. Rotate the jog dial to the right or left to select "Day" or "Night", and press the jog dial.



NOTE :

- **"Day" is the brightness setting for when the working light is off, and "Night" is the brightness setting for when the working light is on.**

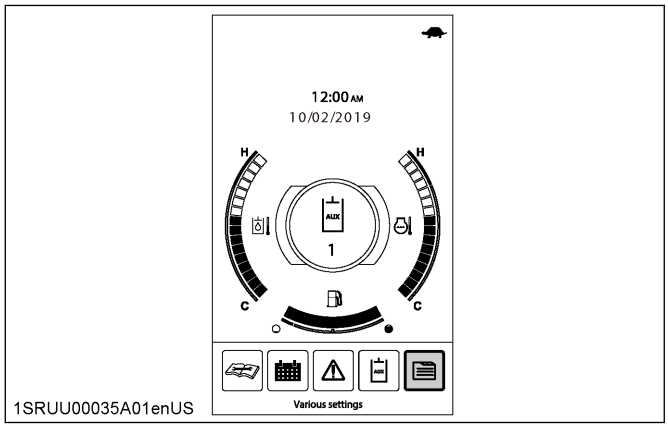
Default settings	
Day	10
Night	5

5. Rotate the jog dial to the right or left to increase or decrease the numerical value, and press the jog dial to confirm the selection.
6. Rotate the jog dial to the right to select "✔" and press the jog dial to save the new settings, or press the return switch to retain the previous settings.

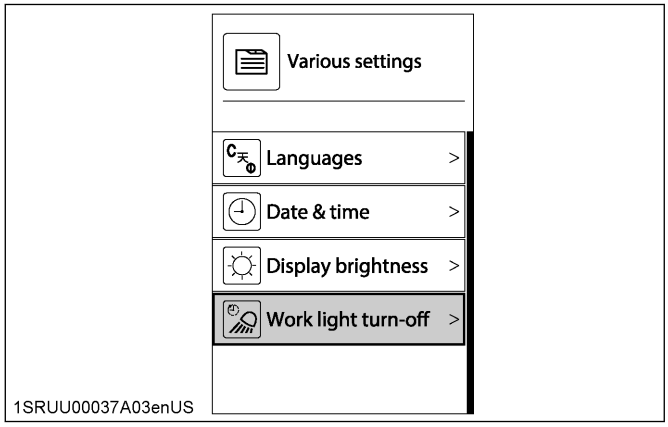
2.11.4 Setting the work light turn-off delay function

The working light turn-off can be delayed for a given time after turning off the key. The working light switch can be used to manually turn off the working light when the turn-off delay function is activated.

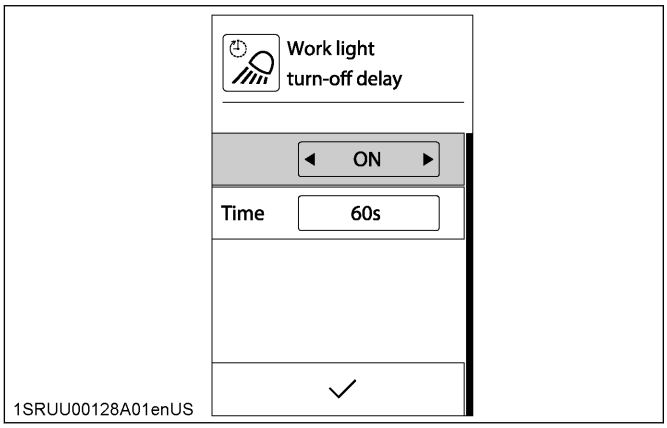
1. Press the menu switch to make the menu bar appear on the display.
2. Rotate the jog dial to the right to select "Various settings", and press the jog dial.



3. Rotate the jog dial to the right to select "Working light turn-off delay", and press the jog dial.



4. Rotate the jog dial to the right or left to select "ON/OFF" or "Time", and press the jog dial.



5. Rotate the jog dial to the right or left to select the desired setting, and press the jog dial to confirm the selection.

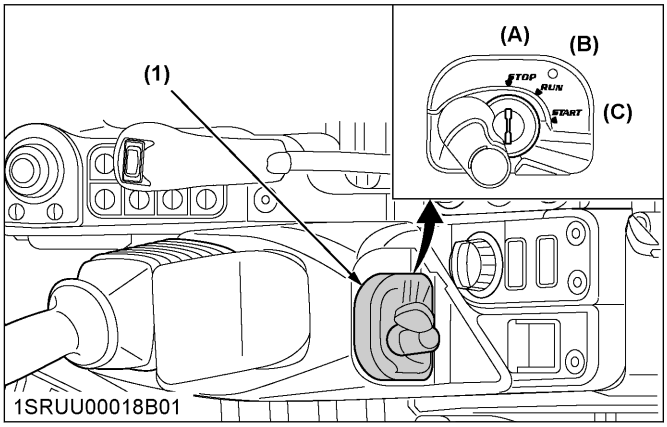
NOTE :
- **The work light turn-on delay must be set to "ON" before the delay time can be set.**
- **The delay time can be set in 30 second increments from 30 to 120 seconds.**

6. Rotate the jog dial to the right to select "✔" and press the jog dial to save the new settings, or press the return switch to retain the previous settings.

2.11.5 Log record

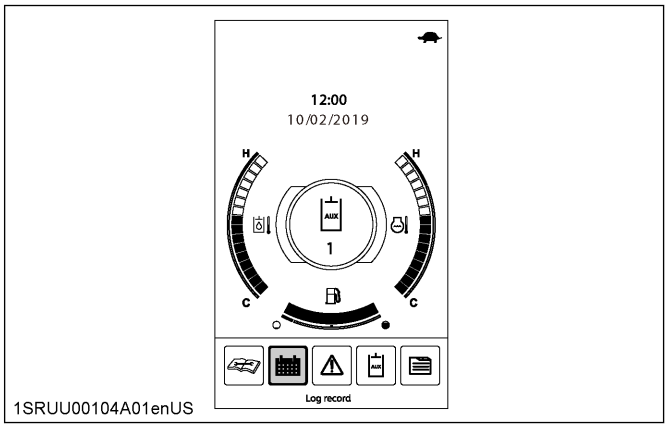
The log record helps you check the last 3 months operating record of the machine. Take the following steps:

1. Set the starter key to the **[RUN]** position.



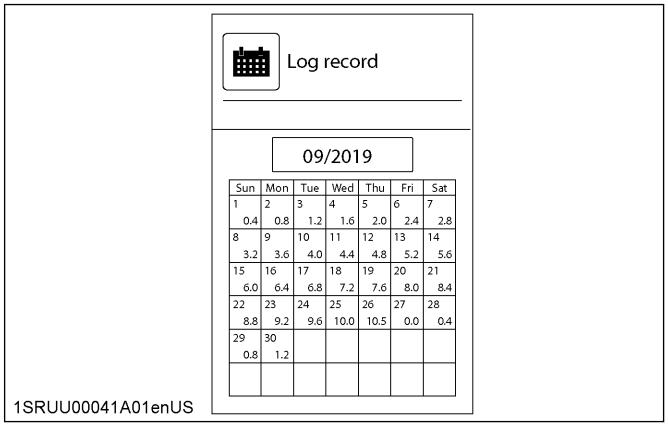
(1) Starter switch
(A) STOP
(B) RUN
(C) START

2. Press the menu switch to make the menu appear on-screen.
3. Rotate the jog dial to the left to select "Log record", and press the jog dial to make the log record (the machine's operating day and operating hours) for the current month appear.



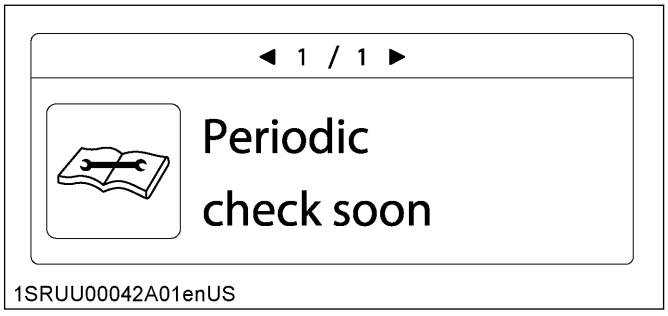
4. To view records from previous months, press the jog dial again, rotate the jog dial to select the desired month, and press the jog dial to confirm the selection.

NOTE :
- **It is possible to view records from the last three months (up to 90 days ago).**



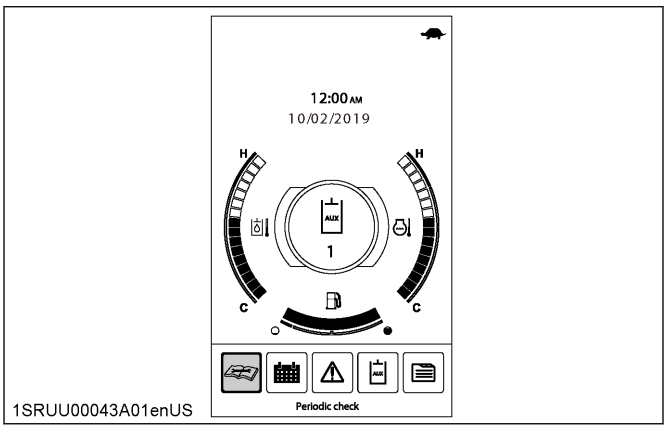
2.12 Periodic Check

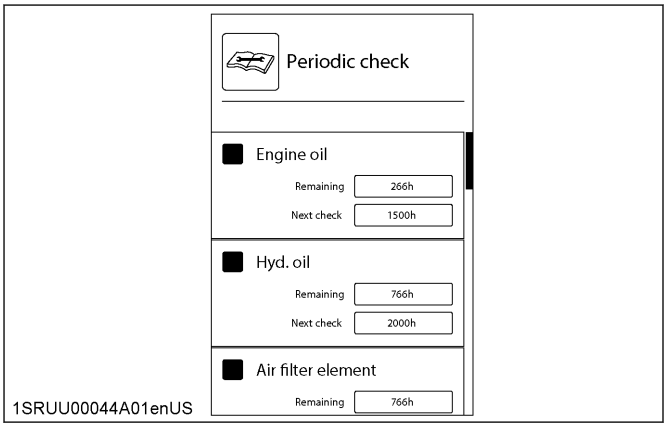
The following message appears on the display 10 hours before a periodic check.



1. Press the menu switch to make the menu bar appear on-screen.

2. Rotate the jog dial to the left to select "Periodic check", and press the jog dial to check the list of periodic check items.





3. Perform the servicing as listed.

IMPORTANT :

- **When the servicing has been completed, turn the starter switch on and off 10 times or more and the check screen automatically disappears.**
- **When the periodic check interval has passed, the message "Periodic check notification" shows up. Immediately perform the specified servicing.**
- **The periodic check screen can also be preset to only be made to disappear manually.**
  For this setting, contact your local Kubota dealer.

2.12.1 Service hour meter

When the hour meter reaches the hours circled in the following maintenance table, a message appears.

No.	Check points		Measures	Hour meter indicator										Intervals
				50	100	250	500	600	750	1000	1500	2000	3000	
1	Engine oil (**CJ-4** or **CK-4**)		Change				○			○	○	○	○	Every 500 hrs
2	Fuel filter		Replace				○			○	○	○	○	Every 500 hrs
3	Engine oil filter						○			○	○	○	○	Every 500 hrs
4	Drive unit oil		Change	◎			○			○	○	○	○	Every 500 hrs
5	Breather filter		Replace				○			○	○	○	○	Every 500 hrs
6	Hydraulic oil		Change							○		○	○	Every 1000 hrs
7	Air filter element	Outer element	Replace							○		○	○	Every 1000 hrs
		Inner element								○		○	○	Every 1000 hrs
8	Hydraulic return filter cartridge									○		○	○	Every 1000 hrs
9	Hydraulic suction filter element									○		○	○	Every 1000 hrs
10	Pilot filter									○		○	○	Every 1000 hrs
11	Engine oil mist separator filter										○		○	Every 1500 hrs
12	Idler, track roller, grease		Change									○		Every 2000 hrs

◎ represents the interval for the first servicing only.

3. Warning lamp

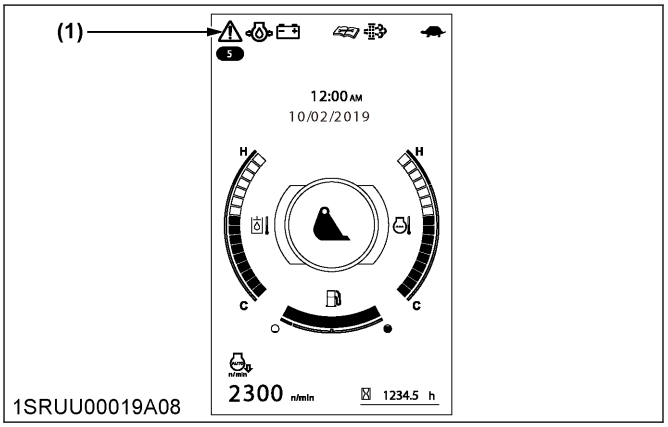
The warning lamp is used to indicate broken wire, short circuit, fuel shortage, and other problems.
The warning lamp starts flashing in red if any problem occurs. If the system senses a warning signal, the warning lamp starts flashing in yellow.

IMPORTANT :

- **If the warning lamp illuminates, perform the appropriate inspection and correction accordingly.**
  (See MAINTENANCE on page 94.)

NOTE :

- **If any warnings and problems are displayed, an alarm buzzer will beep.**
  (See NAVIGATION SCREENS on page 169.)
- **Consult your local Kubota dealer for details concerning care and maintenance.**

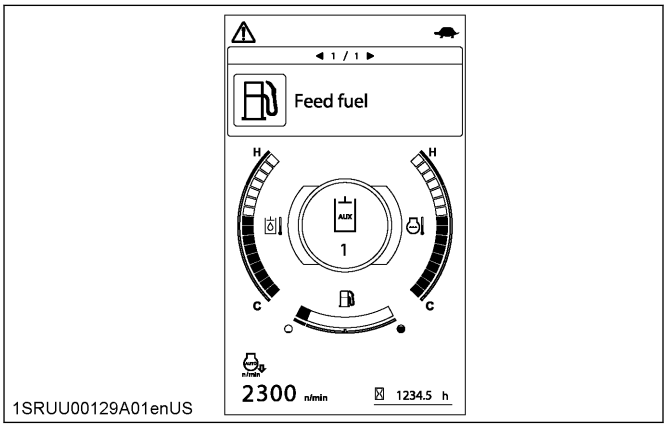


(1) Warning lamp (red, yellow)

4. Display for warnings

4.1 Remaining fuel warning

When the fuel level is very low, the ⚠ lamp (yellow) starts flashing and the following message appears on the display.

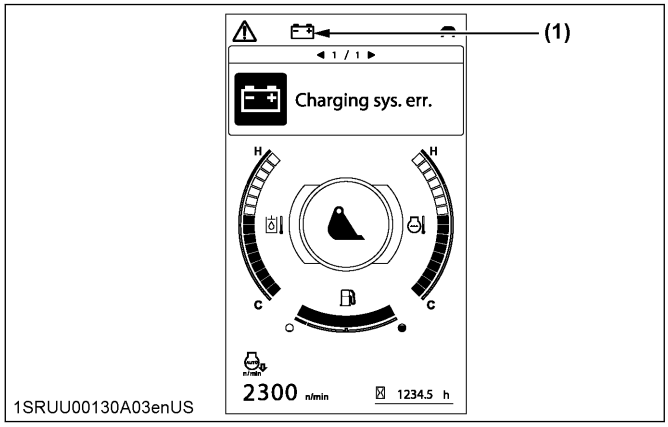


NOTE :

- **After a short period of time, the message shows up again.**

4.2 Battery charge warning

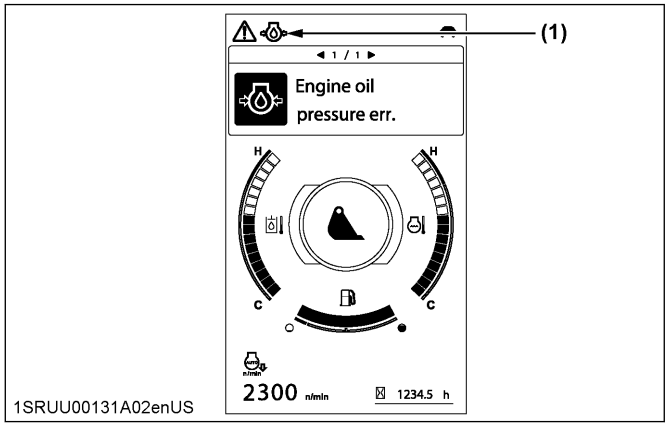
If the starter key is turned to the **[RUN]** position without starting the engine, and the charging lamp stays off, the charging system has failed. In such a case, immediately contact your local Kubota dealer for repairs.



(1) Charging lamp

4.3 Low engine oil pressure warning

When the engine oil pressure drops too low, the ⚠ lamp starts flashing red and the following message appears on the display.
Immediately stop the engine and check the engine oil level.



(1) Oil lamp

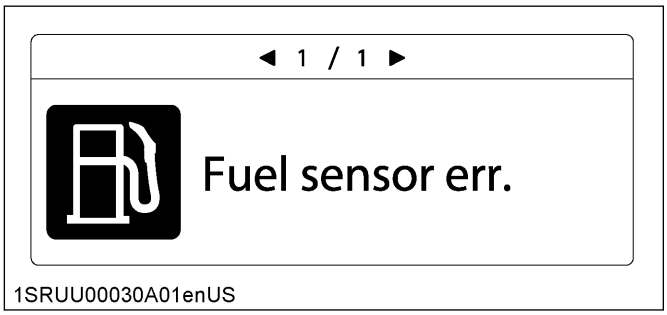
NOTE :

- **If the starter key is turned to the [RUN] position without running the engine and the oil lamp stays off, then the hydraulic system may have failed.**
  In such a case, immediately contact your local Kubota dealer for repairs.

4.4 Various error warnings

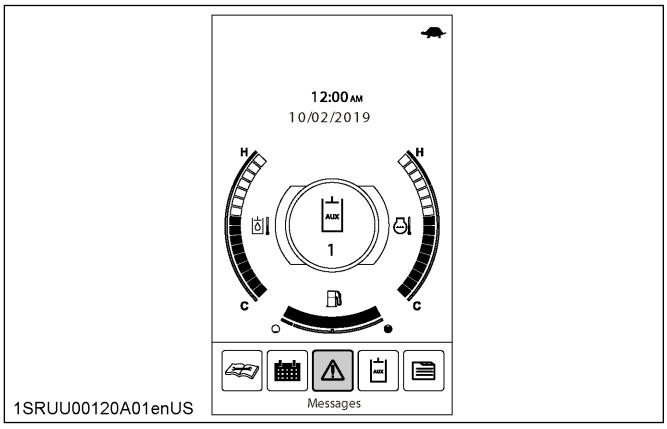
If any components are detected to be experiencing trouble, a message, such as the following one, appears on-screen.
(See NAVIGATION SCREENS on page 169.)

For Example

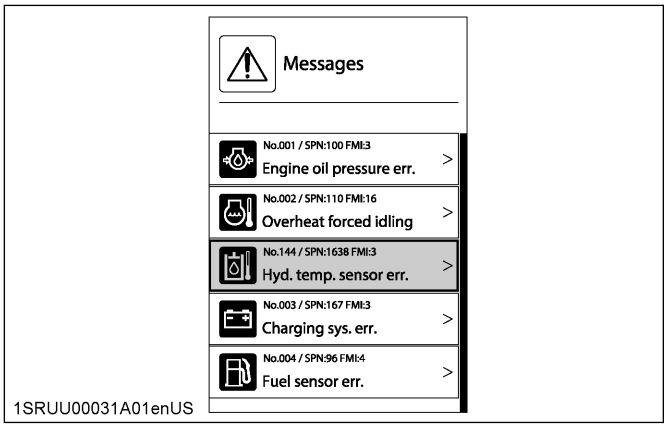


4.5 Checking error warnings

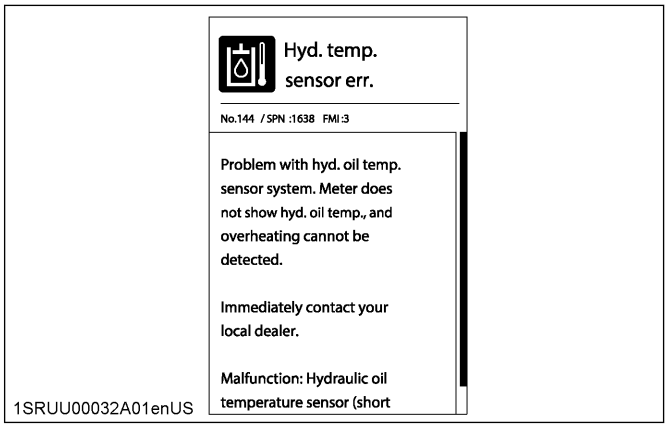
1. Press the menu switch to make the menu bar appear on the display.



2. Press the jog dial to select "Messages", and the list of error messages appears on the display.



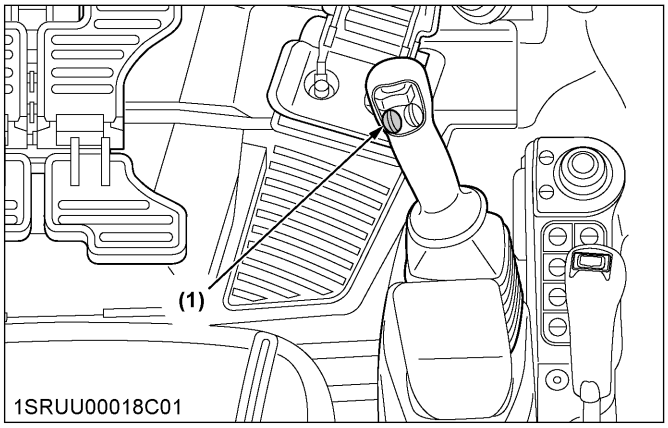
3. Rotate the jog dial to the right to select the desired item, and press the jog dial. A detailed message appears on the display.



NOTE :
- **On this screen, you can use the jog dial to scroll up and down.**

HORN SWITCH

Pressing the horn switch sounds the horn.
You can use the horn even when the starter key is in the **[STOP]** position.



(1) Horn switch

OPERATING THE WORKING LIGHT SWITCH

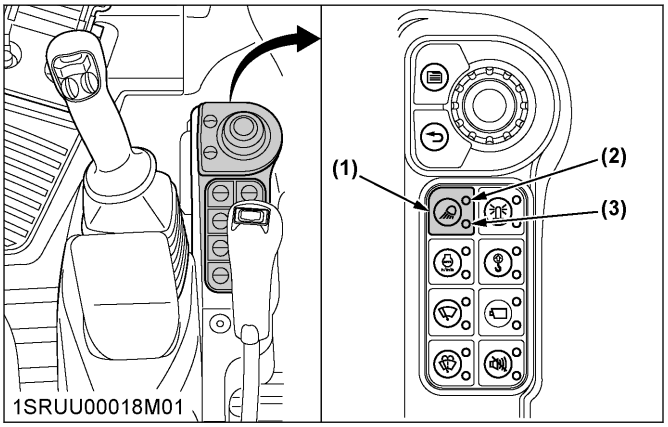
⚠ WARNING
To avoid personal injury or death:
- **When working on public roads, be careful not to blind other road users.**

1. Set the starter switch to the **[RUN]** position.

2. Operate the working light switch as follows:

[Canopy type]
- Press once and the working light turns on. The upper indicator lights up.
- Press again and the working light turns off. The upper indicator goes out.

[CAB type]
- Press once and the working light turns on. The upper indicator lights up.
- Press a second time and the CAB light turns on. Both the upper indicator and the lower indicator light up.
- Press a third time and both the working light and the CAB light turn off. Both the upper indicator and the lower indicator go out.



(1) Working light switch
(2) Upper indicator
(3) Lower indicator

1. Night operation

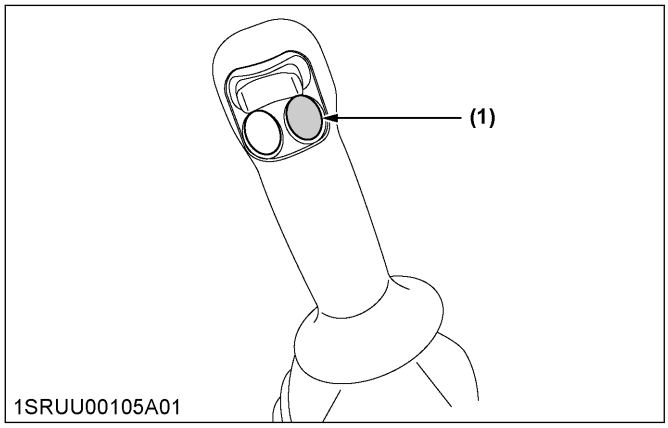
WARNING

To avoid personal injury or death:

- **When the working light and CAB light alone do not provide sufficient visibility, prepare additional stationary artificial lighting and observe the safety rules for night work.**

AUX PORT ENABLE SWITCH

It is possible to freely readjust the actuator's maximum flow rate in the AUX operating mode.
(See AUXILIARY PORT OPERATION on page 77.)



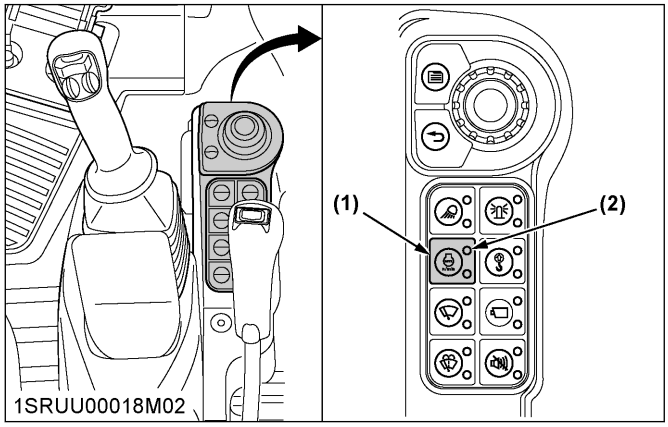
(1) AUX port enable switch

AUTO IDLE CONTROL SWITCH

The switch is used to enable and disable the Auto Idle control.

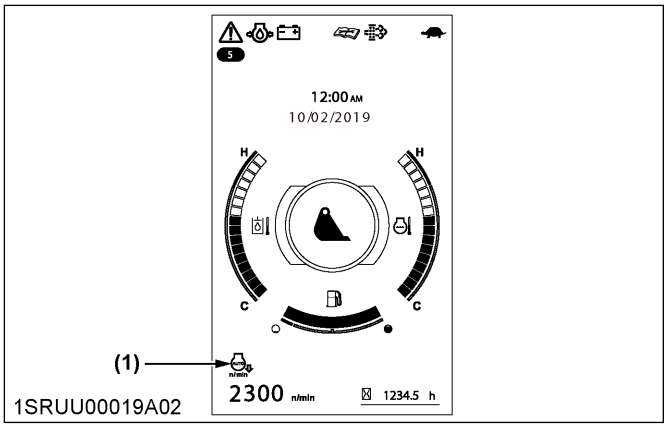
Enable
- Press the Auto Idle control switch. When the Auto Idle control is on, the Auto Idle lamp stays on.

Disable
- Press the Auto Idle control switch once again. Now the Auto Idle control is deactivated and the Auto Idle lamp goes out.



(1) Auto Idle control switch
(1) Auto Idle lamp

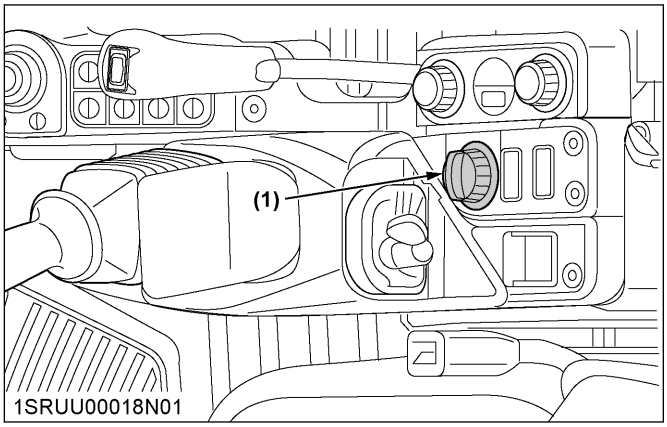
When Auto Idle control is enabled the Auto Idle indicator appears on the display.
When the engine speed has dropped to idle speed due to Auto Idle control, the Auto Idle indicator flashes.



(1) Auto Idle indicator

THROTTLE POTENTIOMETER

- Sit down on the operator's seat and turn the throttle potentiometer clockwise toward high speed, and the engine revs up.
- To stop the engine, turn the throttle potentiometer fully toward low speed and keep the engine at idling speed. Then set the starter key to the **[STOP]** position.



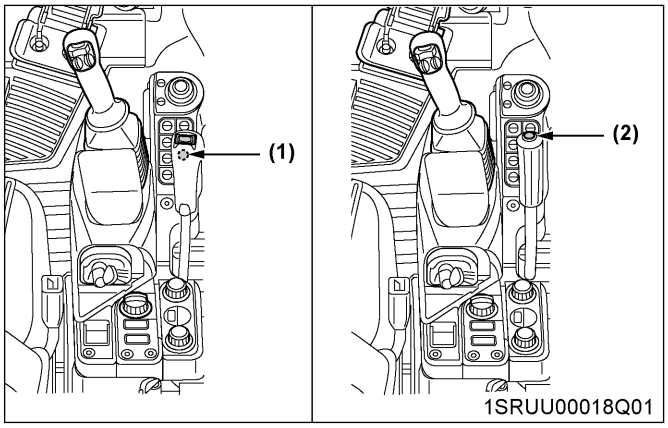
(1) Throttle potentiometer

TRAVEL SPEED SWITCH

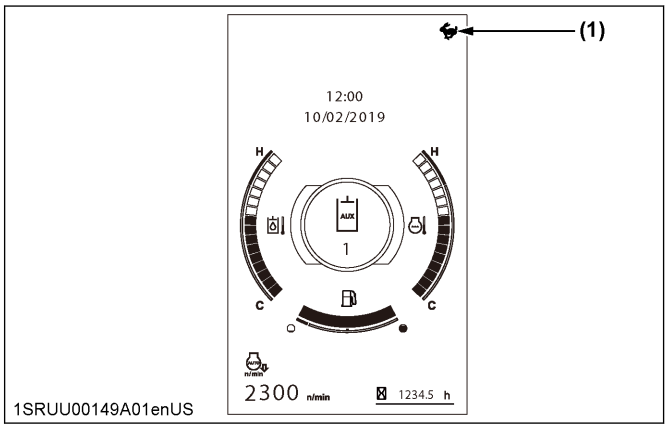
Travel speed will increase when this switch is pushed down.

Switching the dual travel speed:

- Press the travel speed switch. The buzzer beeps twice and the travel speed changes from low to high. The speed indicator light changes from the symbol to the symbol.
- Press the travel speed switch again, the buzzer beeps once and the travel speed changes from high speed to low. The speed indicator light changes from the symbol back to the symbol.



(1) Travel speed switch [Angle blade type]
(2) Travel speed switch [Standard type]



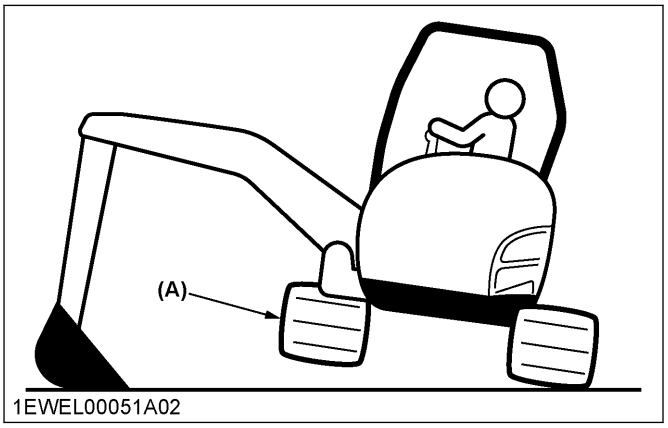
(1) Speed indicator light

NOTE :

- **When activating the travel speed switch, it must be pushed down completely.**
- **Each time the travel speed switch is pressed, the travel speed is switched between low and high.**

IMPORTANT :

- **The travel speed automatically changes into first speed (low speed) when the drive resistance increases while traveling in second speed (high speed). Thereafter, when the resistance decreases, it returns to second speed.**
- **If a track is clogged with sand or gravel while working on soft ground, lift up the track with the help of the boom, arm, bucket, and dozer blade, and let the track rotate to remove the sand and gravel.**



(A) Rotate to remove sand and gravel

⚠ WARNING

To avoid personal injury or death:

- **Do not push the dozer control lever into the float position as this will cause the machine to suddenly drop.**

⚠ DANGER

To avoid serious injury or death:

- **Do not work under the machine in this condition.**

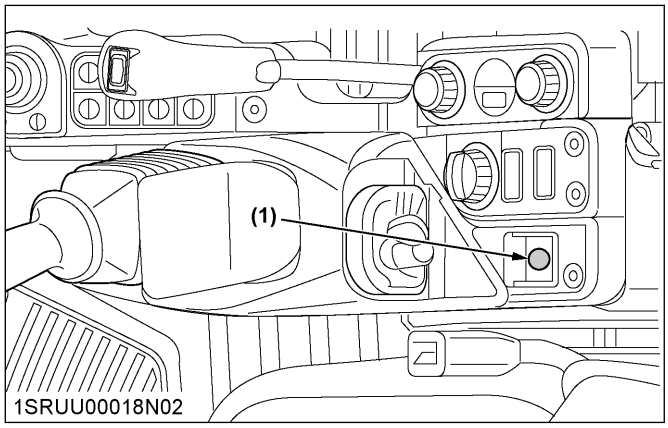
INHIBIT DIESEL PARTICULATE FILTER (DPF) REGENERATION SWITCH

The Inhibit diesel particulate filter (DPF) regeneration switch (hereinafter called inhibit switch) disables the auto DPF regeneration cycle.

Activate this switch to turn auto DPF regeneration *"off"* when working around people, animals, plants, and flammable materials.

Certain work conditions may require the auto DPF regeneration cycle to be disabled.

- Depress the switch once to turn off automatic mode.
- Depress the switch once again to return from disable to automatic mode.

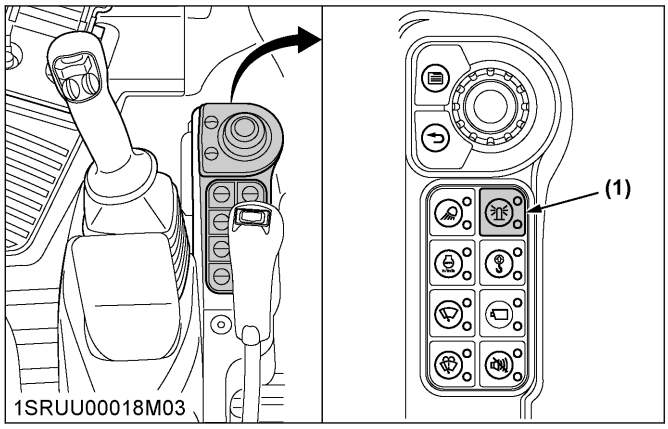


(1) Inhibit switch

BEACON LIGHT SWITCH

This machine is only equipped with the beacon light switch (including the coupler for connecting a rear left speaker in the CAB).

The machine is not equipped with the beacon main part. Please install the part if required.



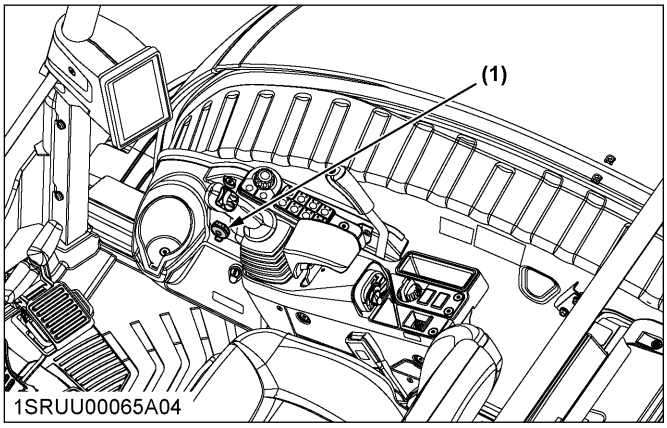
(1) Beacon light switch

ELECTRICAL OUTLET

Max power is less than 120 W.

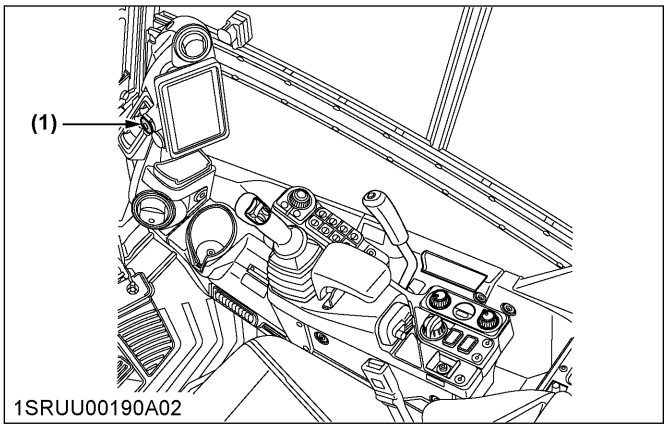
If you require additional auxiliary electricity, contact your Kubota dealer for details.

[Canopy]



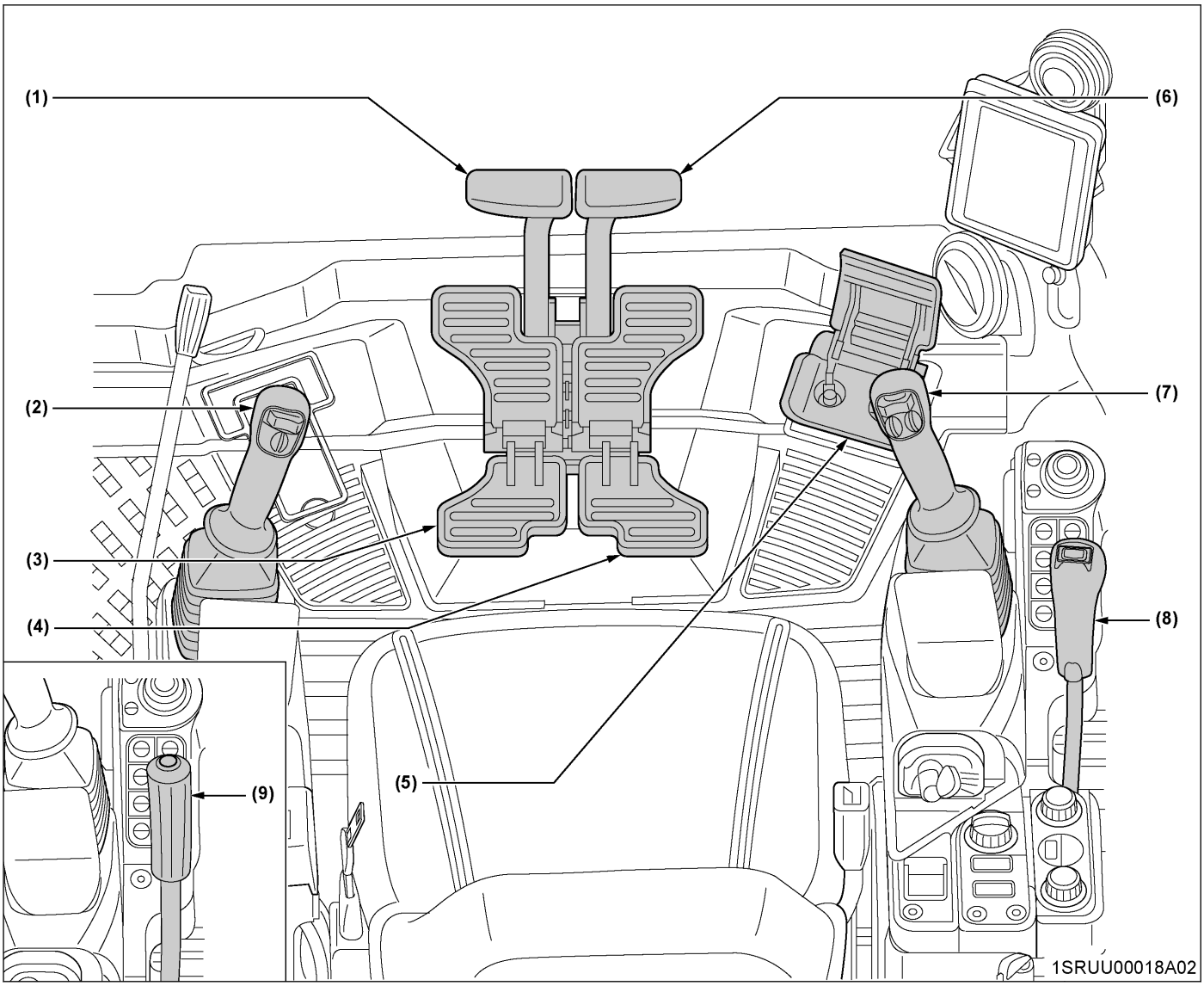
(1) Electrical outlet

[CAB]



(1) Electrical outlet

CONTROL PEDALS AND LEVERS



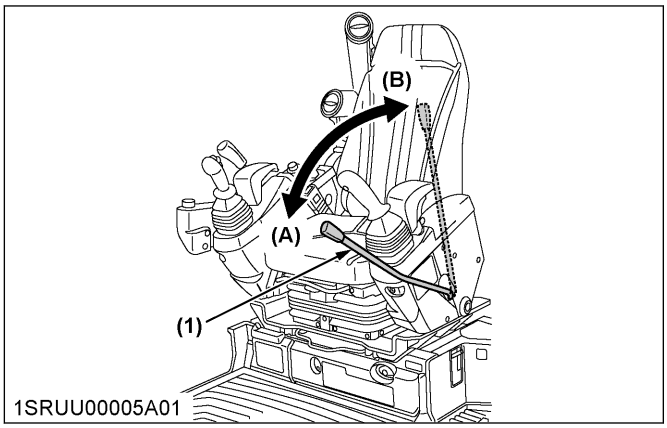
HANDLING THE PILOT CONTROL LOCK LEVER

WARNING

To avoid personal injury or death:

- **When the machine is not in use or left unattended, place the pilot control lock lever in LOCK position.**

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



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

CAB OPERATION

OPERATING THE WIPER AND WASHER

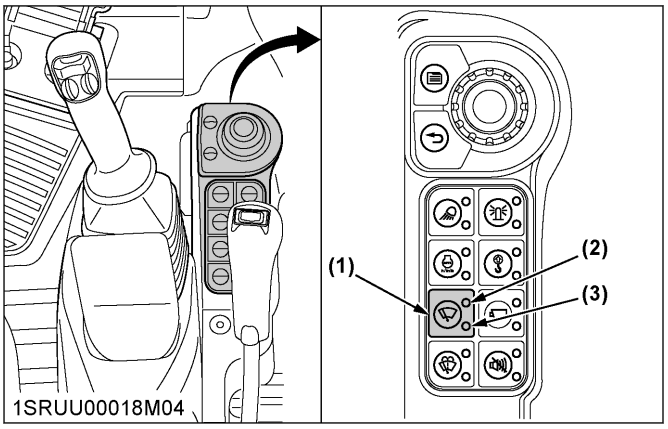
All cab models are equipped with a wiper/washer system.

IMPORTANT :

- **Do not turn on the wiper switch while the windscreen is open. When you turn on the wiper while the windscreen is open, the wiper can hit the adjacent cab components causing damage to the wiper.**
- **In extremely cold weather conditions, make sure the wiper rubber does not stick to the window. This can damage the wiper rubber or the wiper motor.**
- **Only switch on the wiper when the window glass is wet. If necessary, switch on the washer system first.**
- **Do not operate the washer system if its reservoir is empty as running dry could damage the pump.**

Wiper

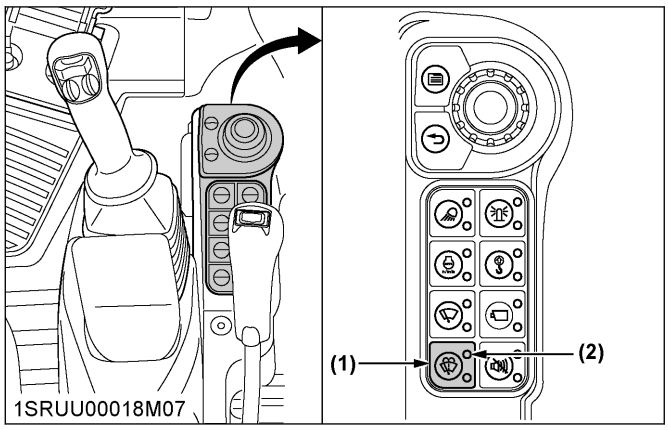
1. Set the starter switch to the **[RUN]** position.
2. Press the wiper switch to activate the windscreen wiper.
   - Press once and the wiper activates intermittently. The upper indicator lights up.
   - Press a second time and the wiper activates continuously. The lower indicator lights up.
   - Press a third time and the wiper stops. Both the upper indicator and the lower indicator go out.



(1) Wiper switch
(2) Upper indicator
(3) Lower indicator

Washer

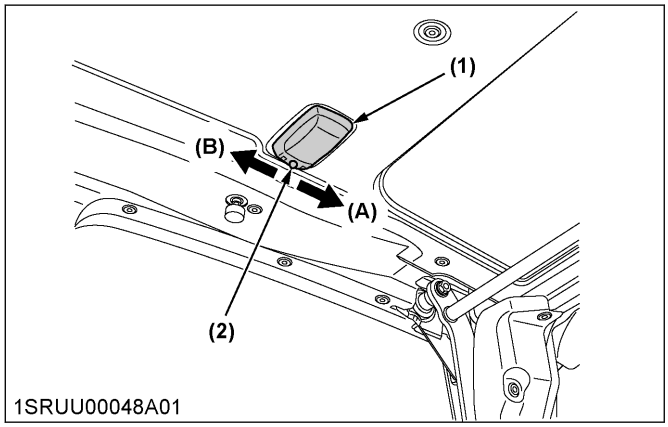
1. Set the starter switch to the **[RUN]** position.
2. Press the washer switch to activate the washer.
   - The washer system runs for as long as the switch is held down. The indicator lights up.
   - Hold down the switch for longer, and the wiper starts.
   - Release the switch, and the wiper will swing several times before stopping.



(1) Washer switch
(2) Indicator

INTERIOR LAMP

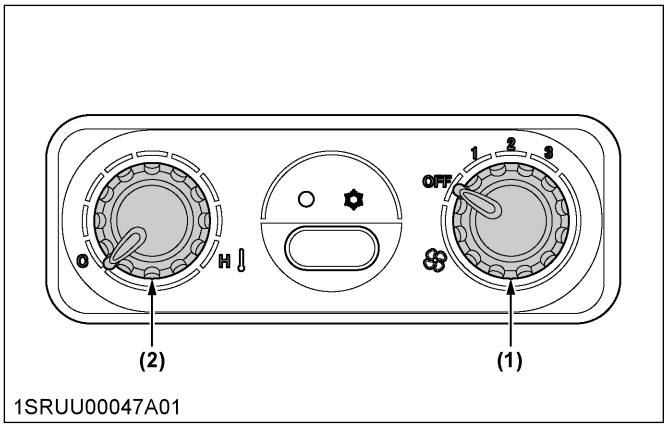
To turn on the interior lamp, set the interior lamp switch to the **[ON]** position.



(1) Interior lamp
(2) Interior lamp switch
(A) ON
(B) OFF

HEATER SWITCH

Turn the starter switch to the **[RUN]** position and turn the heater switch clockwise, the heater fan will be activated and the cabin will start to warm up. The heater has three position.

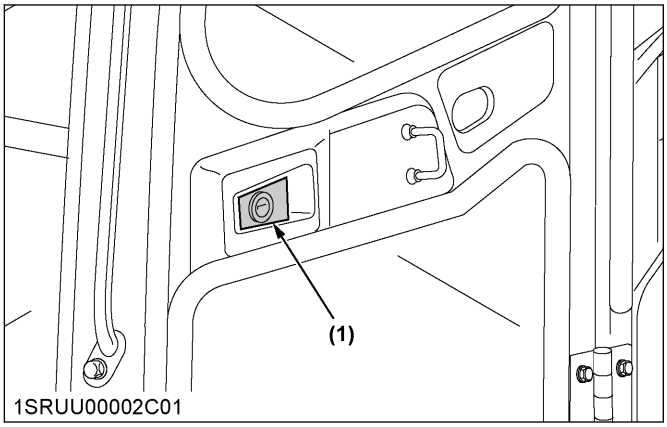


(1) Heater switch
(2) Temperature control dial

OPENING AND CLOSING THE CAB DOOR

Opening

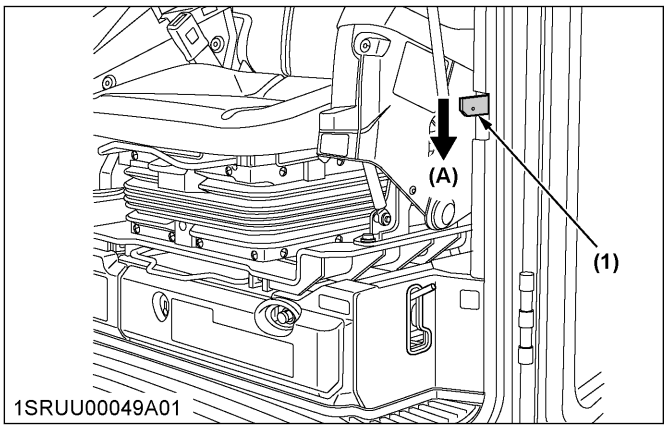
1. Unlock the CAB door.
2. Pull the knob.
3. Open the CAB door fully until fixed into place.



(1) Door knob (outside)

Closing

1. Push the release lever down.
2. Close the door.



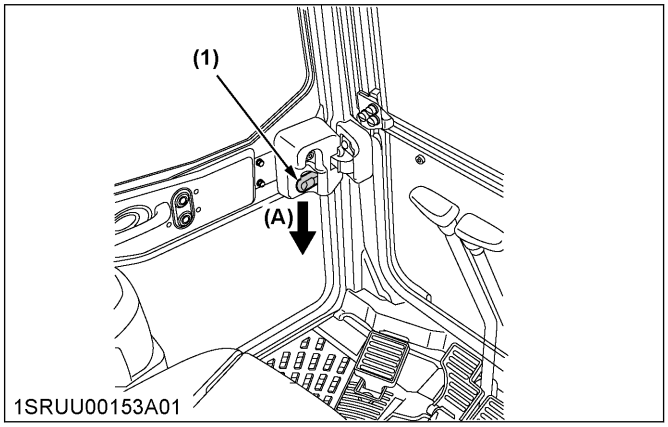
(1) Release lever (A) Push down

NOTE :

- **Always lock the door when leaving the machine.**

Opening from the inside

1. Push the release lever down.
2. Open the door.
3. If the cab door is not closed again right away, be sure to fully open the door so that it locks into place.



(1) Release lever (A) Push down

OPENING AND CLOSING THE FRONT WINDOW DOOR OF THE CAB

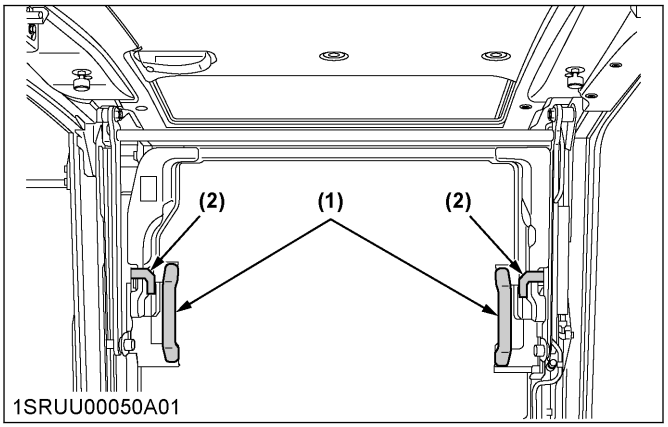
⚠ WARNING

To avoid personal injury or death:

- **Keep hands and feet away from the area between the front window and CAB frame. Otherwise, the operator risks serious pinching or crushing injuries.**
- **Other people should stay away when opening the window.**

To open and close the front window, take the following steps:

1. Push the lock levers located near the grip.



(1) Grip
(2) Lock lever

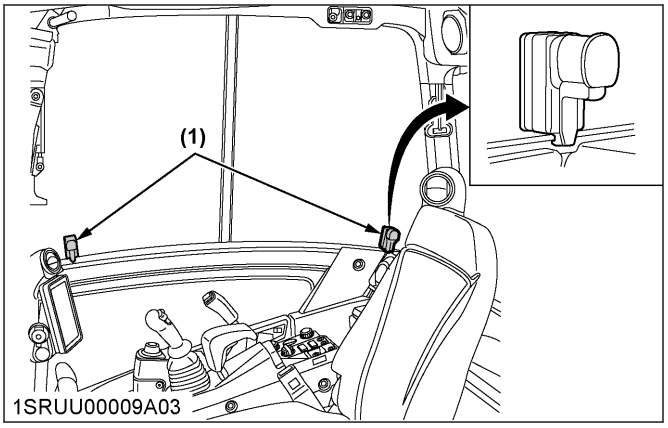
2. Hold the grips tightly with both hands. Pull the grip slightly upward and toward yourself to let the front window door slide inward.
3. Pull the front window door all the way to the lock at the back of the CAB.
4. To close the window, repeat the previous steps in reverse order.

OPENING AND CLOSING THE SIDE WINDOW OF THE CAB

1. Press the grip upwards to release the lock.
2. Pull the side window open towards the rear or towards the front.

   NOTE :
   - **The window can be locked into a halfway open position by fitting the lock hooks into the window sash grooves.**
     The hooks should be locked into one of the grooves during operation.

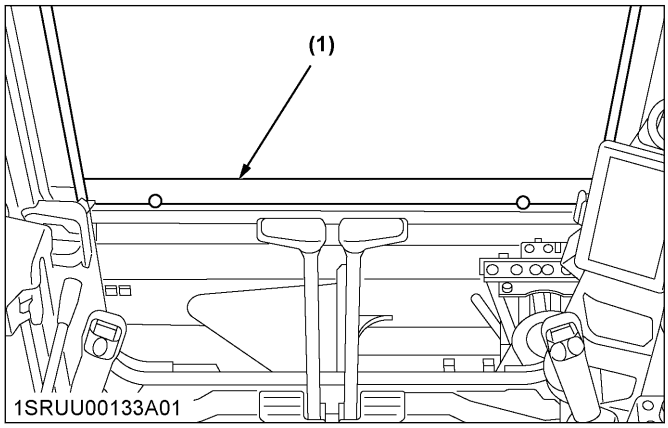
3. To close the side window, slide it forward or backward until the hook locks into either the front or the rear sash groove.



