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BE. B. 7 - 7. -. K

English (U.S.A.)
Code No. TC820-1973-7

OPERATOR'S MANUAL

KUBOTA TRACTOR

MODELS L3302 L3302-1
L3902 L3902-1



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READ AND SAVE THIS MANUAL



ABBREVIATION LIST

Abbreviations	Definitions
2WD	2-Wheel Drive
4WD	4-Wheel Drive
API	American Petroleum Institute
ASABE	American Society of Agricultural and Biological Engineers, USA
ASTM	American Society of Testing and Materials, USA
DIN	Deutsches Institut für Normung, GERMANY
DPF	Diesel Particulate Filter
DT	Dual Traction [4WD]
ft/min	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.

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

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		Draft Control-Deep Position
	Master System Warning		3-Point Lowering Speed Control
	Diesel Fuel		Remote Cylinder-Retract
	Fuel-Level		Remote Cylinder-Extend
	Engine-Rotational Speed n/min		Steering Wheel-Tilt Control
	Hourmeter/Elapsed Operating Hours		Hazard Warning Lights
	Engine Coolant-Temperature		Master Lighting Switch
	Diesel Preheat/Glow Plugs (Low Temperature Start Aid)		Position Lamps
	Brake System		Headlight-Low Beam
	Clutch		Headlight-High Beam
	Parking Brake		Audible Warning Device
	Engine Intake/Combustion Air-Filter		4-Wheel Drive-On
	Battery Charging Condition		4-Wheel Drive-Off
	Engine Oil-Pressure		Fast
	Turn Signal		Slow
	Engine-Stop		Creep
	Engine-Run		Read Operator's Manual
	Starter Control		Tractor-Forward Movement-Overhead View of Machine
	Power Take-Off Control-Off Position		Tractor-Rearward Movement-Overhead View of Machine
	Power Take-Off Control-On Position		Engine Speed Control
	Stationary PTO		Regeneration
	Differential Lock		Regeneration Inhibit (Switch)
	Position Control-Raised Position		Parked Regeneration (Switch)
	Position Control-Lowered Position		Parked Regeneration
	Engine Warning		Engine rpm Increase
	Emission Control		Water Separator
	Draft Control-Shallow Position		

FOREWORD

Thank you for the purchase of a Kubota product.

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



SAFETY FIRST

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



DANGER : Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION : Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

NOTE : Gives helpful information.

OTHERS

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Trademark	Owner
AdBlue®	AdBlue is a registered trademark of the VDA - Verband der Automobilindustrie e.V. (The German Association of the Automotive Industry).
Easy Checker™	Easy Checker is a trademark of Kubota TRACTOR CORPORATION.

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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 experience they have, 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.

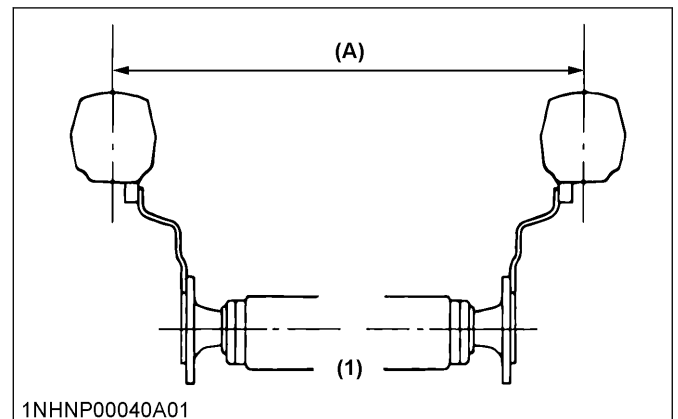
1. General precautions

- 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 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 such as hard hat, safety boots or shoes, eye and hearing protection, and gloves 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 93)
- 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 28, 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 88)



(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.
- Do not make any modifications to the engine or emission components as they may result in damage and malfunctions such as:
 - Damage to the powertrain from excessive engine output.
 - Engine overheating caused by exceeding the engine cooling performance capabilities.
 - Malfunctions of the exhaust gas aftertreatment control devices.

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

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

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

SAFE OPERATION

belt will reduce the risk of serious injury or death if the tractor should be upset.

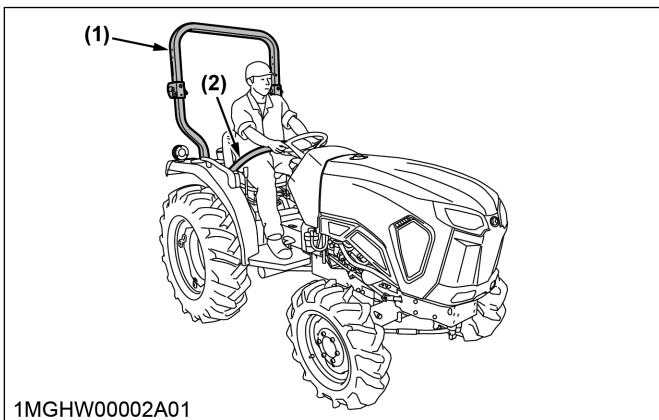
- Check for overhead clearance that may interfere with a CAB or a ROPS.
- Set the parking brake and stop the engine. Remove any obstructions that may prevent raising or folding the ROPS. Do not allow any bystander. Always perform functions of CAB or ROPS from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding it. Make sure that all pins are installed and locked.
- If the CAB or the ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
- Never modify or repair any structural member of a CAB or a ROPS because welding, bending, drilling, grinding, or cutting it may weaken the structure.
- If any structural member of the CAB or the ROPS is damaged, replace the entire structure at your local Kubota Dealer.
- If the tractor is equipped with a foldable ROPS, you may fold down it temporarily only when absolutely necessary to fold down it for areas with constraints on height.

There is no protection of operator provided by the ROPS in the folded position. For operator safety, you should set the ROPS in the upright and locked position and fasten the seat belt for all other operations.

- Always use the seat belt if the tractor has a CAB or a ROPS.

Do not use the seat belt if a foldable ROPS is down or there is no ROPS.

Check the seat belt regularly and replace it if frayed or damaged.



(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 that

can affect overturning hazards include traveling and turning with implements and loads carried too high.

This manual sets forth some of the obvious risks, but the list of risks is not exhaustive, and the list of risks cannot be exhaustive. It is the operator's responsibility to be alert for any equipment or environmental condition that could compromise safe operation.

1. Precautions for starting to operate the tractor

- Always sit in the operator's seat when starting the engine or operating the levers or the controls. Adjust the operator's seat according to Operator's seat on page 40. 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) is 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 109 and Checking the operator presence control on page 109.

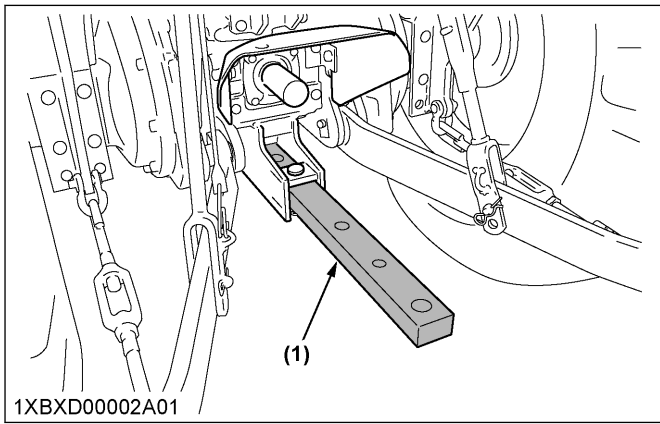
– [HST type]

See Checking the engine start system [HST type] on page 109 and Checking the operator presence control on page 109.

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 try to turn with the differential locked because it could be dangerous.
- Do not operate near ditches, holes, embankments, or other ground surface features that 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. 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.

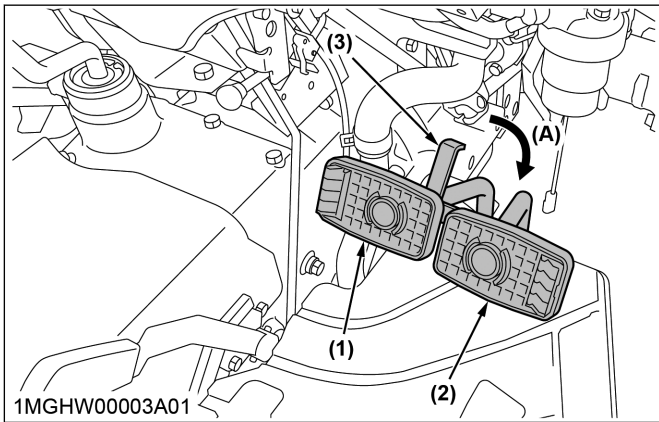
- To avoid upsets of the tractor, always back it up steep slopes. If you cannot back the tractor up on the slope or if you feel uneasy to back it up on the slope, do not operate on it. Stay off slopes too steep for safe operation.
- Driving forward out of a ditch or mired condition, or up a steep slope increases the risk of the tractor to be upset backward. Always back the tractor out of a ditch, mired condition, or steep slope. Extra caution is required with 4-wheel drive models because their increased traction can give false confidence in the tractor's ability to climb slopes to the operator.
- 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 88)
Follow recommendations for proper ballasting.
(See BALLAST on page 91)

5. Precautions for driving the tractor on the road

- Whenever traveling on the road, lock the 2 brake pedals together to help assure straight-line stops. Uneven braking at road speeds could cause the tractor to tip over.

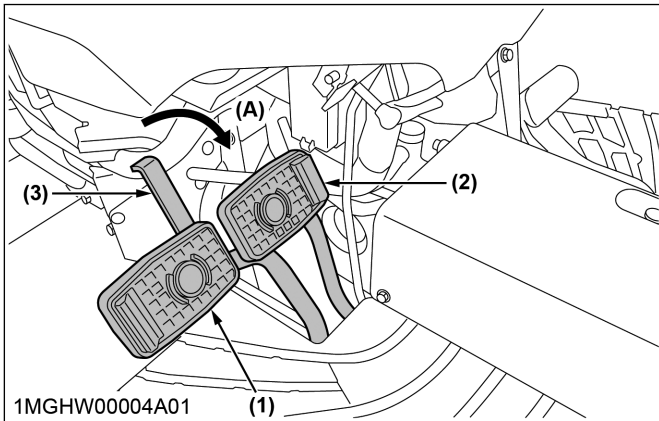
SAFE OPERATION

[Manual transmission type]



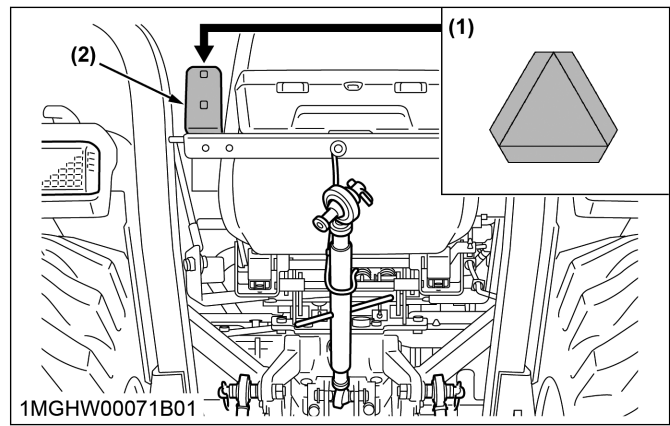
- (1) Brake pedal (LH) (A) Lock
 (2) Brake pedal (RH)
 (3) Brake pedal lock

[HST type]



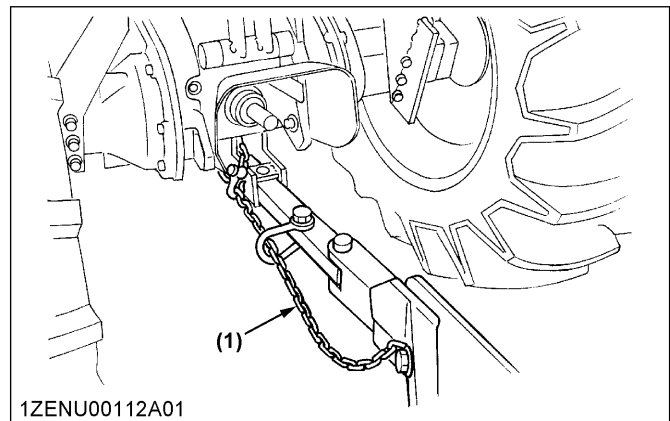
- (1) Brake pedal (LH) (A) Lock
 (2) Brake pedal (RH)
 (3) Brake pedal lock

- 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 down the tractor before turning. Turning at high speed may tip over the tractor.
- Make sure that the slow-moving vehicle (SMV) sign is clean and visible. Use the hazard lights and turn signals as required.



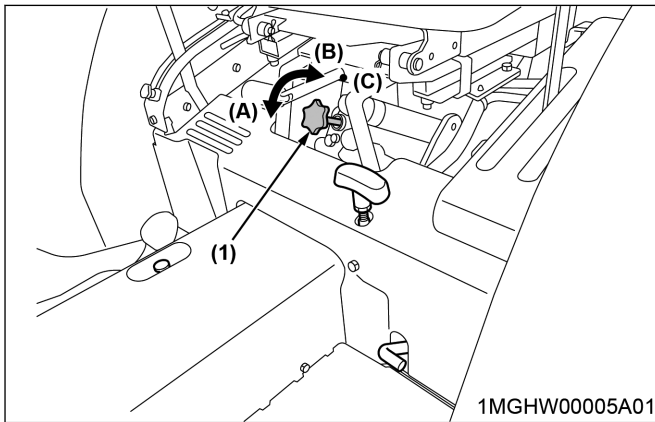
- (1) SMV emblem (2) Bracket

- 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 keep 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 set 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.



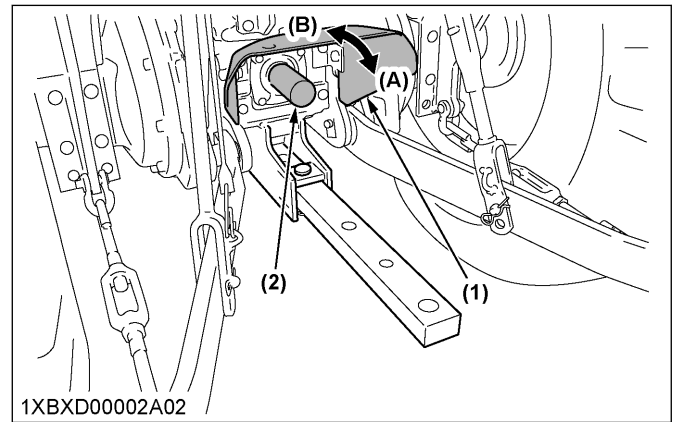
- (1) 3-point hitch lowering speed knob
- (A) Fast
(B) Slow
(C) Lock

PRECAUTIONS FOR PARKING THE TRACTOR

- Disengage the PTO, lower all implements to the ground, set 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.
[HST type] Leaving transmission in gear with the engine stopped will not prevent the tractor from rolling.
- Make sure that the tractor has come to a complete stop before dismounting from it.
- Avoid parking on steep slopes. If possible, park on a firm and level surface. If it is not 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 set 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 the appropriate category of 3-point hitch usage.
- When using a 3-point hitch-mounted implement, install the proper counterbalance-weight on the front of the tractor.

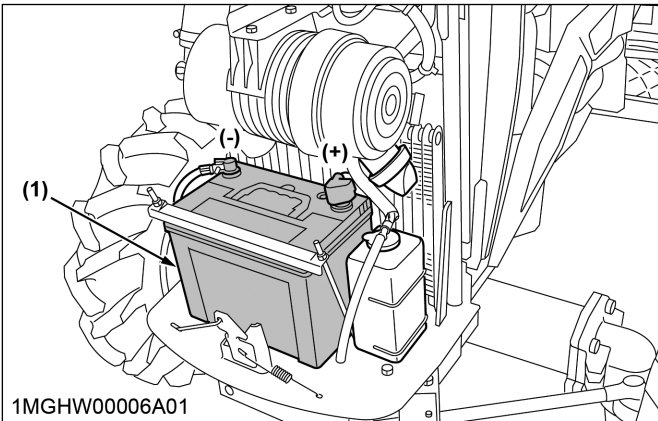
PRECAUTIONS FOR SERVICING THE TRACTOR

Before servicing the tractor, follow the following procedure.

- Park the tractor on a firm, flat, and level surface.
 - Set the parking brake.
 - Lower all implements to the ground.
 - Set the gear-shift lever in the **"NEUTRAL"** position.
 - Stop the engine.
 - Remove the starter key.
- Allow the tractor time to cool off before working on or near the engine, the muffler, and the radiator.
 - 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 is equipped with 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 104)

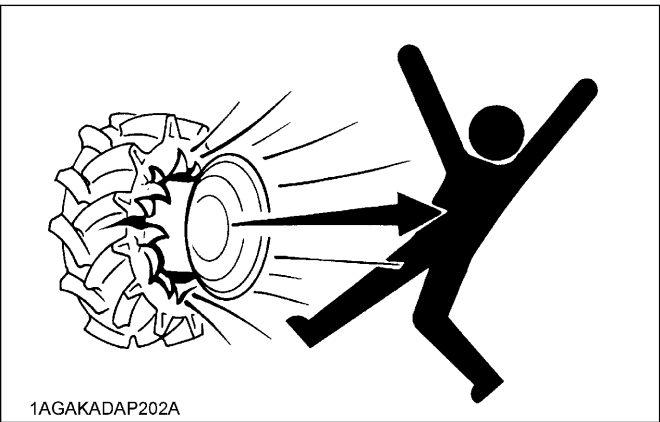
⚠️ SAFE OPERATION

- 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 away all sparks and flames 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 58)
- 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 the lower levels.
- To avoid sparks from an accidental short circuit, always disconnect the ground cable (-) of battery first and reconnect it last.

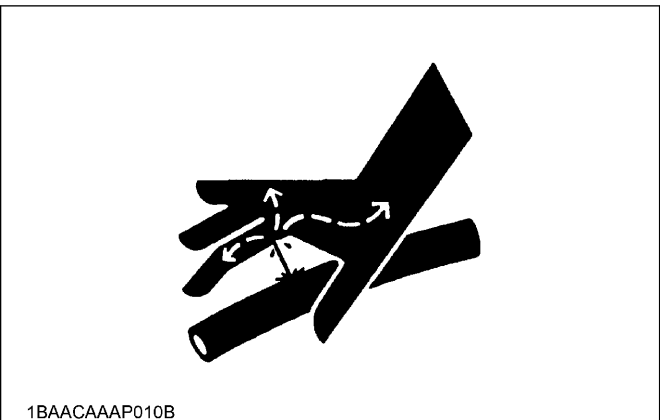


(1) Battery

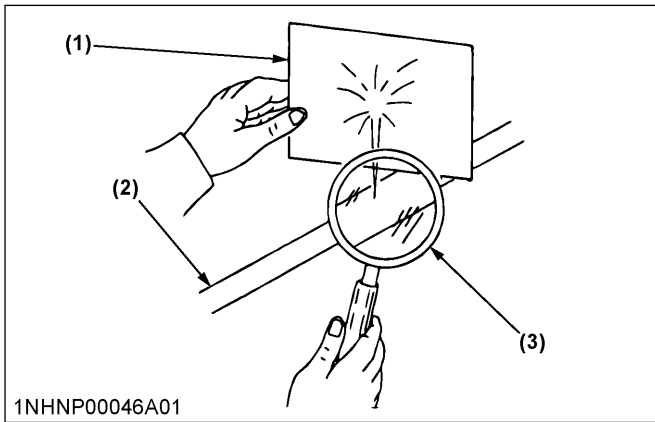
- Do not mount a tire on a rim. Only a qualified person should mount a tire on a rim with the proper equipment.
- Always keep the correct tire pressure. Do not inflate the tires above the recommended pressure shown in Inflation pressure of tires on page 88.



- 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 88)
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under the tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- Escaping hydraulic fluid under pressure obtains sufficient force to penetrate skin, so escaping hydraulic fluid under pressure can cause serious personal injury. Before disconnecting the hydraulic lines, release all residual pressure. Before applying pressure to the hydraulic system, make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.



- 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, seek medical attention 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 try 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, the harness, or the connectors.
- During the diesel-particulate filter (DPF) regenerating operations, the exhaust gases, and the exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.
- Keep away the tractor from people, animals, or structures, which may be susceptible to harm or damage from hot exhaust gases.
- To prevent fires, keep the DPF muffler and its surroundings clear of anything flammable and keep clean at all times.
- To avoid fire hazard, after using and pressure-washing, make sure that there is nothing flammable near the exhaust pipe. Grass or twigs under the hood may cause fire.
- During regeneration, white exhaust gas may be visible. Do not allow regeneration in a non-ventilated space.
- During regeneration, do not leave the tractor.
- 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 dispose of waste products.

⚠️ SAFE OPERATION

SAFETY LABELS

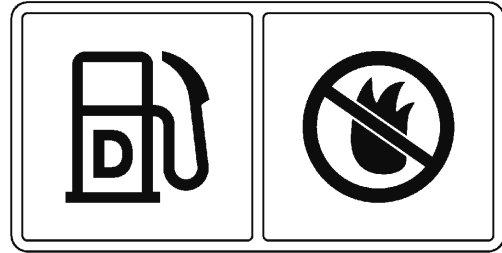
(1) Part No. TC630-4965-1

	⚠️ DANGER
	TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY. 1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed. 2. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground.

(3) Part No. TC820-4956-1

Diesel fuel only

No fire

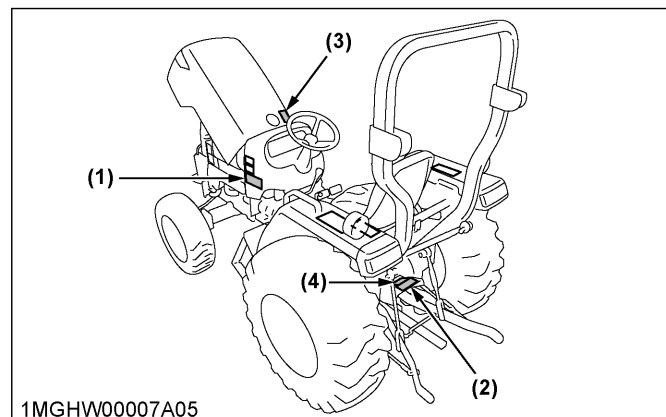


(2) Part No. TC630-4959-1

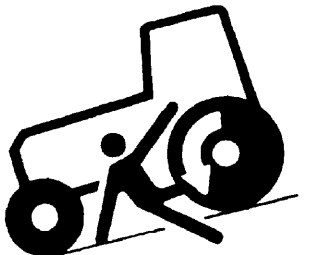
	⚠️ WARNING
	TO AVOID PERSONAL INJURY. 1. Keep PTO shield in place at all times. 2. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer. 3. For trailing PTO-driven implements, set drawbar at towing position. (see operator's manual)

(4) Part No. TC630-4935-1

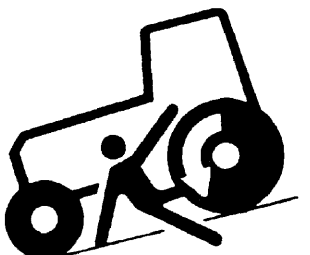
⚠️ WARNING
TO AVOID PERSONAL INJURY: 1. Attach pulled or towed loads to the drawbar only. 2. Use the 3-point hitch only with equipment designed for 3-point hitch usage.



(1) Part No. TC630-4933-1 [Manual Transmission type]

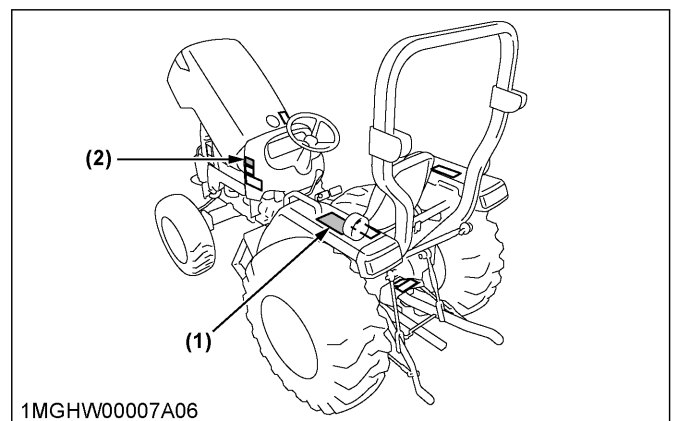
 WARNING	BEFORE DISMOUNTING TRACTOR: 1. ALWAYS SET PARKING BRAKE. 2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope. 3. LOWER ALL IMPLEMENTS TO THE GROUND. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death. 4. LOCK SHUTTLE SHIFT LEVER IN NEUTRAL POSITION AND STOP THE ENGINE.
	

(1) Part No. TC630-5933-1 [HST type]

 WARNING	BEFORE DISMOUNTING TRACTOR: 1. ALWAYS SET PARKING BRAKE. Leaving transmission in gear with the engine stopped will not prevent tractor from rolling. 2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope. 3. LOWER ALL IMPLEMENTS TO THE GROUND. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death. 4. STOP THE ENGINE.
	

(2) Part No. TC630-9869-1

 WARNING TO AVOID FIRE HAZARD : After use and/or pressure-washing, make sure there is nothing flammable near the exhaust pipe. Grass or twigs under the bonnet may cause fire.



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SAFE OPERATION

(1) Part No. TC820-4997-2

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.

(2) Part No. TC630-9848-1

WARNING

TO AVOID INJURY OR DEATH FROM ROLL-OVER:

- Keep Roll-Over Protective Structures (ROPS) in the upright and locked position.
- Fasten SEAT BELT before operating.

THERE IS NO OPERATOR PROTECTION WHEN THE ROPS IS IN THE FOLDED POSITION:

- Check the operating area and fold the ROPS only when absolutely necessary.
- Do not wear SEAT BELT if ROPS is folded.
- Raise and lock ROPS as soon as vertical clearance allows.
- Read ROPS related instructions and warnings.

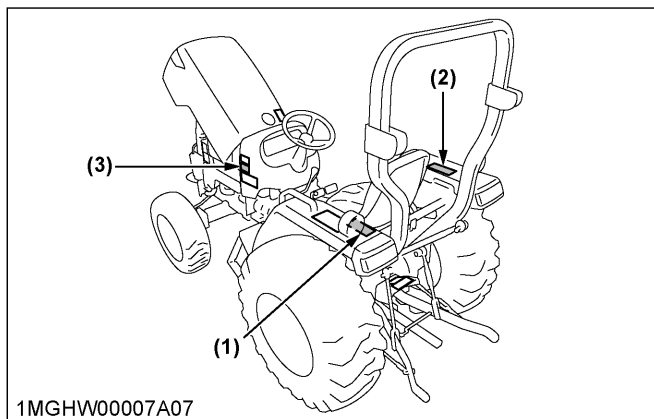
(3) Part No. TC820-9868-1

WARNING

TO AVOID PERSONAL INJURY OR DEATH:

When the Diesel Particulate Filter(DPF) is in the regenerating mode, the exhaust gas and the DPF muffler become hot.

During regeneration, take into account that the muffler will be very hot and keep the machine away from other people, animals, plants, and flammable material. Also keep the area near the DPF muffler clean and away from flammable material.



(1) Part No. TC630-6597-1

California Proposition 65

! WARNING !

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

(2) Part No. TC820-9554-4

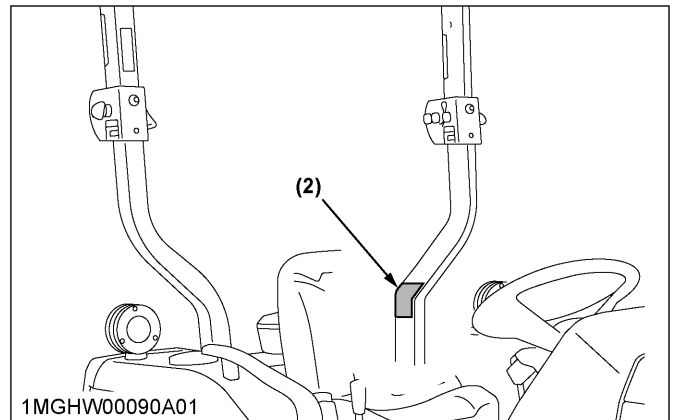
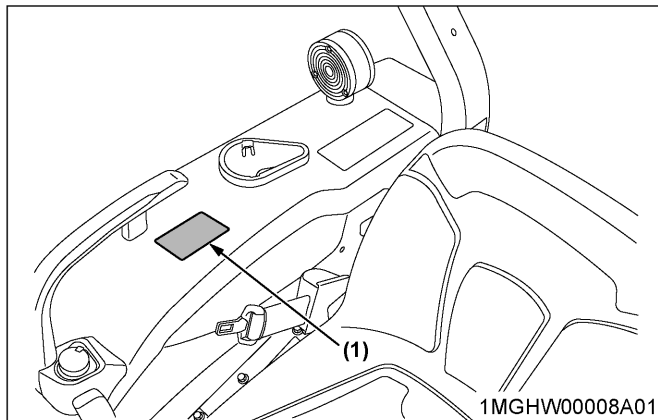
! WARNING

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

! WARNING

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

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



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! SAFE OPERATION

(1) Part No. TC520-3015-3 [Manual transmission type]

 FLAMMABLES  SHIELD EYES  KEEP OUT OF THE REACH OF CHILDREN  CAUTIOUS OF SULFURIC ACID  READ INSTRUCTION MANUAL CAREFULLY  EXPLOSIVE		DANGER EXPLOSIVE GASES CIGARETTES, FLAMES OR SPARKS COULD CAUSE BATTERY TO EXPLODE. ALWAYS SHIELD EYES AND FACE FROM BATTERY. DO NOT CHARGE OR USE BOOSTER CABLES OR ADJUST POST CONNECTIONS WITHOUT PROPER INSTRUCTION AND TRAINING. POISON CAUSES SEVERE BURNS CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. IN EVENT OF ACCIDENT FLUSH WITH WATER AND CALL A PHYSICIAN IMMEDIATELY. KEEP OUT OF REACH OF CHILDREN California Proposition 65 WARNING: Handling passenger or off-highway motor vehicle parts can expose you to chemicals such as phthalates and lead, which can cause cancer and reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves, and wash your hands. For more information see www.P65Warnings.ca.gov/motor-vehicle-parts .		SMF 75D23R PART No. TC520-30153 <table border="1"> <tr> <td>NOMINAL VOLTAGE</td> <td>12V</td> </tr> <tr> <td>COLD CRANKING AMPS</td> <td>580</td> </tr> <tr> <td>CRANKING AMPS</td> <td>710</td> </tr> <tr> <td>RESERVE CAPACITY(MINUTES)</td> <td>110</td> </tr> <tr> <td>AMP HOURS(@20 hr Rate)</td> <td>65</td> </tr> </table>		NOMINAL VOLTAGE	12V	COLD CRANKING AMPS	580	CRANKING AMPS	710	RESERVE CAPACITY(MINUTES)	110	AMP HOURS(@20 hr Rate)	65
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AMP HOURS(@20 hr Rate)	65														
FITTING DATE 0 1 2 3 4 5 6 7 8 9 YEAR 1 2 3 4 5 6 7 8 9 10 11 12 MONTH		INDICATOR ● OK ○ CHARGE ● REPLACE		MADE IN KOREA											

(1) Part No. TC630-3015-3 [HST type] *1

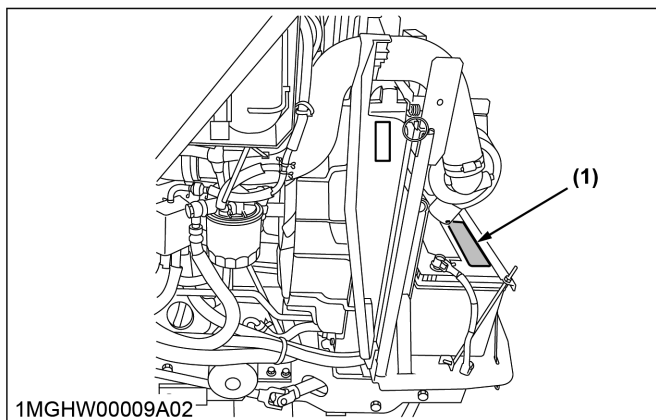
 FLAMMABLES  SHIELD EYES  KEEP OUT OF THE REACH OF CHILDREN  CAUTIOUS OF SULFURIC ACID  READ INSTRUCTION MANUAL CAREFULLY  EXPLOSIVE		DANGER EXPLOSIVE GASES CIGARETTES, FLAMES OR SPARKS COULD CAUSE BATTERY TO EXPLODE. ALWAYS SHIELD EYES AND FACE FROM BATTERY. DO NOT CHARGE OR USE BOOSTER CABLES OR ADJUST POST CONNECTIONS WITHOUT PROPER INSTRUCTION AND TRAINING. POISON CAUSES SEVERE BURNS CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. IN EVENT OF ACCIDENT FLUSH WITH WATER AND CALL A PHYSICIAN IMMEDIATELY. KEEP OUT OF REACH OF CHILDREN California Proposition 65 WARNING: Handling passenger or off-highway motor vehicle parts can expose you to chemicals such as phthalates and lead, which can cause cancer and reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves, and wash your hands. For more information see www.P65Warnings.ca.gov/motor-vehicle-parts .		SMF 80D26R PART No. TC630-30153 <table border="1"> <tr> <td>NOMINAL VOLTAGE</td> <td>12V</td> </tr> <tr> <td>COLD CRANKING AMPS</td> <td>600</td> </tr> <tr> <td>CRANKING AMPS</td> <td>730</td> </tr> <tr> <td>RESERVE CAPACITY(MINUTES)</td> <td>120</td> </tr> <tr> <td>AMP HOURS(@20 hr Rate)</td> <td>70</td> </tr> </table>		NOMINAL VOLTAGE	12V	COLD CRANKING AMPS	600	CRANKING AMPS	730	RESERVE CAPACITY(MINUTES)	120	AMP HOURS(@20 hr Rate)	70
NOMINAL VOLTAGE	12V														
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FITTING DATE 0 1 2 3 4 5 6 7 8 9 YEAR 1 2 3 4 5 6 7 8 9 10 11 12 MONTH		INDICATOR ● OK ○ CHARGE ● REPLACE		MADE IN KOREA											

*1 For the Engine ECUs No. 1H092-6998-0 or 1H093-6998-0

(1) Part No. TC860-3015-2 [HST type] *2

 FLAMMABLES  SHIELD EYES  KEEP OUT OF THE REACH OF CHILDREN  CAUTIOUS OF SULFURIC ACID  READ INSTRUCTION MANUAL CAREFULLY  EXPLOSIVE		DANGER EXPLOSIVE GASES CIGARETTES, FLAMES OR SPARKS COULD CAUSE BATTERY TO EXPLODE. ALWAYS SHIELD EYES AND FACE FROM BATTERY. DO NOT CHARGE OR USE BOOSTER CABLES OR ADJUST POST CONNECTIONS WITHOUT PROPER INSTRUCTION AND TRAINING. POISON CAUSES SEVERE BURNS CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. IN EVENT OF ACCIDENT FLUSH WITH WATER AND CALL A PHYSICIAN IMMEDIATELY. KEEP OUT OF REACH OF CHILDREN California Proposition 65 WARNING: Handling passenger or off-highway motor vehicle parts can expose you to chemicals such as phthalates and lead, which can cause cancer and reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves, and wash your hands. For more information see www.P65Warnings.ca.gov/motor-vehicle-parts .		SMF 85D26R PART No. TC860-30152 <table border="1"> <tr> <td>NOMINAL VOLTAGE</td> <td>12V</td> </tr> <tr> <td>COLD CRANKING AMPS</td> <td>650</td> </tr> <tr> <td>CRANKING AMPS</td> <td>780</td> </tr> <tr> <td>RESERVE CAPACITY(MINUTES)</td> <td>130</td> </tr> <tr> <td>AMP HOURS(@20 hr Rate)</td> <td>75</td> </tr> </table>		NOMINAL VOLTAGE	12V	COLD CRANKING AMPS	650	CRANKING AMPS	780	RESERVE CAPACITY(MINUTES)	130	AMP HOURS(@20 hr Rate)	75
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FITTING DATE 0 1 2 3 4 5 6 7 8 9 YEAR 1 2 3 4 5 6 7 8 9 10 11 12 MONTH		INDICATOR ● OK ○ CHARGE ● REPLACE		MADE IN KOREA											

*2 For the Engine ECUs No. 1H092-6998-0, 1H093-6998-0, 1H403-6898-0, or 1H404-6898-0

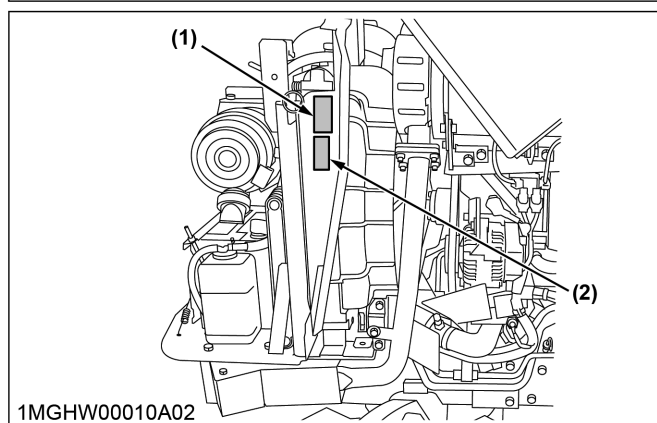
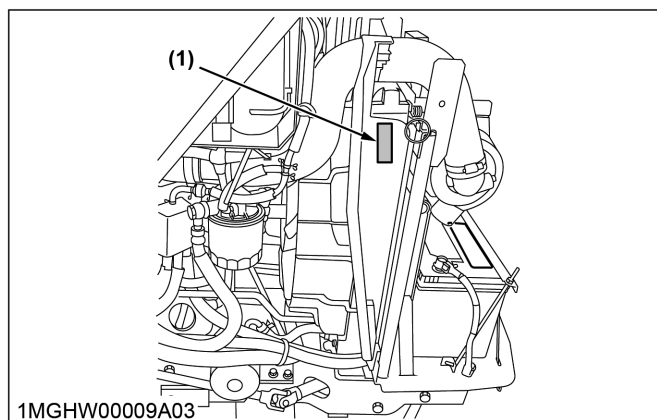


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(1) Part No.
TC620-4958-1
Do not get your hands
close to engine fan and
fan belt.



(2) Part No. TC630-4958-1
Do not touch hot surface
like muffler. etc.



1. Care for safety labels

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

SERVICING OF THE TRACTOR

DEALER SERVICE

Your dealer has knowledge of your new machine and has the desire to help 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 machine needs parts or major service, see your Kubota Dealer.

For service, contact your local Kubota Dealer.

When in need of parts, be prepared to give your dealer the product identification number (PIN), the CAB/ROPS serial number, and the engine serial number.

Locate the PIN and serial numbers now and fill in the following tables.

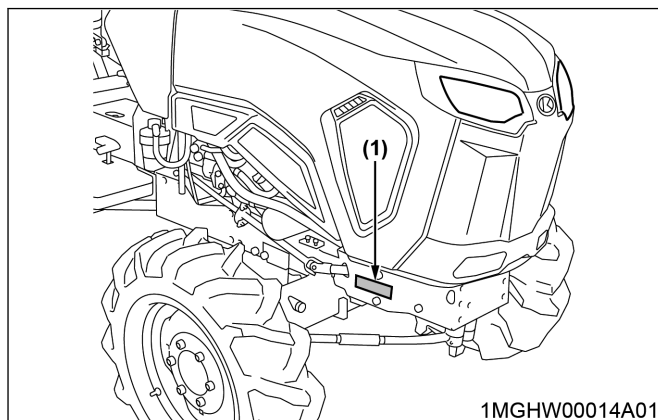
NOTE :

- To identify whether the tractor model is L3302, L3302-1, L3902, or L3902-1, refer to the identification plate.

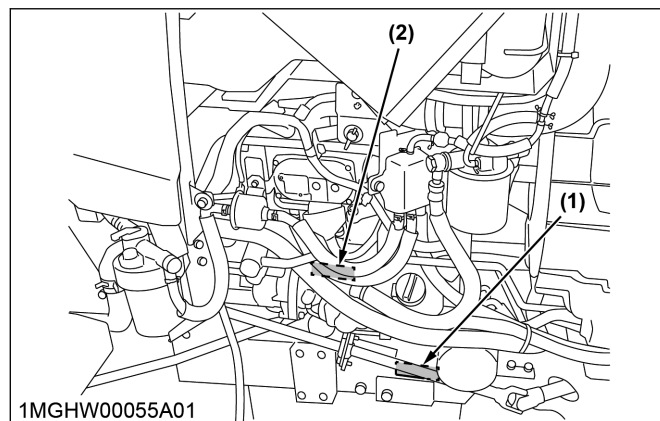
Date of purchase	
Name of dealer	

Tractor type	
PIN	

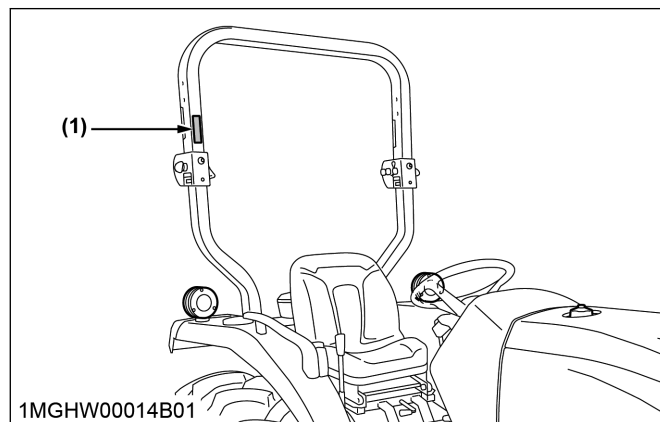
	Type	Serial No.
CAB/ROPS		
Engine		



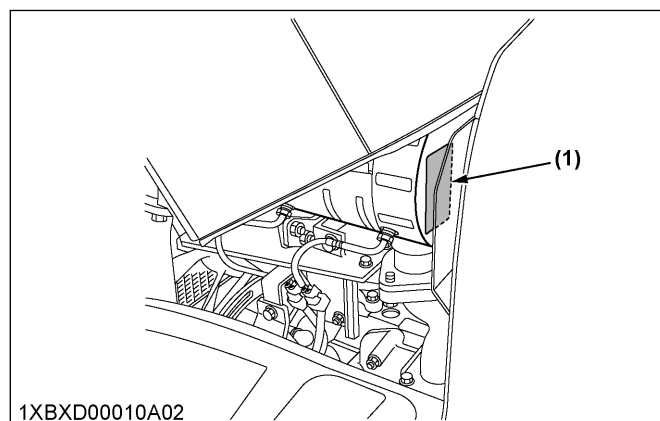
(1) Identification plate



(1) Product identification number (2) Engine serial number



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



(1) Diesel particulate filter (DPF) serial number

1. Warranty of the tractor

This tractor is warranted under the Kubota Limited Express Warranty, a copy of which may be obtained from your selling dealer.

No warranty shall, however, apply if the tractor has not been serviced and maintained according to the 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, follow the local rules and regulations of the country or territory where you scrap it.

If there is anything that you do not understand, consult your local Kubota Dealer.

SPECIFICATIONS

SPECIFICATION TABLE

Model				L3302, L3302-1	
				Manual transmission	HST
				4WD	
PTO power (factory observed)* ¹		kW (HP)		20.9 (28.0)	19.5 (26.1)
Engine	Model			D1803-CR-E5	
	Type			Direct injection, Vertical, Water-Cooled 4 cycle diesel	
	Number of cylinders			3	
	Bore and stroke		mm (in.)	87 × 102.4 (3.4 × 4.0)	
	Total displacement		L (cu.in.)	1.826 (111.4)	
	Engine gross power* ¹		kW (HP)	24.6 (33.0)	
	Engine net power* ¹		kW (HP)	23.7 (31.8)	
	Rated revolution		rps (rpm)	45.0 (2700)	
	Low idling revolution		rps (rpm)	15.0 (900)	
	Maximum torque		N·m (lbf·ft)	101.7 (75.0)	
	Battery capacity			75D23R 12 V. RC : 110 min, CCA : 580 A	80D26R * ² 12 V. RC : 120 min, CCA : 600 A 85D26R * ³ 12 V. RC : 130 min, CCA : 650 A
Capacities	Fuel tank		L (U.S.gals.)	42.0 (11.0)	
	Engine crankcase with filter		L (U.S.qts.)	6.7 (7.1)	
	Engine coolant		L (U.S.qts.)	6.0 (6.3)	
	Transmission case		L (U.S.gals.)	28.5 (7.5)	26.0 (6.9)
Dimensions	Overall length without 3P		mm (in.)	2760 (108.7)	
	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.)	340 (13.4)	

(Continued)

SPECIFICATIONS

Model				L3302, L3302-1	
				Manual transmission	HST
				4WD	
Dimensions	Tread	Front	mm (in.)	1095 (43.1)	
		Rear	mm (in.)	1115 (43.8), 1195 (47.1), 1290 (50.8)	
Weight with ROPS			kg (lbs.)	1300 (2866)	1325 (2921)
Traveling system	Tires	AG Front		7.2-16	
		AG Rear		11.2-24	
	Indust. (option)	Front		27 × 8.50-15	
		Rear		15-19.5R4	
	Clutch			Dry type single stage	—
	Steering			Integral type power steering	
	Transmission			Gear shift, 8 forward and 8 reverse	Hydrostatic transmission 3 range speed
	Brake			Wet disk type	
	Min. turning radius with brake		m (ft)	2.5 (8.2)	
Hydraulic unit	Hydraulic control system			Position control	
	Pump capacity	Main	L / min (U.S.gals. / min)	23.9 (6.3)	
	Pump capacity	PS	L / min (U.S.gals. / min)	14.5 (3.8)	
	3-point hitch			Category 1	
	Maximum lift force	At lift points	kg (lbs.)	906 (1998)	
		24 in. behind lift points	kg (lbs.)	651 (1435)	
	System pressure		MPa (kgf/cm ²) [psi.]	16.2 (165) [2349]	
PTO	Rear PTO	PTO shaft size		SAE 1-3/8, 6-splines	
		Type		Transmission driven with overrunning	Hyd. ind-PTO
	PTO/Engine speed		rpm	540 / 2430	540 / 2470

NOTE :

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

*1 Manufacturer's estimate

*2 For the Engine ECUs No. 1H092-6998-0 or 1H093-6998-0

*3 For the Engine ECUs No. 1H092-6998-0, 1H093-6998-0, 1H403-6898-0, or 1H404-6898-0

Model				L3902, L3902-1			
				Manual transmission		HST	
				4WD			
PTO power (factory observed)*1			kW (HP)	23.9 (32.1)	22.6 (30.3)		
Engine	Model			D1803-CR-E5			
	Type			Direct injection, Vertical, Water-Cooled 4 cycle diesel			
	Number of cylinders			3			
	Bore and stroke		mm (in.)	87 × 102.4 (3.4 × 4.0)			
	Total displacement		L (cu.in.)	1.826 (111.4)			
	Engine gross power*1		kW (HP)	28.0 (37.5)			
	Engine net power*1		kW (HP)	27.1 (36.3)			
	Rated revolution		rps (rpm)	45.0 (2700)			
	Low idling revolution		rps (rpm)	15.0 (900)			
	Maximum torque		N·m (lbf·ft)	115.8 (85.4)			
	Battery capacity			75D23R 12 V. RC : 110 min, CCA : 580 A	80D26R *2 12 V. RC : 120 min, CCA : 600 A 85D26R *3 12 V. RC : 130 min, CCA : 650 A		
Capacities	Fuel tank		L (U.S.gals.)	42.0 (11.0)			
	Engine crankcase with filter		L (U.S.qts.)	6.7 (7.1)			
	Engine coolant		L (U.S.qts.)	6.0 (6.3)			
	Transmission case		L (U.S.gals.)	28.5 (7.5)	26.0 (6.9)		
Dimensions	Overall length without 3P		mm (in.)	2760 (108.7)			
	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.)	340 (13.4)			
	Tread	Front	mm (in.)	1095 (43.1)			
		Rear	mm (in.)	1115 (43.8), 1195 (47.1), 1290 (50.8)			
Weight with ROPS			kg (lbs.)	1315 (2899)	1325 (2921)		
Traveling system	Tires	AG Front		7.2-16			
		AG Rear		11.2-24			

(Continued)

SPECIFICATIONS

Model				L3902, L3902-1	
				Manual transmission	HST
				4WD	
Traveling system	Indust. (option)	Front		27 × 8.50-15	
		Rear		15-19.5R4	
	Clutch			Dry type dual stage	—
	Steering			Integral type power steering	
	Transmission			Gear shift, 8 forward and 8 reverse	Hydrostatic transmission 3 range speed
	Brake			Wet disk type	
	Min. turning radius with brake		m (ft)	2.5 (8.2)	
Hydraulic unit	Hydraulic control system			Position control	
	Pump capacity	Main	L / min (U.S.gals. / min)	23.9 (6.3)	
	Pump capacity	PS	L / min (U.S.gals. / min)	14.5 (3.8)	
	3-point hitch			Category 1	
	Maximum lift force	At lift points	kg (lbs.)	906 (1998)	
		24 in. behind lift points	kg (lbs.)	651 (1435)	
	System pressure		MPa (kgf/cm ²) [psi.]	16.2 (165) [2349]	
PTO	Rear PTO	PTO shaft size		SAE 1-3/8, 6-splines	
		Type		Live-continuous running	Hyd. ind-PTO
	PTO/Engine speed		rpm	540 / 2425	540 / 2470

NOTE :

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

*1 Manufacturer's estimate

*2 For the Engine ECUs No. 1H092-6998-0 or 1H093-6998-0

*3 For the Engine ECUs No. 1H092-6998-0, 1H093-6998-0, 1H403-6898-0, or 1H404-6898-0

TRAVELING SPEEDS TABLE

[Manual transmission type]

Model			L3302, L3302-1, L3902, L3902-1	
Rear tire size			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	1.7	1.1
		2	2.2	1.4
		3	3.8	2.3
		4	5.6	3.5
	High 	1	6.6	4.1
		2	8.5	5.3
		3	14.4	8.9
		4	21.2	13.2
Reverse 	Low 	1	1.7	1.1
		2	2.2	1.4
		3	3.8	2.3
		4	5.6	3.4
	High 	1	6.5	4.1
		2	8.5	5.3
		3	14.3	8.9
		4	21.2	13.2

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

[HST type]

Model		L3302, L3302-1, L3902, L3902-1	
Rear tire size		11.2-24	
	Range gear shift lever	km/h At rated engine rpm	mph At rated engine rpm
Forward 	L	0 to 6.3	0 to 3.9
	M	0 to 10.9	0 to 6.8
	H	0 to 22.7	0 to 14.1
Reverse 	L	0 to 5.6	0 to 3.5
	M	0 to 9.9	0 to 6.1
	H	0 to 20.5	0 to 12.7

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

IMPLEMENT LIMITATIONS

IMPLEMENT LIMITATION TABLES

IMPORTANT :

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

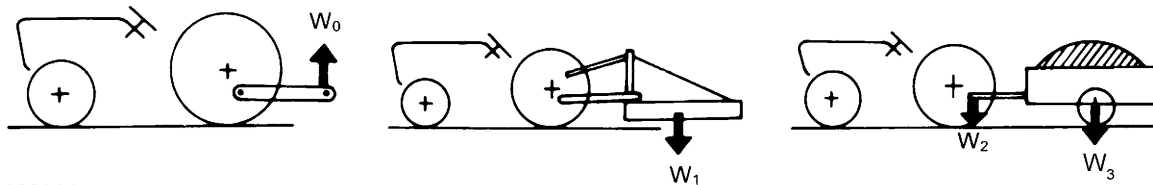
- Implements that are not sold or approved by Kubota
- Implements that exceed the maximum specifications listed in the following table
- Implements that are otherwise unfit for use with the Kubota tractor

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

NOTE :

- Kubota's limited warranty does not cover any malfunctions or failures of the tractor resulting from use with improper implements.

