Kubota

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KUBOTA Corporation

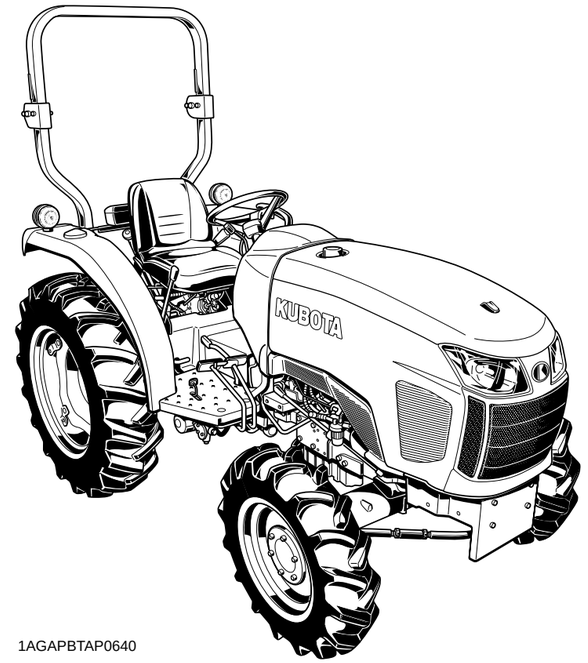
English (U.S.A.)
Code No. TC550-1971-5

L2501

OPERATOR'S MANUAL

KUBOTA TRACTOR

MODEL L2501



1AGAPBTAP0640

READ AND SAVE THIS MANUAL

PRINTED IN JAPAN

Kubota

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
GST	Glide Shift Transmission
Hi-Lo	High Speed-Low Speed
HST	Hydrostatic Transmission
m/s	Meters Per Second
PTO	Power Take Off
RH/LH	Right-hand and left-hand sides are determined by facing in the direction of forward travel
ROPS	Roll-Over Protective Structures
rpm	Revolutions Per Minute
r/s	Revolutions Per Second
SAE	Society of Automotive Engineers, USA
SMV	Slow Moving Vehicle

California Proposition 65

⚠ WARNING ⚠

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

IMPORTANT

The engine in this machine is equipped by the manufacture with a standard spark arrester. It is a violation of California Public Resource Code Section 4442 to use or operate this engine on or near any forest-covered, brush-covered land, or grass- covered land unless the exhaust system is equipped with a working spark arrester meeting state laws. Other states or federal areas may have similar laws.

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

KUBOTA Corporation is ...

Since its inception in 1890, KUBOTA Corporation has grown to rank as one of the major firms in Japan.

To achieve this status, the company has through the years diversified the range of its products and services to a remarkable extent. 30 plants and 35,000 employees produce over 1,000 different items, large and small.

All these products and all the services which accompany them, however, are unified by one central commitment. KUBOTA makes products which, taken on a national scale, are basic necessities. Products which are indispensable. Products which are intended to help individuals and nations fulfill the potential inherent in their environment. KUBOTA is the Basic Necessities Giant.

This potential includes water supply, food from the soil and from the sea, industrial development, architecture and construction, and transportation.

Thousands of people depend on KUBOTA's know-how, technology, experience and customer service. You too can depend on KUBOTA.

L2501
AX. L. 11-27. 20. K

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


Fuel-Level

Engine-Rotational Speed


Hourmeter/Elapsed Operating Hours


Engine Coolant-Temperature


Diesel Preheat/Glow Plugs (Low Temperature Start Aid)


Battery Charging Condition


Engine Oil-Pressure


Turn Signal

Engine-Stop


Engine-Run


Starter Control


Power Take-Off Control-Off Position


Power Take-Off Control-On Position


Differential Lock


Position Control-Raised Position


Position Control-Lowered Position


Draft Control-Shallow Position


Draft Control-Deep Position


3-Point Lowering Speed Control


OFF


Remote Cylinder-Retract


Remote Cylinder-Extend


Steering Wheel-Tilt Control


Hazard Warning Lights


Master Lighting Switch


Headlight-Low Beam


Headlight-High Beam


Audible Warning Device


4-Wheel Drive-On


4-Wheel Drive-Off


Fast


Slow


Creep


Read Operator's Manual


Tractor-Forward Movement-Overhead View of Machine


Tractor-Rearward Movement-Overhead View of Machine


Engine Speed Control


Brake System


Clutch

Parking Brake

FOREWORD

You are now the proud owner of a KUBOTA Tractor. This tractor is a product of KUBOTA quality engineering and manufacturing. It is made of fine materials and under a rigid quality control system. 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 quickly as possible every advance in our research. The immediate use of new techniques in the manufacture of products may cause some small parts of this manual to be outdated. KUBOTA distributors and dealers will have the most up-to-date information. Please do not hesitate to consult with 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.

CONTENTS

SAFE OPERATION

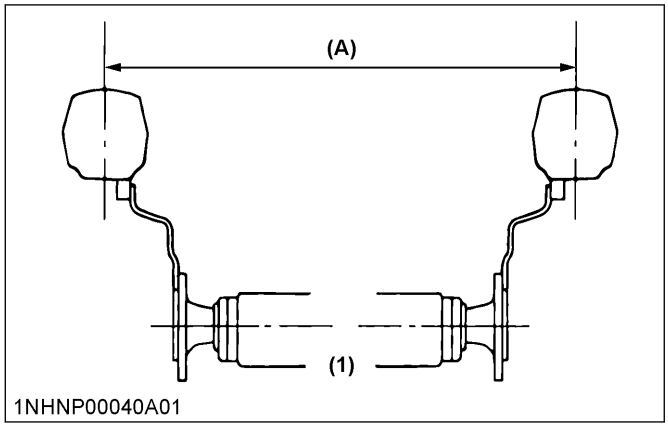
Careful operation is your best insurance against an accident.
Read and understand this manual carefully before operating the tractor.
All operators, no matter how much they have experienced, should read this and other related manuals before operating the tractor or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

PRECAUTIONS BEFORE OPERATING THE TRACTOR

Know your equipment and its limitations.
Read this entire manual before starting and operating the tractor.

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.
- 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 tractor seat during operating the tractor.
- Check 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 SERVICE INTERVALS on page 71)
- 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 listed under IMPLEMENT LIMITATION TABLES on page 22, or implements approved by KUBOTA.
- 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 improve stability. Follow the safe operating procedures specified in the implement manual or the attachment manual.
- The narrower the tread, the greater the risk of a tractor upset. For maximum stability, adjust the wheels to the widest practical tread width for your application.
  (See WHEEL ADJUSTMENT on page 66)



(1) Rear wheels *(A) Tread width*

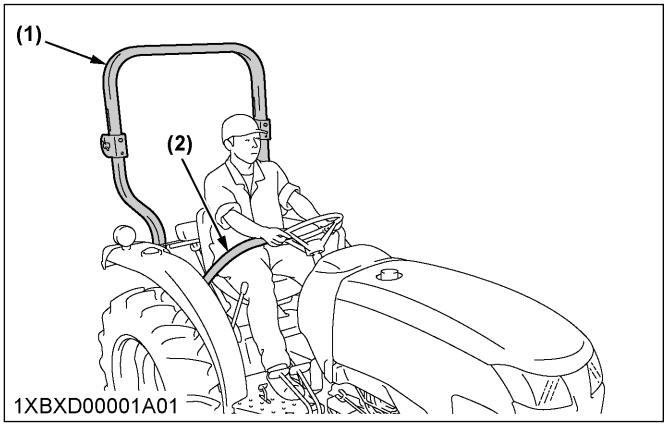
- Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

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 which may interfere with a CAB or ROPS.
- Set the parking brake and stop the engine. Remove any obstructions which 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 ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
- Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting it may weaken the structure.

- If any structural member of the CAB or 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 place 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 is equipped with a CAB or 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 if frayed or damaged.



(1) ROPS *(2) Seat belt*

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 which can affect overturning hazards include traveling and turning with implements and loads carried too high, and so on.
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.

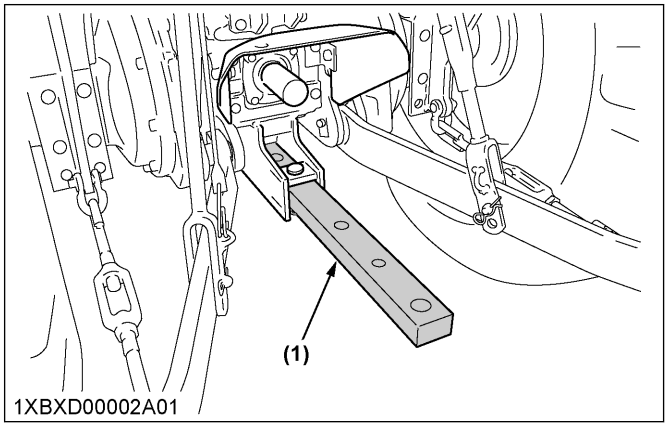
1. Precautions for starting to operate the tractor

- Always sit in the operator's seat when starting the engine or operating levers or controls. Adjust the operator's seat according to Operator's seat on page 32. 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 both the clutch and the power take-off (PTO) are disengaged or *"OFF"*.
  Fasten the seat belt if the tractor is equipped with a CAB 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 the safety systems.
  – **[Manual transmission type]**
    See Checking the engine start system [Manual transmission type] on page 85 and Checking the operator presence control on page 86.
  – **[HST type]**
    See Checking the engine start system [HST type] on page 86 and Checking the operator presence control on page 86.

  Do not operate unless they are functioning correctly.

2. Precautions for working the tractor

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



(1) Drawbar

- For trailing the PTO-driven implements, set the drawbar to the towing position.
- Attach pulled or towed loads to the drawbar only.
- 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 attempt to turn with the differential locked because it could be dangerous.
- Do not operate 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 the trailed vehicle unless parking brake is applied.

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.

4. Avoiding crystalline silica (quartz) dust

To avoid serious injury or death from silica dust:

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

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

5. Precautions for operating the tractor on slopes

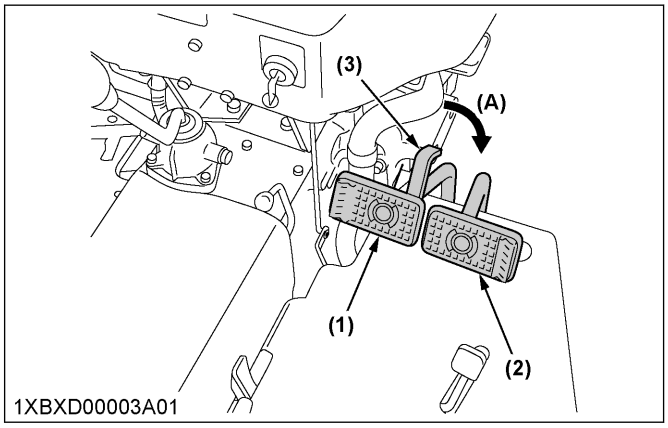
Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death.
All slopes require extra caution.

- To avoid upsets of the tractor, always back it up steep slopes. If you cannot back the tractor up on the slope or if you feel uneasy to back it up on the slope, do not operate on it. Stay off slopes 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 slopes.
- Keep all movement of the tractor on slopes slow and gradual. Do not change speed or direction of the tractor suddenly. Do not apply brake suddenly. Do not move the steering wheel suddenly.
- Avoid disengaging the clutch or changing gears speed when the tractor is climbing or going down a slope. If operating the tractor on a slope, disengaging the clutch or changing gears to neutral 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, set the widest wheel tread.
  (See WHEEL ADJUSTMENT on page 66)
  Follow recommendations for proper ballasting.
  (See BALLAST on page 69)

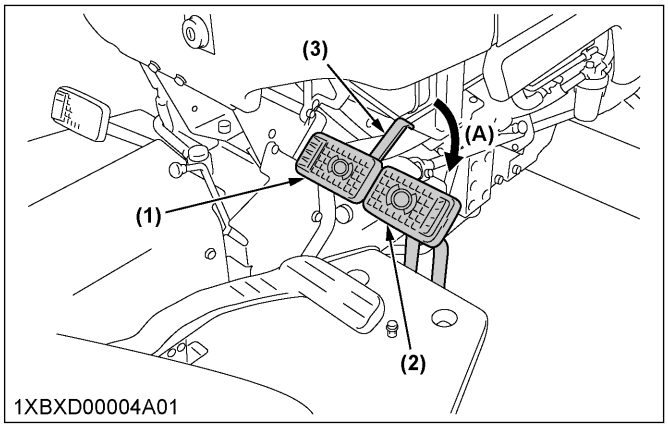
6. Precautions for driving the tractor on the road

- Lock the two brake pedals together to help assure straight-line stops. Uneven braking at road speeds could cause the tractor to tip over.

[Manual transmission type]

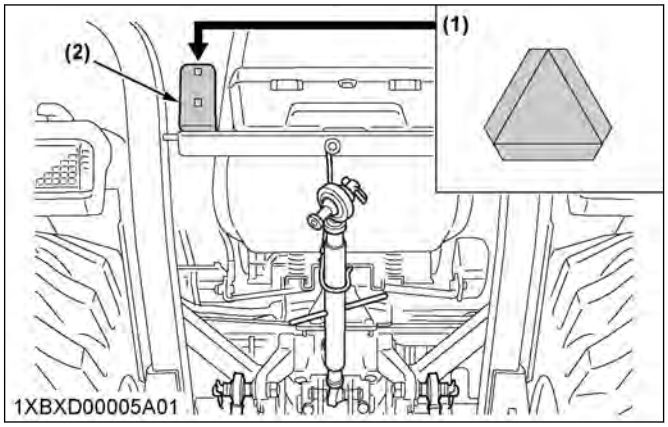


[HST type]



(1) Brake pedal (LH)
(2) Brake pedal (RH)
(3) Brake pedal lock
(A) Whenever traveling on the road

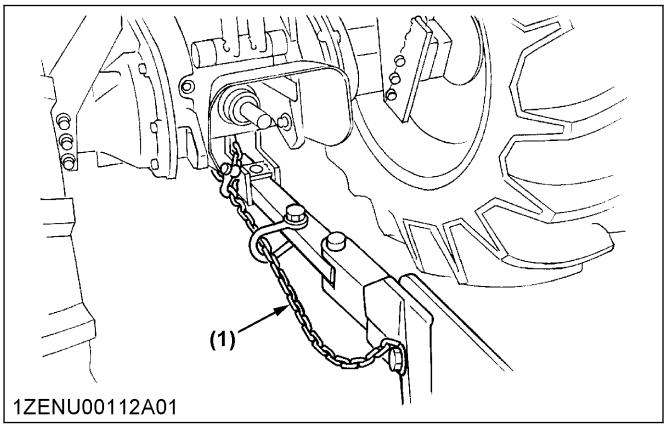
- Check the engagement of front wheel. The braking characteristics are different between 2-wheel drive and 4-wheel drive. Know the difference and use carefully.
- Always slow the tractor down before turning. Turning at high speed may tip the tractor over.
- Make sure that the slow-moving-vehicle (SMV) sign is clean and visible. Use the hazard lights and turn signals as required.



(1) SMV emblem
(2) Bracket

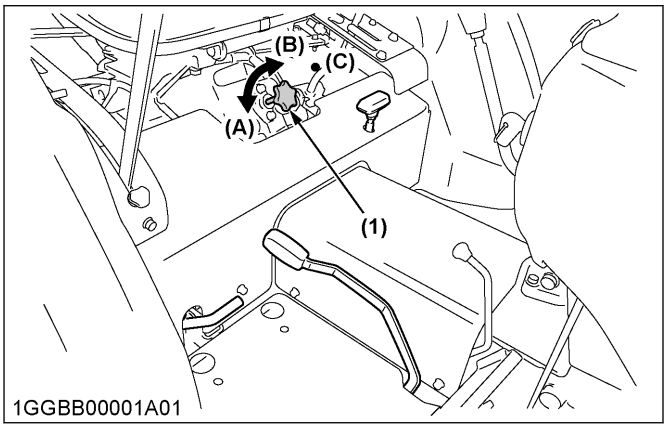
- Follow all local traffic and safety regulations.

- Turn the headlights on. Dim the headlights when meeting another vehicle.
- Drive at speeds that allow you to maintain 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 as 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.
- When towing other equipment, use a safety chain and place an SMV emblem on the equipment as well.



(1) Safety chain

- Set the 3-point hitch lowering speed knob in the *"LOCK"* position to hold the implement in the raised position.



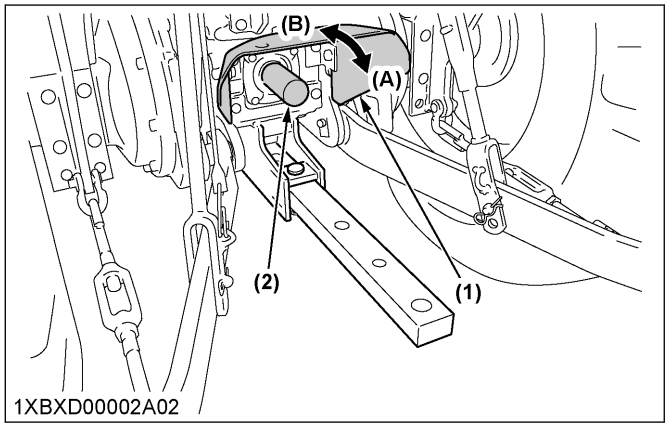
(1) 3-point hitch lowering speed knob
(A) Fast
(B) Slow
(C) Lock

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.
- Make sure that the tractor has come to a complete stop before dismounting from it.
- 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 this warning may allow the tractor to move and could cause injury or death.

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 PTO-driven-equipment, read the manufacturer's manual and review the safety labels attached to the equipment.
- When operating stationary PTO-driven-equipment, always apply the tractor parking brake and place chocks behind and in front of the rear wheels. Stay clear of all rotating parts. Never step over rotating parts.

PRECAUTIONS FOR USING 3-POINT HITCH

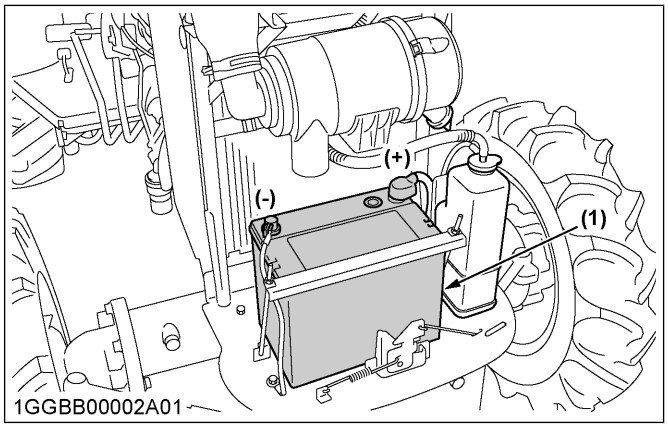
- Use the 3-point hitch only with equipment designed for 3-point hitch usage.
- When using a 3-point-hitch-mounted-implement, be sure to install the proper counterbalance-weight on the front of the tractor.

PRECAUTIONS FOR SERVICING THE TRACTOR

Before servicing the tractor, follow the following procedure.

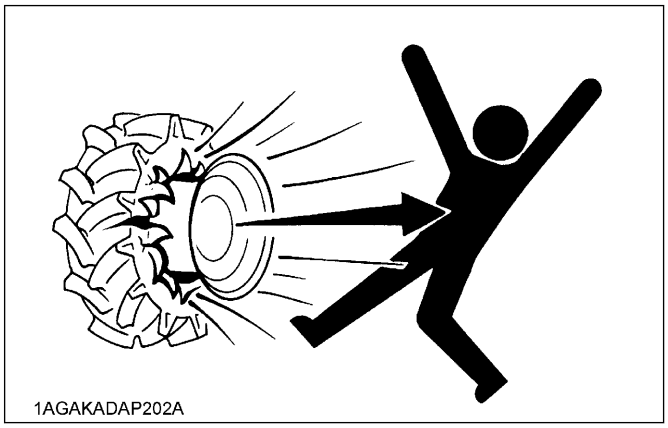
1. park the tractor on a firm, flat, and level surface.
2. Set the parking brake.
3. Lower all implements to the ground.
4. Place the gear-shift-lever in the neutral position.
5. Stop the engine.
6. Remove the starter key.

- 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 81)
- Always stop the engine before refueling. Avoid spills and overfilling.
- Do not smoke 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.
- Before jump starting a dead battery, read and follow all of the instructions.
  (See JUMP STARTING THE ENGINE on page 42)
- 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.

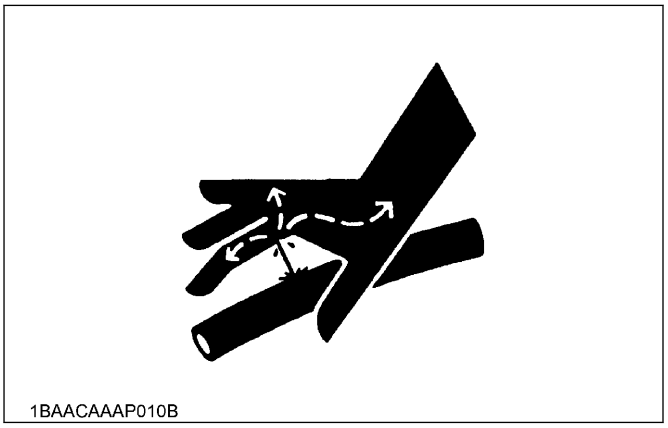


(1) Battery

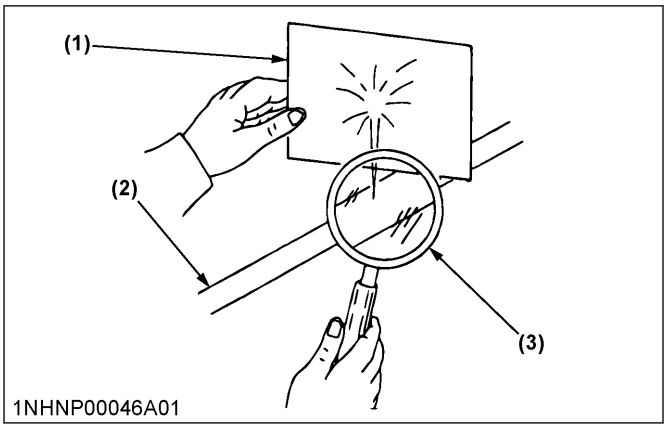
- Do not mount a tire on a rim. A qualified person should mount a tire on a rim with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure shown in Inflation pressure of tires on page 66.



- 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 ADJUSTMENT on page 66)
- 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, be sure to 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.



- 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.



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

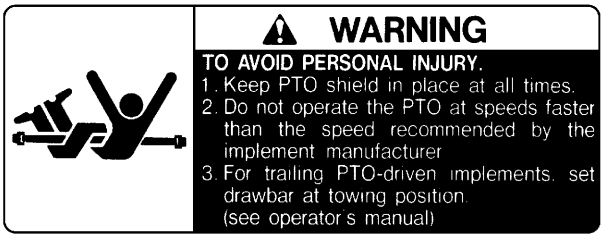
- Do not open high-pressure fuel system.
  High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect nor attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high-pressure-common-rail-fuel-system.
- To avoid hazardous high voltage, turn the key switch to the *"OFF"* position if it is necessary to check to repair the computer, harness, or connectors.
- Keep the tractor away from people, animals, or structures which may be susceptible to harm or damage from hot exhaust gases.
- To avoid fire hazard:
  After use and pressure-washing, make sure there is nothing flammable near the exhaust pipe. Grass or twigs under the hood may cause fire.
- The improper disposal or burning of waste causes environmental pollution and can be punishable by your local laws and regulations.
  – When draining fluids from the tractor, place a container underneath the drain port.
  – Do not pour waste onto the ground, down a drain, or into any water source (such as rivers, streams, lakes, marshes, seas and oceans).
  – Waste products such as used oil, fuel, coolant, hydraulic fluid, urea aqueous solution (DEF/AdBlue®), refrigerant, solvent, filters, rubber, batteries and harmful substances, 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.

SAFETY LABELS

(1) Part No. TA040-4965-2

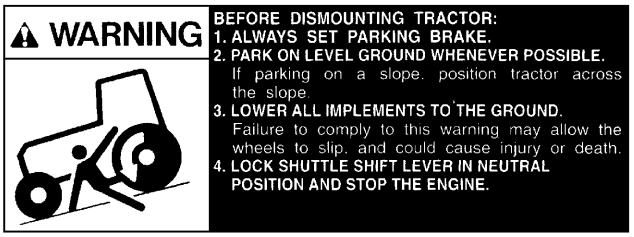
1AGAMAAAP2450

(2) Part No. TA040-4959-3



1AGAMAAAP2470

(3) Part No. TA040-4933-3 [Manual Transmission type]



1AGAMAAAP4000

(3) Part No. TD170-4933-1 [HST type]

1AGAMAAAP3720

1GGBB00033A01enUS

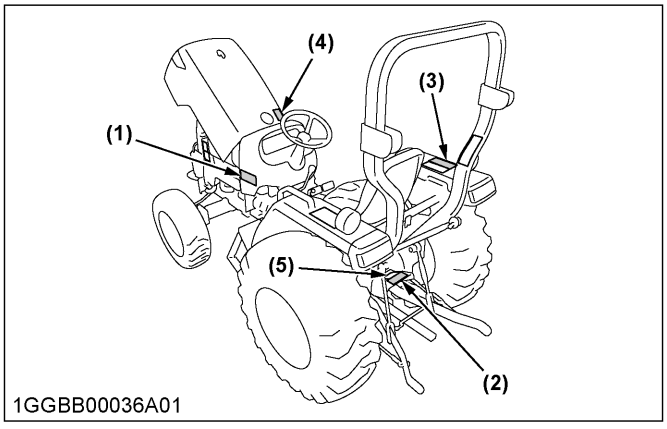
(4) Part No. TC420-4956-1

Diesel fuel only No fire

1AGAIDHAP154E

(5) Part No. TA040-4935-1

1AGAMAAAP2500



1GGBB00036A01

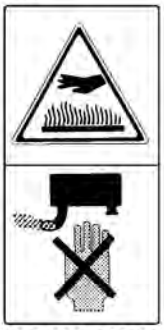
(1) Part No. TD020-3012-4

1AGAPBTAP2000

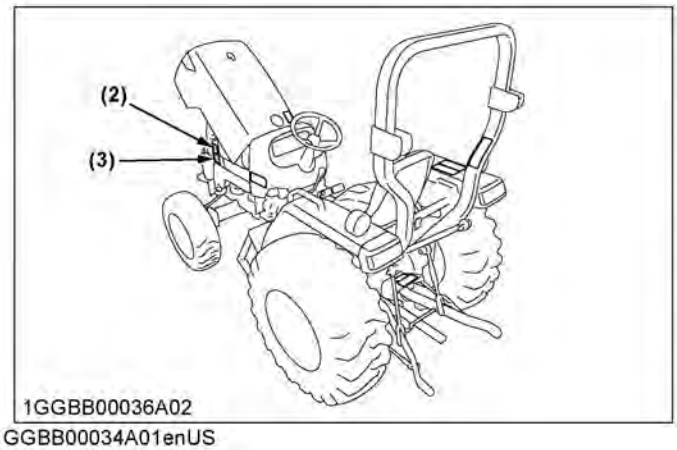
(2) Part No.
6C090-4958-2
Do not get your hands close to engine fan and fan belt.

1AGAMAAAP2620

(3) Part No.
TC030-4958-1
Do not touch hot surface like muffler. etc.



1AGAMAAAP2400



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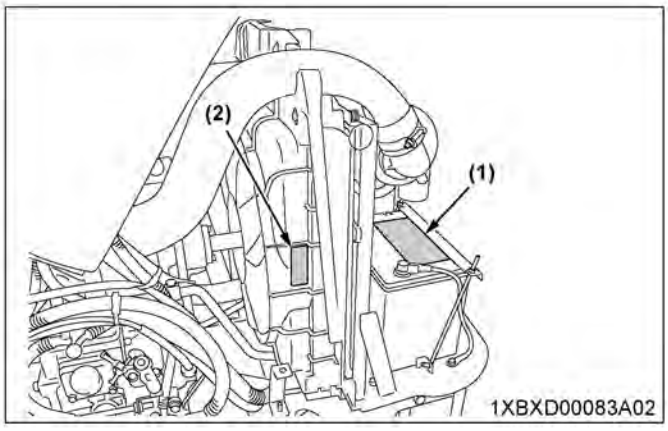
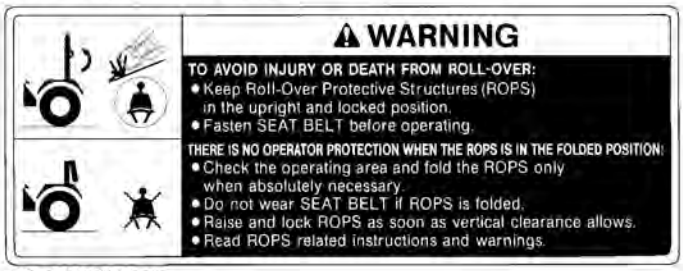


1XBXD00083A02

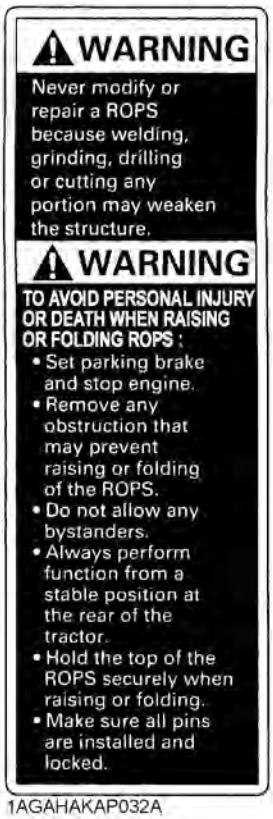
1GGBB00034A01enUS

(1) Part No. TA240-9848-2

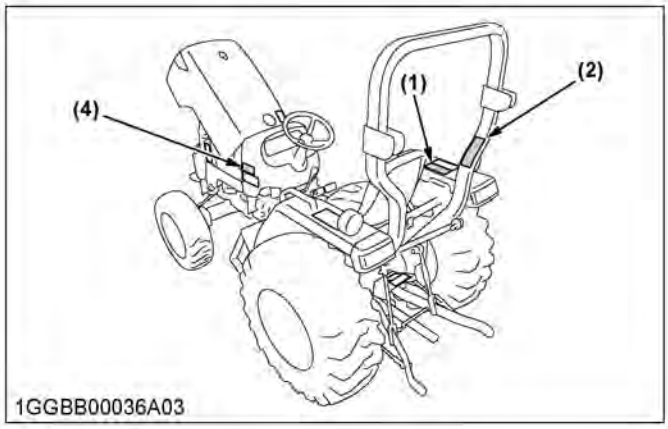


1AGAEBMAP071E

(2) Part No. 6C540-9554-1



1AGAHAKAP032A



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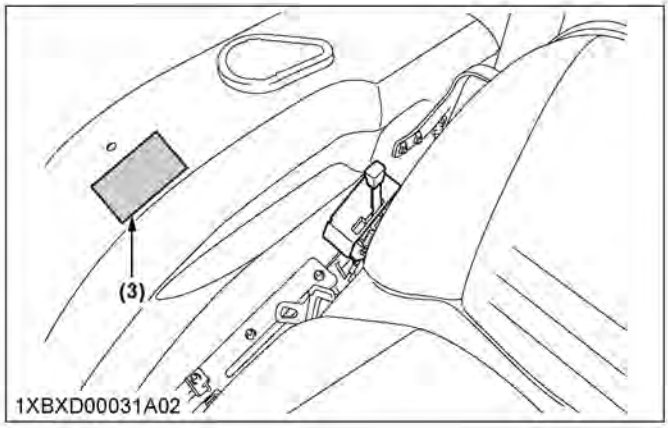
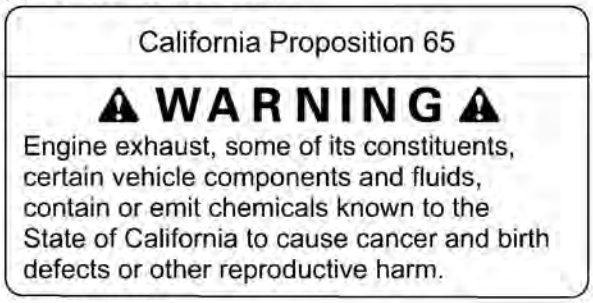


1XBXD00031A02

(3) Part No. TC650-6597-1



1AGAHAKAP0660

(4) Part No. 3J080-3822-1

1GGBB00035A01enUS

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

⚠WARNING

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

1AGAIHFAP069A

(3) Part No. TC660-4997-1

⚠WARNING

TO AVOID PERSONAL INJURY OR DEATH:

1. Read and understand the operator's manual before operation.
2. Before starting the engine, make sure that everyone is at a safe distance from the tractor and that the PTO is OFF.
3. Do not allow passengers on the tractor at any time.
4. Before allowing other people to use the tractor, have them read the operator's manual.
5. Check the tightness of all nuts and bolts regularly.
6. Keep all shields in place and stay away from all moving parts.
7. Lock the two brake pedals together before driving on the road.
8. Slow down for turns, or rough roads, or when applying individual brakes.
9. On public roads use SMV emblem and hazard lights, if required by local traffic and safety regulations.
10. Pull only from the drawbar.
11. Before dismounting, lower the implement to the ground, set the parking brake, stop the engine and remove the key.
12. Securely support tractor and implements before working underneath.

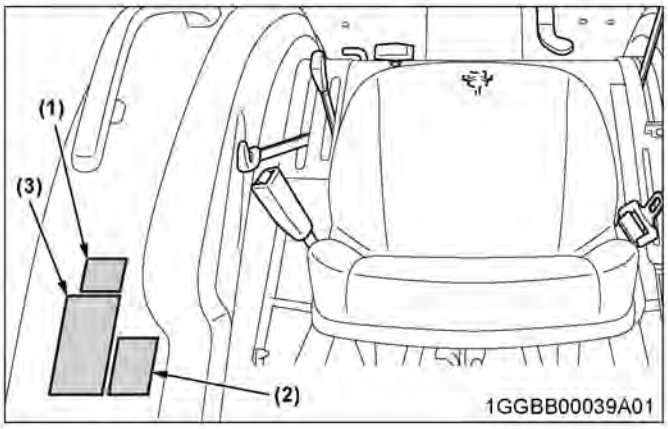
1AGAHAKAP0460

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

⚠WARNING

TO AVOID EXPOSURE TO DUST CONTAINING SILICA PARTICLES:

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



1GGBB00038A01enUS

⚠ SAFE OPERATION

1. Care for safety labels

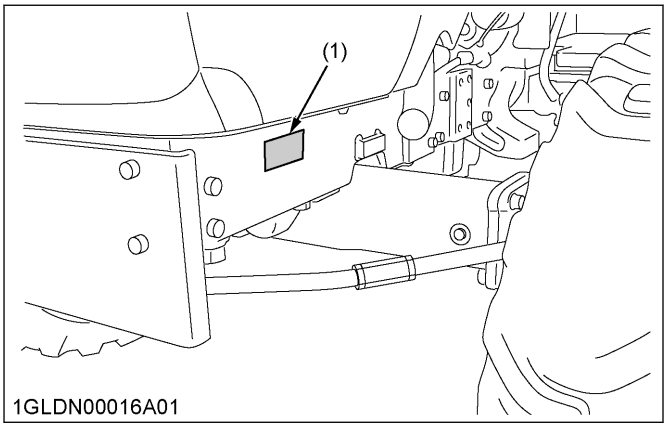
- Keep the safety labels clean and free from obstructing material.
- Clean the safety labels with soap and water, and dry the safety labels with a soft cloth.
- Replace damaged or missing safety labels with new safety labels from your local KUBOTA Dealer.
- If a component with safety label(s) attached is replaced with new component, make sure that new safety 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 THE TRACTOR

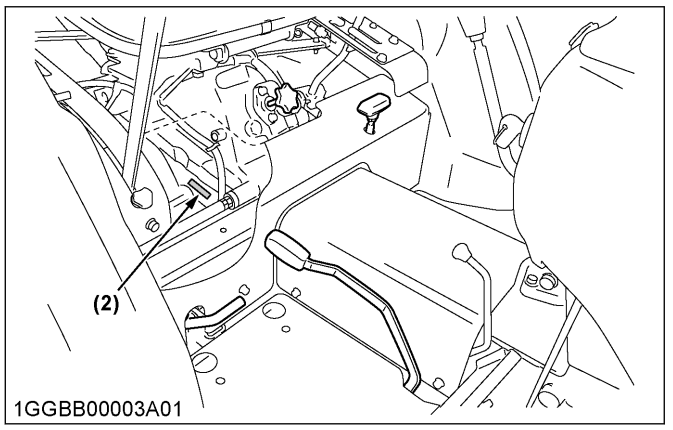
DEALER SERVICE

Your dealer is interested in your new machine and would not mind helping you get the most value from it.
After reading this manual thoroughly, you will find that you can perform some of the regular maintenance yourself.
However, when your tractor needs parts or major service, be sure to see your KUBOTA Dealer.
For service, contact the KUBOTA Dealership from which you purchased your machine or your local KUBOTA Dealer. When in need of parts, be prepared to give your dealer the product identification number (PIN), and the CAB or ROPS, and engine serial numbers.
Locate the PIN and serial numbers now and record them in the space provided.

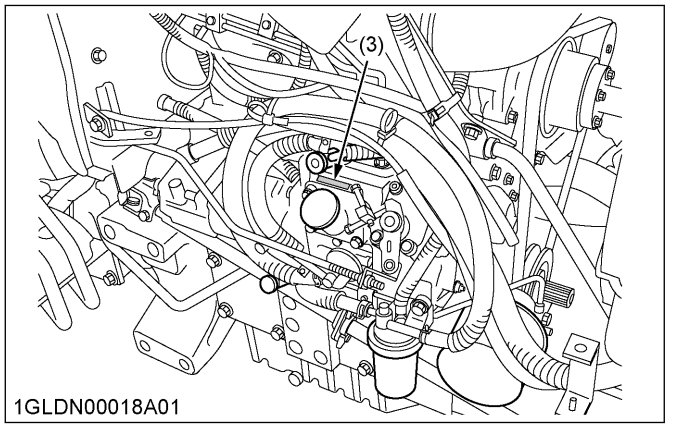
	Type	PIN / Serial No.
Tractor		
CAB / ROPS		
Engine		
Date of purchase		
Name of dealer		
(To be filled in by purchaser)		



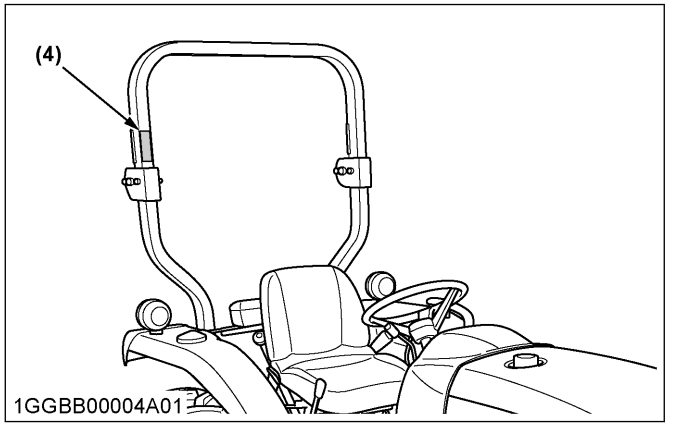
(1) Identification plate



(2) Product identification number



(3) Engine serial number



(4) ROPS identification plate (ROPS Serial No.)

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 used according to the instruction given in the operator's manual even if it is within the warranty period.

2. Scrapping the tractor and its procedure

To put the tractor out of service, correctly follow the local rules and regulations of the country or territory where you scrap it.
If you have questions, consult your local KUBOTA Dealer.

SPECIFICATIONS

SPECIFICATION TABLE

Model				L2501		
				Manual transmission		HST
				2WD	4WD	4WD
PTO power[*1]			kW (HP)	15.3 (20.5)		14.2 (19.0)
Engine	Maker			KUBOTA		
	Model			D1703-M-DI-E4		
	Type			Direct injection, Vertical, Water-Cooled 4 cycle diesel		
	Number of cylinders			3		
	Bore and stroke		mm (in.)	87 x 92.4 (3.4 x 3.6)		
	Total displacement		L (cu.in.)	1.647 (100.47)		
	Engine gross power[*1]		kW (HP)	18.5 (24.8)		
	Engine net power[*1]		kW (HP)	17.8 (23.9)		
	Rated revolution		rps (rpm)	36.7 (2200)		
	Low idling revolution		rps (rpm)	17.5 to 19.2 (1050 to 1150)		
	Maximum torque		N·m (ft·lbs)	95.2 (70.2)		
	Battery capacity			12 V, RC : 123 min, CCA : 490 A		
Capacities	Fuel tank		L (U.S.gals.)	38.0 (10.0)		
	Engine crankcase (with filter)		L (U.S.qts.)	5.7 (6.0)		
	Engine coolant		L (U.S.qts.)	6.0 (6.3)		
	Transmission case		L (U.S.gals.)	27.0 (7.1)	27.5 (7.3)	23.5 (6.2)
Dimensions	Overall length (without 3P)		mm (in.)	2810 (110.6)	2700 (106.3)	
	Overall width (min. tread)		mm (in.)	1400 (55.1)		
	Overall height (with ROPS)		mm (in.)	2330 (91.7)		
	Overall height (Top of steering wheel)		mm (in.)	1475 (58.1)		
	Wheel base		mm (in.)	1610 (63.3)		
	Min. ground clearance		mm (in.)	345 (13.6)	340 (13.4)	
	Tread	Front	mm (in.)	1050 (41.3)	1095 (43.1)	
		Rear	mm (in.)	1115 (43.8), 1195 (47.1), 1290 (50.8)		

(Continued)

Model				L2501		
				Manual transmission		HST
				2WD	4WD	4WD
Weight (with ROPS)			kg (lbs.)	1100 (2425)	1180 (2601)	1190 (2623)
Traveling system	Tires	AG Front		5-15	7.2-16	
		AG Rear		11.2-24		
	Standard tire size	Front		N / A	27 x 8.50-15	
		Rear		N / A	15-19.5R4	
	Clutch			Dry type single stage		
	Steering			Hydrostatic power steering		
	Transmission			Gear shift, 8 forward and 4 reverse		Hydrostatic transmission 3 range speed
	Brake			Wet disk type		
	Min. turning radius (with brake)		m (feet)	2.4 (7.9)	2.5 (8.2)	
Hydraulic unit	Hydraulic control system			Position control		
	Pump capacity		L / min (gals. / min)	19.5 (5.15)		
	Pump capacity (PS)		L / min (gals. / min)	11.8 (3.13)		
	3-point hitch			Category 1		
	Max. lift force	At lift points	kg (lbs.)	870 (1918)		
		24 in. behind lift points	kg (lbs.)	630 (1389)		
	System pressure		MPa (kgf/cm^2) [psi]	15.2 (155) [2505]		
PTO	Rear-PTO	PTO shaft size		SAE 1-3/8, 6-splines		
		Type		Transmission driven with overrunning		Live-continuous running
	PTO/Engine speed		rpm	540 / 1910		540 / 2105

NOTE :
The company reserve the right to change the specifications without notice.

*1 Manufacturer's estimate

TRAVELING SPEEDS TABLE

[Manual transmission type]

Model			L2501	
Tire size (Rear)			11.2-24	
	Range gear shift lever	Main gear shift lever	km/h (At rated engine rpm)	mph (At rated engine rpm)
Forward 	Low 	1	1.4	0.9
		2	1.8	1.1
		3	2.6	1.6
		4	4.5	2.8
	High 	1	5.3	3.3
		2	6.9	4.3
		3	10.0	6.2
		4	17.3	10.7
Reverse 	Reverse	1	1.9	1.2
		2	2.5	1.6
		3	3.6	2.2
		4	6.2	3.9

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

[HST type]

Model		L2501	
Tire size (Rear)		11.2-24	
	Range gear shift lever	km/h (At rated engine rpm)	mph (At rated engine rpm)
Forward 	L	0 to 5.1	0 to 3.2
	M	0 to 8.9	0 to 5.5
	H	0 to 18.5	0 to 11.5
Reverse 	L	0 to 4.6	0 to 2.9
	M	0 to 8.0	0 to 5.0
	H	0 to 16.6	0 to 10.3

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

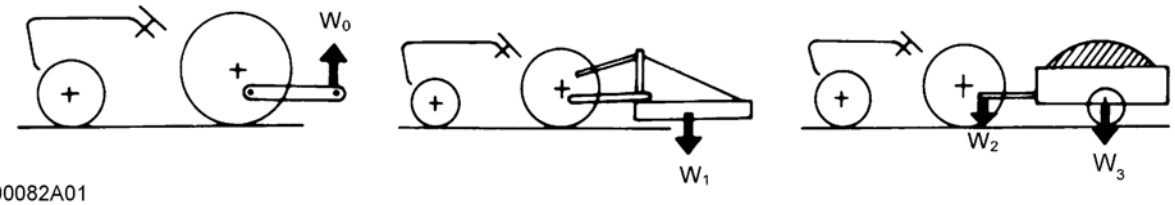
IMPLEMENT LIMITATIONS

The KUBOTA tractor has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use with implements which are not sold or approved by KUBOTA and which exceed the maximum specifications listed in IMPLEMENT LIMITATION TABLES on page 22, or which are otherwise unfit for use with the KUBOTA tractor 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.