(1) Grip

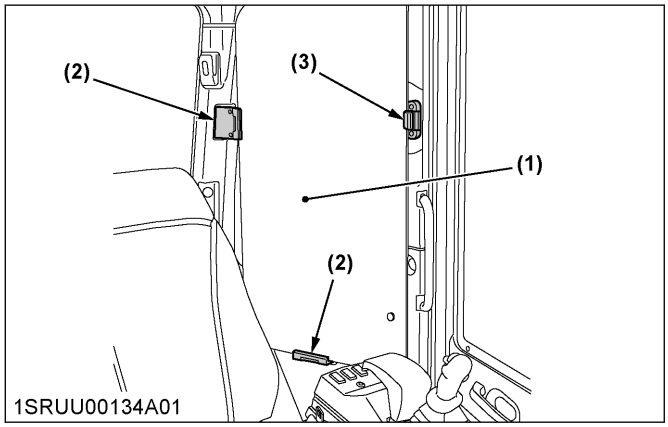
REMOVING THE FRONT WINDOW BASE

1. Open the front window and fold the backrest completely forward.
2. Lift the front window base upwards and remove it from the window frame.



(1) Front window base

3. To reattach, carefully insert the front window base into the fixings at the cab back wall and into the locking mechanism until it snaps into place.



(1) Front window base
(2) Fixing
(3) Locking mechanism

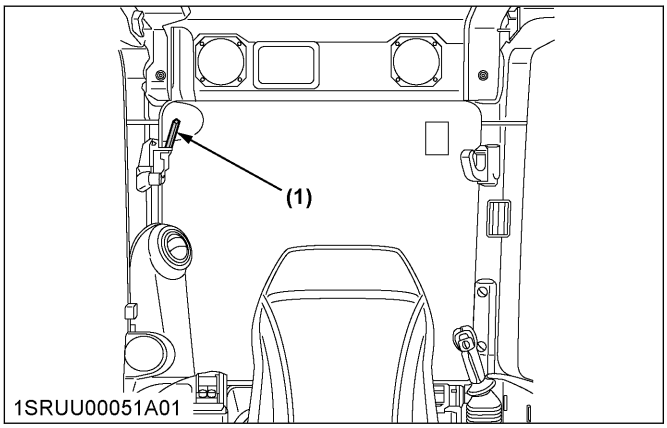
⚠ WARNING
To avoid personal injury or death:
- **Make sure that the glass pane is properly engaged in the locking mechanism.**
  If the glass pane is not locked securely, it can fall down and cause severe injuries.

EMERGENCY HAMMER

⚠ WARNING
To avoid personal injury or death:

- **When breaking the window pane, close your eyes and cover them with your arm.**

The emergency hammer is used for breaking a window pane if the window cannot be opened quickly enough when escaping from the CAB.



(1) Emergency hammer

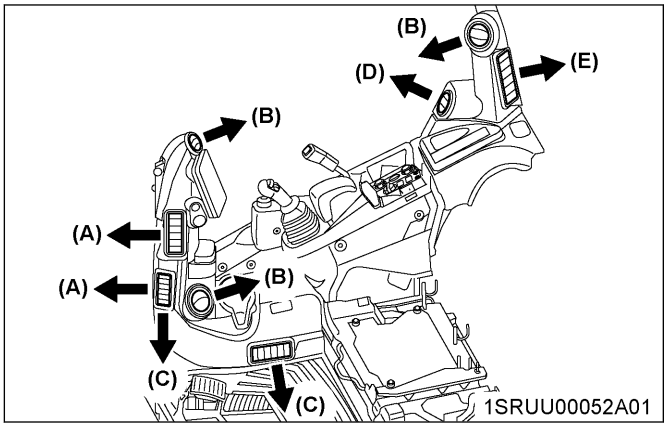
AIR CONDITIONER

IMPORTANT :

- **Never block all of the air outlets because a system malfunction may occur.**

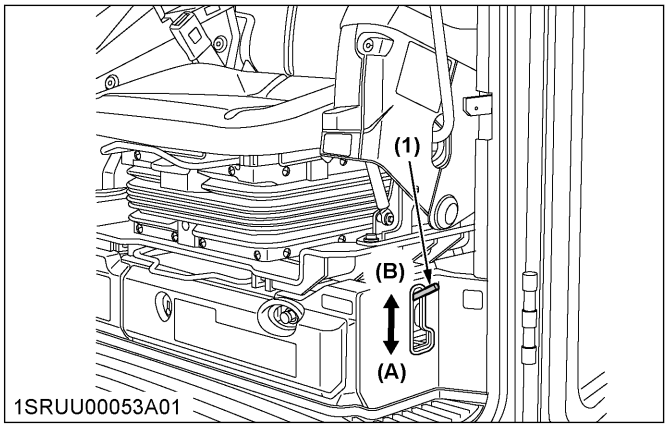
1. Air flow

Air in the CAB and fresh air introduced into the CAB flows as shown in the following figure. Adjust the eight air outlet ports to obtain the desired condition.

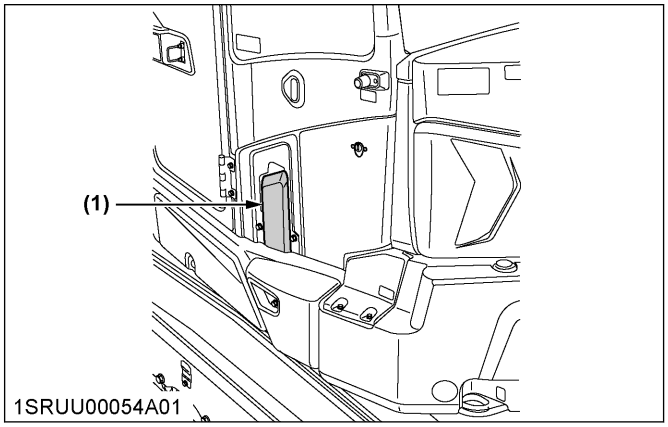


(A) FRONT WINDOW
(B) CHEST AREA
(C) FOOT AREA
(D) SIDE WINDOW
(E) BACKWARD

Set the inlet selector lever to the desired position.



(1) Inlet selector lever
(A) FRESH AIR INLET
(B) INNER AIR RECIRCULATION



(1) FRESH AIR INLET

IMPORTANT :

- **Do not allow water to enter the fresh air inlet while washing the machine.**
- **The air-conditioner unit proper is not waterproof.**

2. Air control vent

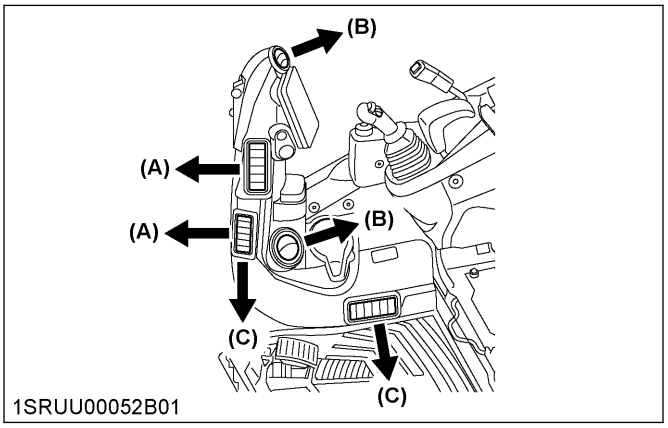
⚠ WARNING

To avoid personal injury or death:

- **If the window fails to defrost in extreme conditions or becomes cloudy when dehumidifying the cab, remove the moisture with a soft cloth.**

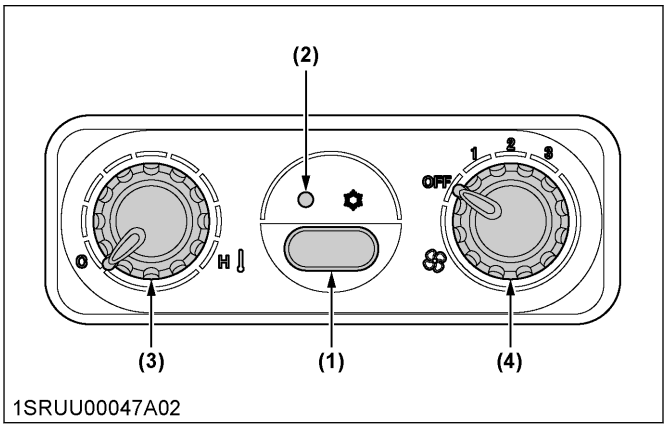
2.1 Front air outlet

The front air outlets can be independently adjusted as required. To defrost the windshield, rotate the outlets toward the windshield.



(A) FRONT WINDOW
(B) CLOSED
(C) FOOT AREA

3. Control panel



(1) Air conditioner switch
(2) Indicator light
(3) Temperature control dial
(4) Blower switch

Air conditioner switch and indicator light
Push this switch to activate the air conditioner. An indicator light will light up when the switch is set to **[ON]**. Push the switch again to turn the air conditioner off and the indicator light will go off.

Temperature control dial
Set this dial at the desired position to obtain the desired air temperature. Turn the dial to the left to obtain cooler air. Turn it to the right to obtain warmer air.

Blower switch
The air volume can be switched between 3 positions. At the **[3]** position, the maximum air volume is obtained.

4. Operation

Heating
1. Adjust the blower (**[1]**, **[2]** or **[3]**) switch and the temperature control dial to achieve the desired temperature level.

Dehumidifying-heating
1. Press and turn on the air conditioner switch.
2. Turn on the blower (**[1]**, **[2]** or **[3]**) switch.
3. Adjust the temperature control dial to the *"COOL"* or an intermediate position to achieve the desired temperature level.

NOTE :
- **Be sure to close the door while the air conditioner is on, otherwise you may overload the compressor.**

Cooling
1. Press and turn on the air conditioner switch.
2. Turn on the blower (**[1]**, **[2]** or **[3]**) switch.
3. Adjust the temperature control dial to the *"COOL"* or an intermediate position to achieve the desired temperature level.

Defrosting or demisting
To defrost or demist the windshield, take the following steps.
1. Open the front air outlet and direct it to the windshield.
2. Set the blower switch and the temperature control dial to the **[3]** and *"WARM"* (rightmost) positions, respectively.

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 pilot control lock lever in the LOCK position.**

Check list

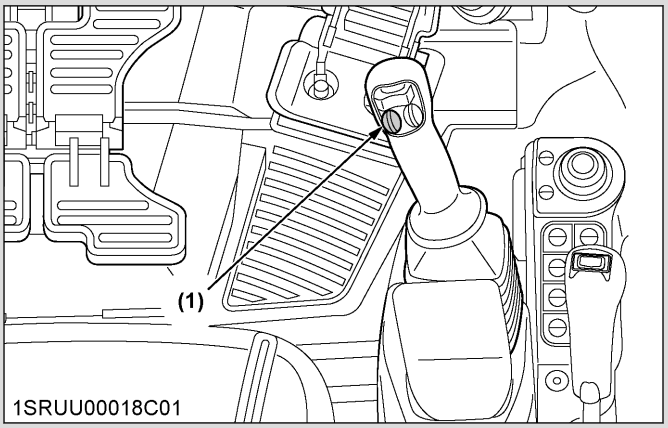
- Go around the machine and check for visual damage.
- Check coolant level.
  (See Checking the coolant level on page 104.)
- Check fuel level.
- Check engine oil level.
- Check hydraulic fluid level.
- Check air filter for clogging.
- Check all grease points.
- Check all control lamps, indicators, tachometer and hour meter.
- Confirm that all controls move freely and do not stick.
- Check the light system.
- Check the seat belt and the ROPS/OPG (top guard level I) safety device.
- Check the condition of the safety labels.
  (See SAFETY LABELS on page 16.)
- Inspect ROPS/OPG (top guard level I) for damage and if damage is found, contact your Kubota dealer for repair.
- Check the Diesel Particulate Filter (DPF) muffler.

OPERATING THE ENGINE

⚠ WARNING

To avoid personal injury or death:

- **Read and understand the safe operation section.**
  (See SAFE OPERATION on page 7.)
- **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.**



(1) Horn switch

IMPORTANT :

- **Do not use starting fluid or ether.**
- **In order not to overload 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.**

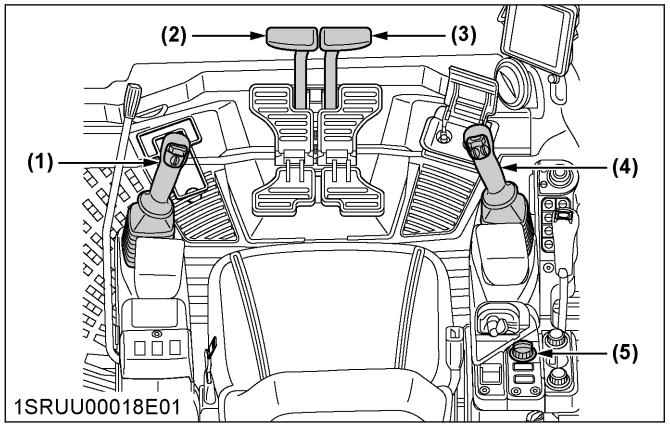
STARTING THE ENGINE

⚠ 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 INTERVALS on page 95.)

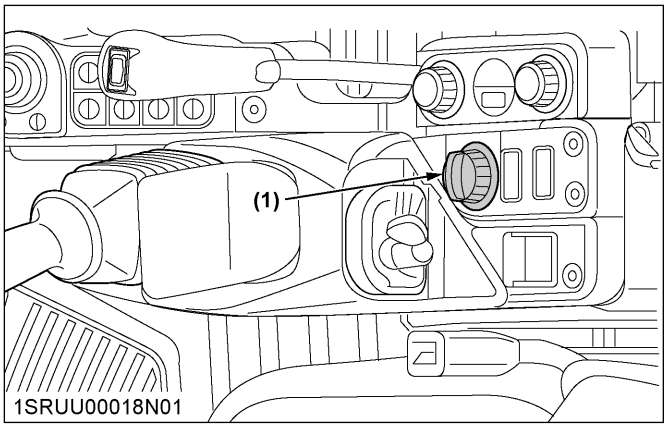
1. Before starting the engine, make sure that all control levers are in the neutral position.



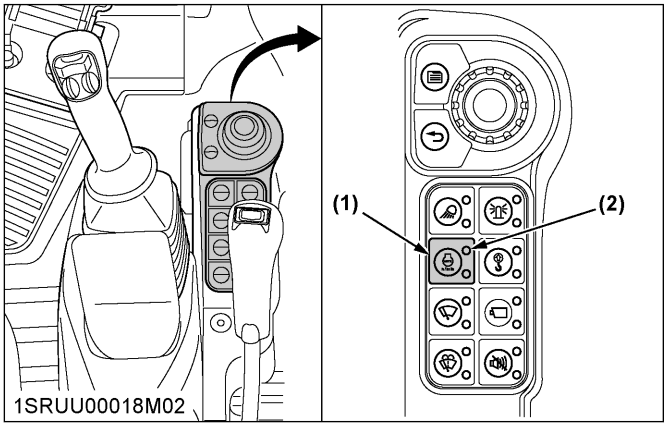
(1) Attachment control lever (left)
(2) Drive lever (left)
(3) Drive lever (right)
(4) Attachment control lever (right)
(5) Throttle potentiometer

2. Pull the pilot control lock lever all the way back to the LOCK position.

3. Put the throttle potentiometer in the middle, between and symbols, and turn off the Auto Idle control.
(See AUTO IDLE (AI) OPERATION on page 87.)

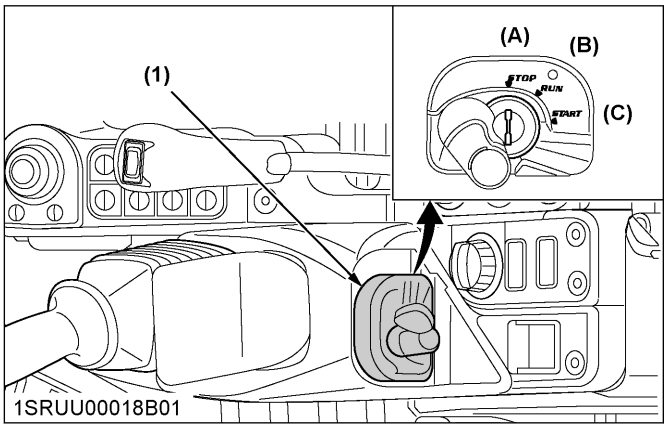


(1) Throttle potentiometer

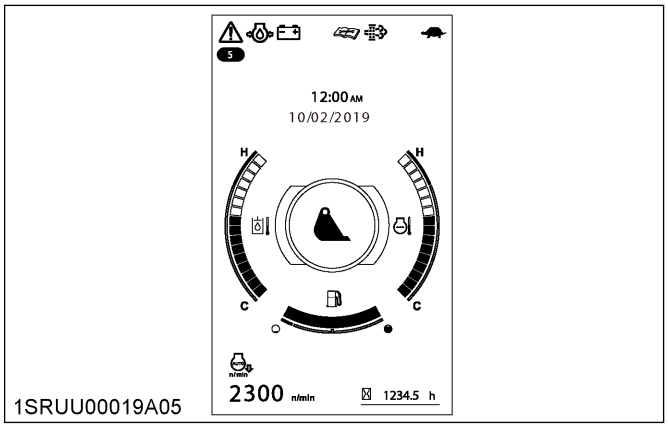


(1) Auto Idle control switch
(2) Auto Idle lamp

4. Set the starter key to the **[RUN]** position. Hold the key at this position until the message "Preheating" disappears from the screen.



(1) Starter switch
(A) STOP
(B) RUN
(C) START



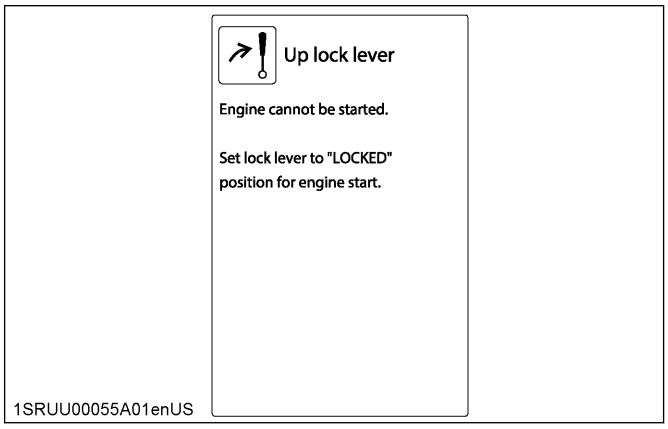
5. Now make sure that the and marks appear on-screen. If they do not appear, the system has malfunctioned. Contact your local Kubota dealer for repairs.
6. Turn the key to the **[START]** position and release it after the engine has started.
7. Check if all warning lamps have gone out. Should a warning lamp still be lit up, stop the engine, remove the key and check for the cause.

IMPORTANT :

- **The starter motor draws a large amount of current. Avoid running it for longer than 10 seconds continuously.**
  If the engine fails to start within 10 seconds, set the key to the [STOP] position, wait for 20 seconds or longer and repeat steps 5 through 7.
- **If the battery is dead and must be connected to another battery with jumper cables, be sure to use a 12 V battery. Never use 24 V batteries.**

NOTE :

- **If you keep the pilot control lock lever in the UNLOCK position and try to start the engine, "Up lock lever" appears on the meter panel and the engine cannot be started. Before starting the engine, make sure that the pilot control lock lever is set at the LOCK position.**



- **When the engine starts, the meter may momentarily turn off and a beep may sound. This is not a problem.**

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.**

Make sure the Auto Idle is turned off (lamp off).

1. Pull the pilot control lock lever all the way back to LOCK position.
2. Insert the starter key into the starter switch.
3. Turn the throttle potentiometer toward (high speed) position.
4. Set the starter key to the **[RUN]** position. Hold the key at this position until the message "Preheating" disappears from the screen.
5. Turn the starter key to the **[START]** position.
6. Once the engine starts, release your hand from the key. The key will return to the **[RUN]** position.
7. If the engine fails to start, set the starter key to the **[STOP]** position and repeat steps 5 through 7.

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 excavator under full load until the engine has sufficiently warmed up.

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.**
- **Wear eye protection and rubber gloves.**

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 serious damage to the electrical system. When using an auxiliary battery, only the compatible (same) voltage is permitted.**

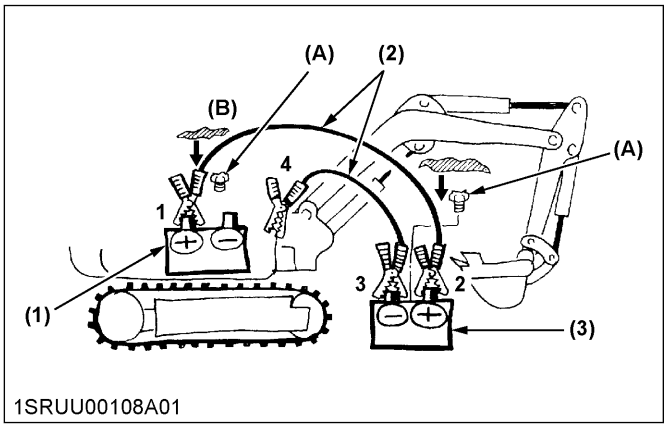
Observe the following guidelines when starting with an auxiliary battery.

1. Bring the helping machine with the same battery voltage as near as possible to the machine.

   IMPORTANT :

   - **The machines must not come in contact with each other.**
2. Set the levers and pedals of both vehicles in their neutral positions and put the pilot control lock lever in the LOCK position.
3. Open the side cover.
   (See Opening and closing the side cover on page 102.)
4. Ensure the vent caps are securely in place (if equipped).
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) Low battery
(2) Jumper cables
(3) Auxiliary battery
(A) Lay a damp rag over the vent caps
(B) Put a cloth over the battery openings

KEYLESS START (OPTION)

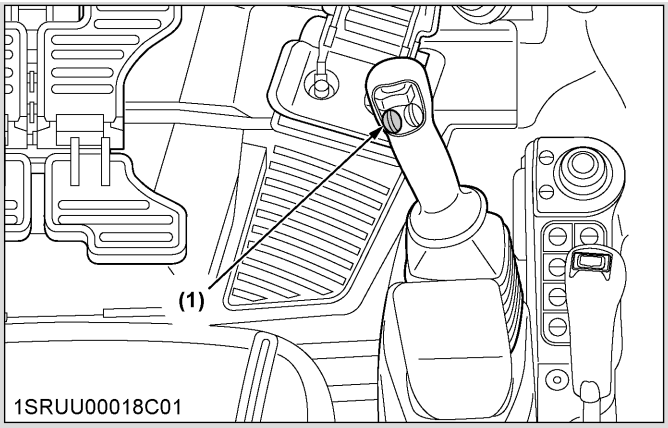
With the keyless start kit installed, the engine can be started by entering the a registered password using the keypad.
Manage the following 2 password types.

User password
This is a 4-digit password which is required in order to start the engine.
Up to 10 user passwords can be registered at a time.

Machine password
This is a 6-digit password which is required in order to register, change, or delete user passwords.

1. Starting the engine

⚠ WARNING
To avoid personal injury or death:
- **Read and understand the safe operation section.**
  (See SAFE OPERATION on page 7.)
- **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.**

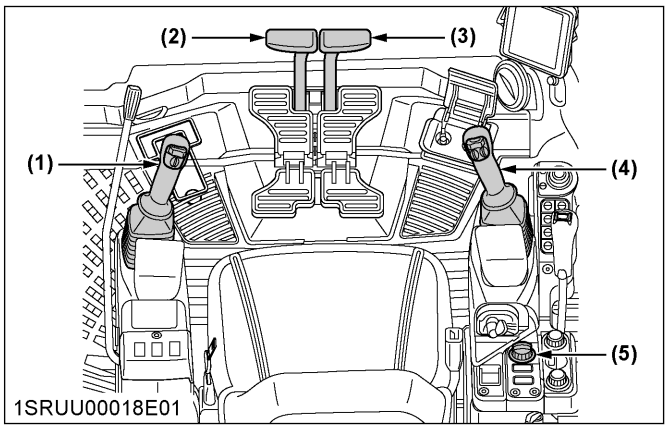


(1) Horn switch

- **The operator should not depend solely on the warning lamps, but should always conduct the routine checks.**

IMPORTANT :
- **Do not use starting fluid or ether.**
- **In order not to overload 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.**

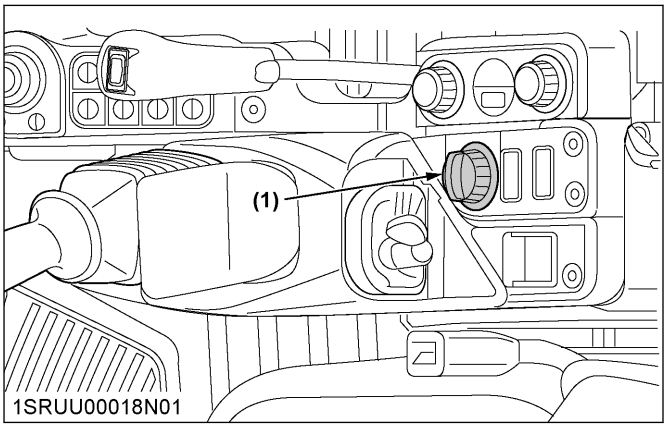
1. Before starting the engine, make sure that all control levers are in the neutral position.



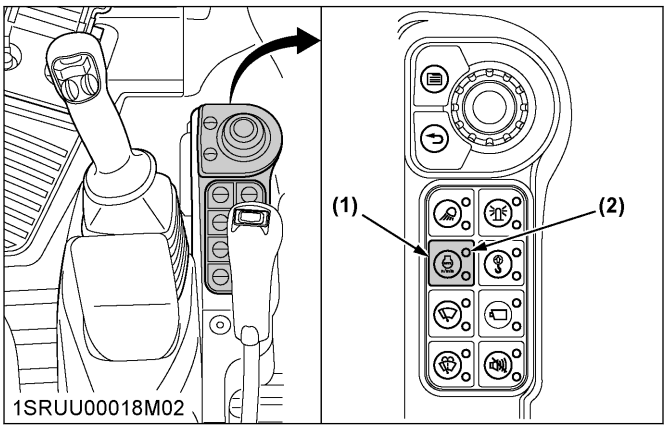
(1) Attachment control lever (left)
(2) Drive lever (left)
(3) Drive lever (right)
(4) Attachment control lever (right)
(5) Throttle potentiometer

2. Pull the pilot control lock lever all the way back to the LOCK position.

3. Put the throttle potentiometer in the middle, between and symbols. The Auto Idle control switch is in the *"OFF"* position.

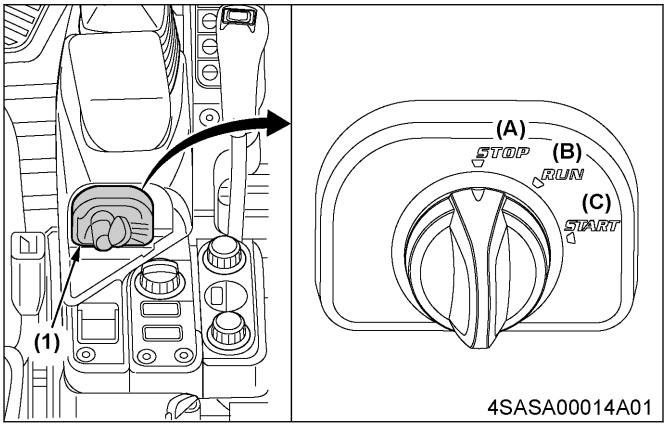


(1) Throttle potentiometer



(1) Auto Idle control switch
(2) Auto Idle lamp

4. Turn the starter switch to the **[RUN]** position.

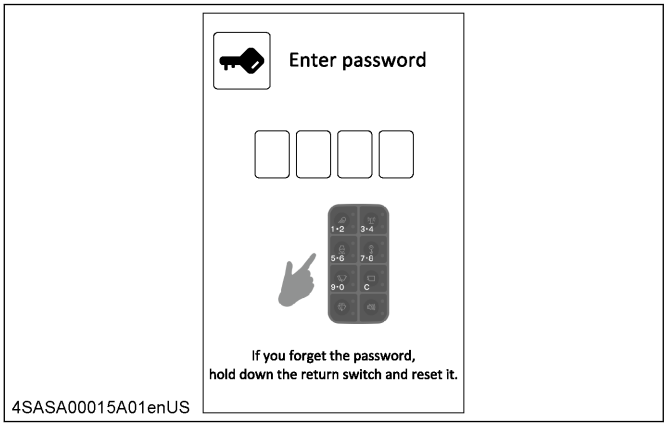


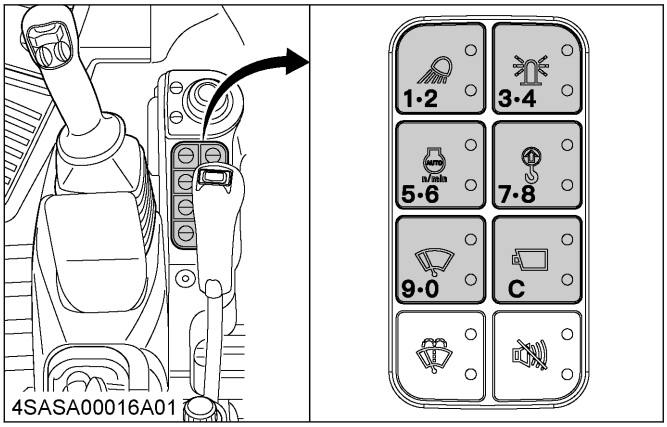
(1) Starter switch

(A) STOP
(B) RUN
(C) START

5. Enter a user password using the keypad. Once 4 digits have been entered, authentication commences.

When the user password has been verified, the normal screen appears and the engine can be started.
(For details on registering user passwords, see Registering new user passwords on page 62.)





NOTE :

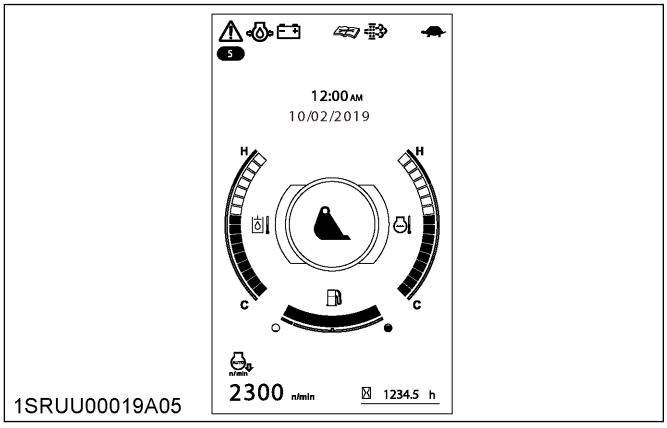
- **In the event of a mistaken entry, it is possible to delete the entry by pressing *"C"* (Clear) before entering the forth digit, and then re-enter the password.**
- **If password authentication fails 6 times, the alarm sounds for 30 seconds.**
  (The alarm continues to sound even if the starter switch is turned to the [STOP] position.)
- **In the event of a forgotten user password, go to the normal screen by holding down the return switch while on the user password entry screen, and either change the password or register a new password.**
  When starting the engine after registering or changing a user password, turn the starter switch to the [STOP] position, return it once again to the [RUN] position, and enter the user password.
- **If the password has not been authenticated, the pilot lock lever does not unlock when lowered, and all but a few of the electrical components are inoperable.**

- **The password stays authenticated for 3 minutes after turning the starter switch to the [STOP] position.**
  Therefore, after stopping the engine, it is possible to turn the starter switch back to the [RUN] position and perform tasks such as restarting the engine and releasing pressure from the hydraulic system without re-entering the password, as long as no more than 3 minutes has passed.
- **If the display is left on the password entry screen for a fixed amount of time, all but a few of the electrical components automatically turn off in order to preserve the battery (and the display also goes dark).**
  When starting the engine, turn the starter switch to the [STOP] position, return it once again to the [RUN] position, and enter a user password.

IMPORTANT :

- **If the electrical components automatically turn off after leaving the display on the password entry screen for a fixed amount of time, do not leave the machine in this state for an extended period of time.**

6. Hold the starter switch at the **[RUN]** position until the message "Preheating" disappears from the screen.



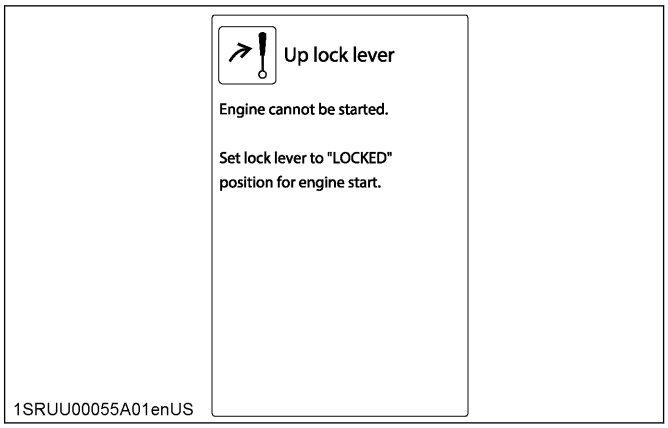
7. Now make sure that the and marks appear on-screen. If they do not appear, the system has malfunctioned. Contact your local Kubota dealer for repairs.
8. Turn the starter switch to the **[START]** position and release it after the engine has started.
9. Check if all warning lamps have gone out. Should a warning lamp still be lit up, stop the engine and check for the cause.

IMPORTANT :

- **The starter motor draws a large amount of current. Avoid running it for longer than 10 seconds continuously.**
  If the engine fails to start within 10 seconds, set the key to the [STOP] position, wait for 20 seconds or longer and repeat steps 5 through 7.
- **If the battery is dead and must be connected to another battery with jumper cables, be sure to use a 12 V battery. Never use 24 V batteries.**

NOTE :

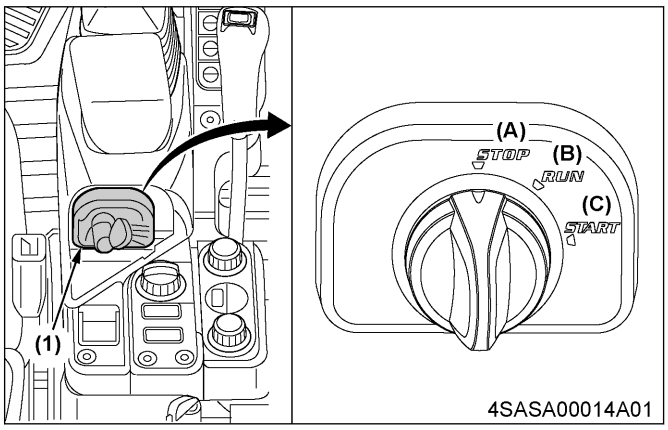
- **If you keep the pilot control lock lever in the UNLOCK position and try to start the engine, "Up lock lever" appears on the meter panel and the engine cannot be started. Before starting the engine, make sure that the pilot control lock lever is set at the LOCK position.**



- **When the engine starts, the meter may momentarily turn off and a beep may sound. This is not a problem.**

2. Registering new user passwords

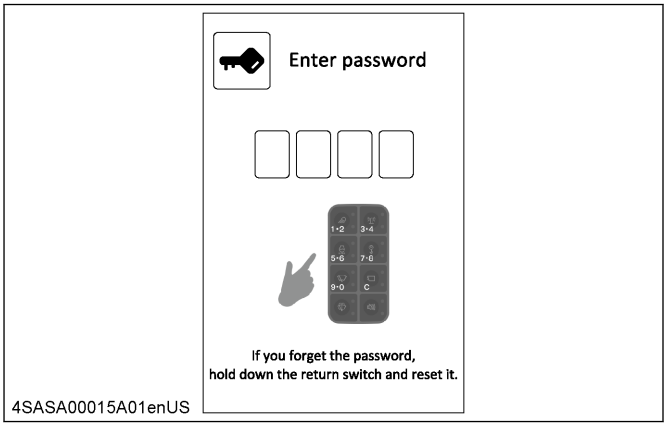
1. Turn the starter switch to the **[RUN]** position.

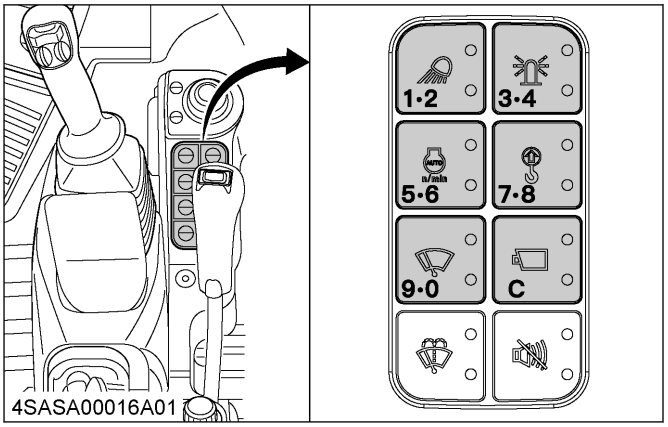


(1) Starter switch

(A) STOP
(B) RUN
(C) START

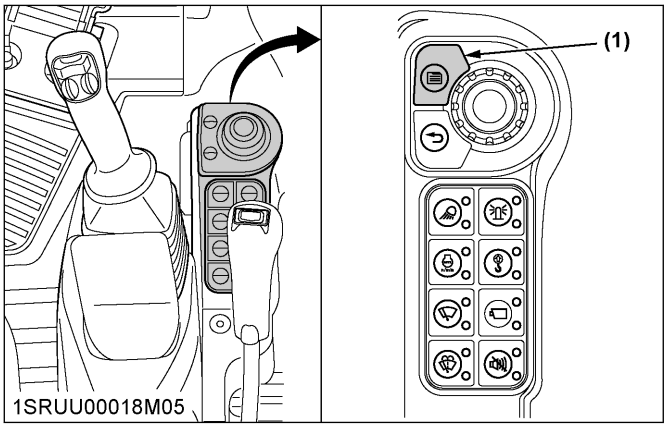
2. Enter a valid user password using the keypad.
   When the user password has been verified, the normal screen appears and the engine can be started.





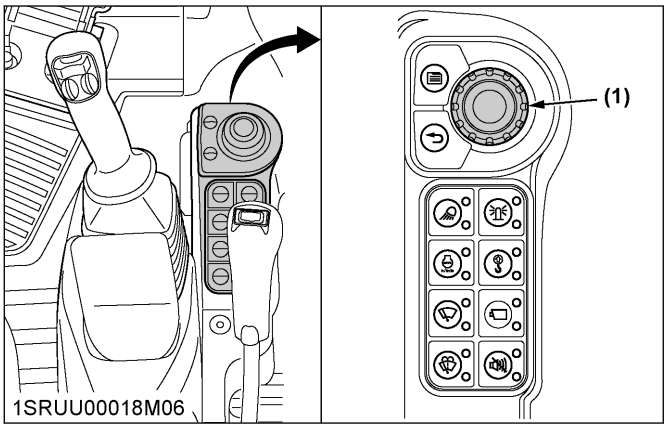
NOTE :
In the event of a forgotten user password, go to the normal screen by holding down the return switch while on the user password entry screen, and either change the password or register a new password.
When starting the engine after registering or changing a user password, turn the starter switch to the [STOP] position, return it once again to the [RUN] position, and enter the user password.

3. Press the menu switch to make the menu bar appear.

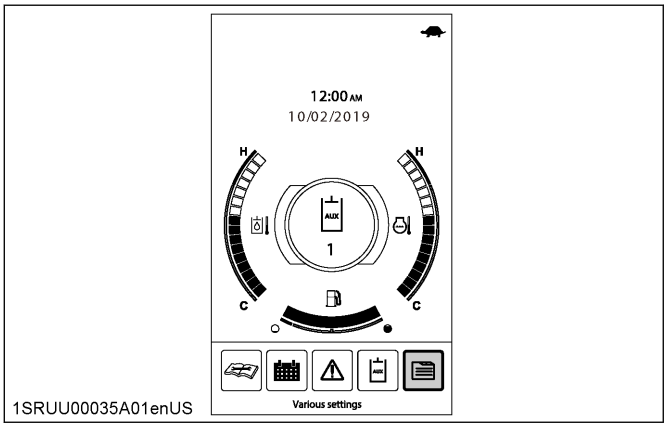


(1) Menu switch

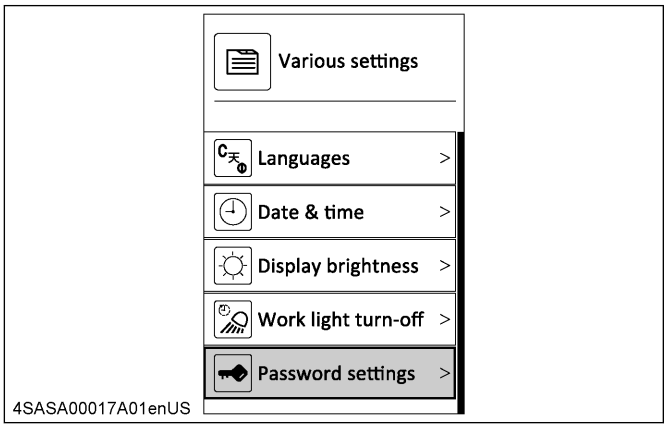
4. Rotate the jog dial to select "`Various settings`", and press the jog dial.



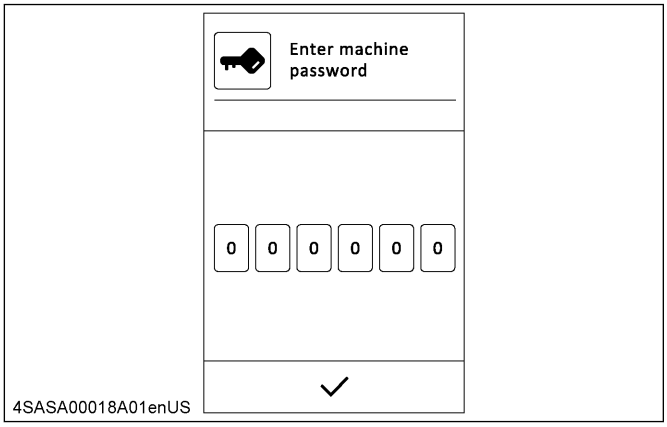
(1) Jog dial



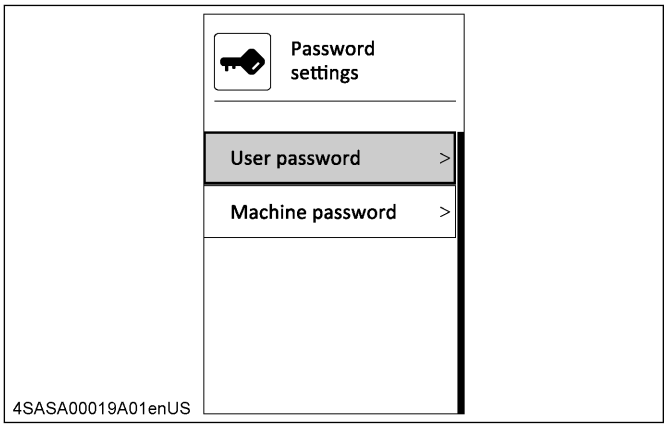
5. Rotate the jog dial to select "Password settings", and press the jog dial.



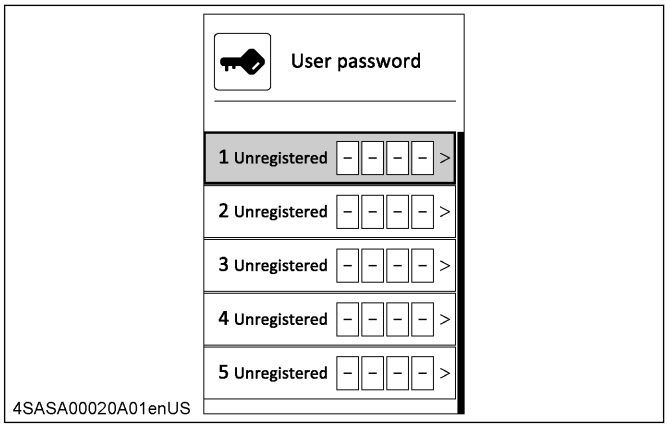
6. Enter the machine password.
   When the machine password has been verified, the "Password settings" screen appears.



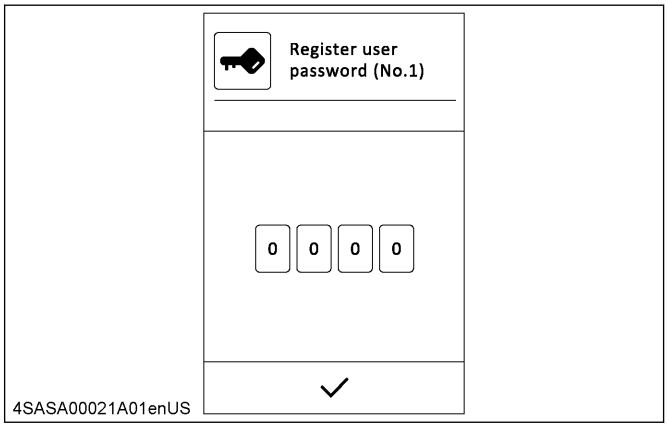
7. Rotate the jog dial to select "User password", and press the jog dial.



8. Rotate the jog dial to select one of the "Unregistered" password numbers, and press the jog dial.



9. Enter the new user password of your choice.

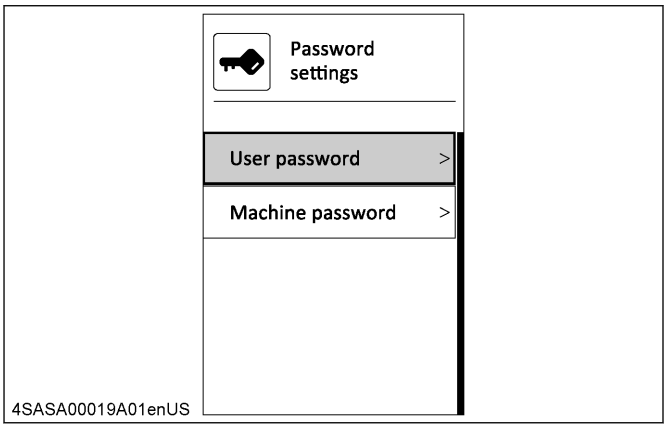


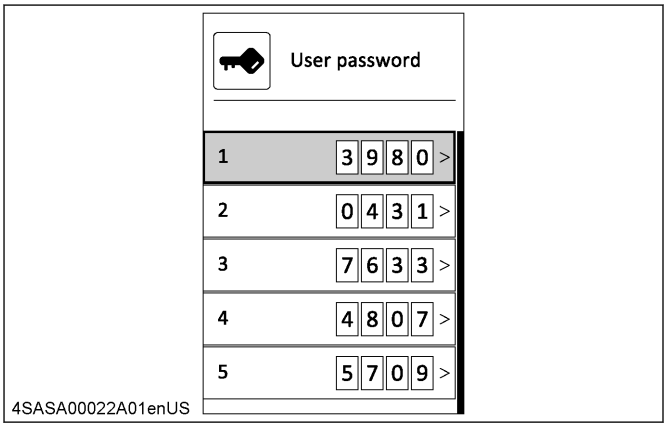
10. Rotate the jog dial to select "✔" and press the jog dial to register the new user password.

    NOTE :
    When the return switch is pressed on the new user password registering screen, the registration is not completed and returns to the previous menu screen.

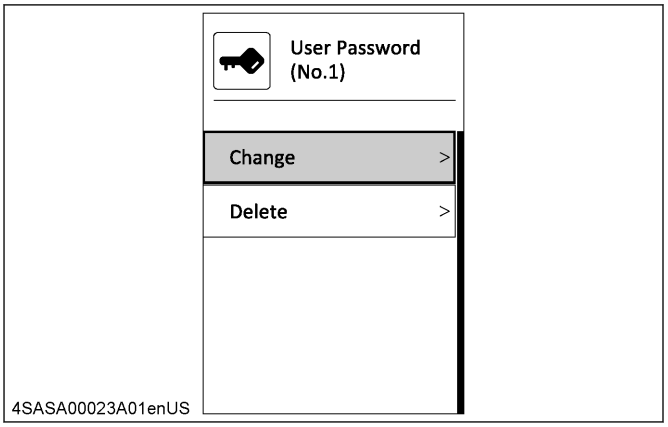
3. Changing user passwords

1. On the "User password" setting screen, select one of the previously registered password numbers.

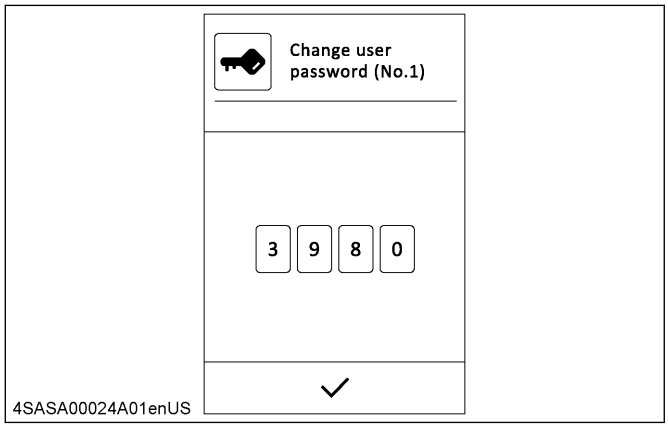




2. Press the jog dial, and the following screen appears.



3. Rotate the jog dial to select "Change", and press the jog dial.

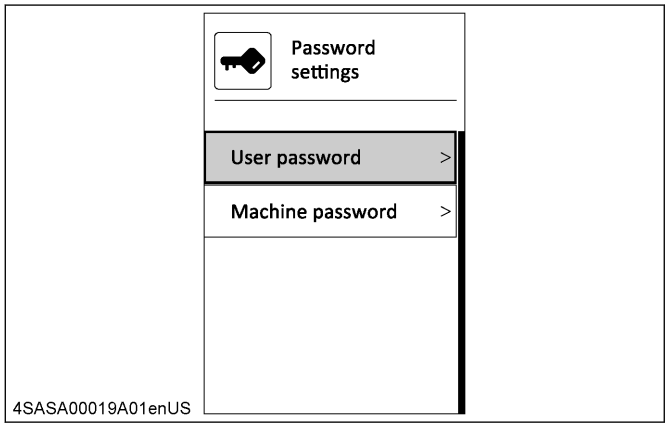


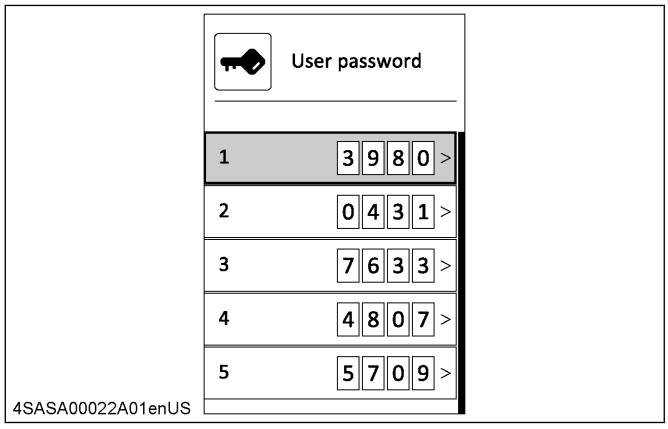
4. Enter the new user password of your choice.
5. Rotate the jog dial to select "✔" and press the jog dial to change the user password.

NOTE :
When the return switch is pressed on the new user password changing screen, the change is not completed and returns to the previous menu screen.

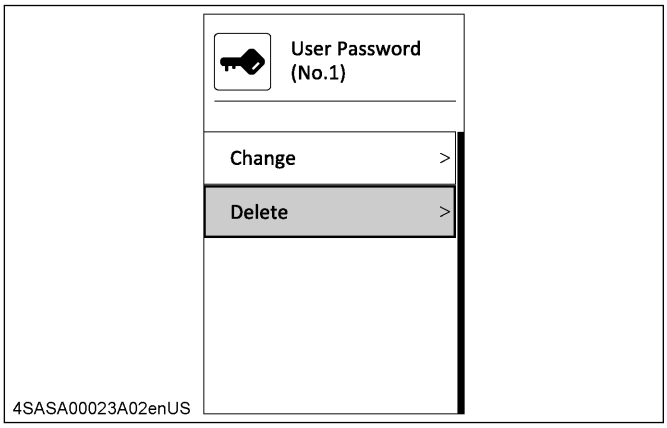
4. Deleting user passwords

1. On the "User password" setting screen, select one of the previously registered password numbers.





2. Press the jog dial, and the following screen appears.

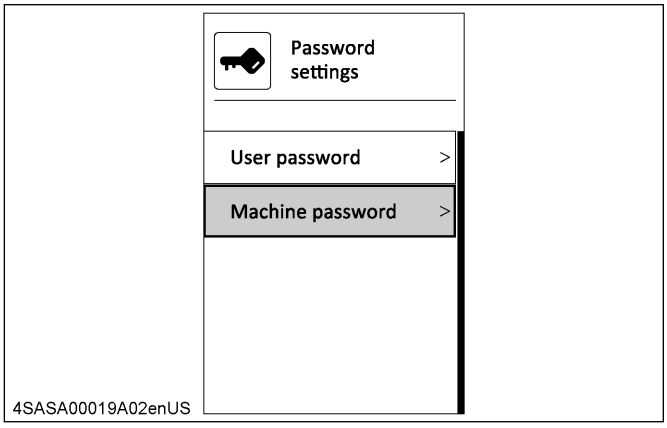


3. Rotate the jog dial to select "Delete", and press the jog dial.

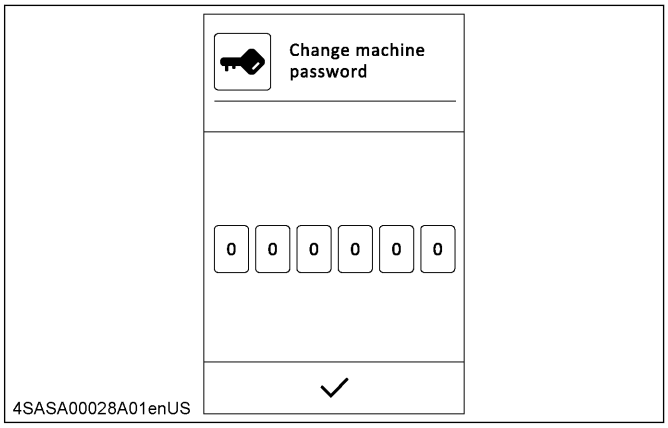
4. After confirming that the password to be deleted is correct, select "✔" and press the jog dial to complete the deletion.

5. Changing the machine password

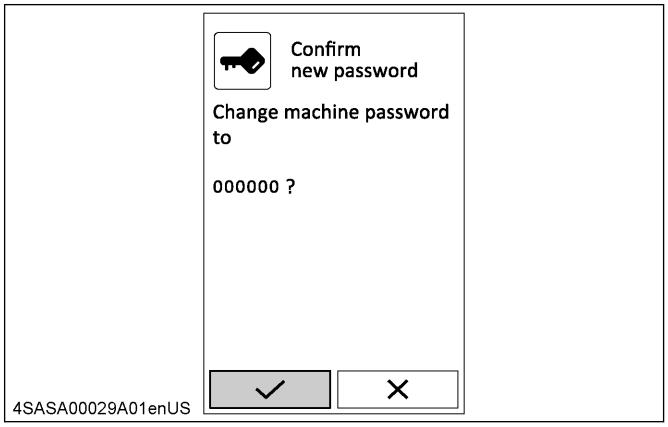
1. On the "Password settings" screen, rotate the jog dial to select "Machine password".