Model		L3302, L3302-1, L3902, L3902-1
Maximum width of tread with farm tires	Front	1095 mm (43.1 in.)
	Rear	1290 mm (50.8 in.)
Lower link end maximum loading weight (W ₀)		900 kg (1985 lbs.)
Actual figures	Implement weight (W ₁) and/or size	As in <i>Implement weight list</i>
	Maximum drawbar load (W ₂)	330 kg (730 lbs.)
	Maximum capacity of trailer loading weight (W ₃)	2300 kg (5070 lbs.)



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W₀

Lower link end maximum hydraulic lifting capacity weight

W₁

Implement weight. The weight of the implement that can be put on the lower link

W₂

Maximum drawbar load

W₃

Trailer loading weight. The maximum loading weight for trailer with trailer's weight

NOTE :

- Implement size may vary depending on soil conditions where you operate the machine.
- Strictly follow the instructions outlined in the operator's manual of the mounted or trailed machinery or trailer, and do not operate the combination tractor-machine or tractor-trailer unless all instructions have been followed.
- This tractor is not designed, nor intended to be used in a forestry application. Forestry applications present the following hazards:
 - Toppling trees, primarily in the case of when a rear-mounted tree-grab crane is mounted at the rear of the tractor.

- Penetrating objects in the operator's enclosure, primarily in the case of when a winch is mounted at the rear of the tractor.

To address with these and other related hazards, the tractor requires additional and optional equipment such as an operator-protective structure (OPS) and falling object-protective structure (FOPS). Optional equipment such as a Operator Protective Structure (OPS) and a Falling Object Protective Structure (FOPS), however, are not available for this tractor.

Without optional equipment such as OPS and FOPS, the use of the tractor is limited to tractor-specific applications like transport and stationary work.

IMPLEMENT LIMITATIONS

Implement weight list

Implement		Remarks		L3302, L3902	L3302-1, L3902-1
Trailer		Maximum load capacity	kg (lbs.)	2300 (5070)	
		Maximum drawbar load	kg (lbs.)	330 (730)	
Mower	Rotary-cutter	Maximum cutting width	mm (in.)	1829 (72)	
		Maximum weight	kg (lbs.)	350 (770)	
	Flail-mower	Maximum cutting width	mm (in.)	1270 (50)	
		Maximum weight	kg (lbs.)	350 (770)	
	Sickle bar	Maximum cutting width	mm (in.)	1829 (72)	
			kg (lbs.)	400 (880)	
Sprayer	Rear mounted	Maximum tank capacity	L (U.S.gals.)	300 (80)	
	Pull type	Maximum tank capacity	L (U.S.gals.)	800 (210)	
Rotary tiller		Maximum tilling width	mm (in.)	1370 (54)	
Bottom plow		Maximum size		12 in. × 2, 16 in. × 1	
Disk harrow	Pull type	Maximum harrowing width	mm (in.)	1524 (60)	
		Maximum weight	kg (lbs.)	300 (660)	
Chisel plow		Maximum width	mm (in.)	1829 (72)	
		Maximum weight	kg (lbs.)	350 (770)	
Broad caster		Maximum tank capacity	L (gals.)	200 (53)	
		Maximum weight	kg (lbs.)	100 (220)	
Manure spreader		Maximum capacity	kg (lbs.)	1000 (2200)	
Cultivator		Maximum width	mm (in.)	1524 (60)	
		Number of rows		1	
		Maximum weight	kg (lbs.)	250 (550)	
Front blade		Maximum cutting width	mm (in.)	1829 (72)	
		Maximum oil pressure	MPa (psi.)	15.9 (2311)	
		Sub frame		Necessary	

(Continued)

Implement	Remarks		L3302, L3902	L3302-1, L3902-1
Rear blade	Maximum cutting width	mm (in.)	1829 (72)	
	Maximum oil pressure	MPa (psi.)	15.9 (2311)	
Front-end loader	Maximum lifting capacity	kg (lbs.)	460 (1014)	550 (1213)
	Maximum oil pressure	MPa (psi.)	15.9 (2311)	
	Sub frame		Not necessary	
Box blade	Maximum cutting width	mm (in.)	1321 (52)	
	Maximum weight	kg (lbs.)	315 (694)	
Backhoe	Maximum digging depth	mm (in.)	2288 (90)	
	Maximum weight	kg (lbs.)	420 (926)	
	Sub frame		Necessary	
Snow blade	Maximum width	mm (in.)	1524 (60)	
	Maximum weight	kg (lbs.)	300 (660)	
Snow blower	Maximum working width	mm (in.)	1524 (60)	
	Maximum weight	kg (lbs.)	250 (550)	

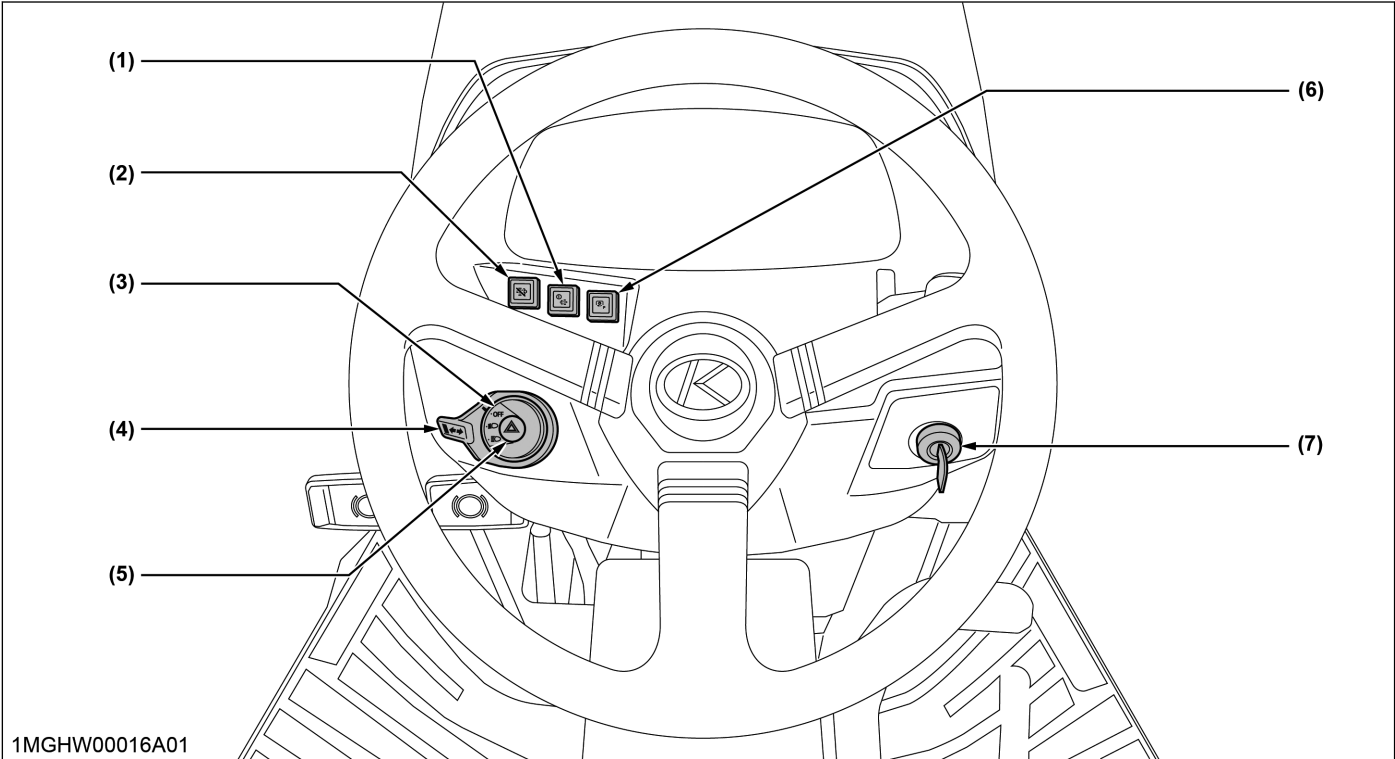
NOTE :

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

INSTRUMENT PANEL AND CONTROLS

INSTRUMENT PANEL, SWITCHES, AND HAND CONTROLS

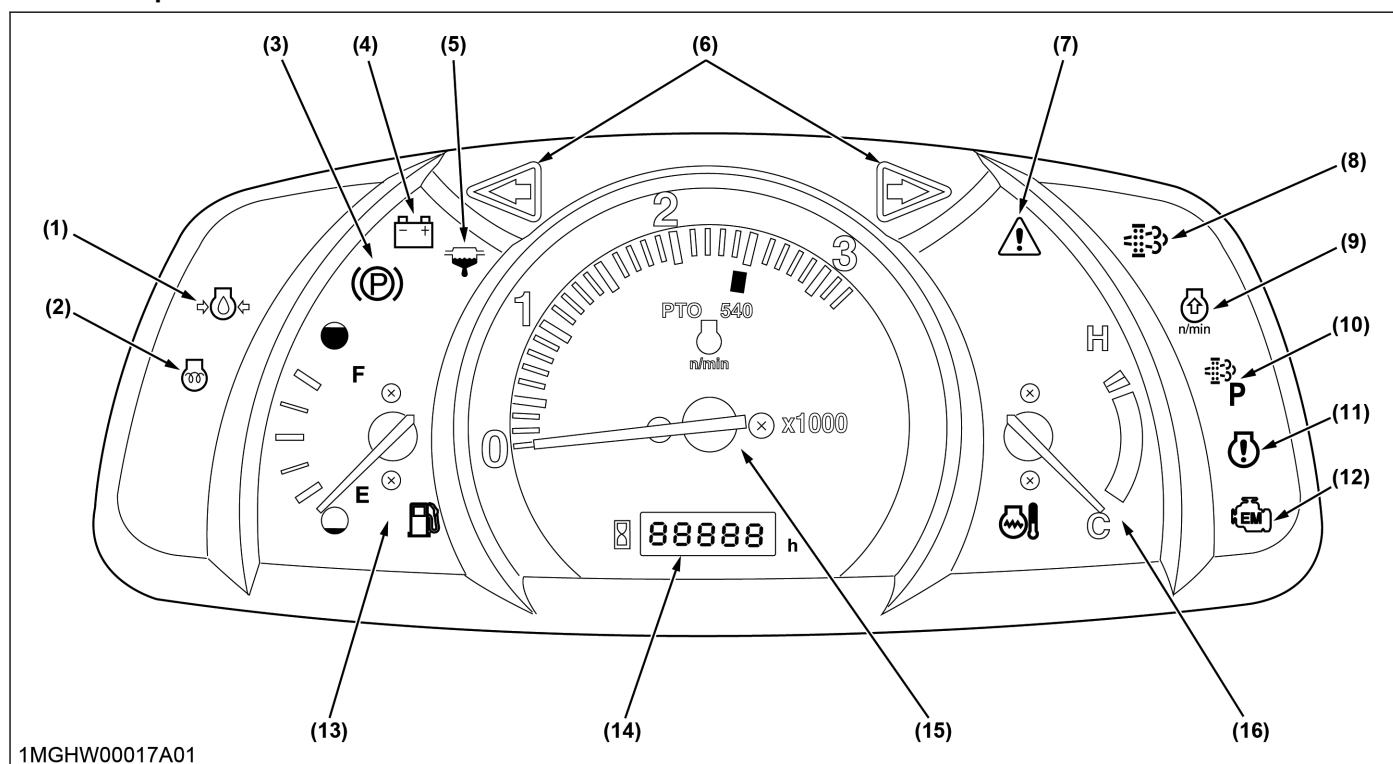
Switches and hand controls



1MGHW00016A01

(1) Parked regeneration switch	47	(5) Hazard light switch.....	34
(2) DPF INHIBIT switch	47	(6) Stationary PTO switch [Manual transmission type]	79
(3) Head light switch.....	34	(6) Stationary PTO switch [HST type]	80
(4) Turn signal light switch.....	34	(7) Key switch.....	35

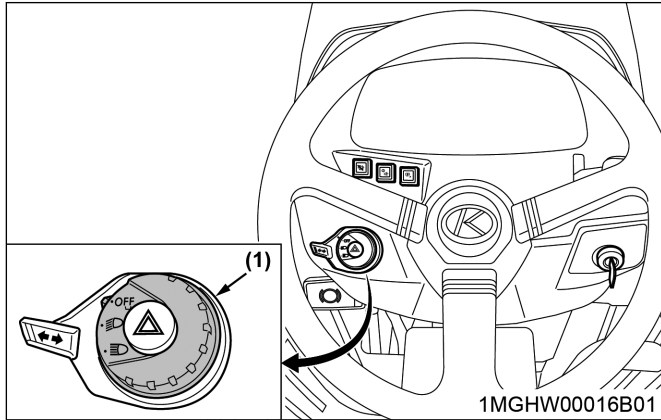
Instrument panel



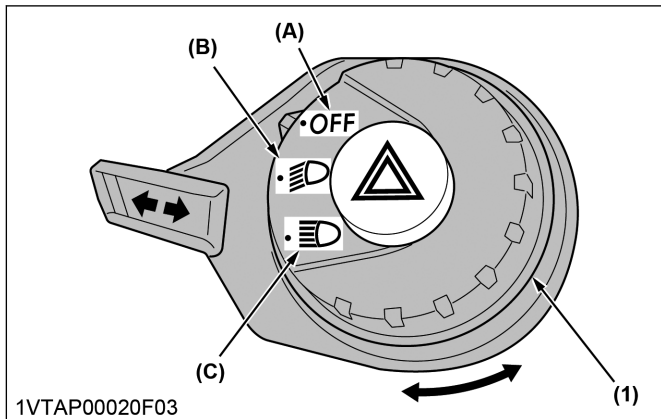
(1) Engine oil pressure warning indicator.....	35	(9) Engine rpm increase indicator.....	47
(2) Glow plug indicator.....	35	(10) Parked regeneration indicator.....	47
(3) Parking brake warning indicator.....	35	(11) Engine warning indicator.....	70
(4) Electrical charge warning indicator.....	35	(12) Emission indicator.....	70
(5) Water separator filter indicator.....	35	(13) Fuel gauge.....	72
(6) Turn signal / hazard light indicator.....	34	(14) Hour meter.....	72
(7) Master system warning indicator.....	70	(15) Tachometer.....	73
(8) Regeneration indicator.....	47	(16) Coolant temperature gauge.....	72

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



(1) Head light switch

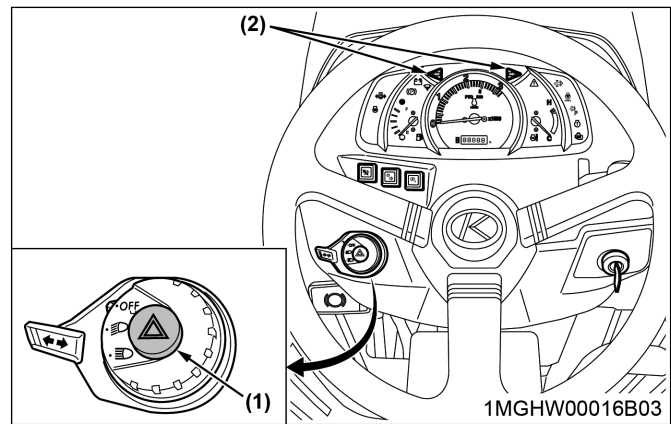
(A) Off
(B) On (low)
(C) On (high)

Light name	Switch position		
	(A) OFF	(B) 	(C) 
Head light (Low beam)	OFF	ON	ON
Head light (High beam)	OFF	—	ON
Tail lamp	OFF	ON	ON
Side work light	OFF	ON	ON

2. Hazard light switch and turn signal light switch

Hazard light switch

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



(1) Hazard light switch

(2) Turn signal / hazard light indicator

Turn signal with hazard light

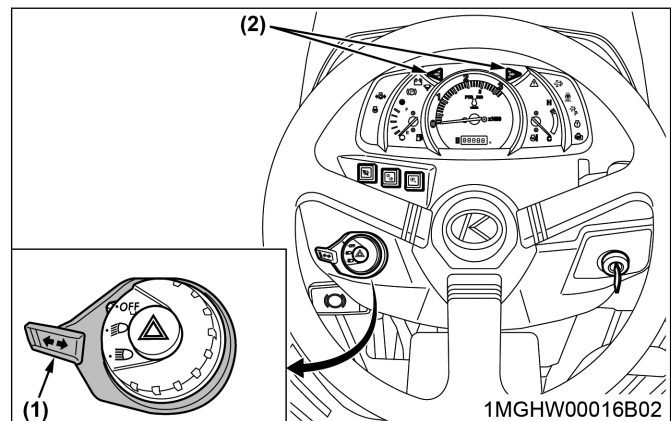
- To indicate a right turn with the hazard lights already flashing (hazard on), turn the turn signal-light switch clockwise.
- To indicate a left turn with the hazard lights already flashing, turn the turn signal-light switch counterclockwise.

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

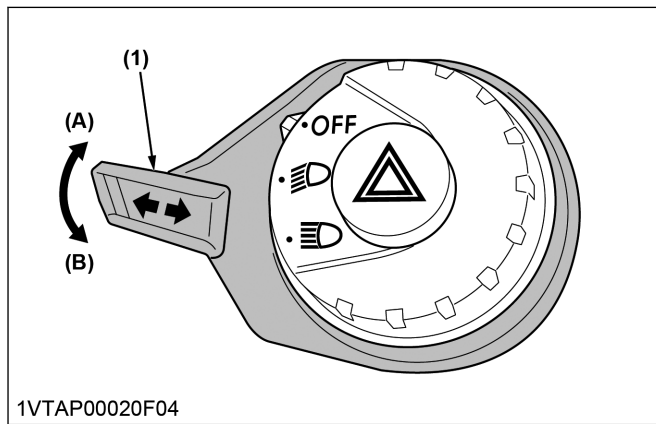
- To indicate a right turn without hazard lights (hazard off), turn the turn signal-light switch clockwise.
- To indicate a left turn without hazard lights, turn the turn signal-light switch counterclockwise.

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

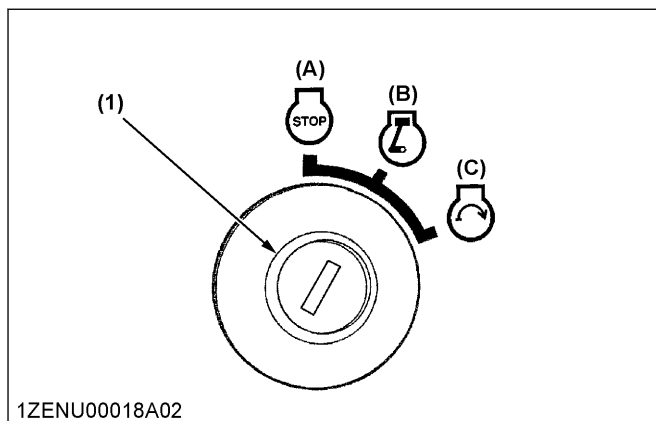


(1) Turn signal light switch

(A) Right turn
(B) Left turn

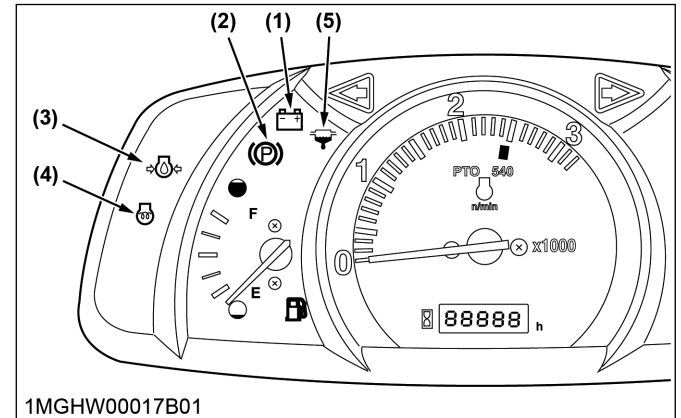
NOTE :

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

3. Key switch

(1) Key switch

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

4. Easy Checker lamps

- (1) Electrical charge warning indicator
(2) Parking brake warning indicator
(3) Engine oil pressure warning indicator
(4) Glow plug indicator
(5) Water separator filter indicator

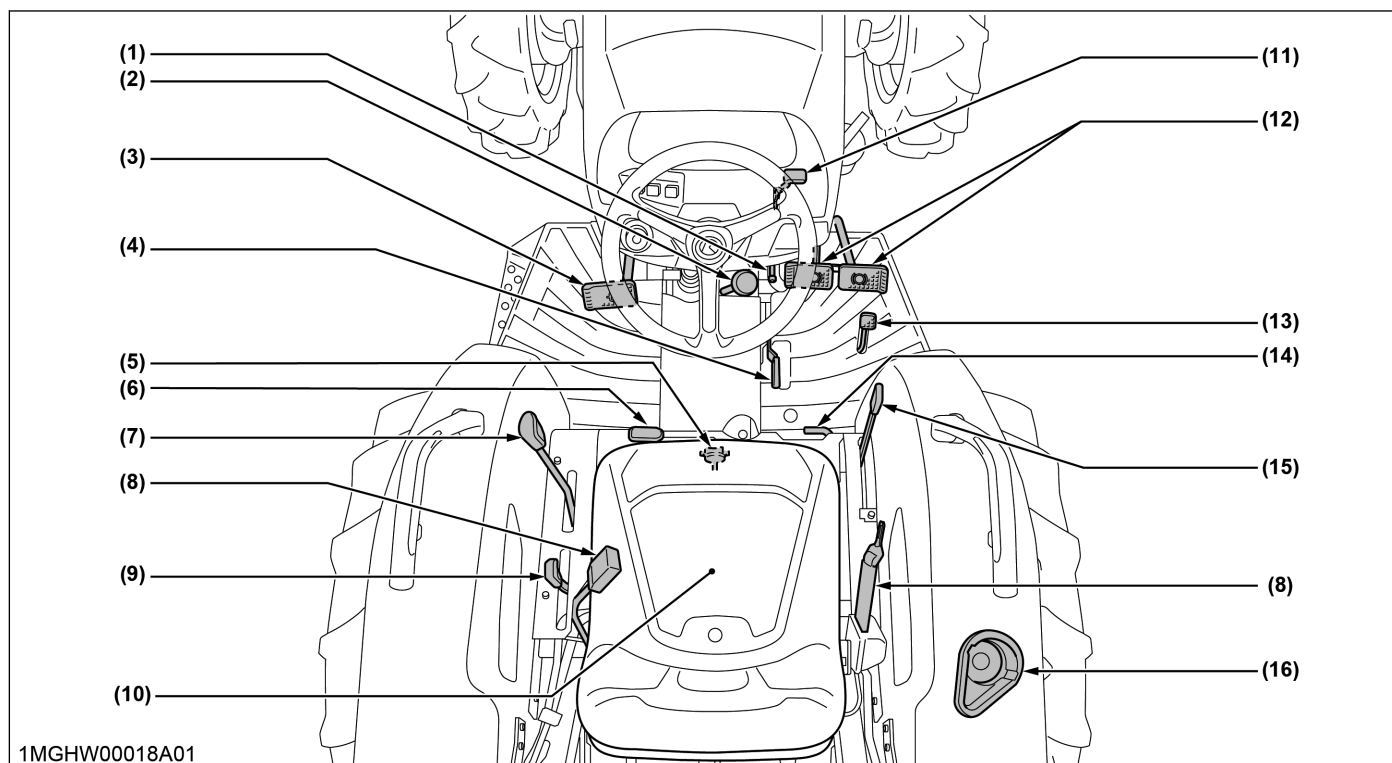
	When the key is turned "ON," the electrical charge-warning indicator (1) and the engine oil-pressure warning indicator (3) should come on. If trouble should occur at any location while the engine is operating, the warning-indicator lamp corresponding to the trouble comes on. For further details, see Easy Checker on page 70.
	
	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.
	The parking brake-warning indicator (2) comes on while the parking brake is applied and goes off when the parking brake is released.
	If water or impurities collect in the water separator, the indicator will light up and the buzzer will sound. If this should happen during operation, drain the water from the water separator as soon as possible. (See Checking the water separator on page 102)

IMPORTANT :

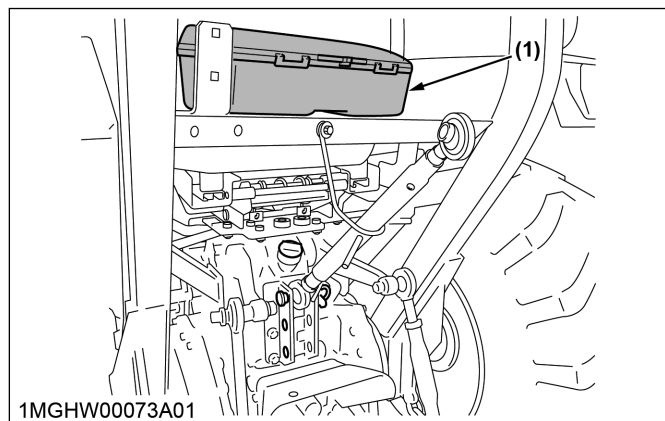
- Daily checks only with the Easy Checker, are not sufficient. Never fail to conduct daily checks carefully according to DAILY CHECK on page 101.

FOOT CONTROLS AND HAND CONTROLS

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

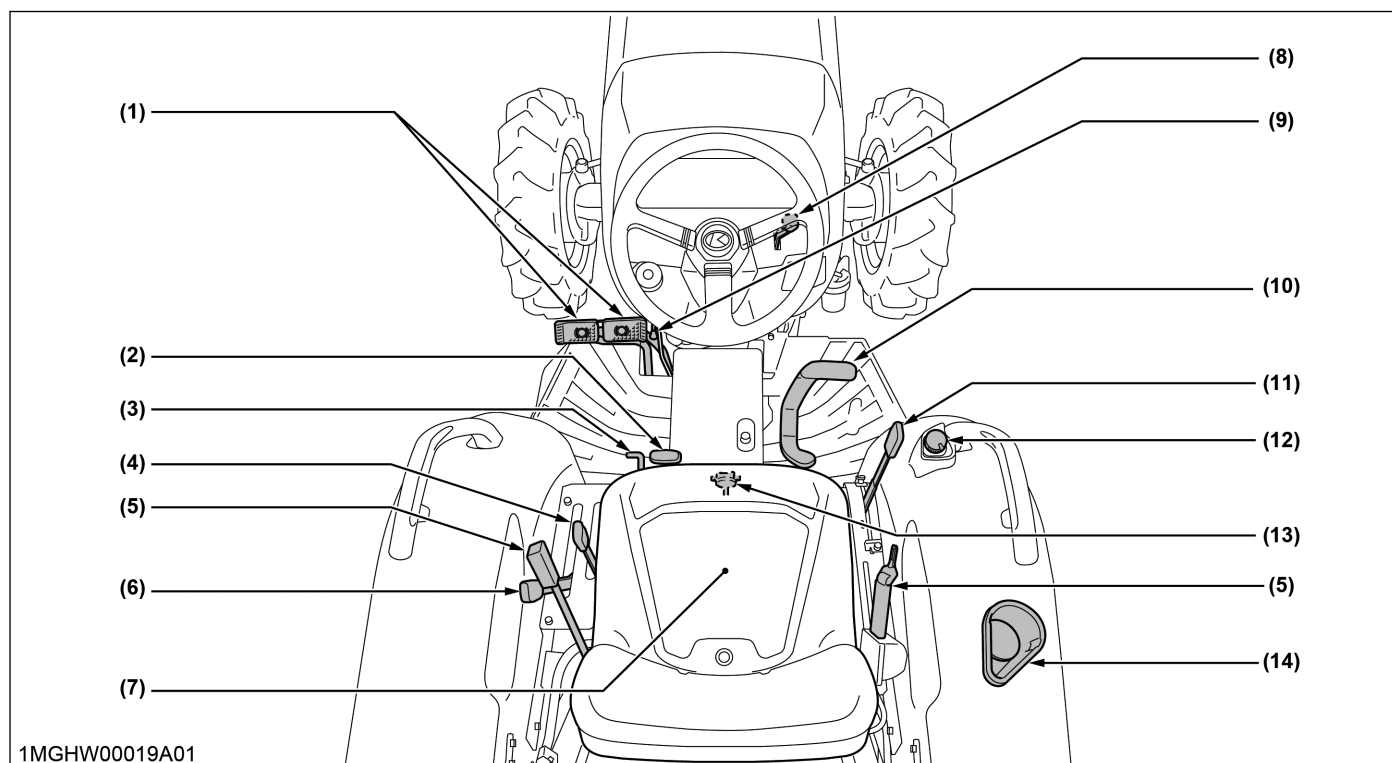


(1) Parking brake lever.....	38	(9) Range gear shift lever.....	41
(2) Main gear shift lever.....	41	(10) Operator's seat.....	40
(3) Clutch pedal [3302].....	41	(11) Hand throttle lever.....	38
(3) Clutch pedal [3902].....	41	(12) Brake pedal.....	38
(4) PTO gear shift lever.....	78	(13) Foot throttle.....	42
(5) 3-point hitch lowering speed knob.....	85	(14) Differential lock pedal.....	75
(6) Front wheel drive lever.....	39	(15) Position control lever.....	85
(7) Synchro-shuttle shift lever.....	42	(16) Cup holder.....	
(8) Seat belt.....	40		

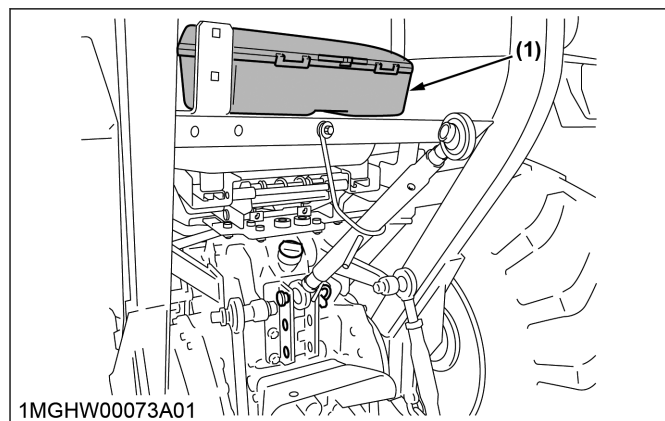


(1) Tool box

2. Foot controls and hand controls [HST type]



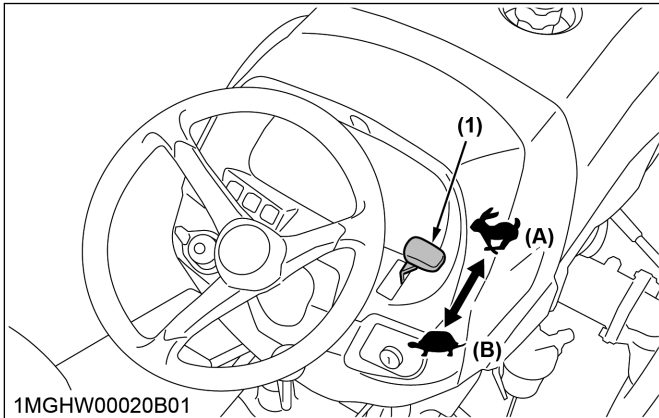
(1) Brake pedal.....	38	(8) Hand throttle lever	38
(2) Front wheel drive lever	39	(9) Parking brake lever.....	38
(3) Differential lock pedal	75	(10) Speed control pedal.....	42
(4) Range gear shift lever.....	43	(11) Position control lever	85
(5) Seat belt.....	40	(12) PTO clutch control switch	78
(6) Cruise control lever (if equipped).....	43	(13) 3-point hitch lowering speed knob	85
(7) Operator's seat	40	(14) Cup holder	



(1) Tool box

3. Hand throttle lever

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



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

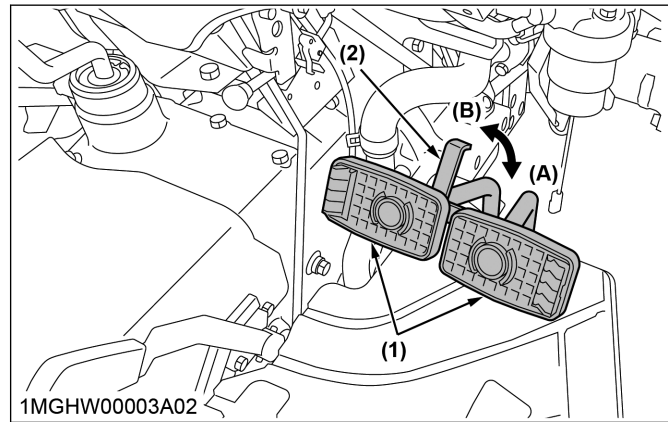
4. Brake pedals (right and left)

⚠ WARNING

To avoid personal injury or death:

- 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 are equally adjusted when using locked together. Incorrect or unequal adjustment of brake pedals 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, interlock the right and left pedals as the following figure.
 - Use individual brakes to assist in turning sharply at slow speeds, but only if you operate on field. Disengage the brake-pedal lock and depress only 1 brake pedal.
 - Be sure that the brake pedals have equal adjustment when being locked together.

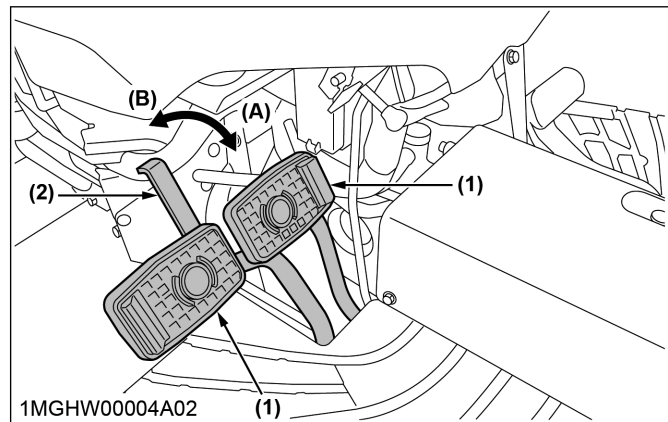
[Manual transmission type]



1MGHW00003A02

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

[HST type]



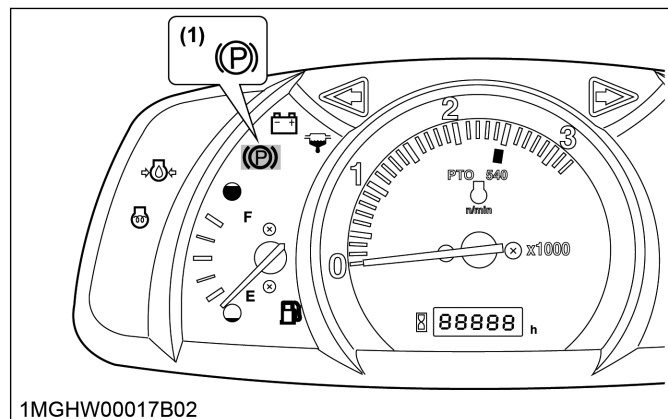
1MGHW00004A02

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

4.1 How to use the parking brake

NOTE :

- The parking-brake indicator in the Easy Checker comes on while the parking brake is applied and goes off when it is released.

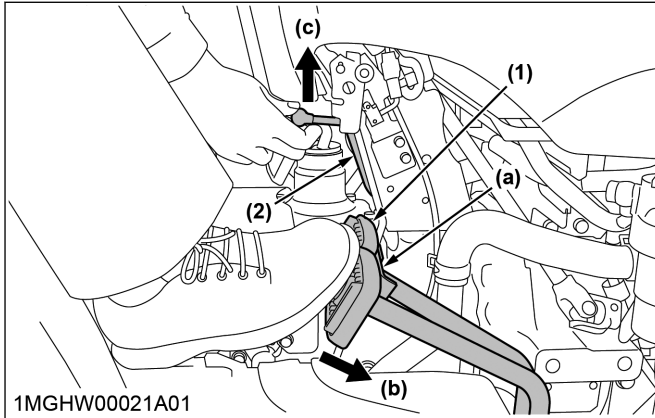


1MGHW00017B02

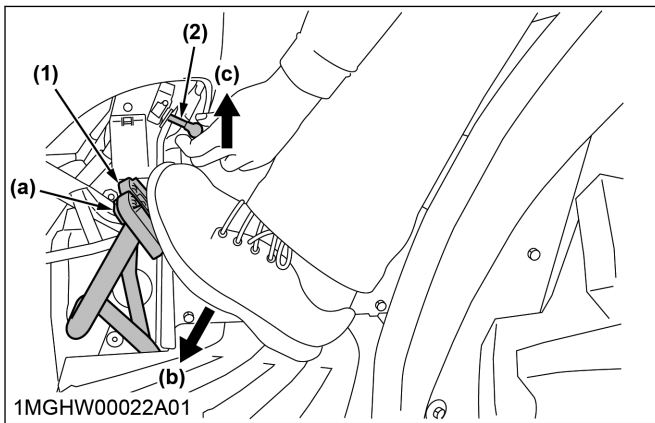
- (1) Parking brake indicator

Setting the parking brake

1. Set the parking brake in the order of a. to c.
 - a. Interlock the brake pedals.
 - b. Depress the brake pedals.
 - c. Pull the parking-brake lever and latch the brake pedals.

[Manual transmission type]

(1) Brake pedal (2) Parking brake lever

[HST type]

(1) Brake pedal (2) Parking brake lever

IMPORTANT :

- To prevent damage to the parking-brake lever, make sure that the brake pedals are fully depressed before pulling the parking-brake lever up.

Releasing the parking brake

1. Depress the brake pedals again.

5. Front wheel drive lever

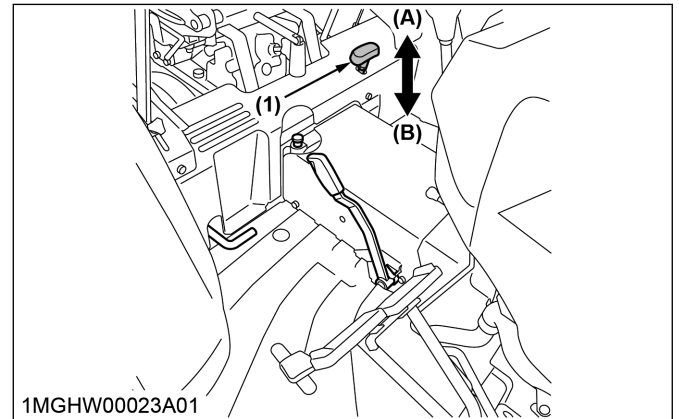
Use the front wheel-drive lever to engage the front wheels with the tractor stopped.

**WARNING**

To avoid personal injury or death:

- Do not engage the front-wheel drive when traveling at road speed.

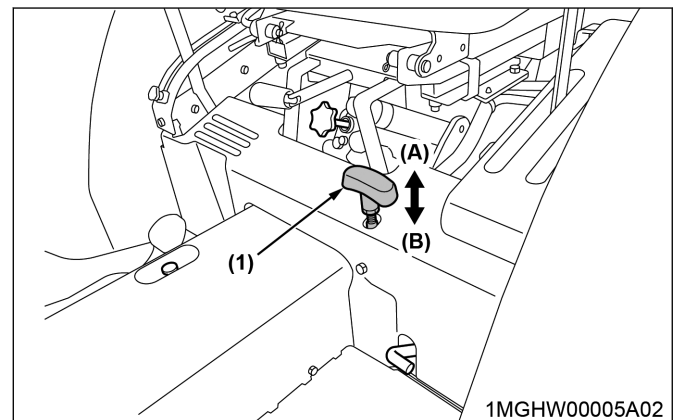
- When driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate the tractor at reduced speed and engage the front-wheel drive.
- Do not brake suddenly. An accident may occur as a result of a heavy towed load shifting 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.

[Manual transmission type]

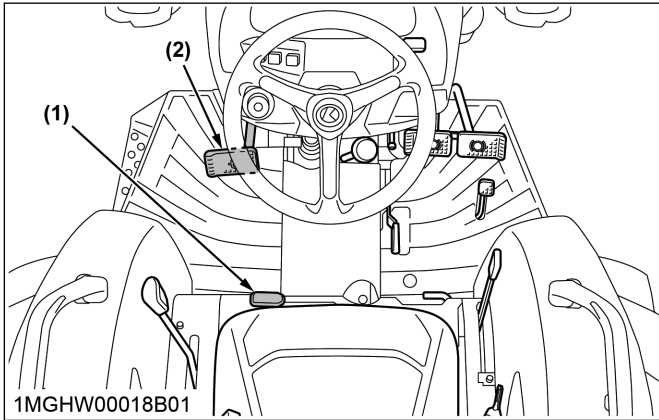
(1) Front wheel drive lever (A) On (B) Off

IMPORTANT :

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

[HST type]

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

[Manual transmission type]

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

IMPORTANT :

- 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:

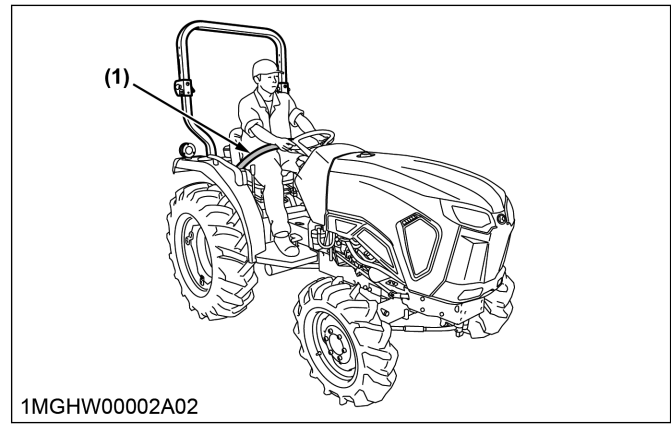
- When greater pulling force is needed, such as working in a wet field, when pulling a trailer, or when working with a front-end loader
- When working in sandy soil
- When working on a hard soil where a rotary tiller might push the tractor forward
- For increased braking at reduced speed

6. 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

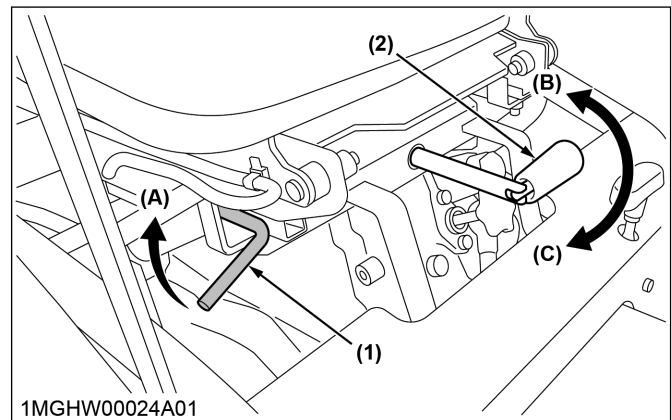
7. Operator's seat**⚠ WARNING**

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) Unlock
(2) Suspension adjust lever (B) Decreasing tension
(C) Increasing tension

- **Suspension adjustment**

Turn the suspension-adjust handle to achieve the optimum suspension setting.

IMPORTANT :

- After adjusting the operator's seat, ensure the operator's seat is properly locked.
- Position the suspension-adjust handle at the horizontal position.

- [Only seat equipped with armrest kit] An armrest kit is available as an option from your dealer.

If you intend to raise the seat with the front loader and optional armrest attached, raise the armrest to avoid contact with the loader valve cover before raising the seat.

Hitting the loader valve cover with the armrest may cause damage to the loader valve cover.

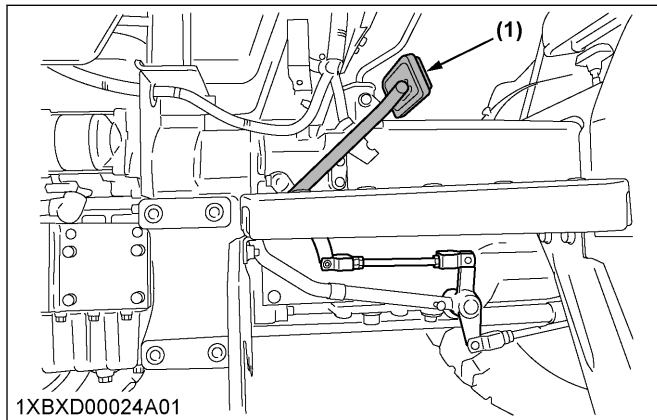
8. Clutch pedal [L3302, L3302-1 Manual transmission type]

⚠ 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 follow the following:

- 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.

9. Clutch pedal with dual clutch [L3902, L3902-1 Manual transmission type]

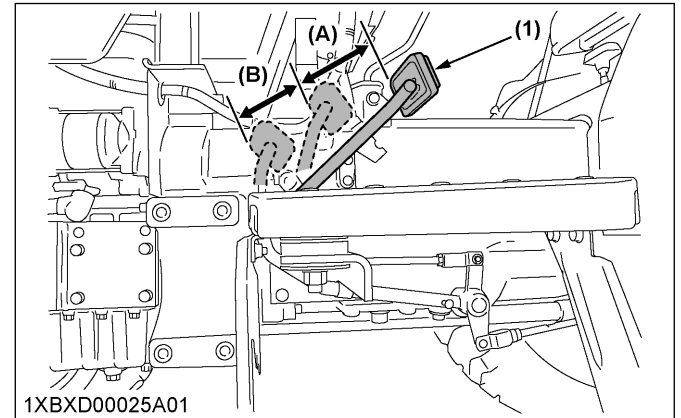
⚠ WARNING

To avoid personal injury or death:

- The sudden release of the clutch may cause the tractor to lunge in an unexpected manner.

The transmission clutch is disengaged when the clutch pedal is pressed down half-way (A). The PTO clutch remains engaged.

Both the transmission clutch and the PTO clutch are disengaged when the clutch pedal is fully pressed down (B).



(1) Clutch pedal

(A) Disengaging only transmission clutch

(B) Disengaging transmission clutch and PTO clutch

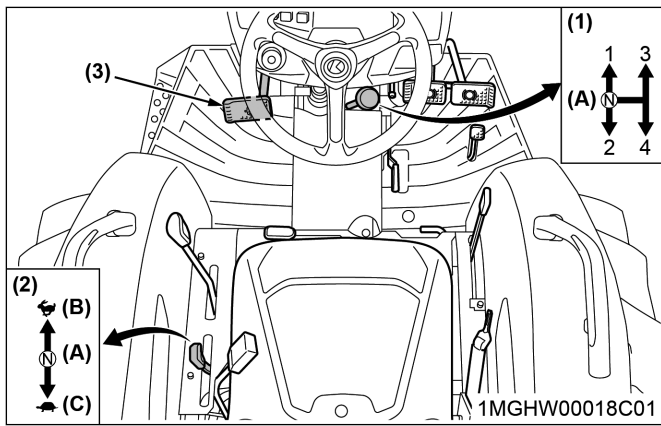
IMPORTANT :

To help prevent premature clutch wear follow the following:

- 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.

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

You can shift the main-gear shift and the range-gear shift only when the tractor is completely stopped and clutch pedal is depressed.



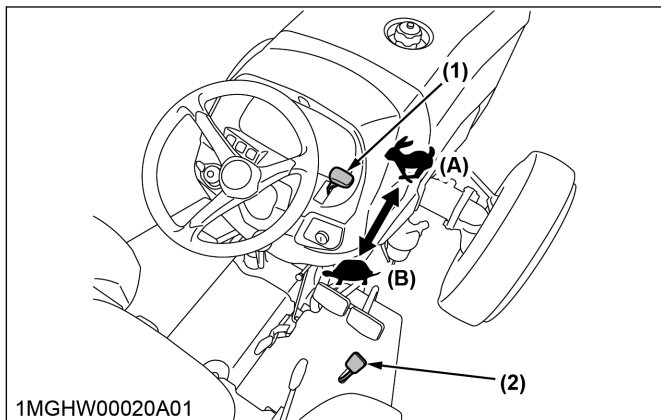
- (1) Main gear shift lever (A) Neutral position
 (2) Range gear shift lever (B) High
 (3) Clutch pedal (C) Low

IMPORTANT :

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

11. Foot throttle [Manual transmission type only]

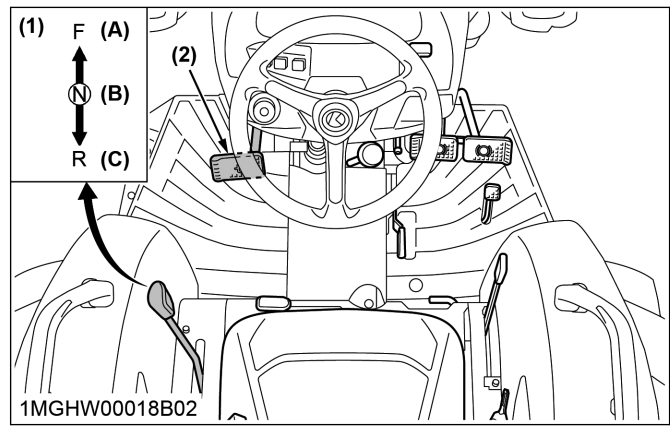
Use the foot throttle when traveling on the road. Press down on the foot throttle for higher speed. The foot throttle is interlocked with the hand-throttle lever. When using the foot throttle, keep the hand-throttle lever in the low idling position.



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

12. Synchro-shuttle shift lever [Manual transmission type only]

Shift the synchro-shuttle shift lever forward to obtain forward speeds and shift back to obtain reverse speeds. When changing the synchro-shuttle shift lever, depress the clutch pedal and stop the tractor before shifting.



- (1) Synchro-shuttle shift lever (A) Forward
 (2) Clutch pedal (B) Neutral position
 (C) Reverse

IMPORTANT :

- The synchro-shuttle shift lever may be shifted while the tractor is moving slowly and the clutch is depressed, but sudden gear shifting may cause transmission damage.