IMPLEMENT LIMITATION TABLES

Model			L2501
Tread (max. width) with farm tires	Front	2WD	1050 mm (41.3 in.)
		4WD	1095 mm (43.1 in.)
	Rear		1290 mm (50.8 in.)
Lower link end max. lifting weight W_0			870 kg (1918 lbs.)
Actual figures	Implement weight W_1 and / or size		As in *Implement weight list*
	Max. drawbar load W_2		330 kg (730 lbs.)
	Trailer loading weight W_3 (Max. capacity)		1000 kg (2200 lbs)



1PPEP00082A01

Lower link end max. hydraulic lifting weight W_0
The max. allowable load which can be put on the lower link end
Implement weight W_1
Weight of the implement which can be put on the lower link
Max. drawbar load W_2
The max. loading weight for towing
Trailer loading weight W_3
The max. loading weight for trailer (with trailer's weight)

Implement weight list

Implement		Remarks		L2501
Trailer		Max. load capacity	kg (lbs.)	1000 (2200)
		Max. drawbar load	kg (lbs.)	330 (730)
Mower	Rotary-Cutter	Max. cutting width	mm (in.)	1524 (60)
		Max. weight	kg (lbs.)	350 (770)
	Flail-mower	Max. cutting width	mm (in.)	1270 (50)
		Max. weight	kg (lbs.)	350 (770)
	Sickle bar	Max. cutting width	mm (in.)	1829 (72)
			kg (lbs.)	400 (880)
Sprayer	Rear mounted	Max. tank capacity	L (gals.)	300 (80)
	Pull type	Max. tank capacity	L (gals.)	800 (210)
Rotary tiller		Max. tilling width	mm (in.)	1370 (54)
Bottom plow		Max. size		12 in. x 2, 16 in. x 1
Disk harrow : Pull type		Max. harrowing width	mm (in.)	1524 (60)
		Max. weight	kg (lbs.)	300 (660)
Chisel Plow		Max. width	mm (in.)	1829 (72)
		Max. weight	kg (lbs.)	350 (770)
Broad Caster		Max. tank capacity	L (gals.)	200 (53)
		Max. weight	kg (lbs.)	100 (220)
Manure Spreader		Max. capacity	kg (lbs.)	1000 (2200)
Cultivator		Max. width	mm (in.)	1524 (60)
		Number of rows		1
		Max. weight	kg (lbs.)	250 (550)
Front blade		Max. cutting width	mm (in.)	1829 (72)
		Max. oil pressure	MPa (psi)	15.9 (2311)
		Sub frame		Necessary

(Continued)

IMPLEMENT LIMITATIONS

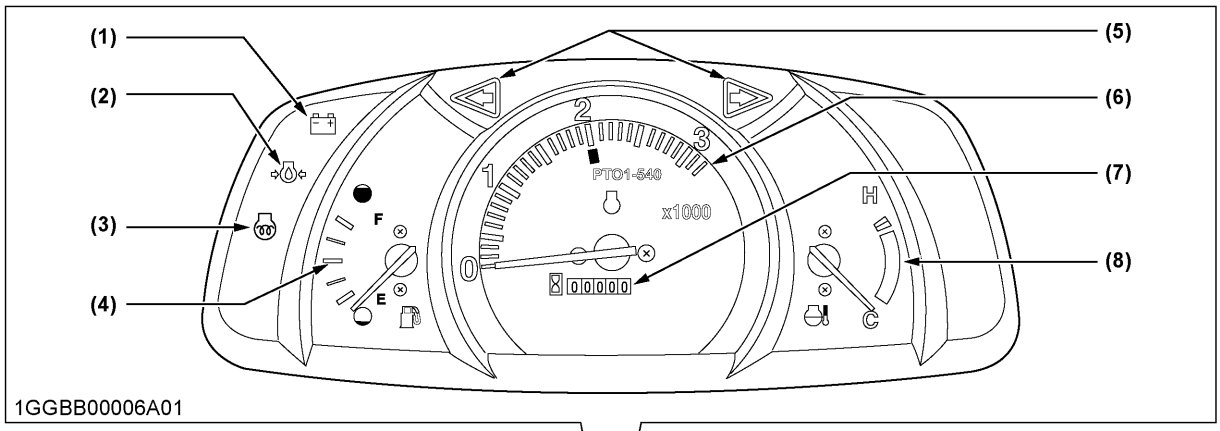
Implement	Remarks		L2501
Rear blade	Max. cutting width	mm (in.)	1829 (72)
	Max. oil pressure	MPa (psi)	15.9 (2311)
Front-end loader	Max lifting capacity	kg (lbs.)	460 (1014)
	Max. oil pressure	MPa (psi)	15.9 (2311)
	Sub frame		Not necessary
Box blade	Max. cutting width	mm (in.)	1321 (52)
	Max. weight	kg (lbs.)	315 (694)
Backhoe	Max. digging depth	mm (in.)	2288 (90)
	Max. weight	kg (lbs.)	420 (926)
	Sub frame		Necessary
Snow blade	Max. width	mm (in.)	1524 (60)
	Max. weight	kg (lbs.)	300 (660)
Snow blower	Max. working width	mm (in.)	1524 (60)
	Max. weight	kg (lbs.)	250 (550)

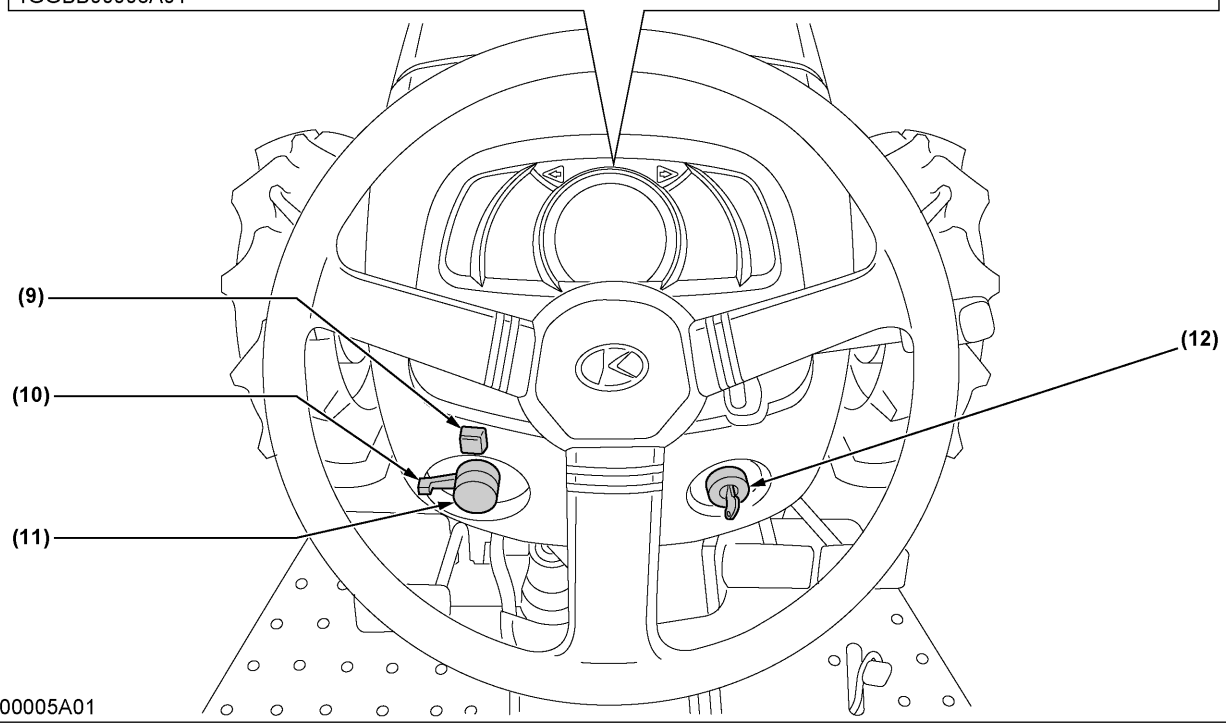
NOTE :

- **Implement size may vary depending on soil conditions where you operate the machine.**

INSTRUMENT PANEL AND CONTROLS

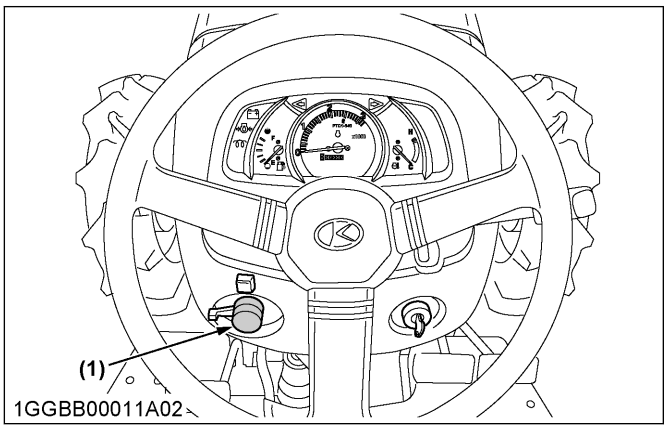
INSTRUMENT PANEL, SWITCHES, AND HAND CONTROLS

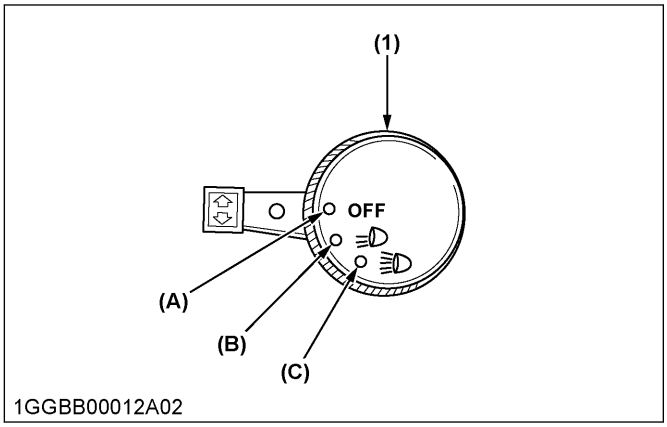




1. Head light switch

Turn the head-light-switch clockwise, and the following lights are activated on the position of the head-light-switch.





(1) Head light switch
(A) Off
(B) On (low)
(C) On (high)

[OFF] (A)
Head lights are OFF.

(B)
Head lights are dimmed as low beam.

(C)
Head lights are on as high beam.

2. Turn signal light switch

Turn signal with hazard light

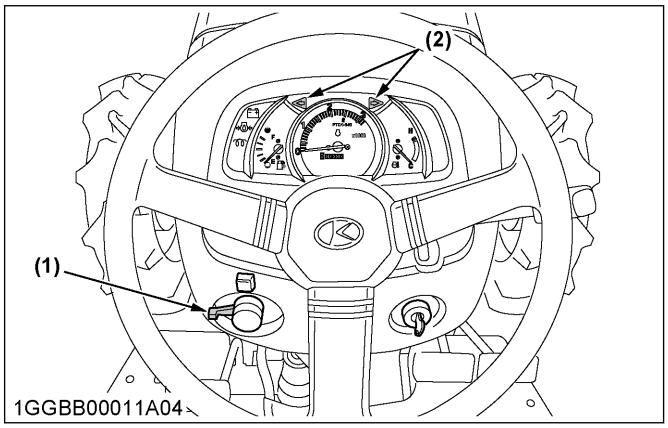
- To indicate a right turn with the hazard lights already flashing (hazard on), turn the turn-signal-light-switch clockwise.
- To indicate a left turn with the hazard lights already flashing, turn the turn-signal-light-switch counterclockwise.

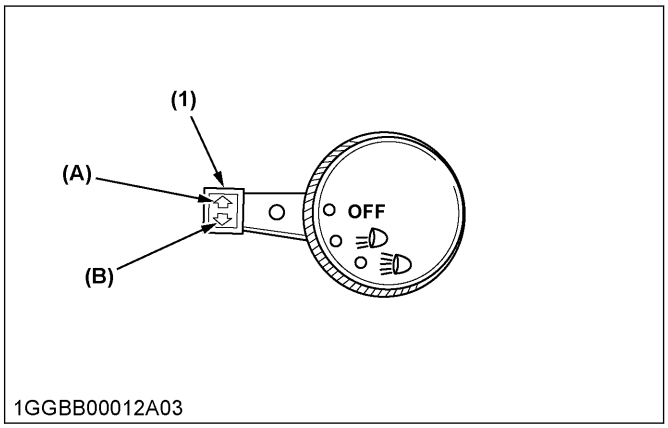
When the left or right turn signal is activated in combination with the hazard lights, the indicated turning light will flash and the other will stay on.

Turn signal without hazard light

- To indicate a right turn without hazard lights (hazard off), turn the turn-signal-light-switch clockwise.
- To indicate a left turn without hazard lights, turn the turn-signal-light-switch counterclockwise.

When the left or right turn signal is activated without the hazard lights, the indicated turning light will flash and the other will be on.





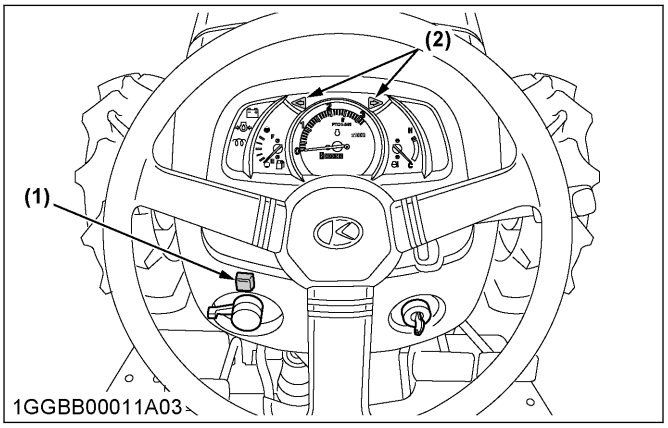
(1) Turn signal light switch
(2) Turn signal / hazard light indicator
(A) Right turn
(B) Left turn

NOTE :

- **Be sure to return the turn-signal-light-switch to center position after turning.**

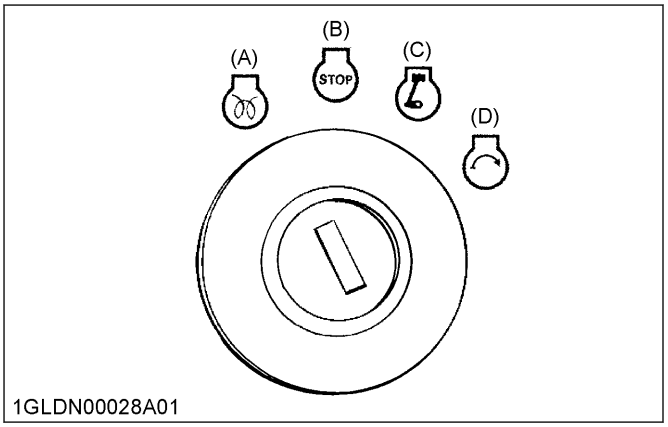
3. Hazard light switch

1. When you push the hazard-light-switch, the hazard lights flash along with the turn signal / hazard light indicator on the instrument panel.
2. When you push the hazard-light-switch again, the hazard lights turn off.



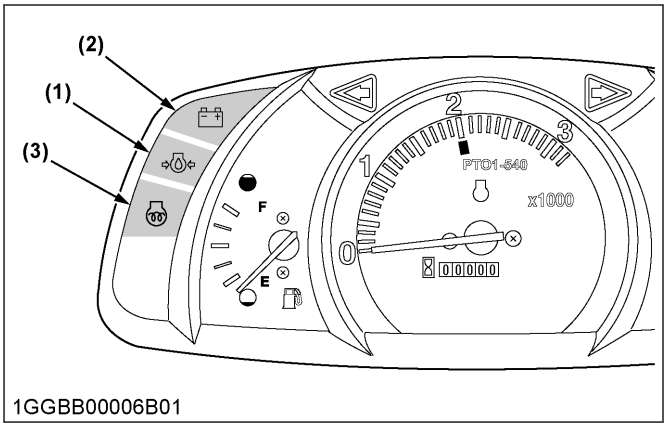
(1) Hazard light switch
(2) Turn signal / hazard light indicator

4. Key switch



(A) Preheat
(B) Off
(C) On
(D) Start

5. Easy Checker™ lamps



(1) Engine oil pressure warning indicator
(2) Electrical charge indicator
(3) Glow plug indicator

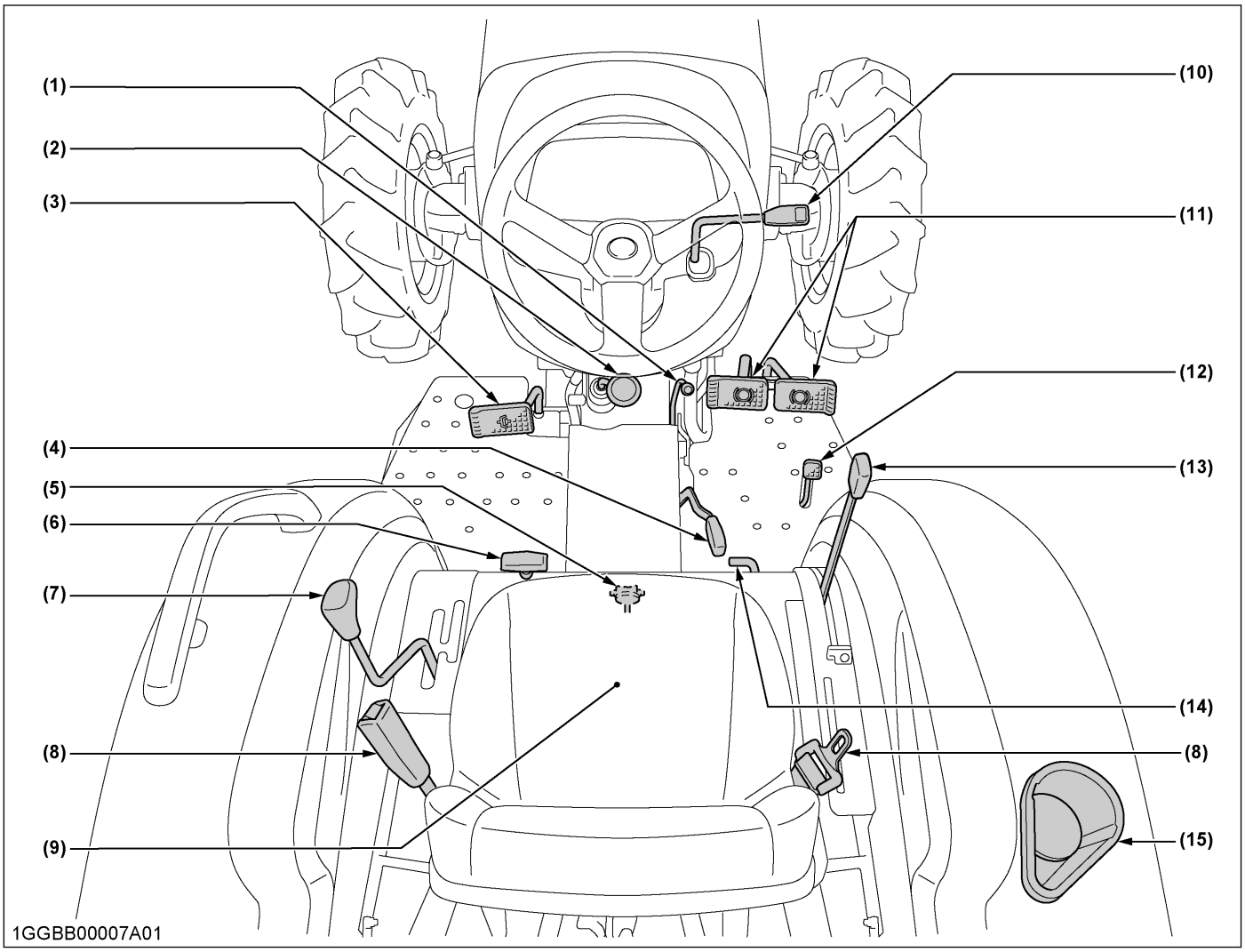
Electrical charge warning indicator	When the key switch is turned *"ON"*, the electrical-charge-warning-indicator (1) and the engine-oil-pressure-warning-indicator (3) should come on. If trouble should occur at any location while the engine is running, the warning-indicator-lamp corresponding to the trouble comes on. For further details, see Easy Checker™ on page 53.
Engine oil pressure warning indicator	
Glow plug indicator	Suppose that the engine-coolant-temperature is not high enough yet. Glow-plug-indicator(4) also comes on when the key switch is turned on to preheat the engine and goes off automatically when preheat is completed. Illumination time of indicator varies according to the temperature of coolant.
Parking brake warning indicator	The parking-brake-warning-indicator (2) comes on while the parking brake is applied and goes off when the parking brake is released.

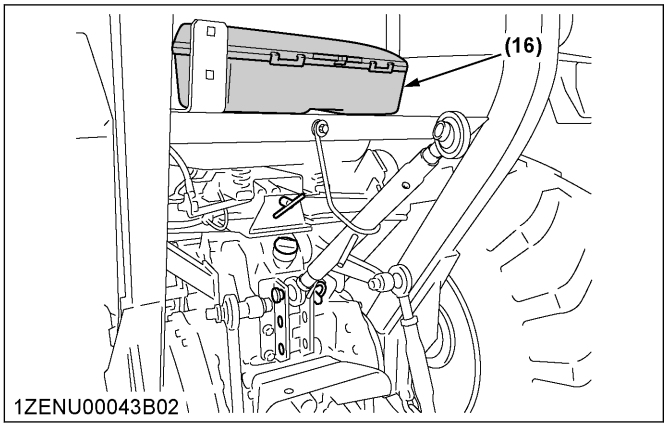
IMPORTANT :

- **Daily checks with the Easy Checker™ only, are not sufficient. Never fail to conduct daily checks carefully according to DAILY CHECK ITEMS BEFORE OPERATION OF THE TRACTOR on page 36.**

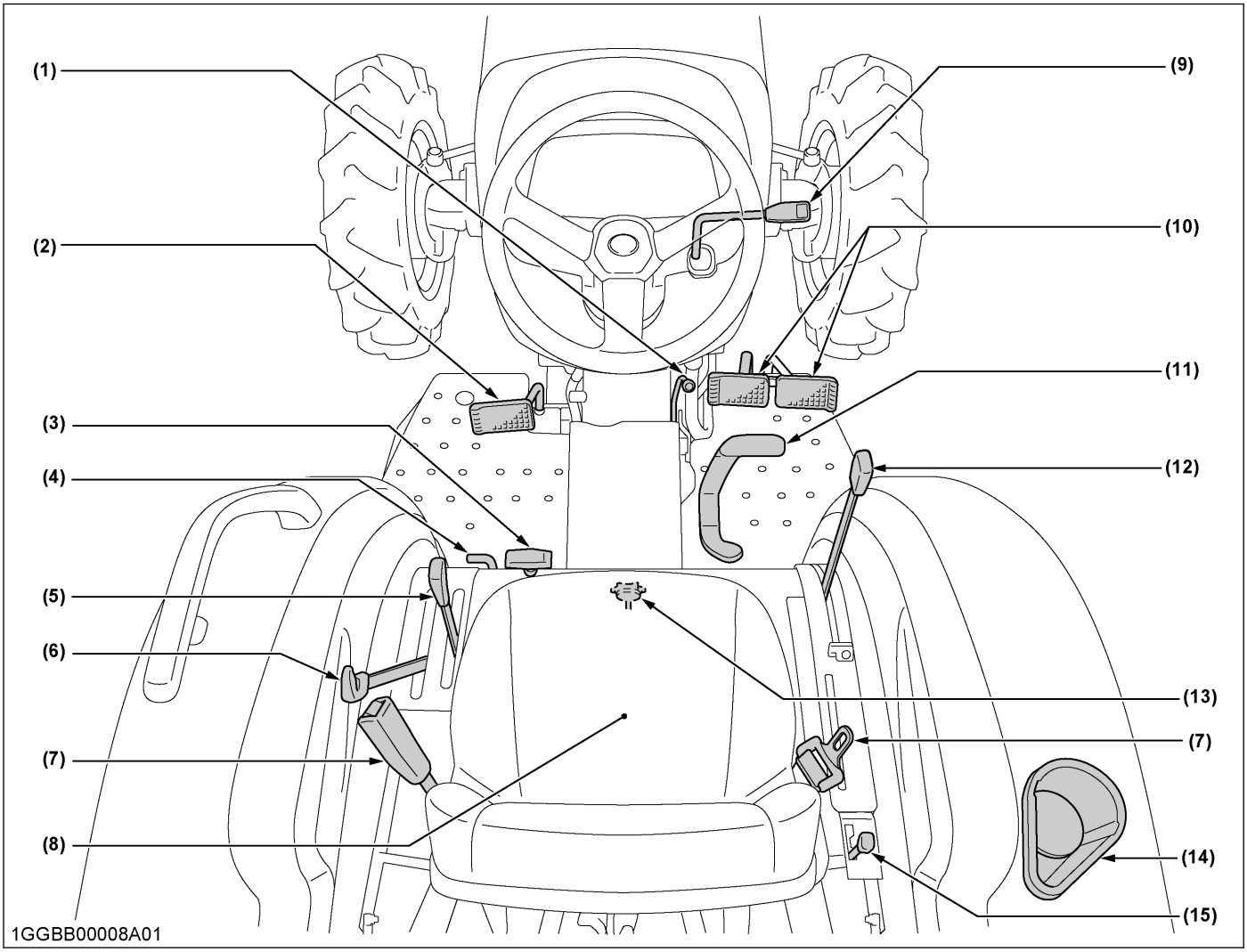
FOOT CONTROLS AND HAND CONTROLS

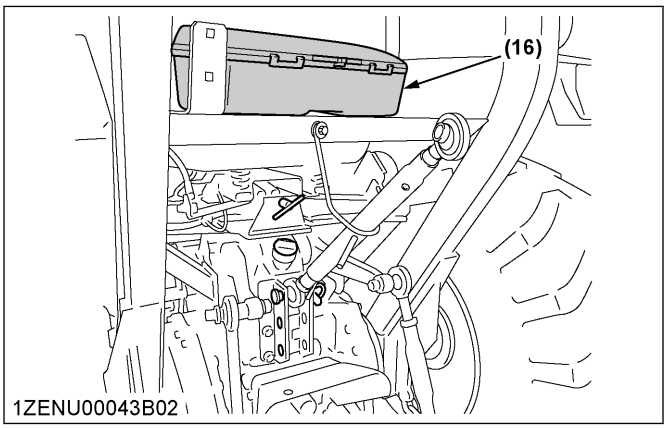
1. Foot controls and hand controls [Manual transmission type]





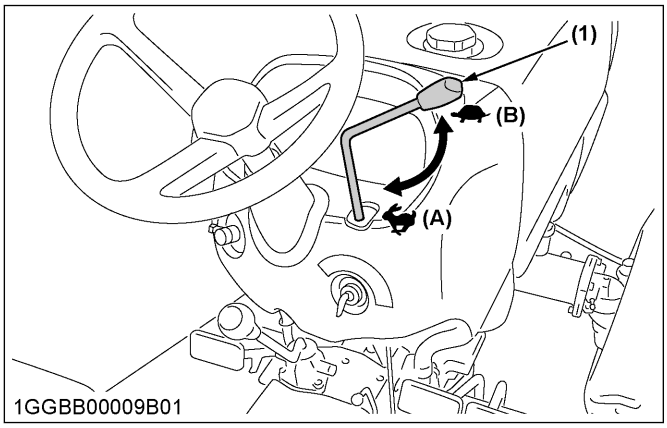
2. Foot controls and hand controls [HST type]





3. Hand throttle lever

Pulling the hand-throttle-lever back increases engine speed, and pushing it forward decreases engine speed.



(1) Hand throttle lever
(A) Increase
(B) Decrease

4. Brake pedals (right and left)

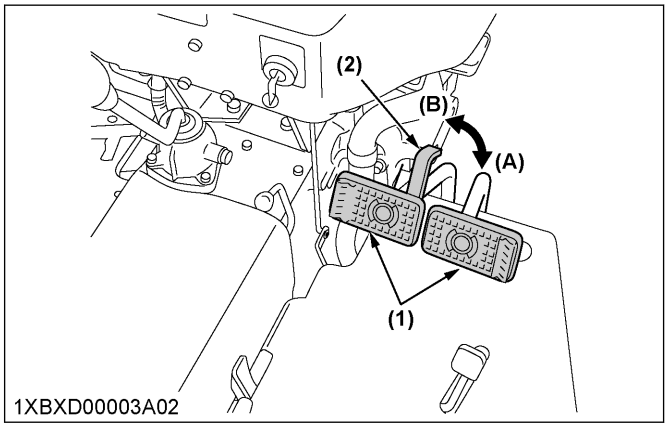
⚠ WARNING

To avoid personal injury or death:

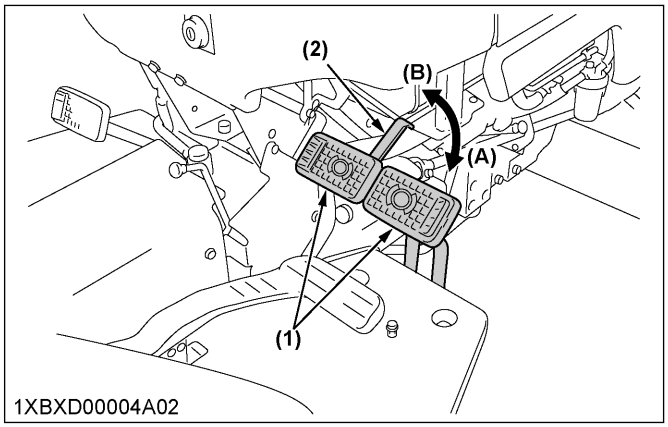
- **Be sure to interlock the right and left pedals. Applying only 1 rear-wheel-brake at high speeds could cause the tractor to swerve or roll-over.**
- **Be sure that the brake pedals is equally adjusted when using locked together. Incorrect or unequal adjustment of brake pedal can cause the tractor to swerve or roll-over.**
- **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. Be aware of the difference and use carefully.**

- Before operating the tractor on the road or before applying the parking brake, be sure to interlock the right and left pedals as the following figure.
- Use individual brakes to assist in turning sharply at slow speeds (field operation only). Disengage the brake-pedal-lock and depress only 1 brake pedal.
- Be sure brake pedals have equal adjustment when being used locked together.

[Manual transmission type]

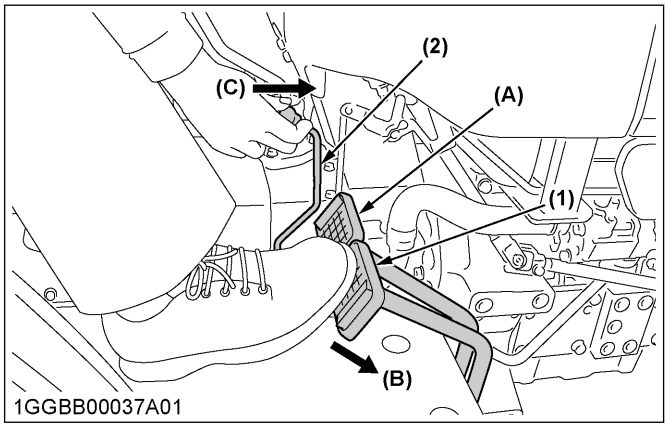


[HST type]



(1) Brake pedal
(2) Brake pedal lock
(A) Lock
(B) Release

4.1 How to use the parking brake



(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Push

To set the parking brake

1. Interlock the brake pedals.
2. Depress the brake pedals.
3. Latch the brake pedals with the parking-brake-lever.

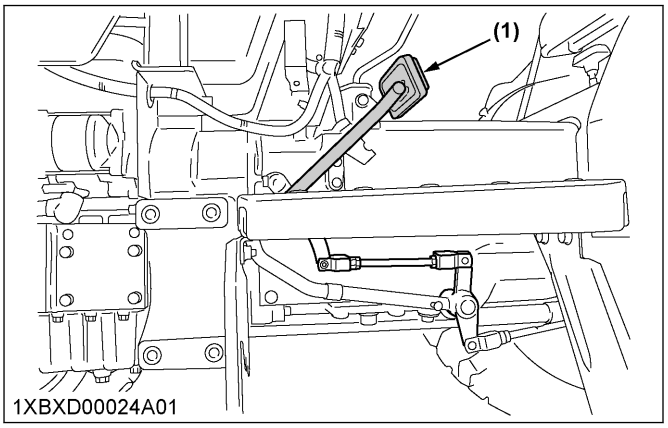
IMPORTANT :
- **To prevent damage to the parking-brake-lever, make sure that the brake pedals are fully depressed before pushing the parking-brake-lever.**

To release the parking brake
1. Depress the brake pedals again.

5. Clutch pedal

⚠ WARNING
To avoid personal injury or death:
- **The sudden release of the clutch may cause the tractor to lunge in an unexpected manner.**

The clutch is disengaged when the clutch pedal is fully pressed down.



(1) Clutch pedal

IMPORTANT :
To help prevent premature clutch wear:
- **Disengage the clutch pedal quickly and engage it slowly.**
- **Avoid operating the tractor with your foot resting on the clutch pedal.**
- **Select proper gear and engine speed depending on the type of job.**

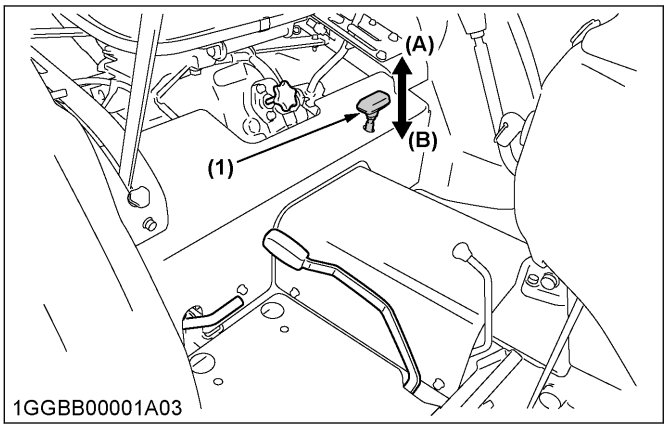
6. Front wheel drive lever

Use the front-wheel-drive-lever to engage the front wheels with the tractor stopped. [2WD type] of [Manual transmission type] does not equip the front-wheel-drive-lever

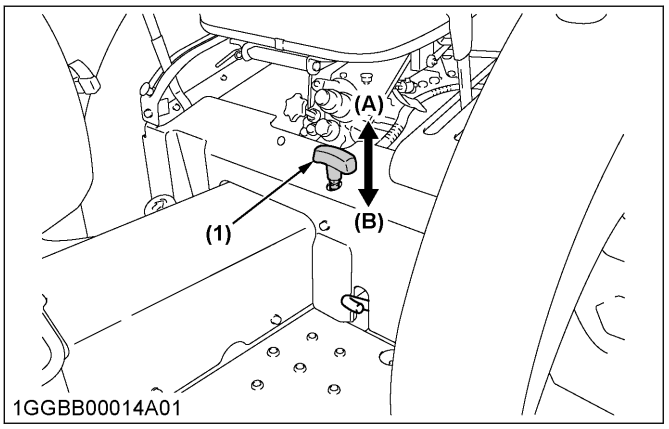
⚠ WARNING
To avoid personal injury or death:
- **Do not engage the front-wheel-drive when traveling at road speed.**
- **When driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate the tractor at reduced speed 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 *"ON"* to engage the front-wheel-drive.

[Manual transmission type [4WD]]



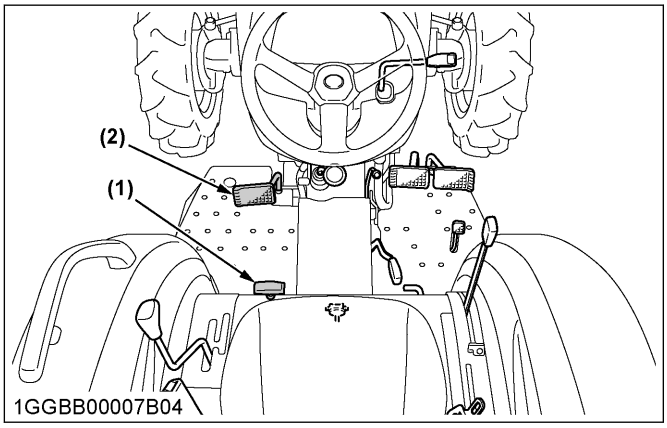
[HST type]



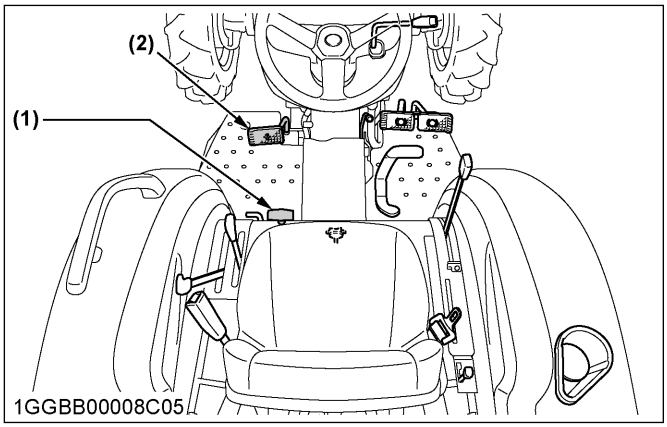
(1) Front wheel drive lever
(A) On
(B) Off

IMPORTANT :
- **Depress the clutch pedal before engaging the front-wheel-drive-lever.**

[Manual transmission type [4WD]]



[HST type]



(1) Front wheel drive lever (2) Clutch pedal

- **If the front-wheel-drive-lever is difficult to set to off, stop the tractor, turn the steering wheel, and move the front-wheel-drive-lever.**
- **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.
- For increased braking at reduced speed.

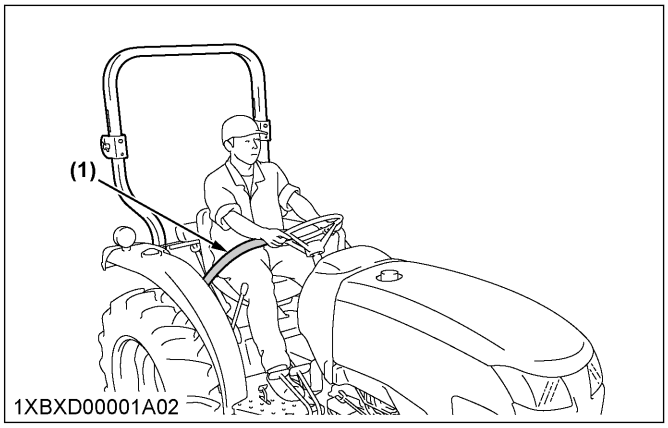
7. Seat belt

⚠ WARNING

To avoid personal injury or death:

- **Always use the seat belt when any ROPS or CAB are installed.**
- **Do not use the seat belt if a foldable ROPS is down or there is no ROPS.**

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



(1) Seat belt

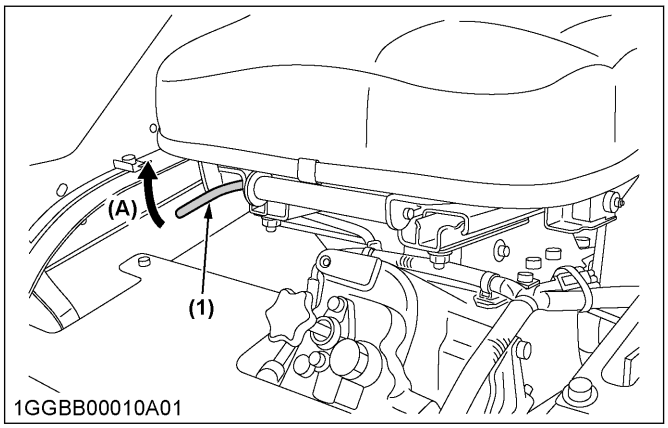
8. Operator's seat

⚠ WARNING

To avoid personal injury or death:

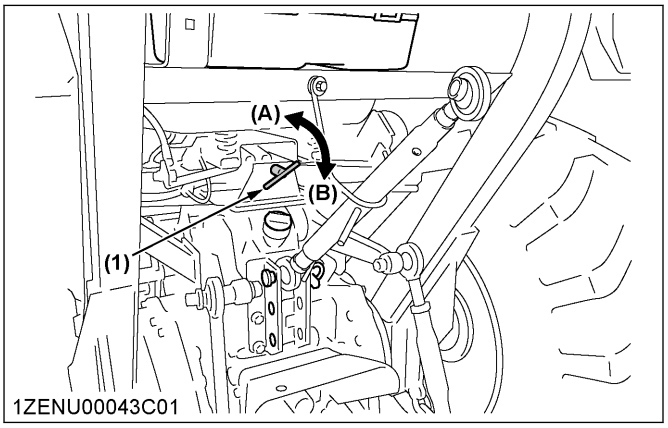
- **Adjust the operator's seat only while the tractor is stopped.**
- **Make sure that the operator's seat is completely secured after each adjustment.**
- **Do not allow any person other than the operator to ride on the tractor.**

- **Travel adjustment**
  Pull the travel-adjust-lever and slide the seat backward or forward, as required. The operator's seat will lock in position when the travel-adjust-lever is released.



(1) Travel adjust lever (A) Pull

- **Suspension adjustment**
  Turn the suspension-adjust-handle to achieve the optimum suspension setting.



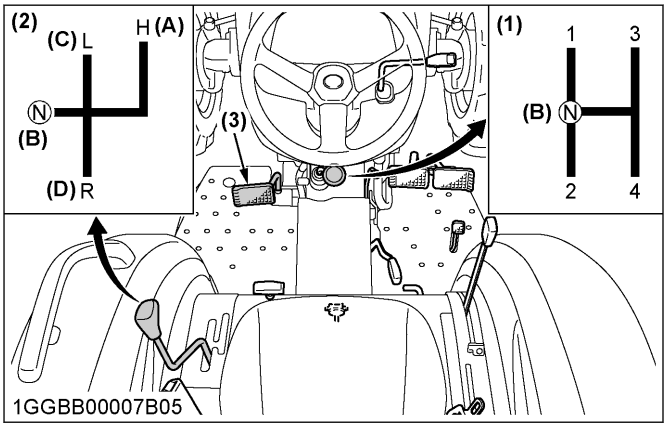
(1) Suspension adjust handle
(A) To decrease tension
(B) To increase tension

IMPORTANT :

- **After adjusting the operator's seat, be sure to check to see that the operator's seat is properly locked.**
- **Position the suspension-adjust-handle at the horizontal position.**

9. Main gear shift lever and range gear shift lever [Manual transmission type only]

Pattern of the main-gear-shift-lever is in the form of a *"H"*.
Pattern of the range-gear-shift-lever is in the form of a ⊔ in three stages, *"HIGH"*, *"LOW"*, and *"REVERSE"* positions.
By combination and use of the main-gear-shift-lever and the range-gear-shift-lever, you can obtain eight forward speeds and four reverse speeds.



(1) Main gear shift lever
(2) Range gear shift lever
(3) Clutch pedal
(A) Neutral position
(B) High
(C) Low

IMPORTANT :

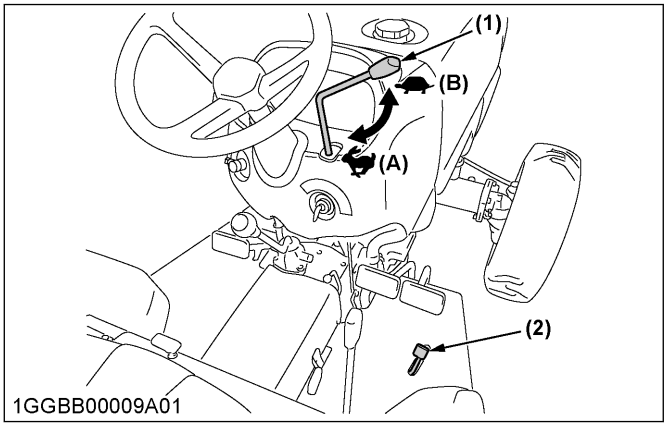
- **To change speeds, press the clutch pedal completely down and stop the tractor before proceeding with speed change.**

NOTE :

- **When you stand up from the operator's seat with the range-gear-shift-lever at *"FORWARD"* or *"REVERSE"*, the engine will stop regardless of whether the machine is moving or not. The engine stop is because the tractor is equipped with operator-presence-control system (OPC).**

10. Foot throttle [Manual transmission type only]

Use the foot throttle when traveling on the road.
Press down on the foot throttle for higher speed. The foot throttle is interlocked with the hand-throttle-lever.
When using the foot throttle, keep the hand-throttle-lever in the low idling position.



