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KUBOTA Corporation

English (U.S.A.)
Code No. TC860-1971-9

MX4900.MX5400.MX6000

OPERATOR'S MANUAL

KUBOTA TRACTOR

MODELS **MX4900**
MX5400
MX6000

1VTAP00001A01

READ AND SAVE THIS MANUAL

PRINTED IN JAPAN

ABBREVIATION LIST

Abbreviations	Definitions
2WD	2-Wheel Drive
4WD	4-Wheel Drive
API	American Petroleum Institute
ASABE	American Society of Agricultural and Biological Engineers, USA
ASTM	American Society of Testing and Materials, USA
DIN	Deutsches Institut für Normung, GERMANY
DT	Dual Traction [4WD]
fpm	Feet Per Minute
GST	Glide Shift Transmission
Hi-Lo	High Speed-Low Speed
HST	Hydrostatic Transmission
m/s	Meters Per Second
PTO	Power Take Off
RH/LH	Right-hand and left-hand sides are determined by facing in the direction of forward travel
ROPS	Roll-Over Protective Structures
rpm	Revolutions Per Minute
r/s	Revolutions Per Second
SAE	Society of Automotive Engineers, USA
SMV	Slow Moving Vehicle

California Proposition 65

⚠ WARNING ⚠

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

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

KUBOTA Corporation is ...

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

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

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

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

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

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


Master system warning


Diesel Fuel


Fuel-Level

Engine-Rotational Speed


Hourmeter/Elapsed Operating Hours


Engine Coolant-Temperature


Diesel Preheat/Glow Plugs (Low Temperature Start Aid)


Brake System


Clutch


Parking Brake


Engine Intake/Combustion Air-Filter


Battery Charging Condition


Engine Oil-Pressure


Turn Signal

Engine-Stop


OFF


Engine-Run


Engine-Start


Power Take-Off Clutch Control-Off Position


Power Take-Off Clutch Control-On Position


Differential Lock


Position Control-Raised Position


Position Control-Lowered Position


Engine Warning

Emission Control


Draft Control-Shallow Position


Draft Control-Deep Position


3-Point Lowering Speed Control


Remote Cylinder-Retract


Remote Cylinder-Extend


Steering Wheel-Tilt Control


Hazard Warning Lights


Master Lighting Switch


Position Lamps


Headlight-Low Beam


Headlight-High Beam


Audible Warning Device


4-Wheel Drive-On


4-Wheel Drive-Off


Front-Wheel Drive-On


Fast


Slow


Read Operator's Manual


Tractor-Forward Movement-Overhead View of Machine


Tractor-Rearward Movement-Overhead View of Machine


Engine Speed Control


Regeneration


DPF INHIBIT (Switch)


Parked Regeneration (Switch)

Parked Regeneration

Engine RPM Increase


Power Take-Off Clutch Control-Off (Disengaged) Position


Power Take-Off Clutch Control-On (Engaged) Position

Stationary PTO


Water separator

ON (engaged)


Electrical Power-accessories


Work Light


Windshield Wiper


Rear Window Defroster


Air conditioner

FOREWORD

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

SAFETY FIRST

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

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

CONTENTS

SAFE OPERATION

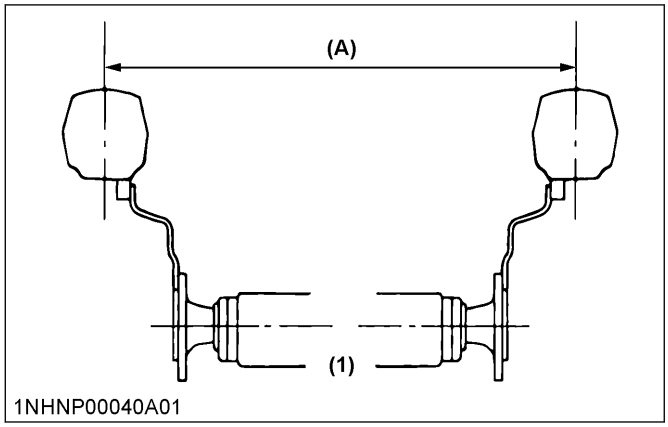
Careful operation is your best insurance against an accident.
Read and understand this manual carefully before operating the tractor.
All operators, no matter how much experience they have, should read this and other related manuals before operating the tractor or any implement attached to it. It is 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 them how to operate it and require them to read this manual before operating it.
- Never wear loose, torn, or bulky clothing around the tractor. Loose, torn, or bulky clothing may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items: hard hat, safety boots or shoes, eye and hearing protection, gloves, and so on, as appropriate or required.
- Do not allow passengers to ride on any part of the tractor at any time. 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 117)
- Keep your tractor clean. Buildup 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 29, 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 maintain proper ballast and braking. 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 99)



(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.

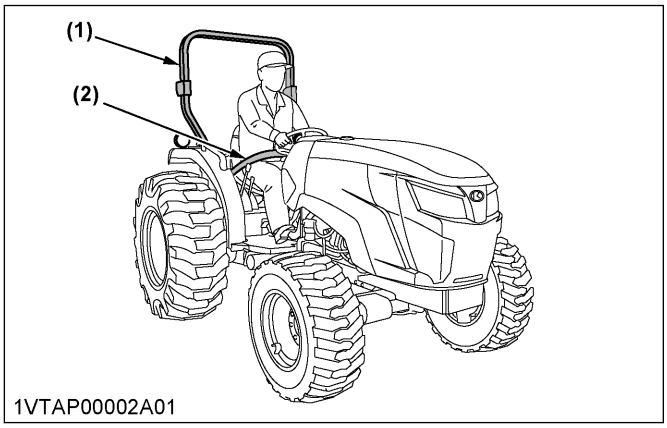
  Modifications to the engine and its emission components may violate emission regulations and are subject to fines and penalties.
  Kubota and its affiliates are not liable for any damage, malfunction or accidents caused by modifications to the engine or emission components.

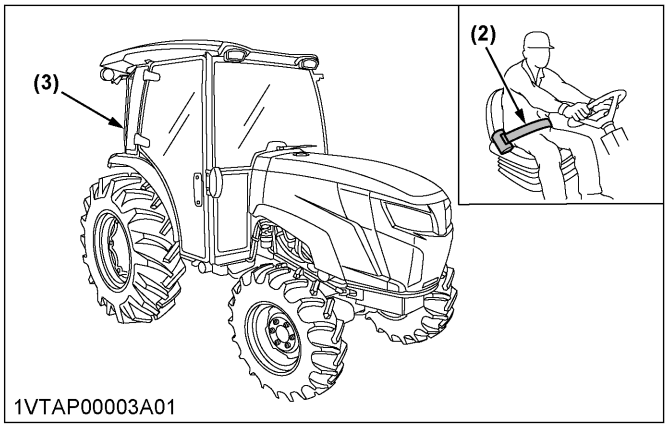
2. Precautions for CAB and ROPS

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

- Check for overhead clearance which may interfere with a CAB or ROPS.
- Set the parking brake and stop the engine. Remove any obstructions which may prevent raising or folding the ROPS. Do not allow any bystander. Always perform functions of CAB or ROPS from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding it. Make sure that all pins are installed and locked.
- If the CAB or ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
- Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting it may weaken the structure.
- If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.
- If the tractor is equipped with a foldable ROPS, you may fold down it temporarily only when absolutely necessary to fold down it for areas with constraints on height.
  There is no protection of operator provided by the ROPS in the folded position. For operator safety, you should place the ROPS in the upright and locked position and fasten the seat belt for all other operations.
- Always use the seat belt if the tractor has a CAB or ROPS.
  Do not use the seat belt if the foldable ROPS is being folded or if there is no ROPS. Check the seat belt regularly and replace if frayed or damaged.





(1) ROPS *(3) CAB*
(2) Seat belt

PRECAUTIONS FOR OPERATING THE TRACTOR

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

1. Precautions for starting to operate the tractor

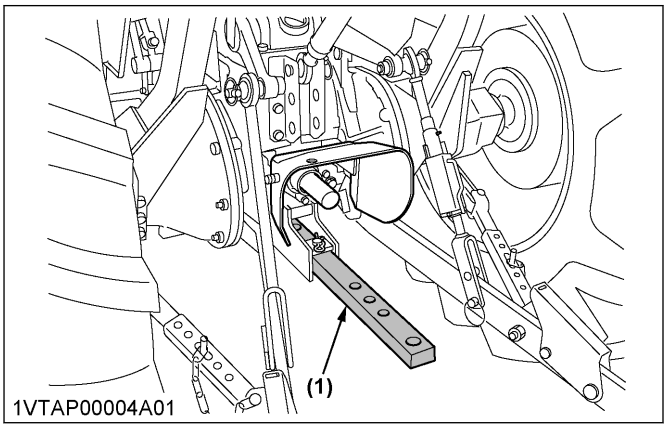
- Always sit in the operator's seat when starting the engine or operating levers or controls. Adjust the operator's seat according to Operator's seat on page 44. Never start the engine while you are standing on the ground.
- KUBOTA recommends that you get on and off the tractor from the left side only. However, in the event of an emergency, you may exit using the right-side-door.
  Be cautious when using the emergency-right-side-door, as there are no steps from the CAB to the ground on the right side.
- 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 133 and Checking the operator presence control on page 134.
  - **[HST type]**
    See Checking the engine start system [HST type] on page 134 and Checking the operator presence control on page 134.

  Do not operate unless they are functioning correctly.

2. Precautions for working the tractor

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



(1) Drawbar

- For trailing the PTO-driven implements, set the drawbar to the towing position.
- Attach pulled or towed loads to the drawbar only.
- Keep all shields and guards in place. Replace any shield or guard that are missing or damaged.
- Avoid sudden starts. To avoid upsets, slow down when turning, on uneven ground, and before stopping.
- The tractor cannot turn with the differential locked. Do not attempt to turn with the differential locked because it could be dangerous.
- Do not operate near ditches, holes, embankments, or other ground surface features which may collapse under the weight of the tractor. The risk of tractor upset is even higher when the ground is loose or wet. Tall grass can hide obstacles, so walk the area first to be sure.
- Watch where you are going at all times. Watch for and avoid obstacles. Be alert at row ends, near trees, and other obstructions.
- When working in groups, always let the others know what you are going to perform before you perform it.
- Never try to get on or off a moving tractor.
- Always sit in the operator's seat when you are operating levers or controls.
- Do not stand between the tractor and the implement or the trailed vehicle unless parking brake is applied.

3. Safety for children

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and their work.
- Never assume that children will remain where you last saw them.
- Keep children out of the work area and under the watchful eye of another responsible adult.
- Be alert and shut the tractor down if children enter the work area.
- Never carry children on the tractor. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the tractor.
- Never allow children to operate the tractor even under adult supervision.
- Never allow children to play on the tractor or on the implement.
- Use extra caution when the tractor is backing up. Before the tractor starts to move, look down and behind to make sure that the working area is clear.

4. Precautions for operating the tractor on slopes

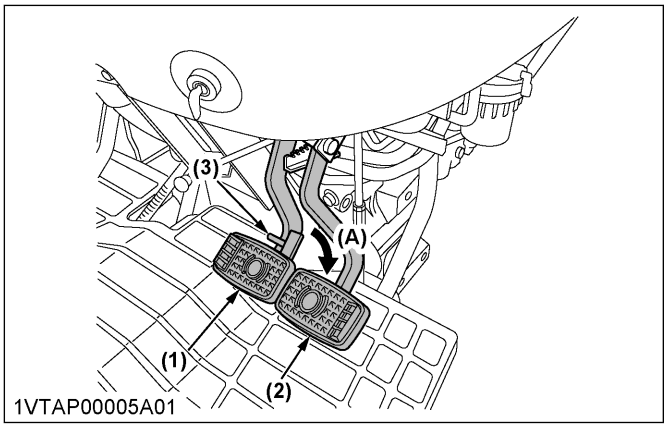
Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death.
All slopes require extra caution.
- To avoid upsets of the tractor, always back it up steep slopes. If you cannot back the tractor up on the slope or if you feel uneasy to back it up on the slope, do not operate on it. Stay off slopes too steep for safe operation.
- Driving forward out of a ditch, mired condition or up a steep slope increases the risk of the tractor to be upset backward. Always back the tractor out of a ditch, mired condition or steep slope. The 4-wheel drive models require extra caution because their increased traction can give the operator false confidence in the ability of the tractor to climb slopes.

- Keep all movement of the tractor on slopes slow and gradual. Do not change speed or direction of the tractor suddenly. Do not apply brake suddenly. Do not move the steering wheel suddenly.
- Avoid disengaging the clutch or changing gears speed when the tractor is climbing or going down a slope. If operating the tractor on a slope, disengaging the clutch or changing gears to neutral could cause loss of control.
- You should pay special attention to the weight and location of implements and loads because they will affect the stability of the tractor.
- To improve stability of the tractor on slope, set the widest wheel tread.
  (See WHEEL ADJUSTMENT on page 99)
  Follow recommendations for proper ballasting.
  (See BALLAST on page 104)

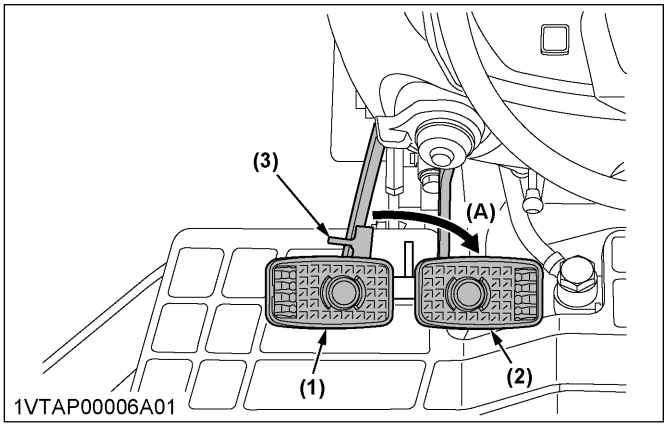
5. Precautions for driving the tractor on the road

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

[Manual transmission type]

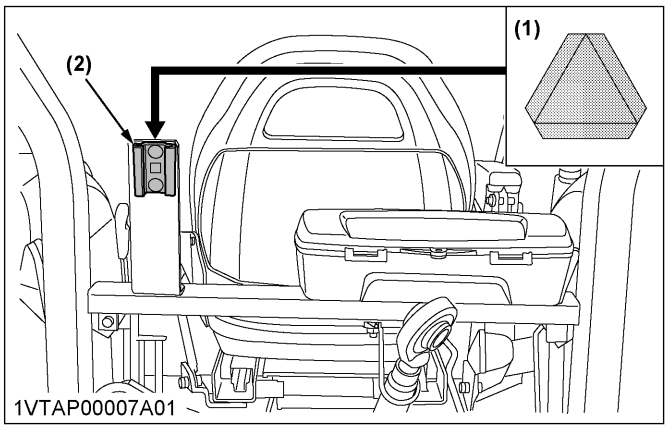


[HST type]



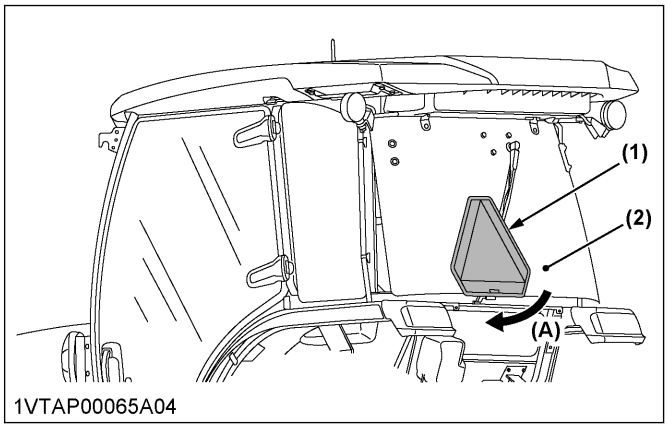
(1) Brake pedal (LH)
(2) Brake pedal (RH)
(3) Brake pedal lock
(A) Whenever traveling on the road

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



(1) SMV emblem
(2) Bracket

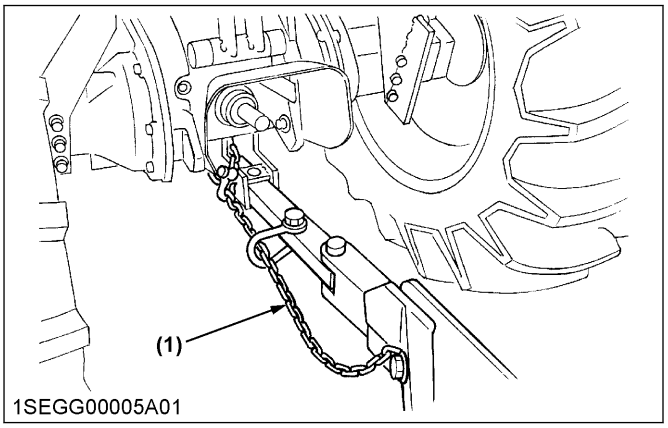
[CAB type]



(1) SMV emblem
(2) Rear window
(A) Close

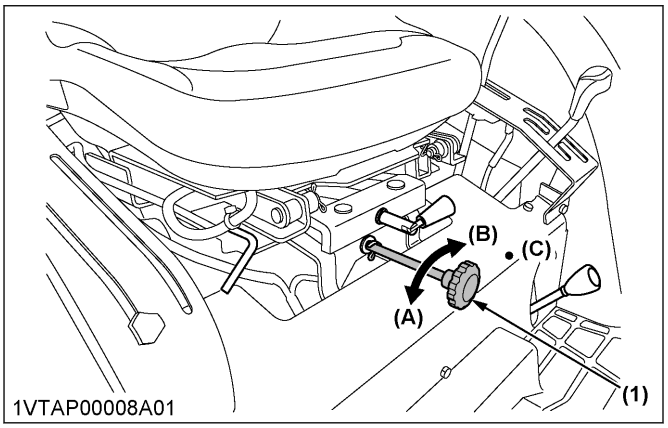
- Follow all local traffic and safety regulations.
- Turn the headlights on. Dim the headlights when meeting another vehicle.
- Drive at speeds that allow you to maintain control at all times.
- Do not apply the differential lock while traveling at road speeds. The tractor may run out of control.
- Avoid sudden motions of the steering wheel as they can lead to a dangerous loss of stability. The risk is especially great when the tractor is traveling at road speeds.
- Keep the ROPS in the *"UP"* position and wear the seat belt when driving the tractor on the road.

Otherwise, you will not be protected in the event of a tractor roll-over.
- Do not operate an implement while the tractor is on the road. Lock the 3-point hitch in the raised position.
- When towing other equipment, use a safety chain and place an SMV emblem on the equipment as well.



(1) Safety chain

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



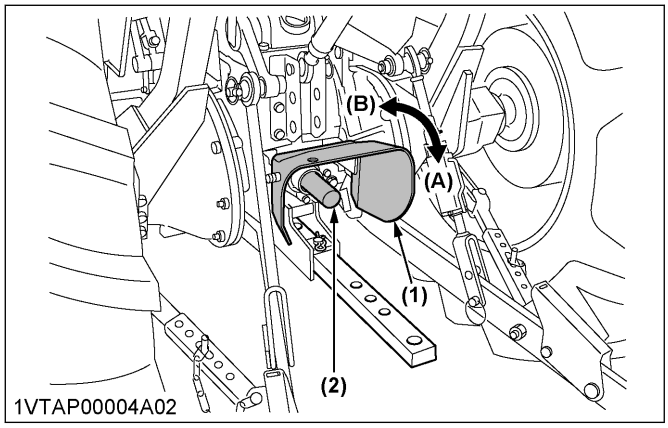
(1) 3-point hitch lowering speed knob
(A) Fast
(B) Slow
(C) Lock

PRECAUTIONS FOR PARKING THE TRACTOR

- Disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine, remove the starter key from the ignition, and lock the cab door if equipped. Leaving transmission in gear with the engine stopped will not prevent tractor from rolling [HST type].
- Make sure that the tractor has come to a complete stop before dismounting from it.
- Avoid parking on steep slopes. If it is at all possible, park on a firm and level surface. If it is not at all possible to park on a firm and level surface, park across a slope and chock the wheels.
  Failure to comply with this warning may allow the tractor to move and could cause injury or death.

PRECAUTIONS FOR OPERATING THE PTO

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

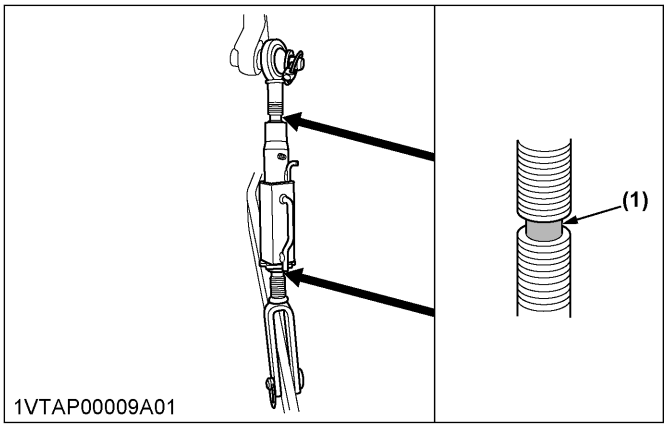


(1) PTO shaft cover
(2) PTO shaft cap
(A) Normal position
(B) Raised position

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

PRECAUTIONS FOR USING 3-POINT HITCH

- Use the 3-point hitch only with equipment designed for the appropriate category of 3-point hitch usage.
- When using a 3-point-hitch-mounted-implement, be sure to install the proper counterbalance-weight on the front of the tractor.
- To avoid injury from separation, do not extend lift rod beyond the groove on the threaded rod.



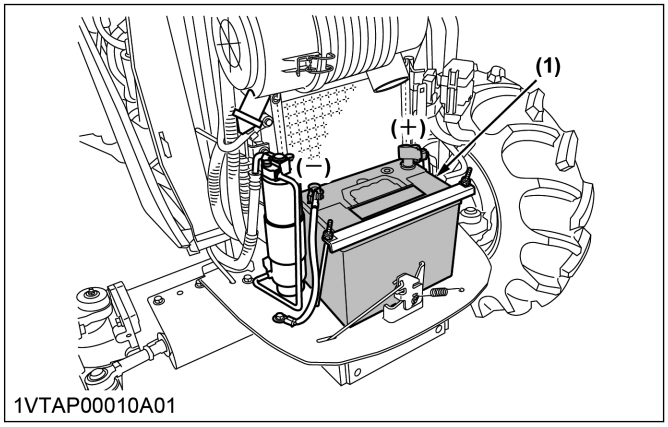
(1) Groove

PRECAUTIONS FOR SERVICING THE TRACTOR

Before servicing the tractor, follow the following procedure.

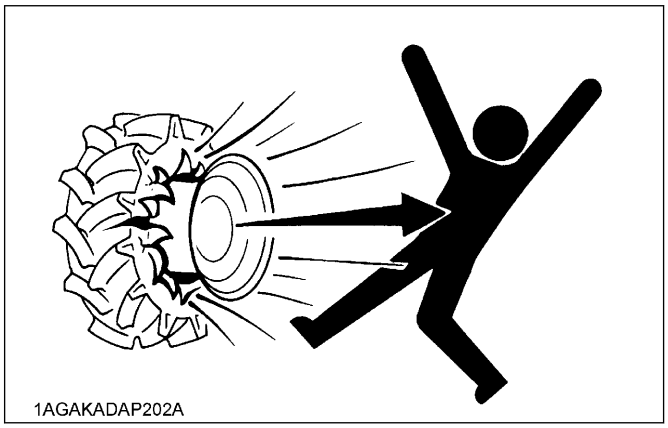
1. park the tractor on a firm, flat, and level surface.
2. Set the parking brake.
3. Lower all implements to the ground.
4. Place the gear-shift-lever in the neutral position.
5. Stop the engine.
6. Remove the starter key.

- Allow the tractor time to cool off before working on or near the engine, muffler, radiator, and so on.
- Do not remove the radiator cap while coolant is hot. When coolant is cool, slowly rotate the radiator cap to the first stop and allow sufficient time for excess pressure to escape before removing the radiator cap completely. If the tractor 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 128)
- Always stop the engine before refueling. Avoid spills and overfilling.
- Do not smoke when working around the battery or when the tractor is refueling. Keep all sparks and flames away from the battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when you are recharging it.
- Before jump starting a dead battery, read and follow all of the instructions.
  (See JUMP STARTING THE ENGINE on page 66)
- Keep first-aid-kit and fire extinguisher handy at all times.
- Disconnect the ground cable of battery before working on or near electric components.
- To avoid the possibility of battery explosion, do not use or charge the refillable type battery if the fluid level is below the lower (lower limit level) mark. Check the fluid level regularly and add distilled water as required so that the fluid level is between the upper and lower levels.
- To avoid sparks from an accidental short circuit, always disconnect the ground cable (-) of battery first and reconnect it last.



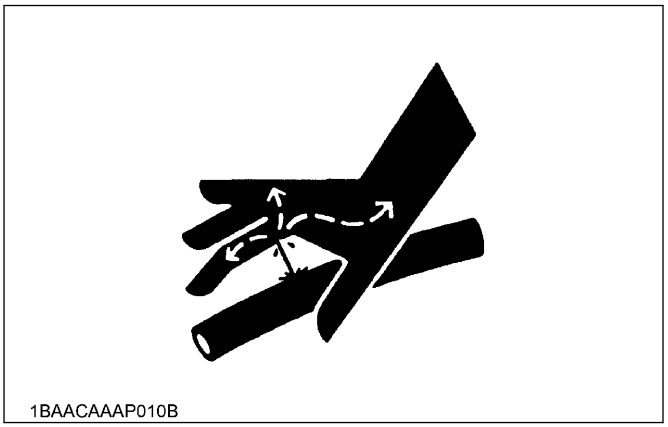
(1) Battery

- Do not mount a tire on a rim. Only a qualified person should mount a tire on a rim with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure shown in Inflation pressure of tires on page 99.

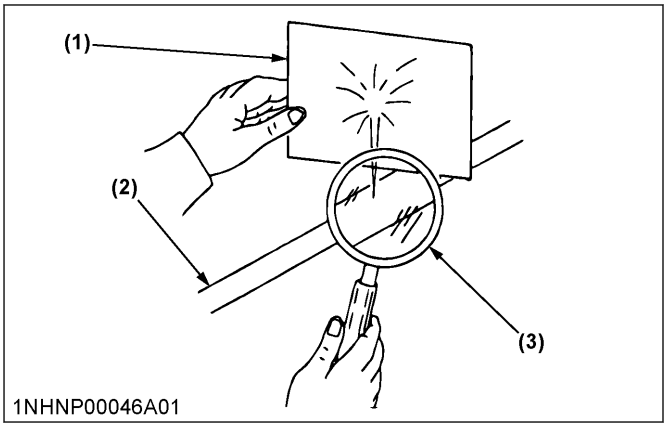


- Securely support the tractor when either changing wheels or adjusting the width of wheel tread.
- Make sure that the wheel bolts have been tightened to the specified torque.
  (See WHEEL ADJUSTMENT on page 99)
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under the tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- Escaping hydraulic fluid under pressure obtains sufficient force to penetrate skin, so escaping hydraulic fluid under pressure can cause serious personal injury. Before disconnecting the hydraulic lines, be sure to release all residual pressure. Before applying pressure to the hydraulic system,

make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.



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



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

- Do not open high-pressure fuel system.
  High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect nor attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high-pressure-common-rail-fuel-system.
- To avoid hazardous high voltage, turn the key switch to the *"OFF"* position if it is necessary to check to repair the computer, harness, or connectors.
- During the diesel-particulate-filter (hereinafter called 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 the tractor away 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 use and pressure-washing, make sure 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 get rid of waste products.

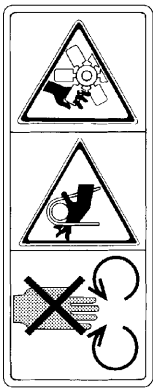
SAFETY LABELS

(1) Part No. TC860-4965-1

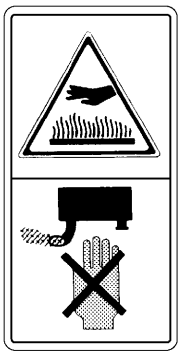
(2) Part No. TC660-9861-2

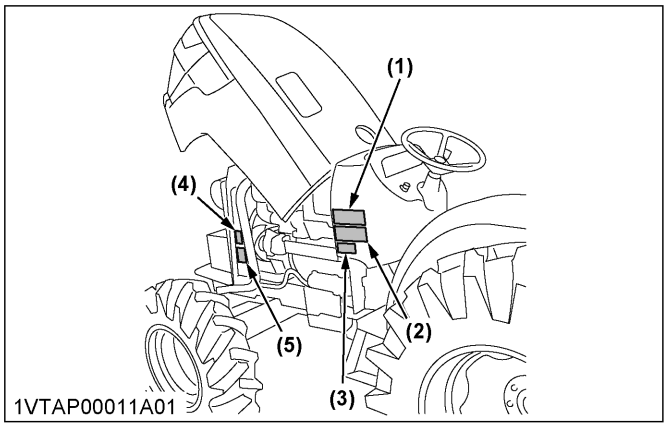
(3) Part No. 3J080-3822-3

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



(5) Part No. TC030-4958-2
Do not touch hot surface like muffler, etc.





1VTAP00132A01enUS

(1) Part No. TC660-4997-2 [ROPS]

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. TC650-6597-1

California Proposition 65

WARNING

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

(3) Part No. TC860-9554-3 [ROPS only]

WARNING

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

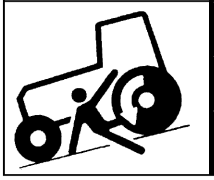
WARNING

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 function 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.

(4) Part No. TA140-4933-2 [Manual Transmission Type]

WARNING

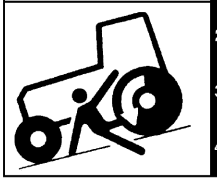


BEFORE DISMOUNTING TRACTOR:

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.**

(4) Part No. TD170-4933-3 [HST Type]

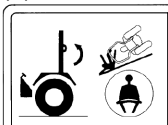
WARNING



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.**

(5) Part No. TA240-9848-3 [ROPS only]



WARNING

TO AVOID INJURY OR DEATH FROM ROLL-OVER:

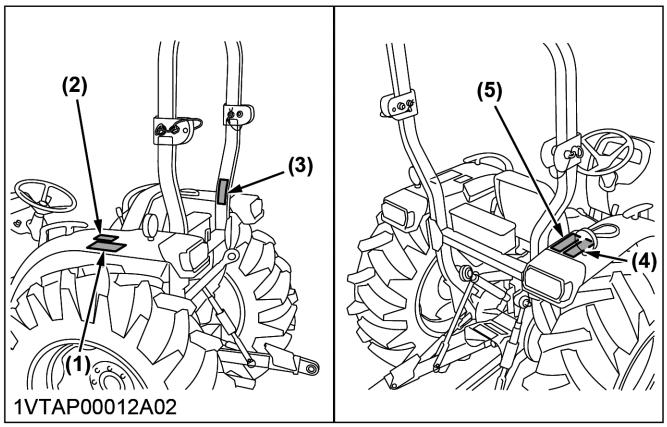
- Keep Roll-Over Protective Structures (ROPS) in the upright and locked position.
- Fasten SEAT BELT before operating.

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.

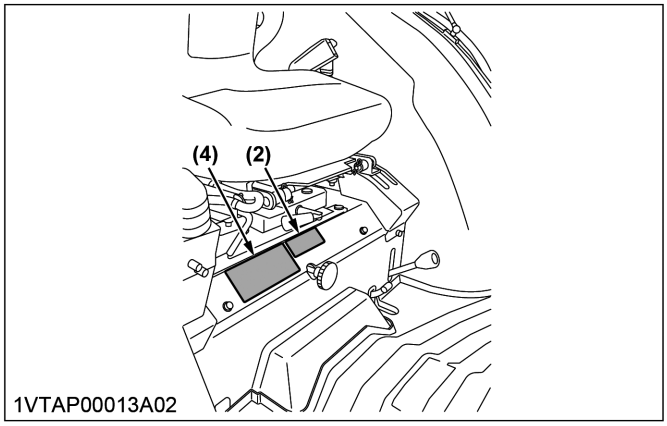
1VTAP00133A01enUS

[ROPS]



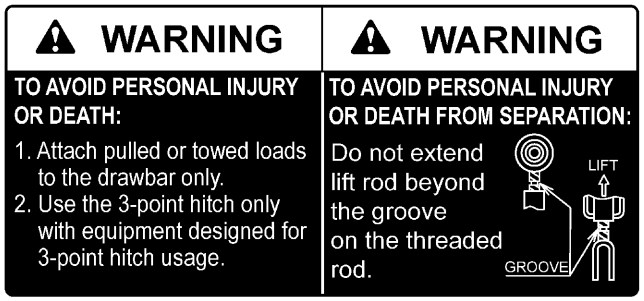
1VTAP00012A02

[CAB]

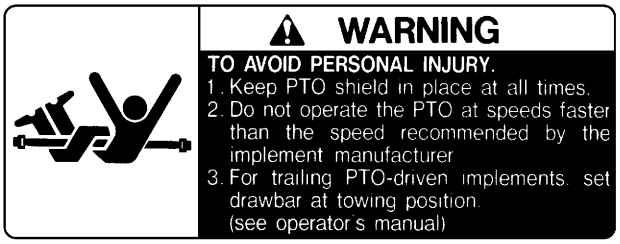


1VTAP00013A02

(1) Part No. TC660-4935-1



(2) Part No. TA040-4959-4

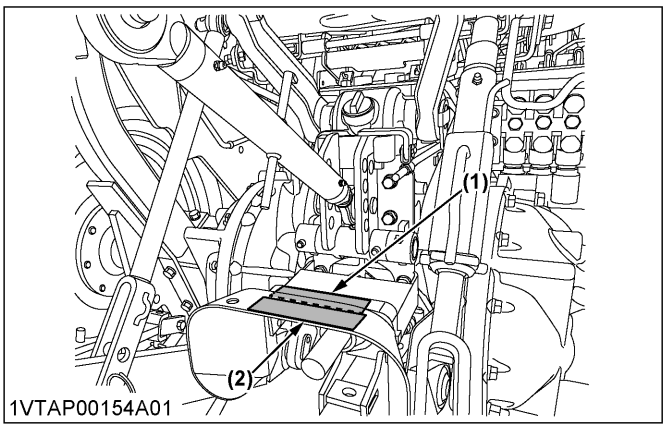


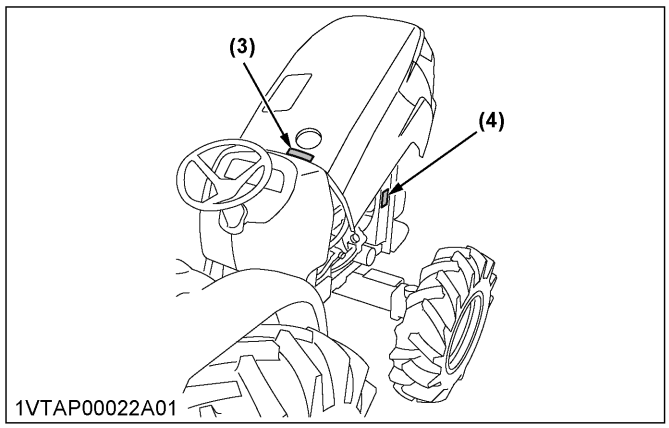
(3) Part No. TC420-4956-1

Diesel fuel only No fire

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

Do not get your hands close to engine fan and fan belt.





1VTAP00134A01enUS

(1) Part No. TC860-4901-2 [CAB]

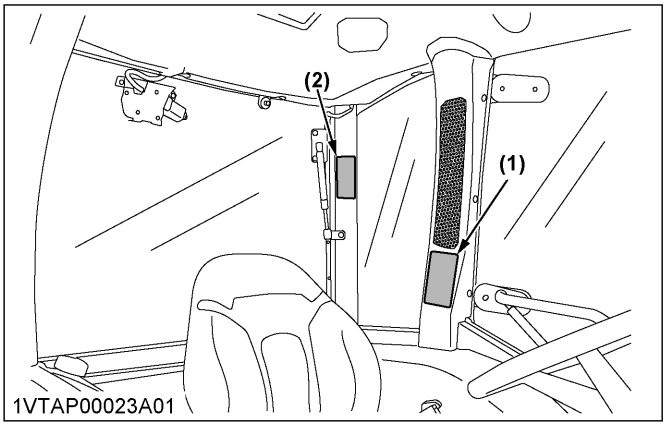
WARNING

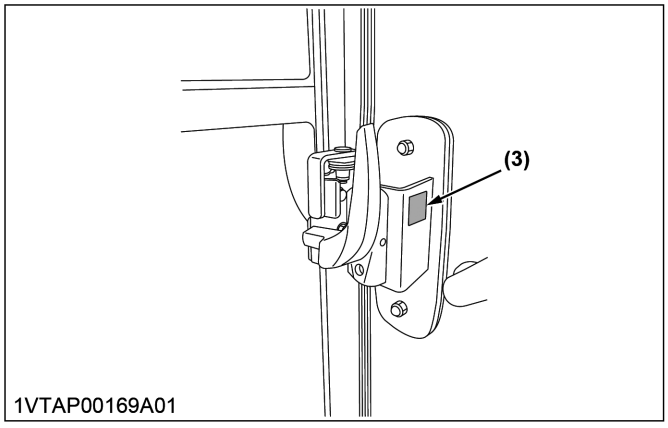
TO AVOID PERSONAL INJURY OR DEATH:

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. TA040-4902-3 [CAB only]

(3) Part No. 3B794-9839-1 [CAB only]
Emergency exit*1

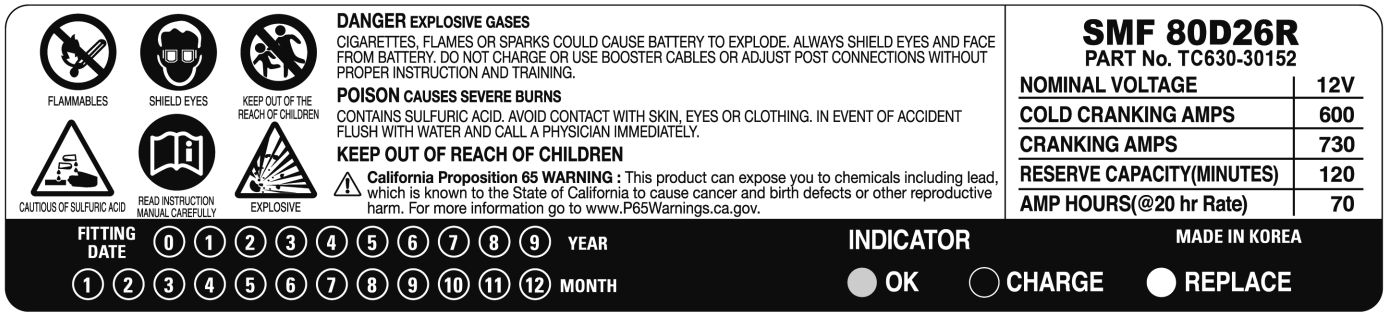




1VTAP00152A01enUS

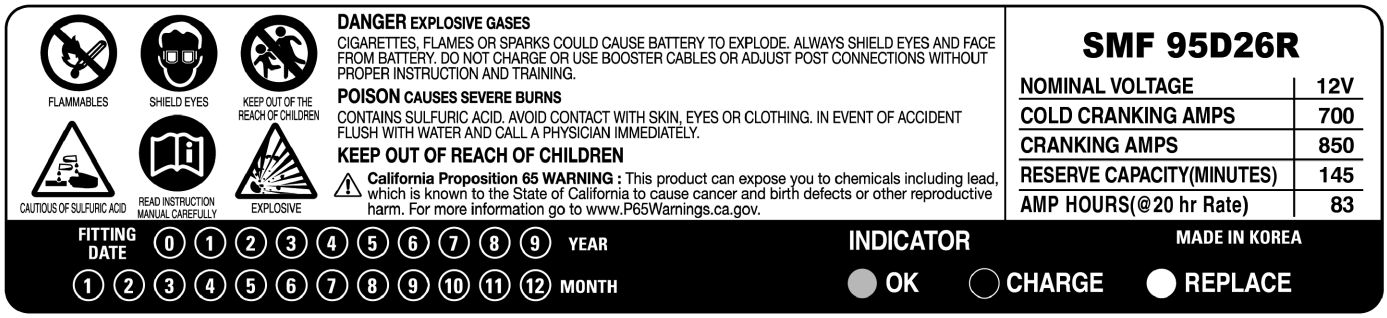
*1 (See How to use the emergency exit on page 108)

(1) Part No. TC630-3015-2 [ROPS] *1

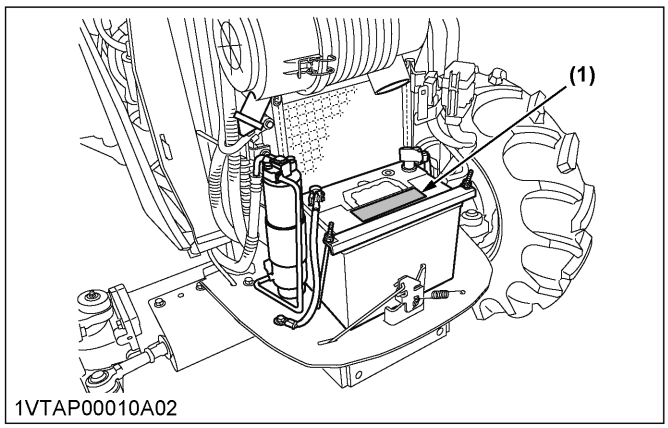


*1 For the battery 80D26R, the Engine ECUs No. is 1H651-6030-0, 1H652-6030-0, or 1H653-6030-0.

(1) Part No. TC860-3017-1 [ROPS] *2



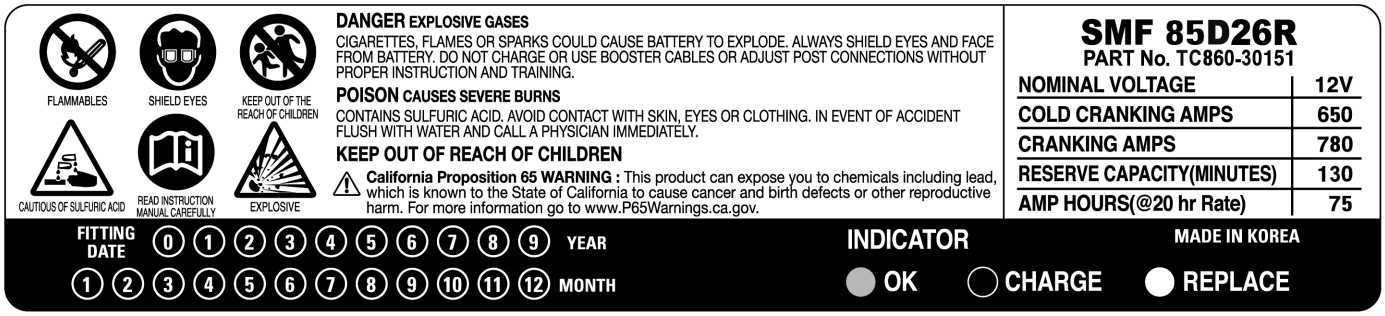
*2 For the battery 95D26R, the Engine ECUs No. is 1H651-6030-0, 1H652-6030-0, 1H653-6030-0, 1H392-6155-0, 1H394-6155-0, 1H396-6155-0, 1H793-6155-0, or 1H795-6155-0.



1VTAP00010A02

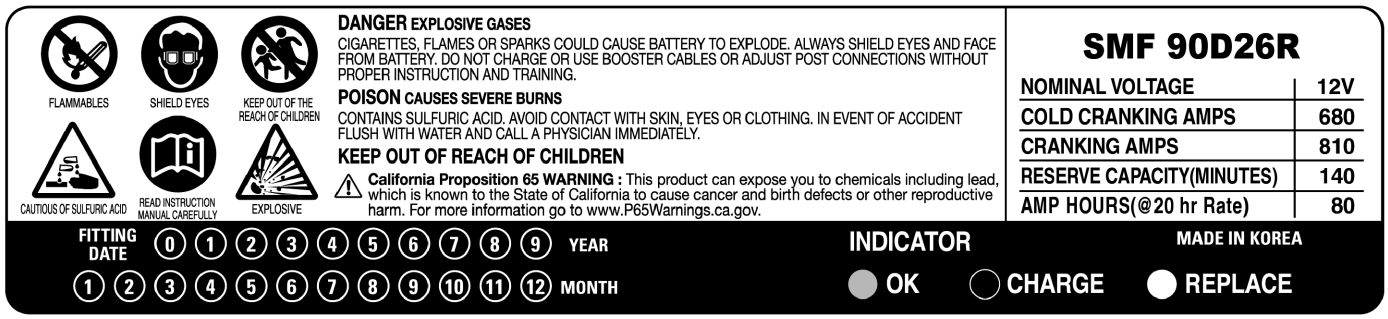
1VTAP00171A01enUS

(1) Part No. TC860-3015-1 [CAB] *3

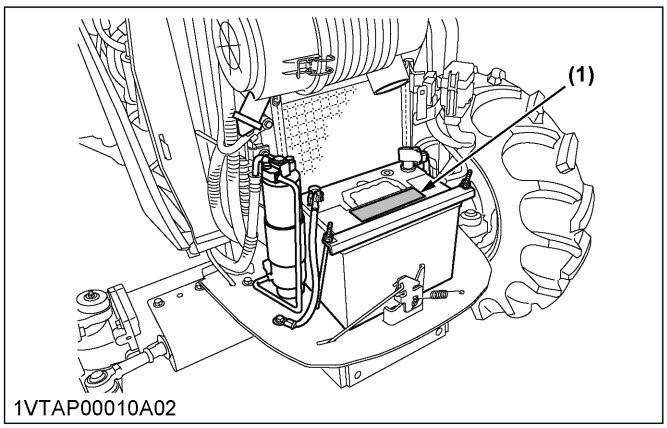


*3 For the battery 85D26R, the Engine ECUs No. is 1H654-6030-0, 1H655-6030-0, or 1H656-6030-0.

(1) Part No. TC860-3016-1 [CAB] *4



*4 For the battery 90D26R, the Engine ECUs No. is 1H654-6030-0, 1H655-6030-0, 1H656-6030-0, 1H393-6155-0, 1H395-6155-0, 1H397-6030-0, 1H794-6155-0, or 1H796-6155-0.



1VTAP00172A01enUS

CARE OF THE SAFETY LABELS

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

SERVICING OF THE TRACTOR

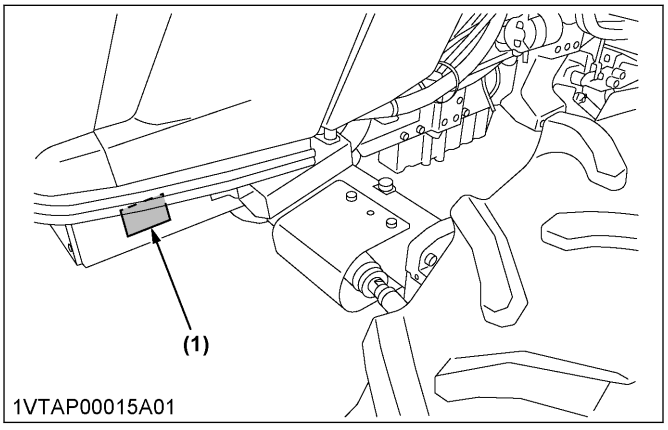
DEALER SERVICE

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, be sure to see your KUBOTA Dealer.
For service, contact the KUBOTA Dealership from which you purchased your machine or your local KUBOTA Dealer.
When in need of parts, be prepared to give your dealer the product identification number (PIN), the CAB/ROPS serial number, and the engine serial number.
Locate the PIN and serial numbers now and fill in the following tables.

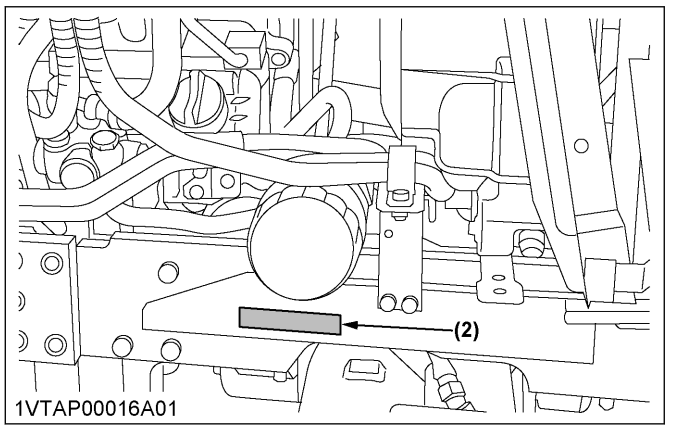
Date of purchase	
Name of dealer	

Tractor type	
PIN	

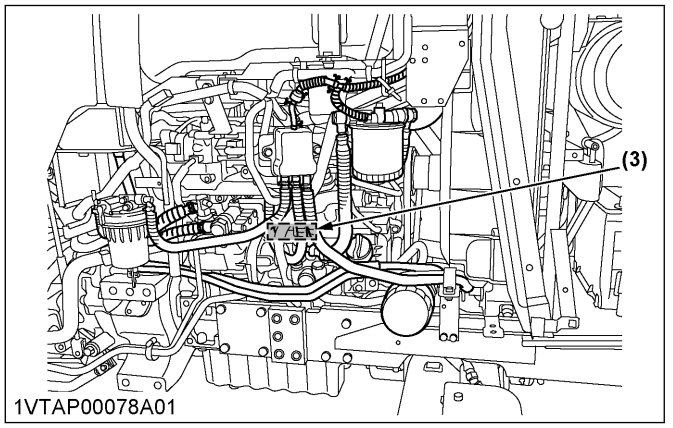
	Type	Serial No.
CAB/ROPS		
Engine		



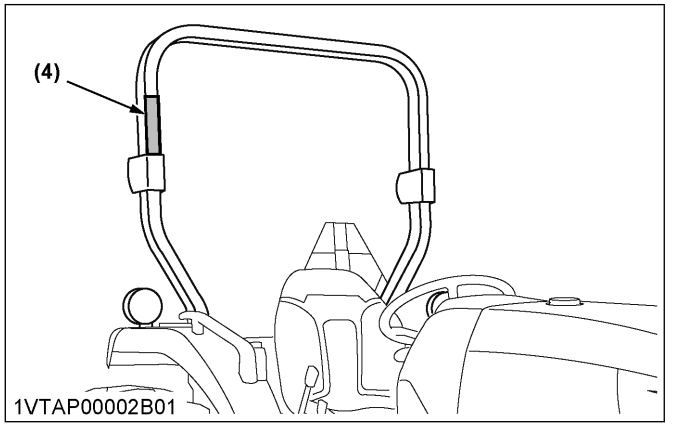
(1) Identification plate



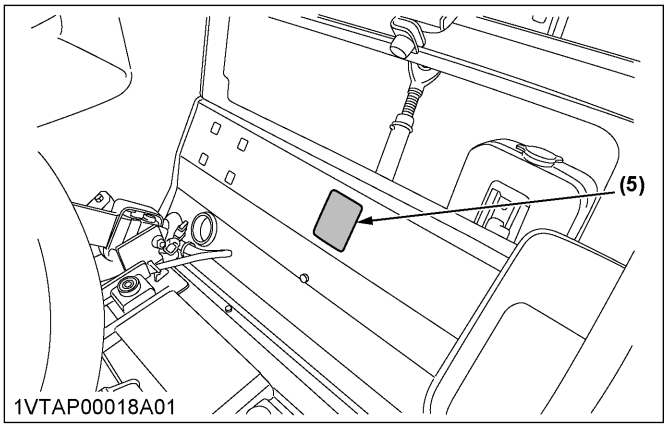
(2) Product identification number



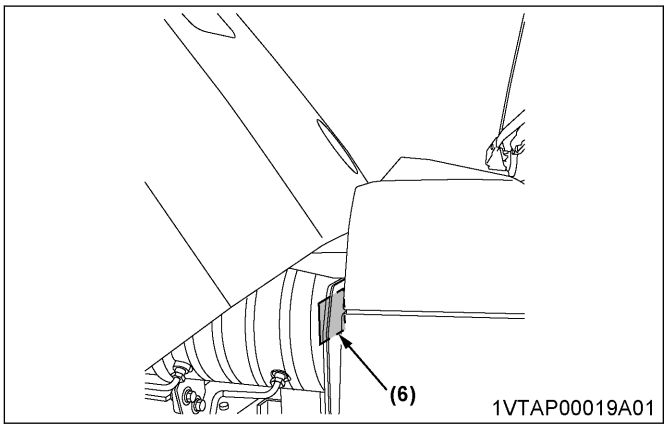
(3) Engine serial number



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



(5) CAB identification plate (CAB serial No.)



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

2. Scrapping the tractor and its procedure

To put the tractor out of service, correctly follow the local rules and regulations of the country or territory where you scrap it.
If there is anything which you do not understand, consult your local KUBOTA Dealer.

SPECIFICATIONS

SPECIFICATION TABLE [MX4900]

Model				Manual transmission		HST	
				4WD			
				ROPS	CABIN	ROPS	CABIN
Engine	Model			V2403-CR-TE4			
	Type			4 cylinder in-line, Common rail system, direct injection			
	Number of cylinders / Aspiration			4 / Turbocharged			
	Total displacement		L (cu.in.)	2.434 (148.6)			
	Bore and stroke		mm (in.)	87 × 102.4 (3.4 × 4.0)			
	Rated revolution		rpm	2700			
	Low idling revolution		rpm	950			
	Net power[*1]		kW (HP) / rpm	35.6 (47.7) / 2700		36.2 (48.5) / 2700	
	PTO power (factory observed)[*1]		kW (HP) / rpm	30.8 (41.3) / 2700			
	Maximum torque		N·m (lbf·ft)	159.2 (117.4)		164.3 (121.2)	
	Battery	Type		95D26R[*2]	90D26R[*3]	95D26R[*2]	90D26R[*3]
		Capacity		12 V, RC: 145 min, CCA: 700 A	12 V, RC: 140 min, CCA: 680 A	12 V, RC: 145 min, CCA: 700 A	12 V, RC: 140 min, CCA: 680 A
Capacities	Fuel tank		L (U.S.gals.)	51 (13.5)	45 (11.9)	51 (13.5)	45 (11.9)
	Engine crankcase (with filter)		L (U.S.qts.)	7.0 (7.4)			
	Engine coolant		L (U.S.qts.)	6.8 (7.2)			
	Transmission case		L (U.S.gals.)	44.0 (11.6)			
Dimensions	Overall length (without 3p)		mm (in.)	3195 (125.9)			
	Overall width (min. tread)		mm (in.)	1770 (69.7)			
	Overall height (with ROPS)		mm (in.)	2430 (95.7)	2355 (92.7)	2430 (95.7)	2355 (92.7)
	Wheel base		mm (in.)	1895 (74.6)			
	Min. ground clearance		mm (in.)	385 (15.2)			
	Tread[*4]	Front	mm (in.)	1325 (52.2)			
		Rear	mm (in.)	1375 (54.1)			
				1490 (58.7)			
Weight (with ROPS or CABIN)			kg (lbs.)	1686 (3716)	1928 (4251)	1694 (3734)	1936 (4268)

(Continued)

Model				Manual transmission		HST	
				4WD			
				ROPS	CABIN	ROPS	CABIN
Traveling system	Standard tire size	Front		9.5-16			
		Rear		14.9-26			
	Clutch			Dry type single stage		---	
	Steering			Hydrostatic power steering			
	Transmission			Gear shift, 8 forward and 8 reverse		Hydrostatic transmission 3 range speed	
	Braking system			Mechanical, Wet disk type			
	Min. turning radius (with brake)		m (feet)	2.7 (8.9)			
Hydraulic unit	Hydraulic control system			Position control			
	Pump capacity		L (U.S.gals.) / min	35.8 (9.5)			
	3-point hitch			SAE Category 1, 2			
	Max. lift force	At lift points	kg (lbs.)	1300 (2870)			
		24 in. behind lift points	kg (lbs.)	1050 (2310)			
	System pressure		MPa (kgf / cm^2) [psi]	17.7 (180) [2560]			
PTO	Rear PTO			SAE 1-3/8, 6-splines			
	PTO / Engine		rpm	540 / 2700		540 / 2660	

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

*1 Manufacturer's estimate

*2 For the battery 95D26R, the Engine ECUs No. is 1H793-6155-0 or 1H795-6155-0.

*3 For the battery 90D26R, the Engine ECUs No. is 1H794-6155-0 or 1H796-6155-0.