NOTE :

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

13. Speed control pedal [HST type only]

WARNING

To avoid personal injury or death:

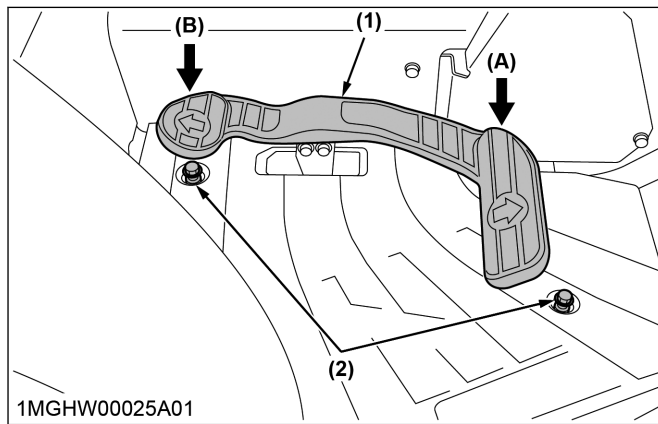
- Do not operate the tractor if it moves on level ground with foot off of the speed-control pedal.
- Consult your local Kubota Dealer.

- 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 (A) Forward
(2) Stopper bolt (B) Reverse

IMPORTANT :

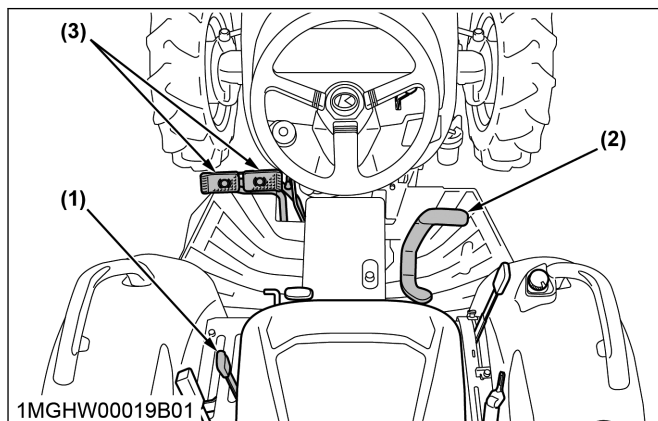
- To prevent serious damage to the HST, do not adjust the stopper bolts.

NOTE :

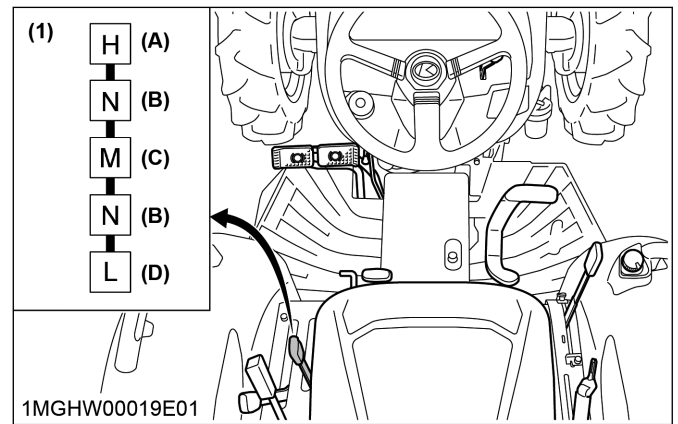
- When you stand up from the operator's seat with the speed-control pedal depressed or the cruise-control lever engaged, the engine will stop regardless of whether the tractor is moving or not. This is because the tractor is equipped with operator presence control system (OPC).

14. 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 in the "NEUTRAL" position.



- (1) Range gear shift lever (L-M-H) (2) Speed control pedal
(3) Brake pedal



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

IMPORTANT :

To avoid damage of transmission and shift linkage when shifting the gear, follow the following:

- 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, set the parking brake and start the following procedure:
 - Slightly depress the speed-control pedal to rotate the gears inside of transmission.
 - Release the speed-control pedal to the "NEUTRAL" position.

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

⚠ WARNING

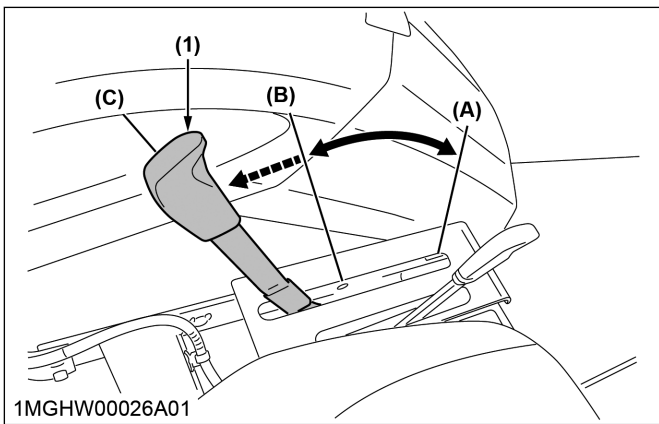
To avoid personal injury or death:

- Pull the cruise-control lever completely to the rear before starting the engine.
- Do not use the cruise control when driving on the road.
- 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 and operator comfort. Cruise control will provide a constant forward operating speed by mechanically holding the cruise-control lever at the selected position.

NOTE :

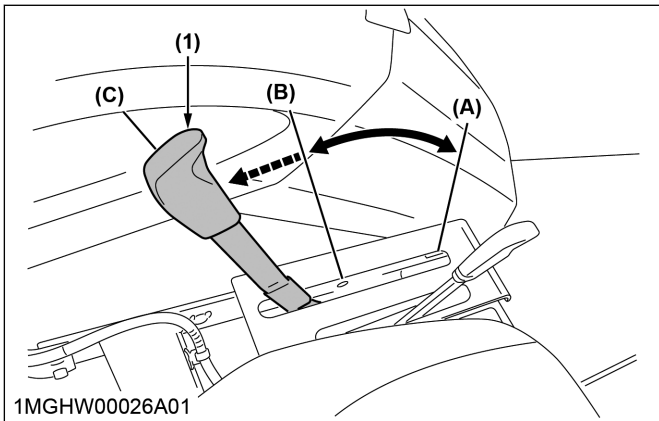
- Cruise-control device does not operate in reverse.
- Preferably set the cruise-control lever, while holding down the speed-control pedal.
- When releasing the cruise mode, return the cruise-control lever fully backward.



(1) Cruise control lever

(A) Increase
(B) Decrease
(C) Off

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



(1) Cruise control lever

(A) Increase
(B) Decrease
(C) Off

Engaging the cruise control device

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

- To operate faster than the set speed, depress down the speed-control pedal further 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 depressed or the cruise-control lever engaged, the engine will stop regardless of whether the tractor is moving or not.

This is because the tractor is equipped with operator presence control system (OPC).

Disengaging the cruise control device

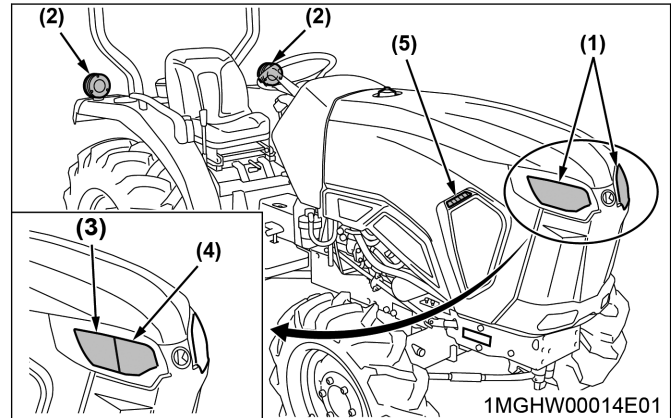
- Move the cruise-control lever all the way back.

- Move the cruise-control lever to the "OFF" position to release the cruise control.
- Depress both brake pedals.

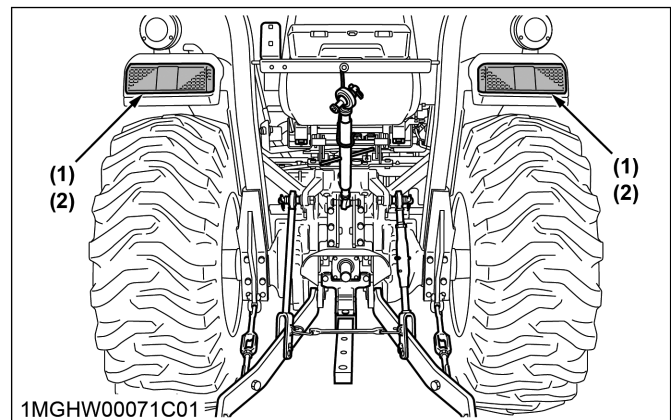
NOTE :

- 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) Head light (low beam)
(4) Head light (high beam)
(5) Side work light



- (1) Rear turn signal / hazard light
(2) Tail lamp light

PRE-OPERATION CHECK

DAILY CHECK ITEMS BEFORE OPERATION OF THE TRACTOR



WARNING

To avoid personal injury or death:

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

Check the condition of the tractor before starting it.

Check items

- Walking around and inspecting the tractor
- Checking the engine-oil level
- Checking the transmission oil level
- Checking the coolant level
- Checking the water separator
- Cleaning the grill and the radiator screen
- Cleaning the fuel cooler
- **[HST model]** Cleaning the oil cooler
- Cleaning the DPF muffler
- Checking the air cleaner-evacuator valve when used in a dusty place
- Checking the brake pedal and the clutch pedal
- Checking the indicators, the gauges, and the meter
- Checking the lights and lamps
- Checking the wiring harness
- Checking the seat belt and the ROPS
- Checking the movable parts
- Refueling
(See Checking the fuel tank and refueling on page 101)
- Caring for the safety labels
(See Care for safety labels on page 20)

OPERATING THE ENGINE

PRECAUTIONS FOR OPERATING THE ENGINE

WARNING

To avoid personal injury or death:

- Read and understand **SAFE OPERATION** on page 7 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 set the PTO gear-shift lever or the PTO clutch-control switch in the **"OFF"** position before starting the engine.

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.
- The engine, including the emissions control system, shall be operated, used and maintained in accordance with the instructions provided to the end users in order to maintain the emissions performance of the engine within the requirements applicable to the engine's category.
- No deliberate tampering with or misuse of the engine emissions control system should take place in particular with regard to deactivating or not maintaining an exhaust gas recirculation (EGR) or a reagent dosing system.
- It is essential to take prompt action to rectify any incorrect operation, use or maintenance of the emissions control system in accordance with the rectification measures indicated by the warnings referred to **ENGINE TROUBLESHOOTING** on page 133.

EXHAUST AFTERTREATMENT DEVICES

WARNING

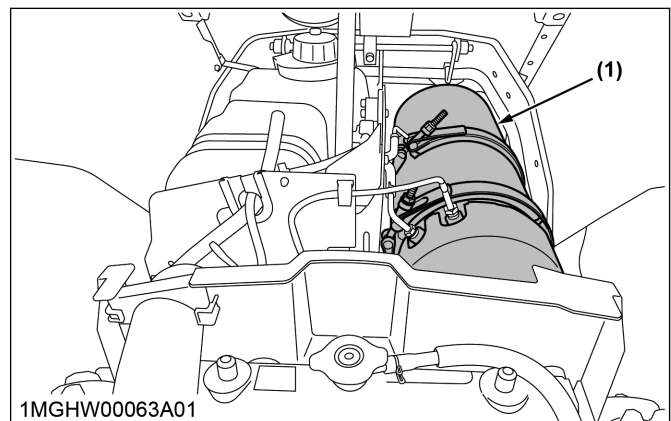
To avoid personal injury or death:

- During the diesel-particulate filter (DPF) regenerating operations, exhaust gases and exhaust-filter components reach temperatures hot enough to burn people, or ignite or melt common materials.
- Keep away the tractor from people, animals, or structures that may be susceptible to harm or damage from hot exhaust gases.
- During the regeneration, white exhaust gases may be visible. Do not allow the regeneration in a non ventilated garage or confined area.
- During regeneration, do not leave the tractor.

1. Diesel particulate filter (DPF) muffler

This tractor is equipped with an engine with a diesel-particulate filter (DPF) muffler that serves to reduce hydrocarbons, carbon monoxide, and other toxic gases, all of which are contained in emissions of the diesel engine, to harmless carbon dioxide and water. The DPF also traps particulate matter (PM).

Please handle the exhaust-aftertreatment devices correctly and in an environmentally responsible manner.



(1) Diesel particulate filter (DPF)

2. Handling points for DPF regeneration

When a specific amount of particulate matter (PM) has accumulated in the DPF muffler, it is necessary to refresh the DPF muffler by burning the PM inside it. This burning off work is called **"Regeneration."** To extend the operating time to reach this regeneration, and to avoid DPF muffler trouble, adhere to the following:

Fuel

Use the ultra low sulfur fuel (S15).

IMPORTANT :

- **Use of diesel fuel other than ultra low sulfur fuel may adversely affect engine and DPF performance.**
Use of fuels other than ultra low sulfur fuel (S15) may not meet regulations for your region.

Engine oil

Use the DPF-compatible oil (CJ-4 or better quality) for the engine.

IMPORTANT :

- **If any engine oil other than CJ-4 or better quality is used, the DPF may become clogged**

earlier than expected and the fuel economy may drop.

Prohibition of unnecessary idling operation

Generally, the lower the engine speed, the lower the exhaust-gas temperature is, so the PM contained in exhaust-gas will not be burnt, and begins to accumulate. Therefore, do not idle unnecessarily.

Regeneration

When there is instruction sign of regeneration by lamp or buzzer, immediately perform the required procedure for regeneration.

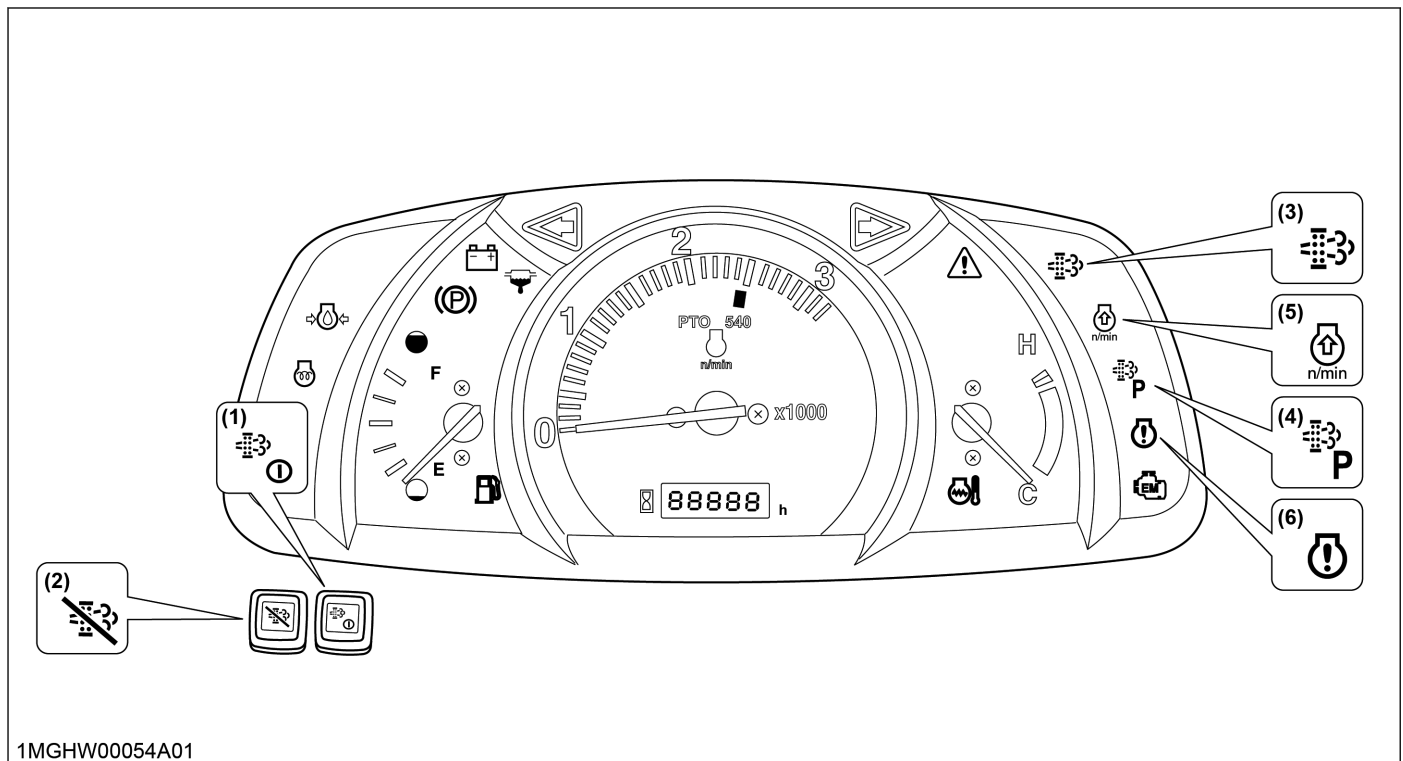
IMPORTANT :

- **Interrupting the regeneration cycle or continuing operation while ignoring the warning signs may cause DPF and engine damage.**

3. DPF regeneration process

DPF-regeneration process can be performed by choosing the auto-regeneration mode or the regeneration-inhibit mode according to your job conditions.

For jobs not affected by hot gases emitted during regeneration, auto-regeneration mode is advisable.



(1) Parked regeneration switch
(2) DPF INHIBIT switch

(3) Regeneration indicator
(4) Parked regeneration indicator

(5) Engine rpm increase indicator
(6) Engine warning indicator

Auto regeneration mode

When starting the engine (switch operation is unnecessary), the auto-regeneration mode is automatically activated. With the auto-regeneration mode on, when a specific amount of PM has accumulated and the regeneration conditions are satisfied, the DPF will be automatically regenerated whether the tractor is in motion or parked.

(See Tips on diesel particulate filter (DPF) regeneration on page 52)

By effect of auto regeneration, work efficiency is improved. For details of auto regeneration, see Operating the engine to regenerate the DPF for regeneration inhibit mode on page 50.

Regeneration inhibit mode

After starting the engine, if the DPF-INHIBIT switch is pressed to turn on the DPF INHIBIT-switch lamp, the regeneration-inhibit mode will be activated.

With regeneration-inhibit mode on, the PM that has accumulated inside the DPF will not be burnt, unless the operator performs the regeneration work manually.

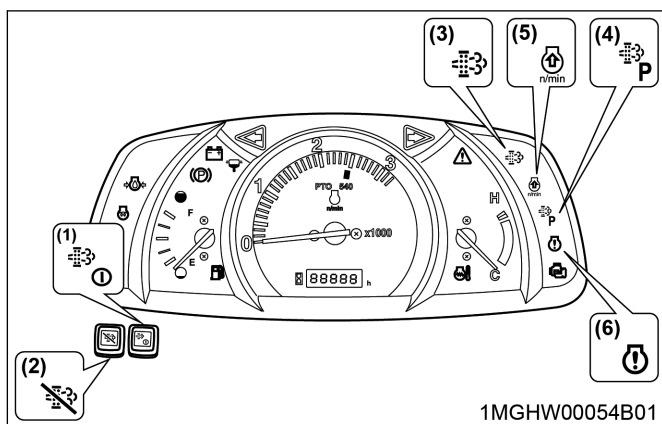
The regeneration-inhibit mode is effective for work in poorly ventilated work spaces.

For details of regeneration prohibition, see Operating the engine to regenerate the DPF for regeneration inhibit mode on page 50.

NOTE :

- If the engine is stopped once, the auto-regeneration mode will be activated.

3.1 Operating the engine to regenerate the DPF for auto regeneration mode



- | | |
|-----------------------------------|-----------------------------------|
| (1) Parked regeneration switch | (5) Engine rpm increase indicator |
| (2) DPF INHIBIT switch | (6) Engine warning indicator |
| (3) Regeneration indicator | |
| (4) Parked regeneration indicator | |

1. Start the engine.

2. Make sure that the DPF INHIBIT-switch lamp is "OFF."



DPF INHIBIT-switch lamp is off

Auto regeneration mode is activated.

DPF INHIBIT-switch lamp is on

Regeneration-inhibit mode is activated.

NOTE :

- When the engine is started, the auto-regeneration mode is automatically activated.

- When the DPF INHIBIT-switch is pushed after the engine is started, regeneration-inhibit mode is activated.

When the regeneration indicator  starts flashing, a specific amount of PM has built up in the DPF.

3. Continue to operate the tractor.

The regeneration process will begin automatically. Make sure that the working place is in a safe area because DPF and exhaust temperature will rise.

4. When the engine rpm-increase indicator  starts flashing, keep on working and increase the engine rpm until engine rpm-increase indicator turns "OFF."

NOTE :

- Even if the auto-regeneration mode is selected, DPF regeneration may not begin because system requirements have not been satisfied.
- The engine rpm-increase indicator is used as a guide to satisfy the regeneration conditions. If the engine load is too heavy, the engine rpm-increase indicator may continue to flash, even though regeneration-system conditions are satisfied and regeneration may begin automatically. (See Tips on diesel particulate filter (DPF) regeneration on page 52.)

3.1.1 PM warning level and required procedures for auto regeneration mode

During auto-regeneration mode when the PM level has built up in the DPF, the regeneration cycle will begin automatically. If the regeneration cycle is interrupted or the regeneration conditions are not satisfied, the buzzer starts

sounding and the indicator display changes in response to the PM level in order to prompt the operator to perform the required procedure listed in the following table.

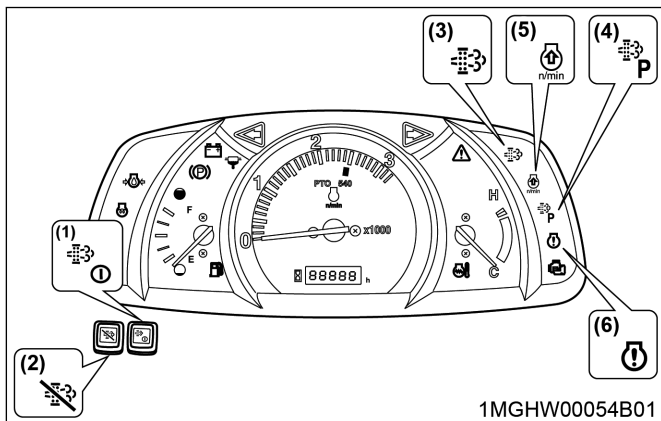
IMPORTANT :

- Once the regeneration level has been reached, immediately perform the required procedure for regeneration.
Interrupting the regeneration cycle or continuing operation while ignoring the warning signs may cause DPF and engine damage.

Auto regeneration mode

DPF system status					Required procedure
PM warning level	Buzzer	Engine output	Indicator	Indicator behavior	
1	Not sounding	sufficient		The regeneration indicator starts flashing.	A specific amount of PM has accumulated in the DPF muffler. Continue to work the tractor to raise the DPF temperature.
				The engine rpm-increase indicator starts flashing.	Continue the work and increase the engine rpm until the indicator turns "OFF."
				The parked-regeneration indicator starts flashing.	The parked regeneration can also be started. (See Operating the engine to regenerate the DPF for parked regeneration on page 52)
				The regeneration indicator will stop flashing and remain "ON" constantly.	The regeneration cycle begins and continues until cycle is complete then the indicator will turn "OFF."
If the regeneration cycle was interrupted or conditions are not satisfied for regeneration then DPF system is now in the PM-warning level 2.					
2-1	Sounding every 5 seconds	sufficient		The regeneration indicator starts flashing.	Start the regeneration, according to the preceding PM-warning level 1. Now the parked-regeneration indicator starts flashing, and the parked regeneration can also be started. If the conditions of regeneration are not met, perform the procedure for parked regeneration cycle. (See Operating the engine to regenerate the DPF for parked regeneration on page 52)
2-2	Sounding every 3 seconds	sufficient		The engine rpm-increase indicator starts flashing.	
				The parked-regeneration indicator starts flashing.	
				The regeneration indicator will stop flashing and remain "ON" constantly.	
If the regeneration fails in the PM-warning level 2, DPF system becomes in the PM-warning level 3.					
3	Sounding every 1 second	50 %		The engine-warning indicator starts flashing.	Immediately discontinue working the tractor and begin the procedure for parked regeneration cycle. (See Operating the engine to regenerate the DPF for parked regeneration on page 52) At PM-warning level 3, the auto-regeneration mode does not function. If the tractor is operated further, the regeneration cycle will be disabled.
				The parked-regeneration indicator starts flashing.	
If the parked regeneration is interrupted or the tractor is continuously operated in the PM-warning level 3, DPF system becomes in the PM-warning level 4.					
4	Sounding every 1 second	50 %		The engine-warning indicator remains constantly "ON."	Immediately move the tractor to a safe place, park it there, and turn the engine "OFF." Contact your local Kubota Dealer. At PM-warning level 4, do not continue to operate the tractor. Otherwise, damage will result to the DPF and engine.

3.2 Operating the engine to regenerate the DPF for regeneration inhibit mode



- | | |
|-----------------------------------|-----------------------------------|
| (1) Parked regeneration switch | (5) Engine rpm increase indicator |
| (2) DPF INHIBIT switch | (6) Engine warning indicator |
| (3) Regeneration indicator | |
| (4) Parked regeneration indicator | |

1. Start the engine.

3.2.1 PM warning level and required procedures for regeneration inhibit mode

In the regeneration-inhibit mode, the buzzer starts sounding and the indicator display changes in response to the PM level in order to prompt the operator to perform the required procedure listed in the following table.

IMPORTANT :

- Once the regeneration level has been reached, immediately perform the required procedure for regeneration.
Interrupting the regeneration cycle or continuing operation by ignoring the warning signs may cause DPF and engine damage.

2. Press the DPF-INHIBIT switch .

DPF INHIBIT-switch lamp is "ON"

Regeneration inhibit mode is activated.

DPF INHIBIT-switch lamp is "OFF"

Auto regeneration mode is activated.

The DPF INHIBIT-switch lamp illuminates.

When the regeneration indicator  or the

parked-regeneration indicator  starts flashing,

a specific amount of PM has accumulated in the DPF muffler.

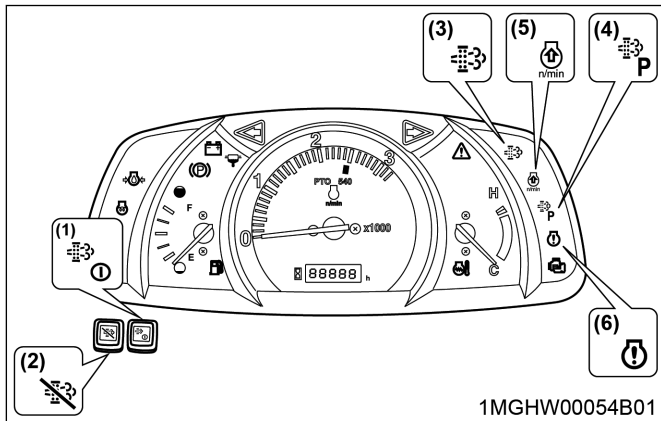
3. Move the tractor to a safe place and activate the DPF muffler.

(See Operating the engine to regenerate the DPF for parked regeneration on page 52.)

Regeneration inhibit mode

DPF system status					Required procedure
PM warning level	Buzzer	Engine output	Indicator	Indicator behavior	
1	Not sounding	sufficient		The regeneration indicator starts flashing.	A specific amount of PM has accumulated in the DPF muffler. Continue with the operation as it is.
				The parked-regeneration indicator starts flashing.	The parked regeneration can also be started. (See Operating the engine to regenerate the DPF for parked regeneration on page 52)
				At PM-warning levels range from 1 to 2-2, it is also possible to change the DPF-INHIBIT switch to auto-regeneration mode, then perform the regeneration.	
2-1	Sounding every 5 seconds	sufficient		The regeneration indicator starts flashing.	Move the tractor to a safe area, then begin the process for parked-regeneration cycle. (See Operating the engine to regenerate the DPF for parked regeneration on page 52)
2-2	Sounding every 3 seconds	sufficient		The parked regeneration-indicator starts flashing.	
If the parked-regeneration cycle is interrupted or the tractor is continuously operated in the PM-warning level 2, DPF system becomes in the PM-warning level 3.					
3	Sounding every 1 second	50 %		The engine-warning indicator starts flashing.	Immediately stop working the tractor, move the tractor to a safe area, then begin the process for parked-regeneration cycle. (See Operating the engine to regenerate the DPF for parked regeneration on page 52) If the tractor is operated further and the operator ignores the warning signs, then regeneration will be disabled.
				The parked-regeneration indicator starts flashing.	
If the regeneration cycle is interrupted or the tractor is continuously operated ignoring the warning signs in the PM-warning level 3, DPF system becomes in the PM-warning level 4.					
4	Sounding every 1 second	50 %		The engine-warning indicator remains constantly “ON.”	Immediately move the tractor to a safe place, park it there, and turn the engine “OFF.” Contact your local Kubota Dealer. At PM warning level 4, do not continue to operate the tractor. Otherwise, damage will result to the DPF and the engine.

3.3 Operating the engine to regenerate the DPF for parked regeneration



- (1) Parked regeneration switch (5) Engine rpm increase indicator
 (2) DPF INHIBIT switch (6) Engine warning indicator
 (3) Regeneration indicator
 (4) Parked regeneration indicator

1. Park the tractor in a safe area away from buildings, people, and animals.
2. Apply the parking brake.
3. Set the following pedal or lever to the "NEUTRAL" position.
 - **[Manual transmission type]**
Set the synchro-shuttle shift lever to the "NEUTRAL" position.
 - **[HST type]**
Set the speed-control pedal to the "NEUTRAL" position.
4. Set the following lever or switch to the "NEUTRAL" position.
 - **[Manual transmission type]**
Set the PTO gear-shift lever to the "OFF" position.
 - **[HST type]**
Set the PTO clutch-control switch to the "OFF" position.
5. Return the engine rpm to the idle speed.
6. Lower the implement to the ground.
7. Turn the steering wheel to become the front wheels in the straight ahead position.

8. Press the DPF-INHIBIT switch .

The DPF INHIBIT-switch lamp turns "OFF."

When the regeneration conditions are satisfied (step 2. to step 5. and step 7. mentioned previously), the parked regeneration-switch lamp



starts flashing.

9. Press the parked-regeneration switch  to start the regeneration cycle.

The parked regeneration-switch lamp will stop flashing and remain "ON" constantly during the regeneration cycle.

The engine rpm will automatically rise, and the regeneration process will begin.

Regeneration process

- a. Both indicators  and  stay "ON" while regenerating the DPF.
- b. Indicators  and  turn "OFF" when the regeneration cycle is complete.
- c. After the lamps  and  turn "OFF," normal tractor work may resume.

10. When driving in regeneration-inhibit mode, press the DPF-INHIBIT switch to turn on the DPF INHIBIT-switch lamp.

NOTE :

- During the regeneration cycle, do not touch the levers and switches (mentioned previously in step 2., step 3., and step 4.), nor change the engine rpm other than for an emergency stop. Otherwise, the regeneration will be interrupted.
- Never leave the tractor when the parked regeneration process is activated.
- If the parked regeneration cycle is interrupted, the engine rpm is fixed at the idling level for about 30 seconds. For 30 seconds when the engine rpm is fixed, keep the hand-throttle lever and foot-throttle pedal at the idle position. Do not move the hand-throttle lever and foot-throttle pedal. The hand-throttle lever and foot-throttle pedal will function again in 30 seconds.

4. Tips on diesel particulate filter (DPF) regeneration

• Operation

The higher in speed or load the engine operates, the higher the exhaust temperature rises. As a result, particulate matter (PM) inside the DPF is consumed, therefore the regeneration process is required less frequently over time.

The lower in speed or load the engine operates, the lower the exhaust temperature. Accordingly, less particulate matter (PM) inside the DPF is consumed and more accumulation of PM will occur, which requires frequent regeneration. Therefore, avoid prolonged idling if possible.

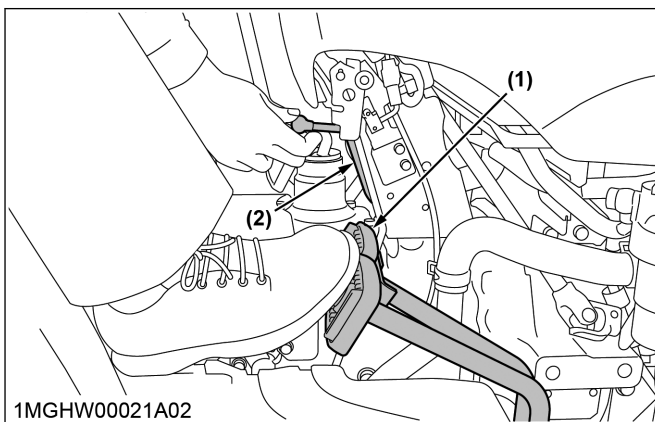
- **Necessary conditions for regeneration**

When the following conditions are all satisfied, regeneration will start. However, if even one condition is deviated from the following conditions during regeneration process, the regeneration will be interrupted.

- Engine coolant temperature
- DPF temperature
- Engine speed is 1200 rpm or higher
- Usually it takes 15 minutes to 20 minutes to complete the regeneration cycle.
Actual regeneration time may depend on ambient temperature, exhaust temperature, and engine speed.
- It is recommended to perform the regenerating while the engine is warm.
- Do not unnecessarily start and interrupt the regeneration process. Otherwise, a small amount of fuel becomes mixed with the engine oil, which degrades the oil quality.
- While the DPF is being regenerated, the air-flow rate of engine is automatically limited to keep up the exhaust temperature. Because of limit of the air-flow rate of engine, the engine may sound differently, but this sound is normal for this engine.
- Just after the regeneration has ended, the DPF muffler remains hot. It is advisable to keep the engine operating for about 5 minutes to allow cooling of the exhaust components.

STARTING THE ENGINE [MANUAL TRANSMISSION TYPE]

1. Make sure that the parking brake is set.
(See Setting the parking brake on page 39 if the parking brake is not set)



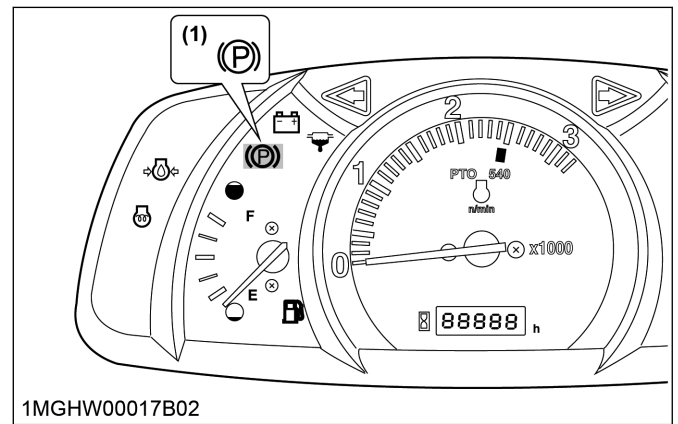
1MGHW00021A02

(1) Brake pedal

(2) Parking brake lever

NOTE :

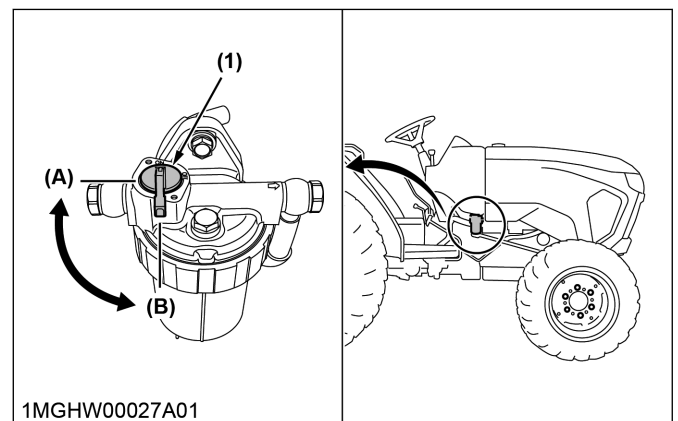
- The parking-brake indicator in the Easy Checker comes on while the parking brake is applied.



1MGHW00017B02

(1) Parking brake indicator

2. Make sure that the fuel shutoff-valve is in the "OPEN" position.



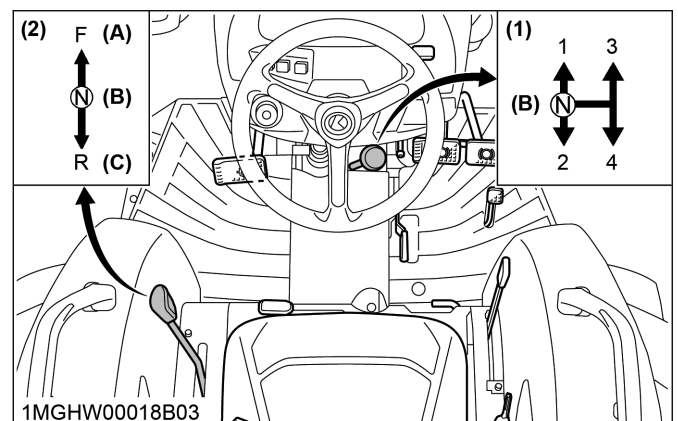
1MGHW00027A01

(1) Fuel shutoff-valve

(A) Close

(B) Open

3. Set the main gear-shift lever and the synchro-shuttle shift lever in the "NEUTRAL" position.



1MGHW00018B03

(1) Main gear shift lever

(2) Synchro-shuttle shift lever

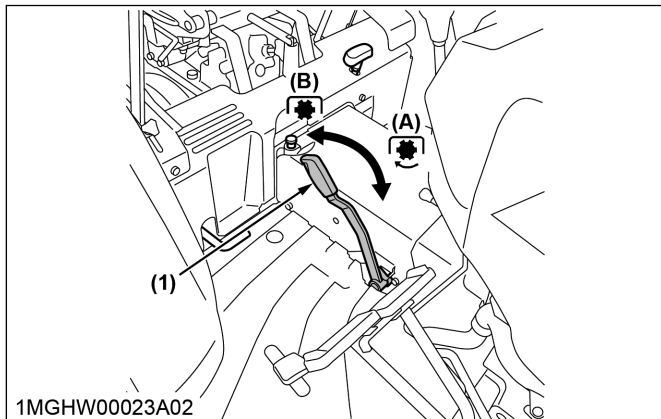
(A) Forward

(B) Neutral position

(C) Reverse

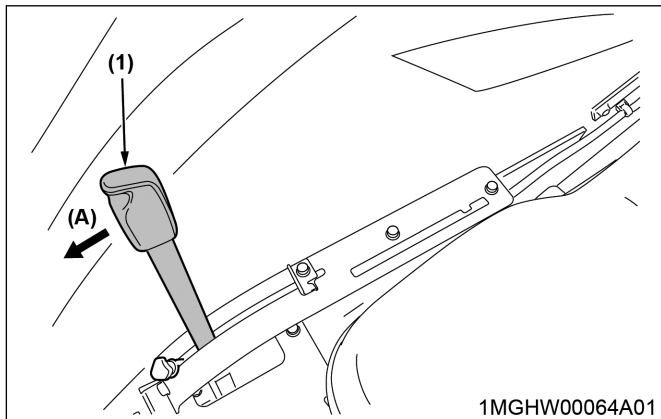
OPERATING THE ENGINE

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



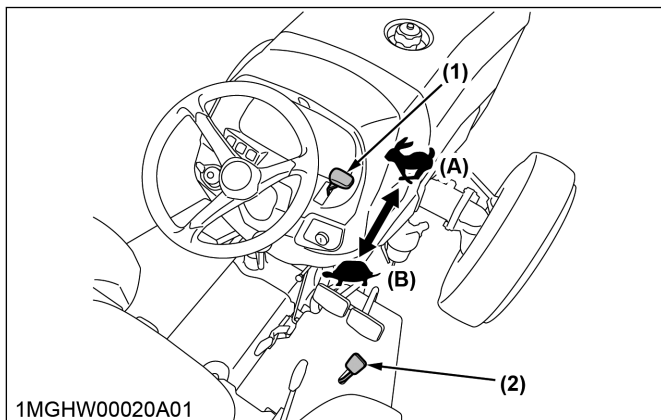
- (1) PTO gear shift lever
(A) On
(B) Off

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



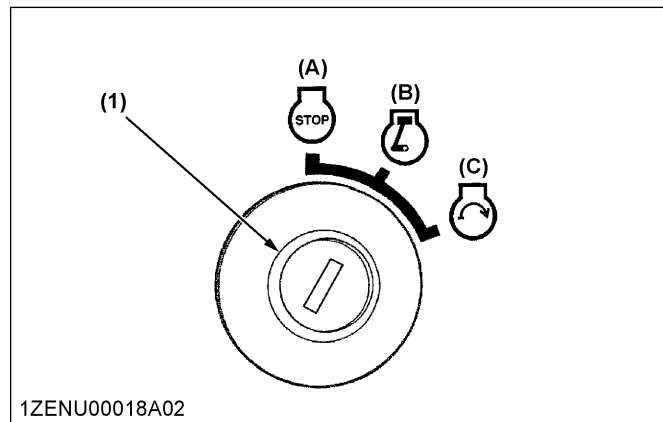
- (1) Position control lever
(A) Float

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



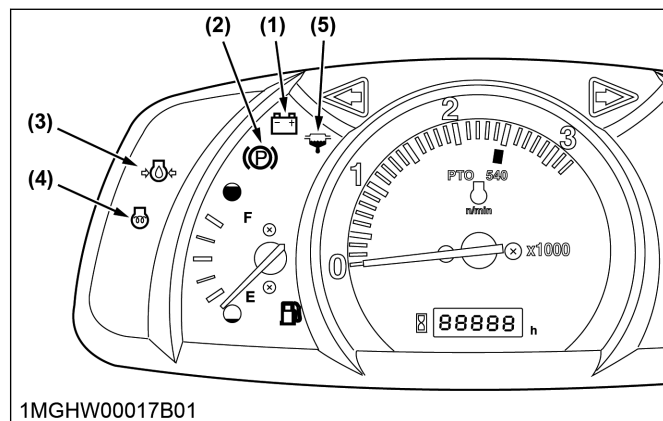
- (1) Hand throttle lever
(2) Foot throttle
(A) Increase
(B) Decrease

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



- (1) Key switch
(A) Off
(B) On
(C) Start

8. Check the Easy Checker lamps.
(See Easy Checker lamps on page 35)

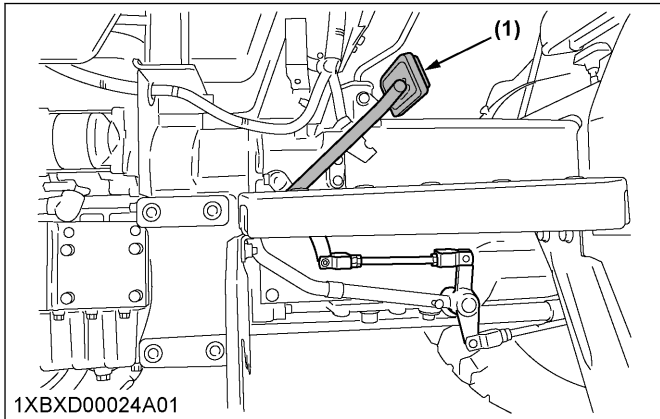


- (1) Electrical charge indicator
(2) Parking brake indicator
(3) Engine oil pressure warning indicator
(4) Glow plug indicator
(5) Water separator indicator

NOTE :

- Some of the Easy Checker lamps may light up depending on the positions of the levers and switches.
- Turn on the key switch, and some of the indicators on the instrument panel stay on about 1 second.

9. Fully depress the clutch pedal.



(1) Clutch pedal

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

IMPORTANT :

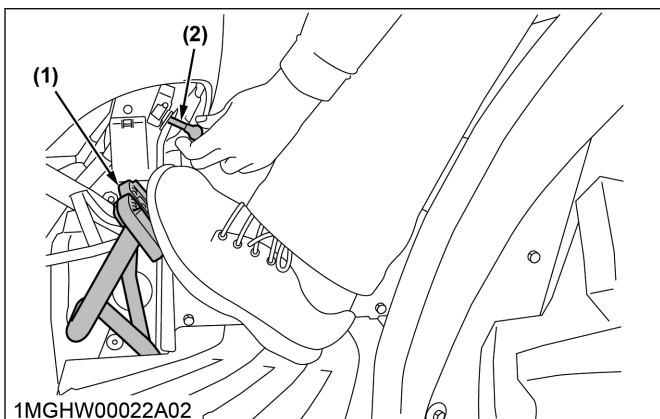
- Because of the safety devices, the engine will not start except the following conditions:
 - PTO gear-shift lever is set in the "OFF" position.
 - Synchro-shuttle shift lever is set in the "NEUTRAL" position.

11. Check to see that all the lamps on the Easy Checker 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 Setting the parking brake on page 39 if the parking brake is not set)

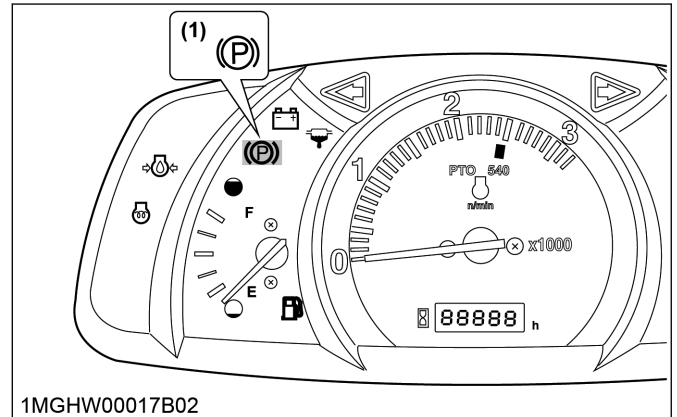


(1) Brake pedal

(2) Parking brake lever

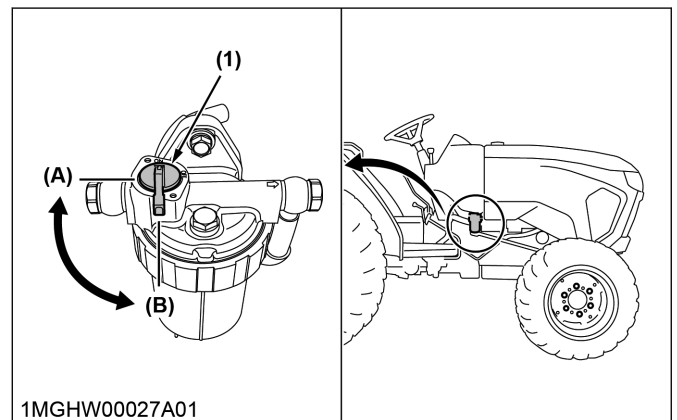
NOTE :

- The parking-brake indicator in the Easy Checker comes on while the parking brake is applied.



(1) Parking brake indicator

2. Make sure that the fuel shutoff-valve is in the "OPEN" position.



(1) Fuel shutoff-valve

(A) Close

(B) Open

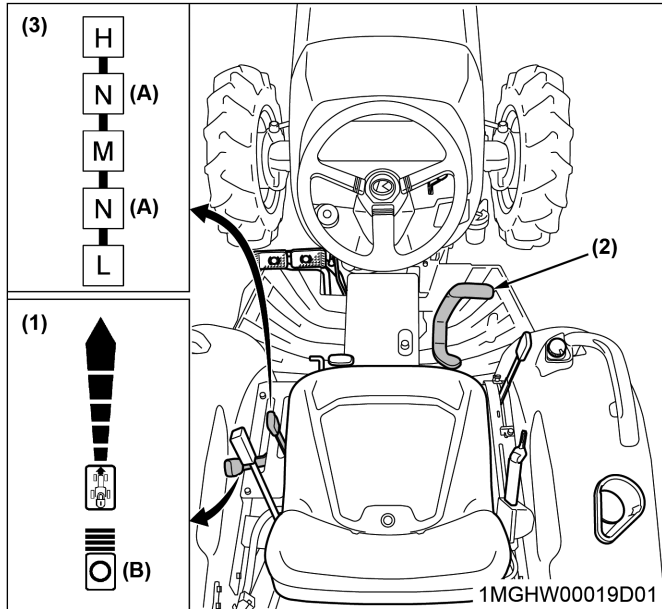
3. Make sure that the cruise-control lever is in the "OFF" position.

NOTE :

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

OPERATING THE ENGINE

4. Set the speed-control pedal and the range gear-shift lever in the “NEUTRAL” position.

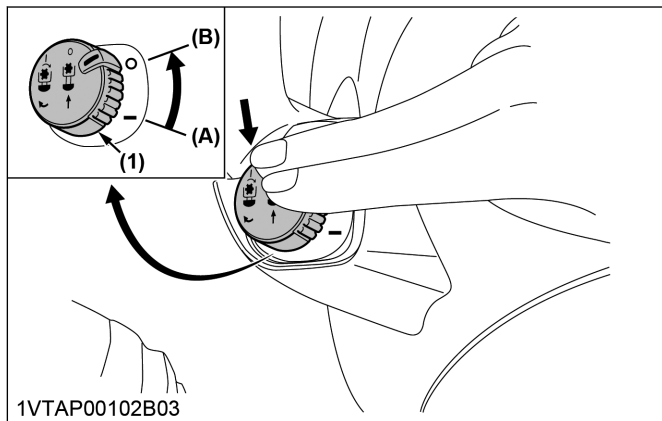


- (1) Cruise control lever (if equipped)
 (2) Speed control pedal
 (3) Range gear shift lever
 (A) Neutral position
 (B) Off position

NOTE :

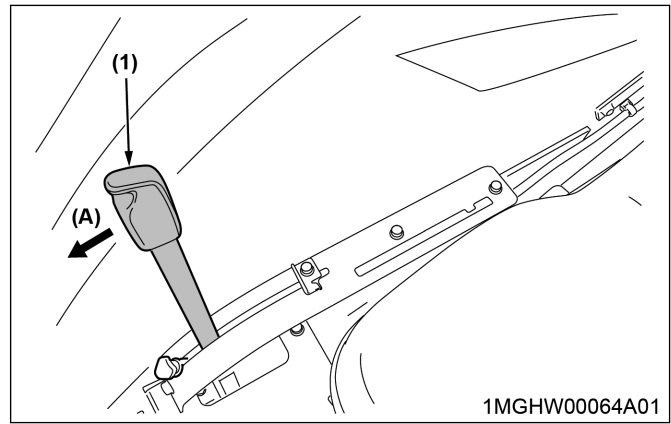
- When removing the foot from the speed-control pedal, the speed-control pedal automatically returns to the “NEUTRAL” position.

5. Push the PTO clutch-control switch to “OFF.”
 (See PTO clutch control switch [HST type] on page 78)



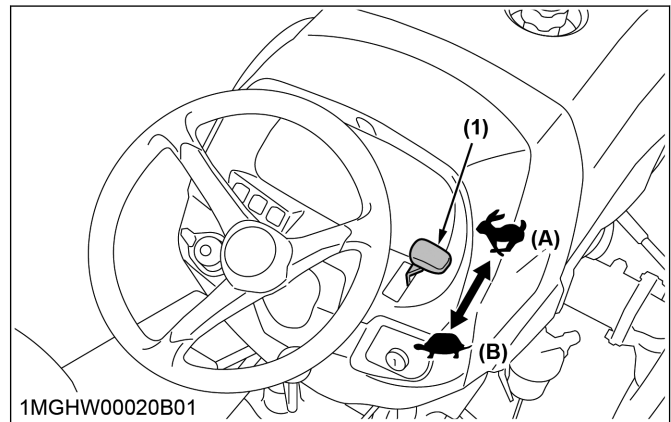
- (1) PTO clutch control switch
 (A) On
 (B) Off

6. Set the position-control lever in the “FLOAT” position.
 The “FLOAT” position is the lowest position of position-control lever.