2. Press the jog dial, and the following screen appears.



3. Enter the new machine password of your choice.
4. Rotate the jog dial to select "✔", and press the jog dial.



5. After confirming that the new machine password is correct, select "✔" and press the jog dial to confirm change.

NOTE :
In the event of a forgotten machine password, it will no longer be possible to register, change, or delete user passwords. A Kubota dealer must set a new machine password.
Therefore, manage the machine password with the utmost of care.

CHECK POINTS AFTER STARTING THE ENGINE

Check the following points after starting the engine, but before starting operation:

1. Put the throttle potentiometer in the middle between and symbols and let the engine idle for approximately 5 minutes. This allows the engine lubricant to warm up and reach every part of the engine.

2. Once the engine has warmed up, check:
   - the warning lamp *"Engine oil pressure"* has gone out.
   - the warning lamp *"Battery charge"* goes out when engine speed is increased.
   - the color of the exhaust is normal and no abnormal noises or vibrations are heard or felt.
   - no fluid is leaking from pipes or hoses.

IMPORTANT :
- **Stop the engine immediately if any of the following conditions occur:**
  - **The engine's rpm increases or decreases suddenly.**
  - **Sudden abnormal noises are heard.**
  - **Exhaust fumes are black.**
  - **Warning lamp for engine oil lights up during operation.**
- **In such cases, the machine must be checked and serviced by your local Kubota dealer.**

STOPPING THE ENGINE

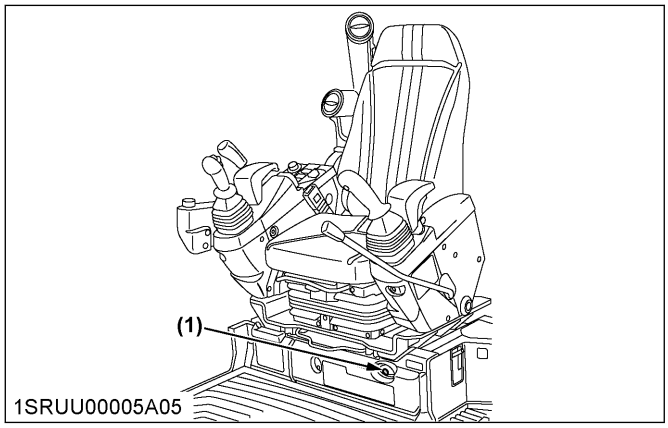
⚠ WARNING
To avoid personal injury or death:
- **Do not keep the bucket or dozer in an elevated position because a person could accidentally touch the levers and cause serious accidents.**

1. Place the bucket and dozer on the ground.
2. After slowing the engine to idle, turn the key to the **[STOP]** position.
3. Remove the key.
4. Set the pilot control lock lever to the LOCK position.

1. Engine stop button

⚠ WARNING
To avoid personal injury or death:
- **Keep hands away from rotating parts.**

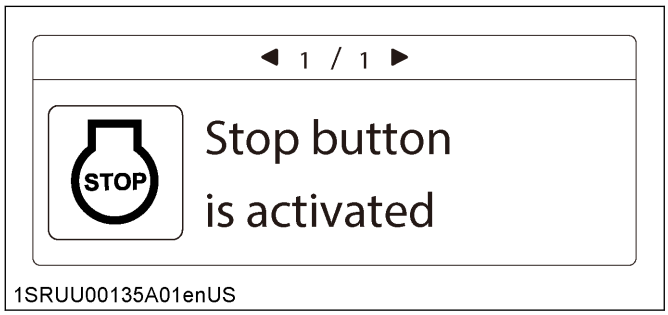
The engine stops when the starter key is turned to the **[STOP]** position. If the engine does not stop, pull the stop button to stop the engine.



(1) Stop button

IMPORTANT :
- **Be sure to return the stop button to its original position after the engine stops.**

NOTE :
If the engine stop button is activated, a message will appear on the display as shown in the following image.



2. Overheating countermeasures

⚠ WARNING
To avoid personal injury or death:
- **Do not open the radiator cap during operation or immediately after engine shutdown. Otherwise, steam or very hot coolant may escape and cause scalding. Make sure the radiator has cooled down enough before opening its cap.**

If by any chance the coolant temperature rises close to, or above, the boiling point (**[H]** on the water temperature gauge, overheat condition), take the following steps:

1. Stop operating the machine and relieve the engine of any load.
2. Do not shut off the engine suddenly. Before shutting off the engine, keep it idling under no load for about 5 minutes.

3. Stay away from the engine or overflow for 10 minutes or until the steam overflow stops.
4. Be sure that there is no danger of getting scalded. Check and remove the cause of the overheat. (See TROUBLESHOOTING OF THE ENGINE AND OTHER SYSTEMS on page 137.) Once the trouble is resolved, the engine may be restarted.

DPF REGENERATION

WARNING

To avoid personal injury or death:

- **Read and understand the Safe operation section of this manual.**

This machine is equipped with a DPF (diesel particulate filter) muffler.

The diesel particulate filter serves to trap particulate matters (PM) that are contained in exhaust gases and to automatically burn (DPF regenerate) these matters. In the regeneration, buzzer sounds and warning light blink and display shows messages. Follow the instructions.

(See AUTOMATIC DIESEL PARTICULATE FILTER (DPF) REGENERATION on page 175.)

OPERATING THE EXCAVATOR

OPERATION OF A NEW MACHINE

The operation and care of the new machine impacts its life span. Your new machine has been carefully checked and tested before leaving the factory. In spite of this, all movable components must 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 except the DPF regeneration.

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 119.)

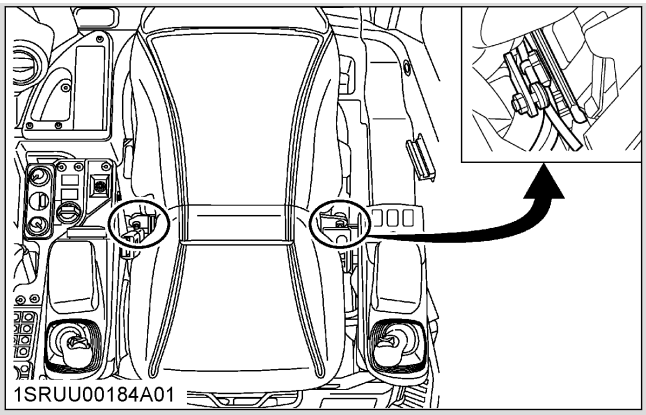
PREPARATIONS BEFORE STARTING THE MACHINE

1. Adjusting the operator's seat

⚠ WARNING

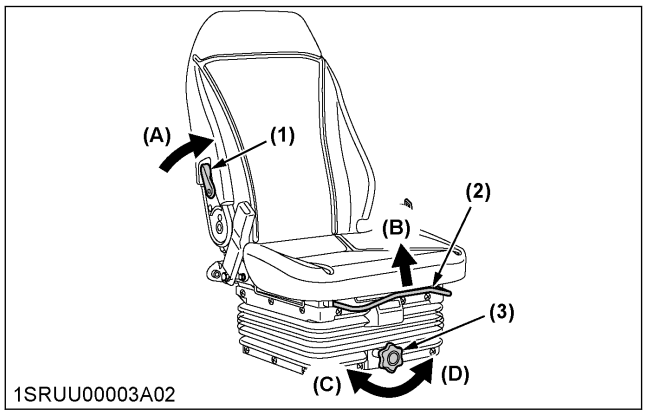
To avoid personal injury or death:

- **Make sure that the seat and console are completely secured after each adjustment.**
- **When moving the backrest tilt adjust lever, adjusting the seat horizontal position, or adjusting the console horizontal position, be careful not to get your hands caught between the seat stoppers at the seat's rear corners and the stoppers at the wall behind the seat (U55-5 only).**



IMPORTANT :

- **Do not step on the console adjust lever nor force it to move up. Otherwise the console adjust lever may become deformed, affecting its performance.**



(1) Backrest tilt adjust lever
(2) Travel adjust lever
(3) Weight adjust lever
(A) UNLOCK
(B) UNLOCK
(C) TO INCREASE TENSION
(D) TO DECREASE TENSION

Tilt adjustment

Take the load off the backrest and pull the backrest tilt adjust lever in the direction of (A). Set the backrest to the desired sitting position and release the lever. The backrest should be adjusted so that the operator can safely operate the control levers with the back resting completely on the backrest.

Travel adjustment

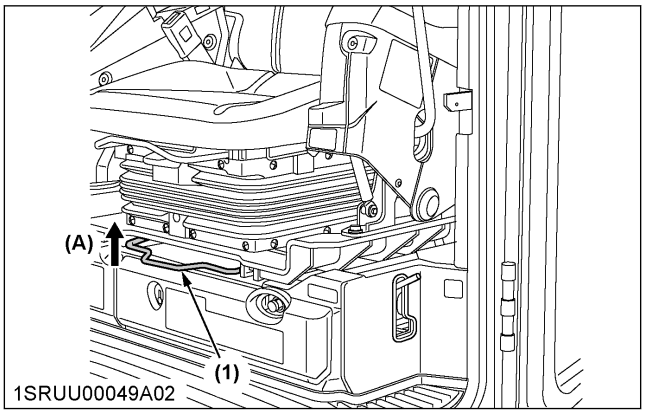
Pull the travel adjust lever in the direction of (B) and slide the seat backward or forward, as required. The seat will lock into position when the lever is released.

Weight adjustment

Turn the weight adjust lever to achieve the optimum suspension setting.

Height adjustment
The seat height can be adjusted to 3 positions. To adjust the seat height, slowly raise the seat until it automatically engages in the next stop.
When the seat is raised over the highest stop, it will be lowered automatically to the lowest position again.

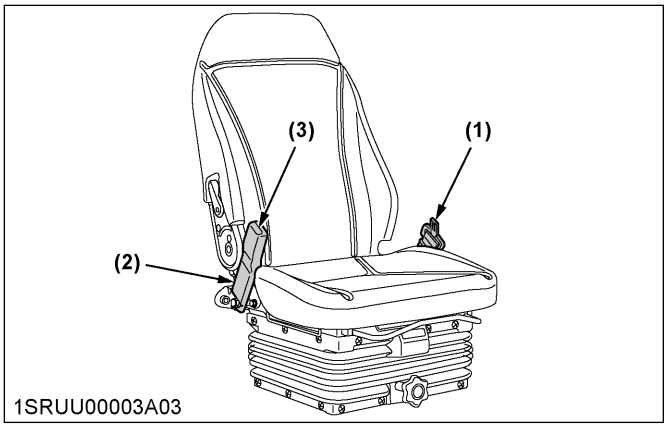
Console adjustment
Pull up the console adjust lever upwards into the UNLOCK position, and move the lever back and forth to adjust the horizontal position of the console.
Release the lever when the console is in the desired position, and make sure the adjust lever is locked back into place.



(1) Console adjust lever (A) UNLOCK

2. Using the seat belt

⚠ WARNING
To avoid personal injury or death:
- **Always use the seat belt with a ROPS and OPG 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.

STARTING THE MACHINE

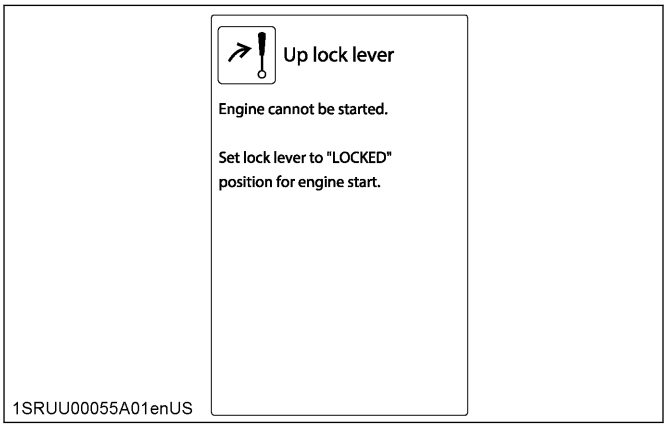
⚠ WARNING
To avoid personal injury or death:
- **Nobody, other than those who have read and understood this manual and who are familiar with the machine, should be allowed to use the machine.**
- **Do not allow any person other than the operator to ride on the machine.**
- **When operating, keep hands and body inside of the ROPS or OPG (top guard level I).**
- **Do not touch the control levers and the pedals from outside the CAB while the engine is running.**

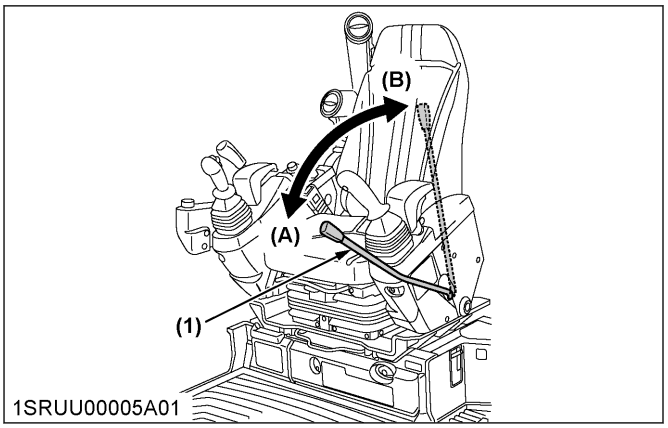
1. Pilot control lock lever

⚠ WARNING
To avoid personal injury or death:
- **To avoid injuries, check for safety aspects all around the machine.**

NOTE :
- **If the pilot control lock lever is in the UNLOCK position, the engine will not start.**

Do not attempt to start the machine with the pilot control lock lever in the UNLOCK position. If the attempt is made, the following message appears on the display.





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

IMPORTANT :

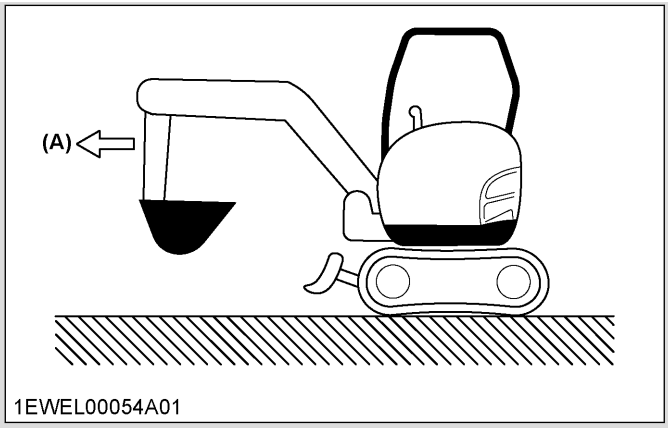
- **Always pull the pilot control lock lever up to the LOCK position when you stop the engine or leave the operating structure.**

DRIVING

WARNING

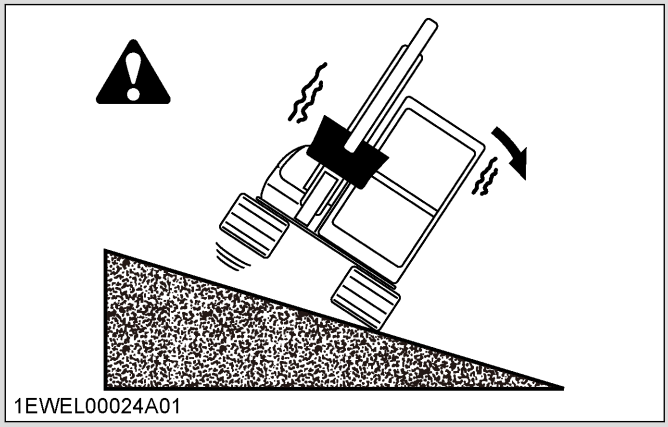
To avoid personal injury or death:

- **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).**

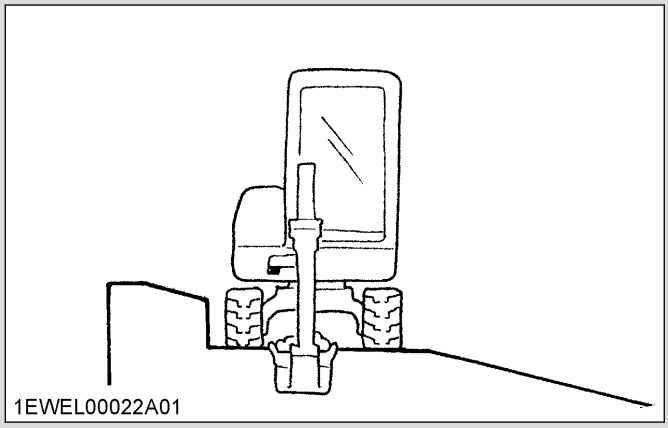


(A) Front of the machine

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

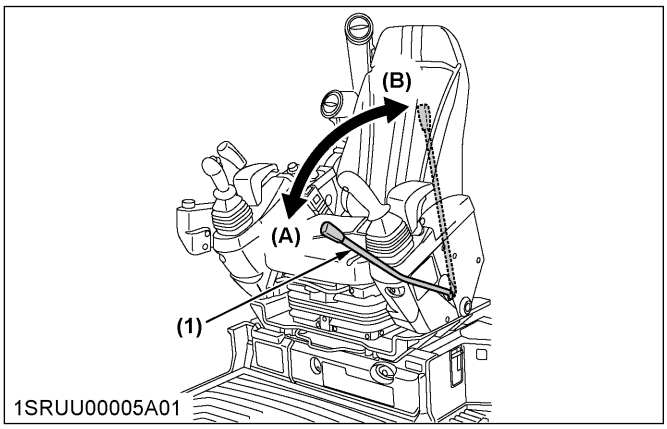


- **The recommended technique for working on a slope:**

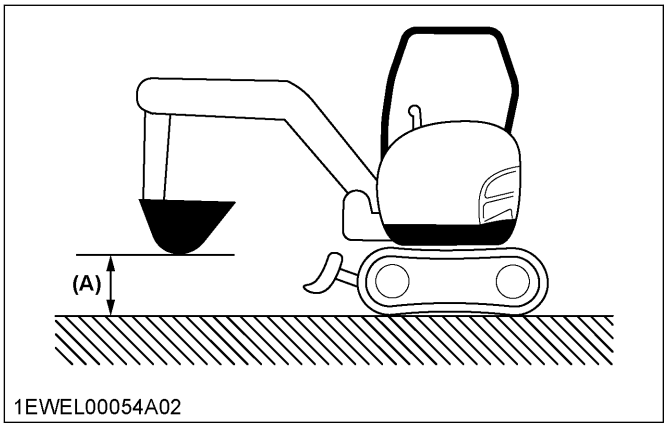


1. Adjust the engine speed from idling to an intermediate speed.

2. Unlock the pilot control lock lever, pull in the bucket and hold the bucket about 20 cm to 40 cm (8 in. to 16 in.) above the ground.

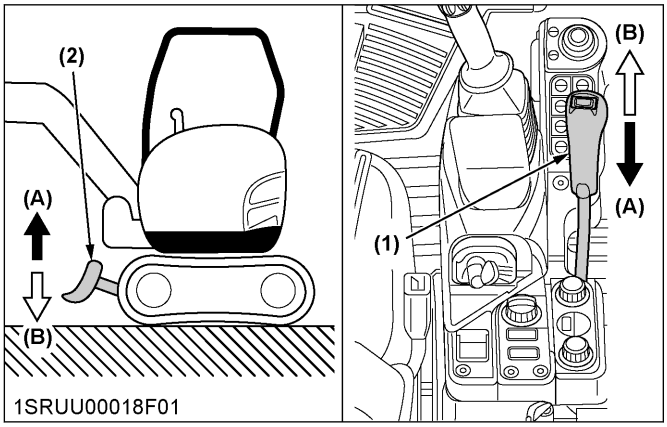


(1) Pilot control lock lever
(A) UNLOCK
(B) LOCK



(A) 20 cm to 40 cm (8 in. to 16 in.)

3. Activate the dozer control lever to raise the dozer.



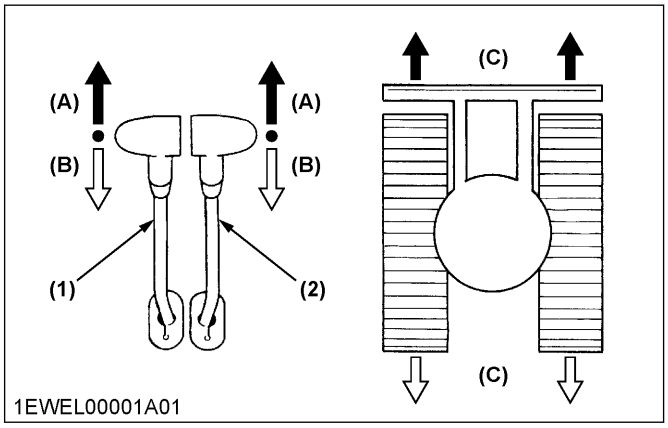
(1) Dozer control lever
(2) Dozer
(A) Raise
(B) Lower

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. The drive sprocket is located at the rear of the machine.



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

TURNS

⚠ WARNING
To avoid personal injury or death:

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

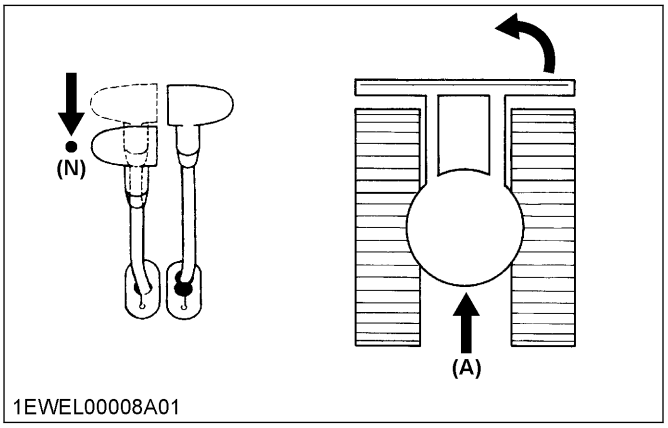
1. Pivot turn

NOTE :

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

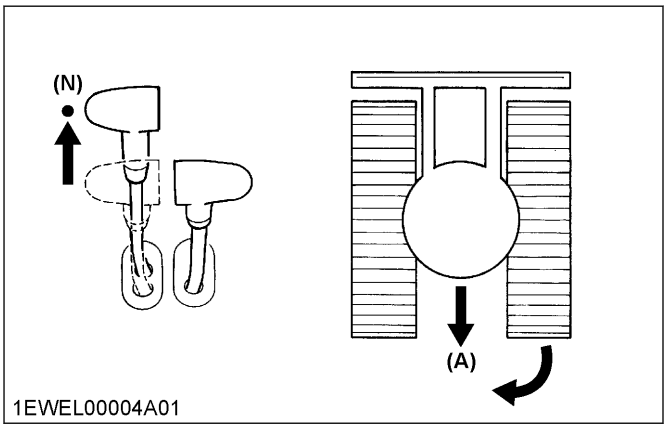
Changing direction while traveling

- While traveling forward, bring the left drive lever into the *"NEUTRAL"* position and the machine will turn in the direction of the arrow. See the following illustration.



(A) Traveling forward
(N) Neutral position

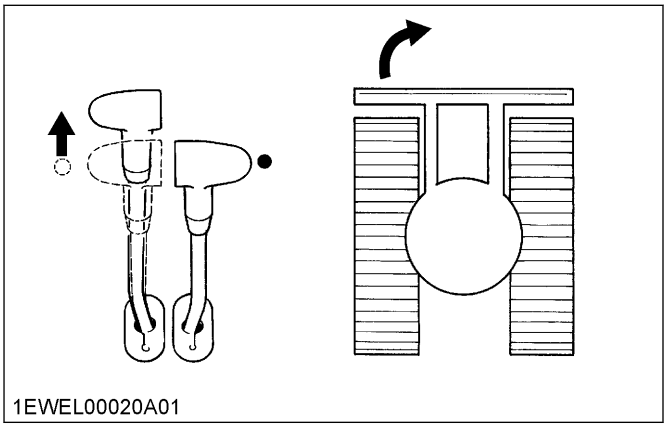
- While traveling backward, bring the left drive lever into the *"NEUTRAL"* position and the machine will turn in the direction of the arrow. See the following illustration.



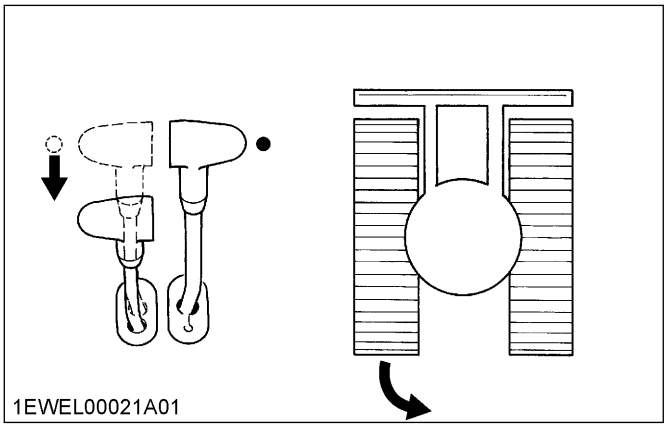
(A) Traveling backward
(N) Neutral position

Changing direction when stationary

- Push the left drive lever forward and the machine will turn in the direction of the arrow. See the following illustration.

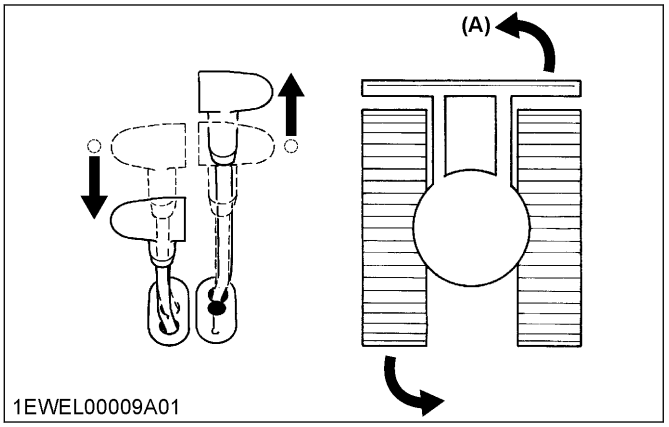


- Pull the left drive lever backward and the machine will turn in the direction of the arrow. See the following illustration.

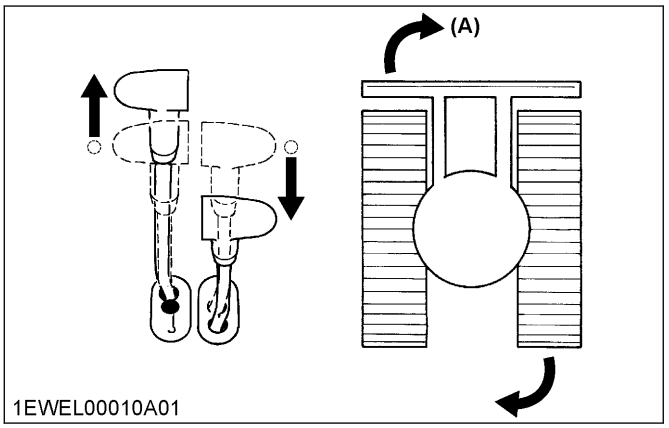


2. Spin turn

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

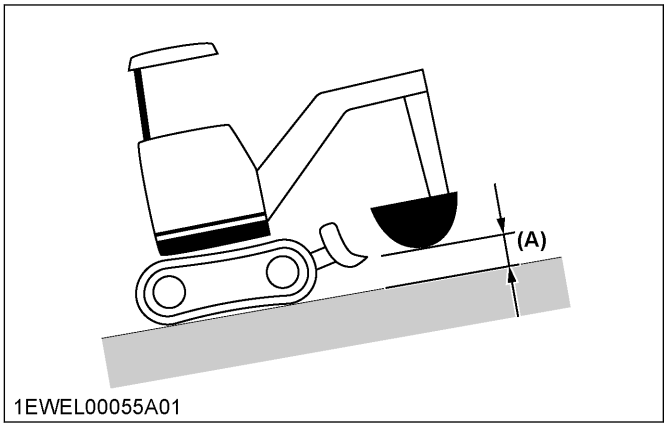
UP AND DOWNHILL DRIVING

⚠ WARNING
To avoid personal injury or death:

- **When traveling up or down a slope, be extra cautious and observe the following instructions.**

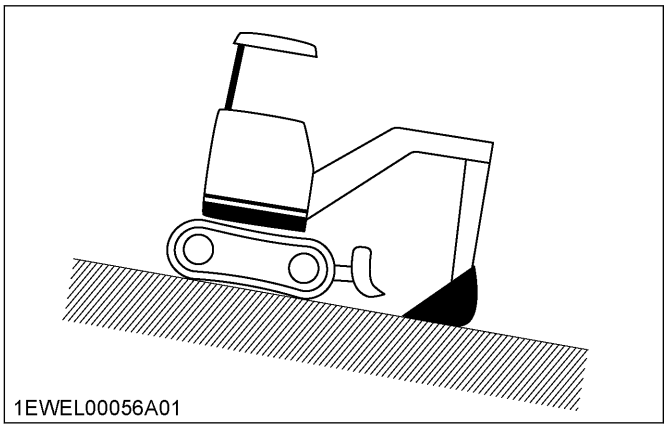
While traveling uphill, keep the lower edge of the bucket approximately 20 cm to 40 cm (8 in. to 16 in.) above the ground. Although the excavator will not slip easily because of the tracks, it is safer to let the bucket slide over the ground while traveling downhill. Always choose slow speed for uphill and downhill traveling.

Uphill traveling



(A) 20 cm to 40 cm (8 in. to 16 in.)

Downhill traveling

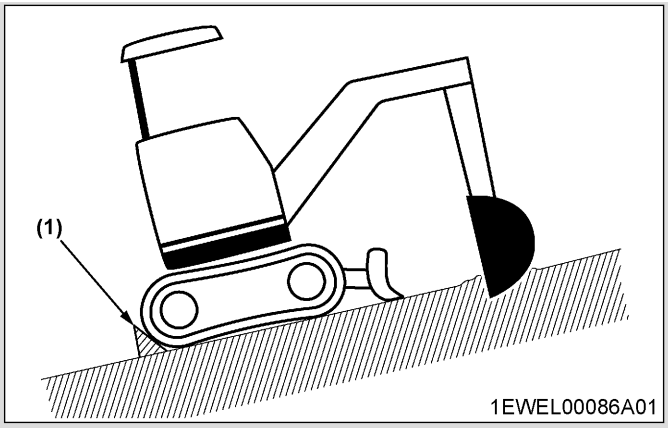


PARKING ON A SLOPE

WARNING

To avoid personal injury or death:

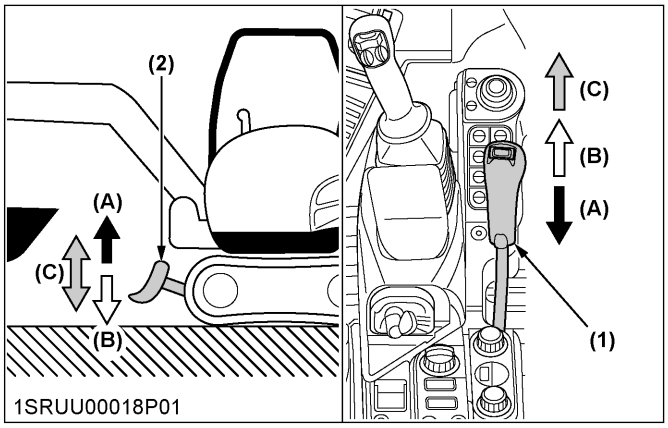
- **When the machine is parked or left unattended on a slope, be sure to put the bucket on the ground and place all control levers in their neutral positions, then brace the tracks with chocks.**



(1) Chock

OPERATING THE DOZER

- Pulling the control lever back raises the dozer.
- Pushing the control lever forward lowers the dozer.
- Pushing the control lever further forward (into the locked position) floats the dozer.



(1) Dozer control lever
(2) Dozer
(A) Raise
(B) Lower
(C) Float (locked position)

- While performing earthmoving work, control both drive levers with the left hand and the dozer control lever with the right hand.

TWO PATTERN SELECTION SYSTEM (TPSS)

WARNING

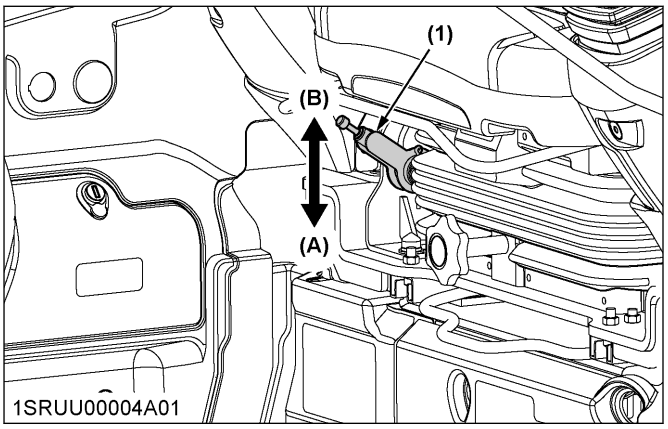
To avoid personal injury or death:

- **Study control lever pattern A and pattern B and then choose the one which feels most familiar.**
- **Position the pattern selector lever (located on the right side of operator's seat) in either the lower position (pattern A) or the upper position (pattern B).**
- **Engage the lever lock to prevent accidental pattern change.**

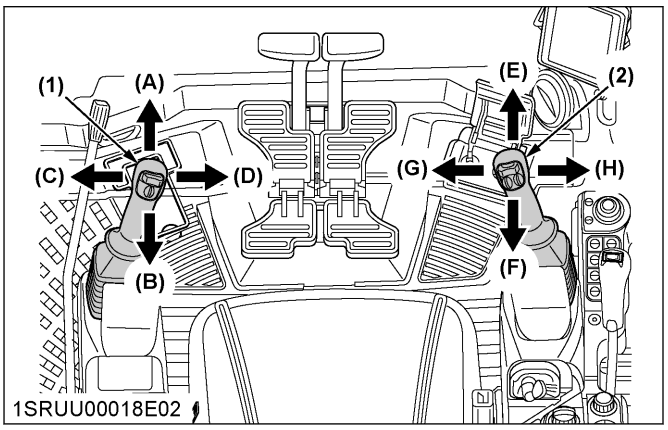
- **Familiarize yourself with the pattern selected by operating slowly.**

1. Pattern change

1. Pull the pattern selector lever to disengage the lever lock and position the pattern selector lever to the desired position.
2. Engage the lever lock.



(1) Pattern selector lever (two pattern selection system: TPSS)
(A) Pattern A
(B) Pattern B



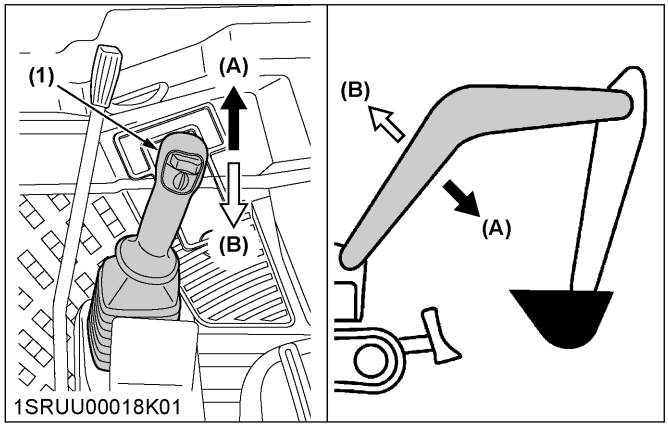
(1) Attachment control lever (left)
(2) Attachment control lever (right)

Lever position		Pattern A	Pattern B
Attachment control lever (left)	(A) (B) (C) (D)	Boom down Boom up Swivel left Swivel right	Arm up Arm crowd Swivel left Swivel right
Attachment control lever (right)	(E) (F) (G) (H)	Arm up Arm crowd Bucket crowd Bucket dump	Boom down Boom up Bucket crowd Bucket dump

OPERATING THE BOOM

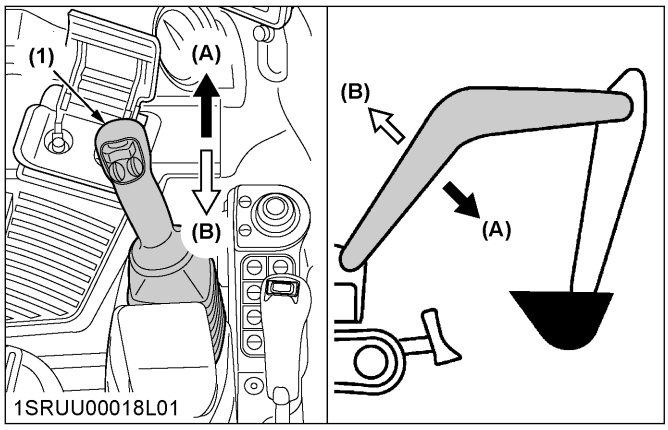
To raise the boom, pull the attachment control lever backward.
The boom is equipped with a cushion cylinder which helps to prevent excavated material in the bucket from falling out. At low hydraulic oil temperature, for instance after starting the engine in cold weather, the cushioning function will 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.

Pattern A



(1) Attachment control lever (left)
(A) Boom down
(B) Boom up

Pattern B



(1) Attachment control lever (right)
(A) Boom down
(B) Boom up

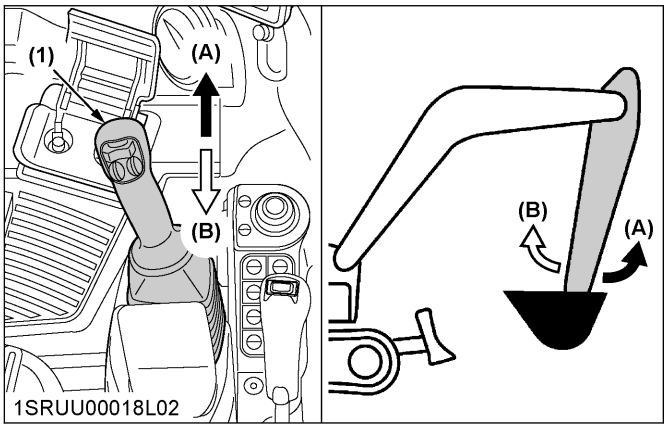
IMPORTANT :

- **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

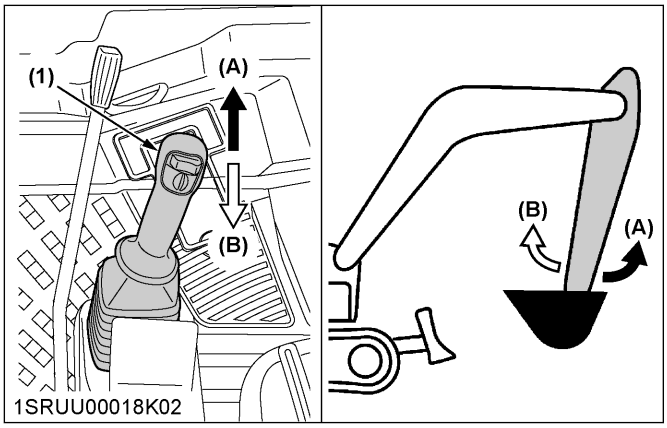
- Pulling the attachment control lever back pulls the arm in.
- Pushing the attachment control lever forward moves the arm out.

Pattern A



(1) Attachment control lever (right)
(A) Arm out (up)
(B) Arm in (crowd)

Pattern B



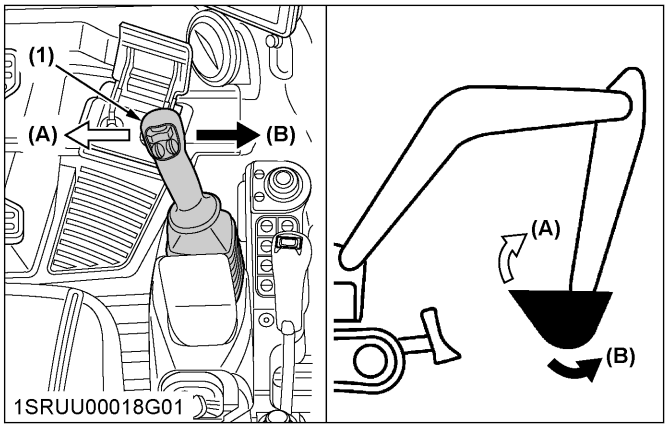
(1) Attachment control lever (left)
(A) Arm out (up)
(B) Arm in (crowd)

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.



(1) Attachment control lever (right)
(A) Bucket crowd
(B) Bucket dump

SWIVEL AND BOOM SWING OPERATION

WARNING

To avoid personal injury or death:

- **When working in groups, always let others know what you are going to do before you do it.**
- **Keep others away from the machine working area.**
- **Be sure to lock the boom swing pedal when the boom swing function is not used.**

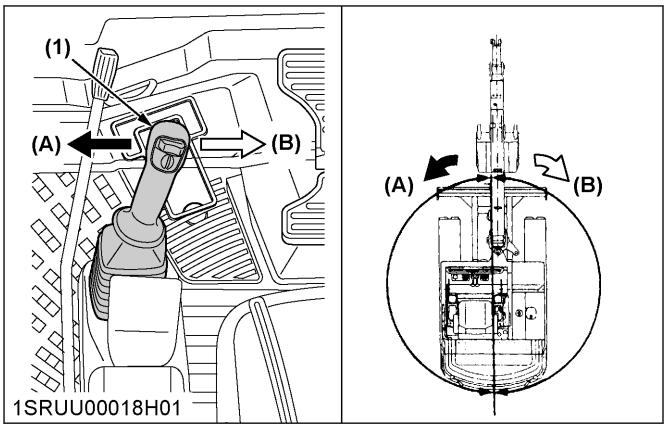
1. Swivel operation

IMPORTANT :

- **Do not operate the left attachment control lever abruptly from right to left (or vice versa). The low inertia causes high impact load on the swivel gear and the swivel motor, shortening the life of the machine.**

- 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.

Swivel

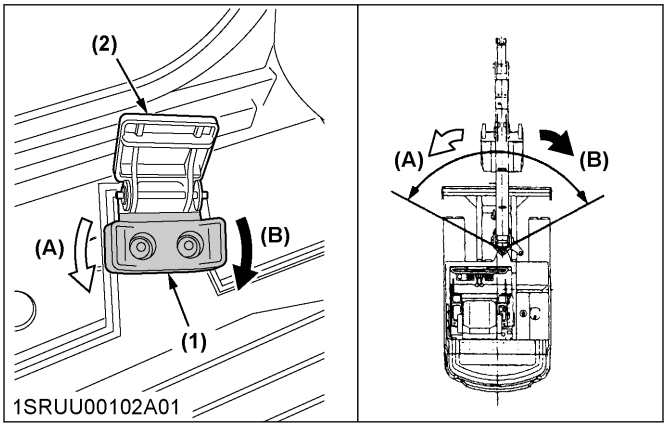


(1) Attachment control lever (left)
(A) Swivel left
(B) Swivel right

2. Boom swing operation

1. Flip the pedal lock up to unlock the pedal.
2. Operate the boom swing as follows:
   - Step on the left side of the pedal to swing the boom to the left.
   - Step on the right side of the pedal to swing the boom to the right.

Boom swing

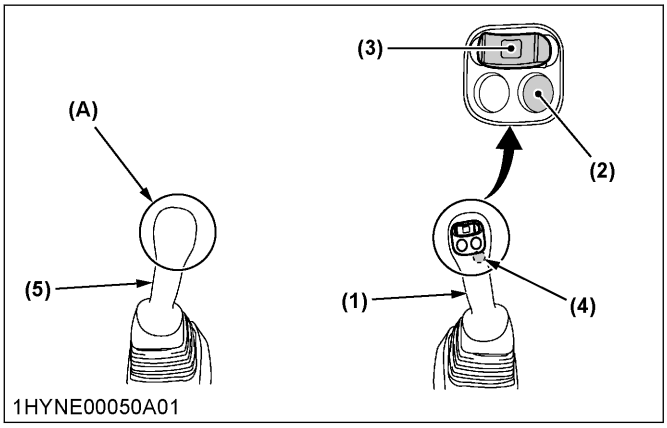


(1) Boom swing pedal
(2) Pedal lock
(A) Swing left
(B) Swing right

AUXILIARY PORT OPERATION

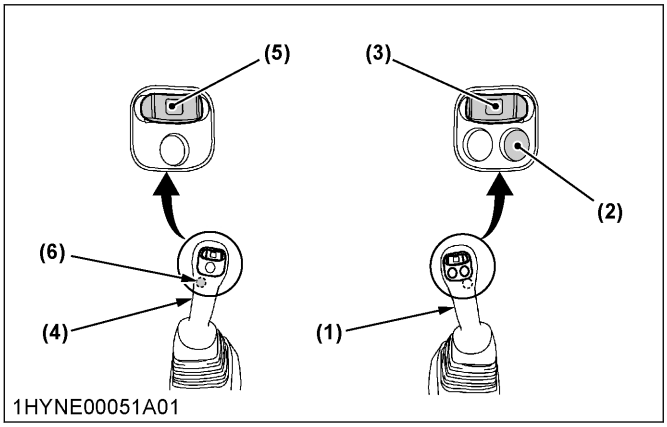
There are two different models: the AUX 1 model and the AUX 1 and AUX 2 model.

AUX 1 model



(1) Attachment control lever (right)
(2) AUX port enable switch
(3) AUX 1 port knob (right)
(4) One-way hold switch (right)
(5) Attachment control lever (left)
(A) No switches or knobs on the lever

AUX 1 and AUX 2 model



(1) Attachment control lever (right)
(2) AUX port enable switch
(3) AUX 2 port knob (right)
(4) Attachment control lever (left)
(5) AUX 1 port knob (left)
(6) One-way hold switch (left)

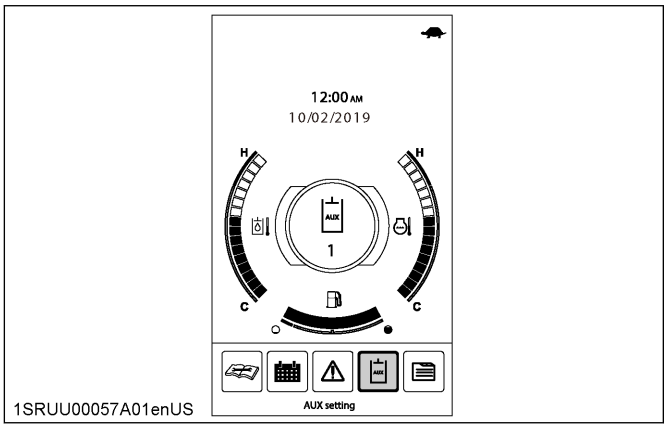
The AUX port enable switch is used to operate hydraulic attachments such as hammers.

1. Selecting operation modes

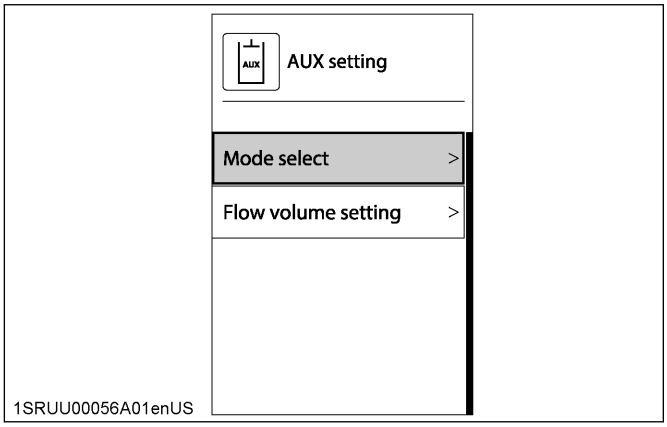
The AUX port has been factory-set to 3 operation modes in the case of the AUX 1 model, and 2 modes in the case of the AUX 1 and AUX 2 model. You can select one of them. Up to 5 operation modes can be preset.
(See Setting the maximum flow volume on page 81.)

1. Press the menu switch to make the menu bar appear on the display.

2. Rotate the jog dial to the right to select "AUX setting", and press the jog dial.

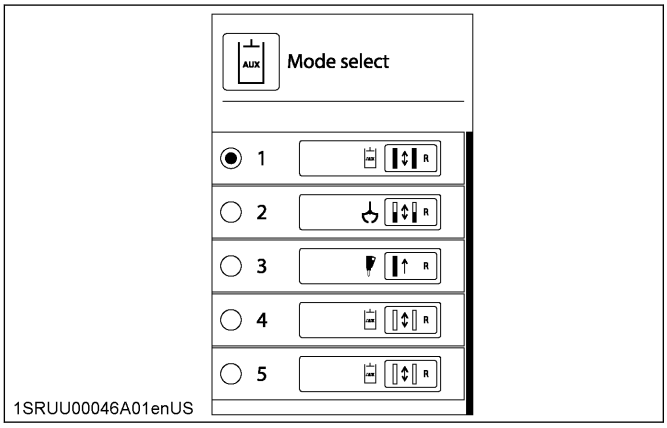


3. Rotate the jog dial to the right to select "Mode select", and press the jog dial.



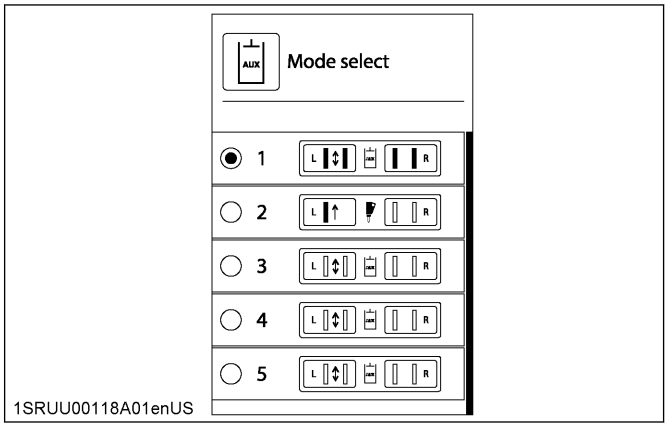
4. Rotate the jog dial to the right to select the desired mode, and press the jog dial to confirm the selection.
   The following illustrations and tables show the factory default settings for the AUX 1 model and the AUX 1 and AUX 2 model respectively.

AUX 1 model



Mode	Icon	AUX 1 port flow volume
		One-way or two-way circuit selection valve
1	AUX (standard)	Maximum flow volume
		two-way
2	Grapple	Limited flow volume
		two-way
3	Breaker	One-way flow (Send oil to port 2 only)
		one-way
4	AUX (standard)	No activation
		two-way
5	AUX (standard)	No activation
		two-way

AUX 1 and AUX 2 model



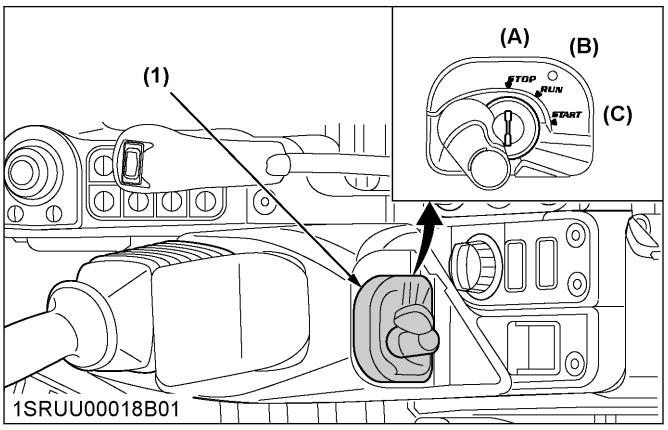
Mode	AUX 1 port flow volume	Icon	AUX 2 port flow volume
	One-way or two-way circuit selection valve		
1	Maximum flow volume	AUX (standard)	Maximum flow volume
	two-way		
2	One-way flow (Send oil to port 2 only)	Breaker	No activation
	one-way		
3	No activation	AUX (standard)	No activation
	two-way		
4	No activation	AUX (standard)	No activation
	two-way		
5	No activation	AUX (standard)	No activation
	two-way		

NOTE :

- **When turning the starter key to the [RUN] position, the operation mode will return to the last operation mode used.**

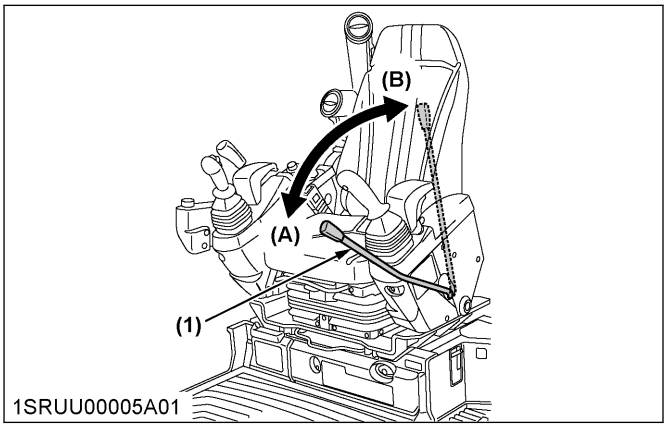
2. Operating the AUX port

1. Turn the starter key to the **[RUN]** position.
   Let the engine warm up after start-up for approximately 10 minutes under no load conditions.



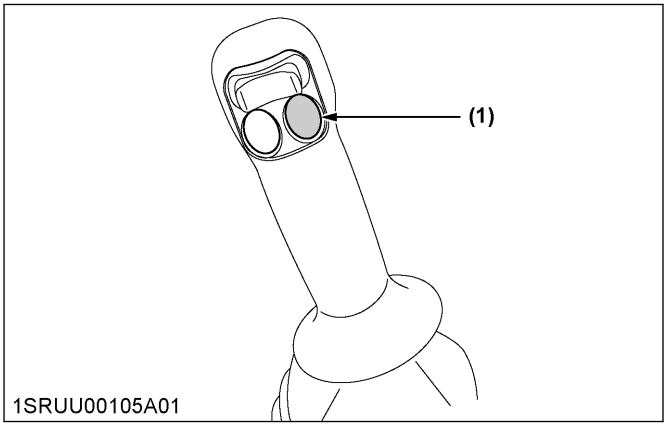
(1) Starter switch
(A) STOP
(B) RUN
(C) START

2. Lower the pilot control lock lever to the UNLOCK position.



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

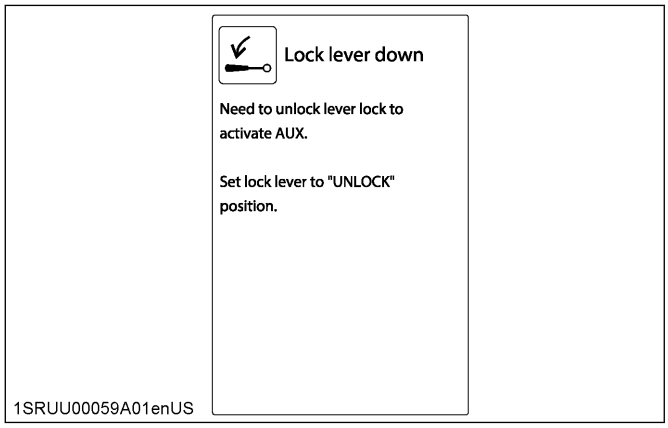
3. Push the AUX port enable switch.