*4 With standard tires

SPECIFICATION TABLE [MX5400 / MX6000]

Model				MX5400				MX6000	
				Manual transmission		HST			
				2WD	4WD				
				ROPS	CABIN	ROPS	CABIN	ROPS	CABIN
Engine	Model			V2403-CR-TE4					
	Type			4 cylinder in-line, Common rail system, direct injection					
	Number of cylinders / Aspiration			4 / Turbocharged					
	Total displacement		L (cu.in.)	2.434 (148.6)					
	Bore and stroke		mm (in.)	87 × 102.4 (3.4 × 4.0)					
	Rated revolution		rpm	2700					
	Low idling revolution		rpm	950					
	Net power[*1]		kW (HP) / rpm	39.5 (53.0) / 2700		40.1 (53.8) / 2700		44.4 (59.5) / 2700	
	PTO power (factory observed)[*1]		kW (HP) / rpm	34.7 (46.5) / 2700				38.6 (51.8) / 2700	
	Maximum torque		N·m (lbf·ft)	170.3 (125.9)		181.0 (133.6)		198.5 (146.5)	
	Battery	Type		80D26R[*2]	85D26R[*3]	80D26R[*2]	85D26R[*3]	80D26R[*2]	85D26R[*3]
		Capacity		12 V, RC: 120 min, CCA: 600 A	12 V, RC: 130 min, CCA: 650 A	12 V, RC: 120 min, CCA: 600 A	12 V, RC: 130 min, CCA: 650 A	12 V, RC: 120 min, CCA: 600 A	12 V, RC: 130 min, CCA: 650 A
		Type		95D26R[*4]	90D26R[*5]	95D26R[*4]	90D26R[*5]	95D26R[*4]	90D26R[*5]
		Capacity		12 V, RC: 145 min, CCA: 700 A	12 V, RC: 140 min, CCA: 680 A	12 V, RC: 145 min, CCA: 700 A	12 V, RC: 140 min, CCA: 680 A	12 V, RC: 145 min, CCA: 700 A	12 V, RC: 140 min, CCA: 680 A
Capacities	Fuel tank		L (U.S.gals.)	51 (13.5)	45 (11.9)	51 (13.5)	45 (11.9)	51 (13.5)	45 (11.9)
	Engine crankcase (with filter)		L (U.S.qts.)	7.0 (7.4)					
	Engine coolant		L (U.S.qts.)	6.8 (7.2)					
	Transmission case		L (U.S.gals.)	44.0 (11.6)					
Dimensions	Overall length (without 3p)		mm (in.)	3245 (127.8)	3195 (125.9)				
	Overall width (min. tread)		mm (in.)	1770 (69.7)					
	Overall height (with ROPS)		mm (in.)	2430 (95.7)	2355 (92.7)	2430 (95.7)	2355 (92.7)	2430 (95.7)	2355 (92.7)
	Wheel base		mm (in.)	1895 (74.6)					
	Min. ground clearance		mm (in.)	385 (15.2)					
	Tread[*6]	Front	mm (in.)	1280 (50.4)	1325 (52.2)				
				1380 (54.3)					
				1480 (58.3)					

(Continued)

Model				MX5400					MX6000	
				Manual transmission			HST			
				2WD	4WD					
				ROPS		CABIN	ROPS	CABIN	ROPS	CABIN
Dimensions	Tread*6	Front	mm (in.)	1580 (62.2)	1325 (52.2)					
		Rear	mm (in.)	1375 (54.1)						
				1490 (58.7)						
Weight (with ROPS or CABIN)			kg (lbs.)	1576 (3474)	1686 (3716)	1928 (4251)	1694 (3734)	1936 (4268)	1694 (3734)	1936 (4268)
Traveling system	Standard tire size	Front		7.5L-15	9.5-16					
		Rear		14.9-26						
	Clutch			Dry type single stage			---			
	Steering			Hydrostatic power steering						
	Transmission			Gear shift, 8 forward and 8 reverse			Hydrostatic transmission 3 range speed			
	Braking system			Mechanical, Wet disk type						
	Min. turning radius (with brake)		m (feet)	2.6 (8.5)	2.7 (8.9)					
Hydraulic unit	Hydraulic control system			Position control						
	Pump capacity		L (U.S.gals.) / min	35.8 (9.5)						
	3-point hitch			SAE Category 1, 2						
	Max. lift force	At lift points	kg (lbs.)	1300 (2870)						
		24 in. behind lift points	kg (lbs.)	1050 (2310)						
	System pressure		MPa (kgf / cm^2) [psi]	17.7 (180) [2560]						
PTO	Rear PTO			SAE 1-3/8, 6-splines						
	PTO / Engine		rpm	540 / 2700			540 / 2660			

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

*1 Manufacturer's estimate

*2 For the battery 80D26R, the Engine ECUs No. is 1H651-6030-0, 1H652-6030-0, or 1H653-6030-0.

*3 For the battery 85D26R, the Engine ECUs No. is 1H654-6030-0, 1H655-6030-0, or 1H656-6030-0.

*4 For the battery 95D26R, the Engine ECUs No. is 1H651-6030-0, 1H652-6030-0, 1H653-6030-0, 1H392-6155-0, 1H394-6155-0, or 1H396-6155-0.

*5 For the battery 90D26R, the Engine ECUs No. is 1H654-6030-0, 1H655-6030-0, 1H656-6030-0, 1H393-6155-0, 1H395-6155-0, or 1H397-6030-0.

*6 With standard tires

TRAVELING SPEEDS TABLE [MANUAL TRANSMISSION TYPE]

Model			**MX4900 / MX5400**	
Tire size (Rear)			14.9-26	
	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	2.4	1.5
		3	3.9	2.4
		4	5.8	3.6
	High	1	8.2	5.1
		2	11.6	7.2
		3	18.9	11.7
		4	27.9	17.3
Reverse	Low	1	1.6	1.0
		2	2.2	1.4
		3	3.6	2.2
		4	5.3	3.3
	High	1	7.5	4.7
		2	10.7	6.6
		3	17.3	10.7
		4	25.6	15.9

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

TRAVELING SPEEDS TABLE [HST TYPE]

Model		**MX4900 / MX5400 / MX6000**	
Tire size (Rear)		14.9-26	
	Range gear shift lever	km/h (At rated engine rpm)	mph (At rated engine rpm)
Forward 	L	0 to 6.7	0 to 4.2
	M	0 to 13.0	0 to 8.1
	H	0 to 28.5	0 to 17.7
Reverse 	L	0 to 6.0	0 to 3.7
	M	0 to 11.8	0 to 7.3
	H	0 to 25.8	0 to 16.0

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

IMPLEMENT LIMITATIONS

IMPLEMENT LIMITATION TABLES

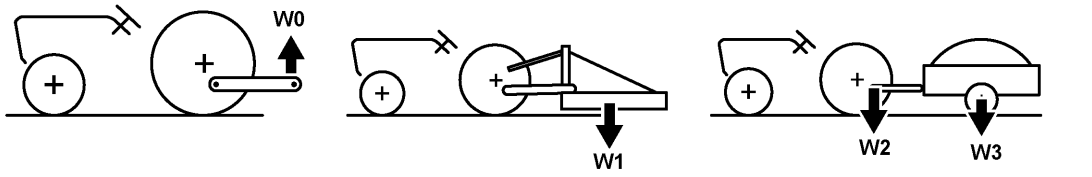
IMPORTANT :
The KUBOTA Tractor has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Do not use the following implements:

- **Implements which are not sold or approved by KUBOTA**
- **Implements which exceed the maximum specifications listed in the following table**
- **Implements which are otherwise unfit for use with the KUBOTA Tractor**

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

NOTE :
KUBOTA does not cover any malfunctions or failures of the tractor resulting from use with improper implements by the warranty.

			MX5400	MX4900 / MX6000
Max. width of tread with farm tires	Front	2WD	1530 mm (60.2 in.)	---
		4WD	1325 mm (52.2 in.)	1325 mm (52.2 in.)
	Rear		1490 mm (58.7 in.)	1490 mm (58.7 in.)
Lower link end max. loading weight (W_0)			1300 kg (2870 lbs.)	1300 kg (2870 lbs.)
Actual figures	Implement weight (W_1) and/or size		As in the following list (Shown on the next table)	
	Max. Drawbar Load (W_2)		750 kg (1650 lbs.)	
	Max. capacity of trailer loading weight (W_3)		4300 kg (9480 lbs.)	



1KGAA00016A02

W0
Lower link end maximum hydraulic lifting capacity weight

W1
Implement weight. The weight of the implement which 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.**
- **When you use the forestry application, there are following hazards:**
  - **toppling trees, primarily in case a rear-mounted-tree-grab-crane is mounted at the rear of the tractor**

- **penetrating objects in the operator's enclosure, primarily in case a winch is mounted at the rear of the tractor**

To deal with these hazards and other related hazards, the tractor requires optional equipments such as OPS (operator-protective-structure), FOPS (falling-object-protective-structure), and so on. Optional equipments such as OPS, FOPS, however, are not available for this tractor. Without optional equipments such as OPS and FOPS, the use of the tractor is limited to tractor-specific-applications like transport and stationary work.

Implement weight list

Implement		Remarks		MX4900 / MX5400 / MX6000
Trailer		Max. load capacity	kg (lbs.)	4300 (9480)
		Max. drawbar load	kg (lbs.)	750 (1650)
Mower	Rotary-Cutter	Max. cutting width	mm (in.)	2130 (84)
		Max. weight	kg (lbs.)	450 (1000)
	Flail mower	Max. cutting width	mm (in.)	1830 (72)
		Max. weight	kg (lbs.)	500 (1100)
	Sickle bar	Max. cutting width	mm (in.)	2130 (84)
		Max. weight	kg (lbs.)	500 (1100)
Sprayer	Rear mounted	Max. tank capacity	L (gals.)	500 (130)
	Pull type	Max. tank capacity	L (gals.)	2000 (529)
Rotary tiller		Max. tilling width	mm (in.)	1830 (72)
Bottom plow		Max. size		16 in. x 2
Disk harrow	Pull type	Max. harrowing width	mm (in.)	2130 (84)
		Max. weight	kg (lbs.)	400 (880)
Chisel plow		Max. width	mm (in.)	1830 (72)
		Max. weight	kg (lbs.)	350 (770)
Broad caster		Max. tank capacity	L (gals.)	300 (80)
		Max. weight	kg (lbs.)	100 (220)
Manure spreader		Max. capacity	kg (lbs.)	2000 (4400)
Cultivator		Max. width	mm (in.)	2450 (96)
		Number of rows		4
		Max. weight	kg (lbs.)	400 (880)
Front blade		Max. cutting width	mm (in.)	1830 (72)
		Max. oil pressure	MPa (psi)	17.2 (2490)
		Sub frame		Necessary
Rear blade		Max. cutting width	mm (in.)	1830 (72)

(Continued)

IMPLEMENT LIMITATIONS

Implement	Remarks		MX4900 / MX5400 / MX6000
Rear blade	Max. oil pressure	MPa (psi)	17.2 (2490)
Front-end loader	Max lifting capacity	kg (lbs.)	850 (1870)
	Max. oil pressure	MPa (psi)	17.2 (2490)
	Sub frame		Necessary
Box blade	Max. cutting width	mm (in.)	1830 (72)
	Max. weight	kg (lbs.)	450 (1000)
Backhoe	Max. digging depth	mm (in.)	2288 (90)
	Max. weight	kg (lbs.)	450 (990)
	Sub frame		Necessary
Snow blade	Max. width	mm (in.)	1830 (72)
	Max. weight	kg (lbs.)	400 (880)

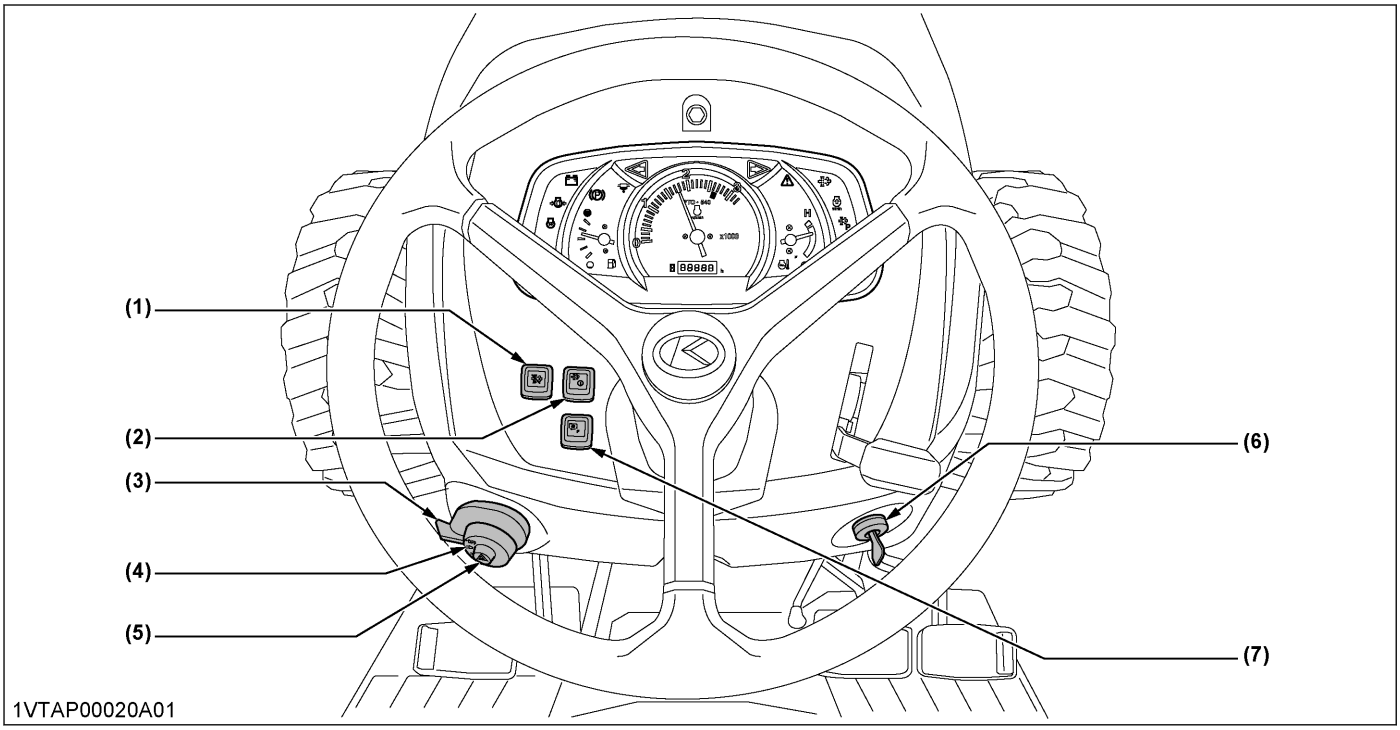
NOTE :

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

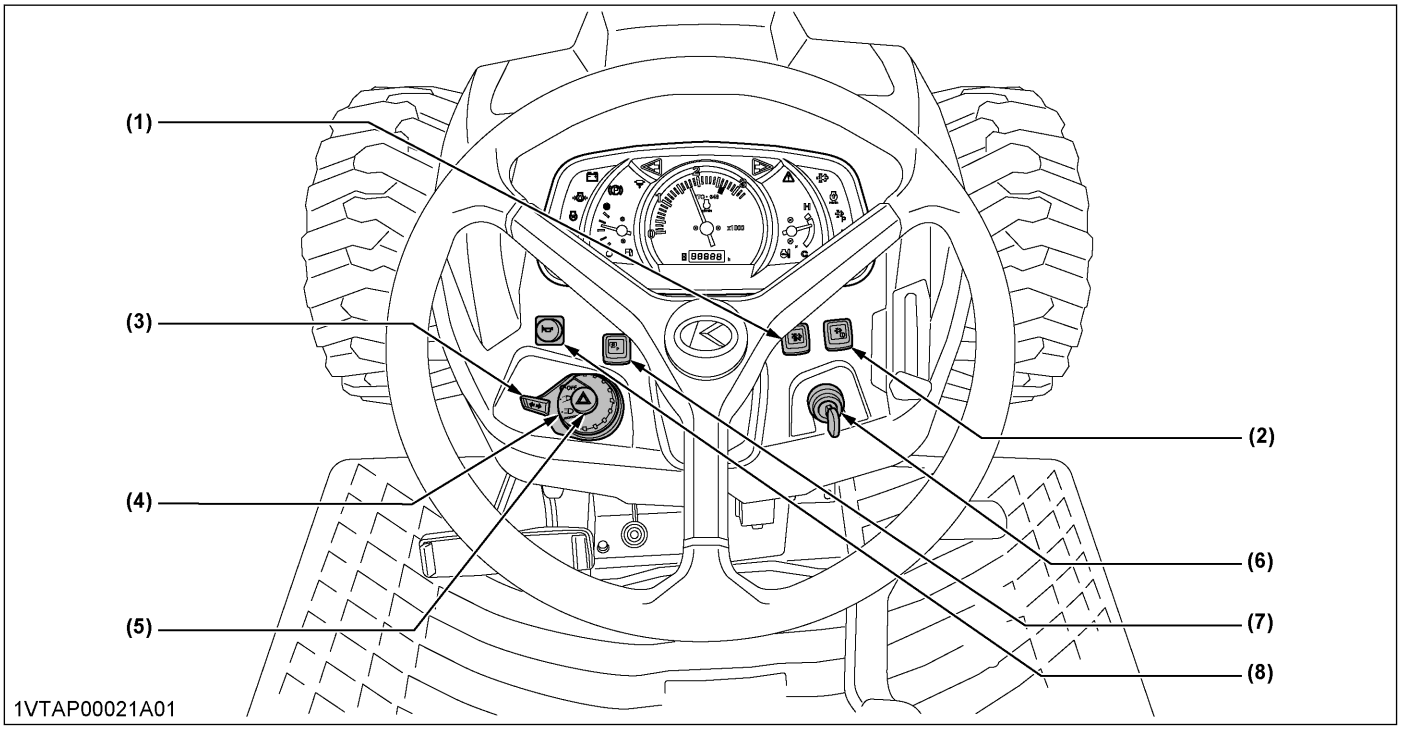
INSTRUMENT PANEL AND CONTROLS

INSTRUMENT PANEL, SWITCHES, AND HAND CONTROLS

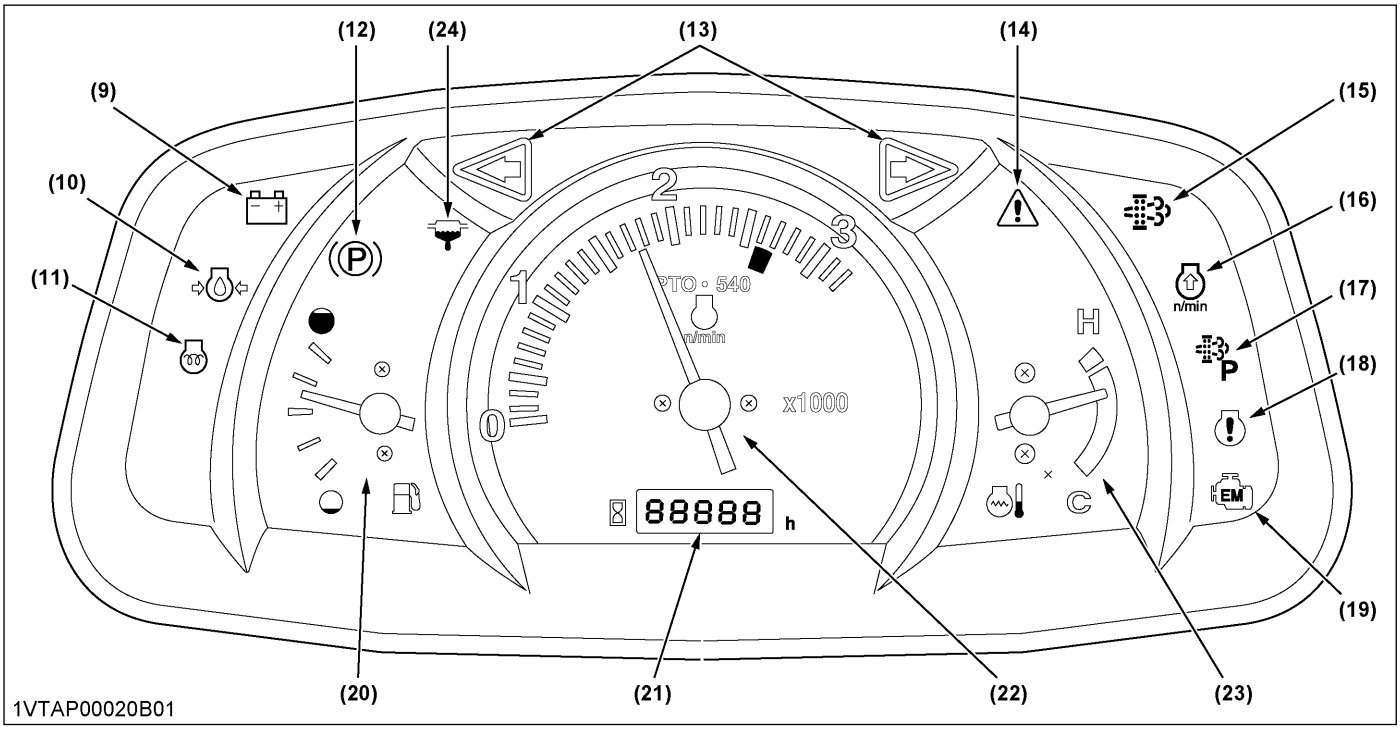
Switches and hand controls [ROPS type]



Switches and hand controls [CAB type]



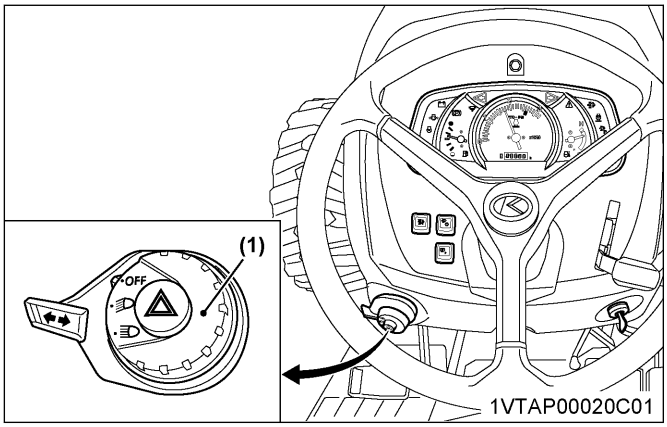
Instrument panel



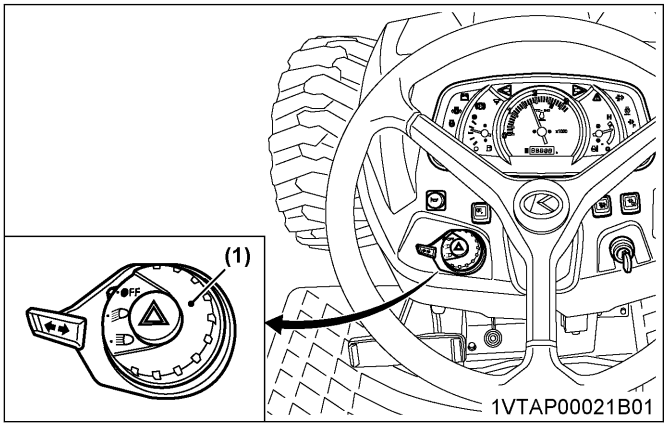
1. Head light switch

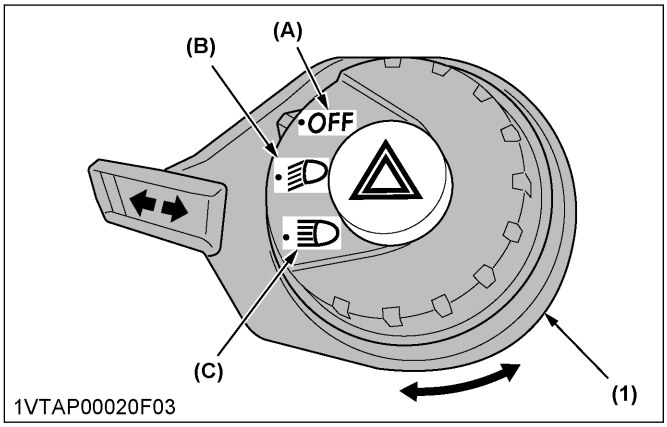
Turn the head-light-switch clockwise, and the following lights are activated on the position of the head-light-switch.

[ROPS type]



[CAB type]





(1) Head light switch

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

[OFF] (A)

Head lights are OFF.

(B)

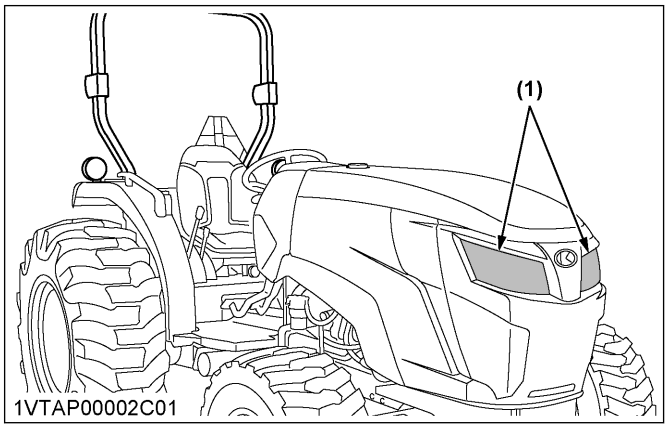
Head lights are dimmed as low beam.

(C)

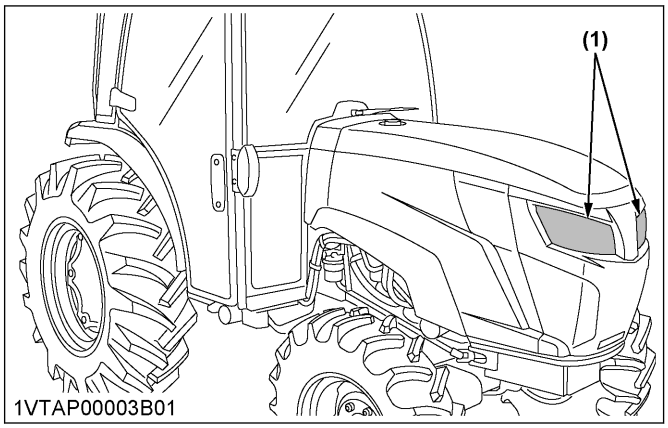
Head lights are on as high beam.

Tractor lights

[ROPS type]



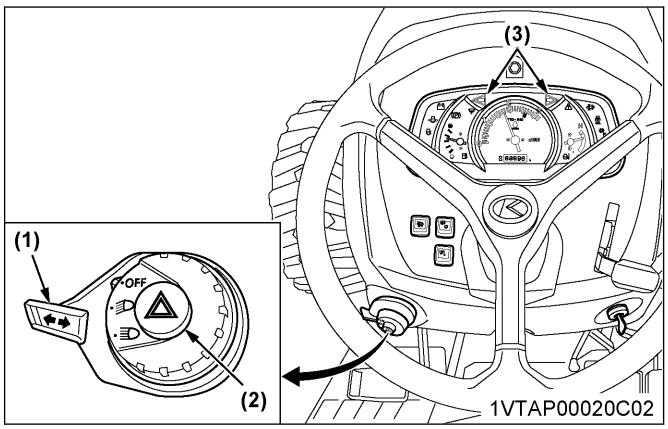
[CAB type]



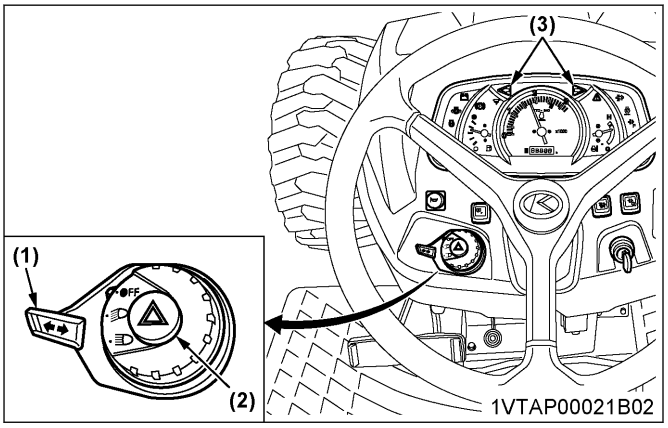
(1) Head light

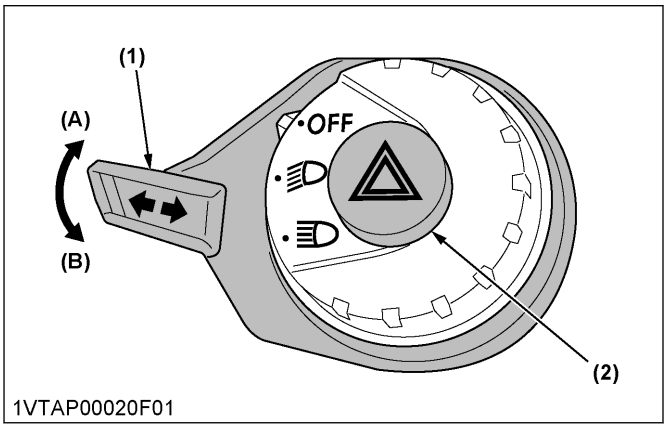
2. Hazard light switch and turn signal light switch

[ROPS type]



[CAB type]

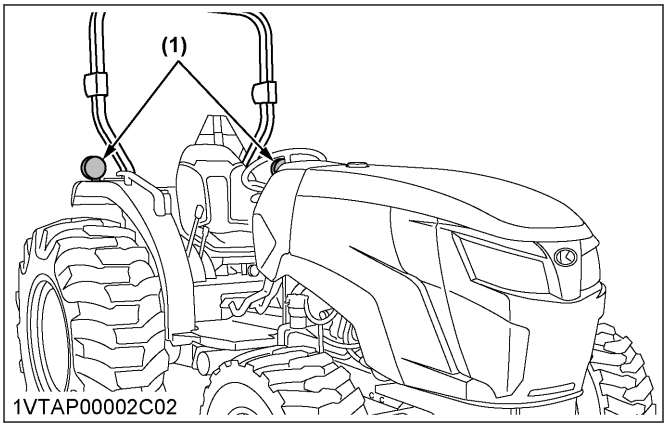


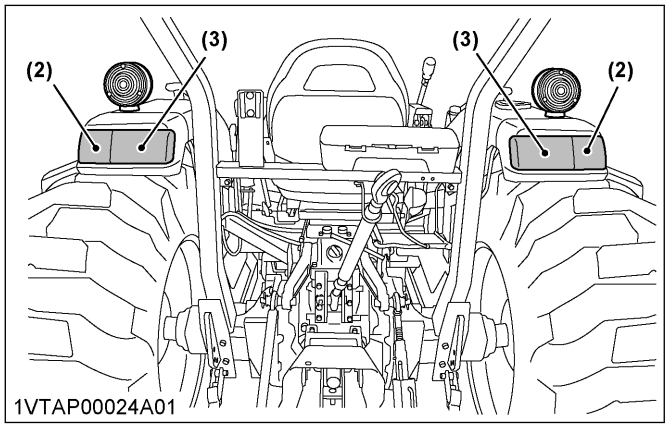


(1) Turn signal light switch
(2) Hazard light switch
(3) Turn signal / hazard light indicator
(A) Right turn
(B) Left turn

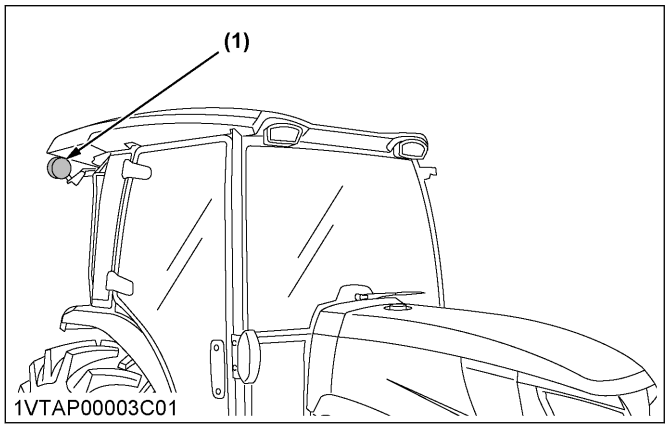
Tractor lights

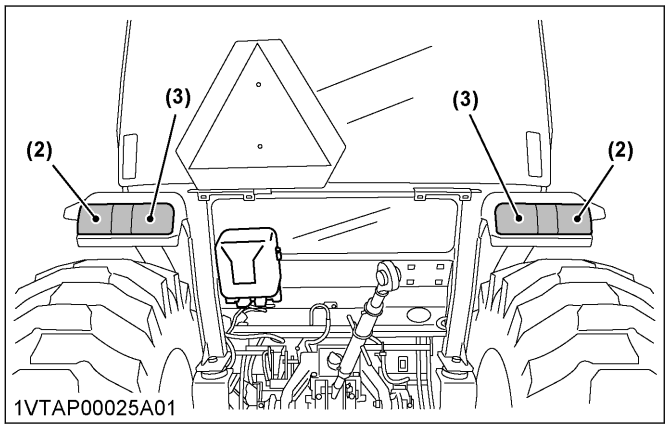
[ROPS type]





[CAB type]





(1) Side turn signal / hazard light
(2) Rear turn signal / hazard light
(3) Tail light

Hazard light switch

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

Turn signal light switch

Turn signal with hazard light

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

- To indicate a left turn with the hazard lights already flashing, turn the turn-signal-light-switch counterclockwise.

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

Turn signal without hazard light

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

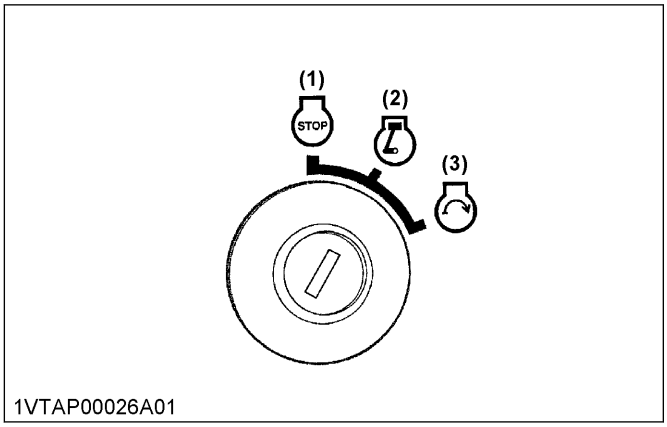
When the left or right turn signal is activated without the hazard lights, the indicated turning light will flash and the other will be on.

NOTE :

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

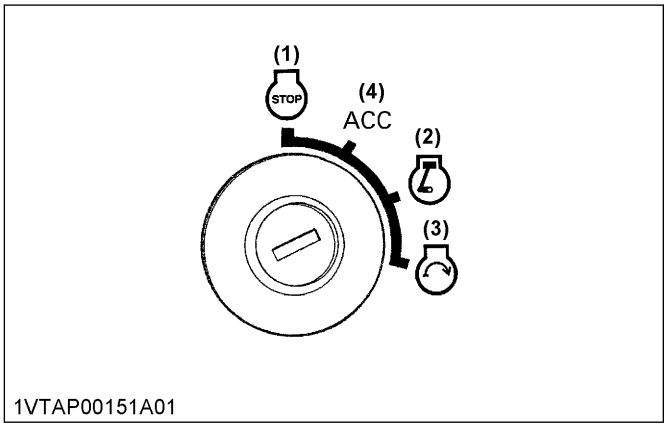
3. Key switch

[ROPS type]



1VTAP00026A01

[CAB type]



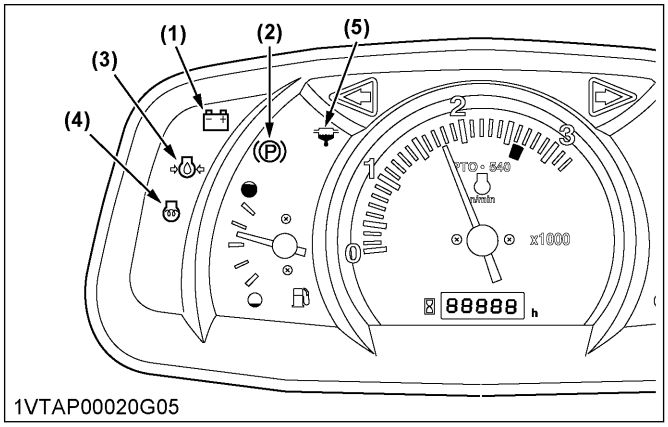
1VTAP00151A01

(1) Off
(2) On
(3) Start
(4) ACC

NOTE :

- **[ACC]**
  All the accessories can be used while the engine is stopped.

4. Easy Checker™ lamps



1VTAP00020G05

(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

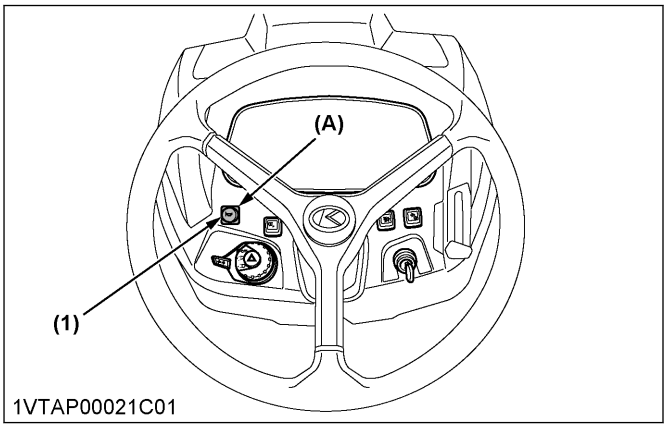
Electrical charge warning indicator	When the key switch is turned *"ON"*, the electrical-charge-warning-indicator (1) and the engine-oil-pressure-warning-indicator (3) should come on. If trouble should occur at any location while the engine is running, the warning-indicator-lamp corresponding to the trouble comes on. For further details, see Easy Checker™ on page 79.
Engine oil pressure warning indicator	
Glow plug indicator	Suppose that the engine-coolant-temperature is not high enough yet. Glow-plug-indicator(4) also comes on when the key switch is turned *"ON"* to preheat the engine and goes off automatically when preheat is completed. Illumination time of indicator varies according to the temperature of coolant.
Parking brake warning indicator	The parking-brake-warning-indicator (2) comes on while the parking brake is applied and goes off when the parking brake is released.
Water separator indicator	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 127)

IMPORTANT :

- **Daily checks with the Easy Checker™ only, are not sufficient. Never fail to conduct daily checks carefully according to DAILY CHECK on page 125.**

5. Horn button [CAB type only]

The horn will sound when the key switch is in the *“ON”* position and the horn button pressed.

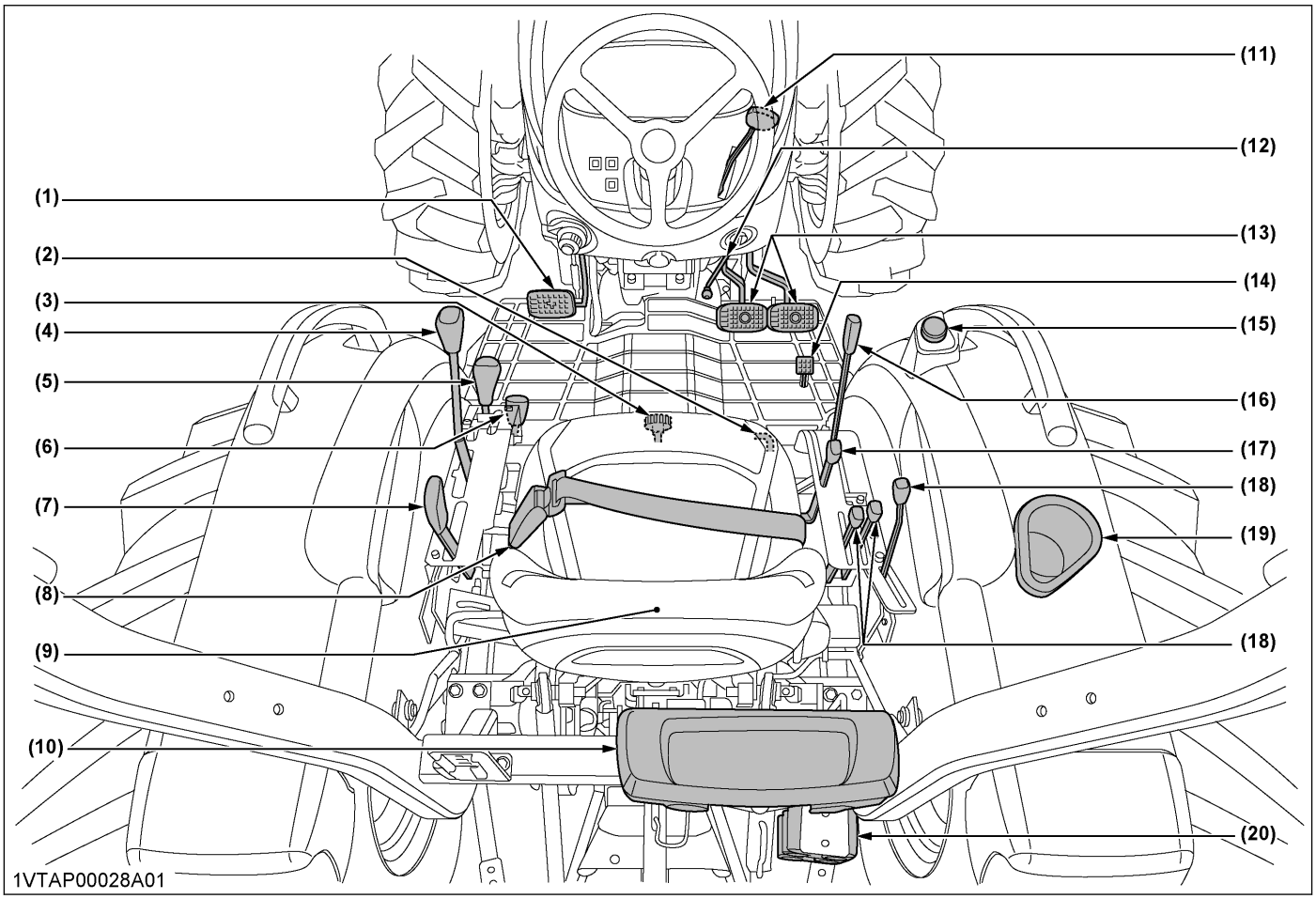


(1) Horn bottom *(A) Push*

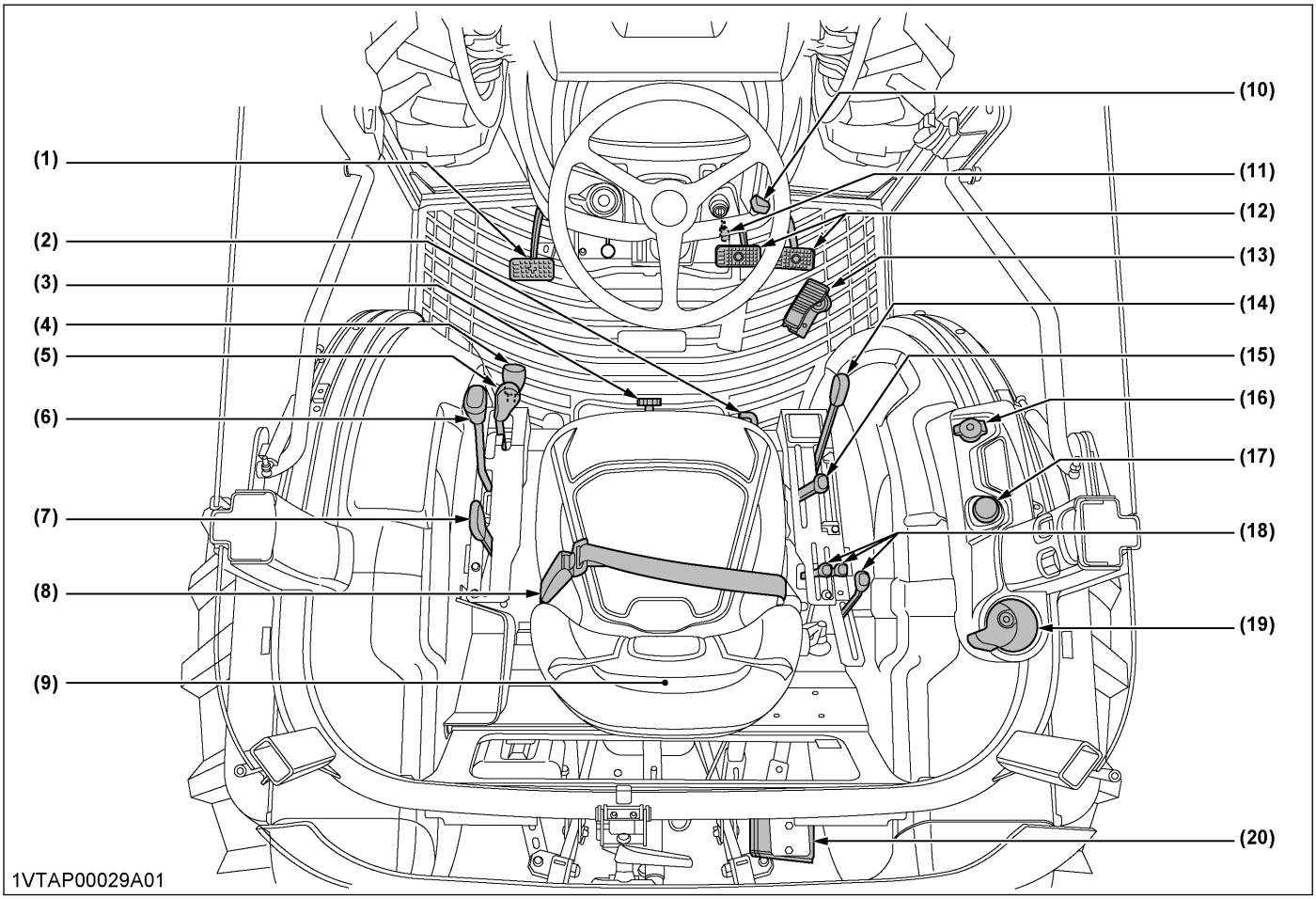
FOOT CONTROLS AND HAND CONTROLS

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

[ROPS type]

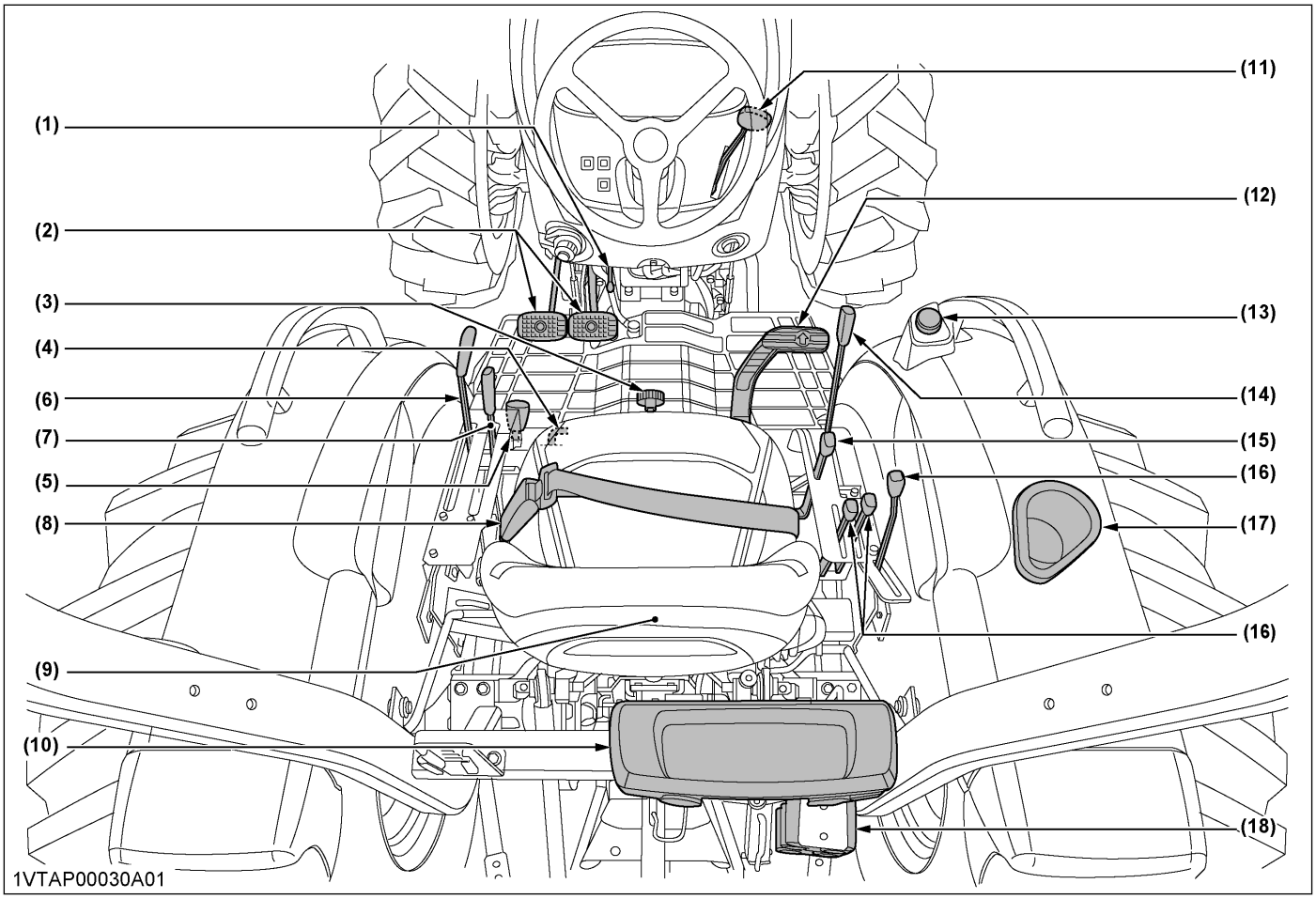


[CAB type]

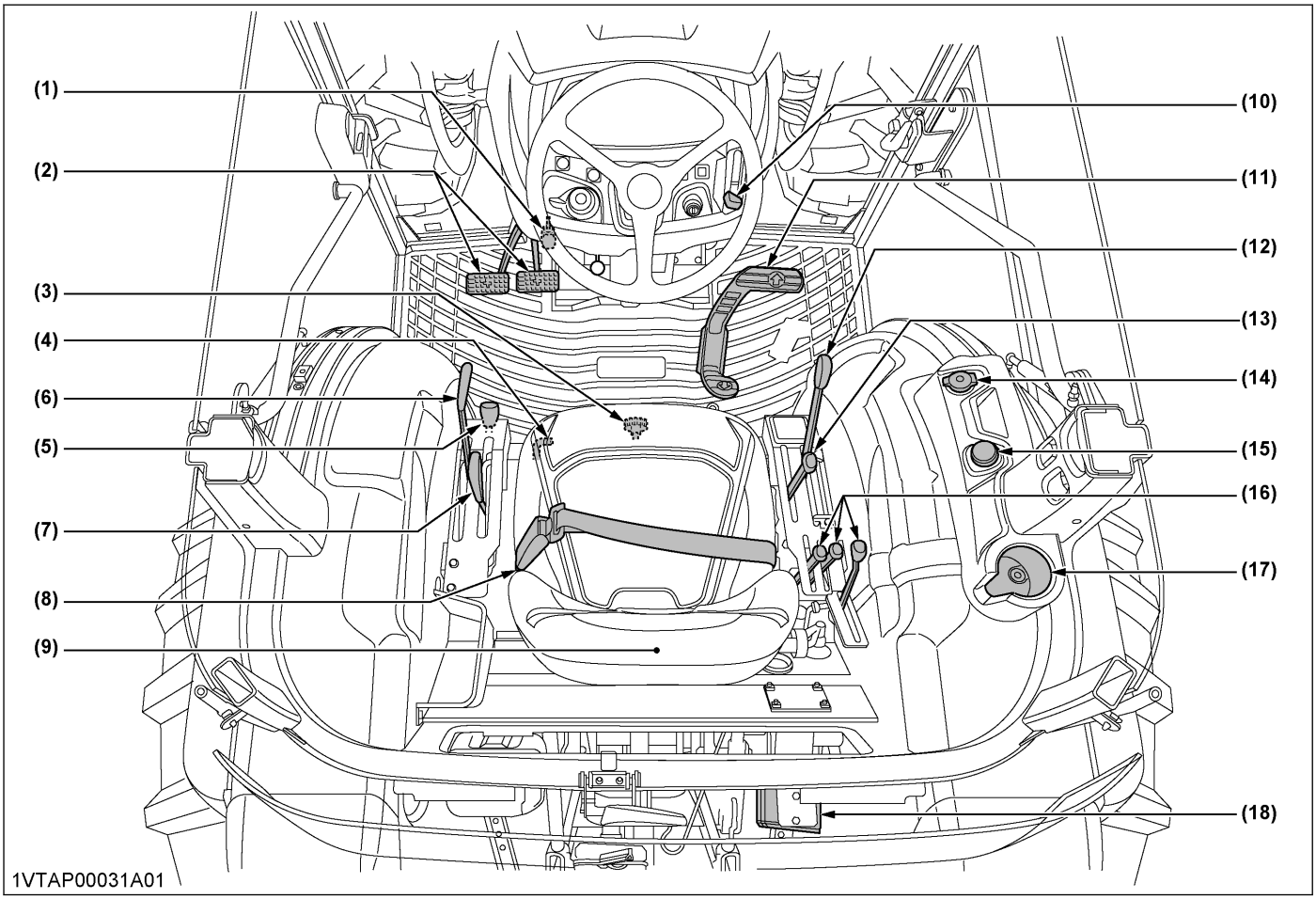


2. Foot controls and hand controls [HST type]

[ROPS type]



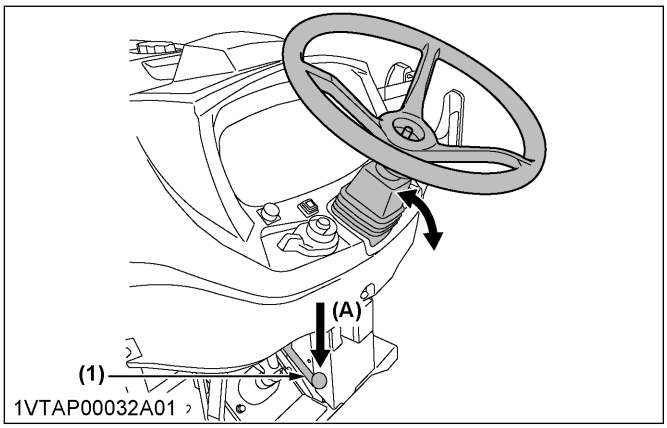
[CAB type]



3. Steering wheel tilt lever [CAB type only]

⚠ CAUTION
To avoid personal injury:
- **Do not adjust the steering wheel while the tractor is in motion.**
- **Make sure that the steering wheel is locked after adjusting.**

Steering wheel is adjustable when the steering-wheel-tilt-lever is unlocked.

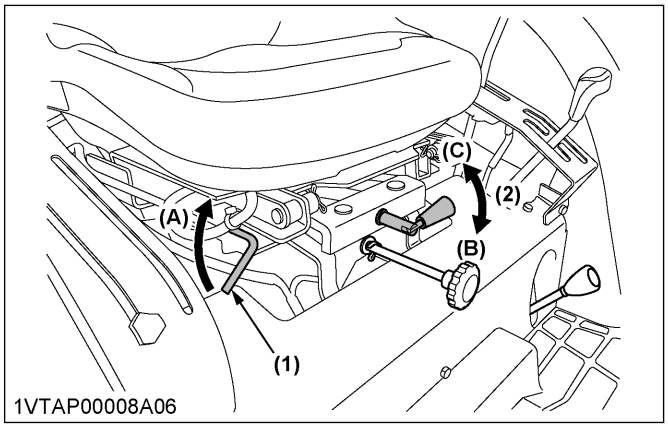


(1) Steering wheel tilt lever (A) Press down

4. Operator's seat

⚠ WARNING
To avoid personal injury or death:
- **Adjust the operator's seat only while the tractor is stopped.**
- **Make sure that the operator's seat is completely secured after each adjustment.**
- **Do not allow any person other than the operator to ride on the tractor.**

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



(1) Travel adjust lever (A) Pull
(2) Suspension adjust lever (B) Increase tension
(C) Decrease tension

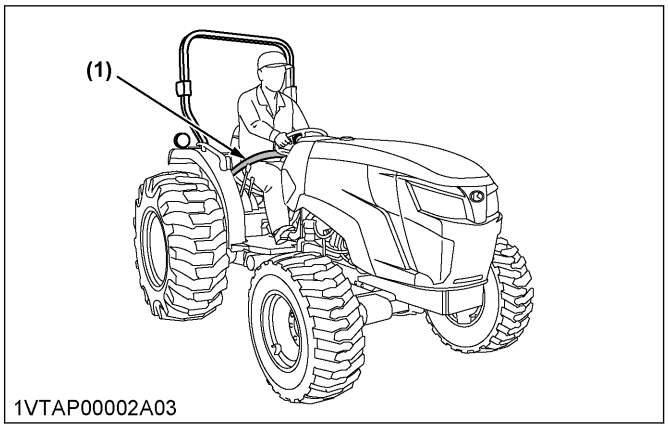
- **Suspension adjustment**
  Turn the suspension-adjust-lever to achieve the optimum suspension setting.