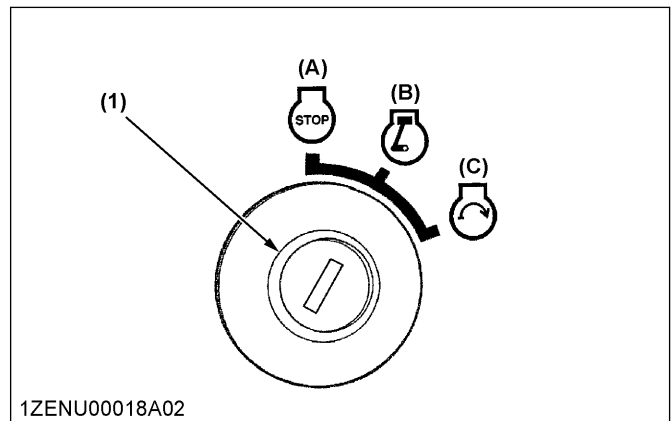
- (1) Position control lever
 (A) Float

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



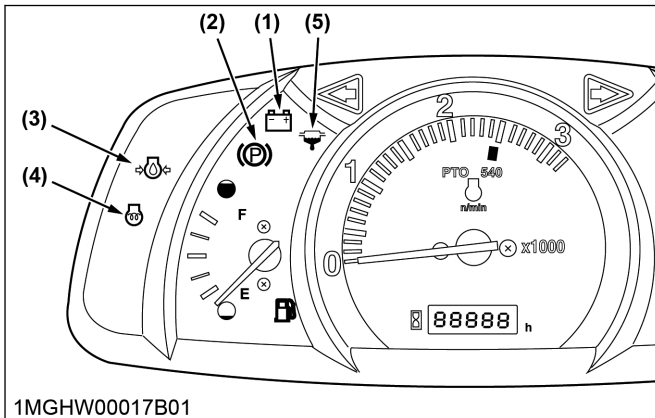
- (1) Hand throttle lever
 (A) Increase
 (B) Decrease

8. Insert the starter key into the key switch and turn it “ON.”



- (1) Key switch
 (A) Off
 (B) On
 (C) Start

9. Check the Easy Checker lamps.
(See Easy Checker lamps on page 35)



- (1) Electrical charge indicator
(2) Parking brake indicator
(3) Engine oil pressure warning indicator
(4) Glow plug indicator
(5) Water separator indicator

NOTE :

- Some of the Easy Checker lamps may light up depending on the positions of the levers and switches.
- Turn on the key switch, and some of the indicators on the instrument panel stay on about 1 second.

10. 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 clutch-control switch is set in the “OFF” position.
 - Speed-control pedal is set in the “NEUTRAL” position.

11. Check to see that all the lamps on the Easy Checker are “OFF.”

If the lamps on the Easy Checker is still on, immediately stop the engine and determine the cause.

STARTING THE ENGINE IN COLD WEATHER

If the ambient temperature is as follows and the engine is very cold, follow the procedure in this section to start the engine.

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

1. Take the following steps of the procedure in the *Starting the engine* section.

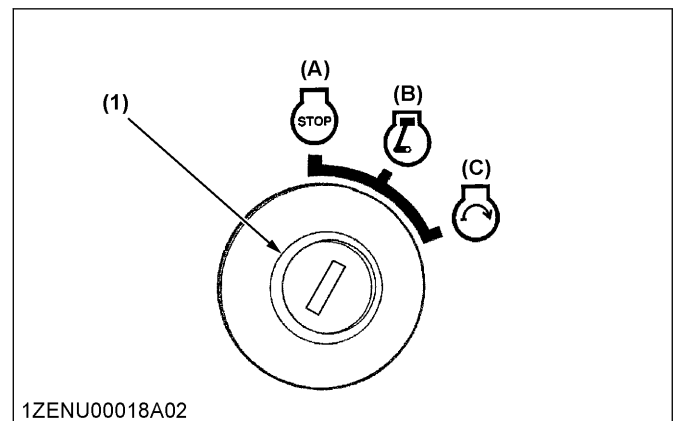
• **[Manual transmission type]**

Take the step 1. through step 9. of the procedure in STARTING THE ENGINE [MANUAL TRANSMISSION TYPE] on page 53.

• **[HST type]**

Take the step 1. through step 9. of the procedure in STARTING THE ENGINE [HST TYPE] on page 55.

2. Turn the starter key to the “ON” (glow plug) position and keep it there for 10 seconds.
To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.

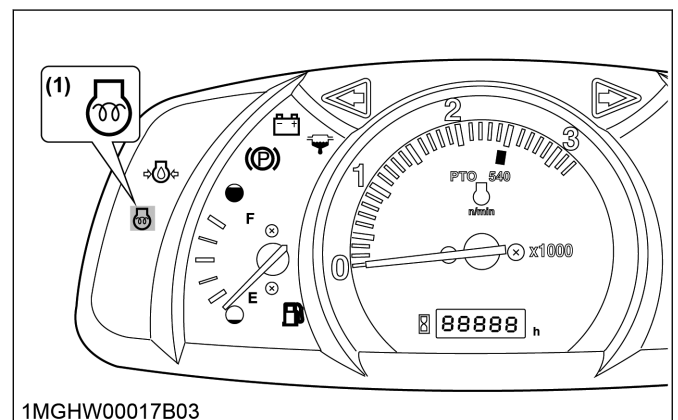


- (1) Key switch

- (A) Off
(B) On
(C) Start

NOTE :

- Glow-plug indicator comes on while the engine is being preheated.



- (1) Glow plug indicator

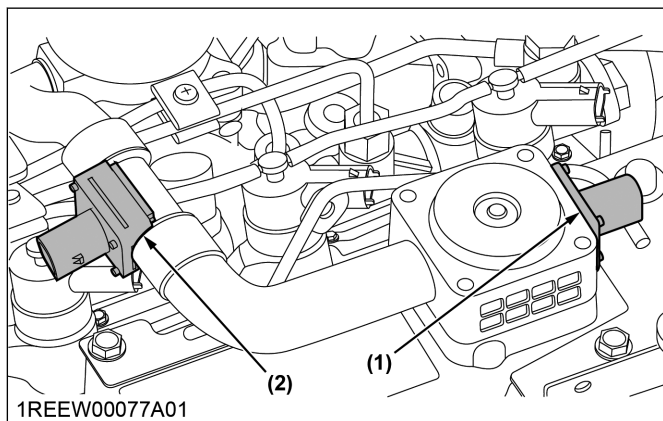
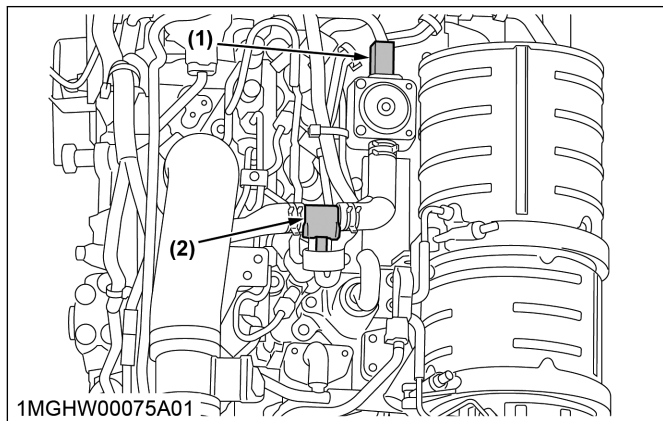
3. Turn the starter key to the “START” position.

The engine should start.

If the engine fails to start after keeping the starter key preheat position for 10 seconds, turn off the starter key for 30 seconds. Then repeat step 2. and step 3.

1. Antifrost heater for oil separator (if equipped)

The heater element operates continuously when the key switch is in the "ON" or "START" position. Due to high electrical draw, extended idle time or operations will drain the battery and stop the tractor.



(1) Heater (Oil separator, out) (2) Heater (Oil separator, in)

2. Block heater (if equipped)

A block heater is available as an option from your dealer.

Block heater will assist you in starting your tractor when the ambient temperature is as follows.

Ambient temperature	Below -20 °C (-4 °F)
---------------------	----------------------

STOPPING THE ENGINE

1. After slowing the engine to idle, turn the starter key to the "OFF" 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:

- Set the parking brake during warm-up of the engine.
- Set all shift levers to the "NEUTRAL" positions and to set 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 the engine 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. Such condition in turn can result in trouble in the hydraulic system. Also, since the lip of the oil seal does not follow at low oil temperature, oil leakage might occur if the shaft is rotated at high speed during low temperature. To prevent these troubles 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 °C (32 °F)	At least 10 minutes
0 °C to -10 °C (32 °F to 14 °F)	10 minutes to 20 minutes
-10 °C to -20 °C (-14 °F to -4 °F)	20 minutes to 30 minutes
Below -20 °C (-4 °F)	More than 30 minutes

JUMP STARTING THE ENGINE

⚠ WARNING

To avoid personal injury or death:

- Battery gases can explode. Keep away cigarettes, sparks, and flames 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 with a 12 volt-negative (-) ground-starting system.
- Use only the same voltage for jump starting.
- Use of a higher voltage source on the electrical system of 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.

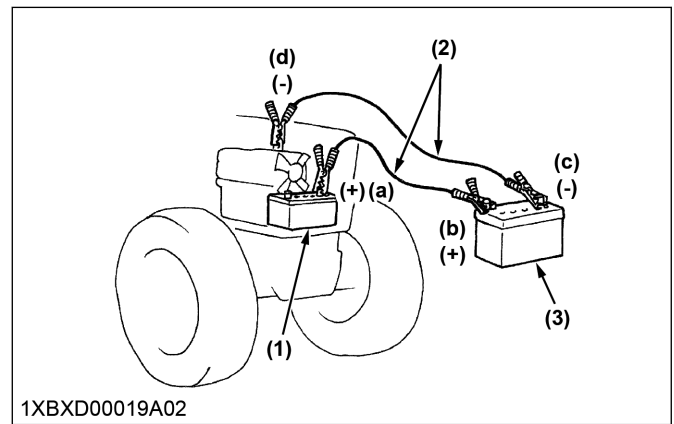
When jump starting the engine, follow the instructions in this section to safely start the engine.

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 set the shift levers in the "NEUTRAL" position. Shut off both engines.
3. Wear an eye protection and rubber gloves.
4. Connect cables in the order of a. to d.
 - a. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery.
 - b. Clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.
 - c. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
 - d. 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.



- (1) Dead battery
(2) Jumper cables

- (3) Helper battery

5. Start the helper vehicle and let its engine operate for a few moments, and then start the disabled tractor.
6. Disconnect the jumper cables in the exact reverse order of attachment. See the steps in order of step d., step c., step b., and step a in 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 has been, of course, tested, but the various parts need to go through a breaking-in period. So you should 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 that 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.

1. Operating new tractor for the first 50 hours

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 operate 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.

2. Changing the lubricating oil for new tractors

The lubricating oil is especially important in the case of a new tractor. If the various parts are not "broken-in", 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 93)

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.

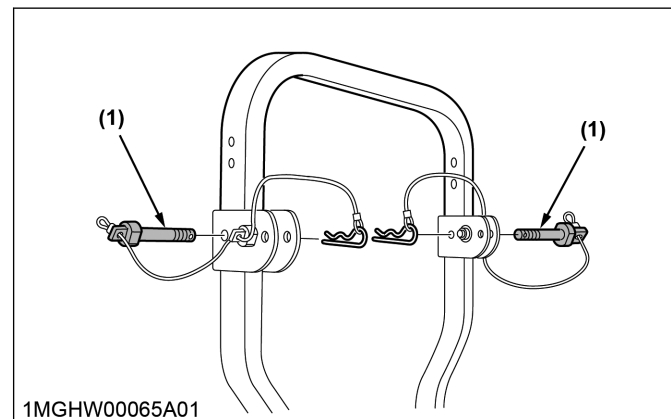
Always perform the function from a stable position at the rear of the tractor.

- Fold down the ROPS 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.



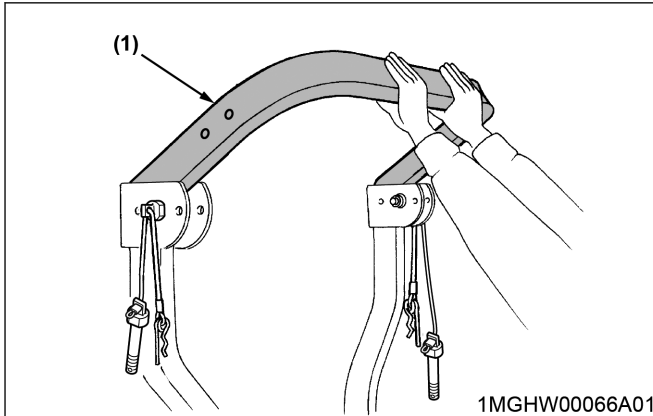
(1) Set bolt

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

IMPORTANT :

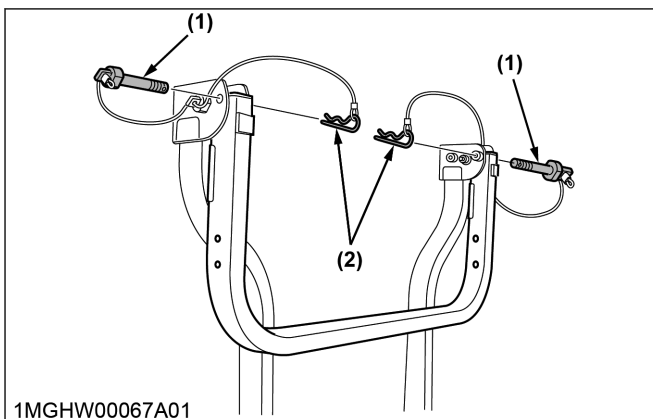
- When raising or folding the ROPS, hold the part of the ROPS between the label and the top of the ROPS with both hands.

- 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.

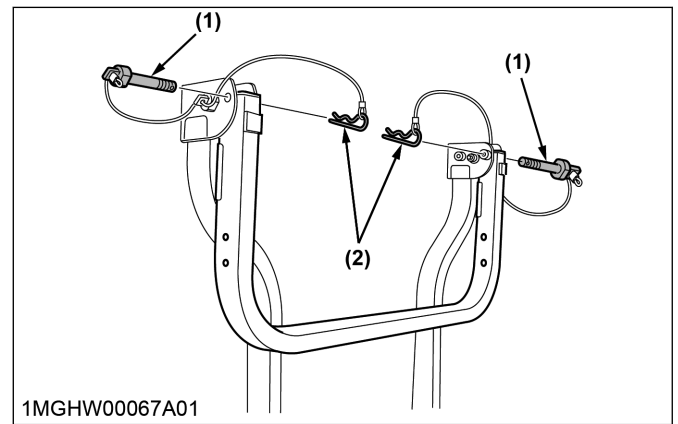


(1) Set bolt

(2) Hair pin cotter

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

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



(1) Set bolt

(2) Hair pin cotter

- Raise the ROPS to the "UPRIGHT" position.

CAUTION

To avoid personal injury:

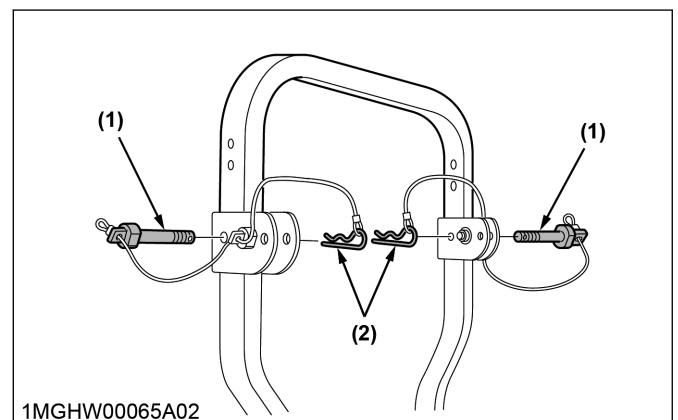
- Raise the ROPS slowly and carefully.

- 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.



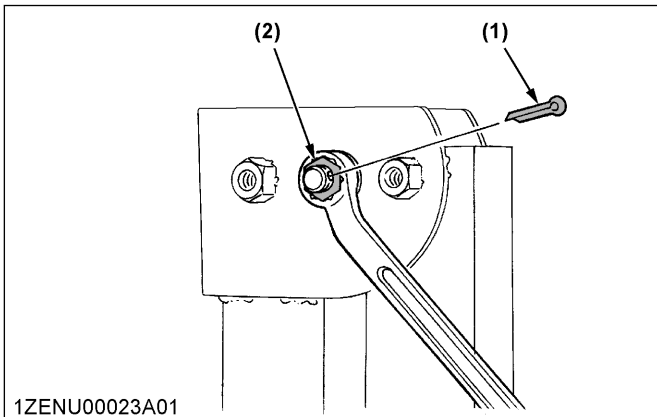
(1) Set bolt

(2) Hair pin cotter

3. Adjusting the foldable ROPS (if equipped)

- 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.

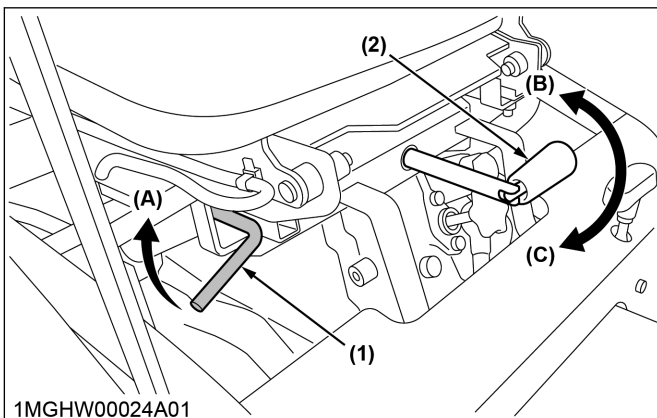


(1) Cotter pin

(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 40)



(1) Travel adjust lever

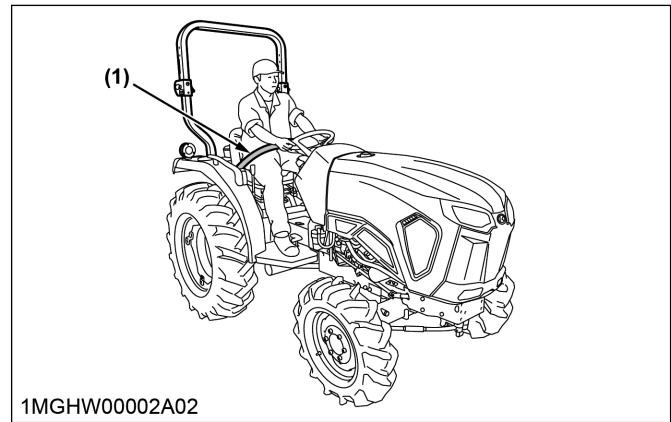
(2) Suspension adjust lever

(A) Unlock

(B) Decreasing tension

(C) Increasing tension

- Adjust the seat belt. (See Seat belt on page 40)



(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 keeps a good posture and minimizes risks from whole body vibration.

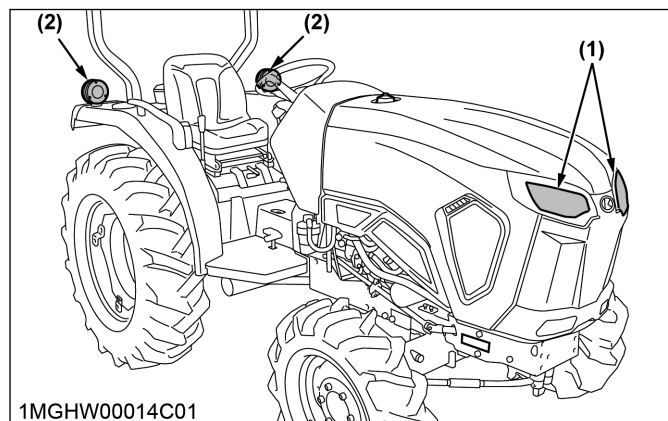
2. Start the engine. (See STARTING THE ENGINE [MANUAL TRANSMISSION TYPE] on page 53)

⚠ WARNING

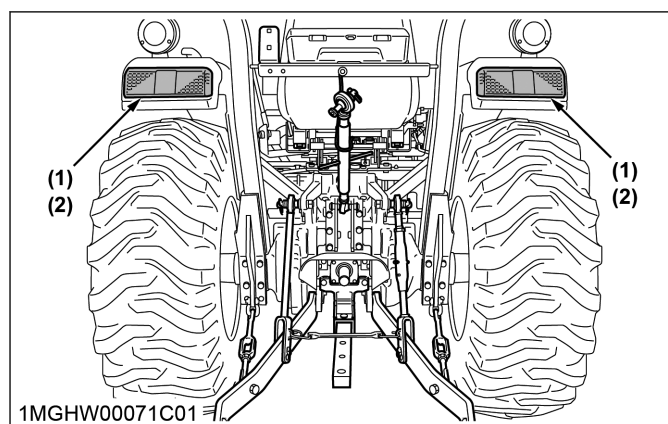
To avoid personal injury or death:

- Read and understand **SAFE OPERATION** on page 7 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 set the PTO gear-shift lever in the **"OFF"** position before starting the engine.

3. Select the positions of the light switches.

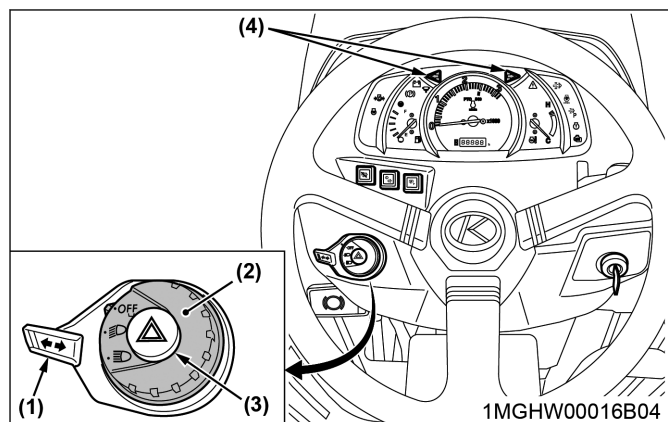


(1) Head light (2) Turn signal / hazard light

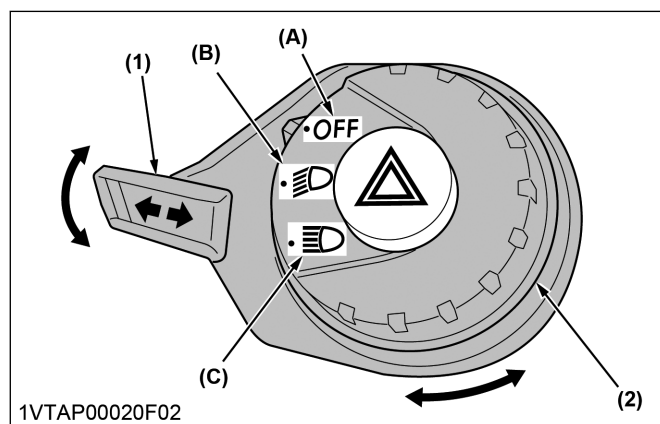


(1) Rear turn signal / hazard light (2) Tail lamp

- Check the head light.
(See Head light switch on page 34)
- Check the front and rear turn signal / hazard light.
(See Hazard light switch and turn signal light switch on page 34)



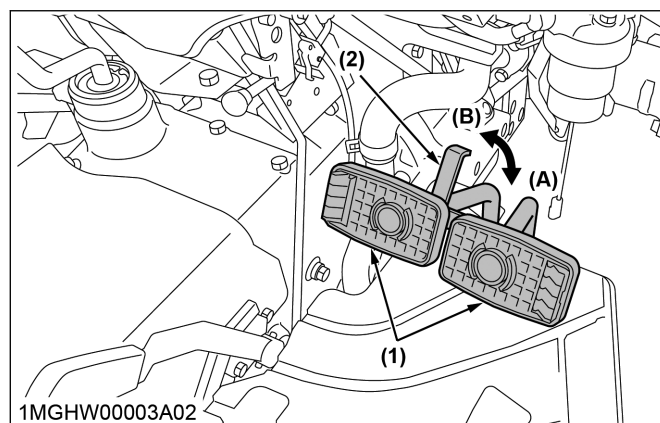
(1) Turn signal light switch (2) Head light switch (3) Hazard light switch (4) Turn signal / hazard light indicator



(1) Turn signal light switch (2) Head light switch (A) Off (B) On (low) (C) On (high)

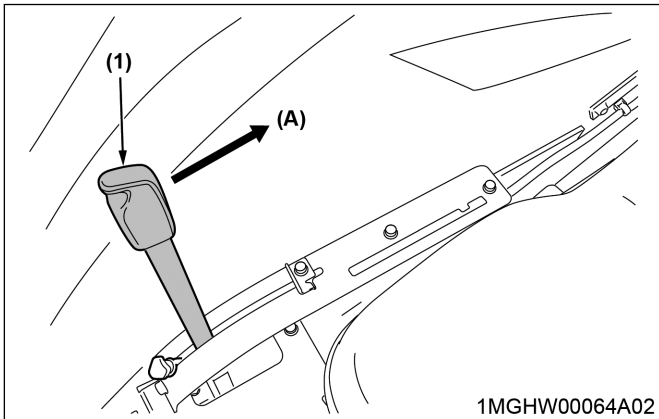
Light name	Switch position		
	(A) OFF	(B) 	(C) 
Head light (Low beam)	OFF	ON	ON
Head light (High beam)	OFF	—	ON
Tail lamp	OFF	ON	ON
Side work light	OFF	ON	ON

4. Check the brake pedal.
(See Brake pedals (right and left) on page 38)



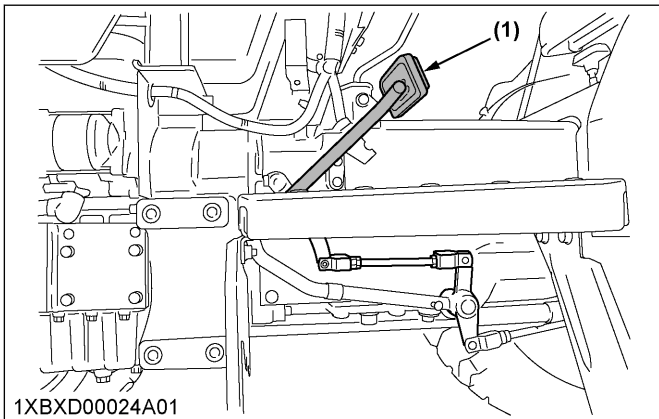
(1) Brake pedal (2) Brake pedal lock (A) Lock (B) Release

5. Raise the implement.
(See Position control of 3-point hitch mounted implement on page 85)



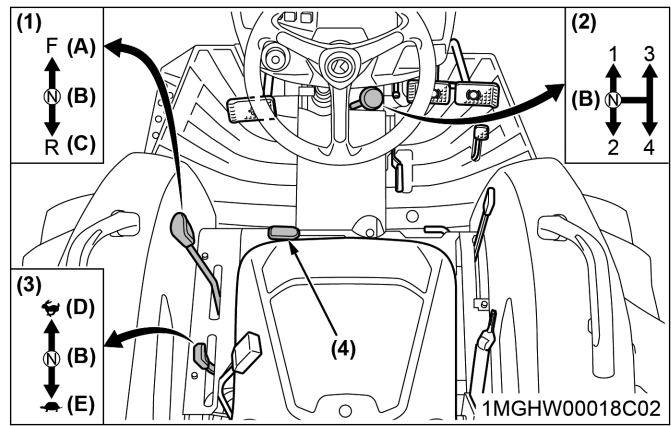
(1) Position control lever (A) Up

6. Depress the clutch pedal.
 - **[L3302, L3302-1]**
See Clutch pedal [L3302, L3302-1 Manual transmission type] on page 41.
 - **[L3902, L3902-1]**
See Clutch pedal with dual clutch [L3902, L3902-1 Manual transmission type] on page 41.



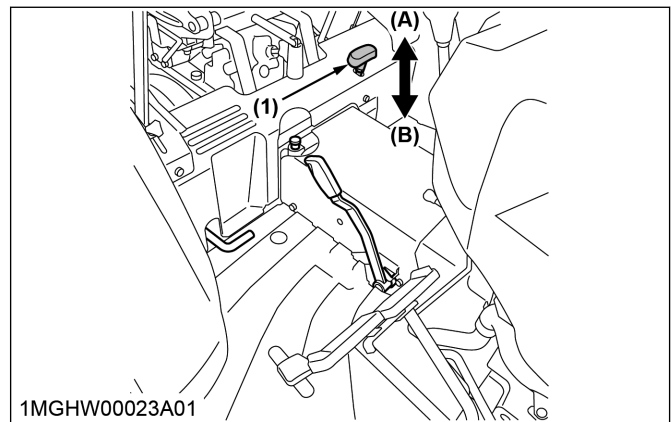
(1) Clutch pedal

7. Select the travel speed.



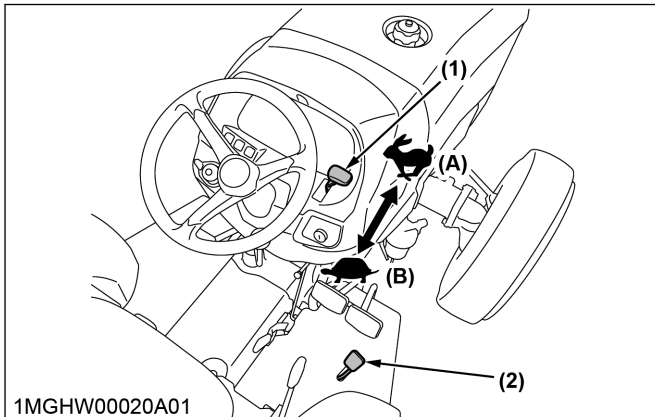
(1) Synchro-shuttle shift lever (A) Forward
(2) Main gear shift lever (B) Neutral position
(3) Range gear shift lever (C) Reverse
(4) Front wheel drive lever (D) High
(E) Low

- Set the forward speed and the reverse speed by engaging the main gear-shift lever, range gear-shift lever, and the synchro-shuttle shift lever.
(See Main gear shift lever and range gear shift lever [Manual transmission type only] on page 41 and Synchro-shuttle shift lever [Manual transmission type only] on page 42)
- Engage the front-wheel drive.
(See Front wheel drive lever on page 39)



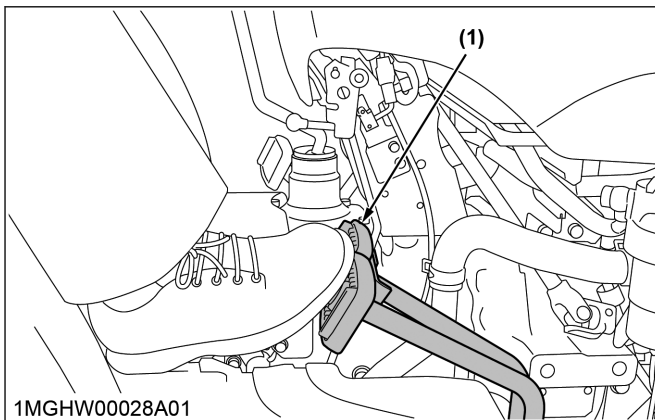
(1) Front wheel drive lever (A) On
(B) Off

8. Accelerate the engine.
(See Hand throttle lever on page 38 and Foot throttle [Manual transmission type only] on page 42)



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

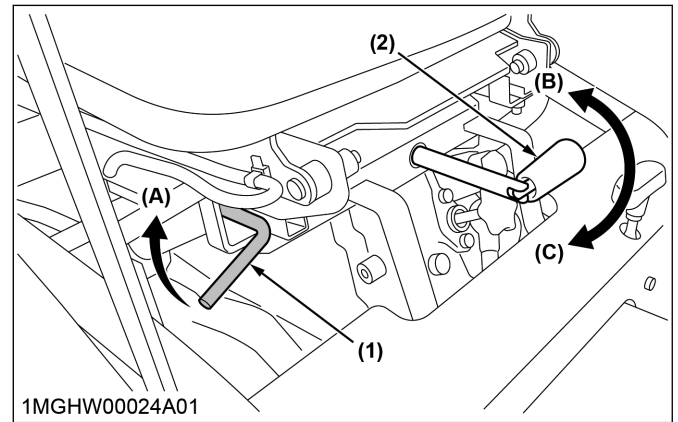
9. Unlock the parking brake and slowly release the clutch.
(See Releasing the parking brake on page 39)



- (1) Brake pedals

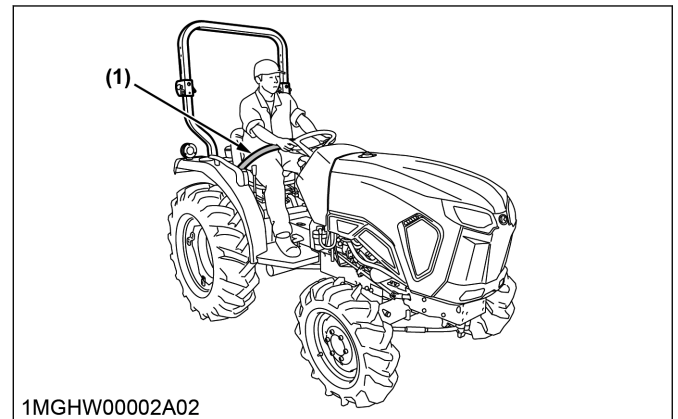
STARTING THE TRACTOR [HST TYPE]

1. Adjust the operator's position.
• Adjust the operator's seat.
(See Operator's seat on page 40)



- (1) Travel adjust lever (A) Unlock
(2) Suspension adjust lever (B) Decreasing tension
(C) Increasing tension

- Adjust the seat belt.
(See Seat belt on page 40)



- (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 keeps a good posture and minimizes risks from whole body vibration.

OPERATING THE TRACTOR

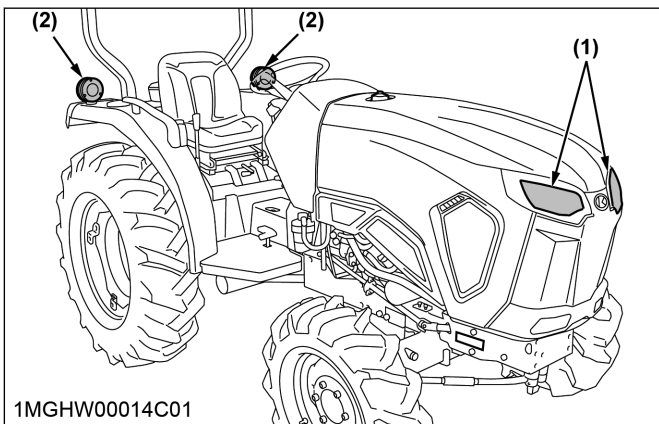
- Start the engine.
(See STARTING THE ENGINE [HST TYPE] on page 55)

⚠ WARNING

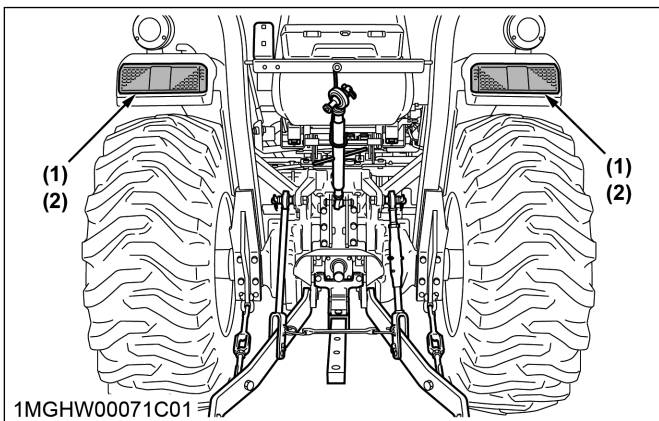
To avoid personal injury or death:

- Read and understand **SAFE OPERATION** on page 7 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 set the PTO clutch-control switch in the **"OFF"** position before starting the engine.

- Select the positions of the light switches.



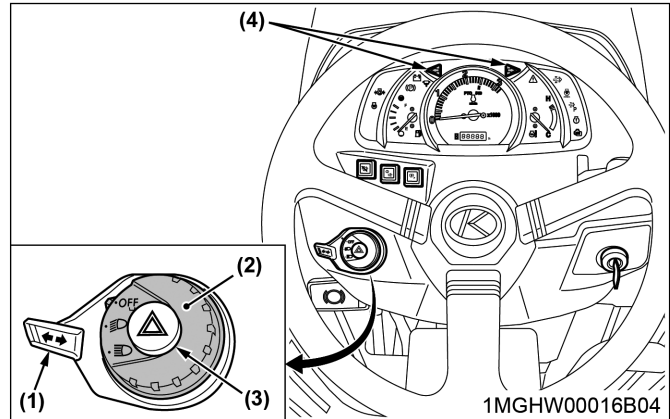
(1) Head light (2) Turn signal / hazard light



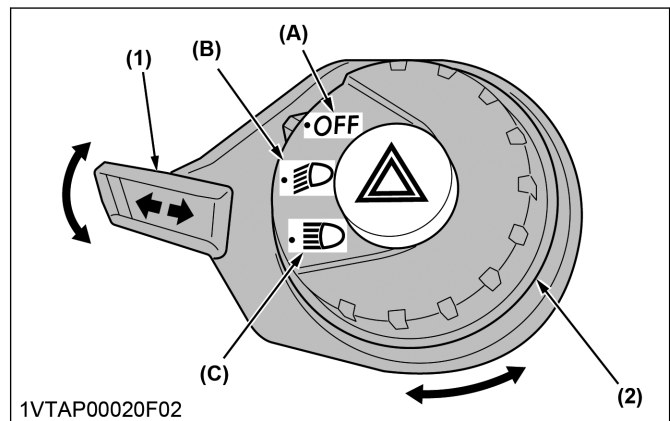
(1) Rear turn signal / hazard light (2) Tail lamp

- Check the head light.
(See Head light switch on page 34)
- Check the front and rear turn signal / hazard light.

(See Hazard light switch and turn signal light switch on page 34)

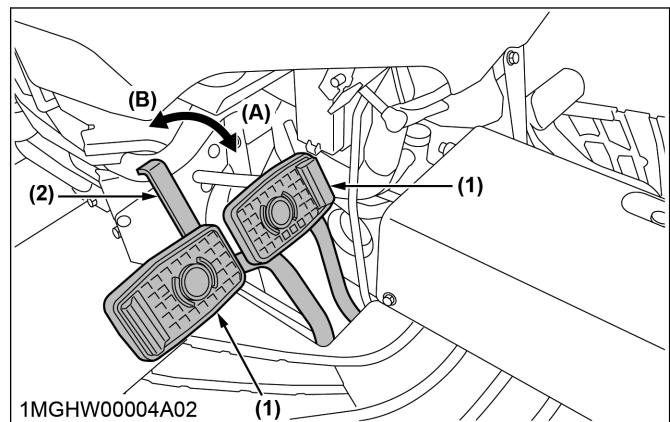


(1) Turn signal light switch (2) Head light switch
(3) Hazard light switch (4) Turn signal / hazard light indicator



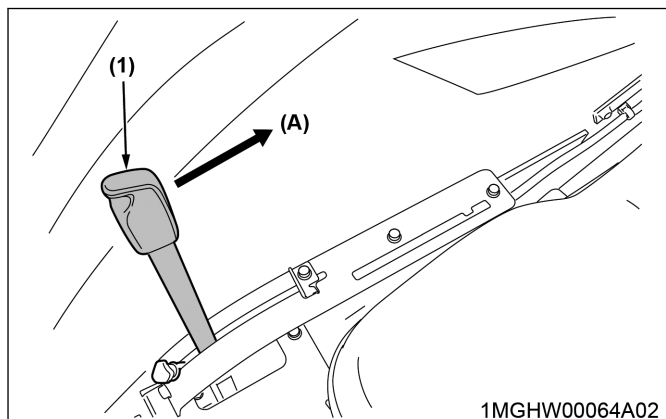
(1) Turn signal light switch (2) Head light switch
(A) Off (B) On (low) (C) On (high)

- Check the brake pedal.
(See Brake pedals (right and left) on page 38)



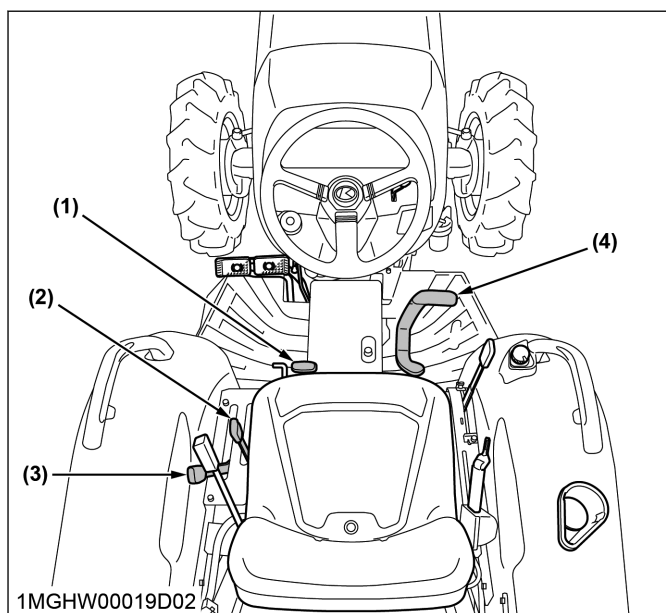
(1) Brake pedal (2) Brake pedal lock
(A) Lock (B) Release

5. Raise the implement.
(See Position control of 3-point hitch mounted implement on page 85)



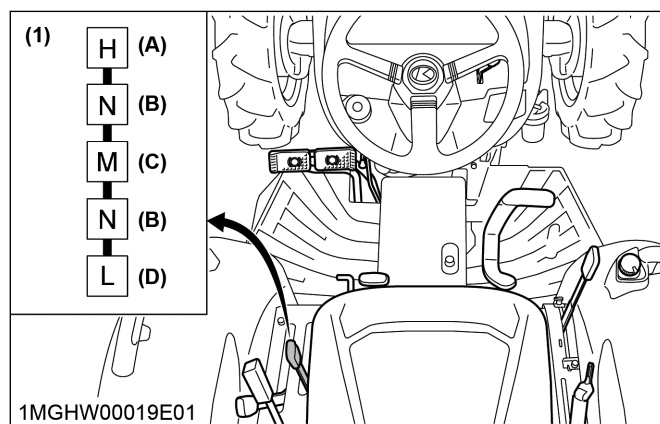
(1) Position control lever (A) Up

6. Select the travel speed.



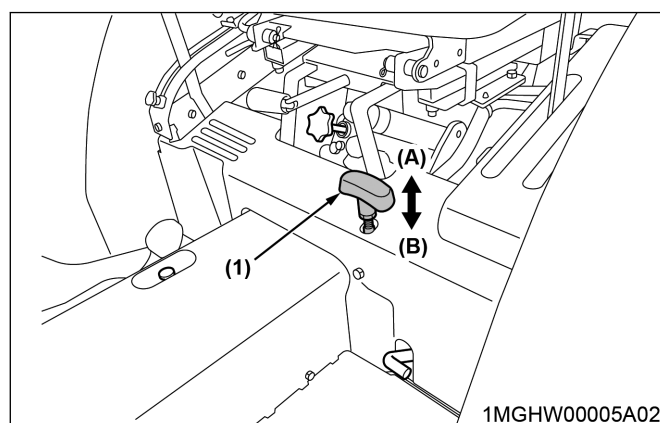
(1) Front wheel drive lever (4) Speed control pedal
(2) Range gear shift lever
(3) Cruise control lever

- Set the gear by engaging the range gear-shift lever.
(See Range gear shift lever (L-M-H) [HST type only] on page 43)



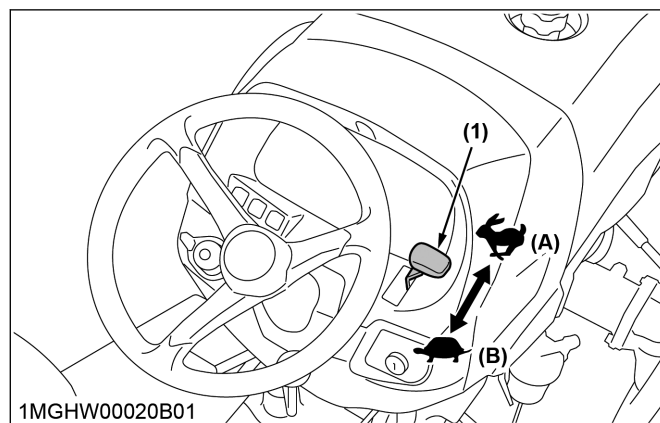
(1) Range gear shift lever (L-M-H) (A) High
(B) Neutral position
(C) Middle
(D) Low

- Engage the front-wheel drive.
(See Front wheel drive lever on page 39)



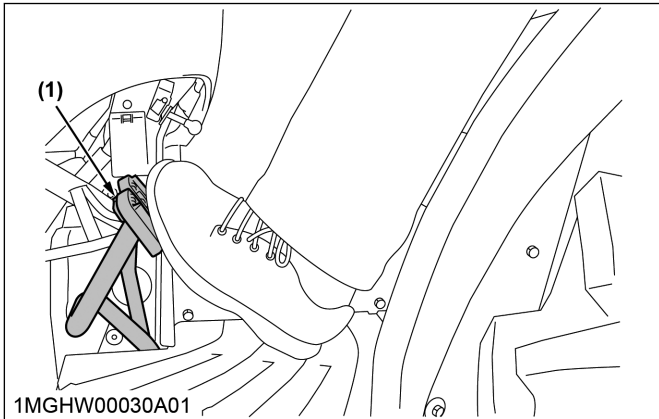
(1) Front wheel drive lever (A) On
(B) Off

7. Accelerate the engine.
(See Hand throttle lever on page 38)



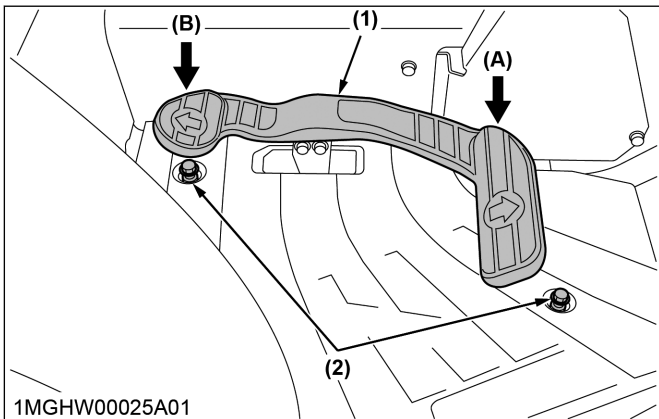
(1) Hand throttle lever (A) Increase
(B) Decrease

8. Unlock the parking brake.
(See Releasing the parking brake on page 39)



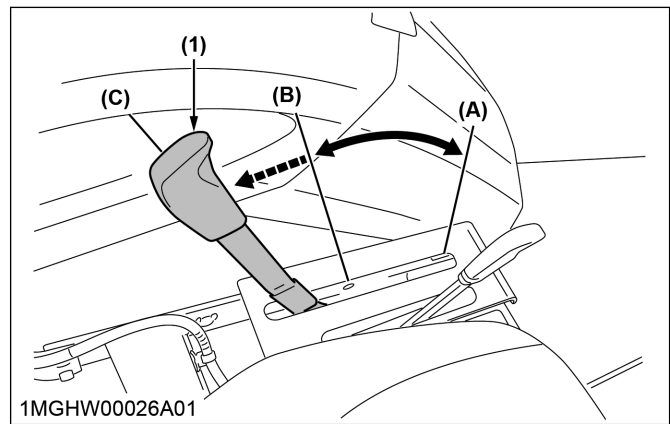
(1) Brake pedals

9. Depress the speed-control pedal.
(See Speed control pedal [HST type only] on page 42)



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

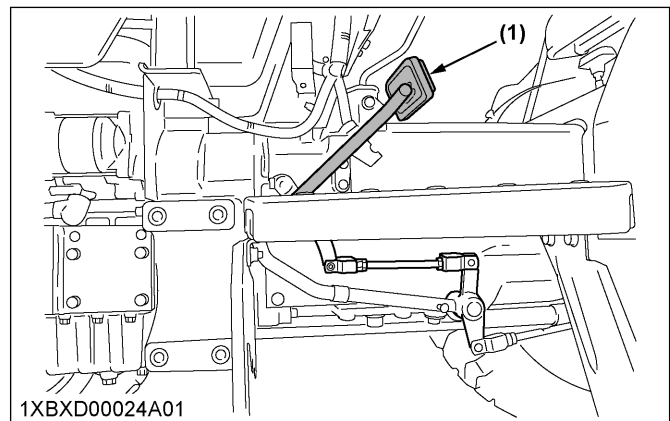
- Set the proper forward speed by applying the cruise-control lever.
(See Cruise control lever (if equipped) [HST type only] on page 43 and How to use the cruise control lever (if equipped) [HST type only] on page 44)



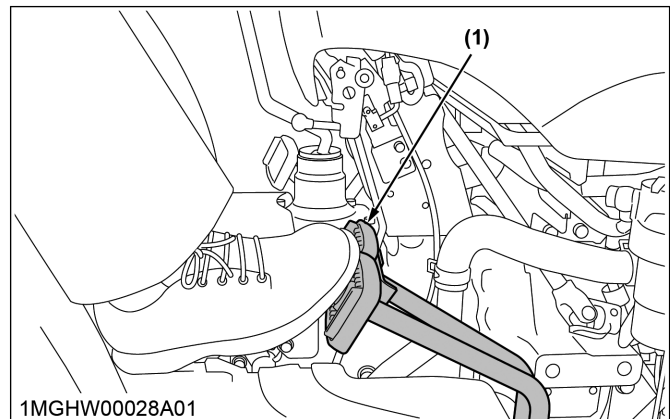
(1) Cruise control lever (A) Increase
(B) Decrease
(C) Off

STOPPING THE TRACTOR [MANUAL TRANSMISSION TYPE]

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

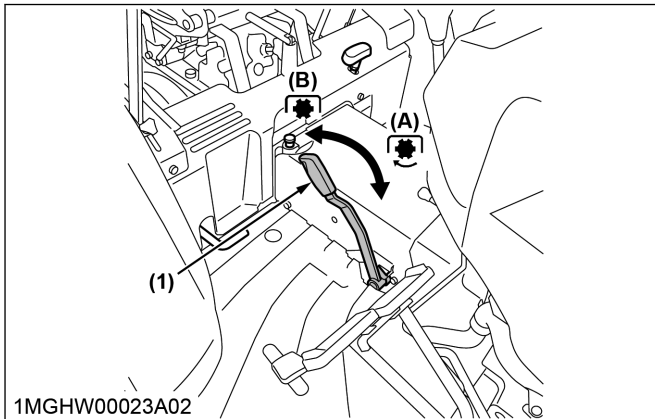


(1) Clutch pedal



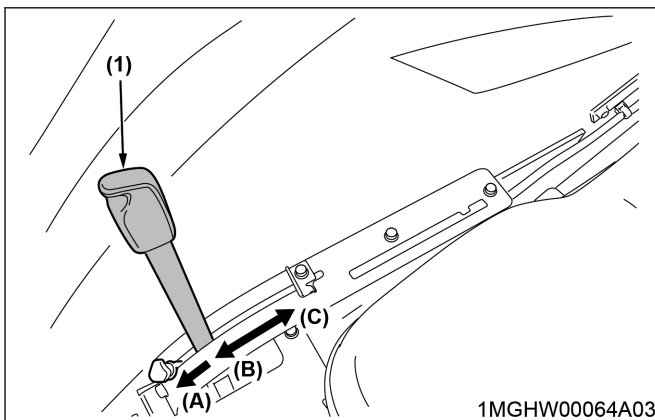
(1) Brake pedal

- After the tractor has stopped, disengage the PTO clutch.
(See PTO gear shift lever [Manual transmission type] on page 78)



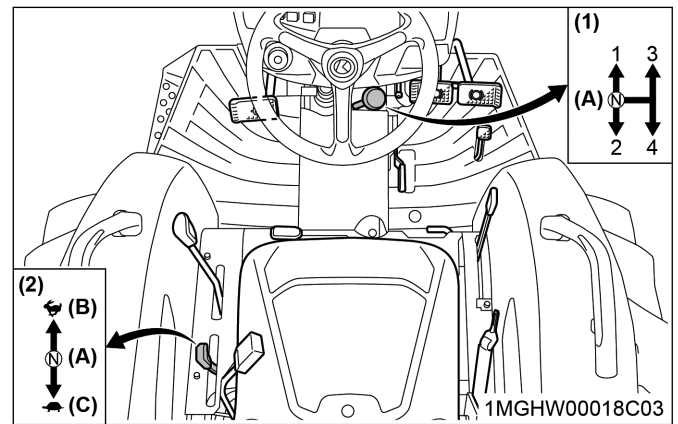
(1) PTO gear shift lever
(A) On
(B) Off

- Lower the implement to the ground.
(See Position control of 3-point hitch mounted implement on page 85)



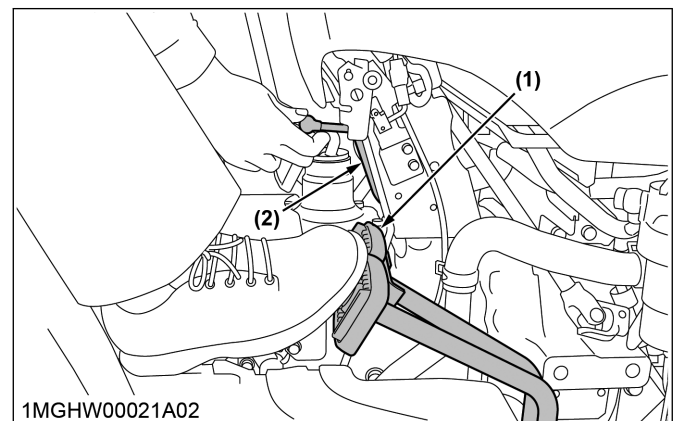
(1) Position control lever
(A) Float
(B) Down
(C) Up

- Shift the transmission to the "NEUTRAL" position.
(See Main gear shift lever and range gear shift lever [Manual transmission type only] on page 41)



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

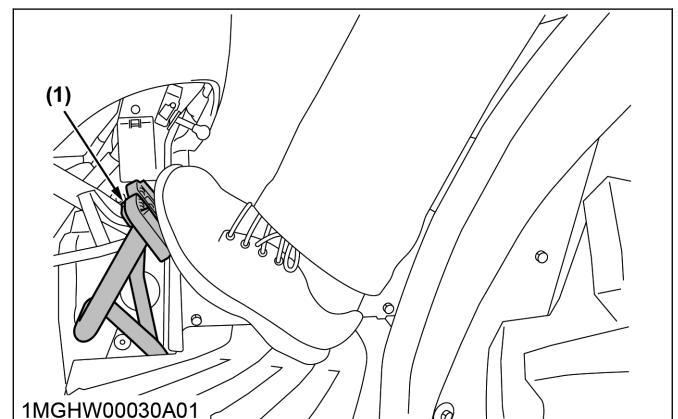
- Release the clutch pedal.
- Set the parking brake.
(See Setting the parking brake on page 39)



(1) Brake pedal
(2) Parking brake lever

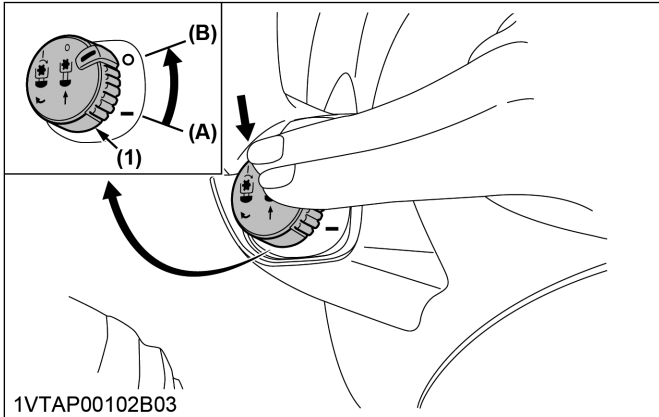
STOPPING THE TRACTOR [HST TYPE]

- Slow down the engine.
- Depress the brake pedal.