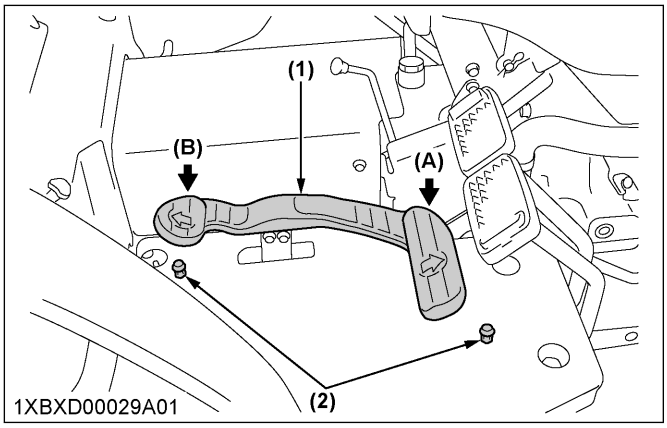
(1) Hand throttle lever
(2) Foot throttle
(A) Increase
(B) Decrease

11. Speed control pedal [HST type only]

⚠ WARNING
To avoid personal injury or death:

- **Do not operate if the tractor moves on level ground with foot off of the speed control pedal.**
- **Consult your local KUBOTA Dealer.**

- **Forward pedal**
  Depress the speed-control-pedal with the toe of your right foot to move forward.
- **Reverse pedal**
  Depress the speed-control-pedal with the heel of your right foot to move backward.



(1) Speed control pedal
(2) Stopper bolt
(A) Forward
(B) Reverse

IMPORTANT :

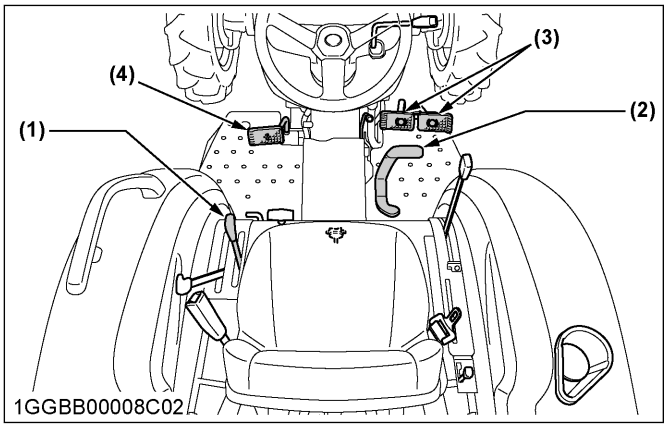
- **To prevent serious damage to the HST, do not adjust the stopper bolts.**

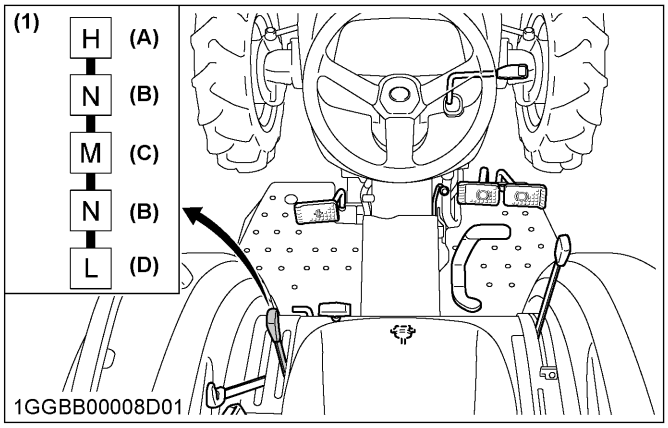
NOTE :

- **When you stand up from the operator's seat with the speed-control-pedal stepped on or the cruise-control-lever engaged on, the engine will stop regardless of whether the tractor is moving or not. The engine stop is because that the tractor is equipped with the operator-presence-control system (OPC).**

12. Range gear shift lever (L-M-H) [HST type only]

You can shift the range gear only when the tractor is completely stopped and the speed-control-pedal is the neutral position.





(1) Range gear shift lever (L-M-H)
(2) Speed control pedal
(3) Brake pedal
(4) Clutch pedal
(A) High
(B) Neutral position
(C) Middle
(D) Low

IMPORTANT :

To avoid damage of transmission and shift linkage when shifting:

- **Completely stop the tractor using the brake pedals.**
- **Do not force the range-gear-shift-lever.**
- **If it is difficult to shift the range-gear-shift-lever into [L], [M], or [H] from the neutral position:**
  On slopes, be sure to set the parking brake and start the following procedure.
  1. **Slightly depress the speed-control-pedal to rotate the gears inside of transmission.**
  2. **Release the speed-control-pedal to the neutral position.**
  3. **Depress the clutch pedal, wait for a moment, and then shift the range-gear-shift-lever.**

13. Cruise control lever (if equipped) [HST type only]

⚠ WARNING

To avoid personal injury or death:

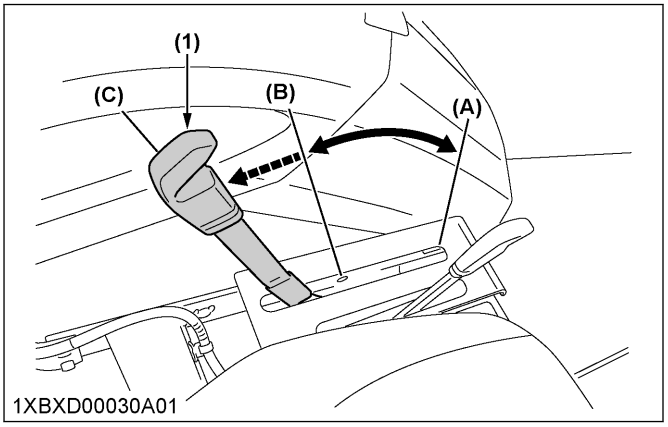
- **Pull the cruise-control-lever completely to the rear before starting the engine.**
- **Do not use the cruise control when driving on the road.**
- **Be sure to connect both the left and the right brakes to release the cruise control. The speed-cruise-control will not be released with single brake activation.**

Cruise control is designed for operating efficiency of the tractor and operator comfort. Cruise control will provide a constant forward operating speed by mechanically holding the cruise-control-lever at the selected position.

NOTE :

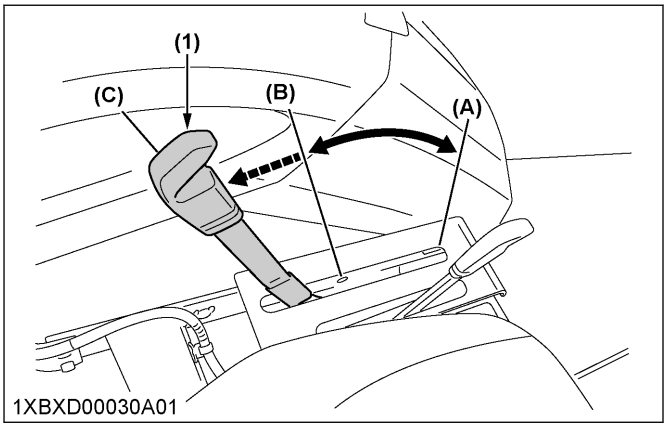
- **Cruise-control-device will not operate in reverse.**

- **Preferably set the cruise-control-lever, while holding down the speed-control-pedal. You can set the cruise-control-lever smoothly.**
- **When releasing the cruise mode, be sure to return the cruise-control-lever fully backward.**



(1) Cruise control lever
(A) Increase
(B) Decrease
(C) Off

13.1 How to use the cruise control lever (if equipped) [HST type only]



(1) Cruise control lever
(A) Increase
(B) Decrease
(C) Off

To engage the cruise control device

The proper forward speed will be maintained if you apply the cruise-control-lever at any position.

1. To operate faster than the set speed, depress the speed-control-pedal further down in the proper forward speed.
   The set speed will be resumed if you release the speed-control-pedal.

NOTE :

- **When you stand up from the operator's seat with the speed-control-pedal stepped on or the cruise-control-lever engaged on, the engine will stop regardless of whether the tractor is moving or not.**
  The engine stop is because that the tractor is equipped with the operator-presence-control-system (OPC).

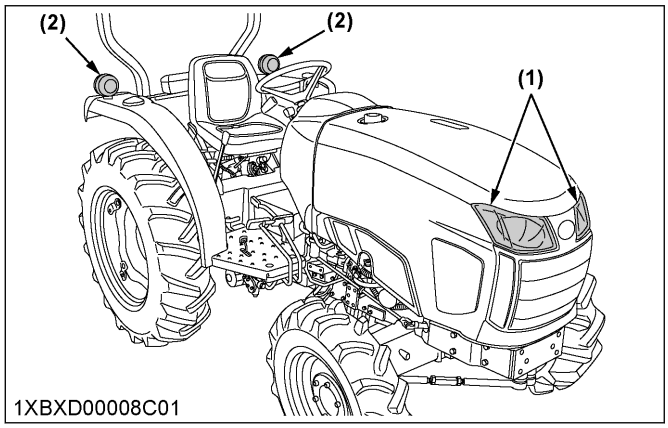
To disengage the cruise control device

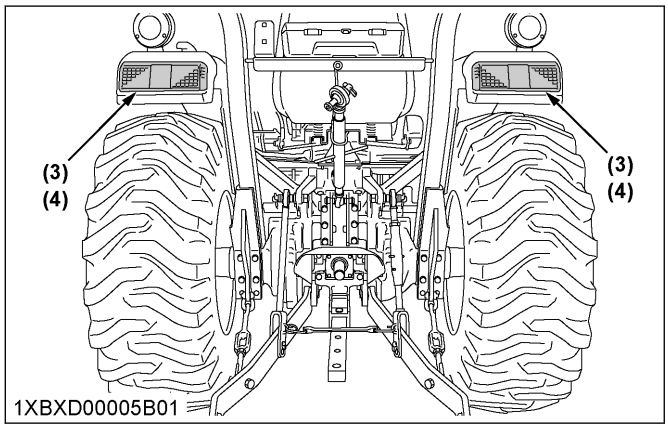
1. Move the cruise-control-lever all the way back.
2. Move the cruise-control-lever to the *"OFF"* position to release the cruise control.
3. Depress both brake pedals.

NOTE :

- **Cruise control will be disengaged automatically when both brake pedals are depressed.**
- **Cruise-control-device does not disengage when the individual right or left brake is applied.**

TRACTOR LIGHTS





(1) Head light
(2) Turn signal / hazard light
(3) Rear turn signal / hazard light
(4) Tail light

PRE-OPERATION CHECK

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 personal injury or death:

- **Be sure to 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 radiator screen
- Cleaning the oil cooler [HST type]
- Checking the air cleaner evacuator valve when used in a dusty place
- Checking the brake and clutch pedal
- Checking the indicators, gauges, and meter
- Checking the lights
- Checking wire harness
- Checking the seat belt and ROPS
- Checking the movable parts
- Refuel
  (See Checking the fuel tank and refueling on page 80)
- Care for safety labels
  (See Care for safety labels on page 16)

OPERATING THE ENGINE

PRECAUTIONS FOR OPERATING THE ENGINE

⚠ WARNING

To avoid personal injury or death:

- **Read and understand *Safe operation* in the front of 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.**
- **Always set all shift levers to the *"NEUTRAL"* positions and to place the PTO-gear-shift-lever in the *"OFF"* position before starting the engine.**

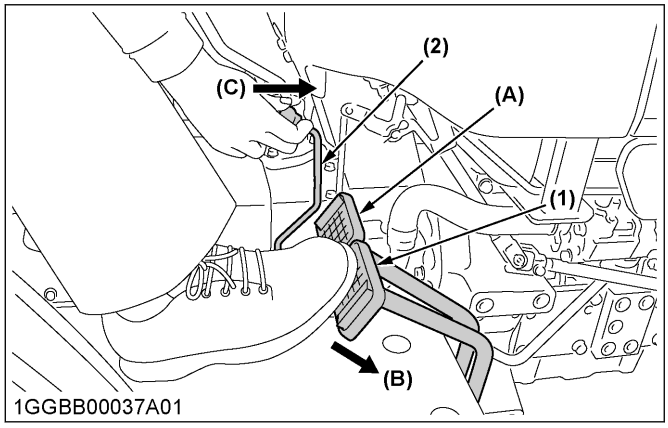
(See PRECAUTIONS FOR OPERATING THE TRACTOR on page 6, PRECAUTIONS FOR PARKING THE TRACTOR on page 9, and PRECAUTIONS FOR SERVICING THE TRACTOR on page 10)

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 10 seconds.**

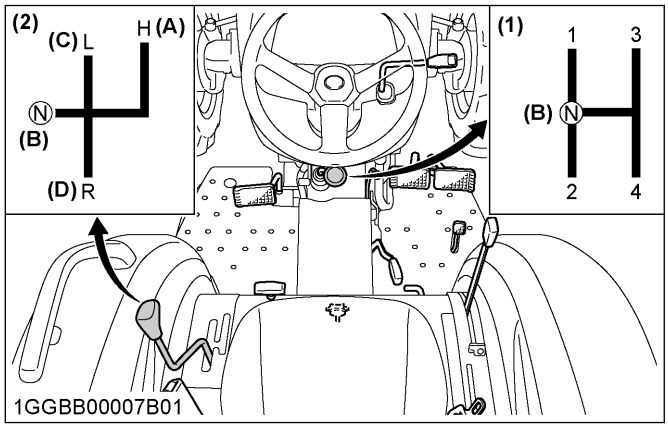
STARTING THE ENGINE [MANUAL TRANSMISSION TYPE]

1. Make sure that the parking brake is set.
   (See To set the parking brake on page 30 if the parking brake is not set)



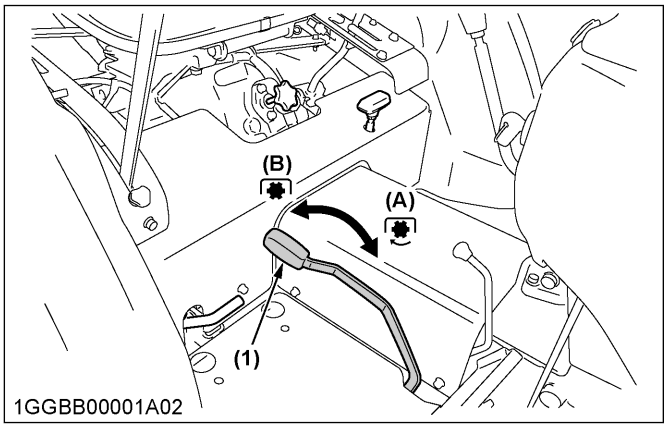
(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Push

2. Place the main-gear-shift-lever and the range-gear-shift-lever in the *"NEUTRAL"* position.



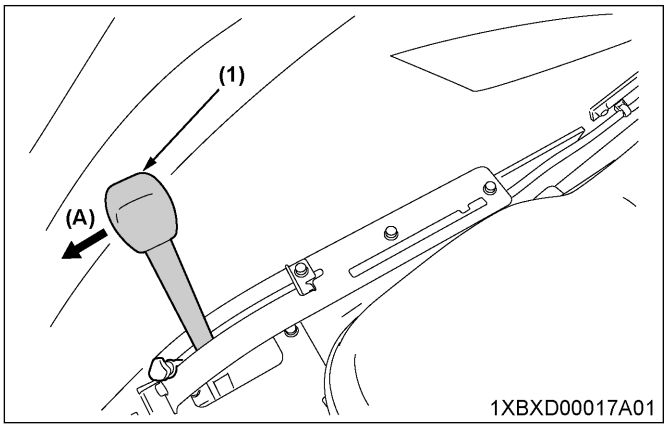
(1) Main gear shift lever
(2) Range gear shift lever
(A) High
(B) Neutral position
(C) Low
(D) Reverse

3. Place the PTO-gear-shift-lever in the *"OFF"* position.



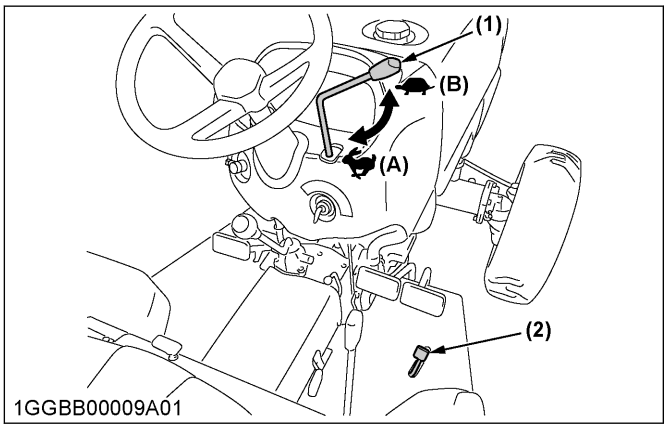
(1) PTO gear shift lever
(A) On
(B) Off

4. Place the position-control-lever in the *"FLOAT"* position.
   The *"FLOAT"* position is the lowest position of position-control-lever.



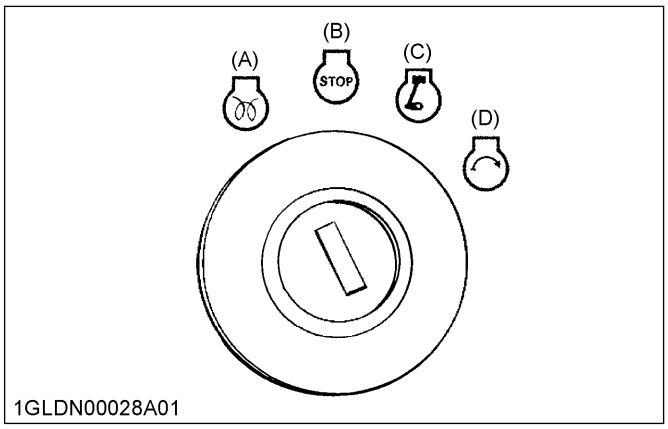
(1) Position control lever
(A) Down

5. Set the hand-throttle-lever to about 1/2 way.



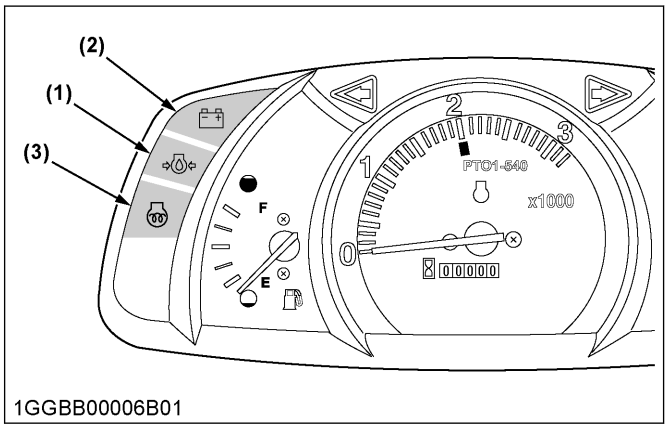
(1) Hand throttle lever
(2) Foot throttle
(A) Increase
(B) Decrease

6. Insert the starter key into the key switch and turn it *"ON"*.



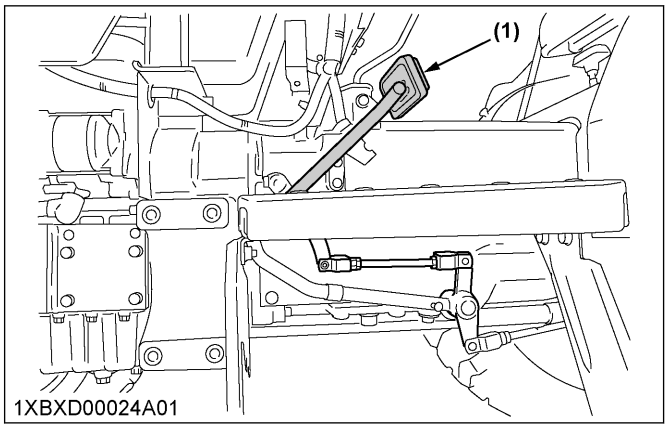
(A) Preheat
(B) Off
(C) On
(D) Start

7. Check the Easy Checker™ lamps.
   (See Easy Checker™ lamps on page 27)



(1) Engine oil pressure warning indicator
(2) Electrical charge indicator
(3) Glow plug indicator

8. Fully depress the clutch pedal.



(1) Clutch pedal

9. Turn the starter key to the *"PREHEAT"* position and hold it for the preheating.
   For the appropriate preheating time, see the following table.

Temperature	Preheating time
Over 0 ℃ (32 ℉)	2 sec. to 3 sec.
-5 ℃ to 0 ℃ (23 ℉ to 32 ℉)	5 sec.
-15 ℃ to -5 ℃ (5 ℉ to 23 ℉)	10 sec.

NOTE :
- **Glow-plug-indicator (3) comes on while engine is being preheated.**

10. Turn the starter key to the *"START"* position and release it when the engine starts.

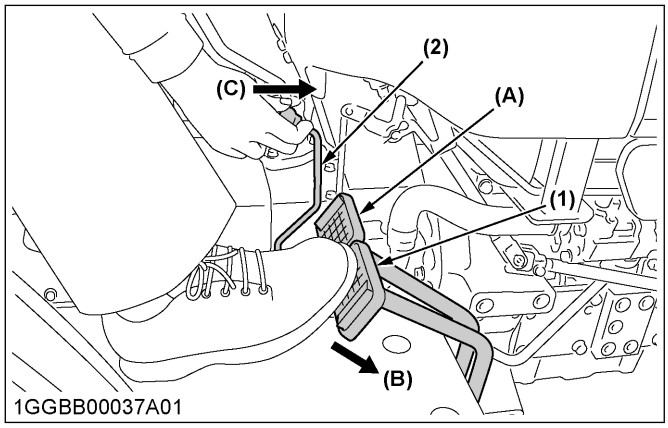
IMPORTANT :
- **Because of the safety devices, the engine will not start except the following conditions:**
  - **PTO-gear-shift-lever is placed in the *"OFF"* position.**
  - **Speed-control-pedal is placed in the *"NEUTRAL"* position.**
  - **Clutch pedal is disengaged.**

In cold weather, if the engine fails to start after 10 seconds, turn off the starter key for 30 seconds. Then repeat step 8. and step 9.
(See COLD WEATHER STARTING OF THE ENGINE on page 41)

11. Check to see that the engine-oil-pressure-lamp and the electrical-charge-lamp are *"OFF"*.
    If the lamps on the Easy Checker™ is still on, immediately stop the engine and determine the cause.
12. Release the clutch pedal.

STARTING THE ENGINE [HST TYPE]

1. Make sure that the parking brake is set.
   (See To set the parking brake on page 30 if the parking brake is not set)

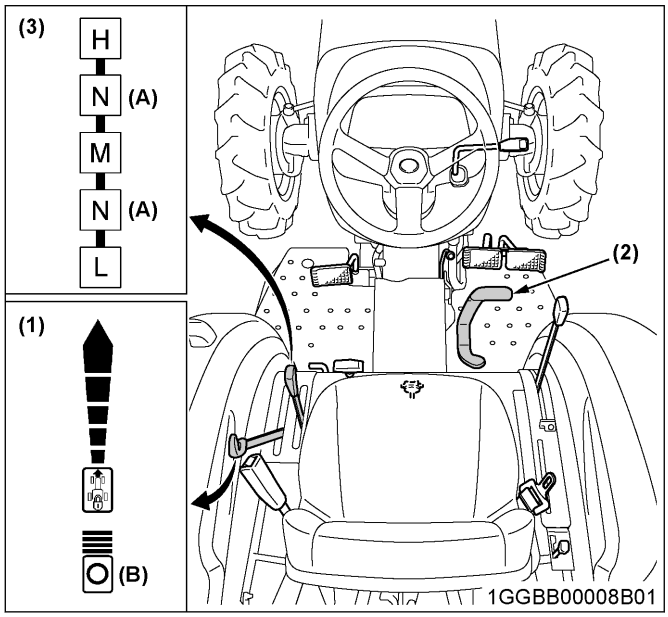


(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Pull

2. Make sure that the cruise-control-lever is in the *"OFF"* position.

NOTE :
- **Depress the both brake pedals together, and the cruise-control-lever automatically returns to the *"OFF"* position.**

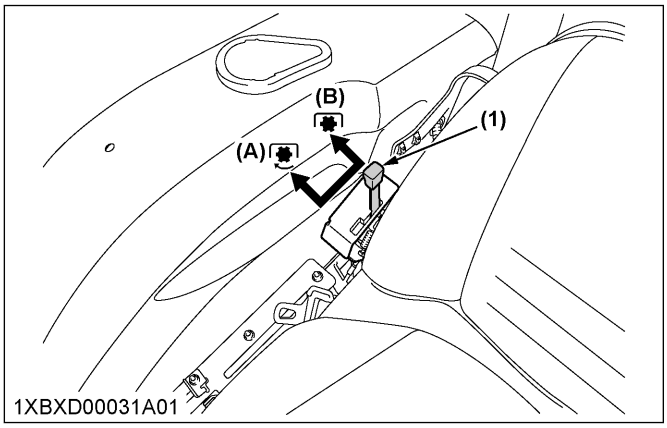
3. Place the speed-control-pedal and the range-gear-shift-lever in the *"NEUTRAL"* position.



(1) Cruise control lever (if equipped)
(2) Speed control pedal
(3) Range gear shift lever
(A) Neutral position
(B) Off position

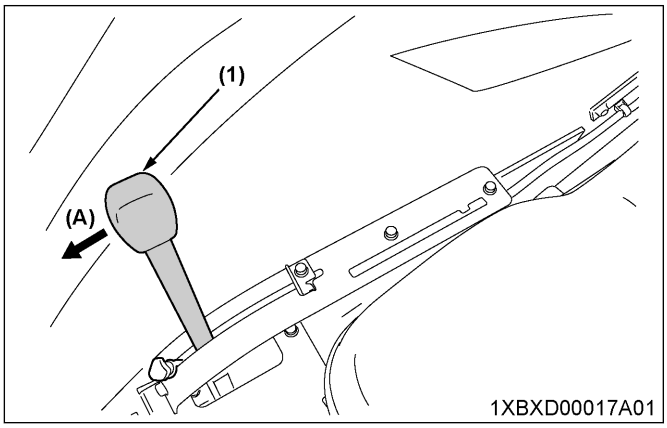
NOTE :
- **When removing the foot from the speed-control-pedal, the speed-control-pedal automatically returns to the *"NEUTRAL"* position.**

4. Place the PTO-gear-shift-lever in the *"OFF"* position.



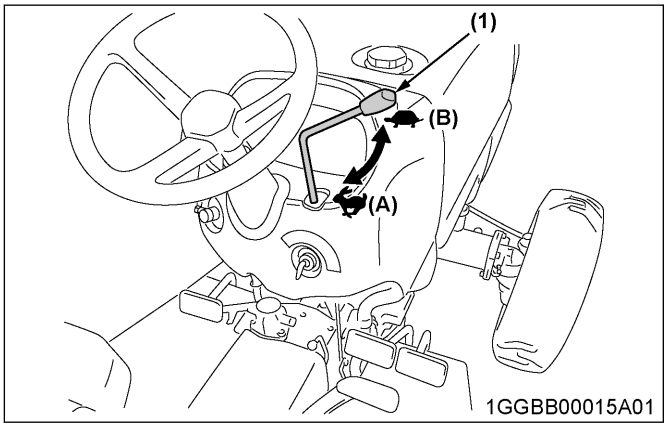
(1) PTO gear shift lever
(A) On
(B) Off

5. Place the position-control-lever in the *"FLOAT"* position.
   The *"FLOAT"* position is the lowest position of position-control-lever.



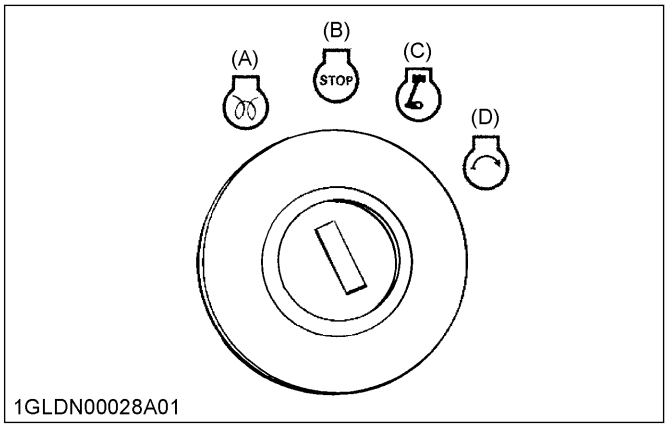
(1) Position control lever
(A) Down

6. Set the hand-throttle-lever to about 1/2 way.



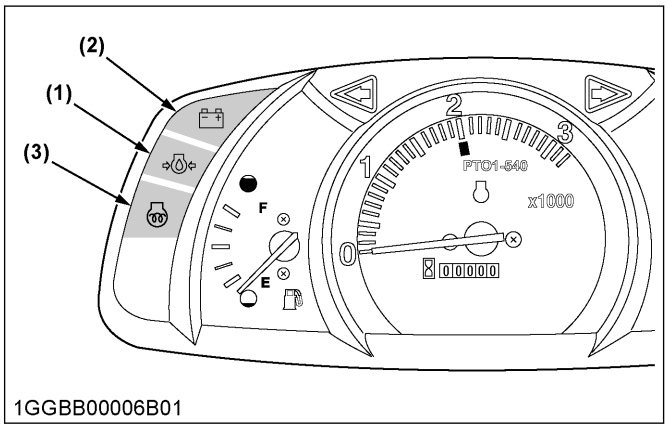
(1) Hand throttle lever
(A) Increase
(B) Decrease

7. Insert the starter key into the key switch and turn it *"ON"*.



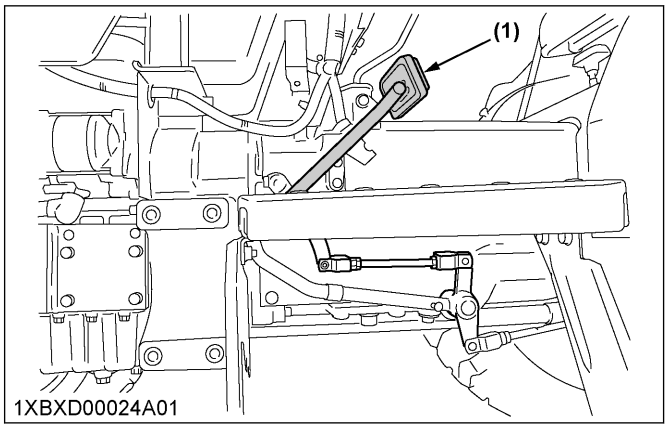
(A) Preheat
(B) Off
(C) On
(D) Start

8. Check the Easy Checker™ lamps.
   (See Easy Checker™ lamps on page 27)



(1) Engine oil pressure warning indicator
(2) Electrical charge indicator
(3) Glow plug indicator

9. Fully depress the clutch pedal.



(1) Clutch pedal

10. Turn the starter key to the *"PREHEAT"* position and hold it for the preheating.
    For the appropriate preheating time, refer to the following table.

Temperature	Preheating time
Over 0 ℃ (32 ℉)	2 sec. to 3 sec.
0 ℃ to -5 ℃ (32 ℉ to 23 ℉)	5 sec.
-5 ℃ to -15 ℃ (23 ℉ to 5 ℉)	10 sec.

NOTE :
- **Glow-plug-indicator (3) comes on while engine is being preheated.**

11. Turn the starter key to the *"START"* position and release it when the engine starts.

IMPORTANT :
- **Because of safety devices, the engine will not start except the following conditions:**
  - **PTO-gear-shift-lever is placed in the *"OFF"* position.**
  - **Speed-control-pedal is placed in the *"NEUTRAL"* position.**
  - **Clutch pedal is disengaged.**

In cold weather, if the engine fails to start after 10 seconds, turn off the starter key for 30 seconds. Then repeat step 9. and step 10.
(See COLD WEATHER STARTING OF THE ENGINE on page 41)

12. Check to see that the engine-oil-pressure-lamp and the electrical-charge-lamp are *"OFF"*.
    If the lamps on the Easy Checker™ is still on, immediately stop the engine and determine the cause.
13. Release the clutch pedal.

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 ℃ (23 ℉)

To protect the battery and the starter, make sure not to turn the starter continuously for more than following seconds.

Continuous turning limit of the starter	30 seconds

STOPPING THE ENGINE

1. After slowing the engine to idle, turn the starter key to the *"STOP"* position.
2. Remove the starter key.

NOTE :
- **If the starter key does not stop the engine, consult your local KUBOTA Dealer.**

WARMING UP OF THE ENGINE

⚠ WARNING
To avoid personal injury or death:
- **Be sure to set the parking brake during warm-up of the engine.**
- **Be sure to set all shift levers to the *"NEUTRAL"* positions and to place the PTO-gear-shift-lever in the *"OFF"* 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 the oil to reach every engine-part. If the load should be applied to the engine without the warm-up period of 5 minutes, 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 oil may be cold with increased viscosity. The 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 trouble in the hydraulic system. To prevent the trouble in the hydraulic system, 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 ℃ (32 ℉)	At least 10 minutes
0 ℃ to -10 ℃ (32 ℉ to 14 ℉)	10 minutes to 20 minutes
-10 ℃ to -20 ℃ (-14 ℉ to -4 ℉)	20 minutes to 30 minutes
Below -20 ℃ (-4 ℉)	More than 30 minutes

JUMP STARTING THE ENGINE

When jump starting the engine, follow the instructions in this section to safely start the engine.

⚠ WARNING

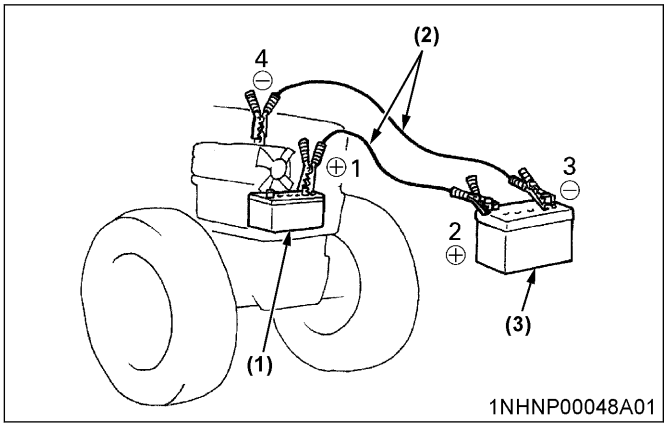
To avoid personal injury or death:

- **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 the other end of the negative (-) jumper cable to the negative (-) terminal of the tractor battery.**

IMPORTANT :

- **This machine is equipped 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 the tractor could result in severe damage to the electrical system of the tractor.**
  Use only matching voltage source when jump starting in a low battery condition or a dead battery condition.
- **Do not operate the tractor with the battery cable disconnected from the battery.**
- **Do not operate the tractor without the battery mounted.**
- **Do not operate the tractor with the battery dead. Charge the battery fully enough before operating the tractor.**
  Otherwise the tractor might malfunction.

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



(1) Dead battery
(2) Jumper cables
(3) 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. Wear an eye protection and rubber gloves.
4. 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.
5. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
6. Clamp the other end of the cable, which is clamped to the negative terminal of the helper battery, to the engine block or frame of the disabled tractor as far from the dead battery as possible.
7. Start the helper vehicle and let its engine run for a few moments. Start the disabled tractor.
8. Disconnect the jumper cables in the exact reverse order of attachment.
   See the steps in order of step 6., step 5., and step 4.

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 to operate for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become broken-in.
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, observe 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 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 71)

PRECAUTIONS FOR BOARDING AND LEAVING 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.

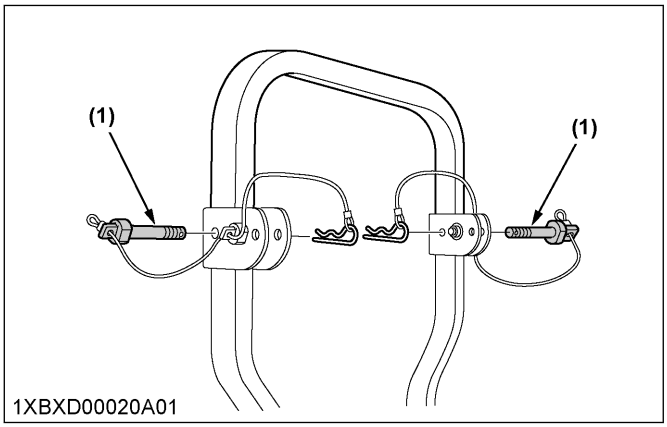
OPERATION OF THE FOLDABLE ROPS (IF EQUIPPED)

⚠ WARNING
To avoid personal injury or death:

- **When raising or folding the ROPS, apply the parking brake, stop the engine, and remove the starter key.**
  Always perform the function 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 (if equipped)

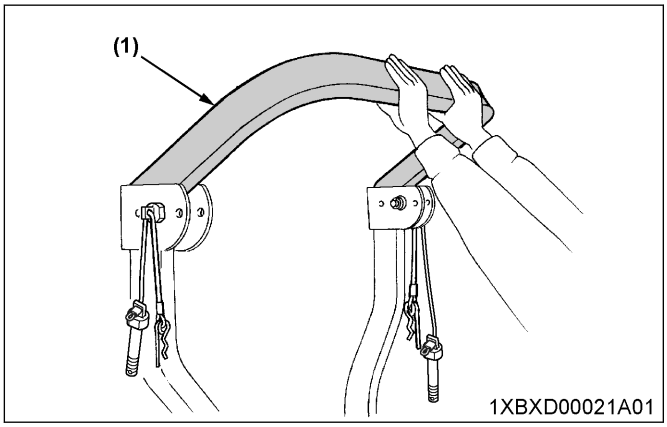
1. Remove both set bolts.



(1) Set bolt

2. Fold the ROPS.

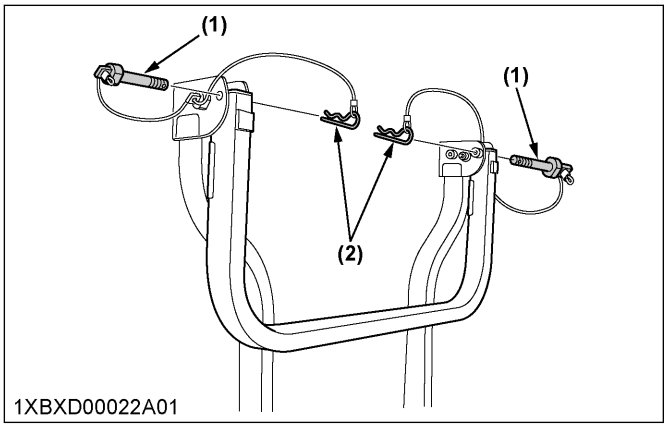
⚠ CAUTION
To avoid personal injury:
- **Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.**



(1) ROPS

3. Align the set-bolt-holes and insert both set bolts. Slightly tighten the set bolts and secure them with the hair-pin-cotters.

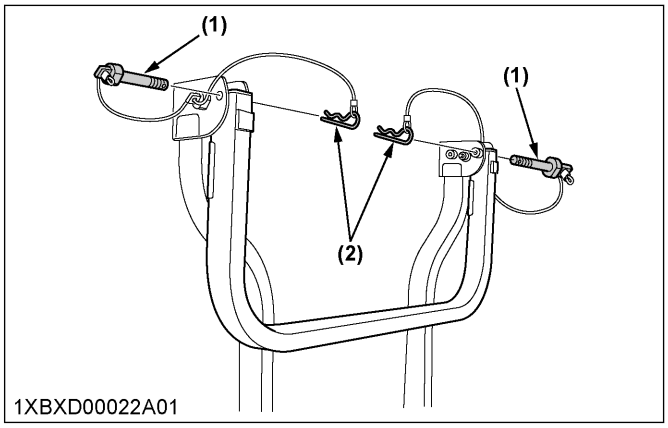
⚠ CAUTION
To avoid personal injury:
- **Make sure that both set bolts are properly installed and secured with the hair-pin-cotters.**



(1) Set bolt (2) Hair pin cotter

2. Raising the ROPS to upright position (if equipped)

1. Remove both the hair-pin-cotters and the set bolts.



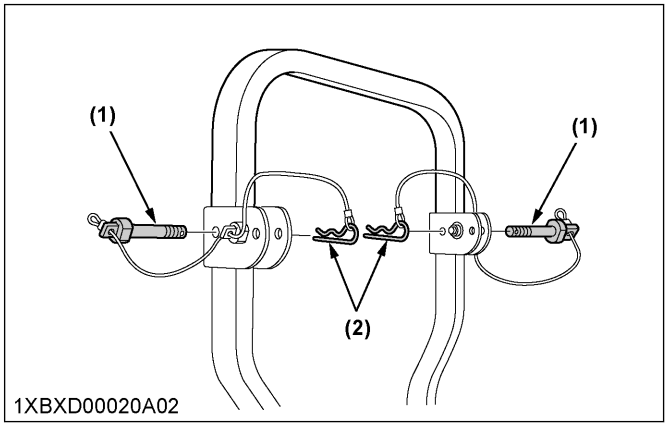
(1) Set bolt (2) Hair pin cotter

2. Raise the ROPS to the upright position.

⚠ CAUTION
To avoid personal injury:
- **Raise the ROPS slowly and carefully.**

3. Align the set-bolt-holes and insert both set bolts. Slightly tighten the set bolts and secure them with the hair-pin-cotters.

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

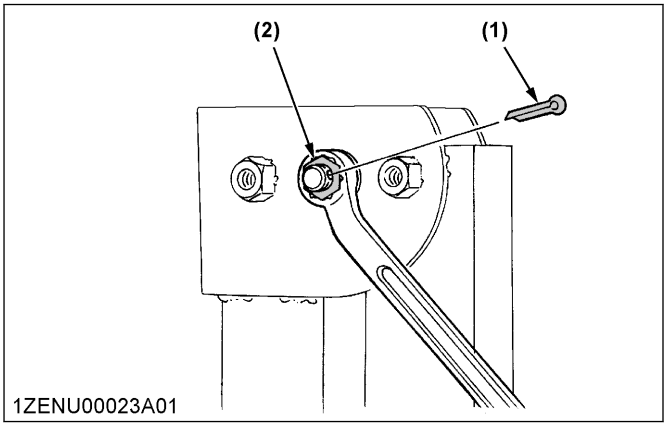


(1) Set bolt (2) Hair pin cotter

3. Adjusting the foldable ROPS (if equipped)

1. Adjust free fall of the ROPS upper frame regularly.

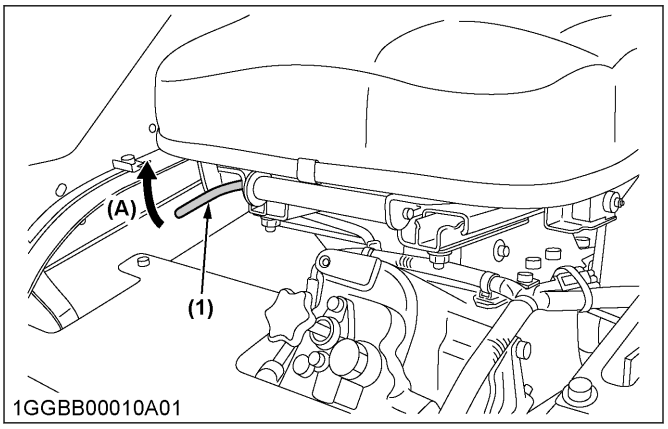
2. If you feel less friction in folding the ROPS, follow the following procedure.
   a. Remove the cotter pin.
   b. Tighten the nut until you feel the right friction in the movement.
   c. Replace the cotter pin.