IMPORTANT :
- **After adjusting the operator's seat, be sure to check to see that the operator's seat is properly locked.**

5. 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

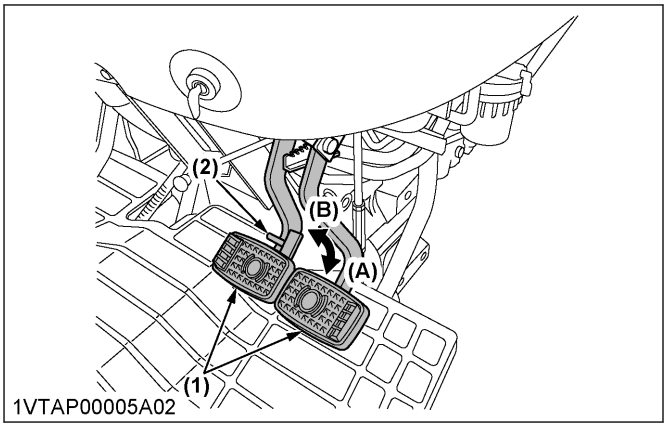
6. Brake pedals (right and left)

⚠ WARNING
To avoid personal injury or death:

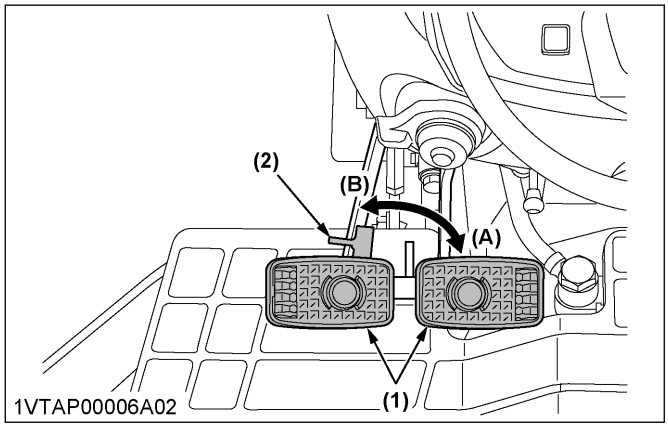
- **Be sure to interlock the right and left pedals. Applying only 1 rear-wheel-brake at high speeds could cause the tractor to swerve or roll-over.**
- **Be sure that the brake pedals have equal adjusted when using locked together. Incorrect or unequal adjustment of brake pedal can cause the tractor to swerve or roll-over.**
- **Do not brake suddenly.**
  An accident may occur as a result of a heavy towed load shifting forward or loss of control.
- **To avoid skidding and loss of steering control when driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted, operated at reduced speed, and operated with the front-wheel drive engaged if equipped.**
- **The braking characteristics are different between 2-wheel drive and 4-wheel drive. Know the difference and use carefully.**

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

[Manual transmission type]



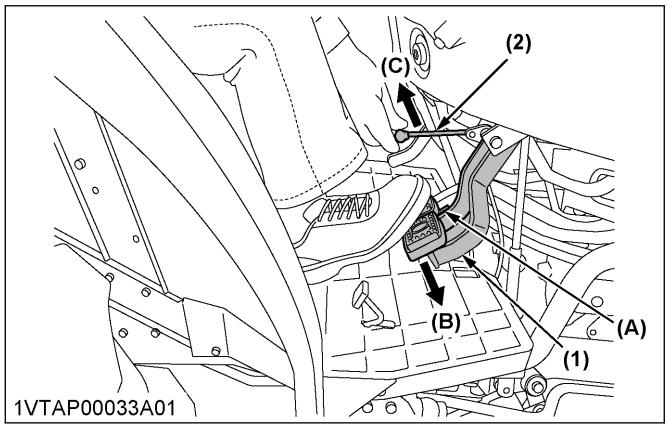
[HST type]



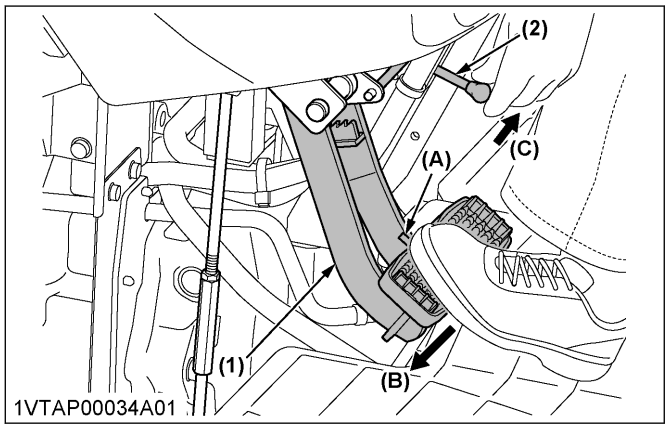
(1) Brake pedal
(2) Brake pedal lock
(A) Lock
(B) Release

6.1 How to use the parking brake

[Manual transmission type]



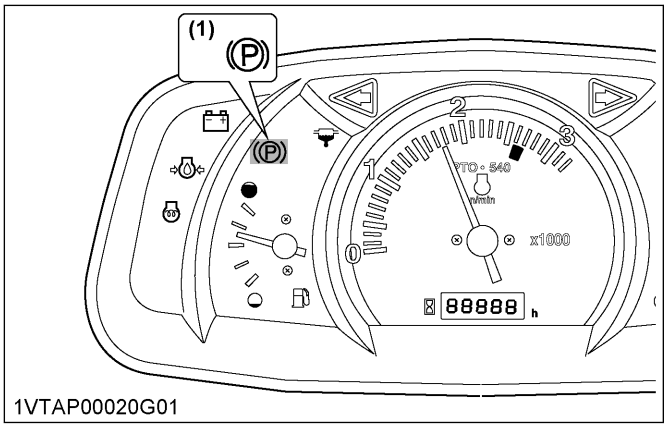
[HST type]



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

NOTE :

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



(1) Parking brake indicator

To set the parking brake

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

IMPORTANT :

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

To release the parking brake

1. Depress the brake pedals again.

7. Front wheel drive lever

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

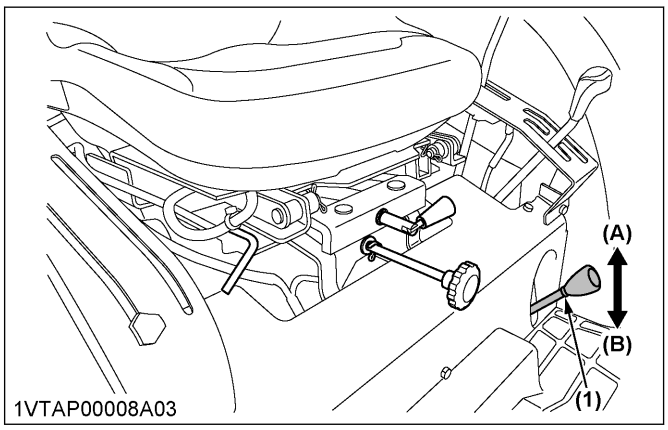
⚠ WARNING

To avoid personal injury or death:

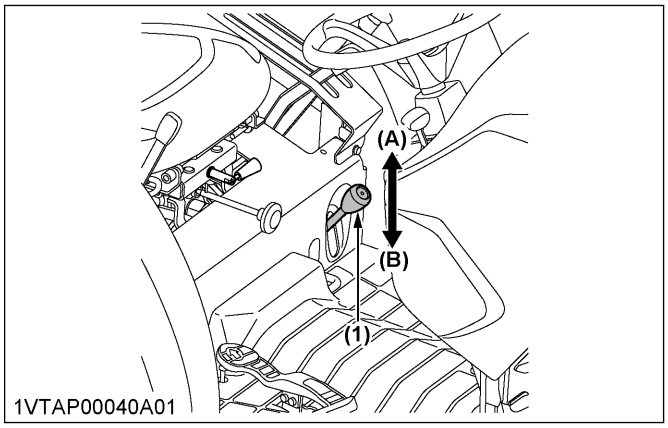
- **Do not engage the front-wheel drive when traveling at road speed.**
- **When driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate the tractor at reduced speed and engage the front-wheel drive.**
- **Do not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

Shift the front-wheel-drive-lever to *"ON"* to engage the front-wheel-drive.

[Manual transmission type [4WD]]



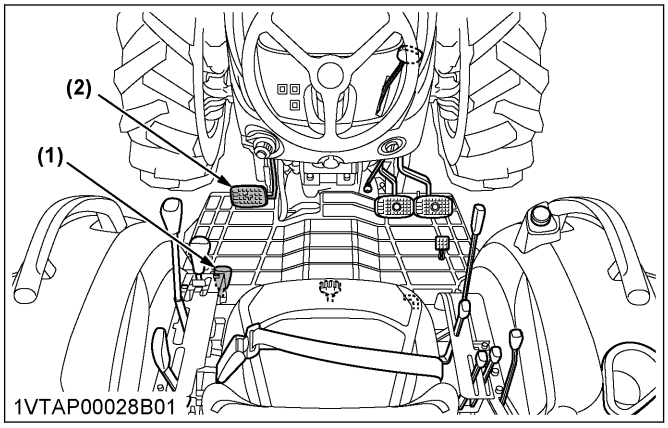
[HST type]



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

IMPORTANT :

- **Depress the clutch pedal before engaging the front-wheel-drive-lever [Manual transmission type [4WD]].**



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

- **If the front-wheel-drive-lever is difficult to set to *"OFF"*, stop the tractor, turn the steering wheel, and move the front-wheel-drive-lever.**
- **Tires will wear quickly if the front-wheel-drive is engaged on paved roads.**

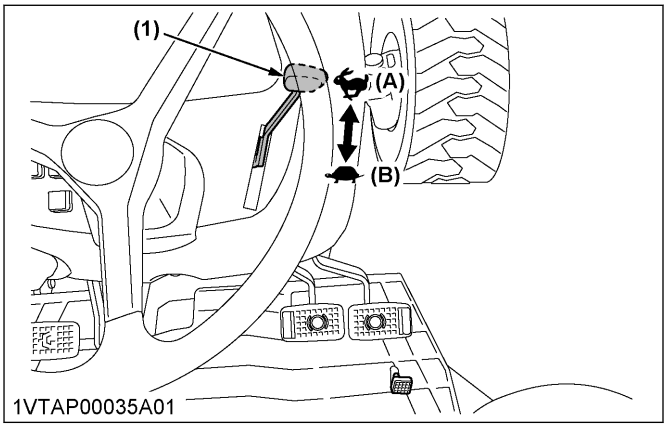
Front wheel drive is effective for the following jobs:

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

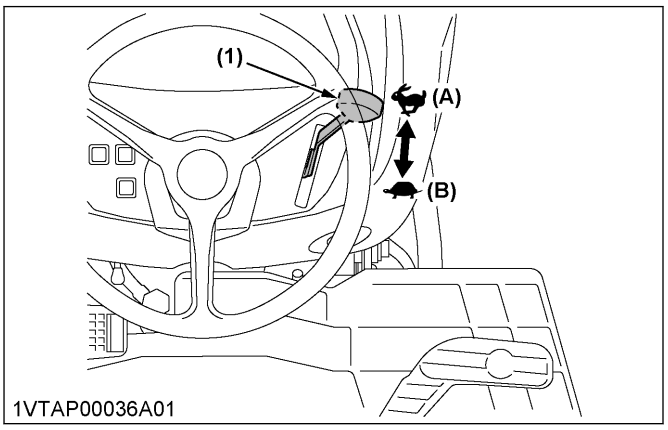
8. Hand throttle lever

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

[Manual transmission type]



[HST type]



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

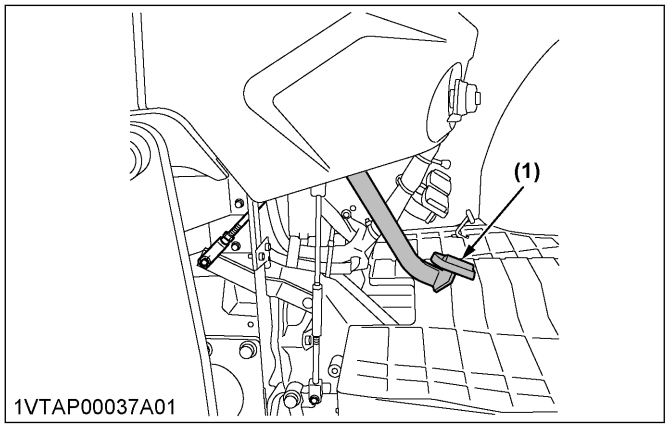
9. Clutch pedal [Manual transmission type only]

⚠ WARNING

To avoid personal injury or death:

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

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



(1) Clutch pedal

IMPORTANT :

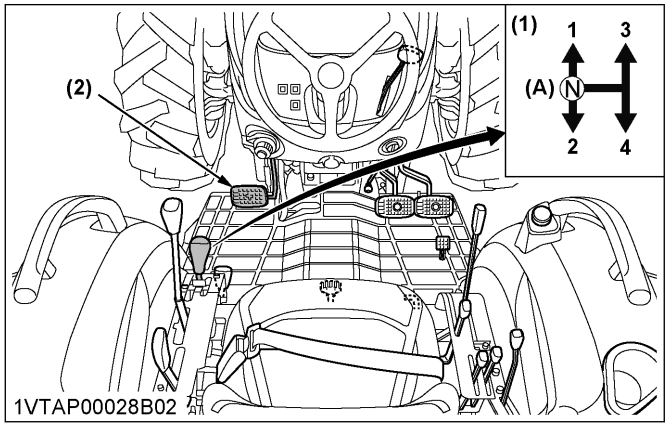
To help prevent premature clutch wear:

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

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

The main-gear-shift is partially synchronized allowing to shift on the go between 3rd and 4th speeds. Just depress the clutch pedal and shift the tractor speed, coming to a complete stop is not necessary.

When changing between 1st and 2nd speeds, depress the clutch pedal and stop the tractor before shifting the tractor speed.



(1) Main gear shift lever
(2) Clutch pedal
(A) Neutral position

IMPORTANT :

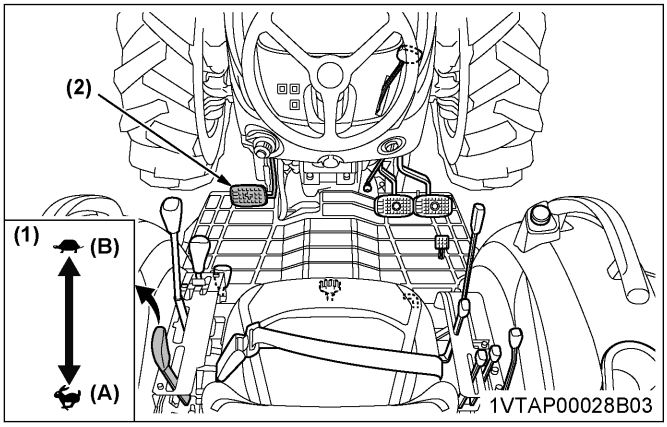
- **To avoid transmission damage, depress the clutch pedal and stop the tractor before shifting 1st or 2nd speeds.**

NOTE :

- **For road travel, start the tractor in a lower gear (6th and 7th), and then shift to a higher gear (7th and 8th). Starting in the lower gear will prolong the service life of clutch.**

11. Range gear shift lever [Manual transmission type]

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



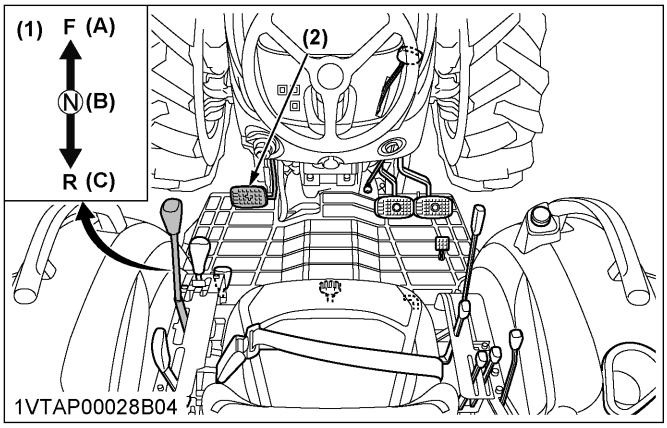
(1) Range gear shift lever
(2) Clutch pedal
(A) High
(B) Low

IMPORTANT :

- **To avoid transmission damage, depress the clutch pedal and stop the tractor before shifting between low and high ranges.**

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. Shifting the synchro-shuttle shift lever requires clutch operation.



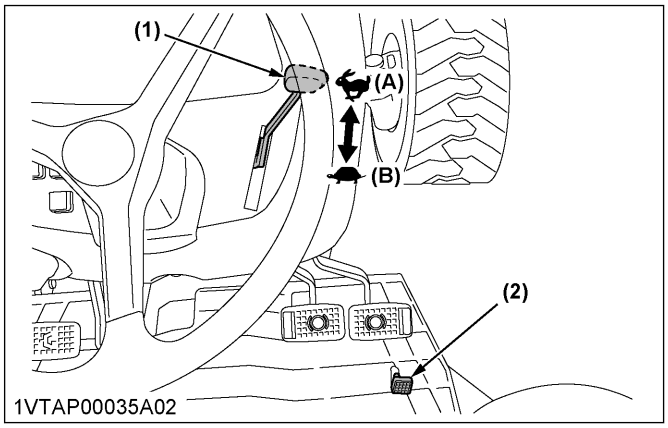
(1) Synchro-shuttle shift lever
(2) Clutch pedal
(A) Forward
(B) Neutral position
(C) Reverse

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.**

13. Foot throttle [Manual transmission type only]

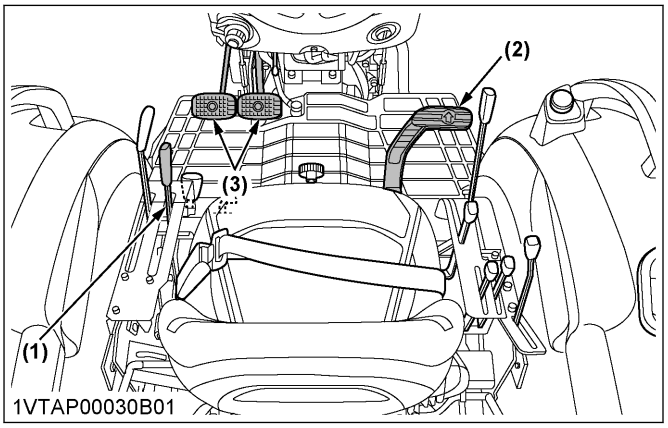
Use the foot throttle when traveling on the road.
Press down on the foot throttle for higher speed. The foot throttle is interlocked with the hand-throttle-lever.
When using the foot throttle, keep the hand-throttle-lever in the low idling position.

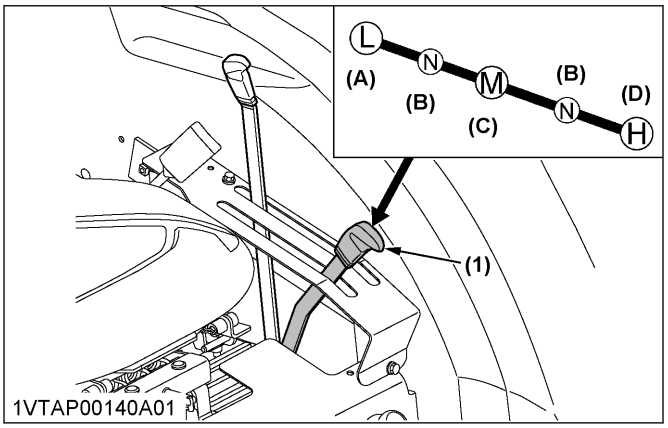


(1) Hand throttle lever
(2) Foot throttle
(A) Increase
(B) Decrease

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

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





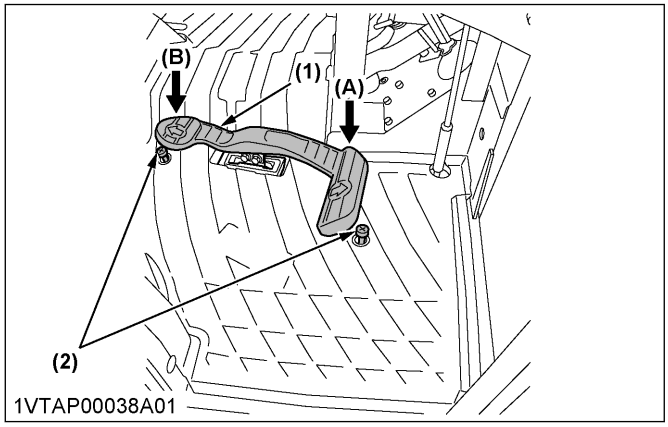
(1) Range gear shift lever (L-M-H)
(2) Speed control pedal
(3) Brake pedal
(A) Low
(B) Neutral position
(C) Middle
(D) High

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

15. 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
(2) Stopper bolt
(A) Forward
(B) Reverse

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

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

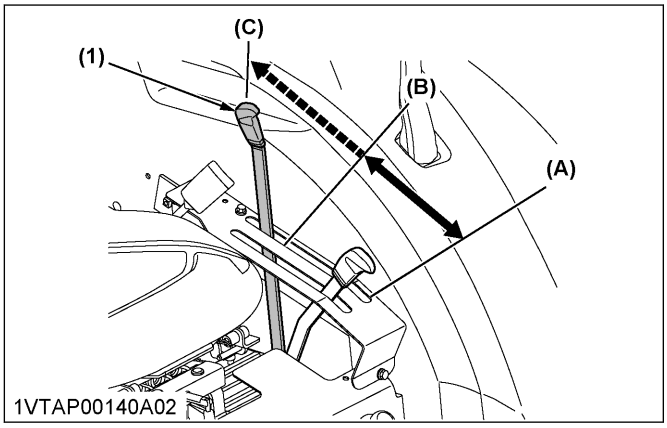
16. Cruise control lever [HST type only]

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

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

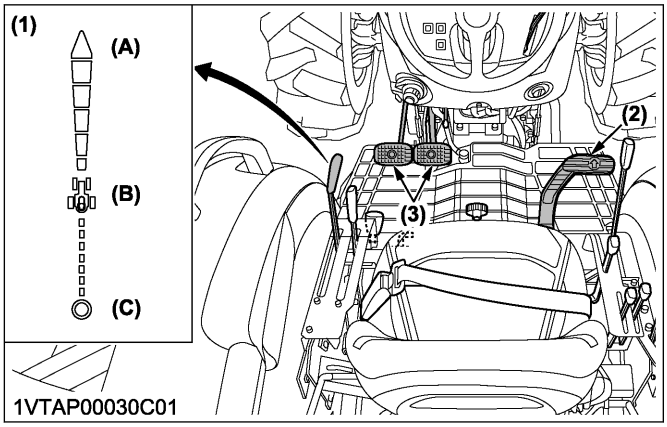
NOTE :

- **Cruise-control-device will not operate in reverse.**
- **Preferably set the cruise-control-lever, while holding down the speed-control-pedal. You can set the cruise-control-lever smoothly.**
- **When releasing the cruise mode, be sure to return the cruise-control-lever fully backward.**



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

16.1 How to use the cruise control lever [HST type only]



(1) Cruise control lever
(2) Speed control pedal
(3) Brake pedal
(A) Increase
(B) Decrease
(C) Off

To engage the cruise control device

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

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

NOTE :

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

To disengage the cruise control device

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

NOTE :

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

PRE-OPERATION CHECK

DAILY CHECK ITEMS BEFORE OPERATION OF THE TRACTOR

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

⚠ WARNING

To avoid personal injury or death:

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

Check the condition of the tractor before starting it.

Check items

- Walk-around inspection
- Checking the engine oil level
- Checking the transmission oil level
- Checking the coolant level
- Checking the water separator
- Cleaning the grill and radiator screen
- Cleaning the fuel cooler
- Cleaning the oil cooler [HST type]
- Cleaning the DPF muffler
- Checking the air cleaner evacuator valve when used in a dusty place
- Checking the brake pedal [HST type]
- Checking the brake pedal and clutch pedal [Manual transmission type]
- Checking the indicators, gauges, and meter
- Checking the lights
- Checking wire harness
- Checking the seat belt and ROPS
- Checking the movable parts
- Refuel
  (See Checking the fuel tank and refueling on page 125)
- Care for safety labels
  (See CARE OF THE 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* in the front of this manual.**
- **Read and understand the safety labels located on the tractor.**
- **To avoid the danger of exhaust-fume-poisoning, do not operate the engine in a closed building without proper ventilation.**
- **Never start the engine while standing on ground. Start the engine only from the operator's seat.**
- **Always set all shift levers to the *"NEUTRAL"* positions and to place the PTO-clutch-control-switch in the *"OFF"* position before starting the engine.**

(See PRECAUTIONS FOR OPERATING THE TRACTOR on page 8, PRECAUTIONS FOR PARKING THE TRACTOR on page 11, and PRECAUTIONS FOR SERVICING THE TRACTOR on page 12)

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.**

EXHAUST AFTERTREATMENT DEVICES

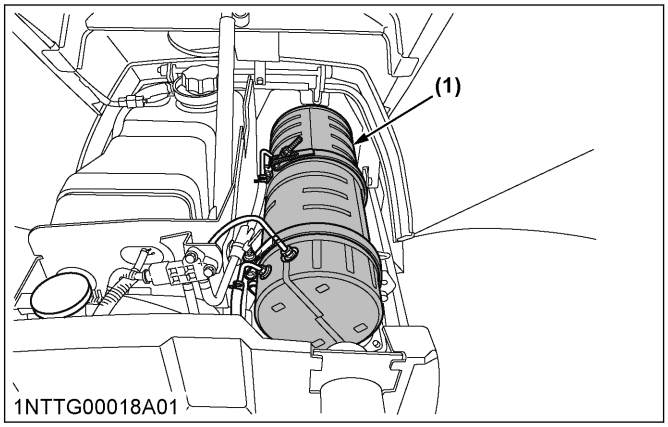
⚠ WARNING

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 the tractor away from people, animals, or structures which 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 which 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, make sure to follow the following handling matters.

Fuel

Be sure to use the ultra low sulfur fuel (S15).

IMPORTANT :

- **Use of diesel fuel other than ultra low sulfur fuel may adversely affect the 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) for the engine.

IMPORTANT :

- **If any engine oil other than CJ-4 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 the regeneration indicator starts flashing or the regeneration buzzer starts sounding, immediately perform the required regeneration procedure.

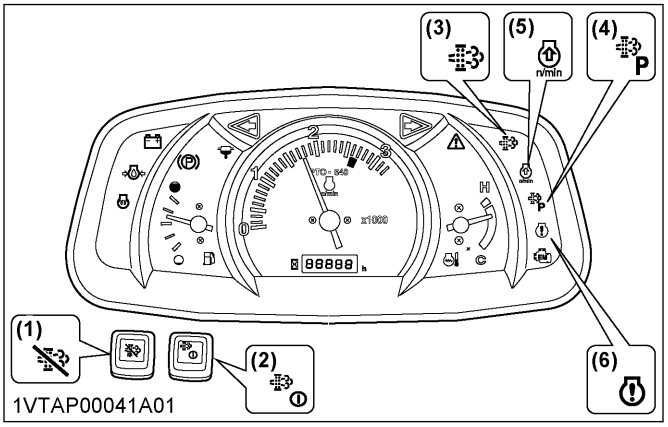
IMPORTANT :

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

3. DPF regeneration process

You can perform the DPF regeneration process by choosing the *"Auto Regeneration"* mode or the *"Regeneration Inhibit"* mode according to conditions of your job.

For jobs not affected by hot gases emitted during regeneration, *"Auto Regeneration"* mode is advisable.



(1) DPF INHIBIT switch
(2) Parked regeneration 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 59)

By effect of auto regeneration, work efficiency is improved. For details of auto regeneration, see Regeneration operating procedure for Auto Regeneration mode on page 54.

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 which 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.

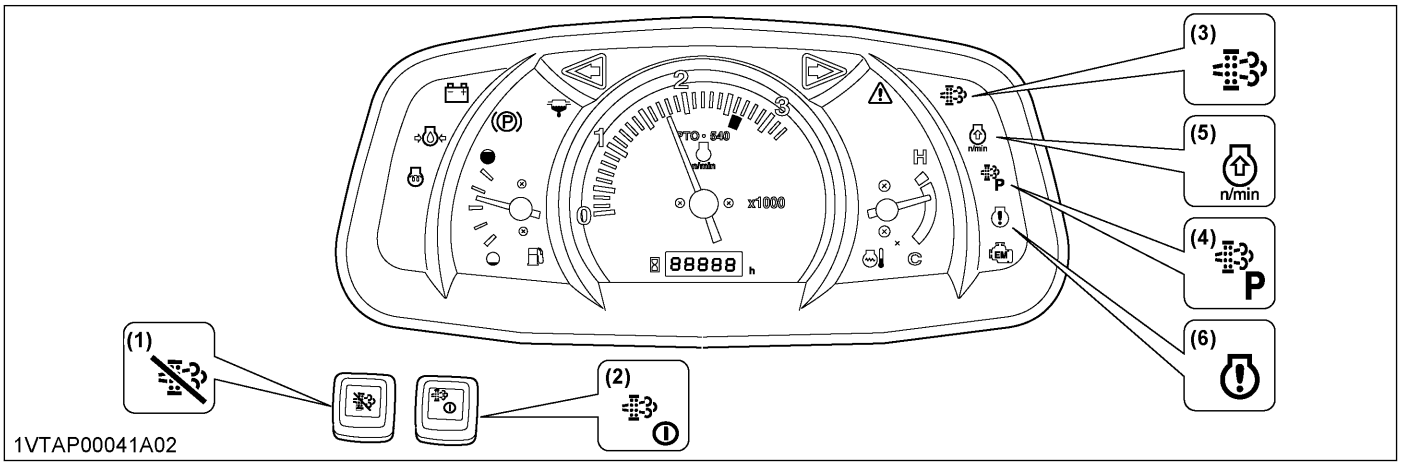
For details of regeneration prohibition, see Regeneration operating procedure for Regeneration Inhibit mode on page 56.

NOTE :

- **If the engine is stopped once, the *"Auto Regeneration"* mode will be activated.**

3.1 Operating procedure for Auto Regeneration mode

3.1.1 Regeneration operating procedure for Auto Regeneration mode



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

1. Start the engine.

   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.**
   - ***"Regeneration Inhibit"* mode is activated when the DPF-INHIBIT-switch is pushed after the engine is started.**

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

   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.

3. When the engine-rpm-increase-indicator starts flashing, keep on working and increase the engine rpm until the 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 59)

3.1.2 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 :

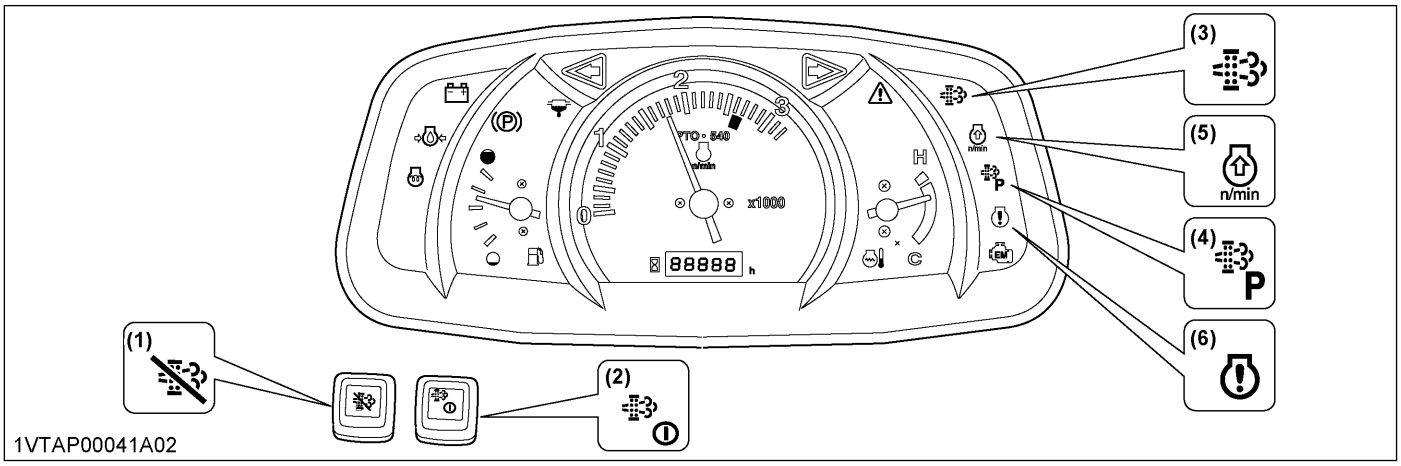
- **Once the regeneration level has been reached, immediately perform the required procedure for regeneration.**
  Interrupting the regeneration cycle or continuing operation while ignoring the warning signs may cause DPF and engine damage.

Auto regeneration mode

DPF system status					Required procedure
PM warning level	**Buzzer**	**Engine output**	**Indicator**		
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 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, referring 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 procedure for parked regeneration on page 58)
2-2	Sounding every 3 seconds	sufficient		The Engine-RPM-increase-indicator starts flashing.	
				The parked-regeneration-indicator starts flashing.	
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 procedure for parked regeneration on page 58) 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 procedure for Regeneration Inhibit mode

3.2.1 Regeneration operating procedure for Regeneration Inhibit mode



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

1. Start the engine.
2. Press the DPF-INHIBIT-switch , and the DPF-INHIBIT-switch lamp illuminates.

   DPF INHIBIT switch lamp is *"ON"*
   "Regeneration Inhibit" mode is activated.

   DPF INHIBIT switch lamp is *"OFF"*
   "Auto Regeneration" mode is activated.
3. When the parked-regeneration-indicator starts flashing, a specific amount of PM has accumulated in the DPF muffler.
   Move the tractor to a safe place and activate the DPF muffler. Follow the procedure in Operating procedure for parked regeneration on page 58)

3.2.2 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.

Regeneration inhibit mode

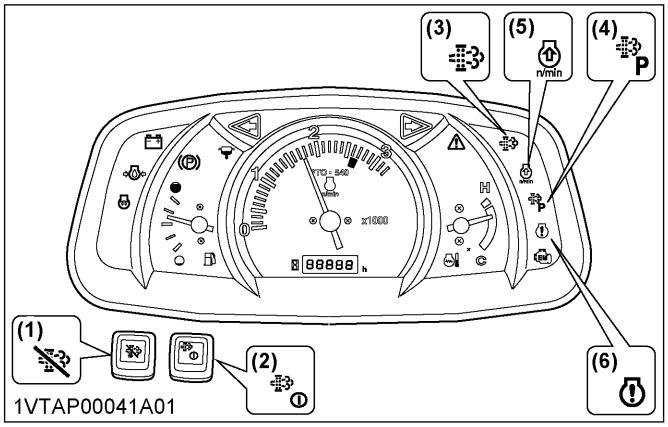
<table>
<tr><th colspan="4">DPF system status</th><th rowspan="2">Required procedure</th></tr>
<tr><th>PM warning level</th><th>Buzzer</th><th>Engine output</th><th colspan="2">Indicator</th></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Not sounding</td><td rowspan="2">sufficient</td><td>  </td><td>The regeneration indicator starts flashing.</td><td>A specific level of PM has built up in the DPF muffler.
Continue with the operation as it is.</td></tr>
<tr><td>  </td><td colspan="2">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.</td></tr>
<tr><td>2-1</td><td>Sounding every 5 seconds</td><td>sufficient</td><td>  </td><td>The regeneration indicator starts flashing.</td><td rowspan="2">Move the tractor to a safe area, then begin the process for parked-regeneration-cycle. (See Operating procedure for parked regeneration on page 58)</td></tr>
<tr><td>2-2</td><td>Sounding every 3 seconds</td><td>sufficient</td><td>  </td><td>The parked-regeneration-indicator starts flashing.</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Sounding every 1 second</td><td rowspan="2">50%</td><td>  </td><td>The engine-warning-indicator starts flashing.</td><td rowspan="2">Immediately stop working the tractor, move the tractor to a safe area, then begin the process for parked-regeneration-cycle. (See Operating procedure for parked regeneration on page 58)
If the tractor is operated further and the operator ignores the warning signs, then regeneration will be disabled.</td></tr>
<tr><td>  </td><td>The parked-regeneration-indicator starts flashing.</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><td>4</td><td>Sounding every 1 second</td><td>50%</td><td>  </td><td>The engine-warning-indicator remains constantly "ON".</td><td>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.</td></tr>
</table>

3.3 Operating procedure for parked regeneration

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. Turn *"OFF"* the PTO-clutch-control-switch.
5. Return the engine rpm to the idle speed.
6. Lower the implement to the ground.
   Turn the steering wheel to become the front wheels in the straight ahead position.
7. Press the DPF-INHIBIT-switch  .
   The DPF-INHIBIT-switch-lamp turns *"OFF"*.
8. 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.
10. The engine rpm will automatically rise, and the regeneration process will begin.
11. Both indicators  and  stay *"ON"* while regenerating the DPF.
    Indicators  and  turn *"OFF"* when the regeneration cycle is complete.
12. After the lamps  and  turn *"OFF"*, normal tractor work may resume.
    When driving in *"Regeneration Inhibit"* mode, press the DPF-INHIBIT-switch to turn on the DPF-INHIBIT-switch-lamp.

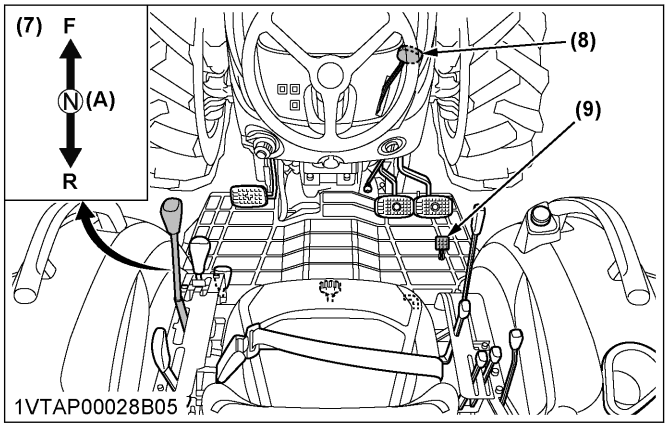
NOTE :

- **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 [Manual transmission type] 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.**



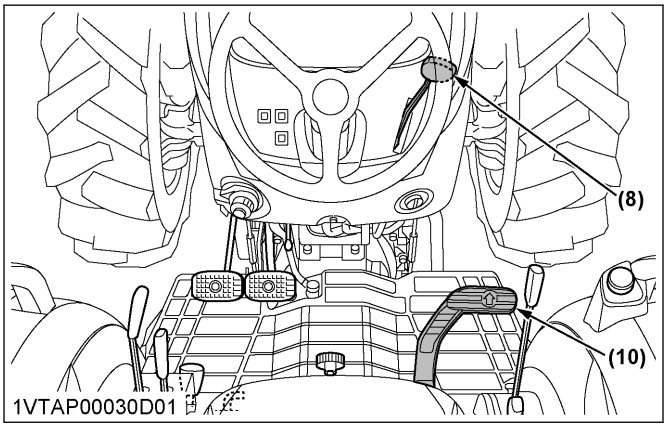
(1) DPF INHIBIT switch
(2) Parked regeneration switch
(3) Regeneration indicator
(4) Parked regeneration indicator
(5) Engine RPM increase indicator
(6) Engine warning indicator

[Manual transmission type]



(7) Synchro-shuttle shift lever
(8) Hand throttle lever
(9) Foot throttle pedal
(A) Neutral

[HST type]



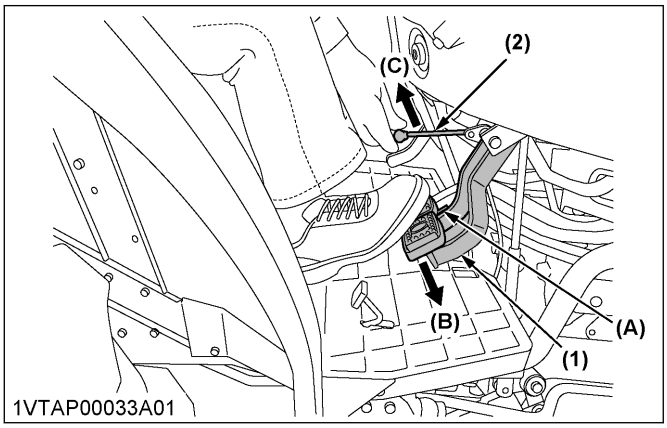
(8) Hand throttle lever *(10) Speed control pedal*

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, even if one of the following conditions is not met during the regeneration process, the regeneration process will be interrupted and not be completed.
  – The engine coolant temperature.
  – The DPF temperature.
  – The engine speed is 1200 rpm or higher.
- Usually it takes 15-20 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 running for about 5 minutes to allow cooling of the exhaust components.

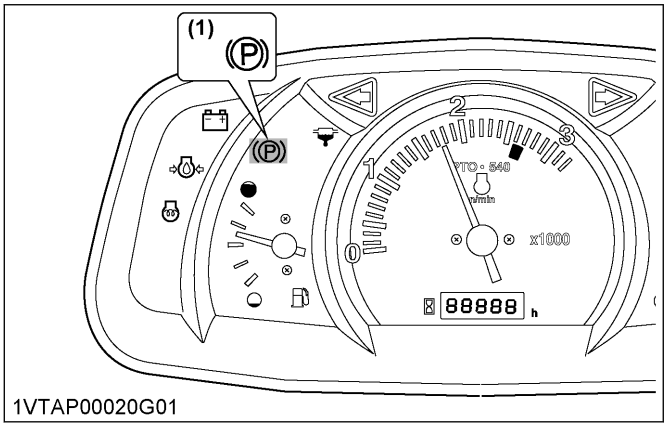
STARTING THE ENGINE [MANUAL TRANSMISSION TYPE]

1. Make sure that the parking brake is set.
   (See To set the parking brake on page 46 if the parking brake is not set)



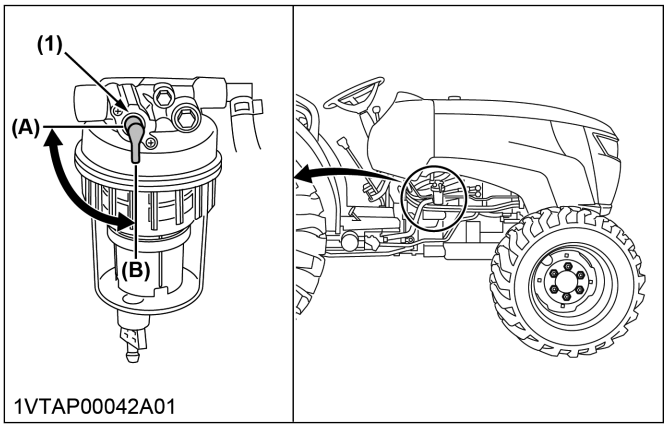
(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Pull

NOTE :
- **The parking-brake-indicator in the Easy Checker™ comes on while the parking brake is applied.**



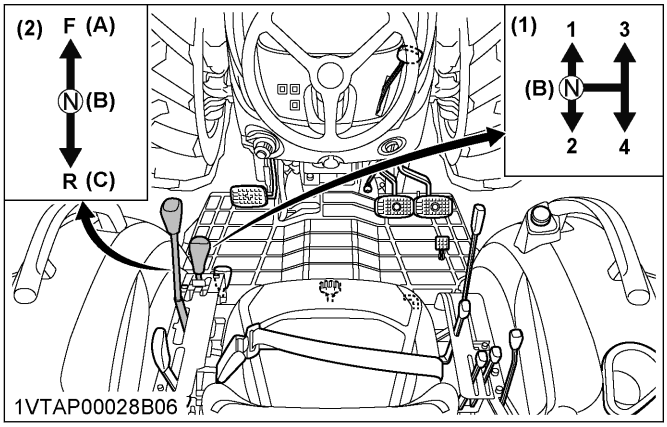
(1) Parking brake indicator

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



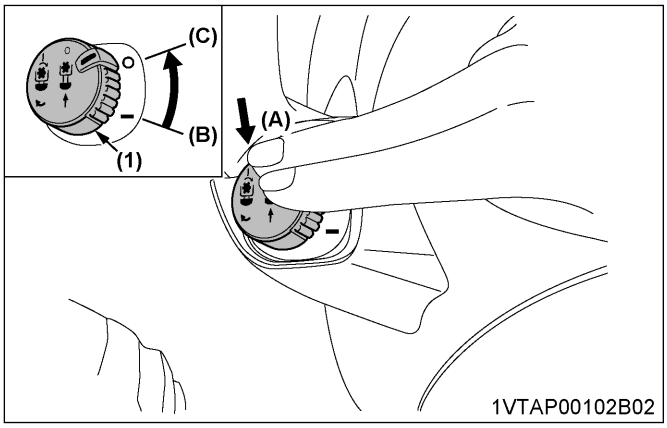
(1) Fuel shutoff-valve
(A) Close
(B) Open

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



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

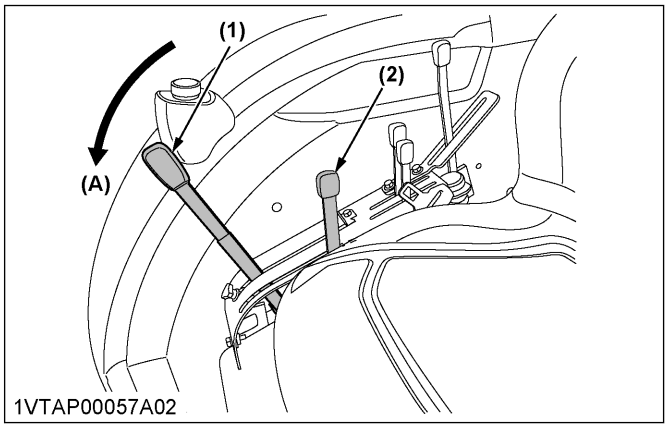
4. Place the PTO-clutch-control-switch in the *"OFF"* position.



(1) PTO clutch control switch
(A) Push
(B) On (Engaged)
(C) Off (Disengaged)

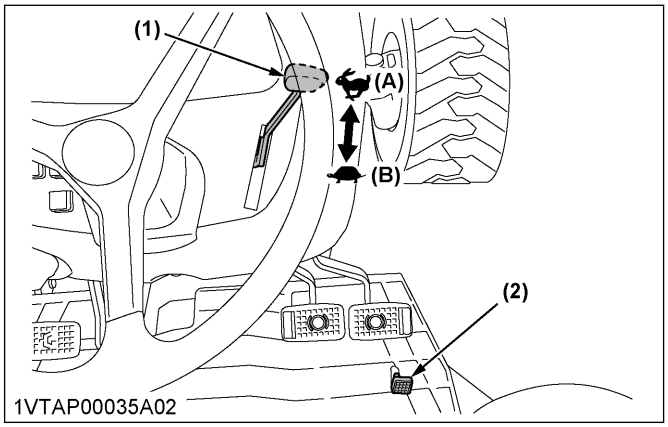
5. Place the position-control-lever and the draft-control-lever if equipped in the *"FLOAT"* position.

The *"FLOAT"* position is the lowest position of position-control-lever and draft-control-lever.



(1) Position control lever
(2) Draft control lever (if equipped)
(A) Down

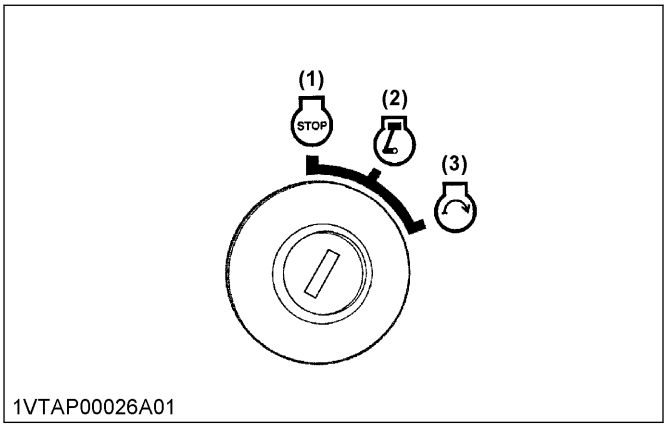
6. Set the hand-throttle-lever to about 1/2 way.



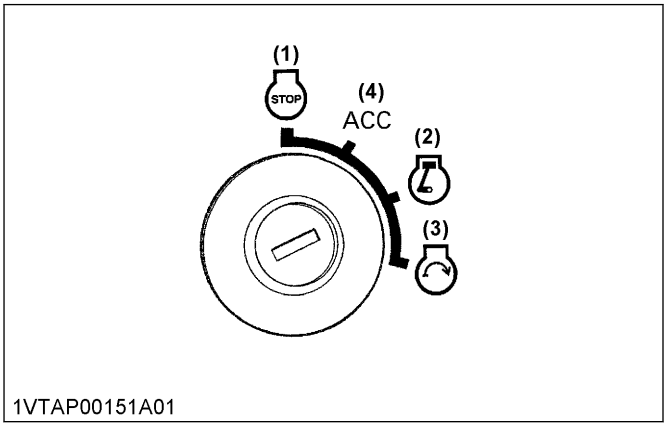
(1) Hand throttle lever
(2) Foot throttle
(A) Increase
(B) Decrease

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

[ROPS type]

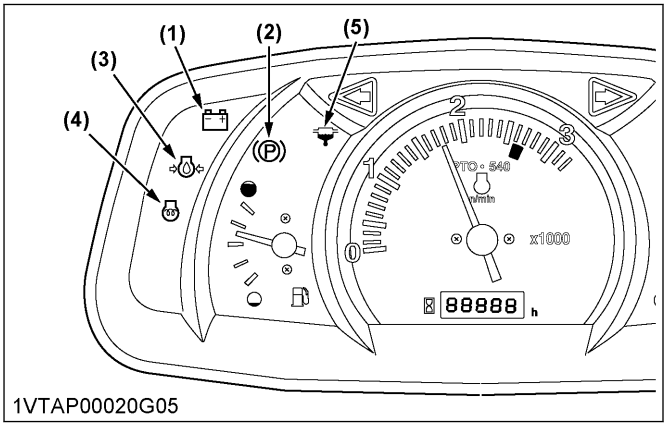


[CAB type]



(1) Off
(2) On
(3) Start
(4) ACC

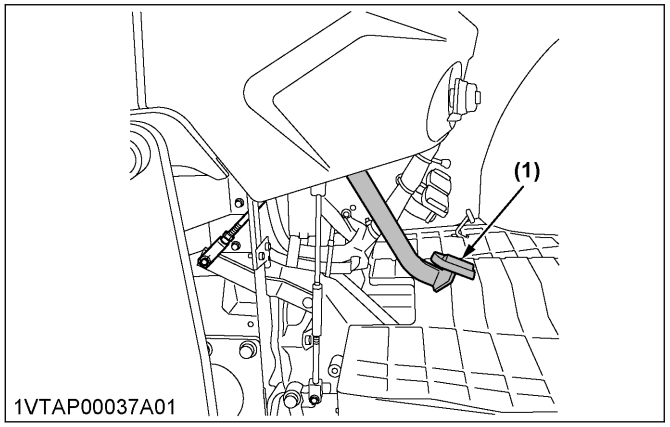
8. Check the Easy Checker™ lamps.
(See Easy Checker™ lamps on page 38)



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

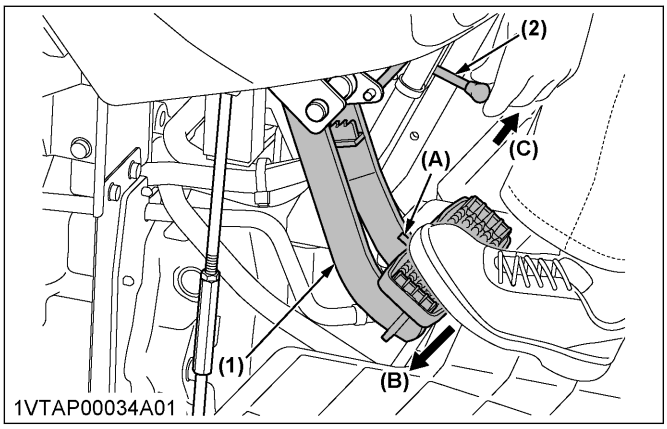
10. Turn the starter key to the *"START"* position and release it when the engine starts.

IMPORTANT :
- **Because of the safety devices, the engine will not start except the following conditions:**
  - **PTO-clutch-control-switch is placed in the *"OFF"* position.**
  - **Synchro-shuttle shift lever is placed 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.

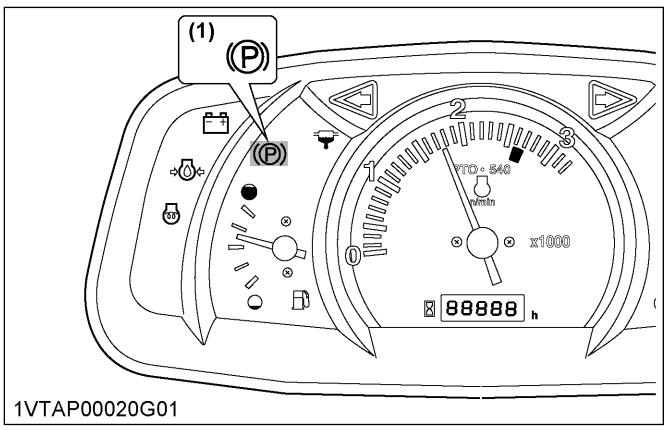
STARTING THE ENGINE [HST TYPE]

1. Make sure that the parking brake is set.
   (See To set the parking brake on page 46 if the parking brake is not set)



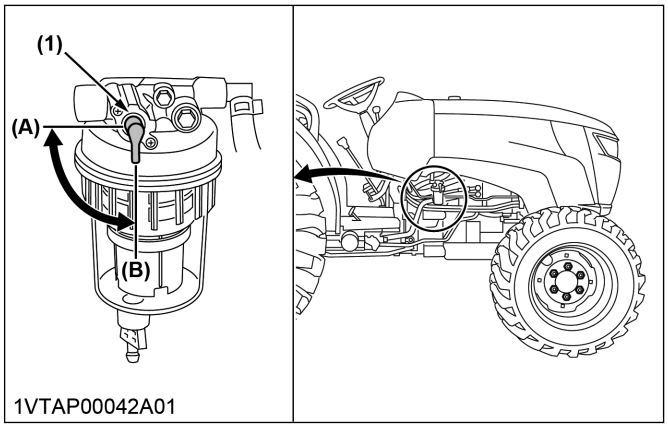
(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Pull

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.

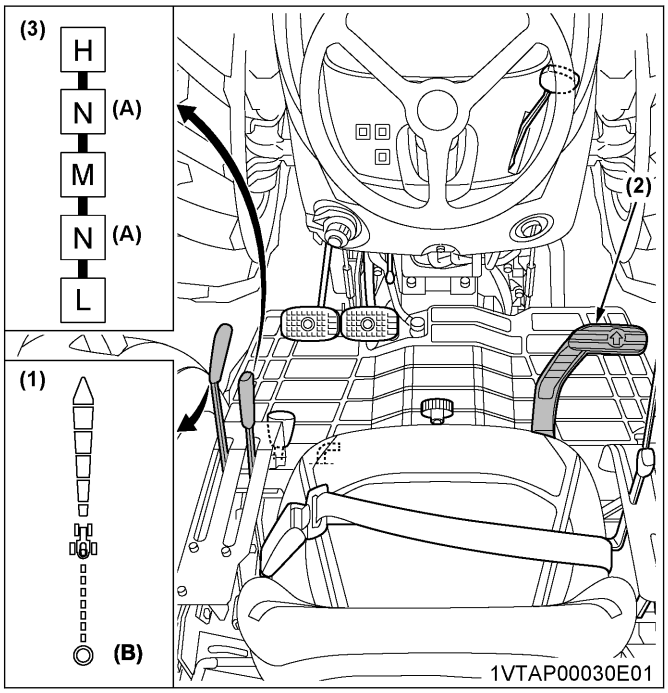


(1) Fuel shutoff-valve
(A) Close
(B) Open

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.**

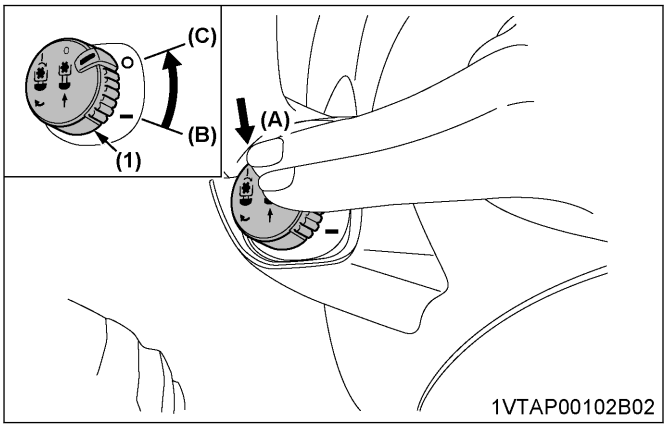
4. Place the speed-control-pedal and the range-gear-shift-lever in the *"NEUTRAL"* position.



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

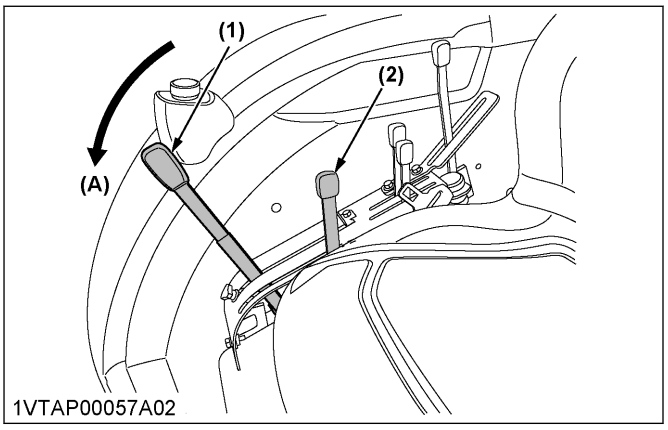
NOTE :
- **When removing the foot from the speed-control-pedal, the speed-control-pedal automatically returns to the *"NEUTRAL"* position.**

5. Place the PTO-clutch-control-switch in the *"OFF"* position.



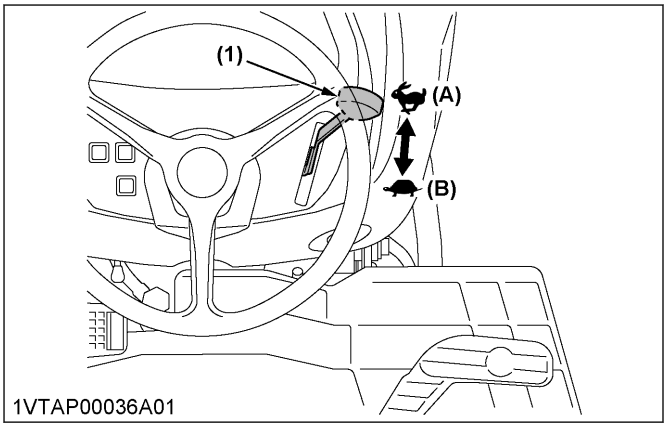
(1) PTO clutch control switch
(A) Push
(B) On (Engaged)
(C) Off (Disengaged)

6. Place the position-control-lever and the draft-control-lever if equipped in the *"FLOAT"* position.
   The *"FLOAT"* position is the lowest position of position-control-lever and draft-control-lever.