(1) AUX port enable switch

NOTE :

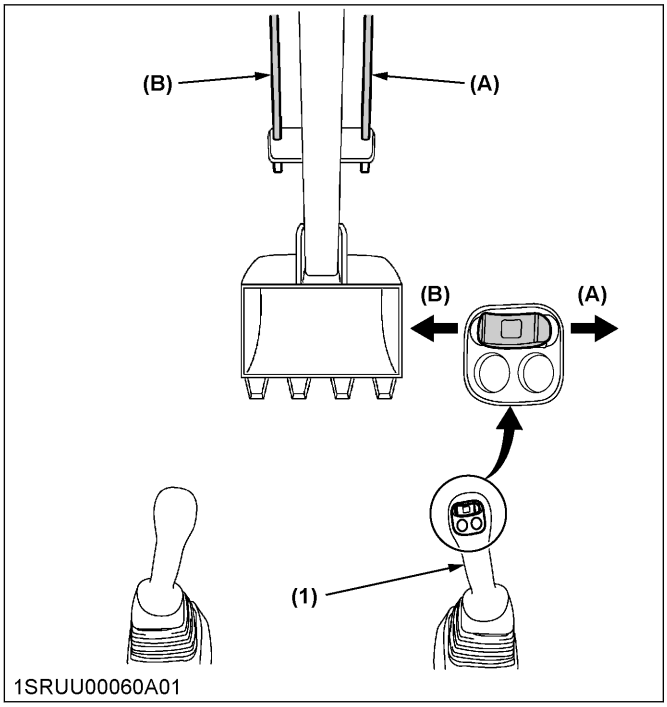
- **If the pilot control lock lever is at the LOCK position, the following message appears on-screen. Push down this lever to the UNLOCK position and then press the AUX port enable switch.**



4. Operate the AUX port knob as follows:

AUX 1 model

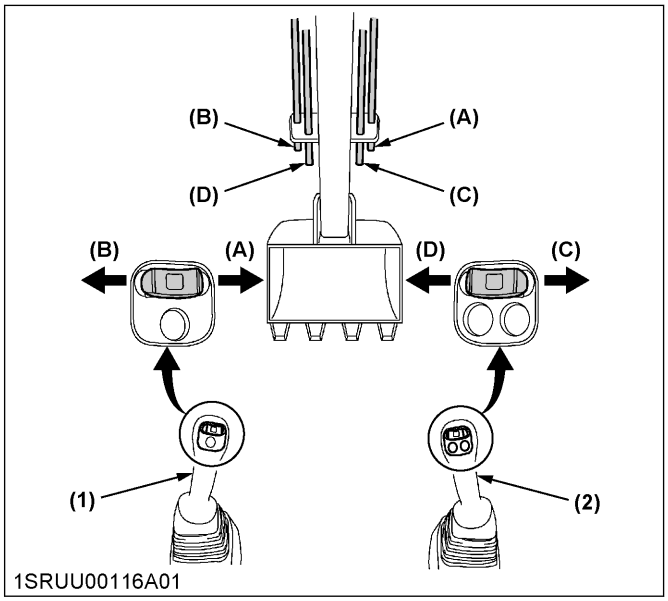
- Move the AUX port knob of the attachment control lever (right) to the right to send oil to the AUX port 1.
- Move the AUX port knob of the attachment control lever (right) to the left to send oil to the AUX port 2.



(1) Attachment control lever (right)
(A) AUX port 1
(B) AUX port 2

AUX 1 and AUX 2 model

- Move the AUX port knob of the attachment control lever (left) to the right to send oil to the AUX port 1.
- Move the AUX port knob of the attachment control lever (left) to the left to send oil to the AUX port 2.
- Move the AUX port knob of the attachment control lever (right) to the right to send oil to the AUX port 3.
- Move the AUX port knob of the attachment control lever (right) to the left to send oil to the AUX port 4.



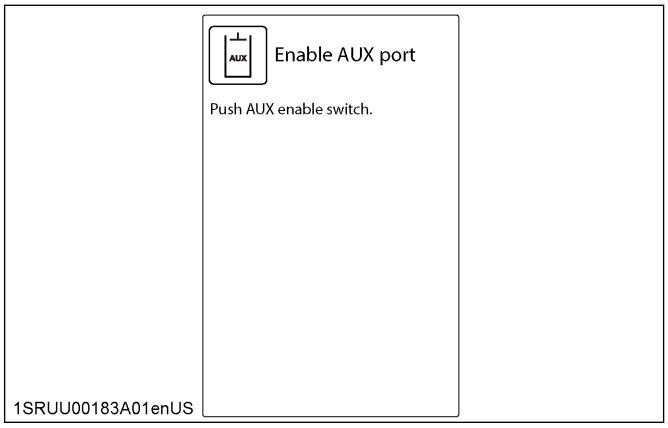
(1) Attachment control lever (Left)
(2) Attachment control lever (right)
(A) AUX port 1
(B) AUX port 2
(C) AUX port 3
(D) AUX port 4

IMPORTANT :

- **Proportional control of the AUX port knob allows for slow-to-fast movement of the attachment.**
  For example, if you move the AUX port knob halfway, the attachment will move at approximately one-half speed.

NOTE :

- **Only when the auxiliary port function is enabled, the rocker switch allows the oil to flow towards the auxiliary port. If this function is disabled, no oil flows towards the auxiliary port, and the message "`Enable AUX port`" appears on-screen.**
  To enable this function, press the AUX port enable switch.



2.1 One-way hold

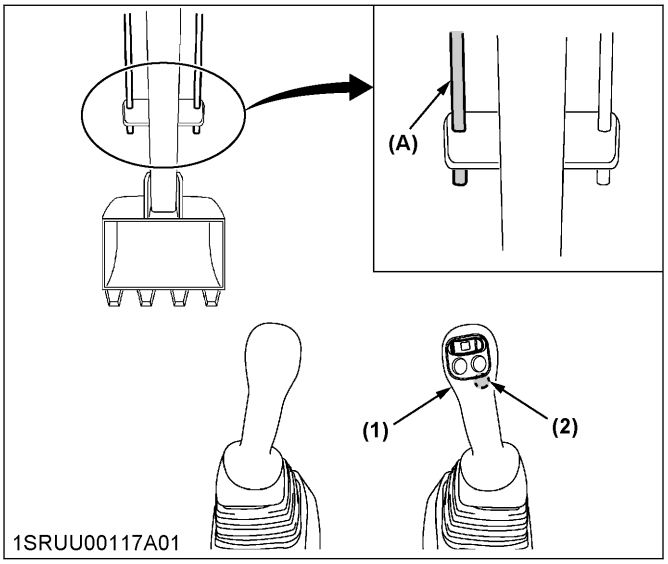
DANGER

To avoid serious injury or death:

- **Before using the one-way hold switch, make sure that nobody is in the working area.**
  The attachment can move in an uncontrolled and sudden manner, which poses a danger to life in the working area.
- **Before using the one-way hold switch, check that the accessory is suitable for use with continuous oil flows.**
  When using accessories that are not suitable for continuous oil flows, using the one-way hold switch poses a danger to life.
- **Always adapt the flow volume of the auxiliary port to the accessory.**
  The auxiliary port cannot be operated proportionally with the one-way hold switch.
  The flow volume is adjusted to the highest level in the factory.

AUX 1 model

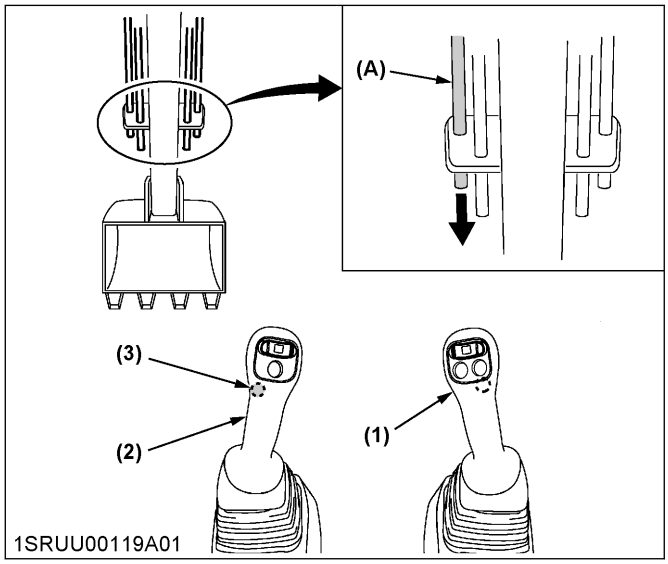
Press the one-way hold switch of the attachment control lever (right), and the oil continues to flow through the AUX port 2. Press this switch again or move the AUX port knob, and the oil flow is interrupted.



(1) Attachment control lever (right)
(2) One-way hold switch (right)
(A) AUX port 2

AUX 1 and AUX 2 model

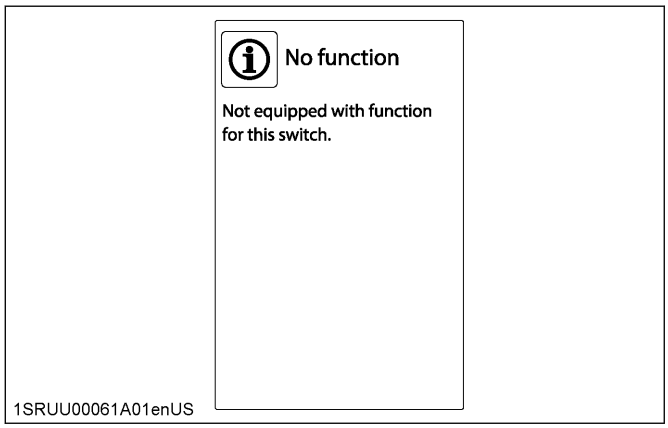
Press the one way hold switch of the left attachment control lever, and the oil continues to flow through the AUX port 2. Press this switch again or move the AUX port knob, and the oil flow is interrupted.



(1) Attachment control lever (right)
(2) Attachment control lever (left)
(3) One-way hold switch (left)
(A) AUX port 2

NOTE :

- **Even if the one-way hold switch of the attachment control lever (right) is pressed, no function is assigned. In such a case, the following message appears on-screen.**



3. Maximum flow volume

The AUX port has been factory-set to 3 operation modes in the case of the AUX 1 model, and 2 modes in the case of the AUX 1 and AUX 2 model. Additional modes can also be preset.

3.1 Setting the maximum flow volume

IMPORTANT :

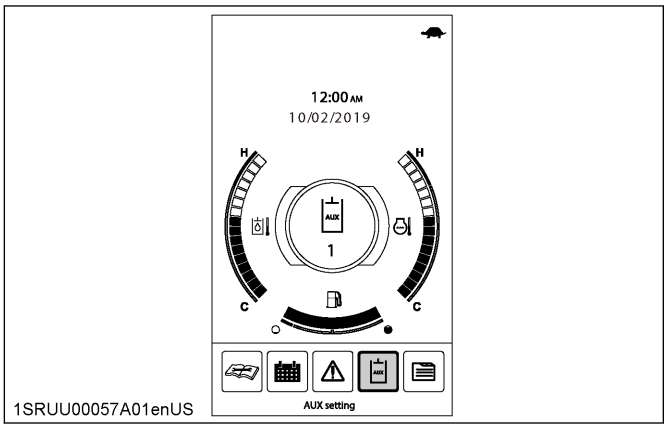
- **When the AUX port is not used for a long period of time, dirt particles can settle in the lower part of the AUX port lines. When the plugs on the AUX port lines are removed to connect**

attachments, drain approximately 100 cc (3.4 oz) of oil before making connections.

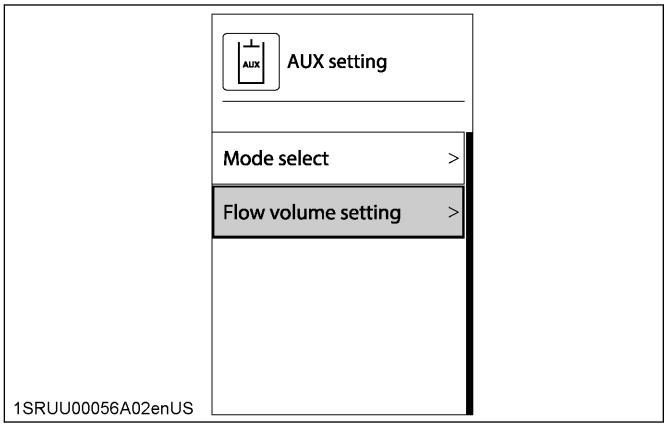
NOTE :

- **If the same implement is attached to a different machine, the working speed may differ, even when using identical flow rate settings. For each machine, it is important to individually adjust the flow rate settings. Upon changing the implement, you need to determine and adjust the optimum flow rates for the new implement.**
- **The flow at auxiliary port 1 is not constant when using a different function or if a relief valve is responding.**
- **It is recommended to adjust this setting during the operation of the implement.**

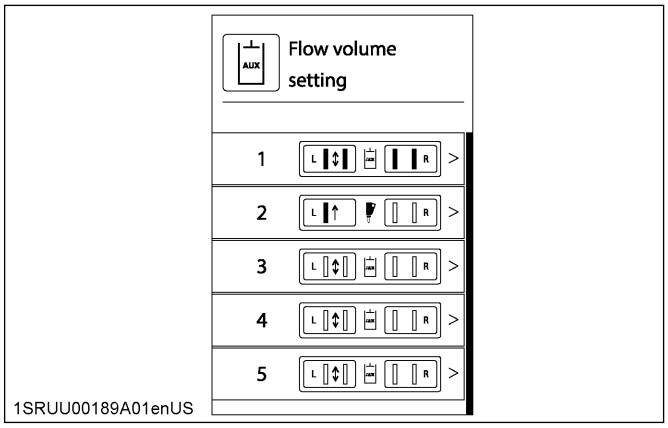
1. With the starter key at the **[RUN]** position, press the menu switch.
2. Rotate the jog dial to the right, select "`AUX setting`", and press the jog dial.



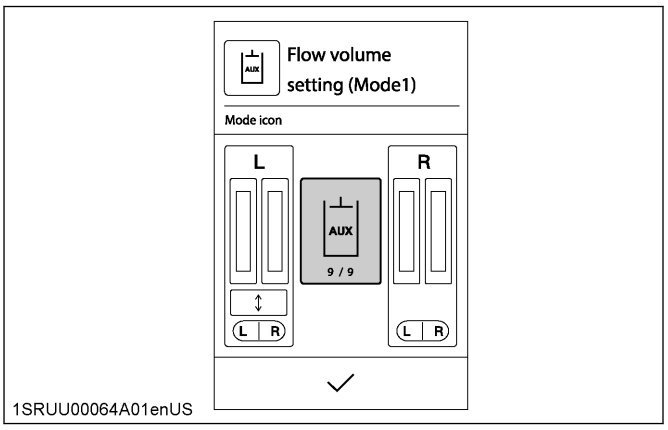
3. Rotate the jog dial to the right to select "`Flow volume setting`", and press the jog dial.



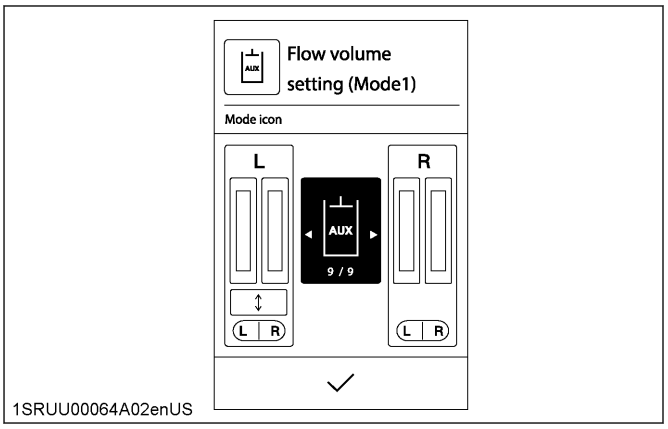
4. Rotate the jog dial to the right to select the desired mode, and press the jog dial.



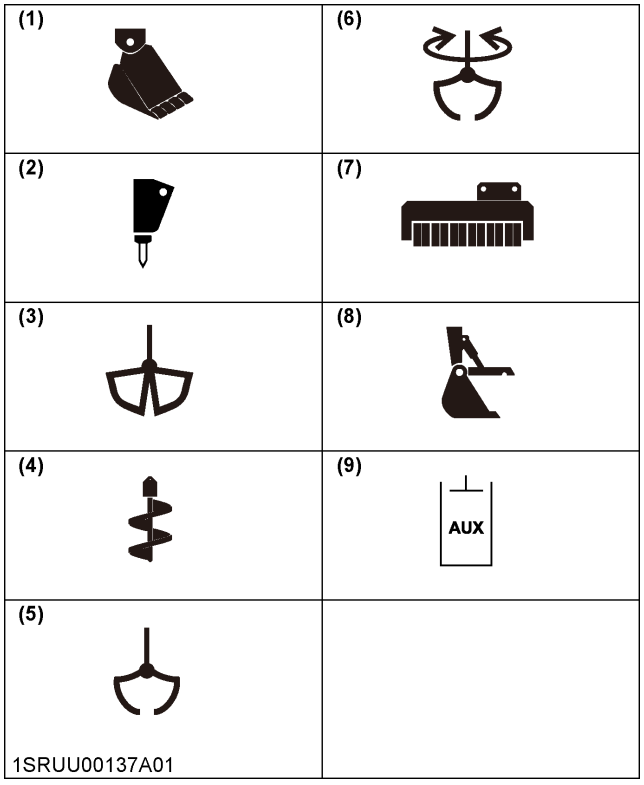
5. Set the icons as follows:
   a. Rotate jog dial to the right or left until the icon is selected, and press Jog dial.



   b. Rotate jog dial to the right or left until the desired icon is selected, and press jog dial to confirm.



Types of AUX icons

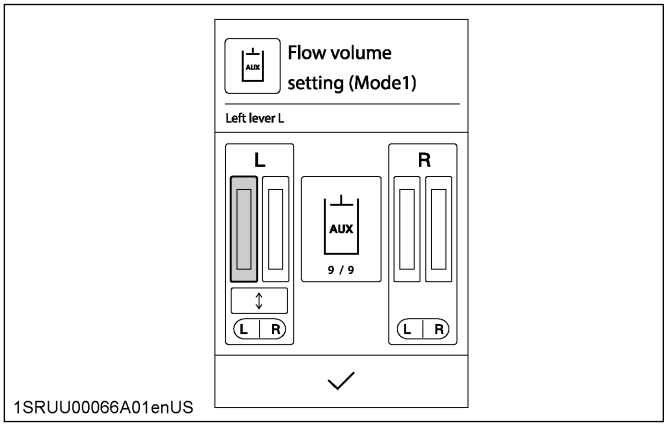


(1) Tilt bucket
(2) Breaker
(3) Clamshell
(4) Auger
(5) Grapple
(6) Rotary grapple
(7) Brush cutter
(8) Thumb grapple
(9) AUX (standard)

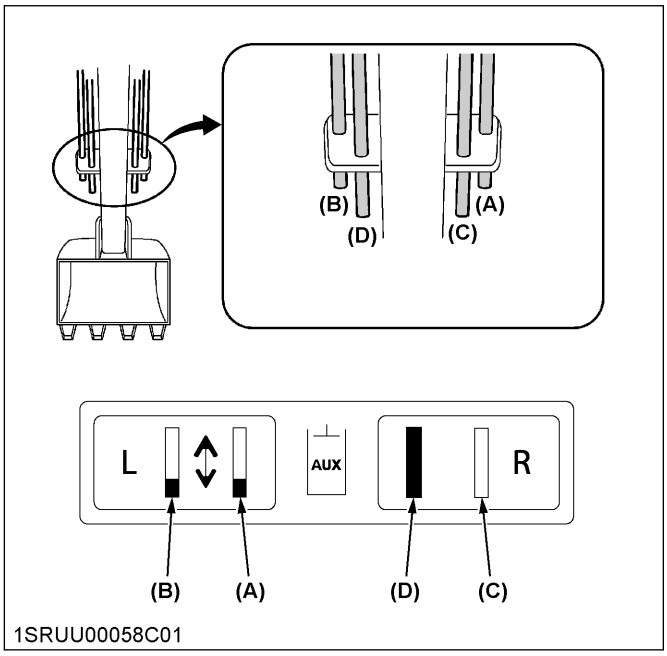
NOTE :

- **There is no relationship between the icons and the flow control settings. Select icons to suit the images of the attachments to be connected.**

6. Set the maximum flow volume for each AUX port as follows:
   a. Rotate jog dial to the right or left until the desired bar graph is selected, and press the jog dial.

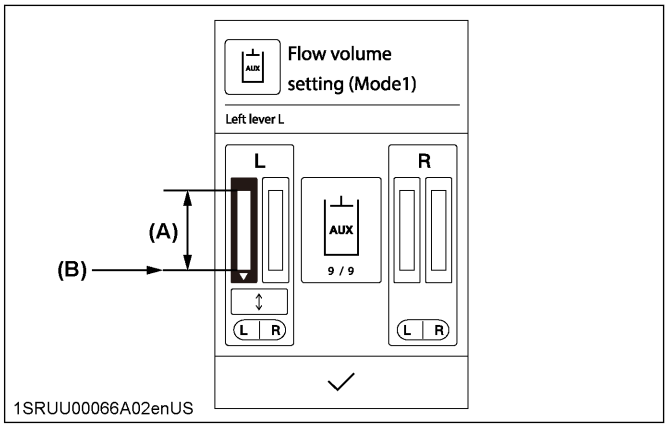


AUX 1 and AUX 2 model



(A) AUX port 1
(B) AUX port 2
(C) AUX port 3
(D) AUX port 4

   b. Rotate the jog dial to the right or left to set the bar graph to the desired level, and press the jog dial to confirm the selection.



(A) MAX. flow volume
(B) Output interrupted

AUX port maximum flow volume

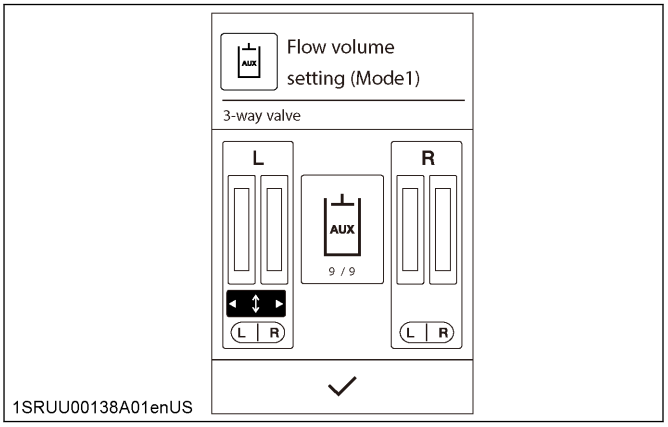
	AUX 2 port	AUX 1 port
Maximum flow volume (theoretical) L (U.S.gals) /min	37 (9.8)	75 (20)
Maximum pressure MPa (kgf/cm^2 / psi)	17.2 (175 / 2500)	

   c. Repeat the process for each AUX port.

NOTE :

- **Some attachments might not be activated even when the bar level is still above the lowest position. Even when the bars of ports 1 and 2 (or of ports 3 and 4) are at the same level, the same speed might not be achieved. This does not indicate a machine problem. Readjust the bar to the optimum level according to your attachment manual.**
- **Suppose that the same attachment is mounted on another machine. Even if the same flow control setting is made, the same speed cannot be achieved. Make an optimum setting on each machine.**

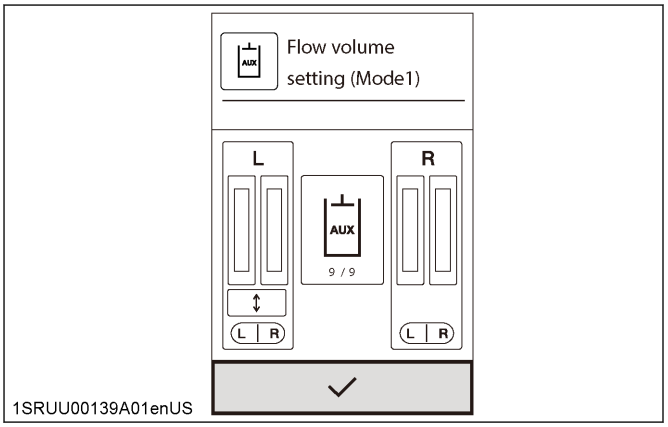
7. Set the one-way or two-way circuit selection valve as follows:
   a. Rotate jog dial to the right or left to select the one-way or two-way circuit selection valve, and press the jog dial.



   b. Rotate jog dial to the right or left to select the desired setting, and press the jog dial.

Valve	Two-way	One-way
Icon		

8. Rotate jog dial to the right to select the *"✔"* and press the jog dial to save the input, or press the return switch to cancel.



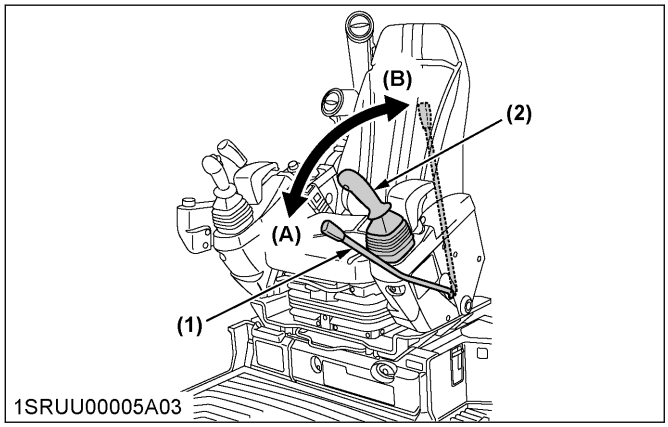
RELEASING PRESSURE TRAPPED IN THE HYDRAULIC SYSTEM

⚠ WARNING

To avoid personal injury or death:

- **Relieve residual hydraulic pressure immediately after the engine has stopped.**

1. Lower the attachments and the blade down to the ground.
2. Turn the starter key to the **[STOP]** position and shut off the engine.
3. After stopping the engine, turn the starter key to the **[RUN]** position.
4. Set the pilot control lock lever to the UNLOCK position.

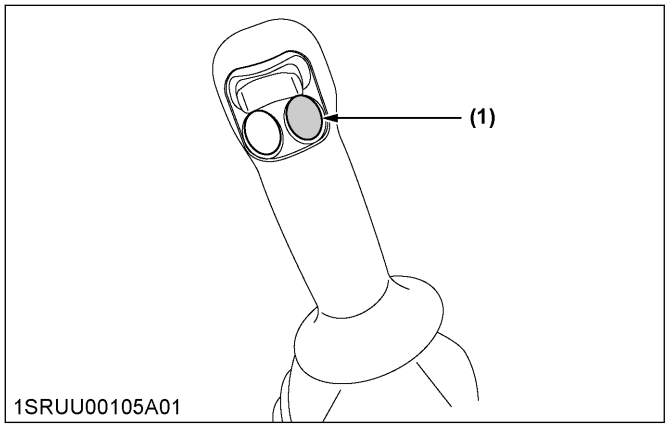


(1) Pilot control lock lever
(2) Attachment control lever (left)
(A) UNLOCK
(B) LOCK

5. Move the operating lever to release pressure from the hydraulic system.

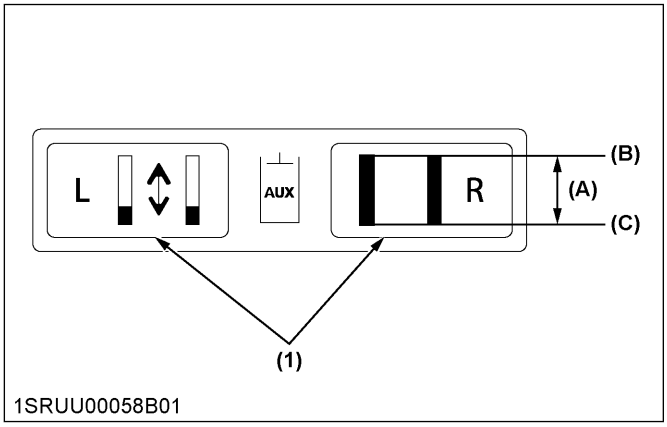
1. Releasing pressure trapped in the AUX port

1. Release the pressure trapped in the hydraulic system.
   (See RELEASING PRESSURE TRAPPED IN THE HYDRAULIC SYSTEM on page 85.)
2. Press the AUX port enable switch.



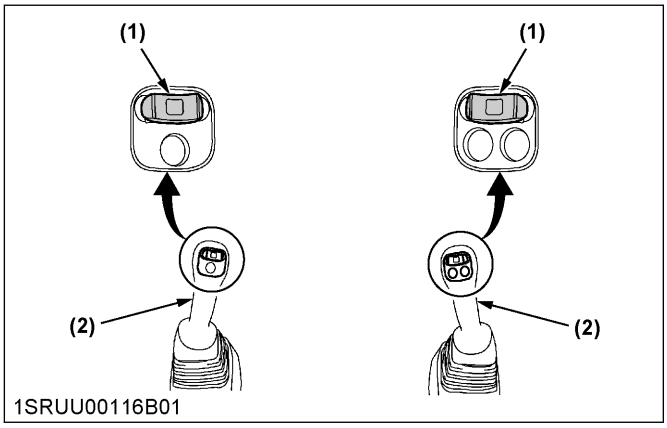
(1) AUX port enable switch

3. Make sure that the flow volume in all the AUX ports is not minimized.
   If the pressure is removed after minimizing the flow volume in the AUX port, the pressure will not be released completely and the hose coupler may be unable to connect and disconnect.



(1) Flow volume in AUX port display
(A) Flow volume in AUX port
(B) Maximum
(C) Minimum

4. Move the AUX port knob mounted to the operating lever to the right to release pressure in the AUX port.



(1) AUX port knob
(2) Attachment control lever

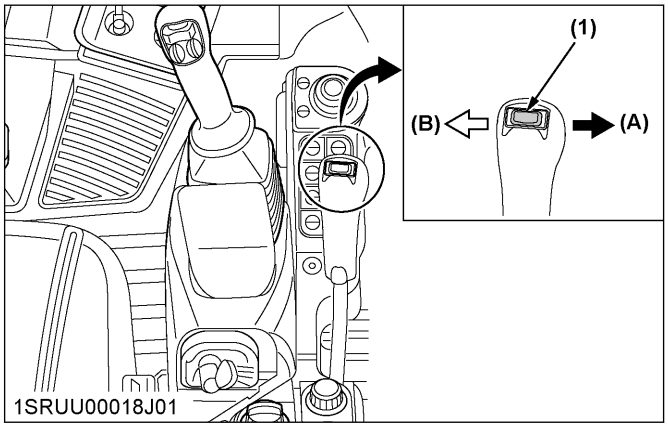
NOTE :
- **There are two types of machine, one has the AUX port knobs mounted to the right and left operating levers, the other has the AUX port knob mounted to one operating lever. Make choice according to the type of machine.**

ANGLE BLADE OPERATION

⚠ WARNING
To avoid personal injury or death:

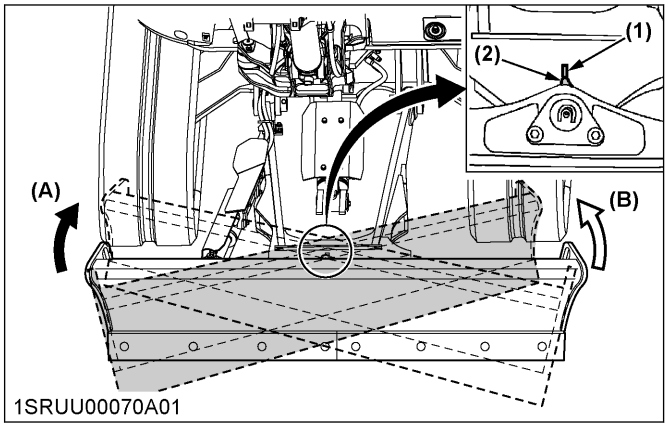
- **Never elevate or lift the machine with the angle blade placed at an angle.**
  Stability of the machine is affected with the blade at an angle, therefore keep at the neutral position. Before starting the job, position and keep the angle blade at the standard 0° marking, as illustrated.
- **Do not work under the machine.**

- Push the angle blade control switch to the right or left, and the angle dozer will be placed at an angle.



(1) Angle blade control switch
(A) Turn to the right
(B) Turn to the left

- For the right-hand angle setting, push the angle blade control switch toward direction (A). The angle blade will be placed at an angle toward (A).
- For the left-hand angle setting, push the angle blade control switch toward direction (B). The angle blade will be placed at an angle toward (B).



(1) Mark (red)
(2) Mark (red)
(A) Turn the right
(B) Turn the left

ONE-WAY OR TWO-WAY CIRCUIT SELECTION VALVE OPERATION

⚠ WARNING
To avoid personal injury or death:

- **Stop the engine before removing or changing the equipment.**
- **Release the pressure from the hydraulic system before removing or changing the equipment. (See RELEASING PRESSURE TRAPPED IN THE HYDRAULIC SYSTEM on page 85.)**
- **Move the selection valve to the correct position (either one-way or two-way circuit selection) before mounting the equipment.**
- **Always select the correct valve position before mounting the equipment (one-way or two-way circuit selection) to avoid sudden movement of the equipment.**

NOTE :

- **Leaving the selection valve to one-way circuit selection and attaching two-way circuit equipment may cause the equipment to move (drop) suddenly due to its own weight, as the tank line remains open even with the engine off.**

The one-way or two-way selection valve is linked to the AUX operating mode. There is no need to control it in manual mode.
(See Setting the maximum flow volume on page 81.)
Change the AUX operating mode setting, depending on the action of the attachment being used (rotary or breaking).

Example

1-way circuit	Hammer, and so on.
2-way circuit	Thumb grapple, tilt bucket, auger, grapple, and so on.

OPERATING THE BOOM LOWERING VALVE

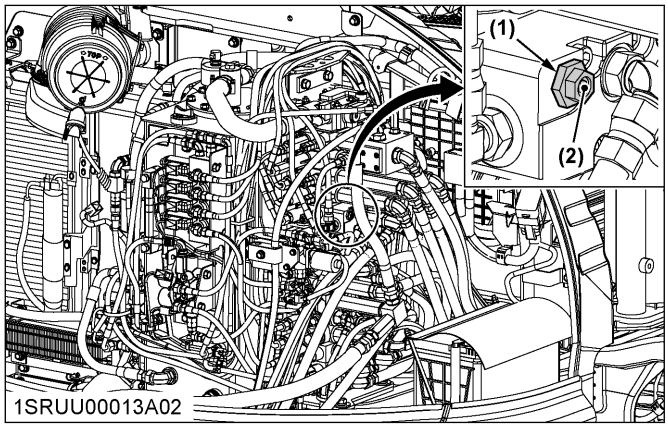
Use this valve if the engine fails to start and the accumulator fails to operate and there is an urgent need to lower the boom.

⚠ WARNING

To avoid personal injury or death:

- **When the engine functions, move the control lever to lower the boom. Never use the boom lowering valve.**
- **Loosen the boom lowering valve set screw slowly a quarter turn at a time. Be careful not to loosen it a full turn or more at once because otherwise oil may squirt out accidentally.**
- **Before starting this job, make sure there is nobody below the boom.**

1. Open the side cover.
2. Loosen the boom lowering valve nut located below the control valve boom block first and then the set screw slowly.



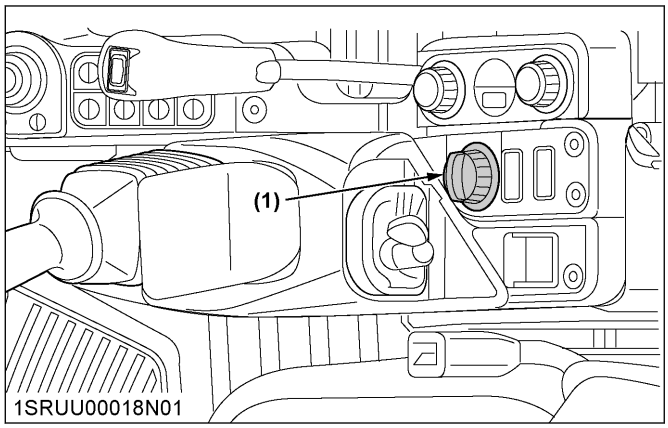
(1) Nut
(2) Set screw

3. After this operation, tighten the boom lowering valve nut and the set screw in place.

AUTO IDLE (AI) OPERATION

Throttle potentiometer

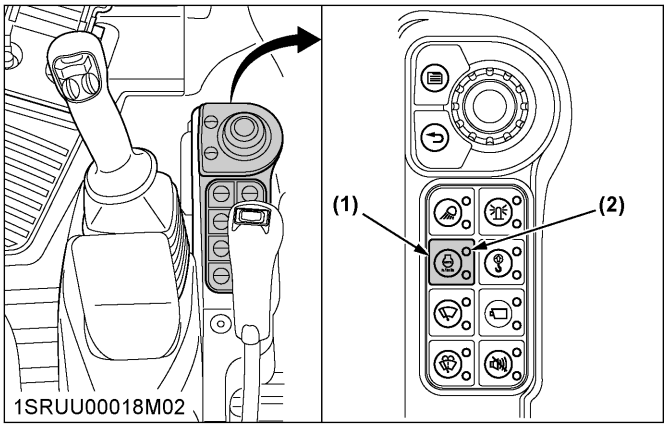
With this potentiometer, the operator can adjust the engine speed when the Auto Idle control is activated.



(1) Throttle potentiometer

Auto Idle (AI) control switch

With this switch, the Auto Idle control is turned on or off. The Auto Idle control allows the engine speed to drop to idle speed when the control levers are left in neutral for longer than four seconds. If the control is activated, the engine speed rises immediately to the preset rpm. If the Auto Idle is not activated, the throttle potentiometer can be utilized to control engine speed in a similar way to a conventional throttle control lever.



(1) Auto Idle control switch
(2) Auto Idle lamp

IMPORTANT :

- **It is possible that the Auto Idle may not function until hydraulic oil warms up in cold weather. Therefore, it is not recommended to activate Auto Idle until the machine has completely warmed up.**

NOTE :

- **Before operating the control lever, check the Auto Idle lamp.**
- **When operating in confined spaces or when loading onto a vehicle, turn off the Auto Idle control switch (lamp off). This is to prevent unwanted engine speed increase when control levers are activated.**
- **The Auto Idle control, when selected by a switch, provides the operator with a way to control the engine speed without moving the throttle potentiometer. This is done simply by not activating any control levers for about 4 seconds after stopping work, and then to simply restore a preset (by potentiometer) engine speed, activate any control lever to return to work.**
- **The purpose of the system is to reduce fuel consumption, noise and operator fatigue.**
- **When the dozer control lever is locked at the *"Float"* position on the angle blade type, the Auto Idle function is not activated even if any other control lever is set to the neutral position.**

IMPORTANT INFORMATION ON MACHINE OPERATION

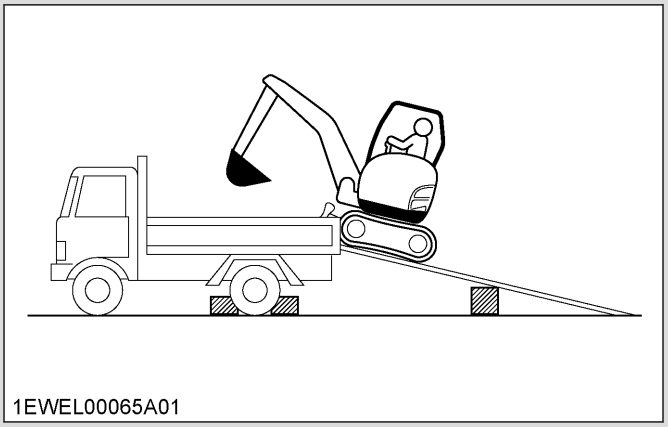
- Do not crush concrete or boulders using side swings with the bucket. Also, avoid using side sweeps of the bucket to move earth piles.
- Under all circumstances, avoid the following operations:
  - Excavation using the gravitational impact of the machine.
  - Compacting of gravel or soil using the dropping 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 doing deep excavations. If necessary, swivel around 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 with obstructions.
  When moving the machine, pay attention that the dozer does not collide with obstructions such as boulders, and so on.
- Support the machine correctly.
  When stabilizing the machine with the dozer, lower the dozer to engage the full width on 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 coverings if removed earlier.

TRANSPORTING THE MACHINE

⚠ DANGER

To avoid serious injury or death:

- **Do not change directions when the machine is on a ramp. If a change of direction is necessary, drive off the ramp completely and make the turn.**
- **When driving forward or backward onto the vehicle, or when swiveling the upper body, make sure that neither the CAB nor the gates of the vehicle are damaged.**



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- **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, as the CAB of the vehicle could be damaged when swiveling around the upper body.**
- **Make sure the ramps are of sufficient capacity and securely connected to the vehicle to support the machine safely throughout the loading or unloading operation.**

TRANSPORTING ON A TRUCK

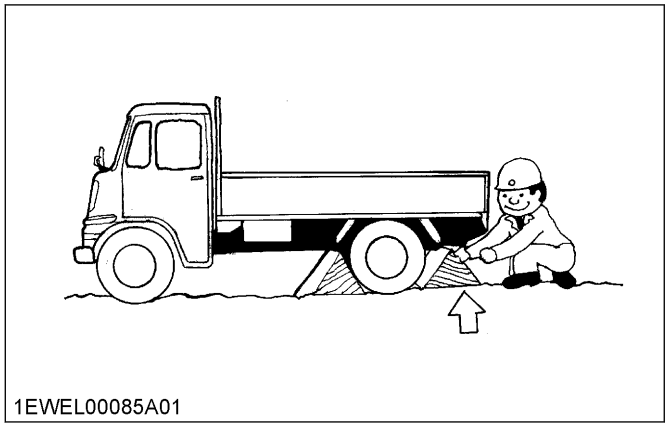
⚠ WARNING

To avoid personal injury or death:

- **After loading the machine on the truck, lower the bucket and dozer onto the truck bed.**

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

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



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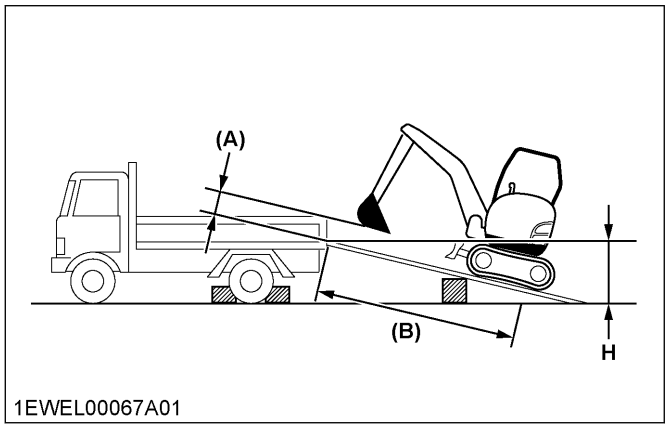
2. Use mounting brackets to secure the ramp properly. Connect the ramp directly with the bed.



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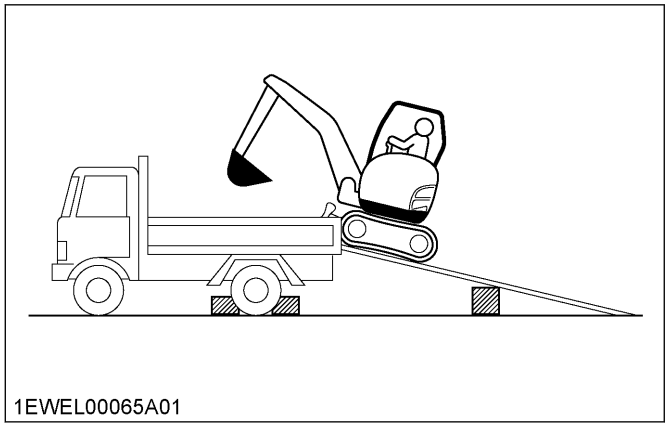
(A) 20 cm to 40 cm (8 in. to 16 in.)
(B) 4 × H or more

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



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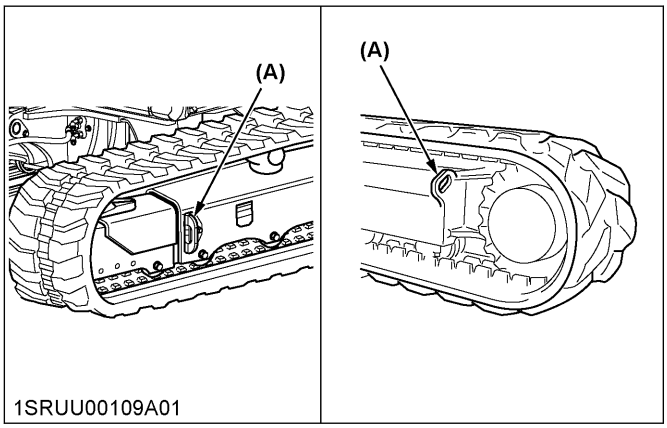
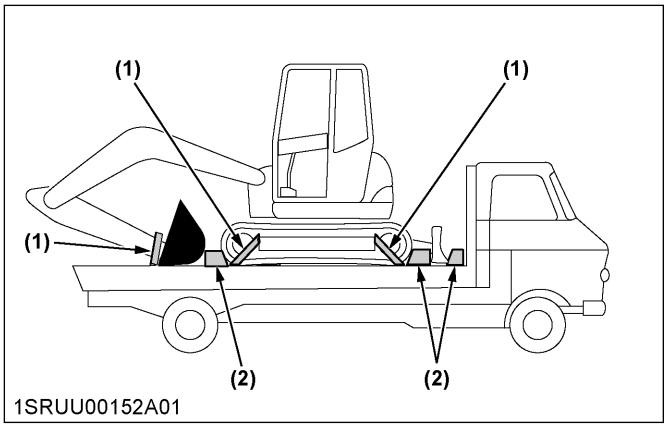
4. Completely align the ramp and the tracks and then drive the machine slowly up the ramp. After ensuring that the tracks are completely on the bed, swivel the upper body around to the back of the vehicle.
5. Lower the dozer onto the bed.
6. Pull in the bucket and the arm completely and then lower the boom.
7. Stop the engine, release the pressure trapped in the hydraulic system and remove the key.
8. Raise the pilot control lock lever.
9. Block the tracks with blocks and tie down the machine.



(A) Tie down point



(1) Chain
(2) Block

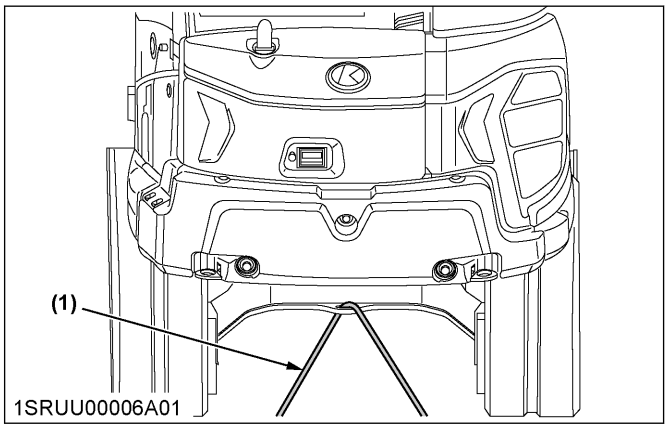
TOWING THE MACHINE

⚠ WARNING

To avoid personal injury or death:

- **When towing the machine or pulling a load, the load must be less than the strength of the towing line attached to the machine. Not to be used for tying down or lifting the machine.**
- **Towing is only allowed for a short distance and at walking speed.**

1. Attach the tow bar or towing rope to the hook on the machine and to the pulling vehicle. The tow bar should be mounted at a right angle to the vehicles.
2. The operator must be seated during the recovery procedure.
3. Drive slowly with the tractive vehicle to avoid abrupt loads.
   (For the maximum drawbar pull and maximum vertical load, see SAFE LOADING AND TRANSPORT OF THE MACHINE on page 11.)



(1) Towing line

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.
- 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 use the hooks on the roof of canopy and CAB for lifting the machine.**
- **When applying the shackles through the boom's and blade's openings for lifting, be sure to use two-point lifting for added safety.**
- **Never lift the machine with the angle blade placed at an angle (angle blade type).**

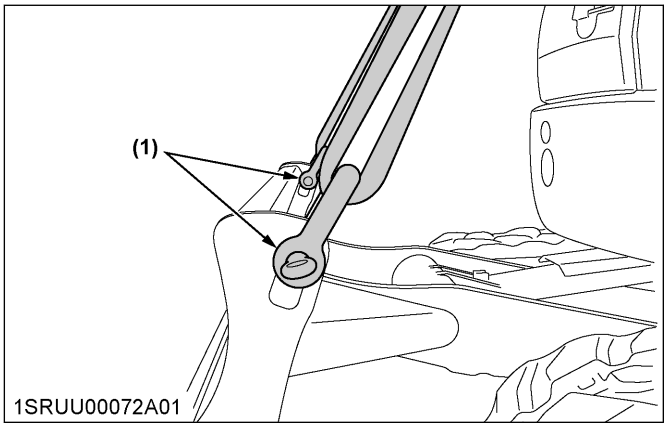
NOTE :

- **While lifting, carefully keep the machine well balanced with its center of gravity in mind.**
- **Do not lift the machine with the boom swinging or the upper structure swiveling.**

General guidelines for lifting

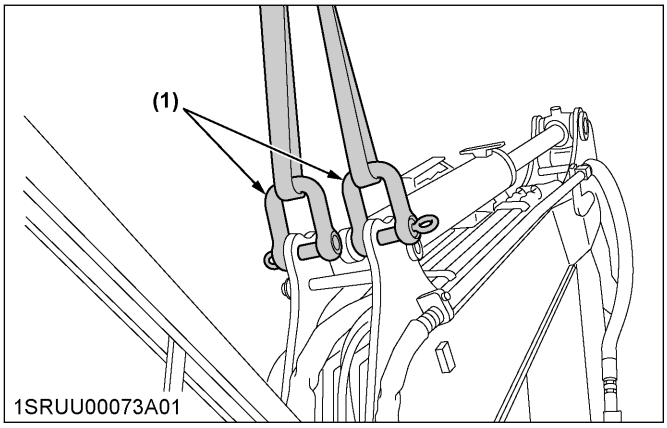
1. Prepare the machine for lifting as follows (see illustration for correct lifting position):
   a. Rotate the upper swivel structure until the blade positions itself 180-degree opposite to the attachment.
   b. Raise the blade completely.
   c. Raise the boom and put the bucket and arm in their crowded positions.
   d. Set the pilot control lock lever to the LOCK position.
   e. With the boom not swinging, set the swing pedal to the neutral position, place the pedal cover and stop the engine.
   f. Apply shackles (3200 kg or heavier duty) through the openings at both ends of the blade, and apply shackles (2000 kg or heavier duty) through the two openings at the boom top. Pass wire ropes through these shackles.

Blade ends



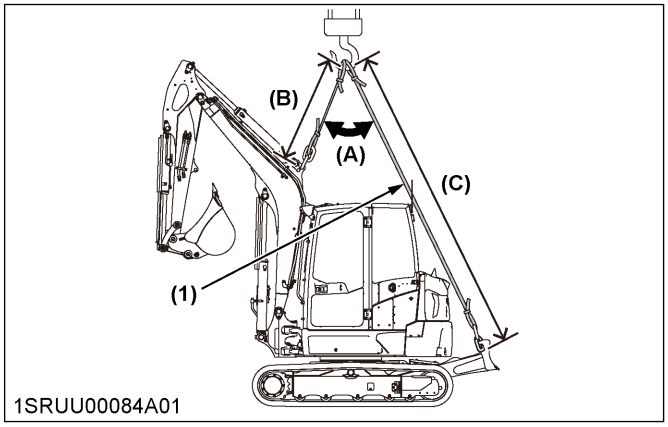
(1) Shackle

Boom top



(1) Shackle

2. Attach the steel wires while observing the following safety points:
   - Always hook the machine at three points. One on the boom and left and right of the dozer.
   - Always use a shackle on each lifting hole when attaching the cables or straps.
   - Keep the angle between the front and rear cables or straps within the angles listed in the following tables.



(1) Cable or strap

KX057-5

	Standard blade	Angle blade
(A)	52° or less	61° or less
(B)	1330 mm (52.36 in.)	1430 mm (56.30 in.)
(C)	3680 mm (144.90 in.)	3625 mm (63.98 in.)

U55-5

	Standard blade	Angle blade
(A)	54° or less	56° or less
(B)	1330 mm (52.4 in.)	1430 mm (56.3 in.)
(C)	3680 mm (144.9 in.)	3625 mm (64.0 in.)

   - Tackle:
     The weight of the machine and the recommended tackle for lifting these loads are mentioned in the following table. Choose components with enough strength.

KX057-5

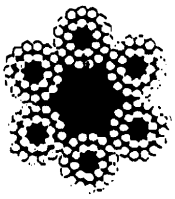
	Standard blade	Angle blade
Machine weight*1	5760 kg (12700 lbs)	5975 kg (13170 lbs)
Load/cable	17.7 kN (3979.1 lbs)	
Minimum wire diameter (safety factor 6)	16 mm (5/8 in.) or more	

*1 Machine weight: With CAB, steel tracks. Steel wire: 6×24

U55-5

	Standard blade	Angle blade
Machine weight*1	5705 kg (12580 lbs)	5920 kg (13050 lbs)
Load/cable	17.6 kN (3956.6 lbs)	
Minimum wire diameter (safety factor 6)	16 mm (5/8 in.) or more	

*1 Machine weight: With CAB, steel tracks. Steel wire: 6×24



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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.

   Maximum strength
   (JIS G3525: 2006 or ISO 4344: 2004) -6×24

Diameter	Zinc-plated	Not zinc-plated
14 mm (9/16)	89.7 kN (20165 lbs)	96.6 kN (21717 lbs)
16 mm (5/8)	117 kN (26303 lbs)	126 kN (28326 lbs)
18 mm (45/64)	148 kN (33272 lbs)	160 kN (35969 lbs)
20 mm (3/4)	183 kN (41140 lbs)	197 kN (44287 lbs)
22.4 mm (—)	230 kN (51706 lbs)	247 kN (55528 lbs)

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 11.)

PRECAUTIONS WHEN WASHING THE MACHINE

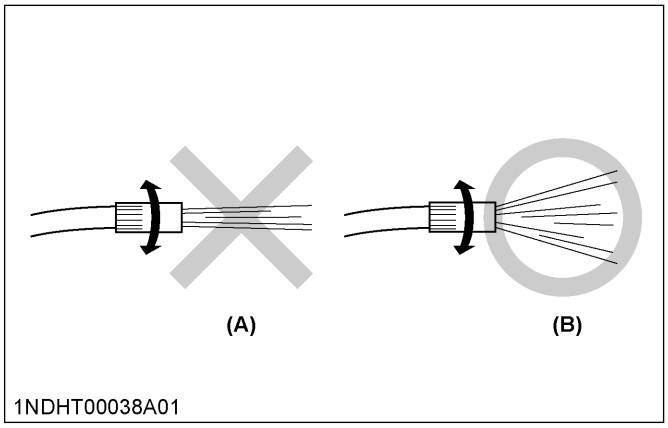
WARNING

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.**

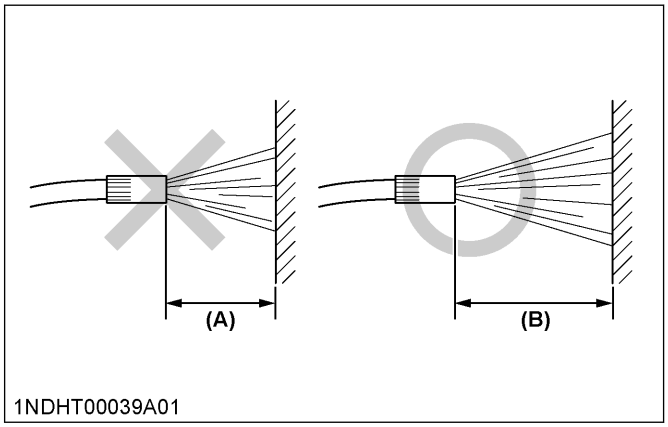
When misused, pressure washers can cause personal injury and machine damage. Always operate the pressure washer correctly and safely in accordance with its operator's manual and safety labels.