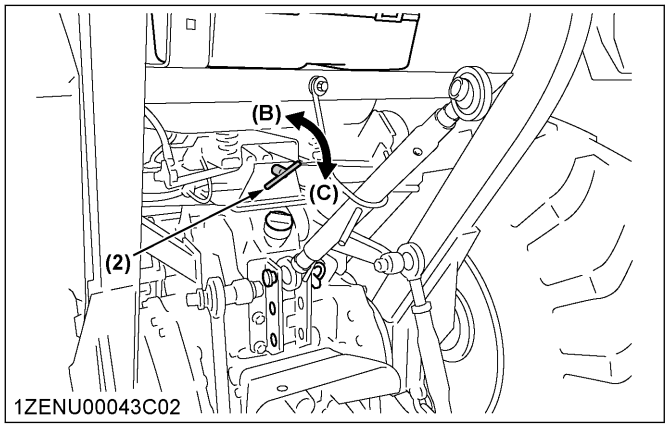


(1) Cotter pin *(2) Nut*

STARTING THE TRACTOR [MANUAL TRANSMISSION TYPE]

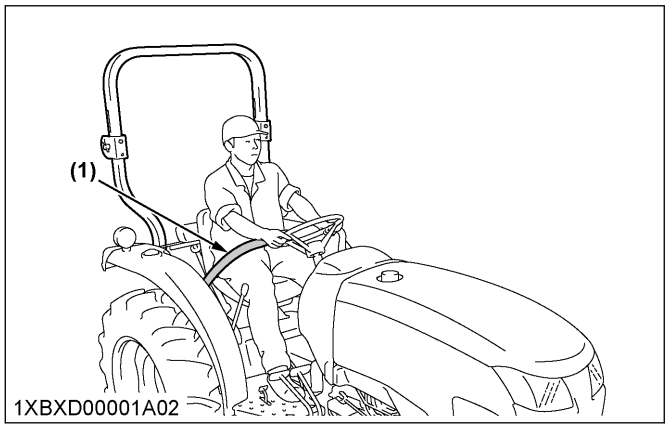
1. Adjust the operator's position.
   - Adjust the operator's seat.
     (See Operator's seat on page 32)





(1) Travel adjust lever
(2) Suspension adjust handle
(A) Pull
(B) To decrease tension
(C) To increase tension

   - Adjust the seat belt.
     (See Seat belt on page 32)

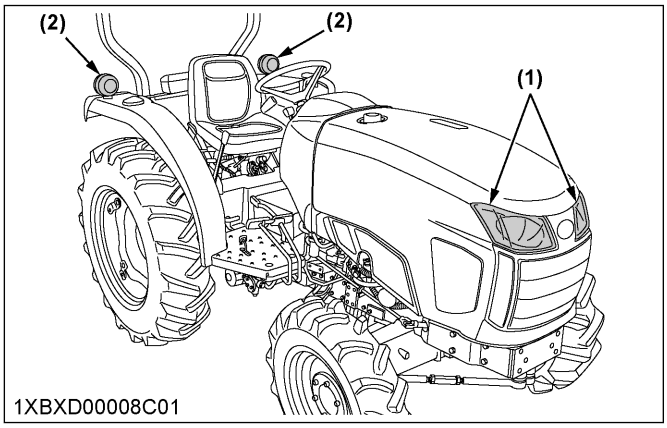


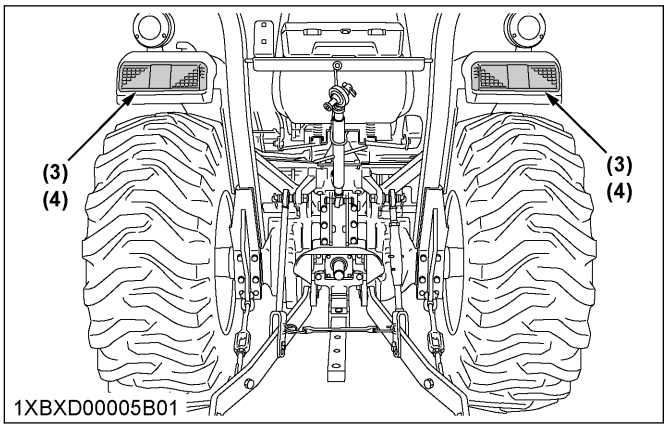
(1) Seat belt

NOTE :

- **Adjust the operator's seat and the suspension to make sure that the controls are comfortably at hand for the operator, making sure that the operator maintains a good posture and minimizes risks from whole body vibration.**

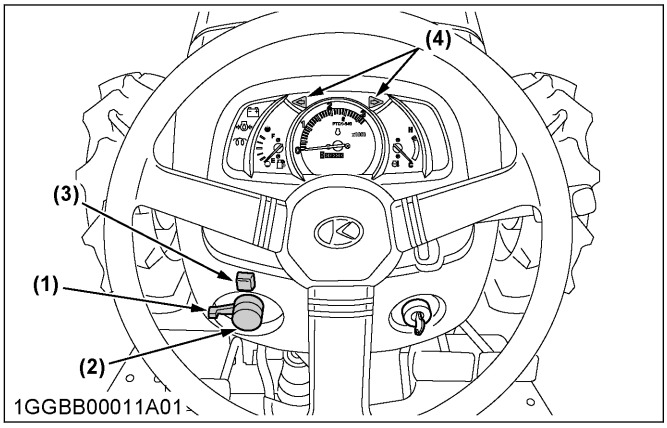
2. Select the positions of the light switches.

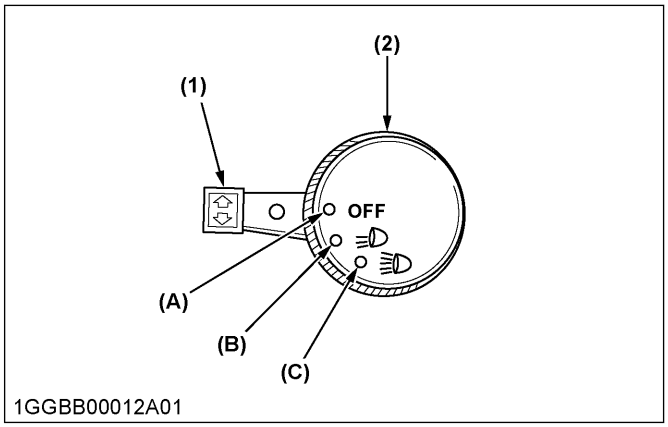




(1) Head light
(2) Turn signal / hazard light
(3) Rear turn signal / hazard light
(4) Tail light

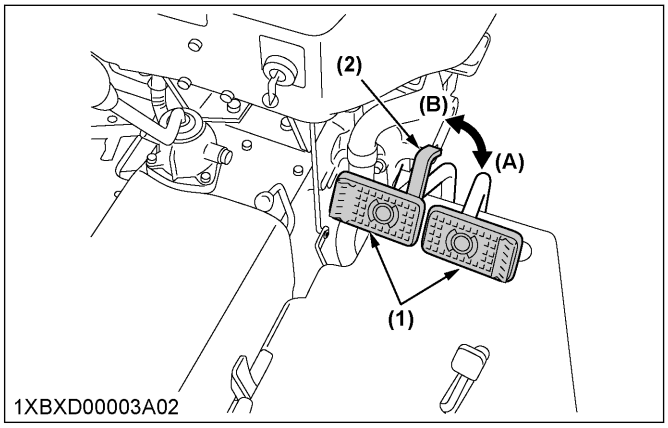
- Check the head light.
  (See Head light switch on page 26)
- Check the front and rear turn signal / hazard light.
  (See Turn signal light switch on page 26 and Hazard light switch on page 26)





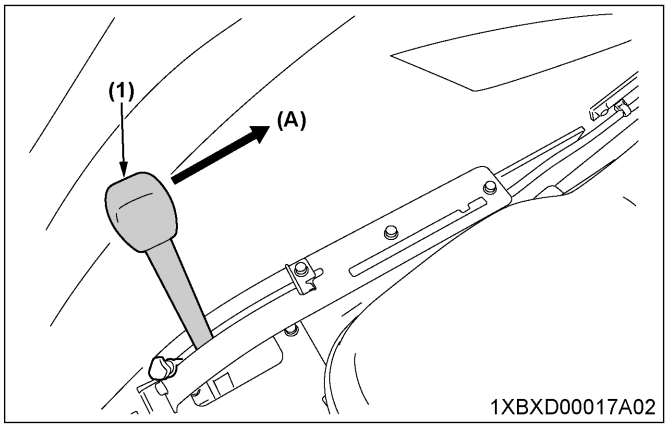
(1) Turn signal light switch
(2) Head light switch
(3) Hazard light switch
(4) Turn signal / hazard light indicator
(A) Off
(B) On (low)
(C) On (high)

3. Check the brake pedal.
   (See Brake pedals (right and left) on page 30)



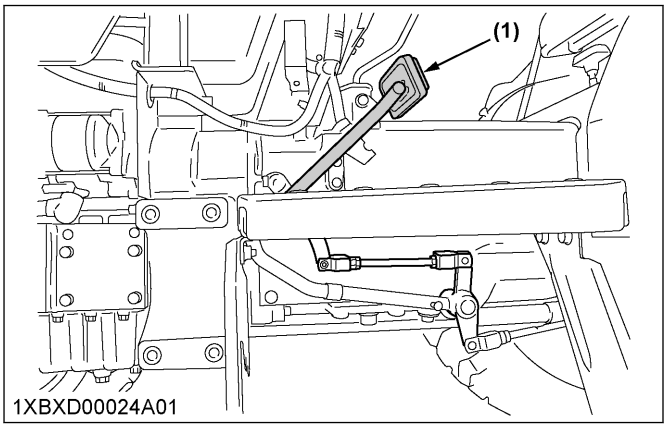
(1) Brake pedal
(2) Brake pedal lock
(A) Lock
(B) Release

4. Raise the implement.
   (See Position control of 3-point hitch mounted implement on page 63)



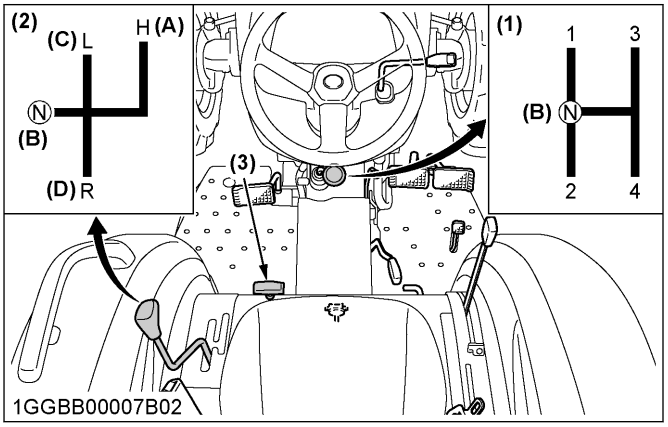
(1) Position control lever
(A) Up

5. Depress the clutch pedal.
   (See Clutch pedal on page 31)



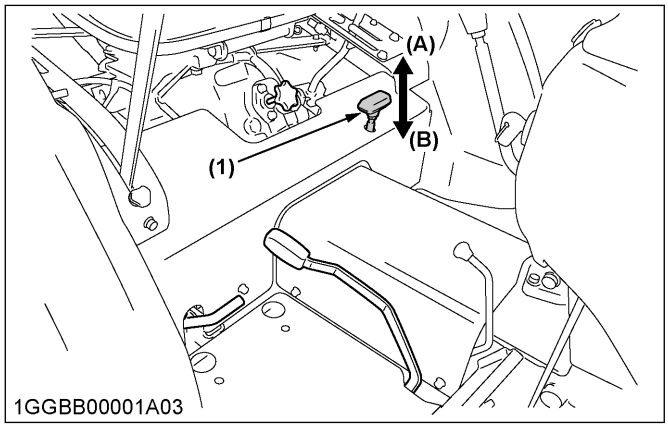
(1) Clutch pedal
(A) Press down half-way
(B) Press down fully

6. Select the travel speed.



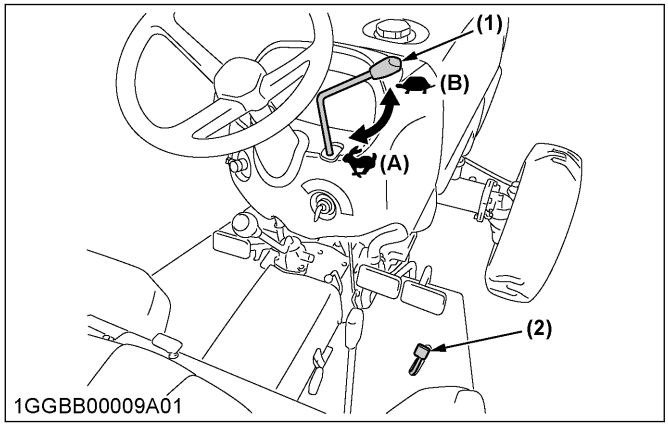
(1) Main gear shift lever
(2) Range gear shift lever (Shuttle shift lever)
(3) Front wheel drive lever [4WD type]
(A) High
(B) Neutral position
(C) Low
(D) Reverse

- Set the forward speed and the reverse speed by engaging the main-gear-shift-lever and range-gear-shift-lever.
  (See Main gear shift lever and range gear shift lever [Manual transmission type only] on page 33)
- Engage the front-wheel-drive [4WD type].
  (See Front wheel drive lever on page 31)



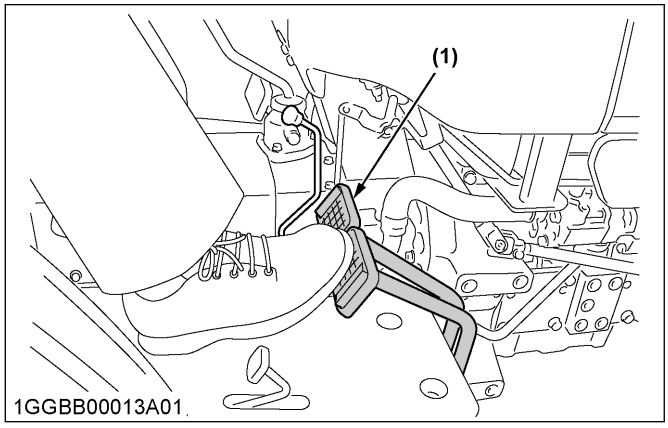
(1) Front wheel drive lever [4WD type]
(A) On
(B) Off

7. Accelerate the engine.
   (See Hand throttle lever on page 30 and Foot throttle [Manual transmission type only] on page 33)



(1) Hand throttle lever
(2) Foot throttle
(A) Increase
(B) Decrease

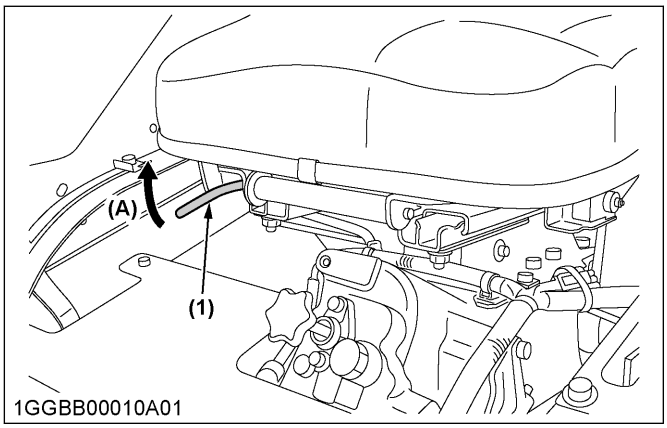
8. Unlock the parking brake and slowly release the clutch.
   (See To release the parking brake on page 31)

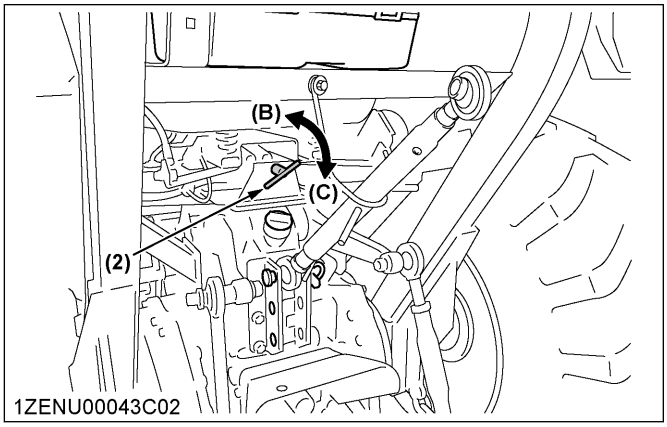


(1) Brake pedals

STARTING THE TRACTOR [HST TYPE]

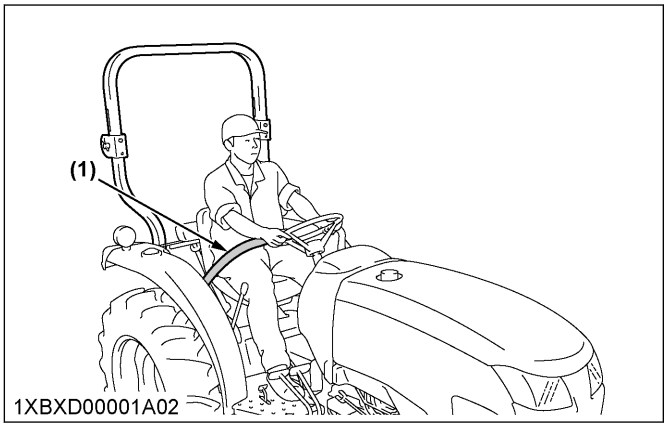
1. Adjust the operator's position.
   - Adjust the operator's seat.
     (See Operator's seat on page 32)





(1) Travel adjust lever
(2) Suspension adjust handle
(A) Pull
(B) To decrease tension
(C) To increase tension

   - Adjust the seat belt.
     (See Seat belt on page 32)

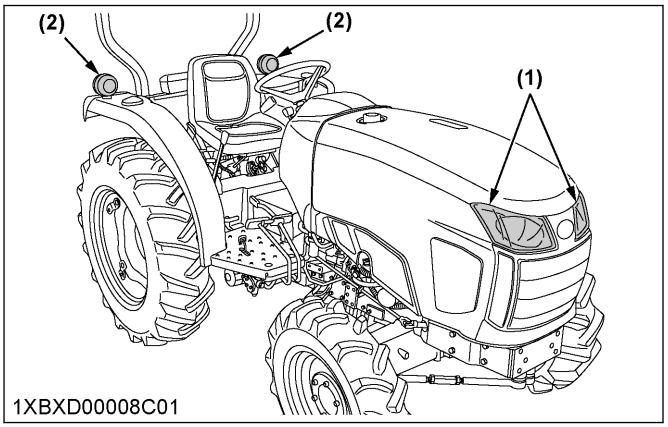


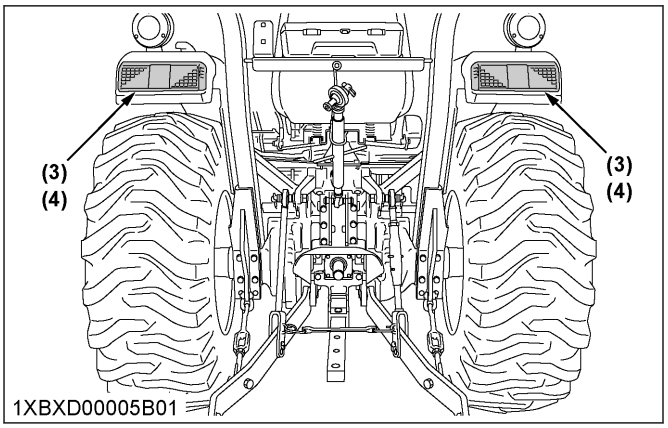
(1) Seat belt

NOTE :

- **Adjust the operator's seat and the suspension to make sure that the controls are comfortably at hand for the operator, making sure that the operator maintains a good posture and minimizes risks from whole body vibration.**

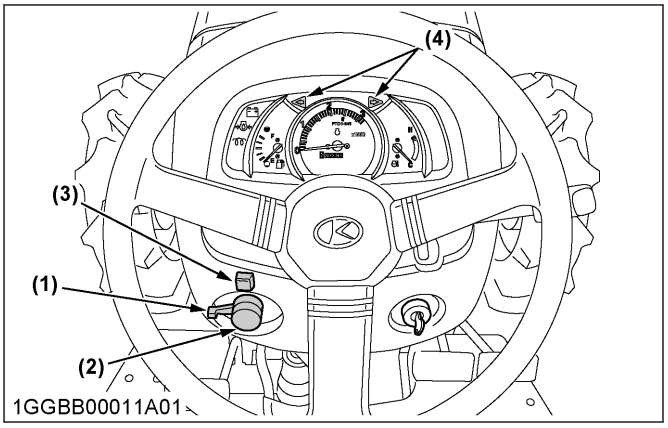
2. Select the positions of the light switches.

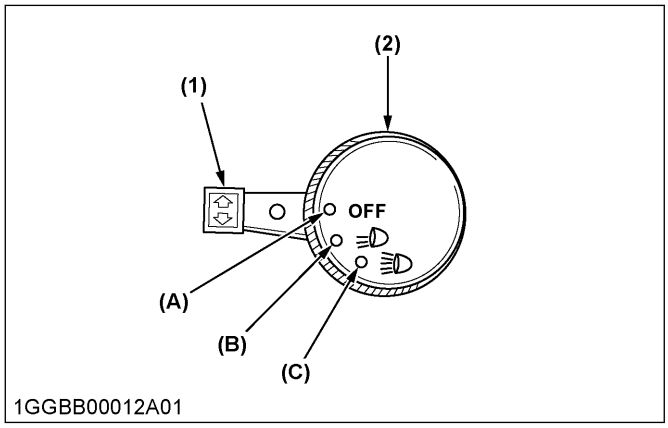




(1) Head light
(2) Turn signal / hazard light
(3) Rear turn signal / hazard light
(4) Tail light

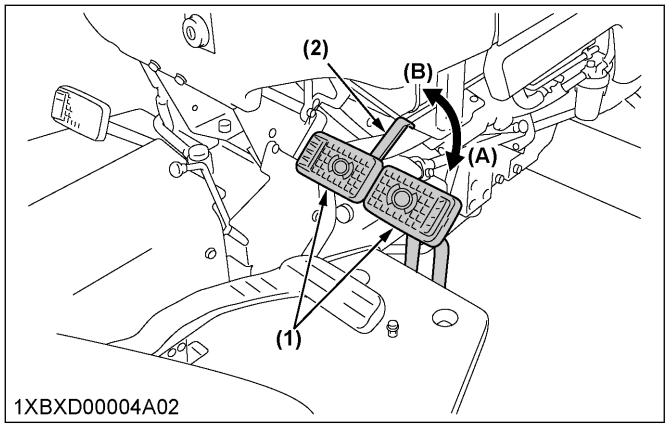
- Check the head light.
  (See Head light switch on page 26)
- Check the front and rear turn signal / hazard light.
  (See Turn signal light switch on page 26 and Hazard light switch on page 26)





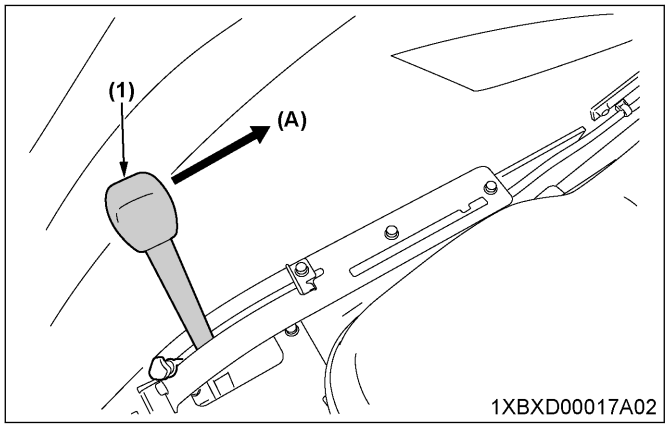
(1) Turn signal light switch
(2) Head light switch
(3) Hazard light switch
(4) Turn signal / hazard light indicator
(A) Off
(B) On (low)
(C) On (high)

3. Check the brake pedal.
   (See Brake pedals (right and left) on page 30)



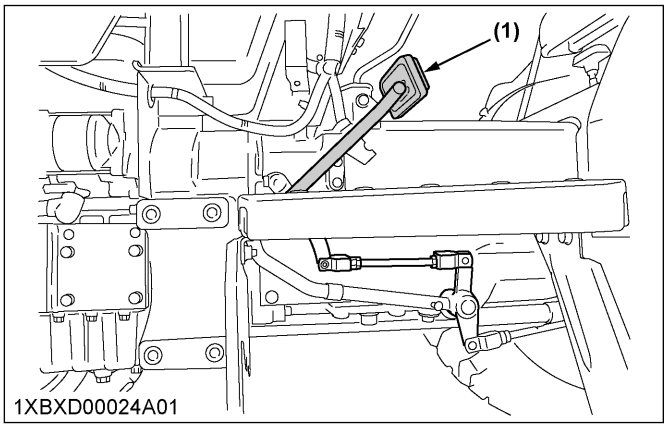
(1) Brake pedal
(2) Brake pedal lock
(A) Lock
(B) Release

4. Raise the implement.
   (See Position control of 3-point hitch mounted implement on page 63)



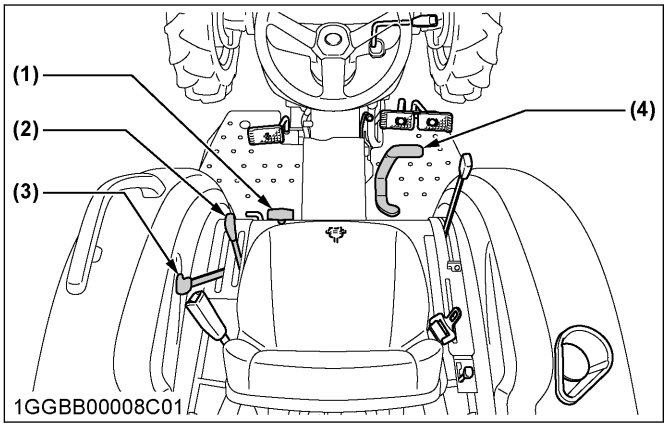
(1) Position control lever
(A) Up

5. Depress the clutch pedal.
   (See Clutch pedal on page 31)



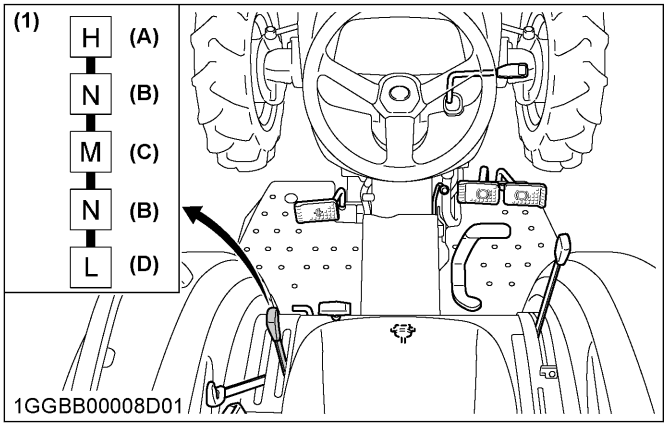
(1) Clutch pedal

6. Select the travel speed.



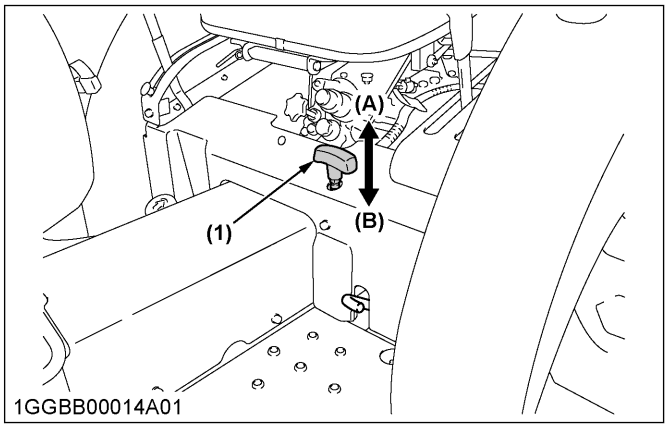
(1) Front wheel drive lever
(2) Range gear shift lever
(3) Cruise control lever
(4) Speed control pedal

- Set the gear by engaging the range-gear-shift-lever.
  (See Range gear shift lever (L-M-H) [HST type only] on page 34)



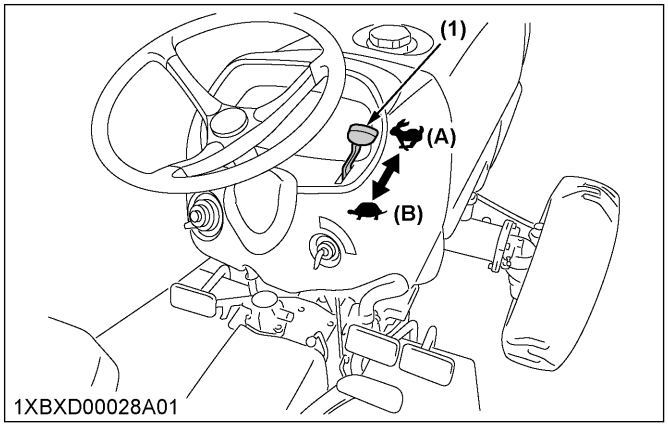
(1) Range gear shift lever (L-M-H)
(A) High
(B) Neutral position
(C) Middle
(D) Low

- Engage the front-wheel-drive.
  (See Front wheel drive lever on page 31)



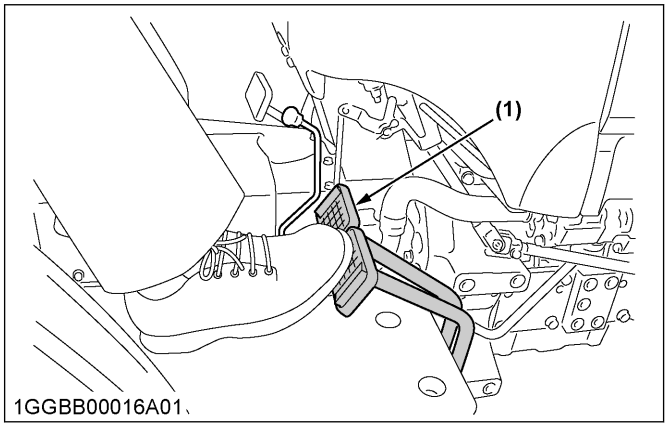
(1) Front wheel drive lever
(A) On
(B) Off

7. Accelerate the engine.
   (See Hand throttle lever on page 30)



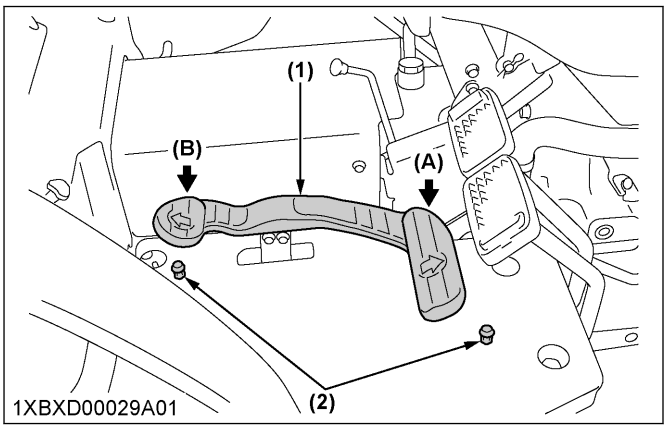
(1) Hand throttle lever
(A) Increase
(B) Decrease

8. Unlock the parking brake and slowly release the clutch.
   (See To release the parking brake on page 31)



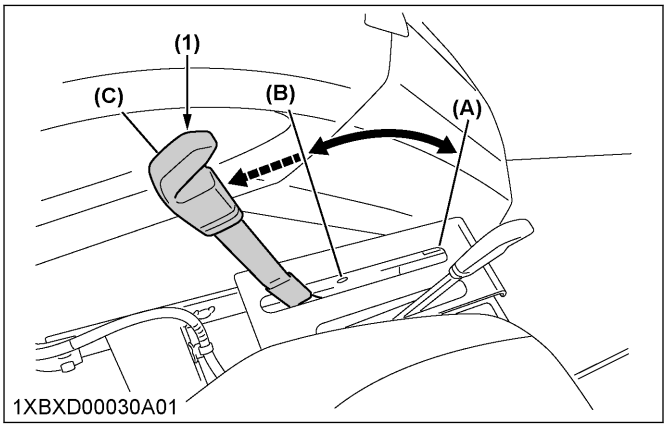
(1) Brake pedals

9. Depress the speed-control-pedal.
   (See Speed control pedal [HST type only] on page 33)

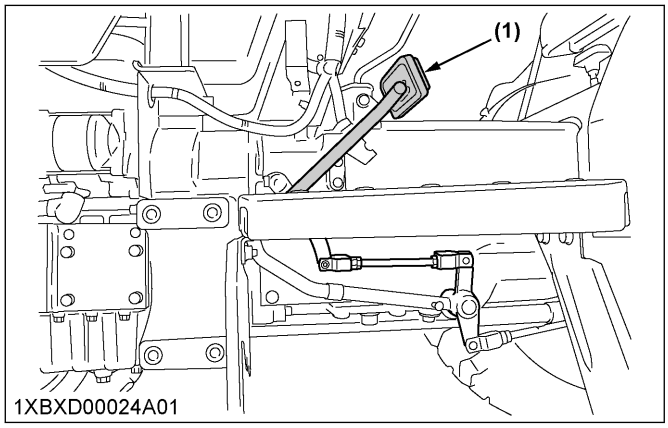


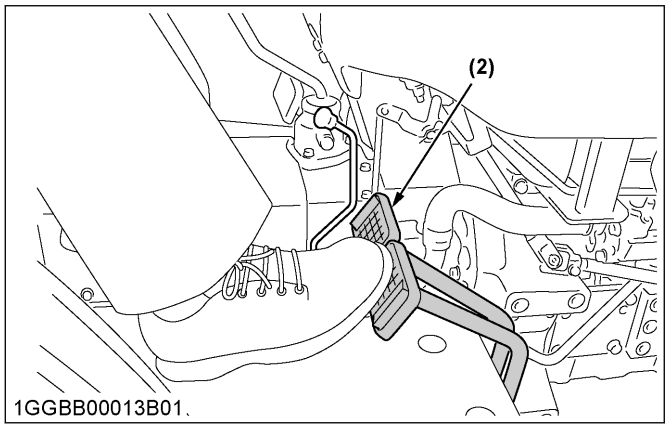
(1) Speed control pedal
(2) Stopper bolt
(A) Forward
(B) Reverse

- Set the proper forward speed by applying the cruise-control-lever.
  (See Cruise control lever (if equipped) [HST type only] on page 34 and How to use the cruise control lever (if equipped) [HST type only] on page 35)



(1) Cruise control lever
(A) Increase
(B) Decrease
(C) Off





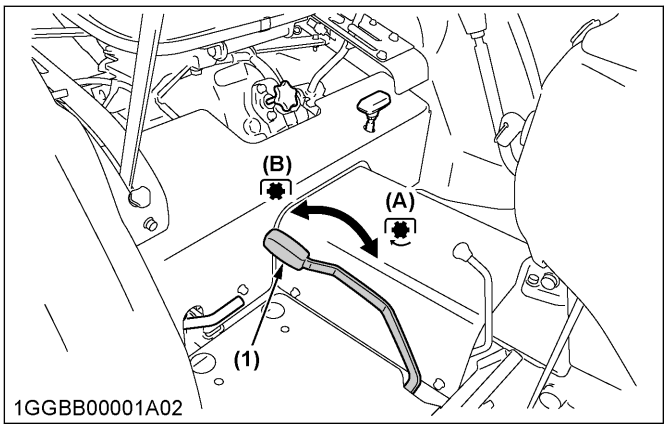
(1) Clutch pedal
(2) Brake pedal

STOPPING THE TRACTOR

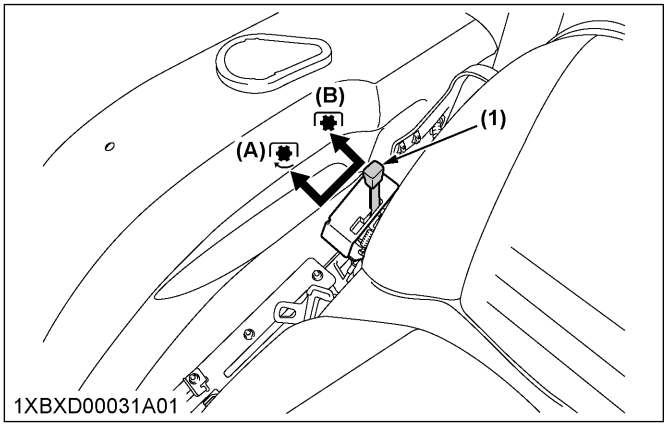
1. Slow down the engine.
2. Depress the clutch pedal and brake pedal.

3. After the tractor has stopped, disengage the PTO clutch.
   (See PTO gear shift lever on page 58)

[Manual transmission type]

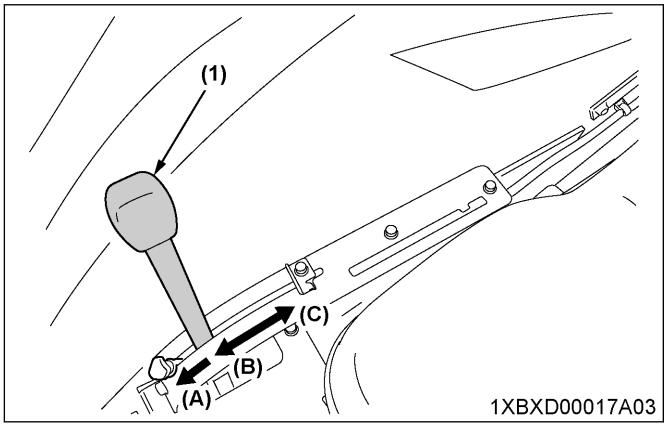


[HST type]



(1) PTO gear shift lever
(A) On
(B) Off

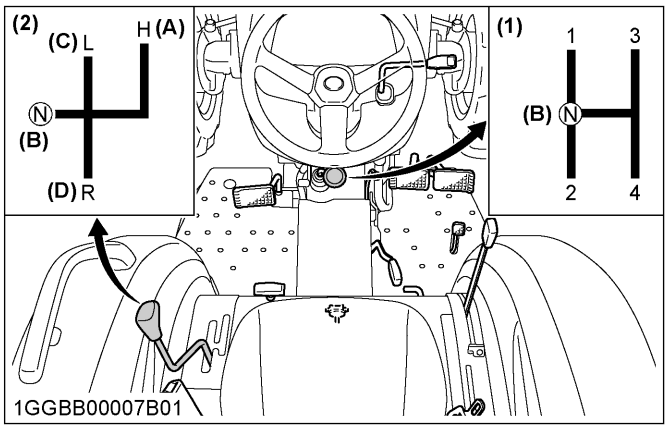
4. Lower the implement to the ground.
   (See Position control of 3-point hitch mounted implement on page 63)



(1) Position control lever
(A) Float
(B) Down
(C) Up

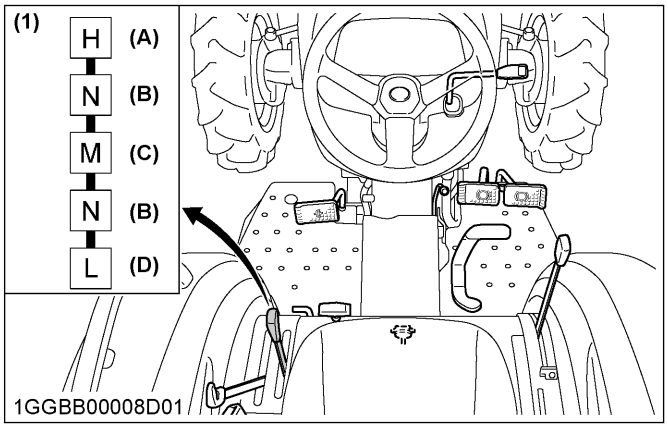
5. Shift the transmission to the neutral position.

- **[Manual transmission type]**
  (See Main gear shift lever and range gear shift lever [Manual transmission type only] on page 33)



(1) Main gear shift lever
(2) Range gear shift lever
(A) High
(B) Neutral position
(C) Low
(D) Reverse

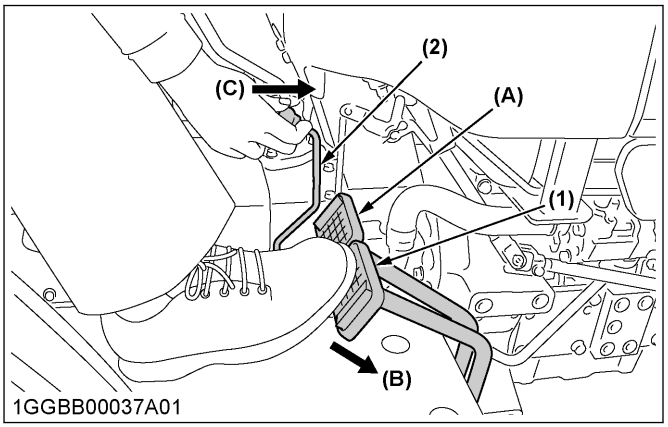
- **[HST type]**
  (See Range gear shift lever (L-M-H) [HST type only] on page 34)



(1) Range gear shift lever (L-M-H)
(A) High
(B) Neutral position
(C) Middle
(D) Low

6. Release the clutch pedal.

7. Set the parking brake.
   (See To set the parking brake on page 30)



(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Pull

CHECK DURING DRIVING

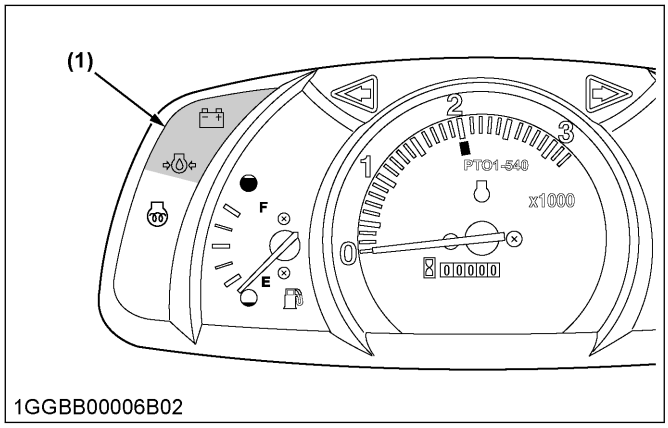
1. Cases to stop the engine immediately

Immediately stop the engine if:
- The engine suddenly slows down or accelerates.
- Unusual noises suddenly are heard.
- Exhaust fumes suddenly become very dark.

2. 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.**



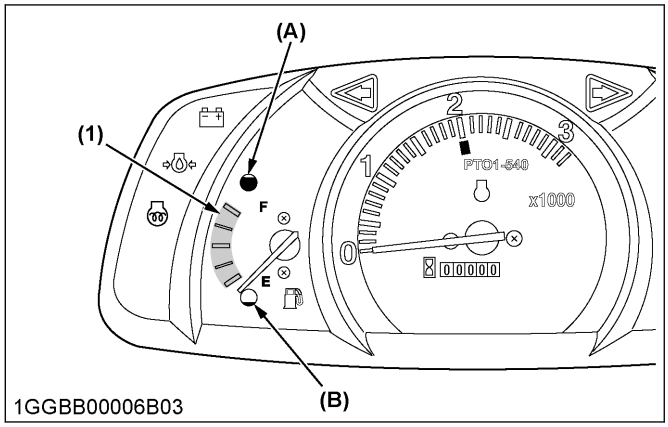
(1) Easy Checker™

Easy Checker™ lamps

Engine oil pressure warning indicator	If the oil pressure in the engine goes below the prescribed level, the engine-oil-pressure-warning-indicator in the Easy Checker™ will come on. If the engine-oil-pressure-warning-indicator should come on during operation of the tractor, and this warning indicator 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 80)
Electrical charge warning indicator	If the alternator is not charging the battery, the electrical-charge-warning-indicator in the Easy Checker™ will come on. If the electrical-charge-warning-indicator should come on during operation of the tractor, check the electrical charging system or consult your local KUBOTA Dealer.

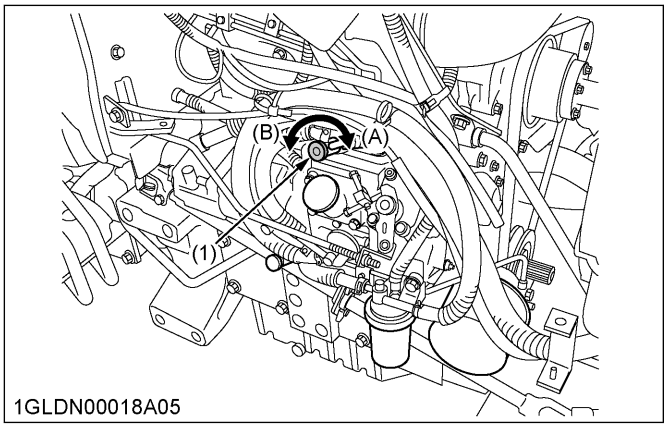
3. Fuel gauge

When the key switch is on, the fuel gauge indicates the fuel level.



