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BD, B, B - B, - K

Case No. K2992-7125-7

OPERATOR'S MANUAL

KUBOTA TRACTOR

MODELS BX23S-AU
LA340AU
LA340
BT603



WX320001M01

BX23S-AU - LA340AU - LA340 - BT603

READ AND SAVE THIS MANUAL



ABBREVIATION LIST

Abbreviations	Definitions
2WD	2-Wheel Drive
4WD	4-Wheel Drive
API	American Petroleum Institute
ASABE	American Society of Agricultural and Biological Engineers, USA
ASTM	American Society of Testing and Materials, USA
DIN	Deutsches Institut für Normung, GERMANY
DT	Dual Traction [4WD]
fpm	Feet Per Minute
Hi-Ls	High Speed-Low Speed
HST	Hydrostatic Transmission
m/s	Meters Per Second
PTO	Power Take Off
RH/LH	Tractor and loader: Right hand and left hand refers to the position when you are standing at the rear of the unit and facing forward. Backhoe: Right hand and left hand refers to the position when you are seating at the operator's seat at the backhoe position and facing rearward of the tractor
ROPS	Roll-Over Protective Structures
rpm	Revolutions Per Minute
r/s	Revolutions Per Second
SAE	Society of Automotive Engineers, USA
SMV	Slow Moving Vehicle

UNIVERSAL SYMBOLS

As a guide to the operation of your tractor, various universal symbols have been utilized on the instruments and controls. The symbols are shown below with an indication of their meaning.

 Safety Alert Symbol	 Slow
 Read Operator's Manual	 Fast
 Hour meter/Elapsed Operating Hours	 Brake
 Diesel Fuel	 Parking Brake
 Fuel-Level	 4-Wheel Drive-Off
 Empty	 4-Wheel Drive-On
 Full	 Speed set-On
 Engine-Run	 Speed set-Off
 Diesel Preheat/Glow Plugs (Low Temperature Start Aid)	 Differential Lock
 Starter Control	 Hydraulic Control-Lowered Position
 Engine-Stop	 Hydraulic Control-Raised Position
 Engine Oil-Pressure	 3-Point Lowering Speed Control
 Engine Coolant-Temperature	 Remote Cylinder-Retract
 Battery Charging Condition	 Remote Cylinder-Extend
 Electrical Power-accessories	 Mid-PTO
 Hazard Warning Lights	 Mid-Rear-PTO
 Turn Signal	 Rear-PTO
 Headlight	 Power Take-Off Clutch Control-Off Position
 Master Lighting Switch	 Power Take-Off Clutch Control-On Position
 Engine Speed Control	 Tilt Steering Lever
	 Loader Lock Lever Lock Position
	 Loader Lock Lever Unlock Position

FOREWORD

You are now the proud owner of a KUBOTA Tractor. This tractor is a product of KUBOTA's quality engineering and manufacturing. It is made of the excellent materials and under rigid quality control systems. It will give you long, satisfactory service. To obtain the best use of your tractor, please read this manual carefully. It will help you become familiar with the operation of the tractor and contains many helpful hints about tractor maintenance. It is KUBOTA's policy to utilize, as quick as possible, every advance in our research. The immediate use of new techniques in the manufacturing of products may cause some small parts of this manual to become outdated. KUBOTA distributors and dealers will have the most up-to-date information. Please do not hesitate to consult them.



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.

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SAFE OPERATION

PRECAUTIONS OF THE TRACTOR

Careful operation is your best insurance against an accident.

Read and understand this manual carefully before operating the tractor.

All operators, no matter how much they have experience, should read this and other related manuals before operating the tractor or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

1. Precautions before operating the tractor

Know your equipment and its limitations.

Read this entire manual before starting and operating the tractor.

1.1 General precautions

- Pay special attention to the safety labels on the tractor.
- Do not operate the tractor or any implement attached to the tractor while under the influence of alcohol, medication, controlled substances, or while you are fatigued.
- Carefully check the vicinity of the tractor before operating it or any implement attached to it. Do not allow any bystander around or near the tractor during operating it.
- Before allowing other people to use your tractor, explain them how to operate it and have them read this manual before operating it.
- Never wear loose, torn, or bulky clothing around the tractor. Loose, torn, or bulky clothing may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items: hard hat, safety boots or shoes, eye and hearing protection, gloves, and so on, as appropriate or required.
- Do not allow passengers to ride on any part of the tractor at anytime. The operator must remain in the operator's seat during operating the tractor.
- Check the brakes, clutch, linkage pins, and other mechanical parts for improper adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. (For further details, see Checking the wheel bolt torque on page 126)

- Keep your tractor clean. Buildups of dirt, grease, and trash may contribute to fires and lead to personal injury.
- Use only implements meeting the specifications, or implements approved by Kubota. (For the specifications, see IMPLEMENT LIMITATION TABLES on page 41)
- Use proper weights on the front or rear of the tractor to reduce the risk of upsets. When using the front loader, put an implement or ballast on the 3-point hitch to maintain proper balance. Follow the safe operating procedures specified in the implement or attachment manual.
- Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.
- Do not make any modifications to the engine or emission components as they may result in damage and malfunctions such as:
 - Damage to the power train from excessive engine output.
 - Engine overheating caused by exceeding the engine cooling performance capabilities.
 - Malfunctions of the exhaust gas aftertreatment control devices.

Modifications to the engine and its emission components may violate emission regulations and are subject to fines and penalties.

Kubota and its affiliates are not liable for any damage, malfunction or accidents caused by modifications to the engine or emission components.

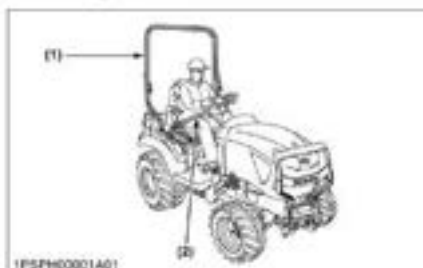
1.2 Precautions for CAB and ROPS

Kubota recommends the use of a CAB or roll-over protective structures (ROPS), and seat belt in almost all applications. Combination of a CAB or ROPS and seat belt will reduce the risk of serious injury or death if the tractor should be upset.

- Check for overhead clearance that may interfere with a CAB or a ROPS.
- Set the parking brake and stop the engine. Remove any obstructions that may prevent raising or folding the ROPS. Do not allow any bystander. Always perform functions of CAB or ROPS from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding it. Make sure that all pins are installed and locked.
- If the CAB or the ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.

SAFE OPERATION

- Never modify or repair any structural member of a CAB or a ROPS because welding, bending, drilling, grinding, or cutting it may weaken the structure.
- If any structural member of the CAB or the ROPS is damaged, replace the entire structure at your local Kubota Dealer.
- If the tractor is equipped with a foldable ROPS, you may fold down it temporarily only when absolutely necessary to fold down it for areas with constraints on height.
There is no protection of operator provided by the ROPS in the folded position. For operator safety, you should set the ROPS in the upright and locked position and fasten the seat belt for all other operations.
- Always use the seat belt if the tractor has a CAB or a ROPS.
Do not use the seat belt if a foldable ROPS is down or there is no ROPS.
Check the seat belt regularly and replace it if frayed or damaged.



1P5PH0001A01

(1) ROPS

(2) Seat belt

2. Precautions for operating the tractor

Operator safety is a priority. Safe operation, specifically with respect to overturning hazards, entails understanding the equipment and environmental conditions at the time of use. Some prohibited uses that can affect overturning hazards include traveling and turning with implements and loads carried too high. This manual sets forth some of the obvious risks, but the list of risks is not exhaustive, and the list of risks cannot be exhaustive. It is the operator's responsibility to be alert for any equipment or environmental condition that could compromise safe operation.

2.1 Precautions for starting to operate the tractor

- Always sit in the operator's seat when starting the engine or operating the levers or controls. Adjust the operator's seat according to Operator's seat on

page 49. Never start the engine while you are standing on the ground.

- Before starting the engine, make sure that all levers including auxiliary control levers are in their "NEUTRAL" positions, that the parking brake is engaged, and that the power take-off (PTO) is disengaged or off.
Fasten the seat belt if the tractor is equipped with a CAB, a fixed ROPS, or a foldable ROPS in the upright and locked position.
- Do not start the engine by shorting across starter terminals or bypassing the safety start switch. The tractor may start in gear and move if normal starting circuitry is bypassed.
- Do not operate or idle the engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly.
- Check that the operator presence control system (OPC) are functioning correctly before each time you use the tractor. Test safety systems. (See Checking the engine start system on page 125 and Checking the OPC (operator presence control) system on page 126)
Do not operate unless they are functioning correctly.

2.2 Precautions for working the tractor

- Pull only from the hitch. Never hitch to the axle housing or any other point except the hitch. Hitching to the axle housing or any other point except the hitch will increase the risk of serious personal injury or death due to a tractor upset.



1R6MC00003A01

(1) Hitch

- Keep all shields and guards in place. Replace any shield or guard that are missing or damaged.
- Avoid sudden starts. To avoid upsets, slow down when turning, on uneven ground, and before stopping.
- The tractor cannot turn with the differential locked. Do not turn with the differential locked as it could be dangerous.

SAFE OPERATION

- Do not operate the tractor near ditches, holes, embankments, or other ground surface features which may collapse under the weight of the tractor. The risk of tractor upset is even higher when the ground is loose or wet. Tall grass can hide obstacles, so walk the area first to be sure.
- Watch where you are going at all times. Watch for and avoid obstacles. Be alert at row ends, near trees, and other obstructions.
- When working in groups, always let the others know what you are going to perform before you perform it.
- Never try to get on or off a moving tractor.
- Always sit in the operator's seat when you are operating levers or controls.
- Do not stand between the tractor and the implement or trailed vehicle unless parking brake is applied.
- Do not operate or tow the tractor at speeds exceeding the specified travel speed.
(See TRAVELING SPEEDS TABLE on page 31 and Precautions for transporting the tractor safely on page 75)

2.3 Safety for children

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

- 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 the tractor down if children enter the work area.
- Never carry children on the tractor. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the tractor.
- Never allow children to operate the tractor even under adult supervision.
- Never allow children to play on the tractor or on the implement.
- Use extra caution when the tractor is backing up. Before the tractor starts to move, look down and behind to make sure that the working area is clear.

2.4 Precautions for operating the tractor on slopes

Slopes are a major factor related to loss of control and tip-over accidents, which can result in severe injury or death.

All slopes require extra caution.

- To avoid upsets of the tractor, always back it up steep slopes. If you cannot back the tractor up the slope or if you feel uneasy to back it up the slope,

do not operate the tractor on the slope. Stay off the slopes which is too steep for safe operation.

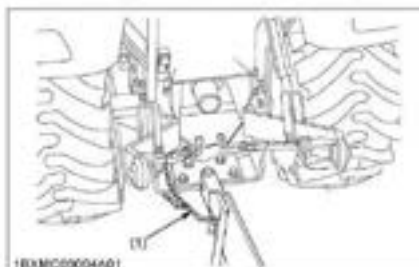
- Driving forward out of a ditch, mired condition, or up a steep slope increases the risk of the tractor to be upset backward. Always back the tractor out of a ditch, mired condition, or steep slope. The 4-wheel drive models require extra caution because their increased traction can give the operator false confidence in the ability of the tractor to climb the slopes.
- Keep all movement of the tractor on slopes slow and gradual. Do not change the speed or direction of the tractor suddenly. Do not apply brake suddenly. Do not move the steering wheel suddenly.
- Avoid changing the gears speed when the tractor is climbing or going down a slope. Changing the gears to neutral on a slope could cause loss of control.
- You should pay special attention to the weight and location of implements and loads because they will affect the stability of the tractor.
- To improve stability of the tractor on slope, follow recommendations for proper ballasting as shown in BALLAST on page 94.
- When driving down a slope, make sure that 4-wheel drive is engaged to increase traction if equipped.

2.5 Precautions for driving the tractor on the road

- Check the front wheel engagement. The braking characteristics are different between 2-wheel drive and 4-wheel drive. Know the difference and use carefully.
- Always slow the tractor down before turning. Turning at high speed may tip the tractor over.
- On public roads use the hazard lights, if required by local traffic and safety regulations.
- Check all local traffic and safety regulations.
- Turn the headlights on. Dim the headlights when meeting another vehicle.
- Drive at speeds that allow you to maintain the control at all times.
- Do not apply the differential lock while traveling at road speeds. The tractor may run out of control.
- Avoid sudden motions of the steering wheel because they can lead to a dangerous loss of stability. The risk is especially great when the tractor is traveling at road speeds.
- Keep the ROPS in the up position and wear the seat belt when driving the tractor on the road. Otherwise, you will not be protected in the event of a tractor roll-over.
- Do not operate an implement while the tractor is on the road. Lock the 3-point hitch in the raised position.

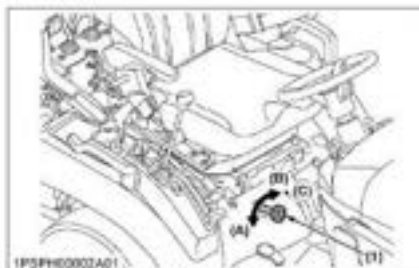
⚠ SAFE OPERATION

- When towing other equipment, use a safety chain.



(1) Safety chain

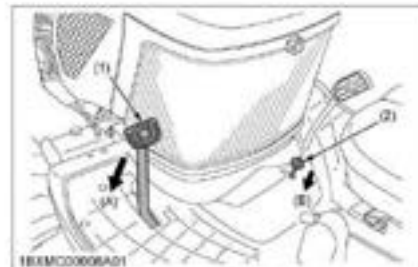
- Set the implement lowering speed knob in the lock position to hold the implement in the raised position.



(1) 3-point hitch lowering speed knob
(A) Fast
(B) Slow
(C) Lock

3. Precautions for parking the tractor

- Disengage the PTO, lower all implements to the ground, place all control levers in their "NEUTRAL" positions, set the parking brake, stop the engine, remove the key from the ignition, and lock the cab door if equipped. Leaving the transmission in gear with the engine stopped will not prevent the tractor from rolling.

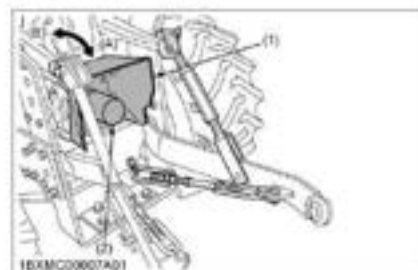


(1) Brake pedal
(2) Parking brake pedal
(A) Depress
(B) Push down parking brake pedal while depressing brake pedal

- Make sure that the tractor has come to a complete stop before getting off the tractor.
- Avoid parking on steep slopes. If it is at all possible, park on a firm and level surface. If it is not at all possible to park on a firm and level surface, park across a slope and chock the wheels. Failure to comply with the preceding warning may allow the tractor to move and could cause injury or death.

4. Precautions for operating the PTO

- Wait until all moving components have completely stopped before getting off the tractor, connecting, disconnecting, adjusting, cleaning, or servicing any PTO driven equipment.
- Keep the PTO shaft cover in place at all times. Replace the PTO shaft cap when the shaft is not in use.



(1) PTO shaft cover
(2) PTO shaft cap
(A) Normal position
(B) Raised position

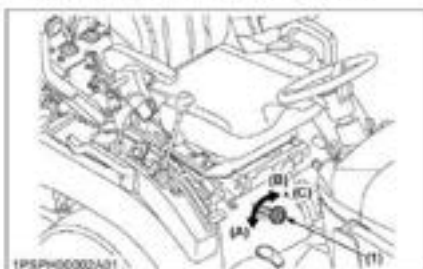
- Before installing or using the PTO-driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment.
- When operating the stationary PTO-driven equipment, always apply the parking brake of tractor and place the chocks behind and in front of

⚠ SAFE OPERATION

the rear wheels. Stay clear of all rotating parts. Never step over rotating parts.

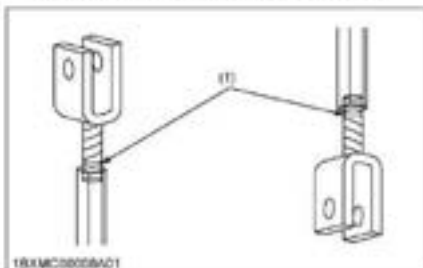
5. Precautions for using 3-point hitch

- Use the 3-point hitch only with equipment designed for the appropriate category of 3-point hitch usage.
- When using an implement mounted to the 3-point hitch, install the proper counterbalance weight on the front of the tractor.
- When transporting the loads on the road, set the implement lowering speed knob in the lock position to hold the implement in the raised position.



(A) 3-point hitch lowering speed knob
(B) Slow knob
(C) Lock

- To avoid injury from separation, do not extend the lift rod beyond the groove on the threaded rod.



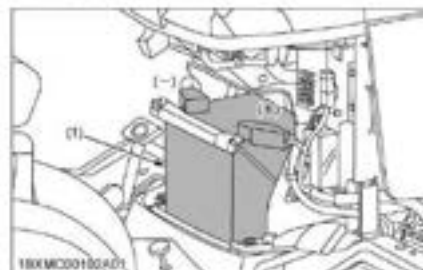
(1) Groove

6. Precautions for servicing the tractor

Before servicing the tractor, follow the following procedure.

1. Park the tractor on a firm, flat, and level surface.
2. Set the parking brake.
3. Lower all implements to the ground.

4. Place the gear shift lever in the neutral position.
5. Stop the engine.
6. Remove the starter key.
 - Allow the tractor time to cool off before working on or near the engine, muffler, radiator, and so on.
 - Do not remove the radiator cap while coolant is hot. When coolant is cool, slowly rotate the radiator cap to the first stop and allow sufficient time for excess pressure to escape before removing the radiator cap completely. If the tractor equips a coolant recovery tank, add coolant or water to the coolant recovery tank. Do not add coolant to the radiator. (See Checking the coolant level on page 122)
 - Always stop the engine before refueling. Avoid spills and overfilling. Always use properly grounded fueling systems and make sure that no static discharge occurs during fueling.
 - Do not smoke or no fire when working around the battery or when the tractor is refueling. Keep all sparks and flames away from the battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when you are recharging it. After refueling, close the tank cap securely.
 - Before jump starting a dead battery, read and follow all of the instructions. (See JUMP STARTING THE ENGINE on page 63)
 - Keep first aid kit and fire extinguisher handy at all times.
 - Disconnect the ground cable of battery before working on or near electric components.
 - To avoid the possibility of battery explosion, do not use or charge the refillable type battery if the fluid level is below the lower (lower limit level) mark. 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 battery first and reconnect it last.



(1) Battery

- Do not mount a tire on a rim. A qualified person should mount a tire on a rim with the proper equipment.

⚠ SAFE OPERATION

- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. (For the recommended pressure, see Inflation pressure of tires on page 92)



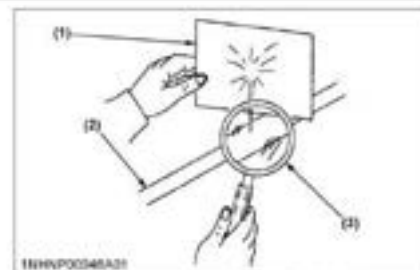
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- Securely support the tractor when either changing wheels or adjusting the width of wheel tread.
- Make sure that the wheel bolts have been tightened to the specified torque. (See WHEEL TREAD on page 92)
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under the tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- Escaping hydraulic fluid under pressure obtains sufficient force to penetrate skin, so escaping hydraulic fluid under pressure can cause serious personal injury. Before disconnecting the hydraulic lines, release all residual pressure. Before applying pressure to the hydraulic system, make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.



1B0ACNAP010B

- Hydraulic fluid escaping from pinholes may be invisible. Do not use hands to search for suspected leaks. Use a piece of cardboard or wood to search for suspected leaks. You should use safety goggles or other eye protection. If injured by escaping fluid, see a medical doctor at once. Hydraulic fluid will produce gangrene or severe allergic reaction.



1B0HVP00345A01

- (1) Cardboard
(2) Hydraulic line
(3) Magnifying glass

- Waste products such as used oil, fuel, hydraulic fluid, and batteries, can harm the environment, people, pets, and wildlife. Please dispose properly. See your local recycling center or Kubota Dealer to learn how to recycle or get rid of waste products.
- Meaning of symbols on batteries regarding management of waste batteries:



Pb

- Separate collection symbol: batteries must not be disposed of with the household waste.
- Pb symbol: batteries contain more than 0.004 % lead.

PRECAUTIONS OF THE LOADER

You can avoid most accidents of the loader equipment by simple safety precautions.

Safety precautions of the loader, if you follow at all times, will help you operate your loader safely.

1. Precautions before operating the loader

- Read and understand all instructions and precautions in both the tractor and the loader operator's manuals before using the loader. Lack of knowledge can lead to accidents.
- It is the owner's responsibility to make sure that anyone who will operate the loader reads this manual first and becomes familiar with the safe operation of the loader.
- For your safety, KUBOTA strongly recommend using a ROPS (roll-over protective structures) with a seat belt in almost all applications. If your tractor equips a foldable ROPS, fold it down only when absolutely necessary and raise it up and lock it again as soon as possible. Do not wear the seat belt when a foldable ROPS is down or a fixed

SAFE OPERATION

ROPS is removed. If you get any questions, consult your local KUBOTA dealer.

Always use the seat belt when the tractor is equipped with a ROPS. Never use the seat belt when the tractor is not equipped with a ROPS.

- Visually check for hydraulic leaks and broken, missing, or malfunctioning parts. Perform necessary repairs before operating the loader.
- Replace damaged or illegible safety labels. See Safety labels of the loader on page 22 for required labels.
- When the front loader is mounted on the tractor, enter and exit the operator's seat only from left side of the tractor.
- Engage the loader control valve lock to prevent accidental actuation when the implement is not in use or during transport. Do not utilize the loader control valve lock for maintenance or repair of the machine.
- Assemble, remove, and reinstall the loader only as directed in this manual. Otherwise, serious personal injury or death may result.

2. Precautions for operating the loader

- Operate the loader only when properly seated at the controls. Do not operate the loader from the ground.
- Move and turn the tractor at low speeds.
- Never allow anyone to get under the bucket of the loader or reach through the boom when the bucket is raised.
- Keep children, others, and livestock away when operating the loader and the tractor.
- Do not walk or work under a raised bucket of the loader or attachment unless it is securely blocked and held in position.
- For the stability of the tractor and operator's safety, add rear ballast to the 3-point hitch and to the rear wheels when using the loader.
- To increase stability of the tractor, adjust the rear wheels to the widest setting that is suitable for your application.
- Exercise extra caution when operating the loader with a raised bucket or attachment.
- Do not lift or carry any person on the loader, in the bucket, or other attachment.
- Avoid loose fill, rocks, and holes. Loose fill, rocks, and holes can be dangerous for operation or movement of the loader.
- Avoid overhead wires and obstacles when the loader is raised. Contacting the electric lines can cause electrocution.
- Gradually stop the loader boom when lowering or lifting.

- Use caution when handling loose or shiftable loads.
- When using the loaders for handling large, heavy, or shiftable objects, using proper handling attachments with them is recommended.
- Handling large, heavy objects can be extremely dangerous due to the following reasons:
 - Danger of rolling the tractor over
 - Danger of upending the tractor
 - Danger of the object rolling or sliding down the boom of the loader onto the operator
- If you must handle the large, heavy objects, protect yourself by the following preventive measures:
 - Never lift the load higher than necessary to clear the ground.
 - Add the rear ballast to the tractor to compensate for the load or use the rear implement.
 - Never lift large objects with the equipment that may permit the large objects to roll back onto the operator.
 - Move slowly and carefully, avoiding rough terrain.
- Never lift or pull a load from any point on the loader or any attachments with a chain, rope, or cable. Otherwise, rollover or serious damage to the loader may occur.
- Be extra careful when operating the tractor on a slope. Always operate the tractor up and down, and never across the slope.
- Do not operate the tractor on steep slopes or unstable surfaces.
- When operating another implement on a hillside, remove the loader to reduce the risk of rollover.
- Carry the boom of the loader at a low position during transport. Ensure that you are able to see over the bucket.
- Allow for the length of the loader when turning the tractor.

3. Precautions after operating the loader

- When loader work is complete and parking or storing, follow the following procedures before leaving the operator's seat of the tractor.
 1. Choose flat, hard ground.
 2. Lower the boom of the loader to the ground.
 3. Stop the engine.
 4. Set the parking brake.
 5. Remove the starter key.
- Make sure that the removed loader is on stands and on a hard, level surface.
- Before disconnecting the hydraulic lines, relieve all hydraulic pressure by moving the controls.
- Do not remove the loader from the tractor without an approved bucket attached.

SAFE OPERATION

4. Precautions for servicing the loader

- Always wear appropriate protective equipment when servicing or repairing the machine.
- Do not modify the loader. Unauthorized modification may affect the function of the loader, which may result in personal injury.
- Do not use the loader as a work platform or a jack to support the tractor for servicing or maintenance. Securely support the tractor or any machine elements with stands or suitable blocking before working underneath.
For your safety, do not work under any hydraulically supported devices. Hydraulically supported devices can settle, suddenly leak down, or be accidentally lowered.
- Escaping hydraulic oil under pressure can produce sufficient force to penetrate the skin, causing serious personal injury. Do not use hands to search for suspected leaks. Use a piece of cardboard or wood to search for suspected leaks. If injured by escaping fluid, obtain medical treatment immediately.
- Do not tamper with the setting of the relief valve. The relief valve is pre-set at the factory. Changing the setting of the relief valve can cause overloading of the loader and tractor which may result in serious personal injury.
- When servicing or replacing the pins in cylinder ends, bucket, and so on, always use a brass drift and hammer. Otherwise injury from flying metal fragments could result.

PRECAUTIONS OF THE BACKHOE

Most accidents of the backhoe equipment can be avoided by simple safety precautions. Safety precautions of the backhoe, if you follow at all times, will help you operate your backhoe safely.

1. Precautions before operating the backhoe

- Read and understand all precautions in this manual before service or operation. Allow only trained personnel to operate or service the backhoe.
- It is the owner's responsibility to make sure that anyone who will operate the backhoe reads this manual first and becomes familiar with the safe operation of the backhoe.
- For safe operation of the backhoe, check the mounting bolts for tightness and check that the mount levers are in the right position before operation the backhoe.

- Never operate the tractor with the backhoe attached and the loader removed.
- Check for buried material such as electrical lines, telephone lines, gas lines, and water lines. When in doubt about buried material, contact local utility companies for their buried location prior to operating the backhoe.
- Replace any safety decal that becomes damaged, lost, or illegible. Also renew all decals when repainting.

2. Precautions for operating the backhoe

- Do not allow anyone other than the operator on the unit of the backhoe while in operation or transport.
- Keep all person and animals away from swing area of backhoe.
- Pay attention to the backhoe when operating it on slopes to avoid tipping-over of the machine. Travel at a speed compatible with safe operation, especially when operating the machine on uneven terrain, crossing ditches, or while turning.
- Operate the backhoe from the backhoe operator's seat only.
- When using the backhoe on slopes, one stabilizer may be lower than the other. Pay extreme attention to the backhoe during excavation because the risk of tipping-over of the machine will increase.
- To reduce the risk of tipping-over of the machine on a slope, place the spoil to the high side of the excavation.
- Do not dig under the stabilizer or the tractor, especially in soft or sandy condition. Take extra precaution in wet or thawing ground.
The machine can become unstable in wet or thawing conditions and these conditions may collapse under the weight of the machine and may cause tipping-over of the machine.
- Never operate the machine or any equipment while under the influence of alcohol or other drugs, or while fatigued.
- When leaving the machine unattended, lower the backhoe to the ground. Set the parking brake, then shut the engine off and remove the key.

3. Precautions of the backhoe while driving the tractor on the road

- Raise and center the boom, close the dipperstick, curl the bucket, and lock the boom before transporting the machine.
- Check the local codes or regulations that may apply to tractor, loader, and backhoe operation on public streets or highways, before transporting or traveling of the machine. Use the warning flashers as required.

SAFE OPERATION

4. Precautions for servicing the backhoe

- Before disconnecting the hydraulic lines, relieve all hydraulic pressure by moving the controls.
- Always use personal protection device such as safety goggles and ear protection when servicing or repairing the machine.
- Lower the backhoe to the ground and shut the engine off before servicing of the backhoe.
- When servicing or repairing pins in cylinder ends, bucket, and so on, always use a brass drift and hammer. Failure to service or repair pins using a brass drift and hammer could result in injury from flying metal fragments.
- To avoid serious personal injury, keep clear of working area of the backhoe.
- When servicing or checking the backhoe underneath, do not get under the machine while it is being held with only the bucket, backhoe, or stabilizers. Securely support the machine with jack stands.
- For your safety, do not work under any hydraulically supported machine elements. Hydraulically supported machine elements can settle, suddenly leak down, or be accidentally lowered.
- Escaping hydraulic fluid under pressure can obtain sufficient force to penetrate the skin, which cause serious personal injury.
Before applying pressure to the hydraulic system, be sure that all connections are tight and that all lines, the pipes and the hoses are not damaged.
Hydraulic fluid escaping from a very small hole can be almost invisible. Do not use hands to search for suspected leaks. Use a piece of cardboard or wood.
If injured by escaping fluid, see a doctor at once. Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.
- Do not tamper with any setting of the pressure of the control valve and the relief valve of the backhoe. The pressure of the relief valve is preset at the factory. Changing the setting of the pressure of the relief valve can cause overloading of the backhoe and the tractor, and serious personal injury or death may result.
- Do not modify the backhoe for any reason. Modifying the backhoe can cause an unstable condition of combination of the tractor, the loader, and the backhoe, and serious personal injury or death may result.

SAFE OPERATION

SAFETY LABELS

1. Safety labels of the tractor

(1) Part No. K2871-6548-1



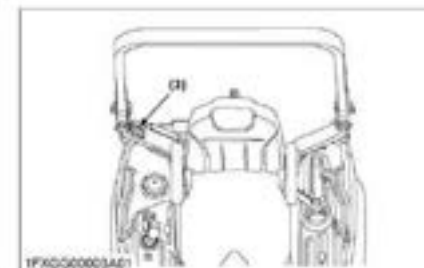
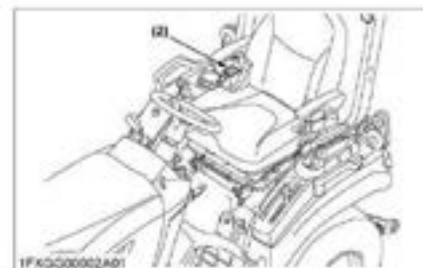
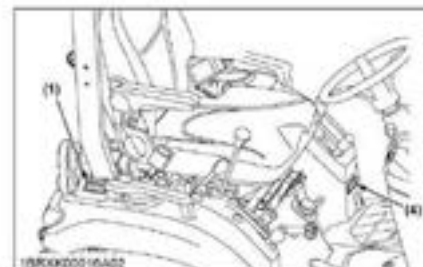
(2) Part No. K1272-6585-2
Diesel fuel only No fire



(3) Part No. K2591-6557-2



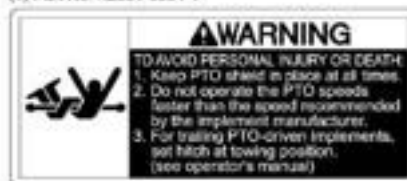
(4) Part No. K3603-4718-1
Use ear protection to avoid damage to hearing. Always wear protective glasses.



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⚠️ SAFE OPERATION

(1) Part No. K2581-6554-1



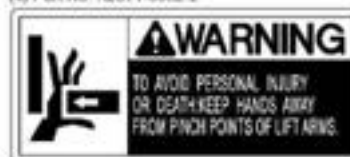
(2) Part No. K2581-6555-1



(3) Part No. K2871-6556-1



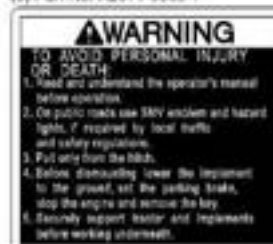
(4) Part No. K2871-6552-2



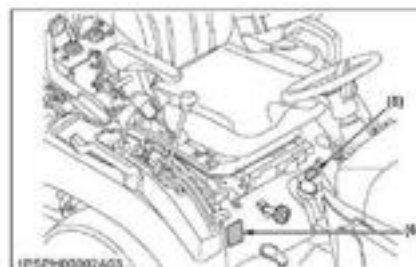
(5) Part No. K2651-6556-1



(6) Part No. K2871-6556-1



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⚠️ SAFE OPERATION

(1) Part No. K2871-6541-1



1AGJAKKAP08E

(2) Part No. K2581-6547-1
Stay clear of engine fan and fanbelt.



1AGJAKKAP08E

(3) Part No. K2581-6543-1

Stay clear of engine fan and fanbelt.



1AGJAKKAP08E

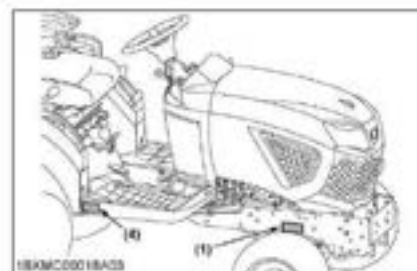
(4) Part No. K2774-6528-1

LH and RH

Do not reach hands underneath fender to avoid pinching.



1AGF8X00013000

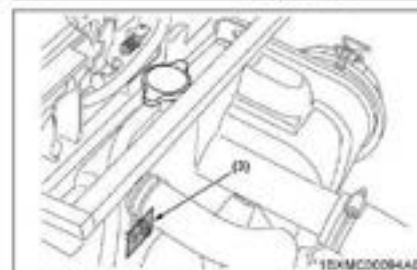


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18KMC00018A01

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18KMC00084A02

⚠️ SAFE OPERATION

(1) Part No. K2054-6545-2

TO AVOID FIRE HAZARD:

Before operating the machine, clean inside of the hood and around the mower belt.

Especially, dry grass and leaves around the exhaust manifold, the muffler or around the mower belt may ignite.

After using, air-blowing and pressure-washing, make sure there is nothing flammable around the exhaust manifold, the muffler or around the mower belt.

Grass, twigs, dirt or chaff in the hood may cause fire.



(2) Part No. K2871-6564-1

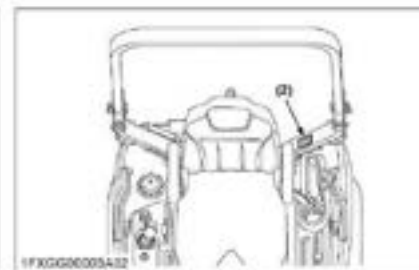
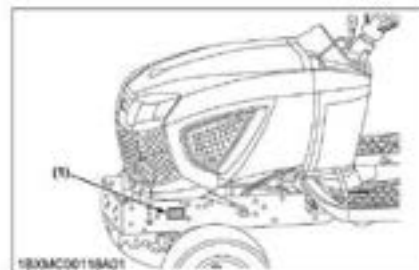
⚠️ WARNING

Never modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.

⚠️ WARNING

TO AVOID PERSONAL INJURY OR DEATH WHEN RAISING OR FOLDING ROPS:

1. Set parking brake and stop engine.
2. Remove any obstruction that may prevent raising or folding of the ROPS.
3. Do not allow any bystanders.
4. Always perform function from a stable position at the rear of the tractor.
5. Hold the top of the ROPS securely when raising or folding.
6. Make sure all pins are installed and locked.



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⚠ SAFE OPERATION

(1) Part No. K7121-6115-1



DANGER Contains: Lead, Sulfuric Acid (Electrolyte), Lead Compounds, Arsenic.

- Harmful if swallowed, inhaled or in contact with skin.
- Acid causes severe skin burns and eye damage.
- May damage fertility or the unborn child if ingested or inhaled.
- May cause harm to breastfed children.
- May cause cancer if ingested or inhaled.
- Causes skin irritation, serious eye damage.
- Contact with internal components may cause irritation or severe burns.
- Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure if ingested or inhaled.
- Irritating to eyes, respiratory system and skin.
- May form explosive air/gas mixture during charging.
- Extremely flammable gas (hydrogen).
- Explosive, fire, blast or projection hazard.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid contact during pregnancy/while nursing.
- Wear protective gloves/protective clothing, eye protection / face protection.
- Use only outdoors or in a well-ventilated area.

- Avoid contact with internal acid.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Keep away from heating pipes/open flames/hot surfaces. No smoking.
- IF SWALLOWED OR CONSUMED: Rinse mouth. Do NOT induce vomiting.
- Call a poison center/doctor if you feel unwell.
- IF ON CLOTHING OR SKIN (or hair): Remove/take off immediately all contaminated clothing and wash it before reuse.
- Rinse skin with water/shower.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- Immediately call a POISON CENTER or doctor / physician.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If exposed / concerned, or if you feel unwell, seek medical attention/advice.
- Store locked up, in a well-ventilated area, in accordance with local and national regulation.
- Dispose of contents/container in accordance with local and national regulation.
- Keep out of reach of children.

PROPOSITION 65 WARNING:
Battery packs, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer.
WASH HANDS AFTER HANDLING.

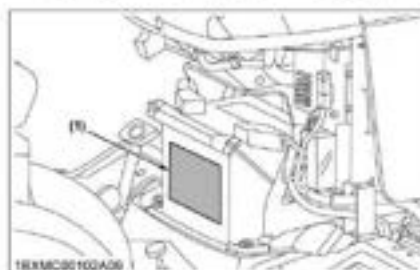
WARNING: Risk of fire, explosion or burns. Do not disassemble, heat above 60°C / 140°F or incinerate. Not recommended for inverted use. Follow product charging instructions.

High Voltage: Risk of shock. Do not touch uninsulated terminals or connectors.

Keep Vent Caps Tightly in Place.

Do not Tip.

Made in Korea



18XMC80102A06

1UPPY00006A01eUS

- Keep away cigarettes, flames or sparks.
- Always shield eyes and face from the battery.
- Keep out of reach of children.
- Poison causes severe burns.
- Contains sulfuric acid.
- Read and understand the Operator's Manual.
- Danger explosive gases.

SAFE OPERATION

(1) Part No. K2883-6S27-1
Do not touch hot
surface like muffler, etc.



1PSPHC0017A01enUS

SAFE OPERATION

2. Safety labels of the loader

(1) Part No. 7J061-5645-1



1AUBBA-APC195

(2) Part No. 7J245-5641-1



1AUBBA-APC17A

(3) Part No. 7J245-5643-2



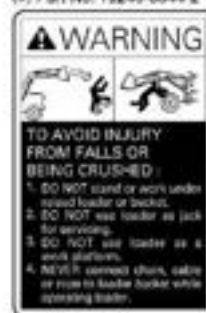
1AUBBA-APC15A

(4) Part No. 7J245-5642-2



1AUBBA-APC13A

(5) Part No. 7J245-5644-2



1AUBBA-APC22A

(6) Part No. 7J061-5649-1

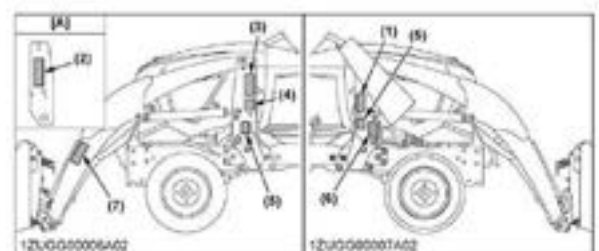


1AUBBA-APC16A

(7) Part No. 7J802-5848-3



1AUBBA-APC130



12UGG00006A02

12UGG00007A02

1A7 LH inside

12UGG00032A01w03

(1) Part No. 7.061-5643-1

▲ WARNING

TO AVOID INJURY FROM CRUSHING:

1. Do not utilize the valve tool to remove rebar from a wall.
2. The valve tool is to prevent accidental exposure when rebar is not in use or being changed.

1. 凡在本公司工作之员工，其工资由基本工资、绩效工资、奖金、津贴、补贴、福利费、社会保险费、住房公积金等组成。

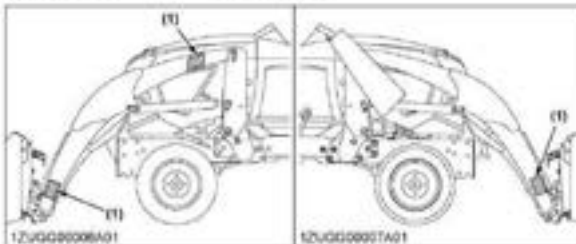
(2) Part No. 7.3802-5848-3

[LA340AU only]

⚠ WARNING

- Total system runs before performing maintenance work (avoid loose parts/values to simply avoid health or safety issues)
- Empty tank trucked into place or dump (spills into lake and/or stream)
- Empty tank drained out, be performed on ground, no fire risk, etc.
- Fuel gas and lower level used with the system (no fire risk, no gas into the lake of toxic gas, no cancer of toxic fuel)
- Study lower level and health issues

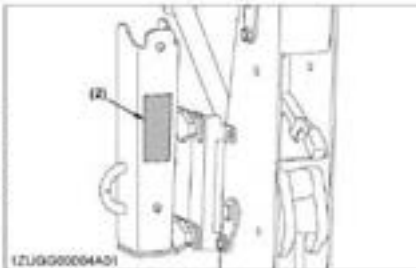
11943444.PDF

1. **FUNCTIONAL**

12/16/2000 7:40:11

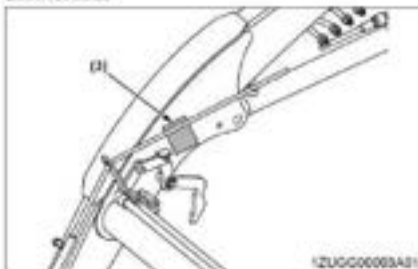


12UG00000540



12UG00004A3

Room 54 inside



"ZUC0000343"

(3) Part No. 7J630-5637-1

[LA346AU only]

ROL is calculated in the following configuration:
3rd function, front guard and mower deck links.

Tractor Model	80235
Rated Operating Load	
with Counterweight	1475kg
with Backhoe	200kg
Counterweight Required	170kg
Date of supply	

▲ WARNING

DO NOT EXCEED 100%
DO NOT OPERATE UNDER
ANY OTHER CIRCUMSTANCES.
DO NOT EXCEED 100%
UNDER FALLING OR WIND
LOAD. IT IS CALCULATED WITH
STANDING LOADS. IT IS ONLY
STANDING LOADS THAT CAN BE
REDUCED TO 100%.

UNCG0007451

12JG00000401e-03

⚠️ SAFE OPERATION

3. Safety labels of the backhoe

(1) Part No. 75597-7526-1



1HNAACAP00E

(2) Part No. 75595-7517-2



1HNAACAP01E

(3) Part No. 75595-7524-2



1HNAACAP02E

(4) Part No. 7K501-7529-1

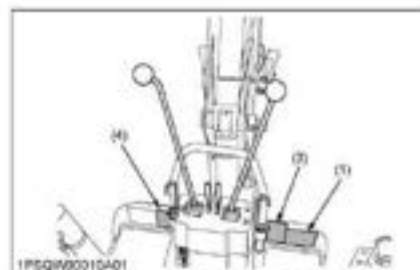


1AUBBAP00A

(5) Part No. 75597-7517-3

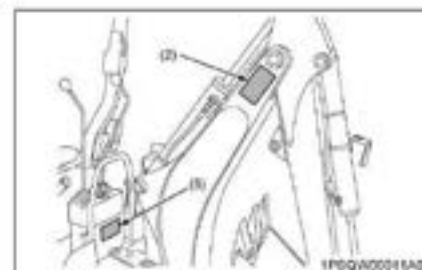


1HNAACAP03E



1PBGW00010A01

1PBGW00009A01enUE



1PBGW00011A01

⚠️ SAFE OPERATION

[BX6316 MECHANICAL THUMB] (Option for BT603)



(1) Part No. 7K523-8452-1 (Both sides)

⚠️ WARNING

TO AVOID INJURY FROM CRUSHING:

Keep all body parts (Head, Arms, Hands, Legs, and Feet) out of the operating area of the Thumb and Backhoe Bucket.

100A-514PC3E

1PSQW00012A01

SAFE OPERATION

4. Care for 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 local Kubota Dealer.
- If a component with safety label(s) attached is replaced with new component, make sure that new label(s) is (are) attached in the same location(s) as the replaced component.
- Attach new safety labels by applying on a clean, dry surface and pressing any bubbles to outside edge.

SERVICING OF TRACTOR, LOADER, AND BACKHOE

DEALER SERVICE

Your dealer is knowledgeable of your new tractor, loader, and backhoe and desires to help you get the most value from them.

After reading this manual thoroughly, you will find that you can perform some of the regular maintenance yourself.

However, when your tractor, loader, and backhoe need parts or major service, see your Kubota Dealer.

For service, contact the Kubota Dealership from which you purchased your tractor or your local Kubota Dealer.

When in need of parts, be prepared to give the your dealer the product identification number (PIN), serial number of the tractor, the engine, the loader, and the backhoe. Locate the PIN and serial numbers now and record them in the space provided.