(1) Position control lever
(2) Draft control lever (if equipped)
(A) Down

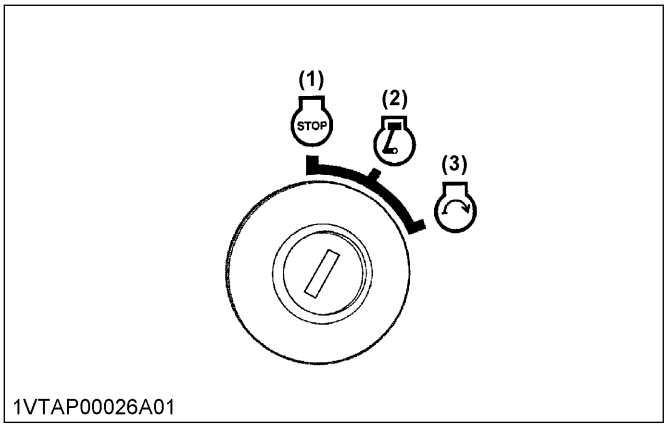
7. Set the hand-throttle-lever to about 1/2 way.



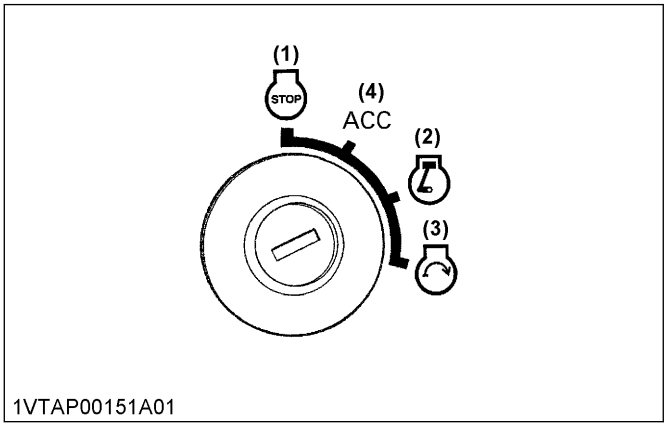
(1) Hand throttle lever
(A) Increase
(B) Decrease

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

[ROPS type]

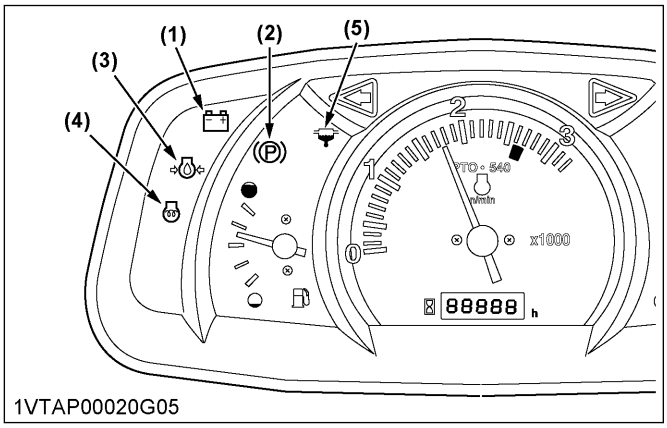


[CAB type]



(1) Off
(2) On
(3) Start
(4) ACC

9. Check the Easy Checker™ lamps.
   (See Easy Checker™ lamps on page 38)



(1) Electrical charge indicator
(2) Parking brake indicator
(3) Engine oil pressure warning indicator
(4) Glow plug indicator
(5) Water separator filter 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 placed in the *"OFF"* position.**
  - **Speed-control-pedal is placed 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

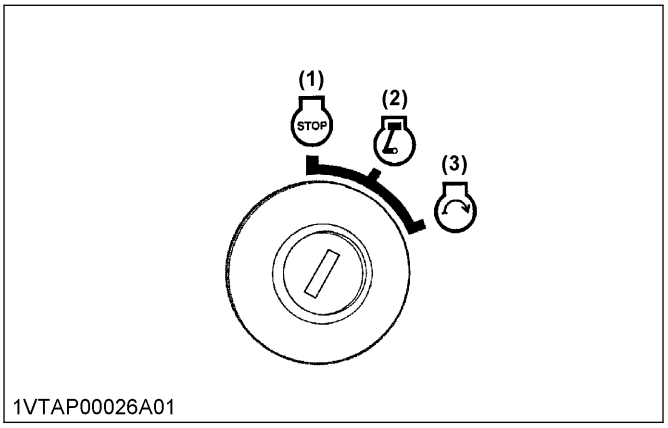
If the ambient temperature is as follows and the engine is very cold, follow the procedure in this section to start the engine.

Ambient temperature	Below -5 ℃ (23 ℉)

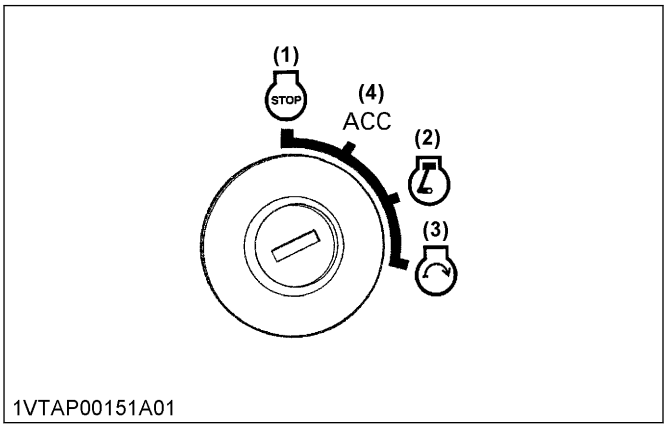
1. Take the following steps of the procedure in the *Starting the engine* section.
   - **[Manual transmission type]**
     Take the step 1. through step 9. of the procedure in STARTING THE ENGINE [MANUAL TRANSMISSION TYPE] on page 59.
   - **[HST type]**
     Take the step 1. through step 9. of the procedure in STARTING THE ENGINE [HST TYPE] on page 62.

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.

[ROPS type]

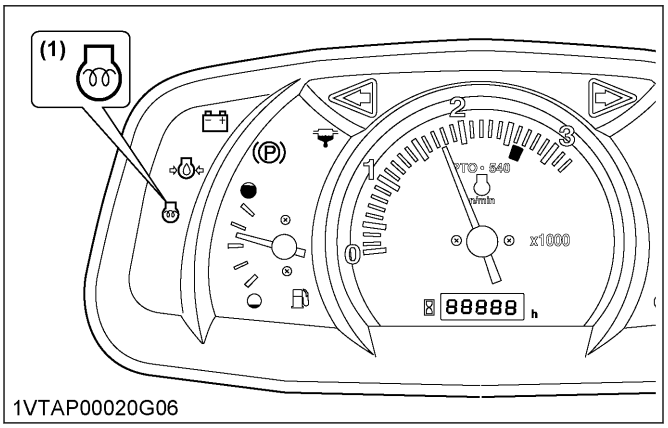


[CAB type]



(1) Off
(2) On
(3) Start
(4) ACC

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



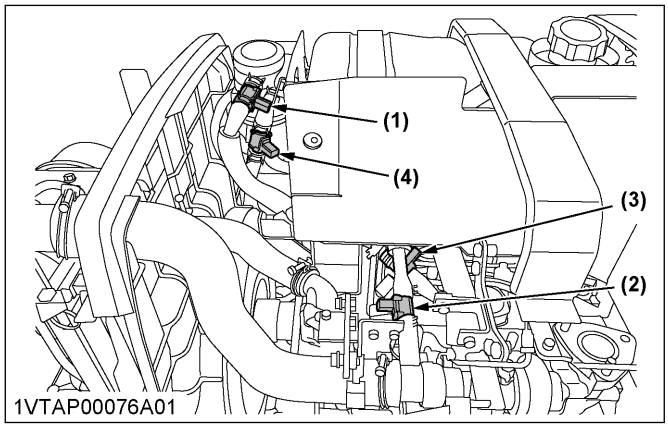
(1) Glow plug indicator

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)

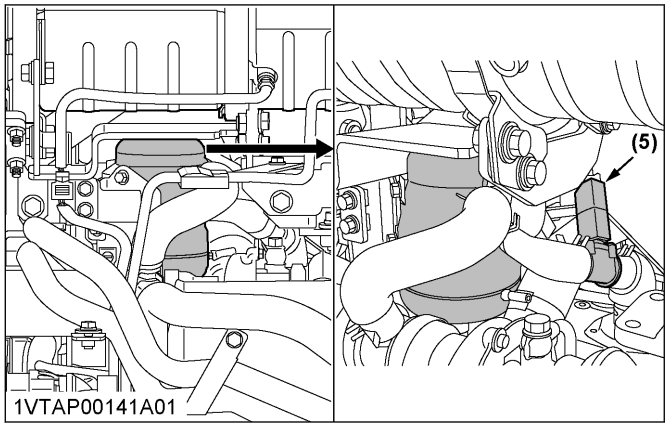
The heater element operates continuously when the key switch is in the *"ON"* or *"START"* position.
Due to high electrical draw, extended idle time or operations will drain the battery and stop the tractor.

[ROPS type]



(1) Heater (oil separator) (out1)
(2) Heater (oil separator) (out2)
(3) Heater (oil separator) (in1)
(4) Heater (oil separator) (in2)

[CAB type]



(5) 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 ℃ (-4 ℉)

STOPPING THE ENGINE

1. After slowing the engine to idle, wait 3 minutes to 5 minutes for turbo to slow down.
2. Then turn the starter key to the *"OFF"* position.
3. Remove the starter key.

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

WARMING UP OF THE ENGINE

WARNING

To avoid personal injury or death:
- **Be sure to set the parking brake during warm-up of the engine.**
- **Be sure to set all shift levers to the *"NEUTRAL"* positions and to place the PTO-clutch-control-switch in the *"OFF"* position during warm-up of the engine.**

For 5 minutes after the engine start-up, allow the engine to warm up without applying any load. Allowing the engine to warm up is to allow the oil to reach every engine-part. If the load should be applied to the engine without the warm-up period of 5 minutes, trouble such as seizure, breakage, or premature wear may develop.

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

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

Hydraulic oil serves as transmission fluid. In cold weather, the oil may be cold with increased viscosity. The oil with increased viscosity can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. Delayed oil circulation or abnormally low hydraulic pressure in turn can result in trouble in the hydraulic system. 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 the trouble in the hydraulic system, check the following instructions.
Warm up the engine at about 50% of rated rpm according to the following table.

Ambient temperature	Warm-up time requirement
Higher than -10 ℃ (14 ℉)	Approx. 5 minutes
-15 ℃ to -10 ℃ (5 ℉ to 14 ℉)	5 minutes to 10 minutes
-20 ℃ to -15 ℃ (-4 ℉ to +5 ℉)	10 minutes to 20 minutes
Below -20 ℃ (-4 ℉)	More than 20 minutes

JUMP STARTING THE ENGINE

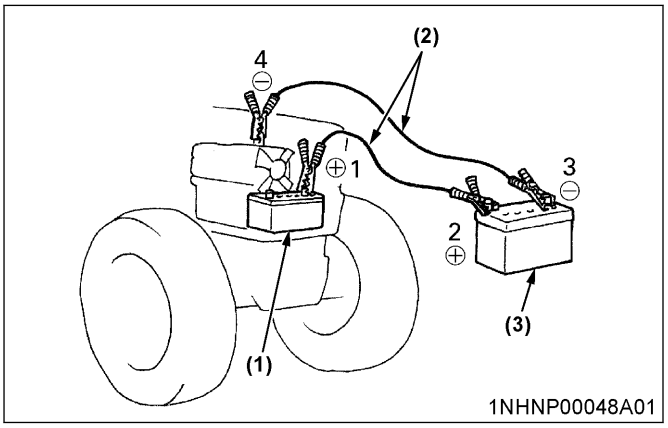
When jump starting the engine, follow the instructions in this section to safely start the engine.

WARNING

To avoid personal injury or death:
- **Battery gases can explode. Keep cigarettes, sparks, and flames away from battery.**
- **If the tractor battery is frozen, do not jump start the engine.**
- **Do not connect the other end of the negative (-) jumper cable to the negative (-) terminal of the tractor battery.**

IMPORTANT :
- **This machine is equipped 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.

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



(1) Dead battery
(2) Jumper cables
(3) Helper battery

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

   IMPORTANT :
   - **The helper vehicle must not touch the disabled tractor.**

2. Engage the parking brakes of both vehicles and put the shift levers in the *"NEUTRAL"* position. Shut both engines off.
3. Wear an eye protection and rubber gloves.
4. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery, and clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.
5. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
6. Clamp the other end of the cable, which is clamped to the negative terminal of the helper battery, to the engine block or frame of the disabled tractor as far from the dead battery as possible.
7. Start the helper vehicle and let its engine run for a few moments. Start the disabled tractor.
8. Disconnect the jumper cables in the exact reverse order of attachment.
   See the steps in order of step 6., step 5., and step 4.

OPERATING THE TRACTOR

OPERATION OF NEW TRACTOR

How a new tractor is used and maintained determines the life of the tractor.
A new tractor just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other. So you should take care of the tractor to operate for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become broken-in.
The manner which the tractor is used during the breaking-in period greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor. In using a new tractor, observe the following precautions.
Do not operate the tractor at full speed for the first 50 hours.

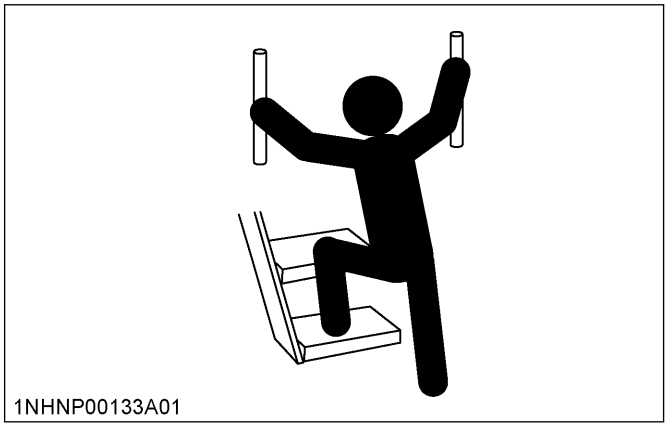
- Do not start the tractor quickly. Do not apply the brakes suddenly.
- In winter, operate the tractor after fully warming up the engine.
- Do not run the engine at speeds faster than necessary.
- On rough roads, slow down to suitable speeds. Do not operate the tractor at fast speed.

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

Changing lubricating oil for new tractors
The lubricating oil is especially important in the case of a new tractor. If the various parts are not broken-in and are not accustomed to each other, small metal grit may develop during the operation of the tractor. Small metal grit may wear out or damage the parts. Therefore, you should take care of the lubricating oil to change a little earlier than would ordinarily be required.
(For further details of change interval hours, see SERVICE INTERVALS on page 117)

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.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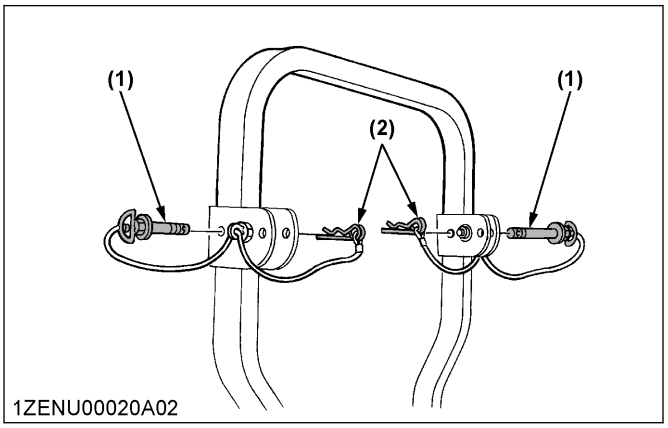
OPERATION OF THE FOLDABLE ROPS (IF EQUIPPED)

⚠ WARNING
To avoid personal injury or death:

- **When raising or folding the ROPS, apply the parking brake, stop the engine, and remove the starter key.**
  Always perform the function from a stable position at the rear of the tractor.
- **Fold the ROPS down only when absolutely necessary and fold it up and lock it again as soon as possible.**
- **Before proceeding to fold ROPS, check for any possible interference with installed implements and attachments. If interference occurs, contact your KUBOTA Dealer.**
- **Always use the seat belt when the ROPS is installed.**
- **Do not use the seat belt if a foldable ROPS is down or if there is no ROPS.**

1. Folding the ROPS (if equipped)

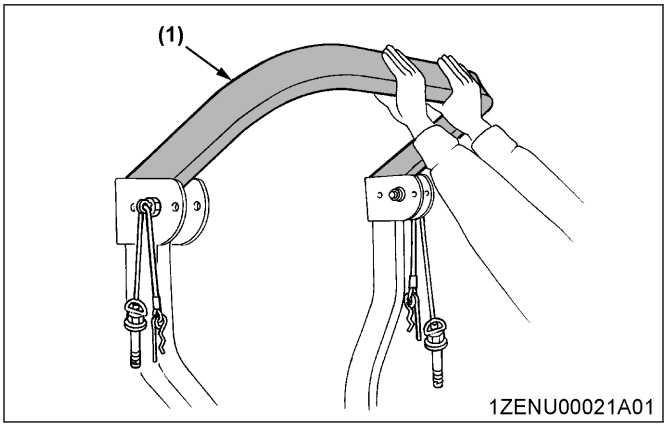
1. Remove both hair-pin-cotters and set bolts.



(1) Set bolt *(2) Hair pin cotter*

2. Fold the ROPS.

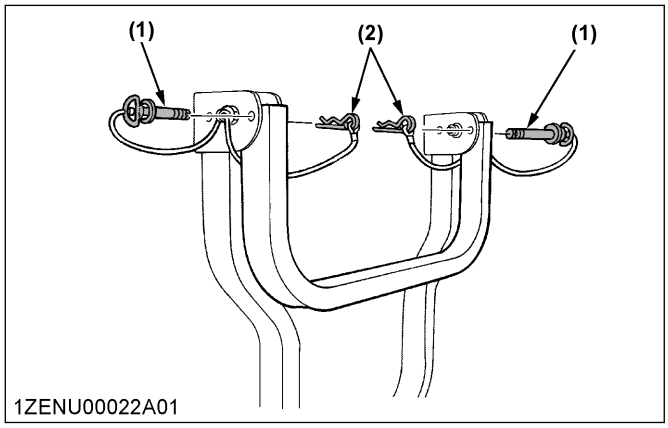
⚠ CAUTION
To avoid personal injury:
- **Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.**



(1) ROPS

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

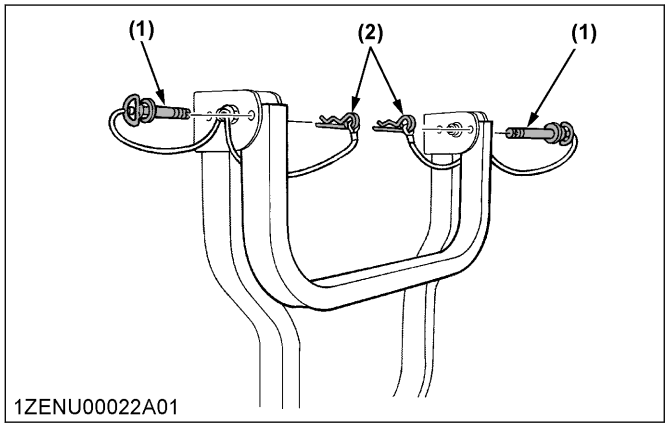
⚠ CAUTION
To avoid personal injury:
- **Make sure that both set bolts are properly installed and secured with the hair-pin-cotters.**



(1) Set bolt *(2) Hair pin cotter*

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

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



(1) Set bolt *(2) Hair pin cotter*

2. Raise the ROPS to the upright position.

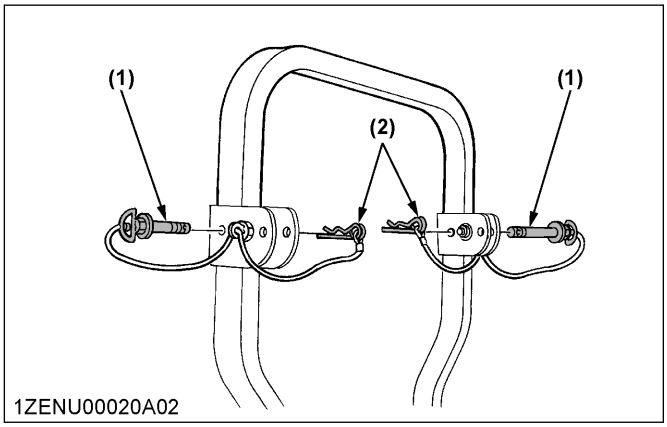
⚠ CAUTION
To avoid personal injury:
- **Raise the ROPS slowly and carefully.**

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

⚠ CAUTION

To avoid personal injury:

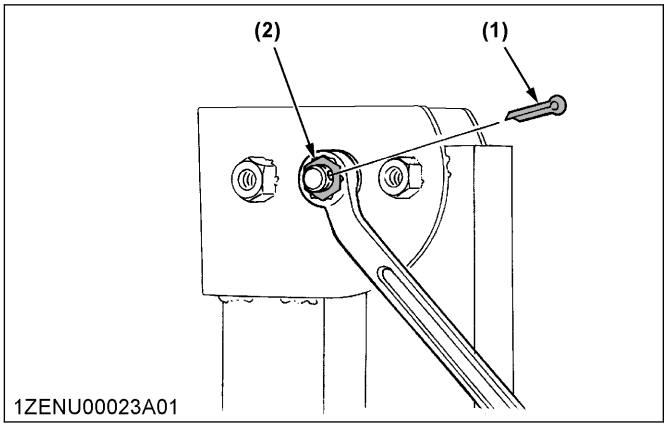
- **Make sure that both set bolts are properly installed as soon as the ROPS is in the upright position and secured with the hair-pin-cotters.**



(1) Set bolt *(2) Hair pin cotter*

3. Adjusting the foldable ROPS (if equipped)

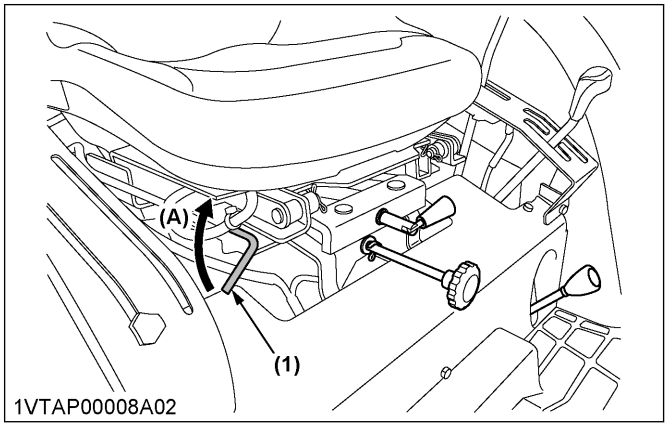
1. Adjust free fall of the ROPS upper frame regularly.
2. If you feel less friction in folding the ROPS, follow the following procedure.
   a. Remove the cotter pin.
   b. Tighten the nut until you feel the right friction in the movement.
   c. Replace the cotter pin.



(1) Cotter pin *(2) Nut*

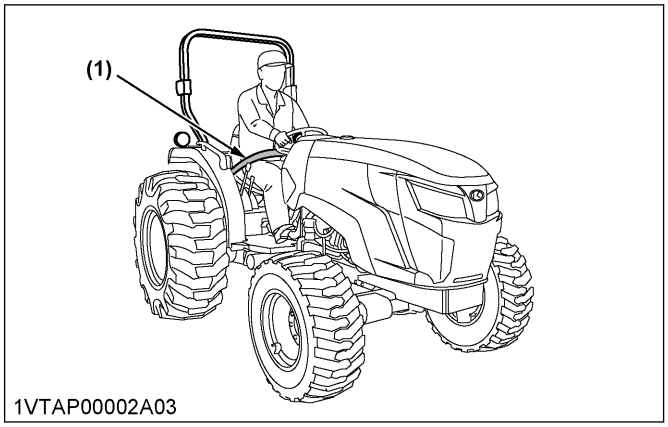
STARTING THE TRACTOR [MANUAL TRANSMISSION TYPE]

1. Adjust the operator's position.
   - Adjust the operator's seat.
     (See Operator's seat on page 44)



(1) Travel adjust lever *(A) Pull*

   - Adjust the seat belt.
     (See Seat belt on page 44)



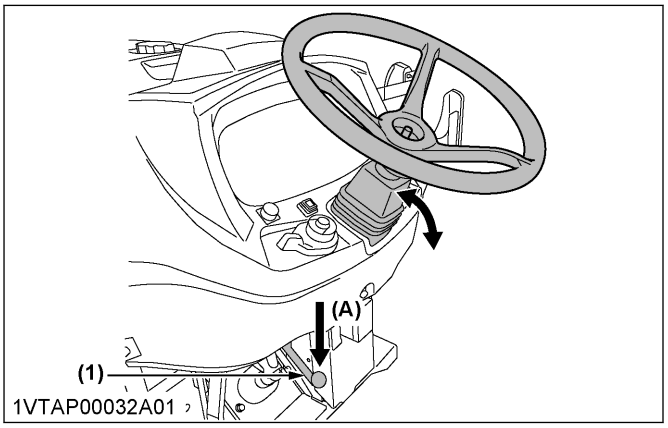
(1) Seat belt

   - Adjust the steering wheel [CAB type only].
     (See Steering wheel tilt lever [CAB type only] on page 44)

⚠ CAUTION

To avoid personal injury:

- **– Do not adjust the steering wheel while the tractor is in motion.**
- **– Make sure that the steering wheel is locked after adjusting.**



(1) Steering wheel tilt lever (A) Press down

NOTE :

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

2. Start the engine.
   (See STARTING THE ENGINE [MANUAL TRANSMISSION TYPE] on page 59)

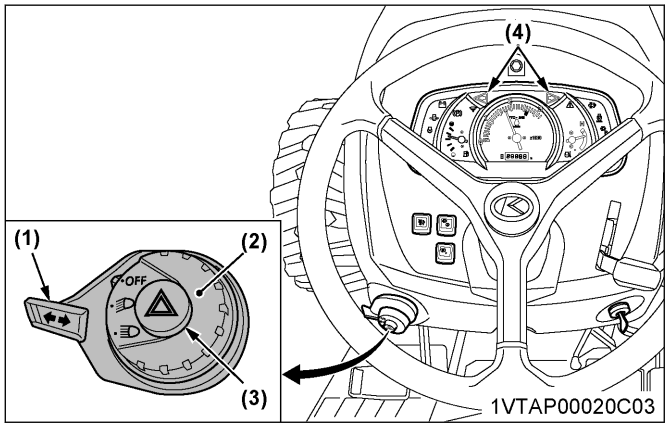
⚠ WARNING

To avoid personal injury or death:

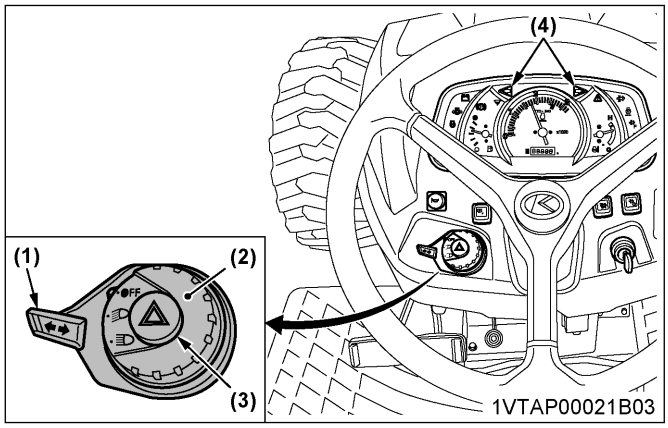
- **Read and understand *Safe operation* in the front of this manual.**
- **Read and understand the safety labels located on the tractor.**
- **To avoid the danger of exhaust-fume-poisoning, do not operate the engine in a closed building without proper ventilation.**
- **Never start the engine while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

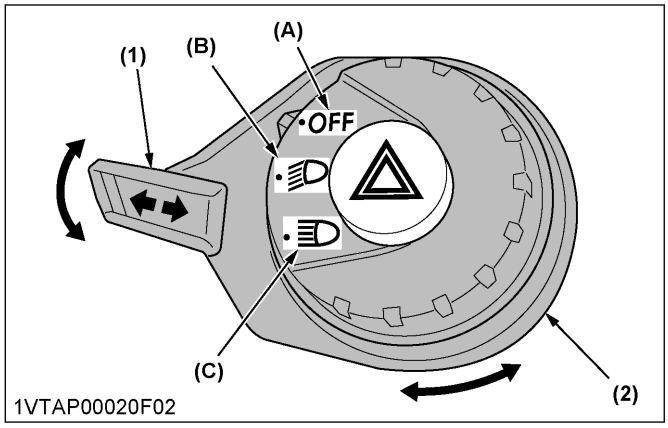
3. Select the positions of the light switches.
   (See Head light switch on page 36 and Hazard light switch and turn signal light switch on page 36)

[ROPS type]



[CAB type]

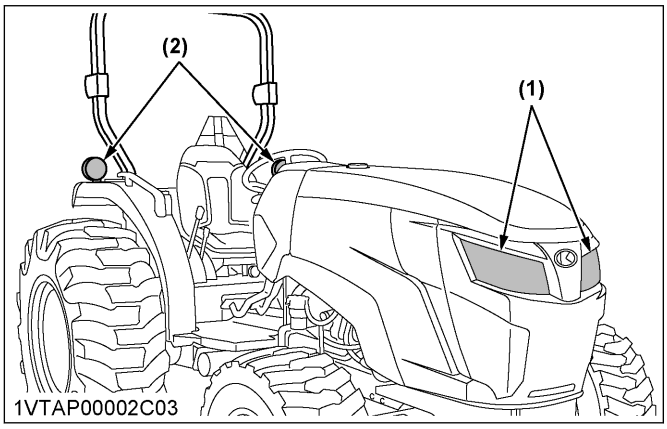


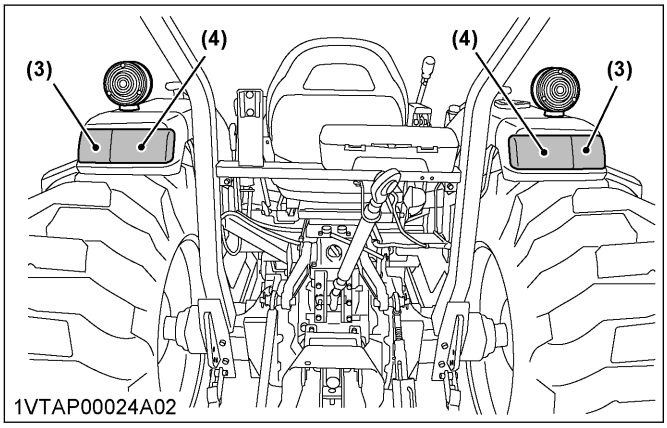


(1) Turn signal light switch
(2) Head light switch
(3) Hazard light switch
(4) Turn signal / hazard light indicator
(A) Off
(B) On (low)
(C) On (high)

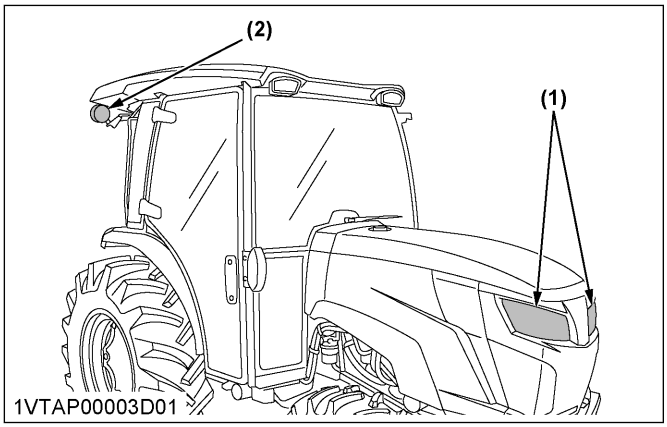
Tractor lights

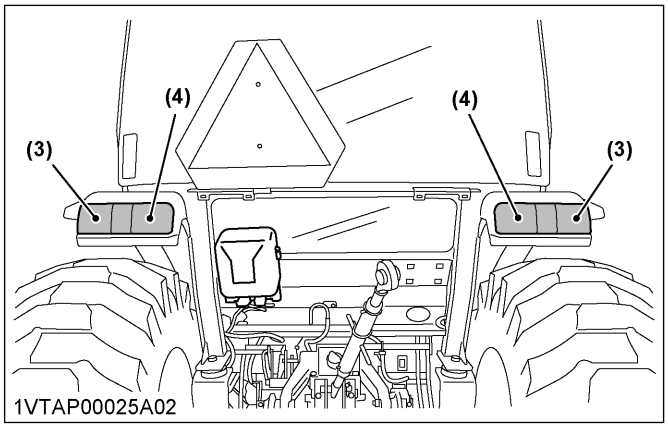
[ROPS type]





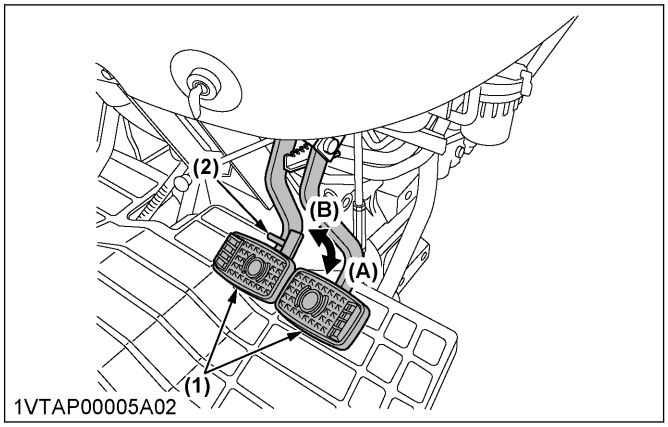
[CAB type]





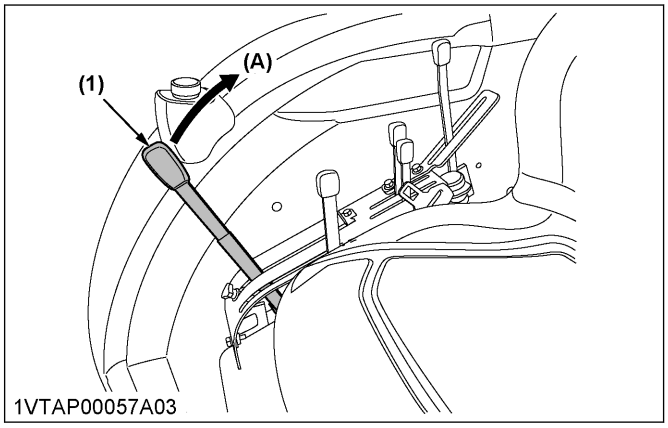
(1) Head light
(2) Turn signal / hazard light
(3) Rear turn signal / hazard light
(4) Tail light

4. Check the brake pedal.
(See Brake pedals (right and left) on page 44)



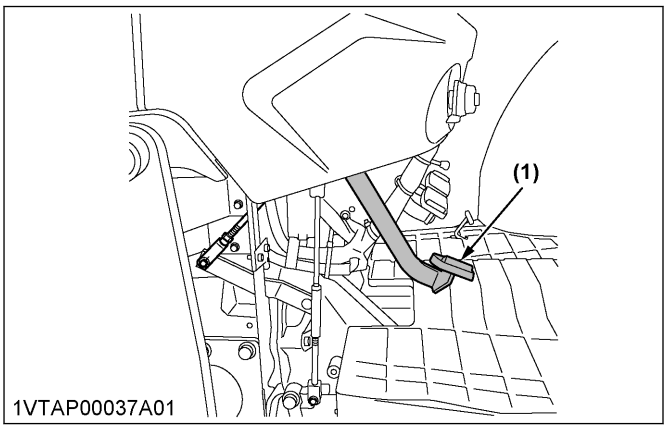
(1) Brake pedal
(2) Brake pedal lock
(A) Lock
(B) Release

5. Raise the implement.
(See Position control of 3-point hitch mounted implement on page 93)



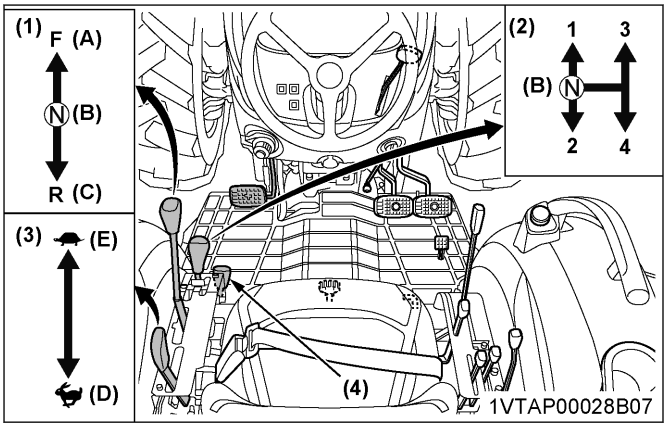
(1) Position control lever
(A) Up

6. Depress the clutch pedal.
   (See Clutch pedal [Manual transmission type only] on page 47)



(1) Clutch pedal

7. Select the travel speed.

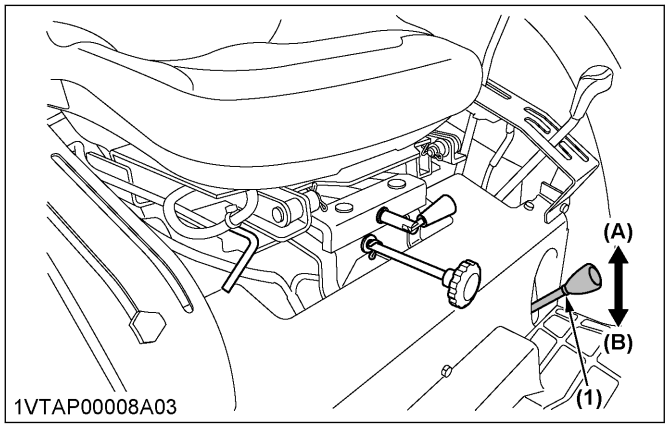


(1) Synchro-shuttle shift lever
(2) Main gear shift lever
(3) Range gear shift lever
(4) Front wheel drive lever [4WD type]
(A) Forward
(B) Neutral position
(C) Reverse
(D) High
(E) Low

- By combination of using the main-gear-shift lever, the range-gear-shift-lever, and the synchro-shuttle shift lever, you can obtain forward speeds and reverse speeds shown in the following table.
  (See Main gear shift lever [Manual transmission type only] on page 47, Range gear shift lever [Manual transmission type] on page 48, and Synchro-shuttle shift lever [Manual transmission type only] on page 48)

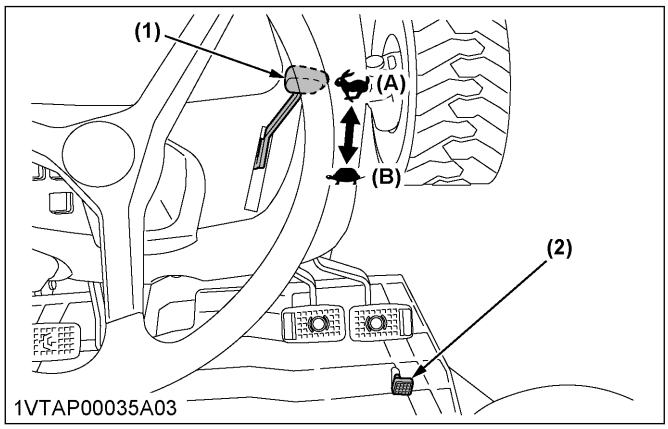
Standard model	8 forward speeds
	8 reverse speeds

- Engage the front-wheel-drive [4WD type].
  (See Front wheel drive lever on page 46)



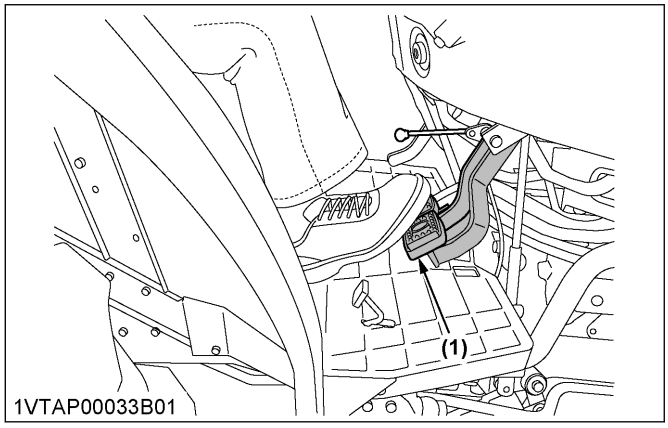
(1) Front wheel drive lever [4WD type]
(A) On
(B) Off

8. Accelerate the engine.
   (See Hand throttle lever on page 47 and Foot throttle [Manual transmission type only] on page 48)



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

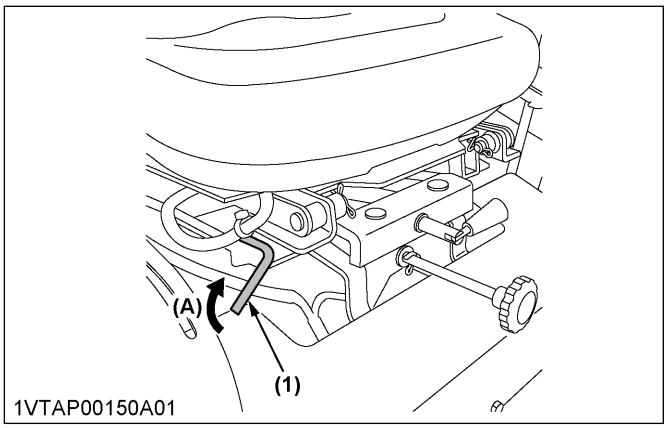
9. Unlock the parking brake and slowly release the clutch.
   (See To release the parking brake on page 46)



(1) Brake pedals

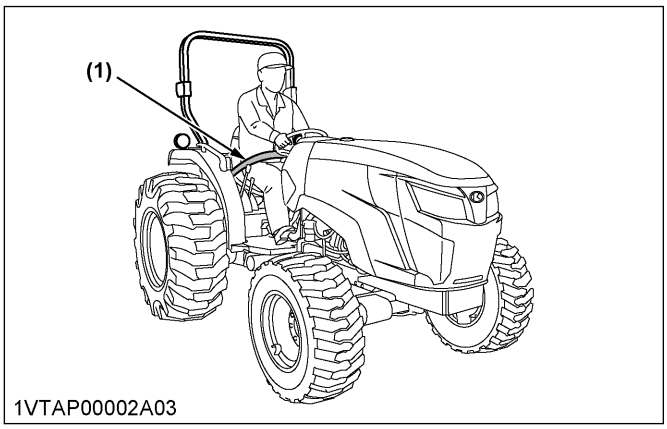
STARTING THE TRACTOR [HST TYPE]

1. Adjust the operator's position.
   - Adjust the operator's seat.
     (See Operator's seat on page 44)



(1) Travel adjust lever (A) Pull

   - Adjust the seat belt.
     (See Seat belt on page 44)



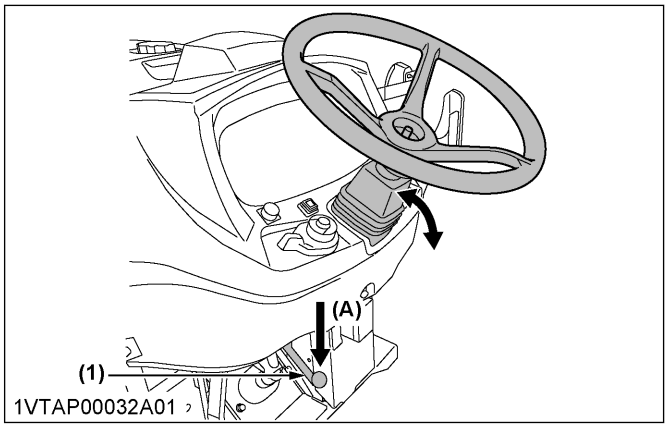
(1) Seat belt

   - Adjust the steering wheel [CAB type only].
     (See Steering wheel tilt lever [CAB type only] on page 44)

⚠ CAUTION

To avoid personal injury:

- **Do not adjust the steering wheel while the tractor is in motion.**
- **Make sure that the steering wheel is locked after adjusting.**



(1) Steering wheel tilt lever (A) Press down

NOTE :

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

2. Start the engine.
   (See STARTING THE ENGINE [HST TYPE] on page 62)

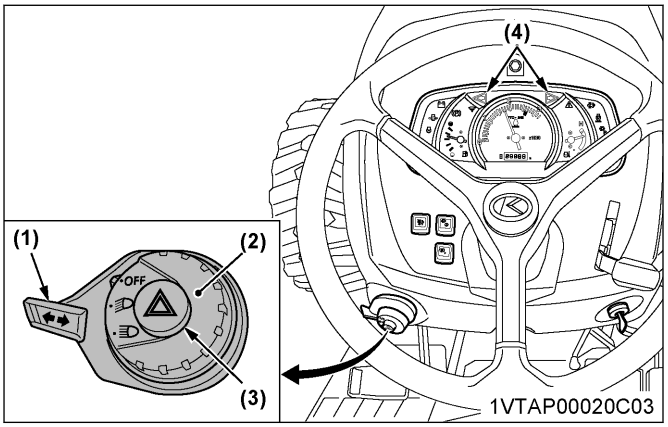
⚠ WARNING

To avoid personal injury or death:

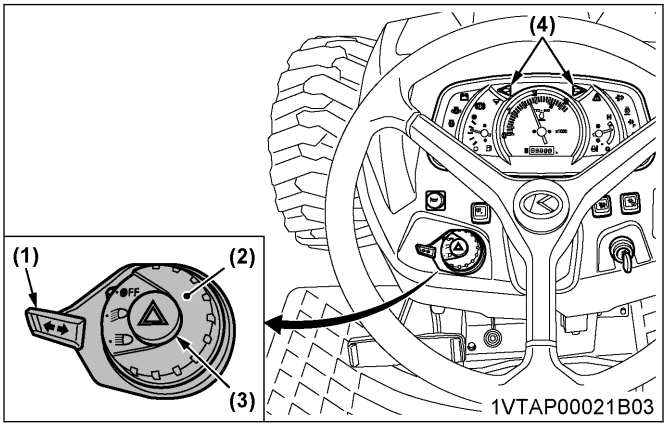
- **Read and understand *Safe operation* in the front of this manual.**
- **Read and understand the safety labels located on the tractor.**
- **To avoid the danger of exhaust-fume-poisoning, do not operate the engine in a closed building without proper ventilation.**
- **Never start the engine while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

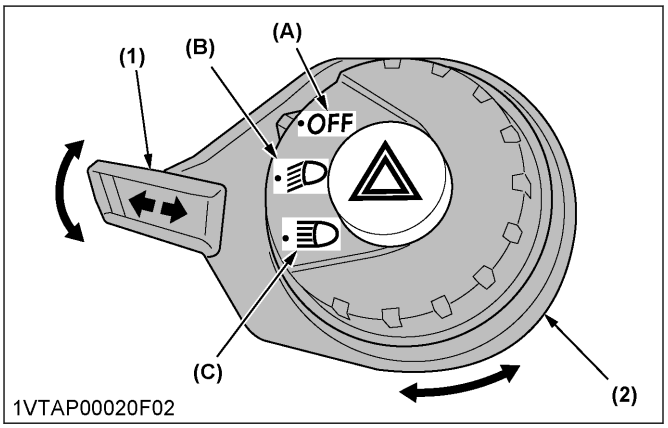
3. Select the positions of the light switches.
   (See Head light switch on page 36 and Hazard light switch and turn signal light switch on page 36)

[ROPS type]



[CAB type]



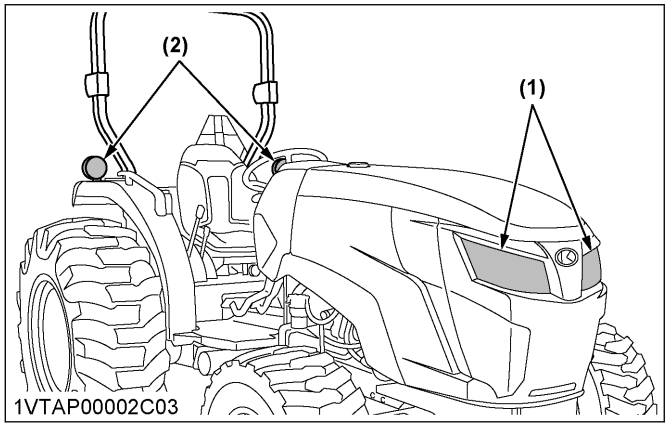


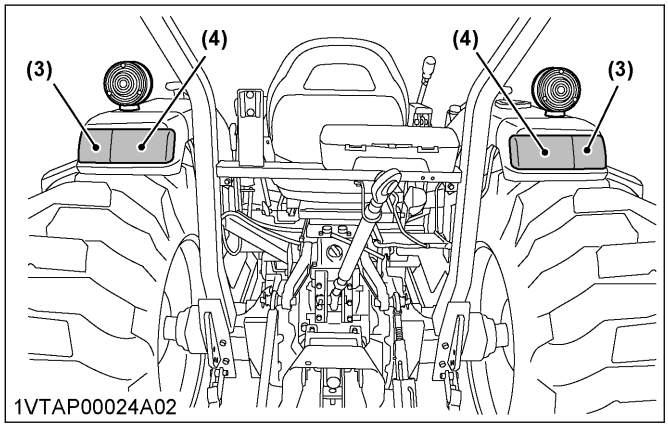
(1) Turn signal light switch
(2) Head light switch
(3) Hazard light switch
(4) Turn signal / hazard light indicator

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

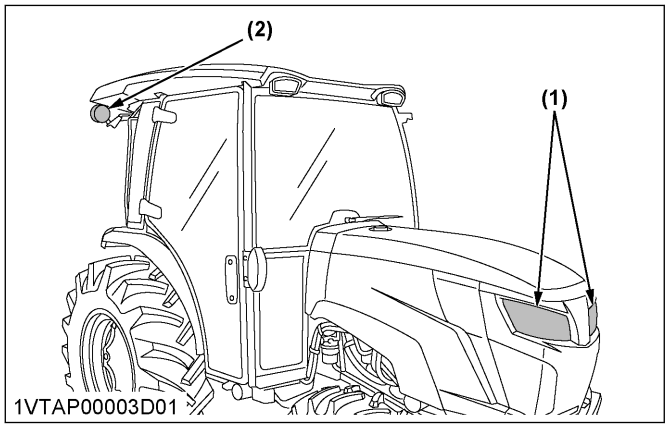
Tractor lights

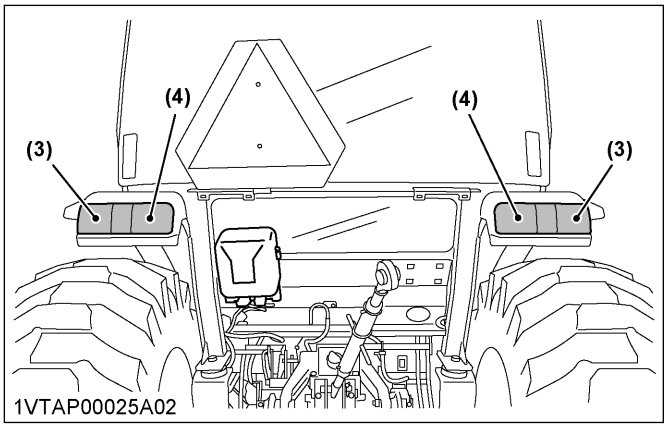
[ROPS type]





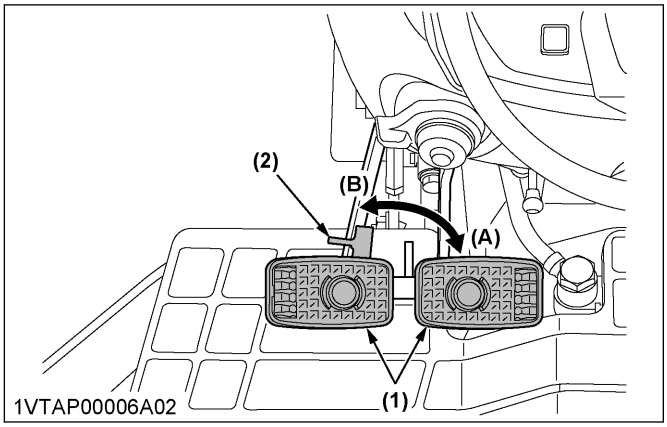
[CAB type]





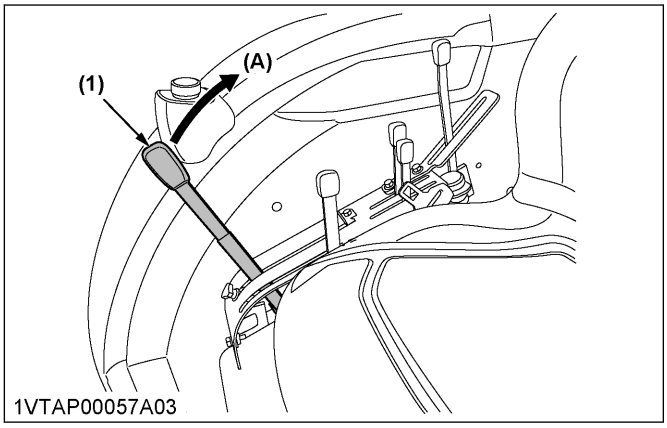
(1) Head light
(2) Turn signal / hazard light
(3) Rear turn signal / hazard light
(4) Tail light

4. Check the brake pedal.
(See Brake pedals (right and left) on page 44)



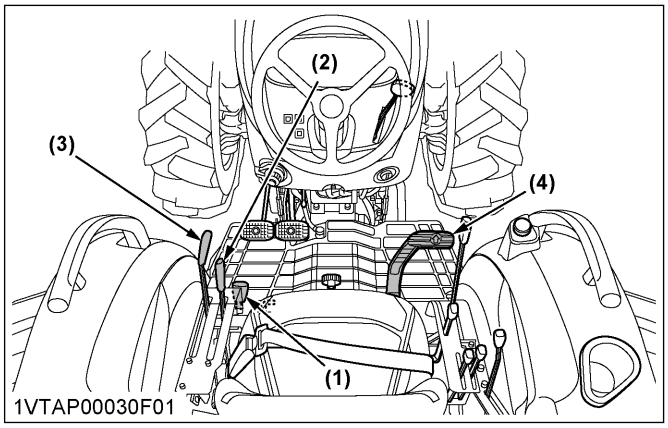
(1) Brake pedal
(2) Brake pedal lock
(A) Lock
(B) Release

5. Raise the implement.
(See Position control of 3-point hitch mounted implement on page 93)



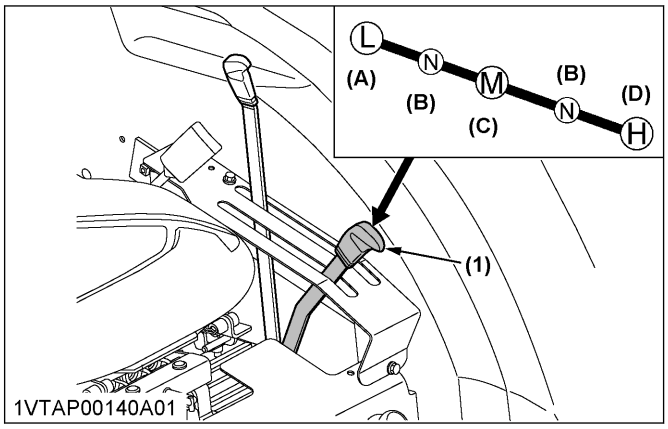
(1) Position control lever
(A) Up

6. Select the travel speed.



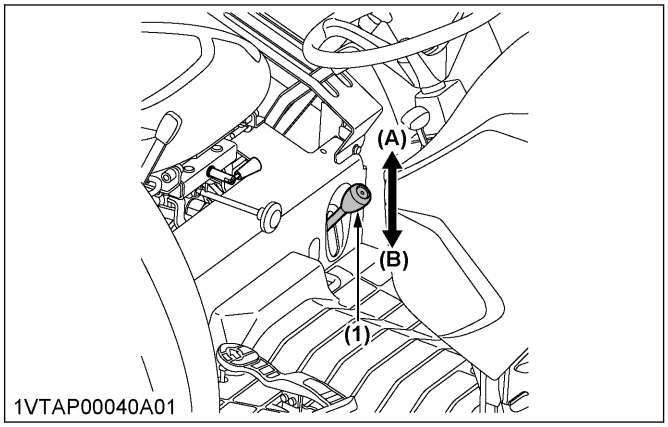
(1) Front wheel drive lever
(2) Range gear shift lever
(3) Cruise control lever
(4) Speed control pedal

- Set the gear by engaging the range-gear-shift-lever.
(See Range gear shift lever (L-M-H) [HST type] on page 48)



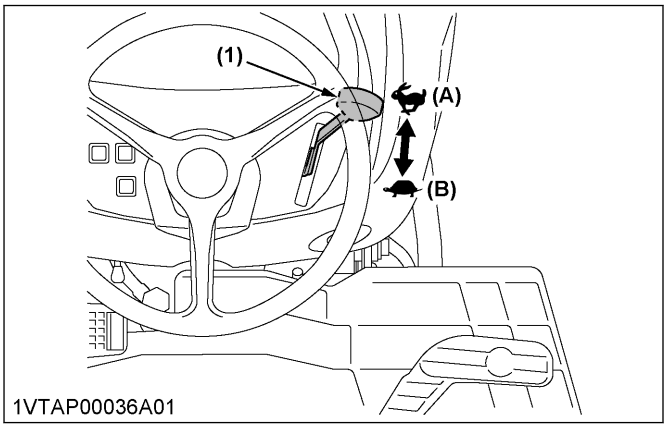
(1) Range gear shift lever (L-M-H)
(A) Low
(B) Neutral position
(C) Middle
(D) High

- Engage the front-wheel-drive.
(See Front wheel drive lever on page 46)