(1) Fuel gauge
(A) Full
(B) Empty

Be careful not to empty the fuel tank. Otherwise air may enter the fuel system.
If air should enter the fuel system, bleed it.
(See Bleeding the fuel system on page 103)



(1) Air vent shutoff-valve (B) Open
(A) Close

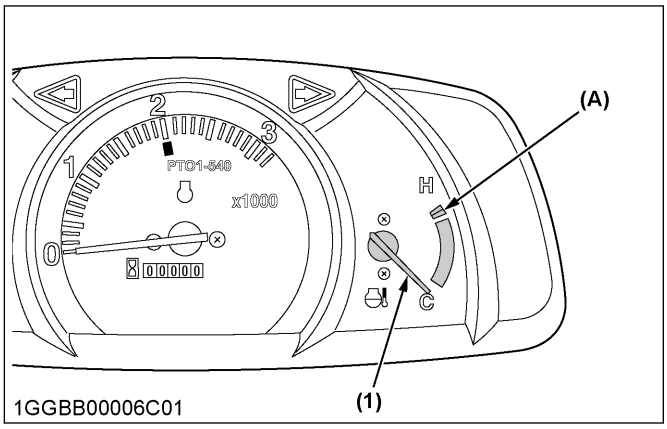
4. Coolant temperature gauge

⚠ WARNING

To avoid personal injury or death:

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

- With the key switch at the *"ON"* position, the coolant-temperature-gauge indicates the temperature of the coolant. **[C]** means cold and **[H]** means hot.
- If the indicator of the coolant-temperature-gauge reaches the red zone position, engine coolant is overheated. Check the tractor according to Dealing with overheated coolant temperature on page 54 and ENGINE TROUBLESHOOTING on page 108.



(1) Coolant temperature gauge (A) Red zone

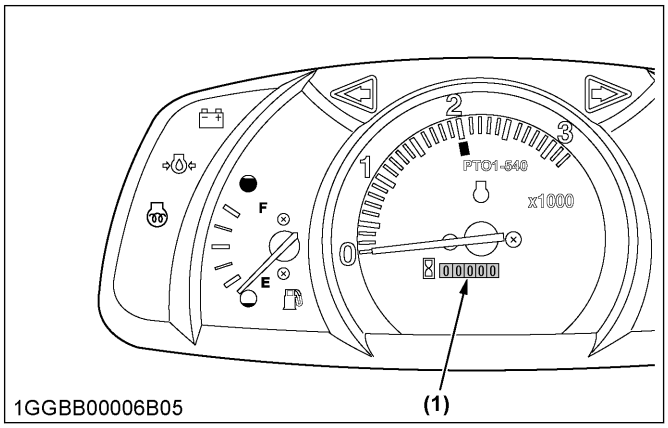
4.1 Dealing with overheated coolant temperature

Take the following actions in the event which the coolant temperature is nearly or more than the boiling point, what is called *Overheating*.

1. Park the tractor in a safe place and keep the engine unloaded idling.
2. Do not stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the machine for further 10 minutes or while the steam blows out.
4. Check that there are no dangers such as burns. Get rid of the causes of overheating according to ENGINE TROUBLESHOOTING on page 108.
5. Then, start again the engine.

5. Hour meter

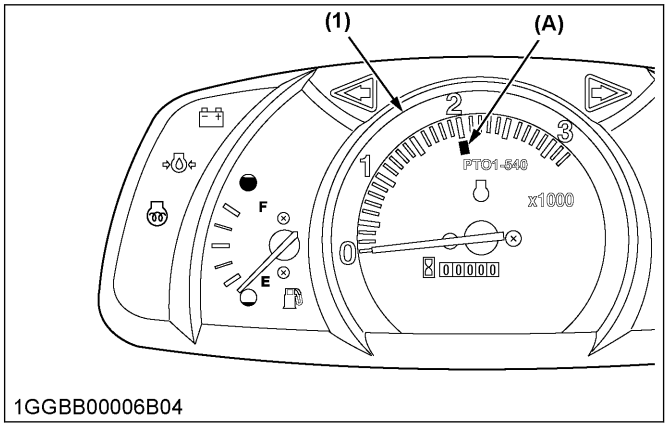
The hour meter gives readings for the hours that the tractor has been operated.
The hour meter indicates the hours that the tractor has been used in 5 digits and the last digit indicates 1/10 of an hour.



(1) Hour meter

6. Tachometer

The tachometer gives readings for the engine speed and PTO-shaft-speed.
The tachometer indicates the engine speed and the location of 540-PTO-shaft-speed on the dial.



(1) Engine revolution (A) PTO (540 rpm)

PARKING THE TRACTOR

When parking the tractor, be sure to set the parking brake.

⚠ WARNING

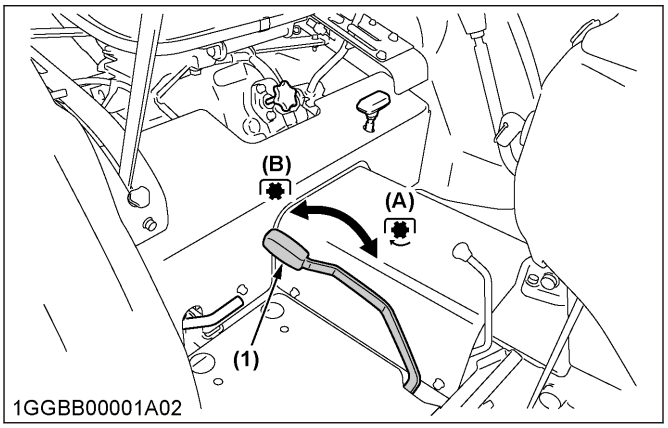
To avoid personal injury or death:
Before dismounting the tractor

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

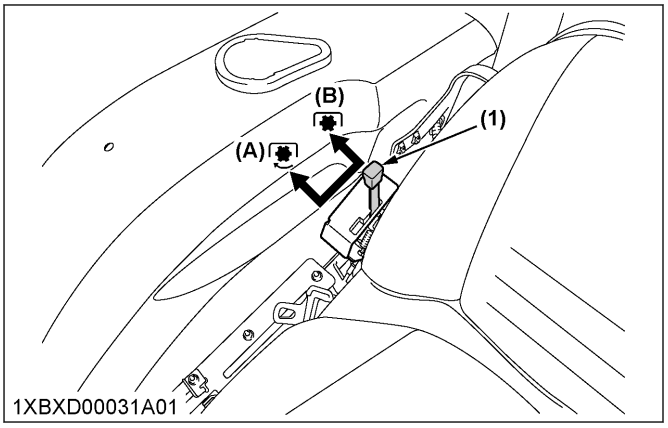
Before getting off the tractor, perform the proper procedure.

1. Disengage the PTO.
   (See PTO gear shift lever on page 58)

[Manual transmission type]

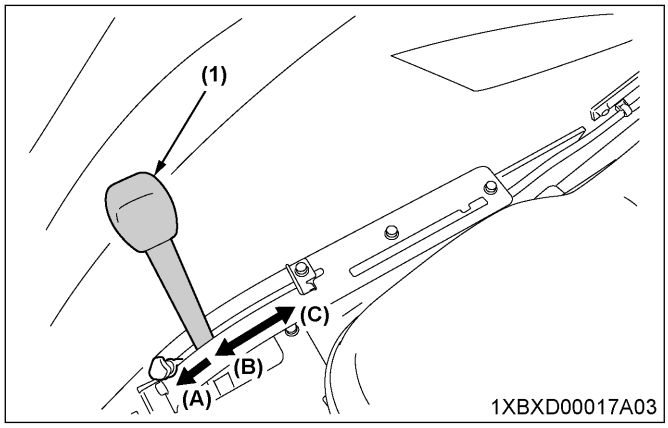


[HST type]



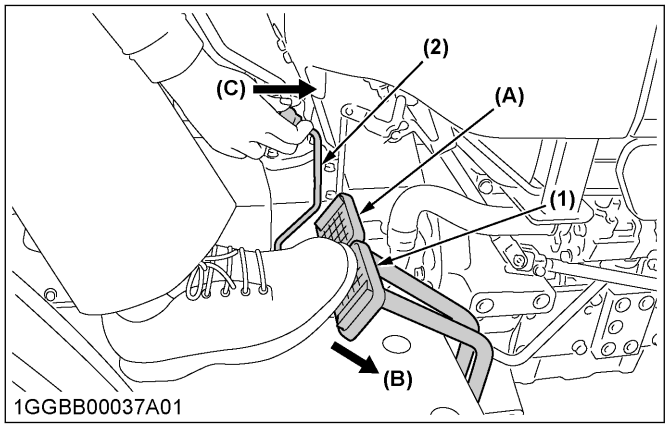
(1) PTO gear shift lever
(A) On
(B) Off

2. Lower all implements to the ground.
   (See Position control of 3-point hitch mounted implement on page 63)



(1) Position control lever
(A) Float
(B) Down
(C) Up

3. Place all control levers in their neutral positions.
4. Set the parking brake.
   (See To set the parking brake on page 30)



(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Push

5. Stop the engine.
   (See STOPPING THE ENGINE on page 41)
6. Remove the starter key.
   If it is necessary to park the tractor on an incline, be sure to chock the wheels to prevent accidental rolling of the tractor.

TECHNIQUES FOR OPERATING THE TRACTOR

1. Differential lock

⚠ WARNING

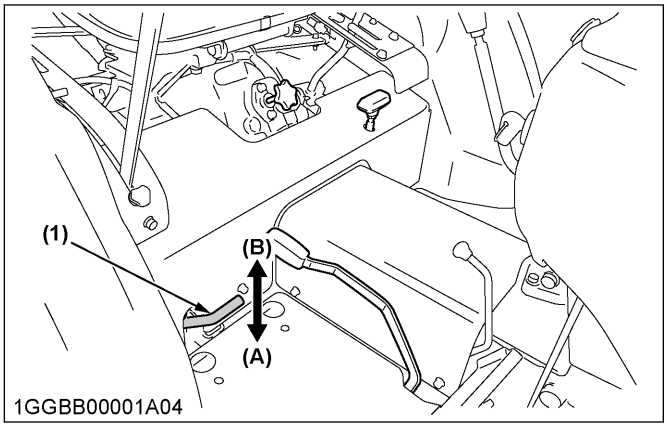
To avoid personal injury or death due to loss of steering control:

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

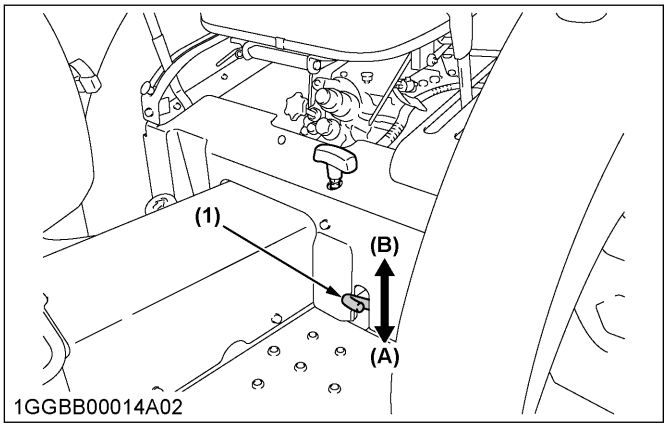
- **Be sure to release the differential lock before turning the tractor in field conditions.**

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.
You can maintain the differential lock only while the differential-lock-pedal is depressed.

[Manual transmission type]



[HST type]



(1) Differential lock pedal
(A) Press to engage
(B) Release to disengage

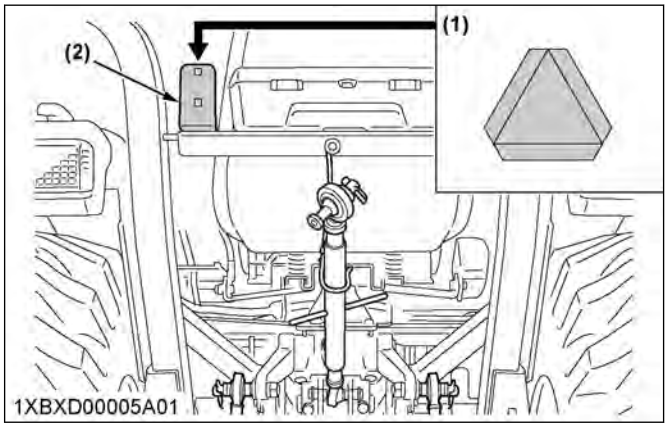
IMPORTANT :
- **When using the differential lock, always slow the engine down.**
- **To prevent damage to power train, do not engage the differential lock when one wheel is spinning and the other is completely stopped.**
- **If you cannot release the differential lock in the preceding manner, lightly depress the brake pedals alternately.**

2. Precautions for operating the tractor on a road

⚠ WARNING
To avoid personal injury or death:

- **To help assure that the straight-line-stops when driving at transport speeds, lock the brake pedals together. Uneven braking at road speeds could cause the tractor to roll-over.**
- **When traveling on road with 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability.**

Be sure that the SMV emblem and the warning-indicator-lamps are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install the SMV emblem and the warning-indicator-lamp on equipment.
Consult your local KUBOTA Dealer for further details.



(1) SMV emblem *(2) Bracket*

3. Precautions for operating the tractor on slopes and rough terrain

⚠ WARNING
To avoid personal injury or death:

- **Always back the tractor up when the tractor is going up 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 clutch lever or shift lever to the neutral position. Disengage the clutch lever or shift lever 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.**

- Be sure that the wheel tread is adjusted to provide the maximum stability.
(See WHEEL ADJUSTMENT on page 66)

- 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.

4. Precautions for transporting the tractor safely

- Carry the tractor on a truck if the tractor is damaged. Secure the tractor tightly with ropes.
- Follow the instruction as follows when towing the tractor. Otherwise, powertrain of the tractor may get damaged.
  - Set the all shift levers to their *"NEUTRAL"* position.
  - If possible, start the engine and select 2WD. If creep speed is fitted, make sure that creep speed is disengaged.
  - Tow the tractor using its front hitch or drawbar.
  - Never tow the tractor faster than the following speed.

Towing speed	10 km/h (6.2 mph)

5. Directions for use of the power steering

- The power steering is activated only while the engine is running. Slow engine speeds weight the steering a little. 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. Otherwise tires may wear out sooner.
- The steering becomes easier due to the power-steering-mechanism. Be careful when driving on a road at high speeds.

POWER TAKE-OFF (PTO)

PTO OPERATION

⚠ WARNING

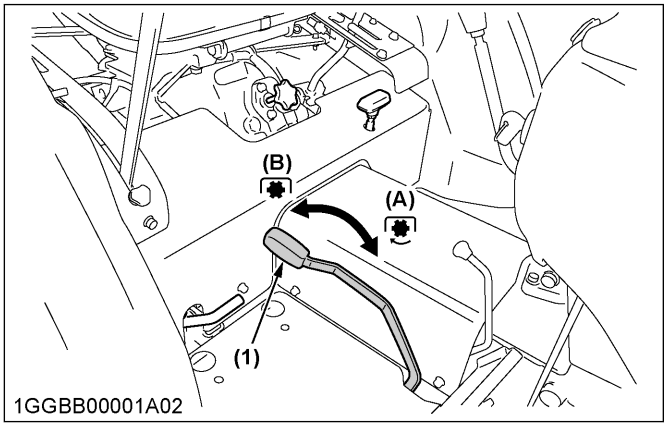
To avoid personal injury or death:

- **Disengage the 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.**

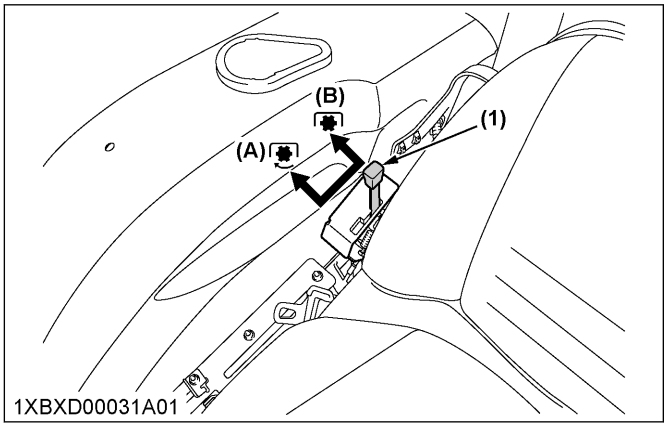
1. PTO gear shift lever

- The tractor equips a 540 rpm speed position.
- PTO shifting needs clutch operation. Press the clutch pedal down completely to stop the tractor movement and movement of any PTO-driven-equipment before shifting the PTO-gear-shift-lever.

[Manual transmission type]



[HST type]



(1) PTO gear shift lever
(A) On
(B) Off

IMPORTANT :

- **To avoid shock loads to the PTO, reduce the engine speed when engaging the PTO, then open the throttle to the recommended speed.**
- **To avoid the damage of transmission, fully disengage the main clutch before shifting the PTO-gear-shift-lever.**

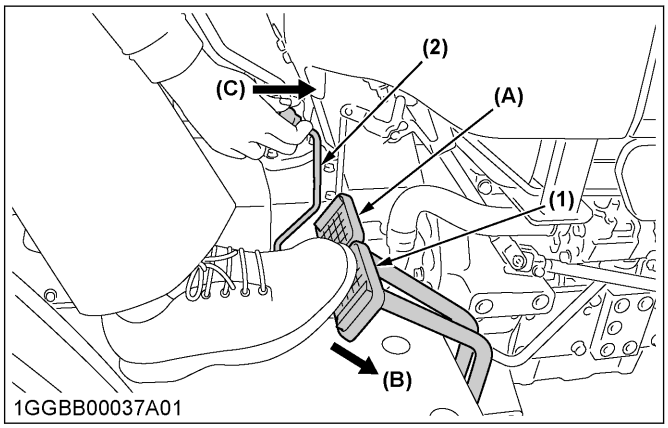
NOTE :

- **There is a PTO-1 (540 rpm) indicated mark on the tachometer board.**
- **Tractor engine will not start if the PTO-gear-shift-lever is in the engaged *"ON"* position.**

2. How to use the stationary PTO

To park the tractor and use the PTO system for chipper or pump, for example, start the PTO system in the procedure in this section.

1. Apply the parking brakes and place blocks at the tires.
   (See To set the parking brake on page 30)

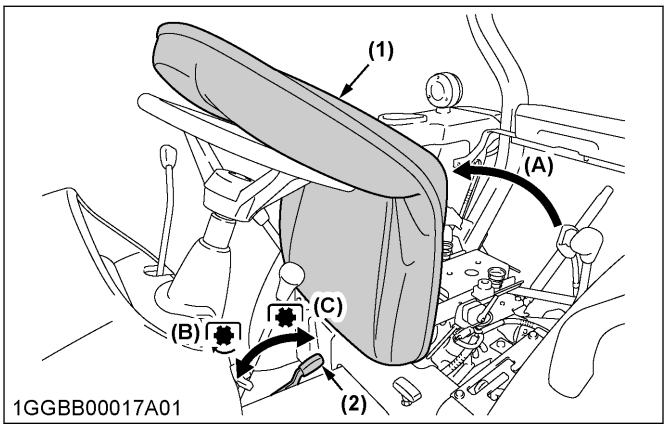


(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Push

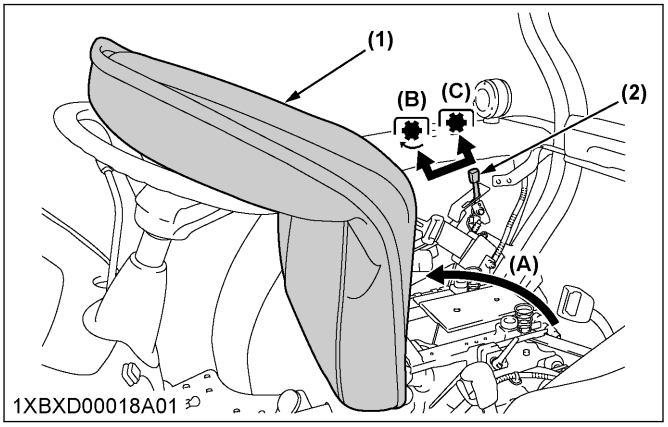
2. Make sure the shift levers are at the neutral position, and start the engine.
3. Set the PTO-gear-shift-lever to engage *"ON"*.
4. Set the engine speed to provide recommended PTO speed.

5. Dismount the operator's seat and tilt up quickly.
   Engine will stop if there is a delay in tilting up the operator's seat.

[Manual transmission type]



[HST type]



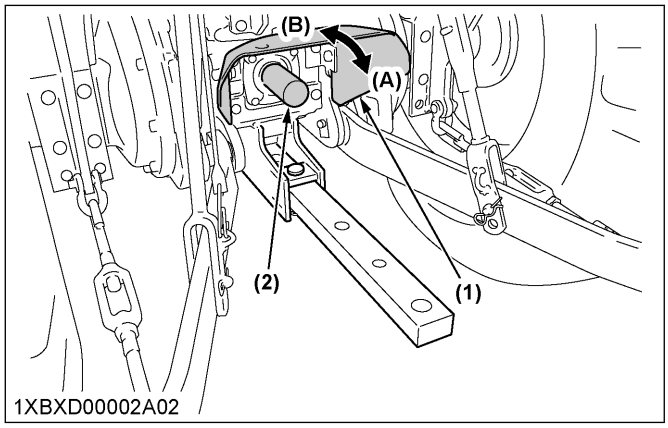
(1) Operator's seat
(2) PTO gear shift lever
(A) Tilt forward
(B) On
(C) Off

NOTE :

- **If the PTO system is engaged and you stand up from the operator's seat or the operator's seat is not tilted forward, the engine stops automatically after standing up.**

3. PTO shaft cover and PTO shaft cap

Keep the PTO-shaft-cover in place at all times.
Replace the PTO-shaft-cap when the PTO shaft is not in use.
When connecting or disconnecting the joint to the PTO shaft, raise up the PTO-shaft-cover.



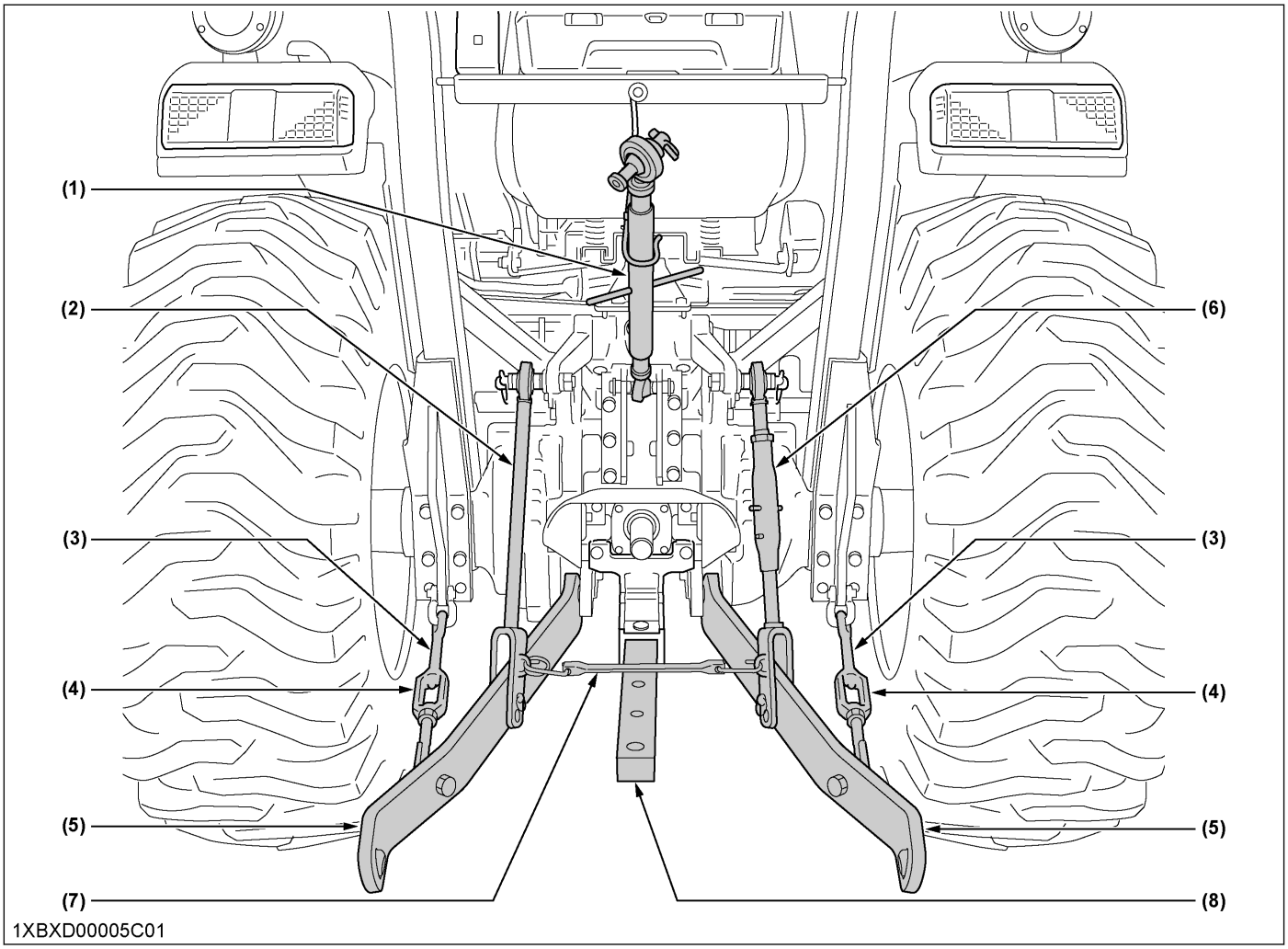
(1) PTO shaft cover
(2) PTO shaft cap
(A) Normal position
(B) Raised position

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.**

3-POINT HITCH AND DRAWBAR

OVERVIEW OF THE 3-POINT HITCH AND DRAWBAR



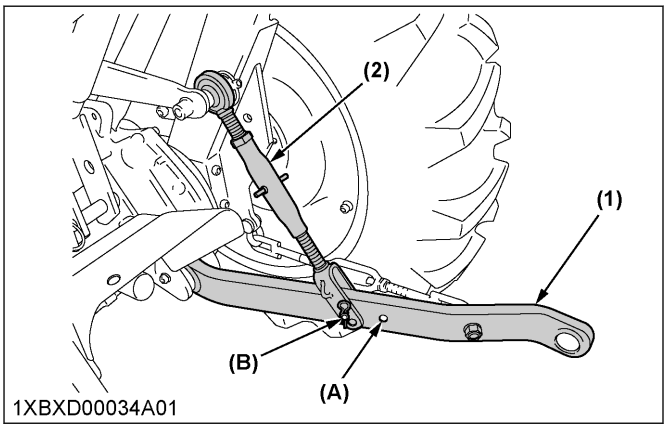
(1) Top link
(2) Lifting rod (left)
(3) Check chains
(4) Turn buckle
(5) Lower link
(6) Lifting rod (right)
(7) Lower link holder
(8) Drawbar

3-POINT HITCH

1. Preparations for attaching the 3-point hitch implement

1.1 Selecting the holes of lower links

1. Selecting the proper holes of lower links to attach the lifting rod.
   There are two holes in the lower links. For most operations, you should attach the lifting rods to the hole-B as follows.

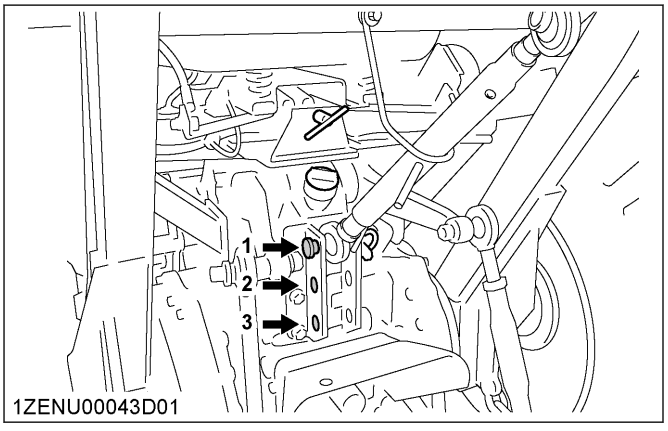


(1) Lower link *(A) Hole-A*
(2) Lifting rod *(B) Hole-B*

NOTE :
- **You may attach the lifting rods to the hole-A for greater lifting force.**

1.2 Selecting the holes to mount the top link

1. Select the proper set of holes according to Hydraulic control unit use reference chart on page 65.



1.3 Dealing with the drawbar

1. Remove the drawbar if a close mounted implement is attached to the 3-point hitch.
   (For detail for the drawbar, see DRAWBAR on page 62)

2. Attaching methods of 3-point hitch implement

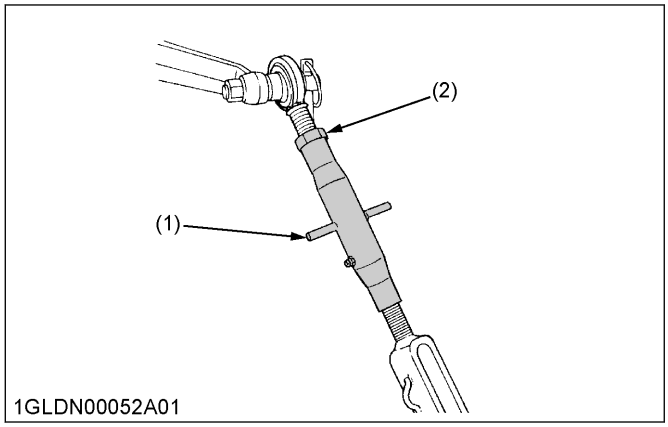
2.1 Precautions for attaching and detaching the 3-point hitch implement

⚠ WARNING

To avoid personal injury or death:
- **Be sure to stop the engine before attaching the 3-point hitch implement.**
- **Do not stand between tractor and implement unless the parking brake is applied.**
- **Before attaching or detaching the 3-point hitch implement, locate the tractor and implement on a firm level surface.**
- **Whenever an implement or other attachment is connected to the 3-point hitch of the tractor, check full range of operation for interference, binding, or PTO separation.**

2.2 Adjusting the lifting rod (right)

1. Level a 3-point mounted implement from side to side by turning the adjusting handle with 3-point mounted implement on the ground.
2. Shorten or lengthen the adjustable lifting rod.
3. After adjustment, tighten the lock nut securely.



(1) Adjusting handle *(2) Lock nut*

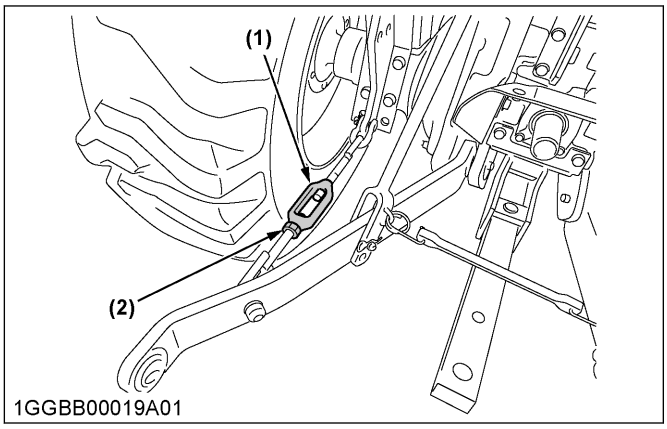
2.3 Adjusting the top link

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

1. Adjust the angle of the implement to the desired position by shortening or lengthening the top link.
2. After adjustment, tighten the lock nut securely.

2.4 Adjusting the check chains

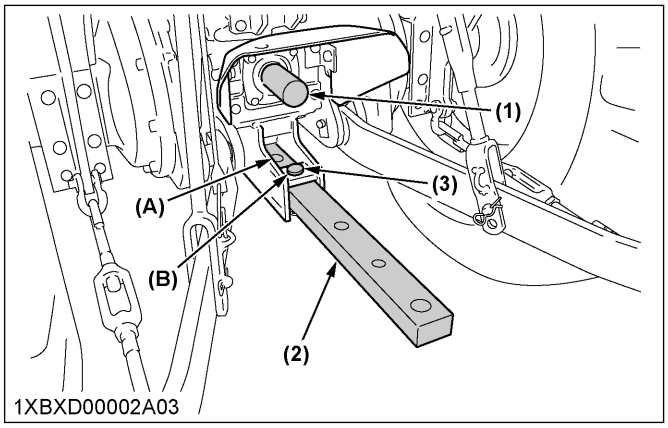
1. Adjust the turnbuckle to control the horizontal sway of the implement.
   (See Hydraulic control unit use reference chart on page 65)
2. After adjustment, re-set the lock nut.

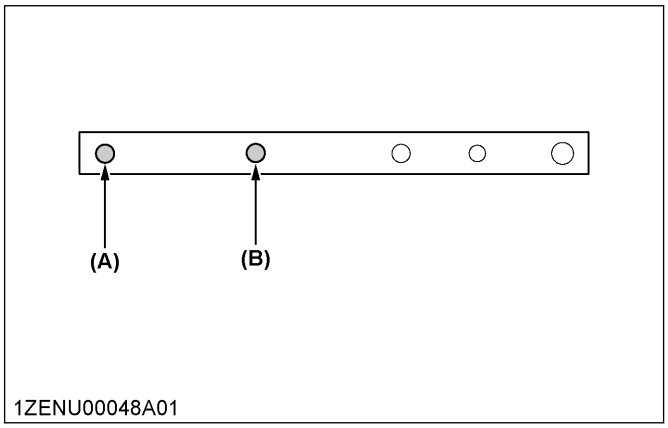


(1) Turnbuckle *(2) Lock nut*

2.5 Dealing with the lower link holder

1. Holds the lower links with the lower-link-holder.
   When operating the tractor without an implement, it is necessary to lock the lower links to prevent them from hitting the rear wheels of the tractor.





(1) PTO shaft *(A) Hole-A*
(2) Drawbar *(B) Hole-B*
(3) Pivot pin

DRAWBAR

⚠ WARNING

To avoid personal injury or death:

- **Never pull from the top link, the rear axle, or any point above the drawbar. Pulling from the top link, the rear axle, or any point above the drawbar could cause the tractor to tip over rearward.**

1. Adjusting the drawbar length

1. Adjust the length of the drawbar.
   When towing an implement, it is recommended that the (B) hole in drawbar to be utilized.
   For information about the drawbar load, read the IMPLEMENT LIMITATION TABLES on page 22.

HYDRAULIC UNIT

IMPORTANT :

- **Do not operate the hydraulic unit until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.**
- **If you hear noises when implement is lifting after the hydraulic-control-lever has been activated, the hydraulic mechanism is not adjusted properly. Unless corrected, the hydraulic unit will be damaged. Contact your KUBOTA Dealer for adjustment.**

3-POINT HITCH CONTROL SYSTEM

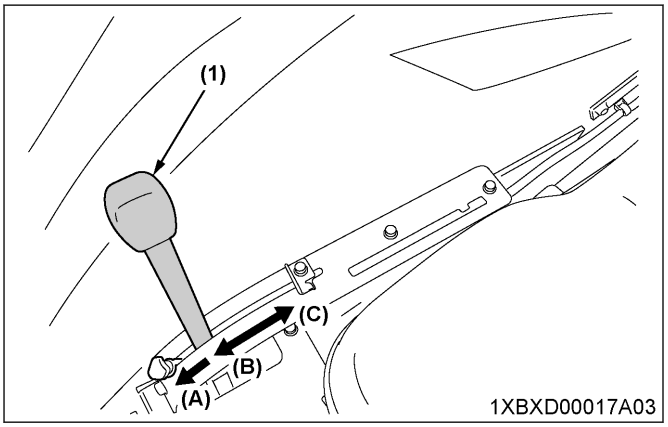
⚠ WARNING

To avoid personal 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. Position control of 3-point hitch mounted implement

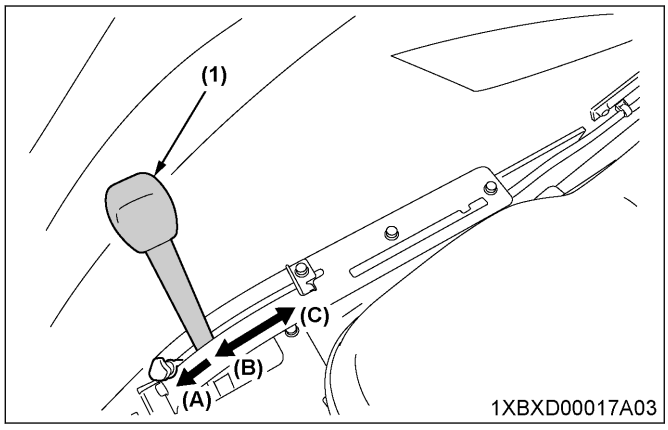
Position control will control the working depth of 3-point hitch mounted implements regardless of the amount of pull required.



(1) Position control lever
(A) Float
(B) Down
(C) Up

2. Float control of 3-point hitch mounted implement

Place the position-control-lever in the float position to move the lower links freely along with the ground conditions.



(1) Position control lever
(A) Float
(B) Down
(C) Up

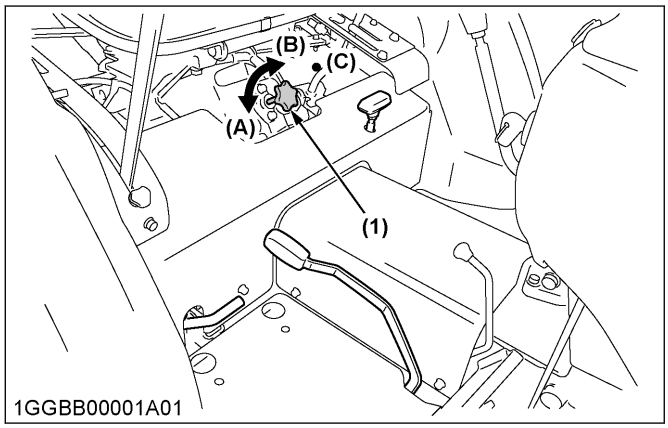
3. 3-point hitch lowering speed

⚠ WARNING

To avoid personal injury or death:

- **Fast lowering speed may cause damage or injury. You should adjust the lowering speed of 3-point hitch mounted implement to 2 or more seconds.**

You can control the lowering speed of the 3-point hitch by adjusting the 3-point hitch lowering speed knob.



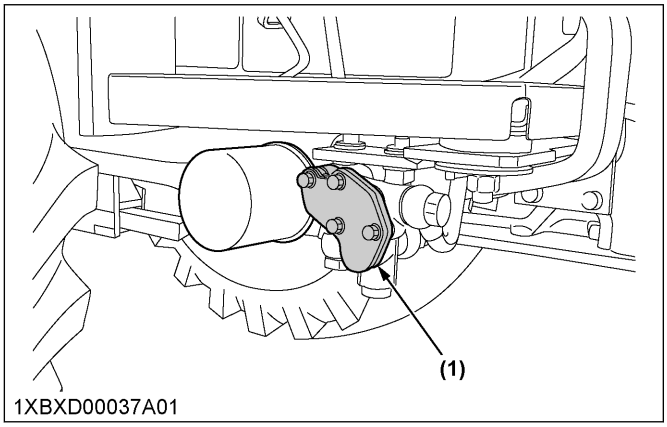
(1) 3-point hitch lowering speed knob
(A) Fast
(B) Slow
(C) Lock

AUXILIARY HYDRAULICS

1. How to use the hydraulic block type outlet when the hydraulically operated implement is attached

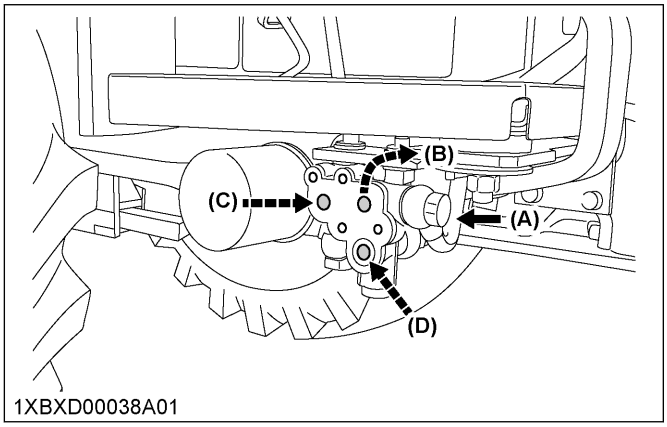
Hydraulic-block-type-outlet is useful when adding hydraulically operated implement such as front-end-loader, front blade, and so on.

1. Remove the block cover.
2. Route the implement inlet, outlet, and return hoses as shown in the illustration.



(1) Block cover

Block cover (1) removed

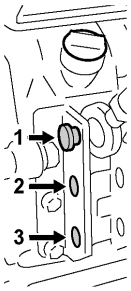
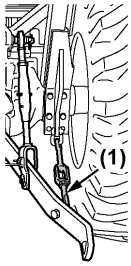


(A) From gear pump
(B) To implement
(C) From implement (outlet)
(D) From implement (tank port)

To implement (B)	Max flow	19.5 L/min (5.15 gals./min)
	Max pressure	15.2 MPa (155 kgf/cm^2) [2205 psi]

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	 1AGAIAZAP122A **Soil condition**	 1ZENU00053A01 **Top link mounting holes**	 1AGAIAZAP070A **Gauge wheel**	 1XBXD00039A01 *(1) Check chains*	**Remarks**
Moldboard plow	Light soil	1 or 2	Yes/no	Loose	Adjust the check chains so that the implement can move 5 cm to 6 cm (2.0 in. to 2.4 in.) laterally.
	Medium soil	2 or 3			
	Heavy soil	3			
Disc plow	-	2 or 3			
Harrower (spike, springtooth, and disc type)	---	2 or 3			Tighten the check chains enough to prevent excessive implement movement when implement is in raised position.
Sub-soiler					
Weeder and ridger	---	3	YES	Tighten	
Earthmover, digger, scraper, manure fork, and rear carrier			Yes/no		With implements with gauge wheels, lower the position-control-lever all the way.
Mower (mid mount type and rear mount type)			No		

TIRES, WHEELS, AND BALLAST

TIRES

⚠ WARNING
To avoid personal 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 66)

IMPORTANT :
- **Do not use tires other than those approved by KUBOTA.**

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 the tire pressure everyday and inflate as necessary.

	Tire sizes	Inflation Pressure
Rear	11.2-24, 4PR	100 kPa (1.0 kgf/cm^2) [14 psi]
	13.6-16, 4PR	100 kPa (1.0 kgf/cm^2) [14 psi]
	15-19.5, 6PR	210 kPa (2.1 kgf/cm^2) [30 psi]
Front	5.00-15, 4PR	220 kPa (2.2 kgf/cm^2) [32 psi]
	7.2-16, 6PR	180 kPa (1.8 kgf/cm^2) [26 psi]
	23 x 8.50-12, 4PR	160 kPa (1.6 kgf/cm^2) [23 psi]
	25 x 8.50-14, 6PR	160 kPa (1.6 kgf/cm^2) [23 psi]
	27 x 8.50-15, 6PR	210 kPa (2.1 kgf/cm^2) [30 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

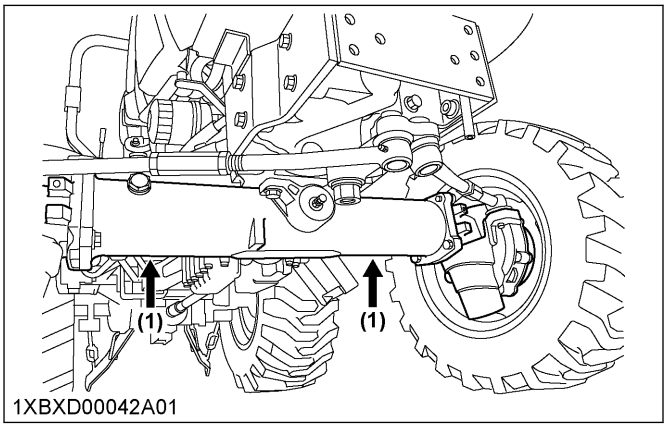
You can not use the dual tires.
Dual tires are not approved.