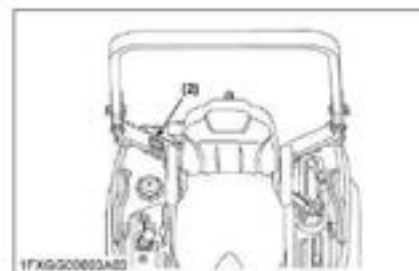
	Type	PIN / Serial No.
Tractor	EX235	
ROPS		
Engine	D902	
Loader	LA345A/J and LA345	
Backhoe	BH603	
Date of Purchase		
Name of Dealer		

(To be filled in by purchaser)

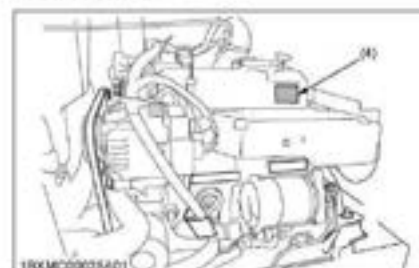
Tractor



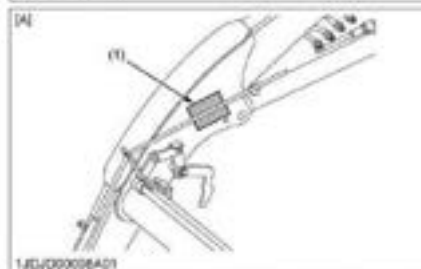
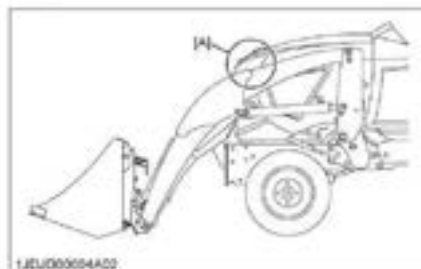
(1) Tractor identification plate (2) Product identification number



(3) ROPS identification plate (ROPS serial No.)



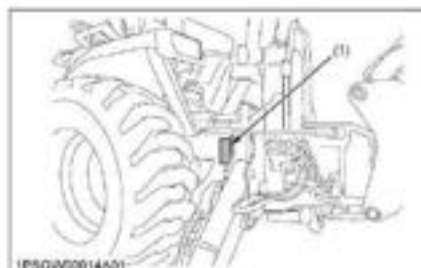
(4) Engine serial number

Loader

(1) Loader serial number (2) Boom lift inside

NOTE :

- The loader serial number label (5) is attached to the inside of the boom.

Backhoe

(1) Backhoe serial number

instruction given in the Operator's Manual even if it is within the warranty period.

2. Scrapping the tractor

To put the tractor out of service, follow the local rules and regulations of the country or territory where you scrap it.

If you have any questions, consult your local Kubota Dealer.

1. Warranty of the tractor

This tractor 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 tractor has not been serviced and maintained according to the

SPECIFICATIONS OF THE TRACTOR

SPECIFICATION TABLE OF THE TRACTOR

Model		DX235	
PTO power ¹⁾		13.2 kW (17.7 HP)	
Engine	Maker	KUBOTA	
	Model	D900	
	Type	Liquid-cooled, 4-cycle diesel	
	Number of cylinders	3	
	Bore and stroke	72 mm x 73.6 mm (2.83 in. x 2.90 in.)	
	Total displacement	886 cm ³ (54.8 cu. in.)	
	Engine gross power ²⁾	17.1 kW (23.0 HP)	
	Rated revolution	3200 rpm	
	Low idling revolution	1350 rpm to 1550 rpm	
	Maximum torque	56.1 N m (41.4 lbf-ft)	
	Battery	12 V, CCA: 500 A, RC: 80 min.	
Fuel	Diesel fuel No. 2 (above -10 °C (14 °F)) Diesel fuel No. 1 (below -10 °C (14 °F))		
Capacities	Fuel tank	25 L (6.6 U.S.gals.)	
	Engine crankcase (with filter)	3.3 L (3.4 U.S.gals.)	
	Engine coolant	3.1 L (3.3 U.S.gals.)	
	Recovery tank	0.4 L (0.4 U.S.gals.)	
	Transmission case	11.3 L (3.0 U.S.gals.)	
Dimensions	Overall length (without 3P)		2210 mm (87.0 in.) w / Front guard
	Overall length (with 3P)		2515 mm (99.0 in.) w / Front guard
	Overall width		1145 mm (45.1 in.)
	Overall height	(With RCPS)	2100 mm (82.7 in.)
		(Without RCPS)	Top of seat 1265 mm (49.8 in.)
	Wheel base		1400 mm (55.1 in.)

(Continued)

SPECIFICATIONS OF THE TRACTOR

Model			80238
Dimensions	Min. ground clearance		148 mm (5.83 in.)
	Tread	Front	800 mm (31.5 in.)
		Rear	800 mm (32.2 in.)
Weight (with ROPS)			725 kg (1600 lbs)
Clutch			N / A
Traveling system	Tire	Front	18 x 8.50-10
		Rear	26 x 12.00-12
	Steering		Hydrostatic type power steering
	Transmission		Main: Hydrostatic transmission, High-Low gear shift (2 forward, 2 reverse)
	Brake		Wet disk type
	Min. turning radius		2.3 m (7.5 feet)
Hydraulic unit	Hydraulic control system		Directional control, auto-return lever system
	Pump capacity		25.5 L/min. (6.71 gal/min.)
	System pressure		12.3 MPa to 12.8 MPa (125 kgf/cm ² to 130 kgf/cm ²) (1790 psi to 1950 psi)
	Three point hitch		SAE Category 1 (Optional)
	Three point hitch Max. lift force ^{*2}	At lift points	5390 N (1213 lbf.)
		24in. behind lift points	3040 N (683.4 lbf.)
	Remote control valve coupler (Rear: option)	System	2 valves
		Coupler	ISO 7241-1 series A
	Remote control valve coupler (Front)	System	2 valves
		Coupler (fitting)	ISO 7241-1 series B
PTO	Rear PTO		SAE 1-3/8, 6 splines
		Revolution	STD (2500 rpm)
	Mid PTO		USA No.5 (60/60TA 10 tooth) involute spline
		Revolution	STD (2500 rpm)

The company reserves the right to change the specifications without notice.

*1 Manufacturer's estimate

*2 SAE J1095

*3 See and check SUPPLEMENT LIMITATION TABLES on page 41.

TRAVELING SPEEDS TABLE

Model		BX235	
Tire size (Rear)		26×12.00-12	
Speed control pedal	Range gear shift lever	(At max engine rpm)	
Forward	Low	0 km/h to 6.5 km/h	0 mph to 4.0 mph
	High	0 km/h to 13.5 km/h	0 mph to 8.4 mph
Reverse	Low	0 km/h to 5.0 km/h	0 mph to 3.1 mph
	High	0 km/h to 10.5 km/h	0 mph to 6.5 mph

The company reserves the right to change the specifications without notice.

SPECIFICATIONS OF THE LOADER

LOADER SPECIFICATIONS TABLE

Loader model		LA340AU	LA340
Tractor model		18Q230	
Boom cylinder	Bore	40 mm	
	Stroke	326 mm	
Bucket cylinder	Bore	65 mm	
	Stroke	196 mm	
Control valve		One direct float position, single bucket dump, power beyond circuit	
Rated flow		14 L/min	
Maximum pressure		12.5 MPa	
Net weight (approximate)		100 kg	101 kg

NOTE:

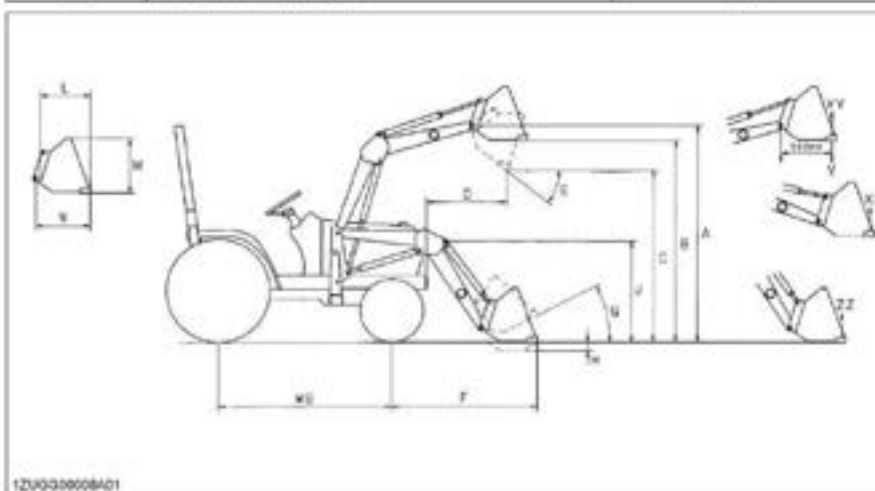
- LA340AU is spill guard model.

BUCKET SPECIFICATIONS TABLE

Loader model		LA340AU and LA340
Model		Square 48 in
Type		Flipflop
Width (L)		1219 mm
Depth		401 mm
Height (H)		405 mm
Length (N)		530 mm
Capacity	Struck	0.14 m ³
	Heaped	0.17 m ³
Weight		60 kg

DIMENSIONAL SPECIFICATIONS OF THE LOADER

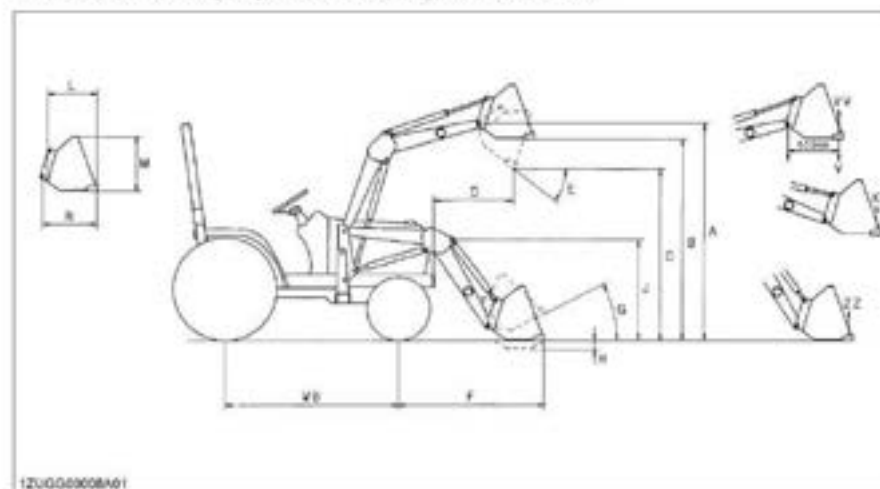
	Loader model	LA340U and LA340
	Tractor model	80C316
A	Max. lift height (to bucket pivot pin)	1804 mm
B	Max. lift height under level bucket	1602 mm
C	Clearance with bucket dumped	1325 mm
D	Reach at max. lift height (dumping reach)	648 mm
E	Max. dump angle	45 deg
F	Reach with bucket on ground	1392 mm
G	Bucket roll-back angle	29 deg
H	Digging depth	125 mm
J	Overall height in carrying position	890 mm



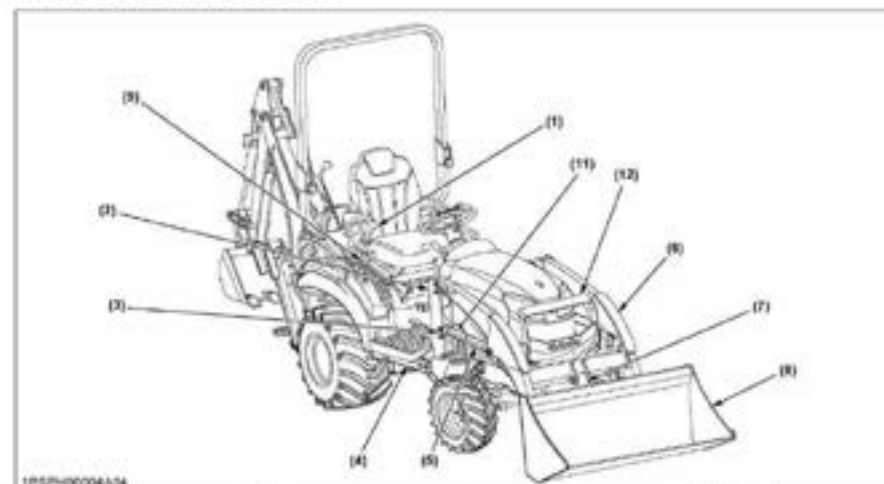
OPERATIONAL SPECIFICATIONS OF THE LOADER

Loader model			LA340NU and LA340
Tractor model			8XG35
V	Rated operating load (ROL)	With Counter weight	145 kg
		With Backhoe	200 kg
Y	Breakout force (bucket pivot pin)		6258 N
VV	Bucket roll-back force at max. height		4731 N
XX	Bucket roll-back force at 1500 mm height		5552 N
ZZ	Bucket roll-back force at ground level		5455 N
Raising time			3.3 sec.
Lowering time			2.5 sec.
Bucket dumping time			2.7 sec.
Bucket rollback time			2.3 sec.

* ROL is calculated in the following configuration : 3rd function, front guard and rewer deck links.



LOADER TERMINOLOGY

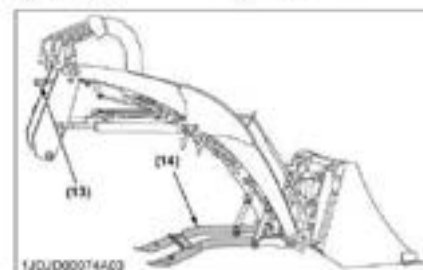


1PSPH00004A04

(1) Loader control lever
(2) Side frame
(3) Mount hook
(4) Main frame

(5) Boom
(6) Boom cylinder
(7) Bucket cylinder
(8) Bucket

(9) Lock lever
(10) Spill guard valve (spill guard model only)
(11) Quick coupler
(12) Front guard



1J0JD00014A03

(13) Stand lever

(14) Lifting stand

SPECIFICATIONS OF THE BACKHOE

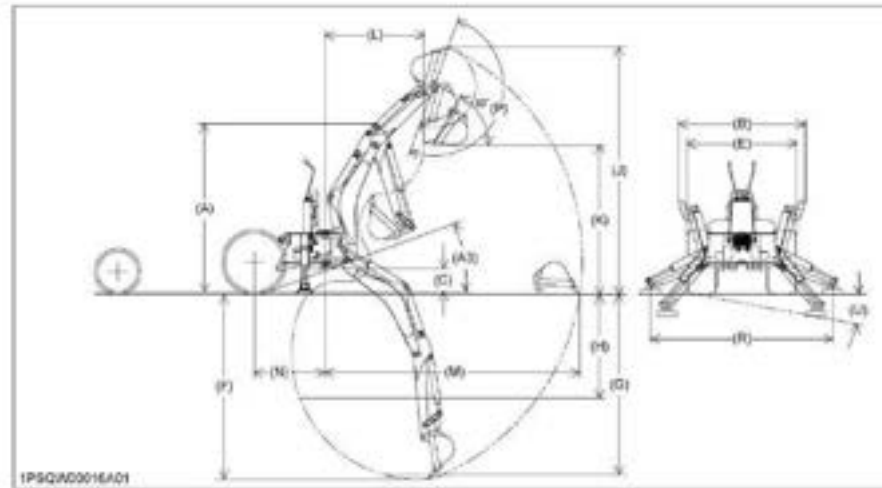
BACKHOE SPECIFICATIONS

1. Dimensions of the backhoe

Model		BT603
(A)	Transport height	1719 mm
(B)	Stabilizer spread transport	1296 mm
(C)	Ground clearance	340 mm
(E)	Overall width	1128 mm
(F)	Maximum digging depth	1669 mm
(G)	Digging depth, 2 ft. flat bottom	1642 mm
(H)	Digging depth, 8 ft. flat bottom	1069 mm
(J)	Operating height, fully raised	2539 mm
(K)	Loading height	1503 mm
(L)	Loading reach	1016 mm
(M)	Reach from swing point	2612 mm
(N)	Swing pivot to rear axle center line	726 mm
(P)	Bucket rotation	180 deg.
(Q)	Stabilizer spread operating	1662 mm
(A3)	Angle of departure per SAE J1224	20.1 deg.
(U)	Leveling angle	11 deg.
	Swing arc	140 deg.

NOTE :

- The specifications are taken with KUBOTA BX255 tractor. (Tire size: Front 18X8.5-16, Rear 26X12.00-12)



2. Specifications table of the backhoe

Digging force (Per SAE J449)

With bucket cylinder	8010 N
With dipperstick cylinder	5209 N

Cycle Time (seconds)

Boom cylinder, extend	4.5 sec
Boom cylinder, retract	3.7 sec
Swing cylinder, from 90 degrees to center	1.5 sec
Dipperstick cylinder, extend	4.1 sec
Dipperstick cylinder, retract	3.4 sec
Bucket cylinder, extend	3.1 sec
Bucket cylinder, retract	2.4 sec
Stabilizer cylinder, max. height to ground	2.0 sec
Stabilizer cylinder, ground to max. height	2.3 sec

Hydraulic cylinders

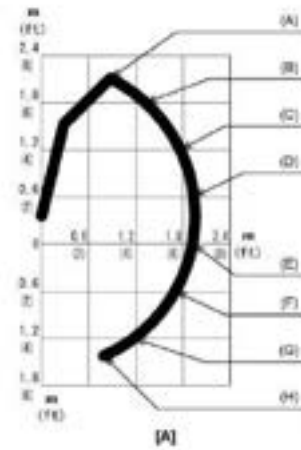
	Boom	Dipperstick	Bucket	Stabilizer	Swing
Rod diameter	3.0 cm	2.5 cm	2.5 cm	2.5 cm	3.0 cm
Cylinder bore	6.5 cm	6.9 cm	5.9 cm	6.9 cm	6.9 cm

Bucket Sizes

	Width	SAE truck capacity	SAE heaped capacity	Number of teeth	Weight
Trenching 8 in.	20.3 cm	0.009 m ³	0.011 m ³	2	10 kg
Trenching 12 in.	30.5 cm	0.014 m ³	0.020 m ³	3	13 kg
Trenching 16 in.	40.6 cm	0.020 m ³	0.029 m ³	3	16 kg

3. Lift capacity of the backhoe (per SAE J31)

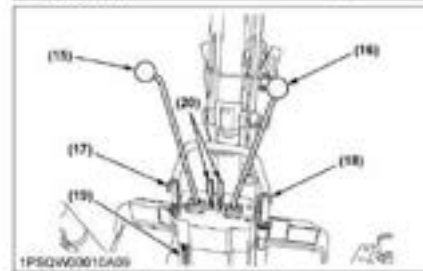
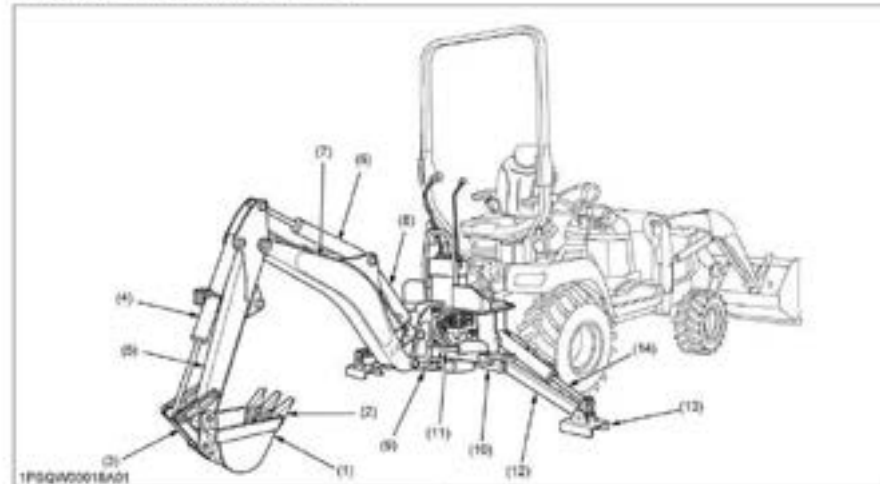
The lift capacities shown are 87% of maximum lift force, according to SAE definition.



1P0QW00017A01

[A] Rated lift capacity (over end) kg	(C) 209 kg
(A) 192 kg	(E) 203 kg
(B) 212 kg	(F) 201 kg
(C) 215 kg	(G) 214 kg
	(H) 202 kg

BACKHOE TERMINOLOGY



- (1) Backhoe bucket
- (2) Bucket teeth
- (3) Bucket link
- (4) Bucket cylinder
- (5) Dipperstick
- (6) Dipperstick cylinder

- (7) Boom
- (8) Boom cylinder
- (9) Swing frame
- (10) Main frame
- (11) Swing cylinder
- (12) Stabilizer

- (13) Stabilizer pin
- (14) Stabilizer cylinder
- (15) Boom and swing lever (Joystick)
- (16) Dipperstick and bucket lever (Joystick)

- (17) Swing lock pin
- (18) Boom lock pin
- (19) Boom and swing lock lever
- (20) Stabilizer control lever

IMPLEMENT LIMITATIONS

IMPLEMENT LIMITATION TABLES

IMPORTANT :

The Kubota Tractor has been thoroughly tested for proper performance with implements sold or approved by Kubota. Do not use the following implements:

- Implements which are not sold or approved by Kubota
- Implements which exceed the maximum specifications listed in the following table
- Implements which are otherwise unfit for use with the Kubota Tractor
- Implements which are not of the appropriate category

These implements may result in malfunctions or failures of the tractor, damage to other property, and injury to the operator or others.

NOTE :

Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.

Model		BK235L
Tread (max. width)	Front	930 mm (36.6 in.)
	Rear	820 mm (32.2 in.)
Lower link and max. lifting weight W_0		550 kg (1210 lbs)
Actual figures	Implement weight W_1 and / or size	As in "Implement weight list"
	Max. hitch load W_2	250 kg (550 lbs)
	Trailer loading weight W_3 (Max. capacity)	800 kg (1,765 lbs)
	Total weight W_4	1100 kg (2425 lbs)

18XMC00101A01

Lower link and max. lifting weight W_0
The max. allowable load which can be put on the lower link and implement weight W_1
The implement's weight which can be put on the lower link

Max. hitch load W_2
The max. loading weight for hitching

Trailer loading weight W_3
The max. loading weight for trailer (without trailer's weight)

Total weight W_4
The max. loading weight for trailer with trailer's weight

NOTE :

- Implement size may vary depending on soil operating conditions.

IMPLEMENT LIMITATIONS

- Strictly follow the instructions outlined in the operator's manual of the mounted or trailed machinery or trailer, and do not operate the combination tractor-machine or tractor-trailer unless all instructions have been followed.
 - When you use the forestry application, there are following hazards:
 - toppling trees, primarily in case a rear-mounted tree grab crane is mounted at the rear of the tractor
 - penetrating objects in the operator's enclosure, primarily in case a winch is mounted at the rear of the tractor
- To deal with these hazards and other related hazards, the tractor requires optional equipments such as OPS (operator protective structure), FOPS (falling object protective structure), and so on. These optional equipments, however, are not available for this tractor. Without optional equipments such as OPS and FOPS, the use of the tractor is limited to tractor-specific applications like transport and stationary work.

IMPLEMENT LIMITATIONS

Implement weight list

Implement		Remarks	BX235
Backhoe ¹	Max. digging depth		1040 mm (3 ft)
	Max. weight		w/o bucket 200 kg (560 lbs)
Front-end loader ²	Rated operating load (RLO) ³	With Counterweight	145 kg (320 lbs)
		With Backhoe	200 kg (440 lbs)
	Max. width		122 cm (48 in.)
	Sub frame		Necessary
Mower	Mid-mount	Max. cutting width	152 cm (60 in.)
		Max. weight	134 kg (295 lbs)
	Rotary cutter (1 blade)	Max. cutting width	122 cm (48 in.)
		Max. weight	101 kg (400 lbs)
	Rear mount (2 or 3 blades)	Max. cutting width	152 cm (60 in.)
		Max. weight	202 kg (577 lbs)
	Flat mower	Max. cutting width	107 cm (42 in.)
	Sickle bar	Max. cutting width	122 cm (48 in.)
Rotary tiller		Max. tilling width	127 cm (50 in.)
		Max. weight	107 kg (435 lbs)
Bottom plow		Max. size	14 × 1 in.
Disc plow		Max. size	22 × 1 in.
Cultivator		Max. size	122 cm (48 in.) 1 Row
Disc harrow	Max. harrowing width		122 cm (48 in.)
	Max. weight		240 kg (540 lbs)
Sprayer		Max. tank capacity	150 L (40 U.S. gals.)
Front blade	Max. cutting width		152 cm (60 in.)
	Sub frame		Necessary
Rear blade		Max. cutting width	152 cm (60 in.)

(Continued)

IMPLEMENT LIMITATIONS

Implement	Remarks	BX235
Reel blade	Max. weight	112 kg (248 lbs)
Box blade	Max. cutting width	152 cm (60 in.)
	Max. weight	170 kg (375 lbs)
Snow blower (Front)	Max. working width	127 cm (50 in.)
	Max. weight	160 kg (353 lbs)
	Sub frame	Necessary
Post hole digger	Digging depth	114 cm (45 in.)
Rotary broom	Cleaning width	119 cm (47 in.)
Trailer	Max. load capacity	800 kg ^{*4} (1,765 lbs)
	Max. weight	1500 kg (3,425 lbs)

NOTE :

- Implement size may vary depending on soil operating conditions.

*1 Kubota provides ST1603 backhoe for BX235. No other backhoe installed by 3-point hitch is permitted for BX235.

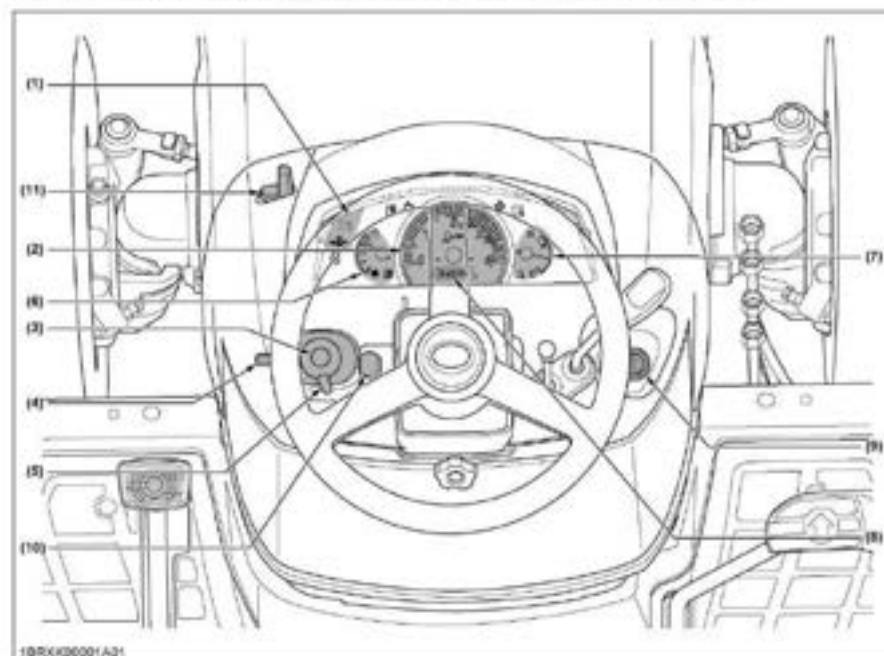
*2 Kubota provides LA340 and LA3425 Front-end Loader for BX235.

*3 ROL is calculated in the following configuration: 3rd function, front guard and mower deck links.

*4 Reduce speed and trailer loads when operating in slippery conditions or when operating on slopes and using front wheel drive.

INSTRUMENT PANEL AND CONTROLS

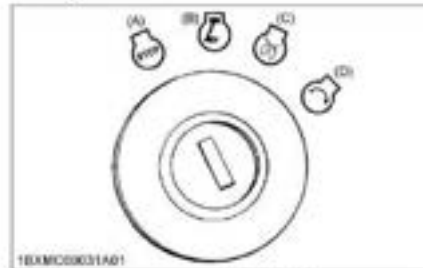
INSTRUMENT PANEL, SWITCHES, AND HAND CONTROLS



10RXK00001A31

(1) Easy Checker (TM)	71 (7) Clock/air temperature display	72
(2) Tachometer	73 (8) Hour meter	73
(3) Hazard light switch	46 (9) Key switch	46
(4) Turn signal light switch	46 (10) Tilt lever	46
(5) Head light switch	46 (11) Hood open lever	47
(6) Fuel gauge	72	

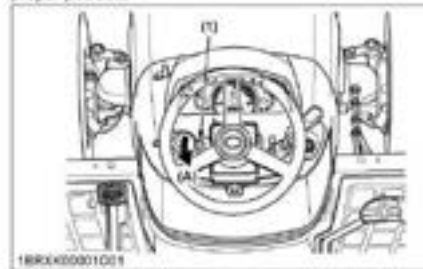
1. Key switch



1BXMC00031A01
(A) OFF (C) Preheat
(B) ON (D) Start

2. Tilt lever

The tilt lever is the lever to adjust the steering wheel to proper position.



1BR0X00001C01
(T) Tilt lever (A) Pull

3. Head light switch

To turn on the head lights, turn the head light switch clockwise. To turn off the head lights, turn the head light switch counterclockwise.



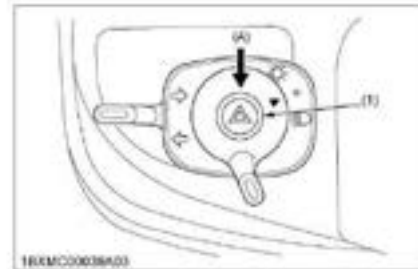
1BXMC00038A03
(T) Head light switch (A) OFF

4. Hazard light switch

- When pressing the hazard light switch, the hazard lights flash along with the indicator on the instrument panel.
- When pressing the hazard light switch again, the hazard lights turn off.

NOTE :

- The hazard light switch is operative when the key switch is only on position.



1BXMC00038A03
(T) Hazard light switch (A) Push ON-OFF

5. Turn signal light switch

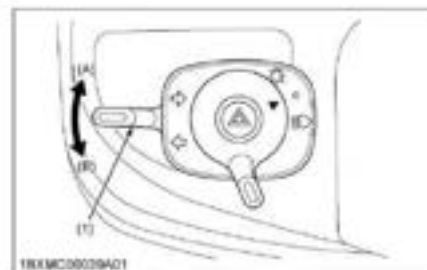
To indicate a right turn, turn the turn signal light switch clockwise.

To indicate a left turn, turn the turn signal light switch counterclockwise.

When the left or right turn signal is activated in combination with the hazard lights, the indicated turning light will flash and the other light will stay on.

NOTE :

- Return the turn signal light switch to center position after turning.



18X3MC00039A21

- (1) Turn signal light switch
(A) Right turn
(B) Left turn

6. Hood open lever

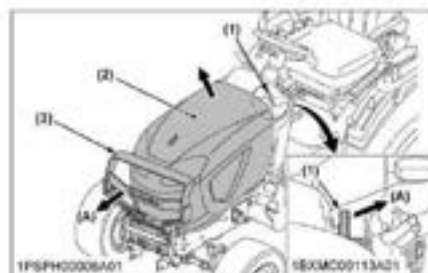
The hood open lever is the lever to open the hood.

WARNING

To avoid serious injury or death from contact with moving parts:

- Never open the hood or engine side cover while the engine is running.
- Do not touch the muffler or the exhaust pipes while they are hot. Touching the hot muffler or exhaust pipes could cause severe burns.

1. Pull the front guard forward.
2. Pull the hood open lever to release the latch to open the hood, and open the hood.

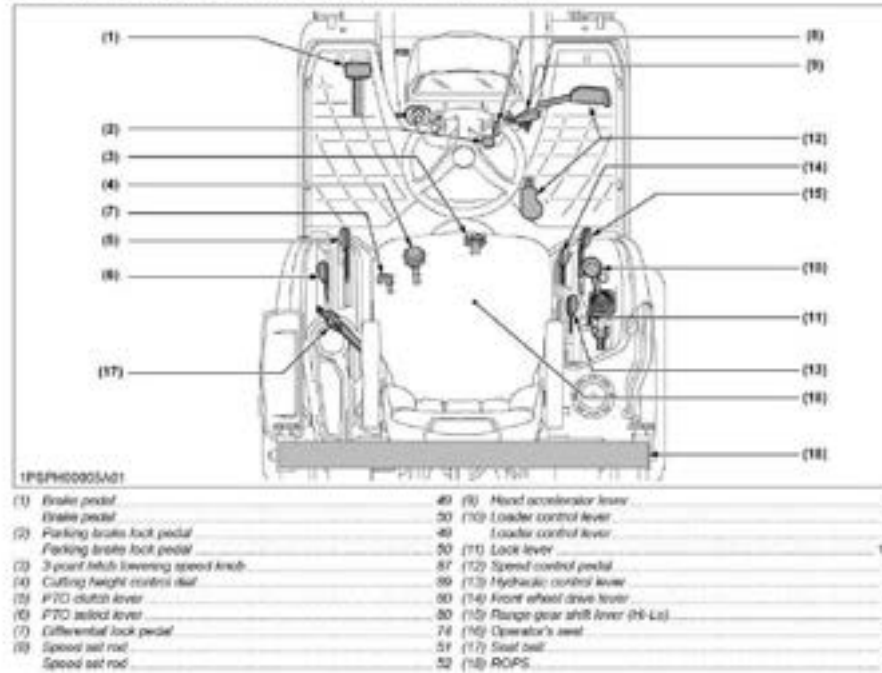


1FSPH00006A01

18X3MC00113A21

- (1) Hood open lever
(2) Hood
(3) Front guard
(A) Pull

FOOT CONTROLS AND HAND CONTROLS

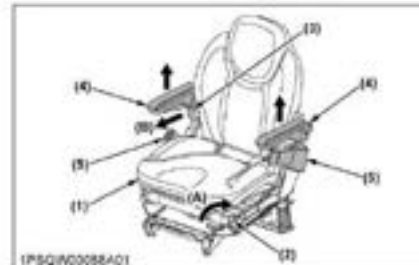


1. Operator's seat

⚠ WARNING

To avoid serious injury or death:

- Adjust the operator's seat only while the tractor is stopped.
- Make sure that the operator's seat is completely secured after each adjustment.
- Do not allow any person other than the operator to ride on the tractor.



1P5QW0008A01

- | | |
|--------------------------------|---------------|
| (1) Seat | (6) Seat belt |
| (2) Position adjust lever | (7) Pull up |
| (3) Backrest tilt adjust lever | (8) Pull |
| (4) Armrest | |

Travel adjustment

Pull up the position adjust lever and slide the seat backward or forward, as required. The seat will lock in position when the position adjust lever is released.

Tilt adjustment [BX2380D, BX2680D]

Pull the backrest tilt adjust lever and tilt the backrest to the desired position.

IMPORTANT:

- After adjusting the operator's seat, check that the seat is properly locked.
- Be sure the operator's seat is out of contact with the top link.
- See **REVERSING THE OPERATOR'S SEAT** on page 76 when using the operator's seat in the backhoe position.

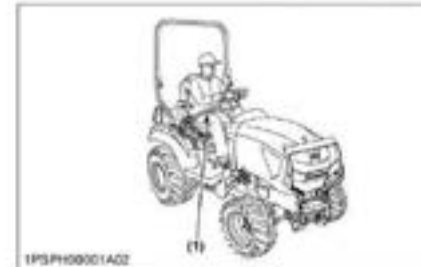
2. Seat belt

⚠ WARNING

To avoid serious injury or death:

- Always use the seat belt when the ROPS is installed.
- Do not use the seat belt if the tractor is not equipped with ROPS.

Adjust the seat belt for proper fit and connect it to the buckle. The seat belt is auto-locking retractable type.



1P5PH0001A02

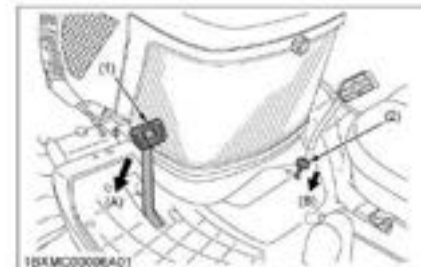
(1) Seat belt

3. Brake pedal and parking brake lock pedal

⚠ WARNING

To avoid serious injury or death:

- Do not brake suddenly.
An accident may occur as a result of a heavy towed load shifting forward or loss of control.
- To avoid skidding and loss of steering control when driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted, operated at reduced speed, and operated with the front-wheel drive engaged if equipped.
- The braking characteristics are different between 2-wheel drive and 4-wheel drive. Know the difference between 2-wheel drive and 4-wheel drive and use them carefully.
- Engage 4-wheel drive when traveling down a slope.



1B1MC0006A01

- | | |
|------------------------------|---|
| (1) Brake pedal | (2) Push down parking brake lock pedal while depressing brake pedal |
| (2) Parking brake lock pedal | |
| (A) Depress | |

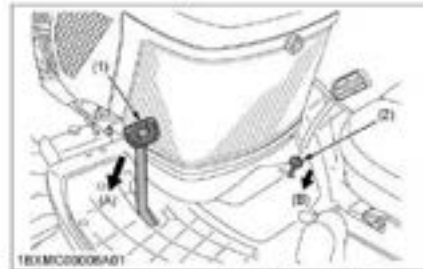
3.1 How to use the parking brake

NOTE :

- It is recommended that the operator practice engaging and disengaging the parking brake on a flat surface without the engine running before operating the tractor for the first time.

To set the parking brake

- Depress the brake pedal.
- Latch the brake pedal on pushing and holding the parking brake lock pedal.
- Release the brake pedal.



- (1) Brake pedal
(2) Parking brake lock pedal
(A) Depress
(B) Push down the parking brake lock pedal while depressing the brake pedal

To release the parking brake

Depress the brake pedal again.

4. Range gear shift lever (Hi-Lo)

You can shift the range gear shift lever only when tractor is completely stopped.

WARNING

To avoid serious injury or death:

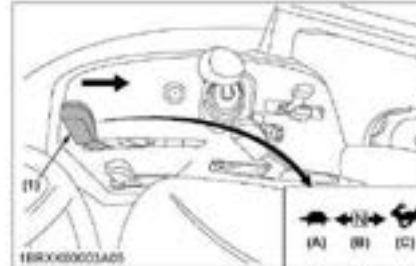
- Make sure that the range gear shift lever is fully engaged into the high position or the low position before climbing or descending a slope.

IMPORTANT :

Do not force the range gear shift lever.

- If it is difficult to shift the range gear shift lever into the neutral [N] position, you should attempt the following procedure.
 - Depress the brake pedal firmly for several seconds.
 - Without reducing the force to depress the brake pedal, shift the range gear shift lever.
- If it is difficult to shift the range gear shift lever into the low position or the high position from the neutral [N] position, you should attempt the following procedure.

- Slightly depress the speed control pedal to rotate the gears inside of transmission.
 - Release the speed control pedal to the neutral [N] position.
 - Shift the range gear shift lever.
- To avoid damage of transmission, stop the tractor before shifting the range gear shift lever between ranges.



- (1) Range gear shift lever (Hi-Lo)
(A) Low
(B) Neutral position
(C) Right

5. Front wheel drive lever

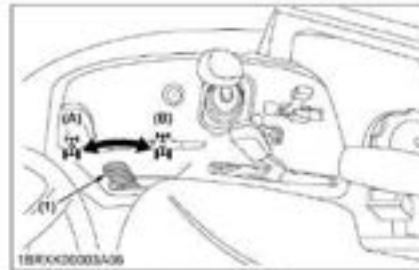
Use the front wheel drive lever to engage the front wheels with the tractor stopped.

WARNING

To avoid serious injury or death:

- Do not engage the front wheel drive when traveling at road speed.
- When driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate the tractor at reduced speed and engage the front wheel drive.
- Do not brake suddenly. An accident may occur as a result of a heavy towed load shifting forward or loss of control.
- The braking characteristics are different between 2-wheel drive and 4-wheel drive. Know the difference and use them carefully.

Shift the front wheel drive lever to the on position to engage the front wheel drive.



1BRXX00003A06
(1) Front wheel drive lever (A) ON (B) OFF

IMPORTANT:

- To avoid damage of transmission, when the front wheel drive lever is not smoothly shifted, slightly depress forward or rearward on the speed control pedal.
- Tires will wear quickly if the front wheel drive is engaged on paved roads.

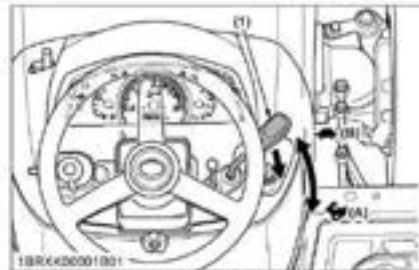
Front wheel drive is effective for the following jobs:

- When greater pulling force is needed, such as working in a wet field, when pulling a trailer, or when working with a front-end loader
- When working in sandy soil
- When working on a hard soil where a rotary tiller might push the tractor forward
- Additional braking at reduced speed

6. Hand accelerator lever

To increase the engine speed, pull the hand accelerator lever back (the position).

To decrease engine speed, push it forward (the position).

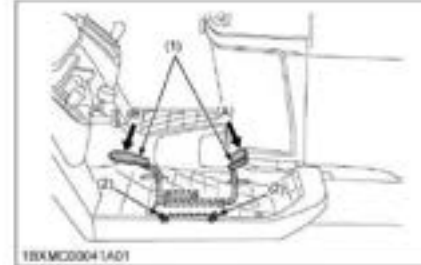


1BRXX00001001
(1) Hand accelerator lever (A) Increase (B) Decrease

7. Speed control pedal**WARNING**

To avoid serious injury or death:

- Do not operate the tractor if it moves on level ground with your foot off the speed control pedal.



1BRXX00041A01
(1) Speed control pedal (A) Forward (B) Reverse

IMPORTANT:

- To prevent serious damage to the HST, do not adjust the stopper bolts.

	Depress the forward pedal with the toe of your right foot to move forward.
	Depress the reverse pedal with the heel of your right foot to move backward.

NOTE:

- When you stand up from the seat with the speed control pedal stepped on, the engine will stop regardless of whether the machine is moving or not. Engine stopping is because that the tractor is equipped with the operator presence control system (OPC).

8. Speed set device

The speed set device is designed for tractor operating efficiency and operator's comfort. The speed set device will provide a constant forward operating speed by mechanically holding the speed control pedal at a selected position.



(1) Speed control pedal (2) Stopper bolts

8.1 How to use the speed set device

To engage the speed set device

1. Accelerate the engine speed to desired level using the speed control pedal.
2. Push and hold the speed set rod downward to **ON** position.
3. Release the speed control pedal.
4. Release the speed set rod.
Desired engine speed will be maintained.

To disengage the speed set device

1. Depress the brake pedal.

IMPORTANT:

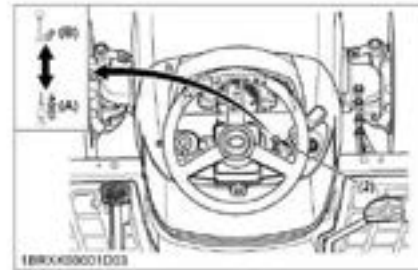
- To prevent the damage of the speed set device, do not depress the reverse pedal when the speed set device is engaged.

NOTE:

- If you depress the speed control pedal on the forward acceleration side, the speed set device will disengage.
- The speed set device will not operate in reverse.



1BXXMC00042A01



(1) Speed control pedal (2) Speed set rod (A) ON (B) OFF

9. Loader control lever



(1) Loader control lever (2) Lock lever

ACCESSORY

1. 12 V electric outlet

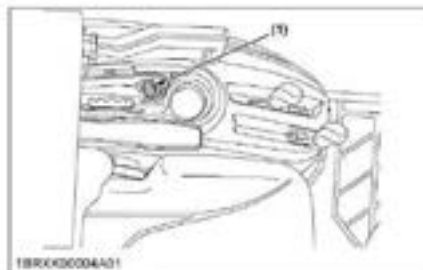
You may use the 12 V electric outlet to connect an auxiliary light or other devices.

IMPORTANT:

- Do not use as a cigarette lighter.
- Do not use when wet.

NOTE:

- Do not connect a light or other device that draws more than 120 watts to 12 V electric outlet. The battery may discharge very rapidly or the 12 V electric outlet may fail.



(1) 12V electric outlet

2. Glove box



(1) Glove box

PRE-OPERATION CHECK OF THE TRACTOR

DAILY CHECK ITEMS BEFORE OPERATION OF THE TRACTOR

To prevent trouble from occurring, it is important to know the condition of the tractor well.



WARNING

To avoid serious injury or death:

- Check and service the tractor on a level surface with the engine shut off, the parking brake "ON", and the implement lowered to the ground.

Check the condition of the tractor before starting it.

Check items

- Walk-around inspection
- Checking the engine oil level
- Checking the transmission oil level
- Checking the coolant level
- Cleaning the grill and the radiator screen
- Checking the air cleaner evacuator valve when using the tractor in a dusty place
- Checking the brake pedal
- Checking the indicators, gauges, and meter
- Checking the lights
- Checking the wiring harness
- Checking the seat belt and ROPS
- Checking the movable parts
- Refuel
(See Checking the amount of fuel and refueling on page 120)
- Care for safety labels
(See Care for safety labels on page 26)

PRE-OPERATION CHECK OF THE LOADER

LUBRICATION BEFORE OPERATING THE LOADER

Lubricate all grease fittings with grease.
High quality grease designating "extreme pressure" and containing Molybdenum disulfide is recommended.
This grease may specify "Moly EP" on its label.