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				
1	Coolant		Check	Daily check											104		
			Change											Every 2 years	128		
2	Fuel		Check	Daily check											104		
3	Engine oil		Check	Daily check											105		
			Change										○	Every 500 hrs	119		
4	Hydraulic oil		Check	Daily check											105		
			Change											Every 1000 hrs	123	*1	
5	Grease front attachments		—	Daily check											109		
6	Radiator and oil cooler		Check	Daily check											107		
7	Washer liquid		Check	Daily check											108		
8	Engine and electrical wiring		Check	Daily check											108		
9	Fuel tank		Drain	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	111		
10	Water separator		Drain	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	111		
11	Battery condition		Check	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	111		
12	Greasing swivel bearing teeth		—	○	○	○	○	○	○	○	○	○	○	Every 50 hrs	113		
13	V-belt tension		Check	Daily check											106		
			Adjust					○					○	Every 250 hrs	118		
14	Radiator hoses and clamps		Check				○				○			Every 200 hrs	114		
			Replace											Every 2 years	127		
15	Air filter element	Outer element	Clean				○				○			Every 200 hrs	115	*2	@
			Replace											Every 1000 hrs	122	*2	
		Inner element	Replace											Every 1000 hrs	122	*2	
16	Greasing swivel ball bearing		—				○				○			Every 200 hrs	115		
17	Evacuator valve		Check	Daily check											108		
			Clean				○				○			Every 200 hrs	116		
18	DPF muffler		Check	Daily check											109		
19	Fuel line and Intake air line		Check				○				○			Every 200 hrs	116		@
			Replace											Every 2 years	129	*3	
20	Water separator filter element		Replace										○	Every 500 hrs	119		
21	Fuel filter cartridge		Replace										○	Every 500 hrs	121		@
22	Engine oil filter		Replace										○	Every 500 hrs	120		

(Continued)

No.	Check points	Measures	Hour meter indicator										Interval	Ref. page		
			50	100	150	200	250	300	350	400	450	500				
23	Drive unit oil	Change	◎									○	Every 500 hrs	120		
24	Breather filter	Replace										○	Every 500 hrs	121		
25	Hydraulic return filter element	Replace											Every 1000 hrs	122		
26	Hydraulic suction filter element	Replace											Every 1000 hrs	123		
27	Filter in the pilot hydraulic system	Replace											Every 1000 hrs	122		
28	Engine valve clearance	Check											Every 1000 hrs	125	*4	
29	Injector tip	Check											Every 1500 hrs	126	*4	@
30	Oil separator element	Replace											Every 1500 hrs	126		@
31	EGR cooler	Check											Every 1500 hrs	126	*4	@
32	Front idler and track roller oil	Change											Every 2000 hrs	126		
33	Alternator and starter motor	Check											Every 2000 hrs	126		
34	EGR system	Check											Every 3000 hrs	126	*4	@
35	DPF	Clean											Service as required	131	*4	@
36	Exhaust manifold (crack, gas, leakage and mounting screw)	Check											Every 1 year	127	*4	
37	Intake air line for air leaks	Check											Every 1 year	127	*4	
38	AFS (Air flow sensor)	Check											Every 1 year	127	*4	
39	Condition of DPF muffler	Check											Every 1 year	127	*4	
40	DPF differential pressure sensor and piping for gas leak	Check											Every 1 year	127	*4	
41	DPF exhaust gas temperature sensor	Check											Every 1 year	127	*4	
42	EGR and piping for gas leak	Check											Every 1 year	127	*4	
43	Radiator system	Rinse											Every 2 years	128		
44	Oil separator rubber hose	Replace											Every 2 years	130	*4	
45	DPF differential pressure sensor rubber piping (front and back)	Replace											Every 2 years	130	*4	
46	Suction pipe downstream the AFS (air flow sensor)	Replace											Every 2 years	130	*4	
47	EGR cooler hose	Replace											Every 2 years	130	*4	
48	Plastic parts and synthetic leather	Clean											Service as required	131		

* 500 through 3000 continued in the following table.

*1 When using a hydraulic hammer, change hydraulic oil and return filter according to the hydraulic oil change table. (See Checking the hydraulic oil (hydraulic hammer operation) on page 125.)

*2 Clean and replace the air filter more frequently if used in dusty conditions. When the filter is very dirty due to dusty conditions, replace the filter.

*3 Replace only if necessary.

*4 Consult your local Kubota dealer for this service.

IMPORTANT :

- **The items marked as ⊙ should be done after the first operation.**
- **The items marked as (@) 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 performing required maintenance of the engine, according to the above instructions. Please see the warranty statement in detail.**
- **When using biodiesel, be sure to check the maintenance requirements of biodiesel fuel as the intervals will change in some of the items.**

No.	Check points		Measures	Hour meter indicator									Interval	Ref. page		
				550	600	650	700	750	800	1000	1500	3000				
1	Coolant		Check	Daily check										104		
			Change										Every 2 years	128		
2	Fuel		Check	Daily check										104		
3	Engine oil		Check	Daily check										105		
			Change							○	○	○	Every 500 hrs	119		
4	Hydraulic oil		Check	Daily check										105		
			Change							○		○	Every 1000 hrs	123	*1	
5	Grease front attachments		—	Daily check										109		
6	Radiator and oil cooler		Check	Daily check										107		
7	Washer liquid		Check	Daily check										108		
8	Engine and electrical wiring		Check	Daily check										108		
9	Fuel tank		Drain	○	○	○	○	○	○	○	○	○	Every 50 hrs	111		
10	Water separator		Drain	○	○	○	○	○	○	○	○	○	Every 50 hrs	111		
11	Battery condition		Check	○	○	○	○	○	○	○	○	○	Every 50 hrs	111		
12	Greasing swivel bearing teeth		—	○	○	○	○	○	○	○	○	○	Every 50 hrs	113		
13	V-belt tension		Check	Daily check										106		
			Adjust					○		○	○	○	Every 250 hrs	118		
14	Radiator hoses and clamps		Check		○				○	○		○	Every 200 hrs	114		
			Replace										Every 2 years	127		
15	Air filter element	Outer element	Clean		○				○	○		○	Every 200 hrs	115	*2	@
			Replace							○		○	Every 1000 hrs	122	*2	
		Inner element	Replace							○		○	Every 1000 hrs	122	*2	
16	Greasing swivel ball bearing		—		○					○		○	Every 200 hrs	115		
17	Evacuator valve		Check	Daily check										108		
			Clean		○					○		○	Every 200 hrs	116		
18	DPF muffler		Check	Daily check										109		
19	Fuel line and Intake air line		Check		○					○		○	Every 200 hrs	116		@
			Replace										Every 2 years	129	*3	
20	Water separator filter element		Replace							○	○	○	Every 500 hrs	119		
21	Fuel filter cartridge		Replace							○	○	○	Every 500 hrs	121		@
22	Engine oil filter		Replace							○	○	○	Every 500 hrs	120		
23	Drive unit oil		Change							○	○	○	Every 500 hrs	120		

(Continued)

No.	Check points	Measures	Hour meter indicator									Interval	Ref. page		
			550	600	650	700	750	800	1000	1500	3000				
24	Breather filter	Replace							○	○	○	Every 500 hrs	121		
25	Hydraulic return filter element	Replace							○		○	Every 1000 hrs	122		
26	Hydraulic suction filter element	Replace							○		○	Every 1000 hrs	123		
27	Filter in the pilot hydraulic system	Replace							○		○	Every 1000 hrs	122		
28	Engine valve clearance	Check							○		○	Every 1000 hrs	125	*4	
29	Injector tip	Check								○	○	Every 1500 hrs	126	*4	@
30	Oil separator element	Replace								○	○	Every 1500 hrs	126		@
31	EGR cooler	Check								○	○	Every 1500 hrs	126	*4	@
32	Front idler and track roller oil	Change										Every 2000 hrs	126		
33	Alternator and starter motor	Check										Every 2000 hrs	126		
34	EGR system	Check									○	Every 3000 hrs	126	*4	@
35	DPF	Clean										Service as required	131	*4	@
36	Exhaust manifold (crack, gas, leakage and mounting screw)	Check										Every 1 year	127	*4	
37	Intake air line for air leaks	Check										Every 1 year	127	*4	
38	AFS (Air flow sensor)	Check										Every 1 year	127	*4	
39	Condition of DPF muffler	Check										Every 1 year	127	*4	
40	DPF differential pressure sensor and piping for gas leak	Check										Every 1 year	127	*4	
41	DPF exhaust gas temperature sensor	Check										Every 1 year	127	*4	
42	EGR and piping for gas leak	Check										Every 1 year	127	*4	
43	Radiator system	Rinse										Every 2 years	128		
44	Oil separator rubber hose	Replace										Every 2 years	130	*4	
45	DPF differential pressure sensor rubber piping (front and back)	Replace										Every 2 years	130	*4	
46	Suction pipe downstream the AFS (air flow sensor)	Replace										Every 2 years	130	*4	
47	EGR cooler hose	Replace										Every 2 years	130	*4	
48	Plastic parts and synthetic leather	Clean										Service as required	131		

*1 When using a hydraulic hammer, change hydraulic oil and return filter according to the hydraulic oil change table. (See Checking the hydraulic oil (hydraulic hammer operation) on page 125.)

*2 Clean and replace the air filter more frequently if used in dusty conditions. When the filter is very dirty due to dusty conditions, replace the filter.

*3 Replace only if necessary.

*4 Consult your local Kubota dealer for this service.

IMPORTANT :

- **The items marked as ⊙ should be done after the first operation.**
- **The items marked as (@) 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 performing required maintenance of the engine, according to the above instructions. Please see the warranty statement in detail.**
- **When using biodiesel, be sure to check the maintenance requirements of biodiesel fuel as the intervals will change in some of the items.**

1. Air conditioner

No.	Check points	Measures	Hour meter indicator									Interval	Ref. page		
			50	100	150	200	250	300	350	400	450				
1	Air conditioner filter	clean			○			○			○	Every 150 hrs	113	*1	
		replace										Every 600 hrs	—	*1	
2	Air conditioner condenser	clean				○				○		Every 200 hrs	118		
3	Air conditioner pipes and hoses	check										Every 1 year	126		
		replace										Every 2 years	127		
4	Refrigerant (gas)	check										Service as required	130		

*1 Clean and replace the air conditioner filter more frequently if used in dusty conditions. When the filter is very dirty due to dusty conditions, replace the filter.

No.	Check points	Measures	Hour meter indicator								Interval	Ref. page		
			500	550	600	650	700	750	800	1000				
1	Air conditioner filter	clean			○			○			Every 150 hrs	113	*1	
		replace			○						Every 600 hrs	—	*1	
2	Air conditioner condenser	clean			○				○	○	Every 200 hrs	118		
3	Air conditioner pipes and hoses	check									Every 1 year	126		
		replace									Every 2 years	127		
4	Refrigerant (gas)	check									Service as required	130		

*1 Clean and replace the air conditioner filter more frequently if used in dusty conditions. When the filter is very dirty due to dusty conditions, replace the filter.

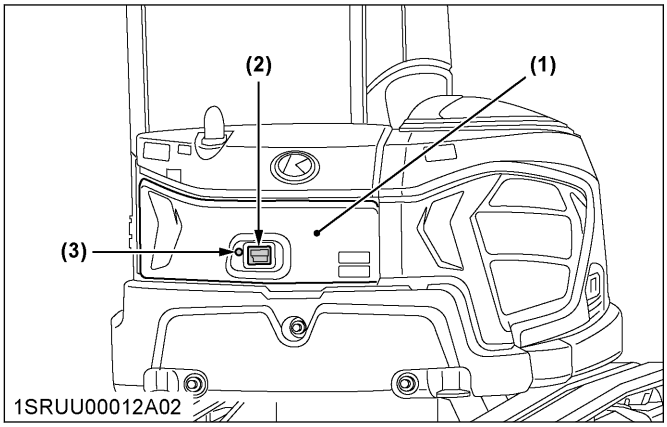
OPENING AND CLOSING THE COVERS

1. Opening and closing the engine hood

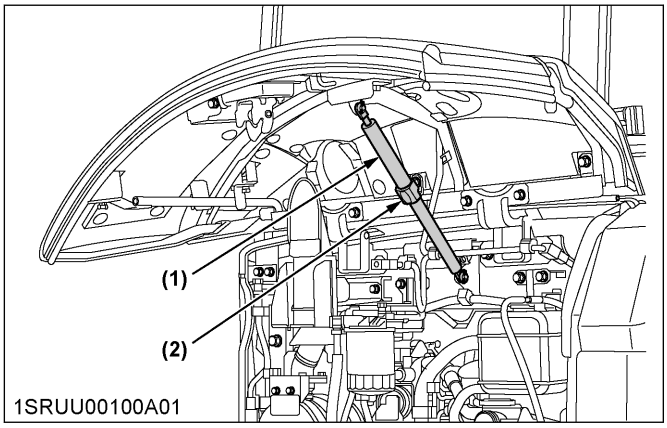
⚠ WARNING

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.**



(1) Engine hood
(2) Catch
(3) Key slot



(1) Gas spring
(2) Stopper

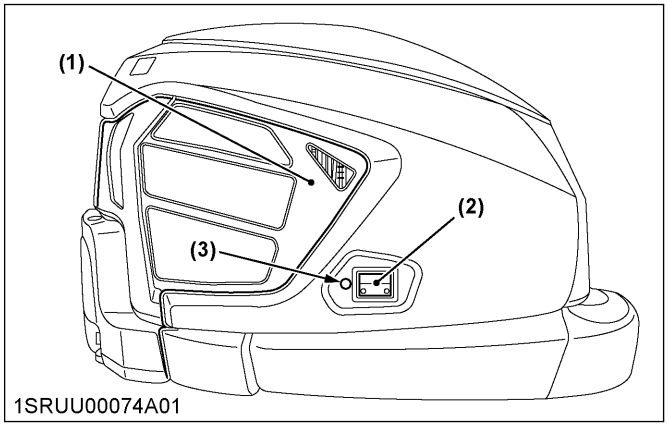
Opening

1. Insert the key into the key slot and turn it clockwise to unlock the hood.
2. Pull the catch to unlatch the hood.
3. Lift the hood upwards until the stopper locks the gas spring into place.

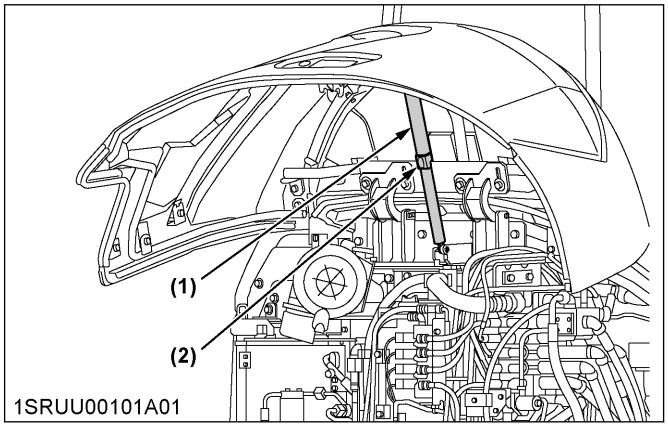
Closing

1. Push the stopper upwards to release the gas spring.
2. Lower the hood until it clicks into its closed position.
3. Turn the key counterclockwise to lock the hood.

2. Opening and closing the side cover



(1) Side cover
(2) Catch
(3) Key slot



(1) Gas spring
(2) Stopper

Opening

1. Insert the key into the key slot and turn it clockwise to unlock the side cover.
2. Pull the catch to unlatch the side cover.
3. Lift the side cover upwards until the stopper locks the gas spring into place.

Closing

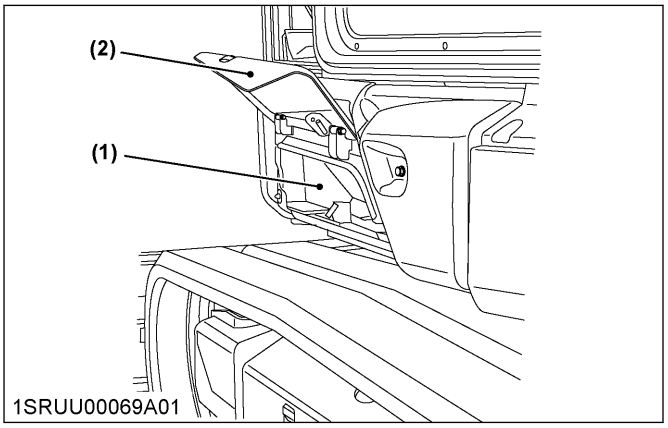
1. Push the stopper upwards to release the gas spring.
2. Lower the side cover until it clicks into its closed position.
3. Turn the key counterclockwise to lock the side cover.

3. Storing tools

[KX057-5 and U55-5]

The toolbox is located behind the left side cover, which is located on the left side of the swivel frame.

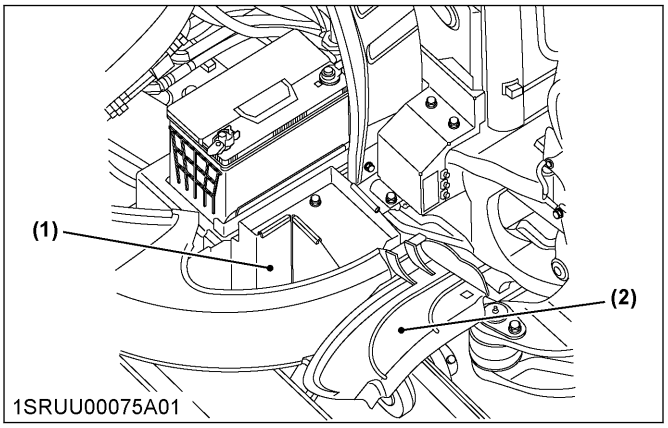
1. Open the left side cover.
2. Store the tools in the storage box.



(1) Storage box
(2) Left side cover

[KX057-5 only]
[KX057-5] has a second tool box which is located inside the right side cover at the front.

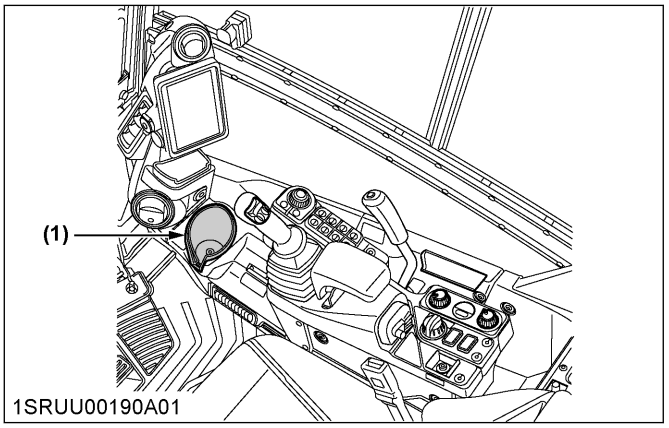
1. Open the side cover.
   (See Opening and closing the side cover on page 102.)
2. Open the tool box cover.
3. Store the tools in the storage box.



(1) Storage box
(2) Tool box cover

4. Cup holder

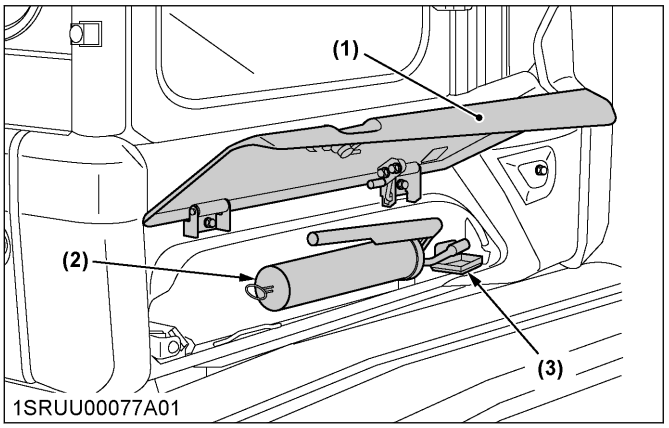
The cup holder is located next to the operator's seat.



(1) Cup holder

5. Where to store the grease gun

- Open the left side cover, and the grease gun storage spot can be found inside.
- After using the grease gun, secure it back to its fixture and close the left side cover.
  If grease is collected in the grease receiver, wipe it clean with waste cloth or the like.
- Take note of the storage position of the greased gun shown in the following illustration.

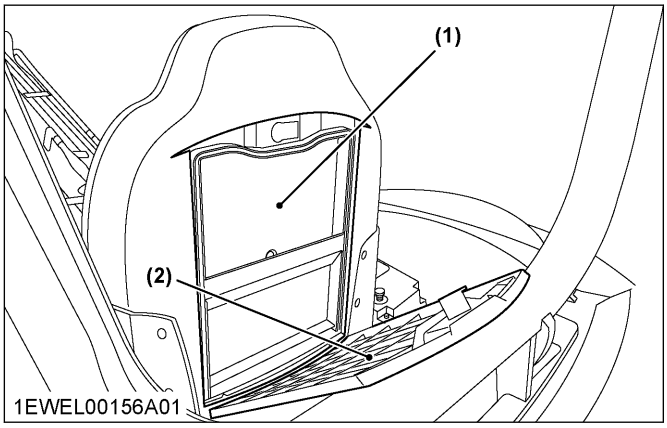


(1) Left side cover
(2) Grease gun
(3) Grease receiver

6. Where to keep the operator's manual

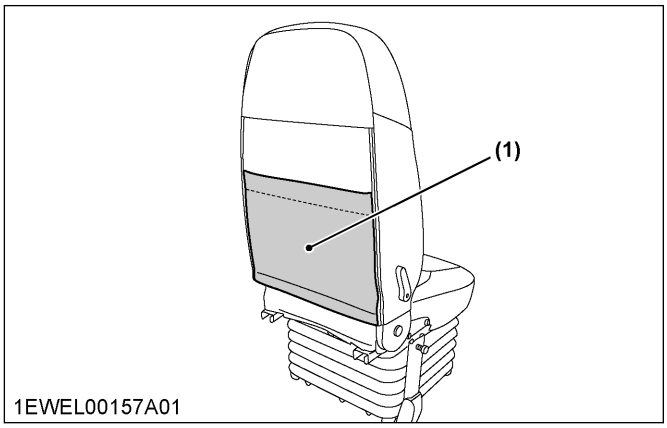
The operator's manual is located in the back of the seat.

[Canopy type]



(1) Operator's manual storage
(2) Rear cover

[CAB type]



(1) Operator's manual storage

DAILY CHECKS

For your own safety and to assure a long operating life of your machine, careful checks should be made before each operation.

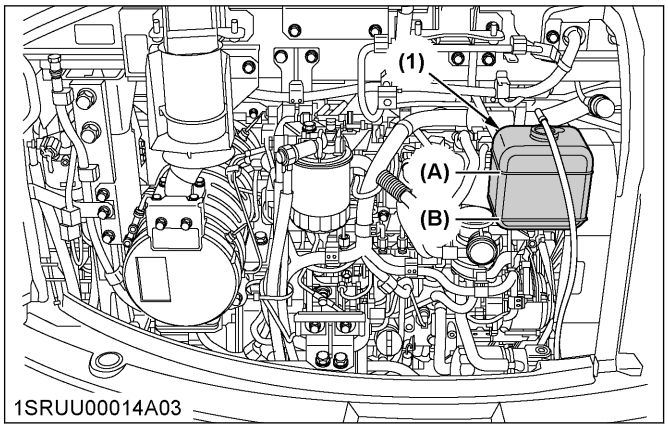
⚠ WARNING
To avoid personal injury or death:
- **When operating, keep hands and body inside of the ROPS or OPG (top guard level I).**
- **Do not touch the control levers and pedals from outside the CAB while the engine is running.**

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. It can cause serious burns on 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. Should the coolant level in the radiator sink, the water will be automatically forwarded to the radiator.

1. Open the engine hood.
   (See Opening and closing the engine hood on page 102.)
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) Recovery tank
(A) FULL
(B) LOW

IMPORTANT :
- **Do not fill the recovery tank over the [FULL] marking.**
- **Do not fill with dirty or salty water.**

2. Checking the fuel level

⚠ WARNING
To avoid personal injury or death:
- **Stop the engine and remove the key before fueling.**
- **Do not smoke while fueling.**
- **Be sure to tighten the fuel cap after refueling.**

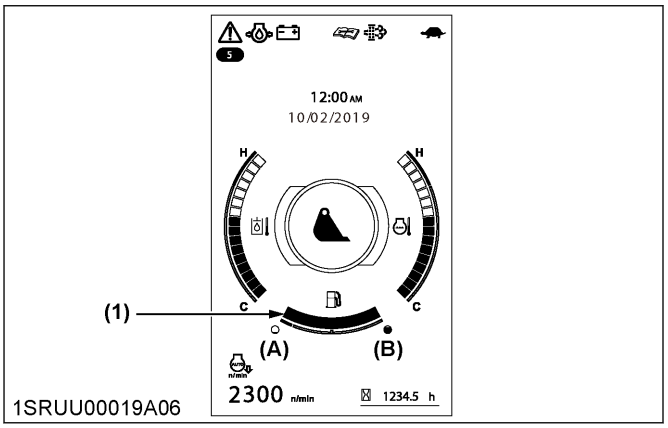
IMPORTANT :
- **When the temperature is over -5 ℃, use No.2-D diesel fuel. When the temperature is below -5 ℃, use No.1-D diesel fuel.**
- **Make sure that the fuel tank does not run empty. Air will enter the fuel system, and then it must be purged before restarting.**
  (See PURGING THE FUEL SYSTEM on page 132.)

- **To prevent condensation (water) accumulation in the fuel tank, fill the fuel into the tank before parking overnight.**

1. Turn the starter key to the **[RUN]** position.

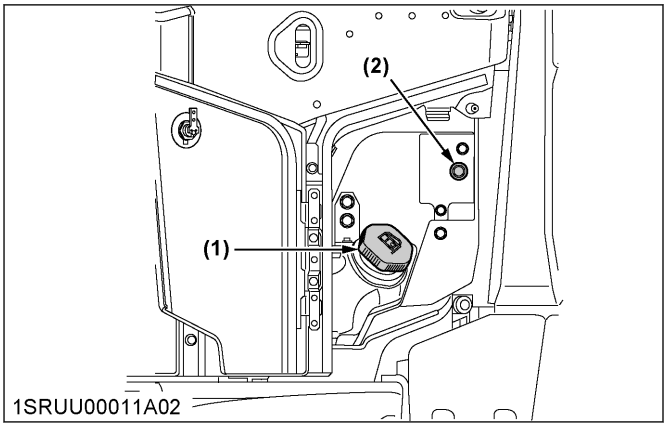
   NOTE :
   - **Even with the starter key not yet inserted, press the jog dial, and the display shows the hour meter, fuel gauge, water temperature gauge, hydraulic oil temperature gauge, and clock for 10 seconds.**

2. Check the fuel level by looking at the fuel level indicator.



(1) Fuel gauge
(A) EMPTY
(B) FULL

3. If necessary, open the cap and fill with fuel.



(1) Fuel tank cap
(2) Fuel level audible indication switch

Fuel tank capacity	
KX057-5	73 L (19 U.S.gals)
U55-5	66 L (17 U.S.gals)

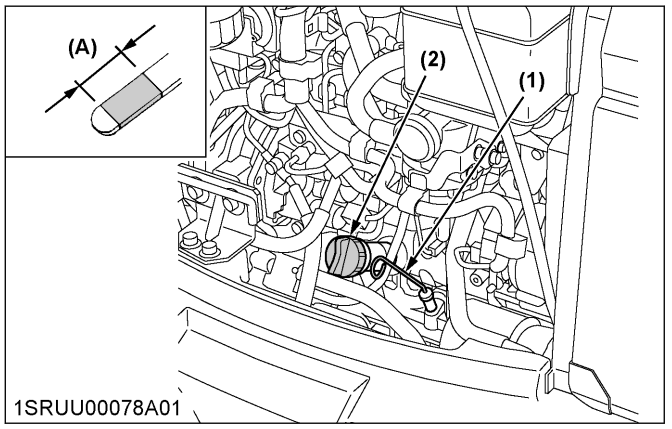
IMPORTANT :
- **Users must take appropriate actions to insure fuel is not contaminated during the refueling operation.**

3. Checking the engine oil level

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

IMPORTANT :
- **Use engine oil with the correct viscosity (according to the outside temperature).**
- **After stopping the engine and removing the key, wait for 5 minutes and then check the oil level.**
- **On DPF-equipped engines, part of the fuel may get mixed with engine oil during the regenerating process. This may dilute the oil and increase its quantity. If the oil rises above the oil level gauge upper limit, it means the oil has been diluted too much, resulting in a trouble. In such case, immediately change the oil.**

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



(1) Engine oil dipstick
(2) Oil filling port
(A) Required oil level range

4. Add oil if necessary.

Engine oil volume (with engine oil filter)	10.2 L (2.69 U.S.gals)

4. Checking the hydraulic oil level

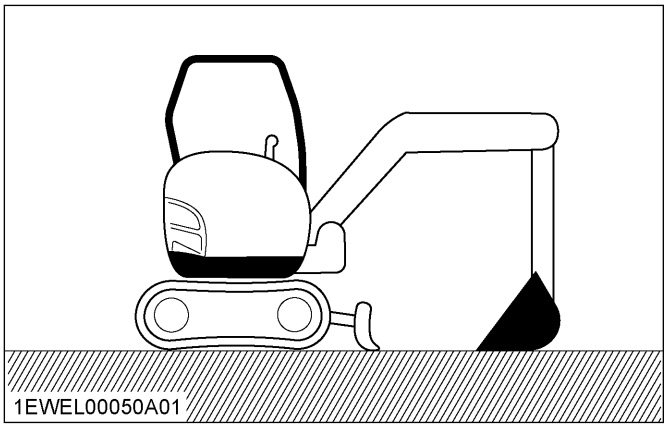
⚠ WARNING
To avoid personal injury or death:
- **Stop the engine and remove the key before checking the oil level.**
- **There is a risk of being injured by hot pressurized hydraulic oil. Make sure that the oil has cooled down sufficiently, and then release**

the pressure in the tank before loosening the hydraulic oil filling plug.

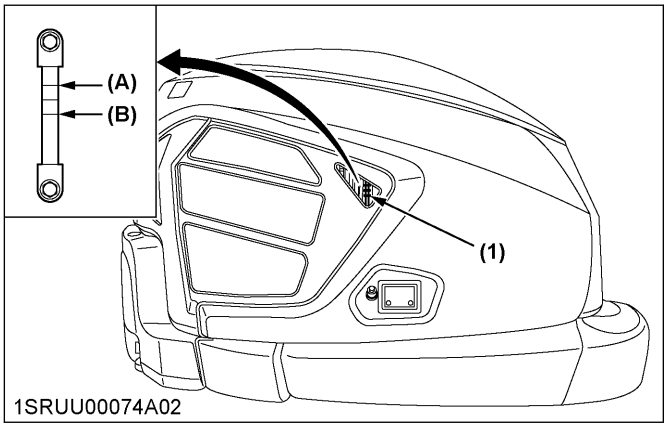
IMPORTANT :

- **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 142.)

1. Park the machine on a firm, flat and level surface, lower the attachments and dozer blade to the ground, and stop the engine.

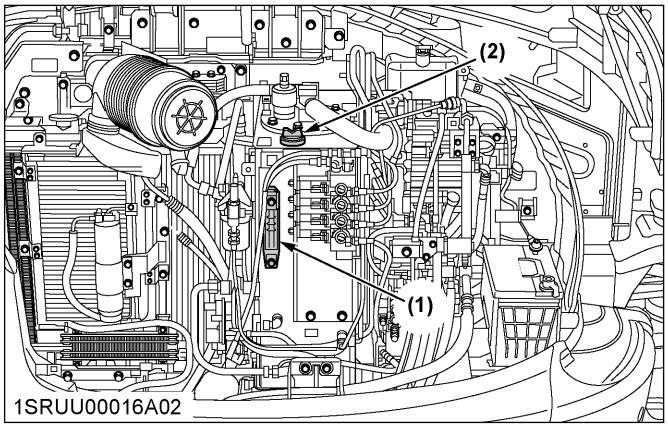


2. Check the oil level, making sure that it lies at the center of the gauge at normal temperature (10 ℃ to 30 ℃, 50 ℉ to 86 ℉).
   Enough oil is present when the oil level is at the center mark.



(1) Gauge
(A) Upper limit
(B) Lower limit

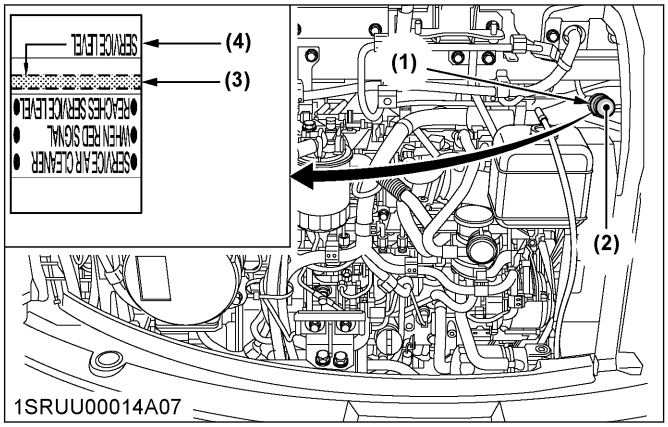
3. If the oil level is below the center mark, push the button on the breather filter to release the pressure in the tank, loosen the hydraulic oil filling plug, and then fill the tank up with oil at the oil filling port.
   (For details on releasing pressure trapped in the hydraulic tank see Replacing the breather filter on page 121.)



(1) Gauge
(2) Oil filling plug

5. Checking the filter indicator

1. Check the filter indicator.
2. If the red bar on the filter indicator has reached the service level, clean the air filter element immediately.
   (See Inspecting and cleaning the air filter element on page 115.)
3. After cleaning, reset the red bar by pressing the reset button.



(1) Filter indicator
(2) Reset button
(3) Red bar
(4) Service level

6. Checking the V-belt

⚠ WARNING

To avoid personal injury or death:

- **Stop the engine and remove the key before checking the V-belt.**

Check the V-belt for cracks and proper tension.
(See Adjusting the V-belt tension on page 118.)

7. Checking the radiator and oil cooler

⚠ WARNING

To avoid personal injury or death:

- **Always stop the engine and remove the key before checking the radiator and the oil cooler.**
- **Wear eye protection when cleaning with compressed air.**
- **Replace the hydraulic hoses and all water hoses every 2 years.**
  (For details on replacing hydraulic hoses, see PERIODIC REPLACEMENT OF PARTS on page 140.)
- **Inspect the hydraulic hoses and all water hoses daily.**
  Have the excavator repaired immediately if any of the following issues are discovered.
  Such issues may cause burns or injury. They may also cause engine failure, serious engine damage, hydraulic system failure, or serious hydraulic system damage.
  - **Scratches, cracks, or swelling in hydraulic hoses or water hoses.**
  - **Leakage at joints or connecting points.**
  - **Missing or damaged protective sleeve or grommet.**
  - **Loose mounting bolt, damaged bracket.**

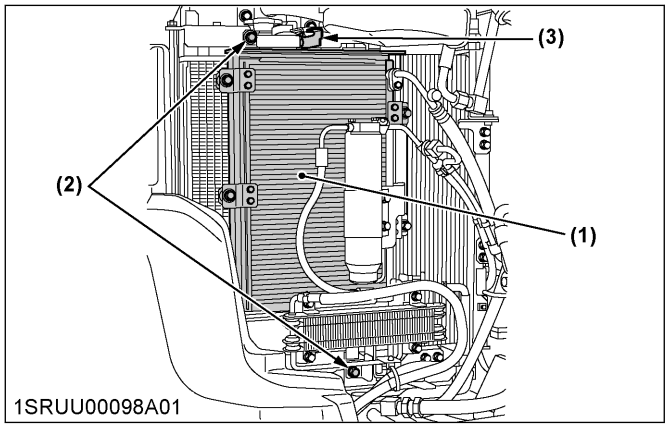
  (For details on inspecting hydraulic hoses, see PERIODIC REPLACEMENT OF PARTS on page 140.)
- **Do not touch hydraulic hoses or water hoses with your hand. You may get burned.**

IMPORTANT :

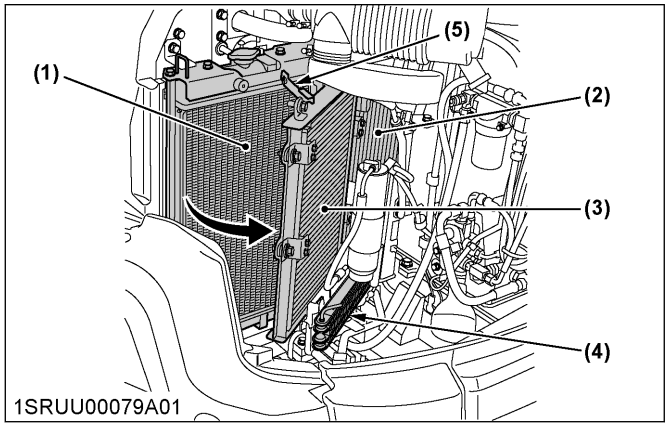
- **Radiator, oil cooler fins and ribs must be clean in order to avoid overheating the engine and to allow free flow of air through the cooling elements.**
- **Pressure of compressed air must be under 205 kPa (2.1 kgf/cm^2, 30 psi)**

Checking for dirt and cleaning

1. Check to see if the fins are clogged with dirt
2. If the fins are clogged, remove the dirt as follows, making sure to always wear eye protection when cleaning:
   a. Remove the bolts and pull the condenser forward from the left side.
   b. Drop the stopper down to lock the condenser into place.
   c. Remove any dirt from the coolant radiator, oil cooler, condenser, and fuel cooler using compressed air or a hose.
   d. Return all parts to their original positions.



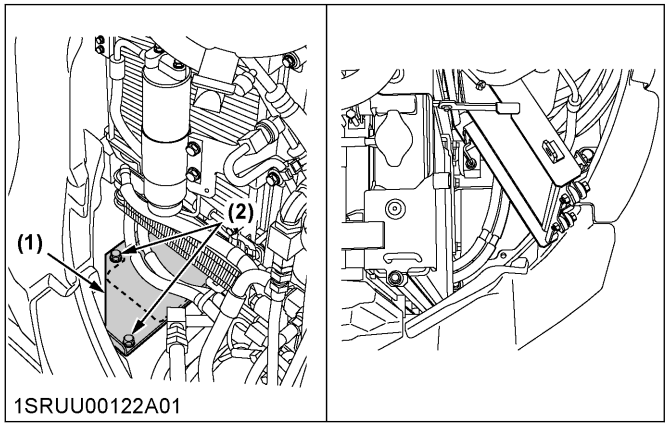
(1) Air conditioner condenser
(2) Bolt
(3) Stopper



(1) Coolant radiator
(2) Oil cooler
(3) Air conditioner condenser
(4) Fuel cooler
(5) Stopper

Discharging dust from the machine

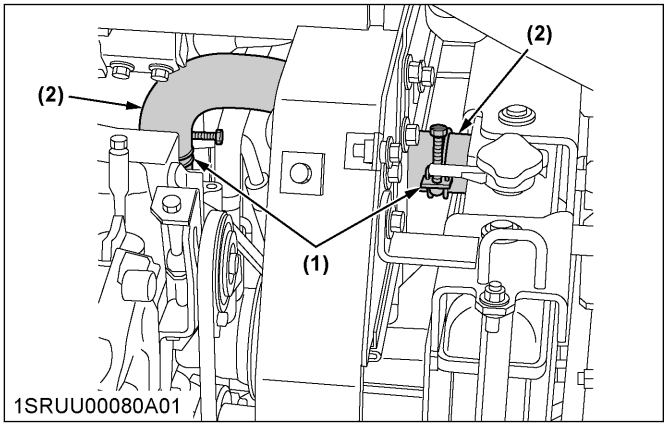
1. Remove the bolts.
2. Remove the dust cover.
3. Discharge the dust.
4. Reattach the dust cover.



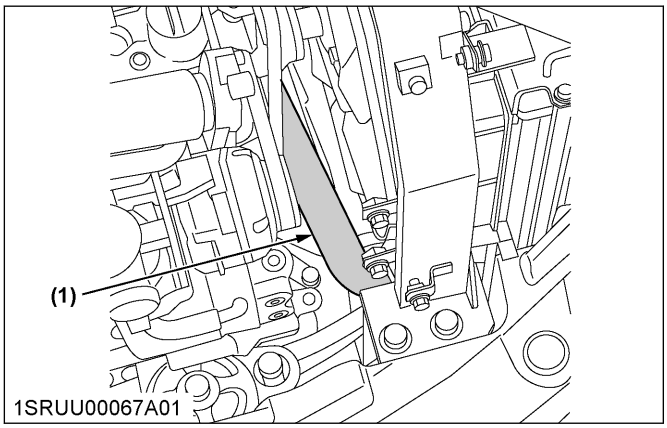
(1) Dust cover
(2) Bolt

Checking the rubber hoses and clamps

1. Check the rubber hoses for damage and replace if cracked or old.
2. If hose clamps are loose or water leaks, tighten the bands securely.



(1) Hose clamp
(2) Rubber hose



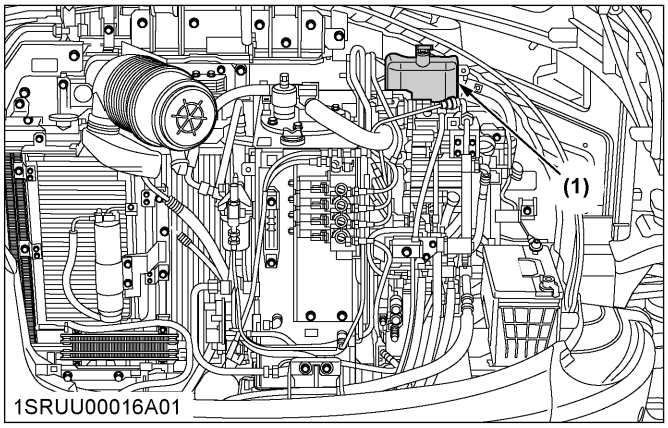
(1) Rubber hose

8. Checking the washer liquid

1. Check the level of the washer liquid in the tank.
2. Top up the washer liquid as necessary.

NOTE :

- **If the window washer is switched on while the washer liquid tank is empty, the motor may get damaged. Always keep the tank filled.**



(1) Washer liquid tank

9. Checking and cleaning the engine and electrical wiring

⚠ WARNING

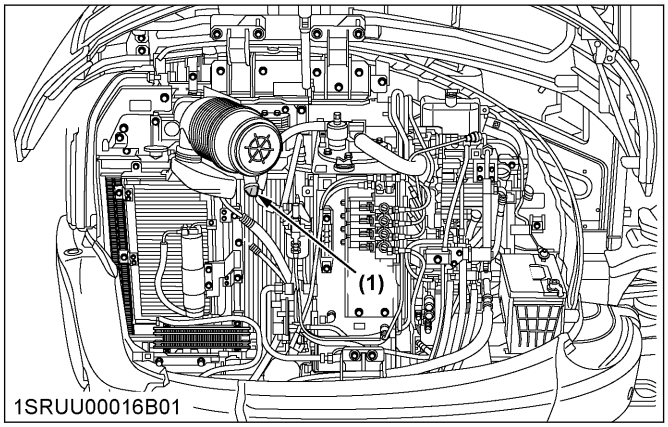
To avoid personal injury or death:

- **Always stop the engine and remove the key 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.

10. Checking the evacuator valve

1. Open the evacuator valve.
2. Get rid of large particles of dust and dirt.



(1) Evacuator valve

NOTE :

- **If the evacuator valve is missing or damaged, the air cleaner does not function properly. Accordingly, its element's service life will get shorter.**

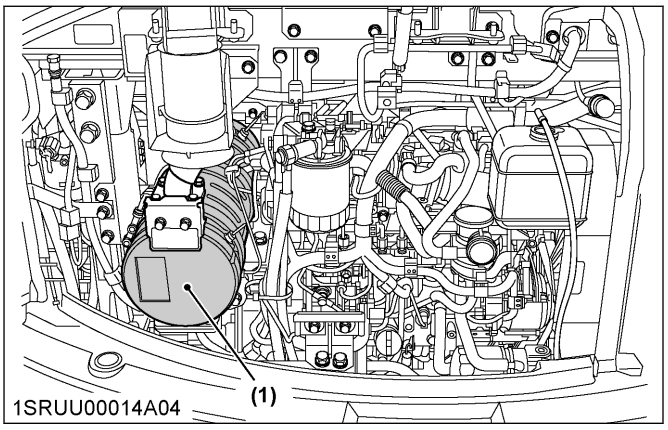
11. Checking the diesel particulate filter (DPF) muffler

WARNING

To avoid personal injury or death:

- **Before checking or cleaning the DPF muffler, stop the engine and wait long enough until it is cooled down.**

1. Check to make sure that nothing flammable is deposited around the DPF muffler.
   Otherwise a fire may result.



(1) DPF muffler

12. 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.

13. Greasing the front attachments

WARNING

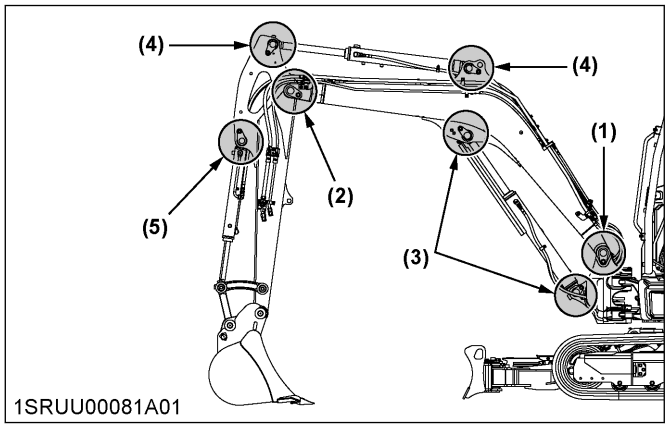
To avoid personal injury or death:

- **First, lower all attachments on the ground, stop the engine, and remove the key.**
- **While greasing, take care not to step on the bucket teeth.**

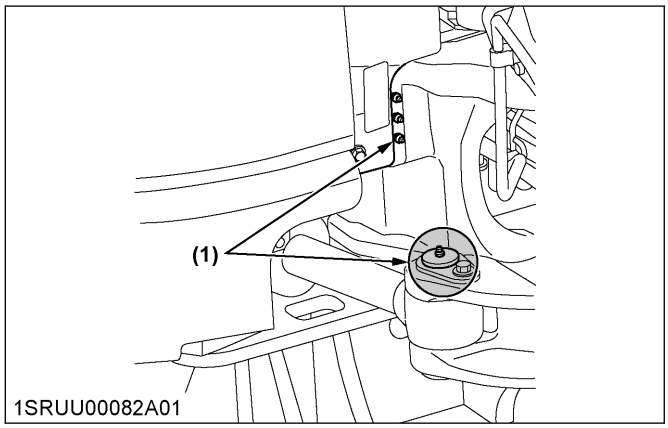
IMPORTANT :

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

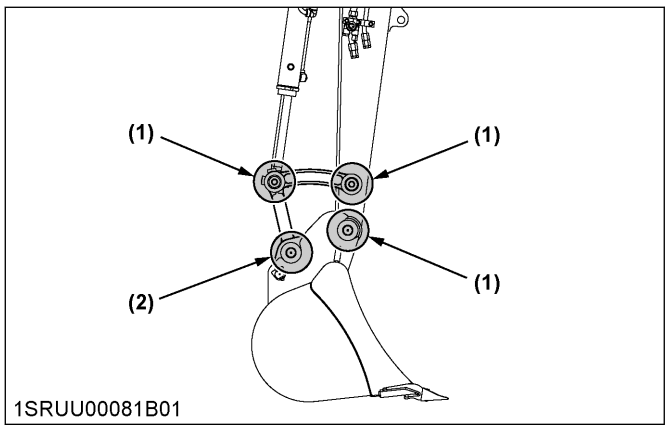
1. Grease the marked grease fittings shown in the following illustrations.



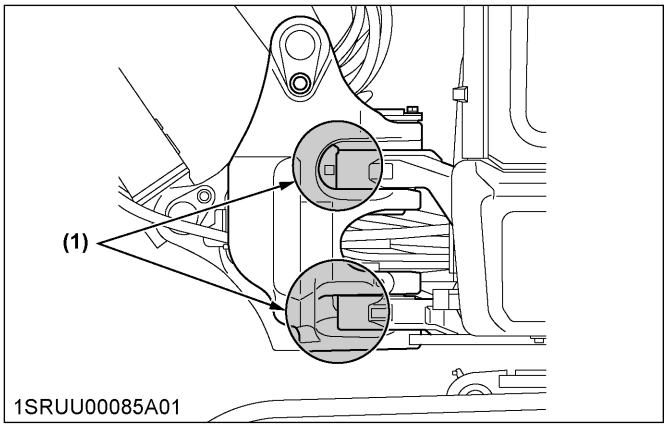
(1) Boom bottom linkage
(2) Arm bottom linkage
(3) Boom cylinder boss
(4) Arm cylinder boss
(5) Bucket cylinder boss



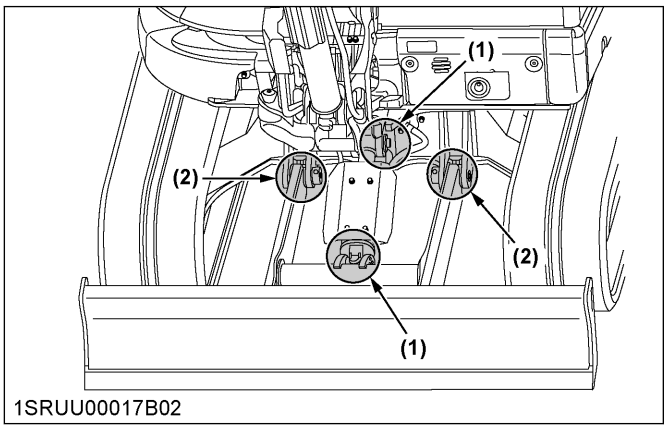
(1) Swing cylinder boss



(1) Bucket link pin
(2) Fixing pin between arm and bucket

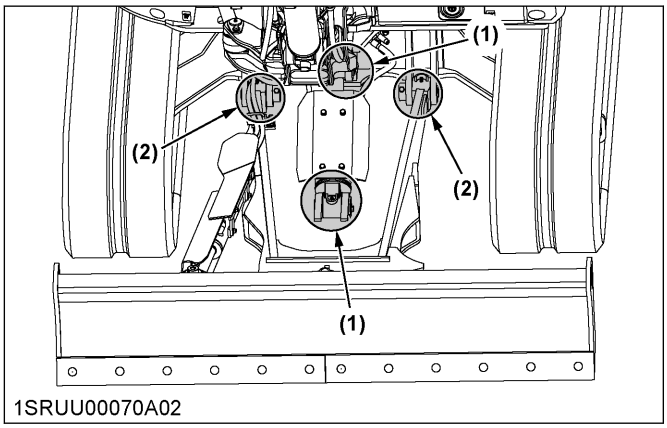


(1) Boom swing fulcrum



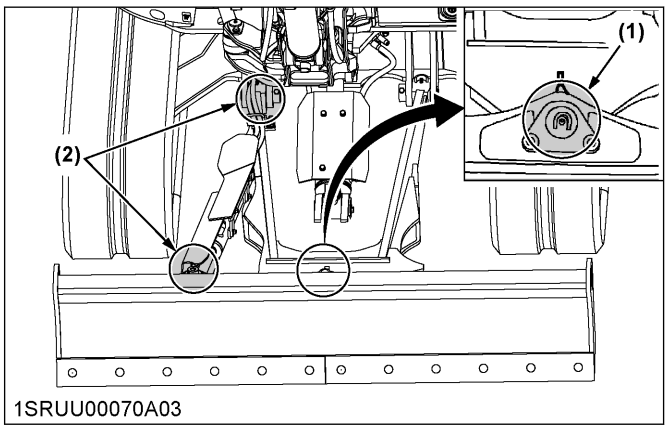
(1) Dozer cylinder boss
(2) Dozer linkage pin

[Angle blade type]



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

[Angle blade type]



(1) Angle pin
(2) Angle cylinder boss

REGULAR CHECKS AND MAINTENANCE WORK

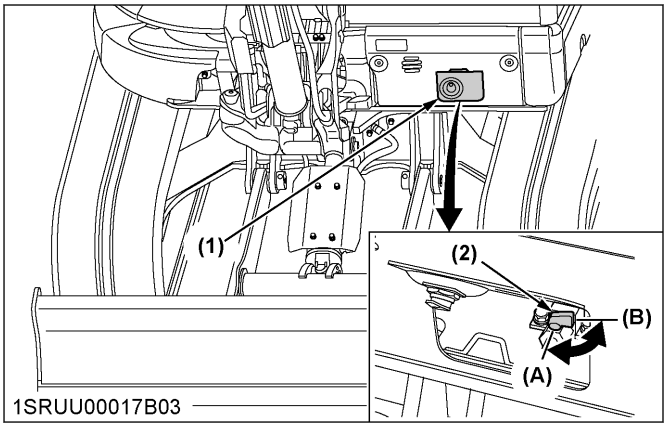
⚠ WARNING
To avoid personal injury or death:
- **When operating, keep hands and body inside the ROPS/OPG (top guard level I).**
- **Do not touch the control levers and the pedals from outside the CAB while the engine is running.**

EVERY 50 SERVICE HOURS

1. Draining water from the fuel tank

⚠ WARNING
To avoid personal injury or death:
- **Before draining water from the fuel tank, be sure to stop the engine and remove the key.**
- **Do not smoke during the inspection.**

1. Open the cover.
2. Open the drain shutoff-valve.



(1) Cover
(2) Drain shutoff-valve
(A) Open
(B) Close

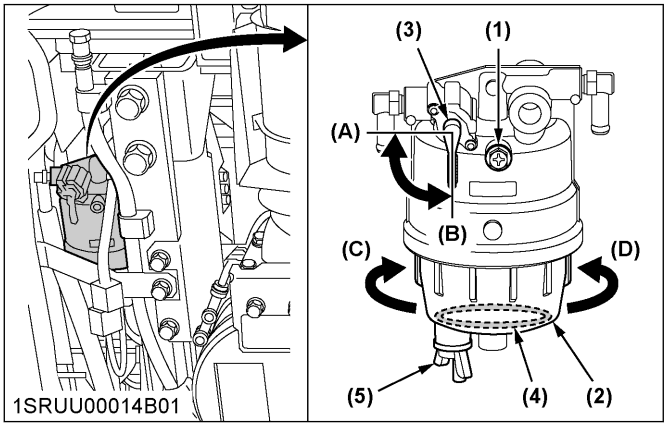
2. Draining the water separator

IMPORTANT :
- **In reattaching the water separator, be careful to keep off dust and dirt.**
- **Be sure to purge the fuel system before restarting the machine.**
  (See PURGING THE FUEL SYSTEM on page 132.)