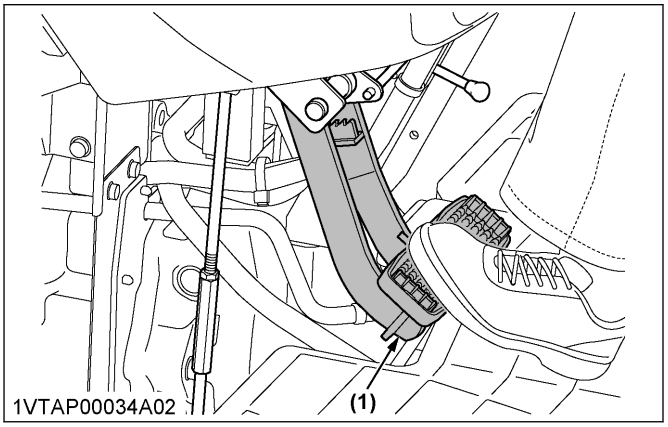
(1) Front wheel drive lever
(A) On
(B) Off

7. Accelerate the engine.
   (See Hand throttle lever on page 47)



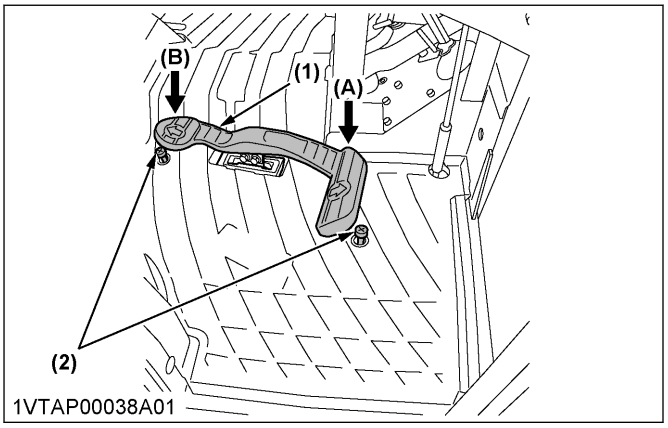
(1) Hand throttle lever
(A) Increase
(B) Decrease

8. Unlock the parking brake.
   (See To release the parking brake on page 46)



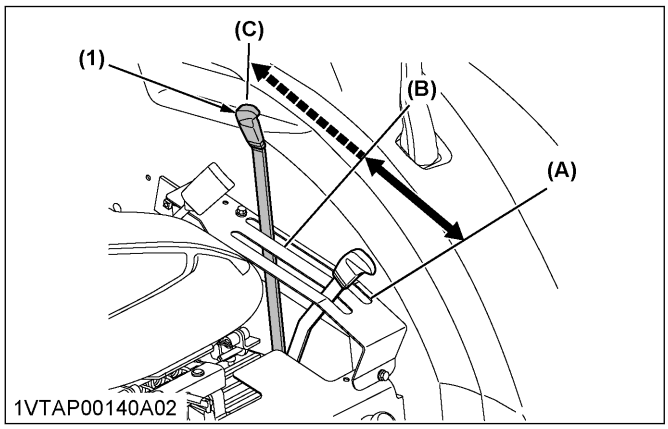
(1) Brake pedals

9. Depress the speed-control-pedal.
   (See Speed control pedal [HST type only] on page 49)



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

- Set the proper forward speed by applying the cruise-control-lever.
  (See Cruise control lever [HST type only] on page 49 and How to use the cruise control lever [HST type only] on page 50)

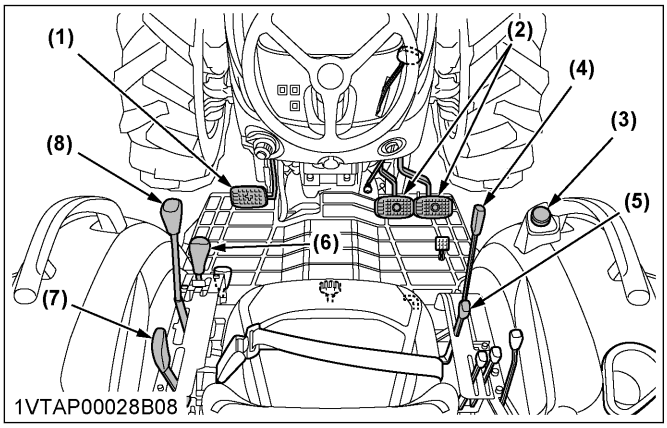


(1) Cruise control lever
(A) Increase
(B) Decrease
(C) Off

STOPPING THE TRACTOR [MANUAL TRANSMISSION TYPE]

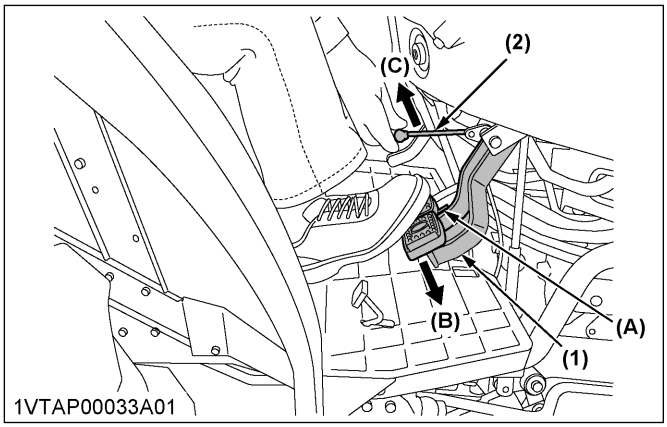
1. Slow down the engine.
2. Depress the clutch pedal and the brake pedal.
3. After the tractor has stopped, disengage the PTO clutch.
   (See PTO clutch control switch on page 85)
4. Lower the implement to the ground.
   a. Down the position-control-lever and the draft-control-lever if equipped.
      (See Position control of 3-point hitch mounted implement on page 93)

5. Shift the transmission to neutral.
   a. Set the main-gear-shift-lever and the synchrony-shuttle shift lever to the *"NEUTRAL"* position.
   (See Main gear shift lever [Manual transmission type only] on page 47 and Synchro-shuttle shift lever [Manual transmission type only] on page 48)



(1) Clutch pedal
(2) Brake pedal
(3) PTO clutch control switch
(4) Position control lever
(5) Draft control lever (if equipped)
(6) Main gear shift lever
(7) Range gear shift lever
(8) Synchro-shuttle shift lever

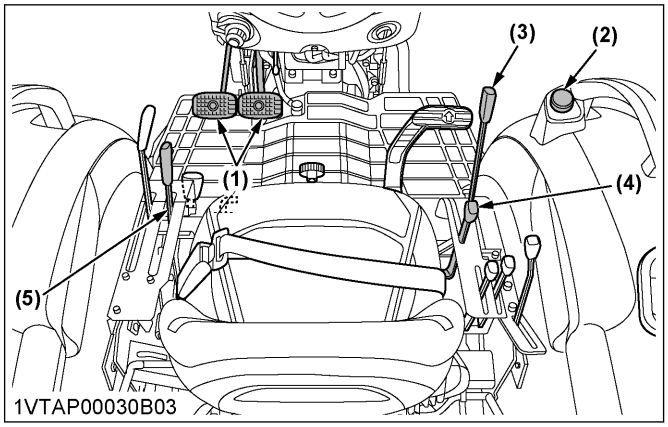
6. Release the clutch pedal.
7. Set the parking brake.
   (See To set the parking brake on page 46)



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

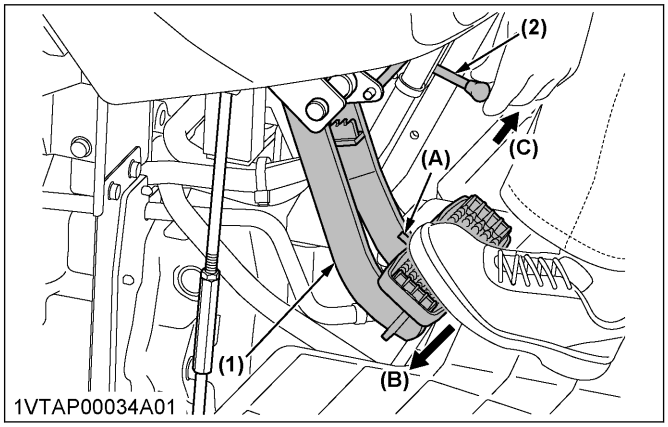
STOPPING THE TRACTOR [HST TYPE]

1. Slow down the engine.
2. Depress the brake pedal.
3. After the tractor has stopped, disengage the PTO clutch.
   (See PTO clutch control switch on page 85)
4. Lower the implement to the ground.
   a. Down the position-control-lever and the draft-control-lever if equipped.
   (See Position control of 3-point hitch mounted implement on page 93)
5. Shift the transmission to neutral.
   a. Set the range-gear-shift-lever to the *"NEUTRAL"* position.
   (See Range gear shift lever (L-M-H) [HST type] on page 48)



(1) Brake pedal
(2) PTO clutch control switch
(3) Position control lever
(4) Draft control lever (if equipped)
(5) Range gear shift lever (L-M-H)

6. Set the parking brake.
   (See To set the parking brake on page 46)



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

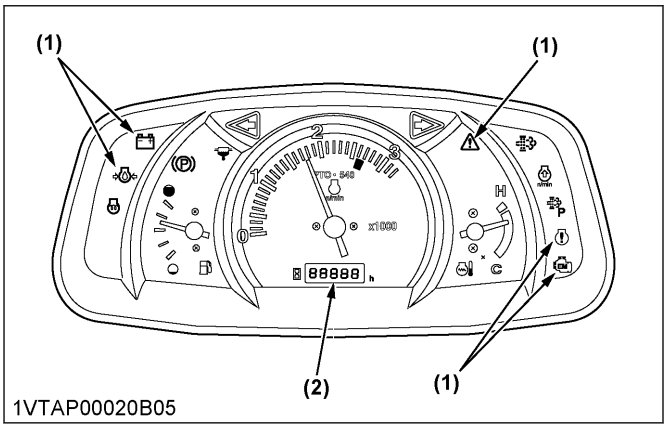
CHECK DURING DRIVING

1. Cases to stop the engine immediately

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

2. Easy Checker™

If trouble should occur at any location while the engine is running, the warning-indicator-lamp in the Easy Checker™ corresponding to that location comes on.
If the warning-indicator-lamps in the Easy Checker™ come on during operation of the tractor, immediately stop the engine, and find the cause as the following table.
Never operate the tractor while the warning-indicator-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 127)
Electrical charge warning indicator	If the alternator is not charging the battery, the electrical-charge-warning-indicator in the Easy Checker™ will come on. If the electrical-charge-warning-indicator should come on during operation of the tractor, check the electrical charging system or consult your local KUBOTA Dealer.

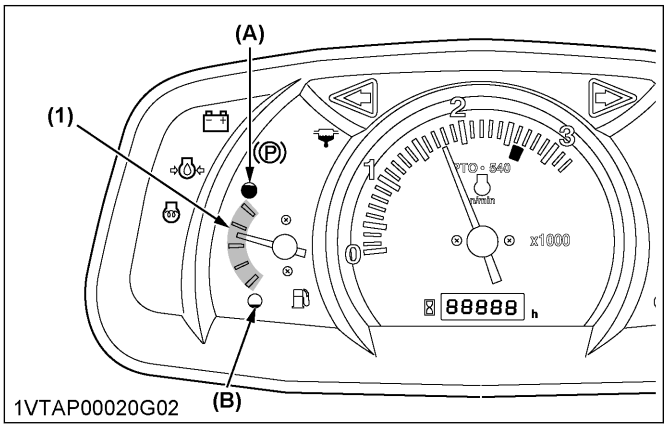
(Continued)

Engine warning indicator	Engine-warning-indicator serves the following two functions. If the engine-warning-indicator lights up, pinpoint the cause and take a proper measure. At same time, error code might also appear. • **Error with the engine control system** If the water-temperature-gauge reads an acceptable level but the engine-warning-indicator in the Easy Checker™ comes on during operation of the tractor, 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.** • **The engine stops unexpectedly.** • **The engine fails to start or gets interrupted just after start.** • **The engine output is not enough.** • **The 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 162.
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 the 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.**

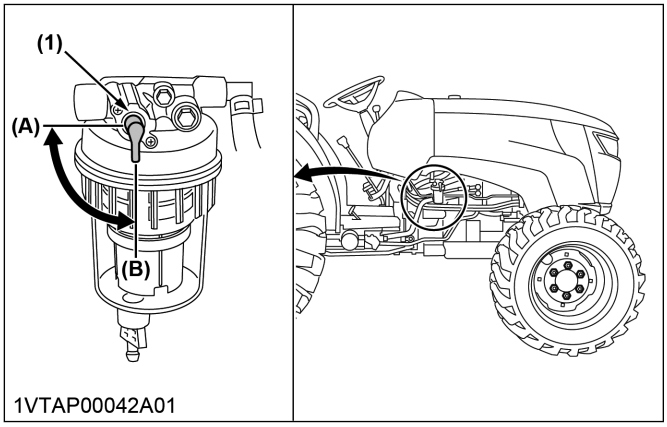
3. Fuel gauge

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 How to purge air from the fuel on page 153)



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

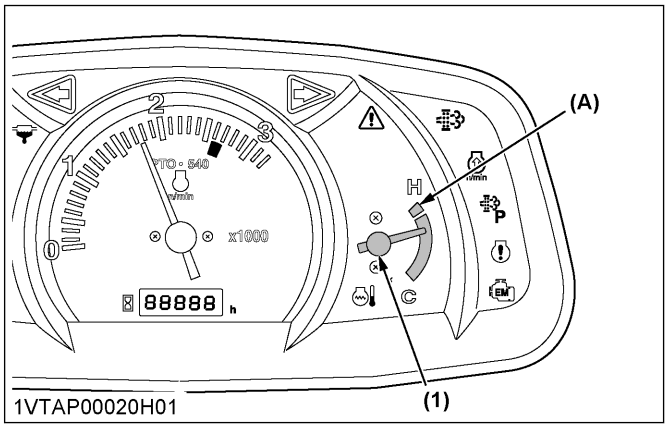
4. Coolant temperature gauge

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 coolant temperature gauge reaches the red zone, the engine coolant has overheated. Check the tractor according to Dealing with overheated coolant temperature on page 80 and ENGINE TROUBLESHOOTING on page 162.



(1) Coolant temperature gauge (A) Red zone

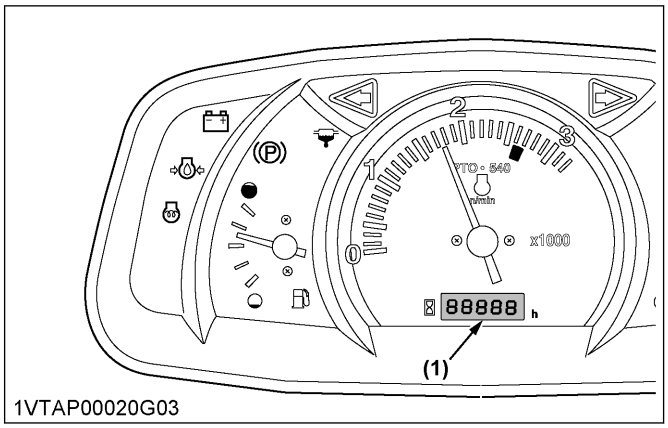
4.1 Dealing with overheated coolant temperature

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

1. Park the tractor in a safe place and keep the engine unloaded idling.
2. Do not stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the machine for further 10 minutes or while the steam blows out.
4. Check that there are no dangers such as burns. Get rid of the causes of overheating according to ENGINE TROUBLESHOOTING on page 162.
5. Then, start again the engine.

5. Hour meter

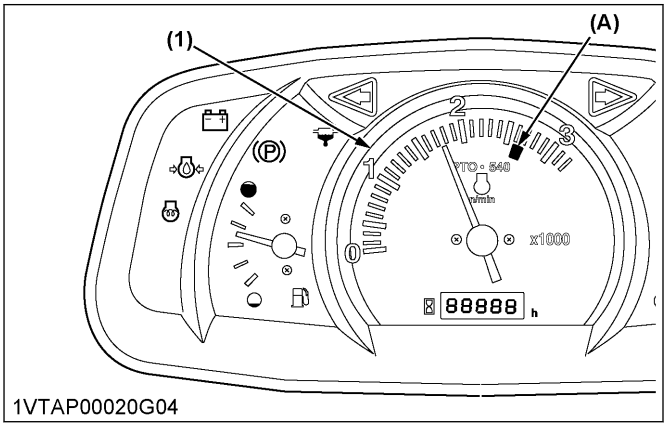
The hour meter gives readings for the hours that the tractor has been operated.
The hour meter indicates the hours that the tractor has been used in 5 digits and the last digit indicates 1/10 of an hour.



(1) Hour meter

6. Tachometer

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



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

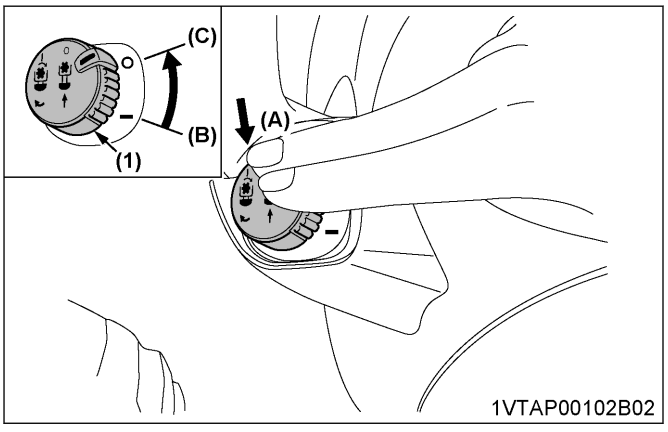
PARKING THE TRACTOR

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

⚠ WARNING
To avoid personal injury or death:
Before dismounting the tractor
- **Always set the parking brake and lower all implements to the ground.**
- **Leaving the transmission in gear with the engine stopped will not prevent the tractor with HST transmission from rolling [HST type].**
- **Stop the engine and remove the starter key.**

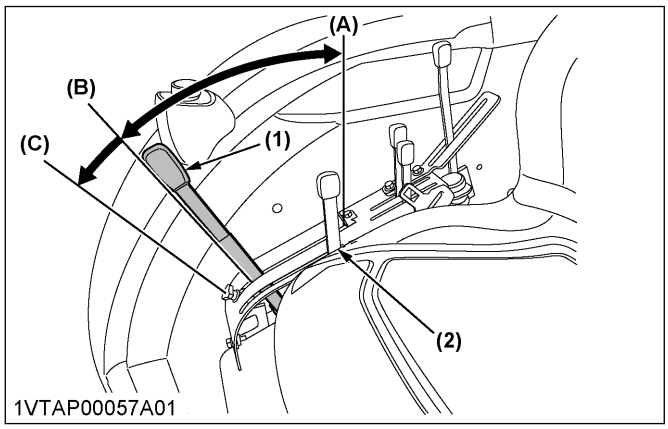
Before getting off the tractor, perform the proper procedure.

1. Disengage the PTO.
   (See PTO clutch control switch on page 85)



(1) PTO clutch control switch *(A) Push*
(B) On (Engaged)
(C) Off (Disengaged)

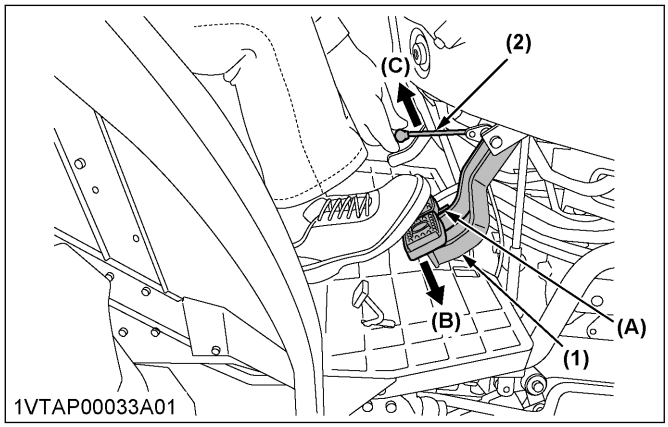
2. Lower all implements to the ground.
   (See Position control of 3-point hitch mounted implement on page 93)



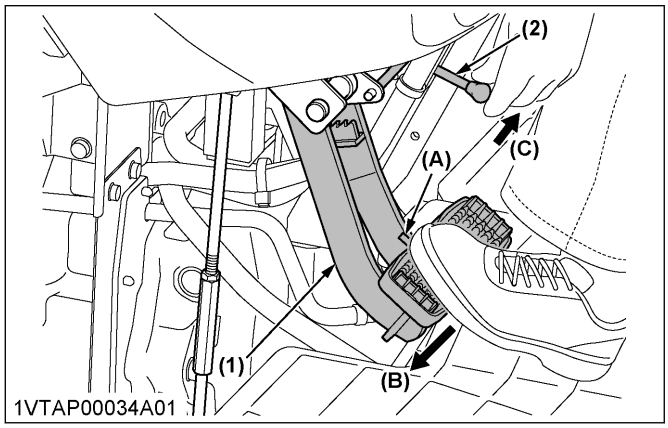
(1) Position control lever *(A) Up*
(2) Draft control lever (if equipped) *(B) Down*
(C) Float

3. Place all control levers in their neutral positions.
4. Set the parking brake.
   (See To set the parking brake on page 46)

[Manual transmission type]



[HST type]



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

5. Stop the engine.
   (See STOPPING THE ENGINE on page 66)
6. Remove the starter key.
   If it is necessary to park the tractor on an incline, be sure to chock the wheels to prevent accidental rolling of the tractor.

TECHNIQUES FOR OPERATING THE TRACTOR

1. Differential lock

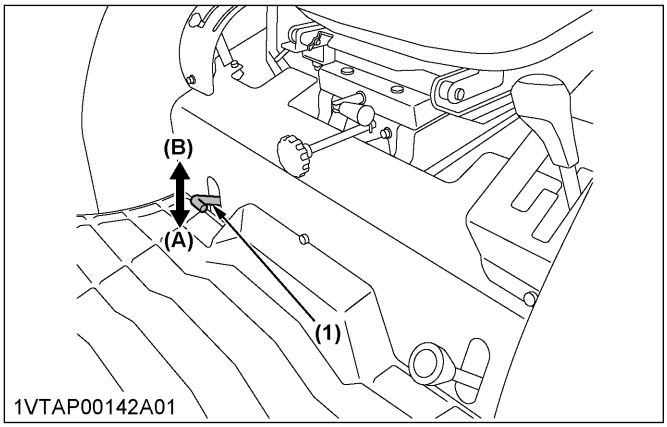
⚠ WARNING

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

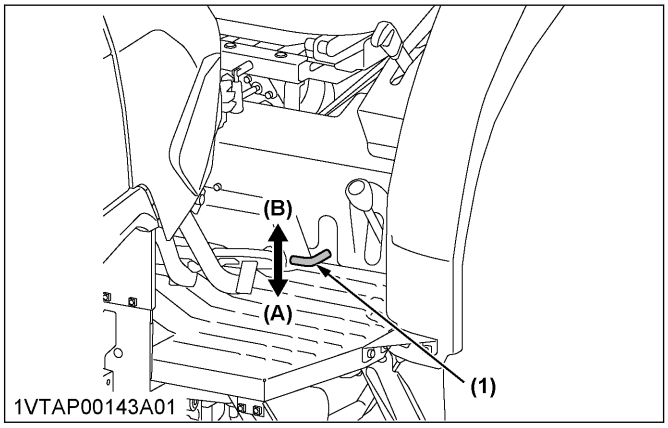
- **Do not operate the tractor at high speed with differential lock engaged.**
- **Do not turn the tractor with the differential lock engaged.**
- **Release the differential lock before turning the tractor in field conditions.**

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]



[HST type]



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

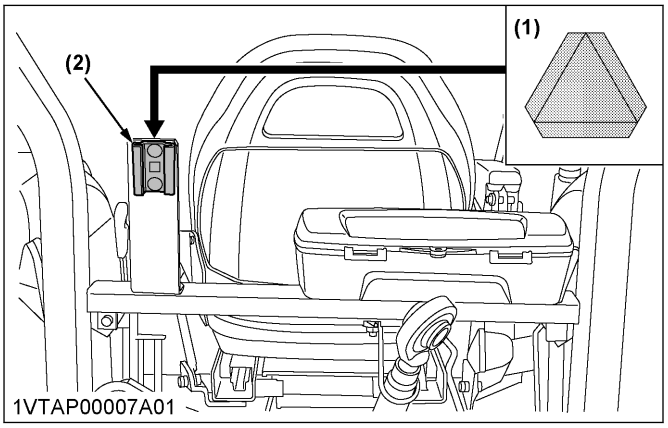
To avoid personal injury or death:

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

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

IMPORTANT :

- **Close the rear window to maintain the visibility of the SMV emblem. (CAB OPERATION)**



(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. 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 which may collapse under the weight of the tractor, especially when the ground is loose or wet.**

- Be sure that the wheel tread is adjusted to provide the maximum stability.
  (See WHEEL ADJUSTMENT on page 99)
- Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.
- Before descending a slope, shift to a gear low enough to control speed without using brakes.

4. Precautions for transporting the tractor safely

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

Towing speed	10 km/h (6.2 mph)

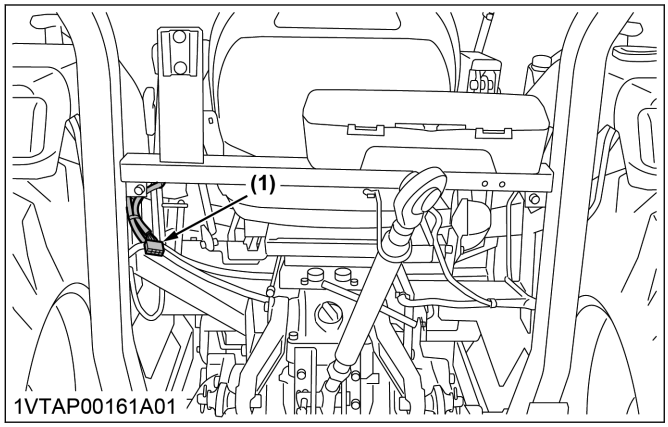
5. Directions for use of the power steering

- The power steering is activated only while the engine is running. Slow engine speeds weight the steering a little. While the engine is stopped, the tractor functions in the same manner as tractors without power steering.
- Turning the steering wheel all the way to the stop activates the relief valve. Do not hold the steering wheel in the stop for a long period of time.
- Avoid turning the steering wheel while the tractor is stopped. Otherwise tires may wear out sooner.
- The steering becomes easier due to the power-steering-mechanism. Be careful when driving on a road at high speeds.

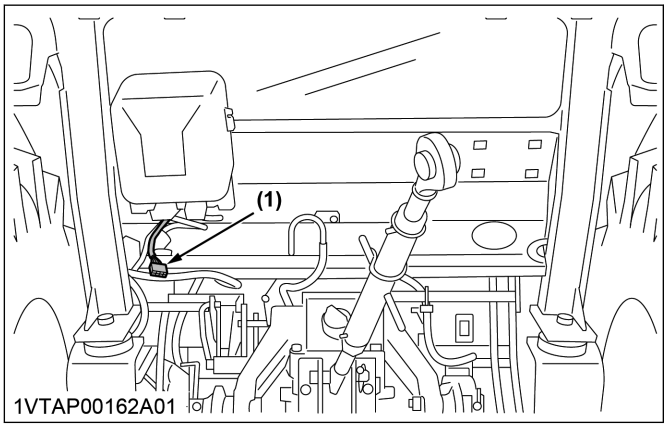
6. Trailer electrical outlet

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

[ROPS type]



[CAB type]

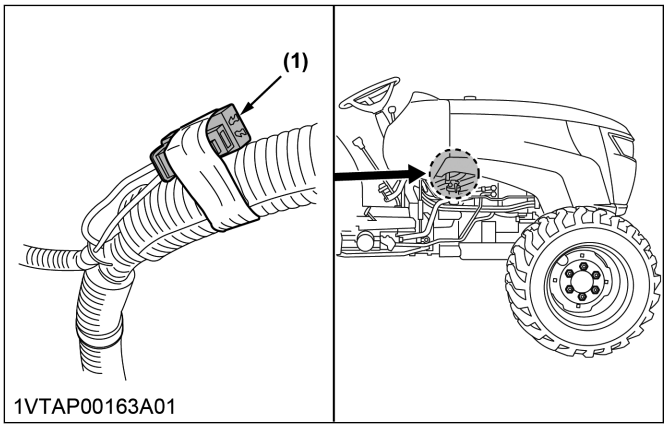


(1) Trailer electrical outlet

7. Electrical outlet

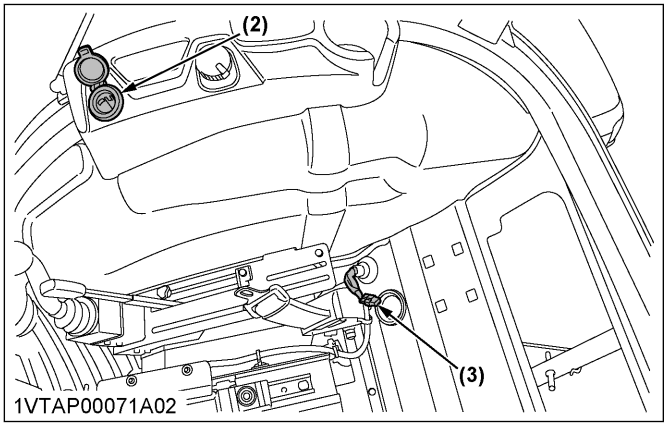
The tractor is equipped with electrical outlets which serve the following functions.

For use with front loader



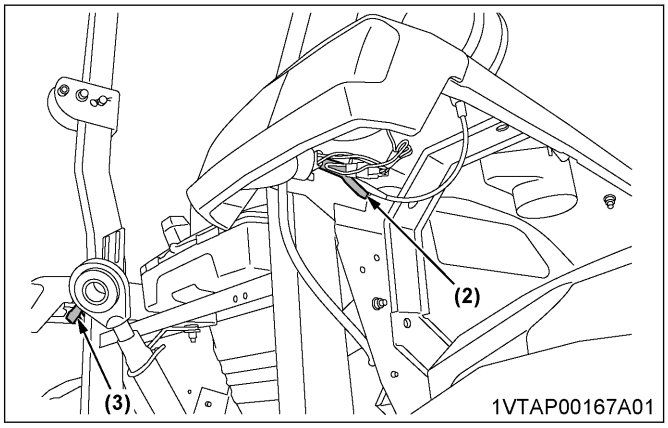
(1) Accessory electrical outlet 1

For use with implement [CAB type]



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

For use with accessory [ROPS type]



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

Electrical outlet **[ROPS type]**	(1)	10 A
	(2)	5 A
	(3)	5 A
Electrical outlet **[CAB type]**	(1) (2) (3)	Total 20 A

POWER TAKE-OFF (PTO)

PTO OPERATION

⚠ WARNING

To avoid personal injury or death:

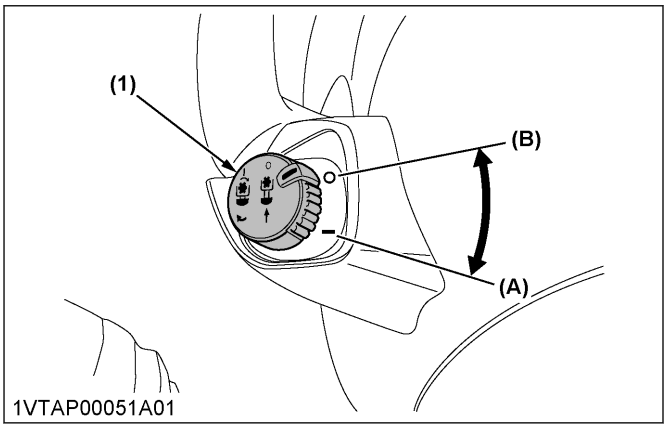
- **Disengage the PTO, stop the engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.**

1. PTO clutch control switch

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

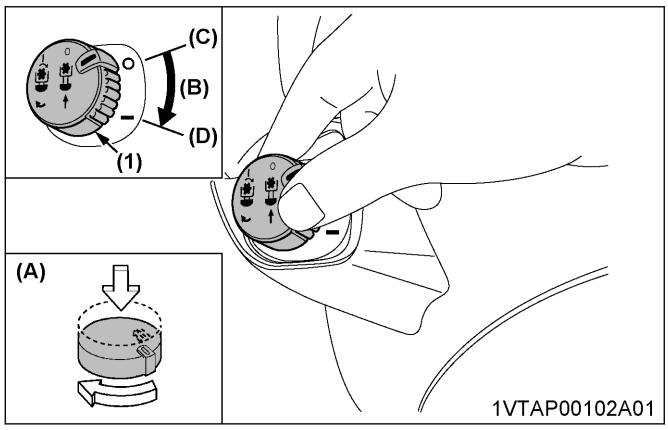
The tractor is equipped with a 540 rpm speed position and 6-spline shaft.

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.



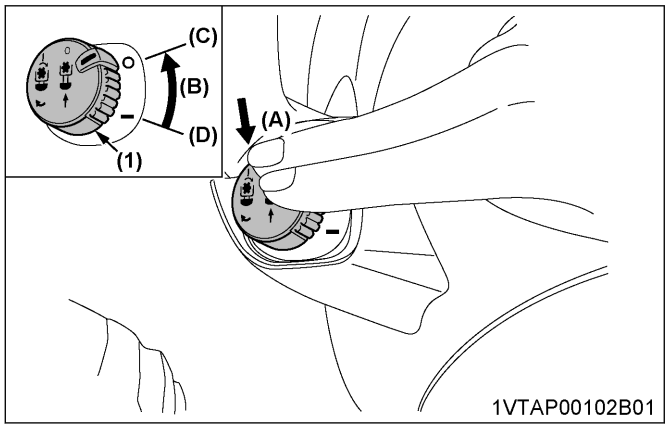
(1) PTO clutch control switch
(A) On
(B) Off

- **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.



(1) PTO clutch control switch
(A) Push
(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) Push
(B) Return automatically
(C) Off
(D) 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.**

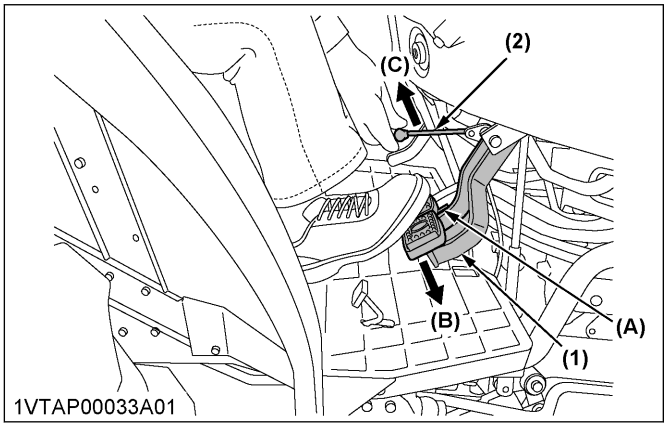
- **Tractor engine will not start if the PTO-clutch-control-switch is in the *"ON"* position.**

2. How to use the stationary PTO

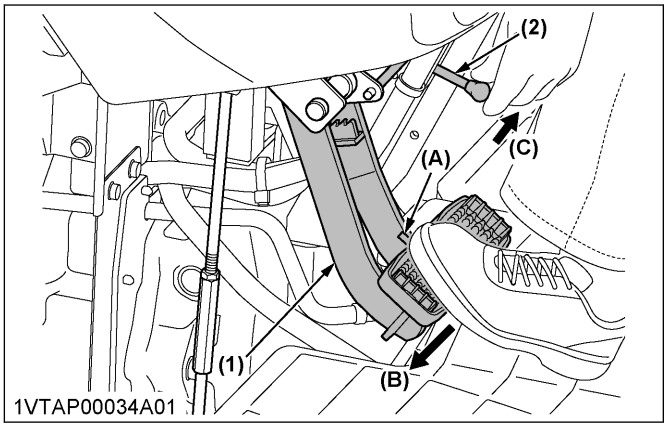
To park the tractor and use the PTO system for chipper or pump, for example, start the PTO system in the procedure in this section.

1. Apply the parking brake and place blocks at the tires.
   (See To set the parking brake on page 46)

[Manual transmission type]



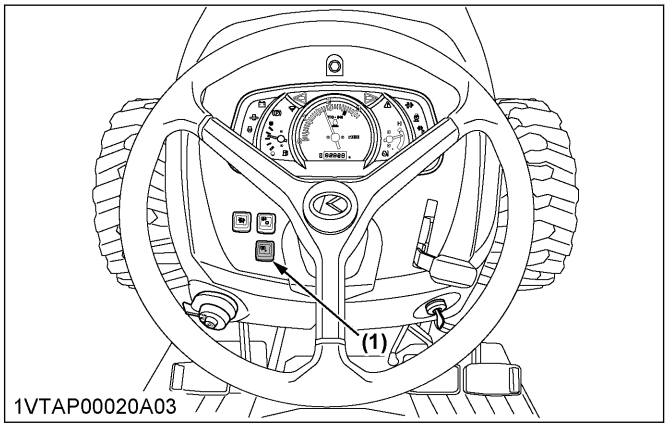
[HST type]



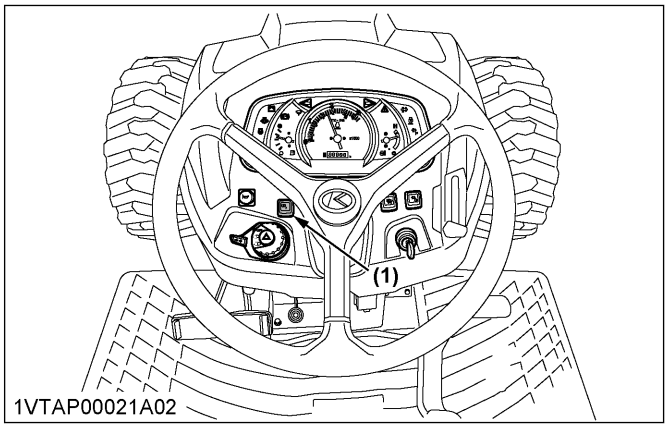
(1) Brake pedal
(2) Parking brake lever
(A) Interlock the brake pedals
(B) Depress
(C) Pull

2. Make sure that all shift levers are in their *"NEUTRAL"* positions.
3. Start the engine.
   - **[Manual transmission type]**
     See STARTING THE ENGINE [MANUAL TRANSMISSION TYPE] on page 59.
   - **[HST type]**
     See STARTING THE ENGINE [HST TYPE] on page 62.
4. Push the stationary-PTO-switch for 3 seconds to turn on the switch lamp.
5. Set the PTO-clutch-control-switch to engage *"ON"*.

[ROPS type]



[CAB type]



(1) Stationary PTO switch

6. Set the engine speed to provide recommended rear PTO speed.

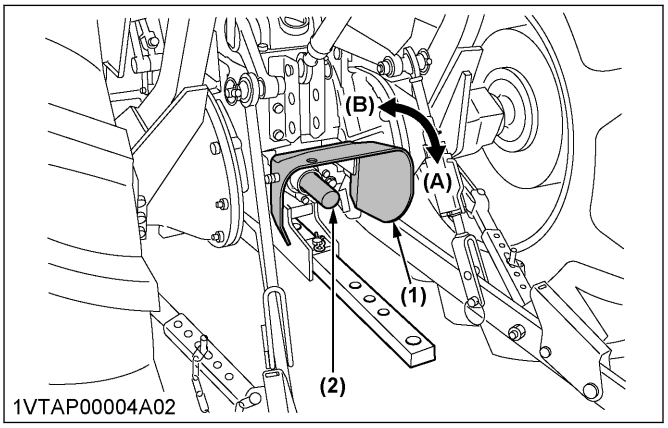
   NOTE :
   - **If the PTO system is engaged and you stand up from the operator's seat or the operator's seat is not tilted forward, the engine stops automatically after standing up.**

3. PTO shaft cover and PTO shaft cap

⚠ 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 be sure to return the PTO-shaft-cover to the *"NORMAL"* position.**



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

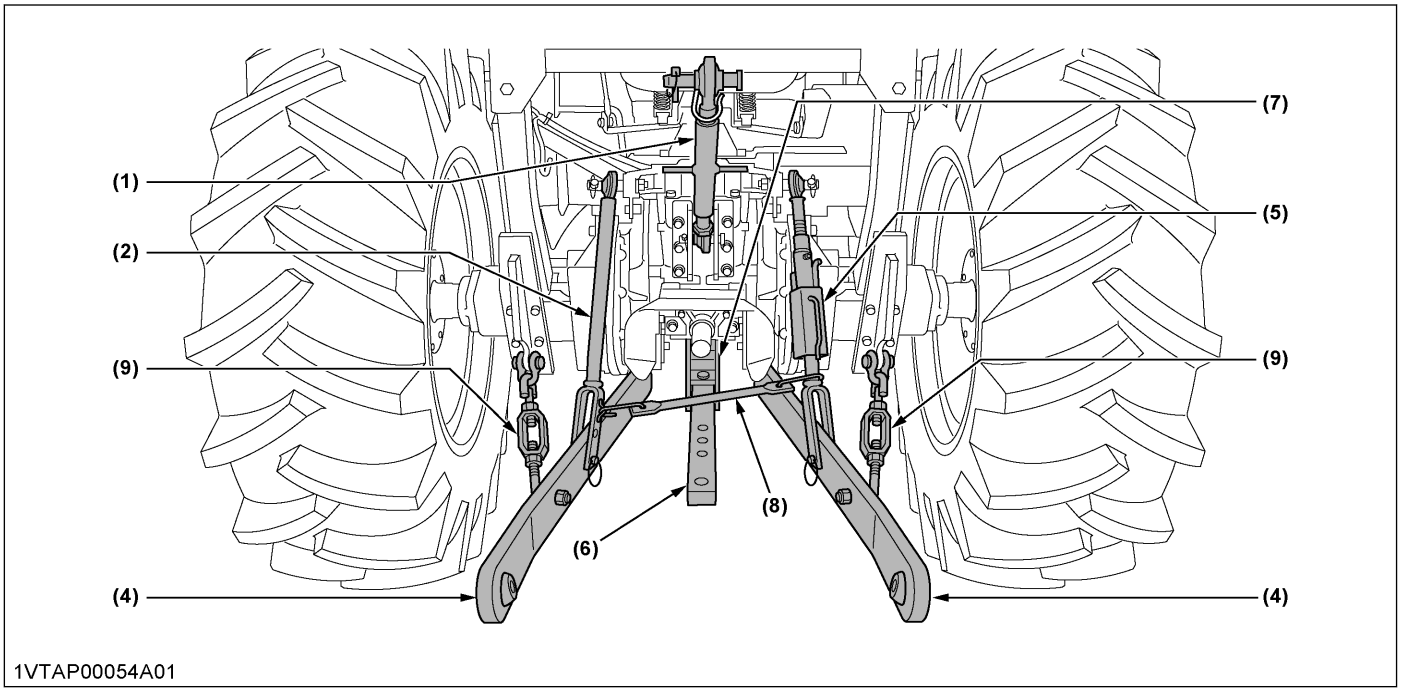
IMPORTANT :

- **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.**

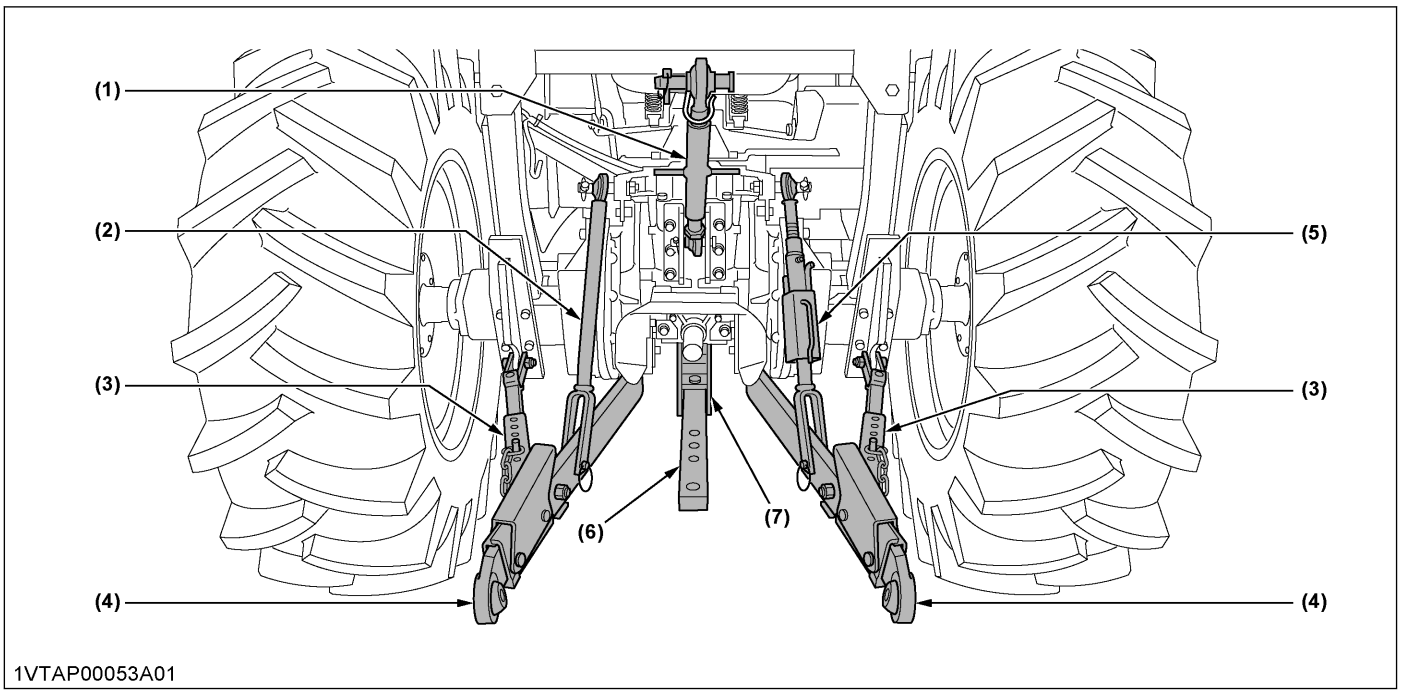
3-POINT HITCH AND DRAWBAR

OVERVIEW OF THE 3-POINT HITCH AND DRAWBAR

[MX5400 (2WD)]



[MX4900 / MX5400 (4WD) / MX6000]



(1) Top link
(2) Lifting rod (left)
(3) Telescopic stabilizers
(4) Lower link
(5) Lifting rod (right)
(6) Drawbar
(7) Fixed drawbar frame
(8) Lower link holder
(9) Check chains

3-POINT HITCH

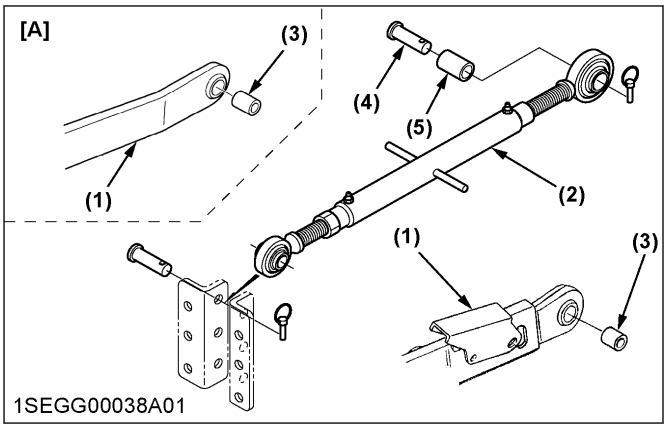
1. Preparations for attaching the 3-point hitch implement

1.1 Changing the category 1 and 2 of 3-point hitch implement

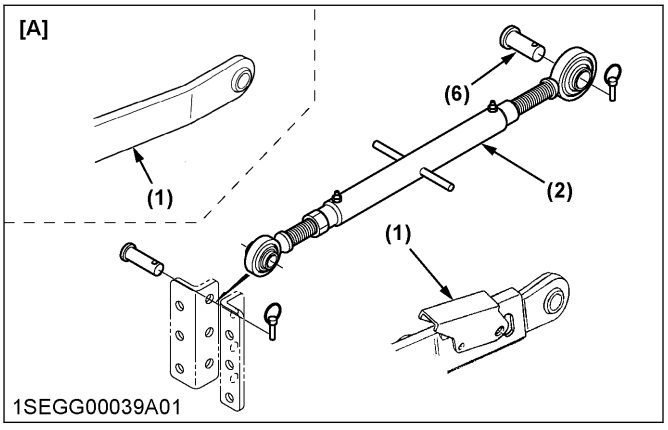
This section describes the procedure to change from category 1 to category 2.
This tractor is equipped with both category 1 and 2 of 3-point hitch implement.
Category 1 type is standard and assemble all parts shown as the procedure in this section.

1. Remove the adjusting collar from the lower link.
2. Remove the adjusting collar from the rear top-link-pin.
3. Use the correct rear top-link-pin for category 2.

[Category 1 type]



[Category 2 type]



(1) Lower link
(2) Top link
(3) Collar of lower link [Category 1]
(4) Top link rear pin [Category 1]
(5) Collar of top link [Category 1]
(6) Top link rear pin [Category 2]

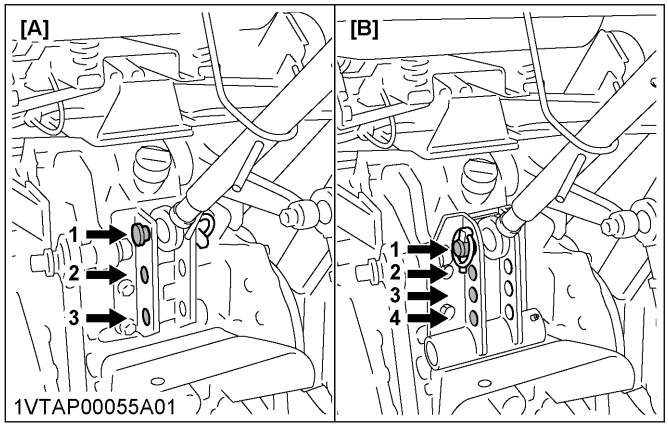
[A] MX5400 [2WD]

1.2 Selecting the holes of lower links

There are 2 holes in the lower links.
For most operations, the lifting rods should be attached to the inner hole.

1.3 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 98.
   If the hydraulic unit is set for draft control, draft response is more sensitive when an implement is connected to the upper set of holes to mount the top link. If draft control is not required, it is recommended to use the hole-4 in the figure as low set.



[A] With position control *[B] With draft control*

1.4 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 91)

2. Attaching methods of 3-point hitch implement

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

⚠ WARNING

To avoid personal injury or death:

- **Be sure to stop the engine before attaching the 3-point hitch implement.**
- **Do not stand between tractor and implement unless the parking brake is applied.**
- **Before attaching or detaching the 3-point hitch implement, locate the tractor and implement on a firm level surface.**

- **Whenever an implement or other attachment is connected to the 3-point hitch of the tractor, check full range of operation for interference, binding, or PTO separation.**

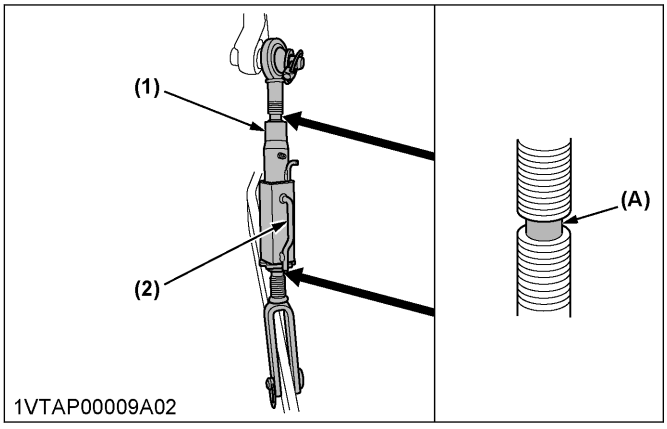
2.2 Adjusting the lifting rod (right)

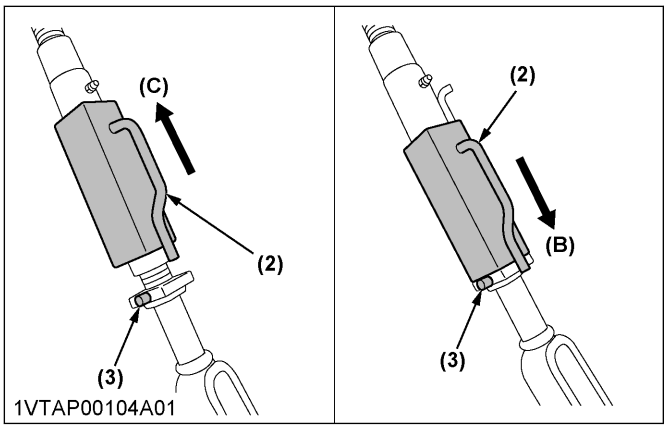
WARNING

To avoid personal injury or death:

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

1. To adjust the length of the lifting rod, lift the adjusting handle and turn the lifting rod to desired length.
   When extending the lifting rod using the adjusting handle, do not exceed the groove on the rod thread.
2. After adjusting, lower the adjusting handle to the lock position.





(1) Lifting rod
(2) Adjusting handle
(3) Lock plate
(A) Groove
(B) Lock position
(C) Unlock position

2.3 Adjusting the top link

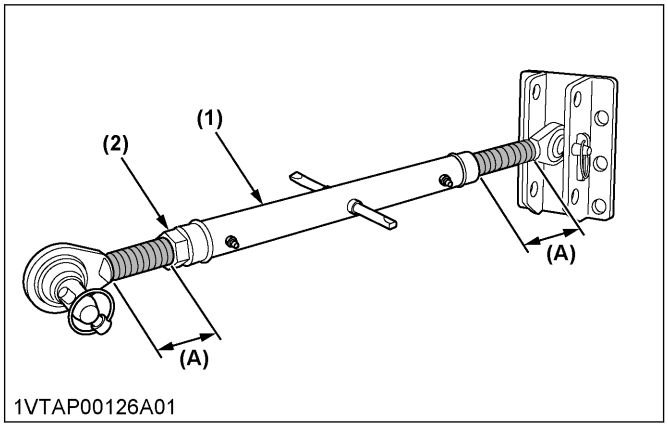
WARNING

To avoid personal injury or death:

- **When extending the top link, do not exceed the groove on the top link thread, or the top link will come apart and the 3-point equipment may fall.**

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

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

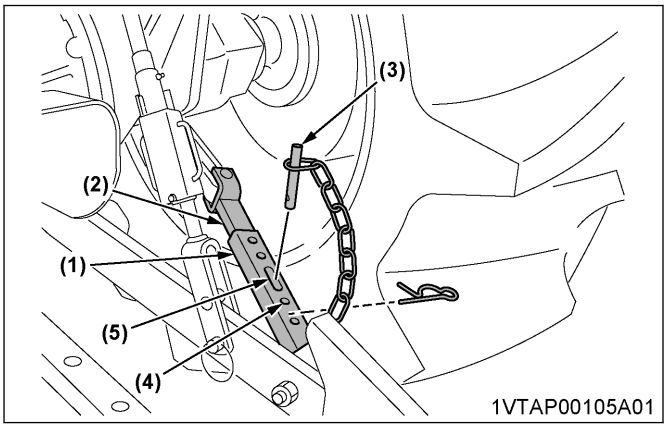


(1) Top link
(2) Lock nut
(A) Length of the screw

2.4 Adjusting the telescopic stabilizers [MX4900 / MX5400 (4WD) / MX6000]

1. Adjust the telescopic stabilizers to control the horizontal sway of the implement.
   Select the proper set of holes.
   (See Hydraulic control unit use reference chart on page 98)

2. After aligning satisfactorily, insert the set-pin through any one of the 4 holes on the outer tube that align with one of the holes on the inner bar.
   Both stabilizers will be locked.
   If the set-pin is inserted through the slot to engage one of the holes on the inner bar, a limited degree of sway will be permitted.

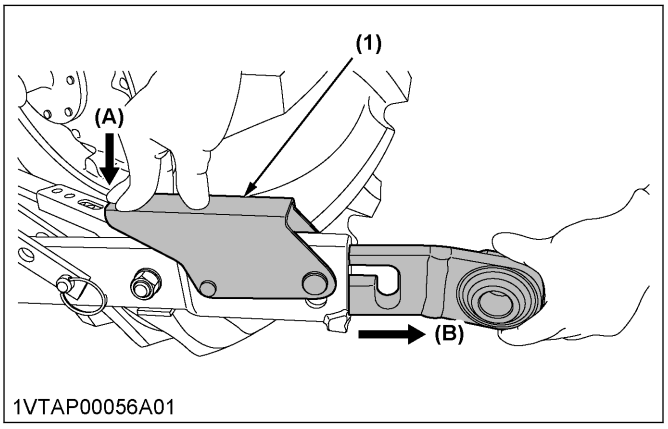


(1) Outer tube
(2) Inner bar
(3) Set-pin
(4) Hole
(5) Slot

2.5 Adjusting the telescopic lower links [MX4900 / MX5400 (4WD) / MX6000]

To attach an implement, follow the instructions in this section.

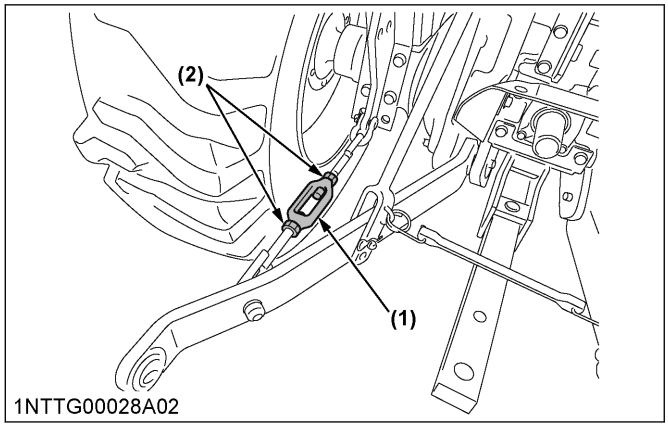
1. Push the levers, pull out the ends of lower links, and attach to the implement.
2. Back up the tractor slightly to make sure that the lower links are pushed in securely.