CHECKING THE TRANSMISSION FLUID

IMPORTANT:

- To check the tractor transmission fluid level, lower the bucket to the ground and lower the 3-point hitch.
1. Check the transmission fluid level of the tractor.
 2. Add the transmission fluid if necessary.
Refer to the tractor operator's manual for instructions and proper transmission fluid.
 3. Repeat check of the transmission fluid after purging air from the loader system.
 4. Then, add the transmission fluid if necessary.

WEIGHT OF THE IMPLEMENTS AS THE REAR BALLAST

WARNING

To avoid serious injury or death:

- For tractor stability and operator safety, add the rear ballast to the rear of the tractor in the form of 3-point counter weight and the rear wheel ballast. The amount of the rear ballast will depend on the application.

Implement as Counter Weight	
Backhoe	Approx. 200 kg
Box Blade	Approx. 190 kg
Rear Blade	
Rotary Tiller	
Ballast Box	

1. Liquid ballast in the rear tires

See Rear ballast on page 94.

Liquid weight per tire (75 percent filled)

Tire sizes	26x12.00-12
Slush free at -10 °C (14 °F) Solid at -30 °C (-22 °F) [Approx. 1 kg (2 lbs) CaCl ₂ per 4 L (1 gal) of water]	45 kg
Slush free at -24 °C (-11 °F) Solid at -47 °C (-52 °F) [Approx. 1.5 kg (3.5 lbs) CaCl ₂ per 4 L (1 gal) of water]	50 kg
Slush free at -47 °C (-52 °F) Solid at -52 °C (-62 °F) [Approx. 2.25 kg (5 lbs) CaCl ₂ per 4 L (1 gal) of water]	56 kg

CHECK OF THE TIRE INFLATION BEFORE OPERATING THE LOADER

Make sure that the tractor tires are properly inflated.
See the following table.

	Tire sizes	Inflation Pressure
Rear	26x12.00-12 Turf	100 kPa (1.6 kg/cm ²) (14 psi)
	26x12.00-12 Bar	120 kPa (1.2 kg/cm ²) (17 psi)
	26x12.00-12 Ind.	120 kPa (1.2 kg/cm ²) (17 psi)
	26x12.00-12 R14	130 kPa (1.4 kg/cm ²) (19 psi)

(Continued)

	Tire sizes	Inflation Pressure
Front	16x6.50-10 Turf	129 kPa (1.2 kgf/cm ²) [17 psi]
	16x6.50-10 Bal	160 kPa (1.5 kgf/cm ²) [22 psi]
	16x6.50-10 Ind.	160 kPa (1.5 kgf/cm ²) [22 psi]
	16x6.50-10 R14	221 kPa (2.2 kgf/cm ²) [32 psi]

PERFORMING THE TEST OPERATION OF THE LOADER

WARNING

To avoid serious injury or death:

- Keep engine speed at low idle during the test operation of the loader.
- Escaping hydraulic oil under pressure can produce sufficient force to penetrate skin, causing serious personal injury. Before disconnecting lines, relieve all pressure by moving the controls.
- Before applying pressure to the loader system, be sure that all connections are tight and that lines, tubes, and hoses are not damaged.
- Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood to search for suspected leaks. Do not use hands to search for suspected leaks.
- If injured by escaping fluid, see a doctor at once. Serious infection or allergic reaction may develop if proper medical treatment is not administered immediately.
- Do not move the loader control lever into the float position when the bucket is off the ground.

To start the test operation, follow the following procedure.

1. Slightly move the control lever from the [N] position.
2. Slowly raise the boom of the loader just enough for the bucket to clear the ground when fully dumped.
3. Slowly operate the loader through the dump and roll back cycles.



1JDU000126A01

NOTE :

- When the lever is at each corner position marked by asterisk [*], cylinders of the boom and bucket work at the same time. However, the blank position (raise and roll back) is not recommended for scooping because of insufficient lift force.

IMPORTANT :

- If the boom or bucket of the loader does not work in the directions indicated on the label, follow the following procedure.
 1. Lower the bucket to the ground.
 2. Stop the engine.
 3. Relieve all hydraulic pressure.
 4. Recheck and correct all hydraulic connections.

REMOVING AIR FROM THE HYDRAULIC SYSTEM

1. Repeat operations of raising and lowering the boom and dumping and rolling back the bucket until all the air is removed from the hydraulic system and the hydraulic system responds properly.

IMPORTANT :

- Do not move the loader control lever into the "FLOAT" position when the bucket is off the ground.

RATED OPERATING LOAD



WARNING

To avoid serious injury or death:

- Do not exceed ROL (Rated operating load).
- Do not operate the loader without counter weight.
- Do not exceed 10 km/h when traveling with load.
- Use only tires approved by Kubota for loader use.
- ROL is calculated with standard bucket. Optional attachments (4IN1 bucket etc.) will reduce ROL.
- ROL is determined with the tractor static, on a hard level surface. Reduce load from the listed ROL if operating on uneven or sloping terrain.
- Remove the mid mount mower deck (if fitted) before operating the loader.

With Counter weight

Rated operating load (ROL)	145 kg
Counter weight required	170 kg ^{*1}

*1 Install the counter weight approved by Kubota.

With Backhoe

Rated operating load (ROL)	200 kg
----------------------------	--------

NOTE :

- ROL is calculated in the following configuration: 3rd function, front guard and mower deck links.

Attachment	Width (mm)	Capacity (m ³)		Attachment Weight (kg)	Rated Operating Load (kg)	
		Heaped	Struck		With Backhoe	With Counter weight
LA340AU STD Bucket	1210	0.17	0.14	60	200	145

Material	DENSITY (kg/m ³)	Standard Bucket							
		With Backhoe				With Counter weight			
		LA360AU							
		Heaped Weight (kg)		Struck Weight (kg)		Heaped Weight (kg)		Struck Weight (kg)	
Blue Metal	1700	288	×	238	×	289	×	238	×
Clay Dry	1100	157	○	154	○	157	×	154	×
Clay Wet	1600	272	×	224	×	272	×	224	×
Earth Dry	1070	182	○	150	○	182	×	150	×
Earth Moist	1630	277	×	228	×	277	×	228	×
Earth Wet	1250	213	×	175	○	215	×	175	×
Fertilizer	1080	180	○	152	○	185	×	152	×
Gypsum	2547	433	×	357	×	433	×	357	×
Lime	849	144	○	119	○	144	○	119	○
Sand Dry	1720	290	×	241	×	292	×	241	×
Sand Wet	1900	323	×	266	×	323	×	266	×
Water	1000	176	○	143	○	170	×	140	○
Wheat	789	131	○	100	○	131	○	100	○

○: Acceptable

×: Not Acceptable

PRE-OPERATION CHECK OF THE BACKHOE

CHECKING OF THE BACKHOE BEFORE OPERATION

WARNING

To avoid serious injury or death:

- Read the "Safe operation" in this manual.
- Read the warning and caution labels located on the backhoe.
- Make sure that the swing lock pin is set before entering or exiting the operator area of the backhoe.

(See PRECAUTIONS OF THE BACKHOE on page 14 and Safety labels of the backhoe on page 24)
Prior to starting the engine, check the backhoe according to CHECKING THE BACKHOE DAILY on page 146 before operation.

PRE-OPERATING INSTRUCTION OF THE BACKHOE

1. Check of the operator's seat before operating the backhoe

You can use the operator's seat for the BX23S tractor to operate the loader and backhoe. See REVERSING THE OPERATOR'S SEAT on page 76 for the detail to turn the operator's seat around for backhoe operation.



(1) Operator's seat (backhoe position)

2. Check of the ballast before operating the backhoe

WARNING

To avoid serious injury or death:

- Never remove the loader to ensure the stability of the tractor at all times.

IMPORTANT:

- Do not add the liquid ballast or any other weights to the front tires.
- While the BT603 backhoe is installed on the tractor, the liquid ballast in the rear tires should be removed.

3. Check of the tire inflation before operating the backhoe

Make sure that the tractor tires are properly inflated.

	Tire sizes	Inflation Pressure
Rear	26x12.00-12 Turf	100 kPa (1.0 kgf/cm ²) [14 psi]
	26x12.00-12 Bar	120 kPa (1.2 kgf/cm ²) [17 psi]
	26x12.00-12 Ind.	120 kPa (1.2 kgf/cm ²) [17 psi]
	26x12.00-12 R14	130 kPa (1.4 kgf/cm ²) [20 psi]
Front	10x8.50-10 Turf	120 kPa (1.2 kgf/cm ²) [17 psi]
	10x8.50-10 Bar	150 kPa (1.5 kgf/cm ²) [22 psi]
	10x8.50-10 Ind.	150 kPa (1.5 kgf/cm ²) [22 psi]
	10x8.50-10 R14	221 kPa (2.2 kgf/cm ²) [32 psi]

OPERATING THE ENGINE

⚠ WARNING

To avoid serious injury or death:

- Read and understand *Safe operation* in this manual.
- Read and understand the safety labels located on the tractor.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start the engine while standing on ground. Start the engine only from the operator's seat.
- Follow the rule to set all shift levers to the neutral positions and to place the PTO lever in the off position before starting the engine.

(See Precautions for operating the tractor on page 8, Precautions for parking the tractor on page 10, and Precautions for servicing the tractor on page 11)

IMPORTANT :

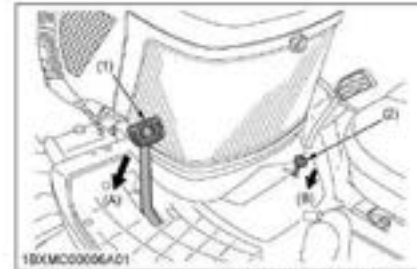
- Do not use starting fluid or ether.
- To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.

STARTING THE ENGINE

IMPORTANT :

- Because of safety devices, the engine will not start except when the speed control pedal is in the neutral position and the PTO clutch lever is in the OFF (⬅) position respectively.

1. Make sure that the parking brake is set.
If the parking brake is not set, see "To set the parking brake" in How to use the parking brake on page 50.



19XMC0006A01

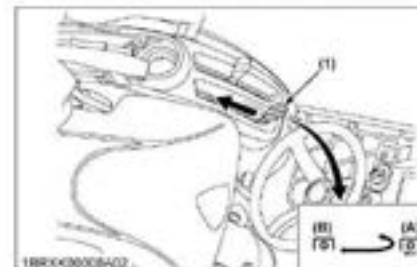
(1) Brake pedal
(2) Parking brake lock pedal
(A) Depress

(B) Push down parking brake lock pedal while depressing brake pedal

NOTE :

- It is recommended that the operator practices engaging and disengaging the parking brake on a flat surface without the engine running before operating the tractor for the first time.

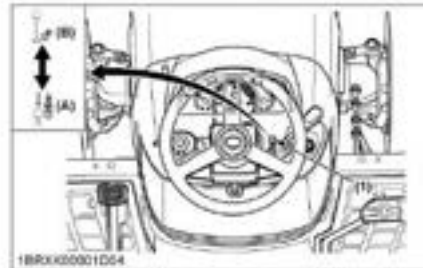
2. Place the PTO clutch lever in the OFF (⬅) position.



19R0003003A02

(1) PTO clutch lever
(B) OFF
(A) ON

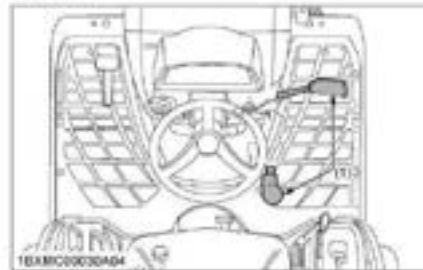
3. Place the speed set rod in the **off** position.



(1) Speed set rod
(A) On

(B) Off

4. Place the speed control pedal in the **neutral** position.

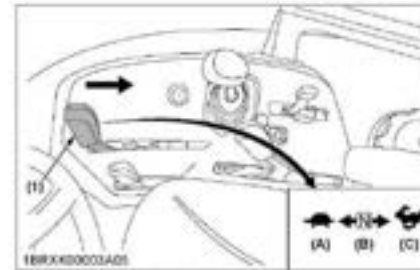


(1) Speed control pedal

NOTE:

- The speed control pedal automatically returns to the neutral position when the operator's foot is released from the speed control pedal.

5. Place the range gear shift lever (Hi-Lo) in the **neutral [N]** position.

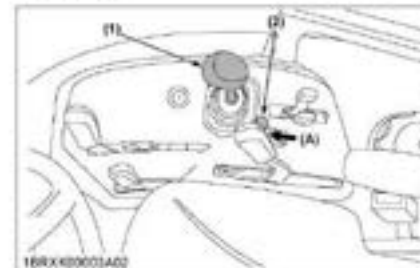


(1) Range gear shift lever (H-L)
(A) Low

(B) Neutral

(C) High

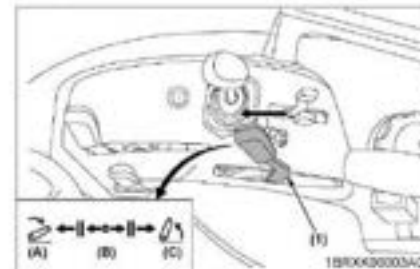
6. Lock the loader control lever in the **lock** position if equipped.



(1) Loader control lever
(A) Lock

(B) Lock lever

7. Move the hydraulic control lever forward (the **lowered (down)** position) to lower the implement.

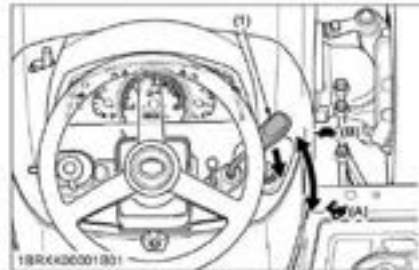


(1) Hydraulic control lever
(A) Forward
(B) Neutral

(C) Lowered

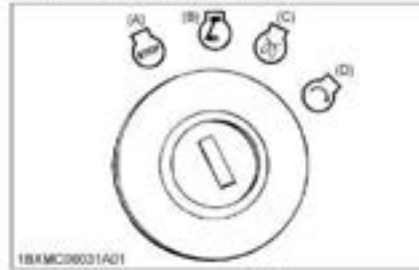
Check that the implement is down at the lowest position after moving the hydraulic control lever forward.

8. Set the hand accelerator lever to about 1/2 way.



(1) Hand accelerator lever (A) Decrease
(A) Increase

9. Insert the starter key into the key switch and turn the starter key to the **ON** position.



(A) OFF (B) ON (C) Preheat (D) Start

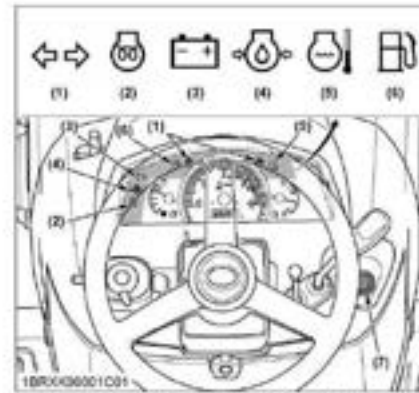
10. Check the indicator lamps on Easy Checker™.

IMPORTANT :

- Daily checks with the Easy Checker™ only are not sufficient. Never fail to conduct daily checks carefully according to Checking the gauges, the meters, and the Easy Checker on page 123.

When the starter key is turned to the **ON** position, the coolant temperature indicator lamp and the low fuel indicator lamp only should come on and the needles of the fuel gauge, the coolant temperature gauge, and the tachometer move up and return.

See Easy Checker™ on page 71.



(1) Turn signal/light indicator (2) Coolant temperature indicator
(3) Preheat (4) Low fuel indicator
(5) Electrical charge (6) Key switch
(7) Engine oil pressure

11. Turn the starter key to the **preheat** position and hold it as follows.
For the appropriate preheating time, see the following table.

Temperature	Preheating time
Over 0 °C (32 °F)	2 sec. to 3 sec.
-5 °C to 0 °C (23 °F to 32 °F)	5 sec.
-15 °C to -5 °C (5 °F to 23 °F)	10 sec.

NOTE :

- The preheat indicator lamp on the Easy Checker™ comes on while the engine is being preheated.

12. Turn the starter key to the **start** position and release it when the engine starts.
In cold weather, if the engine fails to start after 10 seconds, turn off the starter key for 30 seconds. Then repeat steps 11. and steps 12. See Cold weather starting of the engine on page 62.

IMPORTANT :

- Because of safety devices, the engine will not start except when the speed control pedal is in the neutral position and the PTO clutch lever is in the off position respectively.

13. Check to see that all the indicator lamps on the Easy Checker™ are off.

1. Cold weather starting of the engine

When the ambient temperature is as follows and the engine is very cold, you may fail to start the engine.

Ambient temperature	below -5 °C (23 °F)
---------------------	---------------------

To protect the battery and the starter, never turn the starter continuously for more than following seconds.

Continuous turning limit of the starter	30 seconds
---	------------

STOPPING THE ENGINE

- After slowing the engine to idle, turn the starter key to the "OFF" (O) position.
- Remove the starter key.

NOTE :

- If the starter key does not stop the engine, consult your local Kubota Dealer.

1. Engine stop lever (inside the bonnet)

The engine stops when the key switch is turned "OFF". If the engine does not stop, make sure the speed control pedal is in the "NEUTRAL" position, the PTO lever is "OFF", the mower lowered to the ground and apply the parking brake, then carefully get off the machine.

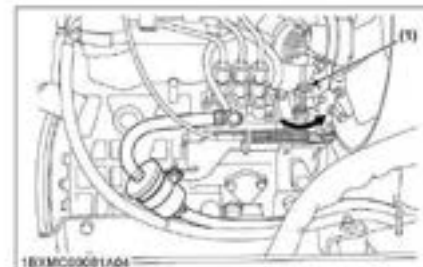
Then open the bonnet and turn engine stop lever (red mark) and hold it until the engine stops.

Then contact your local KUBOTA Dealer immediately.

WARNING

To avoid serious injury or death:

- Do not operate the machine until the engine stop system is repaired.



(1) Engine stop lever

WARMING UP OF THE ENGINE

WARNING

To avoid serious injury or death:

- Set the parking brake during warm-up of the engine.
- Set all shift levers to the "NEUTRAL" positions and to place the PTO clutch lever in the "OFF" (O) position during warm-up of the engine.

For 5 minutes after the engine start-up, allow the engine to warm up without applying any load. Allowing the engine to warm up is to allow oil to reach every engine part.

If the load should be applied to the engine without preceding warm-up period, trouble such as seizure, breakage, or premature wear may develop.

1. Warm-up of the engine and transmission oil in the low temperature range

IMPORTANT :

- Do not operate the tractor under full load condition until it is sufficiently warmed up.

Hydraulic oil serves as transmission fluid. In cold weather, the hydraulic oil may be cold with increased viscosity. The hydraulic oil with increased viscosity can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. Delayed oil circulation or abnormally low hydraulic pressure in turn can result in premature wear in the hydraulic system or malfunctions such as resistance in the speed control pedal and difficulty engaging the range gear shift lever. To prevent the premature wear in the hydraulic system or malfunctions of controls, check the following instructions.

- Warm up the engine at about 50 % of rated rpm according to the following table.

Ambient temperature	Warm-up time requirement
Above 0 °C (32 °F)	At least 5 minutes
-10 °C to 0 °C (14 °F to 32 °F)	5 minutes to 10 minutes
-20 °C to -10 °C (-4 °F to 14 °F)	10 minutes to 15 minutes
Below -20 °C (-4 °F)	More than 15 minutes

JUMP STARTING THE ENGINE

Follow the instructions of jump starting of the engine to safely start the engine.

WARNING

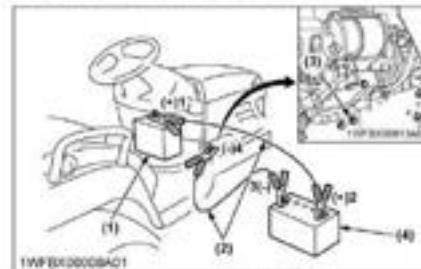
To avoid serious injury or death:

- Battery gases can explode. Keep cigarettes, sparks, and flames away from battery.
- If the tractor battery is frozen, do not jump start the engine.
- Do not connect other end of negative (-) jumper cable to negative (-) terminal of the tractor battery.
- When taking the dead battery, putting the battery, and fixing the battery, do not allow the positive (+) terminal of the battery to touch other parts.
- To prevent short circuit, before connecting jumper cables, remove the metal battery holder.

IMPORTANT:

- This machine is equipped with a 12 volt negative (-) ground starting system.
 - Use only the same voltage for jump starting.
 - Use of a higher voltage source on the electrical system of tractor could result in severe damage to the electrical system of tractor.
- Use only matching voltage source when jump starting in a low battery condition or a dead battery condition.
- Since the metal battery holder can crack, do not tighten it too much.

Connect cables in numerical order.
Disconnect in reverse order after use.



(1) Dead battery
(2) Jumper cables
(3) Front bolt
(4) Helper battery

1. Bring the helper vehicle with a battery of the same voltage as the disabled tractor within easy cable reach.

IMPORTANT:

- The helper vehicle must not touch the disabled tractor.
2. Engage the parking brakes of both vehicles and put the shift levers in the "NEUTRAL" position. Shut both engines off.
 3. Put on safety goggles and rubber gloves.
 4. Take the dead battery out and put it on the step of the tractor.
 5. Make sure that the vent caps are securely in place if equipped.
 6. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery, and clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.
 7. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
 8. Clamp the other end of the cable, which is clamped to the negative terminal of the helper battery, to the front bolt (3) as far from the dead battery as possible.
 9. Start the helper vehicle and let its engine run for a few moments. Start the disabled tractor.
 10. Disconnect the jumper cables in the exact reverse order of attachment.
See the steps in order of step 8, step 7, and step 6.
 11. Put the battery back and fix it.

OPERATING THE TRACTOR

OPERATION OF NEW TRACTOR

How a new tractor is used and maintained determines the life of the tractor.

A new tractor just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other. So you should take care of the tractor. You should operate the tractor as follows for the first 50 hours until the various parts become broken-in.

- Operate the tractor at a slower speed
- Avoid excessive work or operation of the tractor

The manner which the tractor is used during the breaking-in period greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor. In using a new tractor, follow the following precautions.

Do not operate the tractor at full speed for the first 50 hours.

- Do not start the tractor quickly. Do not apply the brakes suddenly.
- In winter, operate the tractor after fully warming up the engine.
- Do not run the engine at speeds faster than necessary.
- On rough roads, slow down to suitable speeds. Do not operate the tractor at fast speed.

The preceding precautions are not limited only to new tractors, but to all tractors. But you should especially follow the preceding precautions in the case of new tractors.

Changing the lubricating oil for new tractors

The lubricating oil is especially important in the case of a new tractor. If the various parts are not broken-in and are not accustomed to each other, small metal grit may develop during the operation of the tractor. Small metal grit may wear out or damage the parts. Therefore, you should take care of the lubricating oil to change a little earlier than would ordinarily be required.

(For further details of change interval hours, see SERVICE INTERVALS on page 114)

PRECAUTIONS FOR GETTING ON AND OFF THE TRACTOR

- Never try to get on or off a moving tractor or to jump off the tractor to exit.
- Face the tractor when getting into or out of the tractor. Do not use the controls as hand-holds to prevent inadvertent machine movements.

- Always keep steps and floor clean to avoid slippery conditions.

OPERATION OF THE FOLDABLE ROPS

WARNING

To avoid serious injury or death:

- When raising or folding the ROPS, apply the parking brake, stop the engine, and remove the starter key. Always raise or fold the ROPS from a stable position at the rear of the tractor.
- Fold the ROPS down only when absolutely necessary and fold it up and lock it again as soon as possible.
- Before proceeding to fold ROPS, check for any possible interference with installed implements and attachments. If interference occurs, contact your Kubota Dealer.

1. Folding the ROPS

NOTE :

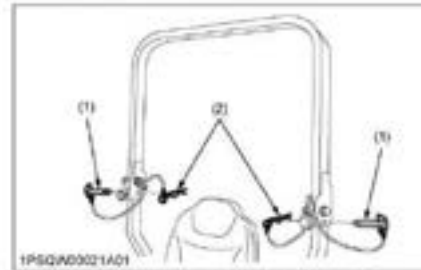
- Take care not to bump the ROPS against the rod of backhoe cylinder when folding the ROPS.

1. Loosen the holding knob bolts.



(1) Holding knob bolts

2. Remove both set pins.



(1) Set pins

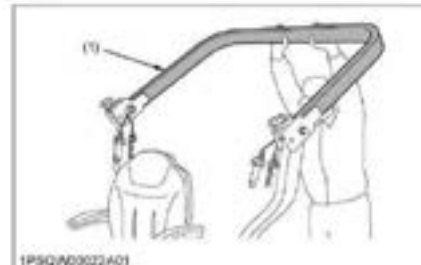
(2) Snap pins

3. Fold the ROPS.

CAUTION

To avoid personal injury:

- Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.



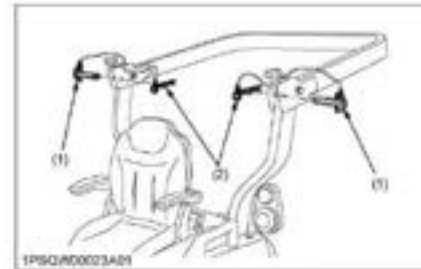
(1) ROPS

4. Align set pin holes and insert both set pins. Secure set pin holes and set pins with the snap pins.

WARNING

To avoid serious injury or death:

- Do not use your fingers to align the holes.
- Make sure that both set pins are properly installed and secured with the snap pins.

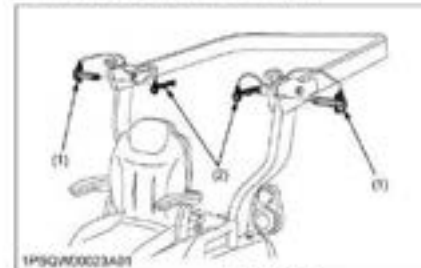


(1) Set pins

(2) Snap pins

2. Raising the ROPS to upright position

1. Remove both snap pins and set pins.



(1) Set pins

(2) Snap pins

2. Raise the ROPS to the upright position.

WARNING

To avoid serious injury or death:

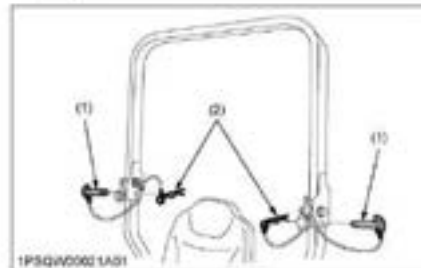
- Do not use your fingers to align the holes.
- Hold the ROPS tightly with both hands and raise the ROPS slowly and carefully.

- Align the set pin holes and insert both set pins. Secure the set pins with the snap pins.

CAUTION

To avoid personal injury:

- Make sure that both set pins are properly installed as soon as the ROPS is in the upright position and secured with the snap pins.



(1) Set pins

(2) Snap pins

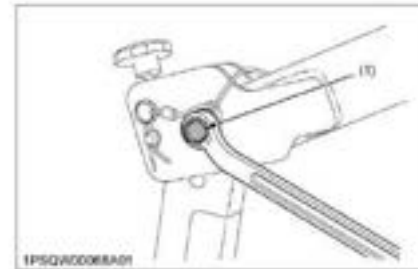
- Tighten the holding knob bolts.



(1) Holding knob bolts

3. Adjusting the foldable ROPS

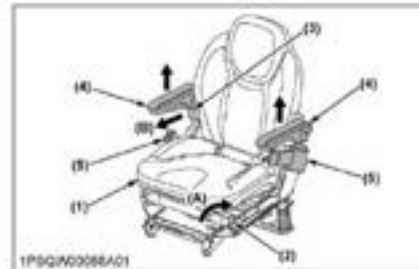
- Adjust free fall of the ROPS upper frame regularly.
- If you feel less friction in folding the ROPS, tighten the nut until you feel the right friction in the movement.



(1) Nut

STARTING THE TRACTOR

1. Adjust the operator's position and engage the seat belt.
(See Operator's seat on page 49 and Seat belt on page 49)



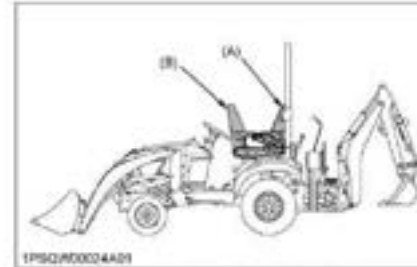
- 1PSQJ0008A01
- (1) Seat (2) Position adjust lever (3) Backrest tilt adjust lever (4) Armrest (5) Seat belt
- (A) Pull up (B) Pull



- 1PSPH0001A02
- (1) Seat belt

NOTE :

- Adjust the operator's seat and suspension to ensure that the controls are comfortably at hand for the operator, ensuring that the operator maintains a good posture.



- 1PSQJ0002A01
- (A) Tractor driving position (B) Backhoe position

- The turning direction of the operator's seat is one-way. Make sure that the operator's seat is rotated to the proper direction.
- For more details, see REVERSING THE OPERATOR'S SEAT on page 76.

2. Adjust the steering wheel to proper position.

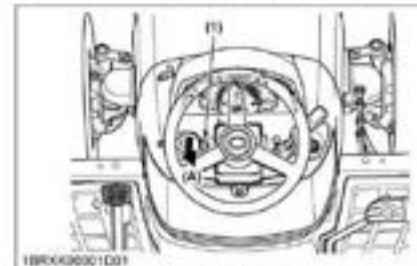


CAUTION

To avoid personal injury:

- Do not adjust the steering wheel while the tractor is in motion.

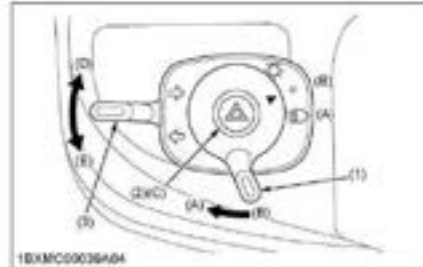
Pull the tilt lever to adjust the steering wheel.



- 1BR0000001D01
- (1) Tilt lever (A) Pull

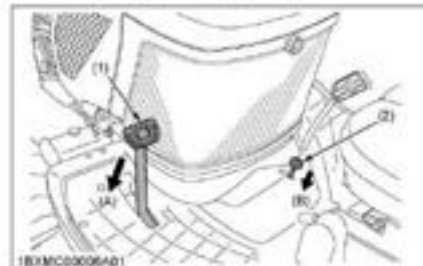
OPERATING THE TRACTOR

3. Select positions of the light switches.
(See Head light switch on page 46, Hazard light switch on page 46, and Turn signal light switch on page 46)



- 1BXMC00036A04
- | | |
|------------------------------|---------------------------------|
| (1) Head light switch | (4) Flash ON-OFF (hazard light) |
| (2) Hazard light switch | (5) Right turn |
| (3) Turn signal light switch | (6) Left turn |
| (A) ON (head light) | |
| (B) OFF (head light) | |

4. Check the brake pedal.
 - a. Depress the brake pedal.
 - b. Depress the parking brake lock pedal.
 - c. Release the brake pedal.
 Latch the brake pedal with the parking brake lock pedal. Use both right and left feet for the procedure.
(See Brake pedal and parking brake lock pedal on page 49 and "To set the parking brake" in How to use the parking brake on page 50)



- 1BXMC0006A01
- | | |
|------------------------------|---|
| (1) Brake pedal | (B) Push down parking brake lock pedal while depressing brake pedal |
| (2) Parking brake lock pedal | |
| (A) Depress | |

5. Start the engine.
(See STARTING THE ENGINE on page 59)

WARNING

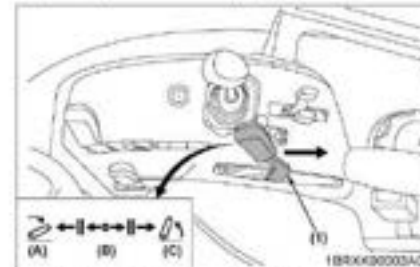
To avoid serious injury or death:

- Read and understand Safe operation in this manual.
- Read and understand the safety labels located on the tractor.

- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start the engine while standing on ground. Start the engine only from the operator's seat.
- Follow the rule to set all shift levers to the neutral positions and to place the PTO lever in the OFF position before starting the engine.

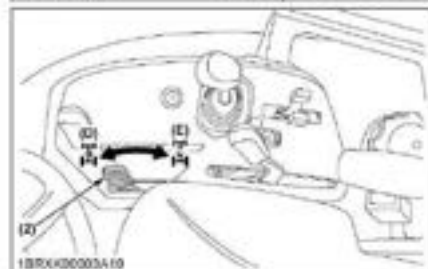
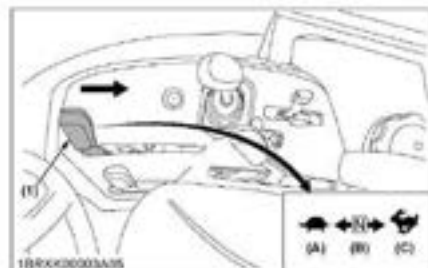
(See Precautions for operating the tractor on page 8, Precautions for parking the tractor on page 10, and Precautions for servicing the tractor on page 11)

6. Raise the implement.
Move the hydraulic control lever rearward (the raised (up) position).
(See Hydraulic control on page 87)



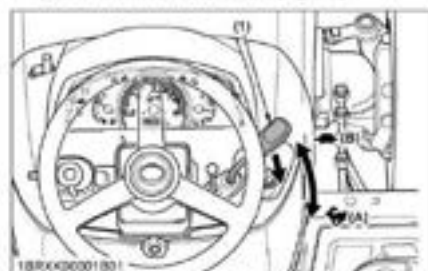
- 1BXMC0003A04
- | | |
|-----------------------------|------------|
| (1) Hydraulic control lever | (C) Raised |
| (A) Lowered | |
| (B) Neutral position | |

7. Select the travel speed.
(See Range gear shift lever (Hi-Lo) on page 50 and Front wheel drive lever on page 50)



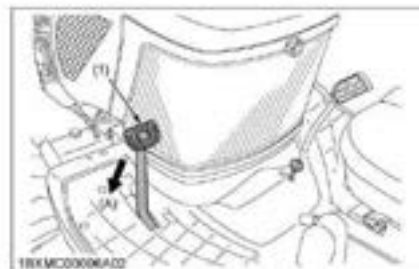
- (1) Range gear shift lever (Hi-Lo)
(2) Front wheel drive lever
(A) High
(B) Neutral position
(C) Low
(D) ON
(E) OFF

8. Accelerate the engine.
(See Hand accelerator lever on page 51)



- (1) Hand accelerator lever
(A) Increase
(B) Decrease

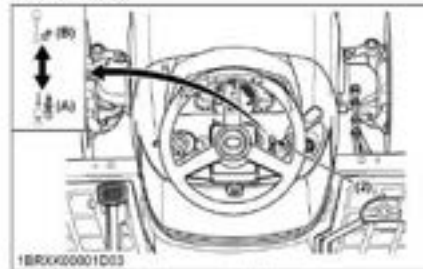
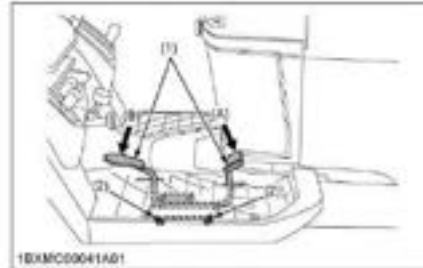
9. Unlock the parking brake.
(See "To release the parking brake" in How to use the parking brake on page 50)



- (1) Brake pedal
(A) Depress
(B) Release

OPERATING THE TRACTOR

- Depress the speed control pedal.
(See Speed control pedal on page 51, Speed set device on page 51, and How to use the speed set device on page 52)

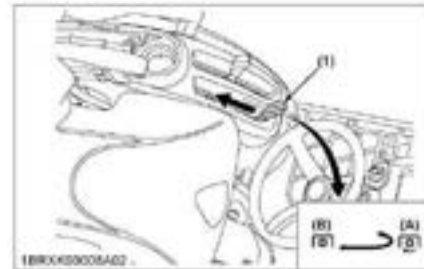


- (1) Speed control pedal
(2) Speed set device
(3) Speed set rest
(4) Forward
- (5) Reverse
(6) ON
(7) OFF

STOPPING THE TRACTOR

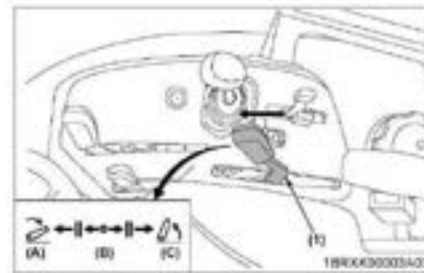
- Slow the engine down.
- Depress the brake pedal.
- After the tractor has stopped, disengage the PTO clutch.

STOPPING THE TRACTOR



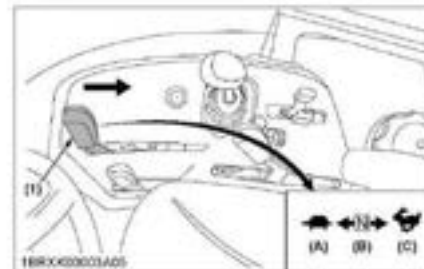
- (1) PTO clutch lever
(2) OFF (disengage)

- Lower the implement to the ground.



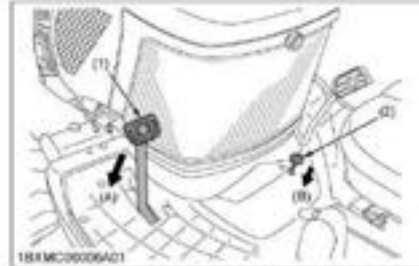
- (1) Hydraulic control lever
(2) Raised
(3) Neutral position

- Shift the range gear shift lever to the neutral [N] position.



- (1) Range gear shift lever (P-R-L)
(2) Neutral position
(3) High

6. Set the parking brake.
(See To set the parking brake in How to use the parking brake on page 50)



- (1) Brake pedal
(2) Parking brake lock pedal
(A) Depress
(B) Push down the parking brake lock pedal while depressing the brake pedal

CHECK DURING DRIVING

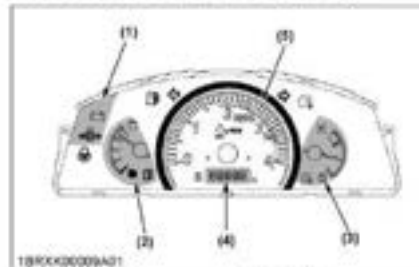
1. Cases to stop the engine immediately

Immediately stop the engine if the following occurs:

- The engine suddenly slows down or accelerates.
- Unusual noises suddenly are heard.
- Exhaust fumes suddenly become very dark.

2. Check items during driving

While driving the machine, check the following items to see that all the parts are functioning normally.



- (1) Easy Checker™
(2) Fuel gauge
(3) Coolant temperature gauge
(4) Hour meter
(5) Tachometer

- **Easy Checker™**
(See Easy Checker™ on page 71)
- **Fuel gauge**
(See Fuel gauge on page 72)
- **Coolant temperature gauge**
(See Coolant temperature gauge on page 72)

- **Hour meter**
(See Hour meter on page 73)
- **Tachometer**
(See Tachometer on page 73)

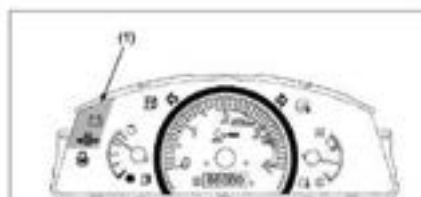
2.1 Easy Checker™

If trouble should occur at any location while the engine is running, the warning indicator lamp in the Easy Checker™ corresponding to that location comes on. If the warning indicator lamps in the Easy Checker™ come on during operation of the tractor, immediately stop the engine, and find the cause as the following table.

Never operate the tractor while the warning indicator lamp in the Easy Checker™ is on.

NOTE :

- For checking and servicing of your tractor, consult your local KUBOTA Dealer for instructions.



1BROX00009A08



- (1) Easy Checker™ (2) Turn signal/light indicator (3) Preheat (4) Electrical charge (5) Engine oil pressure indicator (6) Coolant temperature indicator (7) Low fuel indicator (8) Key switch

Warning indicator lamps in Easy Checker™

 Electrical charge	If the alternator is not charging the battery, the electrical charge indicator in the Easy Checker™ will come on. If this warning lamp should come on during operation of the tractor, check the electrical charging system or consult your local KUBOTA Dealer.
 Engine oil pressure	If the oil pressure in the engine goes below the prescribed level, the engine oil pressure indicator in the Easy Checker™ will come on. If this warning lamp should come on during operation of the tractor, and this warning lamp does not go off when the engine is accelerated to more than 1000 rpm, check level of engine oil. (See Checking the engine oil level on page 121.)

2.2 Fuel gauge

The fuel gauge is for the check if the gauge is working. When the key switch is in the ON (5) position, the fuel gauge indicates the fuel level.

When the fuel is close to empty level as shown in the following figure, the low fuel indicator lamp (1) in the Easy Checker™ comes on.

Low fuel indicator (1) comes on.	remaining amount 6 L
----------------------------------	----------------------



1BROX00009A02

- (1) Fuel gauge
(A) Empty

(B) Full

Be careful not to empty the fuel tank. Otherwise air may enter the fuel system.

If air should enter the fuel system, you should bleed it. (See Bleeding the fuel system on page 140)

NOTE :

- In case the fuel gauge system becomes disconnected, the needle will return to the most bottom position. If the needle of the fuel gauge returns to the most bottom position, consult your local Kubota Dealer. Once you turn off the key switch and the fuel gauge system returns to normal, the needle should point to the normal position again.

2.3 Coolant temperature gauge

WARNING

To avoid serious injury or death:

- Do not remove radiator cap until coolant temperature is well below its boiling point. Then loosen cap slightly to the stop to relieve any pressure before removing cap completely.



(1) Coolant temperature gauge

NOTE :

- In case the coolant temperature gauge system becomes short, the needle will return to the most bottom position. If the needle of the coolant temperature gauge returns to the most bottom position, consult your Kubota Dealer.

2.4 Dealing with the overheated coolant temperature

When the coolant temperature is nearly or more than the boiling point, this temperature is what is called "overheating".

Overheat indication

- When the coolant temperature stays over 123 °C (253.4 °F), the coolant temperature indicator lamp  in the Easy Checker™ comes on.

Reference

Red zone range	123 °C to 130 °C (254 °F to 266 °F)
----------------	--

- When the coolant temperature stays below 118 °C (244.4 °F), the coolant temperature indicator lamp  turns OFF.

If the coolant temperature indicator lamp  in the Easy Checker™ comes on, take the following actions.

- Stop operating the tractor in a safe place and keep the engine unloaded idling. Do not stop the engine suddenly.
 - Place the PTO clutch lever in the OFF (disengage)  position.
 - Move the tractor to the level surface, and apply the parking brake.
 - Place the hand accelerator lever in the engine idle position, and operate the engine for about 5 minutes.
- Keep yourself well away from the tractor for the following minutes or while the steam blows out.

Keeping yourself away from the tractor	Further 10 minutes
--	--------------------

- Check the cooling system after it has sufficient time to cool down.
Check that there is no danger such as burn. Get rid of the causes of overheating according to ENGINE TROUBLESHOOTING on page 170.
Check the following items:
 - Shortage or leakage of the coolant
 - Foreign matter on the radiator net
dust and dirt between the radiator fins
 - Looseness of fan belt
 - Blockage in the radiator tube
(See Checking the radiator hoses and the hose clamps on page 138.)

2.5 Hour meter

The hour meter indicates in 5 digits the hours the tractor has been used as the following table.

Tractor operated hours	The step that the display operates
From 0.0 Hr to 9999.9 Hr	every 0.1 Hr step
10000 Hr to 99999 Hr	every 1 Hr step
After 99999 Hr	99999 Hr stays on



(1) Hour meter

2.6 Tachometer

When the key switch is in the ON  position and the engine is on, the tachometer indicates the engine revolution per minute.

NOTE :

- When the key is turned on, the tachometer should indicate as follows for just a moment.

Indication of the tachometer	4000 rpm
------------------------------	----------

Recommended Engine Speed

Implement	Recommended engine speed
PTO 540	Use within yellow range
Loader	Use within orange range



1BROK00009A02
(1) Tachometer
(2) Orange range

PARKING THE TRACTOR

When parking the tractor, set the parking brake.

WARNING

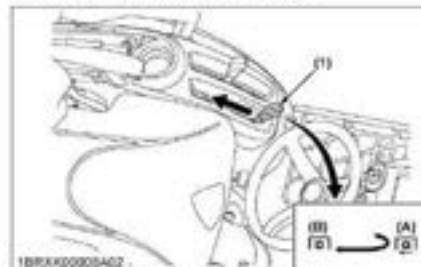
To avoid serious injury or death:

Before getting off the tractor:

- Always set the parking brake and lower all implements to the ground.
- Leaving the in gear with the engine stopped will not prevent the tractor from accidental rolling.
- Stop the engine and remove the key.