WHEEL ADJUSTMENT

⚠ WARNING
To avoid personal injury or death:
- **When working on slopes or when working with a trailer, set the wheel tread as wide as practical for maximum stability.**
- **Support the tractor securely on stands before removing a wheel.**
- **Do not work under any hydraulically supported devices. They can settle, suddenly leak, or be accidentally lowered. If necessary to work under the tractor or any machine elements for servicing or adjustments, securely support them with stands or suitable blocking beforehand.**
- **Never operate the tractor with a loose rim, wheel, or axle.**

1. Front wheels

⚠ WARNING
To avoid personal 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 the jacks that withstand the machine weight and set them up as shown in the following figure.**

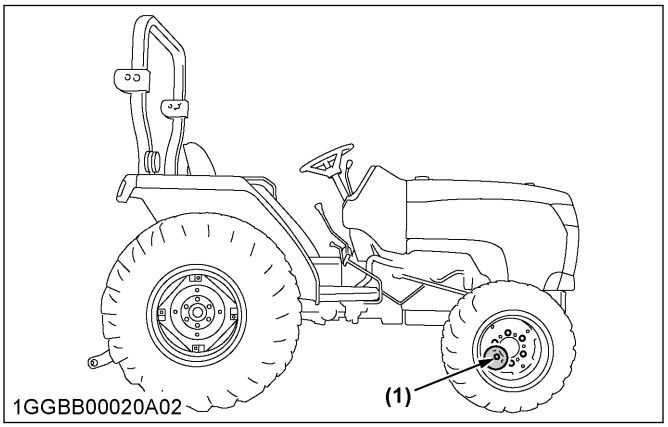


(1) Jack points

You can not adjust width of the front tread.

IMPORTANT :

- **Do not turn the front discs to obtain wider tread.**
- **When re-fitting or adjusting a wheel, tighten the bolts to the following torques.**



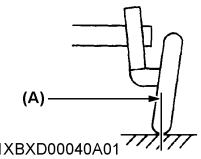
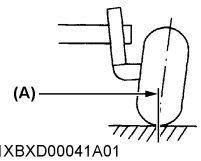
(1) Bolt

Bolt (1)	Tightening torque	137 N·m (14 kgf·m) [100 ft·lbs]

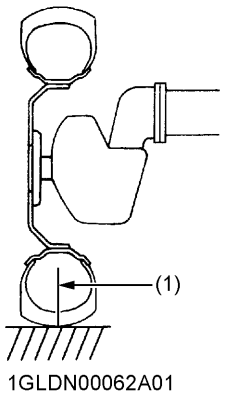
Then recheck after driving the tractor as follows, and thereafter according to SERVICE INTERVALS on page 71.

Driving tractor	200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards)

[2WD Front wheel]

Tire	Tread
5-15 Farm	 *(A) 1050 mm (41.3 in.)*
23 x 8.5-12 Turf	 *(A) 1175 mm (46.3 in.)*

[4WD Front wheel]



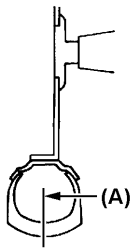
(1) Tread

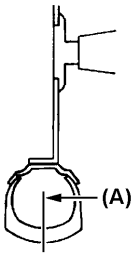
Tire	Tread
7.2-16 Farm	1095 mm (43.1 in.)
25 x 8.5-14 Turf	1105 mm (43.5 in.)
27 x 8.5-15 IND	1115 mm (43.9 in.)

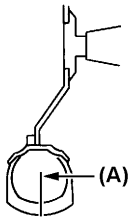
IND
For industrial

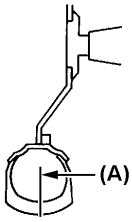
2. Rear wheels

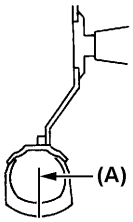
You can adjust the width of rear tread with the standard equipped tires.
(See Adjusting the rear wheels on page 68.)

<table>
<tr><th>Tire</th><th colspan="3">Tread</th></tr>
<tr><td>15-19.5
Industry</td><td colspan="3"> 

1XBXD00043A01
(A) 1145 mm (45.1 in.)</td></tr>
<tr><td>13.6-16
Turf</td><td colspan="3"> 

1XBXD00044A01
(A) 1115 mm (43.9 in.)</td></tr>
<tr><td>11.2-24
Farm</td><td> 

1XBXD00045A01
(A) 1115 mm (43.9 in.)</td><td> 

1XBXD00046A01
(A) 1195 mm (47.1 in.)</td><td> 

1XBXD00047A01
(A) 1290 mm (50.8 in.)</td></tr>
</table>

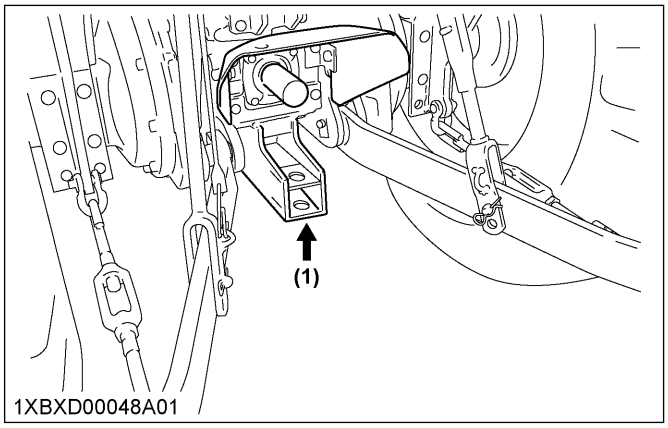
2.1 Adjusting the rear wheels

This section describe the procedure to change the width of the rear tread.

⚠ WARNING

To avoid personal 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 the jacks that withstand the machine weight and set them up as shown in the following figure.**



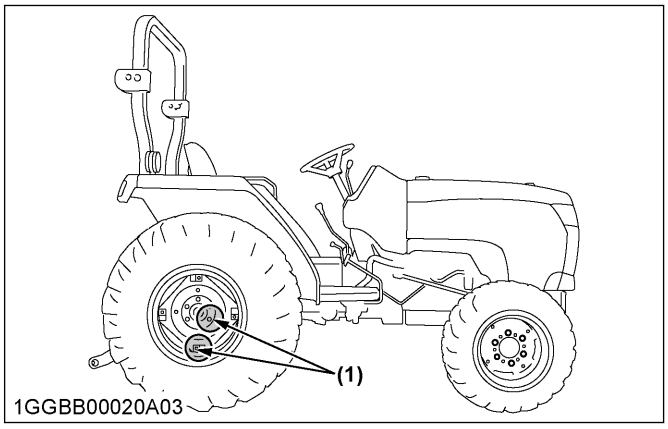
1XBXD00048A01

(1) Jack point

1. Remove the bolts which mount the wheel rim and / or disk.
2. Change the position of the rim and / or disk (right and left) to the desired position.
3. Tighten the bolts.

IMPORTANT :

- **Always attach the tires as shown in the following figure.**
- **If you do not attach the rear wheel as the following figure, transmission parts may be damaged.**
- **Do not turn the rear discs to obtain the wider tread.**
- **When re-fitting or adjusting a wheel, tighten the bolts to the following torques.**



1GGBB00020A03

(1) Bolt

Bolt (1)	Tightening torque	215 N·m (22 kgf·m) [160 ft·lbs]

Then recheck after driving the tractor as follows, and thereafter according to SERVICE INTERVALS on page 71.

Driving tractor	200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards)

BALLAST

⚠ WARNING

To avoid personal 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.**

1. Front ballast

Add weights if needed for stability (2WD and 4WD models) and improve traction (4WD model). Heavy pulling and heavy rear mounted implements tend to lift the front wheels.
Add enough ballast to maintain the steering control and prevent tip over.
Remove the weight when no longer needed.

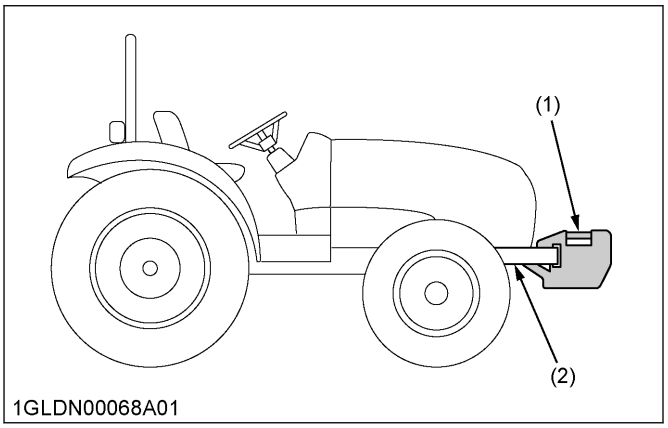
IMPORTANT :

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

Maximum weight	25 kg×5 pieces (275 lbs.)

1.1 Front end weights (option)

You can attach the front-end-weights to the bumper.
Refer to your implement operator's manual for required number of weights or consult your local KUBOTA Dealer to use it.



(1) Front end weights (2) Bumper

NOTE :

- **Front end weights is the option on [4WD] models (North America only).**

2. Rear ballast

Add weights to rear wheels if needed to improve traction or for stability. you should match the amount of rear ballast to job and remove the rear ballast when it is not needed.
You should add the weight to the tractor in the form of liquid ballast, rear wheel weights, or a combination of both.

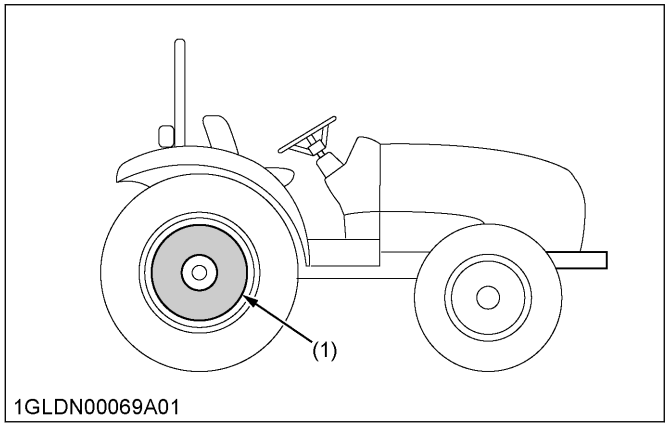
IMPORTANT :

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

Maximum weight per wheel	28 kg x 3 pieces (185 lbs.)

2.1 Rear wheel weights (option)

You can attach the rear-wheel-weights to the bumper.
See your implement operator's manual for required number of weights or consult your local KUBOTA Dealer to use it.



(1) Rear wheel weights

3. Liquid ballast in rear tires

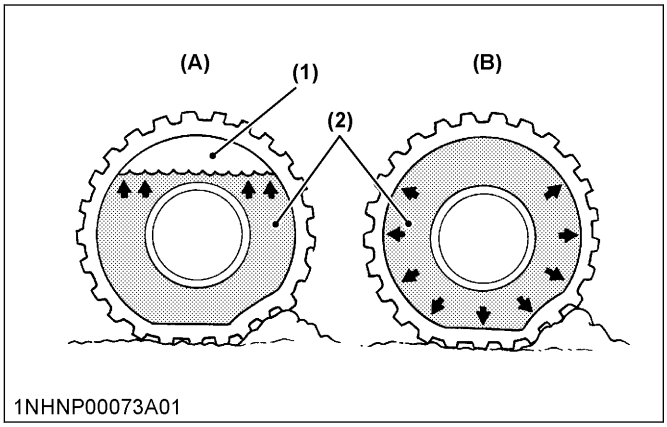
Water and calcium-chloride-solution provides safe economical ballast. Using the liquid ballast properly will prevent tires, tubes, or rims from damaging. The addition of calcium chloride is recommended to prevent the water from freezing. The addition of calcium chloride for weighting the wheels obtains the full approval of the tire companies. Consult your tire dealer for addition of calcium chloride.

Liquid weight per tire (75 percent filled)

Tire sizes	11.2-24	15-19.5
Slush free at -10 ℃ (14 ℉) Solid at -30 ℃ (-22 ℉) [Approx. 1 kg (2 lbs.) $CaCl_2$ per 4 L (1 gal) of water]	105 kg (230 lbs.)	140 kg (309 lbs.)
Slush free at -24 ℃ (11 ℉) Solid at -47 ℃ (-52 ℉) [Approx. 1.5 kg (3.5 lbs.) $CaCl_2$ per 4 L (1 gal) of water]	110 kg (240 lbs.)	150 kg (331 lbs.)
Slush free at -47 ℃ (-52 ℉) Solid at -52 ℃ (-62 ℉) [Approx. 2.25 kg (5 lbs.) $CaCl_2$ per 4 L (1 gal) of water]	115 kg (253 lbs.)	160 kg (353 lbs.)

IMPORTANT :

- **Do not fill tires with water or solution more than 75% of full capacity to the level of valve stem at 12 o'clock position.**



1NHNP00073A01

(1) Air
(2) Water
(A) Correct
(B) Incorrect

	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

MAINTENANCE

SERVICE INTERVALS

No.	Items			Indication on hour meter														Interval	Ref. page		
				50	100	150	200	250	300	350	400	450	500	550	600	650	700				
1	Engine start system	[Manual transmission]	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	85		
		[HST]																	86		
2	Wheel bolt torque		Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	87		
3	Greasing	[2WD]	-	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	84		
		[4WD]																	85		
4	Operator presence control		Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	86		
5	Battery condition		Check		○		○		○		○		○		○		○	every 100 Hr	90	*1	
6	Fan belt		Adjust		○		○		○		○		○		○		○	every 100 Hr	89		
7	Brake		Adjust		○		○		○		○		○		○		○	every 100 Hr	89		
8	Clutch		Adjust	◎	○		○		○		○		○		○		○	every 100 Hr	89		
9	Air cleaner element		Clean		○		○		○		○		○		○		○	every 100 Hr	87	*2	@
			Replace															every 1000 Hr or 1 Year	98	*3	
10	Fuel filter element		Clean		○		○		○		○		○		○		○	every 100 Hr	88		
			Replace								○							every 400 Hr	96		@
11	Fuel filter		Clean		○		○		○		○		○		○		○	every 100 Hr	88		
12	Transmission oil filter [HST]		Replace	◎			○				○				○			every 200 Hr	91		
13	Toe-in		Adjust				○				○				○			every 200 Hr	92		
14	Engine oil		Change	◎							○							every 400 Hr	93		
15	Engine oil filter		Replace	◎							○							every 400 Hr	94		
16	Hydraulic oil filter	[HST]	Replace	◎							○							every 400 Hr	94		
		[Except HST]	Replace								○							every 400 Hr	94		
17	Transmission fluid		Change								○							every 400 Hr	94		
18	Greasing (2WD front wheel hub)		-								○							every 400 Hr	97		
19	Front axle pivot		Adjust												○			every 600 Hr	97		
20	Front axle case oil [4WD]		Change															every 800 Hr	98		

(Continued)

No.	Items		Indication on hour meter														Interval	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
21	Engine valve clearance	Adjust															every 800 Hr	98	*4	
22	Fuel injection nozzle injection pressure	Clean															every 1500 Hr	99	*4	@
23	Cooling system	Flush															every 2000 Hr or 2 years	99	*5	
24	Coolant	Change															every 2000 Hr or 2 years	99	*5	
25	Injection pump	Check															every 3000 Hr	101	*4	
26	Fuel line	Check															every 1 year	101		@
		Replace															every 4 years	103	*4, *6	
27	Power steering oil line	Check															every 1 year	102		
		Replace															every 4 years	103		
28	Oil cooler line [HST]	Check															every 1 year	102		
		Replace															every 4 years	103	*4, *6	
29	Radiator hose and clamp	Check															every 1 year	101		
		Replace															every 4 years	102	*6	
30	Intake air line	Check															every 1 year	101		@
		Replace															every 4 years	103	*4, *6	
31	Fuel system	Bleed															Service as required	103		
32	Clutch housing water	Drain																103		
33	Fuse	Replace																103		
34	Light bulb	Replace																104		
35	Head lamp	Replace																104		
36	Radiator hose and clamp	Replace																105	*6	
37	Fuel line	Replace																105	*4, *6	@
38	Intake air line	Replace																105	*4, *6	@
39	Power steering oil line	Replace																105	*4, *6	
40	Oil cooler line [HST]	Replace																105	*4, *6	

IMPORTANT :

- **You must perform the jobs indicated by ◎ after the first 50 hours of operation.**
- **The items which is @ 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.
- **When using biodiesel, be sure to check the maintenance requirements of biodiesel fuel as the intervals will change in some of the items.**

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

*2 Clean the air cleaner more often in dusty conditions than in normal conditions.

*3 Every 1000 hours or every 1 year, whichever comes first.

*4 Consult your local KUBOTA Dealer for this service.

*5 Every 2000 hours or every 2 years, whichever comes faster.

*6 Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred. However, replace every 4 years regardless of the condition.

LUBRICANTS, FUEL, AND COOLANT

Lubricants, fuel, and coolant table

Locations		Capacities	Lubricants	
Fuel		38.0 L (10.0 U.S.gals.)	No. 2-D diesel fuel No. 1-D diesel fuel (If temperature is below -10 ℃ (14 ℉))	
Coolant		6.0 L (6.3 U.S.qts.)	Fresh clean soft water with antifreeze	
Engine crankcase with filter		5.7 L (6.0 U.S.qts.)	For the engine oil, see the following *Engine oil*.	
			Above 25 ℃ (77 ℉)	SAE30, SAE10W-30 or 15W-40
			-10 ℃ to 25 ℃ (14 ℉ to 77 ℉)	SAE20, SAE10W-30 or 15W-40
			Below -10 ℃ (14 ℉)	SAE10W-30
Transmission case	[Manual transmission [2WD]]	27.0 L (7.1 U.S. gals.)	KUBOTA SUPER UDT-2 fluid	
	[Manual transmission [4WD]]	27.5 L (7.3 U.S. gals.)		
	[HST [2WD]]	23.5 L (6.2 U.S. gals.)		
Front axle case [4WD]		4.5 L (4.8 U.S.qts.)	KUBOTA SUPER UDT-2 fluid or SAE 80-SAE 90 gear oil	

Greasing table

Greasing	No. of greasing points	Capacity	Type of grease
Front wheel hub [2WD only]	2	A small amount	Bearing grease
Knuckle shaft [2WD only]	2	Until grease overflows.	Multipurpose Grease NLGI-2 OR NLGI-1 (GC-LB)
Front axle support [4WD only]	2		
Clutch pedal	1		
Brake pedal	1		
Pedal shaft	1		
Battery terminals	2		
Lift rod	1		
Tie rod end [4WD only]	4		

NOTE :

- **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 details.**

For North American market

NOTE :

- **Engine oil**
  - **Use the oil in the engine with 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*.**
  - **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.**

Fuel used	Engine oil classification (API classification)	
	Oil class of engines except external EGR	Oil class of engines with external EGR
Ultra Low Sulfur Fuel [<0.0015% (15 ppm)]	CF, CF-4, CG-4, CH-4, or CI-4	CF or CI-4 (Class CF-4, CG-4, and CH-4 engine oils cannot be used on EGR 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
Models	L2501	---

- **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 ℃ (-4 ℉)
Elevations	Above 1500 m (5000 ft)

  – Diesel fuels specified to EN 590 or ASTM D975 are recommended.
  – No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)
- **Transmission oil**
  – KUBOTA Super UDT-2
  For an enhanced ownership experience, we highly recommend Super UDT-2 to be used instead of standard hydraulic/transmission fluid.
  Super UDT-2 is a proprietary KUBOTA formulation that delivers superior performance and protection in all operating conditions.
  Regular UDT is also permitted for use in this machine.
  – Indicated capacities of water and oil are manufacturer's estimate.

For other than North American market

NOTE :
- **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 *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 lowsulfur fuel on on-road vehicle engines.
  When an off-road vehicle engine runs on a high-sulfur fuel, it is advisable to employ the CF or better lubricating oil with a high total-base-number (TBN of 10 minimum).
  – 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 CF-4, CG-4, CH-4, or CI-4 lubricating oil 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 (Class CF-4, CG-4, and CH-4 engine oils cannot be used on EGR 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
Models	L2501	---

- **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 ℃ (-4 ℉)
Elevations	Above 1500 m (5000 ft)

  – **If diesel fuel with sulfur content greater than 0.5% (5000 ppm) sulfur content is used, reduce the service interval for engine oil and filter by 50%.**
  – **Never use the diesel fuel with sulfur content greater than the following concentration for EXTERNAL EGR type engine.**

Concentration	0.05% (500 ppm)

  – **Do not use the diesel fuel with sulfur content greater than the following concentration.**

Concentration	1.0% (10000 ppm)

  – **Diesel fuels specified to EN 590 or ASTM D975 are recommended.**
  – **No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service (SAE J313 JUN87).**
- **Transmission oil**
  The oil used to lubricate the transmission is also used as hydraulic fluid. To insure 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 this 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 together.
  – **Indicated capacities of water and oil are manufacturer's estimate.**

1. Biodiesel fuel (BDF)

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

IMPORTANT :

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

Applicable BDF:

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

Preparation:

1. Before using BDF concentrations greater than B5, you are advised to replace the engine oil, engine oil filter and fuel filter with new oil and filters. For replacement procedures, refer to the "PERIODIC SERVICE" section.

Product Warranty, Emission and Other Precautions:

1. 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.
2. BDF may cause restricted or clogged fuel filters during cold weather conditions, resulting in the engine not operating properly.
3. BDF encourages the growth of microorganisms which may cause degradation of the fuel. This in turn may cause fuel line corrosion or reduce fuel filter flow earlier than expected.
4. BDF inherently absorbs moisture which may cause degradation of the fuel earlier than expected. To avoid this, drain the water separator and fuel filter port often.
5. Do not use Biodiesel concentrations higher than 20% (i.e. greater than B20). Engine performance and fuel consumption will be affected, and degradation of the fuel system components may occur.
6. Do not readjust the engine fuel control system as this will violate emission control levels for which the equipment was approved.
7. Compared with soybean-based and rapeseed-based feedstock, palm oil-based feedstock has a thicker consistency (i.e. higher viscosity) at lower temperatures. Consequently, fuel filter performance may be reduced, particularly during cold weather conditions.
8. The Kubota Warranty, as specified in the Owner's Warranty Information Guide, only covers defects in product materials and workmanship. Accordingly, any problems that may arise due to the use of poor quality fuels that fail to meet the above requirements, whether biodiesel or mineral oil based, are not covered by the Kubota Warranty.

Routine handling:

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

Maintenance Requirements when using BDF B0 thru B5:

Follow the oil change intervals recommended by referring to the "MAINTENANCE" section. Extended oil change intervals may result in premature wear or engine damage.

Maintenance Requirements when using BDF B6 thru B20:

The maintenance interval for fuel related parts changes.
See the table below for the new maintenance interval.

Items		Interval	Remarks
Fuel filter	Replace	Every 200 hr	
Fuel line	Check	Every 6 months	Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred.
	Replace	Every 2 years	Consult your local KUBOTA Dealer for this service.

Long Term Storage:

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

PERIODIC SERVICE

⚠ WARNING

To avoid personal injury or death:

- **Do not work under any hydraulically supported devices. Hydraulically supported devices may settle, suddenly leak, 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.**

WASTE DISPOSAL

- The improper disposal or burning of waste causes environmental pollution and can be punishable by your local laws and regulations.
  - When draining fluids from the tractor, place a container underneath the drain port.
  - Do not pour waste onto the ground, down a drain, or into any water source (such as rivers, streams, lakes, marshes, seas and oceans).
  - Waste products such as used oil, fuel, coolant, hydraulic fluid, urea aqueous solution (DEF/AdBlue®), refrigerant, solvent, filters, rubber, batteries and harmful substances, 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.

HOOD AND ENGINE SIDE COVER

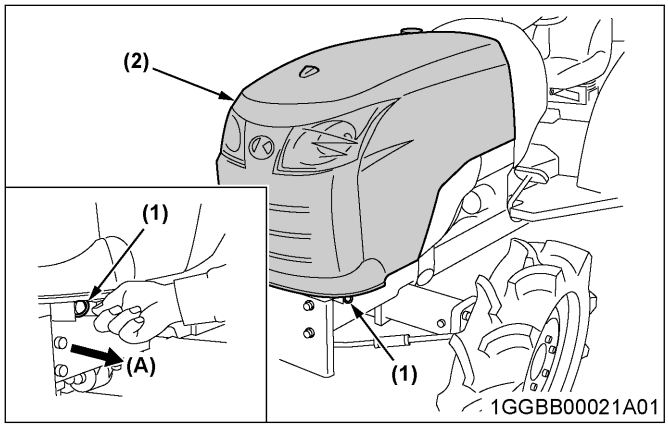
⚠ WARNING

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

- **Never open the hood or the 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 the exhaust pipes could cause severe burns.**
- **Hold the hood with other hand while unlocking the release lever.**

1. Opening the hood

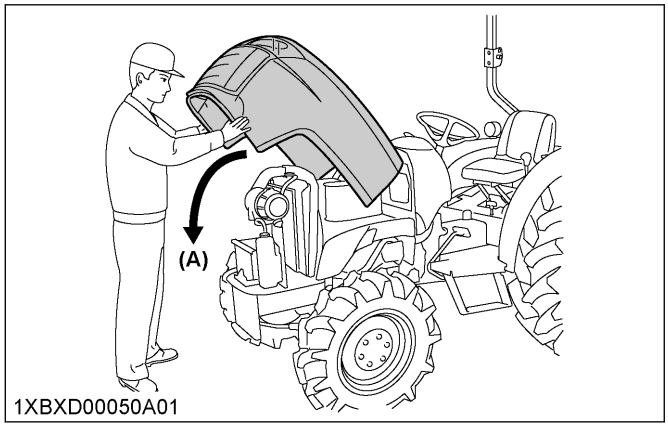
1. Hold the hood and pull the release lever.
2. Open the hood.



(1) Release lever *(A) Pull*
(2) Hood

NOTE :

- **To close the hood, push the hood into initial position using both hands.**

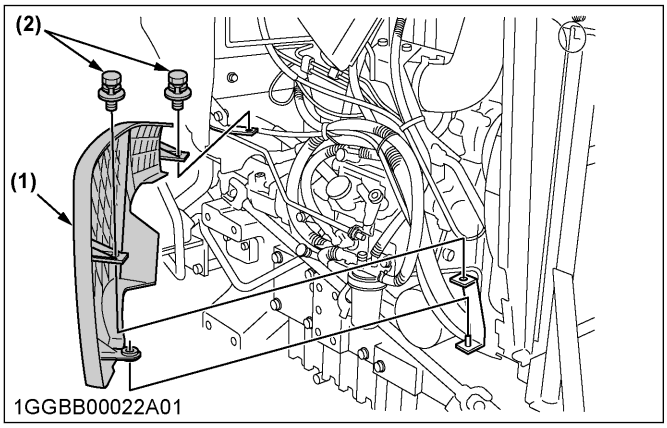


(A) Push

2. Opening the engine side cover

1. Remove the bolts at the both sides.

2. Detach the engine-side-cover.



(1) Engine side cover (2) Bolt

To attach the engine-side-cover, follow the following procedure.

1. Insert the bottom pin of the engine-side-cover first, and then tighten the bolts.

DAILY CHECK

For your own safety and maximum service life of the machine, inspect the machine thoroughly everyday before operating it to start the engine.

⚠ WARNING

To avoid personal injury or death:

- **Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake *"ON"* and implement lowered to the ground.**

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 fuel tank and refueling

⚠ WARNING

To avoid personal injury or death:

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

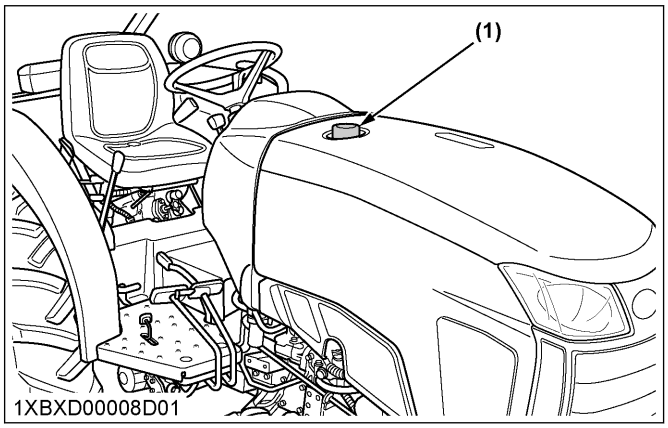
To avoid allergic skin reaction:

- **Wash hands immediately after contact with diesel fuel.**

IMPORTANT :

- **Do not permit dirt or trash to get into the fuel system.**
- **Be careful not to let the fuel tank become empty, otherwise air will enter the fuel system, necessitating bleeding before the next engine start.**
- **Be careful not to spill during refueling. If a spill should occur, wipe it off at once, or it may cause a fire.**
- **To prevent condensation (water) accumulation in the fuel tank, fill the fuel tank before parking overnight.**

1. Turn the key switch to *"ON"* and check the amount of fuel by fuel gauge.
2. Fill the fuel tank when the fuel gauge shows 1/4 or less fuel in tank.



(1) Fuel tank cap

Fuel tank capacity	38.0 L (10.0 U.S.gals.)

3. Checking the engine oil level

⚠ WARNING

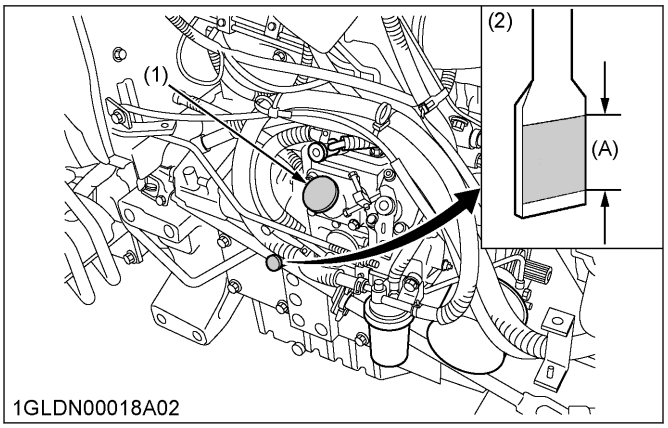
To avoid personal injury or death:

- **Be sure to stop the engine and remove the starter key before checking the engine-oil-level.**

Check the engine oil before starting the engine or 5 minutes or more after the engine has stopped.

1. Park the machine on a flat 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 2 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 74.)



(1) Oil inlet
(2) Dipstick
(A) Range which engine oil level is acceptable within

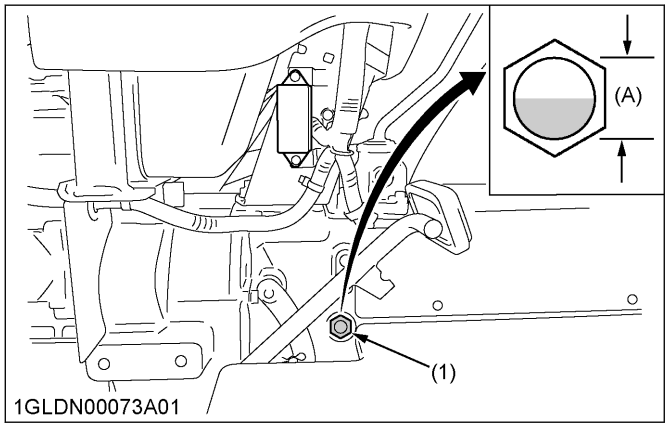
IMPORTANT :
- **When using an engine oil of different maker or viscosity from the previous one, remove all of the old engine oil.**
  Never mix 2 different types of engine oil.
- **If the engine oil level is low, do not run the engine.**

4. Checking the transmission fluid level

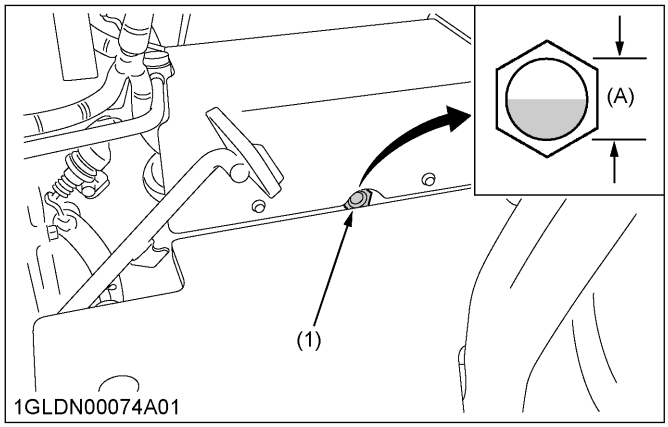
⚠ WARNING
To avoid personal injury or death:
- **Park the tractor on a firm, flat, and level surface, lower the implement to the ground, and shut off the engine before checking the transmission-fluid-level.**

1. Park the machine on a flat surface.
2. Lower the implement.
3. Shut off the engine.
4. View the transmission-fluid-level through the transmission-fluid-level-gauge.

[Manual transmission type]



[HST type]



(1) Gauge
(A) Range which transmission oil level is acceptable within

5. 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 74)

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

5. Checking the coolant level

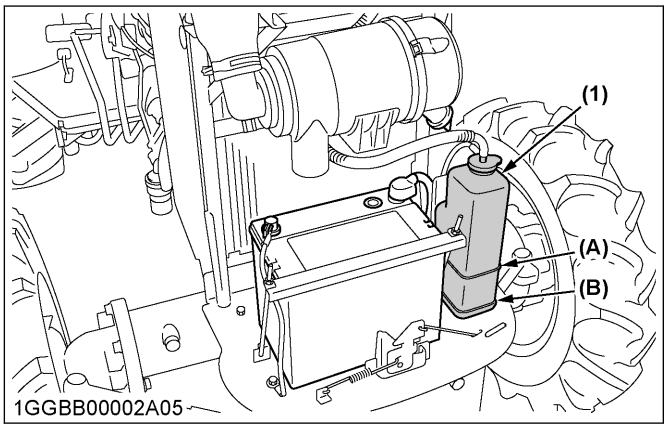
⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before checking the coolant level.**
- **Do not remove the radiator cap while the coolant is hot. When the coolant is cool, slowly rotate the radiator cap to the first stop and allow sufficient time for excess pressure to escape before removing the radiator cap completely.**

1. Check to see that the coolant level is between the *"FULL"* and the *"LOW"* marks of the recovery tank.

2. When the coolant level drops due to evaporation, add soft water only up to the full level.
   In case of leakage, add antifreeze and soft water in the specified mixing ratio up to the full level.
   (See Flushing the cooling system and changing the coolant on page 99)

   IMPORTANT :
   - **Use clean, fresh soft water and antifreeze to fill the radiator.**
   - **If coolant should leak, consult your local KUBOTA Dealer.**

3. When the coolant level is lower than the *"LOW"* mark of the recovery tank, remove the radiator cap and check to see that the coolant level is just below the port.
   If the coolant level is low, add coolant.

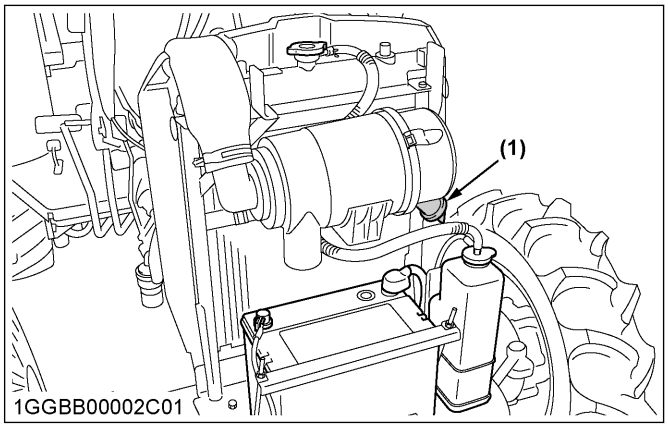


(1) Recovery tank *(A) Full* *(B) Low*

IMPORTANT :
- **If You have to remove the radiator cap, follow the preceding warning and securely retighten the radiator cap.**

6. Cleaning the evacuator valve

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



(1) Evacuator valve

7. Cleaning the grill, the radiator screen, and the oil cooler

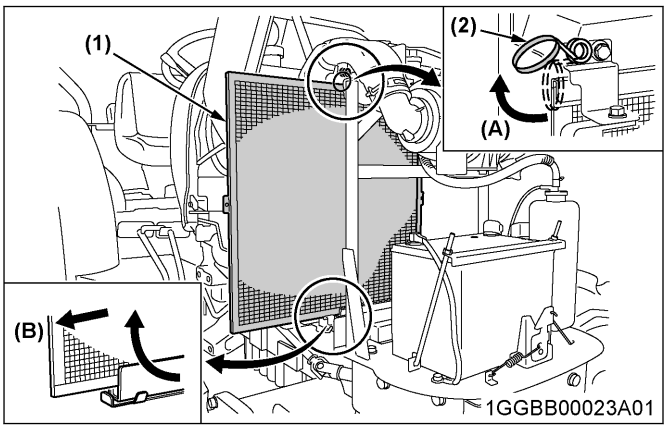
⚠ WARNING

To avoid personal injury or death:
- **Be sure to 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.**

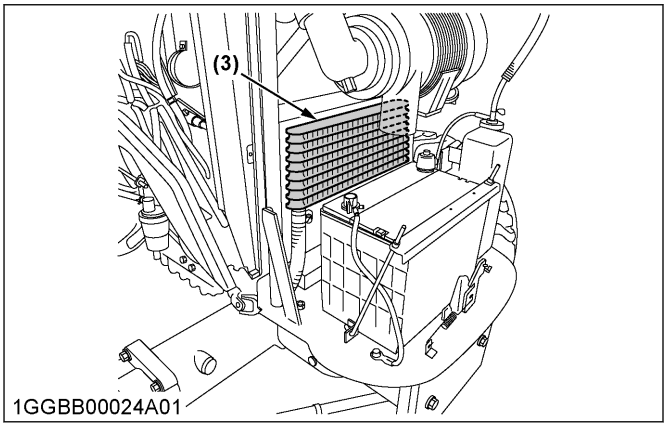
IMPORTANT :
- **Clean the grill and screen from debris to prevent the engine from overheating and to allow good air intake for the air cleaner.**

1. Check the front grill and side screens to be sure that they are clean of debris.

2. Detach the side screen with the fixed spring being held up and remove all foreign materials, and clean the front of radiator completely.



[HST type]



(1) Radiator screen
(2) Fixed spring
(3) Oil cooler
(A) Hold up
(B) Detach

8. Checking the brake pedals and the clutch pedal

⚠ WARNING

To avoid personal injury or death:

- **Make sure to adjust both brake pedals equally when being locked together. Incorrect or unequal adjustments of brake pedals can cause the tractor to swerve or roll-over.**

1. Inspect the brake pedals and the clutch pedal for free travel and smooth operation.
2. Adjust the brake pedals or the clutch pedal if incorrect measurement is found.
   (See Adjusting the brake pedal on page 89 and Adjusting the clutch pedal on page 89)

Proper brake pedal free travel	15 mm to 20 mm (0.6 in. to 0.8 in.) on brake pedal. Keep the free travel in the right and left brake pedals equal.

Proper clutch pedal free travel	20 mm to 30 mm (0.8 in. to 1.2 in.) on the clutch pedal

9. 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.

10. Checking the head light, turn signal / hazard light, and so on

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

11. 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.

12. Checking and cleaning the electrical wiring and battery cables

⚠ WARNING

To avoid personal injury or death:

- **A loosened terminal or connector, or damaged wire may affect the performance of electrical components or cause short circuits. Leakage of electricity could result in a fire hazard, a dead battery, or damage to electrical components.**
- **Replace damaged wires or connections promptly.**
- **If a fuse blows soon after replacement, do not use a larger than recommended fuse or bypass the fuse system.**
- **Many wiring connections are protected by waterproof plugs, therefore plug and unplug these connections carefully and make sure that they are sealed correctly after assembly.**
- **Accumulation of dust, chaff, or spilled fuel deposits around the battery, electrical wiring,**

engine, or exhaust system are a fire hazard. Clean around the battery, electrical wiring, engine, and exhaust system before starting work.
To avoid premature electrical malfunctions do not apply high pressure water directly to battery, wiring, connectors, electrical components, or instrument panel.

Inspect the following regularly

- Check the wiring for chafed or cracked insulation.
- Check the wiring-harness-clamps.
  Replace wiring-harness-clamps if it is necessary.
- Check the connectors and the terminals for looseness, contamination, or overheated (discolored) connections.
- Check the instrument panel for correct operation of switches and gauges.

Consult your KUBOTA dealer regarding maintenance, diagnosis, and repair.

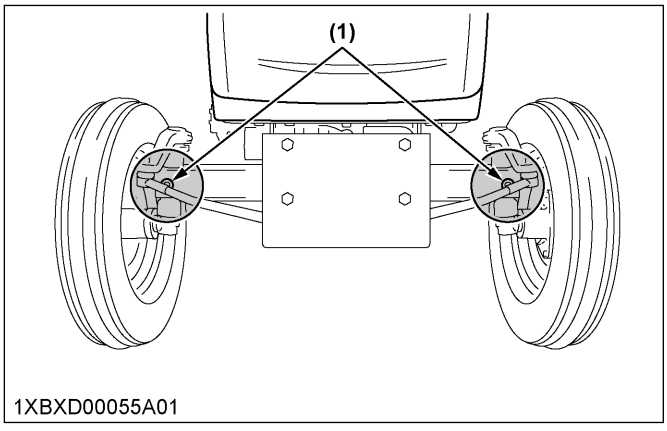
13. Checking the movable parts

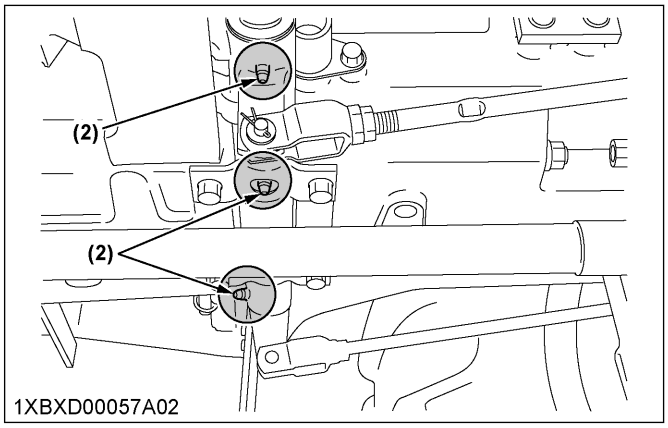
1. If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or sticky material, remove the rust or the sticky material, and apply oil or grease on the relevant spot.
   Do not force the movable parts into motion. Otherwise, the machine may get damaged.

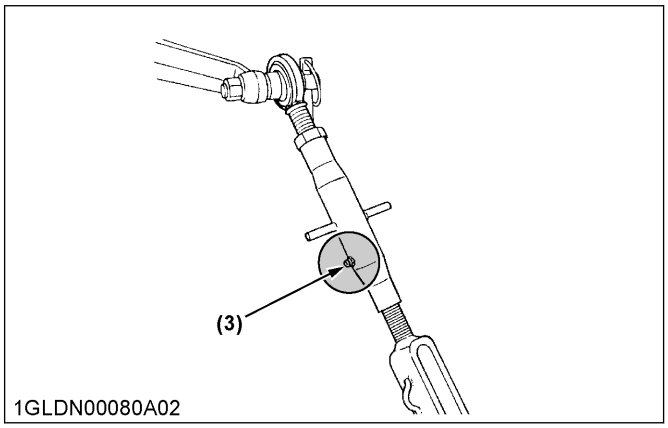
SERVICE EVERY 50 HOURS

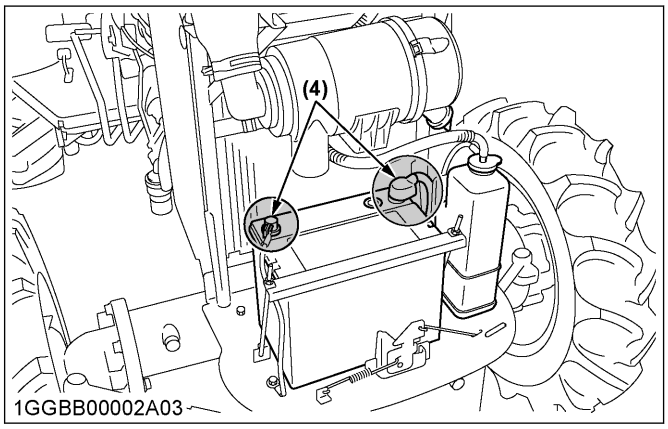
1. Lubricating the grease fittings [2WD]

1. Apply a small amount of multipurpose grease to the following points every 50 hours.
   If you have operated the machine in extremely wet and muddy conditions, lubricate the grease fittings more often.