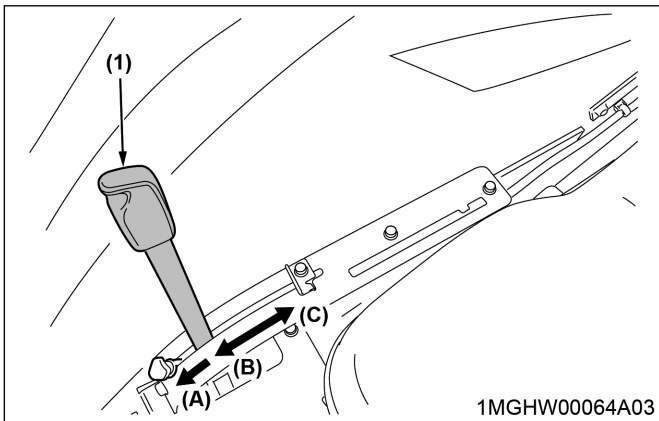
(1) Brake pedal

3. After the tractor has stopped, push the PTO clutch-control switch to disengage the PTO clutch.
(See PTO clutch control switch [HST type] on page 78)



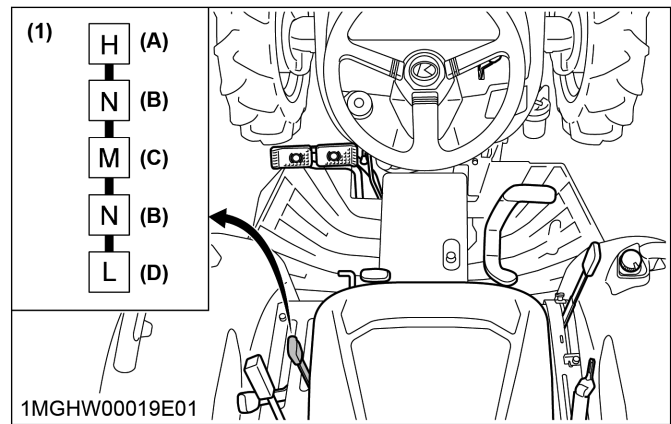
- (1) PTO clutch control switch (A) On (engage)
(B) Off (disengage)

4. Lower the implement to the ground.
(See Position control of 3-point hitch mounted implement on page 85)



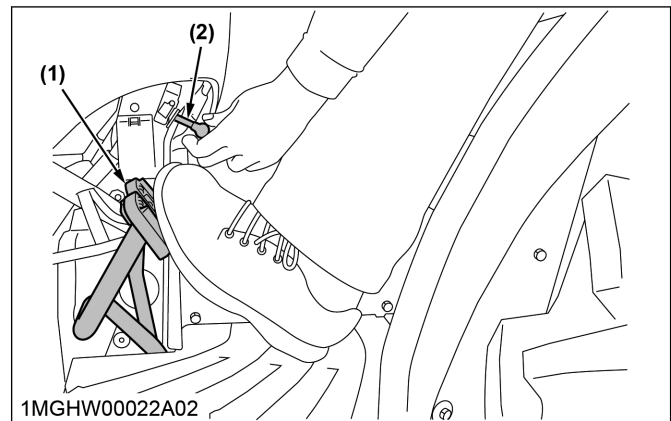
- (1) Position control lever (A) Float
(B) Down
(C) Up

5. Shift the transmission to the "NEUTRAL" position.
(See Range gear shift lever (L-M-H) [HST type only] on page 43)



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

6. Set the parking brake.
(See Setting the parking brake on page 39)



- (1) Brake pedal (2) Parking brake lever

CHECK DURING DRIVING

1. Cases to stop the engine immediately

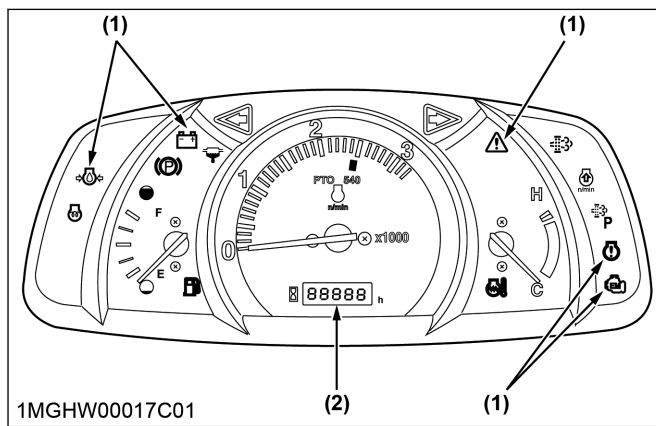
Immediately stop the engine if the following occurs:

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

2. Easy Checker

If trouble should occur at any location while the engine is operating, 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 lamps in the Easy Checker is "ON."



(1) Easy Checker

(2) Error code

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 103)
 Electrical charge warning indicator	If the alternator is supplying power but the battery voltage is low, the indicator will flash rapidly. If the indicator flashes rapidly, charge the battery or increase the engine speed to the rated speed. 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.

(Continued)

 Engine warning indicator	Engine-warning indicator serves the following 2 functions. If the engine-warning indicator lights up, pinpoint the cause and take a proper measure. At same time, error code might also appear. • PCD/NCD warning If during operation a particulate control diagnostic (PCD) warning or an NOx control diagnostic (NCD) warning occurs, the engine warning indicator flashes rapidly. If this rapid flashing should occur during operation, stop the engine and then restart it. If the error happens again, consult your local Kubota Dealer. • Error with the engine-control system If during operation the water-temperature gauge reads an acceptable level but the engine-warning indicator in the Easy Checker comes on, stop the engine and get it restarted. If the error happens again, consult your local Kubota Dealer. IMPORTANT : – If the engine-warning indicator lights up, the following phenomena may appear depending on the trouble spot of the engine: • Engine stops unexpectedly. • Engine fails to start or gets interrupted just after start. • Engine output is not enough. • Engine output is enough, but the engine-warning indicator stays on. If the engine output is not enough, immediately interrupt the operation and move the tractor to a safe place and stop the engine. • Engine overheat If the water-temperature gauge reads an unusual level and the engine-warning indicator in the Easy Checker comes on, the engine may have got overheated. Check the tractor according to ENGINE TROUBLESHOOTING on page 133.
 Emission indicator	If the emission indicator lights up, take the steps to lower the water temperature. Lowering the water temperature helps keep the emission clean.
 Master system warning	If trouble should occur at engine, transmission, or other control parts, the master-system-warning indicator flashes as a warning. At same time, error code will appear. If the trouble is not corrected by restarting the tractor, consult your local Kubota Dealer.

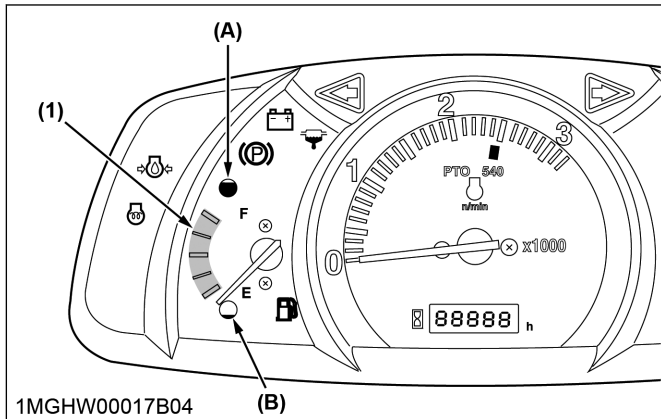
NOTE :

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

- Error code will not disappear even if the warning indicator is reset.

3. Fuel gauge

When the key switch is "ON," the fuel gauge indicates the fuel level.

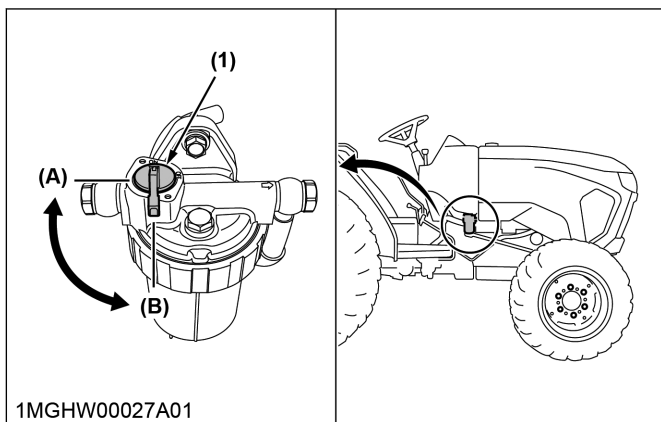


(1) Fuel gauge

(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 127)



(1) Fuel shutoff-valve

(A) Close
(B) Open

4. Coolant temperature gauge

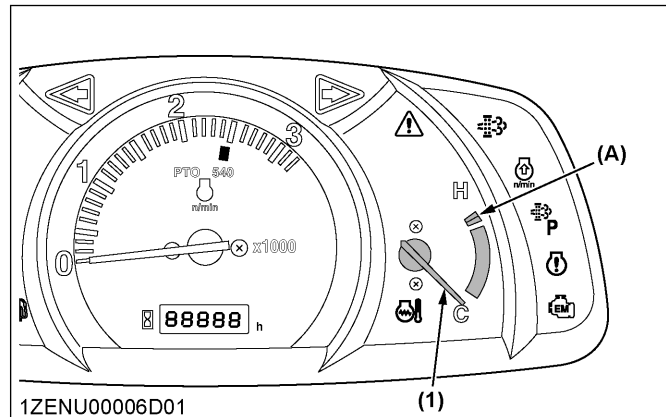
⚠ WARNING

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 position at "RED ZONE," engine coolant is overheated. Check the tractor according to Dealing with overheated coolant temperature on page 72 and ENGINE TROUBLESHOOTING on page 133.



(1) Coolant temperature gauge (A) Red zone

4.1 Dealing with overheated coolant temperature

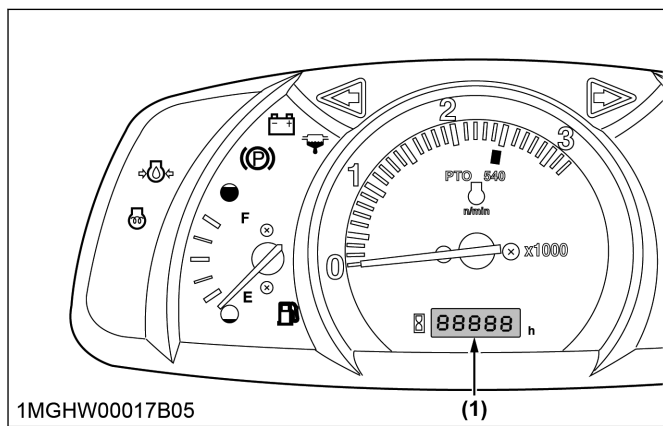
Take the actions in this section in the event that the coolant temperature is nearly or more than the boiling point, what is called "Overheating."

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 133.
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.

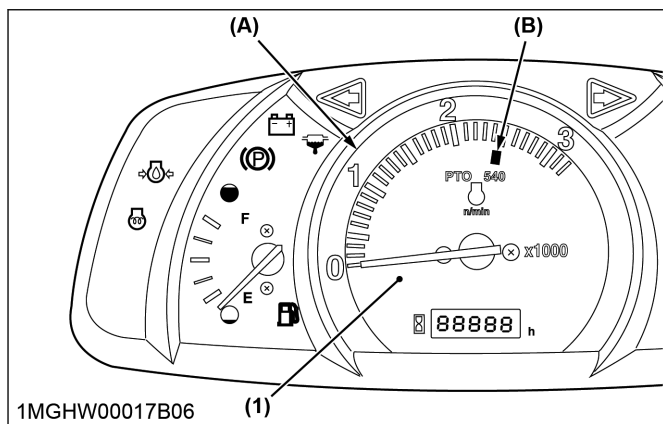


(1) Hour meter

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.

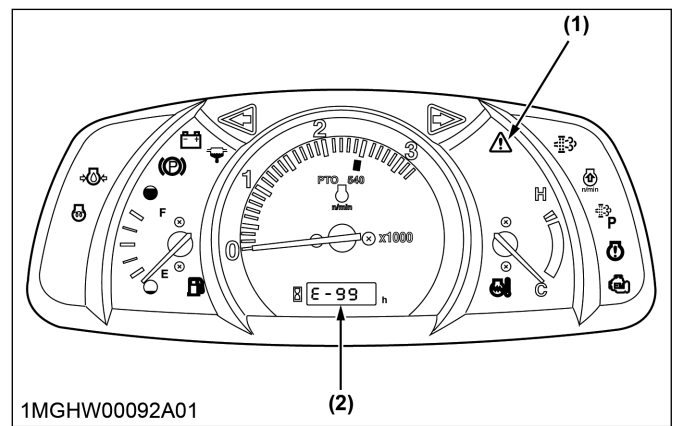


(1) Tachometer

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

7. Ash cleaning notification

When the master-system-warning indicator lights up and the code shown in the following is displayed on the liquid-crystal display, DPF needs to be cleaned. Consult your local Kubota Dealer for this service. More information about this service item can be found in Cleaning the DPF muffler on page 123.



(1) Master system warning indicator
(2) Error code

8. CCV freezing warning system

! WARNING

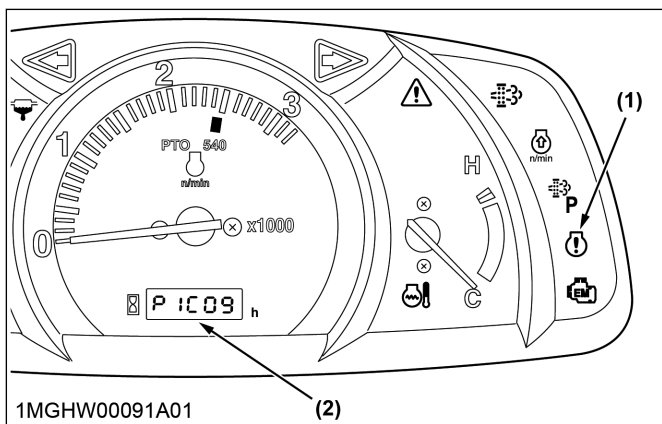
To avoid personal injury or death:

- Do not draw out the engine oil dipstick immediately after the warning indicator has come on. Allow engine to cool sufficiently before drawing out the engine oil dipstick. Otherwise the hot engine oil may spout and make burn.

If the CCV drain hose freezes, the engine warning indicator starts flashing, the error code (P1C09) appears in the hour meter, and the buzzer starts sounding continuously.

IMPORTANT :

- If the CCV freezing warning system is activated, stop the engine and consult your local Kubota Dealer immediately. Otherwise the engine oil may spout and in the worst case the engine is damaged then needs to be replaced.
- Before and after the cold season, check the terminals, pressure switch, and others. If any damage or corrosion are found, do not use the machine and consult your local Kubota Dealer for repair request.
(See Checking the CCV pressure switch on page 126)



(1) Engine warning indicator (2) Hour meter

PARKING THE TRACTOR

WARNING

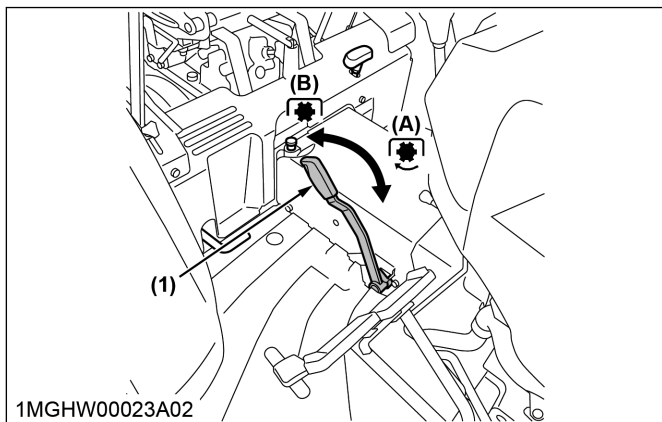
To avoid personal injury or death:
Before dismounting the tractor, follow the following:

- Always set the parking brake and lower all implements to the ground.
- [HST type] 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.

When parking the tractor, set the parking brake.
Before getting off the tractor, perform the proper procedure.

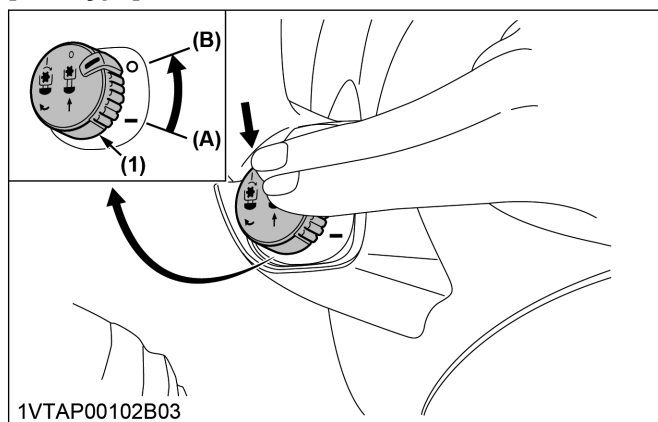
1. Disengage the PTO.
(See PTO gear shift lever [Manual transmission type] on page 78 and PTO clutch control switch [HST type] on page 78)

[Manual transmission type]



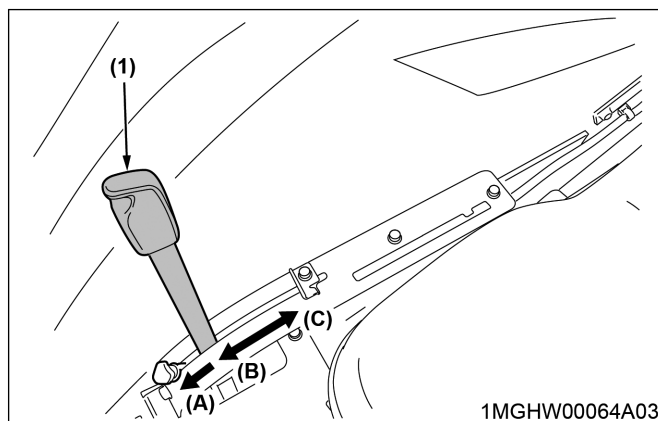
(1) PTO gear shift lever (A) On (engage) (B) Off (disengage)

[HST type]



(1) PTO clutch control switch (A) On (engage) (B) Off (disengage)

2. Lower all implements to the ground.
(See Position control of 3-point hitch mounted implement on page 85)

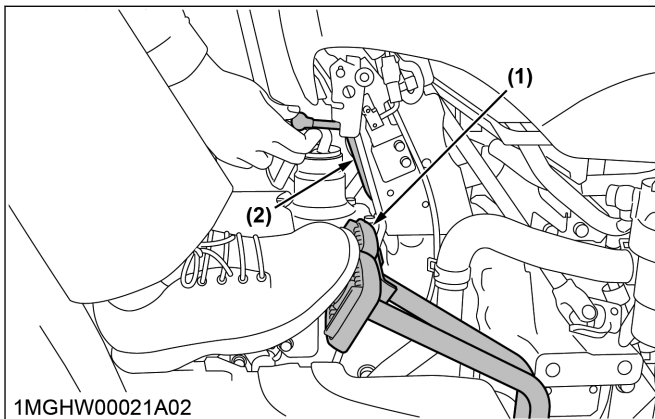


(1) Position control lever (A) Float (B) Down (C) Up

3. Set all control levers in their "NEUTRAL" positions.

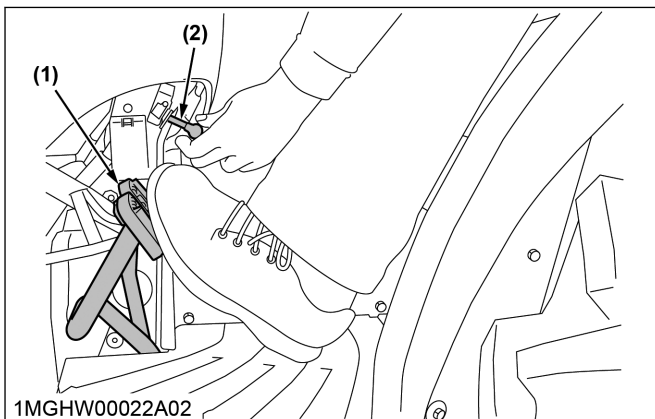
4. Set the parking brake.
(See Setting the parking brake on page 39)

[Manual transmission type]



(1) Brake pedal (2) Parking brake lever

[HST type]



(1) Brake pedal (2) Parking brake lever

5. Stop the engine.
(See STOPPING THE ENGINE on page 58)
6. Remove the starter key.

If it is necessary to park the tractor on an incline, chock the wheels to prevent accidental rolling of the tractor.

TECHNIQUES FOR OPERATING THE TRACTOR

1. Differential lock

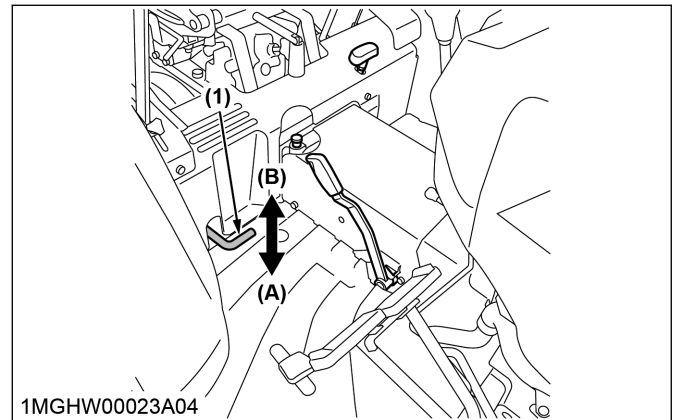
⚠ WARNING

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

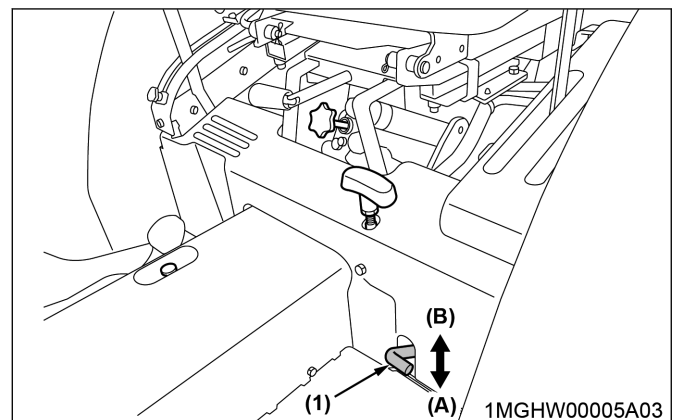
If one of the rear wheels should slip, depress the differential-lock pedal. Both wheels will then turn together, which reduce slippage of the rear wheels. You can keep the differential lock only while the differential-lock pedal is depressed.

[Manual transmission type]



(1) Differential lock pedal (A) Engage (B) Disengage

[HST type]



(1) Differential lock pedal (A) Engage (B) Disengage

IMPORTANT :

- When using the differential lock, always slow down the engine.
- To prevent damage to powertrain, do not engage the differential lock when 1 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:

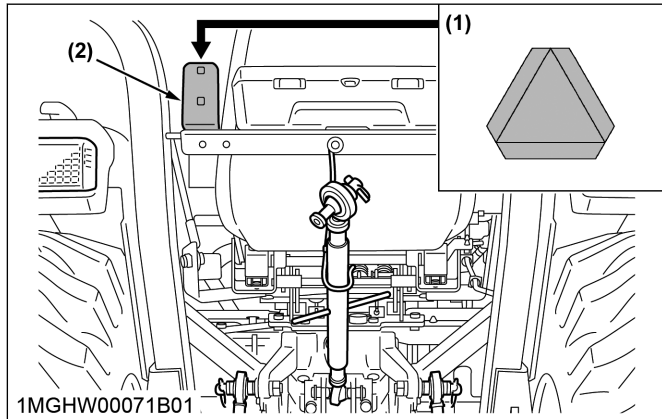
- To help assure that the straight-line stops when driving at transport speeds, lock the brake

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, ensure that there is sufficient front weight on the tractor to keep steering ability.

Be sure that the SMV emblem, the tail lamps, and the hazard lights are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install the SMV emblem, the tail lamps, and the hazard lights 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 or shift lever to “NEUTRAL” position. Disengaging the clutch or shift lever to neutral could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks that 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 88)
- Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.

- Before descending a slope, shift a gear to “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.
 - 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)
--------------	----------------------

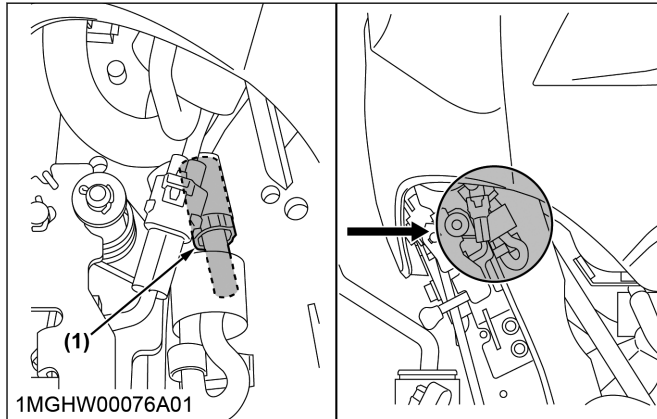
5. Directions for use of the power steering

- The power steering is activated only while the engine is operating. 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.

6. Electrical outlet

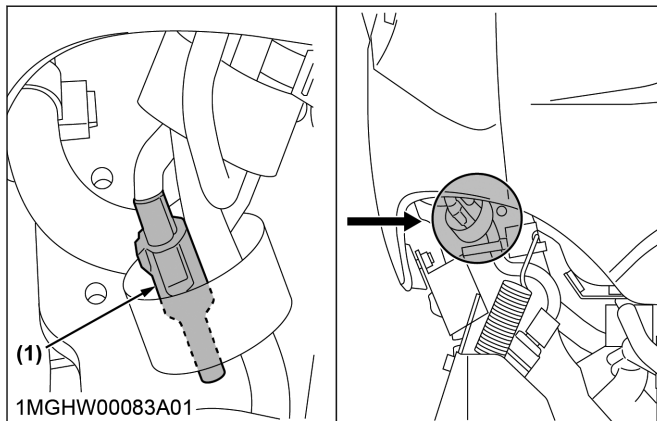
The tractor is equipped with electrical outlets that serve the following functions.

For use with front loader [Manual transmission type]



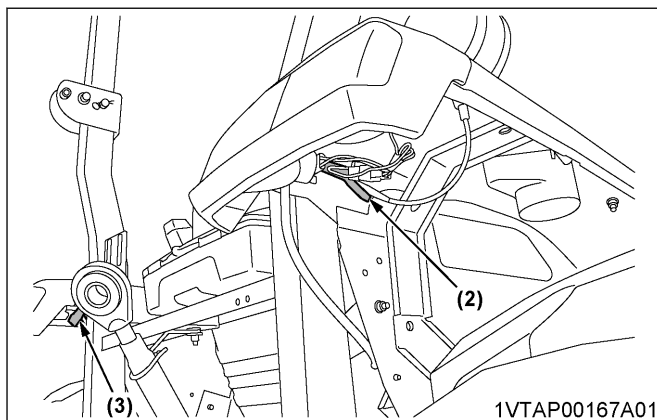
(1) Accessory electrical outlet 1

For use with front loader [HST type]



(1) Accessory electrical outlet 1

For use with accessory

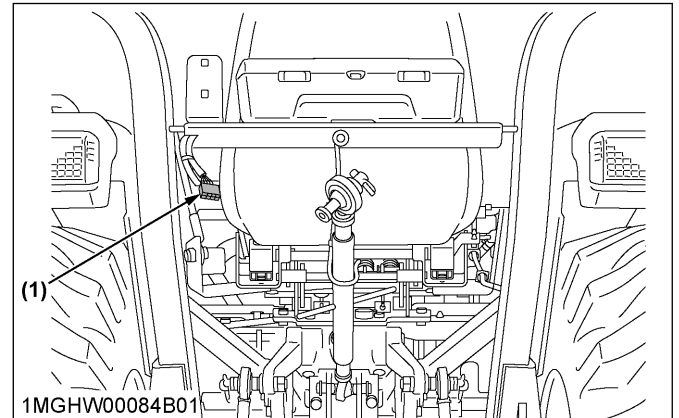


(2) Accessory electrical outlet 2 (3) Accessory electrical outlet 3

Electrical outlet	(1)	Maximum 10 A
	(2)+(3)	Maximum 35 W

7. Trailer electrical outlet

A trailer-electrical-outlet is supplied for use with trailer or implement.



(1) Trailer electrical outlet

POWER TAKE-OFF (PTO)

PTO OPERATION

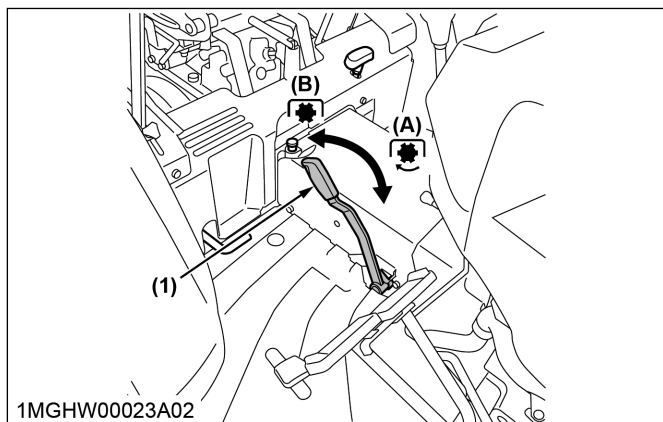
WARNING

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 [Manual transmission type]

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



1MGHW00023A02

- (1) PTO gear shift lever (A) On (engage)
(B) Off (disengage)

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.

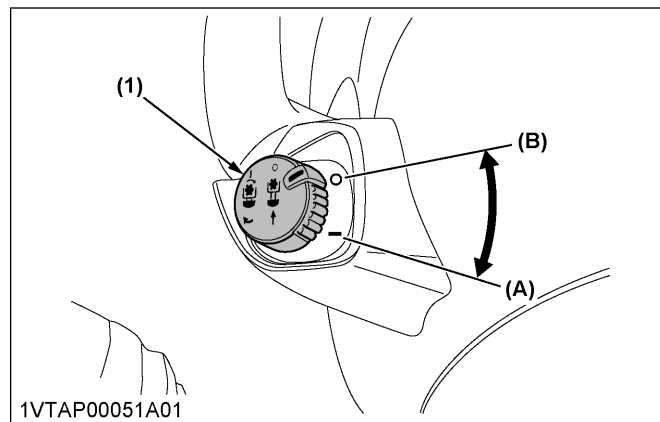
NOTE :

- There is a "PTO (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. PTO clutch control switch [HST type]

The PTO clutch-control switch engages or disengages the PTO clutch that gives the PTO-independent control. The tractor is equipped with a 540 rpm speed position and 6-spline shaft.

Turn the PTO clutch-control switch to "ON" to engage the PTO clutch. Turn the PTO clutch-control switch to "OFF" to disengage the PTO clutch.

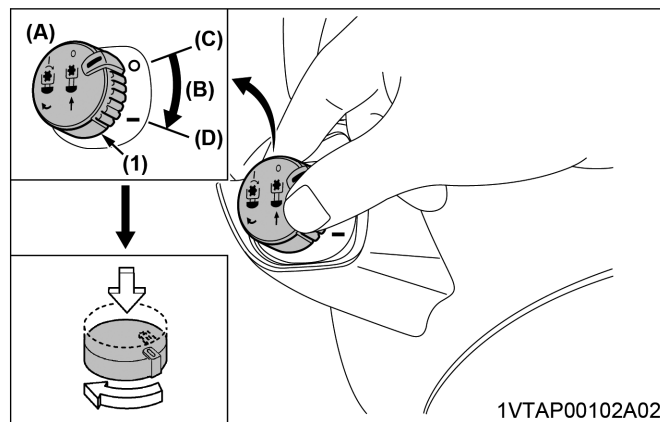


1VTAP00051A01

- (1) PTO clutch control switch (A) On (engage)
(B) Off (disengage)

• To turn "ON"

While pushing the PTO clutch-control switch, turn the PTO clutch-control switch clockwise to the "ON" position. Then release your hand. In the "ON" position, PTO clutch-control switch slightly rises itself.



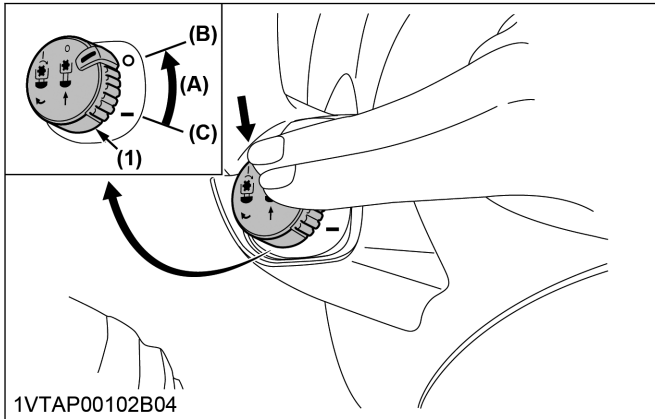
1VTAP00102A02

- (1) PTO clutch control switch (A) Returning automatically
(B) Turn clockwise
(C) Off
(D) On

• To turn "OFF"

Tap on top of the PTO clutch-control switch.

The PTO clutch-control switch will return to the "OFF" position.



(1) PTO clutch control switch (A) Returning automatically
(B) Off
(C) On

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 damage of PTO clutch and implement, proper warm up is strongly recommended in cold weather.
Do not continuously turn the PTO clutch-control switch.

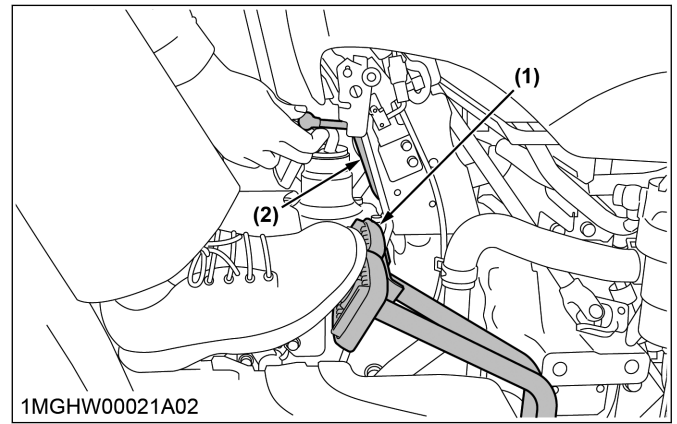
NOTE :

- There are "PTO (540 rpm)" indicated mark on the tachometer board.
- Tractor engine will not start if the PTO clutch-control switch is in the "ON" position.

3. How to use the stationary PTO [Manual transmission type]

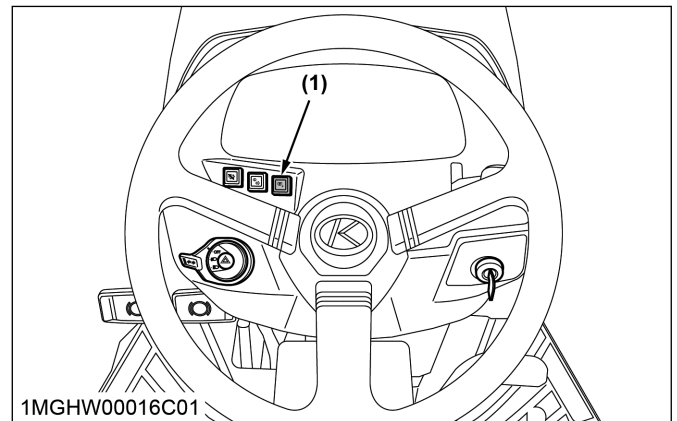
To park the tractor and use the PTO system for chipper or pump, for example, start the PTO system in the procedure in this section.

- Apply the parking brakes and set blocks at the tires.
(See Setting the parking brake on page 39)



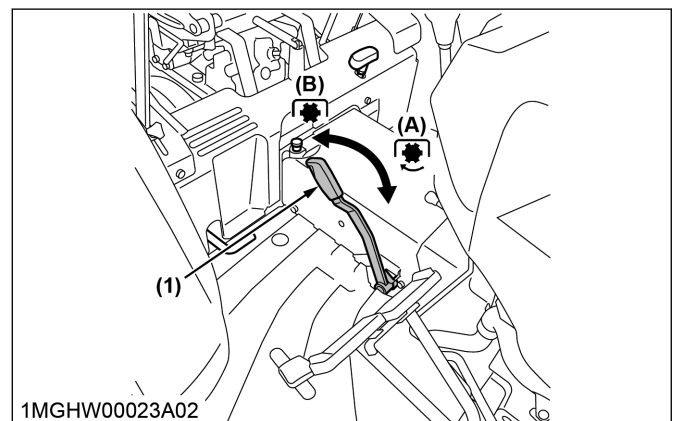
(1) Brake pedal (2) Parking brake lever

- Make sure the shift levers are at the "NEUTRAL" position, and start the engine.
- Push the stationary-PTO switch for 3 seconds to turn "ON" the switch lamp.



(1) Stationary PTO switch

- Set the PTO gear-shift lever to engage "ON."



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

- Set the engine speed to provide recommended PTO speed.

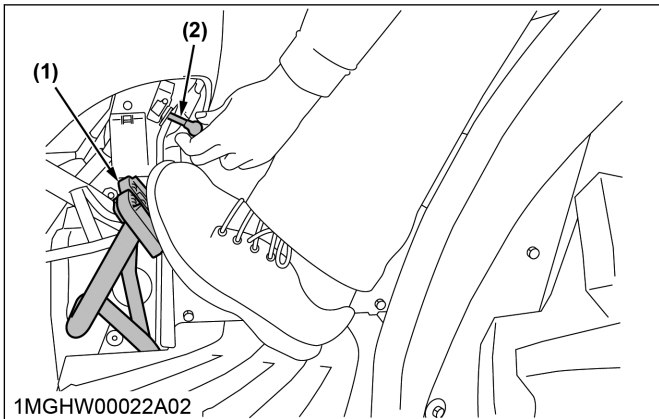
NOTE :

- If the PTO system is engaged and you stand up from the operator's seat without using stationary PTO system, the engine stops automatically after standing up.

4. How to use the stationary PTO [HST type]

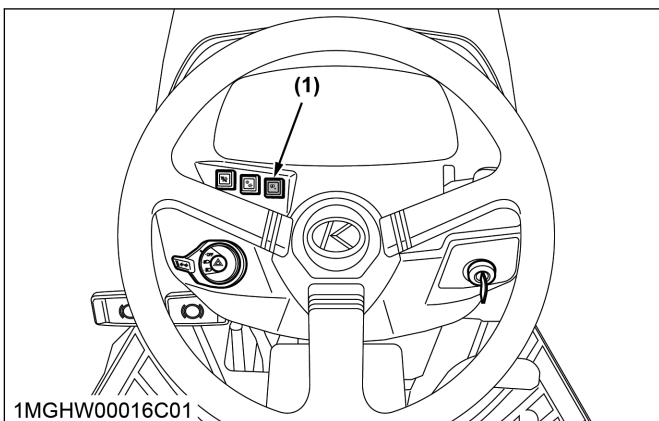
To park the tractor and use the PTO system for chipper or pump, for example, start the PTO system in the procedure in this section.

- Apply the parking brakes and set blocks at the tires. (See Setting the parking brake on page 39)



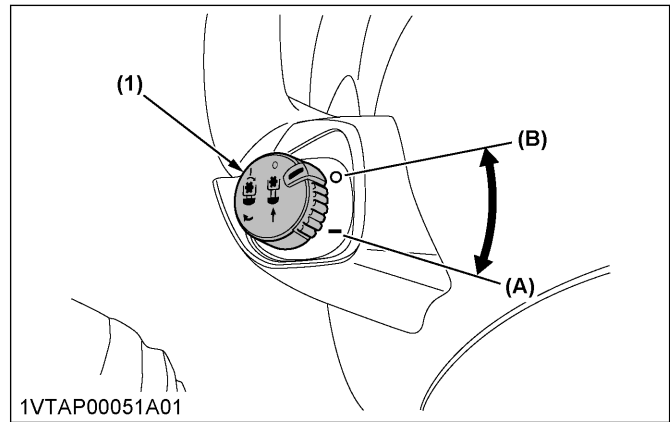
(1) Brake pedal (2) Parking brake lever

- Make sure the shift levers are at the "NEUTRAL" position, and start the engine.
- Push the stationary-PTO switch for 3 seconds to turn on the switch lamp.



(1) Stationary PTO switch

- Set the PTO clutch-control switch to engage "ON." (See PTO clutch control switch [HST type] on page 78)



(1) PTO clutch-control switch (A) On (engage) (B) Off (disengage)

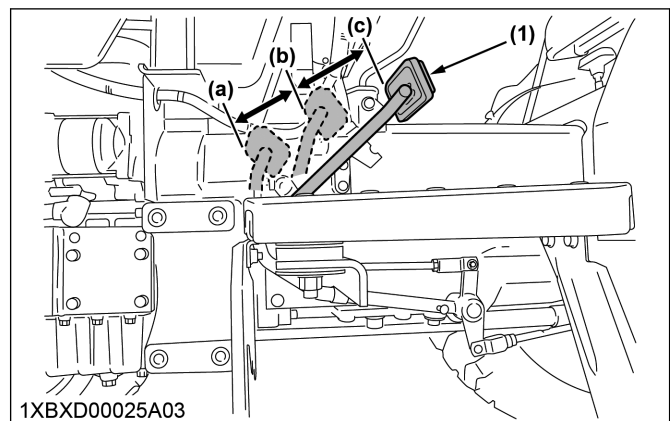
- Set the engine speed to provide recommended PTO speed.

NOTE :

- If the PTO system is engaged and you stand up from the operator's seat without using stationary PTO system, the engine stops automatically after standing up.

5. Operating the live PTO with dual clutch [L3902, L3902-1 Manual transmission type only]

- Set the live PTO with clutch pedal in the order of a. to c.
 - Fully depress the clutch pedal. Then, move the PTO gear-shift lever to the "ON" position and select the traveling speed.
 - Release the clutch pedal half-way. The PTO will be engaged, but transmission clutch remains disengaged.
 - Release the clutch pedal and start the tractor.



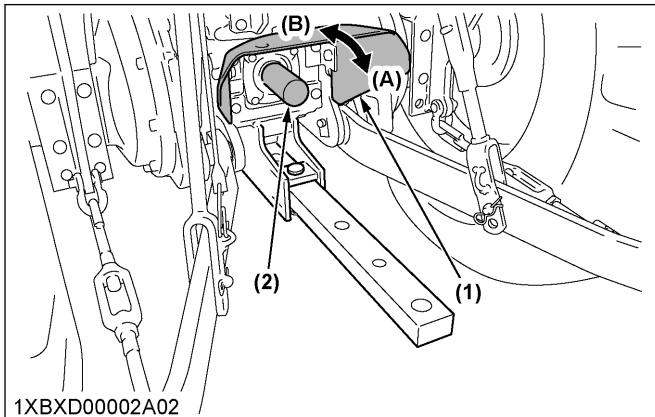
(1) Clutch pedal

6. PTO shaft cover and PTO shaft cap

WARNING

To avoid personal injury or death:

- Keep the PTO-shaft cover in place at all times.
- Replace the PTO-shaft cap when the PTO shaft is not in use.
- Before connecting or disconnecting a drive shaft to PTO shaft, be sure that the engine is **"OFF"** and raise up the PTO-shaft cover. Afterward return the PTO-shaft cover to the **"NORMAL"** position.