(1) Lever
(A) Push
(B) Pull out

2.6 Adjusting the check chains [MX5400 (2WD)]

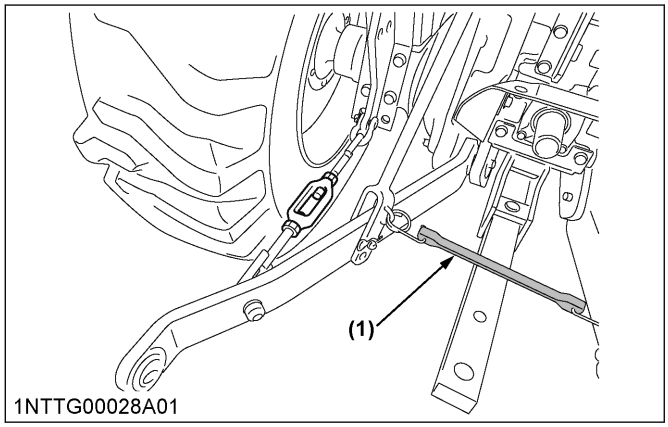
1. Adjust the turnbuckle to control the horizontal sway of the implement.
   (See Hydraulic control unit use reference chart on page 98)
2. After adjustment, retighten the lock nut.



(1) Turnbuckle
(2) Lock nut

2.7 Lower link holder [MX5400 (2WD)]

When operating the tractor without a 3-point hitch implement, it is necessary to lock the lower links to prevent them from hitting the rear wheels of the tractor.



(1) Lower link holder

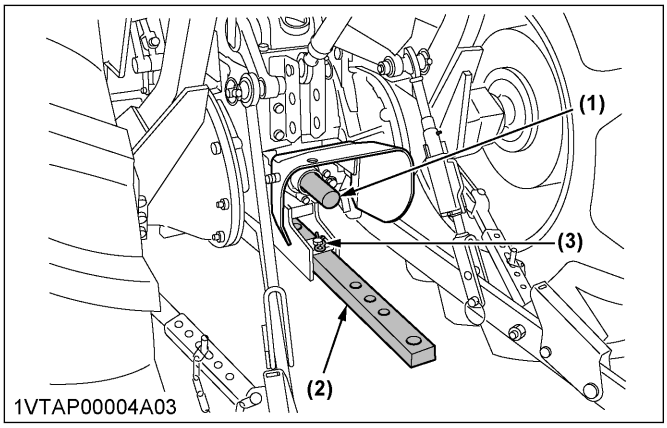
DRAWBAR

⚠ 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.**

For details about the drawbar load, see IMPLEMENT LIMITATION TABLES on page 29.



(1) PTO shaft
(2) Drawbar
(3) Pivot pin

HYDRAULIC UNIT

IMPORTANT :

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

3-POINT HITCH CONTROL SYSTEM

⚠ WARNING

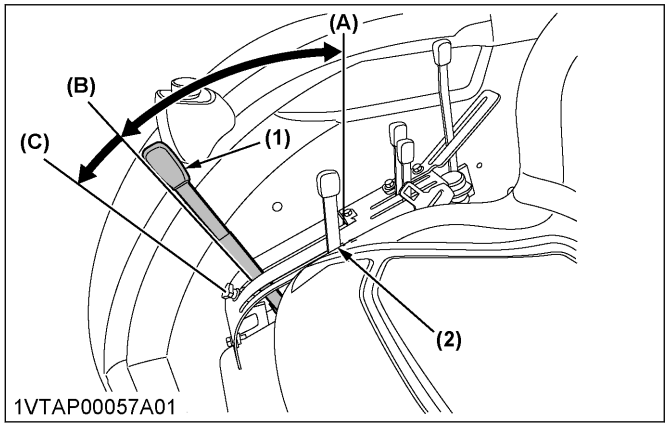
To avoid personal injury or death:

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

1. Position control of 3-point hitch mounted implement

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

Place the draft-control-lever in the lowest position and set the working depth of the implement with the position-control-lever.



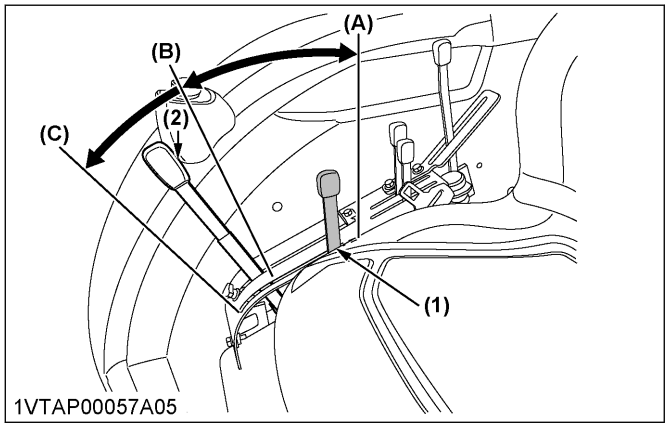
(1) Position control lever
(2) Draft control lever (if equipped)
(A) Up
(B) Down
(C) Float

2. Draft control of 3-point hitch mounted implement (if draft control lever is equipped)

Draft control will control the pull of 3-point hitch mounted implement.

Because the load on the 3-point hitch changes due to various soil conditions, the draft-control-system automatically responds to these changes by either raising or lowering the implement slightly to maintain a constant pull.

Place the position-control-lever in the lowest position and set the implement pull with the draft-control-lever.



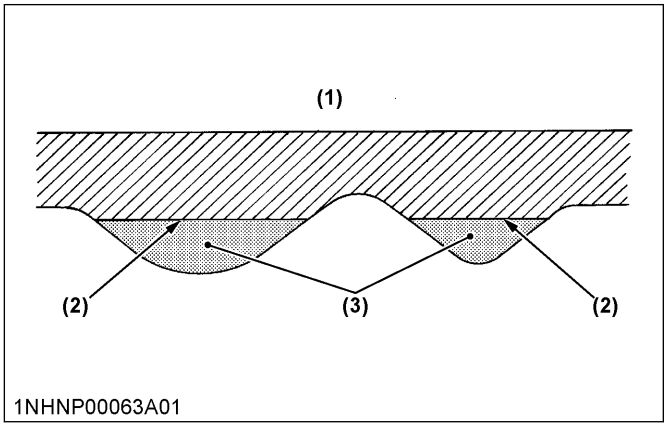
(1) Draft control lever
(2) Position control lever
(A) Sensitive
(B) Insensitive
(C) Float

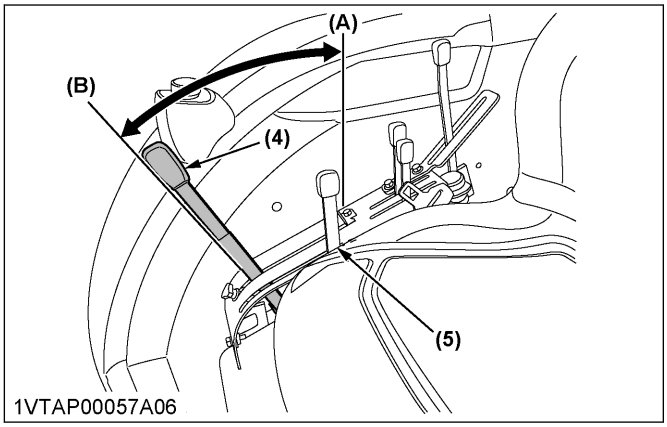
3. Mixed control of position and draft of 3-point hitch mounted implement

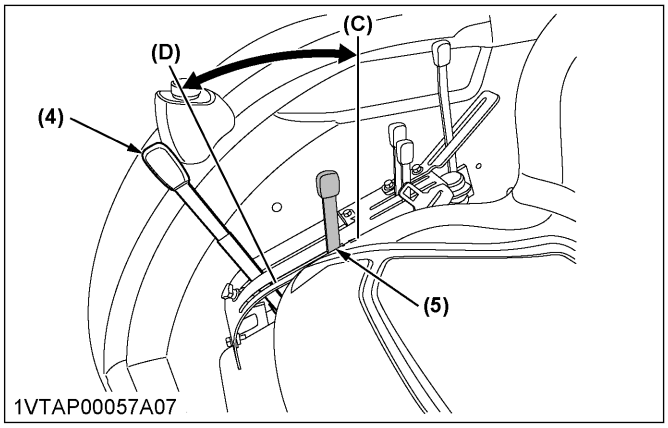
In draft control, when draft decreases, the implement automatically lowers to increase draft. However, the implement sometimes lowers too much.

To limit the degree to which the implement can be lowered, set the position-control-lever at the lowest working depth desired for the implement. Lower the draft-control-lever to the point where the implement is at the desired depth.

Setting the position-control-lever and the draft-control-lever stops the implement from going too deep and causing loss of traction and ground speed.





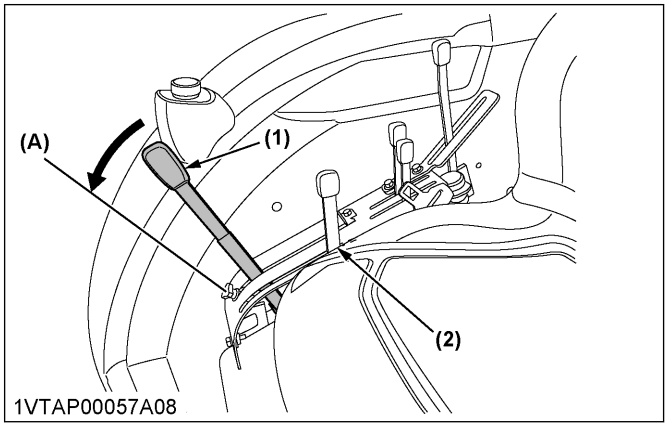


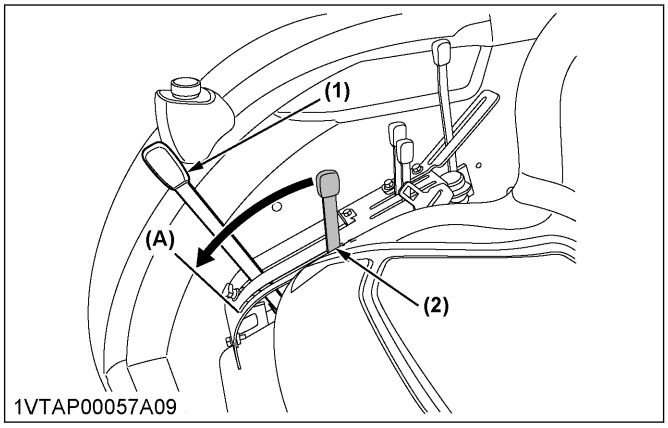
(1) Ground surface
(2) Implement penetration limit
(3) Light soil
(4) Position control lever
(5) Draft control lever (if equipped)
(A) Up
(B) Down
(C) Sensitive
(D) Insensitive

4. Float control of lower link

With draft control (if draft control lever is equipped)

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

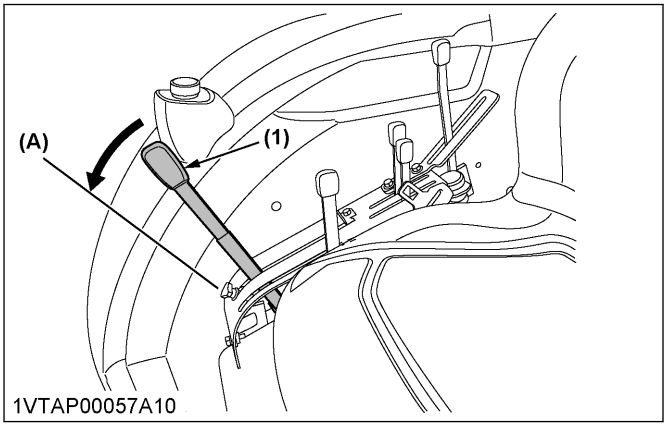




(1) Position control lever
(2) Draft control lever
(A) Float

With position control

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



(1) Position control lever *(A) Float*

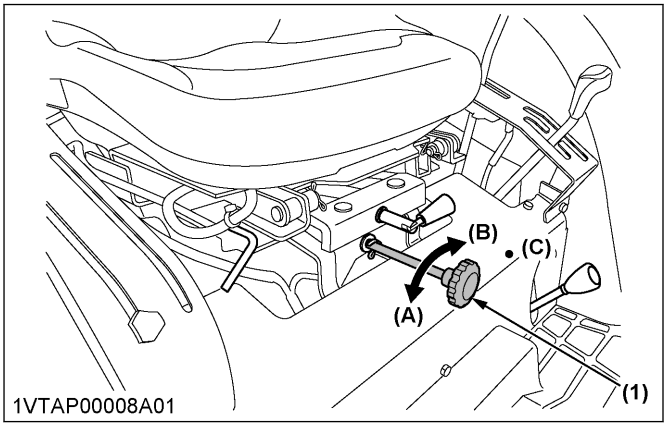
5. 3-point hitch lowering speed

⚠ WARNING

To avoid personal injury or death:

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

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



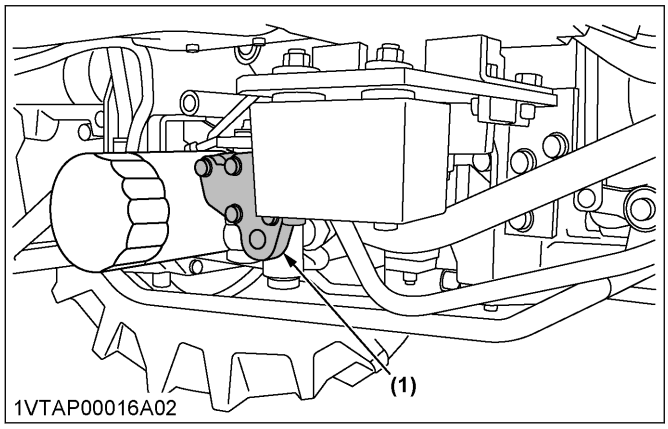
(1) 3-point hitch lowering speed knob *(A) Fast* *(B) Slow* *(C) Lock*

AUXILIARY HYDRAULICS

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

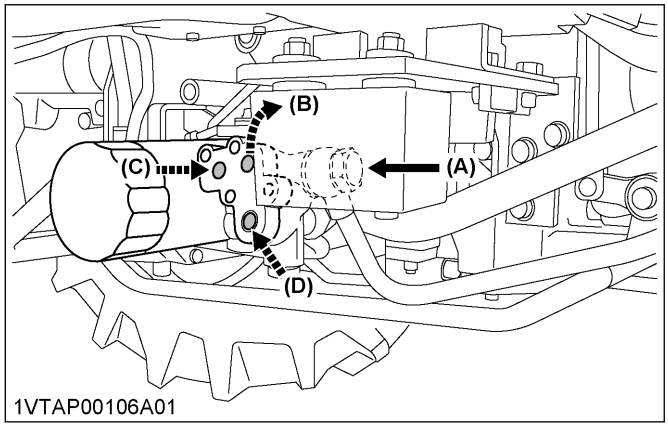
Hydraulic-block-type-outlet is useful when adding hydraulically operated implement such as front-end-loader, front blade, and so on.

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



(1) Block cover

Block cover (1) removed



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

To implement (B)	Max flow	35.8 L/min (9.5 gals./min)
	Max pressure	17.7 MPa (180 kgf/cm^2) [2560 psi]

REMOTE HYDRAULIC CONTROL SYSTEM (IF EQUIPPED)

You can install the hydraulic-auxiliary-control-valves up to triple segments.

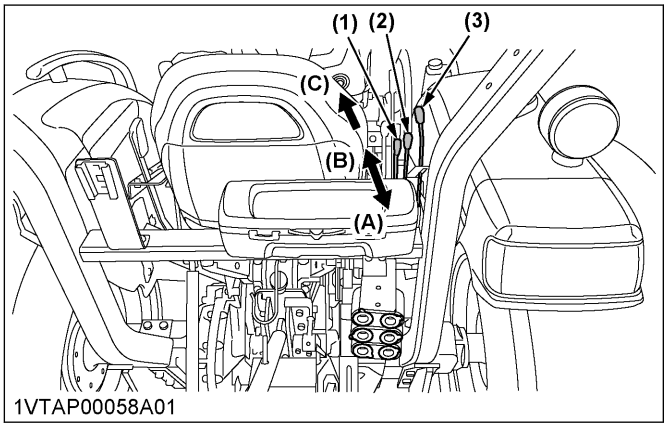
1. Remote control valve (if equipped)

There are 2 types of remote-control-valves available for the following models:

- Double acting valve
- Double acting valve with float position
  Double-acting-valve with float position may be placed in the float mode with the remote-control-valve-lever all the way forward. The cylinder is free to extend or retract, letting an implement such as a loader bucket follow the ground.

NOTE :

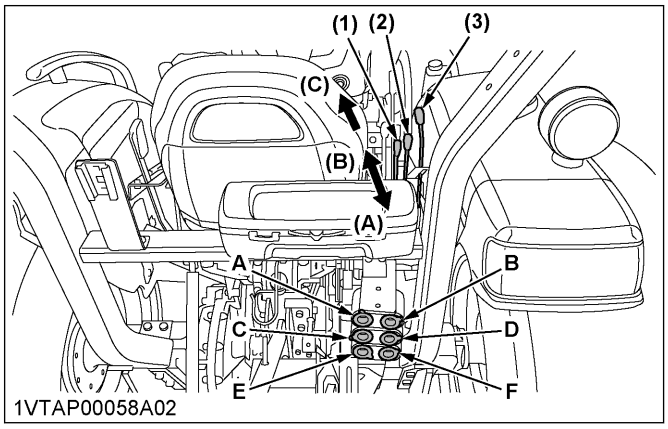
- **You can attach the floating valve as the second segment only.**



(1) Remote control valve lever with double acting valve
(2) Remote control valve lever with double acting valve / float position
(3) Remote control valve lever with double acting valve
(A) Rearward
(B) Forward
(C) Full forward

2. Remote control valve lever (if equipped)

The remote-control-valve-lever directs pressurized oil flow to the implement-hydraulic-system.



(1) Remote control valve lever with double acting valve
(2) Remote control valve lever with double acting valve / float position
(3) Remote control valve lever with double acting valve
(A) Rearward
(B) Forward
(C) Full forward

Remote control valve lever with double acting valve (1)	Forward		Rearward	
Port-A	In	←	Out	→
Port-B	Out	→	In	←

→ Pressure

← Returning

Remote control valve lever with double acting valve (2)	Full Forward		Forward		Rearward	
Port-C	In	Float	In	←	Out	→
Port-D	Out	Float	Out	→	In	←

→ Pressure

← Returning

Remote control valve lever with double acting valve (3)	Forward		Rearward	
Port-E	In	←	Out	→
Port-F	Out	→	In	←

→ Pressure

← Returning

Port	Coupler size
A, B, C, D, E, F	PT 1/2

IMPORTANT :

- **Do not hold the remote-control-valve-lever in the *"REARWARD"* position or the *"FORWARD"* position once the remote cylinder has reached the end of the stroke, because it will cause oil to flow through the relief valve. Forcing oil through the relief valve for extended periods will overheat the oil.**
- **When using the tractor-hydraulic-system to power the front loader, do not operate the boom and bucket cylinders simultaneously**

NOTE :

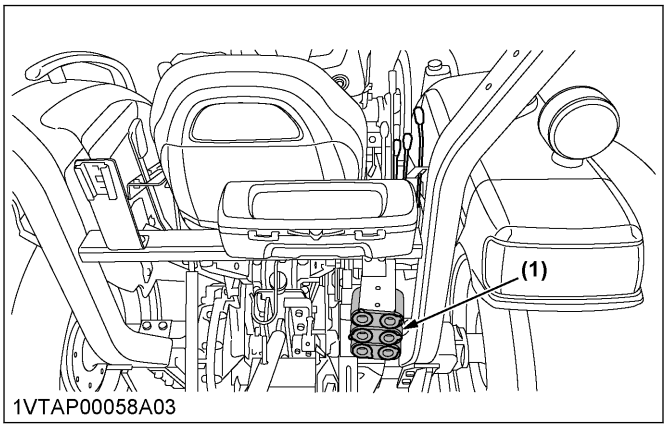
- **To use the single-acting cylinder with the float valve, connect the single-acting cylinder to the port-C.**
  To extend a single-acting cylinder, pull the remote-control-valve-lever rearward. To retract a single-acting cylinder, push the remote-control-valve-lever fully forward to the *"FLOAT"* position. Do not hold the remote-control-valve-lever in the down position, the transmission fluid may be overheated.

3. How to use the remote control valve coupler (if equipped)

⚠ WARNING

To avoid personal injury or death:

- **Stop the engine and relieve the pressure before connecting or disconnecting the lines of remote-control-valve-coupler.**
- **Do not use your hands to check for leaks.**



(1) Remote control valve coupler (if equipped)

Connecting

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

NOTE :

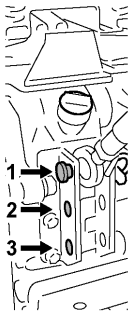
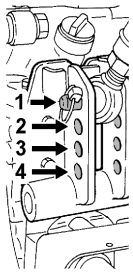
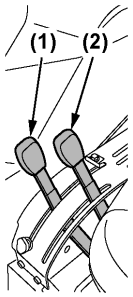
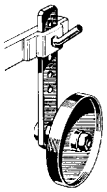
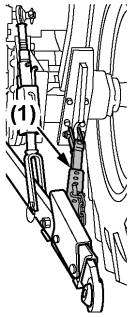
- **Your local KUBOTA Dealer can supply parts to adapt the implement coupler and the tractor-hydraulic-coupler to hydraulic hoses.**

Disconnecting

1. Lower the implement first to the ground to release the hydraulic pressure in the hoses.
2. Clean the implement coupler and tractor-hydraulic-coupler.
3. Relieve the pressure by moving the hydraulic-control-levers with engine shut off.
4. Pull the hose straight from the tractor-hydraulic-coupler to release it.
5. Clean the oil and dust from the tractor-hydraulic-coupler, then replace the dust plugs.

4. 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		**With position control**		**With draft control (if draft control lever is equipped)**				**Remarks**
	 1AGAIAZAP122A **Soil condition**	 1VTAP00107A01 **Top link mounting holes**	 1SEGG00049A01 *(1) position control lever*	 1ZENU00055A01 **Top link mounting holes**	 1SEGG00049B01 *(1) Position control lever* *(2) Draft control lever*	 1AGAIAZAP070A **Gauge wheel**	 1VTAP00108A01 *(1) Telescopic stabilizers*	
Moldboard plow	Light soil	1 or 2	Position control	1 or 2	Draft and mixed control	Yes/no	Loose	Insert the set-pin through the slot on the outer tube that align with one of the holes on the inner bar. For implements with gauge wheels, lower the position-control-lever all way.
	Medium soil	2 or 3		2 or 3				
	Heavy soil	3		3				
Disc plow	---	2 or 3		2 or 3	Place the draft-control-lever to the suitable position and set the implement pull with the position-control-lever			
Harrower (spike, spring-tooth, and disc type)	---	2 or 3		2 or 3				
Sub-soiler								
Weeder and ridger	---	3		4	Position control	Yes	Tighten	Telescopic stabilizer should be tight enough to prevent excessive implement movement when implement is in raised position.
Earthmover, digger, scraper, manure fork, and rear carrier					Hold the draft-control-lever at the most front position during operation.	Yes/no		
Mower (mid mount type and rear mount type)						No		

TIRES, WHEELS, AND BALLAST

TIRES

⚠ WARNING

To avoid personal injury or death:

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

(See Inflation pressure of tires on page 99)

IMPORTANT :

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

1. Inflation pressure of tires

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

	Tire sizes	Inflation pressure
Front	9.5-16, 4PR	205 kPa (2.1 kgf/cm^2) [30 psi]
	7.5L-15, 6PR	220 kPa (2.2 kgf/cm^2) [32 psi]
	9.5L-15, 6PR	235 kPa (2.4 kgf/cm^2) [34 psi]
	12-16.5, 6PR	140 kPa (1.4 kgf/cm^2) [20 psi]
	29×12.5-15, 6PR	205 kPa (2.1 kgf/cm^2) [30 psi]
	29×12.5-15, 8PR	
	305R343, 2PR	70 kPa (0.7 kgf/cm^2) [10 psi]
	300 / 70R16.5	240 kPa (2.4 kgf/cm^2) [35 psi]
Rear	13.6-28, 4PR	150 kPa (1.5 kgf/cm^2) [22 psi]

(Continued)

	Tire sizes	Inflation pressure
Rear	14.9-26, 4PR	140 kPa (1.4 kgf/cm^2) [20 psi]
	17.5L-24, 6PR	140 kPa (1.4 kgf/cm^2) [20 psi]
	44×18-20, 6PR	170 kPa (1.7 kgf/cm^2) [24 psi]
	610R470, 6PR	140 kPa (1.4 kgf/cm^2) [20 psi]
	440 / 80R24	160 kPa (1.6 kgf/cm^2) [23 psi]

NOTE :

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

2. Dual tires

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

WHEEL ADJUSTMENT

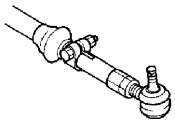
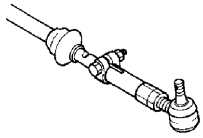
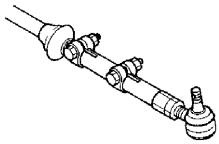
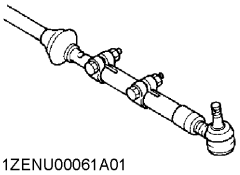
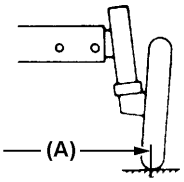
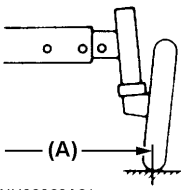
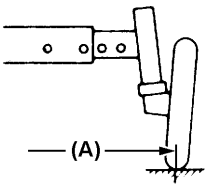
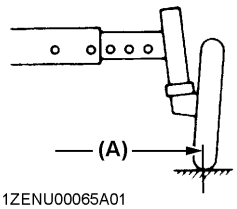
⚠ WARNING

To avoid personal injury or death:

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

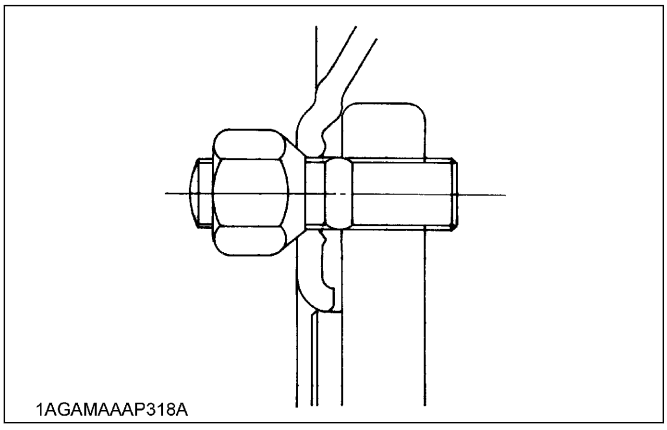
1. Front wheels with 2-wheel drive

You can adjust the width of the front tread as shown with the standard equipped tires.
(See Adjusting the front wheels with 2-wheel drive on page 101)

Model		 1ZENU00058A01	 1ZENU00059A01	 1ZENU00060A01	 1ZENU00061A01
		 1ZENU00062A01 *(A) Tread*	 1ZENU00063A01 *(A) Tread*	 1ZENU00064A01 *(A) Tread*	 1ZENU00065A01 *(A) Tread*
Farm	7.5L-15	1280 mm (50.4 in.)	1380 mm (54.3 in.)	1480 mm (58.3 in.)	1580 mm (62.2 in.)
	9.5L-15	1255 mm (49.4 in.)	1355 mm (53.3 in.)	1455 mm (57.3 in.)	1555 mm (61.2 in.)
Turf	29 x 12.5-15	1315 mm (51.8 in.)	1415 mm (55.7 in.)	1515 mm (59.6 in.)	1615 mm (63.6 in.)
	305R343	1343 mm (52.9 in.)	1443 mm (56.8 in.)	1543 mm (60.7 in.)	1643 mm (64.7 in.)

IMPORTANT :
- **Do not adjust the width of the front tread for the front-loader-application on 2WD models greater than 1280 mm (50.4 in.).**

NOTE :
- **For wheels with beveled or tapered holes, use the tapered side of lug nut.**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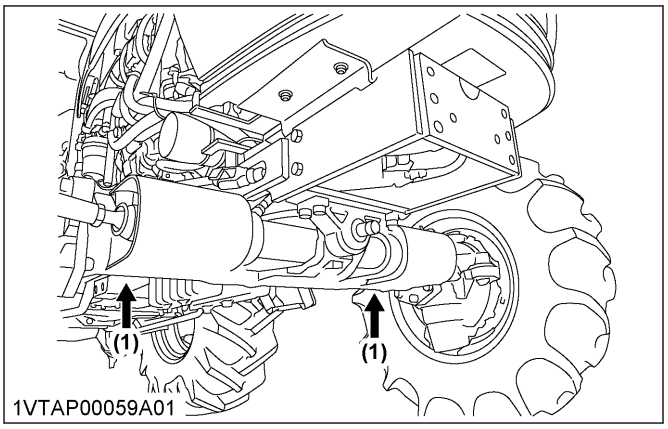
1.1 Adjusting the front wheels with 2-wheel drive

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

WARNING

To avoid personal injury or death:

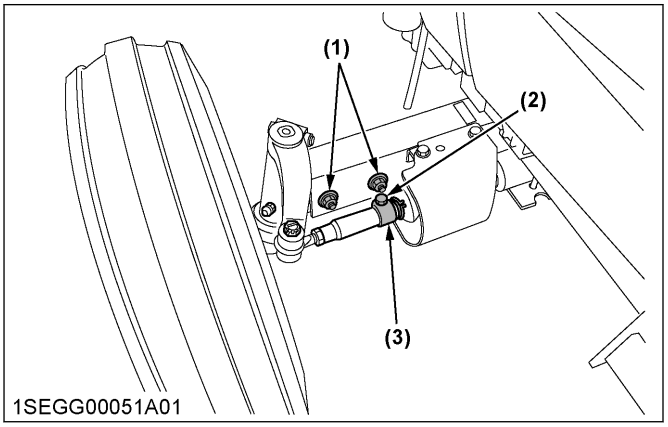
- **Before jacking up the tractor, park it on a firm and level ground and chock the rear wheels.**
- **Fix the front axle to keep it from pivoting.**
- **Select the jacks that withstand the machine weight and set them up as shown in the following figure.**



(1) Jack points

1. Remove the front-axle-mounting-bolts and the tie-rod mounting bolts.
2. Move the front axles (right and left) to the desired position, and tighten the front-axle-mounting-bolts and the tie-rod mounting bolts.
3. Adjust the toe-in as the following table.
(See Adjusting the toe-in on page 140)

toe-in	2 mm to 8 mm (0.1 in. to 0.3 in.)



(1) Front axle mounting bolt
(2) Tie-rod mounting bolt
(3) Tie rod clamp

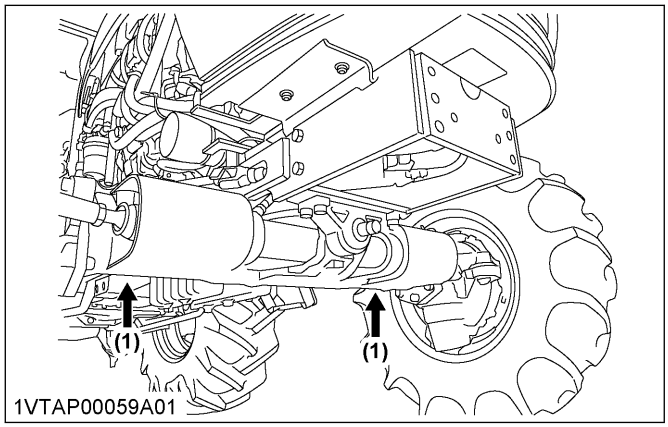
Front axle mounting bolt (1)	Tightening torque	124 N·m to 147 N·m (12.6 kgf·m to 15 kgf·m) [91.5 lbf·ft to 108.9 lbf·ft]
Tie-rod mounting bolt (2)		61 N·m to 71 N·m (6.2 kgf·m to 7.2 kgf·m) [44.8 lbf·ft to 52.1 lbf·ft]

2. Front wheels with 4-wheel drive

WARNING

To avoid personal injury or death:

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

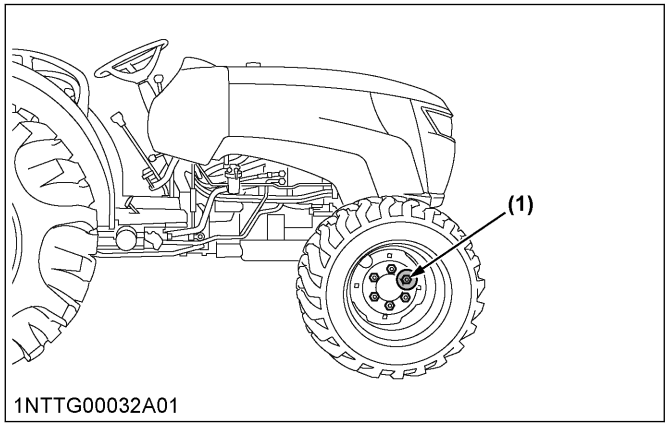


(1) Jack points

You can not adjust width of the front tread.

IMPORTANT :

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

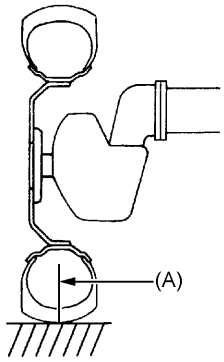


(1) Bolt

Bolt (1)	Tightening torque	167.0 N·m to 196.0 N·m (17.0 kgf·m to 20.0 kgf·m) [123.2 lbf·ft to 144.6 lbf·ft]

Then recheck after driving the tractor as follows, and thereafter according to SERVICE INTERVALS on page 117.

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



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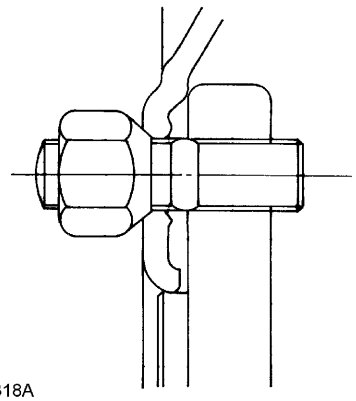
(A) Tread

Tire	Tread
9.5-16 Farm	1325 mm (52.2 in.)
12-16.5 IND, 300 / 70R16.5 Hybrid	1325 mm (52.2 in.)
29 x 12.5-15 Turf	1410 mm (55.5 in.)
305R343 Turf	1333 mm (52.5 in.)

IND
For industrial

NOTE :

- **For wheels with beveled or tapered holes, use the tapered side of lug nut.**



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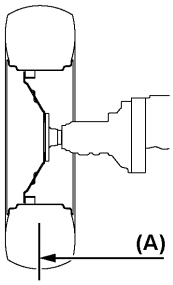
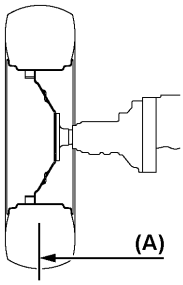
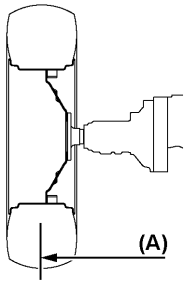
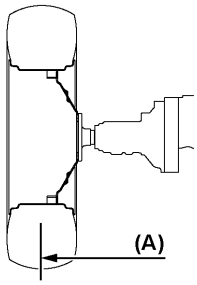
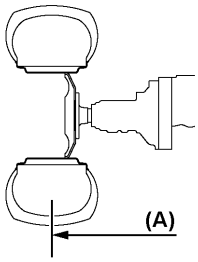
3. Rear wheels

You can adjust the width of rear tread with the standard equipped tires.
(See Adjusting the rear wheels on page 104)

Model	 1SEGG00052A01 *(A) Tread*	 1SEGG00053A01 *(A) Tread*	 1SEGG00054A01 *(A) Tread*	 1SEGG00055A01 *(A) Tread*	 1SEGG00056A01 *(A) Tread*
14.9-26 Farm	---	---	1375 mm (54.1 in.)	1490 mm (58.7 in.)	---
13.6-28 Farm	1275 mm (50.2 in.)	1385 mm (54.5 in.)	1480 mm (58.3 in.)	1585 mm (62.4 in.)	---
17.5L-24 IND, 440 / 80R24 Hybrid	1310 mm (51.6 in.)	1420 mm (55.9 in.)	1450 mm (57.1 in.)	1555 mm (61.2 in.)	---
44x18-20 Turf	---	---	---	---	1470 mm (57.9 in.)
610R470 Turf	---	---	---	---	1571 mm (61.9 in.)

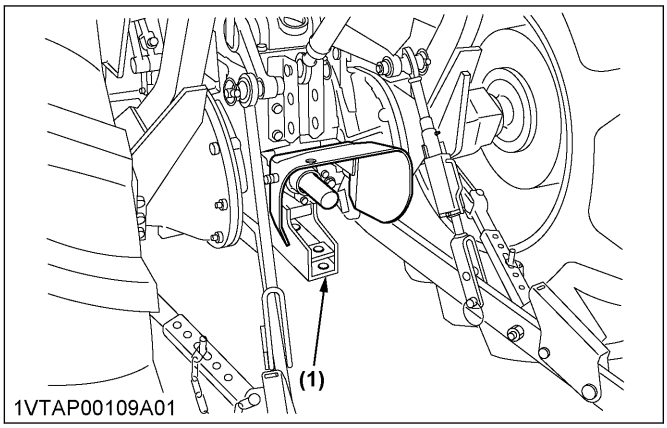
3.1 Adjusting the rear wheels

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.**

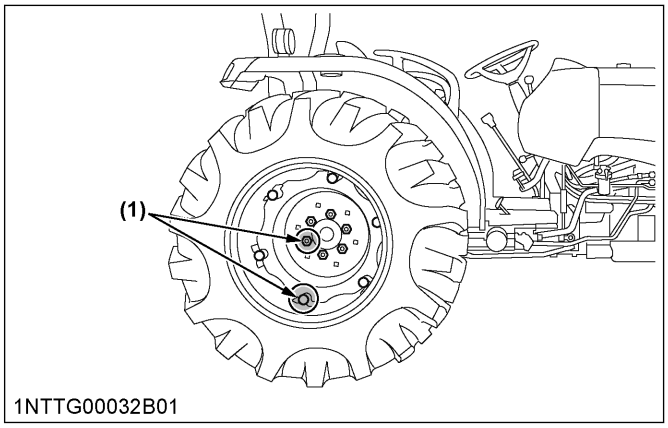


(1) Jack point

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

IMPORTANT :

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



(1) Bolt

Bolt (1)	Tightening torque	196.0 N·m to 225.0 N·m (20.0 kgf·m to 23.0 kgf·m) [144.6 lbf·ft to 166.0 lbf·ft]

Then recheck after driving the tractor as follows, and thereafter according to SERVICE INTERVALS on page 117.

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

BALLAST

⚠ WARNING

To avoid personal injury or death:

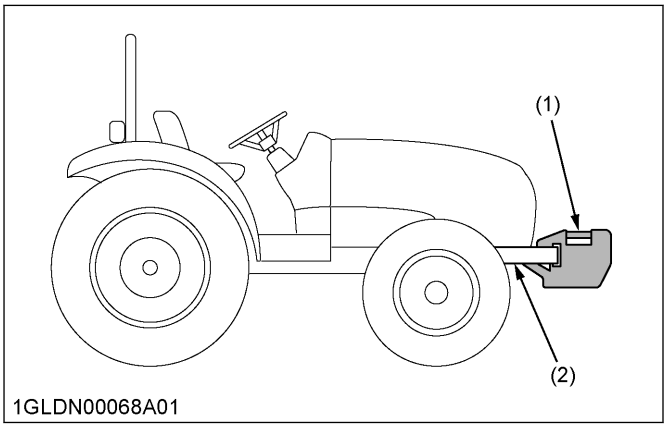
- **You will need the additional ballast for transporting the heavy implements. When the implement is raised, drive slowly over rough ground, regardless of how much ballast is used.**
- **Do not fill the front wheels with liquid to maintain steering control.**

1. Front ballast

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

1.1 Front end weights (option)

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



(1) Front end weights (2) Bumper

NOTE :
- **Front-end-weights is the option on [4WD] models.**

IMPORTANT :
- **Do not overload the tires.**
- **Add no more weight than indicated in the following table.**
- **Do not attach to the front bumper when the front loader is attached.**

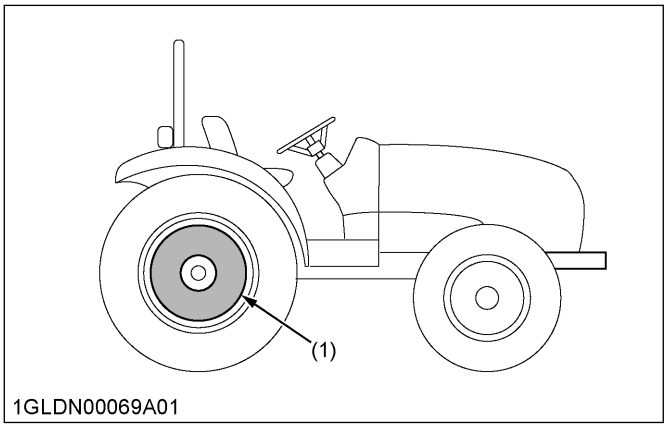
Maximum weight	25 kg × 7 pieces (386 lbs.)

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 per wheel	47 kg × 3 pieces (310 lbs.)

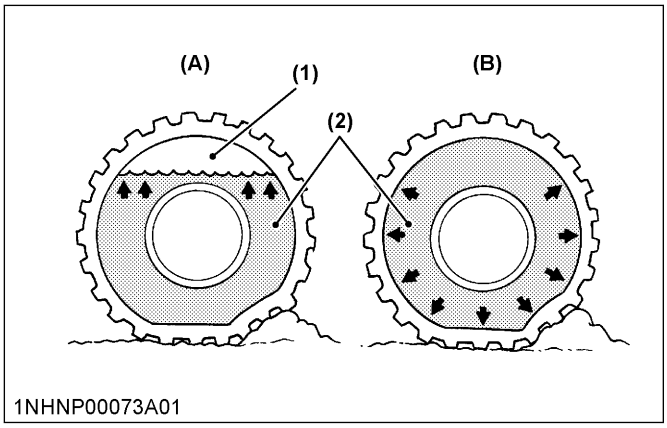
3. Liquid ballast in rear tires

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	14.9-26	13.6-28	17.5L-24
Slush free at -10 ℃ (14 ℉) Solid at -30 ℃ (-22 ℉) [Approx. 1 kg (2 lbs.) $CaCl_2$ per 4 L (1 gal) of water]	215 kg (470 lbs.)	185 kg (410 lbs.)	235 kg (520 lbs.)
Slush free at -24 ℃ (-11 ℉) Solid at -47 ℃ (-52 ℉) [Approx. 1.5 kg (3.5 lbs.) $CaCl_2$ per 4 L (1 gal) of water]	225 kg (495 lbs.)	200 kg (440 lbs.)	250 kg (550 lbs.)
Slush free at -47 ℃ (-52 ℉) Solid at -52 ℃ (-62 ℉) [Approx. 2.25 kg (5 lbs.) $CaCl_2$ per 4 L (1 gal) of water]	235 kg (520 lbs.)	215 kg (470 lbs.)	265 kg (585 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.**



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

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

CAB OPERATION

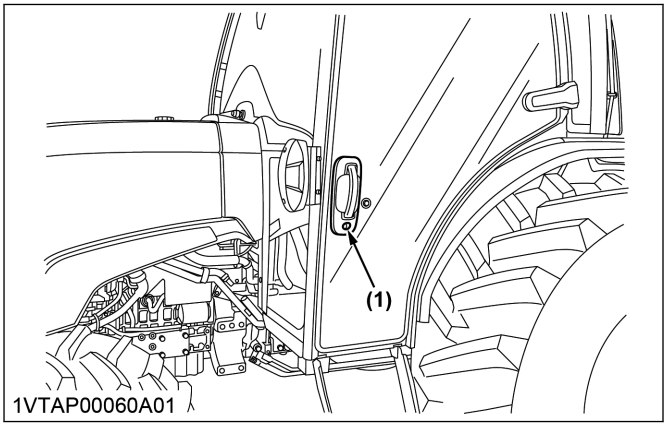
DOOR AND WINDOW

1. Locking and unlocking the door

From the outside

1. Insert the key into the door lock.
2. Lock or unlock the door.
   - To unlock the door, turn the starter key clockwise.
   - To lock the door, turn the starter key in the opposite direction.

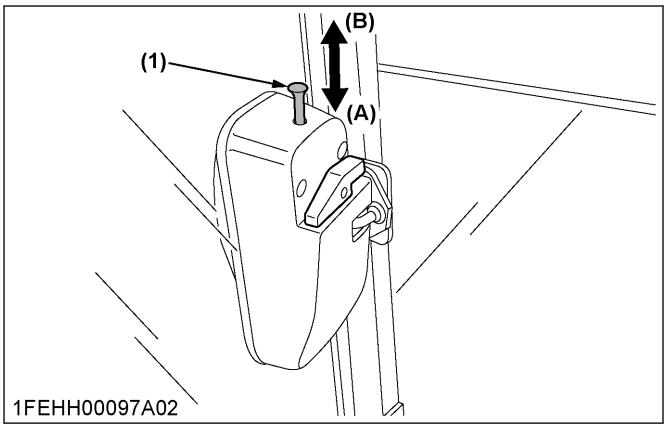
   You can remove the starter key when it is in the vertical direction.



(1) Door lock

From the inside

- To lock the door, push down the lock knob.
- To unlock the door, pull up the lock knob.

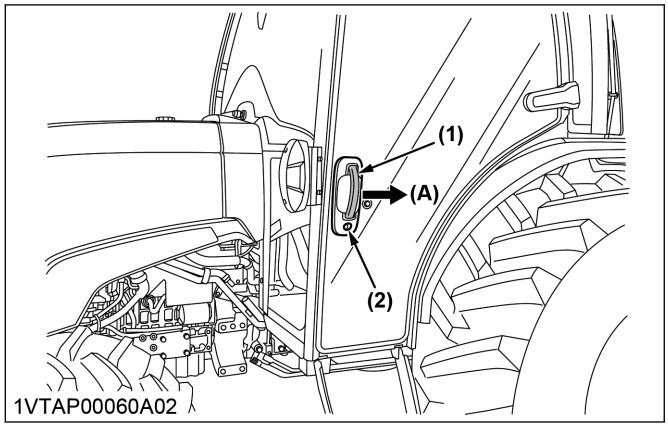


(1) Lock knob
(A) Push (lock)
(B) Pull (unlock)

2. Opening the door

From the outside

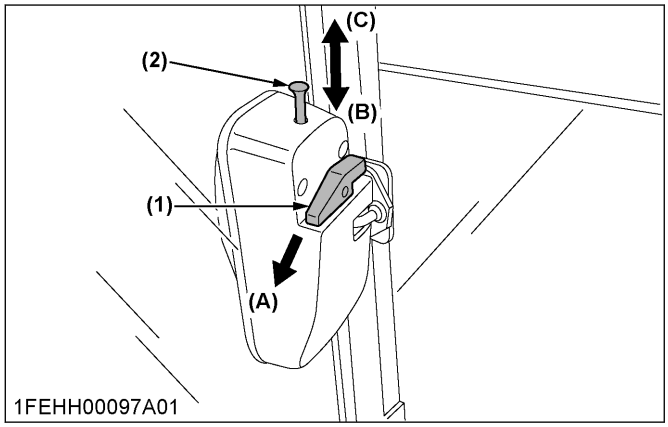
1. Unlock the door.
   (See From the outside on page 107)
2. Pull the outer door handle.



(1) Outer door handle
(2) Door lock
(A) Pull

From the inside

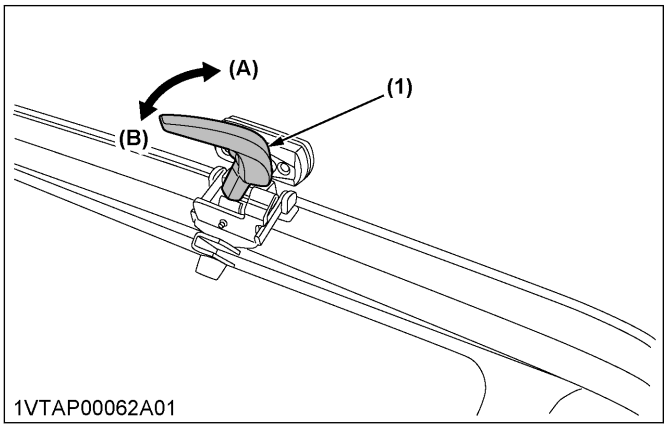
1. Unlock the door.
   (See From the inside on page 107)
2. Pull the inner door handle.



(1) Inner door handle
(2) Lock knob
(A) Pull
(B) Push (lock)
(C) Pull (unlock)

3. Opening the rear window

1. Turn the rear-window-handle clockwise to the vertical position and push the rear-window-handle.

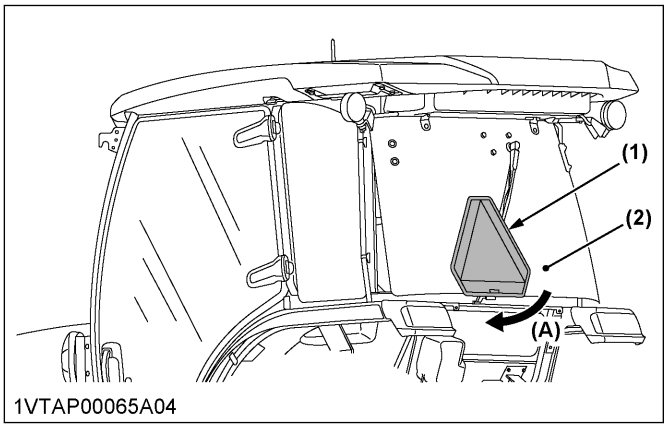


(1) Rear window handle
(A) Open
(B) Close

The rear window is opened by the gas-spring-cylinder.

IMPORTANT :

- **To maintain the visibility of the SMV emblem, close the rear window when driving on the road.**



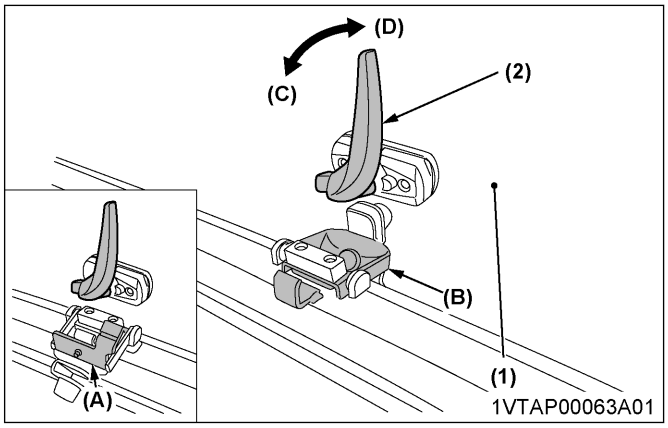
(1) SMV emblem
(2) Rear window
(A) Close

4. How to use the rear window half-lock

IMPORTANT :

- **Be careful not to travel the machine in the half-lock mode on rough roads.**

1. Grip the rear-window-handle, and slightly open the rear window.
2. Adjust the half-lock bracket to the set position.
3. Move back the rear window a little, and get the rear-window-handle locked.



(1) Rear window
(2) Rear window handle
(A) Half-lock bracket (storage position)
(B) Half-lock bracket (set position)
(C) Lock
(D) Unlock

IMPORTANT :

- **When handling the half-lock mechanism, hold up the window just before being positioned and then slowly get it in position.**

5. How to use the emergency exit

IMPORTANT :

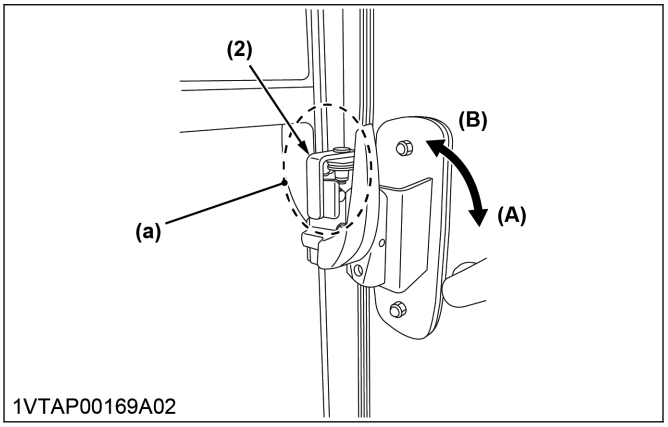
- **Open the right door of the cab if the left door is blocked, and the opposite is also true in an emergency situation.**
- **Exit through the rear window if the CAB doors are blocked in an emergency situation.**

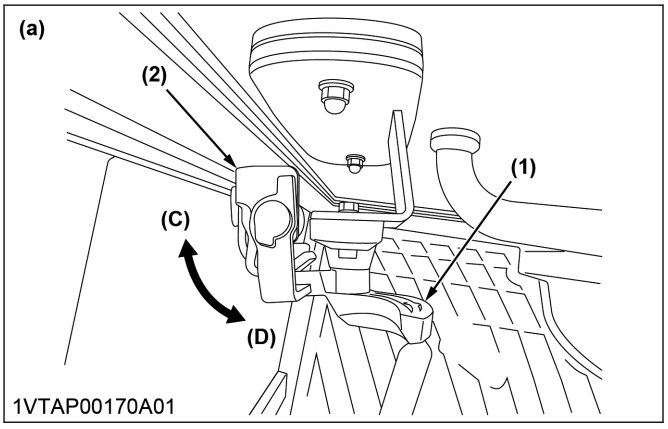
1. Turn the handle-lock fully clockwise (if equipped).

2. Turn the right-door-handle clockwise to the horizontal position and push the right-door-handle.

IMPORTANT :

- **To prevent the door from opening while in motion and in operation, turn the right-door-handle all the way counterclockwise to the vertical position.**
- **Then turn the handle-lock counterclockwise all the way to the stopper (if equipped). Refer the diagram below.**





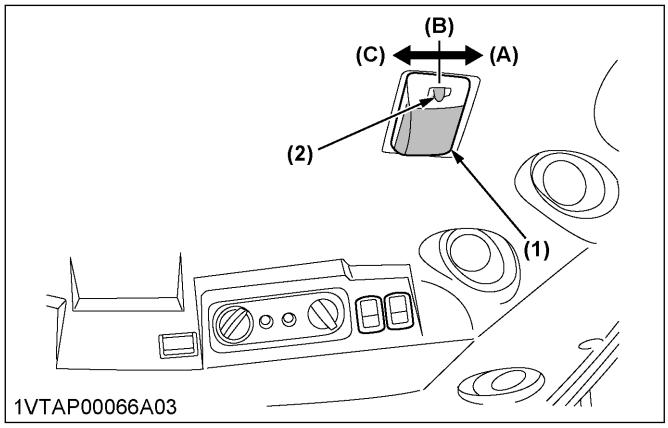
(1) Right door handle
(2) Handle lock (if equipped)
(A) Open
(B) Close
(C) Unlock
(D) Lock

DOME LIGHT

1. Dome light switch

Sliding the dome-light-switch will give the following conditions of the dome light:

Off	The light does not turn on.
On	The light remains on.



(1) Dome light
(2) Dome light switch
(A) Off
(B) Off
(C) On

IMPORTANT :

- **The battery will discharge if the dome light remains on. Be sure to turn it off when you leave the machine.**

WORK LIGHT

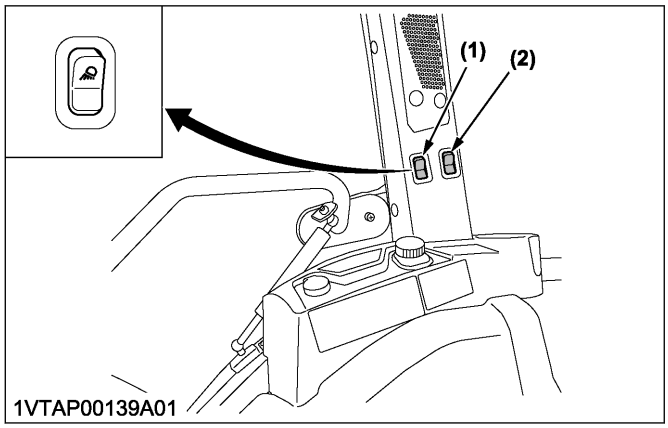
⚠ WARNING

To avoid personal injury or death:

- **Do not operate on roads with work lights on. Work lights may blind or confuse the drivers of oncoming vehicles.**

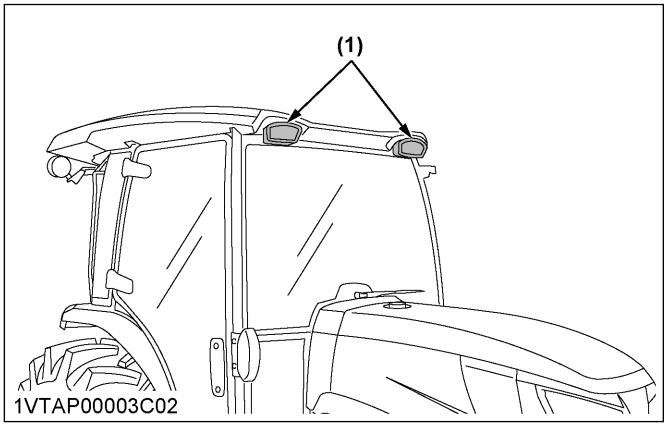
1. Work light switch

Turn on the key switch and press the top half of the work-light-switch. The work light and the indicator for the work-light-switch light up.
Press the bottom half of the work-light-switch to turn off the work light and indicator for the work-light-switch.