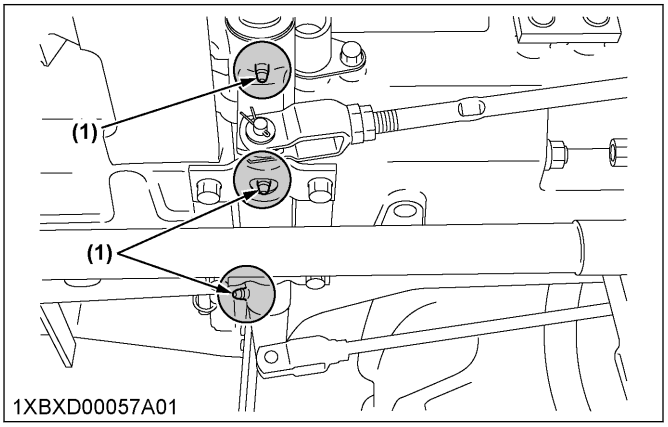


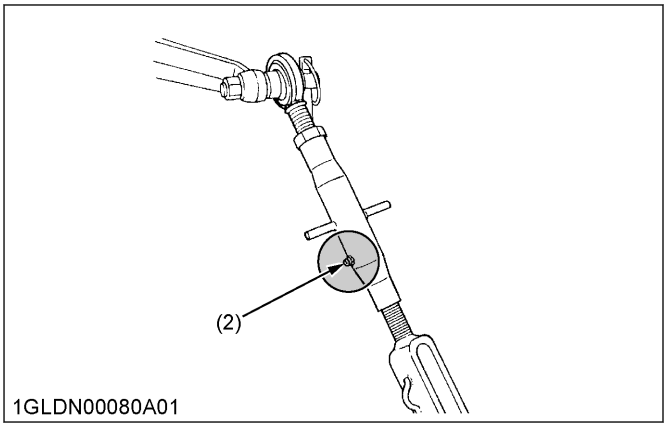


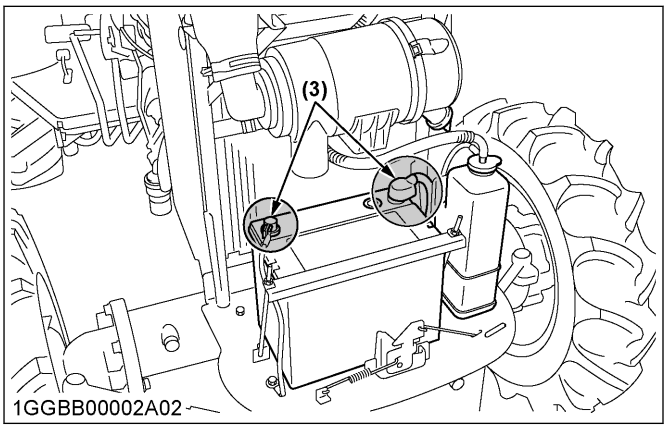
(1) Grease fitting (knuckle shaft) [RH and LH]
(2) Grease fitting (pedal shaft)
(3) Grease fitting (lifting rod) [RH]
(4) Battery terminals

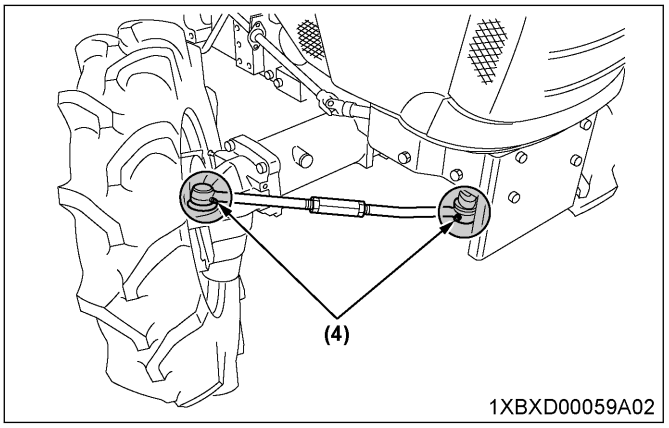
2. Lubricating the grease fittings [4WD]

1. Apply a small amount of multipurpose grease to the following points every 50 hours.
   If you have operated the machine in extremely wet and muddy conditions, lubricate the grease fittings more often.



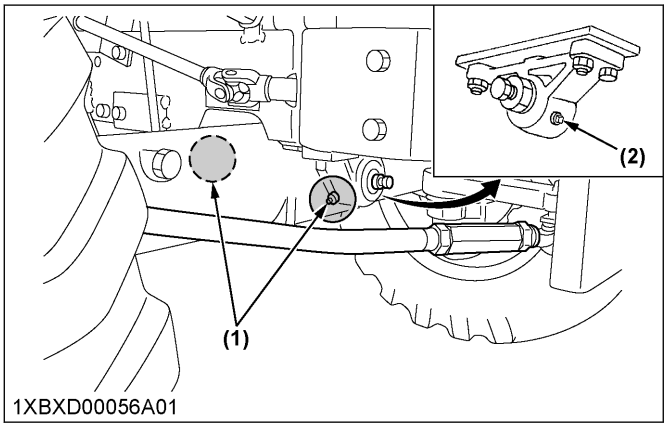






(1) Grease fitting (pedal shaft)
(2) Grease fitting (lifting rod) [RH]
(3) Battery terminals
(4) Grease fitting (tie-rod ends)

2. When applying the grease to the forward front-axle-support, follow the following the procedure.
   a. Remove the breather plug.
   b. Apply grease until the grease overflows from the breather-plug-port.
   c. After greasing, reinstall the breather plug.



(1) Grease fitting (front axle support)
(2) Breather plug

3. Checking the engine start system [Manual transmission type]

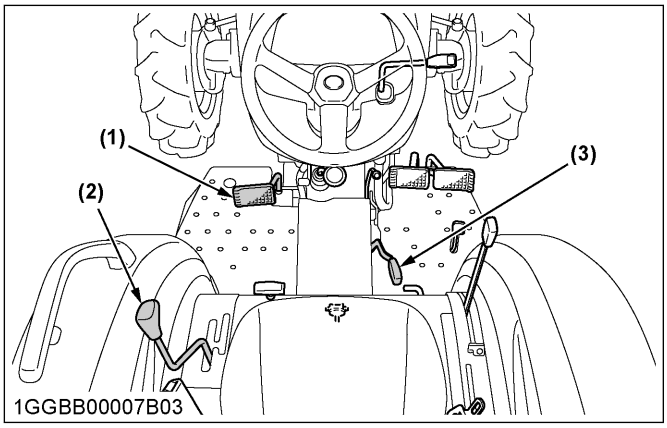
⚠ WARNING

To avoid personal 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. Place all the control levers in the *"NEUTRAL"* position.
2. Set the parking brake and stop the engine.



(1) Clutch pedal
(2) Range gear shift lever (Shuttle shift lever)
(3) PTO gear shift lever

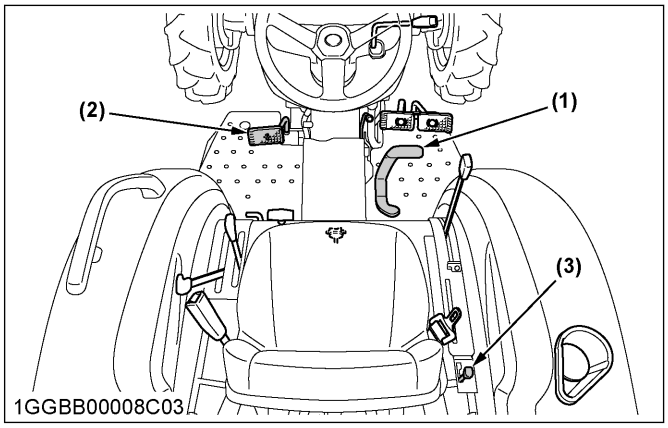
Test of switch for the range gear shift lever
1. Sit on the operator's seat.
2. Shift the range-gear-shift-lever to the **[L]**, **[H]**, or **[R]** position.
3. Depress the clutch pedal fully.
4. Disengage the PTO-gear-shift-lever.
5. Turn the starter key to the *"START"* position.
6. Make sure that the engine does not crank.
7. If the engine cranks, consult your local KUBOTA dealer for servicing the range-gear-shift-lever.

Test of switch for the PTO gear shift lever
1. Sit on the operator's seat.
2. Engage the PTO-gear-shift-lever.
3. Depress the clutch pedal fully.
4. Shift the range-gear-shift-lever to the neutral position.
5. Turn the starter key to the *"START"* position.
6. Make sure that the engine does not crank.
7. If the engine cranks, consult your local KUBOTA dealer for servicing the PTO-gear-shift-lever.

4. Checking the engine start system [HST type]

⚠ WARNING
To avoid personal 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. Place all the control levers in the *"NEUTRAL"* position.
2. Set the parking brake and stop the engine.
3. Lower all the implements.



(1) Speed control pedal
(2) Clutch pedal
(2) PTO gear shift lever

Test of switch for the speed control pedal
1. Sit on the operator's seat.
2. Depress the speed-control-pedal to the desired direction.
3. Depress the clutch pedal fully.
4. Disengage the PTO-gear-shift-lever.
5. Turn the starter key to the *"START"* position.
6. Make sure that the engine does not crank.
7. If the engine cranks, consult your local KUBOTA dealer for servicing the speed-control-pedal.

Test of switch for the PTO gear shift lever
1. Sit on the operator's seat.
2. Engage the PTO-gear-shift-lever.
3. Depress the clutch pedal fully.
4. Place the speed-control-pedal in the neutral position.
5. Turn the starter key to the *"START"* position.
6. Make sure that the engine does not crank.
7. If the engine cranks, consult your local KUBOTA dealer for servicing the PTO-gear-shift-lever.

Test of switch for the clutch pedal
1. Sit on the operator's seat.
2. Disengage the PTO-gear-shift-lever.
3. Place the speed-control-pedal in the *"NEUTRAL"* position.
4. Release the clutch pedal.
5. Turn the starter key to the *"START"* position.
6. Make sure that the engine does not crank.
7. If the engine cranks, consult your local KUBOTA dealer for servicing the clutch pedal.

5. Checking the operator presence control

Check if the engine shuts off when you stand up from the operators seat.

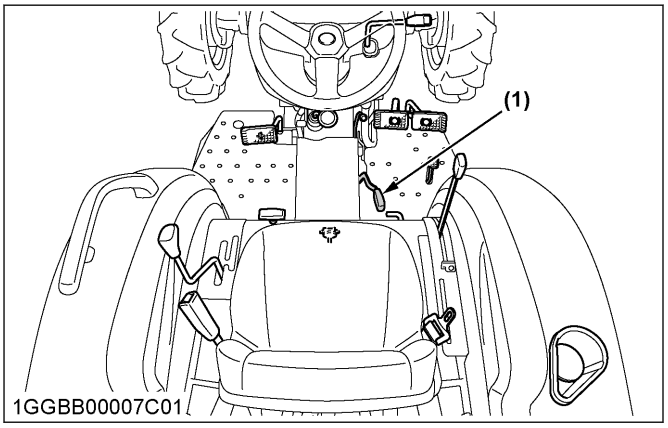
⚠ WARNING
To avoid personal injury or death:

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

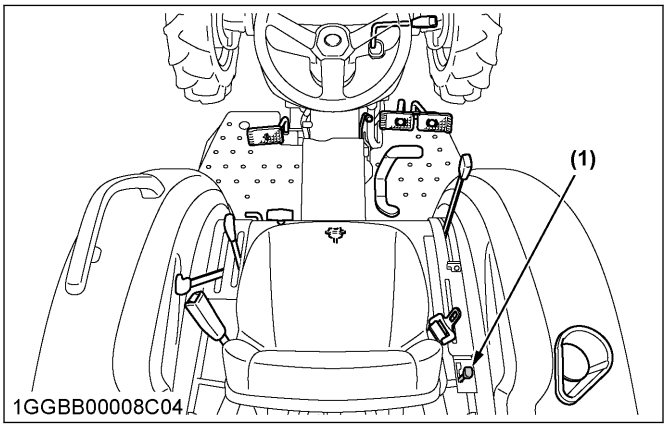
Preparing for the checking

1. Place all control levers in the *"NEUTRAL"* position.
2. Set the parking brake and stop the engine.

[Manual transmission type]



[HST type]



(1) PTO gear shift lever

1. Sit on the operator's seat.
2. Start the engine.
3. Engage the PTO-gear-shift-lever.
4. Stand up.
   Do not get off the machine.
5. Make sure that the engine shuts off after approximately 1 second.
6. If the engine does not stop, consult your local KUBOTA Dealer for servicing the operator's seat.

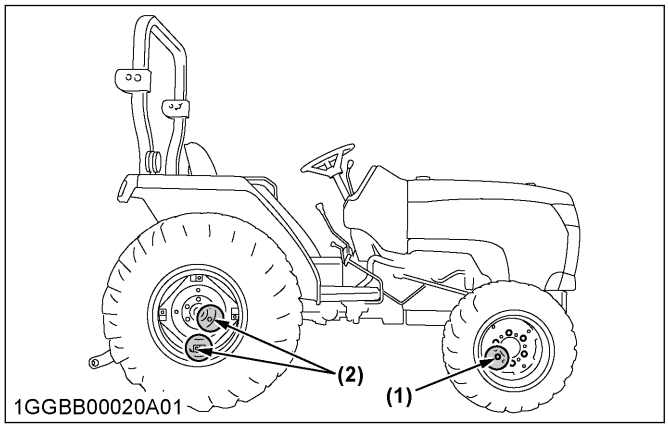
6. Checking the wheel bolt torque

⚠ WARNING

To avoid personal injury or death:

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

1. Check the wheel bolts and nuts regularly especially when they are new.
2. If the bolts and nuts of the wheels are loose, tighten them as follows.



(1) Bolt (front wheel) *(2) Bolt (rear wheel)*

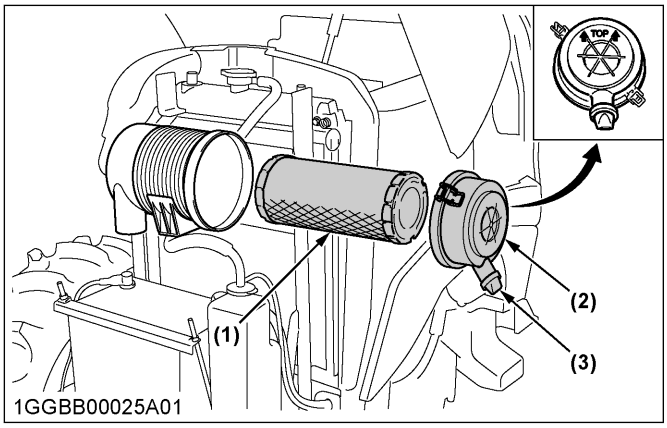
Bolt (front wheel) (1)	Tightening torque	137.0 N·m (14 kgf·m) [100 ft·lbs]
Bolt (rear wheel) (2)		215.0 N·m (22 kgf·m) [160 ft·lbs]

SERVICE EVERY 100 HOURS

1. Cleaning the air cleaner element [Single element type]

IMPORTANT :

- **The air cleaner uses a dry element. Never apply oil.**
- **Do not run the engine with filter element removed.**



(1) Elements
(2) Cover
(3) Evacuator valve

1. Remove the element.
2. Clean the element.
3. When dry dust adheres to the element, blow compressed air from the inside, turning the element. Pressure of compressed air must be under the following value.

Pressure of compressed air	205 kPa (2.1 kgf/cm^2) [30 psi]

4. When carbon or oil adheres to the element, follow the following procedure.
   a. Soak the element in detergent for 15 minutes.
   b. Then wash the element several times in water.
   c. Rinse the element with clean water.
   d. Dry the element naturally.
   e. After the element is fully dried, inspect the inside of the element with a light and check if it is damaged or not.
   Refer to the instructions on the label attached to the case.
5. Replace the air-cleaner-element.
   Be sure to perform once yearly or after every sixth cleaning, whichever comes first.

IMPORTANT :

- **Be sure to refit the cover with the arrow ⬆ (on the rear) upright. If the cover is improperly fitted, dust passed by the baffle and directly adheres to the element.**

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.**

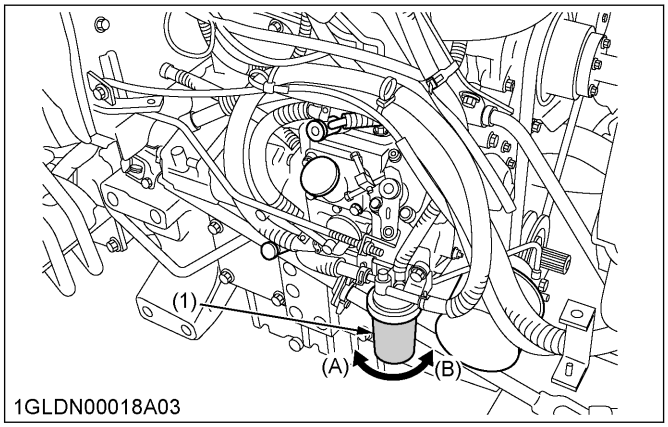
2. Cleaning the fuel filter

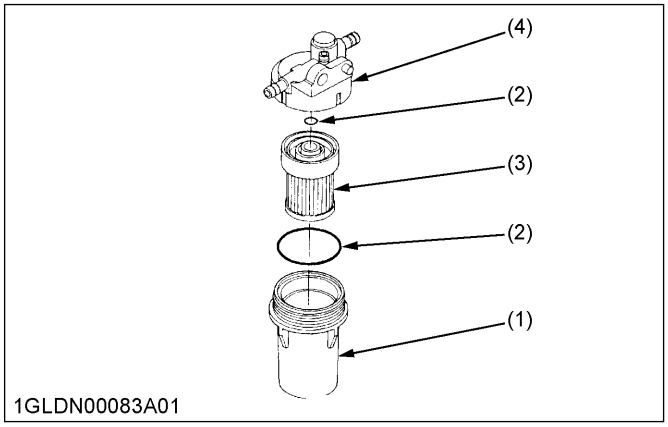
Carry out cleaning of fuel filter not in the field, but in a clean place.

IMPORTANT :

- **When the fuel-filter-bowl has been removed, fuel stops flowing from the fuel tank. If the fuel tank is almost full, however, the fuel will flow back from the fuel-return-pipe to the fuel filter. Before checking the fuel filter, make sure that the fuel tank is less than half-full.**
- **If dust, dirt, or water enters the fuel system, the fuel pump and injection nozzles are subject to premature wear. To prevent the premature wear, be sure to clean the fuel-filter-bowl and filter element periodically.**

1. Loosen and remove the fuel-filter-bowl, and rinse the inside with kerosene.
2. Remove the filter element and dip it in the kerosene to rinse.
3. After cleaning, reassemble the fuel filter, keeping out dust and dirt.
4. Bleed the fuel system.
   (See Bleeding the fuel system on page 103)





(1) Fuel filter bowl
(2) O ring
(3) Filter element
(4) Body (built-in fuel check valve)
(A) Loosen
(B) Tighten

3. Adjusting the fan belt tension

⚠ WARNING

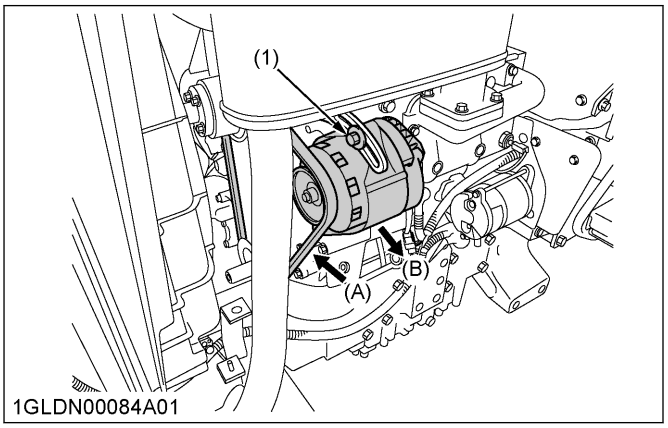
To avoid personal injury or death:

- **Be sure to stop the engine before checking the tension of the fan belt.**

1. Stop the engine and remove the starter key.
2. Apply moderate thumb pressure to the belt between the pulleys.

Proper fan belt tension	A deflection is 7 mm to 9 mm (0.28 in. to 0.35 in.) when the fan belt is pressed (98 N (10 kgf) [22 lbs]) in the middle of the span.

3. If tension of 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 the acceptable limits.



(1) Bolt
(A) Check the fan belt tension
(B) To tighten

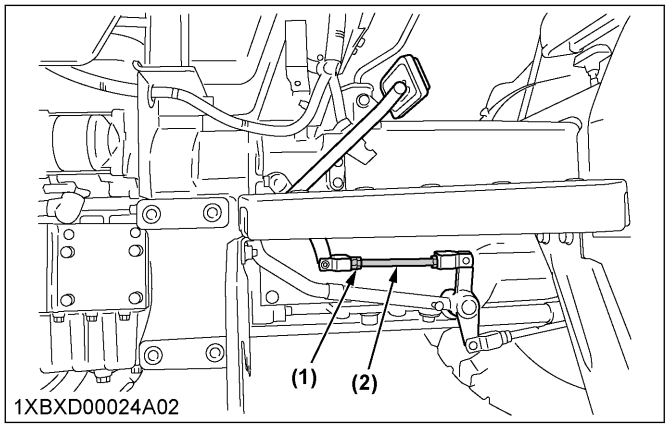
4. Replace the fan belt if it is damaged.

4. Adjusting the clutch pedal

1. Stop the engine and remove the starter key.
2. Slightly depress the clutch pedal and measure the free travel at the top stroke of the clutch pedal.

Proper clutch pedal free travel	20 mm to 30 mm (0.8 in. to 1.2 in.) on the clutch pedal

3. If adjustment is needed, loosen the lock nut and turn the clutch rod to adjust the rod length within acceptable limits.
4. Retighten the lock nut.



(1) Lock nut
(2) Clutch rod

5. Adjusting the brake pedal

⚠ WARNING

To avoid personal injury or death:

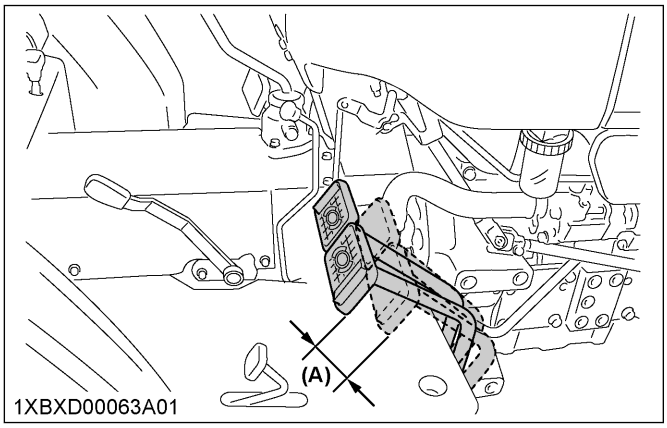
- **Stop the engine and chock the wheels before checking the brake pedal.**

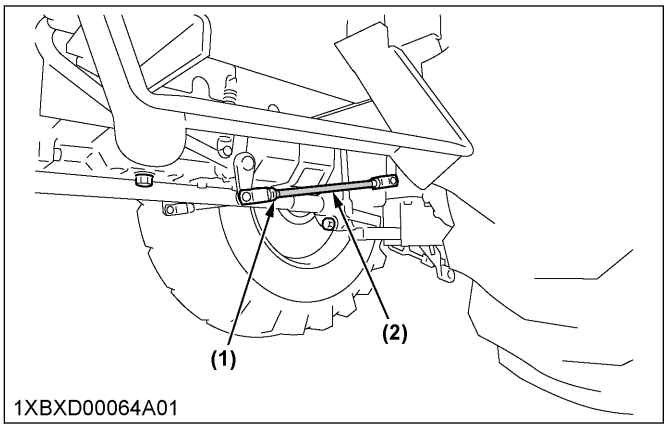
1. Release the parking brake.
2. Slightly depress the brake pedals and measure the free travel at the top of stroke of the brake pedal.

Proper brake pedal free travel	15 mm to 20 mm (0.6 in. to 0.8 in.) on brake pedal. Keep the free travel in the right and left brake pedals equal.

3. If adjustment is needed, loosen the lock nut and turn the brake rod to adjust the rod length within the acceptable limits.

4. Retighten the lock nut.





(1) Lock nut
(2) Brake rod
(A) Free travel

6. Checking the battery condition

⚠ DANGER

To avoid the possibility of battery explosion:
For the refillable type battery, follow the following instructions.

- **Do not use or charge the refillable type battery if the fluid level is below the [LOWER] (lower limit level) mark. Otherwise, battery-component-parts may prematurely deteriorate, which may shorten the service life of 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] and [LOWER] levels.**

⚠ WARNING

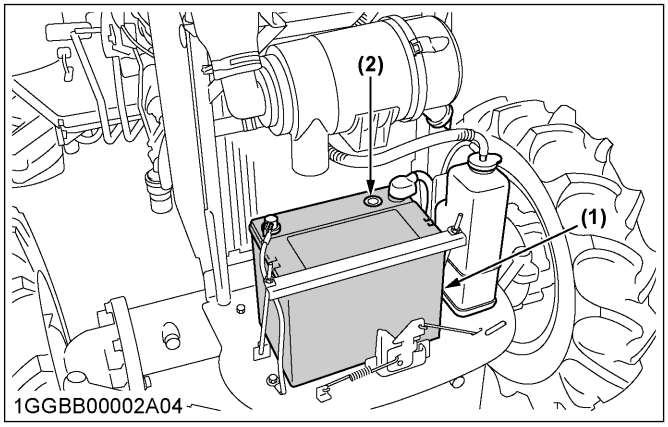
To avoid personal injury or death:

- **Never remove the battery cap while the engine is running.**
- **Keep the electrolyte away from eyes, hands, and clothes. If you are spattered with the 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 an eye protection and rubber gloves when working around the battery.**

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.

How to read the indicator

1. Check the battery condition by reading the indicator.



(1) Battery
(2) Indicator

State of indicator display

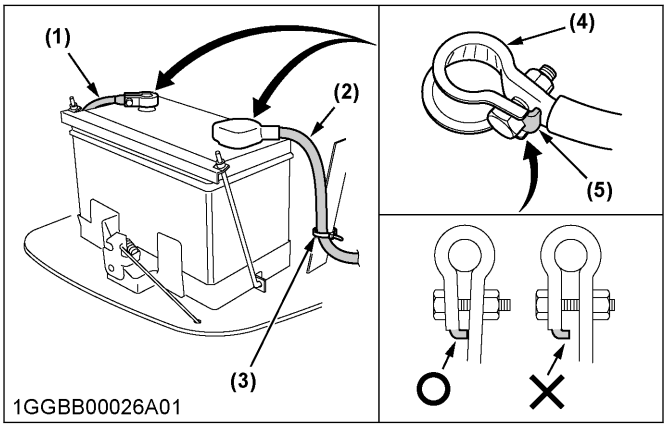
Green	Specific gravity of electrolyte and quality of electrolyte are both in good condition.
Black	Needs charging battery.
White	Needs replacing battery.

NOTE :

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

Checking the battery cable connections

1. Be sure to wire the battery cable as shown in the following figure.
2. Fix the positive cable in the cord band.
3. Tighten the terminal until the stopper comes in contact.



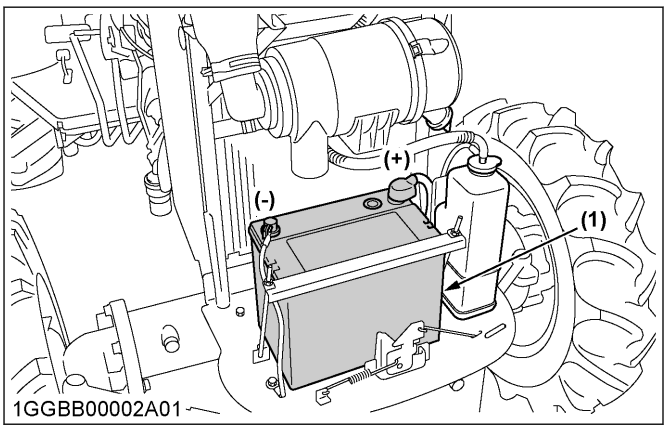
(1) Negative cable
(2) Positive cable
(3) Terminal
(4) Stopper

Charging the battery

⚠ WARNING

To avoid personal injury or death:

- **When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep the open sparks and flames away from the battery at all times, especially when charging the battery.**
- **When charging the battery, make sure that the vent caps are securely in place if equipped.**
- **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.
- **Never check the battery charge by placing a metal object across the posts.**
  Use a voltmeter or hydrometer.



(1) Battery

1. To charge the battery slowly, connect the positive terminal of battery to the positive terminal of charger, and the negative terminal of battery to the negative terminal of charger. Then recharge in the standard fashion.
   A boost charge is only for emergencies. Boost charge 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 may shorten the service life of battery.
   The battery is charged if the indicator display turns green from black.
2. When exchanging an old battery for a new one, use the battery of equal specification shown in the following table.

Battery type	Volts (V)	Reserve capacity (min)	CCA (SAE) (A)	Normal charging rate (A)
75D26R	12	123	490	6.5

CCA
Cold cranking ampere

Direction for battery storage

1. When storing the tractor for long periods of time, follow the following procedure.
   a. Remove the battery from the tractor.
   b. Adjust the electrolyte to the proper level.
   c. Store the battery in a dry place out of direct sunlight.
2. Recharge the battery once every three months in hot seasons and once every six months in cold seasons.
   The battery self-discharges while it is stored.

SERVICE EVERY 200 HOURS

1. Replacing the transmission oil filter [HST type only]

⚠ WARNING

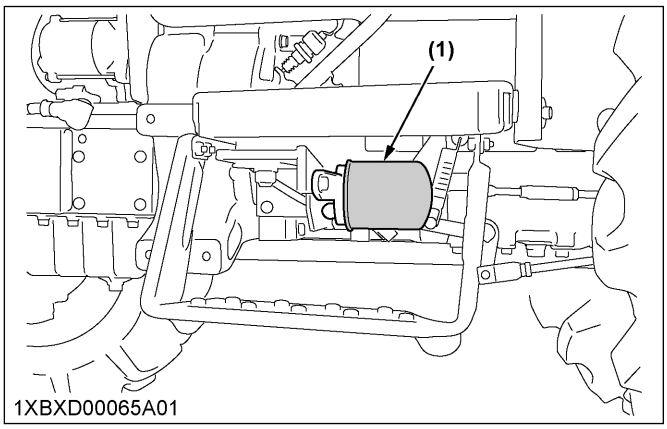
To avoid personal injury or death:

- **Be sure to stop the engine and remove the starter key before changing the transmission-oil-filter-cartridge.**
- **Allow the engine to cool down sufficiently because the transmission oil can be hot and can burn.**

IMPORTANT :

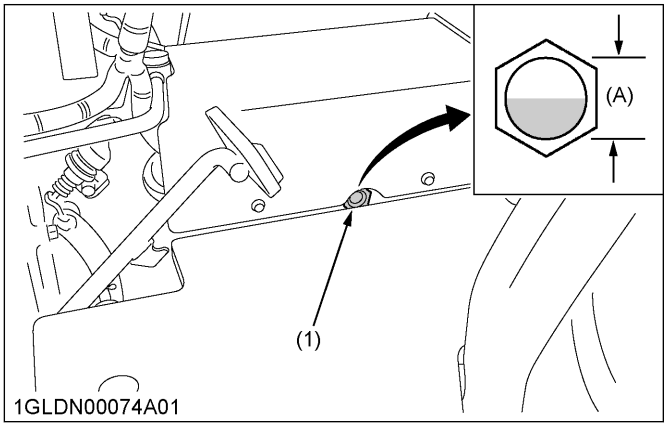
- **To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.**

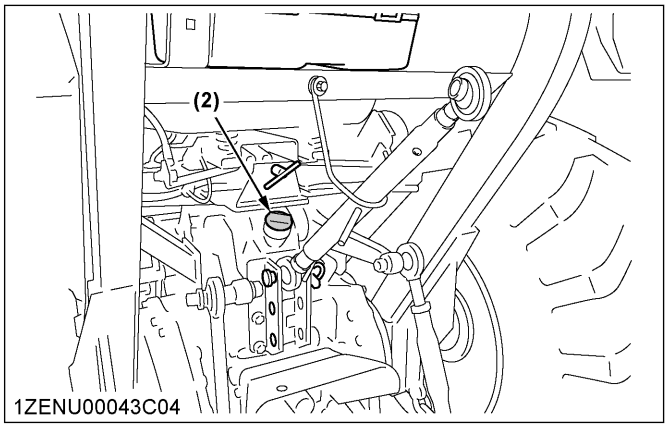
1. Place the oil pan underneath the transmission-oil-filter and remove the transmission-oil-filter.
   Do not remove the hydraulic-oil-filter. Otherwise, the oil comes out.



(1) Transmission oil filter [HST type]

2. Put a film of clean transmission oil on the rubber seal of the new transmission-oil-filter.
3. Quickly tighten the transmission-oil-filter until it contacts the mounting surface.
4. Then, with a filter wrench, tighten the transmission-oil-filter an additional 1 turn only.
5. After the new transmission-oil-filter has been replaced, fill with the transmission oil up to the upper line of the gauge.





(1) Gauge
(2) Oil inlet
(A) Range transmission oil level is acceptable within

6. After running the engine for a few minutes, stop the engine and check the level of the transmission oil again. Add the transmission oil to the prescribed level.
7. Make sure that the transmission fluid does not leak past the seal on the transmission filter.

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.

2. Checking the toe-in

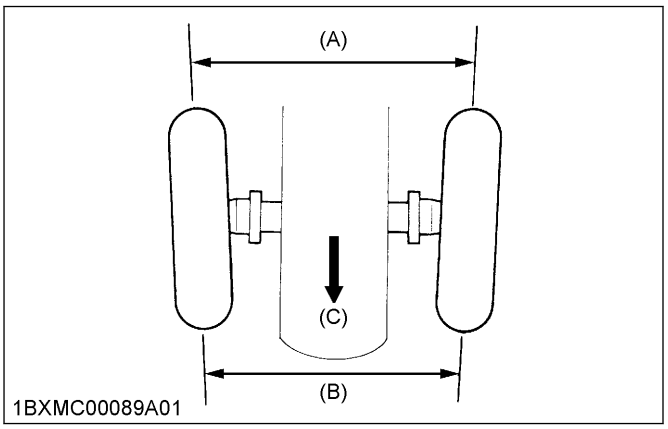
⚠ WARNING

To avoid personal injury or death:

- **Park the tractor on a firm, flat, and level place.**
- **Turn the steering wheel so that the front wheel are in the straight ahead position.**
- **Lower the implement to the ground and lock the parking brake.**
- **Stop the engine and remove the starter key.**

1. Park the tractor on a flat place.
2. Turn the steering wheel so that the front wheels are in the straight ahead position.
3. Lower the implement, lock the parking brake, and stop the engine.
4. Measure the distance between the tire beads at front of tire, at the hub height.
5. Measure the distance between the tire beads at rear of tire, at the hub height.
   The distance between the tire beads at front of tire should be shorter than the distance between the tire beads at rear of tire.

6. If the distance between the tire beads at front of tire is not shorter than the distance between the tire beads at rear of tire, adjust the length of tie rod. (See Adjusting the toe-in on page 93)

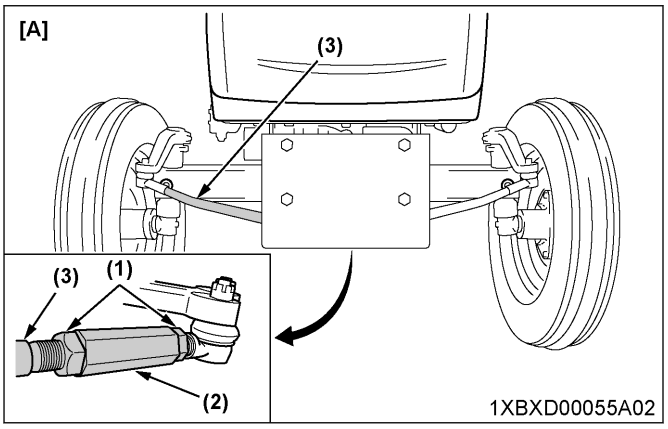


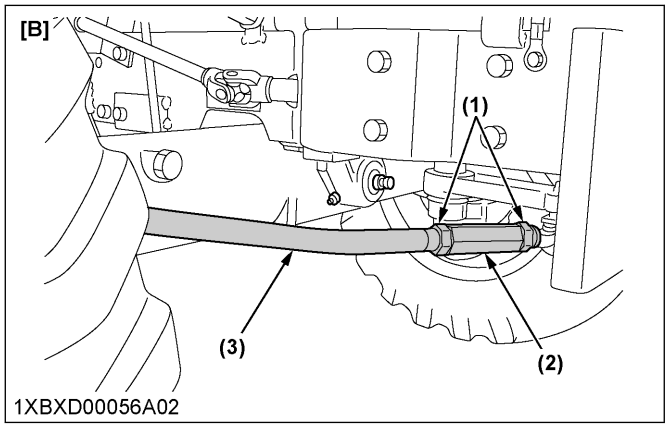
(A) Wheel-to-wheel distance at rear
(B) Wheel-to-wheel distance at front
(C) Front

Proper toe-in	2 mm to 8 mm (0.08 in. to 0.31 in.)

2.1 Adjusting the toe-in

1. Loosen the lock nuts.
2. Turn the turnbuckle to adjust the length of tie rod until the proper toe-in measurement is obtained.
3. Retighten the lock nuts.





(1) Lock nuts
(2) Turnbuckle
(3) Tie rod
[A] 2WD
[B] 4WD

SERVICE EVERY 400 HOURS

1. Changing the engine oil

⚠ WARNING

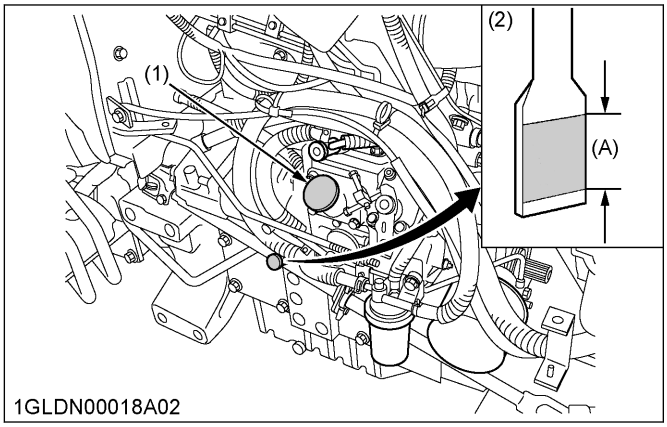
To avoid personal injury or death:

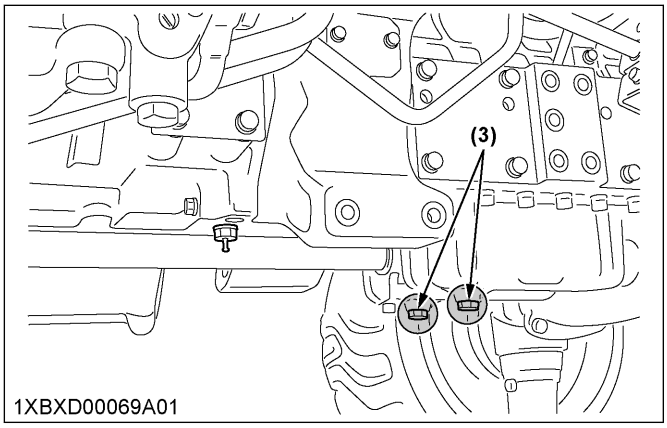
- **Be sure to stop the engine and remove the starter key before changing the engine oil.**
- **Allow the engine to cool down sufficiently because the engine oil can be hot and can burn.**

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 engine oil, reinstall the drain plug.

3. Fill with the new engine oil up to the upper notch on the dipstick.
   (See LUBRICANTS, FUEL, AND COOLANT on page 74.)

Engine oil capacity with engine oil filter	5.7 L (6.0 U.S.qts.)





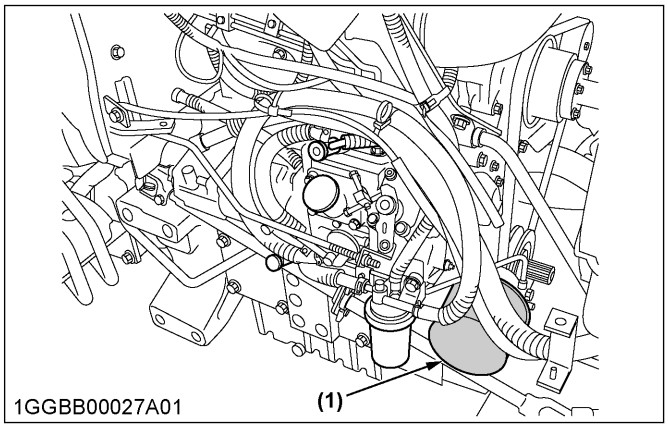
(1) Oil inlet
(2) Dipstick
(3) Drain plug
(A) Range which engine oil level is acceptable within

2. Replacing the engine oil filter

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before changing the engine-oil-filter-cartridge.**
- **Allow the engine to cool down sufficiently because the engine oil can be hot and can burn.**

IMPORTANT :
- **To prevent serious damage to the engine, use only a KUBOTA genuine filter.**

1. Remove the engine-oil-filter.
2. Put a film of clean engine oil on the rubber seal of the new engine-oil-filter.
3. Tighten the engine-oil-filter quickly until it contacts the mounting surface.
4. Tighten the engine-oil-filter by hand an additional 1/2 turn only.
   After replacing the engine-oil-filter, the engine oil normally decreases a little.
5. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick.
6. Then, replenish the engine oil up to the prescribed level.



(1) Engine oil filter

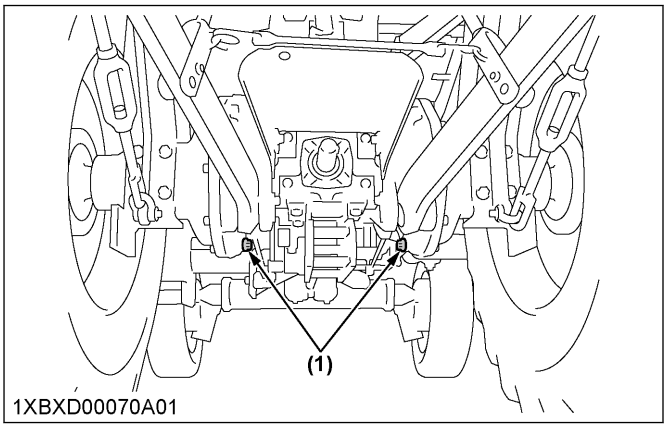
3. Changing the transmission fluid, replacing the hydraulic oil filter, and cleaning the magnetic filter

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before changing the hydraulic-oil-filter-cartridge.**
- **Allow the engine to cool down sufficiently because the transmission oil can be hot and can burn.**

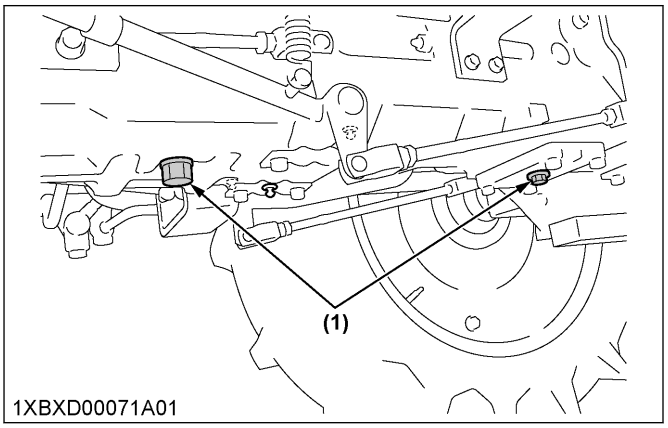
IMPORTANT :
- **To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.**

1. Remove the drain plugs at the bottom of the transmission case and drain the transmission oil completely into the oil pan.

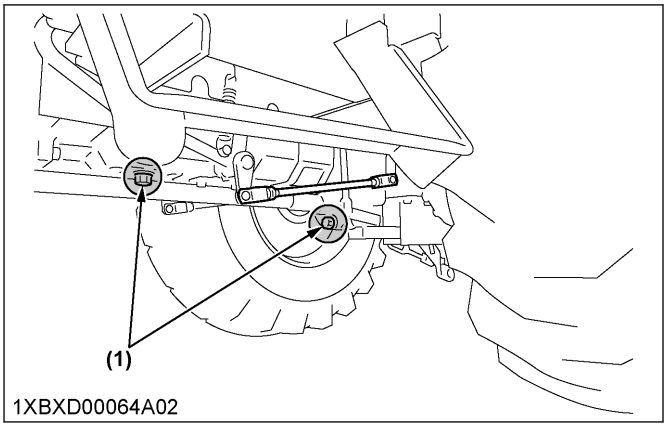
2. After draining, reinstall the drain plugs.