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

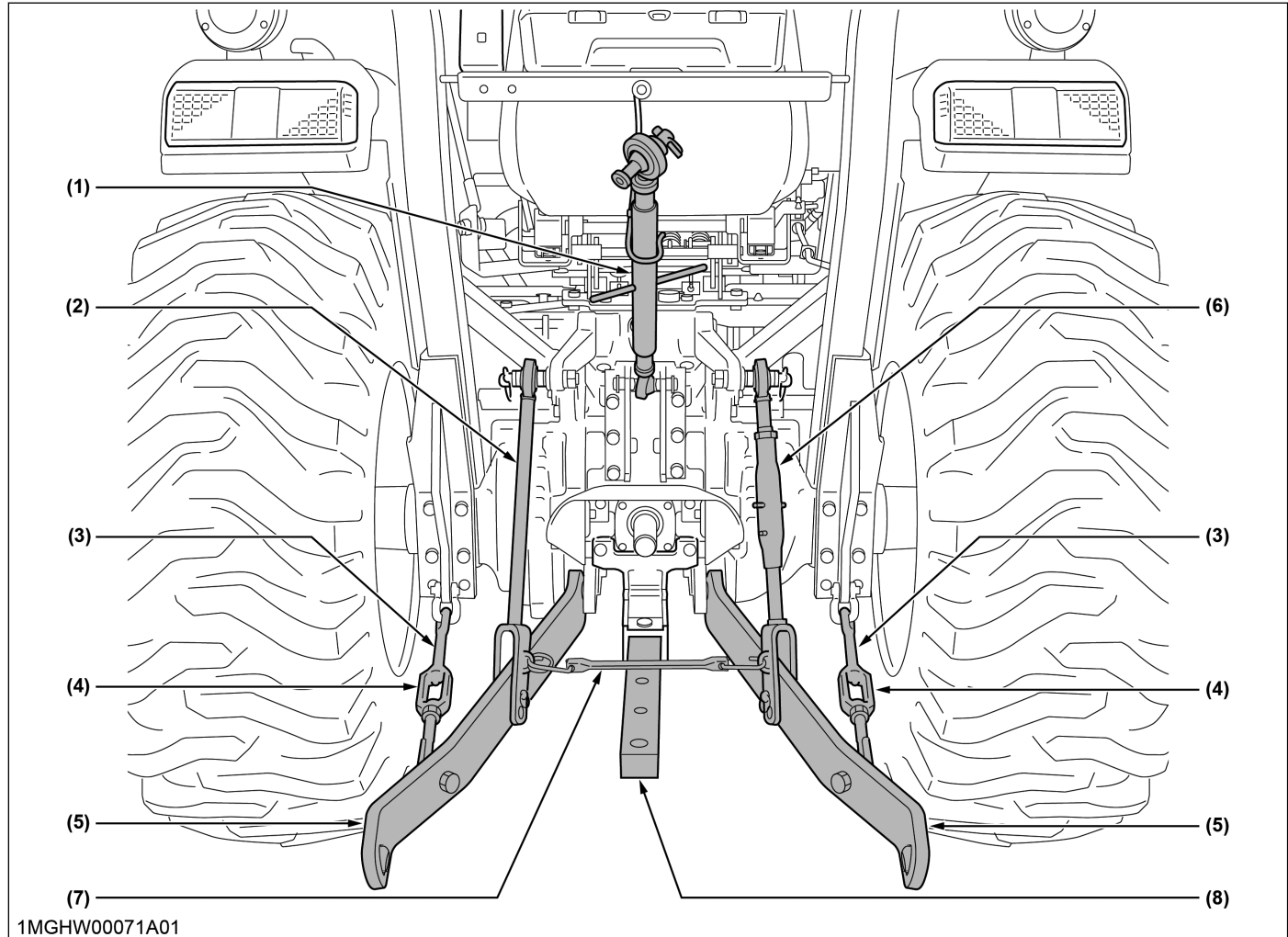
(A) Normal position
(B) Raised position

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

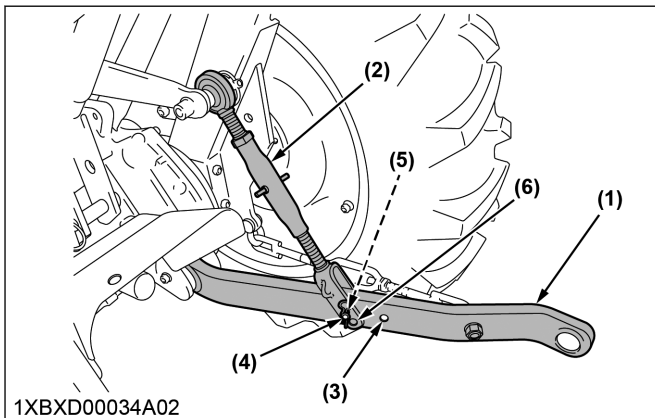
3-POINT HITCH

1. Preparations for attaching the 3-point hitch implement

1.1 Selecting the holes of lifting rods and lower links

1. Select the proper holes of lifting rods and lower links to attach the lifting rod.

There are 2 holes in the lower links and 2 holes in the lifting rods. For most operations the lifting rods should be attached to the (B) hole of the lower link with the (a) hole of the lifting rod.



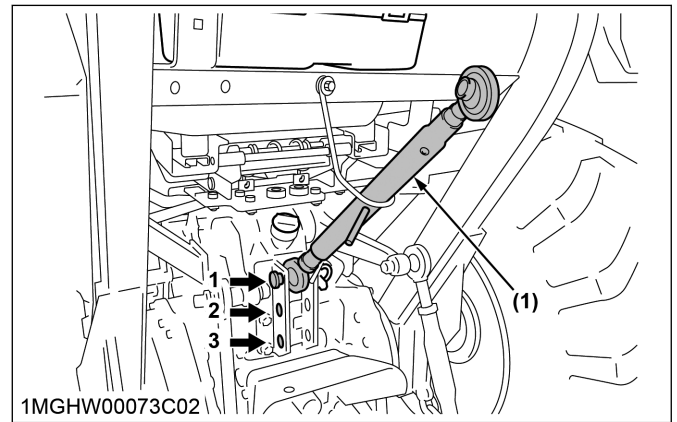
- | | |
|----------------------------|-----------------------------|
| (1) Lower link | (5) Hole of lifting rod (a) |
| (2) Lifting rod | (6) Hole of lifting rod (b) |
| (3) Hole of lower link (A) | |
| (4) Hole of lower link (B) | |

NOTE :

- You may attach the lifting rods to the (A) hole of the lower link for greater lifting force.
- You may attach the lifting rods to the (a) hole of the lifting rod for higher lifting height.

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 87.



(1) Top link

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 84)

2. Attaching the 3-point hitch implement

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

⚠ WARNING

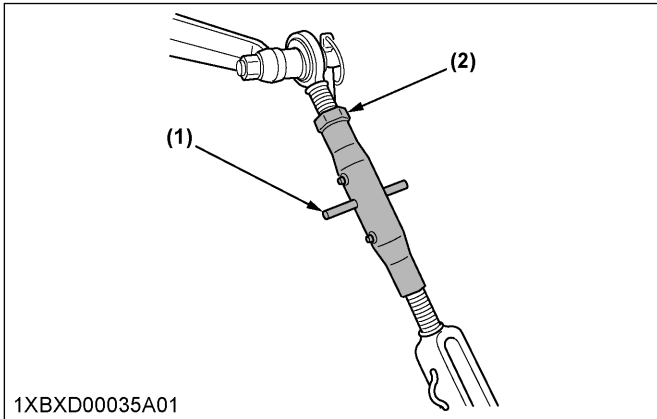
To avoid personal injury or death:

- Stop the engine before attaching or removing 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.

- After adjustment, tighten the lock nut securely.



(1) Adjusting handle

(2) Lock nut

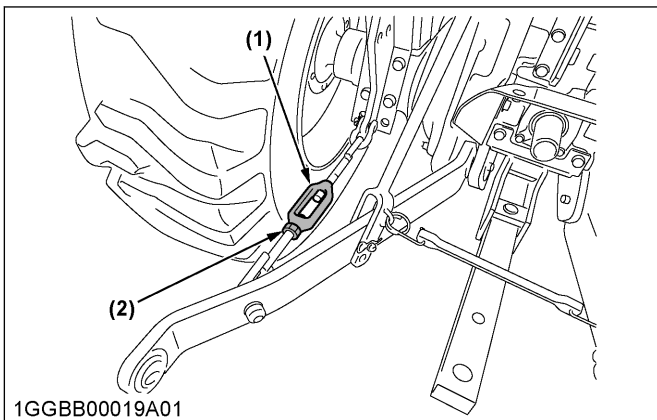
2.3 Adjusting the top link

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

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

2.4 Adjusting the check chains

- Adjust the turnbuckle to control the horizontal sway of the implement.
(See Hydraulic control unit use reference chart on page 87)
- After adjustment, tighten the lock nut securely.



(1) Turnbuckle

(2) Lock nut

2.5 Dealing with the lower link holder

- 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.

DRAWBAR

⚠ WARNING

To avoid personal injury or death:

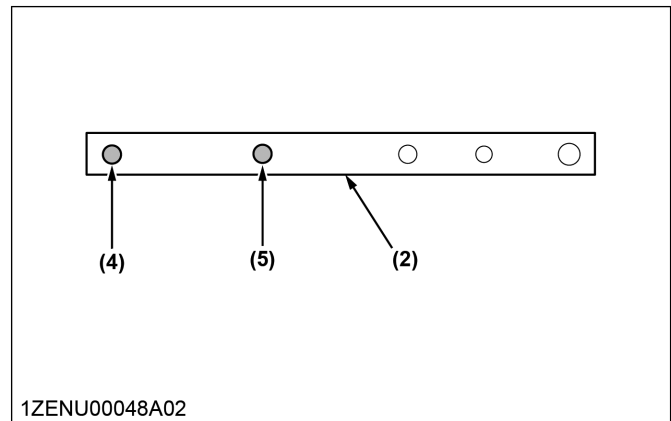
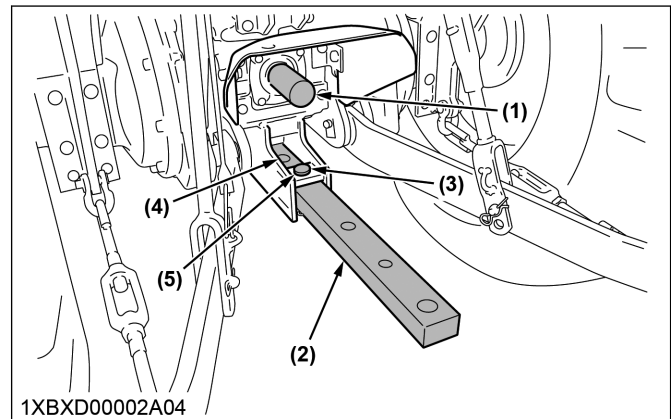
- Never pull from the top link, the rear axle, or any point above the drawbar. Pulling from the top link, the rear axle, or any point above the drawbar could cause the tractor to tip over rearward.

1. Adjusting the drawbar length

- 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 28.



(1) PTO shaft

(2) Drawbar

(3) Pivot pin

(4) Hole of drawbar (A)

(5) Hole of drawbar (B)

HYDRAULIC UNIT

IMPORTANT :

- Do not operate the hydraulic unit until the engine is warmed up. If you operate the hydraulic unit 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

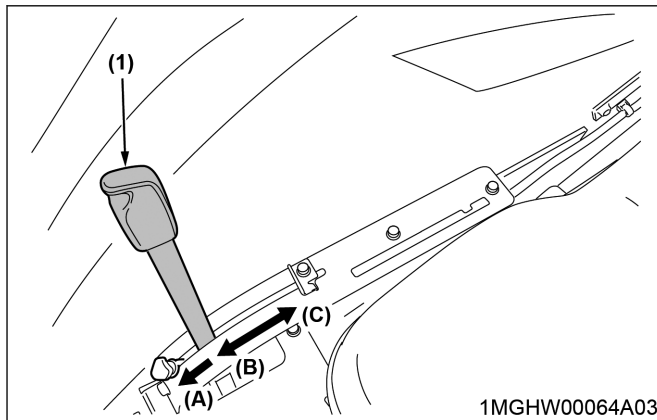
⚠ WARNING

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 implement and tractor when operating the 3-point hitch controls.

1. Position control of 3-point hitch mounted implement

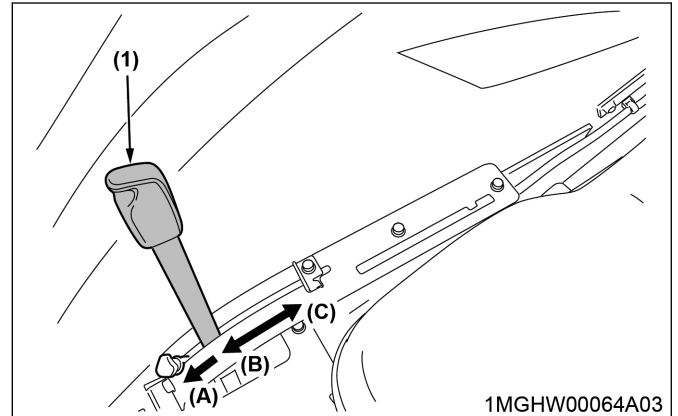
Position control will control the working depth of 3-point hitch mounted implements regardless of the amount of pull required.



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

2. Float control of 3-point hitch mounted implement

Set 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

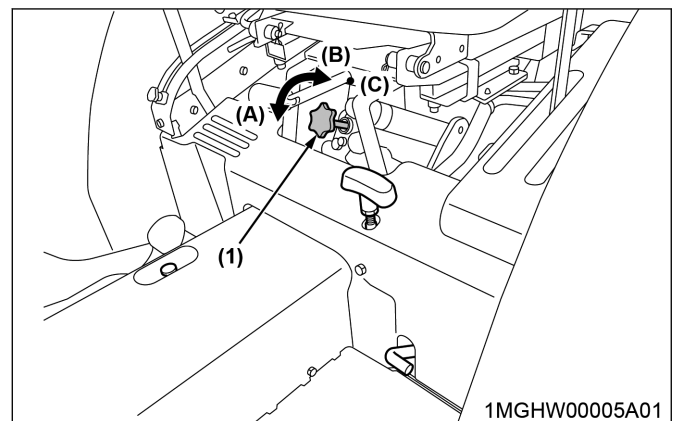
3. 3-point hitch lowering speed

⚠ 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.



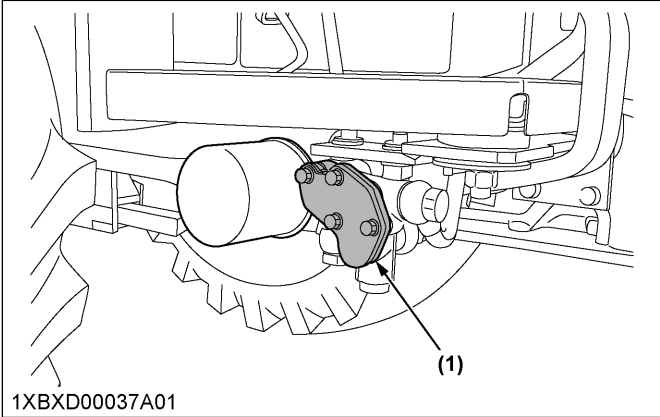
(1) 3-point hitch lowering speed knob
(A) Fast
(B) Slow
(C) Lock

AUXILIARY HYDRAULICS

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

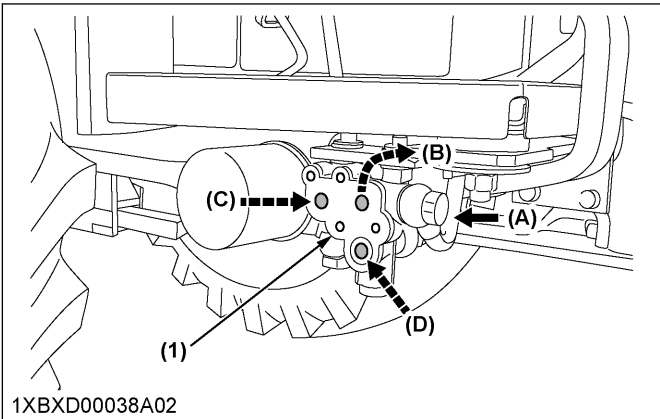
When attaching the hydraulically operated implement, prepare the hydraulic block-type outlet.
Hydraulic block-type outlet is useful when adding hydraulically operated implement such as front-end loader and front blade.

1. Remove the block cover.



(1) Block cover

2. Route the implement inlet, outlet, and the return hoses as shown in the illustration.

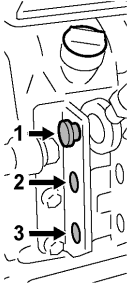
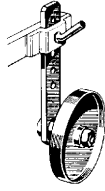
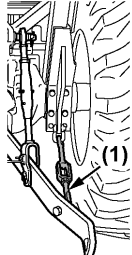


(1) Hydraulic block type outlet (A) From gear pump
(B) To implement
(C) From implement (outlet)
(D) From implement (tank port)

(B) To implement	Maximum flow	25.7 L/min (6.8 gals./min)
	Maximum pressure	16.2 MPa (165 kgf/cm ²) [2347 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. Tighten the check chains enough to prevent excessive implement movement when implement is in raised position.
	Medium soil	2 or 3			
	Heavy soil	3			
Disc plow	—	2 or 3			
Harrower (spike, springtooth, and disc type)	—	2 or 3	Yes/no	Loose	
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 try to mount a tire on a rim. Only a qualified person with the proper equipment should mount a tire on a rim.
- Always keep the correct tire pressure. Do not inflate the tires above the recommended pressure shown in the Inflation pressure of tires on page 88.

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.

	Type	Tire sizes	Inflation Pressure	
			Without loader	With loader
Rear	R1	11.2-24, 4PR	100 kPa (1.0 kgf/cm ²) [14 psi.]	100 kPa (1.0 kgf/cm ²) [14 psi.]
	R3	13.6-16, 4PR	210 kPa (2.1 kgf/cm ²) [30 psi.]	210 kPa (2.1 kgf/cm ²) [30 psi.]
	R4	15-19.5, 6PR	210 kPa (2.1 kgf/cm ²) [30 psi.]	210 kPa (2.1 kgf/cm ²) [30 psi.]
	R14	15-19.5, 6PR	69 kPa (0.7 kgf/cm ²) [10 psi.]	140 kPa (1.4 kgf/cm ²) [20 psi.]
	R14	43 × 16.00-20, 6PR	140 kPa (1.4 kgf/cm ²) [20 psi.]	140 kPa (1.4 kgf/cm ²) [20 psi.]
Front	R1	7.2-16, 8PR	180 kPa (1.8 kgf/cm ²) [26 psi.]	360 kPa (3.6 kgf/cm ²) [52 psi.]
	R3	25 × 8.50-14, 6PR	160 kPa (1.6 kgf/cm ²) [23 psi.]	220 kPa (2.2 kgf/cm ²) [32 psi.]
	R4	27 × 8.50-15, 6PR	210 kPa (2.1 kgf/cm ²) [30 psi.]	310 kPa (3.2 kgf/cm ²) [45 psi.]

(Continued)

	Type	Tire sizes	Inflation Pressure	
			Without loader	With loader
Front	R14	27 × 8.50-15, 8PR	69 kPa (0.7 kgf/cm ²) [10 psi.]	300 kPa (3.1 kgf/cm ²) [44 psi.]
	R14	29 × 9.50-15, 6PR	140 kPa (1.4 kgf/cm ²) [20 psi.]	210 kPa (2.1 kgf/cm ²) [30 psi.]

NOTE :

- Keep 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:

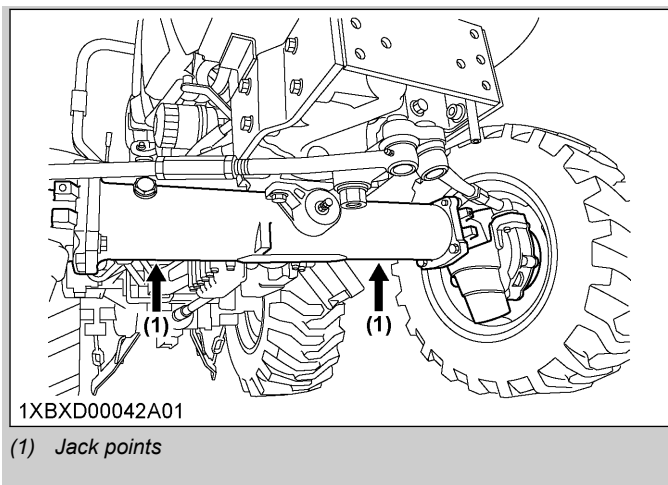
- When working on slopes or when working with a trailer, set the wheel tread as wide as practical for maximum stability.
- Support the tractor securely on stands before removing a wheel.
- Do not work under any hydraulically supported devices. They can settle, suddenly leak, or be accidentally lowered. 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:

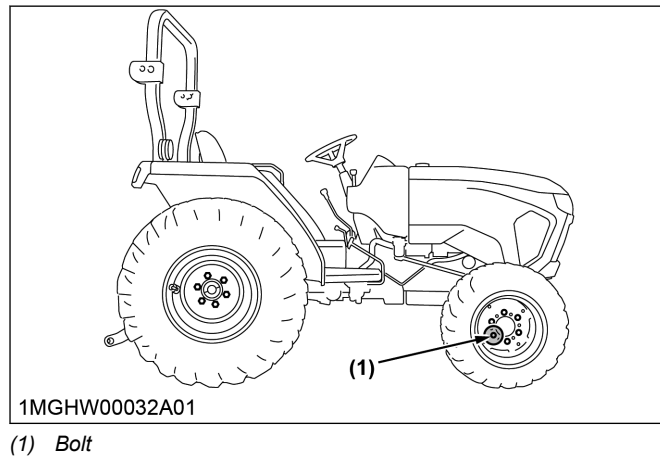
- Before jacking up the tractor, park it on a firm and level ground and chock the rear wheels.
- Fix the front axle to keep it from pivoting.
- Select the jacks that withstand the machine weight and set them up as shown in the following figure.



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.



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

Then recheck after driving the tractor as follows, and thereafter according to SERVICE INTERVALS on page 93.

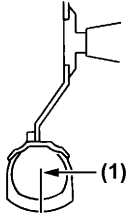
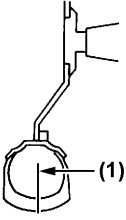
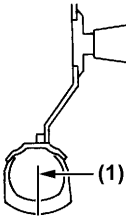
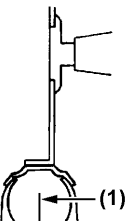
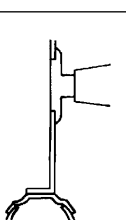
Driving tractor	200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards)
-----------------	---

Tire	Tread	
7.2-16 R1 Farm		1095 mm (43.1 in.)
25 × 8.5-14 R3 Turf		1105 mm (43.5 in.)
27 × 8.5-15 R4 Industrial, R14 Hybrid		1115 mm (43.9 in.)
29 × 9.5-15 R14 Hybrid	1GLDN00062A01 (1) Tread	1120 mm (44.1 in.)

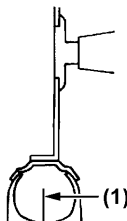
2. Rear wheels

You can adjust the width of rear tread with the standard equipped tires.

(See Adjusting the rear wheels on page 90)

Tire	Tread	
11.2-24 R1 Farm	 1115 mm (43.9 in.) <i>(1) Tread</i>	
	 1195 mm (47.1 in.) <i>(1) Tread</i>	
	 1290 mm (50.8 in.) <i>(1) Tread</i>	
13.6-16 R3 Turf	 1115 mm (43.9 in.) <i>(1) Tread</i>	
15-19.5 R4 In- dustrial, R14 Hybrid	 1145 mm (45.1 in.) <i>(1) Tread</i>	

(Continued)

Tire	Tread	
43 x 16.0-20 R14 Hybrid	 1210 mm (47.6 in.) <i>(1) Tread</i>	

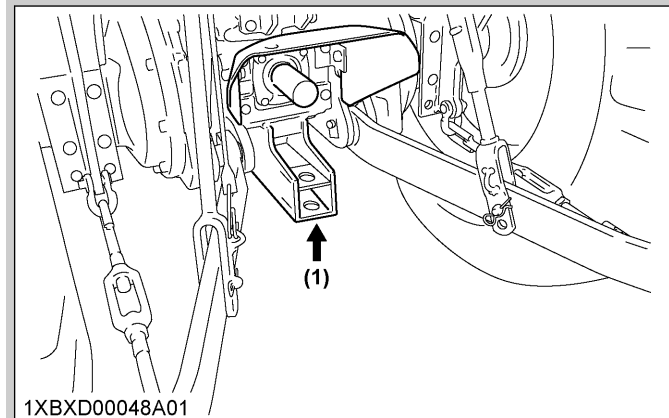
2.1 Adjusting the rear wheels

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.



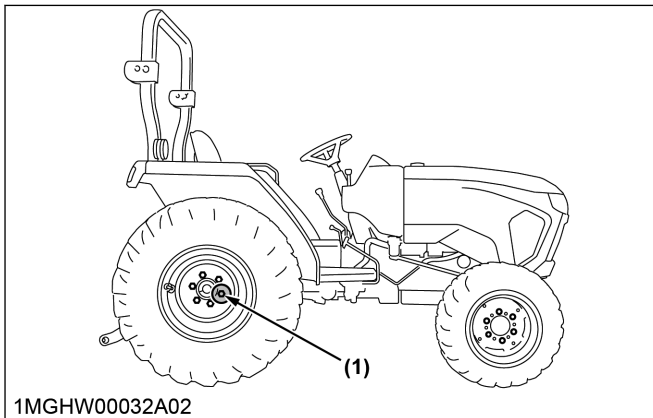
(1) Jack point

1. Remove the bolts that mount the wheel rim and/or disk.
2. Change the position of the rim and/or disk on right and left sides 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.



(1) Bolt

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

Then recheck after driving the tractor as follows, and thereafter according to **SERVICE INTERVALS** on page 93.

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 keep steering control.

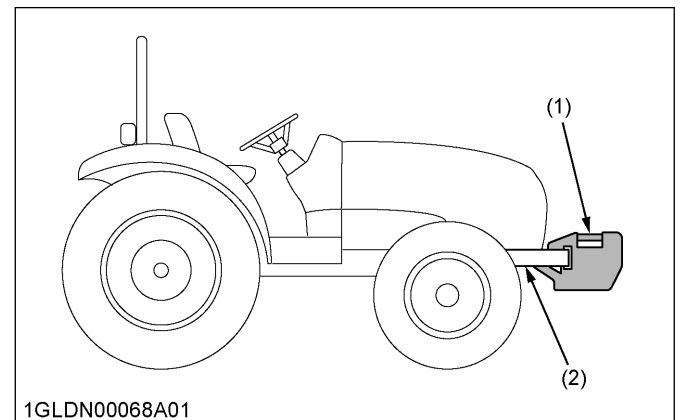
1. Front ballast

Add weights in front of the tractor if needed for the tractor's stability and improving traction.

Heavy pulling and heavy rear mounted implements tend to lift the front wheels. Add enough ballast to keep the steering control and prevent tip over. Remove the weight when no longer needed.

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

IMPORTANT :

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

Maximum weight	25 kg × 5 pieces 55 lbs. × 5 pieces
----------------	--

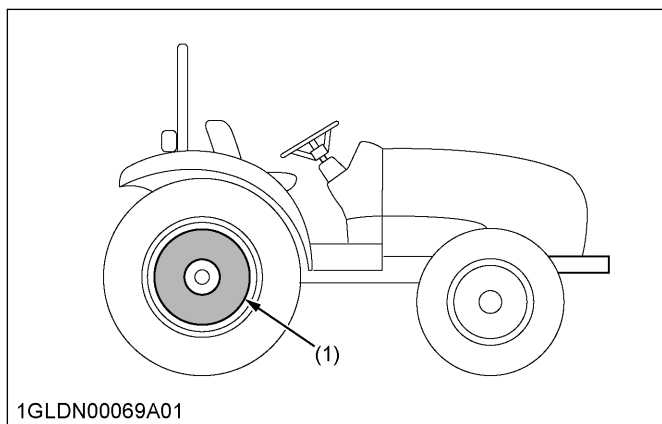
2. Rear ballast

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.

2.1 Rear wheel weights (option)

You can attach the rear-wheel weights to the rear wheel.

See your implement operator's manual for required number of weights or consult your local Kubota Dealer to use it.

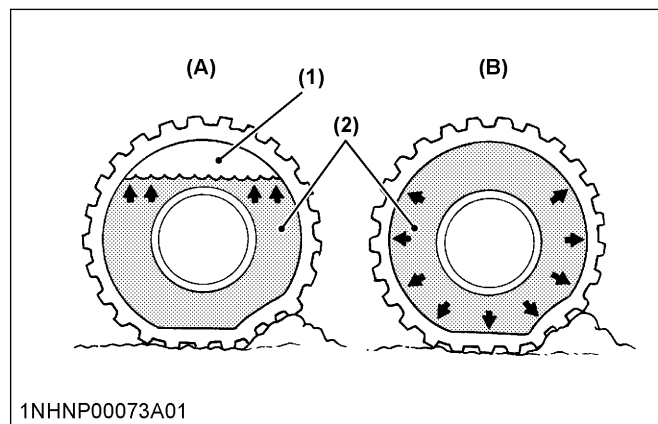


(1) Rear wheel weights

IMPORTANT :

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

Maximum weight	28 kg × 3 pieces 62 lbs. × 3 pieces
----------------	--



(1) Air

(2) Water

(A) Correct

(B) Incorrect

	(A) Correct	(B) 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

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 °C (14 °F) Solid at -30 °C (-22 °F) [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 °C (11 °F) Solid at -47 °C (-52 °F) [Approx. 1.5 kg (3.5 lbs.) CaCl ₂ per 4 L (1 gal) of water]	110 kg (240 lbs.)	150 kg (331 lbs.)
Slush free at -47 °C (-52 °F) Solid at -52 °C (-62 °F) [Approx. 2.25 kg (5 lbs.) CaCl ₂ per 4 L (1 gal) of water]	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.

MAINTENANCE

SERVICE INTERVALS

IMPORTANT :

Make sure to perform daily checks before and after work.

(See DAILY CHECK on page 101)

- Perform the jobs indicated by ○ after the first 50 hours of operation.
- The items that are @ 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 instruction in this table.
Please refer to the Warranty Statement in detail.
- When using biodiesel, check the maintenance requirements of biodiesel fuel as the intervals will change in some of the items.

Maintenance parts			Maintenance timing												Ref. page					
			Indication on hour meter											Months or years				Interval		
			50	100	150	200	250	300	350	400	450	500	...							
Engine start system	[Manual transmission]	Check	○	○	○	○	○	○	○	○	○	○			Every 50 hrs	109				
	[HST]		○	○	○	○	○	○	○	○	○	○								
Wheel bolt torque		Check	○	○	○	○	○	○	○	○	○	○						110		
Greasing		—	○	○	○	○	○	○	○	○	○	○						108		
Operator presence control		Check	○	○	○	○	○	○	○	○	○	○						109		
Battery condition		Check		○		○		○		○		○			Every 100 hrs	113	*1			
Fan belt		Adjust		○		○		○		○		○						111		
Brake		Adjust		○		○		○		○		○						113		
Clutch	[L3302, L3302-1 Manual transmission type]	Adjust	◎	○		○		○		○		○						112		
	[L3902, L3902-1 Manual transmission type]																	112		
Air cleaner element		Clean		○		○		○		○		○	1000 hrs	1 year	Every 1000 hrs or 1 year	110	*2	@		
		Replace															121	*3	@	
Fuel grommet		Check		○		○		○		○		○		2 years	Every 2 years	111		@		
		Replace															126	*4	@	
Transmission oil filter [HST]		Replace	◎			○				○					Every 200 hrs	115				
Toe-in		Adjust				○				○							115			

(Continued)

MAINTENANCE

Maintenance parts		Maintenance timing													Ref. page			
		Indication on hour meter											Months or years	Interval				
		50	100	150	200	250	300	350	400	450	500	...						
Engine oil		Change	⊙							○			1 year	Every 400 hrs or 1 year	116	*5		
Engine oil filter		Replace	⊙							○					Every 400 hrs	117		
Water separator		Clean								○						119		@
Fuel filter		Replace								○						117		
Hydraulic oil filter	[HST]	Replace	⊙							○						117		
	[Except HST]	Replace								○						117		
Transmission fluid		Change								○				117				
Front axle pivot		Adjust										600 hrs		Every 600 hrs	120			
Front axle case oil		Change										800 hrs		Every 800 hrs	120			
Engine valve clearance		Adjust													121	*4		
Exhaust manifold		Check										1000 hrs	1 year	Every 1000 hrs or 1 year	121	*4 *3		
Fuel injector nozzle tip		Clean										1500 hrs		Every 1500 hrs	121	*4	@	
Positive crankcase ventilation (PCV) valve (Oil separator)		Check													121		@	
EGR cooler		Check and clean													121		@	
Cooling system		Flush										2000 hrs	2 years	Every 2000 hrs or 2 years	121	*4 *6		
Coolant		Change													121	*4 *6		
EGR system		Check and clean										3000 hrs		Every 3000 hrs	123	*4	@	
Supply pump		Check													123	*4		
DPF muffler		Clean										3000 hrs to 6000 hrs		Every 3000 hrs to 6000 hrs	123	*4	@	
Power steering oil line [Manual transmission]		Check											1 year	Every 1 year	125	*7		
		Check											2 years	Every 2 years	126	*4		
Oil cooler line [HST]		Check											1 year	Every 1 year	125	*7		
		Check											2 years	Every 2 years	127	*4		
Radiator hose and clamp		Check											1 year	Every 1 year	124	*7		
		Check											2 years	Every 2 years	127	*4		
Oil separator hose		Check											1 year	Every 1 year	125	*7		

(Continued)

Maintenance parts		Maintenance timing													Ref. page		
		Indication on hour meter											Months or years	Interval			
Oil separator hose	Check												2 years	Every 2 years	127	*4	
Fuel line	Check												1 year	Every 1 year	123	*7	@
	Replace												4 years	Every 4 years	127	*4 *7	@
Intake air line	Check												1 year	Every 1 year	124	*7	@
	Replace												4 years	Every 4 years	127	*4 *7	@
DPF differential pressure sensor pipe	Check												1 year	Every 1 year	126	*4	
EGR pipe	Check														126	*4	
Relief valve	Check														126		
CCV pressure switch	Check														126		
Antifrost heater for oil separator (if equipped)	Check														126	*4	
DPF differential pressure sensor hose	Replace												2 years	Every 2 years	127	*4	
Fuel system	Bleed													Service as required	127		
Clutch housing water	Drain														128		
Fuse	Replace														128		
Light bulb	Replace														129		
LED light	Replace														129		
Radiator hose and clamp	Replace														130		
Fuel line	Replace														130	*7	
Intake air line	Replace														130	*7	
Power steering oil line [Manual transmission]	Replace														130	*7	
Oil cooler line [HST]	Replace														130	*7	
Oil separator hose	Replace														130	*7	

*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 400 hours or every 1 year, whichever comes first.

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

*7 Replace this item if any deterioration such as crack, hardening, scar, or deformation or damage occurred.

LUBRICANTS, FUEL, AND COOLANT

Lubricants, fuel, and coolant table

Locations		Capacities	Lubricants	
		L3302, L3302-1, L3902, L3902-1		
Fuel		42.0 L (11.0 U.S.gals.)	- If temperature is above -10 °C (14 °F), No. 2-D S15 diesel fuel - If temperature is below -10 °C (14 °F), No. 1-D S15 diesel fuel	
Coolant		6.0 L (6.3 U.S.qts.)	Fresh clean soft water with antifreeze	
Engine crankcase with filter		6.7 L (7.1 U.S.qts.)	For the engine oil, see the following <i>Engine oil</i> .	CJ-4 or better quality (DPF type engine)
			Above 25 °C (77 °F)	SAE30, SAE10W-30, or SAE15W-40
			-10 °C to +25 °C (14 °F to 77 °F)	SAE20, SAE10W-30, or SAE15W-40
			Below -10 °C (14 °F)	SAE10W-30
Transmission case	[Manual transmission]	28.5 L (7.5 U.S. gals.)	Kubota SUPER UDT-2 fluid	
	[HST]	26.0 L (6.9 U.S. gals.)		
Front axle case		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 axle support	2	Until grease overflows	Multipurpose Grease NLGI-2 OR NLGI-1 (GC-LB)
Clutch pedal	1		
Brake pedal	1		
Pedal shaft	1		
Battery terminals	2		
Lift rod	1		
Tie rod end	4		
Top link	2		

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.

Engine oil

- Use engine oil 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 DPF (diesel-particulate filter) type engines and the fuel.

Fuel used	Engine oil classification (API classification)
	Oil class of engines with DPF
Ultra low sulfur fuel (<0.0015 % (15 ppm))	CJ-4 or better quality

Fuel

- Use the preceding ultra low sulfur diesel fuel only for the engines.

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

Temperatures	Below -20 °C (-4 °F)
Elevations	Above 1500 m (5000 ft)

- 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.

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. These 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 them 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 or 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

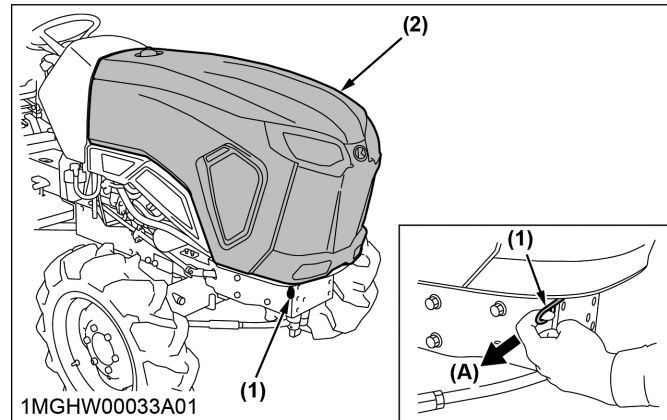
⚠ WARNING

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

- Never open the hood or the engine-side cover while the engine is operating.
- 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.



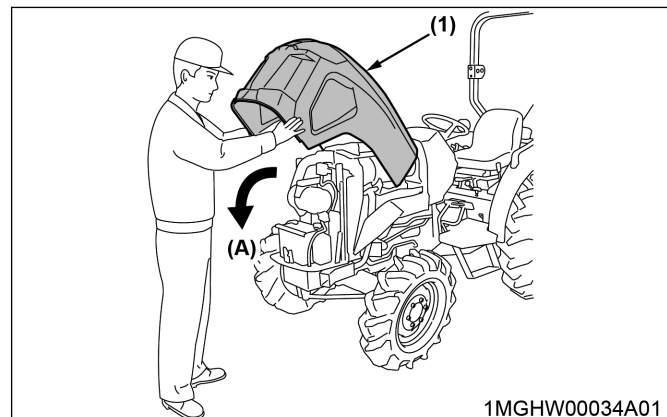
(1) Release lever

(A) Unlock

(2) Hood

NOTE :

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



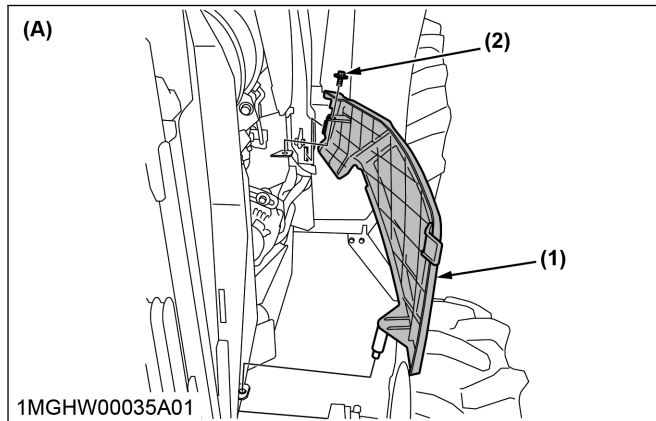
(1) Hood

(A) Initial position

2. Opening the engine side cover

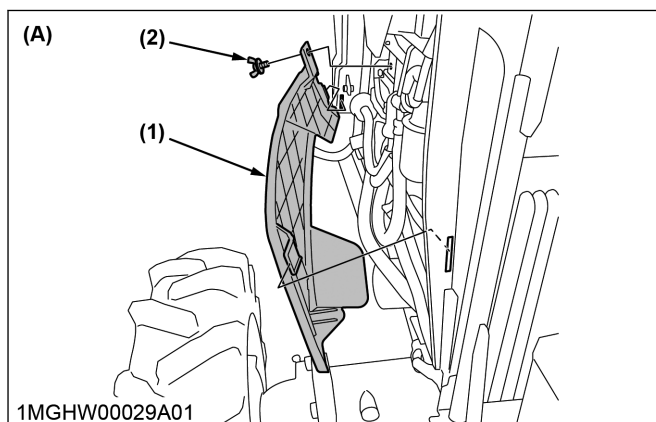
1. Remove the bolt from each of the engine-side covers.

2. Remove the engine-side covers.



(1) Engine side cover
(2) Bolt

(A) LH



(1) Engine side cover
(2) Wing bolt

(A) RH

To attach the engine-side covers, follow the following procedure:

1. Insert the bottom pin of each of the engine-side covers.
2. Hook the engine-side covers on.
3. Tighten the bolts of the engine-side covers.

DAILY CHECK

For your own safety and maximum service life of the machine, perform a thorough daily inspection before operating the machine to start the engine.

⚠ WARNING

To avoid personal injury or death:

Take the following procedure before checking the tractor:

1. Park the machine on firm and level ground.
2. Set the parking brake.
3. Lower the implement to the ground.
4. Release all residual pressure from the hydraulic system.
5. Stop the engine and remove the key.

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.
- Stop the engine and remove the starter key before refueling.
- 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:

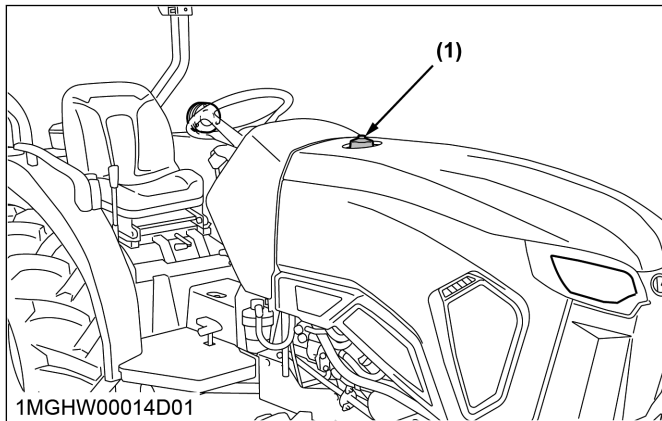
- Wash hands immediately after contact with diesel fuel.

IMPORTANT :

- Do not permit dirt or trash to get into the fuel system.
- Do not allow 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 off the fuel 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	42.0 L (11.0 U.S.gals.)
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3. Checking antifrost heater for oil separator (if equipped)

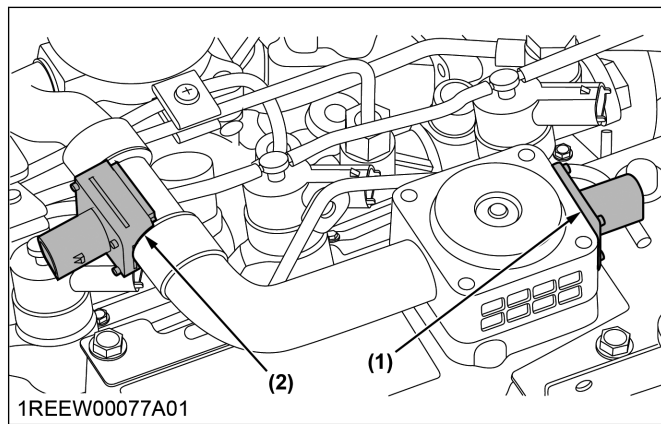
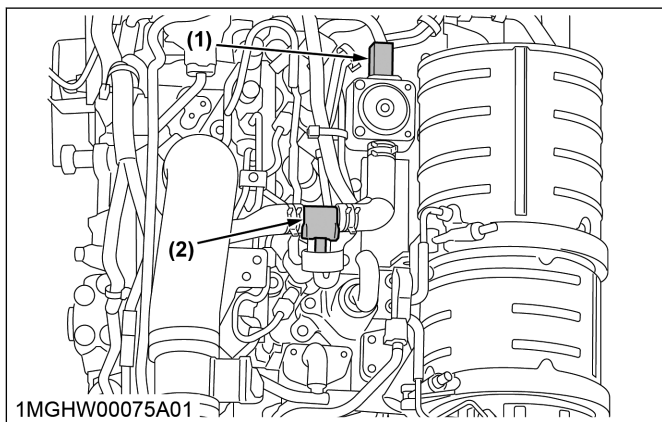
WARNING

To avoid personal injury or death:

- Because there are rotating parts like the fan near the inspection position, keep the engine off during inspection.

When operating tractors with antifrost heaters for oil separator in cold regions that are below the freezing point 0 °C (32 °F), inspection the antifrost heaters before starting work.

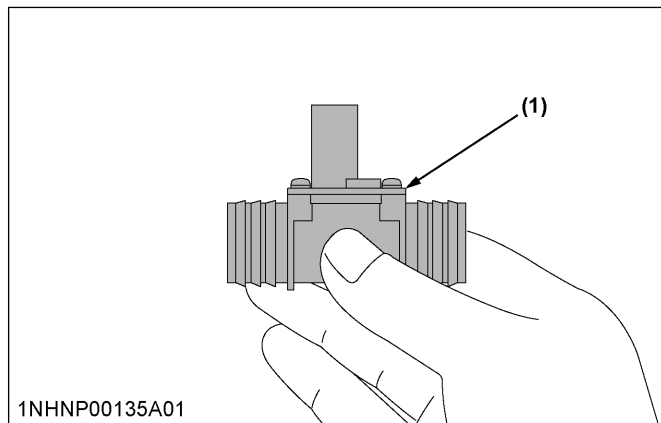
1. Turn the key switch to "ON," and 1 minute later, inspect by touch whether the heater is working.
 - If the heater is working, its temperature will rise to roughly 70 °C (158 °F), so you will be able to feel its warmth.
 - If the heater is not working, it is not warm. In this case, contact your local Kubota Dealer without starting the engine.



(1) Heater (Oil separator, out) (2) Heater (Oil separator, in)

NOTE :

- See the following figure for the heater-inspection position.

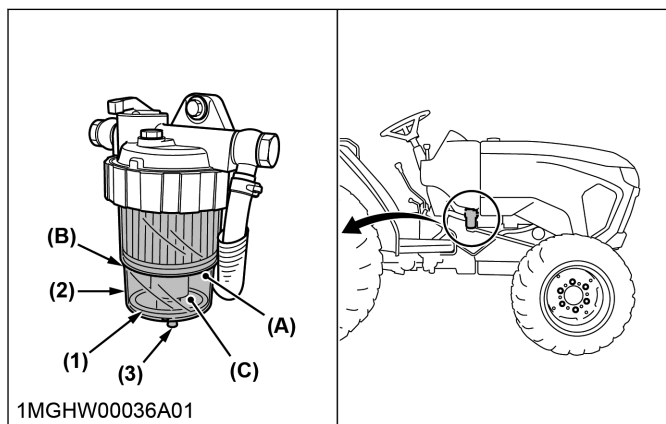


(1) Antifrost heater

2. If the heater is not warm, it is not working. In this case, contact your local KUBOTA Dealer without starting the engine.

4. Checking the water separator

When the water has collected upper limit in the water separator, the water-separator indicator on the instrument panel lights up and warning buzzer sounds. In such case, drain the water in the water separator.



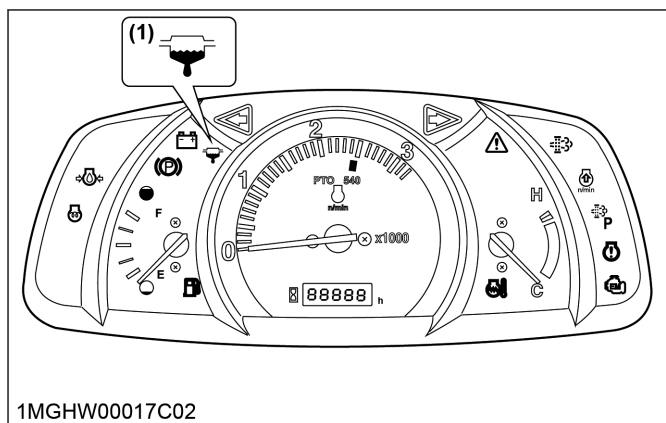
- (1) Red float
(2) Cup
(3) Drain plug
(A) Fuel
(B) Upper limit
(C) Water

NOTE :

- When the red float reaches near the upper limit level, start from step 1. to drain water in the water separator.

IMPORTANT :

- If water is drawn through to the fuel pump, extensive damage will occur.



- (1) Water separator indicator

- Loosen the drain plug by several turns.
- Allow water to drain.
- When no more water comes out and fuel starts to flow out, retighten the drain plug.
- Bleed the fuel system.

5. Checking the engine oil level

⚠ WARNING

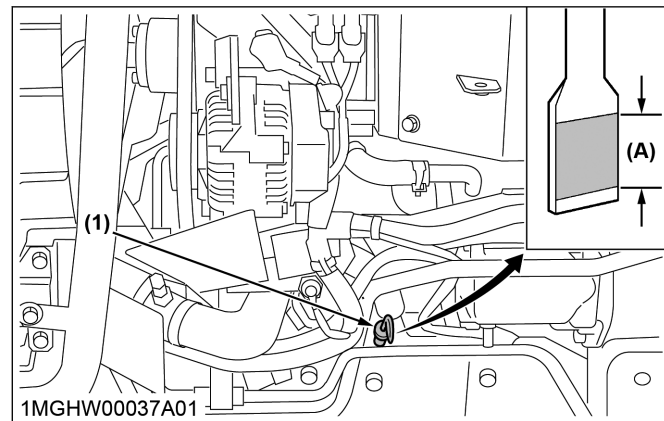
To avoid personal injury or death:

- 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.

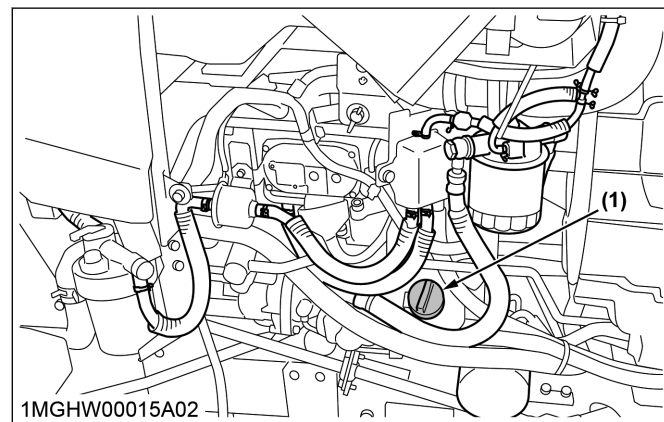
- Park the machine on a flat surface.

- To check the engine-oil level, draw out the dipstick.
- Wipe the dipstick clean.
- Replace the dipstick.
- Draw the dipstick out again.
- Check to see that the engine-oil level lies between the 2 notches.



- (1) Dipstick
(A) Range that engine oil level is acceptable within

- If the engine-oil level is too low, add new engine oil from the oil inlet to the prescribed level.
(See LUBRICANTS, FUEL, AND COOLANT on page 96)



- (1) Oil inlet

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 operate the engine.

NOTE :

- At times a small amount of fuel, which is used to regenerate the DPF, may get mixed with the engine oil and the engine oil may increase in volume.

6. Checking the transmission fluid level

⚠ WARNING

To avoid personal injury or death:

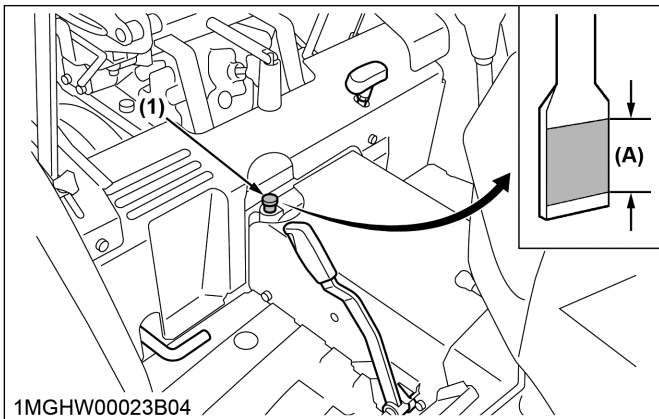
- Park the tractor on a firm, flat, and level surface, lower the implement to the ground, and shut off the engine before checking the transmission-fluid level.

IMPORTANT :

- If the transmission-oil level is low, do not operate the engine.

1. Park the machine on a flat surface, lower the implement and shut off the engine.
2. To check the transmission-fluid 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 transmission-oil-level lies between the 2 notches.