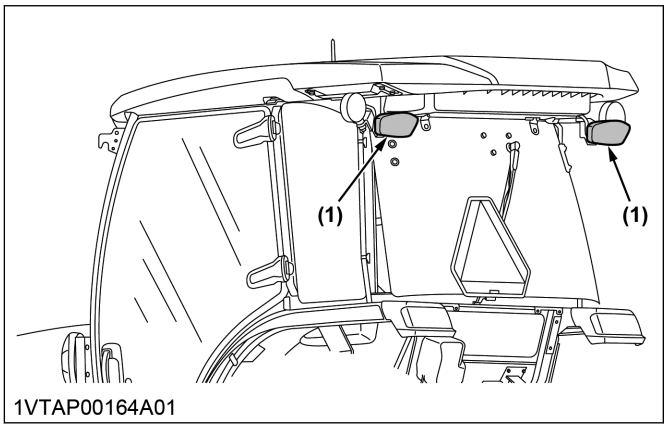
(1) Front work light switch
(2) Rear work light switch (if equipped)

2. Front work light



(1) Front work light

3. Rear work light (if equipped)

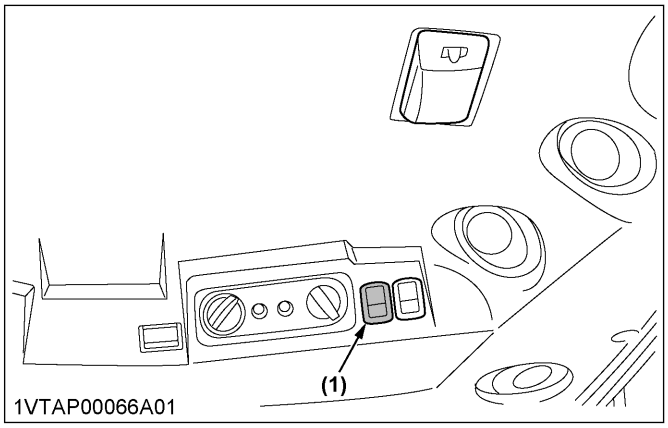


(1) Rear work light

WIPER

1. Front wiper / washer switch

- **Top half of the front wiper / washer switch**
  1. Turn on the key switch and press the top half of the front wiper / washer switch to the first step. The wiper is activated.
  2. When the top half of the front wiper / washer switch is pressed further to the second step, washer liquid jets out.
     The jetting continues while the front wiper / washer switch is pressed and the wiper is activated continuously.
- **Bottom half of the front wiper / washer switch**
  1. Turn on the key switch and press the bottom half of the front wiper / washer switch to the first step.
     The wiper is activated at regular intervals.
  2. When the bottom half of the front wiper / washer switch is pressed further to the second step, washer liquid jets out and the wiper is activated at regular intervals.



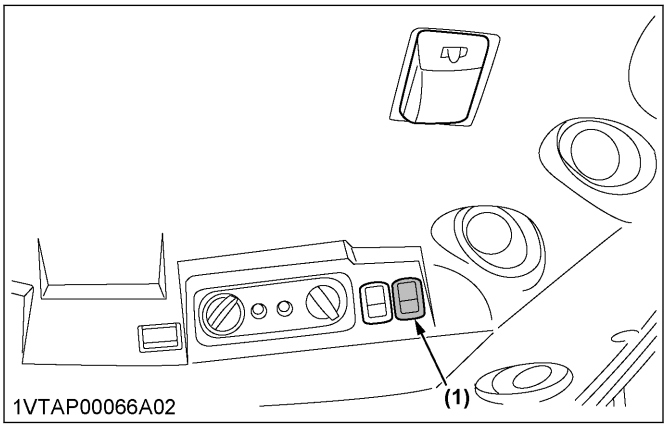
(1) Front wiper / washer switch

IMPORTANT :

- **Do not activate the wipers when the windows are dry. Windows may be scratched.**
  Be sure to jet the washer liquid first and then activate the wipers.

2. Rear wiper / washer switch (if equipped)

- **Top half of the rear wiper / washer switch**
  1. Turn on the key switch and press the top half of the rear wiper / washer switch to the first step. The wiper is activated.
  2. When the top half of the rear wiper / washer switch is pressed further to the second step, washer liquid jets out.
     The jetting continues while the rear wiper / washer switch is pressed and the wiper is activated continuously.
- **Bottom half of the rear wiper / washer switch**
  1. Turn on the key switch and press the bottom half of the rear wiper / washer switch to the first step. The wiper is activated at regular intervals.
  2. When the bottom half of the rear wiper / washer switch is pressed further to the second step, washer liquid jets out and the wiper is activated at regular intervals.



(1) Rear wiper / washer switch (if equipped)

IMPORTANT :

- **Do not activate the wipers when the windows are dry. Windows may be scratched.**
  Be sure to jet the washer liquid first and then activate the wipers.

3. Precautions for using the wipers in cold season

IMPORTANT :

- **In cold season, the wiper blades and the wiper motor might get overloaded causing damage. To avoid overloading of the wiper blades and the wiper motor, be sure to take the following precautions.**

- While not used in cold season, keep the wiper blades off the windshield to prevent them from being stuck with ice.
- If the windshield is covered with snow, scrape it off the windshield before using the wipers.
- If the wiper blades are stuck on the windshield with ice and fail to move, be sure to turn the main key switch to *"OFF"* and remove the ice off the blades. Then place the main key switch back to *"ON"*.
- When you use the wiper blades which is commercially available in cold-season, make sure that their size is the same as or smaller than that of the standard ones.

AIR CONDITIONER

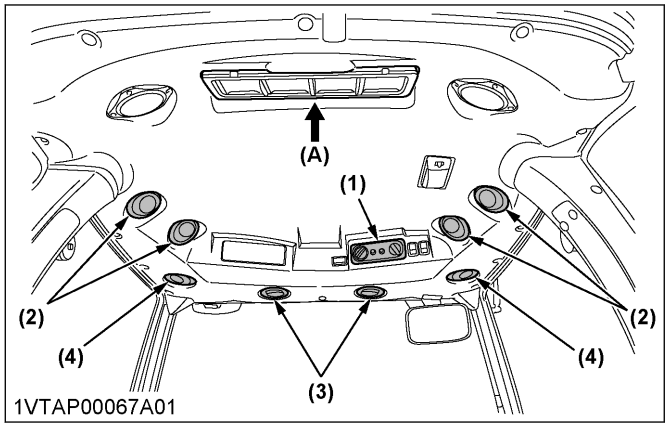
⚠ CAUTION

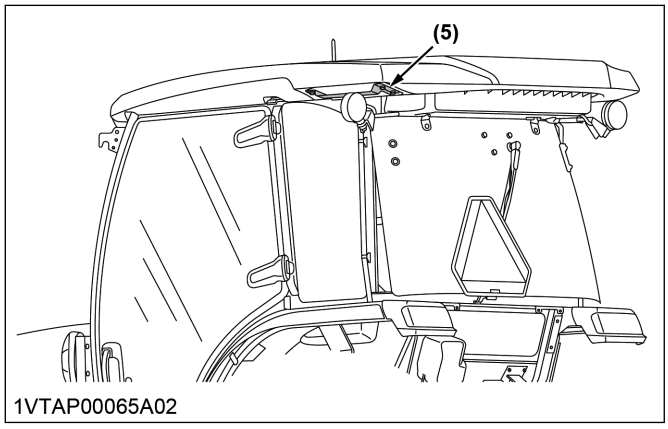
To avoid personal injury:

- **Daily inspection**
  Have the tractor repaired immediately if any of the following faults are discovered. The following faults may cause burns or injury. The following faults may also cause the seizure of the engine or other serious failure.
  - **Scratches, cracks, or swelling in water hoses.**
  - **Water leakage at joints of the water hose.**
  - **Missing or damaged protective wrap or grommets of the water hose.**
  - **Loose mounting bolts or damaged brackets.**
- **Do not touch the water hoses and the heater with your hand. You may get burned.**
- **If the window fails to defrost in extreme conditions or becomes cloudy when dehumidifying the CAB, wipe off moisture with a soft cloth.**
- **Do not block all the air outlets of the air conditioner. A problem could occur.**

1. Airflow

Air in the CAB and fresh air introduced into the CAB flow as shown in the following figures. Adjust the air ports to obtain the desired condition.



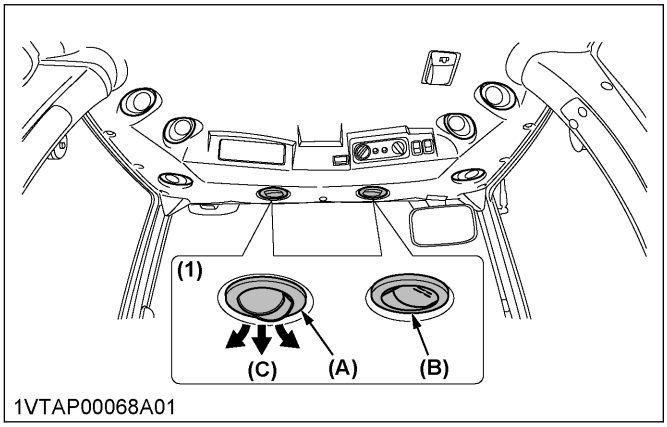


(1) Control panel
(2) Side air outlet (face area)
(3) Front air outlet
(4) Door air outlet
(5) Fresh air inlet
(A) Inner air recirculation

2. Air control vent

2.1 Front air outlet

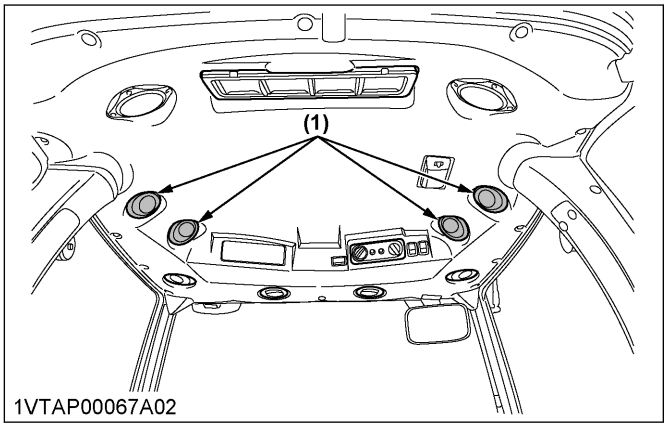
You can adjust the front air outlets independently as required.
To defrost the windshield, rotate the front air outlets toward the windshield.



(1) Front air outlet
(A) Open
(B) Closed
(C) Windshield

2.2 Side air outlet

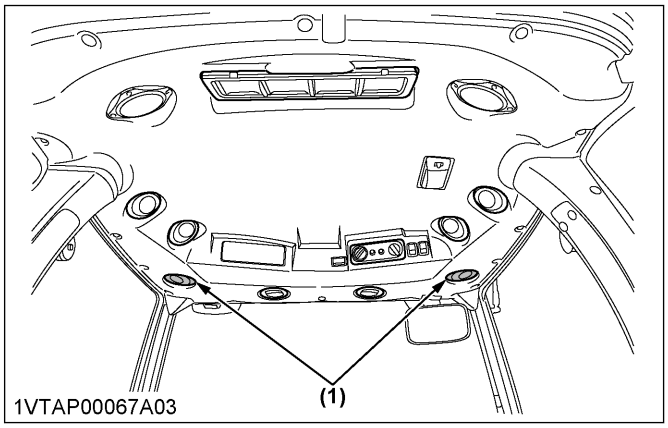
You can adjust the side air outlets to direct the air on to the operator, the door and window, or the rear of the CAB.



(1) Side air outlet

2.3 Door air outlet

You can adjust the door-air-outlets to direct the air on to the operator, the door and window, or the rear of the CAB.



(1) Door air outlet

NOTE :

- **If the airflow rate at the face is too low, close the door-air-outlet.**

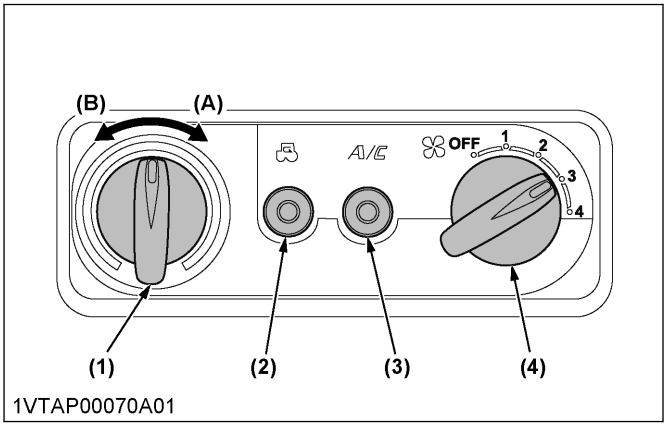
2.4 Recirculation / fresh air selection lever

Fresh air	Set the recirculation / fresh air selection lever to the FRESH position. Fresh air will flow into the CAB. Fresh air is helpful when you work in dusty conditions or if the glass windows get foggy.
Recirculation	Set the recirculation / fresh air selection lever to the RECIRC position. The in-CAB air will be recirculated. The in-CAB air is useful for cooling or heating the CAB quickly or keeping it extra cool or warm.

NOTE :

- **When heating, do not keep the recirculation / fresh air selection lever at the FRESH position for a long time. The windshield easily gets foggy.**
- **While working in a dusty conditions, keep the recirculation / fresh air selection lever at the RECIRC position. The in-CAB air increases the pressure in the CAB, which helps prevent dust from coming into the CAB.**

3. Control panel



(1) Temperature control dial
(2) Recirculation / fresh air selection switch with indicator light
(3) Air conditioner switch with indicator light
(4) Blower switch
(A) Warm
(B) Cool

Temperature control dial
Set this dial at the desired position to obtain the optimum air temperature.
- Turn the dial in the *"WARM"* direction to obtain warmer air.
- Turn it in the *"COOL"* direction to obtain cooler air.

Blower switch
Air volume can be changed in 4 steps. At the **[4]** position, the largest air volume is obtained.

Air conditioner switch
1. Push this switch to activate the air conditioner. An indicator light will light up when the switch is set to *"ON"*.
2. Push the switch again to turn the air conditioner off, in which case the indicator light will be off.

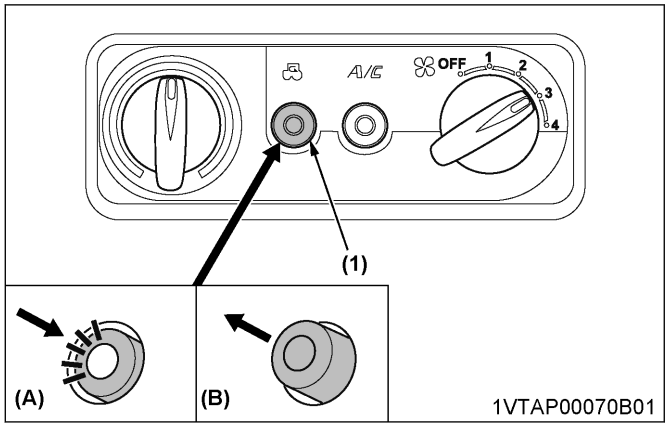
NOTE :
- **With the blower switch at the [OFF] position, the indicator light will not light up even when the air-conditioner-switch is set to *"ON"***

IMPORTANT :
- **To operate the air conditioner after the tractor has not been used for one week or longer, run the engine at idling speed first and then set the air-conditioner-switch to *"ON"*. Keep this for one minute or so.**
  If the air-conditioner-switch is set to *"ON"* with the engine running at high rpm, the compressor may get in trouble.

Recirculation / fresh air selection switch
Each time the switch is pressed, the air flow position changes for *"RECIRCULATION"* or *"FRESH AIR"*. An indicator light will light up when the switch is set to *"RECIRCULATION"*. And the indicator light will be off when the switch is set to *"RECIRCULATION"*.

FRESH AIR: (Indicator: OFF)
Fresh air will flow into the CAB.
This is helpful when you work in dusty conditions or if the glass windows get foggy.

RECIRCULATION: (Indicator: ON)
In-CAB air will be recirculated.
This is useful for cooling or heating the CAB quickly or keeping it extra cool or warm.



(1) Recirculation / fresh air selection switch with indicator light
(A) Recirculation
(B) Fresh air

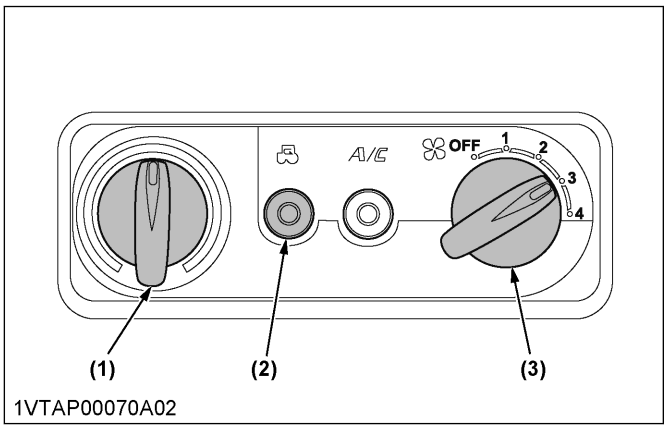
NOTE :
- **When heating, do not keep the switch at the *"RECIRCULATION"* position for a long time. The windshield easily gets foggy.**
- **While working in a dusty conditions, keep the switch at the *"FRESH AIR"* position. This increases the pressure in the CAB, which helps prevent dust from coming into the CAB.**

4. Operation of the air conditioner

4.1 Heating

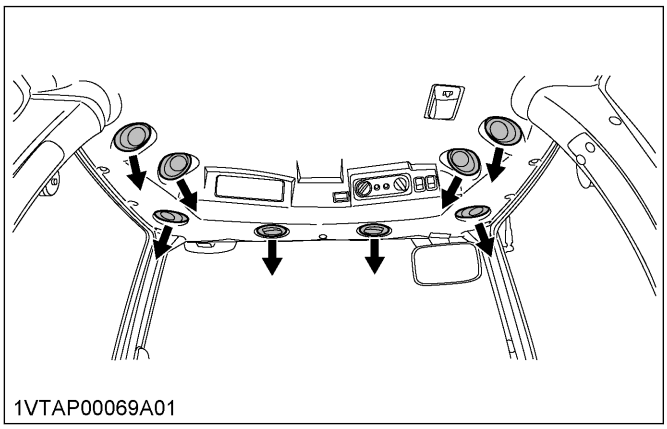
1. Set the recirculation / fresh air selection switch to the *"FRESH AIR"* position. To raise the temperature in the CAB quickly, set this switch to the *"RECIRCULATION"* position.

2. Adjust the blower switch and the temperature-control-dial to achieve a comfortable temperature level.



1VTAP00070A02

(1) Temperature control dial
(2) Recirculation / fresh air selection switch with indicator light
(3) Blower switch

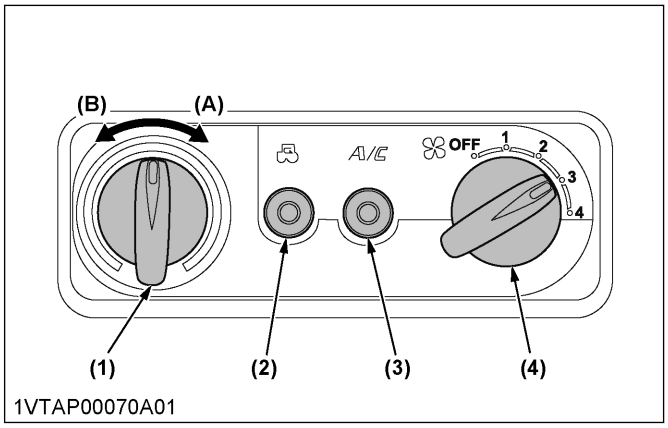

1VTAP00069A01

4.2 Cooling or dehumidifying-heating

1. Set the recirculation / fresh air selection switch to the *"FRESH AIR"* position. To lower the temperature in the CAB quickly, set this switch to the *"RECIRCULATION"* position.
2. Press and turn on the air-conditioner-switch with indicator.
3. Turn on the blower switch.
4. Adjust the temperature-control-dial to the *"COOL"* or an intermediate position to achieve a comfortable temperature level.

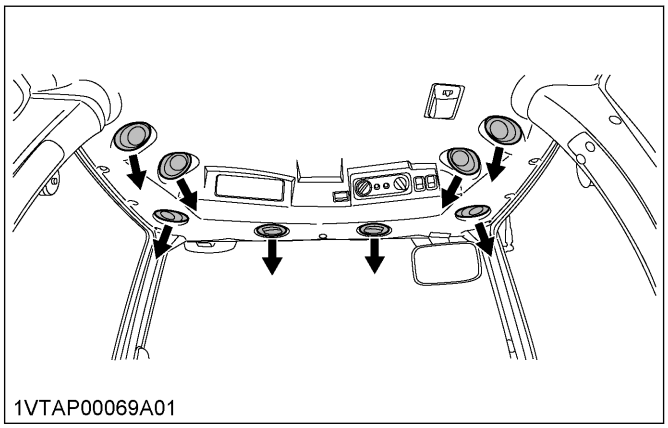
NOTE :

- **In summer when the heater is not used, keep the temperature-control-dial at the max *"COOL"* (end of counterclockwise) position. Otherwise, hot air will raise the temperature in the CAB.**



1VTAP00070A01

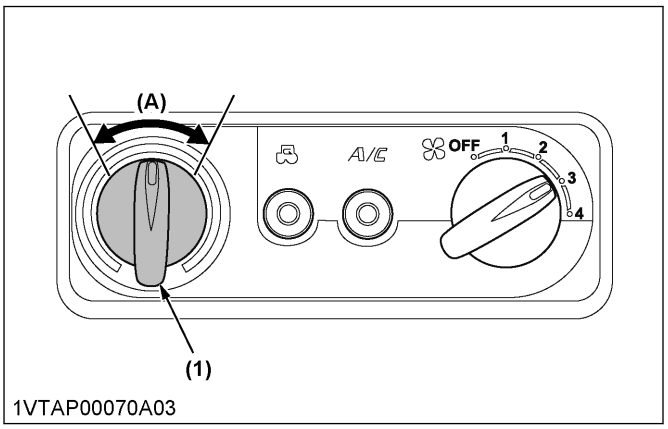
(1) Temperature control dial
(2) Recirculation / fresh air selection switch with indicator light
(3) Air conditioner switch with indicator light
(4) Blower switch
(A) Warm
(B) Cool


1VTAP00069A01

4.3 Foot warming and head cooling

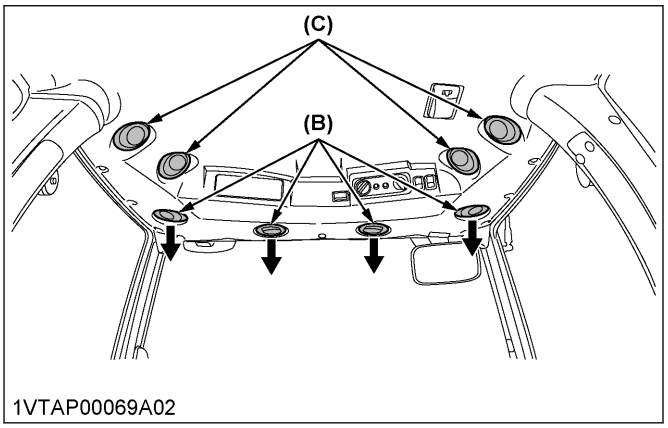
1. In the cooling or dehumidifying-heating mode, set the temperature-control-dial at the center position area.

2. Open the front air outlet and the door-air-outlet, and direct them to your feet. Close the side air outlet. You can feel your head cool and your feet warm.



1VTAP00070A03

(1) Temperature control dial *(A) Center position area*



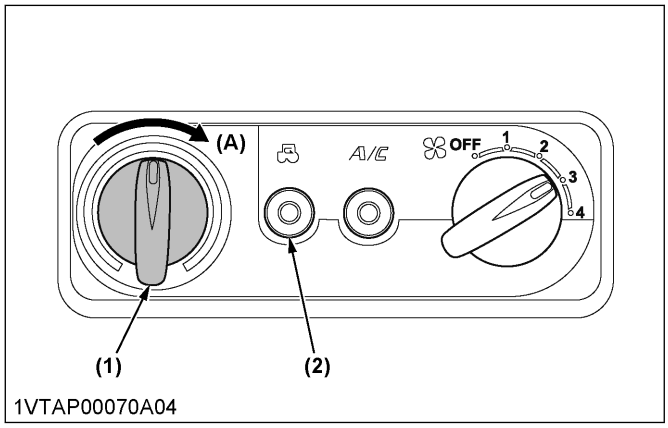
1VTAP00069A02

(B) Open *(C) Closed*

4.4 Defrosting or demisting

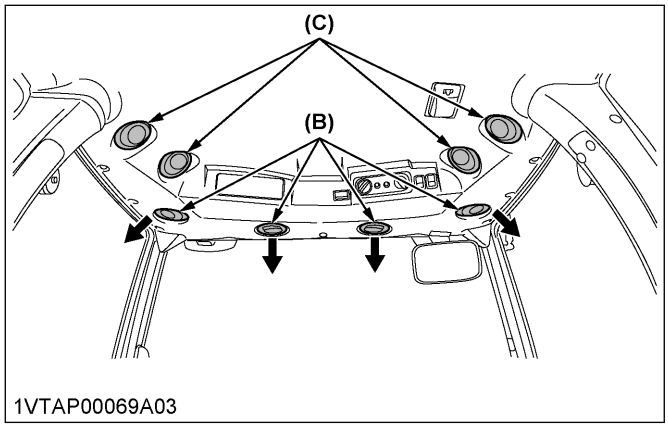
To defrost or demist the windshield, take the following steps.

1. Open the front air outlet and the door-air-outlet, and direct them to the windshield. Close the side air outlet.
2. Set the recirculation / fresh air selection switch to the *"FRESH AIR"* position.
3. Set the blower switch to the **[4]** and the temperature-control-dial to max *"WARM"* (end of clockwise) positions, respectively.



1VTAP00070A04

(1) Temperature control dial *(A) Warm*
(2) Recirculation / fresh air selection switch with indicator light

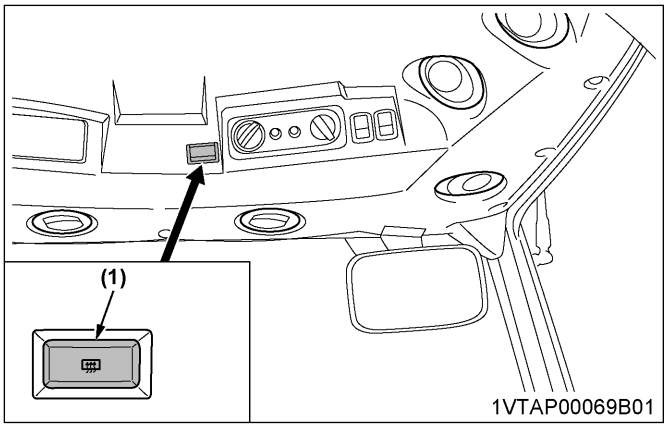


1VTAP00069A03

(B) Open *(C) Closed*

REAR DEFOGGER WITH TIMER (IF EQUIPPED)

1. To activate the rear window defoggers, press the switch marked ⫿⫿⫿ while the key switch is in the *"ON"* position.
   Then, the yellow light on the switch turns on.
   After about 15 minutes, the defoggers automatically turn off as well as the yellow light.
2. To turn the defogger off, press the switch once more.



(1) Defogger switch

IMPORTANT :

- **The battery could be drained if the defogger and the key switch remain in the *"ON"* or *"ACC"* positions with the engine stopped or during low rpm idling.**
  Always use the defogger with the engine running and avoid low rpm idling for an extended period of time.

MAINTENANCE

SERVICE INTERVALS

No.	Items			Indication on hour meter														Interval	Ref. page		
				50	100	150	200	250	300	350	400	450	500	550	600	650	700				
1	Engine start system	[Manual transmission]	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hrs	133		
		[HST]																	134		
2	Wheel bolt torque		Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hrs	135		
3	Greasing	[2WD]	-	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hrs	132		
		[4WD]																	133		
4	Battery condition		Check		○		○		○		○		○		○		○	every 100 Hrs	137	*1	
5	Fan belt		Adjust		○		○		○		○		○		○		○	every 100 Hrs	136		
6	Brake		Adjust		○		○		○		○		○		○		○	every 100 Hrs	137		
7	Clutch [Manual transmission]		Adjust	◎	○		○		○		○		○		○		○	every 100 Hrs	136		
8	Air cleaner element	Primary element	Clean		○		○		○		○		○		○		○	every 100 Hrs	135	*2	@
			Replace															every 1000 Hrs or 1 Year	147	*3	
		Secondary element	Replace															every 1000 Hrs or 1 Year	147	*3	
9	Toe-in		Adjust				○				○				○			every 200 Hrs	139		
10	Engine oil		Change	◎							○							every 400 Hrs or 1 year	142	*4	
11	Engine oil filter		Replace	◎							○							every 400 Hrs	142		
12	Transmission oil filter [HST]		Replace	◎							○							every 400 Hrs	143		
13	Water separator		Clean								○							every 400 Hrs	145		
14	Fuel filter		Replace								○							every 400 Hrs	145		@
15	Hydraulic oil filter	[HST]	Replace	◎							○							every 400 Hrs	144		
		[Except HST]	Replace								○							every 400 Hrs	144		
16	Transmission fluid		Change								○							every 400 Hrs	144		
17	Greasing (2WD front wheel hub)		-								○							every 400 Hrs	146		
18	Front axle pivot		Adjust												○			every 600 Hrs	146		
19	Front axle case oil [4WD]		Change															every 800 Hrs	146		
20	Engine valve clearance		Adjust															every 800 Hrs	147	*5	
21	Exhaust manifold		Check															every 1000 Hrs or 1 year	147	*3, *5	
22	Fuel injector nozzle tip		Clean															every 1500 Hrs	147	*5	@
23	Oil separator element		Replace															every 1500 Hrs	147		@
24	PCV (positive crankcase ventilation) valve (Oil separator)		Check															every 1500 Hrs	148	*5	@

(Continued)

No.	Items		Indication on hour meter														Interval	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
25	EGR cooler	Check and clean															every 1500 Hrs	148	*5	@
26	Cooling system	Flush															every 2000 Hrs or 2 years	148	*6	
27	Coolant	Change															every 2000 Hrs or 2 years	148	*6	
28	EGR system	Check and clean															every 3000 Hrs	150	*5	@
29	Supply pump	Check															every 3000 Hrs	150	*5	
30	DPF muffler	Clean															every 3000 Hrs	150	*5	@
31	Turbo charger	Check															every 3000 Hrs	150	*5	@
32	Power steering line	Check															every 1 year	151	*7	
		Check															every 2 years	153	*5	
33	Oil cooler line [HST]	Check															every 1 year	152	*7	
		Check															every 2 years	153	*5	
34	Radiator hose and clamp	Check															every 1 year	151	*7	
		Check															every 2 years	153	*5	
35	Oil separator hose	Check															every 1 year	152	*7	
		Check															every 2 years	153	*5	
36	Fuel line	Check															every 1 year	150	*7	
		Replace															every 4 years	153	*5, *7	@
37	Intake air line	Check															every 1 year	151	*7	
		Replace															every 4 years	153	*5, *7	@
38	Antifrost heater for oil separator (if equipped)	Check															every 1 year	153	*5	
39	DPF related pipe	Check															every 1 year	153	*5	
40	EGR pipe	Check															every 1 year	153	*5	
41	DPF related rubber pipe	Replace															every 2 years	153	*5	
42	EGR cooler rubber pipe	Replace															every 2 years	153	*5	
43	Fuel system	Bleed															Service as required	153		
44	Clutch housing water	Drain																155		
45	Fuse	Replace																155		
46	Light bulb	Replace																157		
47	Fuel line	Replace																158	*7	
48	Radiator hose and clamp	Replace																158	*7	
49	Intake air line	Replace																158	*7	
50	Power steering line	Replace																158	*7	
51	Oil cooler line [HST]	Replace																158	*7	
52	Oil separator hose	Replace																158	*7	

IMPORTANT :

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

Please refer to the Warranty Statement in detail.

- **When using biodiesel, be sure to check the maintenance requirements of biodiesel fuel because the intervals will change in some of the items.**

*1 When the battery is used for less than 100 hours per year, check the battery condition by reading the indicator annually.
*2 Clean the air cleaner more often in dusty conditions than in normal conditions.
*3 Every 1000 hours or every 1 year, whichever comes first.
*4 Every 400 hours or every 1 year, whichever comes first.
*5 Consult your local KUBOTA Dealer for this service.
*6 Every 2000 hours or every 2 years, whichever comes first.
*7 Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred.

SERVICE INTERVALS (ONLY THE CHECK POINTS FOR TRACTORS WITH CAB)

No.	Items		Daily	Indication on hour meter								Interval	Ref. page
				100	200	300	400	500	600	700	800		
1	Clogging of air conditioner condenser screen	Clean	○										130
2	Tension of air conditioner drive belt	Adjust			○		○		○		○	every 200 Hrs	141
3	Clogging of inner air filter	Clean			○		○		○		○	every 200 Hrs	140
4	Clogging of fresh air filter	Clean			○		○		○		○	every 200 Hrs	141
5	Clogging of air conditioner condenser	Check			○		○		○		○	every 200 Hrs	141
6	CAB isolation cushions	Check										every 1 year	153
7	Clutch wire [Manual transmission]	Check										every 1 year	153
8	Air conditioner pipes and hoses	Check										every 1 year	153
		Check										every 2 years	153
9	Washer liquid	Check										service as required	159
10	Amount of refrigerant (gas)	Check										service as required	159
11	Air conditioner pipes and hoses	Replace										service as required	153

LUBRICANTS, FUEL, AND COOLANT

Lubricants, fuel, and coolant table

Locations		Capacities	Lubricants	
		MX4900 / MX5400 / MX6000		
Fuel	ROPS	51.0 L (13.5 U.S.gals.)	No. 2-D S15 diesel fuel No. 1-D S15 diesel fuel (If temperature is below -10 ℃ (14 ℉))	
	CAB	45.0 L (11.9 U.S.gals.)		
Coolant		6.8 L (7.2 U.S.qts.)	Fresh clean soft water with antifreeze	
Engine crankcase with filter		7.0 L (7.4 U.S.qts.)	For the engine oil, see the following *Engine oil*.	CJ-4 (DPF type engine)
			Above 25 ℃ (77 ℉)	SAE30, SAE10W-30, or 15W-40
			-10 ℃ to +25 ℃ (14 ℉ to 77 ℉)	SAE20, SAE10W-30, or 15W-40
			Below -10 ℃ (14 ℉)	SAE10W-30
Transmission case		44.0 L (11.6 U.S. gals.)	KUBOTA SUPER UDT-2 fluid	
Front axle case [4WD]		8.5 L (8.9 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
	MX4900 / MX5400 / MX6000		
Front wheel hub [2WD only]	2	Moderate amount	Multipurpose Grease NLGI-2 or NLGI-1 (GC-LB)
Knuckle shaft [2WD only]	2	Until grease overflows.	
Front wheel case support [4WD only]	2		
Front axle support [4WD only]	2		
Top link	2		
Top link bracket (with draft control (if equipped))	2		
Lift rod	1		
Battery terminals	2	Moderate amount	

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 the oil in the engine with an American-petroleum-institute (API) service classification and proper SAE engine oil according to the ambient temperatures as shown in the preceding *lubricants, fuel, and coolant table*.
- See the following table for the suitable API classification engine oil according to the engine type with DPF (diesel-particulate-filter) type engines and the fuel.

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

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

- Diesel fuels specified to EN 590 or ASTM D975 are recommended.
- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service (SAE J313 JUN87).

Transmission oil

- **KUBOTA Super UDT-2**
  For an enhanced ownership experience, we highly recommend Super UDT-2 to be used instead of standard hydraulic/transmission fluid.
  Super UDT-2 is a proprietary KUBOTA formulation that delivers superior performance and protection in all operating conditions.
  Regular UDT is also permitted for use in this machine.
- Indicated capacities of water and oil are manufacturer's estimate.

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 problems 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 hrs	
Fuel line	Check	Every 6 months	Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred.

(Continued)

Items		Interval	Remarks
Fuel line	Replace	Every 2 years	Consult your local KUBOTA Dealer for this service.

Long Term Storage:

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

PERIODIC SERVICE

WARNING

To avoid personal injury or death:

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

WASTE DISPOSAL

The improper disposal or burning of waste causes environmental pollution and can be punishable by your local laws and regulations.

- When draining fluids from the tractor, place a container underneath the drain port.
- Do not pour waste onto the ground, down a drain, or into any water source (such as rivers, streams, lakes, marshes, seas, and oceans).
- Waste products such as used oil, fuel, coolant, hydraulic fluid, urea aqueous solution (DEF/AdBlue®), refrigerant, solvent, filters, rubber, batteries, and harmful substances, can harm the environment, people, pets, and wildlife.
  Please dispose properly.
  See your local recycling center or KUBOTA Dealer to learn how to recycle or get rid of waste products.

HOOD AND ENGINE SIDE COVER

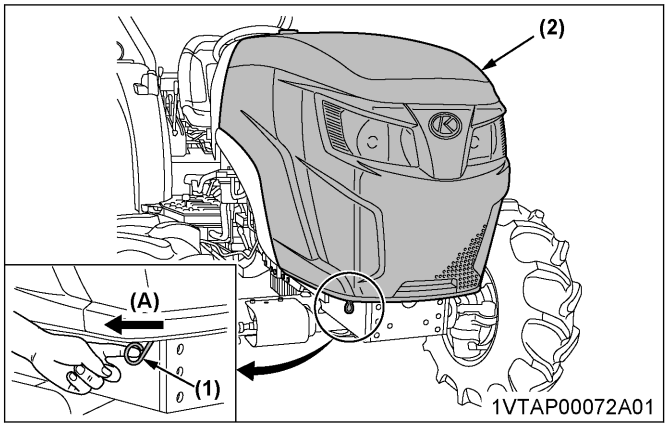
WARNING

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

- **Never open the hood or the engine side cover while the engine is running.**
- **Do not touch the muffler or the exhaust pipes while they are hot. Touching the hot muffler or the exhaust pipes could cause severe burns.**
- **Hold the hood with other hand while unlocking the release lever.**

1. Opening the hood

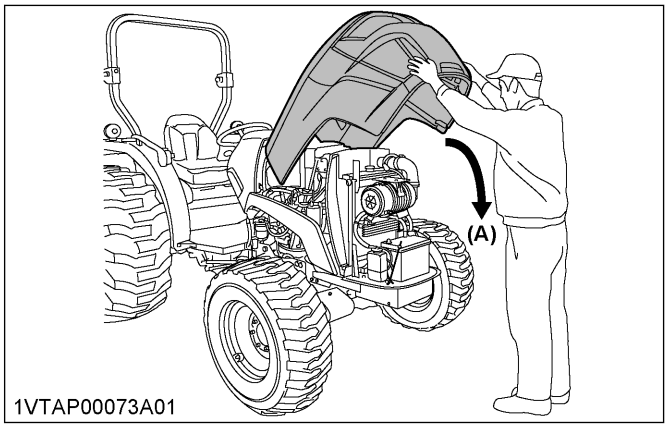
1. Hold the hood and pull the release lever.
2. Open the hood.



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

NOTE :

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

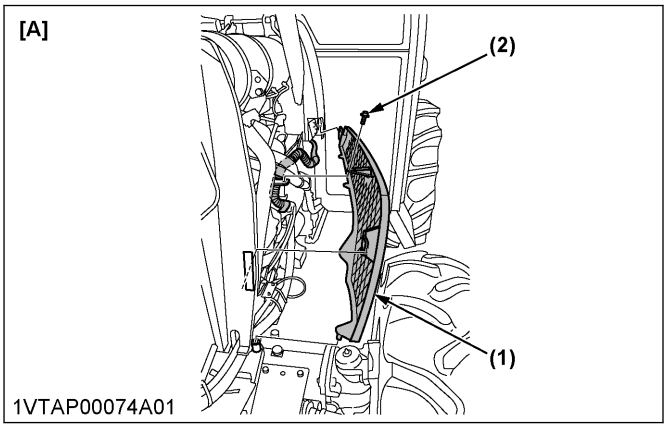


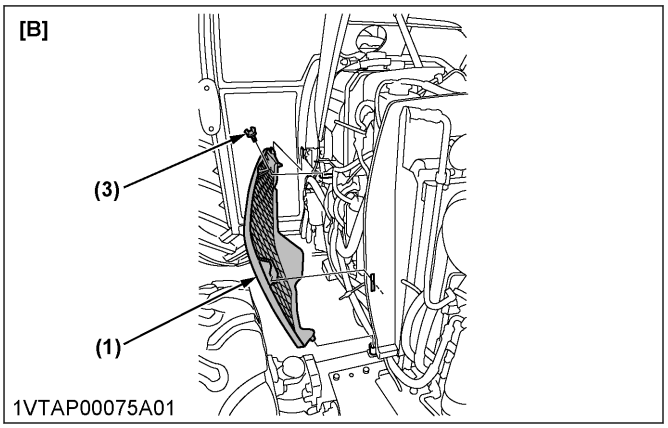
(A) Push

2. Opening the engine side cover

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

2. Detach the engine-side-covers.





(1) Engine side cover *[A] LH*
(2) Bolt *[B] RH*
(3) Wing bolt

NOTE :
- **With the left-hand engine-side-cover detached, remember to undo the wire-harness-clips. Before attaching the left-hand engine-side-cover, redo these wire-harness-clips first.**

To attach the engine-side-covers, follow the following procedure.
1. Insert the bottom pin of each of the engine-side-covers without pinching harness.
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 precautions when checking the tractor.
- **Park the machine on firm and level ground.**
- **Set the parking brake.**
- **Lower the implement to the ground.**
- **Release all residual pressure from the hydraulic system.**
- **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

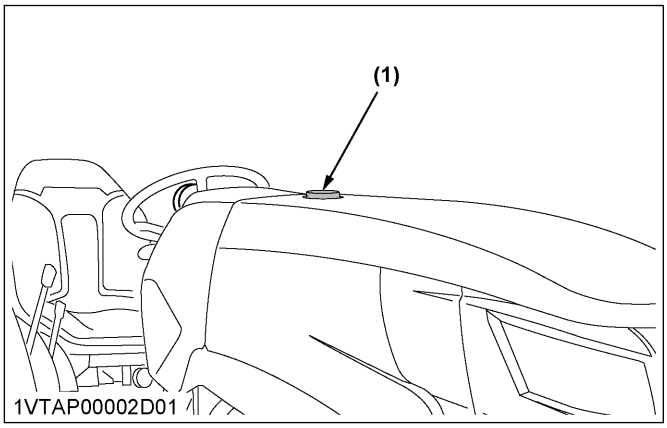
⚠ WARNING
To avoid personal injury or death:
- **Never use fire.**
- **Do not smoke while refueling.**
- **Be sure to stop the engine and remove the starter key before refueling.**
- **Be sure to close the fuel-tank-cap after refueling.**
- **Use properly grounded fueling systems. Make sure that there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

To avoid allergic skin reaction:
- **Wash hands immediately after contact with diesel fuel.**

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

1. Turn the key switch to *"ON"* and check the amount of fuel by fuel gauge.

2. Fill the fuel tank when the fuel gauge shows 1/4 or less fuel in tank.



(1) Fuel tank cap

Fuel tank capacity	[ROPS]	51 L (13.5 U.S.gals.)
	[CAB]	45 L (11.9 U.S.gals.)

3. Checking antifrost heater for oil separator (if equipped)

⚠ WARNING

To avoid personal injury or death:

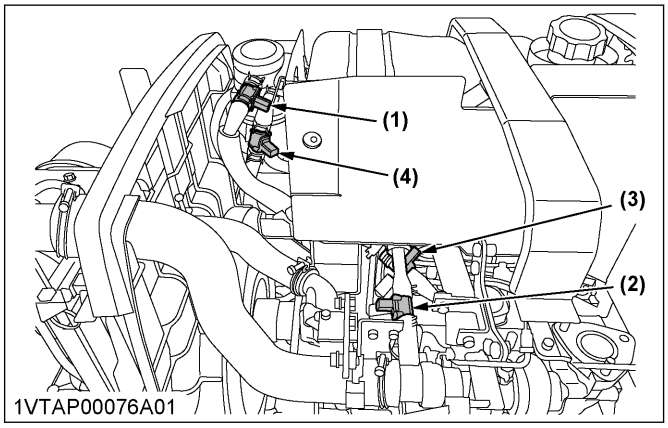
- **Because there are rotating parts like the fan, and so on, near the inspection position, keep the engine off during inspection.**

When operating tractors with antifrost heaters for oil separator in cold regions (below the freezing point (0 ℃)), carry out inspection by using the procedure in this section 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 as follows, so you will be able to feel its warmth.

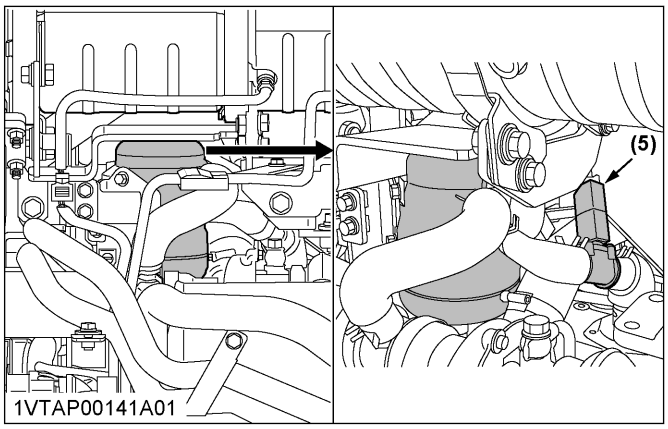
Heater temperature	70 ℃

[ROPS type]



(1) Heater (oil separator) (out1)
(2) Heater (oil separator) (out2)
(3) Heater (oil separator) (in1)
(4) Heater (oil separator) (in2)

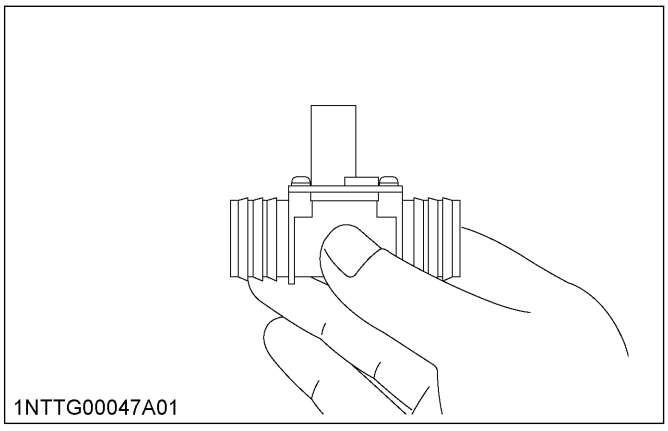
[CAB type]



(5) Heater (oil separator) (in)

IMPORTANT :

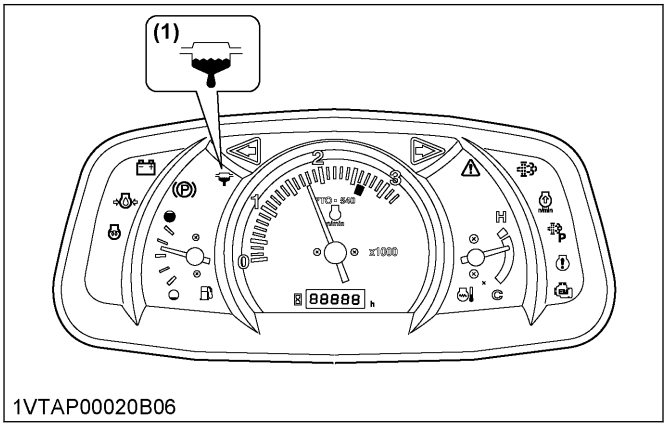
- **See the following figure for the heater inspection position.**



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

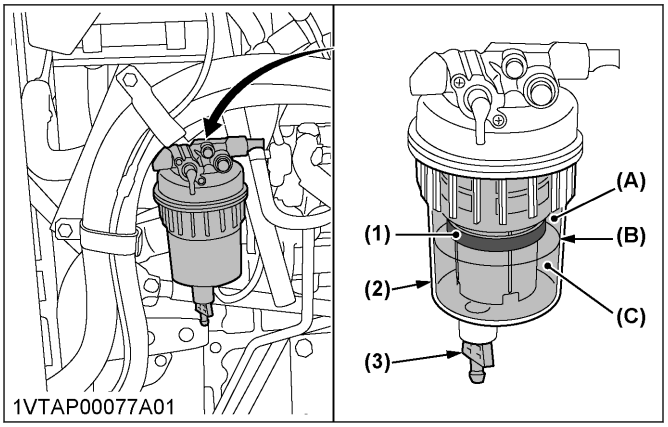
4. Checking the water separator

1. When the water has collected upper limit in the water separator, the water separator indicator on the instrument panel lights up and warning buzzer sounding. In such case, loosen the drain plug by several turns.



(1) Water separator indicator

2. Allow water to drain.
3. When no more water comes out and fuel starts to flow out, retighten the drain plug.
4. Bleed the fuel system.



(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 in the preceding procedure to drain water in the water separator.**

IMPORTANT :

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

5. Checking the engine oil level

⚠ WARNING

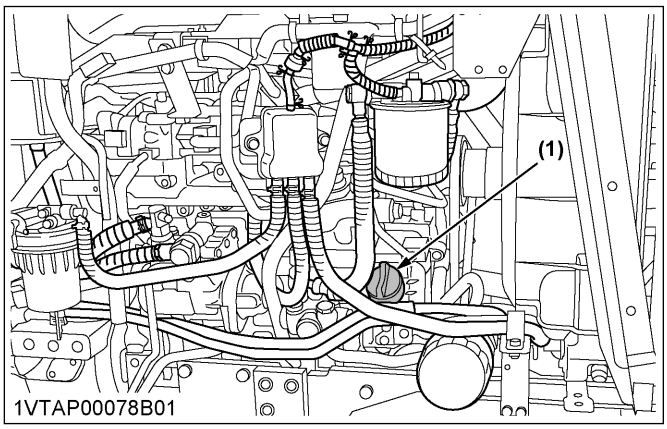
To avoid personal injury or death:

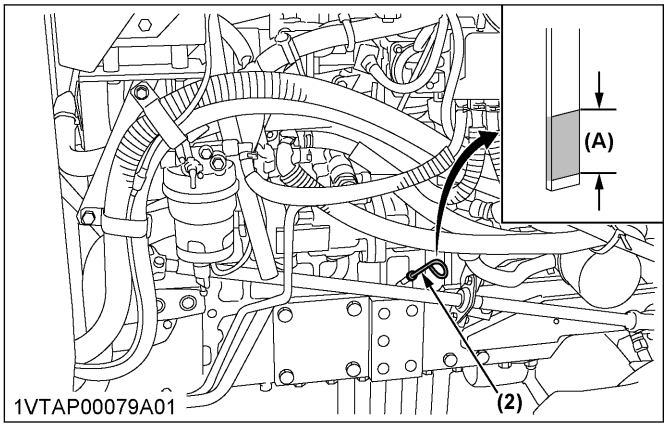
- **Be sure to stop the engine and remove the starter key before checking the engine-oil-level.**

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

1. Park the machine on a flat surface.
2. To check the engine-oil-level, draw out the dipstick.
3. Wipe the dipstick clean.
4. Replace the dipstick.
5. Draw the dipstick out again.
6. Check to see that the engine-oil-level lies between the 2 notches.

7. If the engine-oil-level is too low, add new engine oil to the prescribed level at the oil inlet.
   (See LUBRICANTS, FUEL, AND COOLANT on page 120)





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

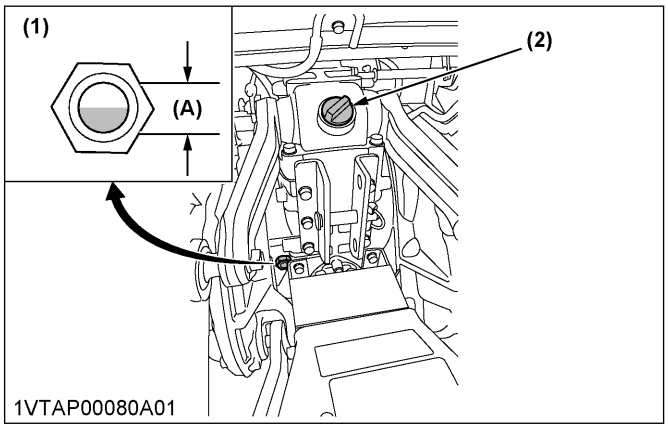
IMPORTANT :
- **When using an engine oil of different maker or viscosity from the previous one, remove all of the old engine oil.**
  Never mix 2 different types of engine oil.
- **If the engine-oil-level is low, do not run the engine.**

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.**

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



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

5. If the transmission-fluid-level is too low, add new transmission fluid to the prescribed level at the oil inlet.
   (See LUBRICANTS, FUEL, AND COOLANT on page 120)

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

7. Checking the coolant level

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

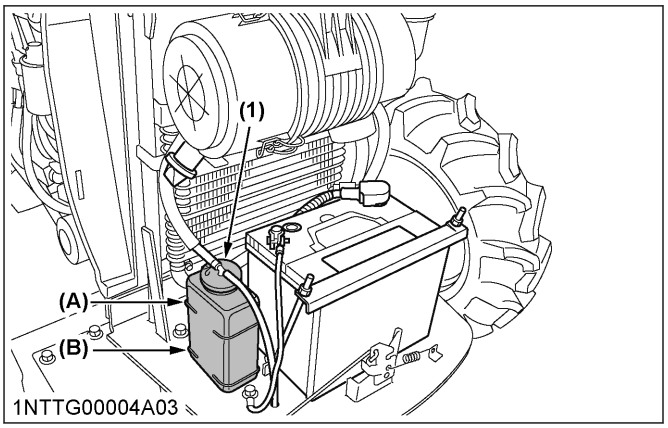
1. Check to see that the coolant level is between the *"FULL"* and the *"LOW"* marks of the recovery tank.

2. When the coolant level drops due to evaporation, add soft water only up to the full level.
   In case of leakage, add antifreeze and soft water in the specified mixing ratio up to the full level.
   (See Flushing the cooling system and changing the coolant on page 148)

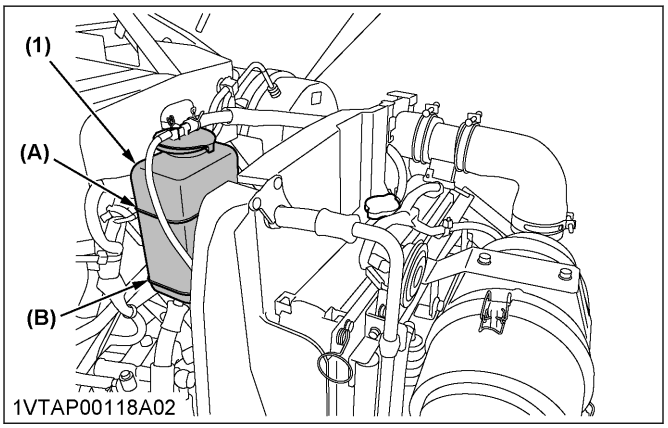
   IMPORTANT :
   - **Use clean, fresh soft water and antifreeze to fill the radiator.**
   - **If coolant should leak, consult your local KUBOTA Dealer.**

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

[ROPS type]



[CAB type]

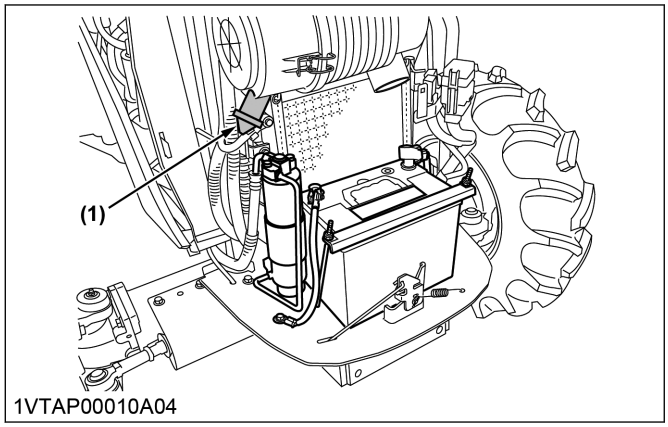


(1) Recovery tank
(A) Full
(B) Low

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

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

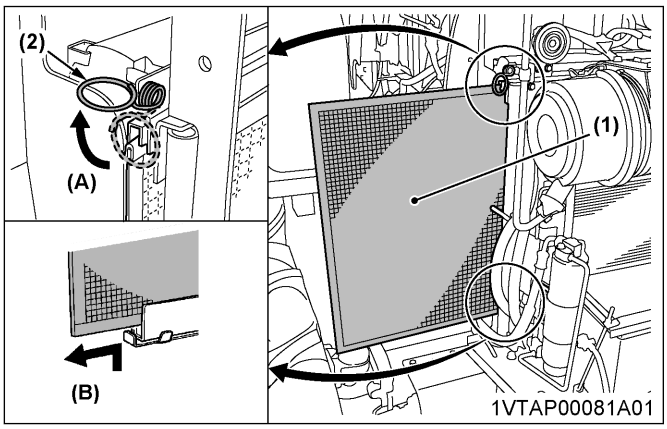
9. Cleaning the grill and the radiator screen

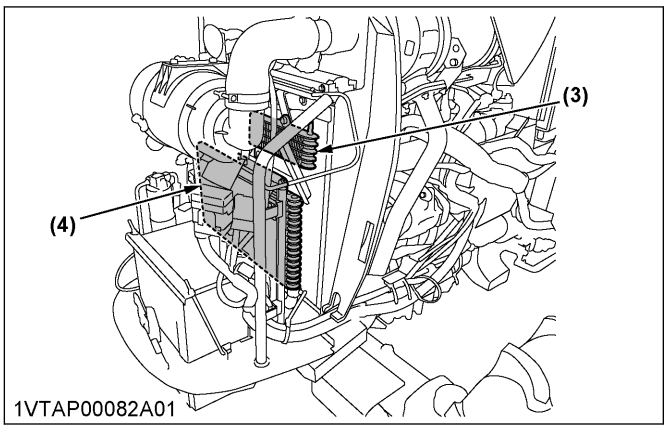
⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine before removing the radiator screen.**
- **Before checking or cleaning the radiator screen, stop the engine and wait until it is cooled down enough.**

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

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

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





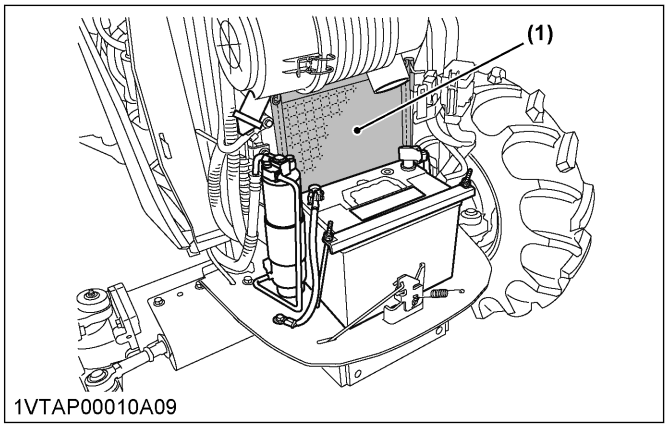
(1) Radiator screen
(2) Fixed spring
(3) Fuel cooler
(4) Oil cooler [HST type]
(A) Hold up
(B) Detach

10. Cleaning the air conditioner condenser screen [CAB type]

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine before removing the air-conditioner-condenser-screen.**
- **The condenser and receiver become hot while the air conditioner is running. Before checking or cleaning the condenser and receiver, wait until they cool down.**

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

1. Detach the air-conditioner-condenser-screen and remove all foreign materials.

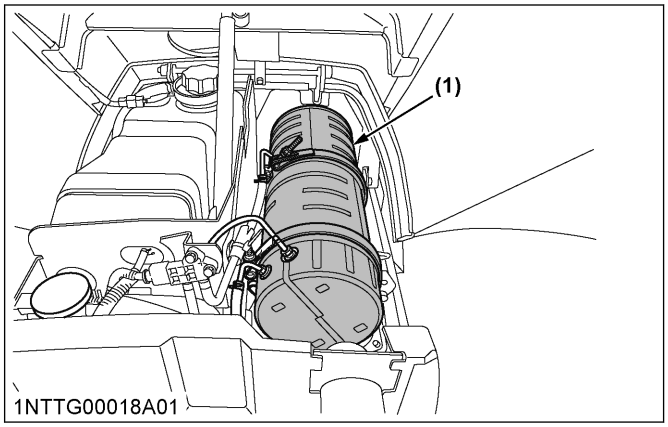


(1) Air conditioner condenser screen

11. 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.
   Otherwise a fire may result.