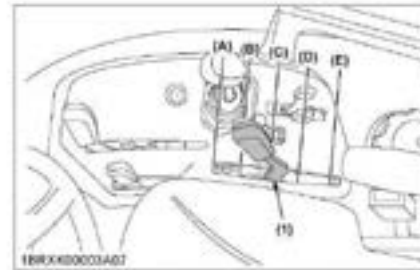
Before getting off the tractor, follow the following procedure:

1. Disengage the PTO.
(See PTO clutch lever on page 80)



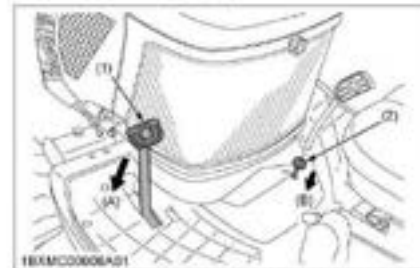
1BROK00009A02
(1) PTO clutch lever
(A) ON (orange)
(B) OFF (orange)

2. Lower all implements to the ground.
(See Hydraulic control on page 87)



1BROK00009A02
(1) Hydraulic control lever
(A) Down
(B) Up
(C) Neutral

3. Place all control levers in their "NEUTRAL" positions.
4. Set the parking brake.
(See To set the parking brake in How to use the parking brake on page 50)



1BROK00009A02
(1) Brake pedal
(2) Parking brake lock pedal
(A) Depress
(B) Push down parking brake lock pedal while depressing brake pedal

5. Stop the engine.
(See STOPPING THE ENGINE on page 62)
6. Remove the starter key.
7. If it is necessary to park the tractor on an incline, check the wheels to prevent accidental rolling of the tractor.

TECHNIQUES FOR OPERATING THE TRACTOR

1. Differential lock

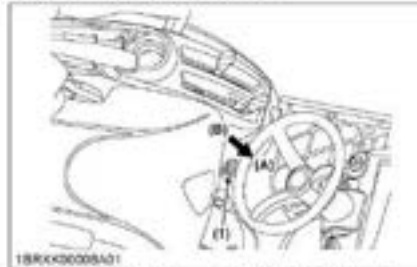
WARNING

To avoid serious injury or death due to loss of steering control:

- Do not operate the tractor at high speed with differential lock engaged.
- Do not turn with the differential lock engaged.

- Release the differential lock before turning the machine in field conditions.

If one of the rear wheels should slip, depress the differential lock pedal. Both wheels will then turn together, which reduce slippage of the rear wheels. The differential lock is maintained only while the differential lock pedal is depressed.



(1) Differential lock pedal
(2) Release to disengage

IMPORTANT:

- When using the differential lock, always slow the engine down.
- To prevent damage to powertrain, do not engage the differential lock when one wheel is spinning and the other is completely stopped.
- If the differential lock cannot be released in the preceding manner, alternately press the speed control pedal forward and backward slightly.

2. Precautions for operating the tractor on a slopes and rough terrain

⚠ WARNING

To avoid serious injury or death:

- Always back the tractor up when the tractor is going up to a steep slope. Driving forward could cause the tractor to tip over backward. Stay off hills and slopes too steep for safe operation of the tractor.
- Avoid changing gears when the tractor is climbing or descending a slope.
- If operating the tractor on a slope, never disengage the shift levers to neutral. Disengaging the shift levers to neutral could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks which may collapse under the weight of the tractor, especially when the ground is loose or wet.

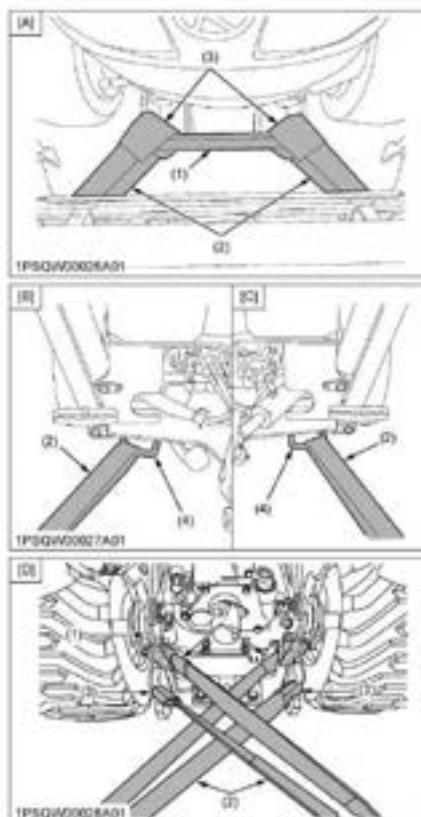
- Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.
- Before descending a slope, shift to a gear low enough to control speed without using brakes.

3. Precautions for transporting the tractor safely

⚠ WARNING

To avoid serious injury or death:

- When transporting, carry the tractor on a truck. Pay attention to the following points when transporting the tractor.
 - Make sure that the ramps used for loading are sufficient capacity and securely connected to the tractor to support safely throughout the loading and unloading process.
 - Stop the engine, lower all implements, apply the parking brake, and place chocks against the front and rear tires.
 - Secure the portions of the tractor which are shown in the figures by using adequate straps or chains.
 - Adequate straps or chains should take into account the weight of the unit, anticipated loads or forces, required factors of safety, and any other pertinent information.
 - Always comply with federal and/or local regulations for securement and transport



(A) Front side (1) Tractor frame
(B) Rear side (2) Heavy duty strap
(C) Left (3) Chock
(D) Rear side (without the backhoe) (4) Tie down strap (under the backhoe)

4. Directions for use of the power steering

- The power steering is activated only while the engine is running. While the engine is stopped, the tractor functions in the same manner as tractors without power steering.
- Turning the steering wheel all the way to the stop activates the relief valve. Do not hold the steering wheel in the stop for a long period of time.
- Avoid turning the steering wheel while the tractor is stopped, or tires may wear out sooner.

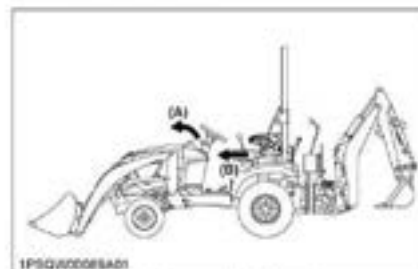
- The power-steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

REVERSING THE OPERATOR'S SEAT

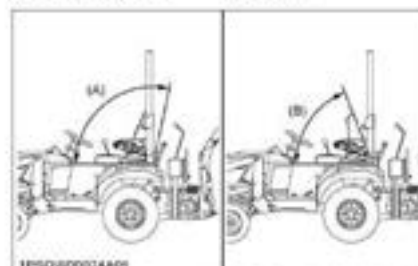
WARNING

To avoid serious injury or death:

- When turning the operator's seat around,
 - Raise the steering wheel position to the top.
 - Slide the operator's seat to the front.
 - Engage the boom and the swing locks and put the boom and swing lock lever into the lock position.
 - Set the backrest angle (A) of the operator's seat less than 90°.

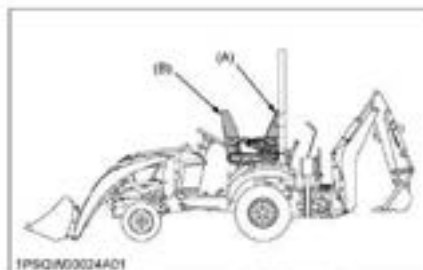


(A) Raise steering wheel (B) Slide seat



(A) Backrest angle (B) Backrest angle less than 90° when turning the operator's seat

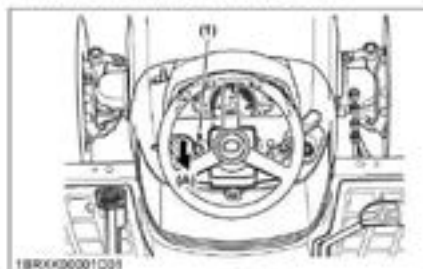
The operator's seat is reversible for the backhoe operation.



(A) Tractor driving position (B) Backhoe position

Follow the following procedure to turn the operator's seat around.

1. Raise steering wheel position to the top.



(1) Lift lever (A) Seat

2. Slide the operator's seat to the front.

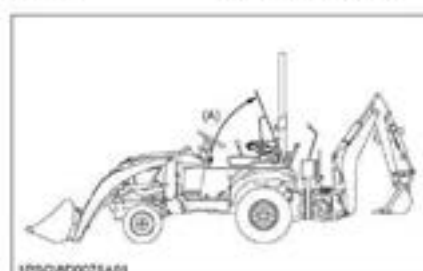


(1) Seat (2) Position adjust lever

3. Set back the backrest of the operator's seat less than 90°.

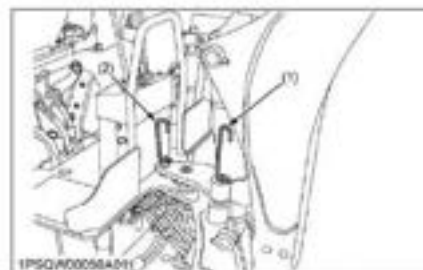


(1) Seat (2) Backrest lift adjust lever



(A) Backrest angle less than 90° when turning the operator's seat

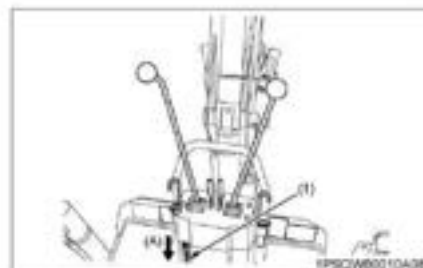
4. Make sure that the locks of the boom and the swing are engaged.



(1) Boom lock pin (2) Swing lock pin

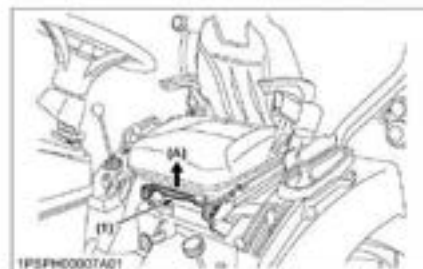
5. Make sure that the boom and swing lock lever is in the lock position.

OPERATING THE TRACTOR



(1) Boom and swing lock lever (A) Lock

5. Pull the seat lock lever up as shown in the following illustration to release the lock of the operator's seat.

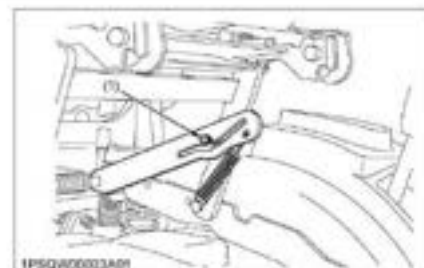


(1) Seat lock lever (A) Release

7. Raise the operator's seat until the seat pin comes in to the detent notch (see the following illustration).



1PSPH0003A01



(1) Seat pin

8. Turn the operator's seat around rearward.



1PSPH0001A01

IMPORTANT :

- Grip the arms of the operator's seat and swivel the operator's seat.

NOTE :

- Turn the operator's seat for the indicated direction in the preceding figure.

9. Push the operator's seat backward, then the seat pin will come out from detent notch.

Push the operator's seat down until the seat lock lever is locked at the backhoe position.



1PSPH0005A01

NOTE :

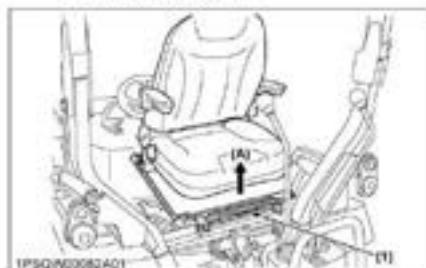
- If the seat pin does not come out from the detent notch, apply grease in the notch.

10. After reversing the operator's seat, check to see that the operator's seat is properly locked.

IMPORTANT :

- Turn the operator's seat at the detent position to avoid damage of seat-locking mechanism and hitting to the range gear shift lever.
- See Operator's seat on page 49 when using the operator's seat in the tractor driving position.

11. For the tractor driving position,
- a. Engage the locks of boom and swing.
 - b. Set the boom and swing lock lever to the lock position.
 - c. Raise steering wheel position to the top.
 - d. Slide the operator's seat to the front.
 - e. Set the backrest of the operator's seat less than 90°.
 - f. Pull the seat lock lever up, follow the reverse of the preceding procedure.



(1) Seat lock lever

(A) Release

POWER TAKE-OFF (PTO)

PTO OPERATION

⚠ WARNING

To avoid serious injury or death:

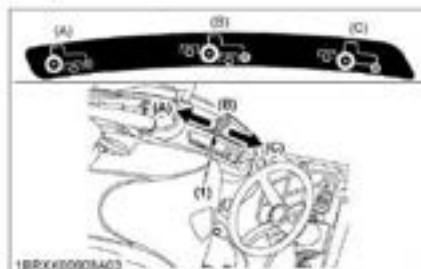
- Before operation of PTO, select the position of the PTO select lever (mid , mid/rear , rear .
- Disengage PTO, stop the engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.

1. PTO select lever

IMPORTANT:

- To avoid shock when loading to the PTO, reduce the engine accelerator from full to half speed by pushing up on the engine accelerator when engaging the PTO. Then open the accelerator to the full speed.
- To avoid damage of transmission, when the PTO select lever is not smoothly shifted, slightly shift the PTO clutch lever.

The tractor has a 540 rpm rear PTO speed and a 2500 rpm mid PTO speed.



(1) PTO select lever

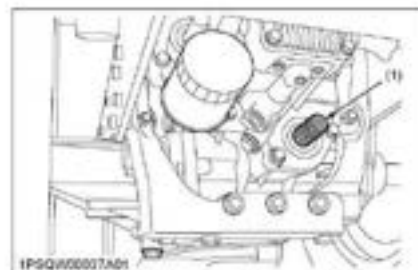
(2) Mid-Rear PTO position

(A) Mid PTO position

(C) Rear PTO position

Mid PTO

To use the mid PTO, shift the PTO select lever to the mid PTO  position and the PTO clutch lever to the ON  position. The mid PTO is available for Kubota approved implements.



(1) Mid PTO

Mid-Rear PTO

To use the mid PTO and the rear PTO at the same time, shift the PTO select lever to the mid-rear PTO  position and the PTO clutch lever to the ON  position.

Rear PTO

To use the rear PTO, shift the PTO select lever to the rear PTO  position and the PTO clutch lever to the ON  position.

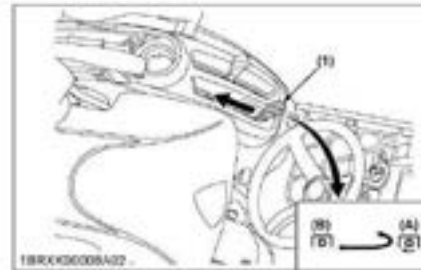
2. PTO clutch lever

The PTO clutch lever engages or disengages the PTO clutch which gives the PTO independent control.

IMPORTANT:

- To avoid shock when loading to the PTO, reduce the engine accelerator from full to half speed by pushing up on the engine accelerator when engaging the PTO. Then open the accelerator to the full speed.
- When you engage the PTO clutch, shift the PTO clutch lever slowly to avoid damage to the PTO clutch and implement. Do not keep the PTO clutch lever half way.

Shift the PTO clutch lever to the ON  position to engage the PTO clutch. Shift the PTO clutch lever to the OFF  position to disengage the PTO clutch. See the following figure.



(1) PTO clutch lever
(2) ON (engage)

(2) OFF (disengage)

NOTE:

- The tractor engine will not start if the PTO clutch lever is in the engaged (ON (1)) position.
- When you stand up from the seat with the PTO clutch lever at the engaged (ON (1)) position, the engine will stop regardless of the position of the PTO select lever. This is because that the tractor is equipped with operator presence control system (OPC).

3. PTO shaft cover and PTO shaft cap

WARNING

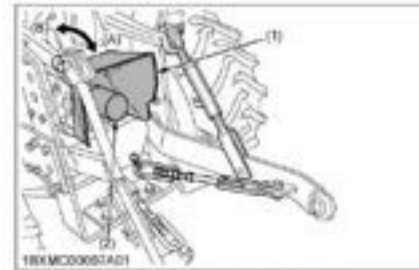
To avoid serious injury or death:

- Before connecting or disconnecting a drive shaft to PTO shaft, be sure that the engine is OFF and raise up the PTO shaft cover. Afterward return the PTO shaft cover to the normal position.

IMPORTANT:

- The universal joint of the PTO drive shaft is technically limited in its moving angle. Refer to the *PTO Drive Shaft Instructions* for proper use.

Keep the PTO shaft cover in place at all times. Keep the PTO shaft cap when the PTO is not in use.



(1) PTO shaft cover
(2) PTO shaft cap

(1) Normal position
(2) Raised position

4. Using the stationary PTO

To park the tractor and use the PTO system for chipper or pump, for example, start the PTO system in the following steps.

- Apply the parking brake and place blocks at the tires.
- Make sure that all shift levers are in their neutral position, and start the engine.
- Set the PTO clutch lever to the ON (engage) (1) position.
- Set the engine speed appropriately to provide recommend rear PTO speed.
- Unlock the seat lock lever.
- Stand up, set the backrest of the operator's seat less than 90°, and raise the operator's seat.

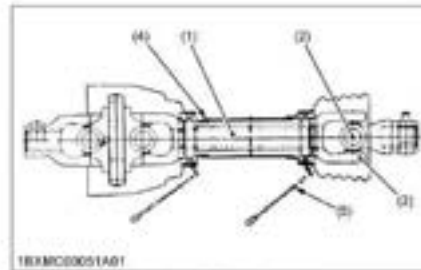


(1) Seat lock lever

- Turn the operator's seat around rearward and lock the operator's seat at the backhoe position. (See REVERSING THE OPERATOR'S SEAT on page 76)

5. PTO drive shaft

The PTO drive shafts are designed for specific machines and power requirement.



16XMC00051A01

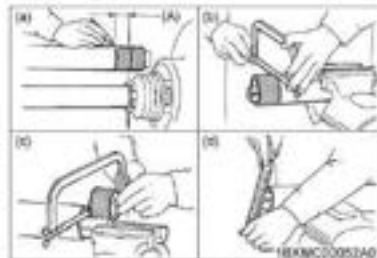
- (1) Inner and outer sliding profile (2) Filling yokes tubes
(3) Journal cross axis (4) Safety guard (in, out)
(5) Chain

- When using a PTO drive shaft, read the Operator's Manual of the implement before operating the implement.
- If it is necessary for using the PTO drive shaft, adjust the length of it.
(See Adjusting the length of PTO drive shaft on page 82)
- Make sure that the PTO drive shaft is securely connected at both ends before operating it.

5.1 Adjusting the length of PTO drive shaft

To adjust the length of the PTO drive shaft, take the following instructions.

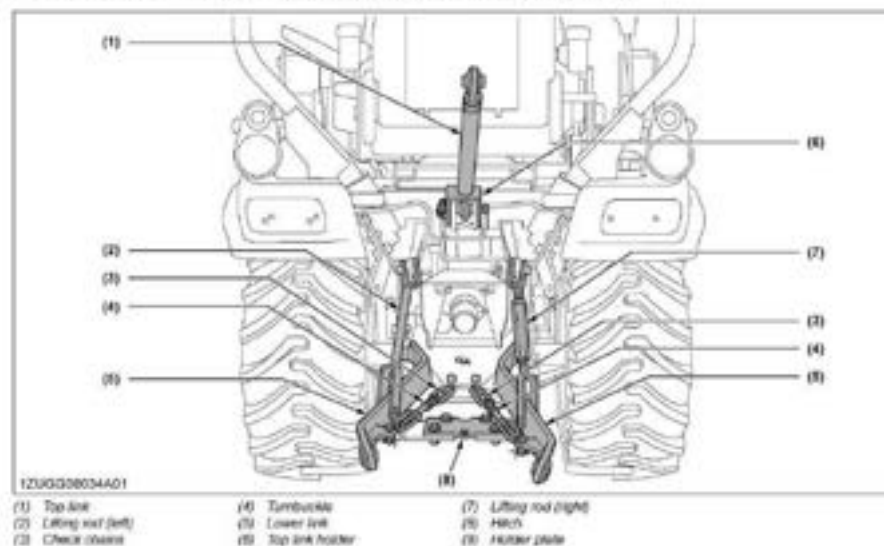
1. To adjust the inner and outer guard tubes, hold the half shafts next to each other in the shortest working position, and mark the half shafts in the shortest working position of the inner and outer guard tubes.
2. Shorten the inner and outer guard tubes to the marked position equally.
3. Shorten the inner and outer sliding profile tubes by the same length as the inner and outer guard tubes.
4. Round all sharp edges off, remove burrs, and grease sliding profiles.



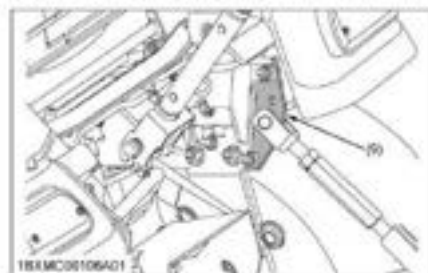
- (a) Reference image for step 1 (b) Reference image for step 4
(c) Reference image for step 3 (d) 40 mm (1.57 in.)

3-POINT HITCH AND DRAWBAR

OVERVIEW OF 3-POINT HITCH AND DRAWBAR



Use the holder plate to hold the lower link higher while mowing with mid-mount mower only over uneven terrain.



(9) Holder plate

3-POINT HITCH

1. Precautions for attaching and detaching the implements to the 3-point hitch

WARNING

To avoid serious injury or death:

- Stop the engine and remove the starter key.
- Do not stand between the tractor and the implement unless the parking brake is applied.
- Before attaching or detaching the implement to the 3-point hitch, locate the tractor and the implement on a firm, flat, and level surface.
- Whenever an implement or other attachment is connected to the tractor by the 3-point hitch, slowly move the 3-point hitch through the full range of operation and check for interference, binding, or PTO separation before operating the machine.

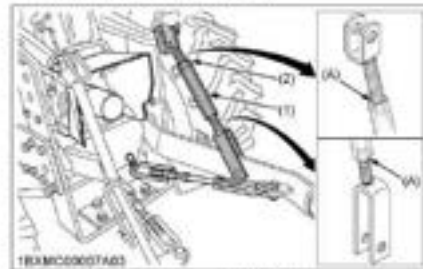
2. Adjusting the lifting rod (right)

WARNING

To avoid serious injury or death:

- Do not extend the lifting rod beyond the groove on the thread rod.

1. Level a 3-point-mounted implement from side to side by turning the adjusting turnbuckle to shorten or lengthen the adjustable lifting rod with the implement on the ground.
2. After adjustment, tighten the lock nut securely. Do not extend the lifting rod beyond the groove on the threaded rod when extending it.



(1) Adjusting turnbuckle (A) Groove
(2) Lock nut

3. Adjusting the top link

The proper length of the top link varies according to the type of implement being used.

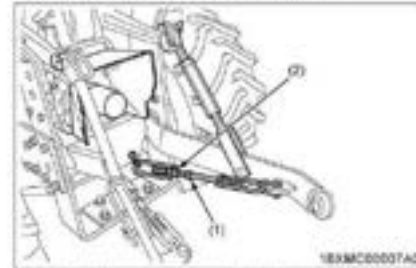
NOTE:

- When not using the top link, shorten it to the shortest length and fix it to the top link holder.

1. Adjust the angle of the implement to the desired position by shortening or lengthening the top link.

4. Adjusting the check chains

1. Make sure that the check chains are installed as the following figure.
2. Adjust the turnbuckle to control horizontal sway of the implement.
3. After adjustment, retighten the lock nut.



(1) Turnbuckle (2) Lock nut

HITCH

WARNING

To avoid serious injury or death:

- Never pull from the top link, the rear axle, or any point above the hitch. If you pull from the top link, the rear axle, or any point above the hitch, the tractor can tip over rearward causing personal injury or death.

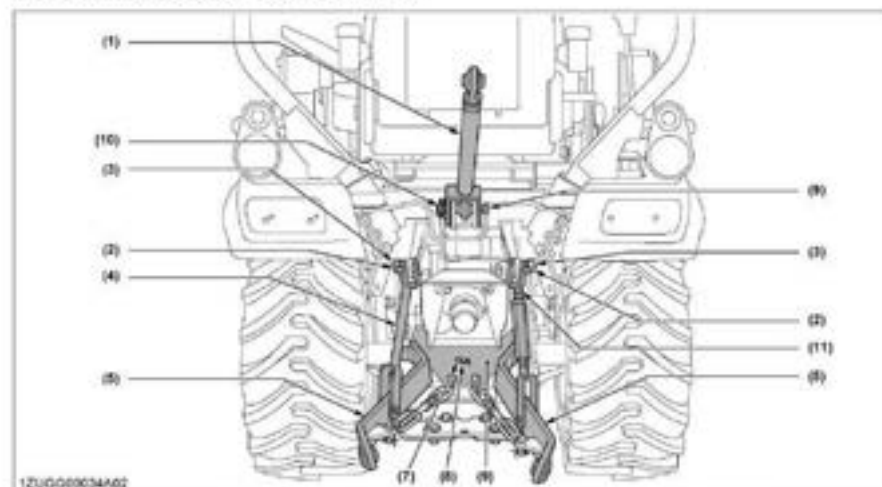
See the following figure.



(1) PTO

1. How to use the 3-point hitch

When installing the backhoe, remove the 3-point hitch.



1ZUG000034A02

(1) Top link
(2) Clevis pin
(3) Snap ring

(4) Lifting rod (left)
(5) Lower link
(6) Stopper pin

(7) Snap pin
(8) Check chain plate
(9) Top link pin

(10) Lynch pin
(11) Lifting rod (right)

Removing the 3-point hitch

1. Remove the lynch pin and the top link pin. Then remove the top link.
2. Remove the snap ring and the clevis pin. Then remove the left and right lifting rod.
3. Remove the snap pin and the stopper pin. Then remove the check chain plate and lower links.

Installing the 3-point hitch

1. Follow the reverse of the procedure of "Removing the 3-point hitch".

HYDRAULIC UNIT

3-POINT HITCH CONTROL SYSTEM

⚠ WARNING

To avoid serious injury or death:

- Before using the 3-point hitch controls, make sure that no person or object is in the area of the implement or 3-point hitch.
- Do not stand on or near the implement or between the implement and tractor when operating the 3-point hitch controls.

1. Hydraulic control

IMPORTANT:

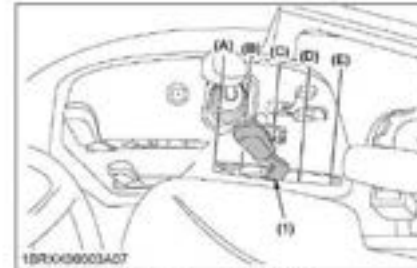
- Do not operate until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.
- If noises are heard when implement is lifting after the hydraulic control lever has been activated, the hydraulic mechanism is not adjusted properly. If you do not correct the hydraulic control unit, it will be damaged. Contact your Kubota Dealer for adjustment.

Operating the hydraulic control lever actuates the hydraulic lift arm, which controls the elevation of the 3-point-hitch-mounted implement.

To lower the implement, move the hydraulic control lever forward (the  position). To raise the implement, move the hydraulic control lever rearward (the  position).

In the slow-down position and the slow-up position of the hydraulic control lever in contact with the inner stopper, you can control the valve with ease in the following increments at the lower link end.

Increments at the lower link end	approximately 6.4 mm (0.25 in.)
----------------------------------	---------------------------------



(F) Hydraulic control lever
(A) Down
(B) Slow down
(C) Neutral
(D) Slow up
(E) Up

IMPORTANT:

- If the 3-point hitch can not be raised by setting the hydraulic control lever to the up (RAISED)  position after long term storage or when changing the transmission oil, follow the following air bleeding procedures.
 1. Stop the engine.
 2. Set the hydraulic control lever to the down (LOWERED)  position and start the engine.
 3. Operate the engine at low idle speed for the following seconds to bleed air from the system.

Operating the engine at low idle speed	at least 30 seconds
--	---------------------

2. Lowering speed of 3-point hitch

The lowering speed of the 3-point hitch can be controlled or locked in similar fashion to a water faucet.

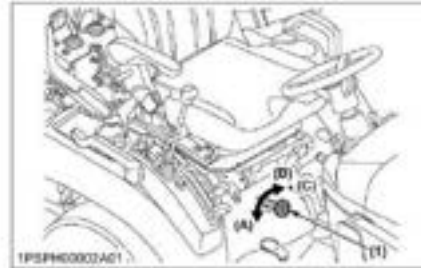
⚠ WARNING

To avoid serious injury or death:

- Fast lowering speed may cause damage or injury. Lowering speed of implement should be adjusted to 2 or more seconds.

Turn toward the fast position to increase, the slow position to reduce, and the lock position firmly to the stop for lock.

See the following figure.



1PSPH0003A01
(1) 3-point lift/lower speed knob
(A) Fast
(B) Slow
(C) Lock

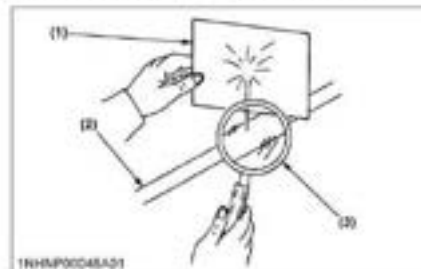
AUXILIARY HYDRAULICS

On the tractor, hydraulic outlet is provided.

WARNING

To avoid serious injury or death:

- Escaping the hydraulic fluid under pressure can obtain sufficient force to penetrate skin, which cause serious personal injury. Before disconnecting the lines, relieve all pressure.
- Before applying the pressure to the hydraulic system, be sure that all connections are tight, and that the lines, tubes, and hoses of the hydraulic system are not damaged.
- Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.
- If someone gets injured by escaping hydraulic fluid, see a doctor at once. Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.



1NHMP0004BA01
(1) Cardboard
(2) Hydraulic line
(3) Magnifying glass

1. Connecting hoses for the backhoe

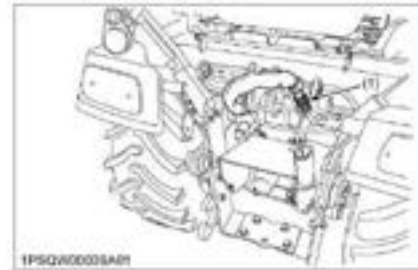
IMPORTANT:

- For the hydraulic outlet, use the power beyond type of the control valve with the relief valve and third line which the hydraulic fluid pass through to return to the tank for the operation of the hydraulic block.

You can use the hoses with the BT603 Backhoe.

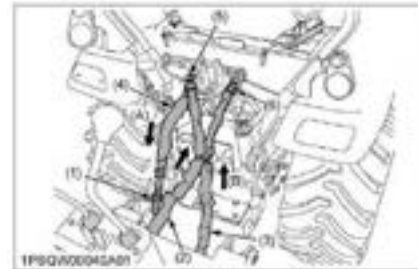
When mounting the backhoe, follow the following procedure.

- Disconnect the coupler.



1PSQW0003BA01
(1) Coupler

- Route the inlet hose, the outlet hose, and the power beyond hose of the implement as shown in the following illustration.



1PSQW0004BA01
(1) Inlet hose (backhoe)
(2) Outlet hose (backhoe)
(3) Power beyond hose (backhoe)
(4) Outlet hose (tractor)
(5) Return pipe (tractor)
(6) Power beyond pipe (tractor)
(A) To backhoe (outlet)
(B) From backhoe (inlet)
(C) Return to tank

Max. flow of the outlet hose (tractor)	14 L/min (3.7 U.S.gals./min)
--	---------------------------------

2. Disconnecting hoses for the mower

WARNING

To avoid serious injury or death:

- Escaping the hydraulic fluid under pressure can obtain sufficient force to penetrate skin, which cause serious personal injury. Before disconnecting the lines, relieve all pressure.
- Before applying the pressure to the hydraulic system, be sure that all connections are tight, and that the lines, tubes, and hoses of the hydraulic system are not damaged.
- Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.
- If someone gets injured by escaping hydraulic fluid, see a doctor at once. Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.

Do not attach nor operate the mower with the backhoe still in place.

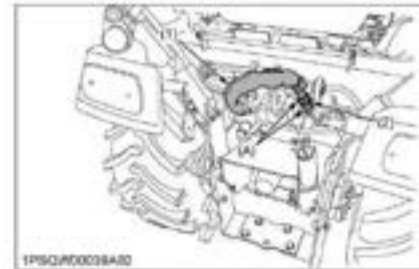
When installing the mower, remove the backhoe from the tractor with the following procedure.

- Shut the engine off and set the parking brake.
- Tilt the operator's seat forward.
- Remove the hydraulic pressure by moving the controls.
- Disconnect the inlet hose, the outlet hose, and the power beyond hose of the backhoe.



- (1) Inlet hose (backhoe) (4) Outlet hose (tractor)
(2) Outlet hose (backhoe)
(3) Power beyond hose (backhoe)

- Place the protective cap on the coupler of the inlet hose of the backhoe, the coupler of the outlet hose, and the power beyond hose.
- Connect the outlet hose of the tractor to the coupler of power beyond pipe of the tractor.



- (1) Outlet hose (tractor) (4) To be connected
(2) Power beyond pipe (tractor)

- Place the protective cap on the fitting of the pipe which the hydraulic fluid pass through to return to the tractor.

NOTE :

- When getting ready to use the backhoe after finishing mowing, connect the hoses of the tractor and backhoe in the reverse order.

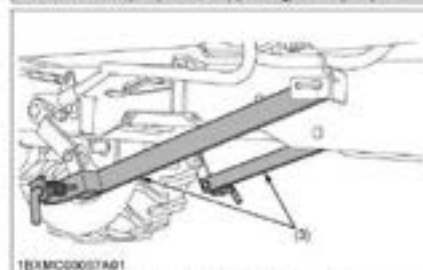
MOWER LIFT LINKAGE SYSTEM

1. Cutting height control dial

When mounting the mid-mount mower, turn the cutting height control dial to the desired height.

For further details, refer to the following the operator's manuals of rotary mower.

- RCK50B-23BX
- RCK54-23BX
- RCK50D-26BX
- RCK54D-26BX



(1) Cutting height control dial (2) Mower rear link
(2) Hydraulic control lever

IMPORTANT:

When operating the tractor without mid-mount mower, follow the following procedure.

1. Move the hydraulic lever rearward (the $\uparrow$ position) to raise the mower rear links to the highest position.
2. Set the cutting height control dial to the top position.

If you do not follow this procedure, damage of the mower rear link can result.

2. Hydraulic control unit use reference chart

In order to use the hydraulics properly, the operator must know the following chart. Though this information may not be applicable to all types of implements and soil conditions, it is useful for general conditions.

Implement	 (1) Hydraulic control lever	 Gauge wheel	 Check chains
Moldboard plow	Light soil, medium soil, heavy soil	Hydraulic control	YES/NO Loos Adjust the check chains so that the implement can move 5 cm to 6 cm (2 in. to 2.4 in.) laterally. The check chains should be tight enough to prevent excessive implement movement when implement is in raised position.
Disc plow			
Harrow (bake type, springtooth type, and disc type)			
Sub-soiler			
Weeder, ridger			YES
Earthmover, digger, scraper, and manure fork rear carrier			YES/NO For implements with gauge wheels, set the hydraulic control lever to the lowered (down) position all way.
Mower (mid and rear-mount type), hayrake, and tedder			Tighten

TIRES, WHEELS, AND BALLAST

TIRES

⚠ WARNING

To avoid serious injury or death:

- Do not attempt to mount a tire on a rim. Only a qualified person with the proper equipment should mount a tire on a rim.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure shown in the inflation pressure section.

(See inflation pressure of tires on page 92).

IMPORTANT :

- Do not use tires other than those approved by Kubota.
- When you intend to mount different size of tires from equipped ones, consult your dealer about front drive gear ratio for details. Excessive wear of tires may occur due to improper gear ratio.

1. Inflation pressure of tires

Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

	Tire sizes	Inflation Pressure
Rear	26x12.00-12 Turf	100 kPa (1.0 kgf/cm ²) [14 psi]
	26x12.00-12 Bar	120 kPa (1.2 kgf/cm ²) [17 psi]
	26x12.00-12 Int.	120 kPa (1.2 kgf/cm ²) [17 psi]
	26x12.00-12 R14	138 kPa (1.4 kgf/cm ²) [20 psi]
Front	18x6.50-10 Turf	120 kPa (1.2 kgf/cm ²) [17 psi]
	18x6.50-10 Bar	150 kPa (1.5 kgf/cm ²) [22 psi]

(Continued)

	Tire sizes	Inflation Pressure
Front	18x6.50-10 Int.	150 kPa (1.5 kgf/cm ²) [22 psi]
	18x6.50-10 R14	221 kPa (2.2 kgf/cm ²) [32 psi]

NOTE :

- Maintain the maximum pressure in front tires, if using a front loader or when equipped with a full load of front weight.

2. Dual tires

You can not use the dual tires.

Dual tires are not approved.

WHEEL TREAD

⚠ WARNING

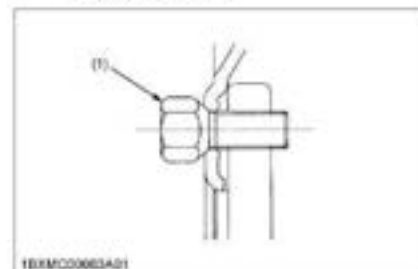
To avoid serious injury or death:

- Support the tractor securely on stands before removing a wheel.
- Never operate the tractor with a loose rim, wheel, or axle.

IMPORTANT :

- When re-fitting or adjusting a wheel, follow the procedure.

- Tighten the bolts to the torques as shown in the following table.



(1) Bolt

(1) Bolt

	Tightening torques
Front	149 N·m to 179 N·m (10.2 kgf·m to 13.3 kgf·m) (110 lbf·ft to 132 lbf·ft)
Rear	100 N·m to 130 N·m (7.1 kgf·m to 9.3 kgf·m) (50 lbf·ft to 66 lbf·ft)

2. Then recheck as the following table.
(See SERVICE INTERVALS on page 114)

Timing to re-check the bolts	After driving the tractor 200 m (200 yards), after 1 day (8 hours), and thereafter every 50 hours
------------------------------	---

NOTE :

- Use the tapered bolts for wheels with beveled or tapered holes.

1. Front wheels**IMPORTANT :**

- Do not turn the front discs to obtain wider tread.
- Always attach tires as shown in the figures in the following table.

If you not attach the front wheel as illustrated in the table, transmission parts may be damaged.

You can not adjust width of the front tread.

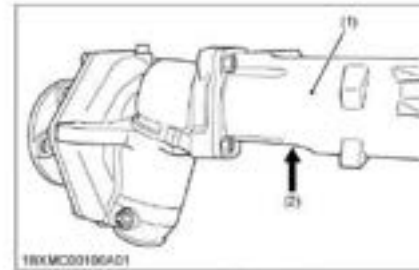
Tire	16x6.50-10 Turf, Bar, Ind., and R14
Tread	 18XMC0065A01 (A) 310 mm (35.8 in.)

How to jack up the front axle

WARNING

To avoid serious injury or death:

- Before jacking up the tractor, park it on a firm and level ground and chock the rear wheels.
- Fix the front axle to keep it from pivoting.
- Select jacks that withstand the machine weight and set them up as shown in the following figure.



18XMC00106A01

(1) Front axle cover

(2) Jack points

2. Rear wheels**IMPORTANT :**

- Do not the turn rear discs to obtain wider tread.
 - Always attach tires as shown in the figures in the following table.
- If you not attach the rear wheel as illustrated in the table, transmission parts may be damaged.

You can not adjust width of the rear tread.

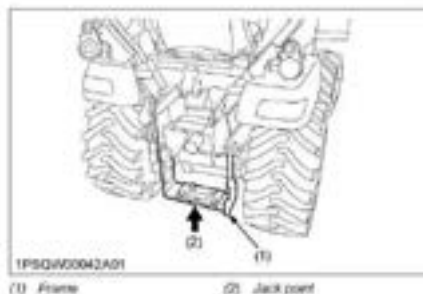
Tire	26x12.00-12 Turf, Bar, Ind., and R14
Tread	 18XMC0065A01 (A) 320 mm (32.2 in.)

How to jack up rear part of the tractor

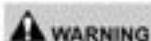
WARNING

To avoid serious injury or death:

- Before jacking up the tractor, park it on a firm and level ground and chock the front wheels.
- Fix the front axle to keep it from pivoting.
- Select jacks that withstand the machine weight and set them up as shown in the following figure.



BALLAST



WARNING

To avoid serious injury or death:

- You will need the additional ballast for transporting the heavy implements. When the implement is raised, drive slowly over rough ground, regardless of how much ballast is used.
- Do not fill the front wheels with liquid to maintain steering control.

NOTE:

- The ballast is not required when doing the normal operations with the BX235 tractor, the LA340 loader, and the BT603 backhoe connected in factory settings.

1. Front ballast

IMPORTANT:

- Do not overload tires.
- Add no more weight than indicated in the following table.

Maximum weight	125 kg (275 lbs)
----------------	---------------------

Add weights if needed to improve traction or for stability. Heavy pulling and heavy rear mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip over. Remove weight when no longer needed.

2. Rear ballast

Add weight to rear wheels if needed to improve traction or for stability. The amount of rear ballast should be matched to job and the ballast should be removed when it is not needed.

When the loader is attached on the tractor and the backhoe is not attached on it, you should install the rear wheel weight (option) to the tractor.

Liquid ballast in rear tires

You should add the weight to the tractor in the form of liquid ballast.

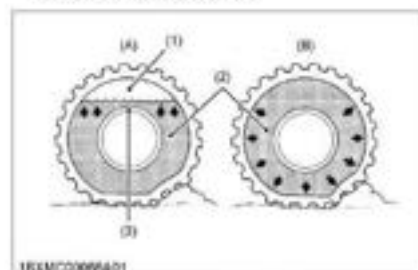
Water and calcium chloride solution provides safe economical ballast. Using the liquid ballast properly will prevent tires, tubes, or rims from being damaged. The addition of calcium chloride is recommended to prevent the water from freezing. The addition of calcium chloride for weighting the wheels has the full approval of the tire companies. See your tire dealer for this service.

Liquid weight per tire (75 percent filled)

Tire sizes	28x12.00-12
Slush free at -10 °C (+14 °F) Solid at -30 °C (-22 °F) [Approx. 1 kg (2 lbs) CaCl ₂ per 4 L (1 gal) of water]	45 kg (99 lbs)
Slush free at -24 °C (-11 °F) Solid at -42 °C (-52 °F) [Approx. 1.5 kg (3.3 lbs) CaCl ₂ per 4 L (1 gal) of water]	50 kg (110 lbs)
Slush free at -47 °C (-52 °F) Solid at -52 °C (-62 °F) [Approx. 2.25 kg (5 lbs) CaCl ₂ per 4 L (1 gal) of water]	56 kg (123 lbs)

IMPORTANT:

- Do not fill tires with water or solution more than the correct percentage of full capacity as shown in the following table to the level of valve stem at the 12 o'clock position.



1EXMC00066A01
(1) Air (A) Correct
(2) Water (B) Incorrect
(3) Valve stem

	Correct	Incorrect
Amount of water	75% of full capacity of tire	100% of full capacity of tire
Characteristic	Air compresses like a cushion	Water can not be compressed

- To avoid damage to the transmission, do not use rear wheel weights and liquid ballast at the same time.
- Do not add liquid ballast or any other weights to the front tires.
- While BT603 backhoe is installed on the tractor, remove liquid ballast from the rear tires.

NOTE :

- When mounting a heavy implement, a liquid in the tire may not be required.

[Spill guard model]

WARNING

To avoid serious injury or death:

- Do not exceed the ROL (rated operating load).
- Do not operate the loader without rear wheel weight.
- Do not exceed 10 km/h when traveling with load.
- ROL is calculated with standard bucket. Optional attachments (4IN1 bucket and so on) will reduce the ROL.

With Counter weight

Rated operating load (ROL)	145 kg
Counter weight required	170 kg ^{*1}

^{*1} Install the Counter weight approved by Kubota.**With Backhoe**

Rated operating load (ROL)	220 kg
----------------------------	--------

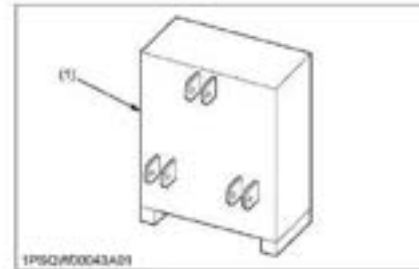
NOTE :

- ROL is calculated in the following configuration: 3rd function, front guard and mower deck links.

The use of rear wheel weight significantly reduces the front axle and the tire load during loader operation. The use of rear wheel weight also increases the fore and aft stability of the tractor and the loader by shifting weight from the front axle to the rear axle. Failure to use the recommended rear wheel weight can result in damage to the tractor, reduced braking capability, and instability of the tractor and the loader.

Rear wheel weight (option)

You can install the rear wheel weight to the 3-point hitch. Consult your local Kubota dealer to use.



(1) Rear wheel weight

NOTE :

- Besides the rear wheel weight, a 3-point kit is required for installing the weight.

OPERATING THE LOADER

PRECAUTIONS FOR OPERATING THE LOADER

WARNING

To reduce the possibility of roll over:

- It is not recommended that the loader is attached when operating another implement on a hillside.

IMPORTANT:

- When operating the loader in rough terrain, remove the mower to avoid damage to the mower.

You should operate the loader with engine speed of the tractor depending on the machine and the operator's level of experience. Excessive speeds are dangerous, and may cause spillage of the bucket and unnecessary strain on the tractor and the loader.