[2WD]

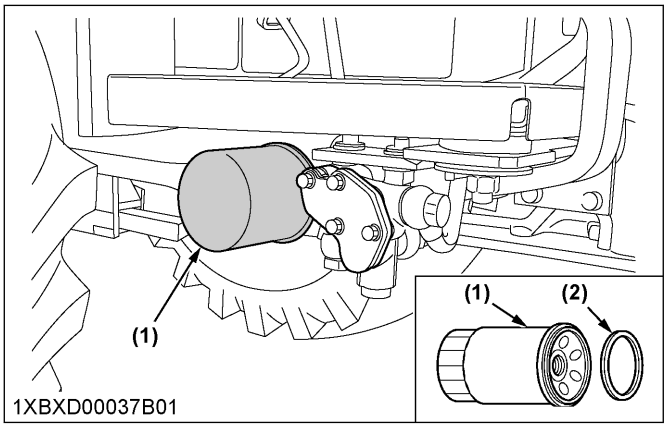


[4WD]



(1) Drain plugs

3. Remove the hydraulic-oil-filter.
4. Wipe off metal filings from the magnetic filter with a clean rag.



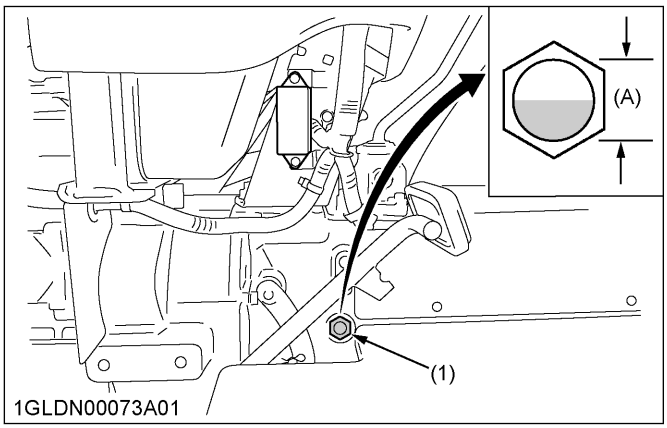
(1) Hydraulic oil filter *(2) Magnetic filter (wipe off metal filings)*

5. Put a film of clean transmission oil on the rubber seal of the new hydraulic-oil-filter.
6. Quickly tighten the hydraulic-oil-filter until it contacts the mounting surface.
7. Then tighten the hydraulic-oil-filter by hand an additional 1/2 turn only.
8. After the new hydraulic-oil-filter has been replaced, fill with transmission oil up to the upper line of the gauge.
9. After running the engine for a few minutes, stop the engine and check the level of the transmission oil again. Add the transmission oil to the prescribed level.

10. Make sure that the transmission fluid does not leak past the seal on the hydraulic-oil-filter.

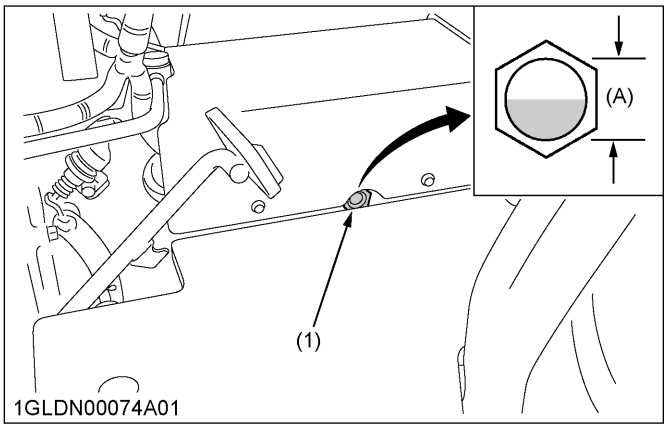
Transmission oil capacity	Manual transmission	2WD	27.0 L (7.1 U.S.gals.)
		4WD	27.5 L (7.3 U.S.gals.)
	HST	4WD	23.5 L (6.2 U.S.gals.)

[Manual transmission type]

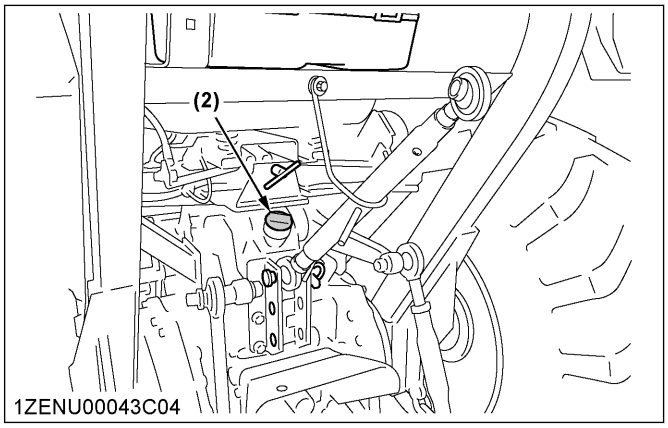


(1) Gauge *(A) Range which transmission oil level is acceptable within*

[HST type]



(1) Gauge *(A) Range which transmission oil level is acceptable within*



(2) Oil inlet

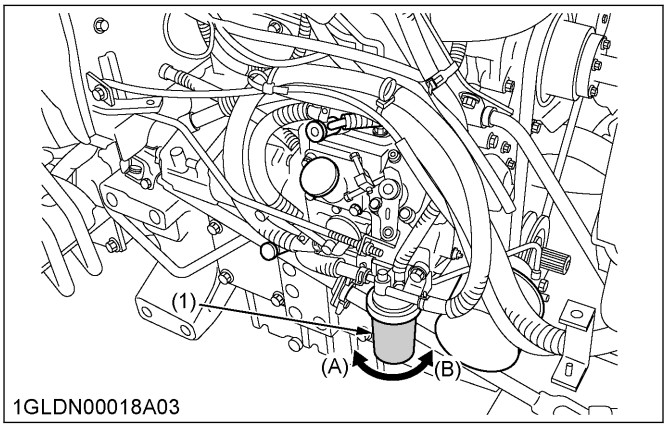
IMPORTANT :

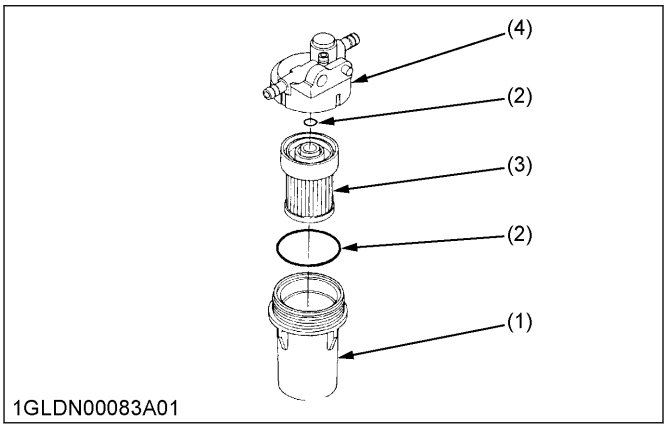
- **Do not operate the tractor immediately after changing the transmission fluid.**
  Run the engine at medium speed for a few minutes to prevent damage to the transmission.

4. Replacing the fuel filter element

Carry out replacing of fuel filter element not in the field, but in a clean place.

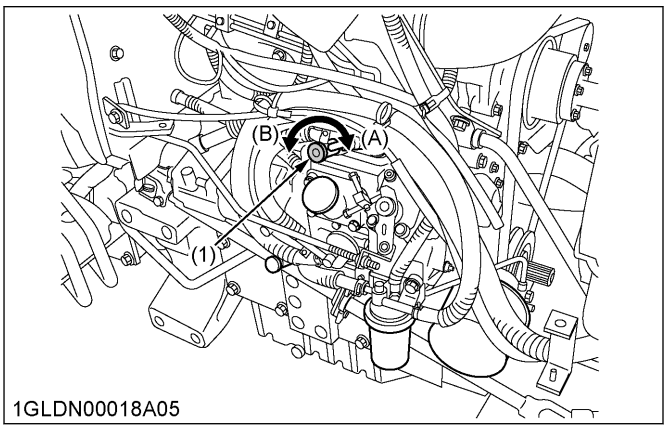
Replace the fuel-filter-element according to Cleaning the fuel filter on page 88.





(1) Fuel filter bowl
(2) O ring
(3) Filter element
(4) Body (built-in fuel check valve)
(A) Loosen
(B) Tighten

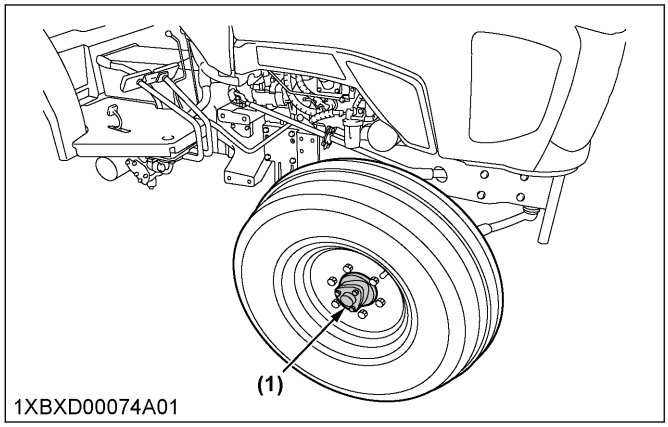
1. Loosen and remove the fuel-filter-bowl.
2. Remove the fuel-filter-element.
3. Assemble new fuel filter, keeping out dust and dirt.
4. Bleed the fuel system.
(See Bleeding the fuel system on page 103)



(1) Air vent shutoff-valve
(A) Close
(B) Open

5. Lubricating the grease fitting of front wheel hub [2WD]

1. Detach the front-wheel-hub-cover.
2. Apply the bearing grease to the grease fitting.



(1) Front wheel hub cover

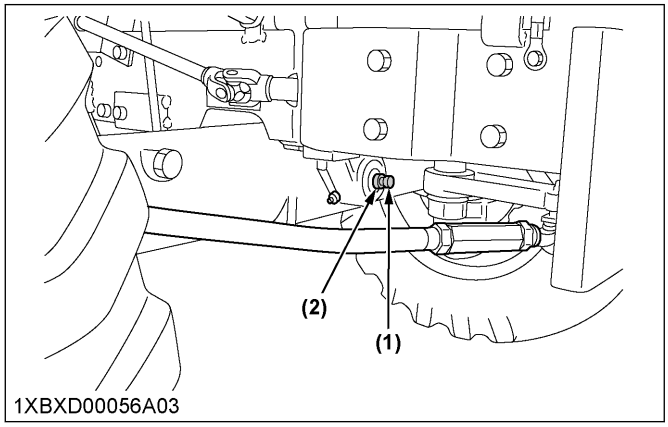
SERVICE EVERY 600 HOURS

1. Adjusting the front axle pivot

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before changing the front-axle-pivot.**

If the adjustment of front-axle-pivot-pin is not correct, vibration in the front wheel may occur causing vibration in the steering wheel.

1. Loosen the lock nut, and screw-in the adjusting screw until seated.
2. Tighten the screw with an additional 1/6 turn.
3. Re-tighten the lock nut.



(1) Adjusting screw
(2) Lock nut

SERVICE EVERY 800 HOURS

1. Changing the front axle case oil

WARNING

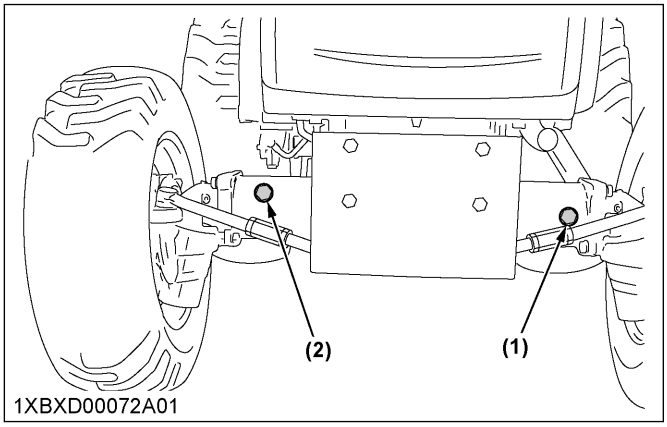
To avoid personal injury or death:

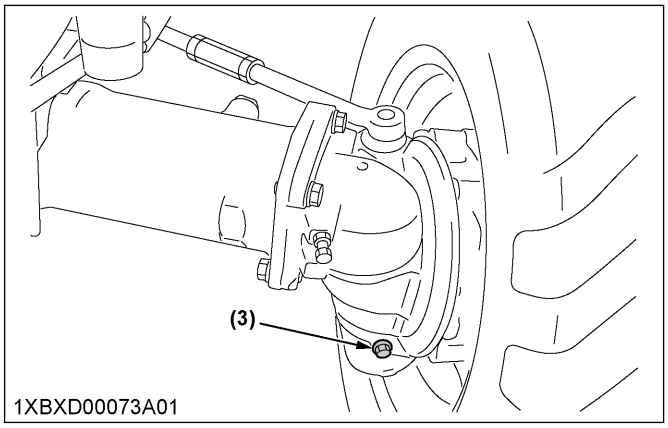
- **Be sure to stop the engine and remove the starter key before changing the front-axle-case-oil.**

1. To drain the used front-axle-case-oil, remove the right and left drain plugs and filling plug at the front-axle-case and drain the front-axle-case-oil completely into the oil pan.
2. After draining, reinstall the drain plugs.
3. Gently pour new oil through the filling port.
   Required quantities of front-axle-case-oil are written in the following table. Make sure to pour the specified amounts. If front-axle-case-oil overflows before pouring any of the specified amounts, wait a couple of minutes and try again.
   (See LUBRICANTS, FUEL, AND COOLANT on page 74)

Front axle case oil capacity	4.5 L (4.8 U.S.qts.)

4. After filling, reinstall the filling plug.
5. Run the machine a few minutes in order for the front-axle-case-oil to flow through the front-axle-case.
6. Remove the oil-level-check-plug and check to see if the front-axle-case-oil flows out of its port.
7. If the front-axle-case-oil does not flow out, add the front-axle-case-oil through the filling port until it flows out of the oil-level-check-port.
8. Reinstall and tighten the oil-level-check-plug and filling plug.





(1) Check plug
(2) Filling plug
(3) Drain plug

2. Adjusting the engine valve clearance

- Consult your local KUBOTA Dealer for adjusting the clearance of the engine valve.

SERVICE EVERY 1000 HOURS OR 1 YEAR

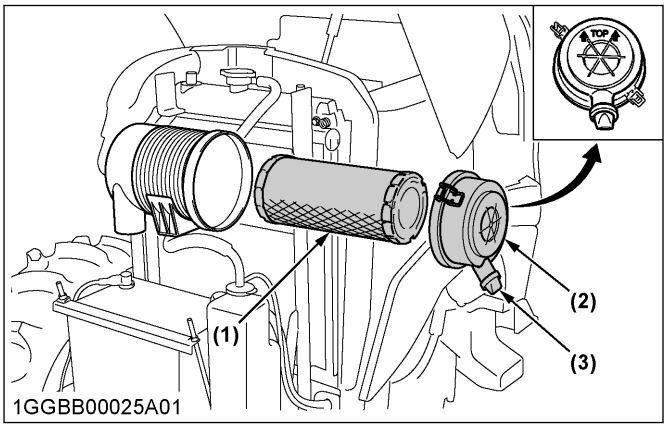
Servicing to be sure to perform once every 1000hours or yearly, whichever comes first.

1. Replacing the air cleaner element [Single element type]

Be sure to perform once every 1000 hours or yearly, whichever comes first.
(See Cleaning the air cleaner element [Single element type] on page 87)

1. Remove the air-cleaner-element.

2. Attach new air-cleaner-element.



(1) Elements
(2) Cover
(3) Evacuator valve

IMPORTANT :
- **Be sure to refit the cover with the arrow ⬆ (on the rear) upright. If the cover is improperly fitted, dust passed by the baffle and directly adheres to the element.**

SERVICE 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 EVERY 2000 HOURS OR 2 YEARS

Servicing to be sure to perform once every 2000 hours or biennially, whichever comes first.

1. Flushing the cooling system and changing the coolant

⚠ WARNING
To avoid personal 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.**

Be sure to perform once every 2000 hours or biennially, whichever comes first.

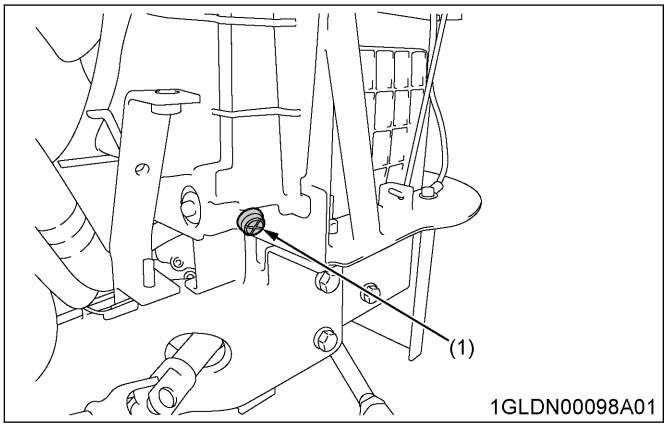
1. Stop the engine, remove the starter key, and let the engine cool down.
2. To drain the coolant, open the radiator-drain-plug and remove the radiator cap.
   Remove the radiator cap to completely drain the coolant.
3. After all coolant is drained, reinstall the drain plug.
4. Fill with clean soft water and cooling-system-cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean soft water and antifreeze until the coolant level is just below the radiator cap.
   (For antifreeze, see Antifreeze on page 100)

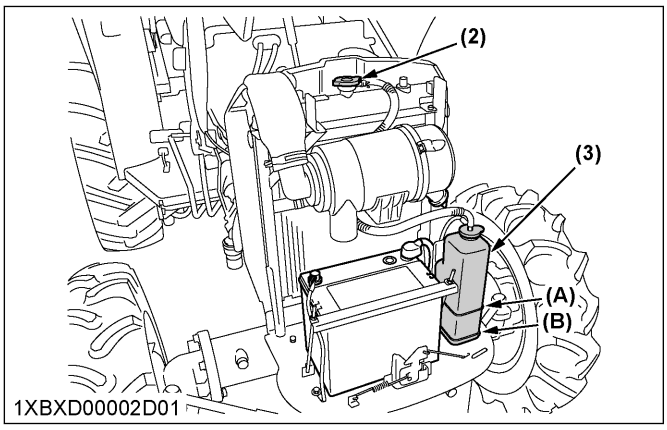
   IMPORTANT :
   - **Use clean, fresh soft water and antifreeze to fill the radiator and recovery tank.**
   - **When mixing the antifreeze with water, the antifreeze mixing ratio is 50%.**
7. Install the radiator cap securely.

   IMPORTANT :
   - **Securely tighten the radiator cap. If the radiator cap is loose or improperly fitted, water may leak out and the engine could overheat.**
8. Fill with coolant up to the *"FULL"* mark of recovery tank.
9. Start and operate the engine for a few minutes.
10. Stop the engine, remove the starter key, and let the engine cool.
11. Check the coolant level of the recovery tank and add coolant if it is necessary.

12. Properly dispose of the used coolant.

	Coolant capacity
Radiator	6.0 L (6.3 U.S.qts.)
Recovery tank	0.6 L (0.6 U.S.qts.)





(1) Drain plug
(2) Radiator cap
(3) Recovery tank
(A) Full
(B) Low

1.1 Antifreeze

⚠ WARNING

To avoid personal injury or death:

- **When using the antifreeze, put on some protection such as rubber gloves. Antifreeze contains poison.**
- **If someone drank the antifreeze, seek immediate medical help. Do not ask the person to throw up unless told to throw up by a poison control 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 antifreeze comes in contact with the skin or clothing, wash it off immediately.**
- **Do not mix different types of antifreeze. The mixture can produce chemical reactions causing harmful substances.**
- **Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.**
- **When draining the fluids from the engine, place a 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 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 (LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
- Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat filling and emptying the radiator with fresh water 2 or 3 times to clean up the inside.
- Mixing the LLC
  Premix 50% LLC with 50% clean soft water. When mixing, stir it up well, and then fill into the radiator.
- The procedure for the mixing of water and antifreeze differs according to the type of the antifreeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

Vol (%) Antifreeze	Freezing Point	Boiling Point*1
	℃ (℉)	℃ (℉)
50	-37 (-34)	108 (226)

- 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 contain different additive components, and the engine may fail to perform as specified.
- When the LLC is mixed, do not employ any radiator-cleaning-agent. The LLC contains anticorrosive agent. If mixed with the cleaning

agent, sludge may build up, adversely affecting the engine parts.
- Service life of KUBOTA's genuine long-life coolant is 2 years. Be sure to change the coolant every 2000 hours or every 2 years whichever comes faster.

*1 At 1.013×10^5 Pa (760 mmHg) pressure (atmospheric). A higher boiling point is obtained by using a radiator-pressure-cap which permits the development of pressure within the cooling system.

SERVICE EVERY 3000 HOURS

1. Checking the injection pump

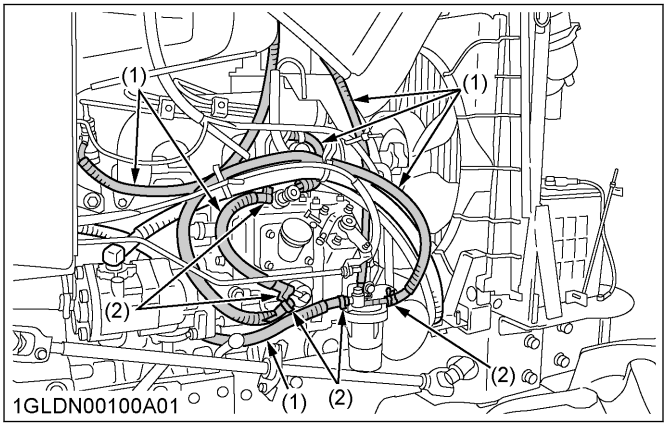
- Consult your local KUBOTA Dealer for checking the injection pump.

SERVICE EVERY 1 YEAR

1. Checking the fuel line

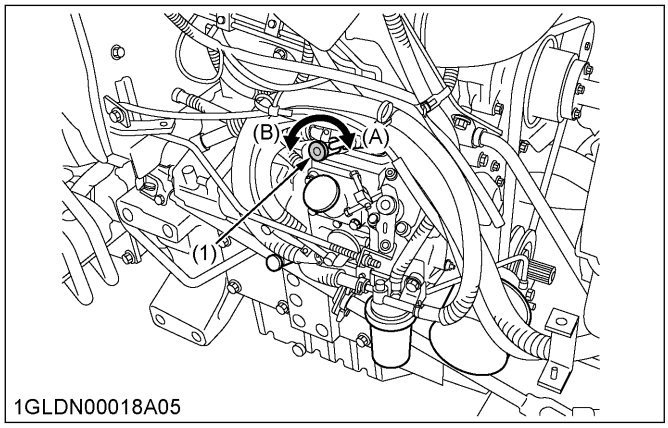
⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before changing the fuel line.**
- **Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.**

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



(1) Fuel lines *(2) Clamp bands*

NOTE :
- **If the fuel line is removed, be sure to properly bleed the fuel system.**
  (See Bleeding the fuel system on page 103)

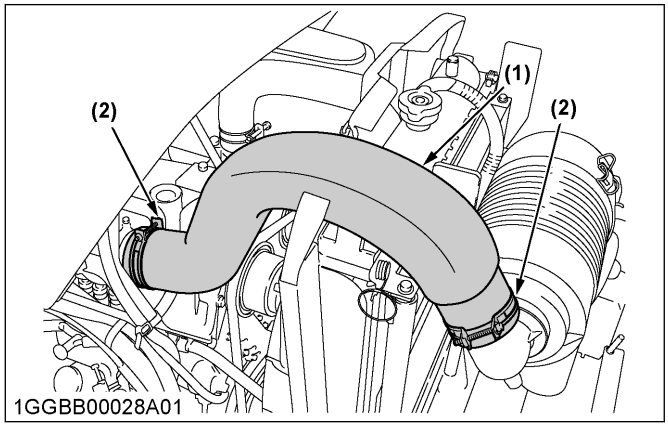


(1) Air vent shutoff-valve *(A) Close* *(B) Open*

2. Checking the intake air line

⚠ WARNING
To avoid personal injury or death:
- **Stop the engine and remove the starter key before changing the intake-air-line.**

1. Check to see that the hoses and hose clamps are tight and not damaged
2. If the hoses and hose clamps are found worn or damaged, replace or repair them at once.



(1) Hose *(2) Hose clamps*

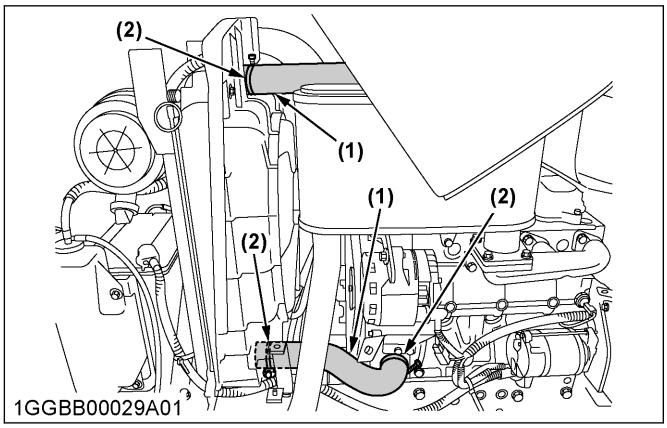
3. Checking the radiator hose and clamp

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before changing the radiator hose and hose clamps.**

Check the radiator hose and clamp every year.

1. Check to see if radiator hoses are properly fixed.

2. If hose clamps are loose or water leaks, tighten the bands securely.
3. Replace the hoses and tighten the hose clamps securely, if radiator hoses are swollen, hardened, or cracked.



(1) Radiator hoses (2) Clamp bands

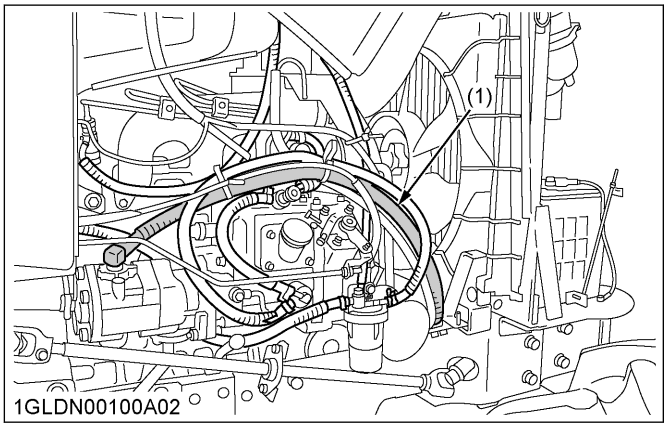
4. Checking the power steering line [Manual transmission type only]

⚠ WARNING

To avoid personal injury or death:

- **Be sure to stop the engine and remove the starter key before changing the power-steering-line.**

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



(1) Power steering pressure hoses

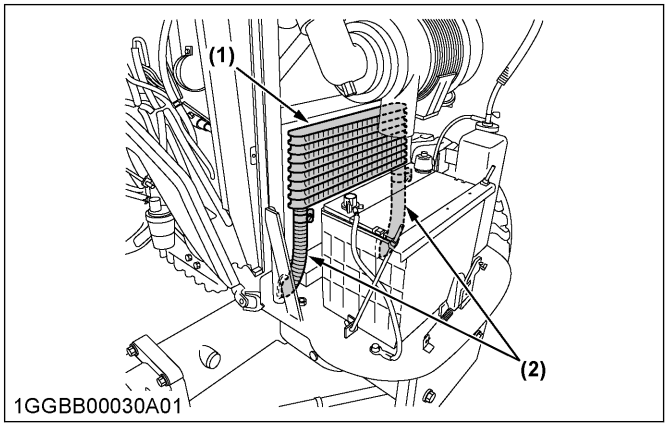
5. Checking the oil cooler line [HST type only]

⚠ WARNING

To avoid personal injury or death:

- **Be sure to stop the engine and remove the starter key before changing the oil-cooler-line.**

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



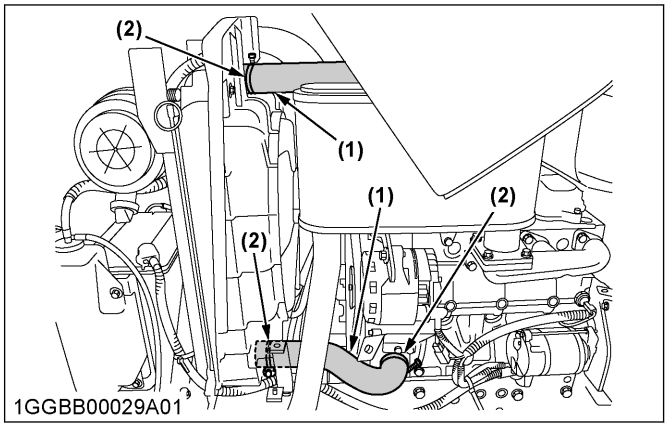
(1) Oil cooler (2) Oil cooler line

SERVICE EVERY 4 YEARS

1. Replacing the radiator hose (water pipes)

See Checking the radiator hose and clamp on page 101.

1. Replace the radiator hoses and tighten the hose clamps securely.



(1) Radiator hoses (2) Clamp bands

2. Replacing the fuel line

- Consult your local KUBOTA Dealer for replacing the fuel hose.

3. Replacing the intake air line

- Consult your local KUBOTA Dealer for replacing the intake-air-line.

4. Replacing the oil cooler line [HST type only]

- Consult your local KUBOTA Dealer for replacing the oil-cooler-line.

5. Replacing the power steering hose

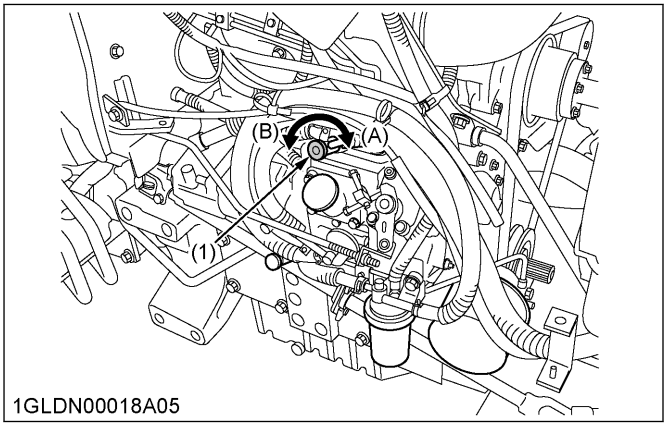
- Consult your local KUBOTA Dealer for replacing the power-steering-hose.

SERVICING AS REQUIRED

1. Bleeding the fuel system

Remove the air in the following cases.
- When you remove the fuel filter or fuel lines.
- When the fuel tank is completely empty.
- After you has not use the tractor for a long period of time.

1. Fill the fuel tank with fuel.
2. Open the air-vent-shutoff-valve on the fuel-injection-pump.



(1) Air vent shutoff-valve
(A) Close
(B) Open

3. Start the engine and run for about 30 seconds, and then stop the engine.
4. Close the air vent shutoff-valve.

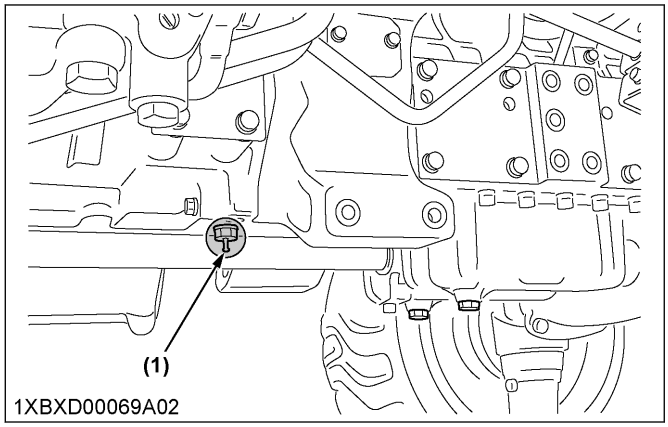
IMPORTANT :
- **Always close the air-vent-shutoff-valve except for bleeding the fuel lines.**

Otherwise, engine runs irregularly or stalls frequently.

2. Draining the water from the clutch housing

After operating in rain, snow, or the tractor has been washed, water may get into the clutch housing.

1. Check if water has entered into the clutch housing by pushing in the split pin.
2. If water has entered into the clutch housing, remove the split-pin-plug and drain the water.
   The tractor is equipped with split-pin-plug under the clutch housing.
3. Then install the split-pin-plug again.



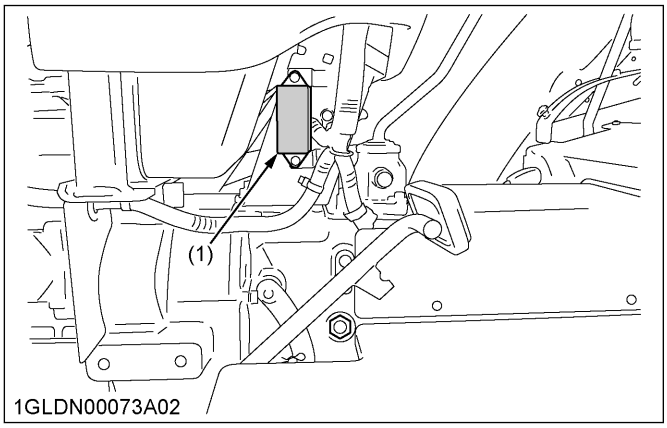
(1) Split pin plug

3. Replacing the fuse

IMPORTANT :
- **Before replacing a blown fuse, determine why the fuse blew and carry out any necessary repairs. Failure to follow the replacing procedure may result in serious damage to the electrical system of the tractor. See ENGINE TROUBLESHOOTING on page 108 or your local KUBOTA Dealer for specific information dealing with electrical problems.**

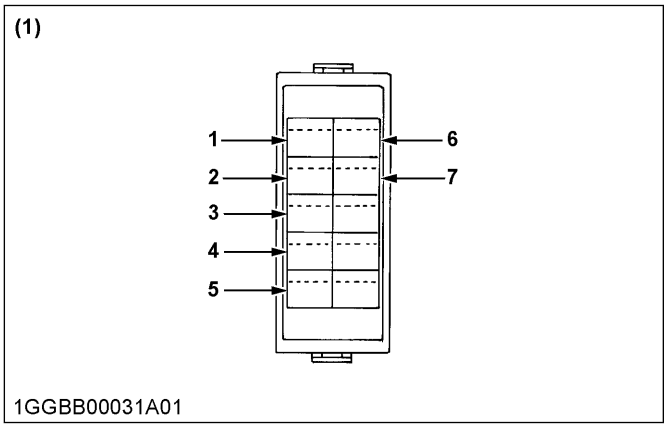
The electrical system of the tractor is protected from potential damage by fuses.
A blown fuse indicates that there is an overload or short somewhere in the electrical system.

1. If any of the fuses should blow, replace with a new fuse with the same capacity.

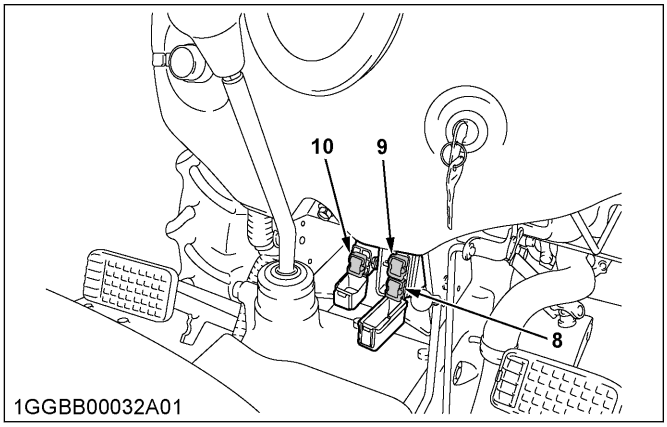


(1) Fuse

Fuse (1)



(2) Spare fuse *(3) Fuse puller*



Protected circuit

Fuse No.	Capacity (A)	Protected circuit
1	15	Hazard
2	10	Work light
3	10	Panel
4	15	Head light
5	5	Key stop
6	5	Glow lamp
7	5	Starter relay
8	40	Main
9	30	Key stop
10	40	Key switch

4. Replacing the light bulb

1. Replacing the light bulb of the light in the following table if necessary.

Light	Capacity
Head light	25 W / 25 W
Tail light	5 W
Turn signal / hazard light (rear)	21 W
Turn signal / hazard light (front)	23 W
Instrument panel light	1.7 W

5. Replacing head lamp

⚠ WARNING

To avoid personal injury:

- **Be careful not to drop the bulb, hit anything against the head lamp, apply the excess force, or get the head lamp scratched. If the head lamp is broken, glass may cause injury. Pay more attention to halogen lamps in particular, which include high pressure inside.**
- **Before replacing the head lamp, be sure to turn off the light and wait until the bulb cools down. Otherwise, you may get burned.**

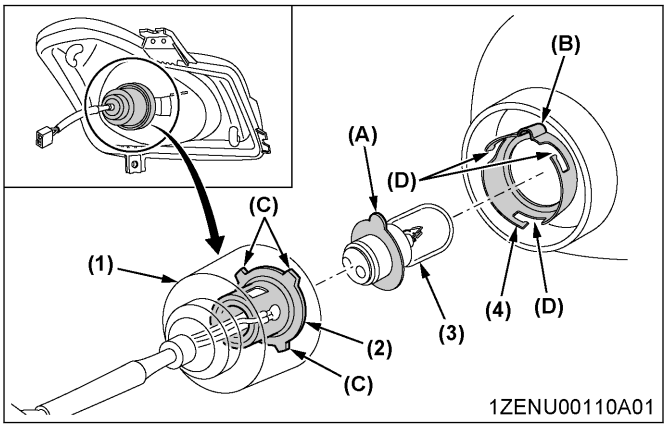
Removing the bulb

1. Remove the rubber boot.
2. Turn the socket counterclockwise while pressing and remove it.
3. Remove the bulb.

Attaching the bulb

1. Align (A) of the bulb with (B) of the lamp case and attach the bulb.
2. Align (C) of the socket with (D) of the lamp case and attach the socket.

3. Attach the rubber boot.



(1) Rubber boot
(2) Socket
(3) Bulb
(4) Lamp case
(A) Align to (B)
(C) Align to (D)

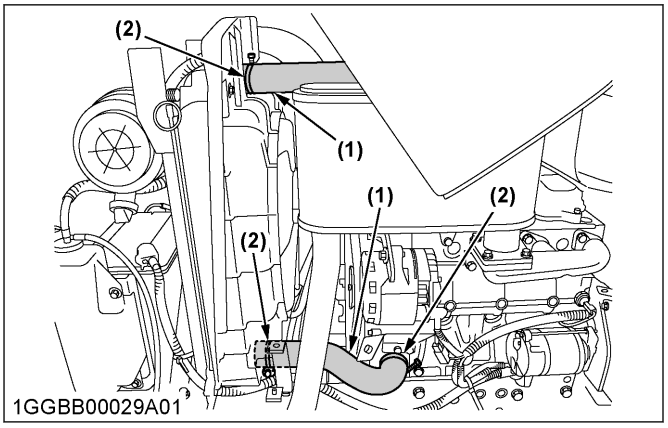
IMPORTANT :

- **Be sure to use a new bulb of the specified wattage.**
- **Never touch the bulb surface (glass) with bare hands. Fingerprints, for example, may break the bulb.**

6. Replacing the radiator hose (water pipes) if required

Replace the radiator hose (water pipes) if any deterioration such as crack, hardening, scar, or deformation, or damage occurred. Also, replace the radiator hose (water pipes) every 4 years regardless of the condition.
(See Checking the radiator hose and clamp on page 101.)

1. Replace the hoses and tighten the hose clamps securely, if radiator hoses are swollen, hardened, or cracked.



(1) Radiator hoses
(2) Clamp bands

7. Replacing the fuel line if required

Replace the fuel lines if any deterioration such as crack, hardening, scar, or deformation, or damage occurred. Also, replace the fuel lines every 4 years regardless of the condition.

- Consult your local KUBOTA Dealer for replacing the fuel lines.

8. Replacing the intake air line if required

Replace the intake-air-line if any deterioration such as crack, hardening, scar, or deformation, or damage occurred. Also, replace the intake-air-line every 4 years regardless of the condition.

- Consult your local KUBOTA dealer for replacing the intake-air-line.

9. Replacing the power steering line if required

Replace the power-steering-line if any deterioration such as crack, hardening, scar, or deformation, or damage occurred. Also, replace the power-steering-line every 4 years regardless of the condition.

- Consult your local KUBOTA dealer for replacing the power-steering-line.

10. Replacing the oil cooler line if required [HST type only]

Replace the oil-cooler-line if any deterioration such as crack, hardening, scar, or deformation, or damage occurred. Also, replace the oil-cooler-line every 4 years regardless of the condition.

- Consult your local KUBOTA Dealer for replacing the oil-cooler-line.

STORAGE OF THE TRACTOR

⚠ WARNING

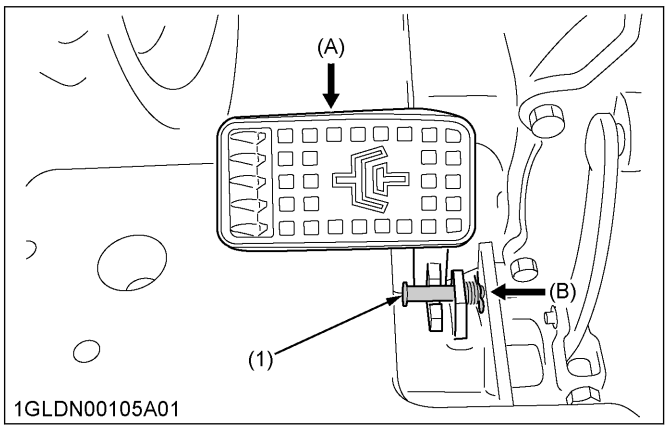
To avoid personal injury or death:

- **Do not clean the tractor while the engine is running.**
- **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

If you intend to store your tractor for an extended period of time, follow the proper storing procedures.
Proper storing 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. Keep the clutch disengaged.
   If the clutch is left engaged for a long period of time, the clutch plate may rust, causing the disengagement of clutch impossible when operating it next time.
   To keep the clutch disengaged, depress the clutch pedal and get it locked with the lock pin as the following figure.



(1) *Lock pin*
(A) *Depress*
(B) *Hook to lock*

7. With all implements lowered to the ground, coat any exposed hydraulic-cylinder-piston-rods with grease.
8. Remove the battery from the tractor. Store the battery following the direction for battery storage.
   (See Checking the battery condition on page 90)
9. Keep the tractor in a dry place where the tractor is sheltered from the elements. Cover the tractor.
10. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat.
    If you must store the tractor 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.

    IMPORTANT :
    - **When washing the tractor, be sure to 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.**

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 all fluid levels: engine oil, transmission/ hydraulic oil, engine coolant, and any attached implements.
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.
9. Shut the engine off. Walk around tractor and make 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 it is necessary for the brakes to be adjusted.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to 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 bolt and nut of fuel-line-coupler are tight. • Bleed the fuel system. (See Bleeding the fuel system on page 103)
		• In winter, oil viscosity increases, and engine revolution is slow.	• Use oils of different viscosity, depending on ambient temperatures. • Use the engine-block-heater (optional).
		• Battery becomes weak and the engine does not turn over quick enough.	• Clean the battery cables and terminals. • Charge the battery. • In cold weather, always remove the battery from the engine, charge the battery, and store it indoors. Install the battery on the tractor only when the tractor is going to be used.
		• Preheat (glow plug) system trouble.	• Check to see if the slow-blow-fuse of the preheat (glow plug) blows.
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 damped from fuel.	• Heat the muffler by applying load to the engine.
		• Trouble of injection nozzle	• Check the injection nozzle.
		• Fuel quality is poor.	• Change the fuel and fuel filter.
Engine overheats.		• Engine overloaded.	• Shift to lower the gear or reduce the load.
		• Low coolant level	• Fill the 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 there are any questions about the engine, consult your local KUBOTA Dealer.

OPTIONS

OPTION ITEMS

Consult your local KUBOTA Dealer for further details of the following options.

- Engine block heater
  For extremely cold weather starting
- Front end weights
  For the front ballast
- Front bumper
- Rear wheel weights
  For the rear ballast
- Cruise control
- Sunshade
- Front grill guard
- Double acting remote hydraulic control valve
- Stabilizer kit (for lower link)
- Swinging drawbar
- Clevis for drawbar
- Work light
  High visibility for night work

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