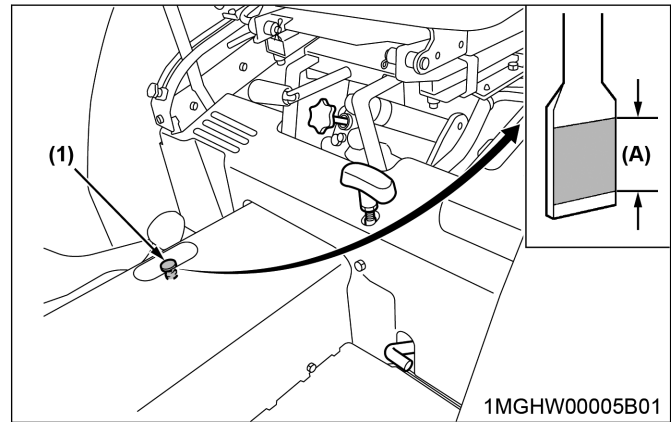
[Manual transmission type]



(1) Dipstick

(A) Range that transmission oil level is acceptable within

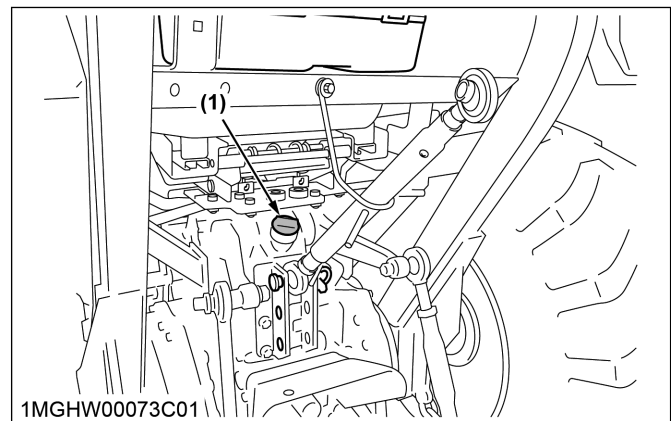
[HST type]



(1) Dipstick

(A) Range that transmission oil level is acceptable within

7. If the transmission-fluid level is too low, add new transmission fluid from the oil inlet to the prescribed level.
(See LUBRICANTS, FUEL, AND COOLANT on page 96)



(1) Oil inlet

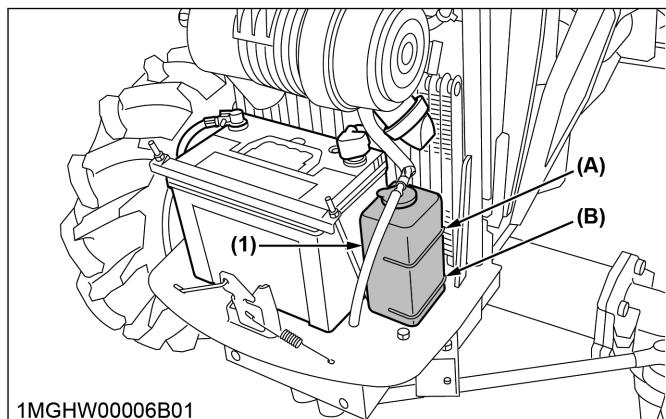
7. Checking the coolant level

⚠ WARNING

To avoid personal injury or death:

- 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 coolant-recovery tank.



(1) Coolant recovery tank

(A) Full

(B) Low

2. When the coolant level is lower than the "LOW" mark of the coolant-recovery tank, remove the radiator cap and check to see that the coolant level is just below the port.

IMPORTANT :

- If you have to remove the radiator cap, follow the preceding warning and securely retighten the radiator cap.

3. If the coolant level is low, add coolant only up to the "FULL" level.

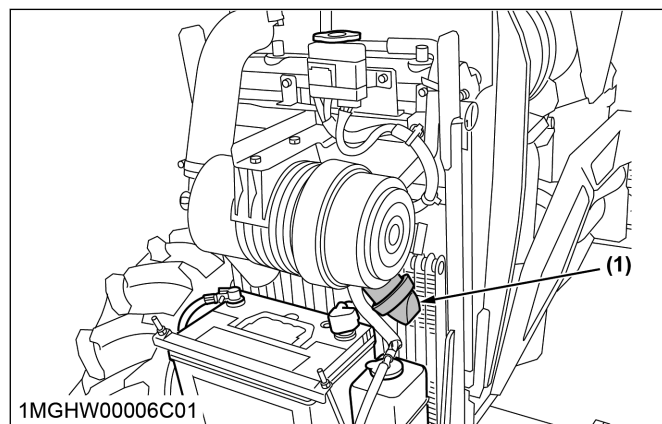
- When the coolant level drops due to evaporation, add soft water only up to the full level.
- When the coolant level drops due to leakage, add antifreeze and soft water in the specified mixing ratio up to the full level.

IMPORTANT :

- Use clean, fresh, soft water and antifreeze to fill the radiator.
- If coolant should leak, consult your local Kubota Dealer.
(See Flushing the cooling system and changing the coolant on page 121)

8. 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

9. Cleaning the grill and the radiator screen

! WARNING

To avoid personal injury or death:

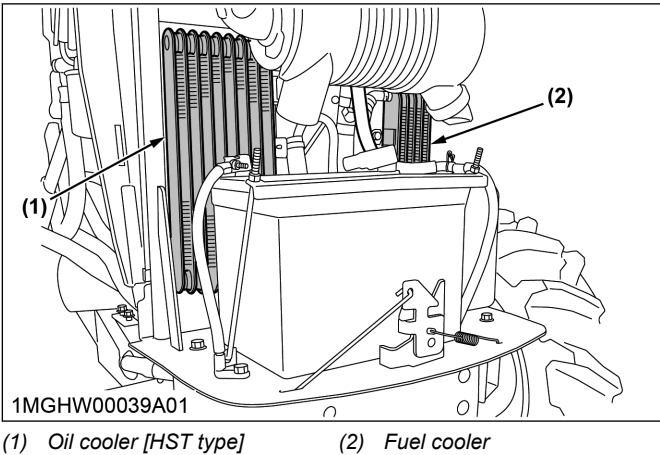
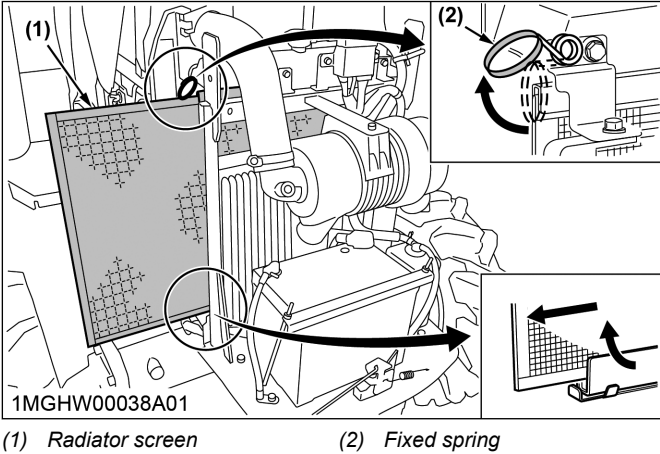
- Stop the engine before removing the radiator screen.
- Before checking or cleaning the radiator screen, stop the engine and wait until it is cooled down enough.

IMPORTANT :

- Grill and screen must be clean 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. Remove the side screen with the fixed spring being held up.

3. Remove all foreign materials, and clean the front of radiator completely.

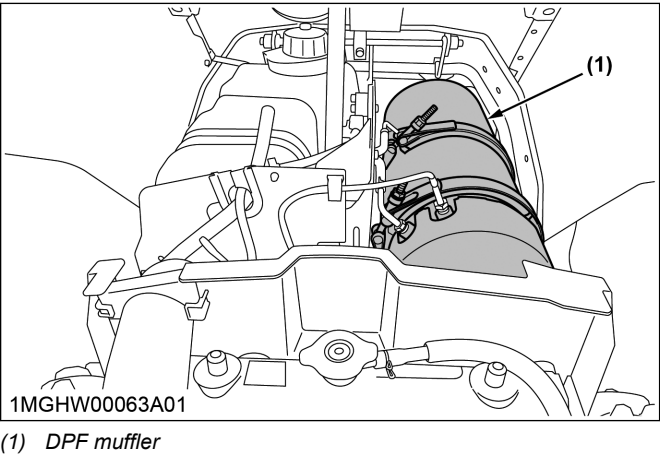


10. Checking the DPF muffler

 **WARNING**
To avoid personal injury or death:

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

1. Check the DPF muffler and its surroundings for build-up of anything flammable.
If you fail to check and clean the DPF muffler, a fire may result.



11. 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 clutch pedal for free travel and smooth operation.
2. Adjust the brake pedals or clutch pedal if incorrect measurement is found.
 - **[L3302, L3302-1 Manual transmission type and HST type]**
See Adjusting the brake pedal on page 113 and Adjusting the clutch pedal with single clutch [L3302, L3302-1 Manual transmission type] on page 112.
 - **[L3902, L3902-1 Manual transmission type]**
See Adjusting the brake pedal on page 113 and Adjusting the clutch pedal with dual clutch [L3902, L3902-1 Manual transmission type] on page 112.

Proper free travel	Brake pedal	15 mm to 20 mm (0.6 in. to 0.8 in.) on pedal Keep the free travel in the right and left pedals equal.
	Clutch pedal	20 mm to 30 mm (0.8 in. to 1.2 in.) on pedal

12. 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.

13. Checking the head light, the turn signal / hazard light, and the tail lamp

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

14. 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.

15. Checking and cleaning the electrical wiring and battery cables

Inspect the check items in this section regularly.

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, the electrical wiring, the engine, or the exhaust system may cause a fire hazard. Clean around the battery, the electrical wiring, the engine, and the 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.
-
- Check the wiring for chafed or cracked insulation.
 - Check the wiring-harness clamps.
Replace wiring-harness clamps if 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.

16. Checking the movable parts

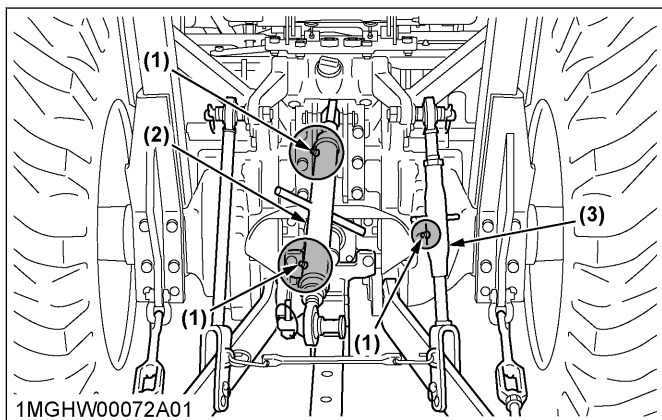
1. If any of the movable parts, such as levers and pedals, do not move smoothly because of rust or sticky material, remove the rust or the sticky material, and apply oil or grease on the relevant spot.
Do not force the movable parts into motion. Otherwise, the machine may get damaged.

SERVICE EVERY 50 HOURS

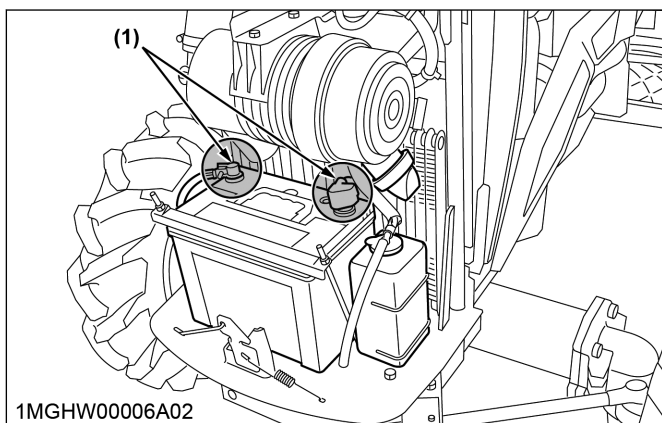
1. Lubricating the grease fittings

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

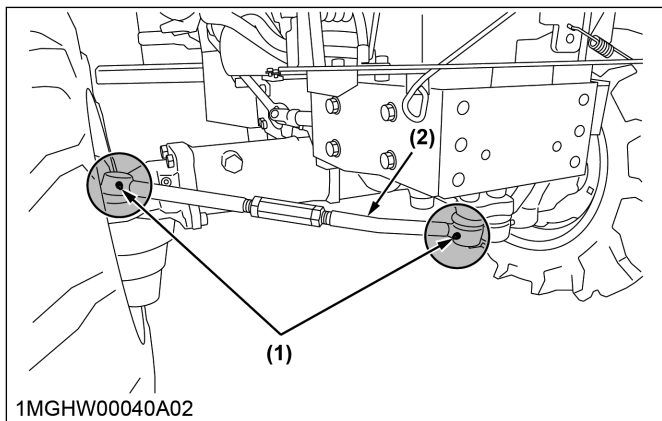
If you have operated the machine in extremely wet and muddy conditions, lubricate the grease fittings more often.



- (1) Grease fitting
(2) Top link
(3) Lifting rod (RH)

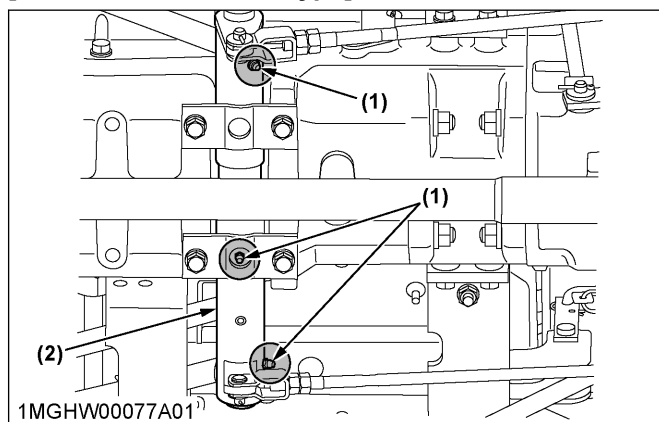


- (1) Battery terminals



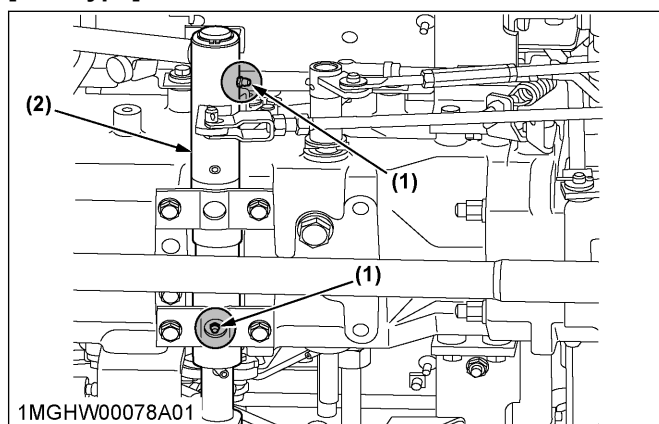
- (1) Grease fitting
(2) Tie-rod

[Manual transmission type]



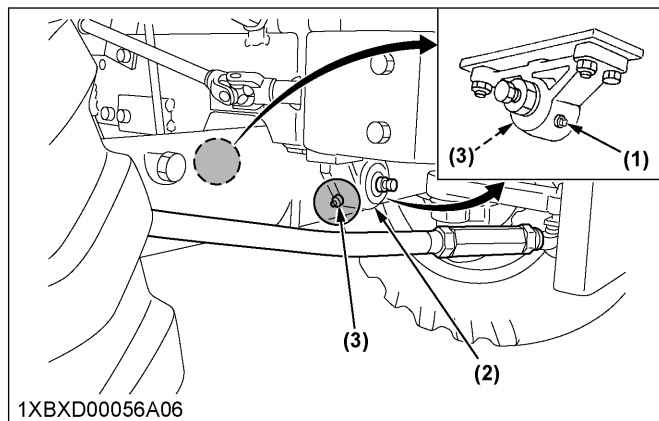
- (1) Grease fitting
(2) Pedal shaft

[HST type]



- (1) Grease fitting
(2) Pedal shaft

2. When applying the grease to the both front-axle supports, apply grease until the grease overflows from the breather port.



- (1) Grease fitting
(2) Front axle support
(3) Breather port

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

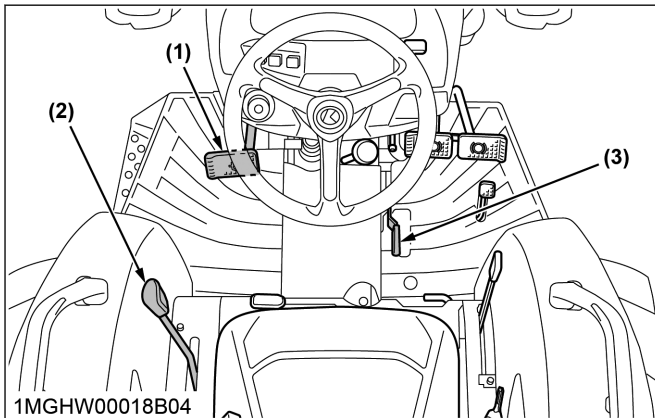
⚠ WARNING

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



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

Test of switch for the synchro shuttle shift lever

1. Sit on the operator's seat.
2. Shift the shuttle-shift lever to the "FORWARD" or "REVERSE" 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 synchro-shuttle 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 shuttle-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.

3. Checking the engine start system [HST type]

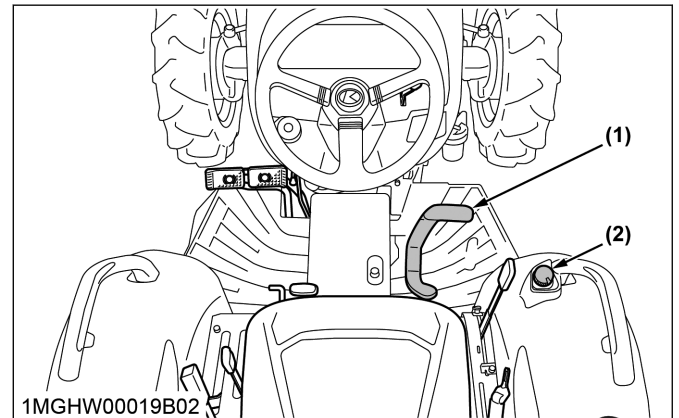
⚠ WARNING

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



(1) Speed control pedal
(2) PTO clutch control switch

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. Disengage the PTO clutch-control switch.
4. Turn the starter key to the "START" position.
5. Make sure that the engine does not crank.
6. If the engine cranks, consult your local Kubota Dealer for servicing the speed-control pedal.

Test of switch for the PTO clutch control switch

1. Sit on the operator's seat.
2. Engage the PTO clutch-control switch.
3. Set the speed-control pedal in the "NEUTRAL" position.
4. Turn the starter key to the "START" position.
5. Make sure that the engine does not crank.
6. If the engine cranks, consult your local Kubota Dealer for servicing the PTO clutch-control switch.

4. Checking the operator presence control

⚠ WARNING

To avoid personal injury or death:

- Do not allow anyone near the tractor while testing.

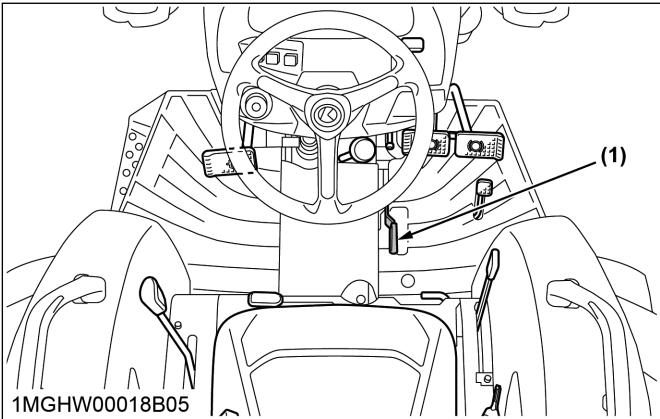
- If the tractor does not pass the test, do not operate the tractor.

Preparing for the checking

1. Set all control levers in the “NEUTRAL” position.
2. Set the parking brake and stop the engine.

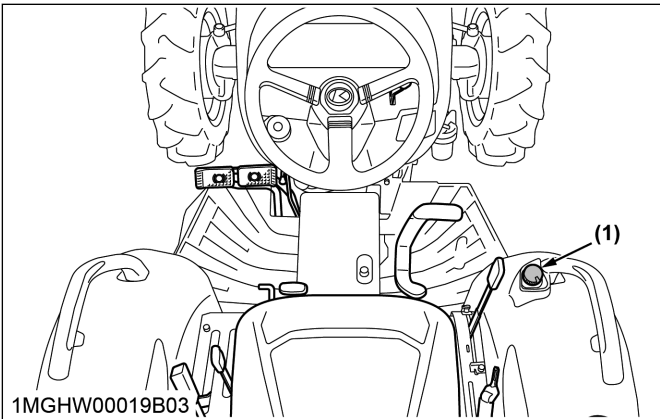
Check if the engine shuts off when you stand up from the operator's seat.

[Manual transmission type]



(1) PTO gear shift lever

[HST type]



(1) PTO clutch control switch

1. Sit on the operator's seat.
2. Start the engine.
3. Engage the PTO.
 - [Manual transmission type] Set the PTO gear-shift lever in the “ON” position.
 - [HST type] Set the PTO clutch-control switch to “ON.”
4. Stand up.
Do not get off the machine.
5. Make sure that the engine shuts off after approximately 2 seconds.
6. If the engine does not stop, consult your local Kubota Dealer for servicing the operator's seat.

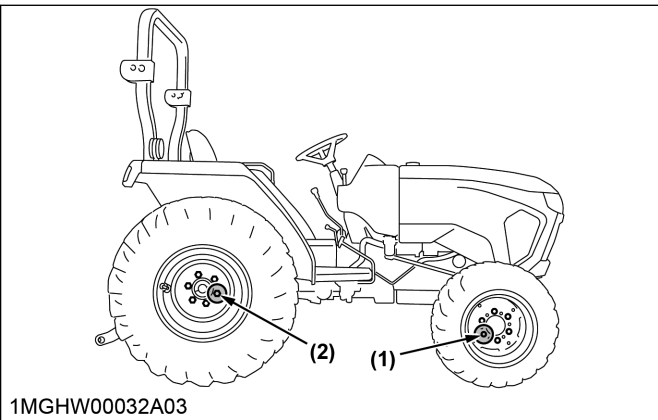
5. Checking the wheel bolt torque

⚠ 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)

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

SERVICE EVERY 100 HOURS

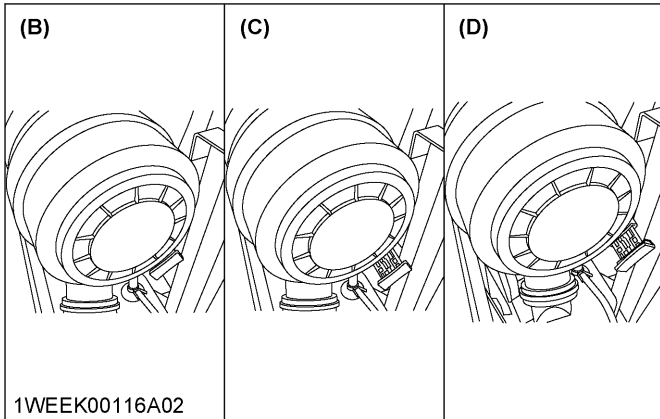
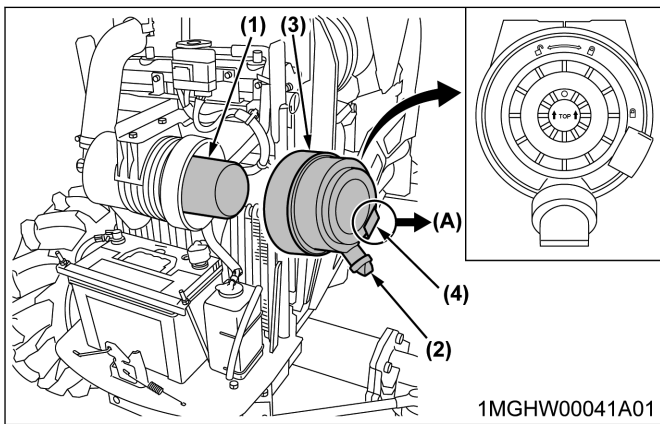
1. Cleaning the air cleaner element

IMPORTANT :

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

Perform once every 1000 hours or yearly, whichever comes first.

1. Pull the hook and rotate the air-cleaner cover to remove, and remove the air-cleaner cover and primary element.



- (1) Air cleaner element
(2) Evacuator valve
(3) Cover
(4) Hook

- (A) Unlock
(B) Normal state
(C) With the hook pulled
(D) With the hook pulled and the cover turned

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.

IMPORTANT :

- Refit the cover with the arrow ↑ to be upward. If the cover is improperly fitted,

dust passed by the baffle and directly adheres to the element.

Checking the evacuator

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. Adjusting the fan belt tension

⚠ WARNING

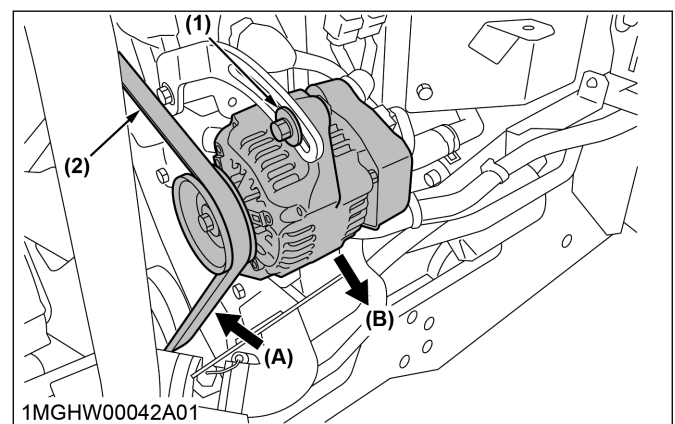
To avoid personal injury or death:

- 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 15 mm (0.59 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 set between the alternator and the engine block, pull the alternator out until the deflection of the fan belt falls within the acceptable limits.



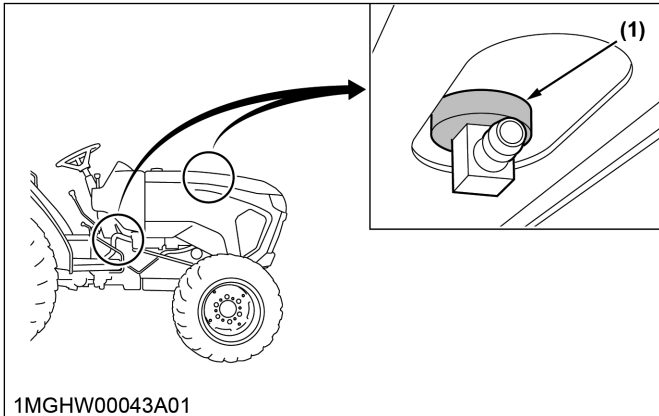
- (1) Bolt
(2) Fan belt
(A) Checking point of the fan belt tension
(B) To tighten

4. Replace the fan belt if it is damaged.

3. Checking the fuel grommet

1. Check the grommets for cracks and fuel leak.

- If any of cracks and fuel leak is found, replace the grommet(s) with new one(s).



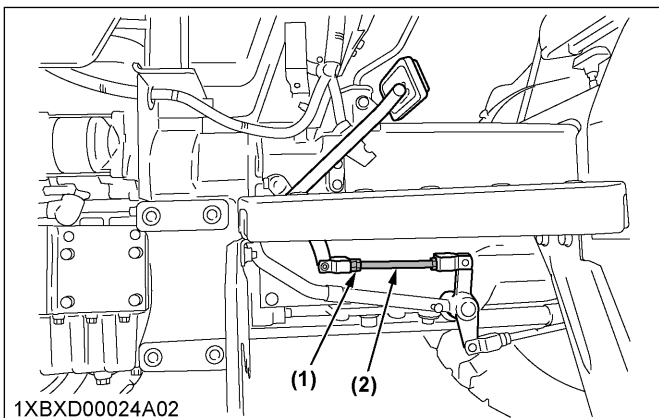
(1) Fuel grommet

4. Adjusting the clutch pedal with single clutch [L3302, L3302-1 Manual transmission type]

- Stop the engine and remove the starter key.
- 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 pedal
---------------------------------	--

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



(1) Lock nut

(2) Clutch rod

5. Adjusting the clutch pedal with dual clutch [L3902, L3902-1 Manual transmission type]

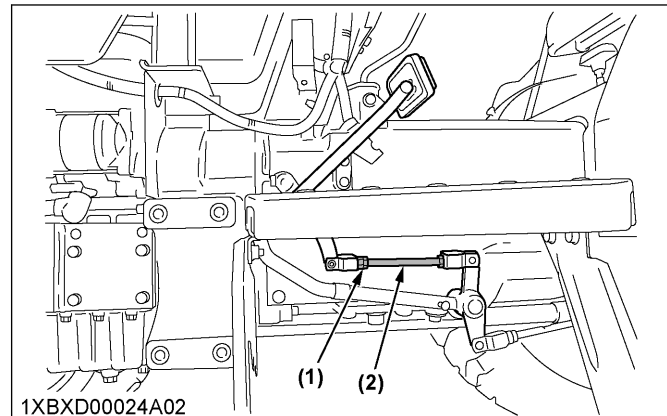
At first adjust of clutch

- Stop the engine and remove the starter key.

- Slightly depress the clutch pedal and measure the free travel at the top of stroke of the clutch pedal.

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

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

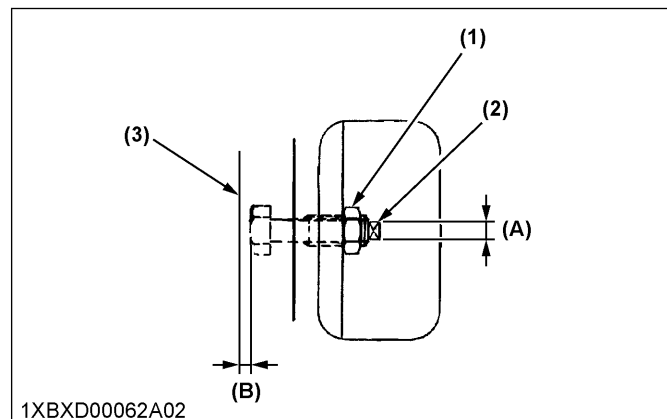


(1) Lock nut

(2) Clutch rod

At Second adjust of clutch

- Remove the cover located on the right side of the flywheel housing case.
- Loosen the lock nut, and then tighten the adjusting bolt by using the 7 mm (0.28 in.) spanner until the head of the adjusting bolt contacts the pressure plate slightly.
- Turn the adjusting bolt counterclockwise to 3/4 to give the following clearance between the head of the adjusting bolt and pressure plate.



(1) Lock nut

(2) Adjusting bolt

(3) Pressure plate

(A) Diameter of adjusting bolt	7 mm (0.28 in.)
(B) Clearance	0.9 mm to 1.0 mm (0.035 in. to 0.039 in.)

- Tighten the lock nut, holding the adjusting bolt.

5. Turn the flywheel to adjust the clearance of other 3 adjusting bolts.
6. Repeat the step 2. and readjust the free travel of the clutch pedal if necessary.

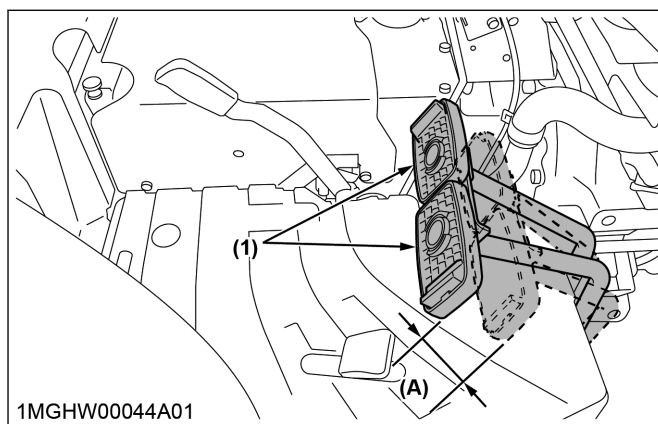
6. Adjusting the brake pedal

⚠ 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.



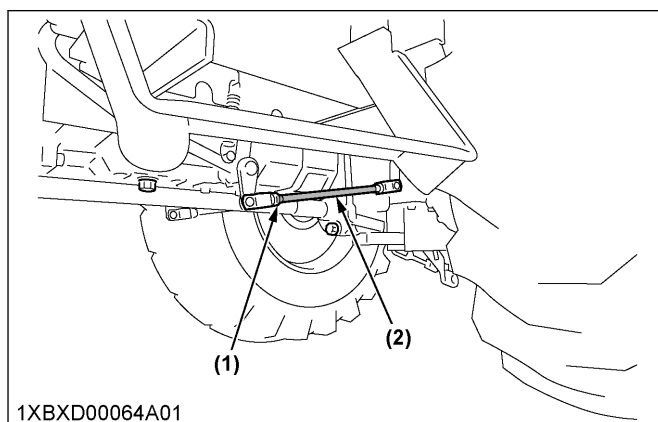
(1) Brake pedal

(A) Free travel

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 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.



(1) Lock nut

(2) Brake rod

4. Retighten the lock nut.

7. Checking the battery condition

⚠ DANGER

To avoid the possibility of battery explosion:

For the refillable type battery, follow these 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

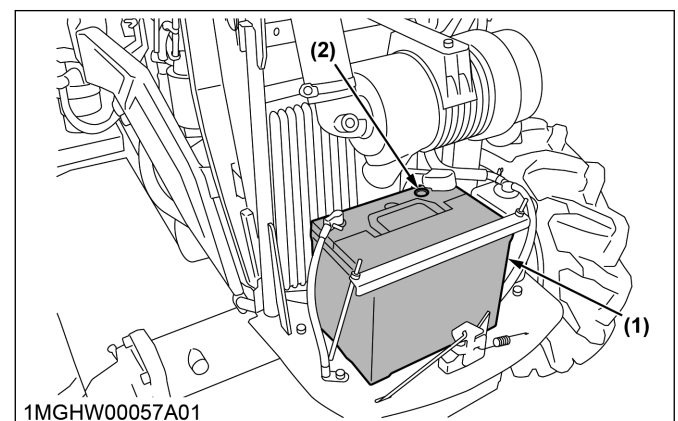
To avoid personal injury or death:

- Never remove the battery cap while the engine is operating.
- Keep the electrolyte away from eyes, hands, and clothes. If you are splattered with the electrolyte, wash away the electrolyte completely with water immediately and get medical attention.
- Keep away open sparks and flames 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

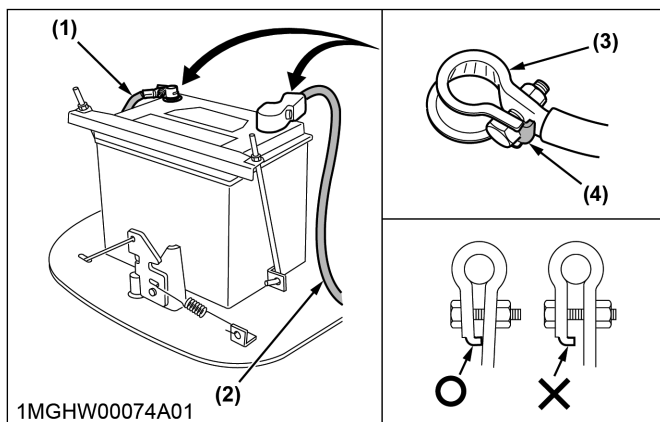
Green	Specific gravity of electrolyte and quality of electrolyte are both in good condition.
Black	Needs charging battery.
White	Needs replacing battery.

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

- Wire the battery cable as shown in the following figure.
- Tighten the terminal until the stopper comes in contact.



(1) Negative cable
(2) Positive cable

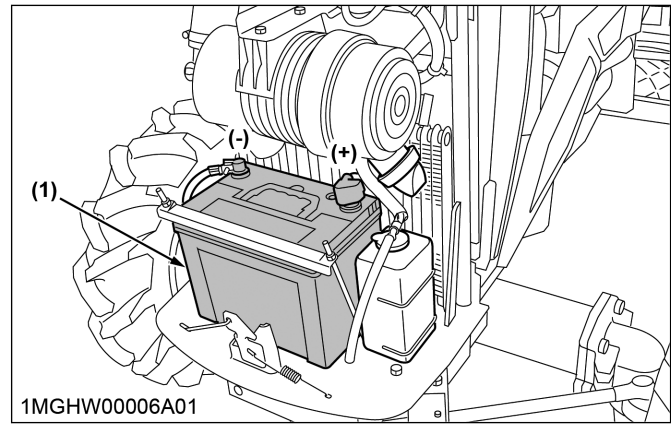
(3) Terminal
(4) Stopper

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 away open sparks and flames 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 setting a metal object across the posts. Use a voltmeter or hydrometer.



(1) Battery

- To charge the battery normally, 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.

Replacing the battery

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)*1	Normal charging rate (A)
[Manual transmission type] 75D23R	12	110	580	6.5
[HST type] 80D26R*2	12	120	600	7.5
[HST type] 85D26R*3	12	130	650	7.5

*1 CCA means Cold cranking ampere.

*2 For the Engine ECUs No. 1H092-6998-0 or 1H093-6998-0

*3 For the Engine ECUs No. 1H092-6998-0, 1H093-6998-0, 1H403-6898-0, or 1H404-6898-0

Direction for battery storage

- When storing the tractor for long periods of time, follow the following procedure.
 - Remove the battery from the tractor.
 - Adjust the electrolyte to the proper level.
 - Store the battery in a dry place out of direct sunlight.
- Recharge the battery once every 3 months in hot seasons and once every 6 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

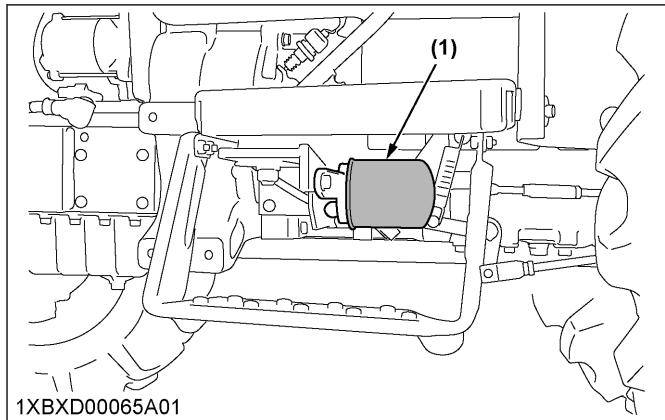
To avoid personal injury or death:

- 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 :

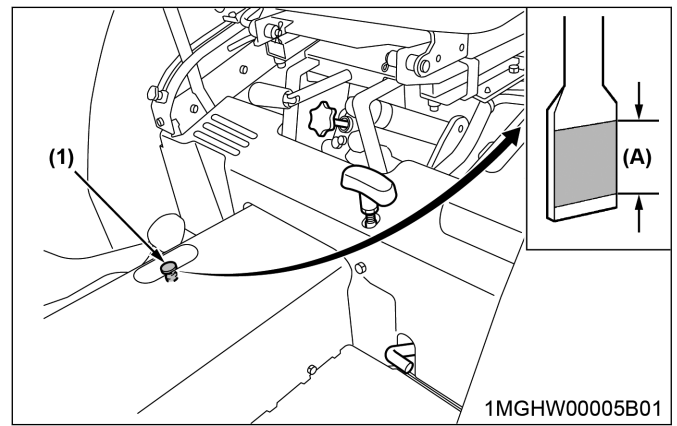
- To prevent serious damage to the hydraulic system, use only a Kubota genuine filter.

1. Set 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.



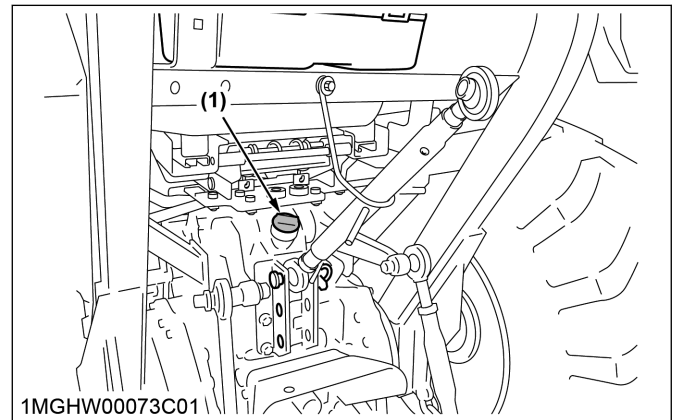
(1) Transmission oil filter [HST type]

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 only an additional 1 turn.
5. After the new transmission-oil filter has been replaced, fill with the transmission oil from the oil inlet up to the upper notch on the dipstick.



(1) Dipstick

(A) Range that transmission oil level is acceptable within



(1) Oil inlet

6. After operating the engine for a few minutes, stop the engine and check the level of the transmission oil again.
7. If the transmission oil level is low, add the transmission oil to the prescribed level.
8. 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. Operate the engine at medium speed for a few minutes to prevent damage to the transmission.

2. Checking the toe-in

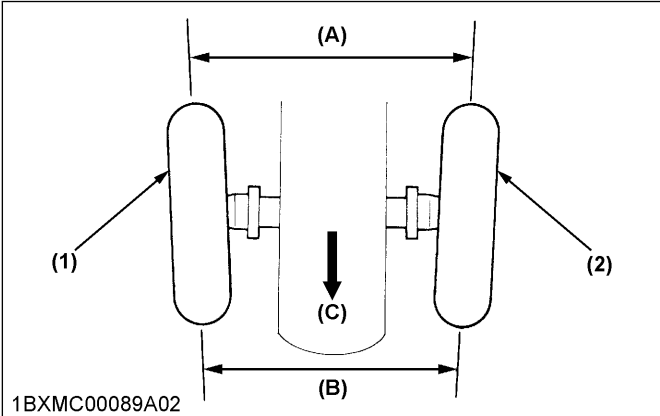
⚠ WARNING

To avoid personal injury or death:

1. Park the tractor on a firm, flat, and level place.
2. Lower the implement to the ground and lock the parking brake.
3. 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.

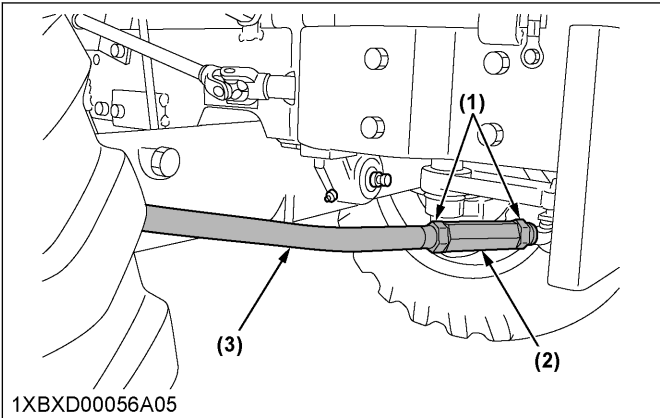


- (1) Front tire (RH)
- (2) Front tire (LH)
- (A) Wheel-to-wheel distance at rear
- (B) Wheel-to-wheel distance at front
- (C) Front

Proper toe-in value (A) - (B)	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

SERVICE EVERY 400 HOURS
OR 1 YEAR

Perform the prescribed servicing once every 400 hours or yearly, whichever comes first.

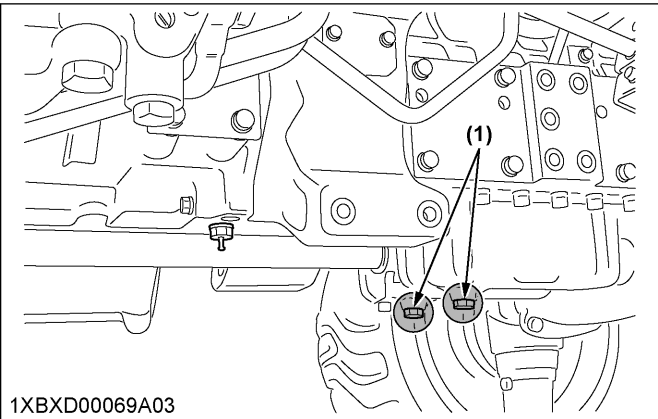
1. Changing the engine oil

⚠ WARNING

To avoid personal injury or death:

- 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.



- (1) Drain plug

- 2. After draining the engine oil, reinstall the drain plug.

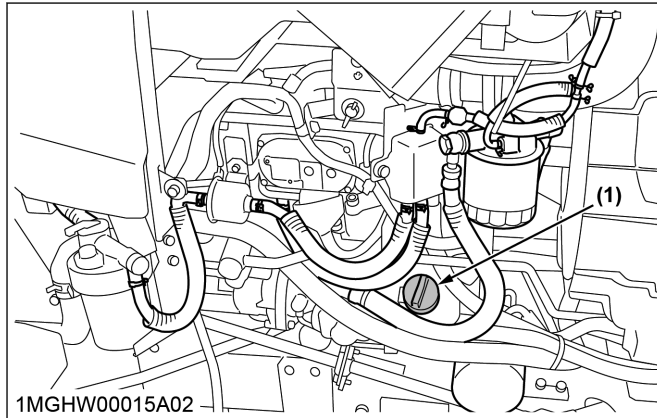
- Fill with the new engine oil from the oil inlet up to the upper notch on the dipstick.
(See LUBRICANTS, FUEL, AND COOLANT on page 96)

Engine oil capacity with engine oil filter	6.7 L (7.1 U.S.qts.)
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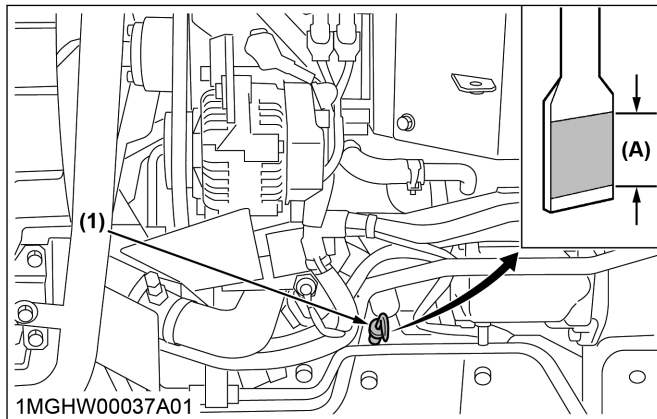
IMPORTANT :

- Use the following engine oil for the engine.

Engine oil	DPF-compatible oil (CJ-4 or better quality)
------------	---



(1) Oil inlet



(1) Dipstick

(A) Range that engine oil level is acceptable within

SERVICE EVERY 400 HOURS**1. Replacing the engine oil filter****⚠ WARNING**

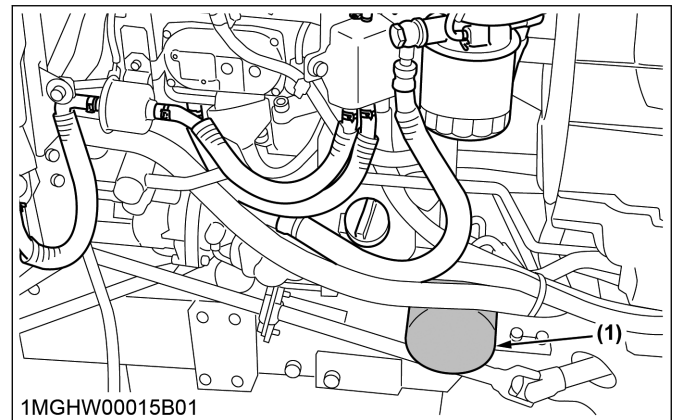
To avoid personal injury or death:

- 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.

- Remove the engine-oil filter.



(1) Engine oil filter

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

2. Changing the transmission fluid, replacing the hydraulic oil filter, and cleaning the magnetic filter**⚠ WARNING**

To avoid personal injury or death:

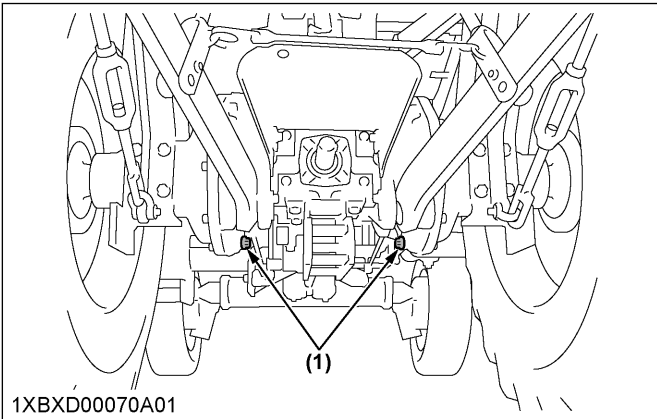
- Stop the engine and remove the starter key before changing the hydraulic oil-filter cartridge.
- Allow the engine to cool down sufficiently because the transmission oil can be hot and can burn.

IMPORTANT :

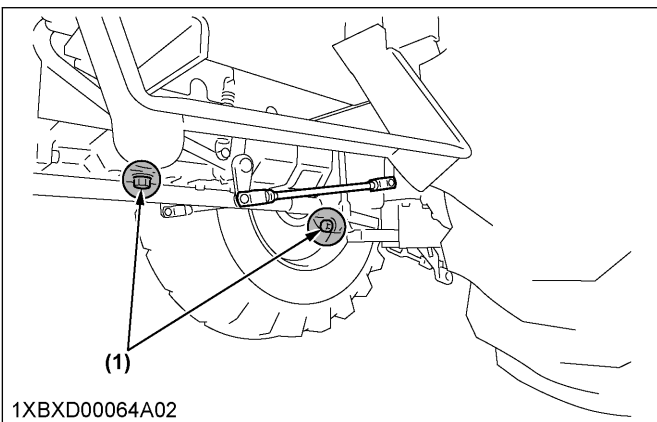
- To prevent serious damage to the hydraulic system, use only a Kubota genuine filter.

- 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.