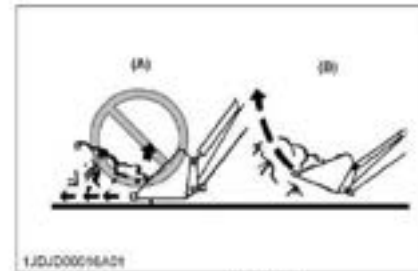
When operating the loader in temperature shown in the following table, run the tractor engine as the following engine speed until the oil temperature exceeds the value in the following table.

Temperature	below -1 °C (30 °F)
Engine speed	below 1200 rpm
Oil temperature	-5 °C (23 °F)

TECHNIQUES FOR OPERATING THE LOADER AND THE TRACTOR

1. Filling the bucket

The rollback and lifting of the bucket will increase efficiency because a level bucket throughout the lifting cycle resists lifting of the bucket and increases effort of breakaway from the pile.

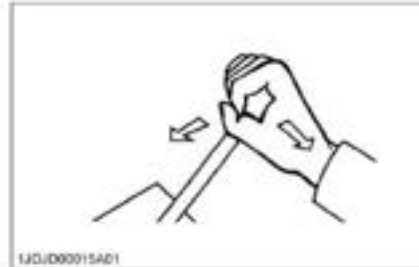


(A) Incorrect (B) Correct

1. Approach and enter the pile with a level bucket.



2. Ease the loader control lever toward you and then left to rollback and lift the bucket.



NOTE :

- Do not be concerned if the bucket is not completely filled during each pass. Maximum productivity is determined by the amount of material loaded in a given period of time. Two or more tries to fill the bucket on each pass may take more time.

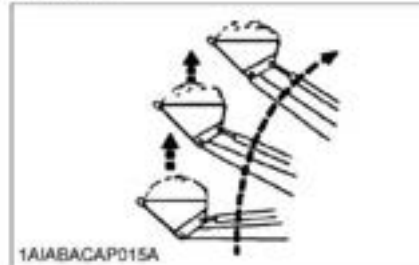
2. Precautions for lifting the load

WARNING

To avoid serious injury or death:

- Do not lift the loads in the bucket in excess of the loader capacity.
- Before raising the bucket to full height, make sure that the tractor is on level ground. If the tractor is not on level ground, the tractor may tip over, even if it is not moving.

When lifting the load, keep the bucket positioned to avoid spillage.

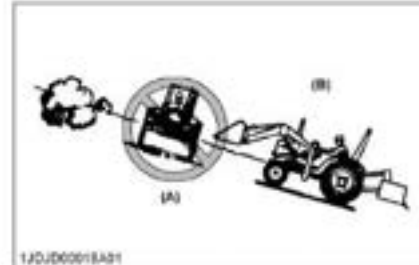


3. Precautions for carrying the load

WARNING

To avoid serious injury or death:

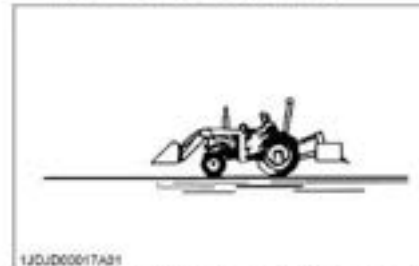
- Be extra careful when working on inclines.
- When operating on a slope, always operate the loader up and down the slope, never across the slope.



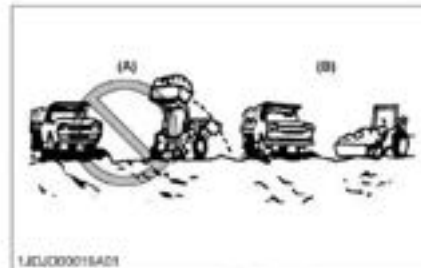
(A) Incorrect

(B) Correct

- Position the bucket just below the level of the tractor hood for maximum stability and visibility, whether the bucket is loaded or empty.



- Use extreme care when operating the loader on a slope. Keep the bucket as low as possible. Keeping the bucket low keeps center of gravity of the bucket and the tractor low and will provide maximum stability of the tractor.
- When transporting a load, keep the bucket as low as possible to avoid tipping, in case a wheel drops in a rut.



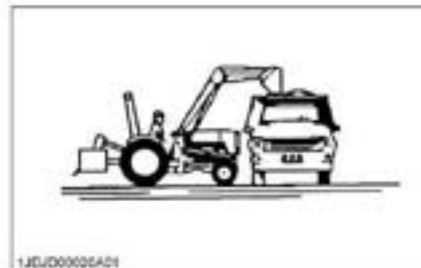
(A) Incorrect

(B) Correct

4. Dumping and lowering the bucket

Dumping the bucket

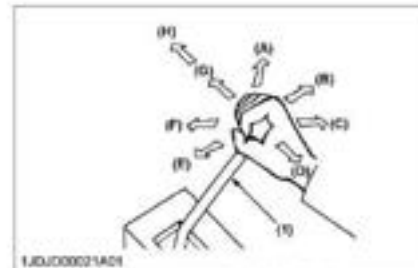
1. Lift the bucket just high enough to clear the side of the vehicle.
2. Move the tractor in as close to the side of the vehicle as possible.
3. Then dump the bucket.



1JDU00002A01

Lowering the bucket

1. After dumping the bucket, back away from the vehicle while lowering and rolling back the bucket.



1JDU00002A01

(1) Loader control lever

(A) DOWN and DUMP

(B) DUMP

(C) UP and DUMP

(D) UP

(E) ROLL BACK

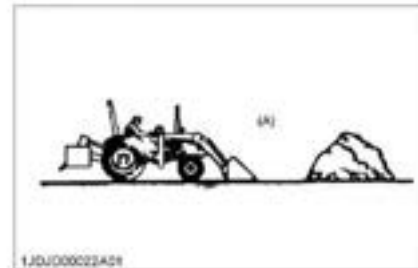
(F) DOWN and ROLL BACK

(G) DOWN

(H) FLOAT

5. Precautions for operating the loader with float control

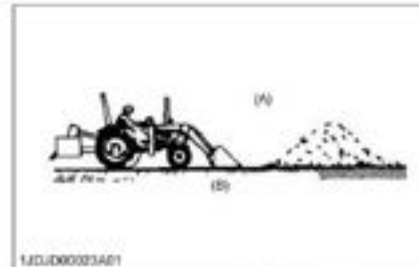
- During operation of the loader on hard surface, keep the bucket level and put the lift control in the float position to permit the bucket to float on the working surface. If hydraulic down pressure is exerted on the bucket, the bucket will wear faster than normal.



1JDU00002A01

(A) Float

- The FLOAT position will also avoid mixing of surface material with stockpile material. The FLOAT position will reduce the chance of surface gouging while removing snow or other material, or when working with a blade.



(A) Flat

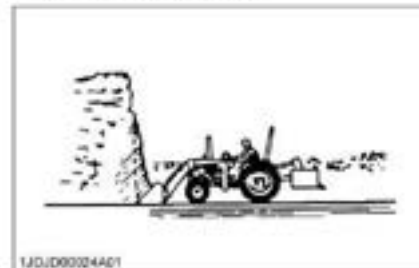
(B) Surface material

6. Loading from a bank

⚠ WARNING

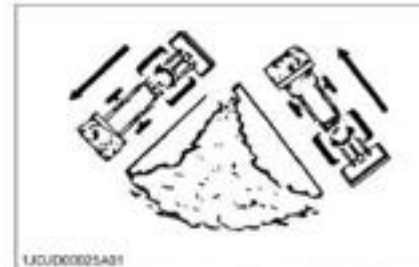
To avoid serious injury or death:

- Be extra careful when working on inclines.
- When operating on a slope, always operate the loader up and down the slope, never across the slope.
- Choose a forward gear that provides a safe ground speed and power for loading.



NOTE:

- Loader lift and break-away capacity diminish as loading height is increased.
- Side cutting is a good technique for cutting down a big pile. Wheel width should not exceed the bucket width for the side cutting procedure.



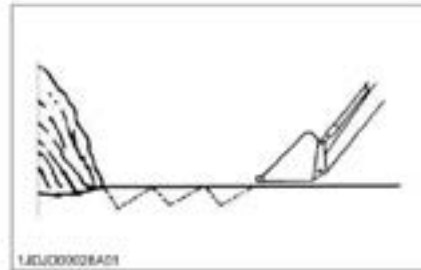
- If the pile sides are too high and liable to cause cave-in, use the loader to break down the sides until a slot can be cut over the top.



- Another method for large dirt piles is to build a ramp to approach the pile.

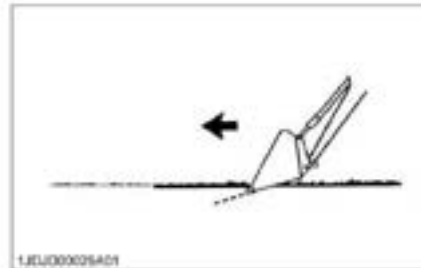


- It is important to keep the bucket level when approaching a bank or pile. This bucket approaching will help avoid gouging the work area.



7. Peeling and scraping the ground

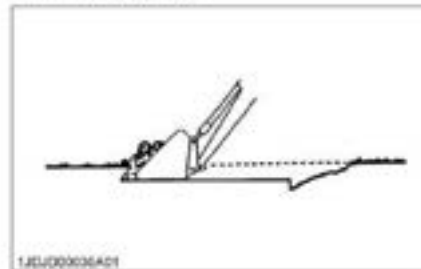
1. Produce a short cut and break-out cleanly.
 - a. Use a slight bucket down angle.
 - b. Travel forward.
 - c. Hold the lift control forward to start the cut.



2. With the bucket level, start a cut at the following notch.

Notch	Approximately 2 in. deep
-------	--------------------------

Hold the depth by feathering the bucket control to adjust the cutting edge up or down. When the front tires enter the notch, adjust the boom cylinder to maintain proper depth.



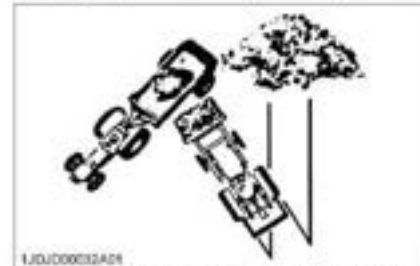
3. Make additional passes until the desired depth is reached.

During each pass, use only the bucket control while at working depth. Using only the bucket control will allow you to concentrate on controlling the bucket angle to maintain a precise cut.

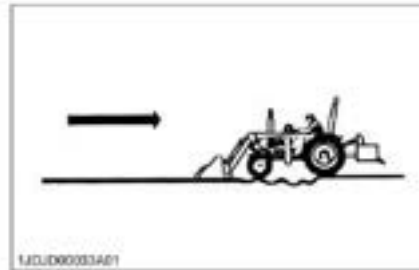


8. Loading low trucks or spreaders from a pile

- For faster loading, minimize the angle of turn and length of operation between pile and spreader.

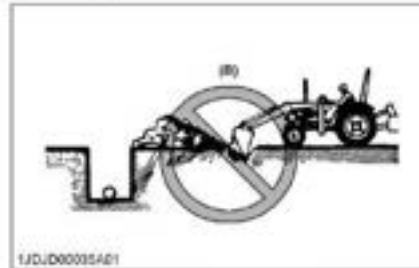
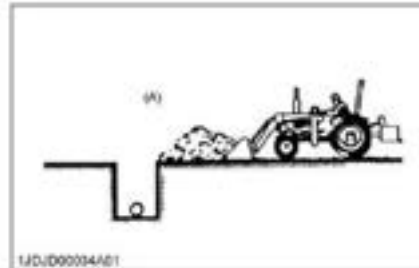


- Back dragging occasionally with a loaded bucket to keep the work area free of ruts and holes. Also, hold the lift control forward. The full weight of the bucket is scraping the ground. Use the heel of the bucket.



9. Backfilling

- Approach the pile with the bucket flat. Poor operating methods will move less dirt and make it more difficult to hold a level grade.

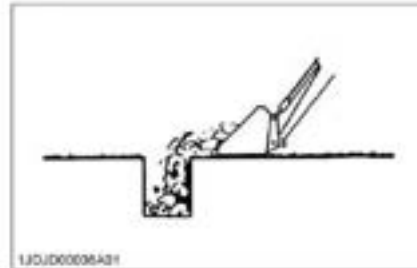


(A) Correct (B) Incorrect

IMPORTANT:

- Do not use the bucket in the DUMPED position for bulldozing the pile. As shown in the preceding method, approaching the pile with the bucket in the DUMPED position will impose severe shock loads on the damp-linkage, the bucket cylinders, and the tractor.

- Leave dirt in the bucket because dumping on each pass wastes time.

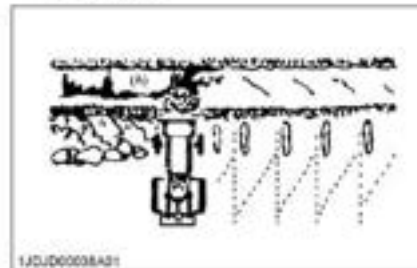


- Operate at right angles to the ditch. Take as big a bite of the soil pile as the tractor can handle.



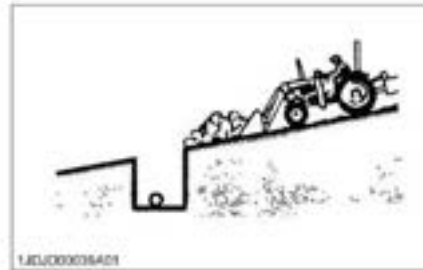
(A) Ditch (B) Soil pile

- Leave dirt which drifts over the side of the bucket for final cleanup.



(A) Ditch

- Pile dirt on the high side for easier backfilling on a slope.



10. Precautions for handling large heavy objects

⚠ DANGER

To avoid serious injury or death:

- Handling large, heavy objects can be dangerous due to the following reasons.
 - Danger of rolling the tractor over
 - Danger of upending the tractor
 - Danger of the object rolling or sliding down the loader boom onto the operator
- If you must handle large, heavy objects, protect yourself by the following methods.
 - Not lifting the load higher than necessary to clear the ground when the tractor is moving
 - Adding rear ballast to the tractor to compensate for the load
 - Not lifting large objects with equipment which is not equipped an anti-rollback device
 - Moving the machine slowly and carefully
 - Avoiding rough terrain
 - Keeping the transport distance as short as possible and carry the load as low as possible during transport
 - Making sure that the loader and the bucket are at proper height and have stopped moving before transport

VALVE LOCK

The control valve is equipped with a feature of the valve lock.

⚠ WARNING

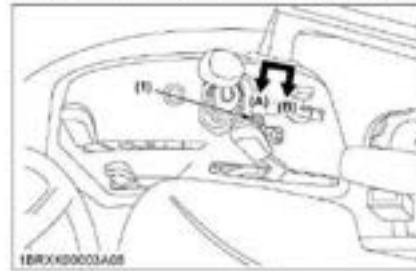
To avoid serious injury or death from crushing:

- Do not utilize the valve lock for machine maintenance or repair.

- The valve lock is to prevent accidental actuation when implement is not in use or during transport.

The control valve is locked in the LOCK  position.

The lock is not intended and will not prevent a leak down of the implement during the period of storage.



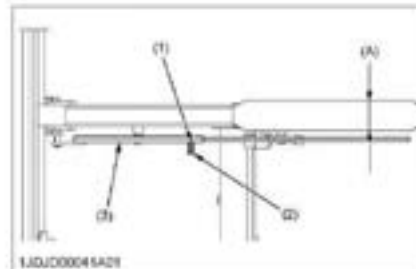
(1) Lock lever

(A)  LOCK

(B)  LINE LOCK

BUCKET LEVEL INDICATOR (IF EQUIPPED)

Depending on the front attachment, loosen the lock bolt of the indicator rod and readjust the length of the indicator rod.



(1) A/B out

(2) A/B out

(2) indicator rod

(A) Parallel

IMPORTANT:

- Fix the engine indicator rod in parallel with the boom, so that the end of the engine indicator rod does not hit the hood when opening and closing the hood.

HOW TO USE THE BOOM LOCK [SPILL GUARD MODEL ONLY]

⚠ WARNING

To avoid serious injury or death:

- Before setting the boom lock, follow the following procedure.
 1. Empty the loader bucket and place in the dump position.
 2. Park on a firm, flat, and level surface.
 3. Set the parking brake.
 4. Stop the engine and remove the starter key.
 5. Set the valve lock.

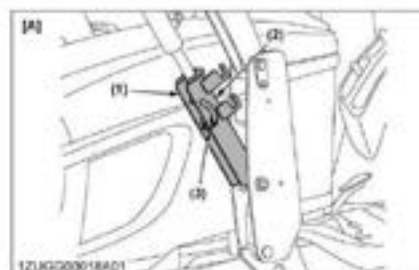
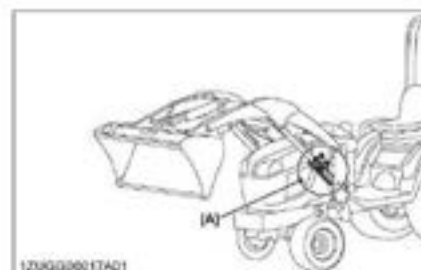
The boom lock is used to prevent the loader lift arms from falling when servicing the machine.

To set the boom lock

1. Empty the loader bucket and place in the dump position.
2. Raise the boom until the boom lock can be positioned on the cylinder.
3. Stop the engine and remove the starter key.
4. Set the valve lock lever to the lock position.
5. Set the boom lock to the cylinder rod.
6. Insert the lock pin into the hole of the boom lock.
7. Set the valve lock lever to the unlock position.
8. Slowly lower the boom until stopped and set the valve lock lever to the lock position.

IMPORTANT:

- Never use the hydraulic power (engine running) to lower the boom onto the boom lock.



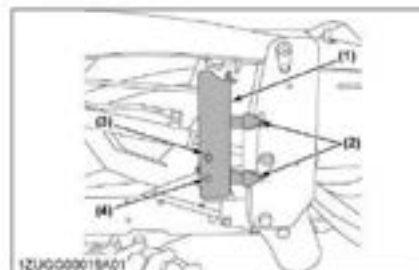
(1) Boom lock
(2) Lock pin

To remove the boom lock

1. Raise the boom until the boom lock can be removed from the cylinder.
2. Stop the engine and remove the starter key.
3. Set the valve lock lever to the lock position.
4. Remove the lock pin from the boom lock.
5. Remove the boom lock from the boom cylinder.
6. Set the valve lock lever to the unlock position.
7. Slowly lower the boom to the ground level.

Storing the boom lock

1. Attach the boom lock to the stay.
2. Fix the boom lock with the knob bolts, lock pin, and snap pin.



(1) Boom lock
(2) 3-Knob bolts
(3) Lock pin
(4) Snap pin

SPILL GUARD [SPILL GUARD MODEL ONLY]

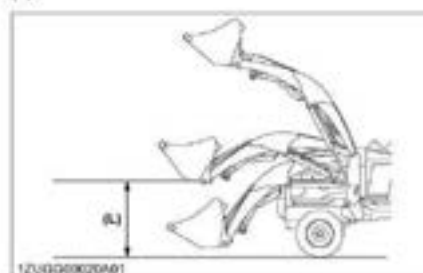
The spill guard system prevents the object in the bucket from falling to the operator's space.

When the operator operates the control lever to the roll back position at the upper most boom position, the spill guard system restricts the bucket roll back movement.

IMPORTANT :

- Check the motion of spill guard function, before operating the loader.

During operation of the loader, the spill guard will operate from the point equal to or higher than height (L).



(L) 700 mm

1. Adjusting the spill guard link [Spill guard model only]

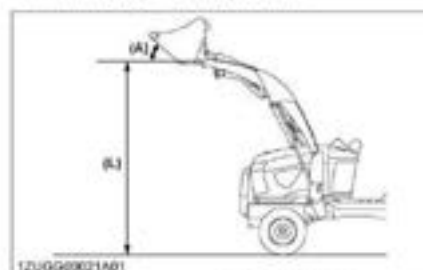
CAUTION

To avoid personal injury:

- Keep your hand away from links or boom when operating the loader.

Checking the rollback angle

1. Start the engine and lift the boom to appointed height (L).
2. Roll back the bucket fully and check the rollback angle (A).
3. If the rollback angle (A) is not the same as following illustration, adjust the length of wire.



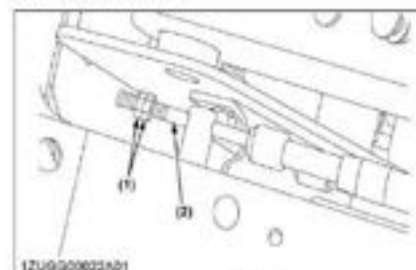
(A) 45 deg

(L) Highest position

1. Loosen the nuts.
2. Adjust the length of wire.

Condition of the bucket at appointed height	Adjustment
Bucket rolled back too far	Shorten the wire
Bucket dumped too far	Lengthen the wire

3. Retighten the nuts.

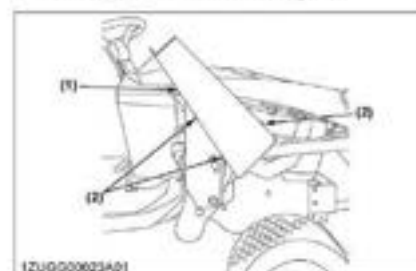


(1) 2 nuts

(2) Wire

Nut	Tightening Torque
	9.8 N-m to 11.2 N-m (1.0 kgf-m to 1.1 kgf-m)

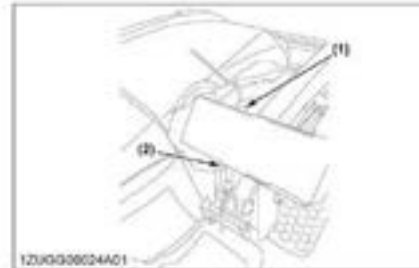
4. Then bolt down the valve cover in place.



(1) Valve cover

(2) 3-4/10×25 bolts

5. Apply the hose guard bolt as shown in the following figures.



(1) M10×120 bolt
(2) Locking nut

(3) Hoses

NOTE :

- Over tightening will deform the valve cover.

2. Attachments for the spill guard (option) [Spill guard model only]

The spill guard system prevents the object in the bucket from falling to the operator's space. This system does not equip a self leveling function. Do not use any pallet fork as the attachment.

Bucket

Rigid type square 48 in. bucket



HOW TO USE THE QUICK COUPLER

IMPORTANT :

- Relieve all pressure before connecting or disconnecting lines.

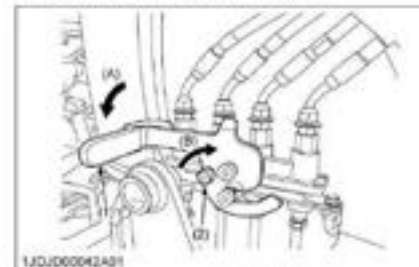
The quick coupler system is designed to easily connect and disconnect the hydraulic hoses simultaneously without oil leak when attaching and detaching the loader.

Connecting the quick coupler

IMPORTANT :

- Before connecting each hose, carefully clean the mating surfaces of the fixed part, mating surfaces of the mobile part, and the reference pins.

1. Connect the quick coupler and lower the lever until it stops.
2. Turn the safety lock button clockwise.

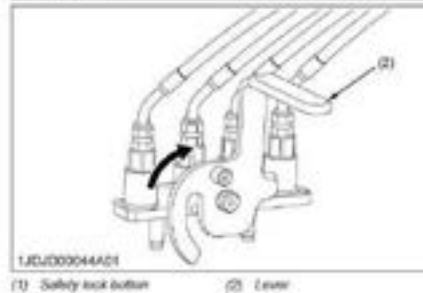
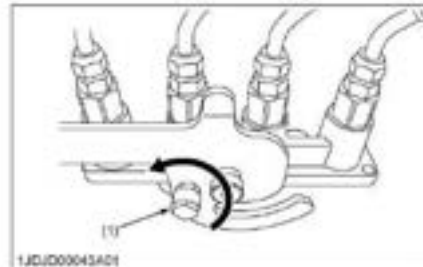


(1) Lever
(2) Safety lock button (red)

(A) Lower
(B) Clockwise

Disconnecting the quick coupler

1. Turn the safety lock button counterclockwise to unlock it.
2. Raise the lever until it stops.

**IMPORTANT:**

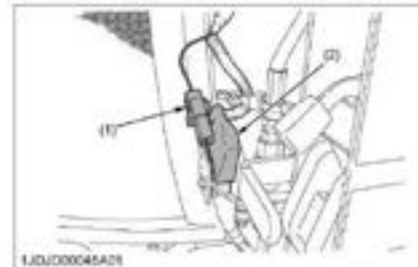
- Lubricate periodically all the moving components.

FRONT REMOTE HYDRAULIC CONTROL SYSTEM

You can use the front remote hydraulic control system for a front mounted hydraulic implement. The front remote hydraulic control system provides hydraulic oil to the front outlet directly.

1. Installing the front remote hydraulic control system

1. Mount the loader and connect the wiring harness of the front remote hydraulic control system.



(1) Attach harness free

(2) Cap connecting

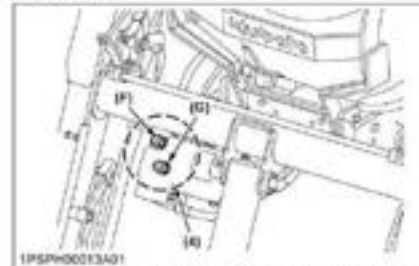
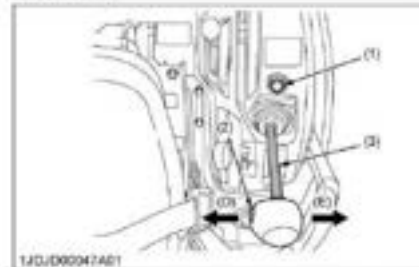
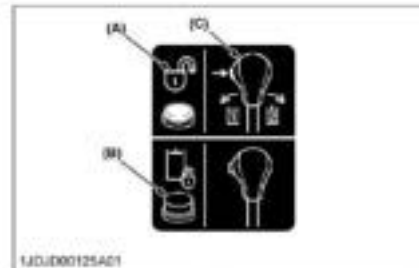
2. Operating the loader control lever

WARNING

To avoid serious injury or death:

- Valve lock does not lock out the switch-operated third-function hydraulics, which are active when the key switch and the front hydraulic valve main switch are on.

1. Turn the front hydraulic valve main switch on.
 - a. Push the front hydraulic valve main switch to engage the front hydraulic valve. The light on the front hydraulic valve main switch will illuminate to indicate that the front hydraulic valve is on and to enable the activation switch and operation of the lever.
2. Turn the activation switch on or off.
 - When operating the lever to left side with pressing the activation switch, hydraulic oil will come out of port 1 and return through port 2 as long as operating the lever to left side with pressing the activation switch.
 - When operating lever to right side with pressing the activation switch, hydraulic oil will come out of port 2 and return through port 1 as long as operating lever to right side with pressing the activation switch.
3. Turn the front hydraulic valve main switch off.
 - a. Push the front hydraulic valve main switch again to disengage the front hydraulic valve. The light of the front hydraulic valve main switch will turn off.



- | | |
|---|--|
| (1) Front hydraulic valve main switch | (2) Front hydraulic valve main switch is off |
| (3) Activation switch | (4) Activation switch is on |
| (5) Loader control lever | (6) Left side |
| (7) Front hydraulic coupler | (8) Right side |
| (9) Front hydraulic valve main switch is on | (10) Part 1 |
| | (11) Part 2 |

3. How to use the remote control coupler

WARNING

To avoid serious injury or death:

- Stop the engine and relieve the pressure before connecting or disconnecting the lines of remote control coupler.

- Do not use your hands to check for leaks.

Relieving the hydraulic pressure

1. Move the key switch to the "ON" position.

NOTE :

- Do not start the engine.

2. Push the front hydraulic valve main switch onto "ON".
3. Press the activation switch and move the loader control lever to left and right several times.
4. Push the front hydraulic valve main switch onto "OFF".
5. Turn the key switch to the "OFF" position.

Connecting

1. Clean both couplers of the implement and tractor.
2. Remove the dust plugs.
3. Insert the remote control coupler of the implement to the hydraulic coupler of the tractor.
4. Pull the remote control coupler of the implement slightly to make sure that both couplers of the implement and tractor are firmly connected.

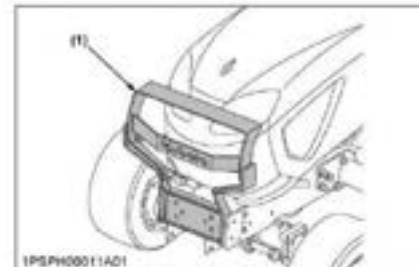
NOTE :

- Your local KUBOTA dealer can supply parts to adapt couplers to hydraulic hoses.

Disconnecting

1. Lower the implement first to the ground to release the hydraulic pressure in the hoses.
2. Clean both couplers of the implement and tractor.
3. Press the activation switch and move the loader control lever to left and right several times to relieve the hydraulic pressure.
4. Pull the hose straight from the hydraulic coupler to release it.
5. Clean oil and dust from the hydraulic coupler, and then replace the dust plugs.

FRONT GUARD

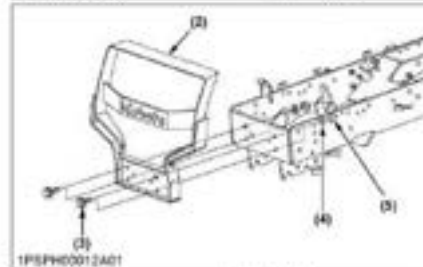
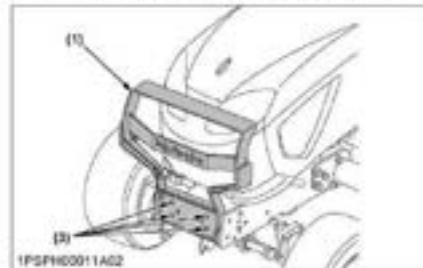


- (1) Front guard

1. How to use the front guard

Attaching the front guard

1. Attach the front guard in position on the tractor.



- (1) Front guard
(2) Front guard plate
(3) 4-M12×35 flange bolt
(4) 4-M12 spring washer (nut size)

IMPORTANT:

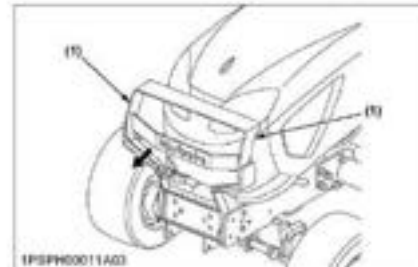
- Before moving the tractor or the front loader, make sure that the front guard is tightly fastened.

Opening the upper front guard

1. Lower the boom to the ground with the bucket in level position.

IMPORTANT:

- Lower the front loader to the ground before opening the upper front guard.
 - Do not raise the boom while the upper front guard is open.
2. Hold the handle part and pull the front guard forward.



- (1) Handle part

DISMOUNTING THE LOADER

⚠ WARNING

To avoid serious injury, death, or machine damage:

- Remove the loader from the tractor only when an approved bucket is attached to the loader.

1. Dismount the loader following the instructions provided in HOW TO REMOVE THE LOADER on page 151.

OPERATING THE BACKHOE

ENGINE SPEED WHEN OPERATING THE BACKHOE

⚠ WARNING

To avoid serious injury or death:

- Use care when operating the backhoe on slopes to avoid tip over. Travel at speed compatible with safe operation, especially when operating the backhoe in uneven terrain, crossing ditches, or while turning.
- You can operate this backhoe at any engine speed in the following rated rpm. The backhoe is most efficient at rated engine speed.

Engine speed	about 75% of rated rpm to factory rated rpm
--------------	---

However, in special digging condition, for optimal fuel economy, or in residential neighborhood where noise may be a consideration, the engine speed can be lowered to about 75% of rated rpm.

- When operating the backhoe in the air temperature below the following temperature, run the tractor engine below about 50% of rated rpm until the oil temperature exceeds the following temperature.

Temperature	0 °C (32 °F)
-------------	-----------------

CONTROLS OF THE BACKHOE

You can control the backhoe using the two-lever joystick system.

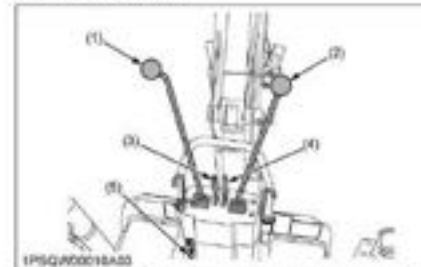
⚠ WARNING

To avoid serious injury or death:

- For all excavation work, operate the backhoe from the operator's seat of the backhoe only.
- Do not tamper with any backhoe control valve relief pressure setting. The relief valve is preset at the factory. Changing the setting of the relief valve can cause overloading of the backhoe and the tractor and serious personal injury may result.
- Put the boom and swing lever into the lock position when the backhoe is not in use or during transport.

The left lever controls the boom and swing circuits, and the right lever controls the dipperstick and bucket

circuits. The further the levers are moved from **NEUTRAL**, the faster the component will move. Learn the feature of the controls for smooth and precise component movement.

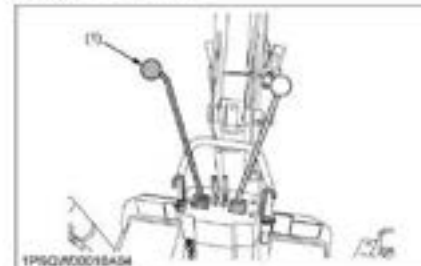


- (1) Boom and swing lever (2) Dipperstick and bucket lever (3) Stabilizer control lever, left (4) Stabilizer control lever, right (5) Boom and swing lock lever

1. Boom and swing lever

- Pushing the boom and swing lever forward will lower the boom.
- Pulling the boom and swing lever back will raise the boom.
- Moving the boom and swing lever to the left will swing the bucket to the left.
- Moving the boom and swing lever to the right will swing the bucket to the right.

By moving the boom and swing lever out of the **PLUS(+)** position and into an **[X]** relationship, it is possible to raise or lower the boom and swing the bucket at the same time.



- (1) Boom and swing lever

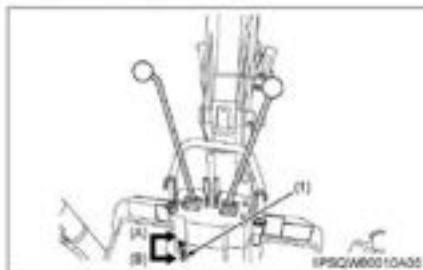
2. Boom and swing lock lever

⚠ WARNING

To avoid serious injury or death:

- Do not utilize the boom and swing lock lever for maintenance or repair of the machine.
- The boom and swing lock lever can prevent accidental actuation when the implement is not in use or when getting on and off from the backhoe.

- To lock the boom and swing lever, move down the boom and swing lock lever.
- To unlock the boom and swing lever, move up the boom and swing lock lever.

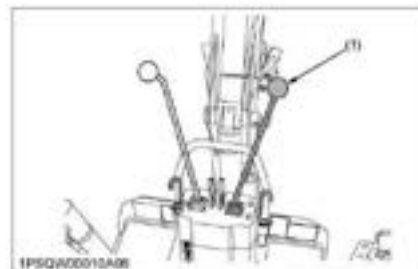


(1) Boom and swing lock lever (2) Lock
(3) Unlock

3. Dipperstick and bucket lever

- Pushing the bucket lever forward will crowd the dipperstick and the bucket out.
- Pulling the bucket lever back will crowd the dipperstick and the bucket in.
- Moving the bucket lever to the left will curl the bucket to fill it.
- Moving the bucket lever to the right lever movement will dump the bucket.
- Moving the bucket lever into an [X] relationship will crowd dipperstick and the bucket in and fill the bucket, or crowd them out and dump the bucket.

With experience, the combination of both joystick levers will allow lift, swing, crowd out, and spoil dumping, all in one smooth movement, or lowering, swing, crowd in, and bucket filling with reverse movement.



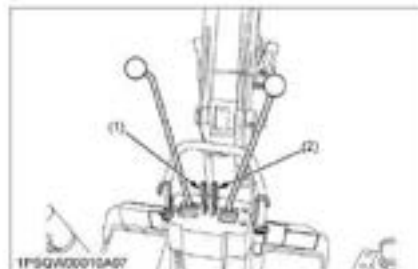
(1) Dipperstick and bucket lever

4. Stabilizer control levers

The stabilizers are the only controls that may be operated from out of the operator's seat of the backhoe over then only for the purpose of mounting the backhoe to the tractor or dismounting the backhoe from the tractor.

Stay well clear of stabilizers, arms, and pads during installation or removal process. Staying well clear of stabilizers, arms, and pads is necessary because the mounting step moves up and down in conjunction with the cylinder of the stabilizer.

- Moving the stabilizer control levers downward will lower the stabilizers.
- Moving the stabilizer control levers upward will raise the stabilizers.



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

PLACING THE STABILIZER

⚠ WARNING

To avoid serious injury or death:

- When working on slopes, one stabilizer may be lower than the other.
- When digging on a hillside, always dump the bucket on the uphill side of excavation.

- To reduce the risk of overturn on a slope, place the spoil to the high side of the excavation.

1. Lower the stabilizers and remove the weight of the backhoe from the rear wheels. However, one or both rear tires should remain in light contact with the ground.

When you place the stabilizers on an unusually steep slope, see *Placing the stabilizer on an unusually steep slope* on page 111.

Preceding step will give the backhoe the widest possible stance and the lowest center of gravity.

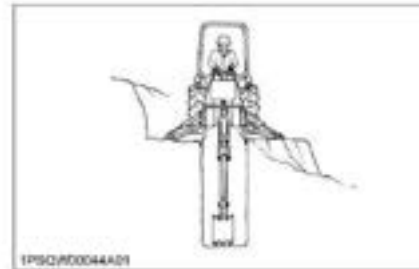
NOTE :

- Raising the rear wheels too high will reduce digging depth and exert undue stress on the frame components of the backhoe.
2. Lower the bucket of the loader to give the backhoe unit a tri-pod stance.
With the bucket of the loader in ground contact, bounce of the front tire will not be a factor in overall control.
 3. When possible, lower the cutting edge of the bucket of the loader vertically into the ground surface.
Lowering the cutting edge of the bucket of the loader will assist the stabilizers, not allowing the unit to shift, while excavating.
However, on a slope, you should use the bottom of the bucket and only the side that contacts the uneven terrain. Too much loader down pressure, on a slope, will restrict the unit from being correctly leveled and will place an undue twist through the bucket of the loader and lift arms.

1. Placing the stabilizer on an unusually steep slope

Following procedure is recommended when a wall, tree line, or other obstruction prevents placing the backhoe spoil on the high side of the excavation.

1. Cut a level surface with the loader and pile the spoil on the downhill side.
2. Back drag and pack the spoil which will support the stabilizer on the low side.



1P5QJ000044A01

GENERAL BACKHOE OPERATION

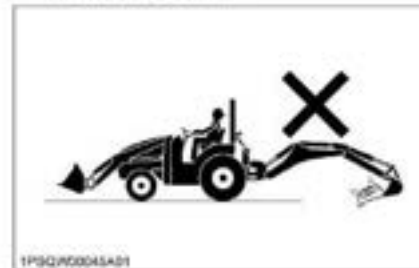
WARNING

To avoid serious injury or death:

- Do not dig under the stabilizer or tractor, especially in soft or sandy condition. Take extra precaution in wet or thawing ground. Wet or thawing ground can become unstable very quickly and may collapse under the weight of the machine and may tip over.
- Use care for buried material such as electrical, telephone, gas, and water lines. When in doubt, contact local utility companies for their buried location.

IMPORTANT :

- Do not use the tractor to pull out tree stumps with the boom dipper extended and the bucket in its crowded position.



1P5QJ000044A01

1. Digging with operating the dipperstick

1. Lower the bucket to the ground.
2. The same as with bucket digging, curl until the teeth of the bucket are flat on the ground.

- Using only the crowd cylinder, retract the dipperstick, dragging the bucket through the trench until it is approximately half full.
- Start to curl the bucket in while continuing to crowd until the bucket is completely full.
- Raise and swing the boom and dump the bucket in the spoil area on the high side of the trench or excavation.

2. Dealing with the spoil pile

⚠ WARNING

To avoid serious injury or death:

- Do not place the spoil close to the edge of the excavation where its weight could cause a cave-in.

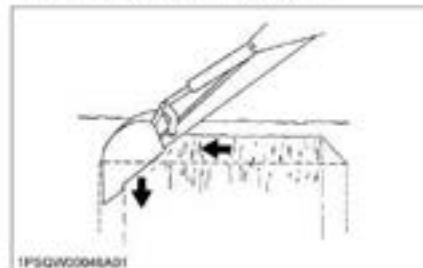
Carefully preplan the location for the spoil which will be removed from the excavation. The location will vary depending on the excavation being dug.

- Approach the pile with the bucket of the backhoe full and ready to empty.
- Instead of dumping on top, lower the full bucket into the top of the pile.
- Start dumping and crowding out at the same time.

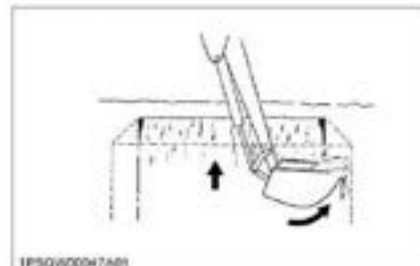
Because the bucket opens and dumps, the bottom of the bucket will push the top of the pile off and behind its location, safely away from the excavation.

3. Digging straight wall or cemetery

- Strip the top soil off the ground, within the confines of the straight hole or grave to be dug.
- Clean out as much material, within the confines of the straight hole or grave, as possible with normal digging methods.
- Finish the far wall by crowding out while forcing the bucket down with the boom.
- Curl the bucket out to keep the bottom of the bucket vertical while cutting from top to down.



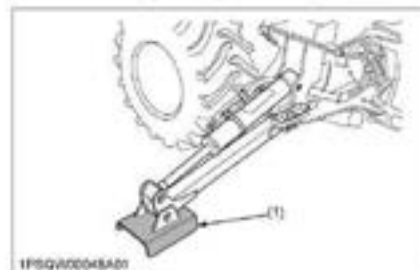
- To finish the near wall, raise the boom while crowding in.



The bucket will have to be curled in to keep the cutting edge horizontal with the wall during the up out.

- When finishing straight wall, or digging graves, in sandy soil, use a platform under the rear tires and stabilizers. The platform distributes the load of the backhoe over a large area and lessens the possibility of a cave-in.

4. Stabilizer pads (standard)



(1) Stabilizer pads

IMPORTANT:

- Always lower the stabilizers slightly when changing from one position to another to avoid soil splash.

TRANSPORTING OF THE BACKHOE

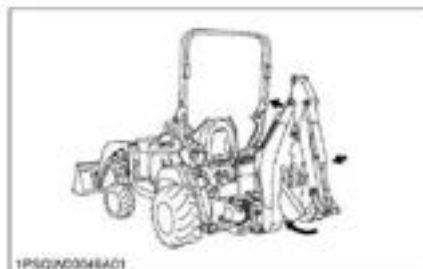
⚠ WARNING

To avoid serious injury or death:

- Before transporting the machine, raise and center the boom, close the dipperstick, curl the

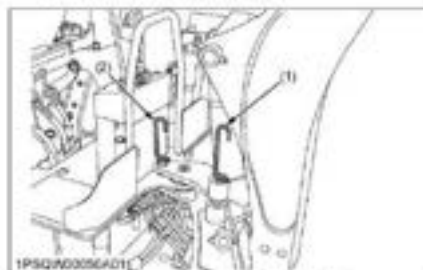
bucket, engage the boom and the swing locks and put the boom and swing lock lever into lock position.

- Always securely fasten the tractor, the loader, and the backhoe, with chains and chain binders, to the transport vehicle. Determine and note the height of the load of the backhoe, for underpass clearance, before transporting it.



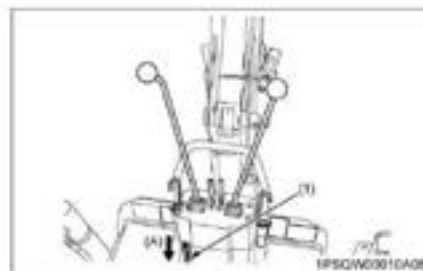
1. Precautions for driving to the job-site

- When driving or transporting the backhoe from one job-site to another, or when using the loader such as stockpiling and backfilling, always engage the locks of the boom and the swing.



(1) Boom lock pin (2) Swing lock pin

- Put the boom and swing lock lever into the lock position.



(1) Boom and swing lock lever (2) Lock

2. Precautions of the trailer transporting

- When loading or off-loading the machine on or from the trailer and the truck, use strong, secure ramps long enough to provide a low angle to the transport vehicle.
- After loading the machine, follow the following procedure.
 1. Release the lock of the boom.
 2. Lower the stabilizers and the bucket of the backhoe to the bed of the transport vehicle.
 3. Lower the bucket of the loader.
 4. Set the parking brake of the tractor.
 5. Shut the engine off.
 6. Remove the key.
- Check that the hood is secured properly when driving to transport to avoid damage.
- Check the local codes or regulations which may apply to the tractor, the loader, and the backhoe operation on public streets or highways, before transporting them or traveling. Use the warning flashers as required.