Water and dirt contained in fuel will settle in the water separator. When deposits of such foreign substances build up, drain and clean the water separator as follows.

Draining
1. Set the shutoff-valve to the **[OFF]** position.
2. Loosen the top screw first and then loosen the drain plug to let the foreign substances out of the separator.
3. Air-bleed the fuel system.
4. Set the shutoff-valve to the **[ON]** position.

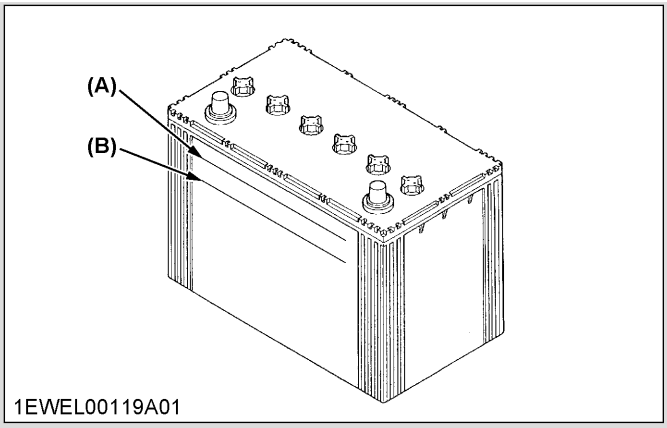
Cleaning
1. Set the shutoff-valve to the **[OFF]** position.
2. Loosen and remove the cup properly, and clean its inside with diesel fuel.
3. Tighten up the cup properly.
4. Set the shutoff-valve to the **[ON]** position.



(1) Screw
(2) Cup
(3) Shutoff-valve
(4) Float
(5) Drain plug
(A) OFF
(B) ON
(C) Loosen
(D) Tighten

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
(B) LOWER

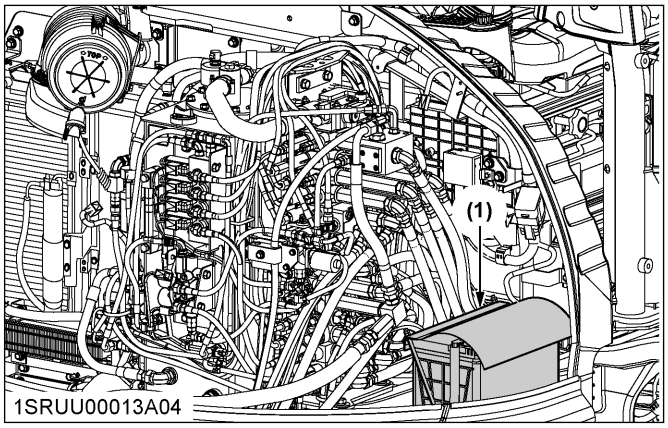
WARNING

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, be sure to 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.**

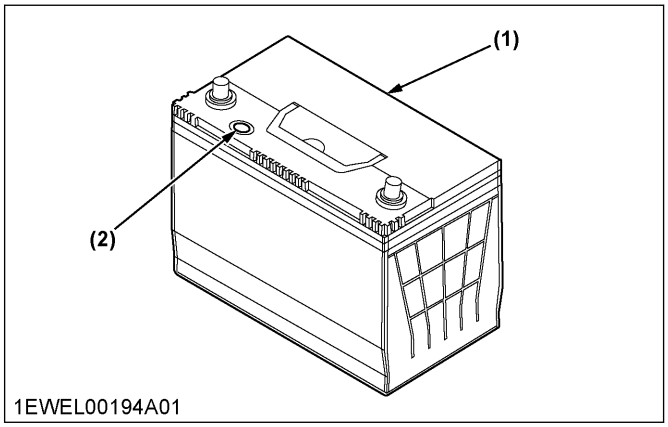
NOTE :

- **Mishandling the battery shortens the service life.**
- **The original battery is maintenance-free, but needs some servicing.**
- **If the battery is weak, 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. Open the side cover.
   (See Opening and closing the side cover on page 102.)
2. Check the battery condition by reading the indicator.



(1) Battery
(2) Indicator

3. 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 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, a battery of equal specification.

Battery Type	GP27(115D31L)
Volts (V)	12
Capacity at 5H.R(A.H)	72
Reserve capacity (minimum)	160
Cold cranking amps	710
Normal charging rate (A)	8

Directions for storage

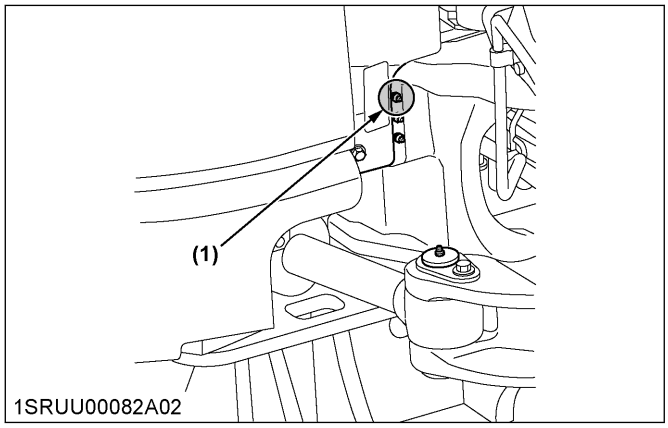
- When storing the machine for long periods of time, remove the battery from machine, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
- The battery self-discharges while it is stored.
  Recharge it once every three months in hot seasons and once every six months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

4. Greasing the swivel bearing teeth

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

NOTE :

- **Fill with approximately 50 g of grease, meaning approximately 20 to 30 pumps with the grease gun at each position.**
- **Distribute the grease over the teeth.**



(1) Grease fitting (for swivel bearing teeth)

EVERY 150 SERVICE HOURS

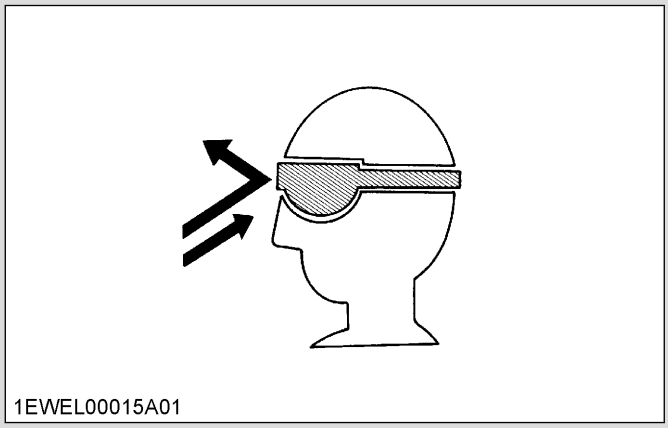
Carry out all the 50 hours servicings at the same time.

1. Cleaning the air conditioner filter

⚠ WARNING

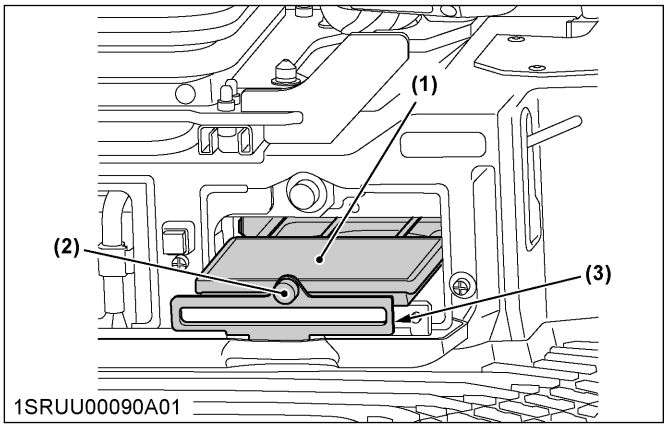
To avoid personal injury or death:

- **Wear eye protection.**



1. Open the cover under the operator's seat.
2. Remove the thumbscrew and the plate.

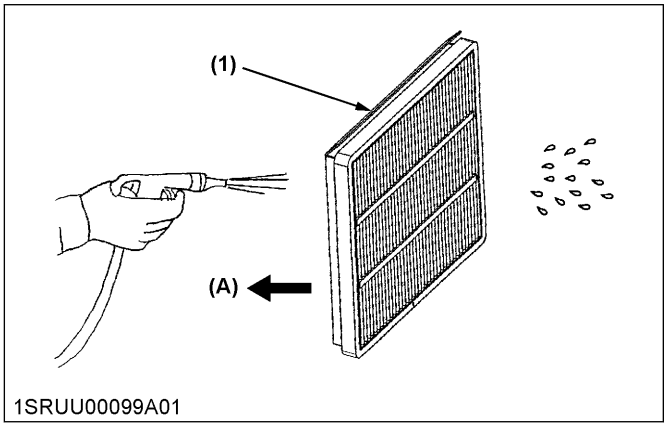
3. Remove the air conditioner filter.



(1) Air conditioner filter
(2) Thumbscrew
(3) Plate

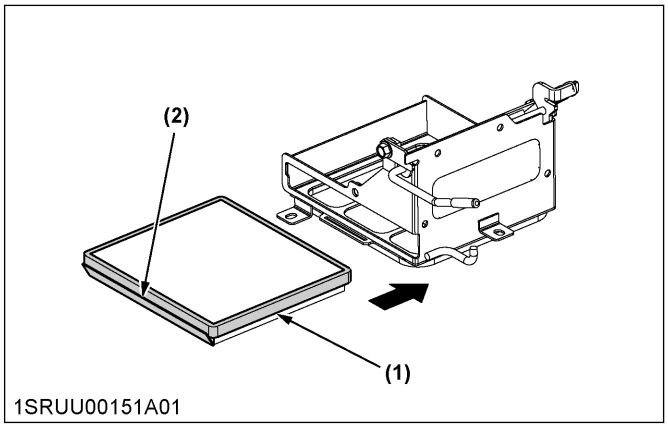
4. For normal use, blow air from the opposite direction to the filter's normal air flow.

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



(1) Air conditioner filter *(A) Air conditioner airflow*

IMPORTANT :
- **Do not hit the filter. If the filter becomes deformed, dust may enter the air conditioner, which may cause damage and malfunction.**
- **Set the filter with the cushion facing upward and the V-flap facing outward. Incorrect setting shortens the filter's service life.**



(1) Cushion
(2) V-flap

NOTE :
- **If the filter is very dirty, replace the Air conditioner filter.**

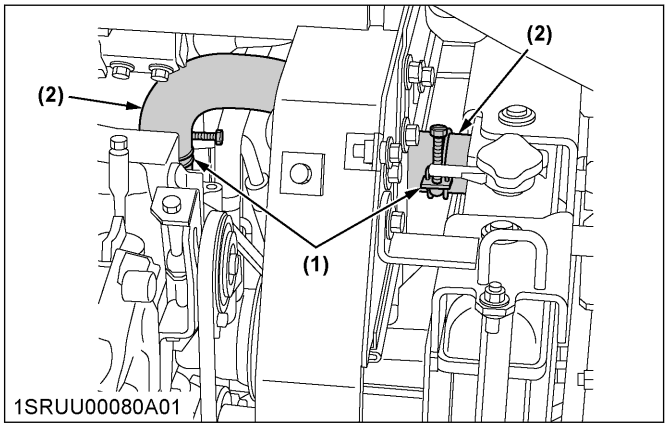
EVERY 200 SERVICE HOURS

Carry out all the 50 and 100 hours servicings at the same time.

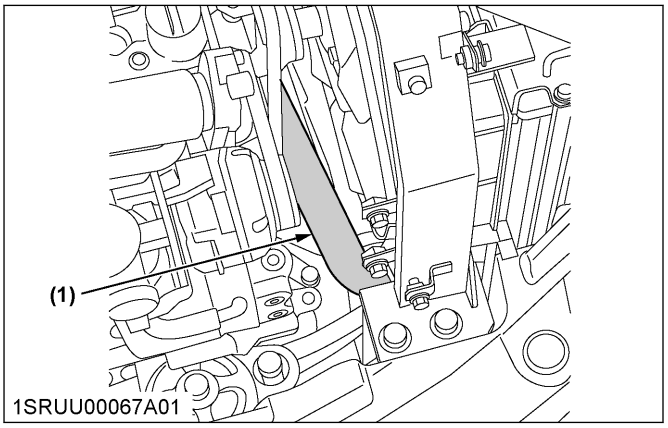
1. Checking the radiator hoses and clamps

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) Hose clamp
(2) Radiator hose



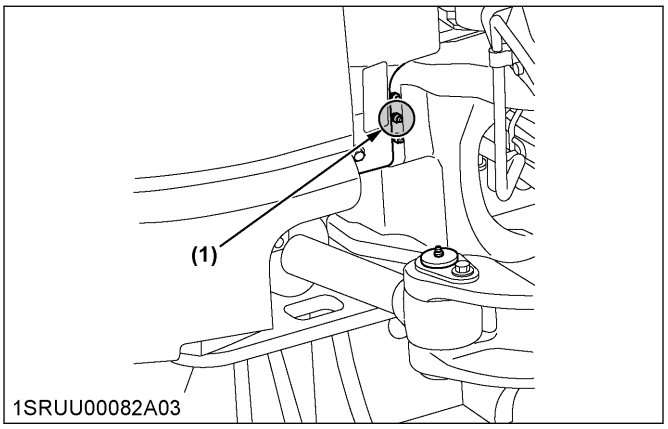
(1) Radiator hose

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.

2. 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.**

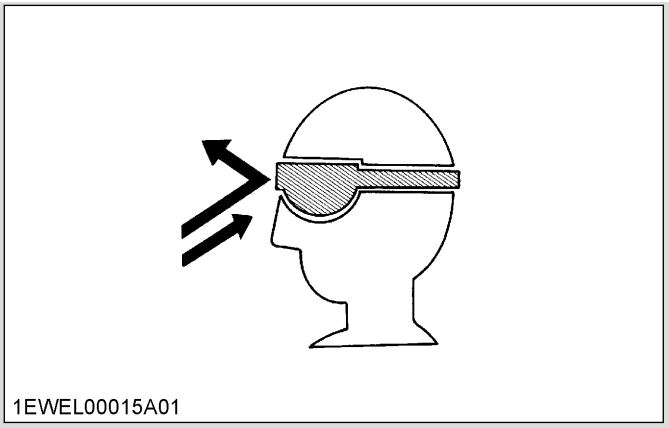


(1) Grease fitting

3. Inspecting and cleaning the air filter element

⚠ WARNING

To avoid personal injury or death:
- **Wear eye protection when cleaning the air filter element.**

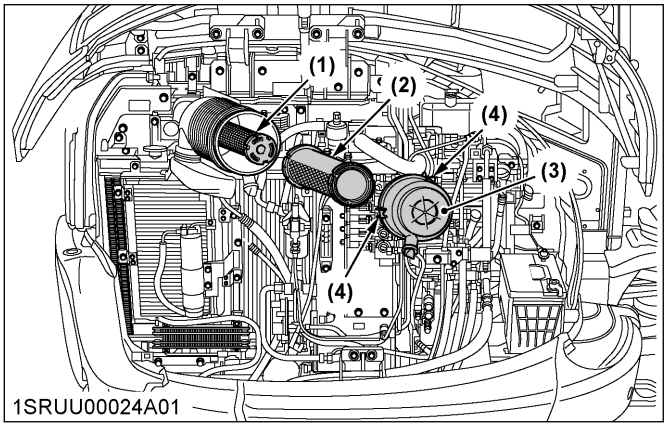


IMPORTANT :
- **Should the machine be used in extremely dusty areas, the air filter element must be inspected and cleaned more frequently than instructed in the specified maintenance periods.**
- **The air filter has a dry element so keep it free from oil.**
- **Do not run the engine without the air filter.**
- **Clean the air cleaner element regularly or foreign matters will be accumulated, which will make the DPF longevity shorter than expected and the cleaning efficiency of the DPF will be reduced.**

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

1. Open the side cover and remove the dust cover. (See Opening and closing the side cover on page 102.)
2. Remove only the outer element.

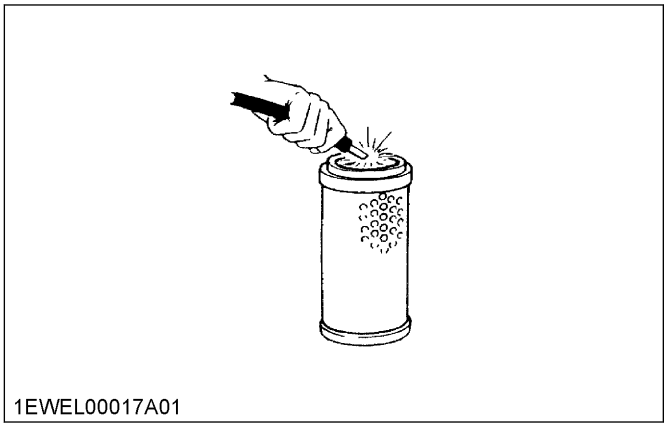
NOTE :
- **Do not remove the inner element.**



(1) Inner element
(2) Outer element
(3) Dust cover
(4) Clamp

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.**

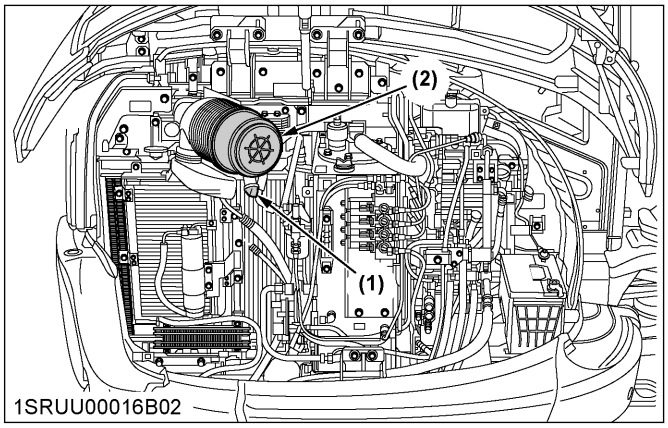
4. Reassemble the element taking care to install the dust cover so that the *"TOP"* mark (arrow) points upwards.

4. Cleaning the evacuator valve

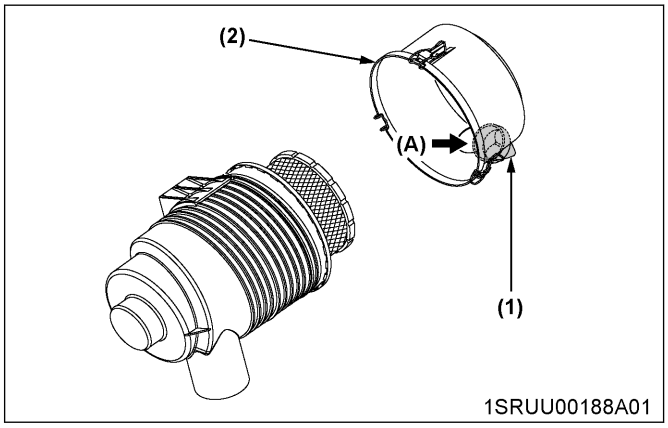
⚠ WARNING

To avoid personal injury or death:
- **Wear eye protection.**
- **While cleaning, foreign matters may drop out of the evacuator valve.**

1. Open the side cover.
   (See Opening and closing the side cover on page 102.)
2. Remove the dust cover.
3. From behind the dust cover, remove foreign matter from the evacuator valve.



(1) Evacuator valve
(2) Dust cover



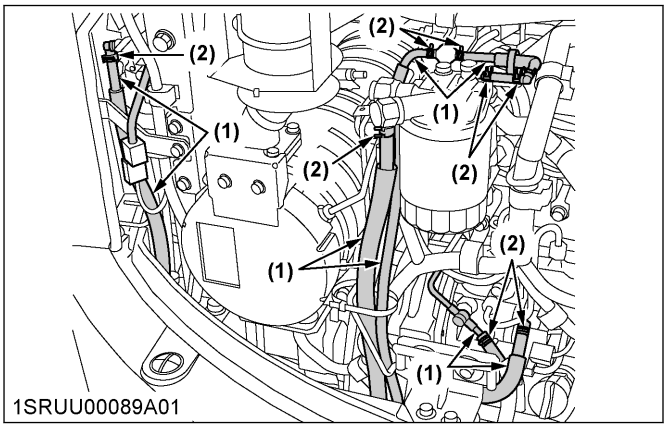
(1) Evacuator valve
(2) Dust cover
(A) Clean from behind

IMPORTANT :
- **Failure to clean the evacuator valve may shorten the air cleaner element's service life.**

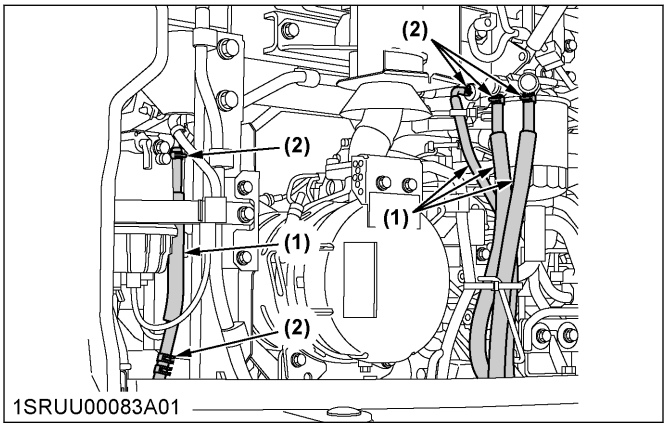
5. Checking the fuel line and intake air line

1. Check to see that all lines and hose clamps are tightened and not damaged.

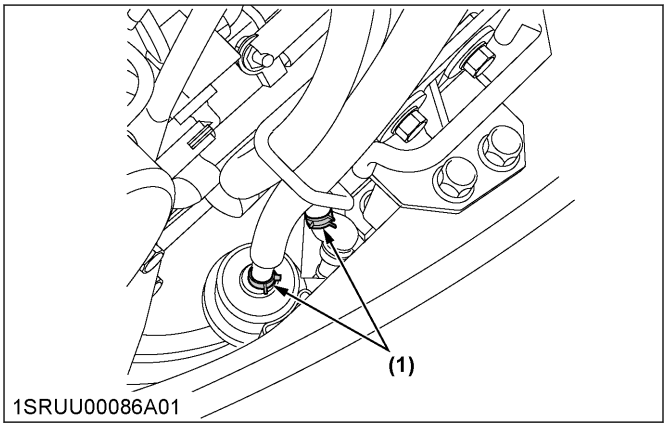
2. If hoses and clamps are found worn or damaged, replace or repair them at once.



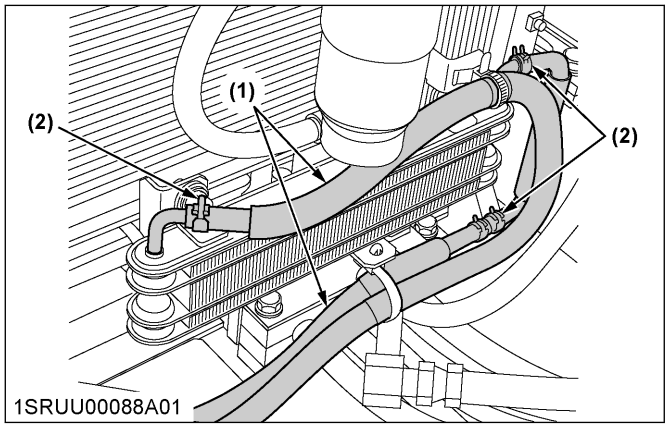
(1) Fuel line
(2) Clamp band



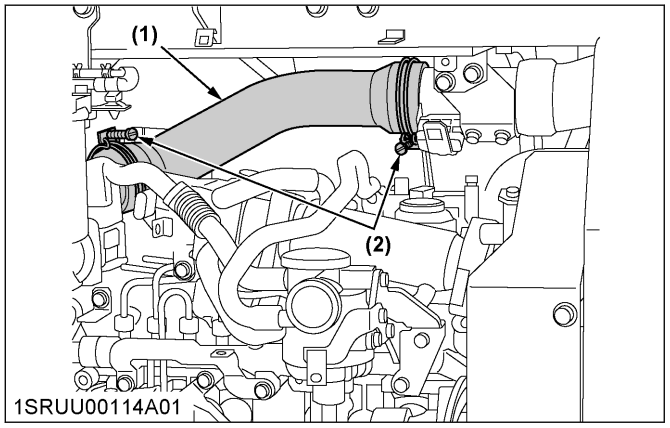
(1) Fuel line
(2) Clamp band



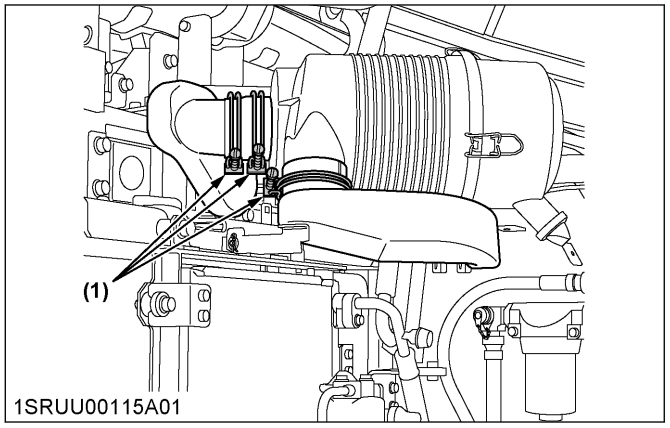
(1) Clamp band



(1) Fuel line
(2) Clamp band



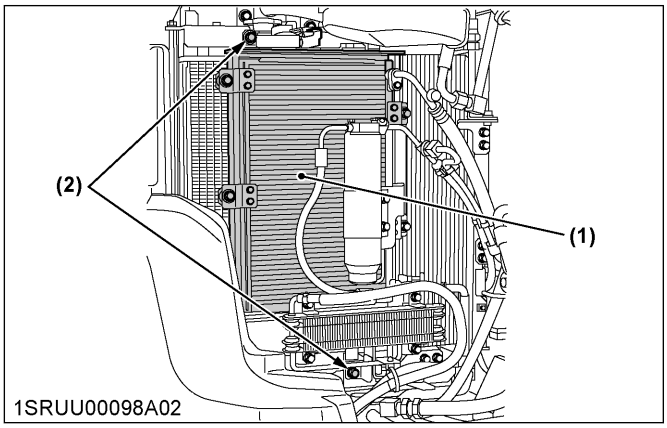
(1) Hose
(2) Hose clamp



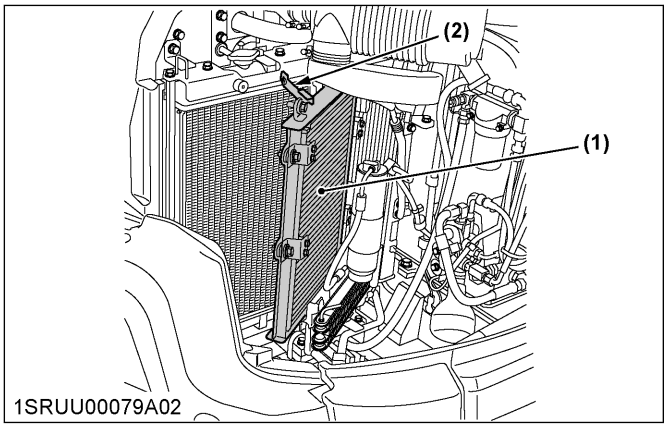
(1) Hose clamp

6. Checking the air conditioner condenser

1. Check the air conditioner condenser to make sure it is clean from debris.



(1) Air conditioner condenser
(2) Bolt



(1) Air conditioner condenser
(2) Stopper

EVERY 250 SERVICE HOURS

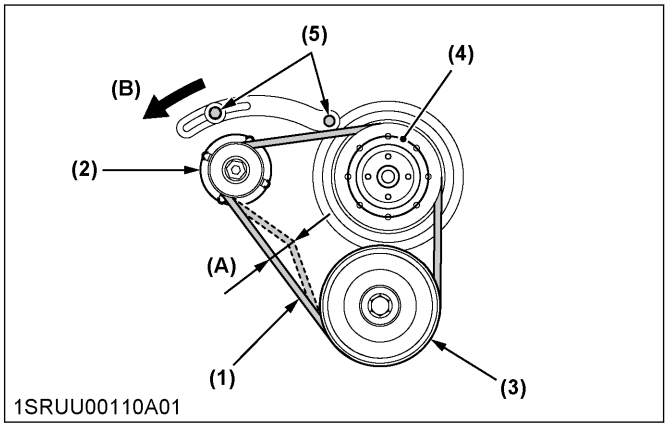
Carry out all 50 hour servicings at the same time.

1. Adjusting the V-belt tension

⚠ WARNING
To avoid personal injury or death:
- **First, stop the engine and remove the key.**
- **After servicing, make sure to put back the belt cover in its original position.**

1.1 Checking and adjusting the fan belt tension

IMPORTANT :
- **If the engine is run with a loose fan belt, the belt could slip and cause insufficient battery charging. Check the fan belt tension regularly.**
- **If the fan belt breaks or jumps off, the indicator light for battery charge will light up. Stop the engine and remove the key immediately.**



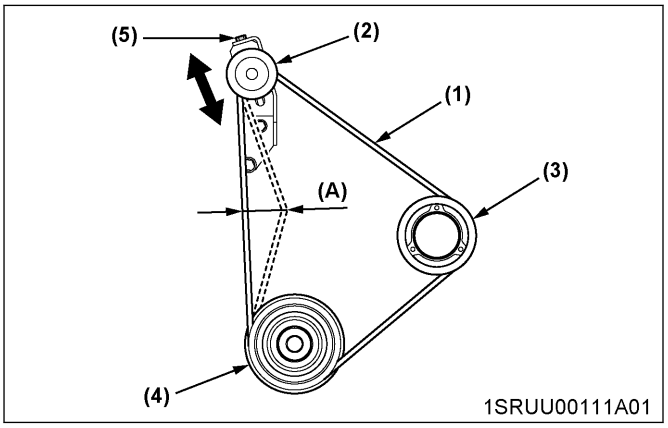
(1) Fan belt
(2) Alternator
(3) Pulley
(4) Fan pulley
(5) Bolt and nut
(A) 7 mm to 9 mm (0.28 in. to 0.35 in.)
(B) Tighten

Checking
1. Press the fan belt in the middle, with a force of approximately 58.8 N to 68.6 N (6 kgf to 7 kgf,13.2 lbf to 15.4 lbf).
   The belt tension is correct if it deflects about 7 mm to 9 mm (0.28 in. to 0.35 in.).
2. Replace the fan belt if worn out, cracked or torn.

Adjusting
1. Loosen the bolt.
2. Shift the alternator in the direction shown by the arrow.

1.2 Checking and adjusting the air conditioner V-belt tension [CAB type only]

IMPORTANT :
- **If the engine is run with a loose air-conditioner belt, the belt could slip and cause insufficient room temperature control. Check air-conditioner belt tension regularly.**



(1) Air conditioner V-belt
(2) Tension pulley
(3) Air conditioner compressor
(4) Pulley
(5) Bolt
(A) 12 mm to 15 mm (0.47 in. to 0.59 in.)

Checking

1. Press the air conditioner V-belt in the middle, with a force of approximately 58.8 N to 68.6 N (6 kgf to 7 kgf,13.2 lbf to 15.4 lbf).
   The belt tension is correct if it deflects about 12 mm to 15 mm (0.47 in. to 0.59 in.).
2. Replace the air conditioner V-belt if worn out, cracked or torn.

Adjusting

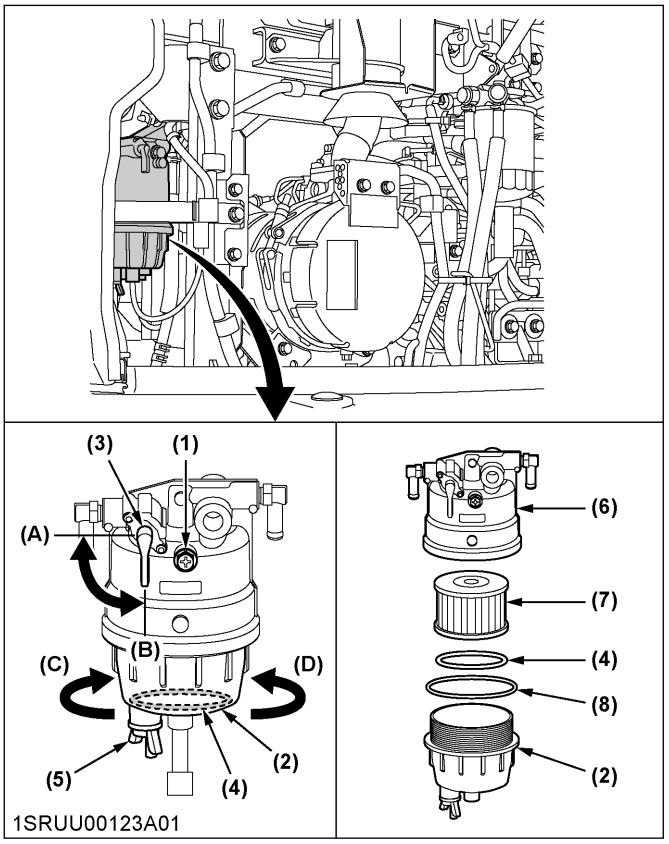
1. Loosen the nut of the tension pulley and the bolt of the tension pulley.
2. Adjust the tension pulley in the direction shown in the illustration.

EVERY 500 SERVICE HOURS

Carry out all the 50 and 250 hour servicings at the same time.

1. Replacing the water separator filter element

1. Set the shutoff-valve to the **[OFF]** position.
2. Loosen and completely remove the cup.
3. Replace the filter element.
4. Check the condition of the O-ring and replace if necessary.
5. Fully tighten up the cup.
6. Set the shutoff-valve to the **[ON]** position.



(1) Screw
(2) Cup
(3) Shutoff-valve
(4) Float
(5) Drain plug
(6) Head cover
(7) Filter element
(8) O-ring
(A) OFF
(B) ON
(C) Loosen
(D) Tighten

IMPORTANT :

- **Users must take appropriate actions to insure fuel is not contaminated during the operation.**
- **If water or fuel is spilled, wipe around the water separator.**

2. Changing the engine oil

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

⚠ WARNING

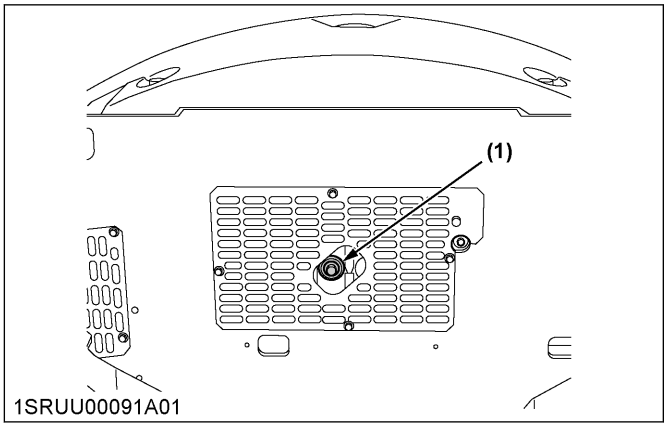
To avoid personal injury or death:

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

IMPORTANT :

- **Regardless of the service hours, the engine oil change is due every year.**
- **Use engine oil API service classification CJ-4 or CK-4.**

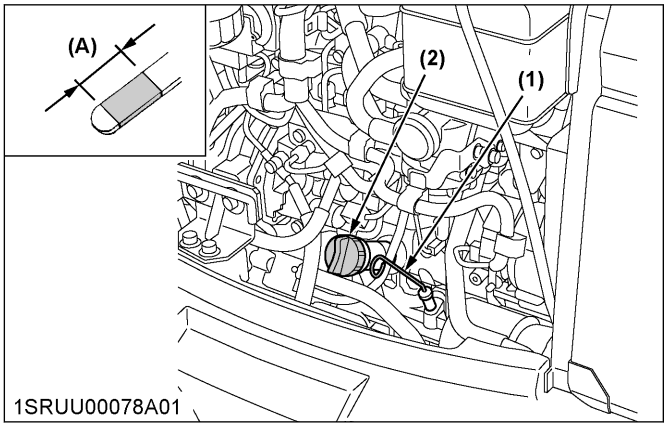
1. Remove the drain plug on the underside of the engine, and drain the oil completely.
2. Retighten the drain plug.



(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)	10.2 L (2.69 U.S.gals)



(1) Engine oil dipstick
(2) Oil filing port
(A) Required oil level range

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 two markings, do not add any additional oil.

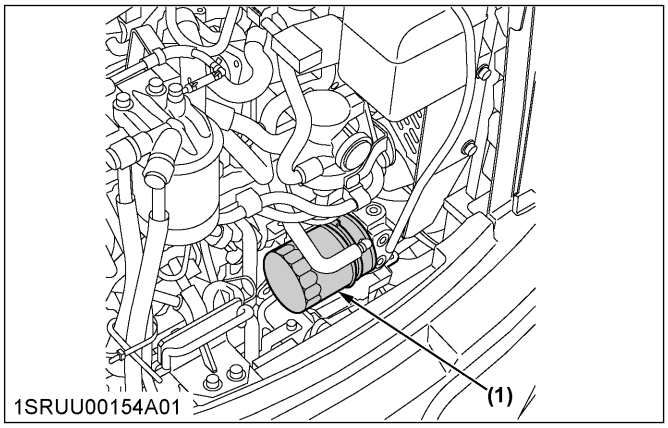
3. Replacing the engine oil filter cartridge

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 and remove the key.
6. As the engine oil level is reduced by the amount of the filter capacity after the engine is started, add oil as necessary.

4. Changing the drive unit oil

The first oil change is after 50 service hours.

⚠ WARNING

To avoid personal injury or death:

- **Lower all attachment to the ground, stop the engine, and remove the key before undertaking the oil change.**

NOTE :

- **The first oil change is after 50 hours.**
- **The normal oil change period is every 500 hours.**
- **Change the oil at least once a year.**

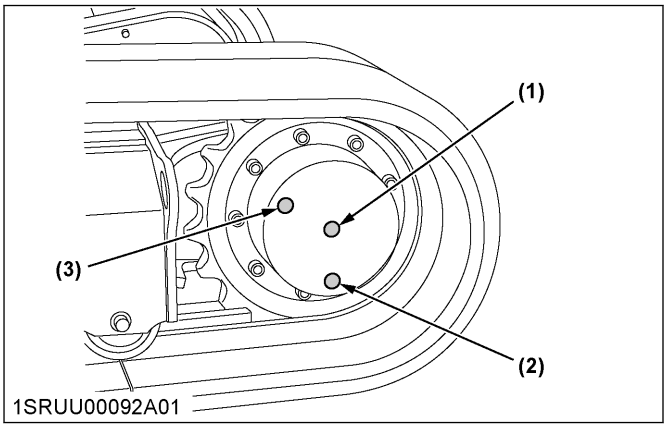
1. Rotate the track so that the drain plug of the drive unit is in the bottom position.
2. Remove the drain plug to let the oil run out.
3. Screw in and tighten the drain plug again and fill gear oil through the oil filling port.

Gear oil volume	Approximately 0.9 L (0.2 U.S.gals)

NOTE :

- **Use prescribed gear oil SAE 90.**

4. Fill oil until it overflows from the oil check port.

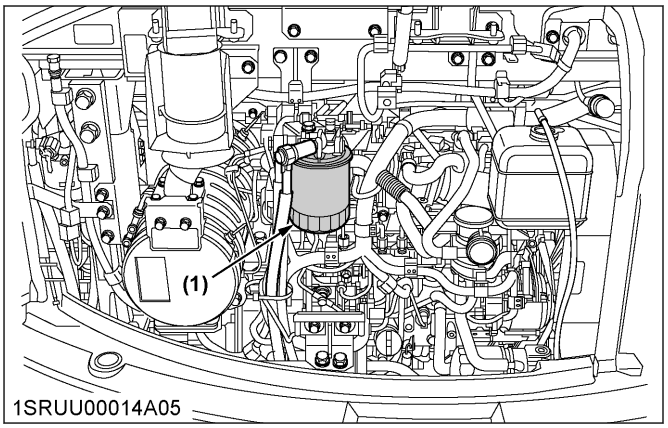


(1) Oil check port
(2) Drain plug
(3) Oil filling port

5. Replacing the fuel filter cartridge

WARNING
To avoid personal injury or death:
- **Keep away from fire.**

1. Remove the filter with the filter wrench.
2. Apply a light film of fuel to the seal of the new filter and fix it tightly into position by hand.



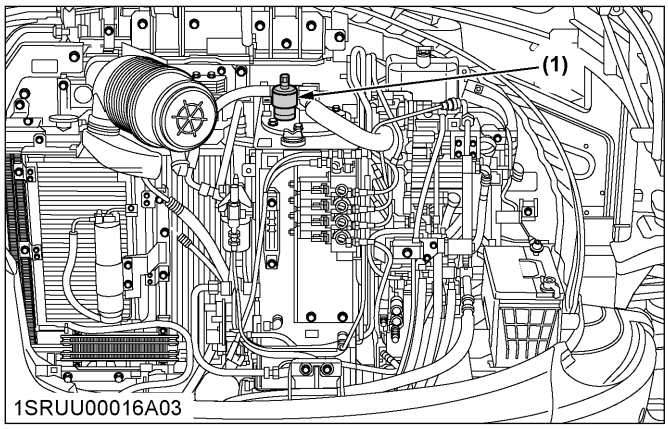
(1) Fuel filter cartridge

IMPORTANT :
- **After replacing the filter, the fuel system must be purged of air.**
- **If you do not replace the fuel filter cartridge regularly, the cleaning efficiency of the DPF will be reduced and the DPF longevity will be shorter than expected.**
- **Users must take appropriate actions to insure fuel is not contaminated during the operation.**
  If fuel is spilled, wipe around the filter.

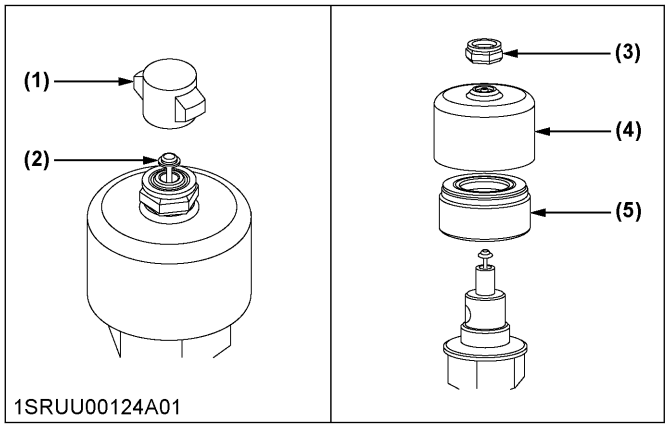
6. Replacing the breather filter

WARNING
To avoid personal injury or death:
- **There is a risk of being injured by hot pressurized hydraulic oil. Make sure that the oil has cooled down sufficiently, and then release the pressure before performing this service.**

IMPORTANT :
- **Be sure to maintain the utmost cleanliness when servicing the hydraulic system.**



(1) Breather filter



(1) Cap nut
(2) Button
(3) Nut
(4) Cover
(5) Breather filter

1. Open the side cover
   (See Opening and closing the engine hood on page 102.)
2. Unscrew the cap nut.
3. Push the button to release the pressure.
4. Unscrew the nut and remove the cover.

5. Take out the breather filter and replace it with a new one.

   NOTE :
   - **Dispose of cleaning cloths and the old filter element in accordance with applicable environmental protection regulations.**

6. Tighten the cover and the nut and install the cap nut.
7. Close the side cover.

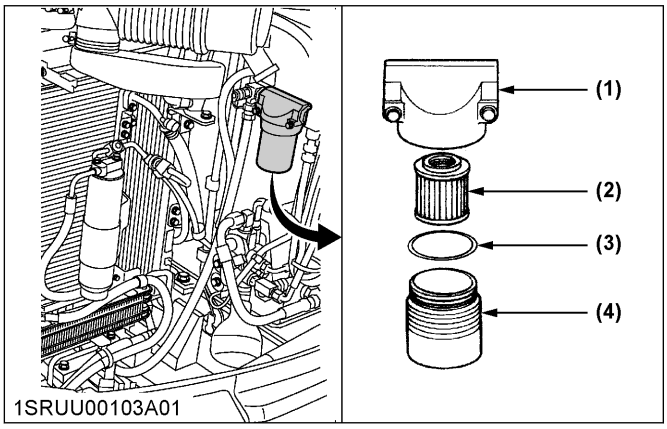
EVERY 1000 SERVICE HOURS

Carry out all the 50, 200, 250, and 500 hour servicings at the same time.

1. Replacing the hydraulic pilot filter element

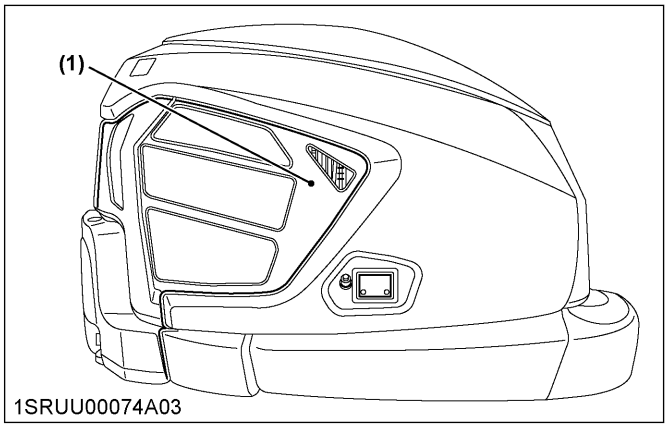
WARNING

To avoid personal injury or death:
- **Before replacing the element, wait long enough for the hydraulic fluid to cool down.**



(1) Head cover
(2) Element
(3) O-ring
(4) Case

1. Open the side cover.



(1) Side cover

2. Remove the pilot filter case from the head cover.
3. Wrench and pull out the element downward.
4. Replace the O-ring with a new one.
5. Apply a light coating of clean hydraulic oil to the O-ring and fit it to the case firmly. Be careful not to scratch the O-ring.
6. Attach the case to the head cover firmly.
7. Let the engine run for approximately 3 minutes.
8. Check the oil level of hydraulic oil tank, then tighten the oil filling plug.

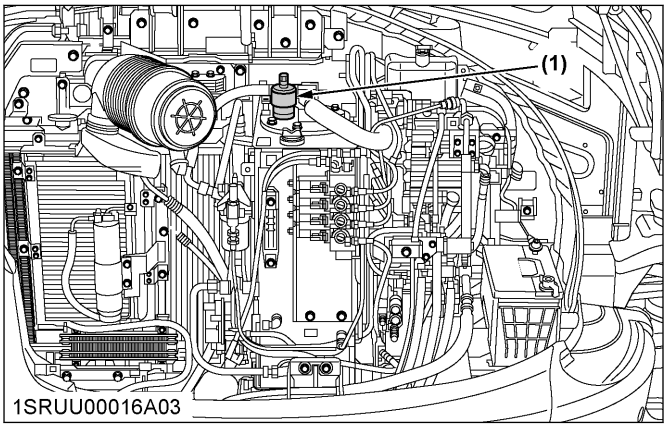
IMPORTANT :
- **Users must take appropriate actions to insure hydraulic oil is not contaminated during the operation.**
  If hydraulic oil is spilled, wipe around the filter.

2. Replacing the hydraulic return filter element

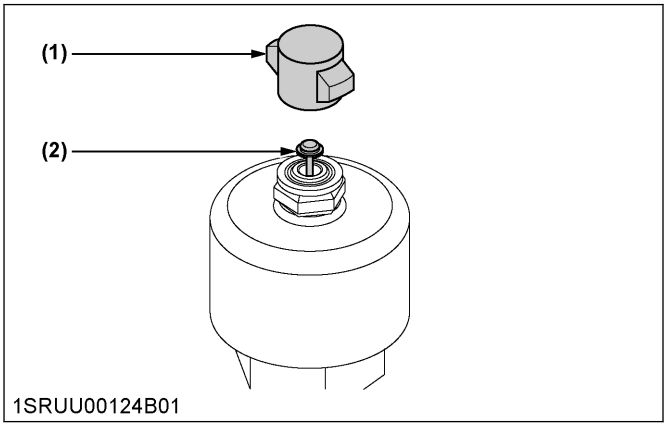
WARNING

To avoid personal injury or death:
- **Remove the oil filter element only after the oil in the hydraulic tank has cooled down.**
- **There is a risk of being injured by hot pressurized hydraulic oil. Make sure that the oil has cooled down sufficiently, and then release the pressure before performing this service.**

1. Open the side cover.
   (See Opening and closing the side cover on page 102.)
2. Unscrew the cap nut on top of the breather filter, and push the button to release the pressure.

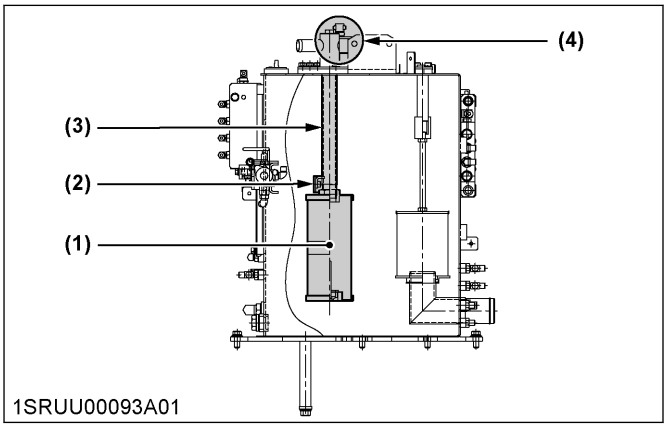


(1) Breather filter



(1) Cap nut
(2) Button

3. Hold the filter support top and take the filter out of the tank.
4. Loosen the set bolt first and then detach the return filter from its support. Replace the filter with new one.
5. Take out and replace the breather filter with new one.
   (See Replacing the breather filter on page 121.)



(1) Return filter
(2) Set bolt
(3) Filter support
(4) Breather filter

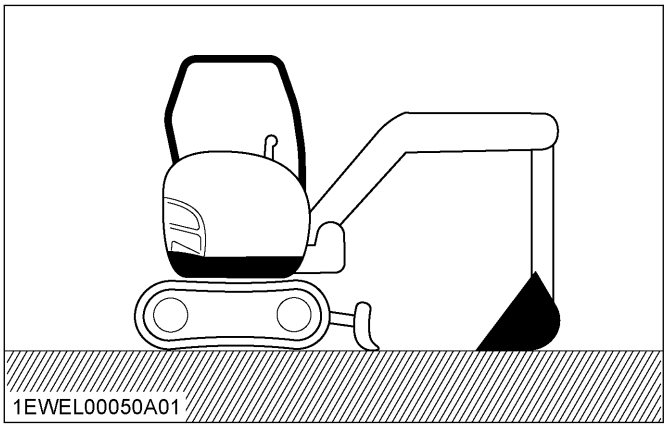
IMPORTANT :
- **Always check the oil level after replacing the filter.**
- **Users must take appropriate actions to insure hydraulic oil is not contaminated during the operation.**
  If hydraulic oil is spilled, wipe around the hydraulic tank.

3. Changing the hydraulic oil (including replacing the suction filter)

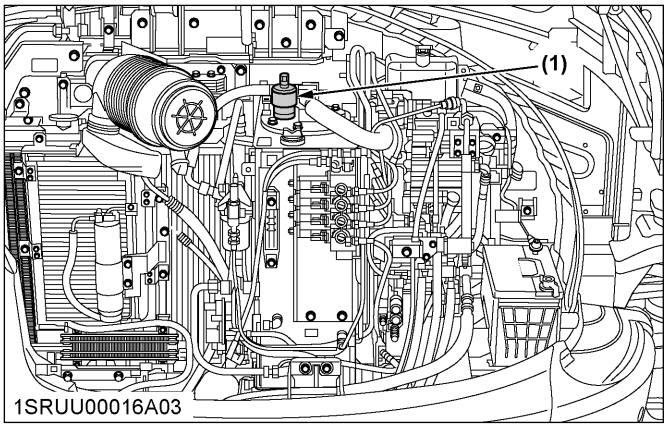
⚠ WARNING
To avoid personal injury or death:
- **Wait long enough for the hydraulic fluid to cool down. Then, begin replacing the hydraulic fluid.**
- **There is a risk of being injured by hot pressurized hydraulic oil. Make sure that the oil has cooled down sufficiently, and then release the pressure before performing this service.**

IMPORTANT :
- **Users must take appropriate actions to insure hydraulic oil is not contaminated during the operation.**
- **If hydraulic oil is spilled, wipe around the hydraulic tank.**

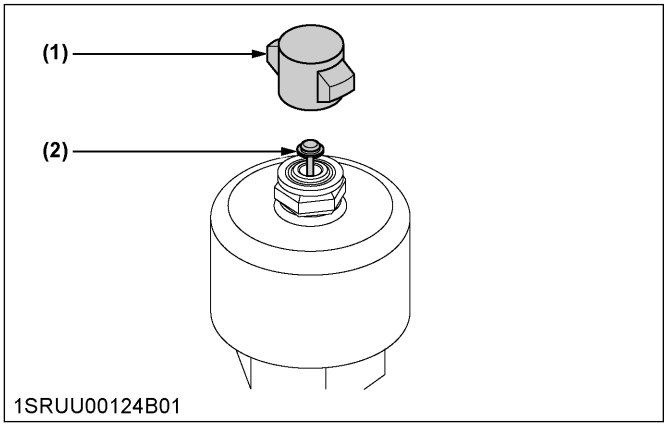
1. Park the machine on a firm, flat and level surface. Lower the attachments and dozer blade to the ground and stop the engine.



2. Open the side cover
   (See Opening and closing the side cover on page 102.)
3. Unscrew the cap nut on top of the breather filter, and push the button to release the pressure.