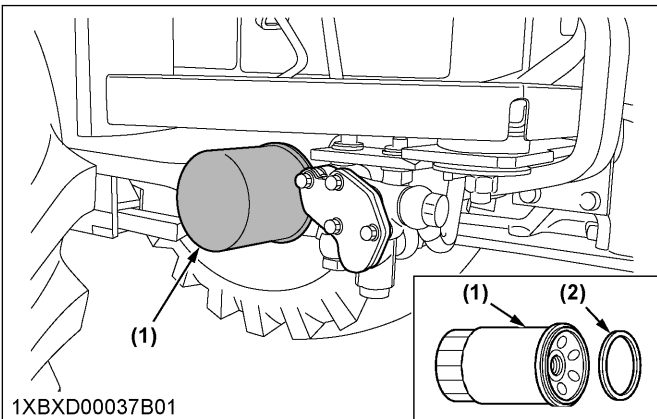


(1) Drain plugs



(1) Drain plugs

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

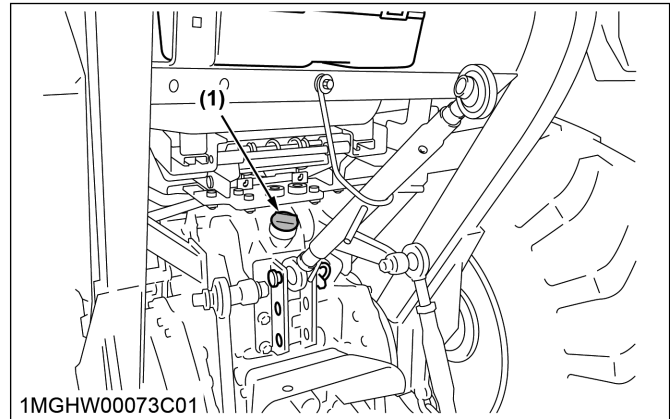


(1) Hydraulic oil filter

(2) Magnetic filter (wipe off metal filings)

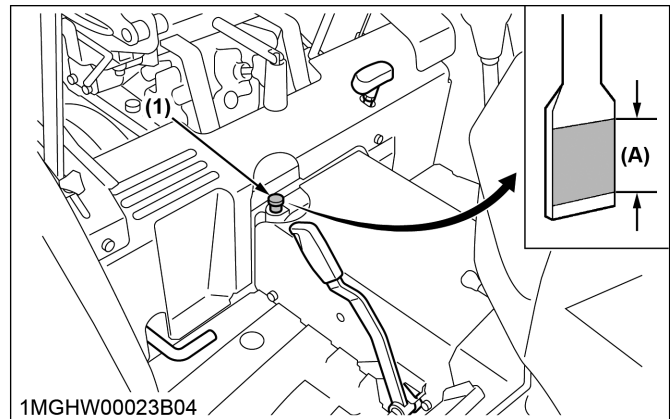
5. Put a film of clean transmission oil on the rubber seal of the new hydraulic-oil filter.
6. Quickly tighten the hydraulic-oil filter until it contacts the mounting surface, then tighten it by hand only an additional 1/2 turn.
7. Fill with the new Kubota SUPER UDT fluid from the oil inlet up to the upper notch on the dipstick.

(See LUBRICANTS, FUEL, AND COOLANT on page 96)



(1) Oil inlet

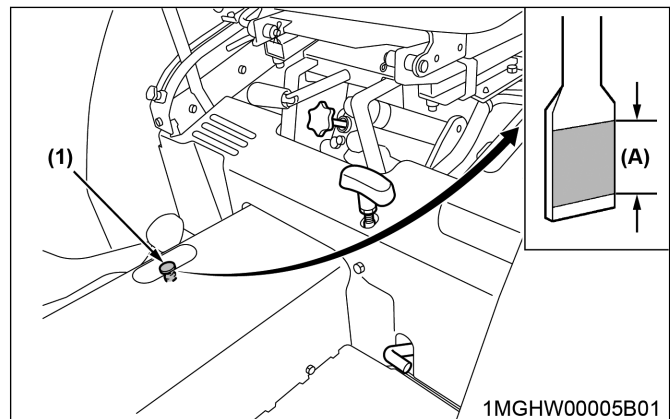
[Manual transmission type]



(1) Dipstick

(A) Range that transmission oil level is acceptable within

[HST type]



(1) Dipstick

(A) Range that transmission oil level is acceptable within

8. After operating the engine for a few minutes, stop the engine and check the level of the transmission oil again.

9. If the transmission oil level is low, add the transmission oil to the prescribed level.

Transmission oil capacity	Manual transmission	28.5 L (7.5 U.S.gals.)
	HST	26.0 L (6.9 U.S.gals.)

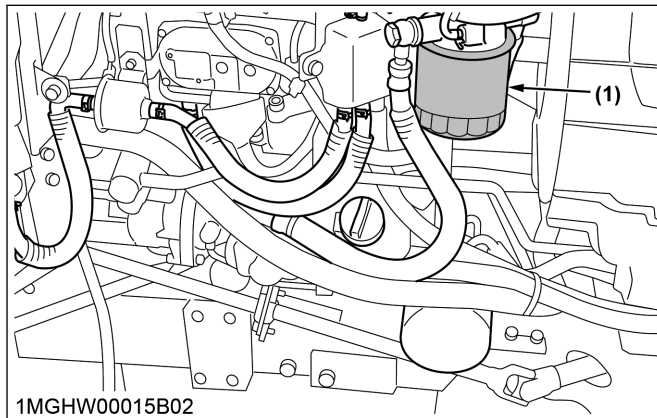
10. Make sure that the transmission fluid does not leak past the seal on the hydraulic-oil filter.

IMPORTANT :

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

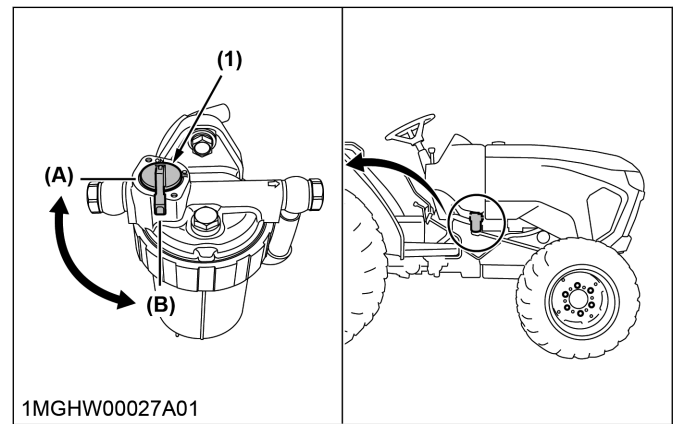
3. Replacing the fuel filter

1. Remove the fuel filter.



(1) Fuel filter

- Put a film of clean fuel on the rubber seal of the new filter.
- Tighten the fuel filter quickly until it contacts the mounting surface.
- Tighten the fuel filter by hand only an additional 1/2 turn.
- Bleed the fuel system.
(See Bleeding the fuel system on page 127)



(1) Fuel shutoff-valve

(A) Close
(B) Open

4. Cleaning the water separator

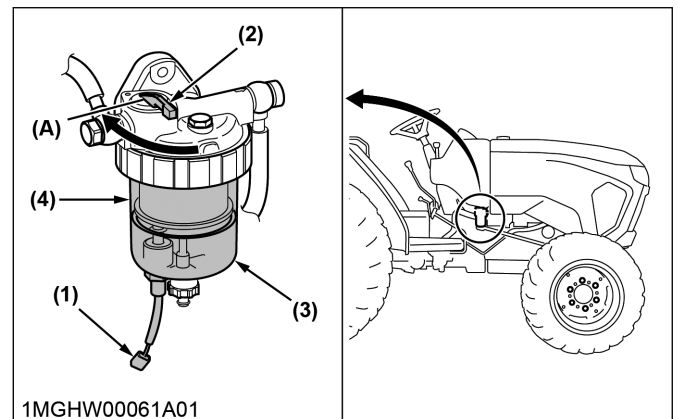
This job should not be performed in the field, but in a clean place.

- Disconnect the connector of water sensor.
- Close the fuel shutoff-valve.
- Loosen the cup and remove it, then rinse the inside with kerosene.
- Remove the element and dip it in the kerosene to rinse.

IMPORTANT :

- If a fuel element is broken, replace it with new one.

- After cleaning, reassemble the water separator, keeping out dust and dirt.
- Connect the connector of water sensor.



(1) Water sensor connector
(2) Fuel shutoff-valve
(3) Cup
(4) Element

(A) Close

7. Bleed the fuel system.
(See Bleeding the fuel system on page 127)

IMPORTANT :

- If the water separator and/or fuel filter is not kept in good condition, the supply pump and injector may be damaged earlier than expected.

SERVICE EVERY 600 HOURS

1. Adjusting the front axle pivot

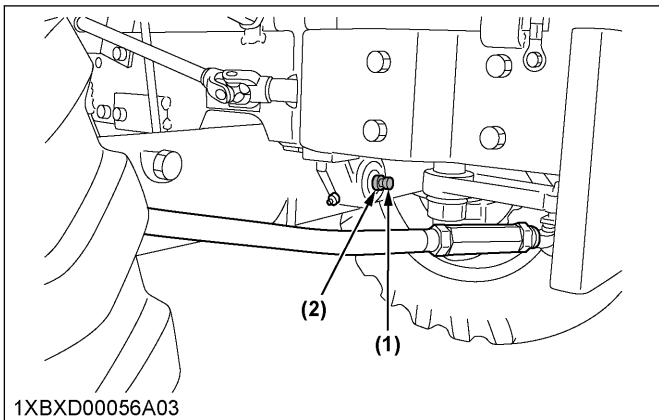
WARNING

To avoid personal injury or death:

- Stop the engine and remove the starter key before checking 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 adjusting screw with an additional 1/6 turn.
3. Retighten 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:

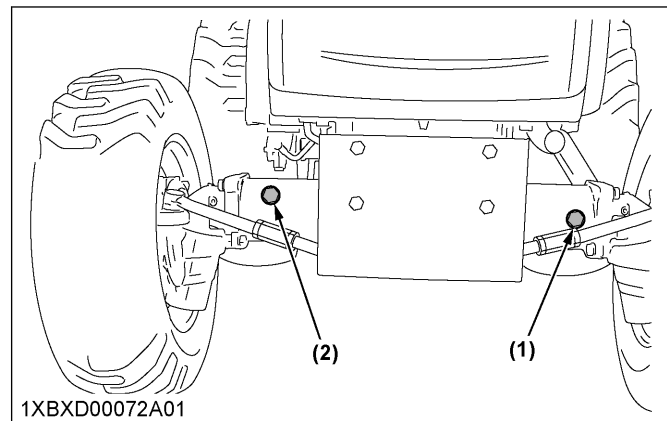
- Stop the engine and remove the starter key before changing the front axle-case oil.

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. 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 96)

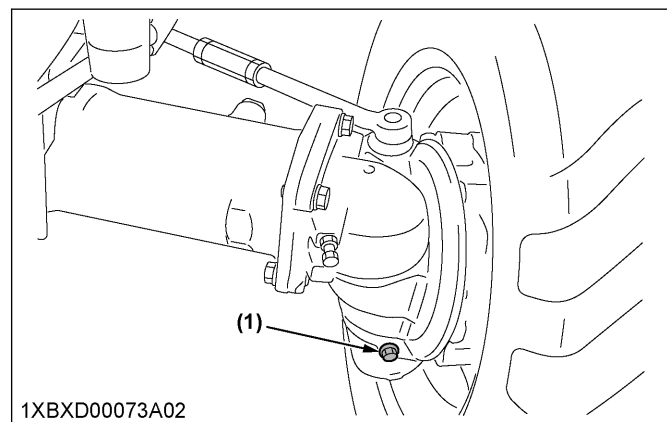
Front axle case oil capacity	4.5 L (4.8 U.S.qts.)
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4. After filling, reinstall the filling plug.
5. Operate the machine a few minutes in order for the front axle-case oil to flow through the front-axle case.
6. Remove the oil level-check plug and check to see if the front axle-case oil flows out of its port.



(1) Check plug

(2) Filling plug



(1) Drain plug

7. If the front axle-case oil does not flow out, add the front axle-case oil from the filling port until it flows out of the oil level-check port.
8. Reinstall and tighten the oil level-check plug and the filling plug.

2. Adjusting the engine valve clearance

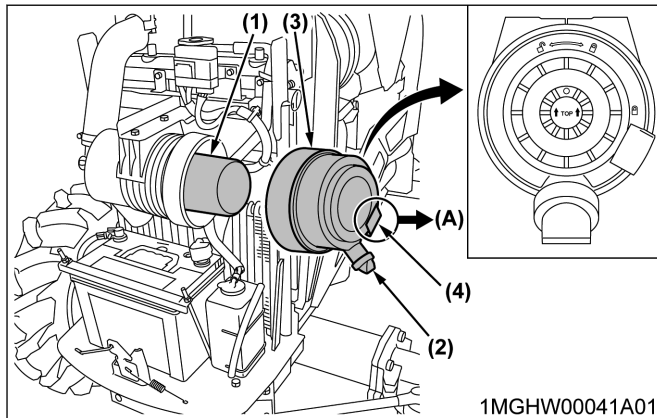
Consult your local Kubota Dealer for adjusting the clearance of the engine valve.

SERVICE EVERY 1000 HOURS OR 1 YEAR

Perform the prescribed servicing once every 1000 hours or yearly, whichever comes first.

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

1. Remove the air-cleaner element.
2. Attach new air-cleaner element.
(See Cleaning the air cleaner element on page 110)



- (1) Air cleaner element
(2) Evacuator valve
(3) Cover
(4) Hook
(A) Unlock

IMPORTANT :

- Refit the cover with the arrow ↑ to be upward. If the cover is improperly fitted, dust passed by the baffle and directly adheres to the element.

2. Checking the exhaust manifold

Consult your local Kubota Dealer for checking the exhaust manifold.

SERVICE EVERY 1500 HOURS

1. Cleaning the fuel injector nozzle tip

Consult your local Kubota Dealer for cleaning the fuel injector-nozzle tip.

2. Checking the positive crankcase ventilation (PCV) valve

Consult your local Kubota Dealer for checking the PCV valve.

3. Checking and cleaning the EGR cooler

Consult your local Kubota Dealer for checking and cleaning the EGR cooler.

SERVICE EVERY 2000 HOURS OR 2 YEARS

Perform the prescribed servicing 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.

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.

IMPORTANT :

- Use clean, fresh, soft water and antifreeze to fill the radiator and coolant-recovery tank.
- When mixing the antifreeze with water, the antifreeze mixing ratio is 50 %.

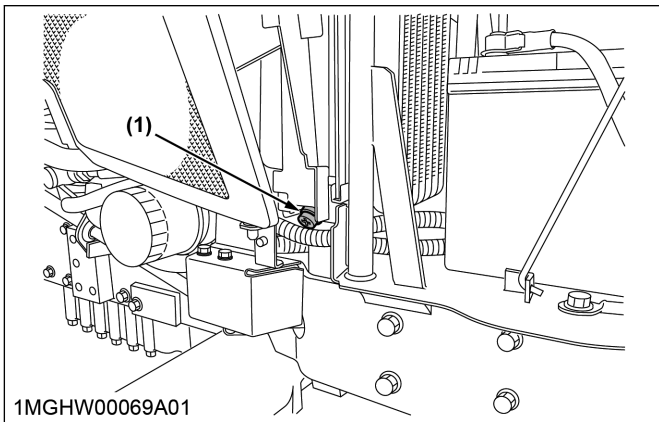
7. Install the radiator cap securely.

IMPORTANT :

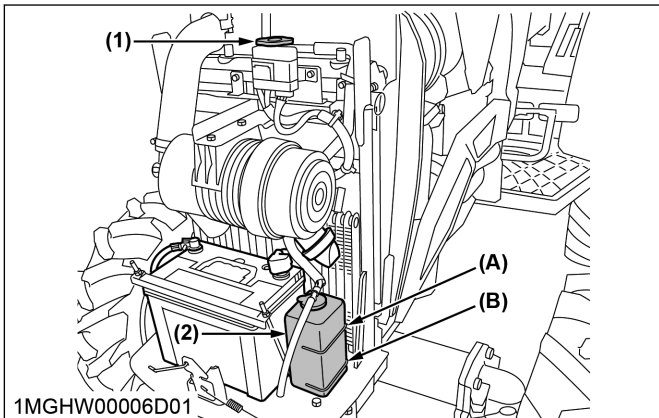
- Securely tighten the radiator cap. If the radiator cap is loose or improperly fitted, water may leak out and the engine could overheat.

8. Fill with coolant up to the “FULL” mark of coolant-recovery tank.

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



(1) Drain plug



(1) Radiator cap (A) Full
(2) Coolant recovery tank (B) Low

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 coolant-recovery tank and add coolant if necessary.

12. Properly dispose of the used coolant.

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 off antifreeze 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, set 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.

- 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 times or 3 times to clean up the inside.
- **Mixing the LLC**
Premix 50 % LLC with 50 % clean, soft water. When mixing, stir LLC-mixed water 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}
	℃ (°F)	℃ (°F)
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 genuine long-life coolant is 2 years. 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 that permits the development of pressure within the cooling system.

NOTE :

- The data represents industry standards that necessitate a minimum glycol content in the concentrated antifreeze.

SERVICE EVERY 3000 HOURS

1. Checking the supply pump

Consult your local Kubota Dealer for checking the supply pump.

2. Checking and cleaning the EGR system

Consult your local Kubota Dealer for checking and cleaning the EGR system.

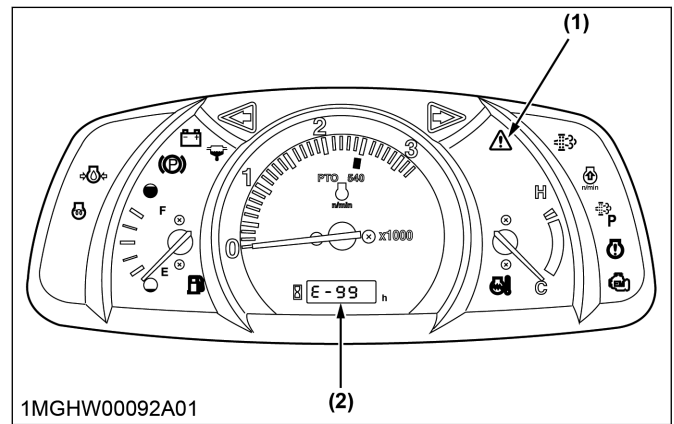
SERVICE EVERY 3000 HOURS TO 6000 HOURS

1. Cleaning the DPF muffler

Removal of ash

The longer the DPF operates, the more ash (burnt residue) is collected in the filter. Too much ash build-up adversely affects the DPF performance.

- **Ash cleaning notification**
After every 3000 hours to 6000 hours on the hour meter, the master-system-warning-indicator lights up and when the code shown in the following is displayed on the liquid-crystal-display, DPF needs to be cleaned.
The clean-up intervals depend on the engine's operating conditions and other factors.



(1) Master system warning indicator (2) Error code

- Consult your local Kubota Dealer to clean the filter.

IMPORTANT :

- The DPF needs to be cleaned with a specific cleaning device. Do not disassemble the DPF for cleaning or attempt to clean it yourself. Consult your local Kubota Dealer.

SERVICE EVERY 1 YEAR

1. Checking the fuel line

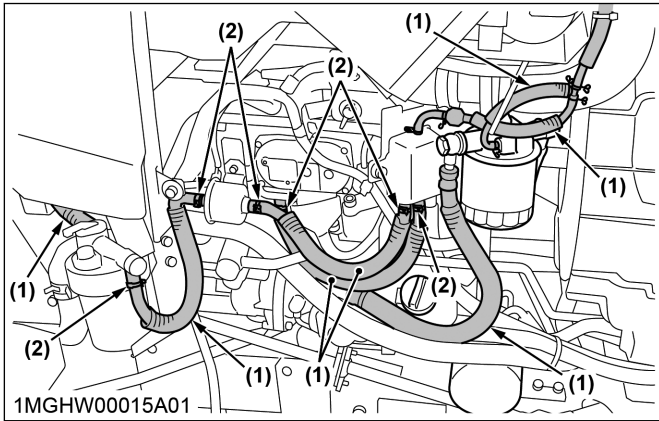
⚠ WARNING

To avoid personal injury or death:

- Stop the engine and remove the starter key before checking the fuel line.
- Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the operating engine, causing a fire.

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

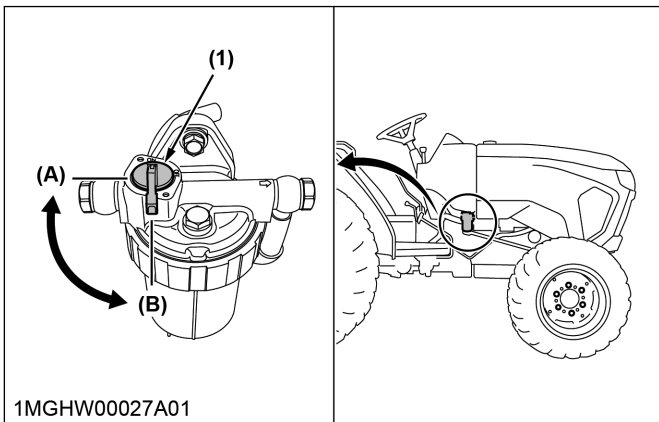
2. If the hoses and the hose clamps are found worn or damaged, replace or repair them at once.



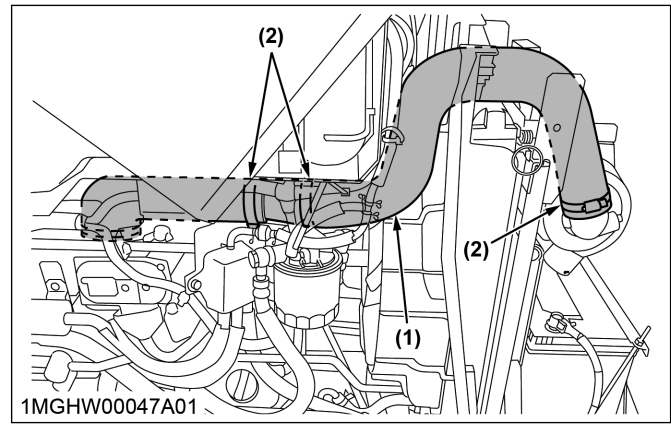
(1) Fuel lines (2) Clamp bands

NOTE :

- If the fuel line is removed, properly bleed the fuel system.
(See Bleeding the fuel system on page 127)



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



(1) Hose (2) Hose clamps

3. Checking the radiator hose and clamp

⚠ WARNING

To avoid personal injury or death:

- Stop the engine and remove the starter key before checking the radiator hose and hose clamps.

Check to see if radiator hoses are properly fixed every year.

1. If hose clamps are loose or water leaks, tighten the bands securely.

2. Checking the intake air line

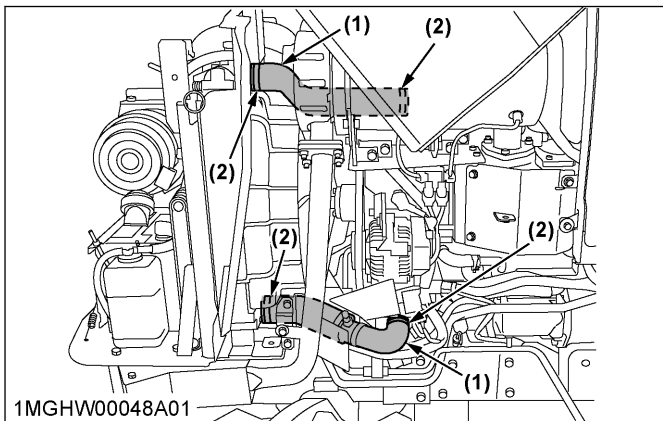
⚠ WARNING

To avoid personal injury or death:

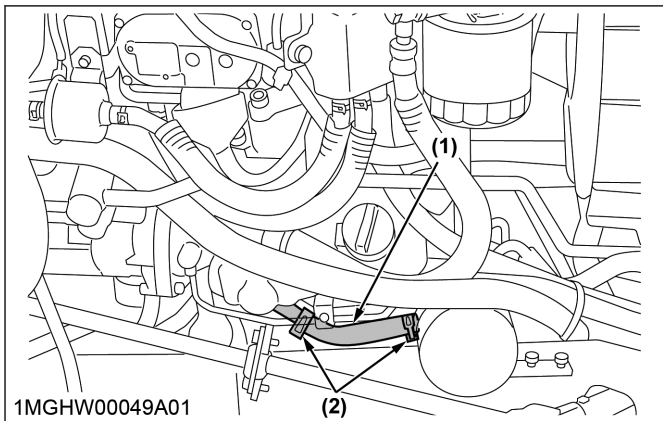
- Stop the engine and remove the starter key before checking the intake-air-line.

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.

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



(1) Radiator hoses (2) Clamp bands



(1) Radiator hoses (2) Clamp bands

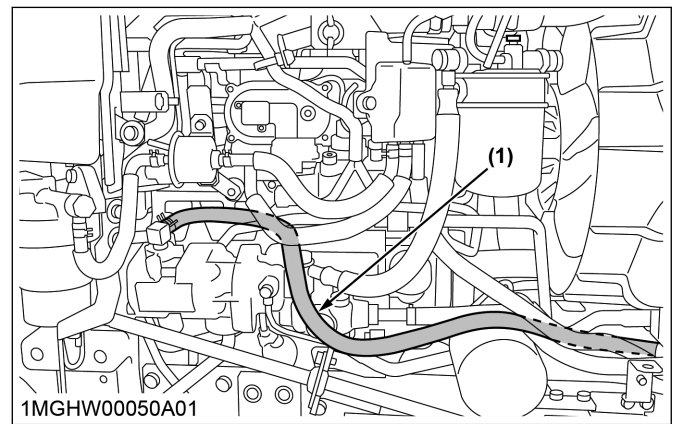
4. Checking the power steering line [Manual transmission type only]

⚠ WARNING

To avoid personal injury or death:

- Stop the engine and remove the starter key before checking 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

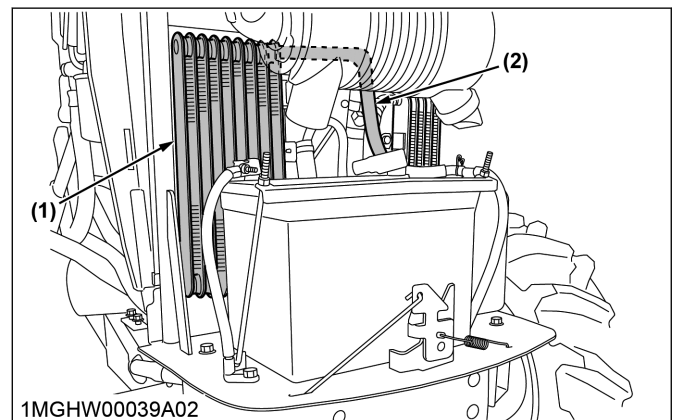
5. Checking the oil cooler line [HST type only]

⚠ WARNING

To avoid personal injury or death:

- Stop the engine and remove the starter key before checking 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.



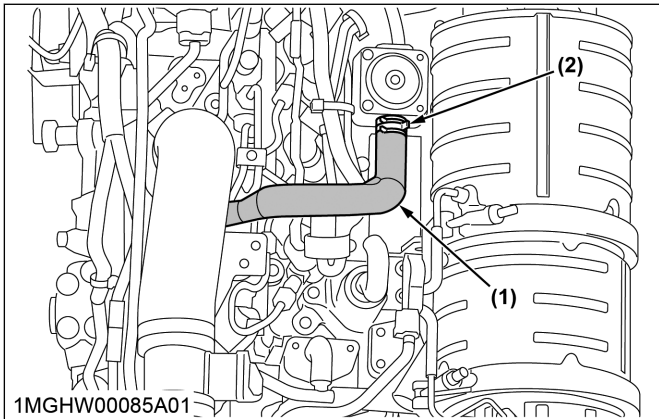
(1) Oil cooler (2) Oil cooler line

6. Checking the oil separator hose

1. Check to see that all hoses and hose clamps are tight and not damaged.

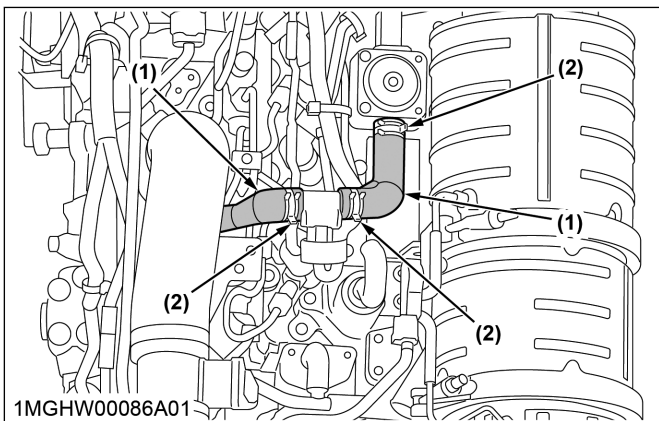
- If hoses and hose clamps are found worn or damaged, replace or repair them at once.

[Standard type]



(1) Drain hose (2) Hose clamps

[Canada type]



(1) Drain hose (2) Hose clamps

7. Checking the antifrost heater for oil separator (if equipped)

Consult your local Kubota Dealer for checking the antifrost heater for oil separator.

8. Checking the DPF differential pressure sensor pipe

Consult your local Kubota Dealer for checking the DPF-differential pressure-sensor pipe.

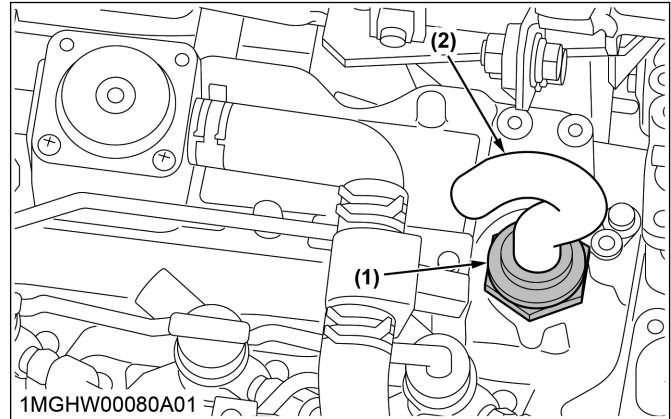
9. Checking the EGR pipe

Consult your local Kubota Dealer for checking the EGR pipe.

10. Checking the relief valve

- Check the breather tube for crack and gas leakage and replace them if necessary.

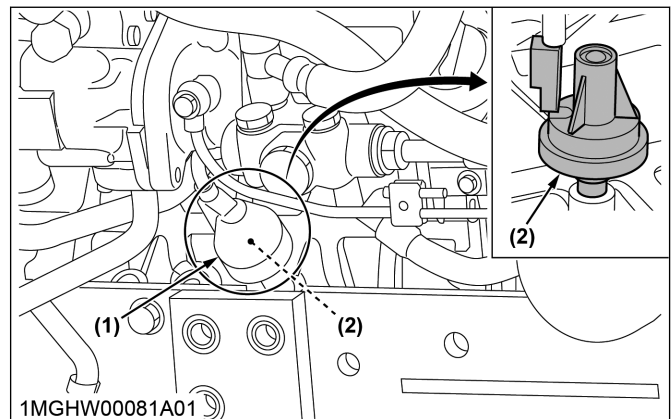
- Before winter, check the hoses for crack and the hole of the breather tube for any foreign object stuck in it, and replace them if necessary.



(1) Relief valve (2) Breather tube

11. Checking the CCV pressure switch

- Remove the pressure switch cover.
- Check the terminals, pressure switch, and others.
- If any damage or corrosion are found, do not use the machine and consult your local Kubota Dealer for repair request.



(1) Pressure switch cover (2) CCV pressure switch

SERVICE EVERY 2 YEARS

1. Replacing the fuel grommet

Consult your local Kubota Dealer for replacing the fuel grommet.

2. Checking the power steering hose [Manual transmission type only]

Consult your local Kubota Dealer for checking the power-steering hose.

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

Consult your local Kubota Dealer for checking the oil-cooler line.

4. Checking the radiator hose (water pipes)

Consult your local Kubota Dealer for checking the radiator hoses.

5. Checking the oil separator hose

Consult your local Kubota Dealer for checking the oil-separator hose.

6. Replacing the DPF differential pressure sensor hose

Consult your local Kubota Dealer for replacing the DPF differential pressure sensor hose.

SERVICE EVERY 4 YEARS

1. Replacing the fuel line

Consult your local Kubota Dealer for replacing the fuel hose.

2. Replacing the intake air line

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

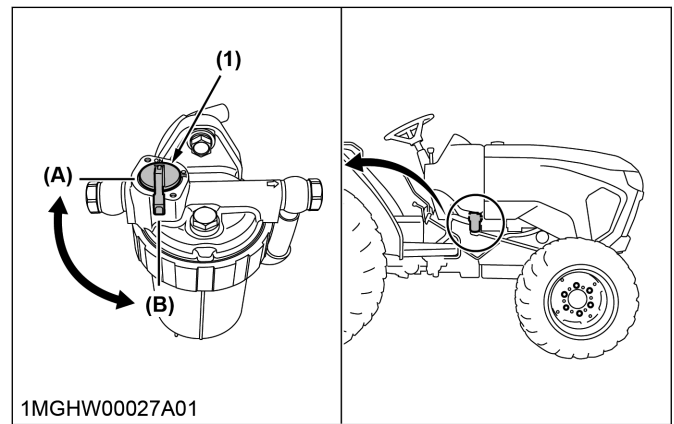
SERVICING AS REQUIRED

1. Bleeding the fuel system

Remove the air in the following cases:

- When the fuel filter or lines are removed
- When water is drained from the water separator
- When the fuel tank is completely empty
- After you have not used the tractor for a long period of time

1. Fill the fuel tank with fuel, and open the fuel shutoff-valve.

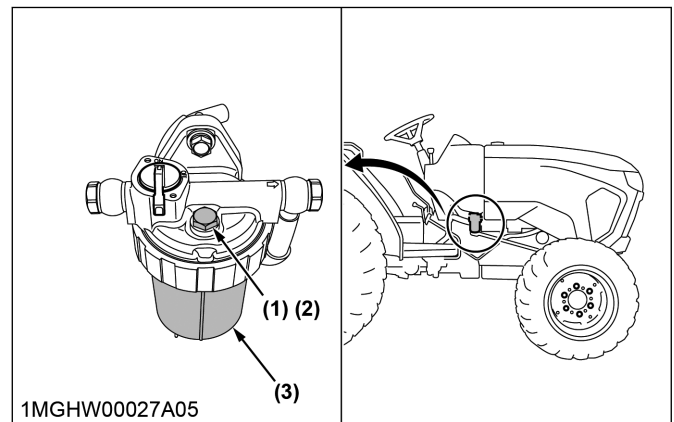


(1) Fuel shutoff-valve

(A) Close
(B) Open

If there is an empty room in the cup, loosen the plug on the fuel filter 2-1/2 to 3 turns, then tighten up the plug after checking the air is removed.

If oil leakage occurs, consult your local Kubota Dealer immediately for replacing the O-ring.



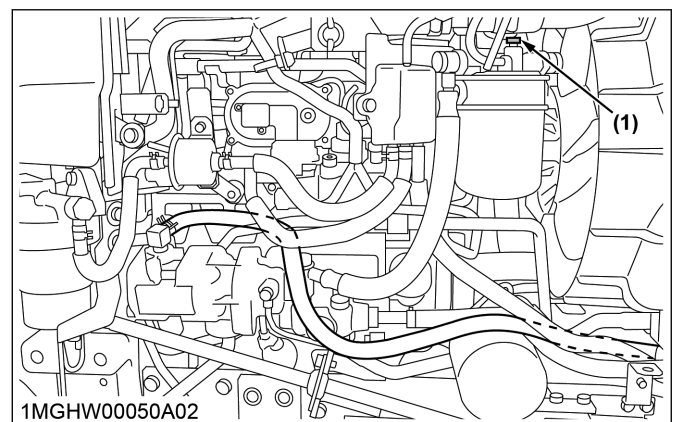
(1) Plug
(2) O-ring

(3) Cup

IMPORTANT :

- Make sure the O-ring is properly placed in the groove when tightening the plug.

2. Loosen the air-vent plug on the fuel filter 2 turns or so.



(1) Air vent plug

3. Turn on the key switch and wait for about 1 minute. Then tighten up the air-vent plug.
4. Set the hand-throttle lever at the minimum speed position and turn the starter key to the "START" position.
5. If the engine does not start, try step 4. several times at 30 second intervals.

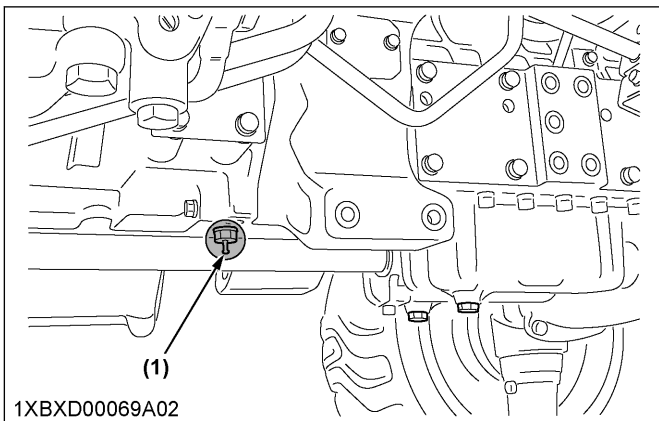
IMPORTANT :

- **Do not hold the key switch at "START" position for more than 10 seconds continuously. If more engine cranking is needed, try again after 30 seconds.**
6. Accelerate the engine to remove the small portion of air left in the fuel system.
 7. If air still remains and the engine stops, repeat the preceding steps.

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.



(1) Split pin plug

3. Then install the split-pin plug again.

NOTE :

- **Since the seal of the HST input shaft has a high internal pressure, the oil seal might not follow and a small amount of oil leak might occur during high speed at low temperature. There is no need to replace the oil seal when this happens as this is not a failure of the part.**

3. Replacing the fuse

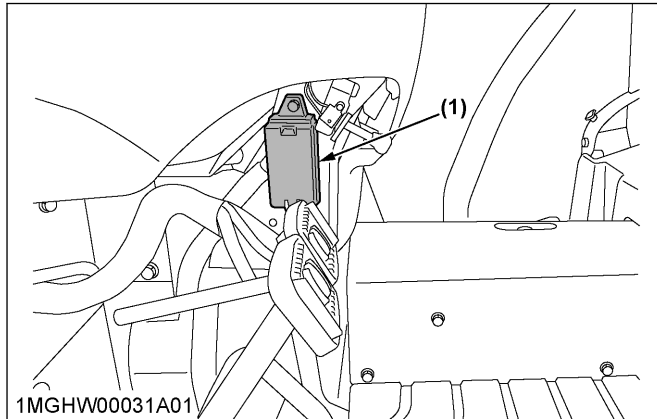
IMPORTANT :

- **Before replacing a blown fuse, determine why the fuse blew and perform any necessary repairs. Failure to follow this procedure may result in serious damage to the electrical system of the tractor. See ENGINE TROUBLESHOOTING on page 133 or your local Kubota Dealer for specific information dealing with electrical problems.**

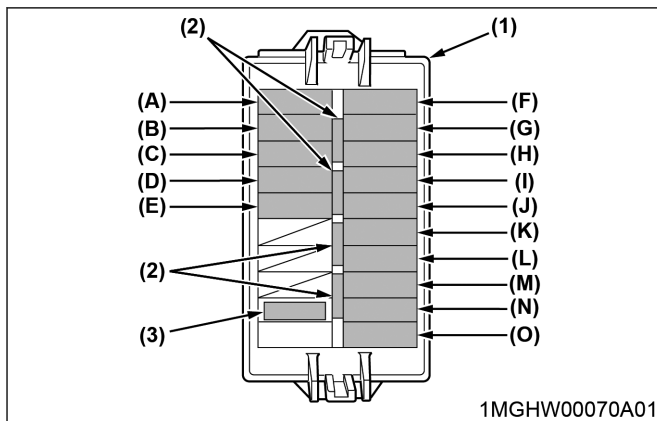
The electrical system of the tractor is protected from potential damage by fuses.

A blown fuse indicates that there is an overload or short somewhere in the electrical system.

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



(1) Fuse box



(1) Fuse box

(2) Spare fuse

(3) Fuse puller

Protected circuit

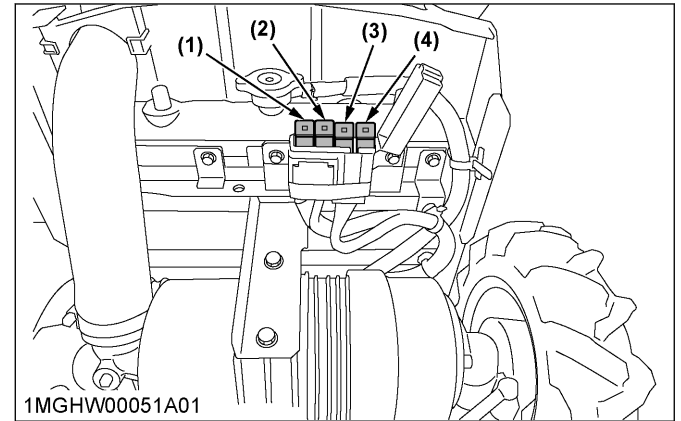
Fuse No.	Capacity (A)	Protected circuit
(A)	15	Flasher (Battery)
(B)	5	Hazard (Battery)
(C)	20	CCV heater (IG)
(D)	10	Work light (if equipped)
(E)	15	Power supply (IG)
(F)	5	Meter (IG)
(G)	5	Engine (IG)
(H)	5	Main (IG)
(I)	5	SW sense (IG)
(J)	10	Head light (IG)
(K)	5	Flasher and buzzer (IG)
(L)	5	Starter
(M)	5	Meter and OBD (Battery)
(N)	20	Engine (Battery)
(O)	5	Main (Battery)

4. Replacing the slow blow fuses

The slow blow fuses are intended to protect the electrical cabling.

- If any of the slow blow fuses has blown out, pinpoint the cause.

Never use any substitute, use only a Kubota genuine part.



No.	Capacity (A)	Protected circuit
(1) Slow-blow fuse 1	60	Alternator / Glow
(2) Slow-blow fuse 2	50	Key switch / CCV
(3) Slow-blow fuse 3	50	IG relay
(4) Slow-blow fuse 4	30	Starter

5. Replacing the light bulb

- Replace the light bulb of the light in the following table if necessary.

Light	Capacity
Tail lamp	5 W
Turn signal / hazard light (rear)	21 W
Turn signal / hazard light (front)	23 W

6. Replacing the LED light

- If the LED head light or the side work led light is no longer functioning, consult your local Kubota Dealer for replacing the LED light.

7. 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.

Consult your local Kubota Dealer for replacing the radiator hose.

8. 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.

9. 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.

10. Replacing the power steering line if required [Manual transmission type only]

Replace the power-steering-line if any deterioration such as crack, hardening, scar, or deformation, or damage occurred.

Consult your local Kubota Dealer for replacing the power-steering line.

11. 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.

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

12. Replacing the oil separator hose if required

Replace the oil-separator hose if any deterioration such as crack, hardening, scar, or deformation, or damage occurred.

Consult your local Kubota Dealer for replacing the oil-separator hose.

STORAGE OF THE TRACTOR

⚠ WARNING

To avoid personal injury or death:

- Do not clean the tractor while the engine is operating.
- To avoid the danger of exhaust-fume poisoning, do not operate the engine in a closed building without proper ventilation.
- When storing the tractor, remove the starter key from the key switch to avoid unauthorized persons from operating the tractor and getting injured.

STORING THE TRACTOR

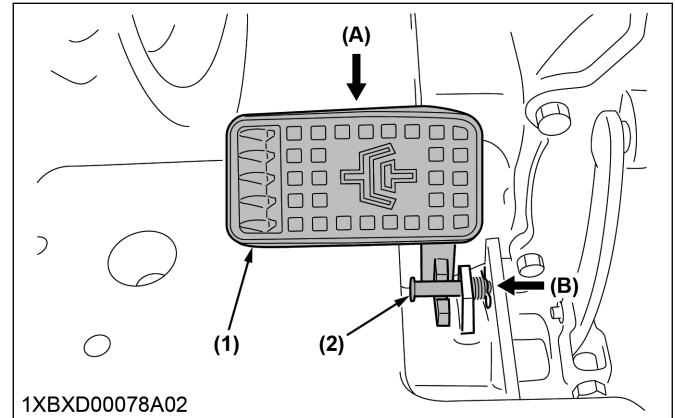
If you intend to store your tractor for an extended period of time, follow the proper storing procedures. Proper storing procedures will ensure that the tractor is ready to operate with minimum preparation when it is removed from storage.

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. Remove the weights from the tractor body.
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and operate the engine to circulate oil throughout the engine block and the 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.

 - a. To keep the clutch disengaged, depress the clutch pedal and get it locked with the lock pin as the following figure.

[Manual transmission type]



- (1) Clutch pedal
(2) Lock pin

- (A) Disengage
(B) 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 113)
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.
11. Jack the tractor up and set 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 :

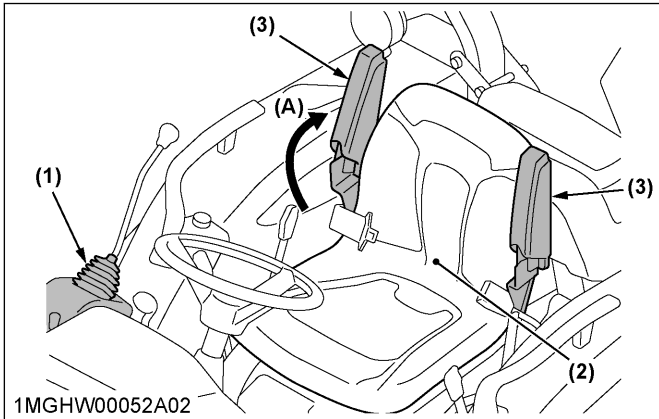
- When washing the tractor, stop the engine. Allow sufficient time for the engine to cool before washing the tractor.
- Cover the tractor after the muffler and the engine have cooled down.

FLIPPING THE SEAT WITH FRONT LOADER (IF EQUIPPED WITH ARMREST KIT)

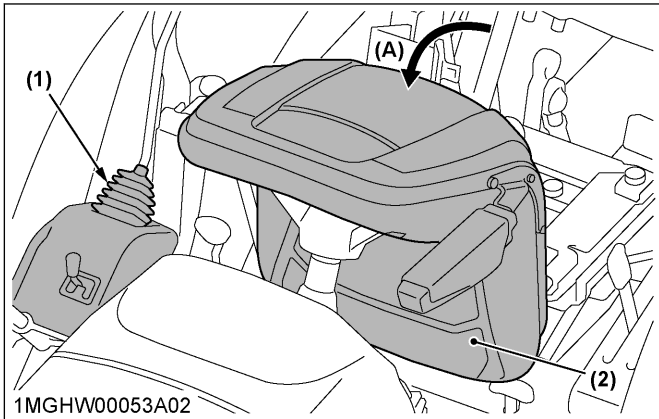
An armrest kit is available as an option from your dealer.

If you intend to raise the seat with the front loader and optional armrest attached, raise the armrest to avoid contact with the loader valve cover before raising the seat.

Hitting the loader valve cover with the armrest may cause damage to the loader valve cover.



- (1) Loader valve cover
(2) Seat
(3) Armrest
(A) Up



- (1) Loader valve cover
(2) Seat
(A) Forward

- a. Move the tractor outside.
 - b. Once outside, park the tractor.
 - c. Let the engine idle for at least 5 minutes.
 - d. Shut off the engine.
9. Walk around tractor and perform a visual inspection looking for evidence of oil or water leaks.
 10. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes if necessary.

REMOVING THE TRACTOR FROM STORAGE

1. Check the air pressure of the tires and inflate the tires if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Before installing the battery, be sure that it is fully charged.
4. Install the battery.
5. Check the tension of the fan belt.
6. Check the fluid levels and any attached implements.
Check the following:
 - Engine oil
 - Transmission oil and hydraulic oil
 - Engine coolant
 - Implement if any fluid is used
7. Start the engine. Check all gauges.
8. If all gauges are functioning properly and reading normal, follow the following procedure.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

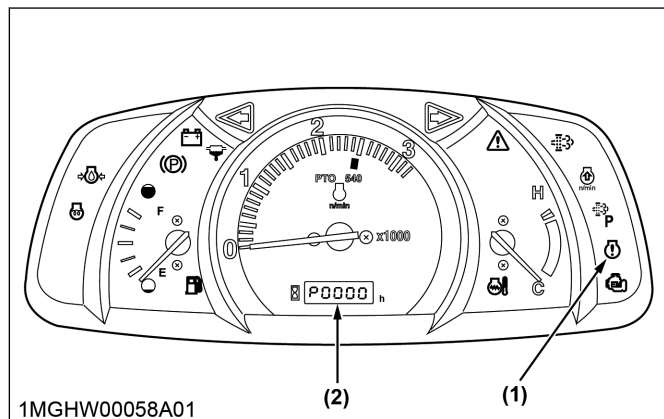
If something is wrong with the engine, see the following table for the cause of the trouble and its corrective measure.

Trouble		Cause	Countermeasure
Engine is difficult to start or will not start.		No fuel flow.	Check the fuel tank and the fuel filter. Replace the filter if necessary.
		Air or water is in the fuel system.	- Check to see if the bolt and nut of fuel-line coupler are tight. - Bleed the fuel system. (See Bleeding the fuel system on page 127)
		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.

ENGINE ERROR CODE

If engine trouble should occur, the engine-warning indicator will appear and the error code that starts with either “P” or “U” will appear on the liquid-crystal display. If the error code appears, please contact your local Kubota Dealer for repairs immediately.

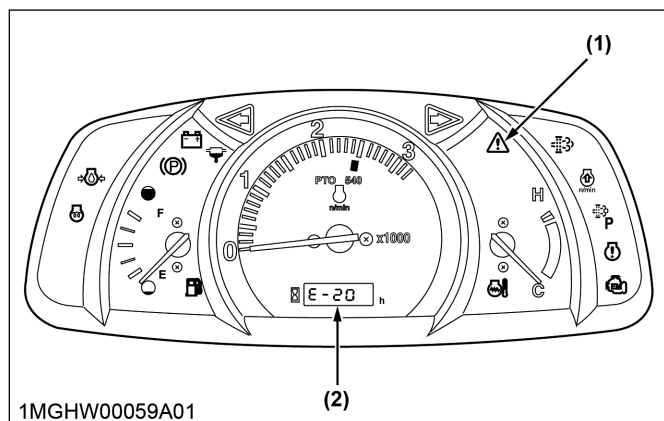


NOTE :

- Error code will not disappear even if the engine-warning indicator is reset.

POWERTRAIN TROUBLESHOOTING

If something is wrong with the powertrain, the master-system-warning indicator starts blinking and the error code shown in the following table is displayed on the liquid-crystal display, indicating the location of the trouble. If an error code appears, immediately contact your local Kubota Dealer for repairs.



Displayed error code	Trouble	Operator's action
E-20	CAN communication trouble (Main ECU and Meter)	Contact your local Kubota Dealer.
E-21	CAN communication trouble (Engine ECU and Main ECU)	
E-31	Meter's part code and ECU model setting is not compatible.	
E-40	Input voltage of lever sensor from ECU is in trouble.	
E-75	Acceleration sensor output is out of spec.	
E-84	Acceleration sensor is maladjusted.	Contact your local Kubota Dealer. The engine cannot start.
E-93	Relay for engine-starter motor is in trouble.	
E-94	OPC output is in trouble.	
E-95	Solenoid (PTO) is in trouble.	Contact your local Kubota Dealer. The PTO shaft cannot rotate.

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
- Double acting remote hydraulic control valve
- Stabilizer kit (for lower link)
- Clevis for drawbar
- Work light
High visibility for night work
- Trailer socket
- Antifrost heater for oil separator

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