MAINTENANCE OF THE TRACTOR

SERVICE INTERVALS

Maintenance parts		Maintenance timing										Interval	Ref. page	
		Indication on hour meter												
		90	130	150	200	250	300	350	400	450	500			
Engine start system	Check	•	•	•	•	•	•	•	•	•	•	Every 50 Hr	125	
OFC system	Check	•	•	•	•	•	•	•	•	•	•		126	
Greasing	-	•	•	•	•	•	•	•	•	•	•		124	
Wheel bolt torque	Check	•	•	•	•	•	•	•	•	•	•		126	
Lock lever	Clean	•	•	•	•	•	•	•	•	•	•		127	
Engine oil	Change	•			•							Every 200 Hr or every year	131	1
Engine oil filter	Replace	•			•								132	1
HST oil filter	Replace	•			•							Every 200 Hr	132	1
Battery condition	Check	•			•								127	1
Air cleaner element	Clean	•			•							Every 100 Hr	126	1
	Replace												130	1
Every 1000 Hr or every year														
Fuel filter element	Check	•			•							Every 500 Hr	129	
	Replace												135	1
Fan belt	Adjust	•		•		•		•		•		Every 100 Hr	130	
HST neutral spring	Adjust	•		•		•		•		•			130	1
Brake pedal	Adjust	•		•		•		•		•			130	
Toe-in	Adjust				•					•		Every 200 Hr	133	
Transmission fluid	Change									•			134	
Transmission strainer	Clean									•		Every 400 Hr	134	
Front axle case oil	Change									•			135	
Front axle pinion	Adjust									•			133	
Engine valve clearance	Adjust											Every 600 Hr	135	1
Injection pressure of the fuel injection nozzle	Check											Every 1500 Hr	130	1
Injection pump	Check											Every 3000 Hr	137	1
Cooling system	Flush											Every 2000 Hr or 2 years	136	1
Coolant	Change												136	1
Radiator hose and clamp	Check											Every year	139	1
												Every 2 years	139	1
Power steering oil line	Check											Every year	139	1
												Every 2 years	139	1
Fuel line	Check											Every year	139	1
	Replace											Every 4 years	139	1
Intake air line	Check											Every year	139	1
	Replace											Every 4 years	139	1
Engine breather hose	Check											Every year	139	1
	Replace											Every 2 years	139	1
Fuel system	Bleed											Service as required	140	

(Continued)

MAINTENANCE OF THE TRACTOR

Maintenance parts		Maintenance timing										Interval	Ref. page
		Indication on hour meter											
		50	100	150	200	250	300	350	400	450	500		
Fuse	Replace												140
Light bulb	Replace	Service as required											141

IMPORTANT :

- You must perform the jobs indicated by ① after the first 50 hours of operation.
- The items which is ② marked are registered as the emission-related critical parts by Kubota in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the preceding instruction.
Please refer to the Warranty Statement in detail.

*1 The initial 50 hours should not be a replacement (changing) cycle.

*2 Every 200 hours or every year, whichever comes first.

*3 When the battery is used for less than 100 hours per year, check the battery condition by reading the indicator annually.

*4 You should clean the air cleaner more often in dusty conditions than in normal conditions.

*5 Every 1000 hours or every year, whichever comes first.

*6 Consult your local Kubota Dealer for this service.

*7 Every 2000 hours or every 2 years, whichever comes first.

*8 Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred.

LUBRICANTS, FUEL, AND COOLANT

Lubricants, fuel, and coolant table

No.	Locations	Capacities	Grade	
1	Fuel	25 L (6.6 U.S. gals.)	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10 °C (14 °F)	
2	Coolant with recovery tank	3.1 L (3.3 U.S. qts.)	Fresh clean soft water with antifreeze	
3	Engine crankcase	3.3 L ^{*1} (3.3 U.S. qts.)	• Engine oil API Service Classification CF or higher See the following Engine oil section	
			Above 25 °C (77 °F)	SAE30, SAE10W-30 or 15W-40
			-10 °C to +25 °C (14 °F to 77 °F)	SAE20, SAE10W-30, or 15W-40
			Below -10 °C (14 °F)	SAE10W, SAE10W-30, or 15W-40
4	Transmission case	11.3 L (3.0 U.S. gals.)	• KUBOTA SUPER UDT-2 fluid ^{*2}	
5	Front axle case	3.6 L (3.5 U.S. qts.)	• KUBOTA SUPER UDT-2 fluid ^{*2} or SAE 80-SAE90 gear oil	
6	Greasing	Number of greasing points	Capacity	Type of grease
	Speed control pedal	1	Until grease overflow	Multipurpose EP2 Grease (NLGI Grade No.2)
	Steer link	4	Moderate amount	
	Hood lock	1	Moderate amount	
	Hood guide	1	Moderate amount	

*1: Oil amount when the oil level is at the upper level of the oil level gauge.

*2: The product name of Kubota genuine UDT fluid may be different from that in the operator's manual depending on countries or territories. Consult your local Kubota Dealer for further detail.

Fuel

- Cetane number of 45 is minimum. Cetane number greater than 50 is preferred, especially for the following temperatures or the following elevations.

Temperatures	Below -20 °C (-4 °F)
Elevations	Above 1500 m (5000 ft)
Fuel used	Ultra low sulfur fuel (40 DPM % (15 ppm))

- Diesel fuels specified to EN 590 or ASTM D675 are recommended.
- No. 2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service (SAE J313 JUN87).
- Higher sulfur fuel may be allowed to use than the one specified in the preceding table. Consult your local Kubota Dealer for further detail.

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 as shown in the preceding Lubricants, fuel, and coolant table.
- With the emission control now in effect, the CF-4 and CG-4 lubricating oils have been developed for use of a low-sulfur fuel on the engines of the on-road vehicle. When an engine of off-road vehicle runs on a high-sulfur fuel, it is advisable to employ the CF or better lubricating oil with a high total base number (TBN). Minimum of the TBN is 10.
- See the following table for the suitable API classification engine oil according to the engine type with internal EGR, external EGR, or non-EGR, and the fuel (low-sulfur or high-sulfur fuel).

Fuel used	Engine oil classification (API classification)	
	Oil class of engines except external EGR	Oil class of engines with external EGR
High sulfur fuel (≥0.05 % [500 ppm])	CF If the lubricating oil of CF-4, CG-4, CH-4, or CI-4 is used with a high-sulfur fuel, change the lubricating oil at shorter intervals (approximately half).	-
Low sulfur fuel (<0.05 % [500 ppm]) or ultra low sulfur fuel (<0.0015 % [15 ppm])	CF, CF-4, CG-4, CH-4, or CI-4	CF or CI-4 You cannot use the class CF-4, CG-4, nor CH-4 engine oils on ERG-type engines.

EGR

Exhaust gas re-circulation

- The CJ-4 engine oil is intended for DPF (diesel particulate filter) type engines, and cannot be used on this tractor.

	Except external EGR	With external EGR
Model	EX235	-

Transmission oil

- The oil used to lubricate the transmission is also used as hydraulic fluid. To make sure of proper operation of the hydraulic system and to complete lubrication of the transmission, it is important that a multi-grade transmission fluid is used in the transmission system. We recommend the use of Kubota UDT or SUPER UDT fluid for optimum protection and performance. Consult your local Kubota Dealer for further detail.
Do not mix different brands of the transmission oils together.
- Indicated capacities of water and oil are manufacturer's estimate.

1. Biodiesel fuel (BDF)

B0-B20 biodiesel fuels (BDF)

You can use mixed diesel fuels containing 20 % or less biodiesel under the following conditions.

IMPORTANT:

- Refuel and use the fuel 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

- You can use blended diesel fuels containing 6 % through 20 % BDF (B6-B20) which comply with American society for testing and materials (ASTM) D7487 standard, as revised, without adversely affecting the performance and durability of the engine and the components of the fuel system.
- Any mineral oil diesel fuel, if used, must conform to ASTM D975 (or the European EN590) Standard, as revised.
B100 fuel used to generate biodiesel blended fuels must meet ASTM D6751 (or EN14214) Standard, as revised.
The final blended fuel B20 must conform to ASTM D7487 standard, as revised.
Straight vegetable oil is not allowed in any blended fuel.
- Allowable blended fuel is mineral oil diesel fuel blended with B100 (that is 100 % BDF).
The blended fuel ratio shall be less than 20 % B100 and 80 % or more diesel fuel.
Purchase the B100 source used for biodiesel blends from an accredited BQ-9000 marketer or producer.
You can find more information about qualified marketer(s) and producer(s) at <http://www.bq-9000.org>.

Preparation

- Before using BDF concentrations greater than B5, you are advised to replace the engine oil, the engine oil filter, and the fuel filter with new oil and filters. For replacement procedures, see SERVICE INTERVALS on page 114.

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. Degradation of the fuel may cause corrosion of the

fuel line or reduce the flow of fuel filter earlier than expected.

- BDF inherently absorbs moisture which may cause degradation of the fuel earlier than expected. To avoid absorbing moisture of BDF, drain the water separator and the fuel filter port often.
- Do not use the biodiesel whose concentrations higher than 20 % (that is greater than B20). Higher concentrated biodiesel will affect the engine performance and the fuel consumption, and degradation of the fuel system components may occur.
- Do not readjust the engine fuel control system because readjusting it will violate the emission-control levels for which the equipment was approved.
- Compared with soybean-based and rapeseed-based feedstock, palm-oil-based feedstock obtains a thicker consistency (that is higher viscosity) at lower temperatures.
Consequently, palm-oil-based feedstock may reduce performance of the fuel filter, particularly during cold weather conditions.
- The KUBOTA warranty, as specified in the Owner's Warranty Information Guide, only covers flaws in product materials and workmanship. Accordingly, The KUBOTA warranty do not cover any problems that may arise due to the use of poor quality fuels that fail to meet the preceding requirements, whether biodiesel or mineral-oil-based.

Routine using

- Avoid spilling BDF onto painted surfaces because spilling BDF may damage the finish. If the 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 the 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 the fuel filters and may damage the engine components.

Maintenance Requirements when using BDF B0 through B5

Follow recommended oil change intervals.
(See SERVICE INTERVALS on page 114)

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

Maintenance Requirements when using BDF B6 through B20

The maintenance interval for fuel related parts changes.

See the following table for the new maintenance interval.

Items	Interval	Remarks
Fuel filter	Check	Every 50 hr
	Replace	Every 200 hr Consult your local KUBOTA dealer for replacing the fuel filter.
Fuel hose	Check	Every 6 months Replace if any deterioration (crack, hardening, swell, or deformation) or damage occurred.
	Replace	Every 2 years Consult your local KUBOTA dealer for replacing the fuel hose.

Long term storage for B5

- BDF easily deteriorates due to oxygen, water, heat, and foreign substances. Do not store B5 longer than 3 months.
- When using B5 fuel and storing the 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 the following minutes to remove all of the biodiesel from the fuel lines.

Running the engine	30 minutes
--------------------	------------

Long term storage for B6 through B20

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

Running the engine	30 minutes
--------------------	------------

PERIODIC SERVICE OF THE TRACTOR

⚠ WARNING

To avoid serious injury or death:

- Do not work under any hydraulically supported devices. Hydraulically supported devices can settle, suddenly leak down, or be accidentally lowered.
- If necessary to work under the tractor or any machine elements for servicing or adjustment, securely support the tractor or any machine elements with stands or suitable blocking beforehand.

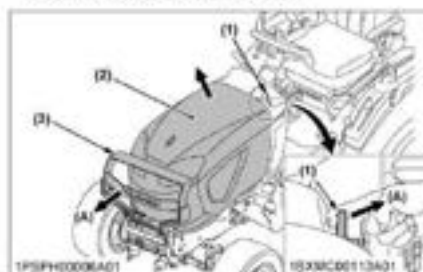
HOW TO OPEN THE FRONT GUARD AND THE HOOD

⚠ WARNING

To avoid serious injury or death from contact with moving parts:

- Never open the hood or engine side cover while the engine is running.
- Do not touch the muffler or the exhaust pipes while they are hot. Touching the hot muffler or exhaust pipes could cause severe burns.

1. Pull the front guard forward.
2. Pull the hood open lever to release the latch to open the hood, and open the hood.



- (1) Hood open lever
(2) Hood
(A) Pull

DAILY CHECK OF THE TRACTOR

⚠ WARNING

To avoid serious injury or death:

Take the following precautions when checking the tractor.

- Park the machine on firm and level ground.
- Set the parking brake.
- Lower the implement to the ground.
- Release all residual pressure of the hydraulic system.
- Stop the engine and remove the starter key.

For your own safety and maximum service life of the machine, daily inspect the machine thoroughly before operating it or starting the engine.

1. Walk around inspection

Before checking the tractor, inspect surroundings of it. Look around and under the tractor for such items as loose bolts, trash build-up, oil or coolant leaks, or broken or worn parts.

2. Checking the amount of fuel and refueling

⚠ WARNING

To avoid serious injury or death:

- Never use fire.
- Do not smoke while refueling.
- Stop the engine and remove the key before refueling.
- Use properly grounded fueling systems. Make sure that there is no static discharge.
- Close the fuel tank cap after refueling.

To avoid allergic skin reaction:

- Wash hands immediately after contact with diesel fuel.

IMPORTANT :

- Do not permit dirt, trash, or water to get into the fuel system.
- Be careful not to empty the fuel tank, otherwise air will enter the fuel system, necessitating bleeding before next starting the engine.

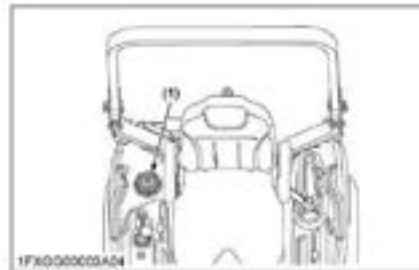
- Be careful not to spill the fuel during refueling. If you should spill, wipe it off at once, or it may cause a fire.
- To prevent water condensation and water accumulation in the fuel tank, fill the tank before parking overnight.

Using fuel

Ambient Temperature	Fuel
Above -10 °C (14 °F)	Grade No.2 Diesel fuel
Below -10 °C (14 °F)	Grade No.1 Diesel fuel

1. Turn the key switch to the ON (I) position and check the amount of fuel by the fuel gauge.
2. Fill the fuel tank with fuel when the fuel gauge shows as follows.

Amount of fuel for refueling	1/4 or less in the fuel tank
Fuel tank capacity	25 L (6.6 U.S. gals.)



(1) Fuel tank cap

3. Checking the engine oil level

WARNING

To avoid serious injury or death:

- Stop the engine before checking the engine oil level.

IMPORTANT:

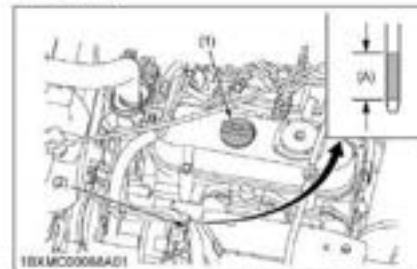
- When using an engine oil of different maker or viscosity from the previous one, remove all of the old engine oil and oil filter. Never mix two different types of engine oil.
- If the engine oil level is low, do not run the engine.
- When using the BT603 Backhoe and checking the engine oil level, locate the tractor, the loader, and the backhoe on a flat surface and set the loader and the backhoe as illustrated as follows.



1FXGG00004A02

Check the engine oil before starting the engine or five or more after the engine has stopped.

1. Park the machine on a firm, flat, and level surface.
 2. To check the engine oil level, draw out the dipstick.
 3. Wipe the dipstick clean.
 4. Replace the dipstick.
 5. Draw the dipstick out again.
 6. Check to see that the engine oil level lies between the two notches.
 7. If the engine oil level is too low, add new engine oil to the prescribed level at the oil inlet.
- (See LUBRICANTS, FUEL, AND COOLANT on page 115)

(1) Oil inlet
(2) Dipstick

(A) Engine oil level is acceptable within this range

4. Checking the transmission fluid level

WARNING

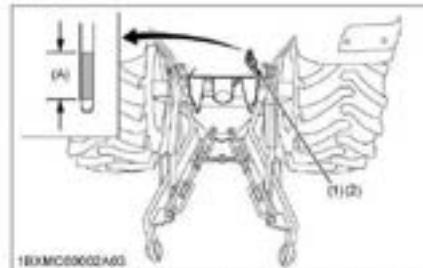
To avoid serious injury or death:

- Park the tractor on a firm, flat, and level surface, lower the implement to the ground, and shut off the engine.

IMPORTANT :

- If the transmission fluid level is low, do not run the engine.

1. To check the transmission fluid level, draw out the dipstick.
 2. Wipe the dipstick clean.
 3. Replace the dipstick.
 4. Draw the dipstick out again.
 5. Check to see that the transmission fluid level lies between the 2 notches.
 6. If the transmission fluid level is too low, add new transmission fluid to the prescribed level at the oil inlet.
- (See LUBRICANTS, FUEL, AND COOLANT on page 116)



(1) Oil inlet
(2) Dipstick
(A) Transmission fluid level is acceptable within this range

5. Checking the coolant level**WARNING**

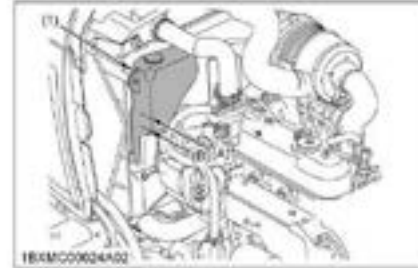
To avoid serious injury or death:

- Stop the engine and remove the starter key before checking coolant level.
- Do not remove the radiator cap while the coolant is hot. When the coolant is cool, slowly rotate the radiator cap to the first stop and allow sufficient time for excess pressure to escape before removing the radiator cap completely.

IMPORTANT :

- If you have to remove the radiator cap, follow the preceding warning and securely retighten the radiator cap.
 - Use clean, fresh, soft water and antifreeze to fill the recovery tank.
 - If water should leak, consult your local Kubota Dealer.
1. Check to see that the coolant level is between the [H] and [L] marks of the recovery tank.

2. When the coolant level drops due to evaporation, add soft water only. In case of leakage, add antifreeze and soft water in the specified mixing ratio up to the [H] level.
(See Flushing the cooling system and changing the coolant on page 136)



(1) Recovery tank
(A) [H]
(B) [L]

6. Cleaning the panel and the radiator screen**WARNING**

To avoid serious injury or death:

- Stop the engine and remove the starter key before removing the radiator screen.
- Before checking or cleaning the panel, wait long enough until it cools down.

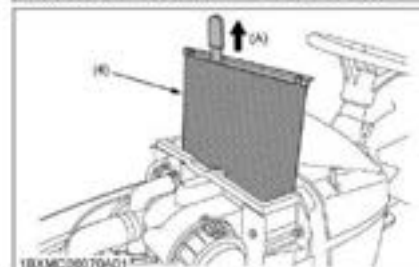
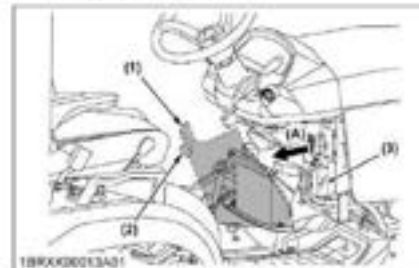
IMPORTANT :

- Clean the panel and the radiator screen from debris to prevent the engine from overheating and to allow good air intake for the air cleaner.
 - Reinstall the panel on the pillar completely to prevent the invasion of dust.
 - Stop the engine to avoid personal injury and to allow good air intake for air cleaner.
1. Make sure that the panel and the radiator screen are clean from debris.
See the following figures.

2. Detach the radiator screen, and then remove all the foreign material.

NOTE :

- If the dust or chaff is accumulated in the battery compartment, open the panel and clean completely.



- (1) Panel (4) Radiator screen
(2) Knob (A) Detach
(3) Center pillar

7. Checking the brake pedal

1. Inspect the brake pedal for free travel, and smooth operation.
2. Adjust the brake pedal if incorrect measurement is found.
(See Adjusting the brake pedal on page 130)

8. Checking the gauges, the meters, and the Easy Checker

1. Inspect the instrument panel for broken gauge(s), meter(s), and Easy Checker.
2. Replace the gauge(s), the meter(s), or the Easy Checker if they are broken.

9. Checking the head light, hazard light, and so on

1. Inspect the lights such as the head light, hazard light, and so on for broken bulbs and lenses.
2. Replace the lights such as the head light, hazard light, and so on if they are broken.

10. Checking the seat belt and the ROPS

1. Always check condition of the seat belt and the hardware to attach the ROPS before operating the tractor.
2. Replace the seat belt or the ROPS if it is damaged.

11. Checking and cleaning the electrical wiring and the battery cables**⚠ WARNING**

To avoid serious injury or death:

- A loosened terminal or connector, or damaged wire may affect the performance of the electrical components or cause short circuits. Leakage of electricity could result in a fire hazard, a dead battery, or damage to the electrical components.
- Replace the damaged wires or connections promptly.
- If a fuse blows soon after replacement, do not use the capacity larger than recommended or bypass the fuse system.
- Many wiring connections are protected by waterproof plugs. Plug and unplug these connections carefully and make sure that they are sealed correctly after assembly.
- Accumulation of dust, chaff, and deposits of spilled fuel around the battery, electrical wiring, engine, or exhaust system may cause fire hazards.
Clean around the battery, electrical wiring, engine or exhaust system before starting to work.
- To avoid premature electrical malfunctions, do not apply high pressure water directly to the battery, the wiring, the connectors, the electrical components, or the instrument panel.

Inspect the following check items regularly

- Check the wiring for chafed or cracked insulation.
- Check the wiring harness clamps. Replace them if necessary.

- Check the connectors and the terminals for looseness, contamination, or overheated or discolored connections.
- Check the instrument panel for correct operation of the switches and the gauges.

Consult your Kubota Dealer regarding maintenance, diagnosis, and repair.

12. Checking and cleaning inside of the hood and around the mower belt to avoid fire hazard

⚠ WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before checking and cleaning.
- Engine components can get extremely hot from operation. To prevent severe burns, do not touch these areas while the engine is running, or immediately after it is turned off.
- Never operate the engine without heat shields or guards.

Check and clean inside of the hood and around the mower belt. Especially, dry grass and leaves around the exhaust manifold, the muffler or around the mower belt may ignite. After using, air-blowing and pressure-washing, make sure there is nothing flammable around the exhaust manifold, the muffler or around the mower belt. Grass, twigs, dirt or chaff in the hood may cause fire.

13. Checking the movable parts

1. If any of the movable parts, such as levers and pedals, do not move smoothly because of rust or sticky material, remove the rust or the sticky material, and apply oil or grease on the relevant spot.
Do not force the movable parts into motion. Otherwise, the machine may get damaged.

SERVICE OF THE TRACTOR EVERY 50 HOURS

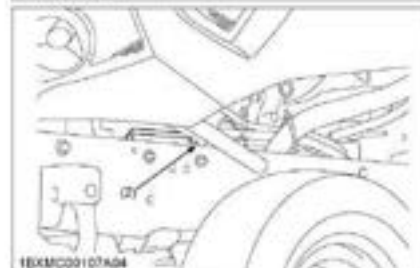
1. Lubricating fittings with grease

Apply a small amount of multipurpose grease to the following points every 50 hours.

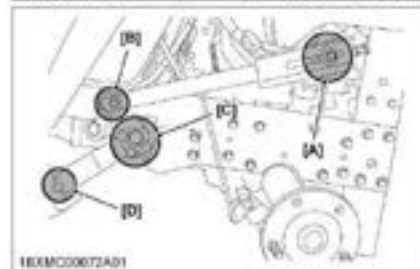
If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often. Apply grease between rod and hole.



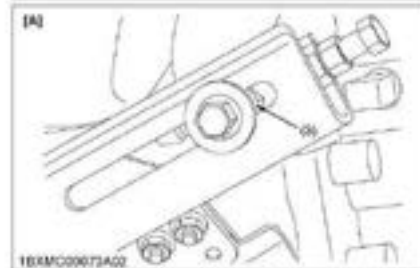
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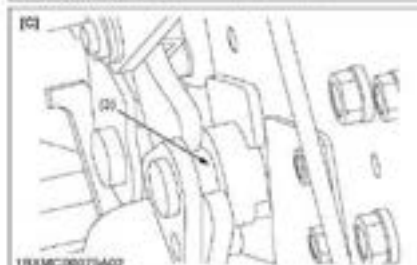
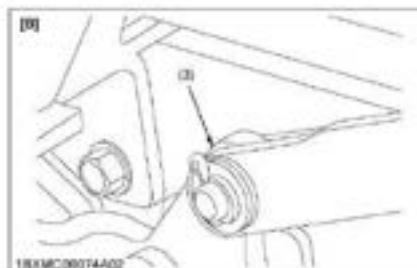
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16XMC00072A01

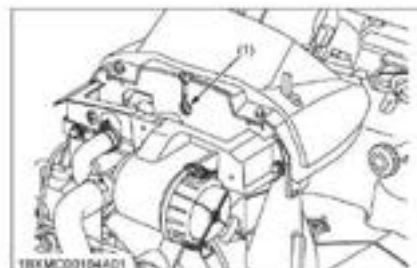


16XMC00073A02



(1) Grease fitting for the speed control pedal (2) Hood guide (3) Rear link

Apply grease between stays.



(1) Hood lock

2. Checking the engine start system

⚠ WARNING

To avoid serious injury or death:

- Do not allow anyone near the tractor while testing.
- If the tractor does not pass the test, do not operate the tractor.

Preparation before testing

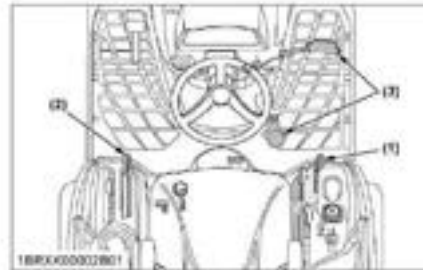
1. Sit on the operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the range gear shift lever to the neutral [N] position.
4. Check whether the speed control pedal is in the neutral position.
5. Shift the PTO clutch lever to the OFF [OFF] position.

Test of switch for the speed control pedal

1. Make sure that the range gear shift lever is set in the neutral [N] position.
2. Depress the speed control pedal.
3. Turn the key to the start [S] position.
4. Make sure that the engine does not crank.
5. If the engine cranks, consult your local KUBOTA Dealer.

Test of switch for the PTO clutch lever

1. Make sure that the range gear shift lever is set in the neutral [N] position.
2. Make sure that the speed control pedal is set in the neutral position.
3. Shift the PTO clutch lever to the ON [ON] position.
4. Turn the key to the start [S] position.
5. Make sure that the engine does not crank.
6. If the engine cranks, consult your local KUBOTA Dealer.



(1) Range gear shift lever (15-Lo)
(2) PTO clutch lever
(3) Speed control pedal

3. Checking the OPC (operator presence control) system

⚠ WARNING

To avoid serious injury or death:

- Do not allow anyone near the tractor while testing.
- If the tractor does not pass the test, do not operate the tractor.

Preparation before testing

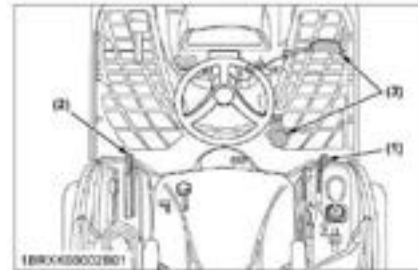
1. Sit on the operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the range gear shift lever to the neutral [N] position.
4. Check whether the speed control pedal is in the "NEUTRAL" position.
5. Shift the PTO clutch lever to the OFF [O] position.

Test of switches for the operator's seat and the speed control pedal

1. Start the engine.
2. Depress the speed control pedal.
3. Stand up.
Do not get off the machine.
4. Make sure that the engine shuts off after approximately 1 second.
5. If the engine does not stop, consult your local Kubota Dealer.

Test of switches for the operator's seat and the PTO clutch lever

1. Start the engine.
2. Engage the PTO clutch lever.
3. Stand up.
Do not get off the machine.
4. Make sure that the engine shuts off after approximately 1 second.
5. If the engine does not stop, consult your local Kubota Dealer.



(1) Range gear shift lever (15-Lo)
(2) PTO clutch lever
(3) Speed control pedal

4. Checking the wheel bolt torque

⚠ WARNING

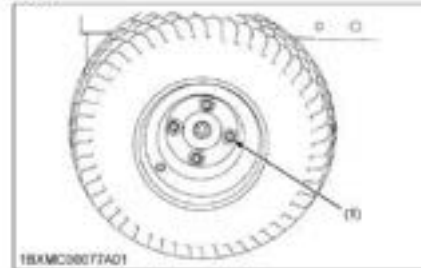
To avoid serious injury or death:

- Never operate the tractor with a loose rim, wheel, or axle.
- Any time bolts are loosened, retighten to the specified torque.
- Check all bolts frequently and keep them tight.

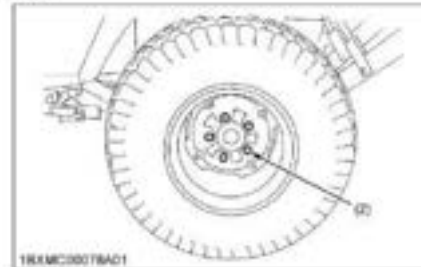
1. Check the wheel bolts regularly especially when new.

2. If they are loose, tighten them as follows.

Front



Rear

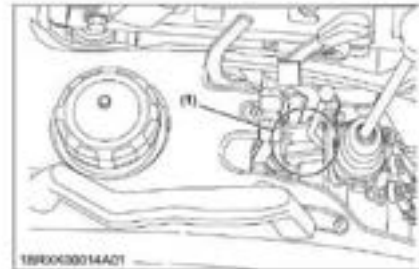


- (1) Front wheel bolt
(2) Rear wheel bolt

Front wheel bolt	tightening torque	149 N·m to 179 N·m (15.2 kgf-m to 18.3 kgf-m) (110 lbf-ft to 132 lbf-ft)
Rear wheel bolt		109 N·m to 130 N·m (11.1 kgf-m to 13.3 kgf-m) (80 lbf-ft to 95 lbf-ft)

5. Cleaning the lock lever shaft

1. Before you use the lock lever, clean the lever movable area (1).



- (1) Lever movable area

SERVICE OF THE TRACTOR EVERY 100 HOURS

1. Checking of the battery

⚠ DANGER

To avoid the possibility of battery explosion:
For the refillable-type battery, follow the instructions as follows.

- Do not use or charge the refillable-type battery if the fluid level is below the lower-limit level mark. Otherwise, the battery component parts may prematurely deteriorate, which may shorten the service life of the battery or cause an explosion.
- Check the fluid level regularly and add distilled water as required so that the fluid level is between the upper level and the lower level.

⚠ WARNING

To avoid serious injury or death:

- Never remove the battery cap while the engine is running.
- Keep electrolyte away from eyes, hands, and clothes. If you are splattered with electrolyte, wash it away completely with water immediately and get medical attention.
- Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.
- Wear eye protection and rubber gloves when working around battery.
- Tighten the battery holder firmly when you re-assemble the battery.
- Put a clamp to the positive cable of the battery.

IMPORTANT:

- The factory-installed battery is of non-refillable type. If the battery is weak, charge the battery or replace it with new one.

- Mishandling the battery shortens the service life and adds to maintenance costs. The original battery is maintenance free, but needs some servicing. If the battery is weak, the engine will be difficult to start and the lights will be dim. It is important to check the battery periodically.
- When exchanging an old battery for a new one, use the battery of equal specification in the following table.

Battery type	26R 560
Volts	12 V
Reserve capacity	85 min
Cold cranking amps	560
Normal charging rate	8.8 A

For non-accessible maintenance-free type batteries Maintenance-free, non-accessible batteries are designed to eliminate the need to add water. Yet the volume of electrolyte above plates may eventually become depleted due to abnormal conditions such as high heat or improper regulator setting. Use a voltmeter to check the state of charge. See the following table to determine if charging is necessary.

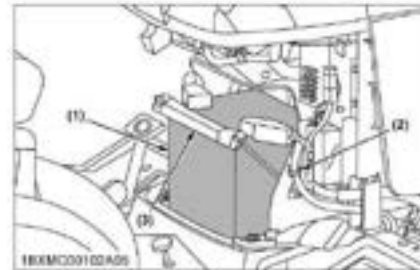
Battery voltage	Reference state of charge
12.6	100 % (Full charge)
12.4	75 %
12.2	50 %
12.0	25 %
11.8	0 %

1.1 Battery charging

WARNING

To avoid serious injury or death:

- When the battery is being activated, 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.
- 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.
- To prevent short circuit, before charging, remove the metal battery holder.
- Never check the battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.



(1) Battery (2) Battery holder
(2) Clamp

IMPORTANT :

- Since the metal battery holder can crack, do not tighten it too much.
- 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 recharge the battery will shorten the service life of battery.
- When the specific gravity of electrolyte is shown in the following table, the charging is completed.

Specific gravity of electrolyte	Between 1.27 and 1.29
---------------------------------	-----------------------

1.2 Dealing with the battery when storing the tractor for a long period

1. Remove the battery from the tractor.
2. Adjust the electrolyte to the proper level.
3. Store the battery in a dry place out of direct sunlight.

The battery self-discharges while it is stored. Recharge the battery every 3 months in hot seasons and every 6 months in cold seasons.

2. Cleaning the air cleaner element

WARNING

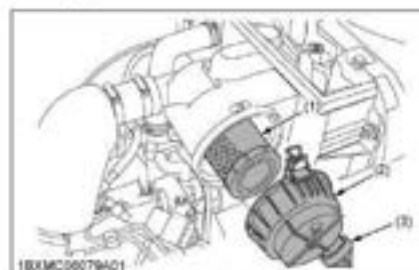
To avoid serious injury or death:

- Stop the engine and remove the key before cleaning the air cleaner element.

IMPORTANT :

- The air cleaner uses a dry element. Never apply oil to the air cleaner.
- Do not run the engine with filter element removed.
- Align the arrow marks when reinstalling the cover. If the cover is improperly fitted, dust passes by the baffle and directly adheres to the air cleaner element.

1. Remove the air cleaner cover and air cleaner element.
 - a. Undo the hook.
 - b. Turn the air cleaner cover clockwise and detach it.



(1) Air cleaner element
(2) Air cleaner cover

2. Clean the air cleaner element.
When dry dust adheres to the air cleaner element, blow compressed air from the inside, turning the air cleaner element. Pressure of compressed air must be the value shown in the following table.

Pressure of compressed air	Below 200 kPa (2.1 kgf/cm ² , 30 psi)
----------------------------	--

3. When carbon or oil adheres to the air cleaner element, follow the following procedure.
 - a. Soak the air cleaner element in detergent for the following minutes.

Soaking the air cleaner element in detergent	15 minutes
--	------------

- b. Then wash it several times in water.
 - c. Rinse the air cleaner element with clean water.
 - d. Dry the air cleaner element naturally.
 - e. After the air cleaner element is fully dried, inspect inside of it with a light and check if it is damaged or not.
Refer to the instructions on the label attached to the case.
4. Replace the air cleaner element as the following table.

Replacing the air cleaner element	Every 1000 hours or every year, whichever comes first
-----------------------------------	---

Evacuator valve

1. Open the evacuator valve once a week under ordinary conditions or daily when used in a dusty place to get rid of large particles of dust and dirt.

NOTE :

- Check to see if the evacuator valve is blocked with dust.

3. Checking the fuel filter**WARNING**

To avoid serious injury or death:

- Stop the engine and remove the key before checking the fuel lines and the fuel filter.
- Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.

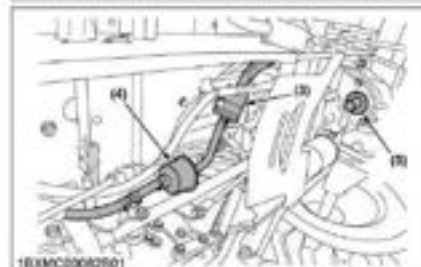
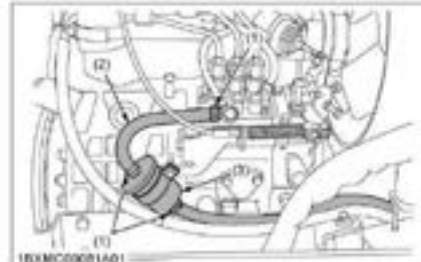
IMPORTANT :

- When the fuel line is disconnected for maintenance or repair, plug both ends of the fuel line with a clean plug of suitable size to prevent dust and dirt from entering. Take particular care of the fuel filter in order to avoid dust and dirt getting into the fuel system. Entrance of dust and dirt causes malfunction of the fuel pump.

The fuel line is the rubber product and ages regardless of service period.

1. Check the fuel filter. If the fuel filter is clogged by debris or contaminated by water, replace it.

2. If the fuel line and clamps are found damaged or deteriorated, replace them.



- (1) Fuel pump
(2) Fuel line
(3) Fuel filter
(4) Fuel pump
(5) Fuel filter
(6) Fuel line

NOTE :

- If the fuel line is removed, properly bleed the fuel system.
(See Bleeding the fuel system on page 140)

4. Adjusting the fan belt tension

WARNING

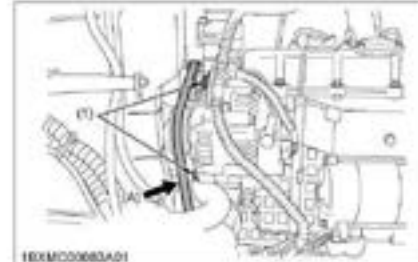
To avoid serious injury or death:

- Stop the engine and remove the key before checking the tension of the fan belt.

Fan belt tension (deflection)	7 mm to 9 mm (0.28 in. to 0.35 in.) when the belt is pressed in the middle of the span.
-------------------------------	---

- Stop the engine and remove the key.
- Apply moderate thumb pressure to the fan belt between pulleys.
- If the tension of the fan belt is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the fan belt falls within acceptable limits.

4. Replace the fan belt if it is damaged.



(1) Belt

(A) Check the belt tension

5. Adjusting the HST neutral spring for speed control pedal

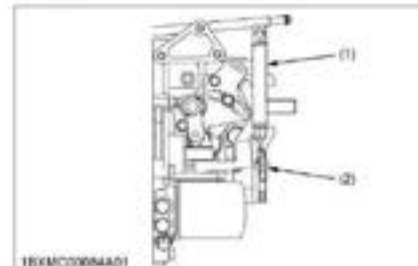
WARNING

To avoid serious injury or death:

- Do not operate if the tractor moves on level ground with foot off the speed control pedal.
- If the tractor moves on level ground with foot off the speed control pedal, or, if the pedal is too slow in returning to the "NEUTRAL" position when removing the foot from the pedal, consult your local Kubota Dealer.

The HST neutral spring located under the front right side of the fender can adjust returning speed of the speed control pedal.

Consult your local Kubota Dealer for service.



(1) HST neutral spring

(2) Adjusting nut

6. Adjusting the brake pedal

WARNING

To avoid serious injury or death:

- Stop the engine, remove the starter key, lower the implement to the ground, and chock the wheels before checking the brake pedal.
- Even if free travel of the brake pedal is within the limitation, adjust the brake pedal.
- If you are not able to adjust, consult your local KUBOTA Dealer.

1. Release the parking brake.
2. Loosen the lock nut and turn the turnbuckle to adjust the rod length so that free travel of the brake pedal is the length shown in the following table.

Free travel of the brake pedal	10 mm (0.4 in.)
--------------------------------	--------------------



- (1) Lock nut
(2) Turnbuckle
(3) Free travel

3. Extend the turnbuckle 1 additional turn.
4. Retighten the lock nut.
5. Depress the brake pedal several times and make sure that free travel of the brake pedal is the length shown in the following table.

Free travel of the brake pedal	25 mm to 35 mm (1.0 in. to 1.4 in.)
--------------------------------	--

SERVICE OF THE TRACTOR EVERY 200 HOURS OR EVERY YEAR

Perform the prescribed servicing once every 200 hours or every year, whichever comes first.

1. Changing the engine oil



WARNING

To avoid serious injury or death:

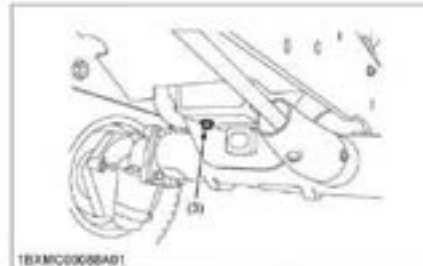
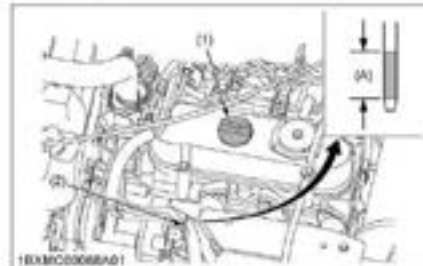
- Stop the engine and remove the key before changing the oil.
- Oil can be hot and can burn. Allow the engine to cool down sufficiently.

Change the engine oil every 200 hours or every year, whichever comes first.

Oil capacity with filter	3.1 L (5.3 U.S. pts.)
--------------------------	--------------------------

1. To drain the used engine oil, remove the drain plug at the bottom of the engine, and drain the engine oil completely into the oil pan.
2. After draining the used engine oil, reinstall the drain plug.
3. Fill the engine with the new engine oil up to the upper notch on the dipstick.
(See LUBRICANTS, FUEL, AND COOLANT on page 115)

4. Properly dispose of the used engine oil.



(1) Oil inlet
(2) Dipstick
(3) Drain plug
(A) Oil level is acceptable within the range

SERVICE OF THE TRACTOR EVERY 200 HOURS

1. Replacing the engine oil filter

⚠ WARNING

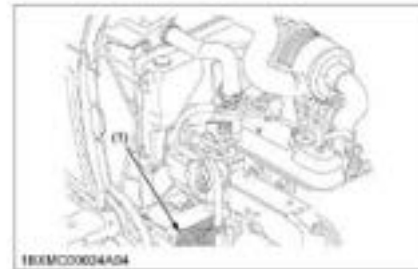
To avoid serious injury or death:

- Stop the engine before replacing the oil filter.
- Oil can be hot and can burn. Allow the engine to cool down sufficiently.

IMPORTANT:

- To prevent serious damage to the engine, use only a Kubota genuine filter.

1. Remove the oil filter.



(1) Engine oil filter

2. Put a film of the clean engine oil on the rubber seal of the new filter.
3. Tighten the filter quickly until it contacts the mounting surface.
4. Tighten filter by hand an additional 1/2 turn only.
5. After the new filter has been replaced, the engine oil normally decreases a little. Make sure that the engine oil does not leak through the seal and check the oil level on the dipstick.
6. Fill the engine with the engine oil up to the prescribed level.
7. Properly dispose of the used engine oil.

2. Replacing the HST oil filter

⚠ WARNING

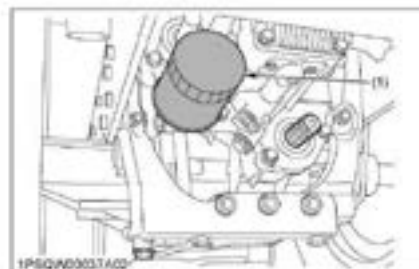
To avoid serious injury or death:

- Stop the engine before changing the HST oil filter.
- Oil can be hot and can burn. Allow the engine to cool down sufficiently.

IMPORTANT:

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

1. Remove the HST oil filter.



(1) HST oil filter

2. Put a film of clean transmission oil on rubber seal of new HST oil filter.
3. Tighten the HST oil filter quickly until it contacts the mounting surface.
4. Tighten the HST oil filter by hand an additional 1/2 turn only.
5. After the new HST oil filter has been replaced, the transmission fluid level will decrease a little. Make sure that the transmission fluid does not leak through the seal, and check the fluid level. Check the dipstick and refill with oil to prescribed level.
6. Properly dispose of used oil.

3. Checking the toe-in

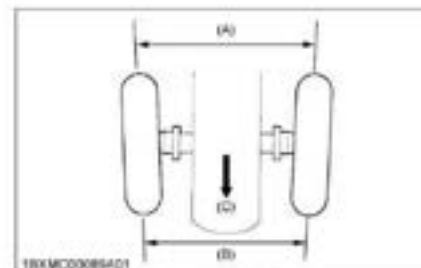
WARNING

To avoid serious injury or death:

- Park the tractor on a firm, flat, and level place.
- Lower the implement to the ground, and apply the parking brake.
- Stop the engine and remove the key.

1. Turn the steering wheel so that the front wheels are in the straight ahead position. See the following figure.
2. Measure the distance between the tire beads at front of the tires, and at the hub heights. See the following figure.
3. Measure the distance between the tire beads at rear of the tires, and at the hub heights.
4. Front distance should be the length as shown in the following table. If front distance is not proper length, adjust the length of the tie rod.
(To adjust the tie rod, see Adjusting the toe-in on page 133)

Front distance	0 mm to 5 mm (0 in. to 0.2 in.) less than rear distance
----------------	---



(A) Wheel-to-wheel distance at rear

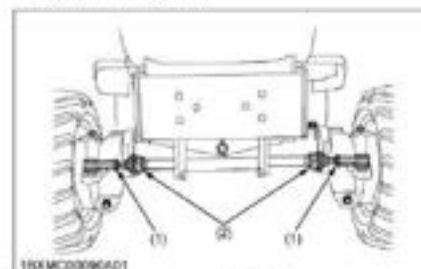
(B) Wheel-to-wheel distance at front

3.1 Adjusting the toe-in

1. Loosen the lock nut and turn the tie rod to adjust the rod length until the proper toe-in measurement is obtained.

Front distance	0 mm to 5 mm (0 in. to 0.2 in.) less than rear distance
----------------	---

2. Retighten the lock nut.



(1) Lock nut

(2) Tie rod

SERVICE OF THE TRACTOR EVERY 400 HOURS

1. Adjusting the front axle pivot

WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before adjusting the front axle pivot.