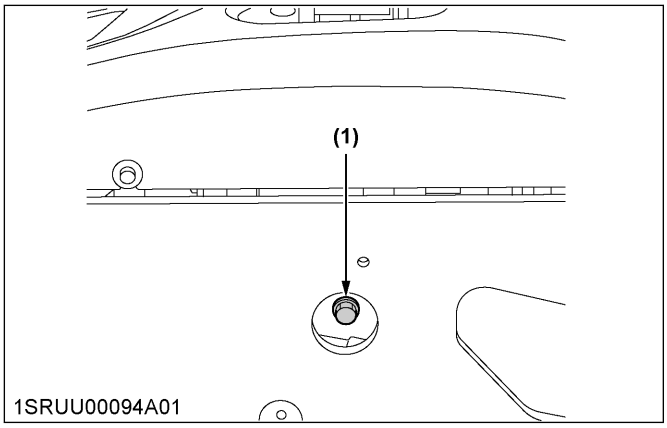


(1) Breather filter



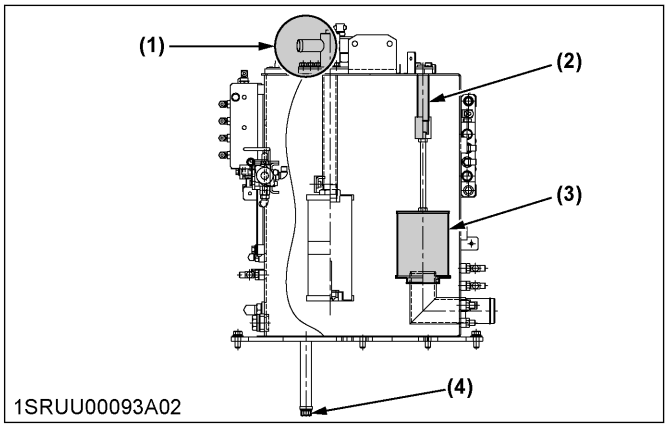
(1) Cap nut
(2) Button

4. Remove the drain plug located on the underside of the hydraulic tank and drain the oil.



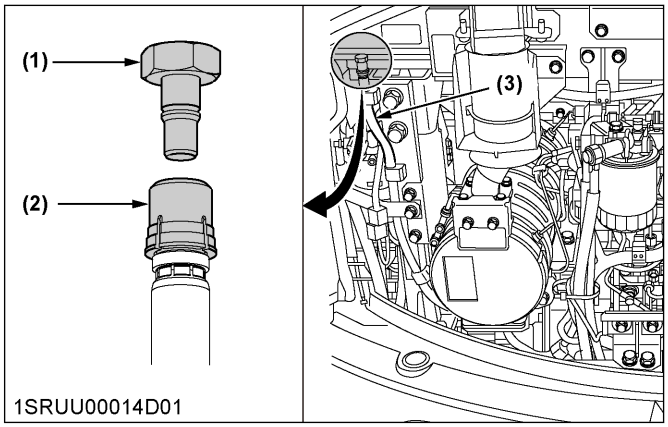
(1) Drain plug

5. Remove the suction filter lock pin and detach the suction filter.
6. Replace the filter with new one.
7. Retighten the drain plug.



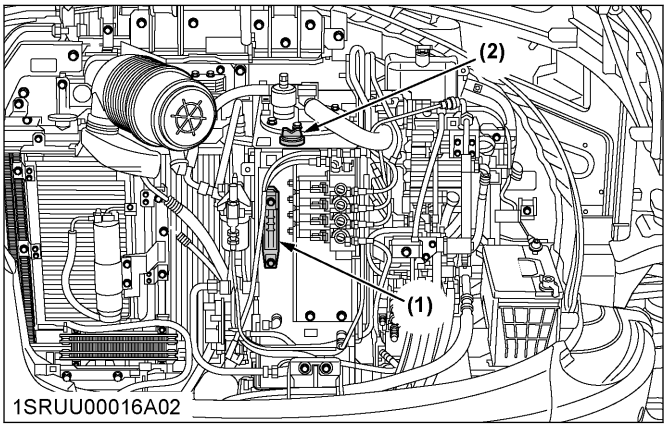
(1) Oil filling plug
(2) Pin
(3) Suction filter
(4) Drain plug

8. Open the engine hood.
   (See Opening and closing the engine hood on page 102.)
9. Press in both the hexagonal plug and the black plastic lock section of the air bleed hose for the hydraulic pump in the direction of the hose, and pull out the hexagonal plug while holding the black plastic lock.



(1) Hexagonal plug
(2) Black plastic lock section
(3) Air bleed hose

10. Fill with oil through the oil filling opening on the top side of the tank up to the center of the gauge.



(1) Gauge
(2) Oil filling plug

Hydraulic oil volume	Hydraulic tank	42 L (11.1 U.S.gals)
	Whole oil volume	77 L (20.3 U.S.gals)

11. Reinsert the hexagonal plug into the hose.
12. Install the hydraulic tank cover and tighten the oil filling plug.

IMPORTANT :
- **Before starting the engine, make sure that the filler plug of hydraulic tank is properly tightened and the hexagonal plug of the air bleed hose for the hydraulic pump is fully inserted.**

4. Checking the hydraulic oil (hydraulic hammer operation)

The hydraulic oil change after 1000 operating hours in the operator's manual is based on a standard machine. The following inspection measures are valid when a hydraulic hammer is used:

Changing and filling up with hydraulic oil
- The hydraulic oil must be changed more often when a hydraulic hammer is used because the machine is subject to harder conditions than standard excavating work.
- Use only the recommended oils mentioned in the operator's manual when changing or filling with oil.
- When filling up with oil, do not mix oils of different brands.

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

		Hydraulic oil	Return filter	Suction filter
Normal work		Every 1000 hrs	Every 1000 hrs	Every 1000 hrs
Hammer work proportion	20%	Every 800 hrs	Every 800 hrs	
	40%	Every 400 hrs	Every 400 hrs	
	60%	Every 300 hrs	Every 300 hrs	
	More	Every 200 hrs	Every 200 hrs	

5. Checking the engine valve clearance

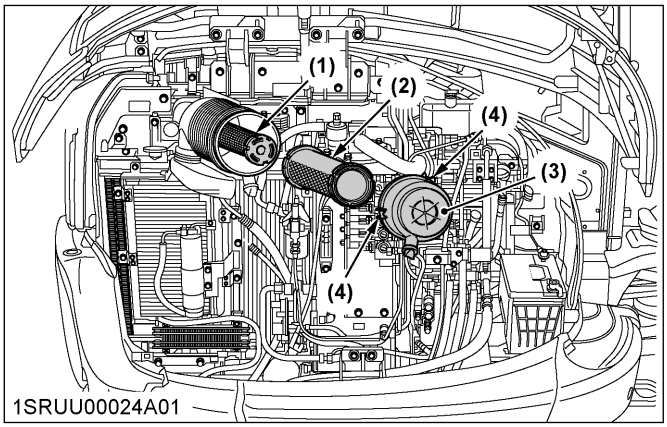
Consult your local Kubota dealer for this service.

EVERY 1000 SERVICE HOURS OR ONCE A YEAR

1. Replacing the air filter element

IMPORTANT :
- **Replacement of the air filter components may be required when the machine is used in extreme conditions.**
- **Replace the air cleaner element regularly or foreign matters will accumulate, which will shorten the life expectancy of the DPF and reduce the cleaning efficiency of the DPF.**

1. Open the side cover and remove the dust cover. (See Opening and closing the side cover on page 102.)
2. Remove and replace the outer element and inner element with new elements.



(1) Inner element
(2) Outer element
(3) Dust cover
(4) Clamp

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

EVERY 1500 SERVICE HOURS

Carry out all the 50, 150, 250, and 500 hour servicings at the same time.

1. Checking the injector tip

Consult your local Kubota dealer for this service.

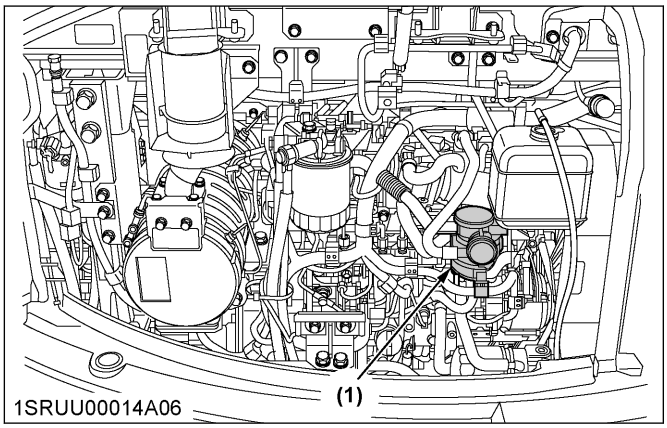
2. Replacing the oil separator element

⚠ WARNING

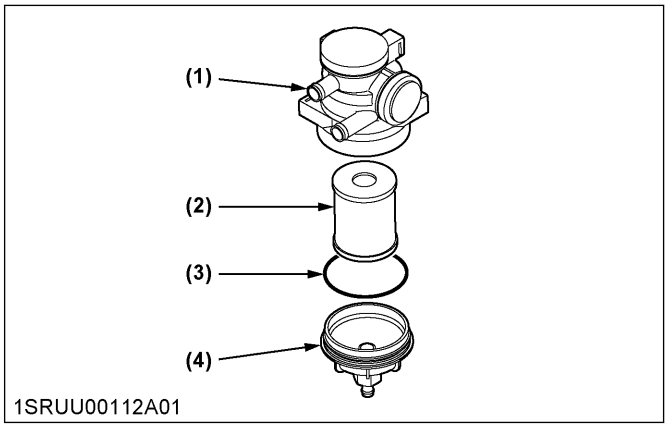
To avoid personal injury or death:

- **Be sure to stop the engine before replacing the oil-separator element.**

1. Remove the cover and remove the oil-separator element.
2. Wipe off the oil and the carbon in the case with a clean rag.
3. Fit a new oil-separator element and O-ring.
4. Tighten the cover until a cover comes in contact with body.



(1) Oil separator



(1) Body
(2) Oil separator element
(3) O-ring
(4) Cover

3. Checking the EGR cooler

Consult your local Kubota dealer for this service.

EVERY 2000 SERVICE HOURS

Carry out all the 50, 200, 250, 500, and 1000 hour servicings at the same time.

1. Changing the front idler and track roller oil

Consult your local Kubota dealer for this service.

2. Checking the alternator and starter motor

Consult your local Kubota dealer for this service.

EVERY 3000 SERVICE HOURS

Carry out all the 50, 150, 250, 500, 1000, and 1500 hour servicings at the same time.

1. Checking the EGR system

Consult your local Kubota dealer for this service.

ANNUAL SERVICING

1. Checking the air conditioner pipes and hoses

⚠ WARNING

To avoid personal injury or death:

- **Do not touch the coolant hoses or the heater with your hand. You may get burned.**

1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once. Consult your local Kubota dealer for this service.

2. Checking the exhaust manifold (cracks, gas, leakage and mounting screw)

Consult your local Kubota dealer for this service.

3. Checking the intake air line for air leaks

Consult your local Kubota dealer for this service.

4. Checking the AFS (air flow sensor)

Consult your local Kubota dealer for this service.

5. Checking the condition of the diesel particulate filter (DPF) muffler

Consult your local Kubota dealer for this service.

6. Checking the diesel particulate filter (DPF) differential pressure sensor and piping for gas leaks

Consult your local Kubota dealer for this service.

7. Checking the diesel particulate filter (DPF) exhaust gas temperature sensor

Consult your local Kubota dealer for this service.

8. Checking the EGR piping for gas leaks

Consult your local Kubota dealer for this service.

BIENNIAL SERVICING

1. Replacing the air conditioner pipes and hoses

⚠ WARNING
To avoid personal injury or death:

- **Do not touch the coolant hoses or the heater with your hand. You may get burned.**

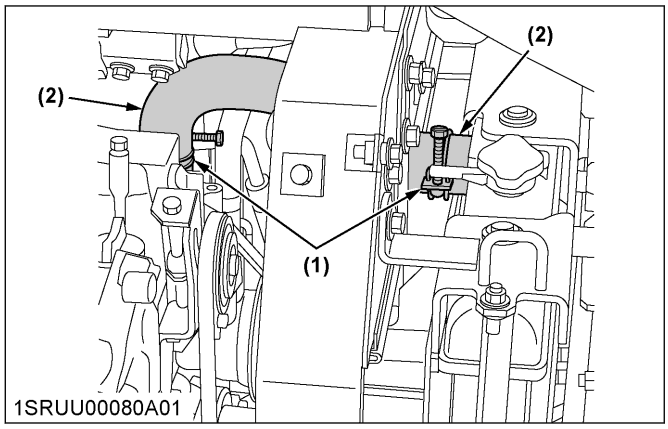
- Replace the air conditioner pipes and hoses every 2 years.
- If the hoses or pipes become swollen, hard, or cracked before 2 years has passed, replace them immediately.
- Consult your local Kubota dealer for this service.

2. Replacing radiator hoses and hose clamps

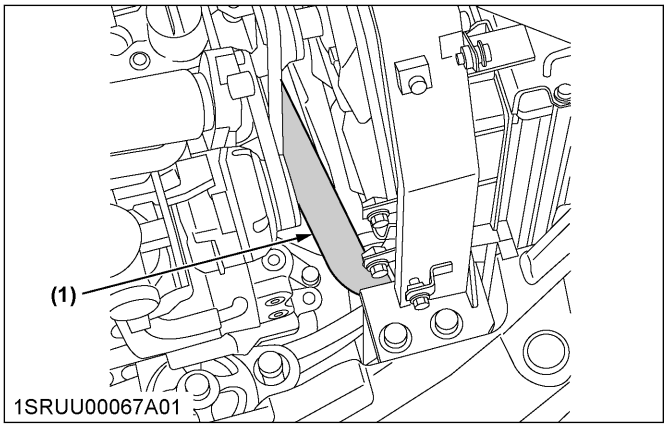
⚠ WARNING
To avoid personal injury or death:

- **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.**

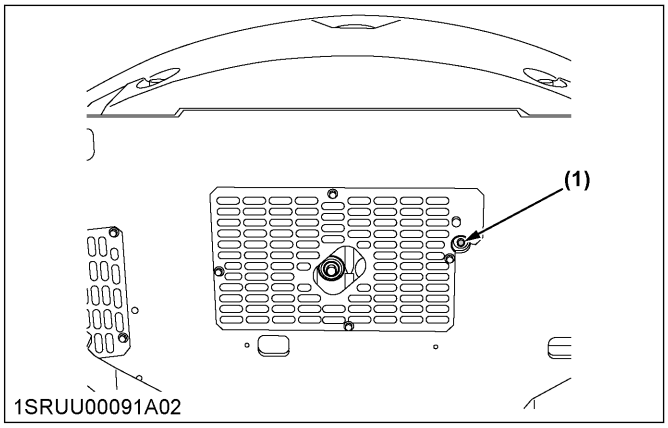
- Replace the radiator hoses and hose clamps every 2 years.
- If the hoses or pipes become swollen, hard, or cracked before 2 years has passed, replace them immediately.



(1) Hose clamp
(2) Radiator hose



(1) Radiator hose



(1) Drain plug

3. Changing the radiator coolant

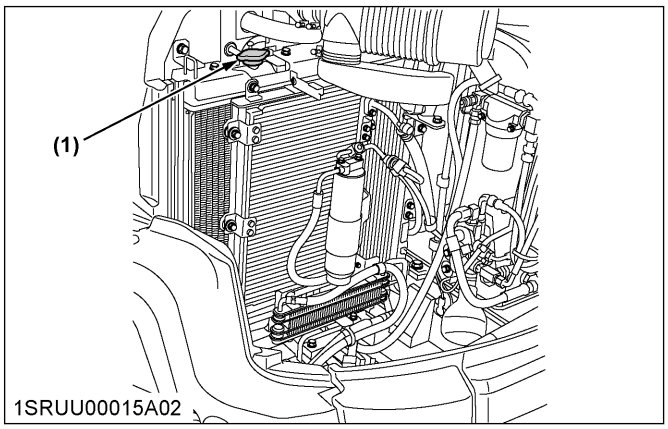
⚠ WARNING

To avoid personal injury or death:

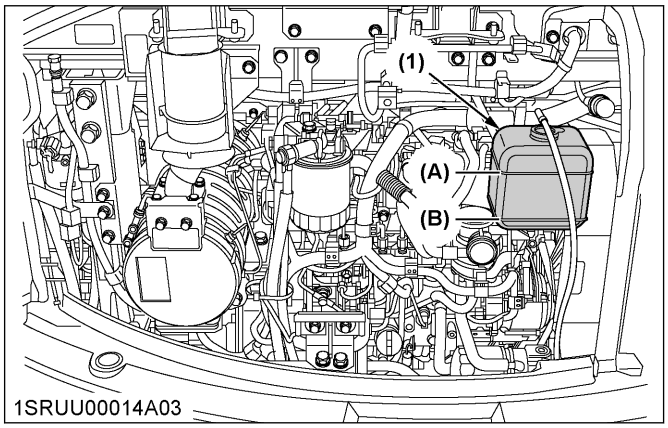
- **When using antifreeze, use protective clothing such as rubber gloves. Antifreeze is poisonous.**
- **If you accidentally swallowed antifreeze, seek medical attention immediately.**
- **When antifreeze comes in contact with the skin or clothing, wash it off immediately.**
- **Do not mix different 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.**

Stop the engine, remove the starter key and then wait until the engine has cooled down completely.

1. Open the drain plug at the bottom of the radiator and drain the coolant completely. Should a recovery tank be equipped, disconnect the line from the tank floor and then open the drain shut-off valve.
2. To clean, rinse the radiator with water.
3. Close the drain plug, then fill the radiator and the recovery tank with coolant fluid. Let the engine idle for about 5 minutes. Stop the engine and remove the starter key.
4. Check the coolant level of the recovery tank and add coolant if necessary.



(1) Radiator cap



(1) Recovery tank
(A) FULL
(B) LOW

Cooling water	Canopy	Approximately 5.4 L (1.4 U.S.gals)
	CAB	Approximately 5.9 L (1.6 U.S.gals)
Recovery tank		Approximately 1.1 L (0.29 U.S.gals)

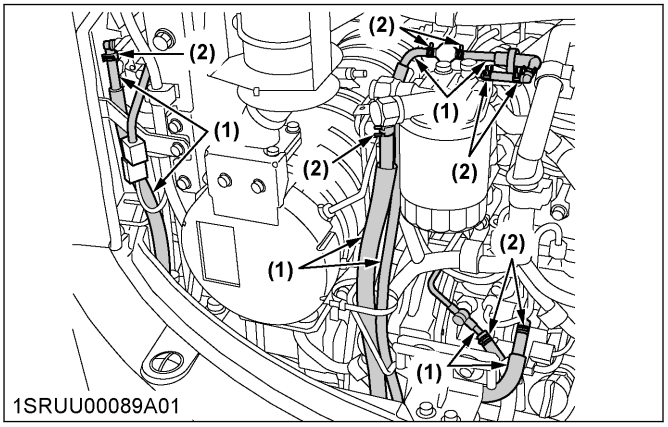
NOTE :

- **The shipped machine has been filled with 50% antifreeze solution.**

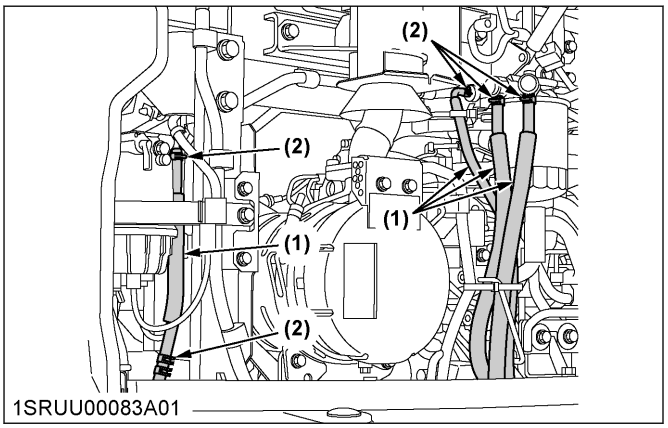
IMPORTANT :
- **Do not operate the engine without coolant.**
- **To fill the radiator system and the recovery tank, use fresh water and antifreeze fluid.**
- **When the antifreeze is mixed with water, the antifreeze mixing ratio must be less than 50%.**
- **Tighten the radiator cap properly. If the cap is loose or not properly fitted, it can cause engine overheating due to the loss of coolant fluid.**

4. Replacing the fuel hoses and hose clamps

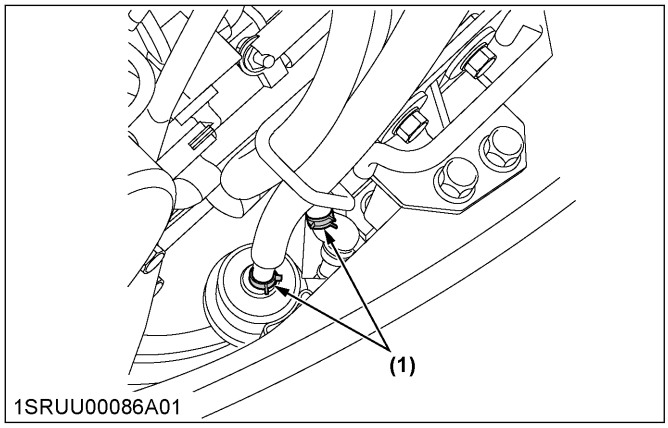
Replace the hoses and clamps.
(See Checking the fuel line and intake air line on page 116.)



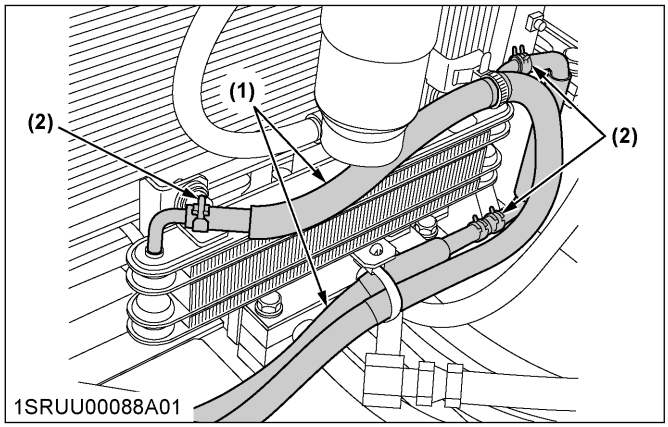
(1) Fuel line
(2) Clamp band



(1) Fuel line
(2) Clamp band



(1) Clamp band

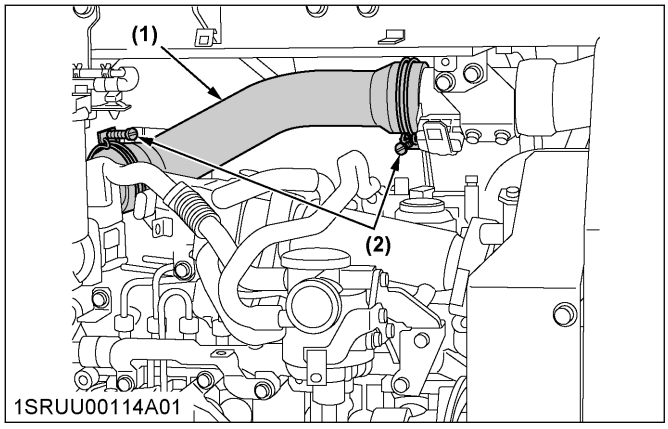


(1) Fuel line
(2) Clamp band

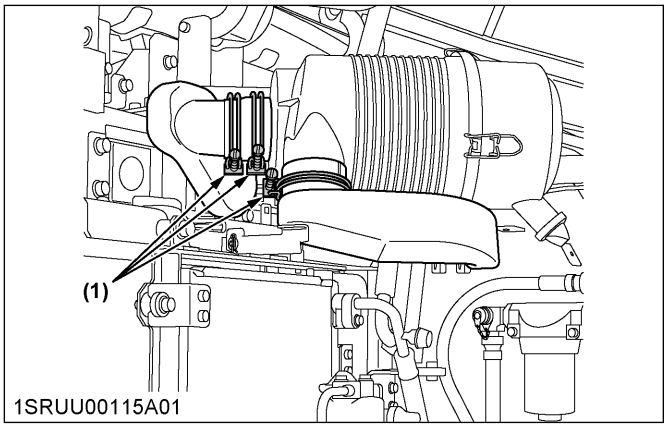
IMPORTANT :
- **Replace all the fuel lines not only illustrated but also connected to the fuel tank, water separator, fuel filter, fuel cooler and so on, and clamps of them.**

5. Replacing the intake air line

Replace the hoses and clamps, if necessary.
(See Checking the fuel line and intake air line on page 116.)



(1) Hose
(2) Hose clamp



(1) Hose clamp

6. Replacing the oil separator rubber hose

Consult your local Kubota dealer for this service.

7. Replacing the diesel particulate filter (DPF) differential pressure sensor rubber piping (front and back)

Consult your local Kubota dealer for this service.

8. Replacing the suction pipe downstream the AFS (air flow sensor)

Consult your local Kubota dealer for this service.

9. Replacing the EGR cooler hose

Consult your local Kubota dealer for this service.

SERVICING AS REQUIRED

1. Checking the quantity of refrigerant (gas)

⚠ WARNING

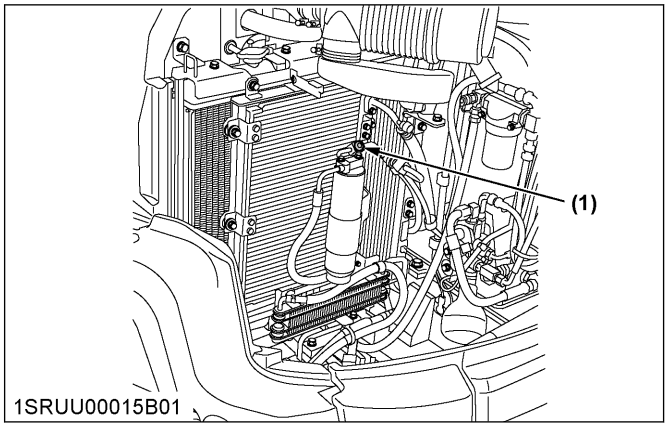
To avoid personal injury or death:

- **The contact of liquid with eyes or skin may cause frostbite.**
- **In case of leakage, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes.**
- **When in contact with fire, the R134a refrigerant releases a toxic gas.**
- **Do not disconnect any parts of the refrigeration circuit of the air conditioning system. Consult your local Kubota dealer for assistance and service.**

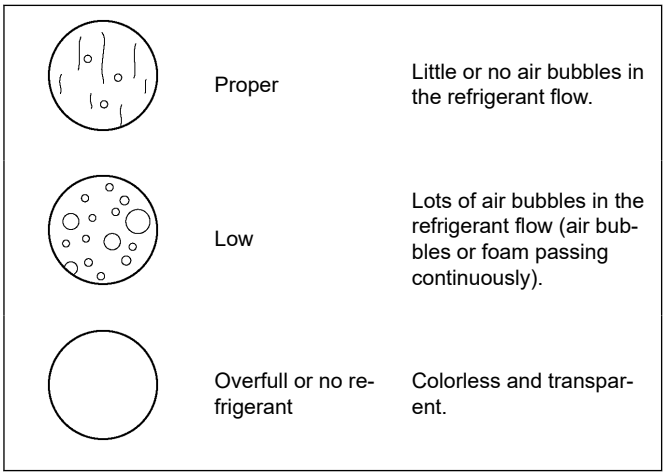
A shortage of refrigerant reduces the air conditioner performance. Check the following points. If it is indicated that the amount of refrigerant is extremely low, ask your dealer to inspect and refill.

Checking procedure

1. Run the air conditioner in the following conditions:
   - Engine speed at about 1500 rpm
   - Temperature control lever at the maximum cooling position (leftmost)
   - Fan switch at the highest blow (3)
   - Air conditioner switch at the *"ON"* position
2. Look into the sight glass to see if the refrigerant is flowing through its circuit.



(1) Sight glass

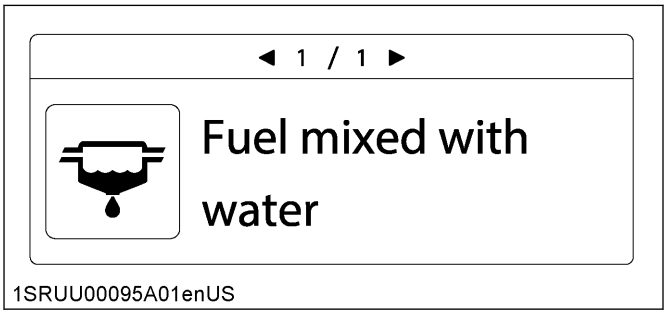


IMPORTANT :

- **Charge only with R134a, not R12 refrigerant (gas).**

2. Draining the water separator

If the following fuel filter water error message appears on the display, immediately drain the water separator. (See Draining the water separator on page 111.)



IMPORTANT :

- **If you do not drain the water separator immediately after the alarm, the engine may be seriously damaged.**
- **Without the water separator drained, the cleaning efficiency of the DPF will be reduced and the DPF longevity will be shorter than expected.**

3. Cleaning the diesel particulate filter (DPF)

The longer the DPF operates, the more ash (burnt residue) is collected in the filter. Too much ash build-up adversely affects the DPF performance.
When the DPF cleaning time draws near, the message "DPF cleaning soon" appears on the display. When this message appears, clean the DPF.
Consult your local Kubota dealer to clean the DPF.

IMPORTANT :

- **To clean up the DPF, a specific machine is required.**
  Do not attempt to clean it in any other way, such as disassembling, shaking and heating as toxic chemicals may be present inside of the DPF.

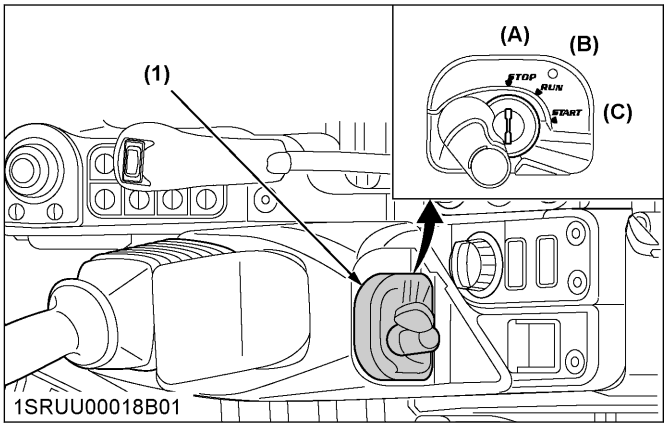
4. Cleaning the plastic parts and synthetic leather

- 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 **[RUN]** position.
3. The air in the fuel system will automatically be purged within 1 minute.



(1) Starter switch
(A) STOP
(B) RUN
(C) START

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

ADJUSTING THE TRACKS

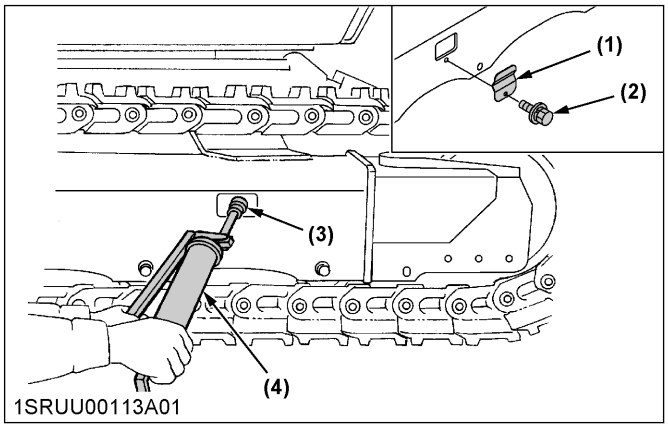
WARNING
To avoid personal injury or death:
- **Make sure that no obstacles, such as stones are caught in the track. Remove such obstacles before adjusting the track tension.**
- **Do not crawl under the machine.**

IMPORTANT :
- **If the tracks are too tight, wear is increased.**
- **If the tracks are too loose, the track pads may collide with the sprocket, wear is increased. The track may dislocate or come off.**
- **Clean the track after every use.**

1. Adjusting steel tracks

IMPORTANT :
- **Should the track tension be high due to sticking mud, lift the track with the help of the boom, arm and bucket, idle the engine and remove mud from the track, especially from the openings of the link plate carefully.**

Tensioning
1. Loosen the bolt of the cover and remove the cover.
2. Apply grease to the grease fitting.



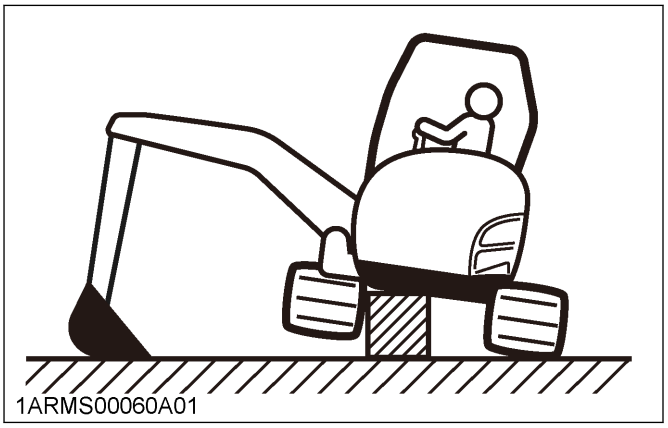
(1) Cover
(2) Bolt
(3) Grease fitting
(4) Grease gun

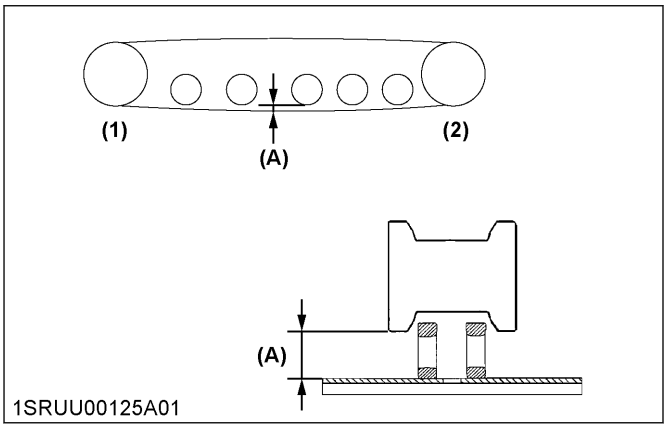
3. To check the track tension, lift the track from the ground as shown in the following illustration. The track tension is correct if the clearance between the outer end of the track roller and the track interior surface corresponds to the dimension specified in the following table.

Clearance	80 mm to 85 mm (3.15 in. to 3.34 in.)

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.**

WARNING
To avoid personal injury or death:
- **When lifting the machine itself with an attachment, place a safety block or safety post to prevent the machine from turning over. Keep the pilot control lock lever in the LOCK position.**


1ARMS00060A01



1SRUU00125A01

(1) Drive sprocket
(2) Idler
(A) 80 mm to 85 mm (3.15 in. to 3.34 in.)

Loosening

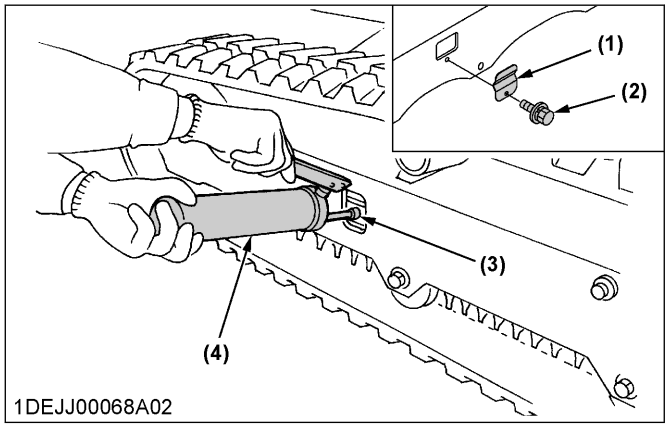
WARNING
To avoid personal injury or death:
- **Do not loosen the grease fitting completely or too quickly. Otherwise grease under high pressure in the tension cylinder could squirt out.**

1. Loosen the bolt of the cover and remove the cover.
2. Using a socket wrench, loosen the grease fitting a few turns.
3. When grease oozes out from the thread, rotate the track and loosen the track in the lifted position.
4. After adjustment is completed, tighten the grease fitting using a socket wrench. Tightening torque must be between 98 N·m to 108 N·m (72.3 ft·lbs to 79.7 ft·lbs).

2. Adjusting rubber tracks

IMPORTANT :
- **Should the track tension be high due to sticking mud, lift the track with the help of the boom, arm and bucket, idle the engine and remove mud from the track by rotating it.**
- **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 following points are to be observed when adjusting rubber tracks.**
  - **If the track slackens more than 50 mm (2.0 in.), readjust them.**
  - **Check track tension 50 hours after initial use and readjust if necessary. Check and adjust thereafter every 50 service hours.**

Tensioning
1. Loosen the bolt of the cover and remove the cover.
2. Apply grease to the grease fitting.



1DEJJ00068A02

(1) Cover
(2) Bolt
(3) Grease fitting
(4) Grease gun

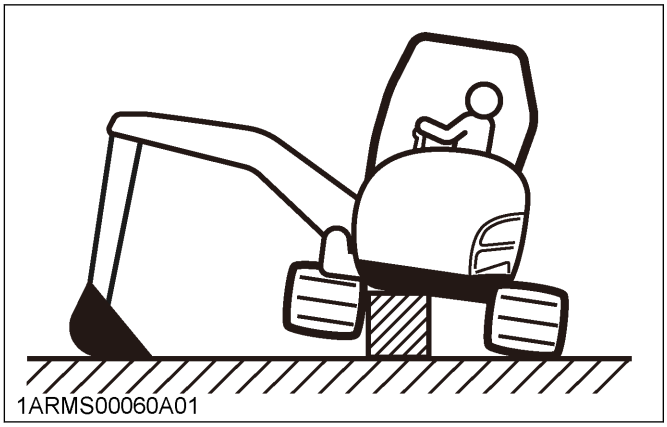
3. Tension the track in the lifted position, so that the distance *"A"* (clearance between the track roller and the inside surface of the track) is 10 mm to 15 mm (0.39 in. to 0.59 in.), as shown in the following illustration.
   In this case, the track seam is positioned on the top center between the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

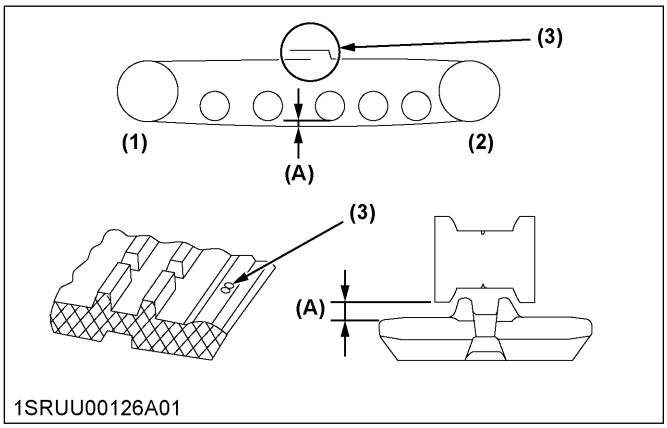
Clearance	10 mm to 15 mm (0.39 in. to 0.59 in.)

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.**

WARNING
To avoid personal injury or death:

- **When lifting the machine itself with an attachment, place a safety block or safety post to prevent the machine from turning over. Keep the pilot control lock lever in the LOCK position.**


1ARMS00060A01



1SRUU00126A01

(1) Drive sprocket
(2) Idler
(3) Seam (Marked [∞])
(A) 10 mm to 15 mm (0.39 in. to 0.59 in.)

Loosening

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.

1. Loosen the bolt of the cover and remove the cover.
2. Using a socket wrench, loosen the grease fitting a few turns.
3. When grease oozes out from the thread, rotate the track and loosen the track in the lifted position.
4. After adjustment is completed, tighten the grease fitting using a socket wrench.
   Tightening torque must be between 98 N·m to 108 N·m (72.3 ft·lbs to 79.7 ft·lbs).

2.1 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.

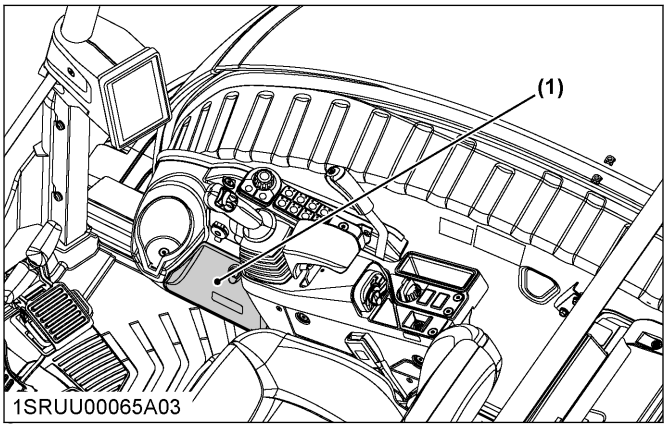
CHANGING THE BUCKET

WARNING
To avoid personal injury or death:
- **Two people are required to replace the bucket. One person operates the machine, 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, make sure to 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 attachment manual to perform safe operation.**

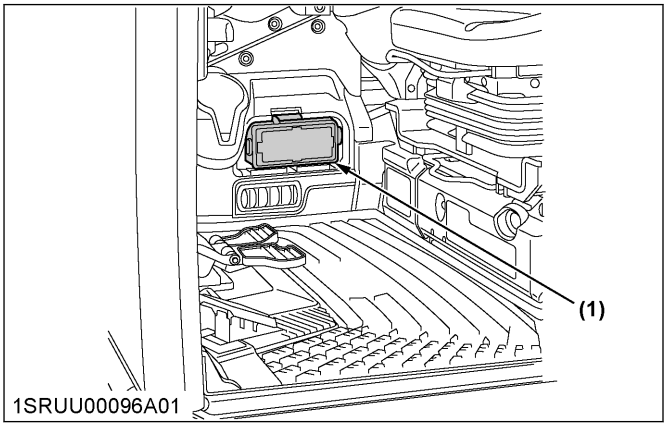
REPLACING FUSES

WARNING
To avoid personal injury or death:
- **When changing fuse, stop the engine and turn the key to [STOP] position. Keep the pilot control lock lever in the LOCK position.**

1. Remove the cover of the fuse box.
2. Replace the burnt out fuse with a fuse which has the same capacity.



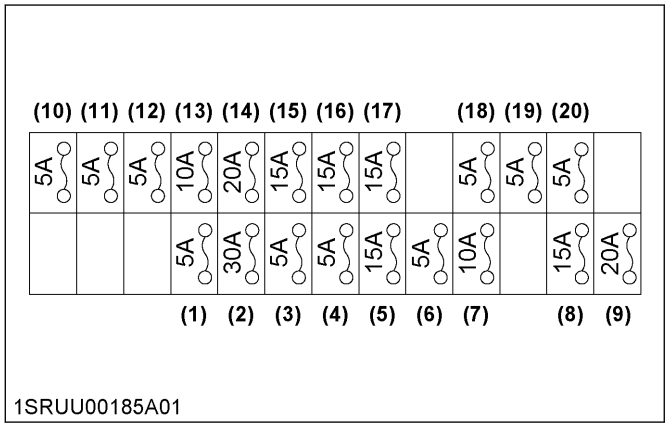
(1) Cover



(1) Fuse box

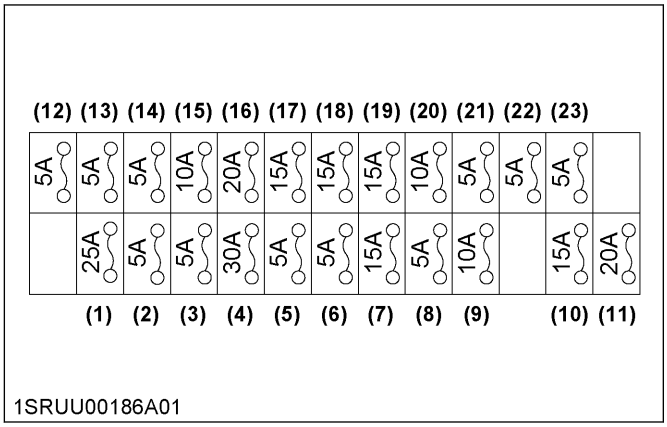
Fuse capacities and circuits

[Canopy]



(1)	*ECU LCD(+B)*	*(11)*	*Fuel pump*
(2)	*ECU Main(power)*	*(12)*	*Lever lock*
(3)	*Horn switch*	*(13)*	*Alternator*
(4)	*Room light*	*(14)*	*Seat*
(5)	*Beacon*	*(15)*	*Electrical outlet*
(6)	*K-OBD*	*(16)*	*Wiper/washer*
(7)	*Horn*	*(17)*	*Radio(AC)*
(8)	*Front work light*	*(18)*	*ECU(+B)*
(9)	*Cab work light*	*(19)*	*CRS*
(10)	*ECU Main(AC)*	*(20)*	*Starter*

[CAB] (Air-conditioner type)



(1)	*Blower motor*	*(13)*	*Fuel pump*
(2)	*A/C controller*	*(14)*	*Lever lock*
(3)	*ECU LCD(+B)*	*(15)*	*Alternator*
(4)	*ECU Main(power)*	*(16)*	*Seat*
(5)	*Horn switch*	*(17)*	*Electrical outlet*
(6)	*Room light*	*(18)*	*Wiper/washer*
(7)	*Beacon*	*(19)*	*Radio(AC)*
(8)	*K-OBD*	*(20)*	*Compressor*
(9)	*Horn*	*(21)*	*ECU(+B)*
(10)	*Front work light*	*(22)*	*CRS*
(11)	*Cab work light*	*(23)*	*Starter*
(12)	*ECU Main(AC)*		

REPLACING SLOW-BLOW FUSES

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

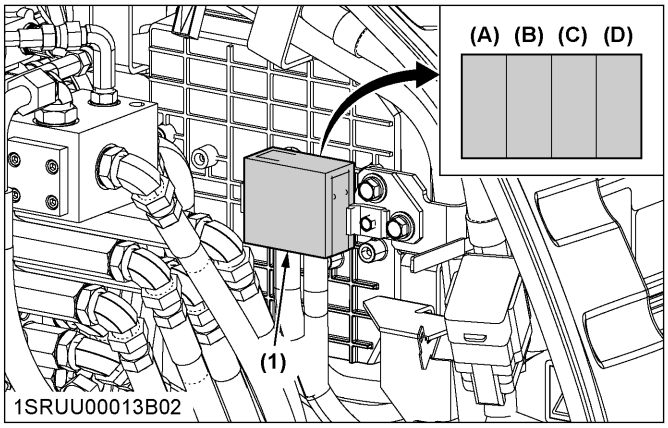
⚠ WARNING

To avoid personal injury or death:

- **When changing fuses, stop the engine and turn the key to [STOP] position. Keep the pilot control lock lever in the LOCK position.**

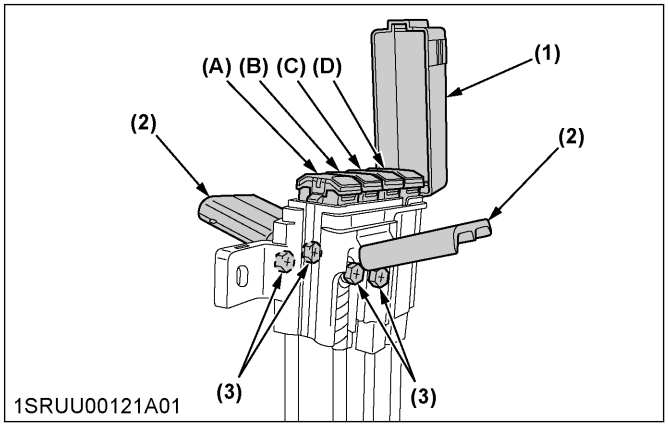
IMPORTANT :

- **The main fuse protects the entire electrical system. If the main fuse or another fuse has blown, determine why it blew and make any necessary repairs.**
  Never bridge fuses, always replace them with a new fuse of the same rating.



(1) Slow-blow fuse case

1. Disconnect the negative cord of the battery.
2. Remove the slow-blow fuse case.
3. Open the slow-blow fuse case cap and covers, then remove the bolts and draw out the slow-blow fuse (A) and fuse (B).



(1) Slow-blow fuse case cap
(2) Cover
(3) Bolt

(A)	Alternator (80 A)
(B)	Main Power 1 (60 A)
(C)	Main Power 2 (50 A)
(D)	CRS (30 A)

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	Pilot control lock lever is in the UNLOCK position.	• Bring pilot control lock lever into the LOCK position.
		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 joint bolts and nuts 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 132)
		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.
		Clogged fuel filter	• If necessary, replace filter.
	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 in red zone (overheating)	Flawed seal of the water pump	• Replace.
		Worn or torn V-belt	• Adjust or replace.
		Thermostat is flawed.	• 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.
		Cylinder head gasket is damaged (coolant loss).	• Replace.
		Engine oil level is too low.	• Fill to the prescribed level.
		Maladjustment of fuel injection	• Readjust the ignition timing.

(Continued)

Trouble		Cause	Countermeasure
Engine	Water temperature in red zone (overheating)	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 and front attachment does not work.	Pilot control lock lever is in the LOCK position	• Bring the pilot control lock lever into the UNLOCK position.
Drive system	Deviation of drive direction	Blocked with stones	• Remove.
		Track is too loose or too tight.	• Adjust accordingly.
DPF		See AUTOMATIC DIESEL PARTICULATE FILTER (DPF) REGENERATION on page 175 and LOCKING AND RELEASING THE DIESEL PARTICULATE FILTER (DPF) REGENERATION on page 177.	

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, be sure to 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 104.)

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.**
- **Bring the machine on a firm, flat, and level surface. Lower the attachments and dozer blade on the ground.**

STORING THE MACHINE

Should the machine be 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, you are strongly requested to 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)	
9	Hydraulic hose (service port)	
10	Hydraulic hose (swivel motor)	
11	Hydraulic hose (travel motor)	
12	Hydraulic hose (angle cylinder)	
13	DPF differential pressure sensor rubber piping (front and back)	
14	Suction pipe downstream the AFS (air flow sensor)	

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 CJ-4 or CK-4.**
- **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 15W-40**
0 ℃ to 25 ℃ (32 ℉ to 77 ℉)	**SAE 20** or **SAE 10W-30**, **SAE 15W-40**
Below 0 ℃ (32 ℉)	**SAE 10W** or **SAE 10W-30**, **SAE 15W-40**

- Refer to the following table for the suitable API classification engine oil and the fuel.

Fuel used	Engine oil classification (api classification)
	Oil class of engines with DPF
Ultra low sulfur fuel [<0.0015% (15 ppm)]	**CJ-4** or **CK-4**

Fuel:

- Use the ultra low sulfur diesel fuel only [below 0.0015% (15 ppm)] for these engines.
- 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**)
- Indicated capacities of water and oil are manufacture's estimate.

IMPORTANT :

- **If you use different fuel or engine oil, the cleaning efficiency of the DPF will be reduced and the DPF longevity will be shorter than expected.**
- **Filters must trap fuel and lubricant sulfate additives (Zn, Pb, Na, K, Ca, Mg, Cu, Ba, P, and so on.) as ash during combustion. Fuel must be controlled carefully to prevent the additives being mixed into fuel such as fuel tank anti-oxidants, water remover, antifreeze and so on.**

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 119 and Replacing the engine oil filter cartridge on page 120.)

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 95.)

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
Water separator filter element	Replace	Every 250 hrs	
Fuel filter cartridge	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.

REQUEST REGARDING FUEL USE AND MAINTENANCE OF CRS DIESEL ENGINES

Please use fuel and perform maintenance as directed in this operator's manual.

Be sure to use quality fuel (diesel) that meets the exhaust gas regulations for the region where the engine is used. Particular attention should be given to contamination and sulfur content in the fuel.

- Kubota CRS diesel engines are equipped with an electronically controlled high-pressure fuel injection system (CRS: Common Rail System) and an exhaust emission control system (DPF: Diesel Particulate Filter) in order for the engines to perform satisfactorily and to meet required emission characteristics.
- The electronically controlled high-pressure fuel injection system is made up of high precision components. If the fuel gets contaminated with foreign matters, the system may malfunction or very adversely affected for its service life. If the sulfur content is higher than approved, the product service life may be reduced. It includes the early deterioration of engine oil, the wear of engine components and the catalyst degradation of the exhaust emission control system.

Country	Standard name	Sulfur content reference value	Remarks
Europe	EN590	0.0010 % (10 ppm) or less	-
North America	ASTM D975	0.0015 % (15 ppm) or less	-
Japan	JIS K2204	0.0010 % (10 ppm) or less	-
Australia	Australian Standard	0.0010 % (10 ppm) or less	-
Republic of Korea	Korean Standard	0.0010 % (10 ppm) or less	-
China	GB 252	0.0050 % (50 ppm) or less	From July 1, 2017
		0.0010 % (10 ppm) or less	From January 1, 2018

Handle fuel, fuel tank and fuel filter with enough care to keep them free of foreign matters.

- Do not use any fuel that is contaminated with dust and the like.
- Do not refuel the machine nor replace the filter in any dusty environments.
- During refueling, be careful to prevent foreign matters from coming into the fuel tank.
- Before replacing the filter, be sure to clean up its periphery.
- Do not interrupt the replacement job. This is to keep the filter and its periphery free of foreign matters.
- For the job, wear clean vinyl or similar gloves. Cotton work gloves and other fiber gloves may cause contamination.

Use only Kubota brand parts. Perform maintenance in accordance with instructions from Kubota.

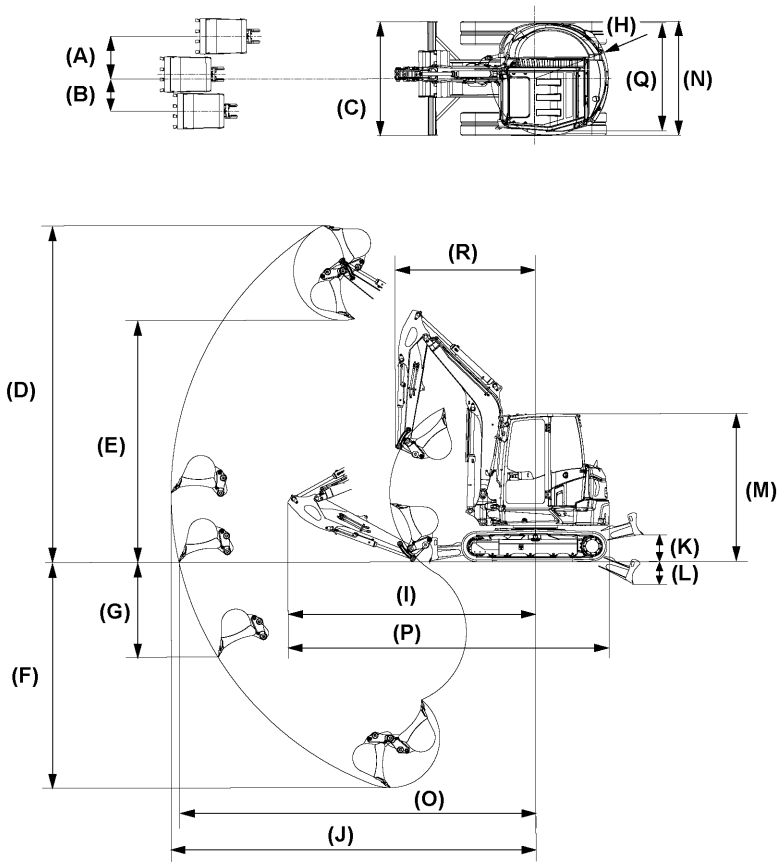
- Inspect and replace the water separator and fuel filter at regular intervals in accordance with the instructions provided by Kubota.
- If any other water separators and fuel filters than Kubota brands are used and if the specified servicing instructions are neglected, malfunctions similar to those in Item 1 above may occur, leading to engine breakdown.

The following cases are not covered by the warranty. Kubota will not be responsible for any burden of expenses.