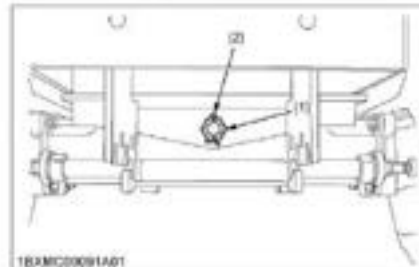
If the front axle pivot pin adjustment is not correct, front wheel vibration can occur causing vibration in the steering wheel.

PERIODIC SERVICE OF THE TRACTOR

1. Remove the split pin and tighten the adjusting nut.

Tightening torque	20 N·m (2.0 kgf-m) (15 ft-lb)
-------------------	-------------------------------------

2. Make sure that one of the nut slots aligns with the split pin hole.
3. Tighten the nut slightly if necessary when aligning the nut slots with the split pin hole.
4. Replace the split pin.



(1) Adjusting nut (2) Split pin

2. Changing the transmission fluid

WARNING

To avoid serious injury or death:

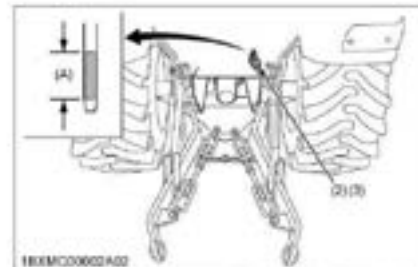
- Oil can be hot and can burn. Allow the engine to cool down sufficiently.

Transmission fluid	KUBOTA SUPER UDT-2
Transmission fluid capacity	11.3 L (3.0 U.S. gal.)

1. To drain the used transmission fluid, remove the drain plug at the bottom of the transmission case and drain the transmission fluid completely into the oil pan.



SERVICE OF THE TRACTOR EVERY 400 HOURS



(1) Drain plug (A) Transmission fluid level is acceptable within this range
(2) Oil filler (2) Dipstick

2. After draining the transmission fluid, reinstall the drain plug.
3. Clean the transmission strainer.
4. Fill with new transmission fluid up to the upper notch on the dipstick.
(See LUBRICANTS, FUEL, AND COOLANT on page 116 and Checking the transmission fluid level on page 121)
5. After running the engine for a few minutes, stop it and check the transmission fluid level again.
6. If the transmission fluid level is lower than the prescribed level shown in the following figure, add it to the prescribed level.
7. Properly dispose of used transmission fluid.

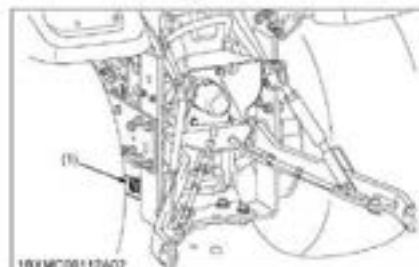
IMPORTANT:

- Do not operate the tractor immediately after changing the transmission fluid.
Run the engine at medium speed for a few minutes to prevent damage to the transmission.

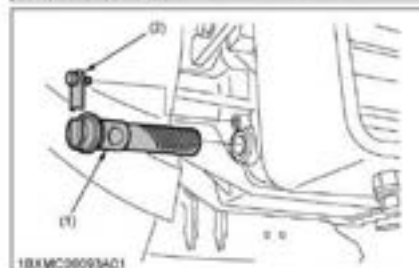
3. Cleaning the transmission strainer

1. When changing the transmission fluid, disassemble and rinse the transmission strainer with nonflammable solvent to completely clean off filings.

2. When reassembling the transmission strainer, be careful not to damage the parts.



18XMC00112A02



18XMC00093A01

(1) Transmission strainer (2) Filter plate

NOTE :

- Since the fine filings in the oil can damage the precision component parts of the hydraulic system, the end of the suction line is provided with an oil strainer.

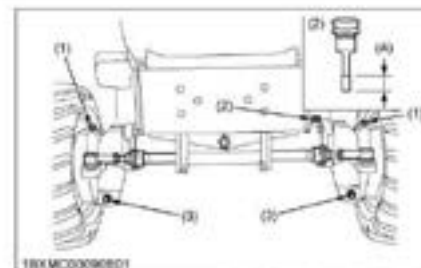
4. Changing the front axle case oil**WARNING**

To avoid serious injury or death:

- Stop the engine and remove the key before changing the front axle case oil.

Oil capacity	3.0 L (3.9 U.S. gal.)
--------------	--------------------------

- Park the tractor on a firm, flat, and level place.
- To drain the used front axle case oil, remove the right and left drain plugs and oil gauge at the front axle case.



18XMC00090B01

(1) Breather plug (2) Oil gauge with dipstick (3) Drain plug (A) Front axle case oil level is acceptable within this range

- Drain the front axle case oil completely into the oil pan.
- After draining the front axle case oil, reinstall the drain plugs.
- Remove the right and left breather plugs.
- Fill with new front axle case oil up to the upper notch on the dipstick.
(See LUBRICANTS, FUEL, AND COOLANT on page 115)

IMPORTANT :

- After the following minutes, check the front axle case oil level again. If the front axle case oil level is lower than the prescribed level shown in the following figure, add the front axle case oil to prescribed level.

Checking the front axle case oil level	10 minutes after filling with new front axle case oil
--	---

- After filling with front axle case oil, reinstall the oil gauge and breather plugs.

5. Replacing the fuel filter element

Consult your local Kubota Dealer for replacing the fuel filter element.

SERVICE OF THE TRACTOR EVERY 800 HOURS**1. Adjusting the engine valve clearance**

Consult your local Kubota Dealer for adjusting the clearance of the engine valve.

SERVICE OF THE TRACTOR EVERY 1000 HOURS OR EVERY YEAR

Perform the prescribed servicing once every 1000 hours or every year, whichever comes first.

1. Replacing the air cleaner element

Replace the air cleaner element every 1000 hours or every year, whichever comes first.
(See Cleaning the air cleaner element on page 128)

SERVICE OF THE TRACTOR EVERY 1500 HOURS

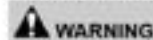
1. Checking the injection pressure of the fuel injection nozzle

Consult your local Kubota Dealer for checking the injection pressure of the fuel injection nozzle.

SERVICE OF THE TRACTOR EVERY 2000 HOURS OR 2 YEARS

Perform the prescribed servicing once every 2000 hours or 2 years, whichever comes first.

1. Flushing the cooling system and changing the coolant



WARNING

To avoid serious injury or death:

- Do not remove the radiator cap while the coolant is hot. When the coolant is cool, slowly rotate the radiator cap to the first stop and allow sufficient time for excess pressure to escape before removing the radiator cap completely.

IMPORTANT :

- Do not start the engine without coolant.
- Use clean, fresh, soft water and the antifreeze to fill the radiator and the recovery tank.
- When mixing the antifreeze with water, the antifreeze mixing ratio is the following percentage.

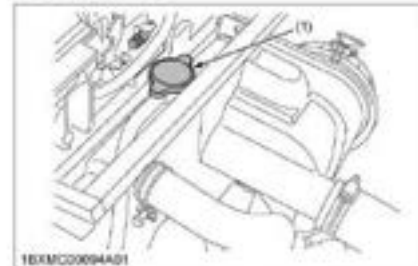
Antifreeze mixing ratio with water	50 %
------------------------------------	------

- Securely tighten the radiator cap. If the radiator cap is loose or improperly fitted, water may leak out and the engine could overheat.

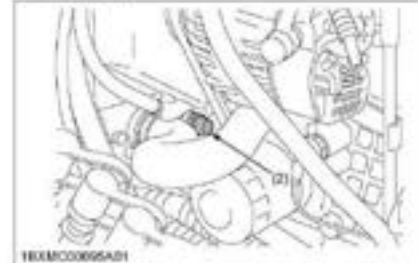
Flush the cooling system and change the coolant every 2000 hours or every 2 years, whichever comes first.

Coolant capacity (with recovery tank)	3.1 L (0.3 U.S. qt.)
---------------------------------------	-------------------------

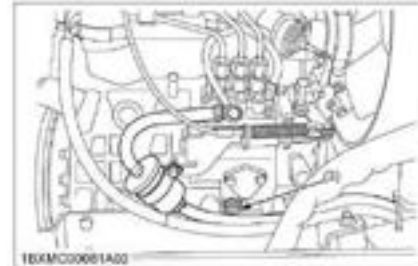
- Stop the engine and let it cool down.
- To drain the coolant, open the radiator drain plug or the engine drain plug and remove the radiator cap. The radiator cap must be removed to completely drain the coolant.



1EXMC00094A01



1EXMC00095A01



1EXMC00091A00

- (1) Radiator cap
(2) Engine drain plug

- After all coolant is drained, close the drain plug.
- Fill the radiator with clean soft water and the cooling system cleaner.

5. Follow directions of the instruction of cooling system cleaner.
6. After flushing the radiator, fill it with clean soft water and the antifreeze until the coolant level is just below the radiator cap.
7. Install the radiator cap securely.
8. Fill the recovery tank with coolant up to the [H] mark on the recovery tank.
9. Start and operate the engine for few minutes.
10. Stop the engine and let it cool.
11. Check the coolant level of the recovery tank and add the coolant if necessary.

2. Antifreeze



WARNING

To avoid serious injury or death:

- When using the antifreeze, put on some protection such as rubber gloves. The antifreeze contains poison.
- If someone drank antifreeze, seek immediate medical help. Do not make the person throw up unless told to throw up by poison control center or a health care professional. Use standard first aid and CPR for signs of shock or cardiac arrest. Call your local poison control center or your local emergency number for further assistance.
- When the antifreeze comes in contact with the skin or clothing, wash it off immediately.
- Do not mix different types of the antifreeze. The mixture can produce chemical reaction causing harmful substances.
- The antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from the antifreeze.
- When draining fluids from the engine, place some container underneath the engine body.
- Do not pour waste onto the ground, down a drain, or into any water source.
- Also, follow the relevant environmental protection regulations when disposing of the antifreeze.

Always use a 50/50 mix of long-life coolant and clean soft water in Kubota engines. Consult your local Kubota Dealer concerning coolant for extreme conditions.

NOTE :

- The following data represent industry standards that necessitate a minimum glycol content in the concentrated antifreeze.

- Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
- Before using LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat this procedure 2 times or 3 times to clean up the inside.
- Mixing the LLC

Promix	50 % LLC with 50 % clean soft water.
--------	--------------------------------------

When mixing, stir it up well, and then fill into the radiator.

- Adding the LLC
 - Add only water if the mixture reduces in amount by evaporation.
 - If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.
 - Never add any long-life coolant of different manufacturer. Different brands may have different additive components, and the engine may fail to perform as specified.
- When the LLC is mixed, do not use any radiator cleaning agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
- Kubota's genuine long-life coolant has a service life of 2 years. Change the coolant as follows.

Changing the coolant	every 2000 hours or every 2 years, whichever comes first
----------------------	--

- The procedure for the mixing of water and the antifreeze differs according to the make of the antifreeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

Antifreeze	Freezing point		Boiling Point ^{**}	
50Vulc	-37 °C	-34 °F	109 °C	226 °F

^{**} At 1.013 × 10⁵ Pa (760 mmHg) atmospheric pressure. A higher boiling point is obtained by using a radiator pressure cap which prevents the development of pressure within the cooling system.

SERVICE OF THE TRACTOR EVERY 3000 HOURS

1. Checking the injection pump

- Consult your local KUBOTA Dealer for checking the injection pump.

SERVICE OF THE TRACTOR EVERY YEAR

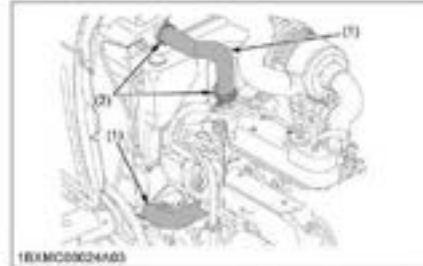
1. Checking the radiator hoses and the hose clamps

⚠ WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before checking the radiator hose and the hose clamps.

1. If the hose clamps are loose or water leaks, tighten them securely.
2. Replace the radiator hoses and tighten the hose clamps securely if you checked and found that the radiator hoses are swollen, hardened, or cracked.
3. Properly dispose of used coolant.



1BXM0002MAd3

(1) Radiator hoses (2 pcs) (2) Hose clamps (4 pcs)

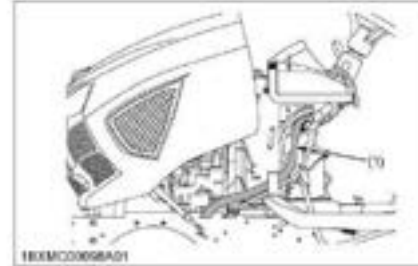
2. Checking the power steering line

⚠ WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before checking the power steering line.

1. Check to see that all power steering lines are tight and not damaged.
2. If the power steering pressure hoses are found to be worn or damaged, replace or repair them at once.



1BXM00008Ad1

(1) Power steering pressure hose

3. Checking the fuel lines

⚠ WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before checking the fuel lines and fuel filter.
- Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.

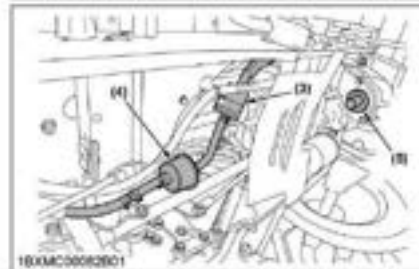
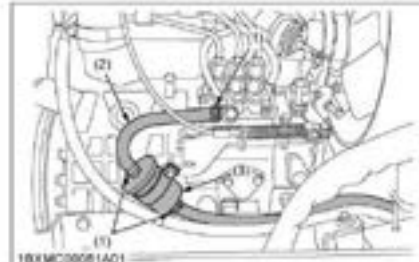
IMPORTANT:

- When the fuel line is disconnected for maintenance or repair, plug both ends of the fuel line with a clean plug of suitable size to prevent dust and dirt from entering. You must take particular care of the fuel lines in order to avoid dust and dirt getting into the fuel system. Entrance of dust and dirt causes malfunction of the fuel pump.

The fuel line is made of rubber and ages regardless of service period.

1. Check the fuel filter. If the fuel filter is clogged by debris or contaminated by water, replace it.

2. If the fuel lines and clamps are found damaged or deteriorated, replace them.



(1) Fuel pump
(2) Fuel filter
(3) Fuel lines

NOTE :

- If the fuel line is removed, properly bleed the fuel system.
(See Bleeding the fuel system on page 140)

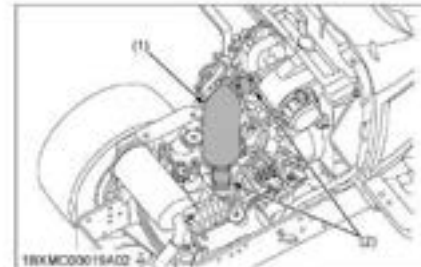
4. Checking the intake air line

WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before checking the intake air line.

1. Check to see that the hose and the hose clamps are tight and not damaged.
2. If the hose and the clamps are found worn or damaged, replace or repair them at once.



(1) Hose
(2) Hose clamps

5. Checking the engine breather hose

Consult your local Kubota Dealer for checking the engine breather hose.

SERVICE OF THE TRACTOR EVERY 2 YEARS

1. Checking the radiator hose (water pipes)

Consult your local Kubota Dealer for checking the radiator hose (water pipes).

2. Checking the power steering hose

Consult your local Kubota Dealer for checking the power steering hose.

3. Replacing the engine breather hose

Consult your local Kubota Dealer for replacing the engine breather hose.

SERVICE OF THE TRACTOR EVERY 4 YEARS

1. Replacing the fuel hose

Consult your local Kubota Dealer for replacing the fuel hose.

2. Replacing the intake air line

Consult your local Kubota Dealer for replacing the intake air line.

SERVICE OF THE TRACTOR AS REQUIRED

1. Bleeding the fuel system

Air must be removed:

- When the fuel filter or lines are removed
- When the tank is completely empty
- After the tractor has not been used for a long period of time

Bleeding procedure is as follows

1. Fill the fuel tank with fuel.
2. Turn the key switch to the ON (I) position for the following seconds.
Turning the key to ON for the following seconds allows fuel pump to work and pump air out of the fuel system.

Turning the key to on	About 30 seconds
-----------------------	------------------

3. Start the engine and run it for the following seconds, and then stop it.

Running the engine	About 30 seconds
--------------------	------------------

2. Replacing the fuse

The electrical system of the tractor is protected from potential damage by fuses.

A blown fuse indicates that there is an overload or short somewhere in the electrical system.

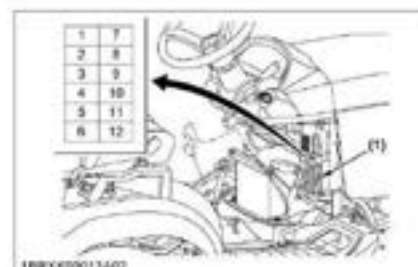
There are 2 types of fuse boxes:

- [TYPE-A] Fuse box with empty fuse
- [TYPE-B] Fuse box with full fuse

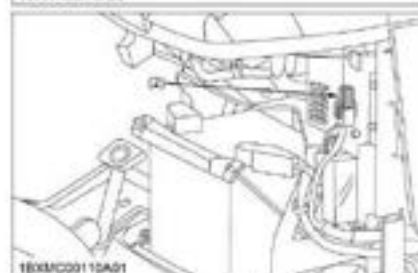
1. [TYPE-A, TYPE-B] If any of the fuses should blow, replace with a new fuse with the same capacity.

IMPORTANT:

- Before replacing a blown fuse, determine why the fuse blew and carry out any necessary repairs. Failure to follow the repairing procedure may result in serious damage to the electrical system of the tractor. See ENGINE TROUBLESHOOTING on page 170 or contact your local Kubota Dealer for specific information dealing with electrical problems.



1B0XK00013A02



1B0XMC00110A01

(1) Fuse box

(2) Blown fuse

Protected circuit [TYPE-A]

Fuse box

FUSE no.	Capacity (A)	Protected circuit
1	-	-
2	-	-
3	10	Option (3rd function)
4	10	OPC
5	15	OC outlet
6	5	Fuel pump
7	-	-
8	5	Glow indicator
9	5	Water
10	15	Stop solenoid
11	20	Lamp
12	20	Option (park light)

Protected circuit [TYPE-B]**Fuse box**

FUSE no.	Capacity	Protected circuit
1	15 A	DC outlet
2	5 A	Fuel pump
3	5 A	Option (3rd function)
4	15 A	Option (work light)
5	10 A	Tail hazard
6	5 A	Meter
7	5 A	Ignition
8	5 A	OPC_1ST
9	5 A	OPC_2ND
10	15 A	Stop scenario
11	10 A	Head light
12	10 A	Flasher (=B)

Slow blow fuse [TYPE-A, TYPE-B]

Capacity	Protected circuit
50 A	Check circuit against wrong battery connection

3. Replacing the light bulb

Light	Capacity
Head light	37.5 Wx2
Tail light	12.8 Wx2
Hazard light	21 Wx2

Head light

1. Take the light bulb out of the body of the light and replace with a new one.

Other lights

1. Detach the lens and replace the light bulb.

MAINTENANCE OF THE LOADER

CAUTION

To avoid personal injury:

- Check and service the tractor on a flat surface with the bucket on the ground, engine shut off, the starter key removed, and the parking brake on.

DAILY CHECKING THE LOADER

WARNING

To avoid serious injury or death:

- When removing the engine side covers, be careful not to touch hot loader cylinders. Allow all surfaces to cool before performing maintenance.
- Before servicing the loader or the tractor, set the boom lock shown as the *How to use the boom lock* section.

(See *HOW TO USE THE BOOM LOCK [SPILL GUARD MODEL ONLY]* on page 103)

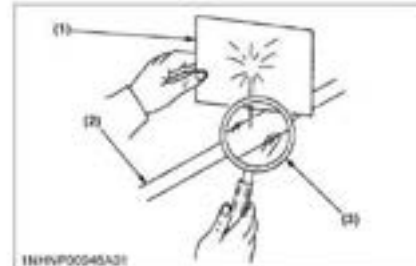
1. Check all hardware of the loader daily before operation.
Tighten the hardware of the loader to torque values as specified in the *GENERAL TORQUE SPECIFICATION* on page 149.
2. With the engine off and the bucket on the ground, inspect all hoses for cuts or wear. Check for signs of leaks and make sure all fittings are tight.

WARNING

To avoid serious injury or death:

- The escaping hydraulic fluid under pressure can produce sufficient force to penetrate skin, causing serious personal injury. Before disconnecting lines, relieve all pressure.
- Before applying pressure to the loader system, be sure that all connections are tight and that lines, tubes, and hoses are not damaged.
- Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood to search for suspected leaks. Do not use hands to search for suspected leaks.
- If you are injured by escaping fluid, see a doctor at once. Serious infection or allergic

reaction will develop if proper medical treatment is not administered immediately.



1NHNVP00045A01

(1) Hydraulic line

(2) Cardboard

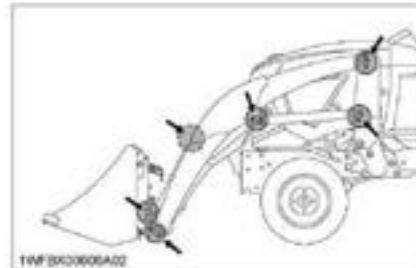
(3) Magnifying glass

SERVICE OF THE LOADER EVERY 10 HOURS

1. Lubricating the loader

KUBOTA recommends the high quality grease designated as the extreme pressure and containing the Molybdenum disulfide. Recommended grease may specify **[Moly EP]** on its label.

1. Lubricate all grease fittings with grease **[Moly EP]** every 10 hours of operation. Also, lubricate the joints of the control lever linkage with a good oil every 10 hours.



1WFBK00006A02

- Before daily operation, check the hydraulic fluid level of the tractor. If the hydraulic fluid level is low, add the hydraulic fluid as described in the tractor operator's manual. Also change the filter element and the hydraulic fluid as recommended in the tractor operator's manual.

SERVICE OF THE LOADER EVERY 20 HOURS TO 30 HOURS

1. Re-tightening of hardware of the loader

After 20 hours to 30 hours of initial loader operation, re-tighten all mounting bolts and nuts to the required torque value as follows.

Tightening torque table

Location	Bolt or nut	Required Torque
Main frame	M14 bolts or nuts	147 N·m (15.0 kgf·m)

NOTE :

- Before finally tightening all mounting hardware of the loader, start the engine and apply down pressure to the bucket until the loader raises the front wheels slightly. Make sure that you can rotate the mounting pins easily, and then tighten all bolts and nuts.

SERVICE OF THE LOADER EVERY 50 HOURS

1. Checking the torque of bolt and nut of the main frame

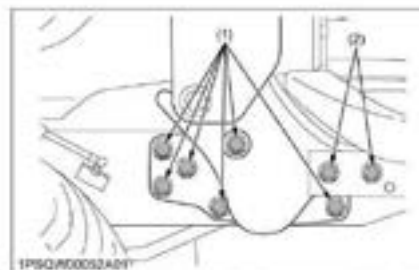


WARNING

To avoid serious injury or death:

- Never operate the front loader with a loose main frame.
- Any time bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.
- Check the bolts and nuts of the main frame regularly especially when they are new. If the bolts and nuts of the main frame are loose, tighten them as follows.

- Check to see if the torque of bolt and nut of the main frame is as follows.



(1) Bolt and nut of the main frame (2) Bolt and nut of the main frame

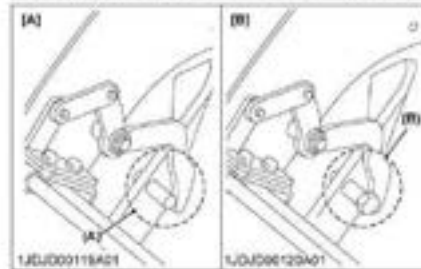
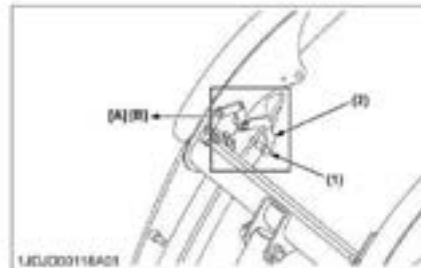
Bolt and nut of the main frame (1)	Tightening torque	147 N·m (15.0 kgf·m)
Bolt and nut of the main frame (2)		203 N·m (20.7 kgf·m)

2. Checking the movement of the lifting stand

- Check the lifting stand linkage for dirt or debris and ensure the linkage rotates freely. If the linkage does not rotate freely clean the linkage as needed.
- Check the height of the lifting stand. If the stand does not hook and fold up successfully, readjust the height of the lifting stand according to the instructions provided in ADJUSTING THE HEIGHT OF THE LIFTING STAND on page 180.

3. Maintenance of the stand pins

Depending on the type of the stand, it may be necessary to perform the maintenance. Look at the right and left stand pins of your stand, according to the following figures.



- (1) Stand pin.
(2) Stand hook.
- (A) Type A (2018).
(B) Type B (2019).
(A) Welded pin (Type A).
(B) Stand bolt with collar (Type B).

If the stand links and collars get dirty, the stand lever may fail to move smoothly in stowing the stand. If you do not clean the stand links and collars, it may cause trouble for stowing the stand. To avoid trouble for stowing the stand, carry out the following instructions for proper maintenance according to your stand type.

Removing dirt and debris

1. Keep the link and collar free from dirt and debris.
2. Clean the link and the collar of any dirt and debris before storing the stand.

If the stand lever is still tough to move

[Type A] Stop using the stand and contact your nearest dealer.

[Type B] Perform disassembling and maintenance. See Maintenance of the stand pins [Type B only] on page 144.

SERVICE OF THE LOADER EVERY 100 HOURS

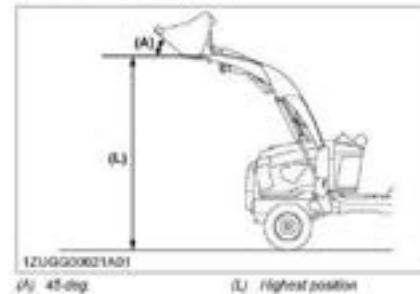
1. Checking the spill guard function [Spill guard model only]

CAUTION

To avoid serious injury:

- Keep your hand away from links or boom when operating the loader.

1. Start the engine and lift the boom to appointed height (L).
2. Roll back the bucket fully and check the rollback angle (A).
3. If the rollback angle (A) is not the same as following illustration, adjust the length of spill guard link. (See Adjusting the spill guard link [Spill guard model only] on page 104)



(A) 45-deg.

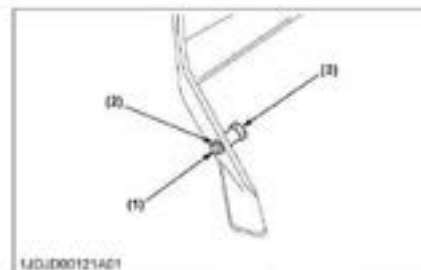
(L) Highest position

SERVICE OF THE LOADER EVERY YEAR

1. Maintenance of the stand pins [Type B only]

Disassembling and maintenance

1. Remove the lock nut and plain washer first and then the stand bolt.

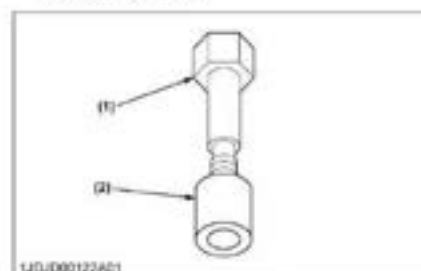


1J0J000121A01

- (1) M8 lock nut
(2) M8 plain washer

(3) M8 stand bolt

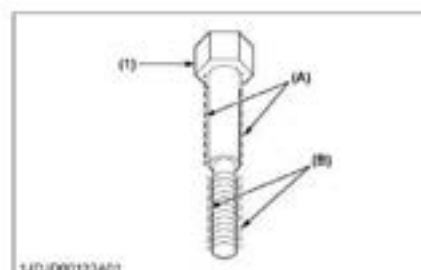
2. Draw the collar from the stand bolt. Clean up the stand bolt and collar.



1J0J000122A01

- (1) Stand bolt
(2) Collar

3. Apply enough grease all around the shank of the stand bolt.



1J0J000123A01

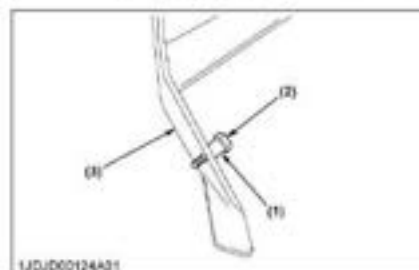
- (1) Stand bolt
(A) Grease around the shank of the stand bolt
(B) No grease over the threads

IMPORTANT :

- Do not apply grease over the threads. Clean the threads up if covered with grease.

4. Push the collar back on the stand bolt. Apply this bolt in the stand.

M8 stand bolt (2)	Tightening torque	13-6 N·m to 14.1 N·m
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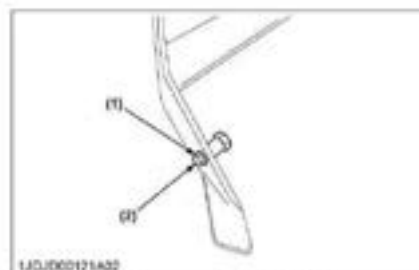
1J0J000124A01

- (1) Collar
(2) M8 stand bolt

(3) Stand

5. Using the plain washer and lock nut, secure the stand bolt in position.

M8 lock nut (2)	Tightening torque	21.2 N·m to 27.5 N·m
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1J0J000125A02

- (1) M8 plain washer
(2) M8 lock nut

6. Turn the collar by hand to allow grease to cover evenly the inner surface of the collar.

7. Make sure that the stand lever works smoothly in stowing the stand. If the stand lever is still tough to move, stop using the stand and contact your nearest dealer.

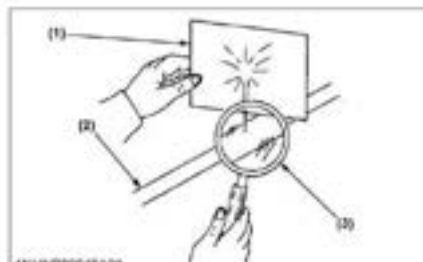
MAINTENANCE OF THE BACKHOE

CHECKING THE BACKHOE DAILY

⚠ WARNING

To avoid serious injury or death:

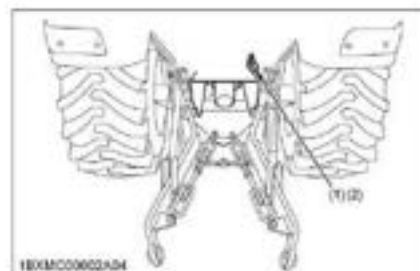
- Never repair, service, or adjust any kind when the hydraulic system is under pressure, when the engine is running, or when any cylinder of the backhoe is under load.
- Escaping hydraulic fluid under pressure can obtain sufficient force to penetrate skin, causing serious personal injury. Before disconnecting lines, relieve all pressure.
- Before applying pressure to the system, be sure all connections are tight and that lines, tubes, and hoses are not damaged.
- Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.
- If injured by escaping fluid, see a doctor at once. Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.



(1) Hydraulic line
(2) Cardboard
(3) Magnifying glass

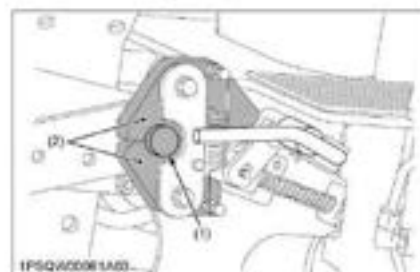
The backhoe is run by the tractor hydraulic system.

- Daily before operation, check the hydraulic level of the tractor. If the hydraulic level of the tractor is low, replenish the oil as described in Checking the transmission fluid level on page 121.
- Also check the transmission strainer and change the hydraulic fluid as recommended in Replacing the HST oil filter on page 132 and Changing the transmission fluid on page 134.



(1) Oil port
(2) Dipstick

- Check all hardware of the backhoe before daily operation. Tighten the hardware of the backhoe to torque values as specified in the GENERAL TORQUE SPECIFICATION on page 149.
- With the engine off and the bucket on the ground, inspect all hoses for cuts or wear. Check for signs of leaks and make sure all fittings are tight.
- For safe operation, check that the mounting pin is inserted into the hole of the main frame and the slide bar before operation.



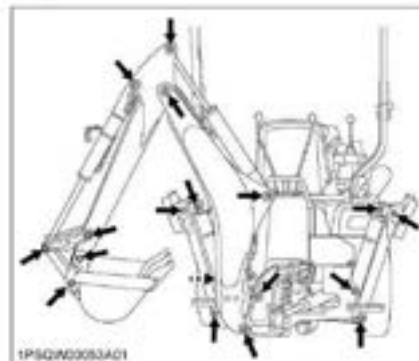
(1) Mounting pin
(2) Support hooks

SERVICE OF THE BACKHOE EVERY 10 HOURS

1. Lubricating the backhoe

KUBOTA recommends the high quality grease designated as the extreme pressure and containing the Molybdenum disulfide. Recommended grease may specify **[Moly EP]** on its label.

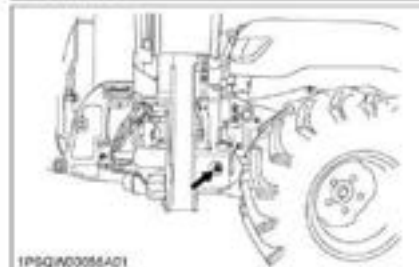
1. Lubricate all grease fittings every 10 hours of operation.



1PSQW0003A01



1PSQW0005A01



1PSQW0005A01

SERVICE OF THE BACKHOE EVERY 50 HOURS

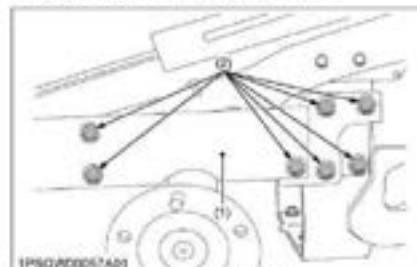
1. Checking the bolt torque of the sub frame



WARNING
To avoid serious injury or death:

- Never operate the backhoe and front loader with a loose sub frame.
- Any time the bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.

1. Check the bolts and nuts of the sub frame regularly, especially when the sub frame is new.



(1) Sub frame

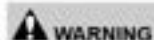
(2) Bolts

2. If the bolts and nuts of the sub frame are loose, tighten them as follows.

Tightening torque

147 N·m
(15.0 kgf-m)

SERVICE OF THE BUCKET



WARNING
To avoid serious injury or death:

- When servicing or repairing the pins in cylinder ends, bucket, and so on, always use a brass drift and a hammer. Failure to using a brass drift and a hammer could result in injury from flying metal fragments.

1. Changing the backhoe bucket

Changing the backhoe bucket becomes necessary as the type of job to be accomplished changes. In most operations of the backhoe, changing the backhoe bucket is a common occurrence.

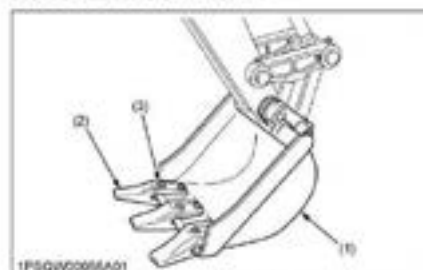
By using the following instructions, changing the backhoe bucket will be quick and easy. Always select a smooth level area to change buckets.

1. Place the backhoe bucket to be installed on its bottom near the dipperstick of the backhoe, and place the backhoe bucket to be removed.
2. Position the backhoe bucket to be removed, hydraulically, into this **natural** position, just touching the ground.

2. Service of the bucket teeth

The bucket teeth are locked with bolts on the bucket. Even though the bucket teeth are heat-treated and hard, they will eventually need replacement. As the bucket teeth become worn, the resistance of digging will increase. When the bucket teeth are worn, install new bucket teeth using new bolts.

You may remove and store the bucket teeth when work of drainage is required. Drainage type of work may not require the bucket teeth to trench.



(1) Bucket
(2) Bucket teeth

(3) Bolt

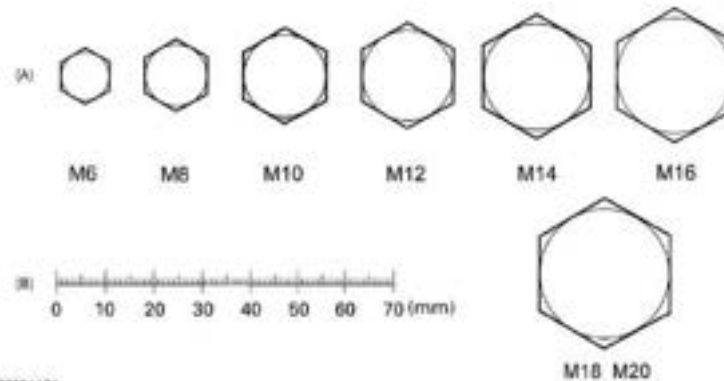
GENERAL TORQUE SPECIFICATION

American standard cap screws with UNC or UNF threads

SAE grade No.	GRS  or GRS 
1/4	7.2 lbf-ft to 8.0 lbf-ft 9.8 N-m to 11.7 N-m 1.0 kgf-m to 1.2 kgf-m
5/16	14 lbf-ft to 17 lbf-ft 19 to 23.1 N-m 1.9 kgf-m to 2.4 kgf-m
3/8	25 lbf-ft to 30 lbf-ft 33.9 to 40.7 N-m 3.5 kgf-m to 4.2 kgf-m
1/2	7.2 lbf-ft to 8.0 lbf-ft 9.8 to 11.7 N-m 1.0 kgf-m to 1.2 kgf-m
5/8	65 lbf-ft to 78 lbf-ft 88.1 to 105.8 N-m 9.0 kgf-m to 10.8 kgf-m
9/16	90 lbf-ft to 108 lbf-ft 122 to 146.4 N-m 12.4 kgf-m to 14.9 kgf-m
3/4	130 lbf-ft to 156 lbf-ft 179.3 to 211.5 N-m 18.0 kgf-m to 21.6 kgf-m

Metric cap screws

Property class	8.8 Approx. SAE GRS 
M6	7.2 lbf-ft to 8.0 lbf-ft 9.8 N-m to 11.2 N-m 1.0 kgf-m to 1.1 kgf-m
M8	17.4 lbf-ft to 20.2 lbf-ft 23.6 N-m to 27.4 N-m 2.4 kgf-m to 2.8 kgf-m
M10	35.5 lbf-ft to 41.2 lbf-ft 48.1 N-m to 55.8 N-m 4.9 kgf-m to 5.7 kgf-m
M12	67.2 lbf-ft to 86.5 lbf-ft 91.5 N-m to 118.1 N-m 9.3 kgf-m to 12.0 kgf-m
M14	91.2 lbf-ft to 108 lbf-ft 124 N-m to 147 N-m 12.6 kgf-m to 15.0 kgf-m
M16	145 lbf-ft to 186 lbf-ft 198 N-m to 255 N-m 20.0 kgf-m to 26.0 kgf-m



1/0J/D00094A01

(A) Top of head

(B) Length

STORAGE OF THE TRACTOR

WARNING

To avoid serious injury or death:

- Do not clean the tractor while the engine is operating.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- When storing the tractor, remove the starter key from the key switch to avoid unauthorized persons from operating the tractor and getting injured.

STORING THE TRACTOR

IMPORTANT:

- When washing the tractor, stop the engine. Allow sufficient time for the engine to cool before washing the tractor.
- Cover the tractor after the muffler and the engine have cooled down.
- Backhoe stabilizers may come down during storage. Keep sufficient space on the left and right sides of the tractor.

If you intend to store your tractor for an extended period of time, follow the procedures outlined as follows. These procedures will insure that the tractor is ready to operate with minimum preparation when it is removed from storage.

1. Check the bolts and nuts for looseness, and tighten them if necessary.
2. Apply grease to the areas of the tractor where bare metal will rust and to pivot areas.
3. Detach the weights from the tractor body.
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
6. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
7. Remove the battery from the tractor. Store the battery following the battery storage procedures. (See Dealing with the battery when storing the tractor for a long period on page 128.)
8. Keep the tractor in a dry place, where the tractor is sheltered from the elements. Cover the tractor.
9. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat. If the

tractor must be stored outdoors, cover it with a waterproof tarpaulin.

Jack the tractor up and place blocks under the front and rear axles so that all 4 tires are off the ground. Keep the tires out of direct sunlight and extreme heat.

REMOVING THE TRACTOR FROM STORAGE

1. Check the air pressure of the tires and inflate the tires if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Before installing the battery, be sure that it is fully charged.
4. Install the battery.
5. Check the tension of the fan belt.
6. Check the fluid levels and any attached implements.
Check the following:
 - Engine oil
 - Transmission oil and hydraulic oil
 - Engine coolant
 - Implement if any fluid is used
7. Start the engine. Check all gauges.
8. If all gauges are functioning properly and reading normal, follow the following procedure.
 - a. Move the tractor outside.
 - b. Once outside, park the tractor.
 - c. Let the engine idle for at least 5 minutes.
 - d. Shut off the engine.
9. Walk around tractor and perform a visual inspection looking for evidence of oil or water leaks.
10. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes if necessary.

REMOVING THE LOADER

HOW TO REMOVE THE LOADER

⚠ WARNING

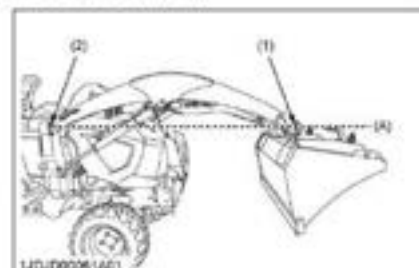
To avoid serious injury or death:

- Make sure that an approved bucket is attached before removing the loader from the tractor.
- For removing the loader, choose flat and hard ground, preferably concrete.
- If the ground surface is soft, place suitable planks on the ground for the bucket and the stand.
- When starting the engine or using the loader control lever, always sit in the operator's seat.
- Make sure that the bucket and the stand are at ground level.

1. Set the engine speed to the following speed, and then raise the boom until the bucket pin is the height of the boom fulcrum pin.

Engine speed	1800 rpm
--------------	----------

2. Dump the bucket fully.

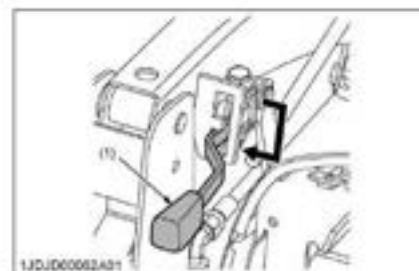


1J0/D00061A01
(1) Bucket pin
(2) Boom fulcrum pin
(A) Same height

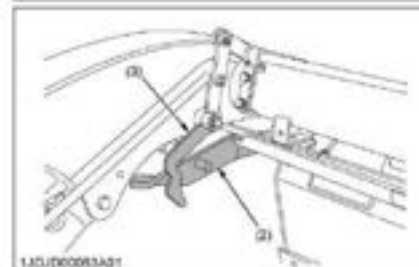
3. Slide the stand lever downward direction completely, and release the stand from the stand hook.

IMPORTANT :

- If the stand lever does not move smoothly, perform the maintenance job in Maintenance of the stand pins on page 143.

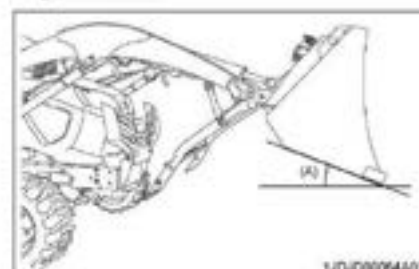


1J0/D00062A01



1J0/D00063A01
(1) Stand lever
(2) Stand hook

4. Get the bucket rolled back until its bottom is positioned the following angle with respect to the ground surface.



1J0/D00064A01
(A) Angle between ground surface and bucket bottom

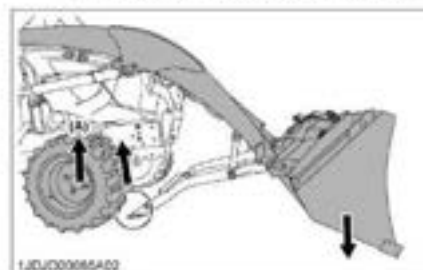
Angle between ground surface and bucket bottom (A)	About 20 degrees
--	------------------

REMOVING THE LOADER

- Lower the boom and raise the front wheels slightly.

IMPORTANT :

- The front wheels of the tractor must be lifted off the ground. When raising the front wheels, the stands are not to be grounded.



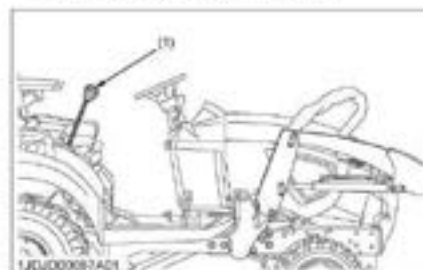
(A) Lift front wheels

- Slide the mounting levers of both sides to the upward direction.



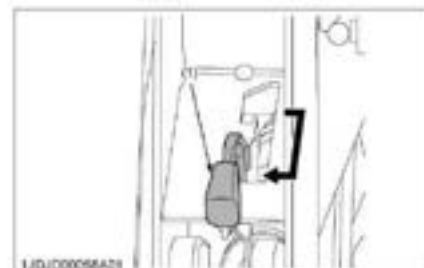
(1) Mounting lever

- Slowly move the loader control lever to the **ROLLBACK** position to raise the side frames of the loader up and out of the receivers of the main frames as shown in the following figure.



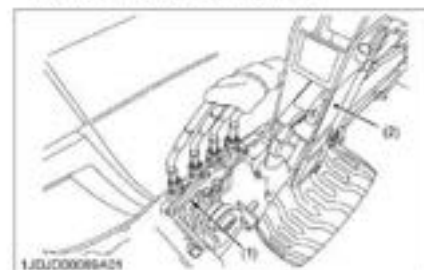
(1) Loader control lever

- Down the mounting levers of both sides as shown in the following figure.



(1) Mounting lever

- Back the tractor so that the quick coupler is positioned at the back of side frame.



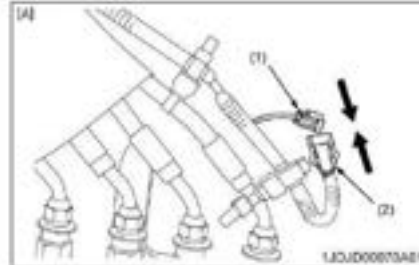
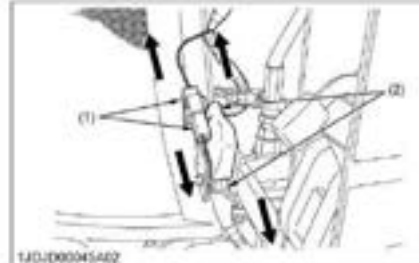
(1) Quick coupler

(2) Side frame

- Stop the engine, and slowly release all hydraulic pressure by moving the loader control lever in all directions.

STORING THE LOADER

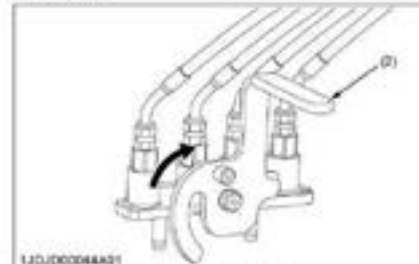
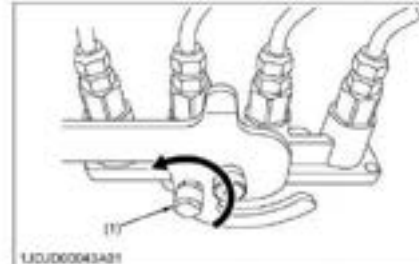
11. When the third function kit is mounted, remove the connector. Connect the caps to the connectors of mobile side and tractor side.



- (1) Cap
(2) Connector
(A) Mobile side
(B) Tractor side

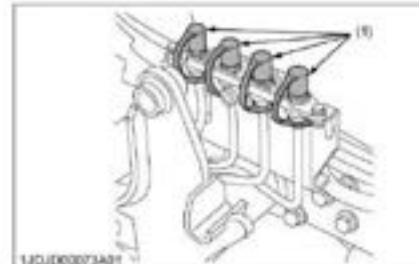
12. Unfasten the seat belt, turn the safety lock button counterclockwise to unlock it, and then raise the lever until it stops.

REMOVING THE LOADER



- (1) Safety lock button (red) (2) Lever

13. Place the protective caps and plugs on the ends of the quick coupler.



- (1) Protective caps

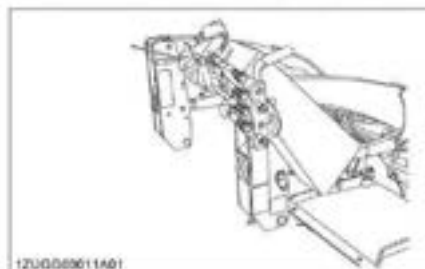
14. Wear the seat belt and slowly back the tractor away from the loader.

STORING THE LOADER

1. Store the loader in a clean, dry place.

REMOVING THE LOADER

2. Make sure that the loader is properly supported.



3. Check all hydraulic hoses and connections. Repair or replace the hoses if necessary.
4. Repair or replace any worn, damaged, or missing parts.
5. Lubricate the loader as described Lubricating the loader on page 142.
6. Apply a coat of grease to all exposed cylinder rods to prevent rust.
7. Repaint worn or scratched parts.

REINSTALLING THE LOADER

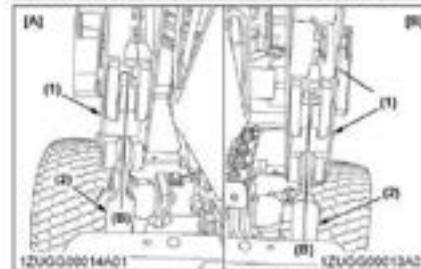
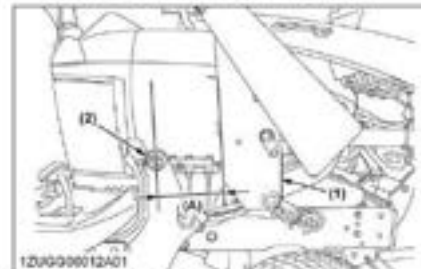
HOW TO REINSTALL THE LOADER

⚠ WARNING

To avoid serious injury or death:

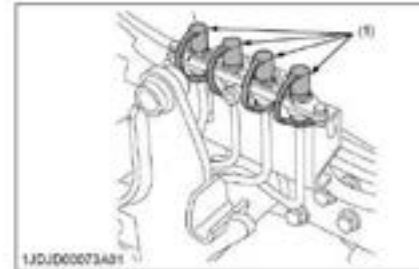
- When starting the engine and operating the hydraulic control valve, always sit in the operator's seat.

1. Slowly drive the tractor between the side frames of the loader as shown in the following figures.



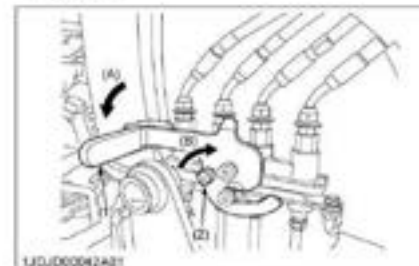
- (1) Side frame
(2) Main frame
(A) LH
(B) RH
(A) 150 mm to 300 mm
(B) Center of side frames

2. Stop the engine and slowly release all hydraulic pressure by moving the loader control lever in all directions. Unfasten the seat belt.
3. Remove the protective cap.



- (1) Protective caps

4. Connect the quick coupler and lower the lever until it stops, and then turn the safety lock button clockwise.



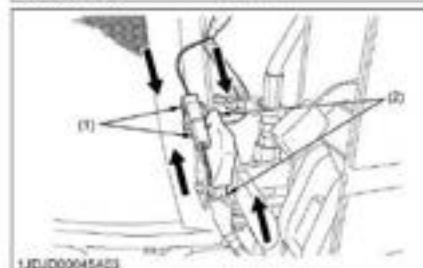
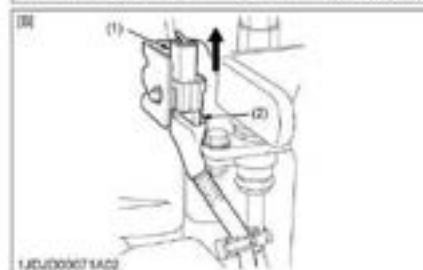
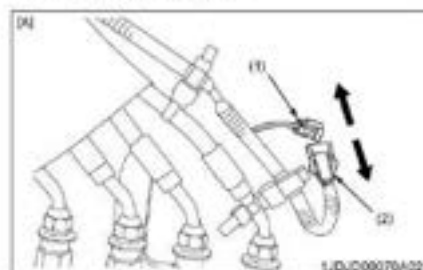
- (1) Lever
(2) Safety lock button
(A) Lower
(B) Clockwise

IMPORTANT:

- Get the quick coupler locked, and move up and down the lever to make sure that the quick coupler is tightly locked.

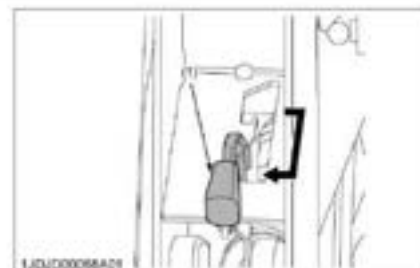
REINSTALLING THE LOADER

5. When mounting the third function kit, remove the caps from the connectors of mobile side and tractor side. Connect the connectors and the caps as shown in the follow figures.



- (1) Cap
(2) Connector
- (A) Mobile side
(B) Tractor side

6. Make sure that the mounting levers of both sides are at their low position as shown in the follow figures.

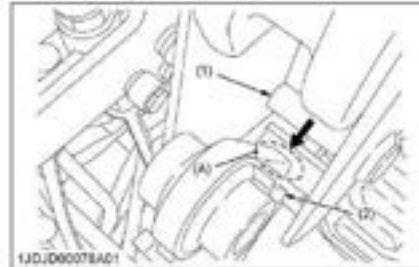


- (1) Mounting lever

7. Fasten the seat belt. Start the engine and run at the following speed.

Engine speed	1800 rpm
--------------	----------

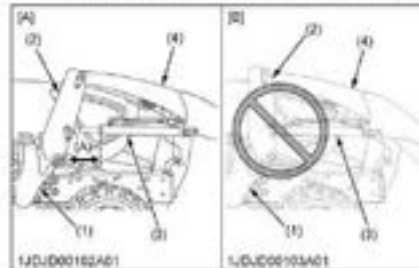
8. Slowly move the loader control lever to the UP position (boom raise direction) until left and right guide bosses of side frames (1) touches the main frames.



1J0J000078A01
(1) Guide boss of side frame (A) Touch
(2) Main frame

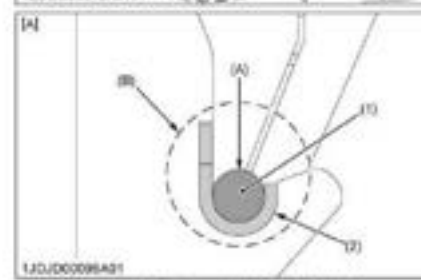
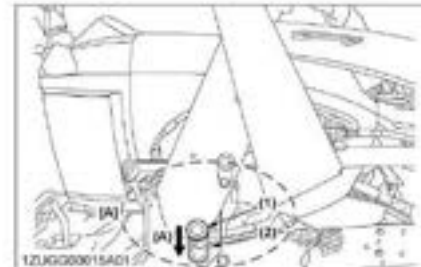
IMPORTANT :

- Do not attempt to install the side frames onto the main frames with the boom cylinders fully retracted. Expose the boom cylinder rods at least the following length before installing the loader.



1J0J000162A01
(1) Main frame
(2) Side frame
(3) Boom cylinder
(4) Boom

9. Slowly move the loader control lever to the DUMP position to lower the side frames into the main frames, and engage the left and right bosses of the side frames to the bosses of the main frames, as shown in the following figure (encircled (B)).



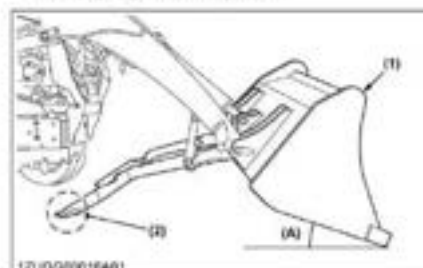
1J0J000015A01
(1) Guide boss of side frame (A) Engaging bosses
(2) Boss of main frame (A) Engage
(B) To be securely engaged

IMPORTANT :

- Make sure that the guide bosses of the side frames are engaged by the bosses of the main frames. Otherwise the loader in use may drop off the main frames, thereby damaging the tractor itself.

REINSTALLING THE LOADER

10. Make sure that the left and right bosses of the side frames are engaged by the bosses of the main frames. Then slowly move the loader control lever to the DUMP position until the bucket tilts down the following degrees to the ground.

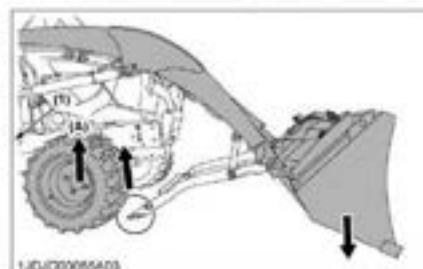


(1) Bucket
(2) Tip of the stand
(A) Angle between bucket bottom and ground

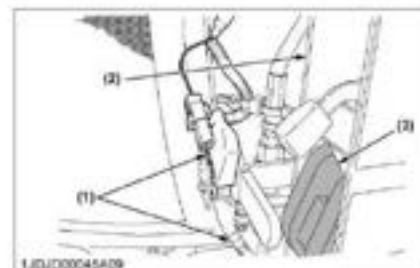
Angle between bucket bottom and ground (A)	20 degrees or so
--	------------------

IMPORTANT :

- Make sure that the tips of the stands are off the ground.
11. Slowly move the loader control lever to the DOWN position to lift the front wheels slightly with the loader until the mount hooks are completely mounted on the main frame.
- IMPORTANT :**
- The front wheels of the tractor must be lifted off the ground.
 - Make sure that the hooks at both sides are properly mounted on the main frame.
 - Never pinch the wiring harness in the side frame when mounting the third function kit.



(1) Mount hook
(A) Lift front wheels



(1) Wiring harness
(2) Side frame

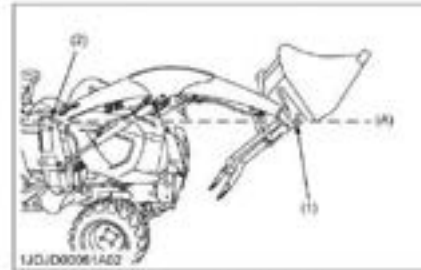
- Make sure not to pinch the wiring harness in the side frame when mounting the third function kit.

12. Slowly move the loader control lever to the UP position until the cutting edge of the bucket comes up slightly off the ground. Then make sure that the right and left mounting levers can not be activated. Do not use the machine if the cutting edge of the bucket is off the ground but the mount hooks are unlocked.



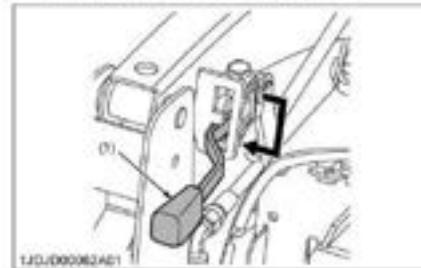
(1) Mount hook
(2) Mounting lever

13. Raise the boom until the bucket fulcrum pin comes up to the height of the boom fulcrum pin.



(1) Bucket fulcrum pin (2) Boom fulcrum pin (A) Same height

14. Make sure that the stand lever is at its LOW position as shown in the following figure.



(1) Stand lever

15. Slowly dump the bucket until the stand touches the boom.

IMPORTANT :

- Do not fold up the stand while the boom is around its highest position. Otherwise the stand links may get under an excessive load.



(1) Stand links (A) Boom highest position

16. Slide the stand lever upward direction, and then slide the stand lever left side completely as shown in the following figure.



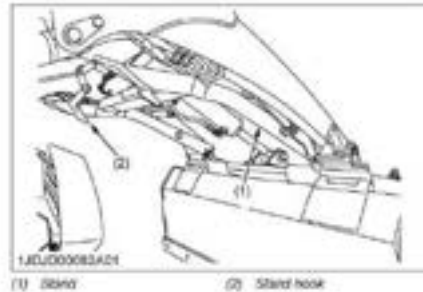
(1) Stand lever

IMPORTANT :

- Do not force the stand lever if it gets twisted halfway and fails to stow away the stand. In such case, lower the stand lever and move the bucket to the full scoop position. Then go back to step 13. and take its following steps.
- If the stand lever does not move smoothly, perform the maintenance job in Maintenance of the stand pins on page 143.

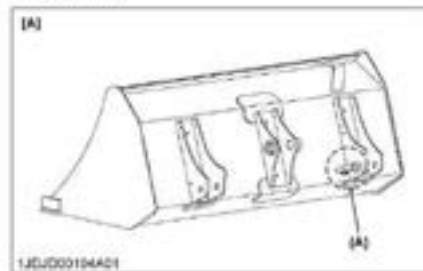
REINSTALLING THE LOADER

17. Hold the stand by stand hook.

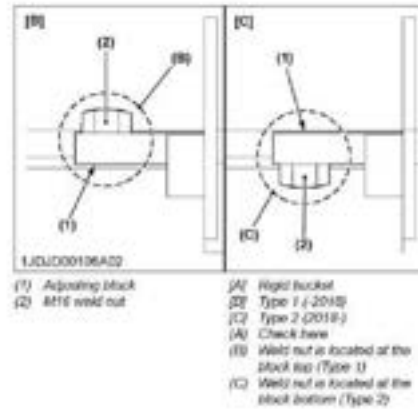


ADJUSTING THE HEIGHT OF THE LIFTING STAND

1. Check the shape (weld nut position) of the adjusting block of the rigid bucket to see whether your loader is Type 1 (-2018) or Type 2 (2018-).
2. According to your type, follow the relevant procedure to adjust the stand height.
(See How to adjust the height of the lifting stand on page 160.)



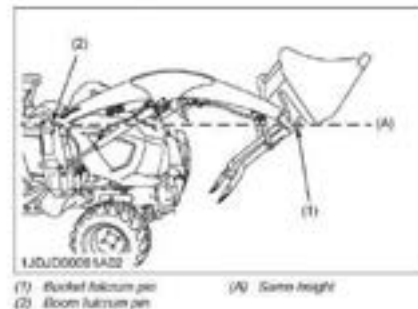
ADJUSTING THE HEIGHT OF THE LIFTING STAND



1. How to adjust the height of the lifting stand

This manual describes the adjusting procedures for Type 2 of the lifting stand. For Type 1, adjust the height following the same procedures.

1. Raise the boom until the bucket fulcrum pin comes up to the height of the boom fulcrum pin.



2. Stop the engine.

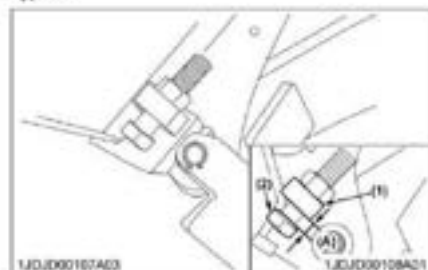
3. Make sure that the stand lever is at its low position as shown in the following figure.



(1) Stand lever

4. Tighten the adjusting bolt until the gap between it and the adjusting block is 0 mm.

Type 1



Type 2



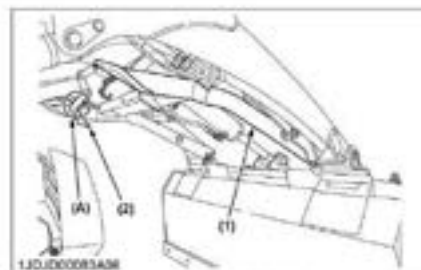
(1) 2-Adjusting block
(2) 2-M16 adjusting bolt

(A) Gap: 0 mm

NOTE:

- There is no need to tighten up the lock nuts.

5. Lift the stand and slide the stand lever in the upward direction by hand, and make sure that the stand gets locked.

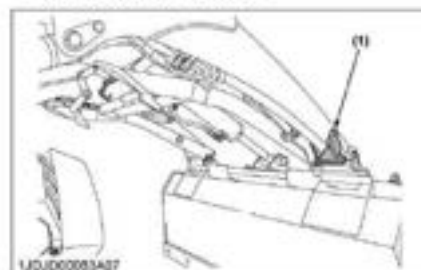


(1) Stand
(2) Stand hook



(1) Stand lever

6. Fasten the seat belt, and start the engine.
7. Move the loader control lever to the dump position, and dump the bucket slowly until the bucket is stopped by the dump stopper.

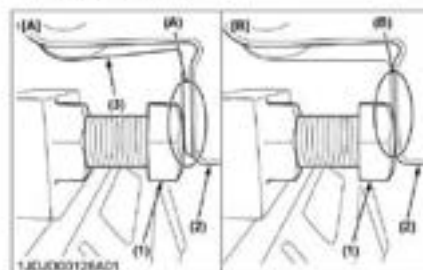


(1) Dump stopper

8. Stop the engine.

REINSTALLING THE LOADER

9. Adjust the adjusting bolt as shown in the following figure until it hits the stand, then lock the adjusting bolt with the lock nut.



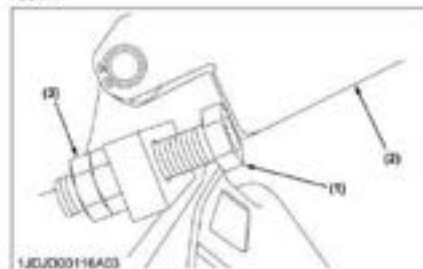
(1) Adjusting bolt
(2) Stand

(A) Good
(B) No good
(A) Not pressed
(B) Pressed

NOTE :

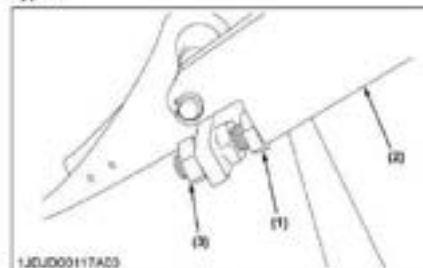
- There is no problem with the link 3 in contact with the bolt, as shown in the preceding figure.

Type 1



1JDU000116A03

Type 2



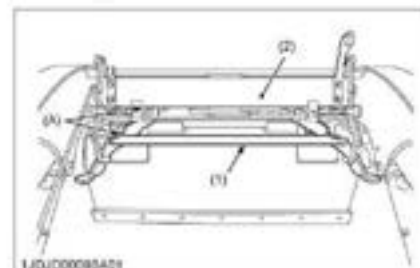
1JDU000117A03

(1) Adjusting bolt
(2) Stand

(3) Lock nut

ADJUSTING THE HEIGHT OF THE LIFTING STAND

10. Make sure that the stands run parallel with the loader pipe.

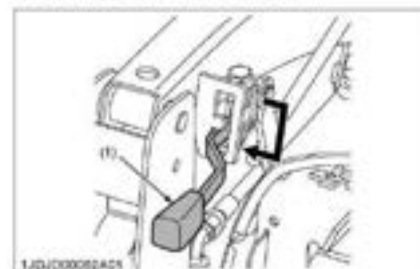


1JDU000085A01

(1) Stand
(2) Loader pipe

(A) Parallel

11. Set the stand lever to the low position.



1JDU000082A01

(1) Stand lever

12. Fasten the seat belt.

13. Get the engine started and raise the engine speed up to the following speed.

Engine speed	1000 rpm
--------------	----------

14. Raise the boom until the same height as step 1. Then roll back the bucket to maximum.

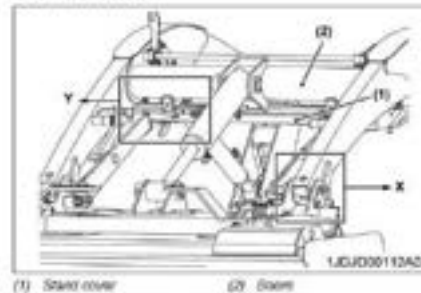
15. Slowly dump the bucket until the stand is touched to the boom.

16. Check the stand working correctly.

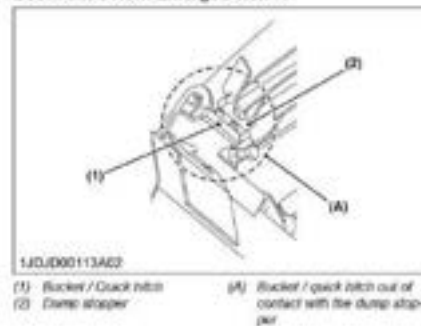
IMPORTANT :

- To prevent the stand from being damaged and unusable, take enough care of the following points.
 - In dumping the bucket slowly, keep the stand cover out of contact with the boom until the bucket/quick hitch comes into contact with the dump stoppers.
 - If the stand cover is found to come in contact with the boom (Boom front view: Enlarged view Y) before the bucket/quick hitch comes into contact with the dump stoppers (Boom front view: Enlarged view X), immediately stop the operation and readjust the bolts all over again.

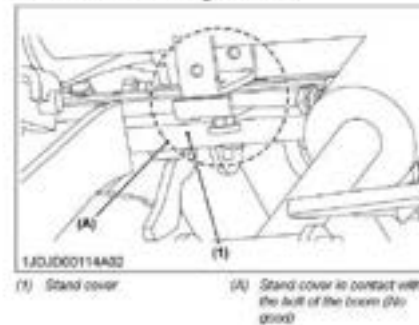
Boom front view



Boom front view: Enlarged view X



Boom front view: Enlarged view Y

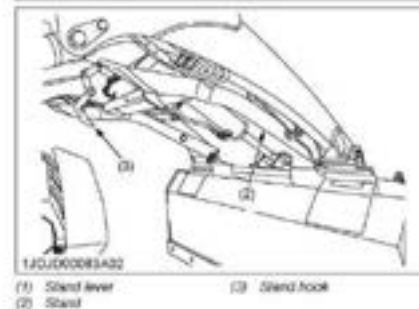


17. Roll back the bucket to maximum again. Then dump the bucket until the stand is touched to the boom.

18. Check the stand working correctly.

19. Raise the engine speed up to maximum. Then check the procedures same as step 17.

20. Slide the stand lever upward direction, and then slide the stand lever left side completely as shown in the following figure. Hold the stand by stand hook.



REMOVING THE BACKHOE

HOW TO REMOVE THE BACKHOE

⚠ WARNING

To avoid serious injury or death:

- Before starting the engine, always sit in the operator's seat of the tractor.
- Before getting off the tractor, make sure that the PTO lever is off and the range gear shift lever is in the NEUTRAL position. Then set the parking brake.
- Keep hands, feet, and body from between the tractor and the backhoe. Never allow any part of body under the machine.
- Before leaving the operator's seat of the backhoe, fully lower the boom to the ground.
- Before removing the backhoe, set the swing lock pin.

IMPORTANT :

- Before removing the backhoe, set the engine speed as follows.

Engine speed	Approximately 1500 rpm
--------------	------------------------

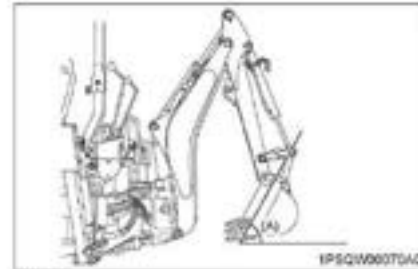
- For removing the backhoe, locate the tractor, the loader, and the backhoe on a flat level and hard surface, preferably concrete. If the surface is soft, place a board on the ground for the bucket and stabilizers.

1. Set the swing lock pin to prevent the pivoting of the boom before removing the backhoe.



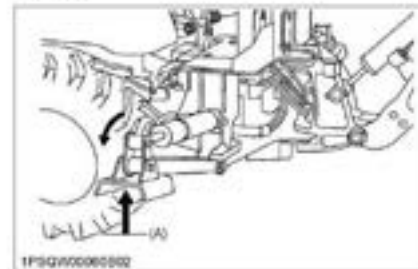
(1) Swing lock pin

2. Stand beside the rear tire, fold the boom and dipper completely, and dump the bucket to approximately 60 degrees.



(A) 60°

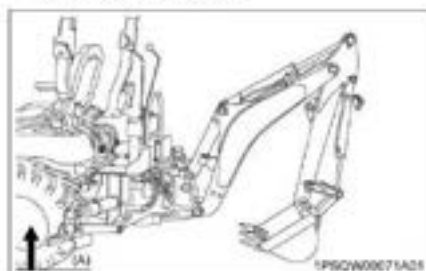
3. Keep the stabilizer pads at height of the following value.



(A) Height of stabilizer pads

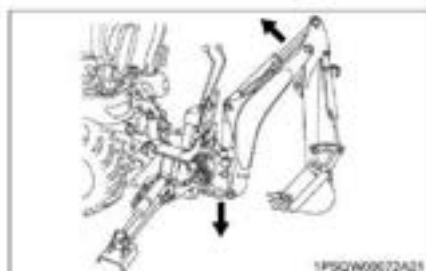
Height of stabilizer pads	About 381 mm
---------------------------	--------------

4. Lower the boom, and raise the rear wheels slightly off the ground.
While the mounting levers are pulled, the mounting pins of the main frame may turn in both directions.
When the mounting pins come to the **release** position, push the levers in the holding hole to release the mounting pins.

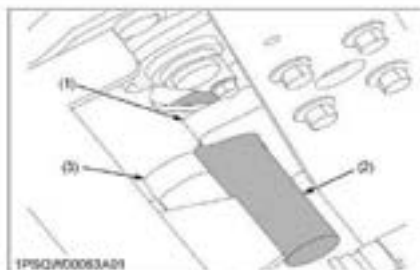


(1) Mounting lever (A) Raise slightly

5. Slowly raise the boom to disengage the backhoe from the tractor.



6. Raise the backhoe by operating the stabilizers to the lowering direction until the mount bars hit the guide stopper on the support hooks.



(1) Guide stopper (2) Mount bar (3) Support hook

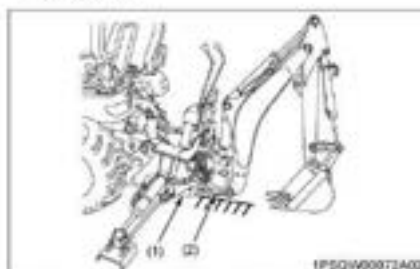
7. Move the tractor forward from the backhoe to the following value.

Distance between the tractor and the backhoe	About 200 mm
--	--------------

IMPORTANT :

- Be careful not to damage or break the hoses when moving the tractor.

8. Lower the main frame and the swing frame onto the ground by operating the boom and the stabilizer control levers.

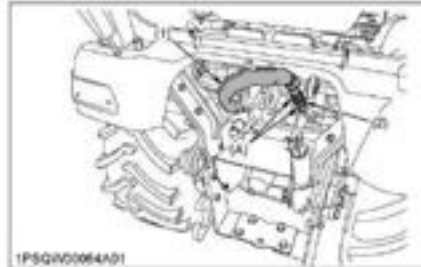


(1) Main frame (2) Swing frame

9. Shut off the engine and set the parking brake.
10. Slowly release all hydraulic pressure by moving the hydraulic control levers of the backhoe in all directions.

REMOVING THE BACKHOE

11. Disconnect the hydraulic hoses in the following manner.
 - a. Disconnect the inlet hose, the outlet hose, and the power beyond hose from the tractor.
 - b. Connect the outlet hose of the tractor to the coupler of the power beyond pipe.



- (1) Outlet hose (tractor) (A) To be connected
(2) Power beyond pipe (tractor)

- c. Cap the other couplers.
12. Restart the engine.
 13. Then drive the tractor and loader slowly away from the backhoe.
 14. Shut the engine off, and remove the key from the tractor. Set the parking brake.

IMPORTANT:

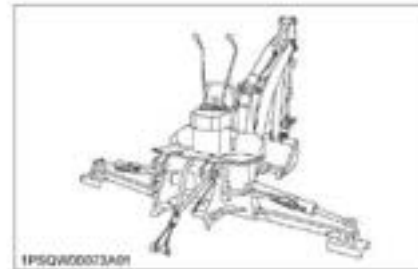
- The entire 3-point hitch can now be reinstalled on the tractor for use with other rear mount implements.
- Be sure that there is sufficient ballast in the rear tires and an implement is attached to the 3-point hitch before using the loader with the backhoe removed.

STORING THE BACKHOE

IMPORTANT:

- When storing the backhoe, install the dust caps onto the hydraulic fittings of the backhoe to prevent contamination.
1. Store the backhoe in a dry place.
 2. Apply a coat of grease to all exposed rods of the cylinder to prevent rusting.
 3. If you store the backhoe outside, cover the backhoe with suitable weather cover. Weather cover will keep moisture, dirt, and other airborne debris from getting into the system.
 4. Repair or replace any worn, damaged or missing parts.

STORING THE BACKHOE



REINSTALLING THE BACKHOE

HOW TO REINSTALL THE BACKHOE



WARNING

To avoid serious injury or death:

- When starting the engine, always sit in the operator's seat.
- When getting off the tractor, make sure that the PTO lever is off and the range gear shift lever is in the NEUTRAL position. Set the parking brake.
- Keep hands, feet, and body from between the tractor and the backhoe. Never allow any part of body under the machine.
- Make sure that the PTO of the tractor is disengaged.

IMPORTANT:

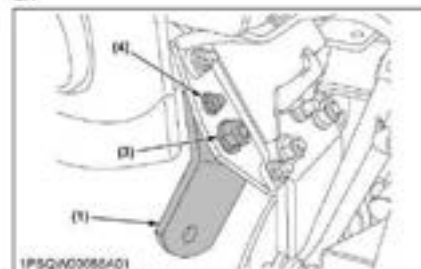
- Before reinstalling the backhoe, set the engine speed to low-idle.

1. Remove the 3-point hitch and / or drawbar (if equipped).
2. Detach the mower and grass catcher if attached in position.

NOTE:

- When removing GCK60-26BX, remove the plate link to avoid interference with backhoe.

LH



RH



- (1) Plate link LH
- (2) Plate link RH
- (3) M10 flange bolt, M10 wash-
er, M10 nut
- (4) M10 flange bolt, M10 flange
nut

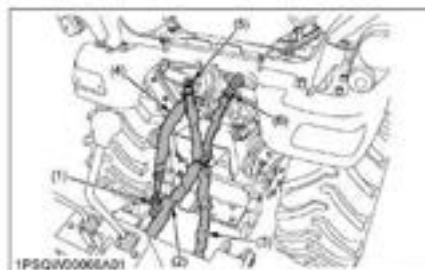
3. Make sure that the swing lock pin is installed.
4. Slowly back the tractor and the loader, centering to the main frame of the backhoe.
5. Stop the tractor keeping at the following distance from the backhoe.

Distance between the tractor and the backhoe	254 mm to 304 mm
--	------------------

6. Shut the engine off and set the parking brake.

REINSTALLING THE BACKHOE

7. Connect the inlet hose, outlet hose, and the power beyond hose of the backhoe to the outlet hose, the power beyond pipe and the return pipe of the tractor.

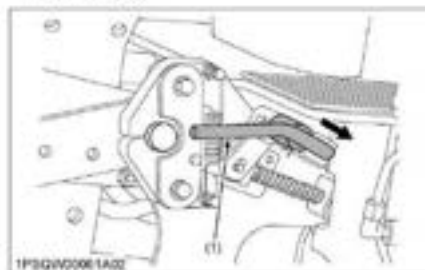


- 1PSQV0006A01
- | | |
|---------------------------------|---------------------------------|
| (1) Inlet hose (backhoe) | (4) Outlet hose (tractor) |
| (2) Outlet hose (backhoe) | (5) Return pipe (tractor) |
| (3) Power beyond hose (backhoe) | (6) Power beyond pipe (tractor) |

IMPORTANT:

- Make sure that both hoses are firmly connected before starting the engine.

8. Pull the mounting levers for left and right mounting pins of the main frame of the backhoe to release mounting pins.



- 1PSQV00061A02
- (1) Mounting lever

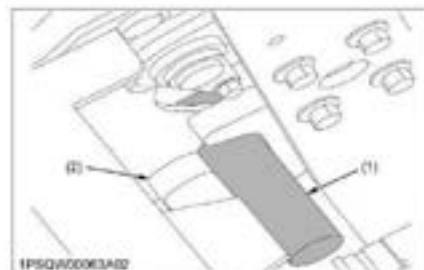
9. Restart the engine.

WARNING

To avoid serious injury or death:

- Do not move the joystick control lever to the SWING position.

10. Stand beside the rear tire. Move the boom to fully raising position and raise the backhoe by operating the stabilizers until the mount bar on the main frame of the backhoe is slightly higher than the support hooks on the main frame of the tractor.

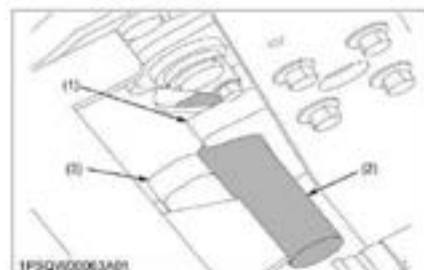


- 1PSQV00063A02
- (1) Mount bar (2) Support hook

NOTE:

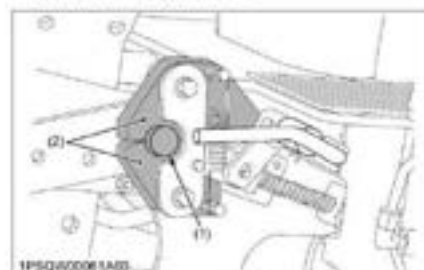
- If the support hooks are not parallel to the mount bars, adjust them with the stabilizers.

11. Move the tractor backward until the support hooks on the main frame of the tractor are just beneath the mount bars on the main frame of the backhoe.



- 1PSQV00063A01
- (1) Guide stop (2) Mount bar (3) Support hook

12. Lower the mount bars onto the support hooks by operating the stabilizer and the boom control levers.
13. Lower the boom slowly and interlock the mounting pins with the support hooks.



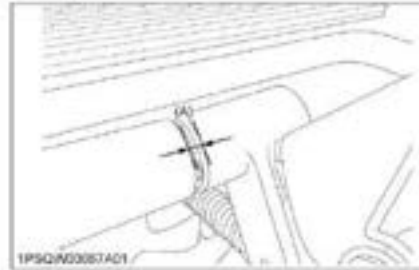
- 1PSQV00061A03
- (1) Mounting pin (2) Support hooks

14. Continue to slowly lower the boom so that the rear wheels are slightly off the ground.


WARNING

To avoid serious injury or death:

- Make sure that the left and right mounting pins are in holding position.
- When mounting, check the gap between the mounting bar and the link. If there is a gap, push the link in.



(A) Gap

The lock pins will click.

15. Operate the boom or the stabilizers to maximum lift height, and insert the lock pin of the boom.

IMPORTANT :

- If the slide bar of the mounting pins is inserted to the upper hole, the mounting pin comes off and the backhoe might come off. Therefore, insert the slide bar to the lower hole.

NOTE :

- Move the tractor, the loader, the backhoe to a vacant area and cycle all backhoe functions. Cycling all backhoe functions will check their operation and flow oil back through the system, filtering it, and refilling each circuit. Check the hydraulic oil level before putting the backhoe into full operation. See LUBRICANTS, FUEL, AND COOLANT on page 116 for oil type and correct level.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

If something is wrong with the engine, see the following table for the cause of the trouble and its corrective measure.

Trouble		Cause	Countermeasure
Engine is difficult to start or will not start.		• No fuel flow.	• Check the fuel tank and the fuel filter. Replace the filter if necessary.
		• Air or water is in the fuel system.	• Check to see if the fuel line coupler bolt and nut are tight. • Bleed the fuel system. See bleeding the fuel system on page 140. • Remove water from the system and replace the fuel filter.
		• In winter, oil viscosity increases, and engine revolution is slow.	• Use oils of different viscosity, depending on ambient temperatures.
		• Battery becomes weak, and the engine does not turn over quick enough.	• Clean battery cables and terminals. • Charge the battery. • In cold weather, always remove the battery from the engine, charge and store the battery indoors. Install the battery on the tractor only when the tractor is going to be used.
Insufficient engine power.		• Insufficient or dirty fuel.	• Check the fuel system.
		• The air cleaner is clogged.	• Clean or replace the air cleaner element.
Engine stops suddenly.		• Insufficient fuel.	• Refuel. • Bleed the fuel system if necessary.
Exhaust fumes are colored.	Black	• Fuel quality is poor.	• Change the fuel and the fuel filter.
		• Too much oil.	• Check the proper amount of oil.
		• The air cleaner is clogged.	• Clean or replace the air cleaner element.
	Blue white	• The inside of exhaust muffler is damp from fuel.	• Heat the muffler by applying load to the engine.
		• Injection nozzle trouble.	• Check the injection nozzle.
		• Fuel quality is poor.	• Change the fuel and fuel filter.
Engine overheats.		• Engine overloaded.	• Shift to lower gear or reduce load.
		• Low coolant level.	• Fill cooling system to the correct level. Check the radiator and the hoses for loose connections or leaks.
		• Loose or damaged fan belt.	• Adjust or replace the fan belt.
		• Dirty radiator core or grille screens.	• Remove all trash.
		• Coolant flow route corroded.	• Flush the cooling system.

If you have any questions, consult your local KUBOTA Dealer.

BATTERY TROUBLESHOOTING

Symptom (If)	Cause	Remedy	Preventive measure
The starter does not function.	• Battery overvoltage, dim lights.	• Charge the battery sufficiently.	• Charge the battery properly.
	• The battery has not been recharged.	• Adjust the fan belt.	
	• Poor terminal connection.	• Clean the terminal and tighten securely.	• Keep the terminal clean and tight. Apply grease and treat with anti-corrosion.
	• The battery life has expired.	• Replace the battery.	
The starter does not function from the beginning, and lights soon become dim.	• Insufficient charging.	• Charge the battery sufficiently.	• The battery must be serviced properly before initial use.
When viewed from the top, the top of the plates look whitish.	• The battery was used with an insufficient amount of electrolyte.	• Add distilled water and charge the battery.	• Regularly check the electrolyte level.
	• The battery was used too much without recharging.	• Charge the battery sufficiently.	• Charge the battery properly.
Recharging is impossible.	• The battery life has expired.	• Replace the battery.	
Terminals are severely corroded and heated up.	• Poor terminal connection.	• Clean the terminal and tighten securely.	• Keep the terminal clean and tight. Apply grease and treat with anti-corrosion.
The battery electrolyte level drops rapidly.	• There is a crack or pin holes in the electrolyte cells.	• Replace the battery.	
	• Charging system trouble.	• Contact your local Kubota Dealer.	

If you have any questions, contact your local Kubota Dealer.

MACHINE TROUBLESHOOTING

If	Probable cause	Remedy
The machine operation is not smooth.	• Transmission oil is insufficient.	• Fill transmission oil.
The machine does not move while the engine is running.	• The parking brake is on.	• Release the brake.
	• Transmission oil is insufficient.	• Fill transmission oil.
Machine moves when speed control pedal is not depressed. (Engine is operated.)	• Hydraulic neutral system is not correctly adjusted.	• Adjust HST neutral position.
Mower will not lift.	• Transmission oil is insufficient.	• Fill transmission oil.
PTO does not rotate.	• PTO clutch lever is in neutral.	• Engage the PTO clutch lever.
Front wheels wander to right or left.	• Improper toe-in adjustment.	• Adjust.

If you have any questions, contact your local KUBOTA Dealer.

FRONT LOADER TROUBLESHOOTING

Symptom	Probable cause	Solution
Boom does not rise.	• Oil filter is clogged.	• Clean or replace oil filter.
	• Hydraulic hose is damaged.	• Replace hydraulic hose.
Boom does not lower.	• Control lever linkage is damaged.	• Repair or replace control lever linkage.
Boom speed is insufficient.	• Boom cylinder tube is worn or damaged.	• Replace boom cylinder tube.
	• Transmission fluid is insufficient.	• Fill transmission fluid.
Bucket does not move.	• Control lever linkage is damaged.	• Repair or replace control lever linkage.
	• Oil filter is clogged.	• Clean or replace oil filter.
	• Hydraulic hose is damaged.	• Replace hydraulic hose.
Bucket speed is insufficient.	• Bucket cylinder tube is worn or damaged.	• Replace bucket cylinder tube.
	• Oil leaks from tube joints.	• Repair tube joints.
	• Transmission fluid is insufficient.	• Fill transmission fluid.
Front end loader falls by its weight.	• Boom cylinder tube is worn or damaged.	• Replace boom cylinder tube.
	• Oil leaks from tube joints.	• Repair tube joints.

If you have any questions, contact your local KUBOTA Dealer.

BACKHOE TROUBLESHOOTING

Symptom	Probable cause	Solution
All functions inoperative (Front loader is OK).	• Quick coupler disconnected.	• Reconnect.
All functions including front loader, are inoperative.	• Transmission fluid is insufficient.	• Fill transmission fluid.
	• HST oil filter is clogged.	• Replace HST oil filter.
Hydraulic oil overheats.	• Continuous operation against relief.	• Operate properly.
	• Transmission fluid improper brand and viscosity.	• Use proper fluid.
	• Transmission fluid is insufficient.	• Fill transmission fluid.
	• HST oil filter is clogged.	• Replace HST oil filter.
Excessive cylinder movement.	• Hydraulic hose or fitting damaged.	• Replace.
	• Hydraulic hose or fitting loose.	• Retighten.
	• Cylinder tube worn or damaged.	• Replace.
Insufficient cylinder speed.	• Engine rpm too low.	• Adjust rpm.
	• Transmission fluid is insufficient.	• Fill transmission fluid.

If you have any questions, contact your local KUBOTA Dealer.

OPTIONS

OPTION ITEMS

Consult your local KUBOTA Dealer for further details of the following options.

- 18 x 8.5-10 Turf Tire
- 26 x 12.0-12 Turf Tire
- 18 x 8.50-10 R14 Tire
- 26 x 12.00-12 R14 Tire
- Rear work light
 - For high visibility for night work
- Rear wheel weight
- Tool box

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