- If the engine fails because of the use of any fuel and/or fuel filter not recommended by Kubota or because of the negligence of specified servicing instructions, the end user will be responsible for all costs.

APPENDICES

MAIN DIMENSIONS



1SRUU00182A01

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
KX057-5	735 (28.9)	550 (21.7)	1960 (77.2)	5785 (227.8)	4155 (163.6)	3875 (152.6)	1630 (64.2)	1270 (50.0)	4250 (167.4)	6260 (246.5)
U55-5	810 (31.9)	615 (24.2)	1960 (77.2)	5635 (221.8)	4000 (157.5)	3630 (142.9)	1515 (59.65)	1065 (42.0)	4245 (167.1)	6105 (240.4)

	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(K) ANG	(L) ANG
KX057-5	440 (17.3)	405 (15.9)	2550 (100.4)	1960 (77.2)	6125 (241.1)	5520 (217.4)	1855 (73.0)	2410 (94.9)	510 (20.1)	465 (18.3)
U55-5	440 (17.3)	405 (15.9)	2550 (100.4)	1960 (77.2)	5965 (234.8)	5475 (215.6)	1855 (73.0)	2460 (96.9)	510 (20.1)	465 (18.3)

mm (in.)

NOTE :

- **Above dimensions are based on the machine with quick attach coupler (K7915A) and quick attach bucket (K7919A).**
- **Above dimensions are based on the machine with a rubber track.**
- **Specifications are subject to change without notice.**

LIFTING CAPACITY

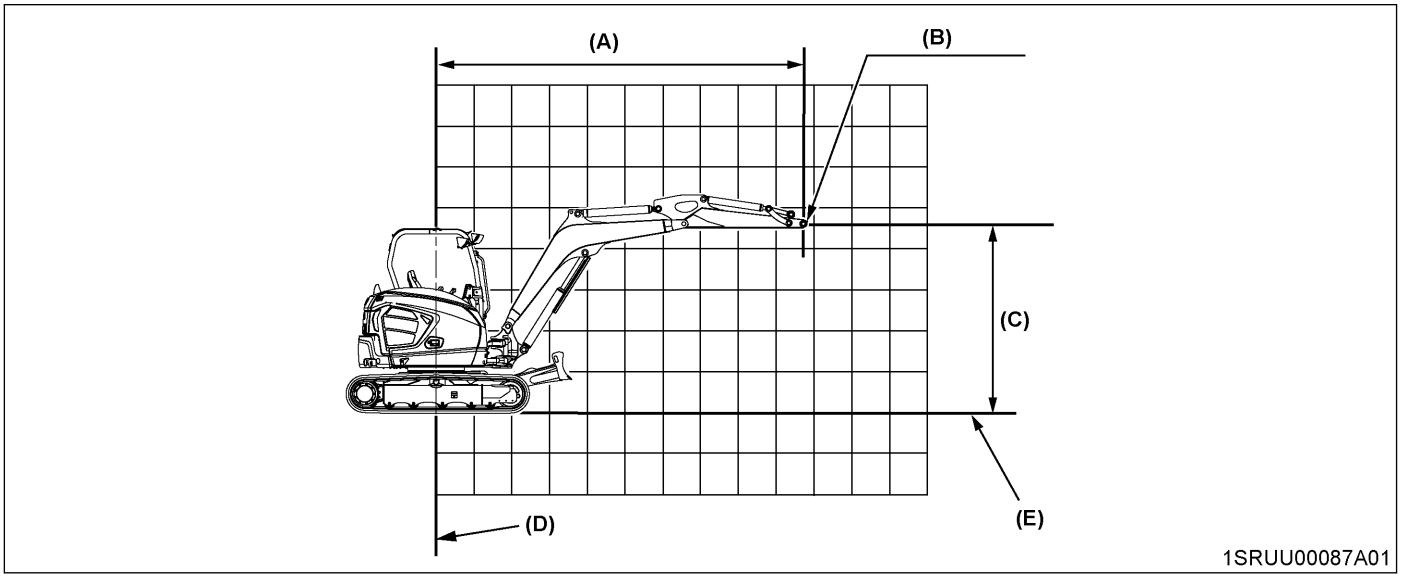
IMPORTANT INFORMATION

WARNING

To avoid personal injury or death:

- **No loads greater than the values mentioned in the lifting capacity tables are to be lifted.**
- **The values mentioned in the table are valid only on even, hard ground. When lifting on soft ground, the machine can roll over due to the load being 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 a bucket, subtract the bucket weight from the values in the table.**
- **Never lift the machine with the angle blade placed at an angle.**

1. 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.
2. The strokes are as follows:
   a. The load point corresponds to the front bolt part of the arm.
   b. The machine positions are
      i. over - front (blade down)
      ii. over - front (blade up)
      iii. over - side
   c. The operating cylinder is the boom cylinder.
3. 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.



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

LIFTING CAPACITY OF KX057-5 (CANOPY, RUBBER TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.14		
	10						2.38	2.12	1.70	1.62
	8					2.95	2.66	2.09	1.69	1.50
	6				4.90	3.44	2.58	2.04	1.66	1.43
	4					3.29	2.50	1.99	1.63	1.39
	2				4.49	3.16	2.42	1.94	1.60	1.39
GL	0				4.42	3.09	2.37	1.90	1.58	1.43
	-2	2.77	3.72	4.52	4.41	3.06	2.34	1.88	1.57	1.51
	-4	3.64	5.21	6.33	4.43	3.06	2.33	1.88		
	-6	4.57	6.95	7.25	4.48	3.09	2.36			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.91		
	10						2.38	1.90	1.53	1.46
	8					2.95	2.37	1.87	1.51	1.35
	6				4.27	3.01	2.29	1.82	1.49	1.28
	4					2.87	2.21	1.77	1.46	1.25
	2				3.80	2.75	2.13	1.72	1.43	1.25
GL	0				3.74	2.68	2.08	1.69	1.41	1.28
	-2	2.77	3.72	4.52	3.72	2.65	2.06	1.67	1.40	1.35
	-4	3.64	5.21	6.27	3.74	2.66	2.05	1.67		
	-6	4.57	6.95	6.36	3.79	2.68	2.07			
	-8	8.87	8.71	5.05	3.83	2.75				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CANOPY, STEEL TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.20		
	10						2.38	2.18	1.75	1.67
	8					2.95	2.66	2.15	1.74	1.55
	6				4.90	3.54	2.66	2.10	1.71	1.47
	4					3.38	2.57	2.05	1.68	1.44
	2				4.63	3.26	2.49	2.00	1.65	1.44
GL	0				4.56	3.19	2.44	1.96	1.63	1.47
	-2	2.77	3.72	4.52	4.54	3.16	2.41	1.94	1.62	1.56
	-4	3.64	5.21	6.33	4.56	3.16	2.41	1.94		
	-6	4.57	6.95	7.25	4.61	3.19	2.43			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.85		
	10						2.34	1.84	1.47	1.41
	8					2.95	2.28	1.80	1.46	1.30
	6				4.07	2.89	2.20	1.76	1.44	1.24
	4					2.75	2.12	1.71	1.41	1.21
	2				3.61	2.63	2.05	1.66	1.38	1.20
GL	0				3.55	2.57	2.00	1.63	1.36	1.23
	-2	2.77	3.72	4.52	3.54	2.54	1.97	1.61	1.35	1.30
	-4	3.64	5.21	5.87	3.56	2.54	1.97	1.61		
	-6	4.57	6.95	5.95	3.60	2.57	1.99			
	-8	8.87	8.71	5.05	3.68	2.63				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CANOPY, WIDE STEEL TRACK, WIDE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.26		
	10						2.38	2.25	1.80	1.72
	8					2.95	2.66	2.21	1.79	1.60
	6				4.90	3.64	2.73	2.16	1.76	1.52
	4					3.48	2.65	2.11	1.73	1.48
	2				4.77	3.36	2.57	2.06	1.70	1.48
GL	0				4.70	3.29	2.52	2.02	1.68	1.52
	-2	2.77	3.72	4.52	4.68	3.26	2.49	2.00	1.67	1.61
	-4	3.64	5.21	6.33	4.70	3.26	2.48	2.00		
	-6	4.57	6.95	7.25	4.76	3.29	2.51			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.90		
	10						2.38	1.89	1.52	1.45
	8					2.95	2.35	1.86	1.51	1.34
	6				4.19	2.98	2.27	1.81	1.48	1.28
	4					2.83	2.19	1.76	1.45	1.25
	2				3.73	2.72	2.12	1.72	1.43	1.25
GL	0				3.67	2.65	2.07	1.68	1.41	1.28
	-2	2.77	3.72	4.52	3.66	2.63	2.04	1.66	1.40	1.34
	-4	3.64	5.21	6.06	3.68	2.63	2.04	1.66		
	-6	4.57	6.95	6.14	3.72	2.65	2.06			
	-8	8.87	8.71	5.05	3.80	2.71				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CANOPY, RUBBER TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.20		
	10						2.38	2.18	1.75	1.67
	8					2.95	2.66	2.15	1.73	1.54
	6				4.90	3.57	2.67	2.10	1.71	1.47
	4					3.41	2.58	2.05	1.68	1.43
	2				4.70	3.28	2.50	2.00	1.65	1.43
GL	0				4.63	3.21	2.44	1.96	1.62	1.47
	-2	2.77	3.72	4.52	4.61	3.18	2.42	1.94	1.62	1.55
	-4	3.64	5.21	6.33	4.63	3.18	2.41	1.94		
	-6	4.57	6.95	7.25	4.69	3.21	2.43			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.99		
	10						2.38	1.98	1.59	1.52
	8					2.95	2.46	1.94	1.58	1.41
	6				4.44	3.13	2.39	1.90	1.55	1.34
	4					2.99	2.30	1.85	1.52	1.31
	2				3.97	2.87	2.23	1.80	1.50	1.31
GL	0				3.90	2.80	2.18	1.77	1.48	1.34
	-2	2.77	3.72	4.52	3.89	2.78	2.15	1.75	1.47	1.41
	-4	3.64	5.21	6.33	3.91	2.78	2.15	1.75		
	-6	4.57	6.95	6.63	3.96	2.80	2.17			
	-8	8.87	8.71	5.05	3.83	2.87				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CANOPY, STEEL TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.26		
	10						2.38	2.24	1.80	1.72
	8					2.95	2.66	2.21	1.78	1.59
	6				4.90	3.65	2.74	2.16	1.76	1.51
	4					3.50	2.65	2.11	1.73	1.48
	2				4.84	3.38	2.57	2.06	1.70	1.48
GL	0				4.77	3.31	2.52	2.02	1.68	1.51
	-2	2.77	3.72	4.52	4.75	3.27	2.49	2.00	1.67	1.60
	-4	3.64	5.21	6.33	4.77	3.28	2.49	2.00		
	-6	4.57	6.95	7.25	4.83	3.31	2.51			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.92		
	10						2.38	1.91	1.54	1.47
	8					2.95	2.37	1.88	1.52	1.36
	6				4.23	3.01	2.29	1.83	1.50	1.29
	4					2.86	2.21	1.78	1.47	1.26
	2				3.77	2.75	2.14	1.73	1.44	1.26
GL	0				3.71	2.68	2.09	1.70	1.42	1.29
	-2	2.77	3.72	4.52	3.70	2.65	2.06	1.68	1.41	1.36
	-4	3.64	5.21	6.12	3.71	2.65	2.06	1.68		
	-6	4.57	6.95	6.20	3.76	2.68	2.08			
	-8	8.87	8.71	5.05	3.83	2.74				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CAB, RUBBER TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.19		
	10						2.38	2.17	1.74	1.67
	8					2.95	2.66	2.14	1.73	1.54
	6				4.90	3.52	2.65	2.09	1.70	1.47
	4					3.37	2.56	2.04	1.67	1.43
	2				4.60	3.24	2.48	1.99	1.64	1.43
GL	0				4.53	3.17	2.43	1.95	1.62	1.47
	-2	2.77	3.72	4.52	4.52	3.14	2.40	1.93	1.61	1.55
	-4	3.64	5.21	6.33	4.54	3.14	2.40	1.93		
	-6	4.57	6.95	7.25	4.59	3.17	2.42			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.96		
	10						2.38	1.94	1.56	1.49
	8					2.95	2.42	1.91	1.55	1.38
	6				4.36	3.08	2.34	1.86	1.52	1.31
	4					2.93	2.26	1.81	1.49	1.28
	2				3.89	2.82	2.19	1.77	1.47	1.28
GL	0				3.83	2.75	2.13	1.73	1.45	1.31
	-2	2.77	3.72	4.52	3.82	2.72	2.11	1.71	1.44	1.38
	-4	3.64	5.21	6.33	3.83	2.72	2.10	1.71		
	-6	4.57	6.95	6.51	3.88	2.75	2.13			
	-8	8.87	8.71	5.05	3.83	2.81				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CAB, STEEL TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.25		
	10						2.38	2.23	1.79	1.71
	8					2.95	2.66	2.20	1.78	1.59
	6				4.90	3.62	2.72	2.15	1.75	1.51
	4					3.46	2.63	2.10	1.72	1.48
	2				4.74	3.34	2.56	2.05	1.69	1.48
GL	0				4.67	3.27	2.50	2.01	1.67	1.51
	-2	2.77	3.72	4.52	4.66	3.24	2.47	1.99	1.66	1.60
	-4	3.64	5.21	6.33	4.68	3.24	2.47	1.99		
	-6	4.57	6.95	7.25	4.73	3.27	2.49			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.89		
	10						2.38	1.88	1.51	1.44
	8					2.95	2.33	1.84	1.50	1.33
	6				4.15	2.95	2.25	1.80	1.47	1.27
	4					2.81	2.17	1.75	1.44	1.24
	2				3.70	2.70	2.10	1.70	1.41	1.23
GL	0				3.63	2.63	2.05	1.67	1.39	1.26
	-2	2.77	3.72	4.52	3.62	2.60	2.02	1.65	1.38	1.33
	-4	3.64	5.21	6.01	3.64	2.60	2.02	1.65		
	-6	4.57	6.95	6.09	3.69	2.63	2.04			
	-8	8.87	8.71	5.05	3.77	2.69				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CAB, WIDE STEEL TRACK, WIDE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.30	1.85	1.76
	8					2.95	2.66	2.26	1.83	1.63
	6				4.90	3.65	2.80	2.21	1.81	1.56
	4					3.56	2.71	2.16	1.77	1.52
	2				4.88	3.44	2.63	2.11	1.75	1.52
GL	0				4.81	3.37	2.58	2.07	1.72	1.56
	-2	2.77	3.72	4.52	4.80	3.34	2.55	2.05	1.72	1.65
	-4	3.64	5.21	6.33	4.82	3.34	2.55	2.05		
	-6	4.57	6.95	7.25	4.87	3.37	2.57			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.94		
	10						2.38	1.93	1.56	1.49
	8					2.95	2.40	1.90	1.54	1.38
	6				4.27	3.04	2.32	1.85	1.52	1.31
	4					2.90	2.24	1.80	1.49	1.28
	2				3.82	2.78	2.17	1.76	1.46	1.28
GL	0				3.75	2.72	2.12	1.72	1.44	1.31
	-2	2.77	3.72	4.52	3.74	2.69	2.09	1.70	1.43	1.38
	-4	3.64	5.21	6.20	3.76	2.69	2.09	1.70		
	-6	4.57	6.95	6.28	3.81	2.72	2.11			
	-8	8.87	8.71	5.05	3.83	2.78				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CAB, RUBBER TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.25		
	10						2.38	2.24	1.79	1.71
	8					2.95	2.66	2.20	1.78	1.58
	6				4.90	3.65	2.73	2.15	1.75	1.51
	4					3.50	2.64	2.10	1.72	1.47
	2				4.83	3.37	2.57	2.05	1.69	1.47
GL	0				4.75	3.30	2.51	2.02	1.67	1.51
	-2	2.77	3.72	4.52	4.74	3.27	2.48	2.00	1.66	1.60
	-4	3.64	5.21	6.33	4.76	3.27	2.48	2.00		
	-6	4.57	6.95	7.25	4.81	3.30	2.50			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.04		
	10						2.38	2.02	1.63	1.56
	8					2.95	2.52	1.99	1.62	1.44
	6				4.53	3.20	2.44	1.94	1.59	1.37
	4					3.06	2.36	1.89	1.56	1.34
	2				4.06	2.94	2.28	1.85	1.53	1.34
GL	0				4.00	2.87	2.23	1.81	1.51	1.37
	-2	2.77	3.72	4.52	3.99	2.85	2.20	1.79	1.50	1.45
	-4	3.64	5.21	6.33	4.01	2.85	2.20	1.79		
	-6	4.57	6.95	6.79	4.05	2.87	2.22			
	-8	8.87	8.71	5.05	3.83	2.94				

Unit=1000 lbs

LIFTING CAPACITY OF KX057-5 (CAB, STEEL TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.32	2.30	2.05
	8					2.95	2.66	2.47	2.35	2.05
	6				4.90	3.65	3.04	2.68	2.45	2.08
	4					4.35	3.42	2.90	2.56	2.16
	2				5.00	4.83	3.72	3.08	2.65	2.28
GL	0				5.61	5.03	3.88	3.17	2.67	2.39
	-2	2.77	3.72	4.52	6.71	4.95	3.86	3.14	2.57	2.41
	-4	3.64	5.21	6.33	6.12	4.63	3.65	2.92		
	-6	4.57	6.95	7.25	5.22	4.02	3.15			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							2.28		
	10						2.38	2.30	1.84	1.76
	8					2.95	2.66	2.26	1.83	1.63
	6				4.90	3.65	2.81	2.21	1.80	1.55
	4					3.59	2.72	2.16	1.77	1.52
	2				4.96	3.47	2.64	2.11	1.74	1.52
GL	0				4.89	3.39	2.59	2.08	1.72	1.56
	-2	2.77	3.72	4.52	4.88	3.36	2.56	2.06	1.71	1.64
	-4	3.64	5.21	6.33	4.90	3.36	2.55	2.05		
	-6	4.57	6.95	7.25	4.95	3.39	2.58			
	-8	8.87	8.71	5.05	3.83	2.95				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.27			
	12							1.96		
	10						2.38	1.95	1.57	1.50
	8					2.95	2.42	1.92	1.56	1.39
	6				4.31	3.07	2.35	1.87	1.53	1.32
	4					2.93	2.26	1.82	1.50	1.29
	2				3.86	2.81	2.19	1.78	1.48	1.29
GL	0				3.80	2.75	2.14	1.74	1.46	1.32
	-2	2.77	3.72	4.52	3.78	2.72	2.11	1.72	1.45	1.39
	-4	3.64	5.21	6.27	3.80	2.72	2.11	1.72		
	-6	4.57	6.95	6.35	3.85	2.74	2.13			
	-8	8.87	8.71	5.05	3.83	2.81				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CANOPY, RUBBER TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.42			
	12						2.39	1.87		
	10						2.41	1.87		
	8					3.17	2.35	1.84	1.48	1.38
	6					3.03	2.27	1.79	1.46	1.31
	4					2.88	2.19	1.74	1.43	1.27
	2					2.77	2.12	1.70	1.41	1.27
GL	0				3.89	2.72	2.08	1.67	1.39	1.31
	-2	2.49	4.02	4.65	3.90	2.70	2.06	1.66		
	-4	3.77	5.69	6.77	3.92	2.71	2.06	1.67		
	-6	7.39	7.70	6.73	3.98	2.74	2.09			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.14			
	12						2.15	1.66		
	10						2.13	1.66		
	8					2.76	2.07	1.63	1.32	1.23
	6					2.63	2.00	1.59	1.29	1.16
	4					2.49	1.92	1.54	1.27	1.13
	2					2.40	1.86	1.50	1.25	1.13
GL	0				3.27	2.34	1.82	1.47	1.23	1.16
	-2	2.49	4.02	4.65	3.27	2.32	1.80	1.46		
	-4	3.77	5.69	5.55	3.30	2.33	1.80	1.47		
	-6	7.39	7.70	5.64	3.35	2.37	1.83			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CANOPY, STEEL TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	1.93		
	10						2.48	1.92		
	8					3.17	2.42	1.89	1.53	1.43
	6					3.12	2.34	1.85	1.51	1.35
	4					2.97	2.26	1.80	1.48	1.32
	2					2.87	2.20	1.76	1.45	1.32
GL	0				4.03	2.81	2.15	1.73	1.44	1.36
	-2	2.49	4.02	4.65	4.03	2.79	2.13	1.72		
	-4	3.77	5.69	6.77	4.06	2.80	2.13	1.72		
	-6	7.39	7.70	6.73	4.12	2.84	2.17			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.06			
	12						2.07	1.60		
	10						2.05	1.60		
	8					2.65	1.99	1.57	1.27	1.18
	6					2.52	1.92	1.53	1.25	1.12
	4					2.38	1.85	1.48	1.22	1.09
	2					2.29	1.78	1.44	1.20	1.09
GL	0				3.10	2.23	1.74	1.41	1.18	1.12
	-2	2.49	4.02	4.65	3.10	2.22	1.72	1.40		
	-4	3.77	5.69	5.18	3.12	2.23	1.72	1.41		
	-6	7.39	7.70	5.26	3.18	2.26	1.75			
	-8			3.99	3.18	2.34				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CANOPY, WIDE STEEL TRACK, WIDE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	1.99		
	10						2.52	1.98		
	8					3.17	2.50	1.95	1.58	1.48
	6					3.22	2.42	1.91	1.56	1.40
	4					3.07	2.34	1.86	1.53	1.37
	2					2.97	2.27	1.82	1.51	1.37
GL	0				4.17	2.91	2.23	1.79	1.49	1.41
	-2	2.49	4.02	4.65	4.17	2.89	2.21	1.78		
	-4	3.77	5.69	6.77	4.20	2.90	2.21	1.78		
	-6	7.39	7.70	6.73	4.25	2.94	2.24			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.13			
	12						2.14	1.66		
	10						2.11	1.65		
	8					2.73	2.06	1.62	1.31	1.23
	6					2.60	1.99	1.58	1.29	1.16
	4					2.47	1.91	1.54	1.27	1.13
	2					2.37	1.85	1.50	1.24	1.13
GL	0				3.21	2.32	1.81	1.47	1.23	1.16
	-2	2.49	4.02	4.65	3.22	2.30	1.79	1.46		
	-4	3.77	5.69	5.37	3.24	2.31	1.79	1.46		
	-6	7.39	7.70	5.45	3.29	2.34	1.82			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CANOPY, RUBBER TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	1.93		
	10						2.49	1.92		
	8					3.17	2.43	1.89	1.52	1.42
	6					3.14	2.35	1.85	1.50	1.35
	4					2.99	2.27	1.80	1.47	1.31
	2					2.89	2.20	1.76	1.45	1.31
GL	0				4.09	2.83	2.15	1.73	1.43	1.35
	-2	2.49	4.02	4.65	4.09	2.81	2.13	1.71		
	-4	3.77	5.69	6.77	4.12	2.82	2.14	1.72		
	-6	7.39	7.70	6.73	4.18	2.86	2.17			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.24			
	12						2.25	1.74		
	10						2.22	1.74		
	8					2.88	2.17	1.71	1.38	1.29
	6					2.75	2.10	1.67	1.36	1.23
	4					2.62	2.02	1.62	1.34	1.19
	2					2.52	1.96	1.58	1.31	1.19
GL	0				3.44	2.46	1.91	1.55	1.30	1.23
	-2	2.49	4.02	4.65	3.44	2.45	1.89	1.54		
	-4	3.77	5.69	5.83	3.47	2.45	1.90	1.54		
	-6	7.39	7.70	5.91	3.52	2.49	1.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CANOPY, STEEL TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	1.99		
	10						2.52	1.98		
	8					3.17	2.50	1.95	1.57	1.47
	6					3.24	2.42	1.91	1.55	1.39
	4					3.09	2.34	1.86	1.52	1.36
	2					2.98	2.27	1.82	1.50	1.36
GL	0				4.22	2.92	2.23	1.79	1.48	1.40
	-2	2.49	4.02	4.65	4.22	2.90	2.21	1.77		
	-4	3.77	5.69	6.77	4.25	2.91	2.21	1.78		
	-6	7.39	7.70	6.73	4.31	2.95	2.24			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.15			
	12						2.16	1.68		
	10						2.14	1.67		
	8					2.76	2.08	1.64	1.33	1.24
	6					2.63	2.01	1.60	1.31	1.18
	4					2.50	1.93	1.56	1.28	1.15
	2					2.40	1.87	1.52	1.26	1.15
GL	0				3.25	2.35	1.83	1.49	1.24	1.18
	-2	2.49	4.02	4.65	3.26	2.33	1.81	1.47		
	-4	3.77	5.69	5.43	3.28	2.34	1.81	1.48		
	-6	7.39	7.70	5.52	3.33	2.37	1.84			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CAB, RUBBER TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.47			
	12						2.39	1.91		
	10						2.45	1.90		
	8					3.17	2.40	1.87	1.51	1.41
	6					3.09	2.32	1.83	1.49	1.34
	4					2.94	2.24	1.78	1.46	1.30
	2					2.84	2.17	1.74	1.44	1.31
GL	0				3.98	2.78	2.13	1.71	1.42	1.34
	-2	2.49	4.02	4.65	3.99	2.76	2.11	1.70		
	-4	3.77	5.69	6.77	4.01	2.77	2.11	1.70		
	-6	7.39	7.70	6.73	4.07	2.81	2.14			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.18			
	12						2.19	1.70		
	10						2.17	1.69		
	8					2.81	2.11	1.66	1.34	1.26
	6					2.68	2.04	1.62	1.32	1.19
	4					2.54	1.96	1.58	1.30	1.16
	2					2.45	1.90	1.54	1.27	1.16
GL	0				3.34	2.39	1.86	1.51	1.26	1.19
	-2	2.49	4.02	4.65	3.34	2.38	1.84	1.49		
	-4	3.77	5.69	5.67	3.37	2.38	1.84	1.50		
	-6	7.39	7.70	5.75	3.42	2.42	1.87			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CAB, STEEL TRACK, STANDARD BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	1.97		
	10						2.52	1.96		
	8					3.17	2.47	1.93	1.56	1.46
	6					3.18	2.39	1.89	1.54	1.38
	4					3.04	2.31	1.84	1.51	1.35
	2					2.93	2.25	1.80	1.49	1.35
GL	0				4.12	2.88	2.20	1.77	1.47	1.39
	-2	2.49	4.02	4.65	4.12	2.86	2.18	1.76		
	-4	3.77	5.69	6.77	4.15	2.87	2.18	1.76		
	-6	7.39	7.70	6.73	4.21	2.90	2.21			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.10			
	12						2.11	1.63		
	10						2.08	1.63		
	8					2.70	2.03	1.60	1.29	1.21
	6					2.56	1.96	1.56	1.27	1.14
	4					2.43	1.88	1.51	1.25	1.11
	2					2.33	1.82	1.47	1.22	1.11
GL	0				3.16	2.28	1.78	1.45	1.21	1.14
	-2	2.49	4.02	4.65	3.16	2.26	1.76	1.43		
	-4	3.77	5.69	5.29	3.19	2.27	1.76	1.44		
	-6	7.39	7.70	5.37	3.24	2.31	1.79			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CAB, WIDE STEEL TRACK, WIDE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.03		
	10						2.52	2.02		
	8					3.17	2.54	1.99	1.61	1.51
	6					3.28	2.47	1.95	1.59	1.43
	4					3.13	2.39	1.90	1.56	1.40
	2					3.03	2.32	1.86	1.54	1.40
GL	0				4.26	2.97	2.28	1.83	1.52	1.44
	-2	2.49	4.02	4.65	4.26	2.95	2.25	1.82		
	-4	3.77	5.69	6.77	4.29	2.96	2.26	1.82		
	-6	7.39	7.70	6.73	4.34	3.00	2.29			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.17			
	12						2.18	1.69		
	10						2.15	1.68		
	8					2.78	2.10	1.65	1.34	1.25
	6					2.65	2.03	1.61	1.32	1.19
	4					2.52	1.95	1.57	1.29	1.16
	2					2.42	1.89	1.53	1.27	1.16
GL	0				3.28	2.37	1.84	1.50	1.25	1.19
	-2	2.49	4.02	4.65	3.28	2.35	1.83	1.49		
	-4	3.77	5.69	5.48	3.31	2.36	1.83	1.49		
	-6	7.39	7.70	5.56	3.36	2.39	1.86			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CAB, RUBBER TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	1.97		
	10						2.52	1.96		
	8					3.17	2.48	1.93	1.56	1.46
	6					3.21	2.40	1.89	1.53	1.38
	4					3.06	2.32	1.84	1.51	1.34
	2					2.95	2.25	1.80	1.48	1.35
GL	0				4.18	2.89	2.21	1.77	1.47	1.38
	-2	2.49	4.02	4.65	4.18	2.88	2.18	1.76		
	-4	3.77	5.69	6.77	4.21	2.88	2.19	1.76		
	-6	7.39	7.70	6.73	4.27	2.92	2.22			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.28			
	12						2.29	1.77		
	10						2.26	1.77		
	8					2.93	2.21	1.74	1.41	1.32
	6					2.80	2.13	1.70	1.39	1.25
	4					2.67	2.06	1.65	1.36	1.22
	2					2.57	1.99	1.61	1.34	1.22
GL	0				3.51	2.51	1.95	1.58	1.32	1.25
	-2	2.49	4.02	4.65	3.51	2.50	1.93	1.57		
	-4	3.77	5.69	5.94	3.54	2.50	1.94	1.58		
	-6	7.39	7.70	6.03	3.59	2.54	1.96			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

LIFTING CAPACITY OF U55-5 (CAB, STEEL TRACK, ANGLE BLADE)

Lifting capacity over-end blade down

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.44		
	10						2.52	2.45		
	8					3.17	2.81	2.59	2.45	2.22
	6					3.91	3.19	2.79	2.54	2.25
	4					4.62	3.57	3.00	2.63	2.34
	2					5.06	3.86	3.16	2.70	2.48
GL	0				5.22	5.18	3.98	3.22	2.68	2.50
	-2	2.49	4.02	4.65	6.75	5.01	3.90	3.14		
	-4	3.77	5.69	6.77	6.02	4.58	3.59	2.82		
	-6	7.39	7.70	6.73	4.92	3.81	2.93			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-end blade up

Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.48			
	12						2.39	2.03		
	10						2.52	2.02		
	8					3.17	2.55	1.99	1.61	1.50
	6					3.30	2.47	1.95	1.58	1.43
	4					3.15	2.39	1.90	1.56	1.39
	2					3.05	2.32	1.86	1.53	1.39
GL	0				4.32	2.99	2.28	1.83	1.52	1.43
	-2	2.49	4.02	4.65	4.32	2.97	2.26	1.81		
	-4	3.77	5.69	6.77	4.35	2.98	2.26	1.82		
	-6	7.39	7.70	6.73	4.41	3.02	2.29			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

Lifting capacity over-side

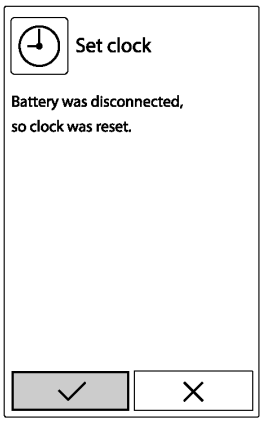
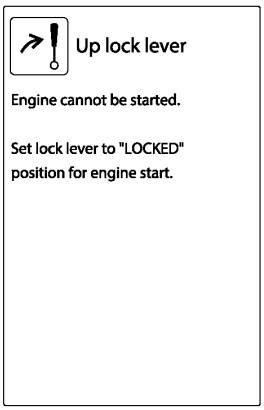
Lift point height (ft)		Load radius (ft)								
		Min.	4	6	8	10	12	14	16	Max.
	14						2.19			
	12						2.20	1.71		
	10						2.17	1.70		
	8					2.81	2.12	1.67	1.35	1.27
	6					2.68	2.05	1.63	1.33	1.20
	4					2.54	1.97	1.59	1.31	1.17
	2					2.45	1.91	1.55	1.29	1.17
GL	0				3.32	2.40	1.87	1.52	1.27	1.20
	-2	2.49	4.02	4.65	3.32	2.38	1.85	1.50		
	-4	3.77	5.69	5.54	3.35	2.39	1.85	1.51		
	-6	7.39	7.70	5.62	3.40	2.42	1.88			
	-8			3.99	3.18	2.38				

Unit=1000 lbs

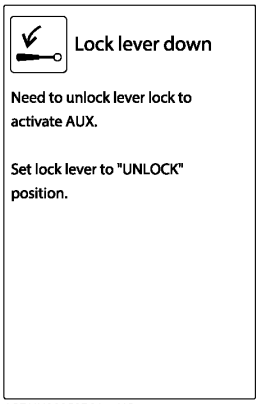
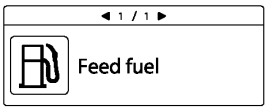
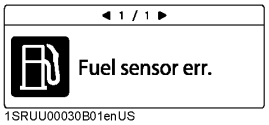
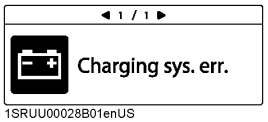
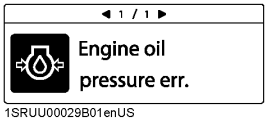
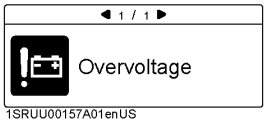
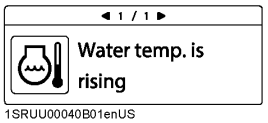
LIST OF SCREENS

NAVIGATION SCREENS

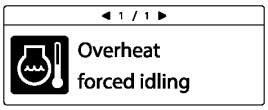
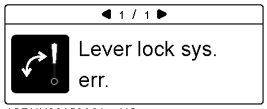
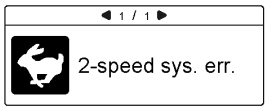
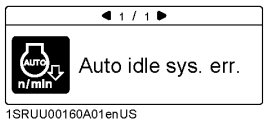
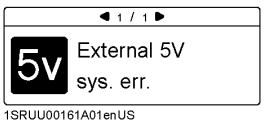
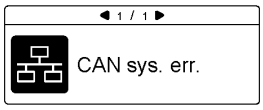
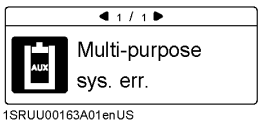
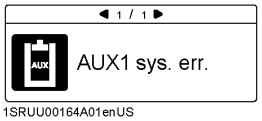
If an error occurs in the machine, one of the following messages appears on the display.
In case of trouble, immediately contact your local Kubota dealer for inspection and repair.
To view detailed information, press the jog dial (does not apply to numbers 1 through 3).
Notify your local Kubota dealer of this information.

No.	Message	Problem or failure (details)	Machine behavior (provisional measure)	Correction
1	Clock setting request  1SRUU00036B01enUS	The battery is disconnected, thereby requiring to set the clock.	Select *"✔"* to set the clock.	–
2	Tilt up the lock lever  1SRUU00055B01enUS	This message indicates a procedural step.	Tilt up the pilot control lock lever. This message disappears by tilting up the pilot control lock lever.	–

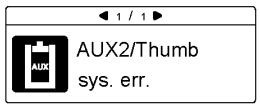
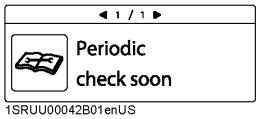
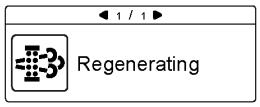
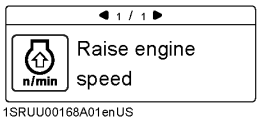
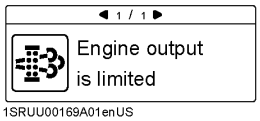
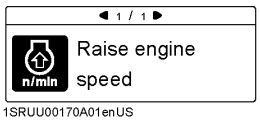
(Continued)

No.	Message	Problem or failure (details)	Machine behavior (provisional measure)	Correction
3	Tilt down the lock lever  1SRUU00059B01enUS	This message indicates a procedural step.	Tilt down the pilot control lock lever. This message disappears by tilting down the pilot control lock lever.	–
4	Out of fuel  1SRUU00027B01enUS	Fuel is running out.	–	Add fuel.
5	Fuel sensor error  1SRUU00030B01enUS	The fuel sensor system is experiencing trouble.	The fuel level indicator does not appear on the meter. The machine's other functions are still operative.	Immediately contact your local Kubota dealer.
6	Charging system error  1SRUU00028B01enUS	Charging system is experiencing trouble. The battery is not charging.	The machine works until the battery goes dead.	Immediately contact your local Kubota dealer.
7	Engine oil pressure error  1SRUU00029B01enUS	The engine lubricating system oil pressure is too low. Stop the engine.	The engine may get burnt out. Immediately stop the engine.	Immediately contact your local Kubota dealer.
8	Overvoltage  1SRUU00157A01enUS	This message appears if a jumper cable is connected to a 24 V battery or improper device to start the engine or if the alternator is experiencing trouble.	Immediately interrupt the engine if with a 24 V battery. When the engine gets restarted and is running with no message appearing, it means there is no problem.	If this message still appears, immediately ask for repairs.
9	Overheat advance warning Water temperature rising  1SRUU00040B01enUS	Water temperature is rising somewhat higher than specified.	Operate with less load. Check the radiator and other components for clog. Immediately clean them up.	–

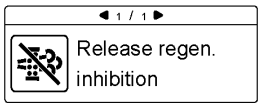
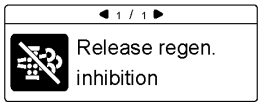
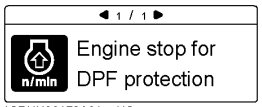
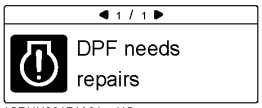
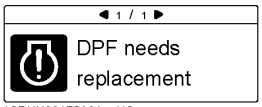
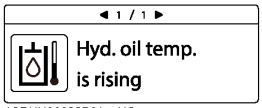
(Continued)

No.	Message	Problem or failure (details)	Machine behavior (provisional measure)	Correction
10	Cool-down during overheat idling  1SRUU00021B01enUS	The engine automatically reduces rpm to avoid an overheat.	Leave the engine idling until this warning disappears. Do not stop the engine because the coolant temperature will increase sharply and may boil and gush out. Be sure to cool down the engine without stopping it.	Refill the radiator with coolant by the amount that overflowed. Unclog the radiator and other components before using again. Also check the hydraulic system for oil leakage and other troubles. If oil leakage is found, immediately contact your local Kubota dealer for repairs.
11	Lock lever system error  1SRUU00158A01enUS	The lock lever system is experiencing trouble.	The engine can run, but the machine fails to move.	Immediately contact your local Kubota dealer.
12	Travel 2-speed system (switching)  1SRUU00159A01enUS	The 2-speed switching system is experiencing trouble.	The machine still runs at low speed without switching to high speed. The machine's other functions are still operative.	Immediately contact your local Kubota dealer.
13	AI system error  1SRUU00160A01enUS	The Auto Idle system is experiencing trouble. The accelerator fails as well.	The accelerator fails, but the machine's other functions are still operative. Move the machine to a place suitable for repairs.	Immediately contact your local Kubota dealer.
14	5 V short circuit  1SRUU00161A01enUS	The sensor's 5 V power supply has short circuited.	The majority of systems fail. • The engine may start and the machine may move. However, do not try any operations. Move the machine to a safe place.	Immediately contact your local Kubota dealer.
15	CAN system error  1SRUU00162A01enUS	The communication (CAN) system is experiencing trouble. Some meter readings may be erroneous or some switches may malfunction.	The engine may start and the machine may move. However do not try any operations. Must move the machine to a safe place.	Immediately contact your local Kubota dealer.
16	General switching system error  1SRUU00163A01enUS	The general switching system is experiencing trouble. This message appears only when the general switching function is preset effective.	The engine can restart and the machine can move, but the general switching system fails. When systems other than the general switching system function, the operation can be continued.	Immediately contact your local Kubota dealer.
17	AUX 1 port system error  1SRUU00164A01enUS	The AUX 1 port system is experiencing trouble.	The engine can restart and the machine can move, but the AUX 1 port system fails. When systems other than the AUX 1 port system function, the operation can be continued.	Immediately contact your local Kubota dealer.

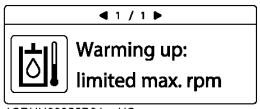
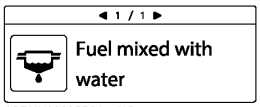
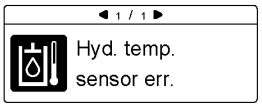
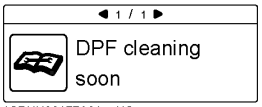
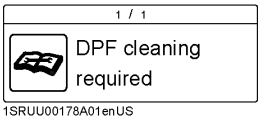
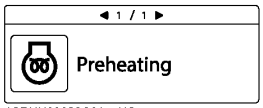
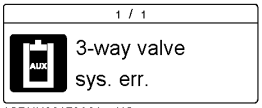
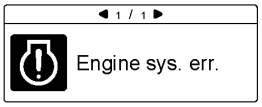
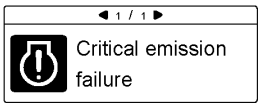
(Continued)

No.	Message	Problem or failure (details)	Machine behavior (provisional measure)	Correction
18	AUX 2/ Thumb system error  1SRUU00165A01enUS	The AUX 2 port system is experiencing trouble.	The engine can restart and the machine can move, but the AUX 2 port system fails. When systems other than the AUX 2 port system function, the operation can be continued.	Immediately contact your local Kubota dealer.
19	Periodic check (advance notice)  1SRUU00042B01enUS	This message appears 10 hours before the periodic check interval. The list of related components can be reviewed on the "Periodic check" screen. (See Periodic Check on page 40.)	Start the engine as usual.	Ask your local Kubota dealer for relevant part and replace the existing part with it. After replacement, turn on and off the key 10 times, and this message disappears.
20	Periodic check (warning)  1SRUU00166A01enUS	The periodic check interval has passed. The list of related components can be reviewed on the "Periodic check" screen. (See Periodic Check on page 40.)	The engine can still start, but immediately ask your local Kubota dealer for replacement.	Ask your local Kubota dealer for relevant part and replace the existing part with it. After replacement, turn on and off the key 10 times, and this message disappears.
21	Exhaust temp rise Operate carefully possible to work  1SRUU00167A01enUS	For the process of DPF regeneration, the exhaust gas temperature rises. It is possible to work with careful operation.	–	–
22	Raise engine speed  1SRUU00168A01enUS	The DPF must be regenerated.	For low engine rpm, the machine cannot start DPF regeneration.	Rev up the engine rpm and start the diesel-particulate-filter (DPF) regeneration.
23	Now HP is limited  1SRUU00169A01enUS	For the process of DPF regeneration, the exhaust gas temperature rises. It is possible to work with careful operation.	To protect the DPF, engine output is limited.	–
24	Raise engine speed Now HP is limited  1SRUU00170A01enUS	The DPF is clogged. The DPF must be regenerated.	The diesel-particulate-filter (DPF) must be regenerated, but low engine rpm is unable to start the diesel-particulate-filter (DPF) regeneration. To protect the DPF, engine output is limited. If you leave the machine with the hydraulic locked, the engine can stop automatically.	Rev up the engine rpm and start DPF regeneration. If this message still appears, immediately contact your local Kubota dealer.

(Continued)

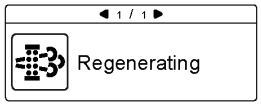
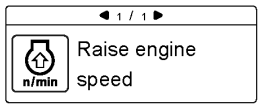
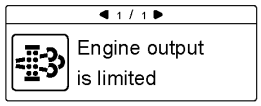
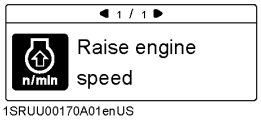
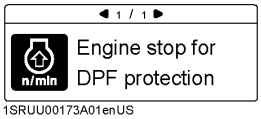
No.	Message	Problem or failure (details)	Machine behavior (provisional measure)	Correction
25	Regen.inhibition. Release it.  1SRUU00171A01enUS	The DPF must be regenerated.	The DPF must be regenerated, but unable to start regeneration because the inhibited switch is activated.	Move the machine to a safe place and release the inhibit switch to start DPF regeneration. If this message still appears, immediately contact your local Kubota dealer.
26	Regen. inhibition. Release it. Now HP limited  1SRUU00172A01enUS	The DPF is clogged. The DPF must be regenerated.	The DPF must be regenerated, but unable to start regeneration because the inhibited switch is activated. If you leave the machine with the hydraulic locked, the engine can stop automatically.	Move the machine to a safe place and release the inhibit switch to start DPF regeneration. If this message still appears, immediately contact your local Kubota dealer.
27	Warning-stop engine. Rev up and restart.  1SRUU00173A01enUS	To protect the DPF, the engine stopped automatically.	–	Turn off the key and restart the engine. Move the machine to a safe place immediately and rev up the engine rpm to start the DPF regeneration.
28	The DPF is clogged up. Need repairing  1SRUU00174A01enUS	The machine can not start DPF regeneration.	DPF must be repaired.	Immediately contact your local Kubota dealer.
29	Exchange the DPF.  1SRUU00175A01enUS	The machine can not start DPF regeneration.	DPF must be replaced.	Immediately contact your local Kubota dealer.
30	Overheat advance warning Hydraulic oil temperature rising  1SRUU00022B01enUS	Hydraulic oil temperature is rising somewhat higher than specified.	Operate with the load a little lessened.	–
31	Overheat advance warning Auto idling for the temperature of the hydraulic oil rising  1SRUU00023B01enUS	The engine was forced to idle because the hydraulic oil temperature had risen too high.	Leave the engine idling until the overheat advance warning disappears. Do not stop the engine because the temperature of the hydraulic oil will increase sharply. Be sure to cool down the engine without stopping it.	Unclog the oil cooler and other components before using again. Check also the hydraulic system for oil leak and other troubles. If an oil leak is found, immediately contact your local Kubota dealer for repair.

(Continued)

No.	Message	Problem or failure (details)	Machine behavior (provisional measure)	Correction
32	Warming-up  1SRUU00025B01enUS	No warm-up operation was made. The engine was revved up only to the medium rpm because the hydraulic oil temperature had dropped too low.	Warm up the engine.	–
33	Water got mixed with fuel  1SRUU00095B01enUS	Water is in the fuel filter and water may be in the fuel filter.	If you do not drain the fuel filter immediately after the alarm, the engine may be seriously damaged.	Immediately drain the fuel filter after stopping the engine and drain the water separator as soon as possible.
34	 1SRUU00135B01enUS	The engine cannot be started.	–	Press the engine stop button before starting engine.
35	 1SRUU00176A01enUS	The hydraulic oil temperature sensor system is experiencing trouble.	Meter does not show the hydraulic oil temperature, and overheating cannot be detected.	Immediately contact your local Kubota dealer.
36	 1SRUU00177A01enUS	The DPF will need cleaning soon.	Operate the machine as usual.	Contact your local Kubota dealer to have the DPF cleaned.
37	 1SRUU00178A01enUS	The DPF needs cleaning.	The engine can still start, but you must immediately contact your local Kubota dealer for cleaning.	Contact your local Kubota dealer to have the DPF cleaned.
38	 1SRUU00026C01enUS	The engine is preheating.	–	Wait until this message disappears, and then start engine.
39	 1SRUU00179A01enUS	The one-way or two-way selection valve system is experiencing trouble.	If systems other than one-way or two-way selection valve system function, work can be continued.	Immediately contact your local Kubota dealer.
40	 1SRUU00180A01enUS	The engine system is experiencing trouble.	–	Immediately contact your local Kubota dealer.
41	 1SRUU00181A01enUS	The particulate control device (PCD) / NOx control device (NCD) is experiencing trouble.	Engine control is not working properly.	Immediately contact your local Kubota dealer for emergency repairs.

AUTOMATIC DIESEL PARTICULATE FILTER (DPF) REGENERATION

Automatic regeneration is a normal maintenance activity that a machine performs automatically.
The diesel particulate filter (DPF) serves to trap particulate matters (PM) that are contained in exhaust gases and to automatically burn (DPF-regenerate) these matters. During the regeneration, buzzer sounds and warning lamp blinks and display shows messages.
The following is an explanation and required operator action.

Warning lamp	Display	Meaning	Required operator action
Blinking (yellow)	 1SRUU00167A01enUS	Auto regeneration starts. Continue operating the machine.	Operate the machine until the warning lamp stops blinking. Make sure that no people, animals, plants and flammable materials are within the immediate working area.
Blinking (yellow)	 1SRUU00168A01enUS	When the message “Raise engine speed” appears on the display, raise the engine speed until the message disappears.	Increase the engine speed until the message “Raise engine speed” disappears. Auto regeneration starts. Operate the machine until the warning lamp stops blinking. Make sure that no people, animals, plants and flammable materials are within the immediate working area. (Refer to No. 22 in Navigation list of screens section.)
Blinking (yellow)	 1SRUU00169A01enUS	The DPF is in the regeneration process but the engine output is limited.	Keep raising the engine speed and finish the DPF regeneration process. Make sure that no people, animals, plants and flammable materials are within the immediate working area.
Blinking (red)	 1SRUU00170A01enUS	The DPF is clogged. Start the DPF regeneration immediately. To protect the DPF, the engine output is limited. When the pilot control lock lever is pulled up, the engine will stop after 60 seconds in order to protect DPF. When the pilot control lock lever is down, the engine will not stop while the engine output is limited.	Increase the engine speed until the message “Raise engine speed” disappears. Auto regeneration starts. Make sure that no people, animals, plants and flammable materials are within the immediate working area. (Refer to No. 24 in Navigation list of screens section.)
Blinking (red)	 1SRUU00173A01enUS	To protect the DPF, the engine stopped automatically.	Restart the engine and raise its speed until the machine starts DPF regeneration. Unless the auto regeneration starts, consult your local Kubota dealer.
Blinking (red)	 1SRUU00174A01enUS	DPF must be repaired. To protect the DPF, the engine output is limited. When the pilot control lock lever is pulled up, the engine will stop after 60 seconds in order to protect DPF. When the pilot control lock lever is down, the engine will not stop while the engine output is limited.	Immediately contact your local Kubota dealer. (Refer to No. 28 in Navigation list of screens section.)
Blinking (red)	 1SRUU00175A01enUS	Exchange the DPF. To protect the DPF, the engine output is limited.	Immediately contact your local Kubota dealer. (Refer to No. 29 in Navigation list of screens section.)

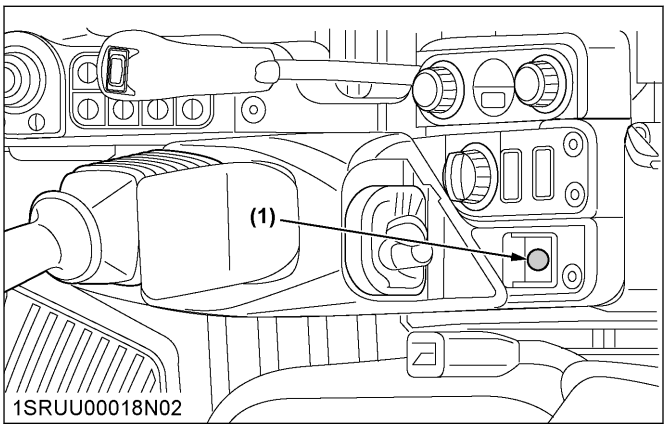
NOTE :

- **Stopping the engine or pressing the inhibit switch during the automatic regeneration cycle stops the automatic regeneration process.**
  After restarting the engine, automatic regeneration starts.

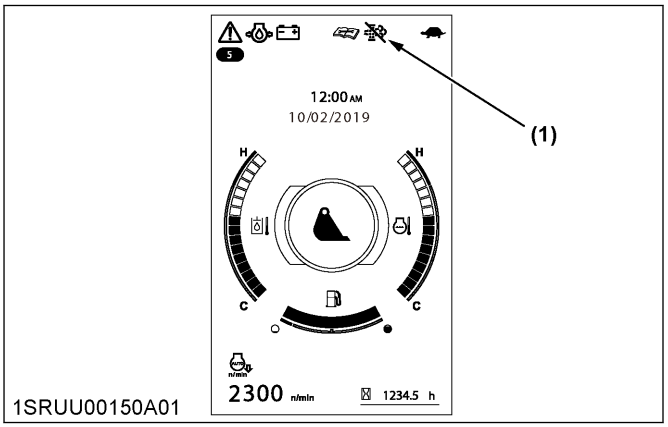
- **Regeneration time is approximately 20 to 30 minutes, and the interval is approximately 50 to 60 hours. But actual regeneration time and interval depend on usage environment like ambient temperature, exhaust temperature and engine speed.**

LOCKING AND RELEASING THE DIESEL PARTICULATE FILTER (DPF) REGENERATION

1. Press the inhibit switch (1).
   The automatic DPF regeneration is locked and the inhibit lamp on the display lights up.

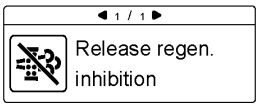
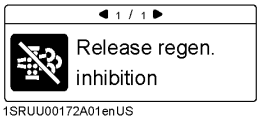
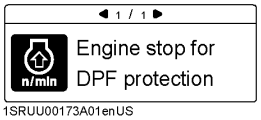
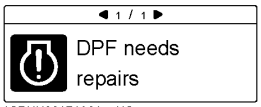
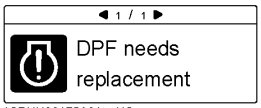


(1) Inhibit switch



(1) Inhibit lamp

2. Take the appropriate action based on the following table.

Inhibit lamp	Warning lamp	Display	Meaning	Required operator action
Lights up (yellow)	Unlit	–	• Auto regeneration process is locked. • The state is before requirement of regeneration. • When inhibit switch turns into blinking, it requires regeneration.	• Operate the machine as usual.
Blinking (yellow)	Blinking (yellow)	 1SRUU00171A01enUS	• Auto regeneration process is locked. • Operator needs preparation of DPF regeneration.	• Move the machine to a safe place and release the inhibit switch. • Increase the engine speed until the machine starts DPF regeneration. • Make sure that no people, animals, plants and flammable materials are within the immediate working area. (Refer to No. 25 in Navigation list of screens section.)
Blinking (yellow)	Blinking (red)	 1SRUU00172A01enUS  1SRUU00173A01enUS	• Auto regeneration process is locked. • Operator needs to prepare for DPF regeneration immediately. • The DPF is clogged. • To protect the DPF, engine output is limited. When the pilot control lock lever is raised up, the engine will stop after 60 seconds in order to protect DPF. • When the Pilot control lock lever is down, the engine will not stop while the engine output is limited.	• Move the machine to a safe place and release the inhibit switch. • Increase the engine speed until the machine starts DPF regeneration. • Make sure that no people, animals, plants and flammable materials are within the immediate working area. (Refer to No. 26 and 27 in Navigation list of screens section.)
Blinking (yellow)	Blinking (red)	 1SRUU00174A01enUS	• DPF must be repaired. • To protect the DPF, engine output is limited. • When the pilot control lock lever is raised up, the engine will stop after 60 seconds in order to protect DPF. • When the Pilot control lock lever is down, the engine will not stop while the engine output is limited.	Immediately contact your local Kubota dealer. (Refer to No. 28 in Navigation list of screens section.)
Blinking (yellow)	Blinking (red)	 1SRUU00175A01enUS	• DPF must be exchanged. • To protect the DPF, engine output is limited.	Immediately contact your local Kubota dealer. (Refer to No. 29 in Navigation list of screens section.)

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