(1) DPF muffler

12. Checking the brake pedals and the clutch pedal [Manual transmission type]

⚠ WARNING
To avoid personal injury or death:
- **For CAB type, check that the clutch pedal can be operated smoothly.**
  If you experience issues with smooth operation, such as getting stuck when releasing the clutch

pedal, consult your local KUBOTA Dealer to check whether the clutch wire is damaged.
- **Make sure that both brake pedals are equally adjusted when locked together. Incorrect or unequal adjustments of brake pedals can cause the tractor to swerve or roll-over.**

1. Inspect the brake pedals and the clutch pedal for free travel and smooth operation.
2. Adjust the brake pedals or the clutch pedal if incorrect measurement is found.
   (See Adjusting the brake pedal on page 137 and Adjusting the clutch pedal [Manual transmission type only] on page 136)

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

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

[CAB type]

IMPORTANT :
- **Keep the clutch pedal free travel within proper limit. Otherwise the clutch wire may be damaged.**

13. Checking the brake pedal [HST type]

WARNING

To avoid personal injury or death:
- **Make sure that the brake pedals are equally adjusted when locked together. Incorrect or unequal adjustments of brake pedals can cause the tractor to swerve or roll-over.**

1. Inspect the brake pedal for free travel and smooth operation.
2. Adjust the brake pedals if incorrect measurement is found.
   (See Adjusting the brake pedal on page 137)

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

14. 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.

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

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

16. 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.

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

- 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.

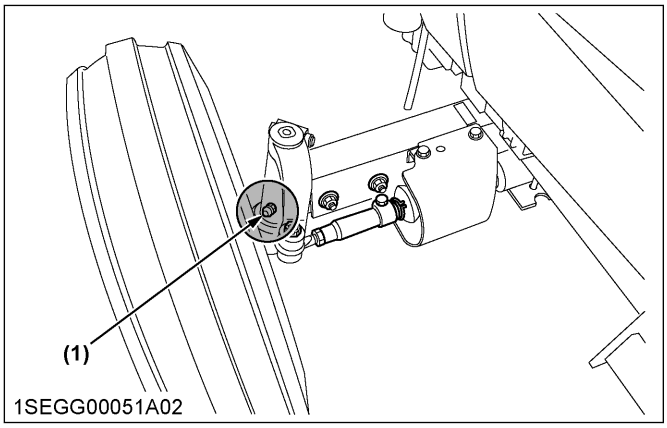
18. Checking the movable parts

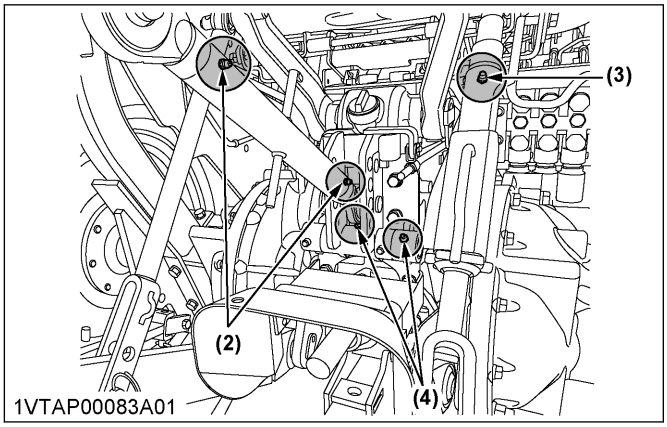
1. If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or sticky material, remove the rust or the sticky material, and apply oil or grease on the relevant spot.
   Do not force the movable parts into motion. Otherwise, the machine may get damaged.

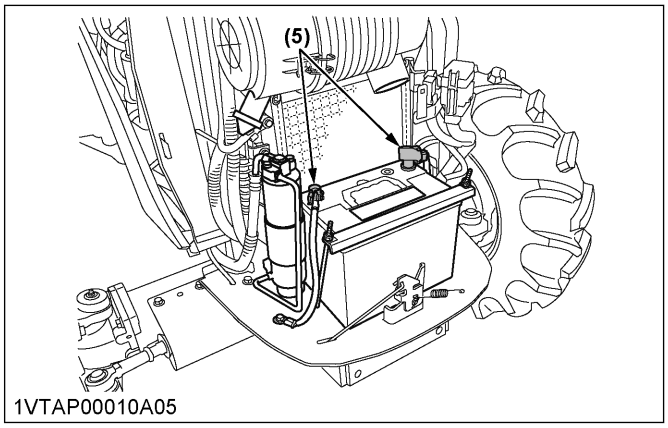
SERVICE EVERY 50 HOURS

1. Lubricating the grease fittings [2WD]

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



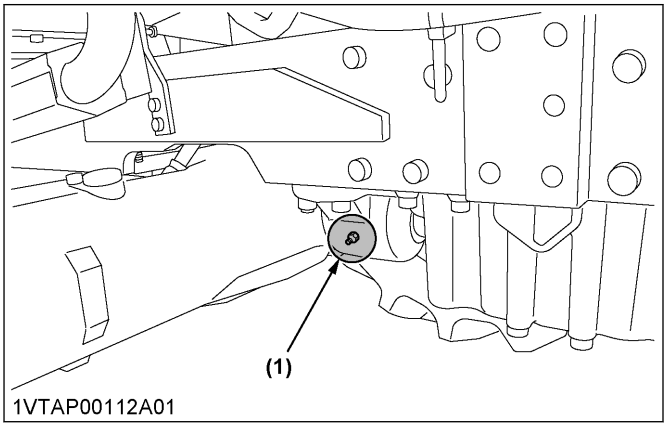


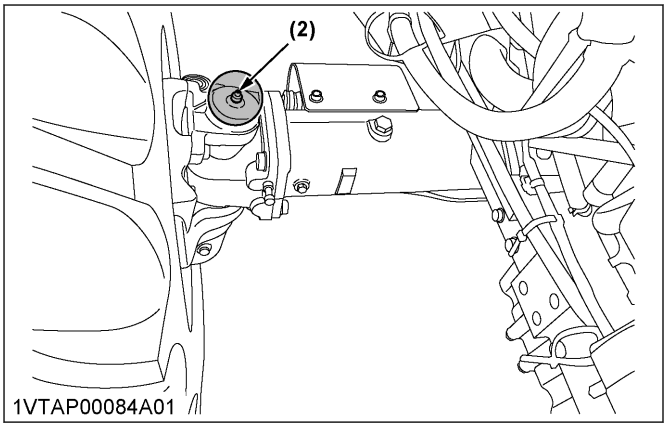


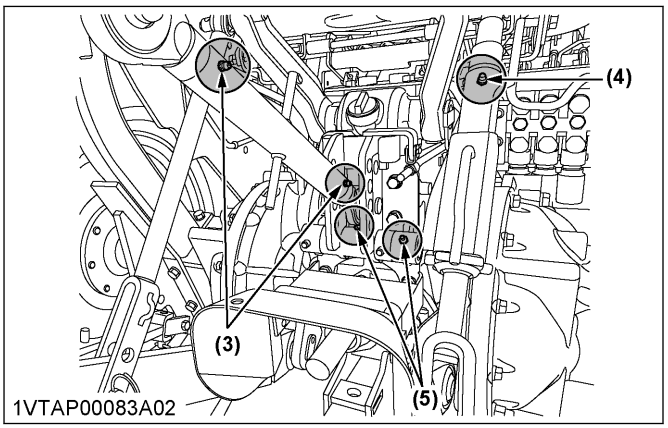
(1) Grease fitting (knuckle shaft) [RH, LH]
(2) Grease fitting (top link)
(3) Grease fitting (lifting rod) [RH]
(4) Grease fitting (top link bracket with draft control)(if equipped)
(5) Battery terminals

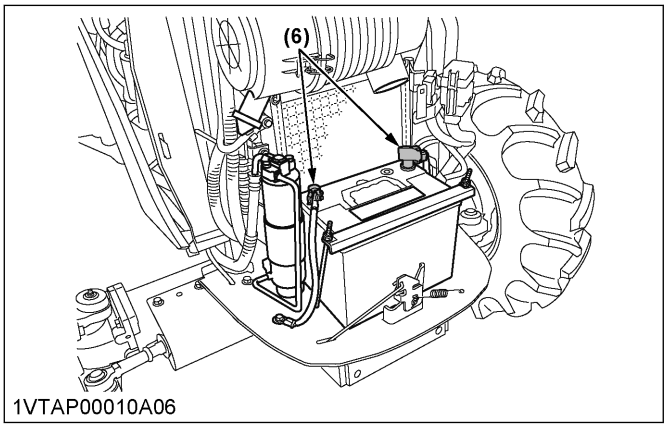
2. Lubricating the grease fittings [4WD]

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



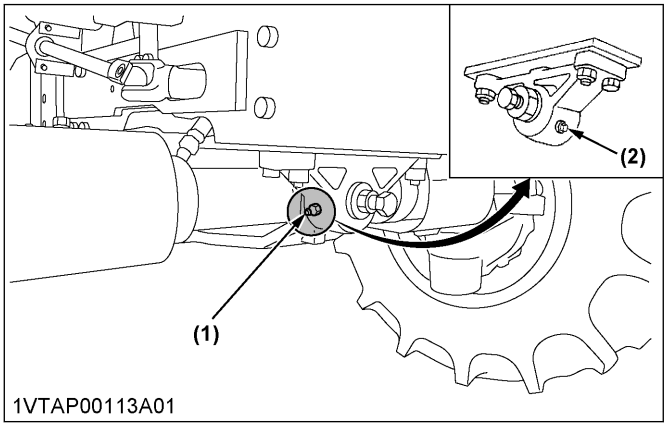






(1) Grease fitting (front axle support)
(2) Grease fitting (front wheel case support) [RH, LH]
(3) Grease fitting (top link)
(4) Grease fitting (lifting rod) [RH]
(5) Grease fitting (top link bracket with draft control)(if equipped)
(6) Battery terminals

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



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

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

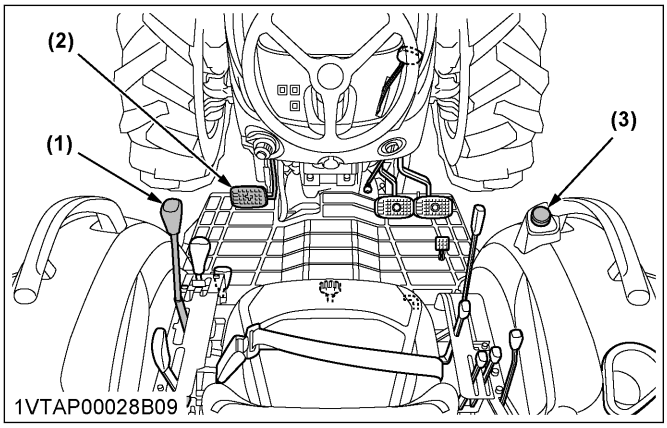
⚠ WARNING

To avoid personal injury or death:

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

Preparation before testing

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



(1) Synchro-shuttle shift lever (3) PTO clutch control switch
(2) Clutch pedal

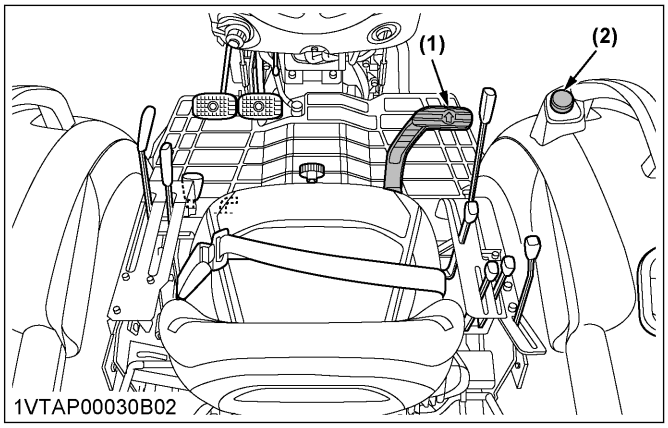
Test of switch for the synchro-shuttle shift lever
1. Sit on the operator's seat.
2. Shift the synchro-shuttle shift lever to the *"FORWARD"* or *"REVERSE"* position.
3. Depress the clutch pedal fully.
4. Disengage the PTO-clutch-control-switch.
5. Turn the starter key to the *"START"* position.
6. Make 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 clutch control switch
1. Sit on the operator's seat.
2. Engage the PTO-clutch-control-switch.
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-clutch-control-switch.

4. Checking the engine start system [HST type]

⚠ WARNING
To avoid personal injury or death:
- **Do not allow anyone near the tractor while testing.**
- **If the tractor does not pass the test, do not operate the tractor.**

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



(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.

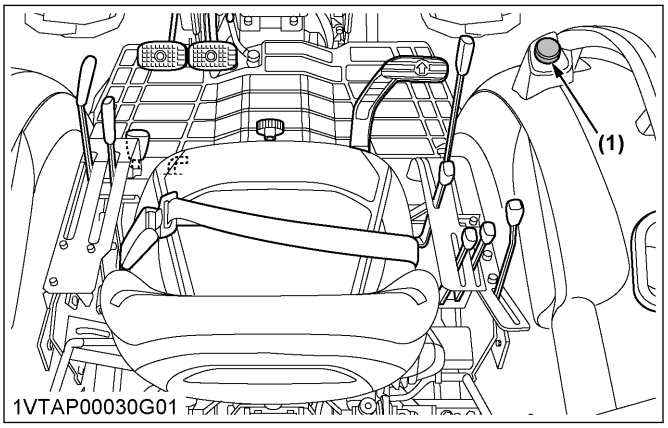
Test of switch for the PTO clutch control switch
1. Sit on the operator's seat.
2. Engage the PTO-clutch-control-switch.
3. Place the speed-control-pedal in the *"NEUTRAL"* position.
4. Turn the starter key to the *"START"* position.
5. Make sure that the engine does not crank.
6. If the engine cranks,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

5. Checking the operator presence control

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

⚠ WARNING
To avoid personal injury or death:
- **Do not allow anyone near the tractor while testing.**
- **If the tractor does not pass the test, do not operate the tractor.**

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



(1) PTO clutch control switch

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

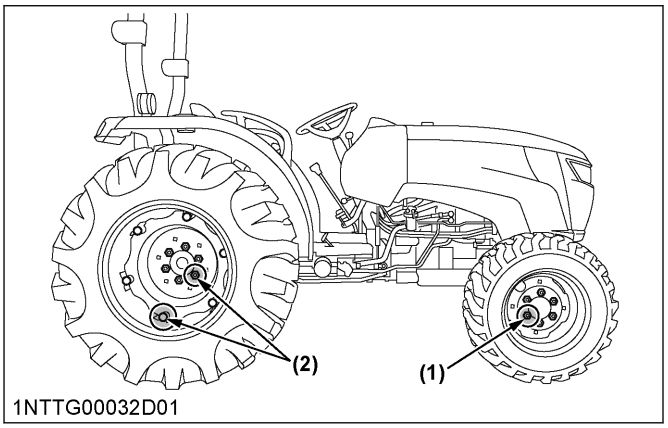
6. Checking the wheel bolt torque

⚠ WARNING

To avoid personal injury or death:

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

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

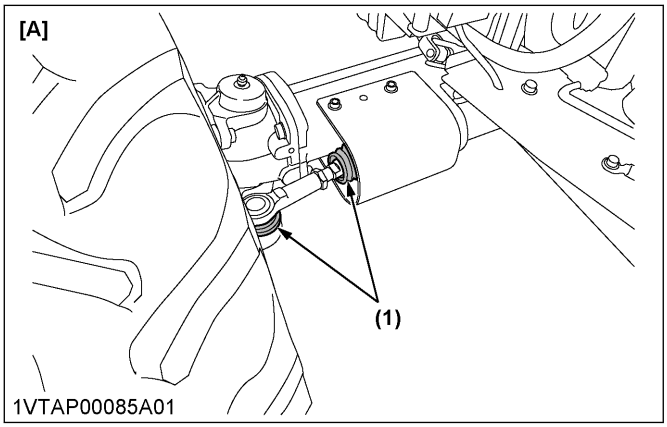


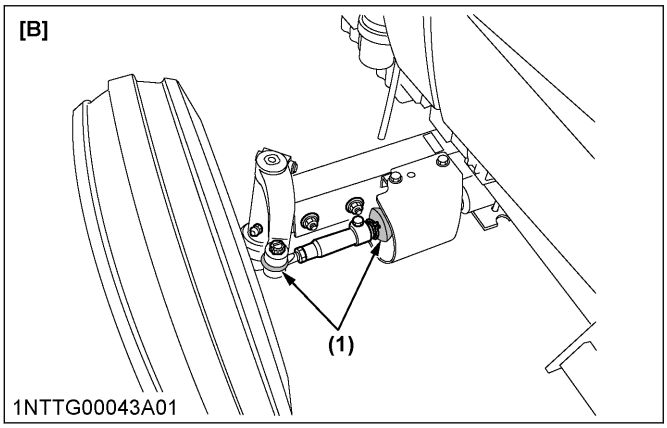
(1) Bolt (front wheel) (2) Bolt (rear wheel)

Bolt (front wheel) (1)	Tightening torque	167.0 N·m to 196.0 N·m (17.0 kgf·m to 20.0 kgf·m) [123.2 lbf·ft to 144.6 lbf·ft]
Bolt (rear wheel) (2)		196.0 N·m to 225.0 N·m (20.0 kgf·m to 23.0 kgf·m) [144.6 lbf·ft to 166.0 lbf·ft]

7. Checking the tie-rod dust cover

1. Check to see that the tie-rod dust covers are not damaged.
2. If tie-rod dust covers are damaged, replace them.





(1) Tie-rod dust cover [A] 4WD [B] 2WD

IMPORTANT :

- **If tie-rod dust covers are cracked, water and dust invade into tie-rod and tie-rod will be early wear.**

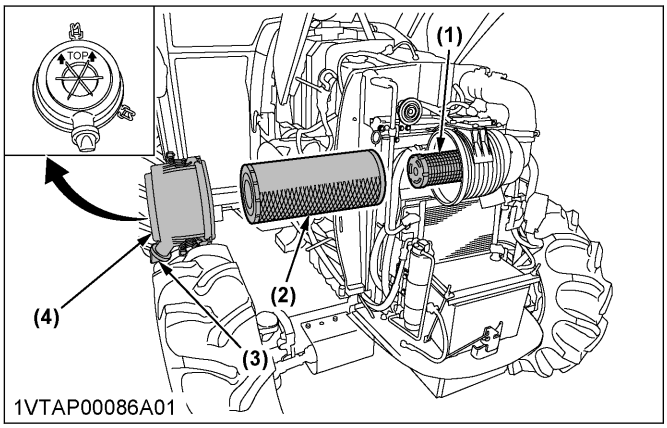
SERVICE EVERY 100 HOURS

1. Cleaning the air cleaner primary element

IMPORTANT :

- **The air cleaner uses a dry element. Never apply oil.**

- **Do not run the engine with the filter element removed.**
- **Do not touch the secondary element except in cases where replacing is required.**
  (See Replacing the air cleaner primary element and secondary element on page 147)



(1) Secondary (safety) element
(2) Primary element
(3) Evacuator valve
(4) Cover

1. Remove the cover of the air cleaner and the primary element.
2. Clean the primary element.
3. When dry dust adheres to the primary element, blow compressed air from the inside, turning the primary 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 primary element, follow the following procedure.
   a. Soak the primary element in detergent for 15 minutes.
   b. Then wash the primary element several times in water.
   c. Rinse the primary element with clean water.
   d. Dry the primary element naturally.
   e. After the primary element is fully dried, inspect the inside of the primary element with a light and check if it is damaged or not.
5. Replace the primary element of the air cleaner.
   Be sure to perform once every 1000 hours or yearly, whichever comes first.

   IMPORTANT :
   - **Be sure to refit the cover with the arrow ⬆ (on the rear of cover) upright. If the cover is improperly fitted, the evacuator valve will not function and dust will adhere to the primary element.**

Evacuator valve

1. Open the evacuator valve once a week under ordinary conditions or daily when used in a dusty place to get rid of large particles of dust and dirt.

NOTE :
- **Check to see if the evacuator valve is blocked with dust.**

2. Adjusting the fan belt tension

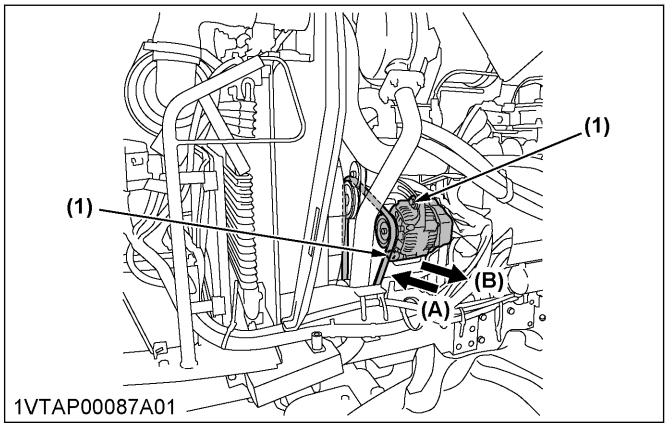
⚠ WARNING

To avoid personal injury or death:
- **Be sure to stop the engine before checking the tension of the fan belt.**

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

Proper fan belt tension	A deflection is 12 mm (0.48 in.) when the fan belt is pressed (68.6 N (7 kgf) [15.4 lbs]) in the middle of the span.

3. If tension of fan belt is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the fan belt falls within the acceptable limits.



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

4. Replace the fan belt if it is damaged.

3. Adjusting the clutch pedal [Manual transmission type only]

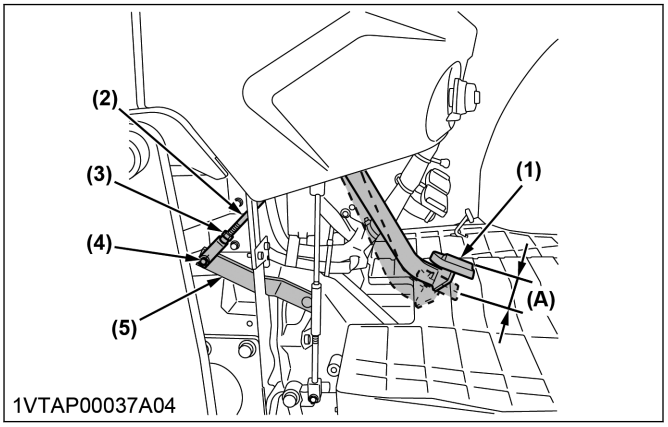
1. Stop the engine and remove the starter key.

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

   NOTE :
   - **The CAB type has the wire system. This means that the force on pedal increases for the free travel range.**

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

3. If adjustment is needed, follow the following procedure.
   a. Loosen the lock nut.
   b. Remove the cotter pin and the joint pin.
   c. Adjust the length of the clutch rod (ROPS type) or clutch wire (CAB type) within acceptable limits.



(1) Clutch pedal
(2) Clutch rod (ROPS type)
Clutch wire (CAB type)
(3) Nut
(4) Cotter pin and joint pin
(5) Clutch lever
(A) Free travel

[CAB type]

IMPORTANT :
- **While the joint pin is removed, do not move the clutch pedal. Otherwise the clutch wire may be damaged.**

4. Retighten the lock nut and split the cotter pin.

4. Adjusting the brake pedal

⚠ WARNING
To avoid personal injury or death:
- **Park on flat ground, stop the engine, and chock the wheels before checking the brake pedal.**
- **To prevent uneven braking, the specification of the brakes must be within the recommended limit.**

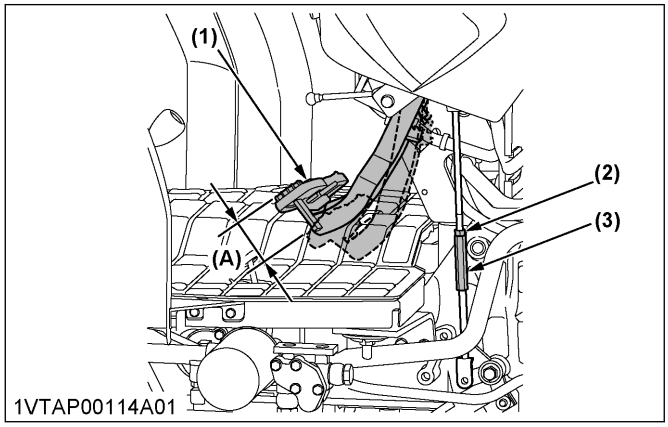
If you find the brakes to be beyond the specification range, contact your local KUBOTA dealer for adjusting the brakes.

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

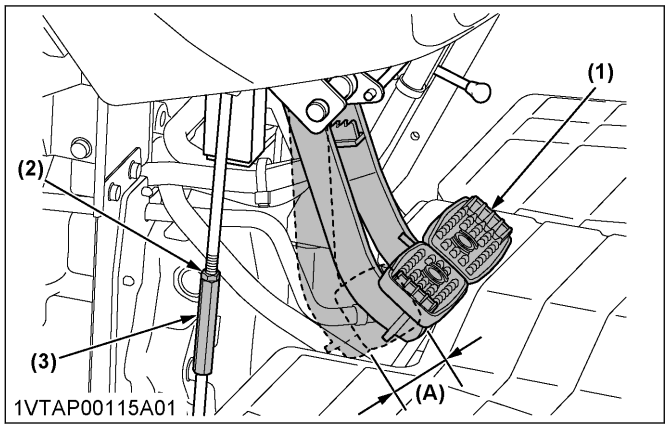
Proper brake pedal free travel	15 mm to 20 mm (0.6 in. to 0.8 in.) on brake pedal. Keep the free travel in the right and left brake pedals equal.

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

[Manual transmission type]



[HST type]



(1) Brake pedal
(2) Lock nut
(3) Turnbuckle
(A) Free travel

5. Checking the battery condition

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

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

⚠ WARNING

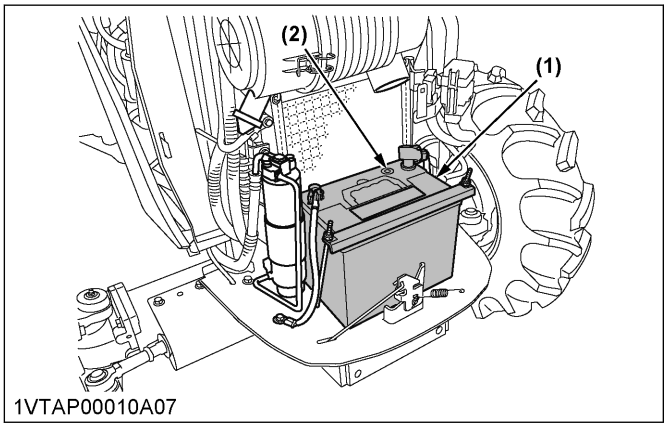
To avoid personal injury or death:

- **Never remove the battery cap while the engine is running.**
- **Keep the electrolyte away from eyes, hands, and clothes. If you are spattered with the electrolyte, wash it away completely with water immediately and get medical attention.**
- **Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.**
- **Wear an eye protection and rubber gloves when working around the battery.**

Mishandling the battery shortens the service life and adds to maintenance costs.
The original battery is maintenance free, but needs some servicing.
If the battery is weak, the engine will be difficult to start and the lights will be dim. It is important to check the battery periodically.

How to read the indicator

1. Check the battery condition by reading the indicator.



(1) Battery *(2) Indicator*

State of indicator display

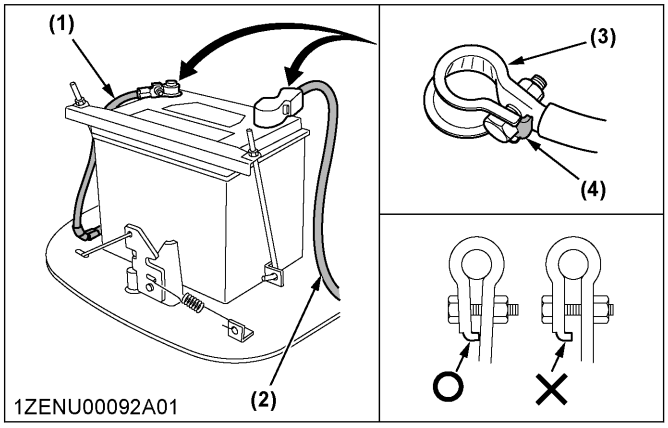
Green	Specific gravity of electrolyte and quality of electrolyte are both in good condition.
Black	Needs charging battery.
White	Needs replacing battery.

NOTE :

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

Checking the battery cable connections

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



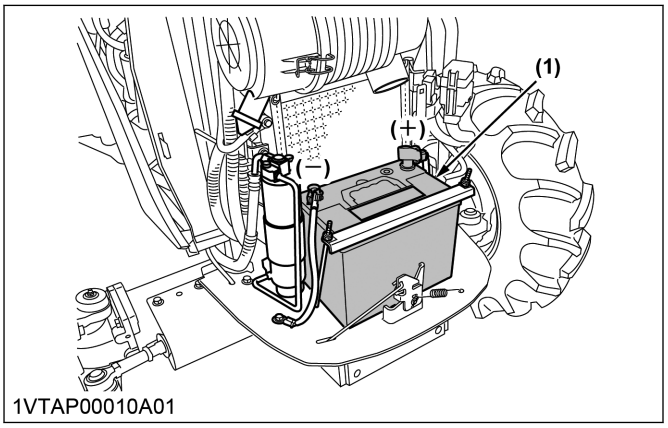
(1) Negative cable *(3) Terminal*
(2) Positive cable *(4) Stopper*

Charging the battery

⚠ WARNING

To avoid personal injury or death:

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



1VTAP00010A01

(1) Battery

1. To charge the battery slowly, connect the positive terminal of battery to the positive terminal of charger, and the negative terminal of battery to the negative terminal of charger. Then recharge in the standard fashion.
   A boost charge is only for emergencies. Boost charge will partially charge the battery at a high rate and in a short time.
   When using a boost-charged battery, it is necessary to recharge the battery as early as possible.
   Failure to recharge the battery may shorten the service life of battery.
   The battery is charged if the indicator display turns green from black.
2. When exchanging an old battery for a new one, use the battery of equal specification shown in the following table.

	Battery type	Volts (V)	Reserve capacity (min)	CCA (SAE) (A)*1	Normal charging rate (A)
ROPS	80D26R *2	12	120	600	7.5
	95D26R *3	12	145	700	7.5
CABIN	85D26R *4	12	130	650	7.5
	90D26R *5	12	140	680	7.5

*1 CCA means Cold cranking ampere.

*2 For the battery 80D26R, the Engine ECUs No. is 1H651-6030-0, 1H652-6030-0, or 1H653-6030-0.

*3 For the battery 95D26R, the Engine ECUs No. is 1H651-6030-0, 1H652-6030-0, 1H653-6030-0, 1H392-6155-0, 1H394-6155-0, 1H396-6155-0, 1H793-6155-0, or 1H795-6155-0.

*4 For the battery 85D26R, the Engine ECUs No. is 1H654-6030-0, 1H655-6030-0, or 1H656-6030-0.

*5 For the battery 90D26R, the Engine ECUs No. is 1H654-6030-0, 1H655-6030-0, 1H656-6030-0, 1H393-6155-0, 1H395-6155-0, 1H397-6030-0, 1H794-6155-0, or 1H796-6155-0.

Direction for battery storage

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

SERVICE EVERY 200 HOURS

1. Checking the toe-in

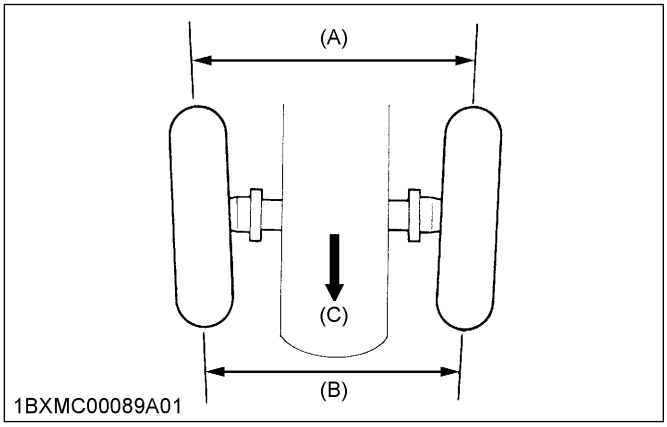
⚠ WARNING

To avoid personal injury or death:

- **Park the tractor on a firm, flat, and level place.**
- **Lower the implement to the ground and lock the parking brake.**
- **Stop the engine and remove the starter key.**

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

6. If the distance between the tire beads at front of tire is not shorter than the distance between the tire beads at rear of tire, adjust the length of tie rod. (See Adjusting the toe-in on page 140.)

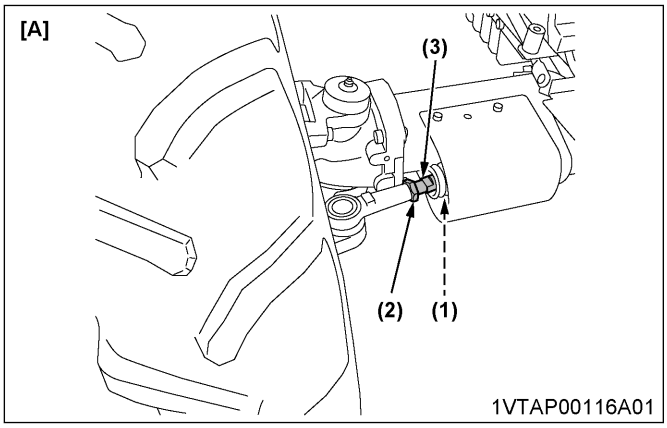


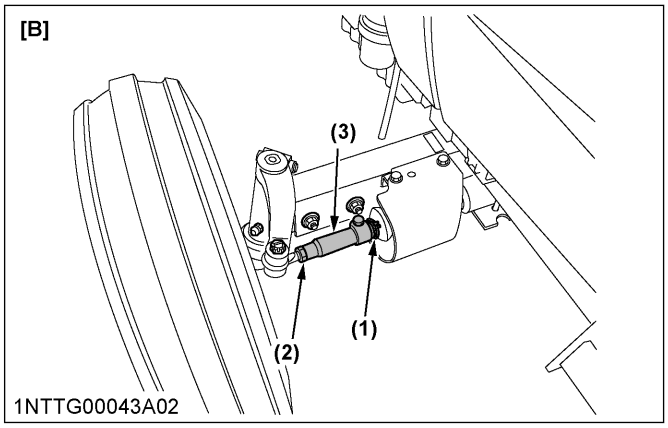
(A) Wheel-to-wheel distance at rear
(C) Front
(B) Wheel-to-wheel distance at front

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

1.1 Adjusting the toe-in

1. Detach the snap ring.
2. Loosen the tie-rod nut.
3. Turn the tie-rod joint to adjust the length of tie-rod until the proper toe-in measurement is obtained.
4. Retighten the tie-rod nut.
5. Attach the snap ring of the tie-rod joint.





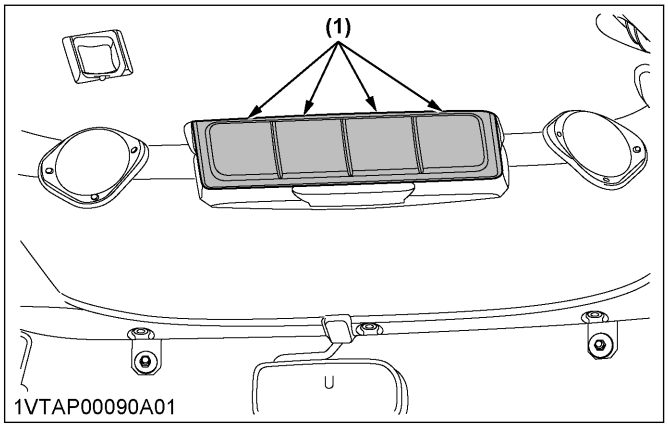
(1) Snap ring
(2) Tie-rod nut
(3) Tie-rod joint
[A] 4WD
[B] 2WD

Tie-rod nut (2)	Tightening torque	4WD	167 N·m to 196 N·m (17 kgf·m to 20 kgf·m) [123.2 lbf·ft to 144.6 lbf·ft]
		2WD	83.3 N·m to 88.2 N·m (8.5 kgf·m to 9.0 kgf·m) [61.4 lbf·ft to 65 lbf·ft]

2. Cleaning the inner air filter [CAB type]

1. Remove the inner-air-filter.
2. Blow air from the direction opposite to the normal air flow of the inner-air-filter.
   Pressure of compressed air must be as follows.

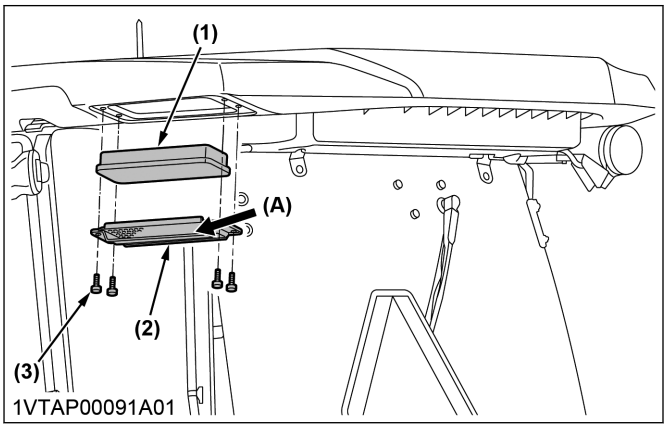
Pressure of compressed air	Under 205 kPa (2.1 kgf/cm^2) [30 psi]



(1) Inner air filter

3. Cleaning the fresh air filter [CAB type]

1. Remove the knob bolts and pull out the fresh-air-filter.

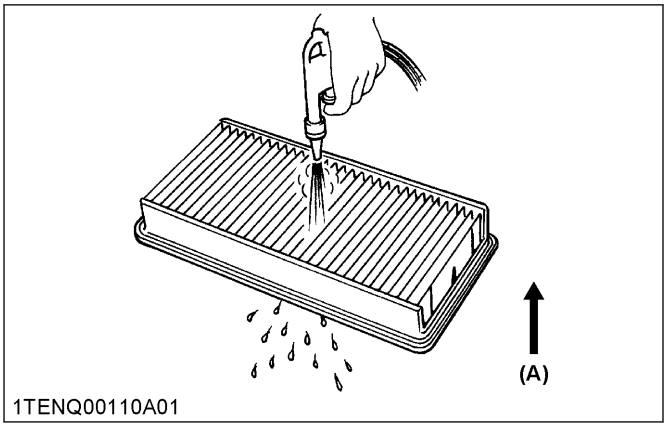


(1) Fresh air filter
(2) Cover
(3) Knob bolt
(A) Air inlet port

NOTE :
- **Attach the fresh-air-filter and cover as the preceding illustration.**

2. For normal use, blow air from the opposite direction to the normal air flow of fresh-air-filter.
   Pressure of compressed air must be as follows.

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



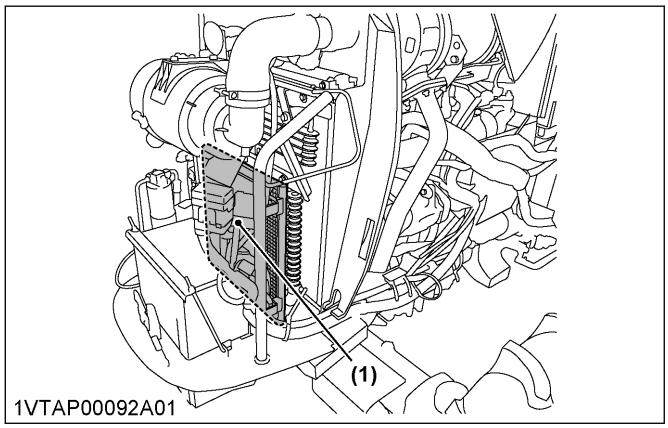
(A) Air conditioner airflow

IMPORTANT :
- **Do not hit the fresh-air-filter. If the fresh-air-filter becomes deformed, dust may enter into the air-conditioner, which may cause damage and malfunction.**
- **Do not use gasoline, thinner, or similar chemicals to clean the fresh-air-filter because damage to the fresh-air-filter may occur.**
- **It may also cause an unpleasant odor in the CAB when the system is used next.**

NOTE :
- **If the fresh-air-filter is very dirty, follow the following procedure.**
  a. **Dip the fresh-air-filter in lukewarm water with mild dish-washing-detergent.**
  b. **Move the fresh-air-filter up and down as well as left and right to loosen dirt. Rinse the fresh-air-filter with clean water and let it air-dry.**

4. Checking the air conditioner condenser [CAB type]

1. Check the air-conditioner-condenser to be sure that it is clean of debris.



(1) Air conditioner condenser

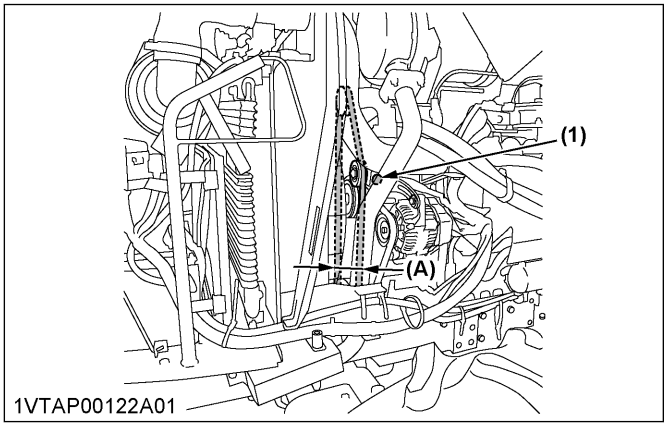
5. Adjusting the air conditioner belt tension [CAB type]

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine before checking the tension of air-conditioner belt.**

1. Stop the engine and remove the starter key.
2. Apply moderate thumb pressure to the air-conditioner belt between pulleys, and check if the tension of air-conditioner belt is correct.

Proper air conditioner belt tension	A deflection of between 14 mm to 16 mm when the belt is pressed (98 N [10 kgf]) in the middle of the span.

3. If the tension of air-conditioner belt is incorrect, loosen the lock nut and turn the adjusting bolt to adjust the tension of air-conditioner belt within the acceptable limits.



(1) Adjusting bolt *(A) Check air conditioner belt tension*

4. Replace the air-conditioner belt if it is damaged.

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:

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

Be sure to perform once every 400 hours or yearly, whichever comes first.

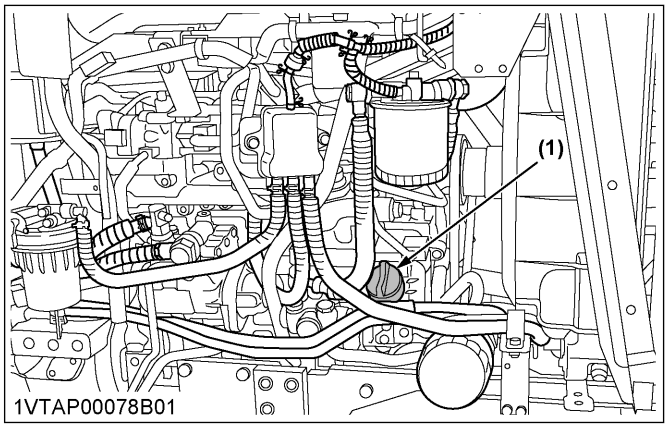
1. To drain the used engine oil, remove the drain plug at the bottom of the engine and drain the engine oil completely into the oil pan.
2. After draining the engine oil, reinstall the drain plug.
3. Fill with the new engine oil up to the upper notch on the dipstick.
   (See LUBRICANTS, FUEL, AND COOLANT on page 120)

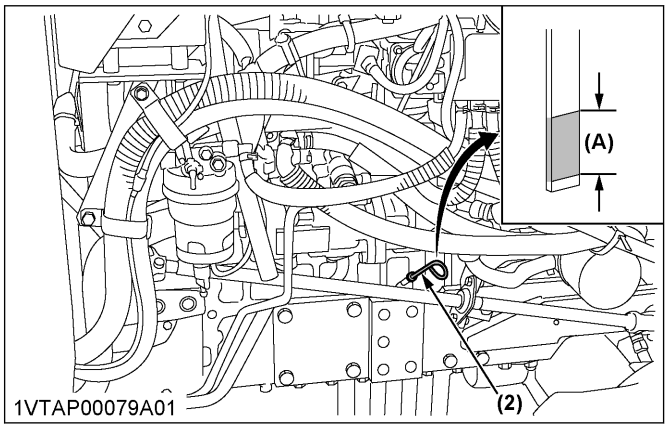
Engine oil capacity with engine oil filter	7.0 L (7.4 U.S.qts.)

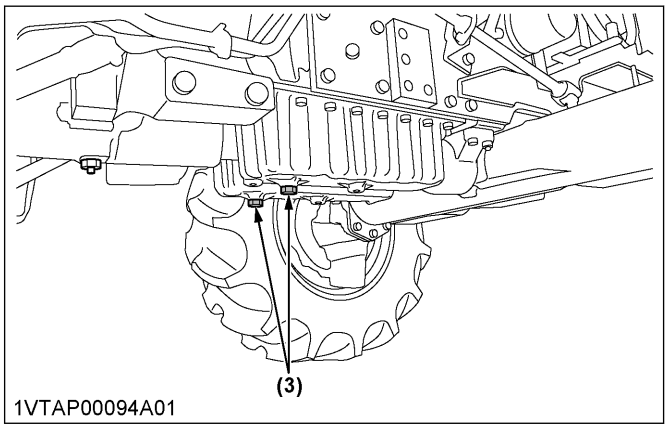
IMPORTANT :

- **Use the following engine oil for the engine.**

Engine oil	DPF-compatible oil (CJ-4)







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

SERVICE EVERY 400 HOURS

1. Replacing the engine oil filter

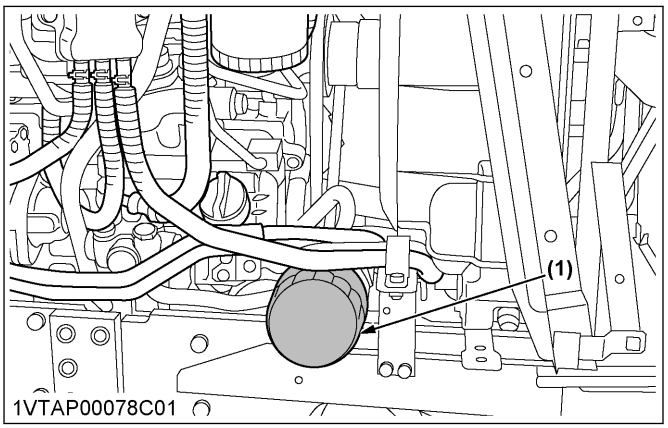
⚠ WARNING

To avoid personal injury or death:

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

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

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



(1) Engine oil filter

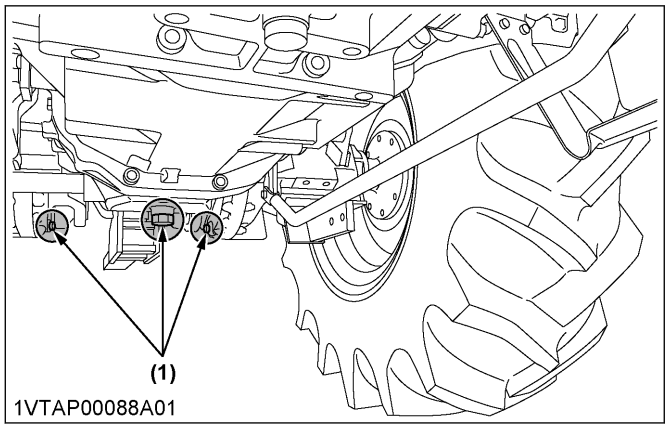
2. Replacing the transmission oil filter [HST type only]

⚠ WARNING

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

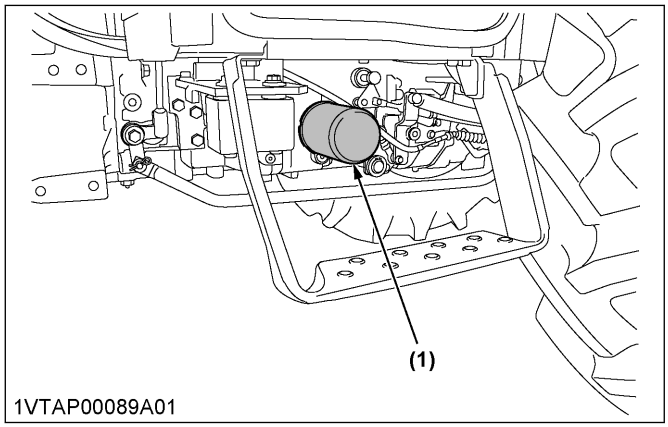
IMPORTANT :
- **To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.**
- **Do not operate the tractor immediately after changing the transmission fluid.**
  Run the engine at medium speed for a few minutes to prevent damage to the transmission.

1. Remove the drain plugs at the bottom of the transmission case and drain the transmission oil completely into the oil pan.
2. After draining the transmission oil, reinstall the drain plugs.



(1) Drain plugs

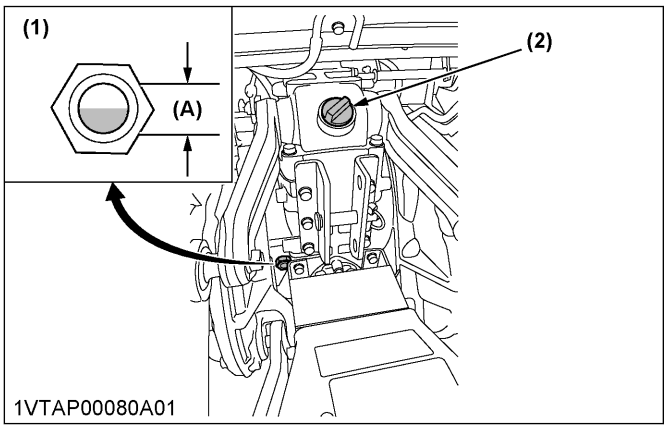
3. Remove the transmission-oil-filter.



(1) Transmission oil filter [HST type]

4. Put a film of clean transmission oil on the rubber seal of the new transmission-oil-filter.
5. Quickly tighten the transmission-oil-filter until it contacts the mounting surface, then, with a filter wrench, tighten the transmission-oil-filter an additional one turn only.

6. After the new transmission-oil-filter has been replaced, fill with the transmission oil up to the upper line of the gauge.



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

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

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

⚠ WARNING

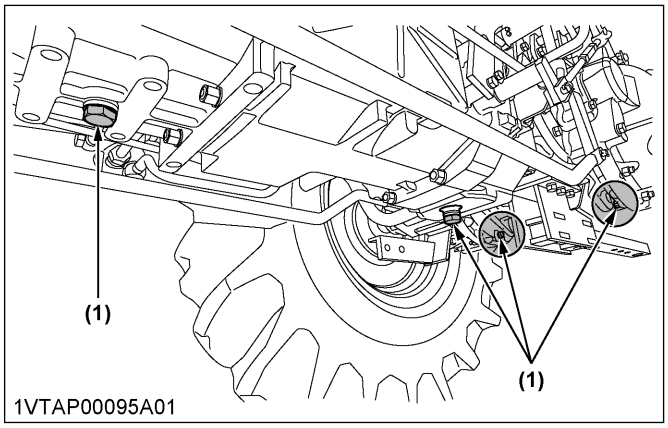
To avoid personal injury or death:

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

IMPORTANT :

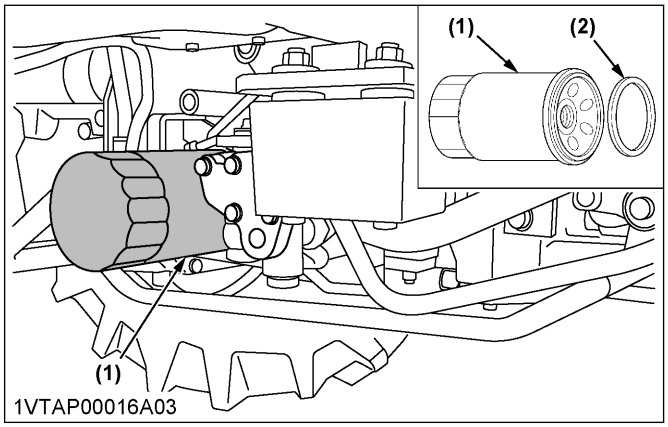
- **To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.**

1. Remove the drain plugs at the bottom of the transmission case and drain the transmission oil completely into the oil pan.
2. After draining, reinstall the drain plugs.



(1) Drain plugs

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

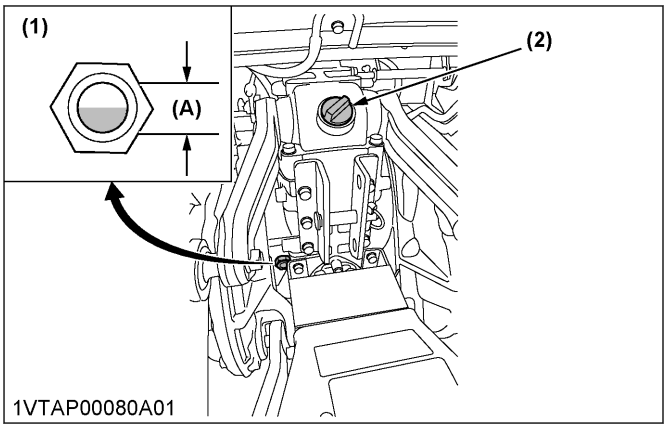


(1) Hydraulic oil filter
(2) Magnetic filter (wipe off metal filings)

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

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

Transmission oil capacity	44.0 L (11.6 U.S.gals.)



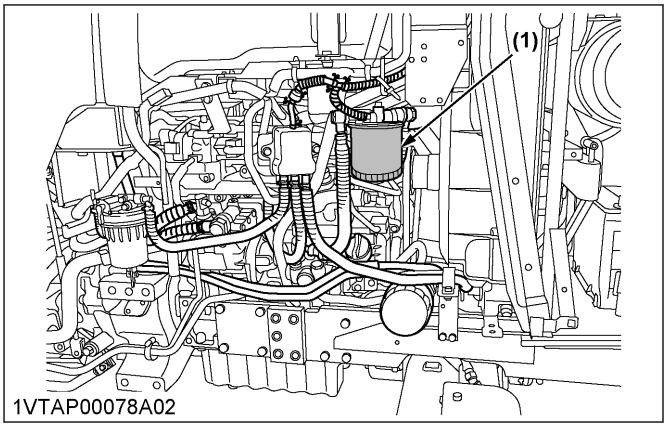
(1) Gauge
(2) Oil inlet
(A) Range which transmission oil level is acceptable within

IMPORTANT :

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

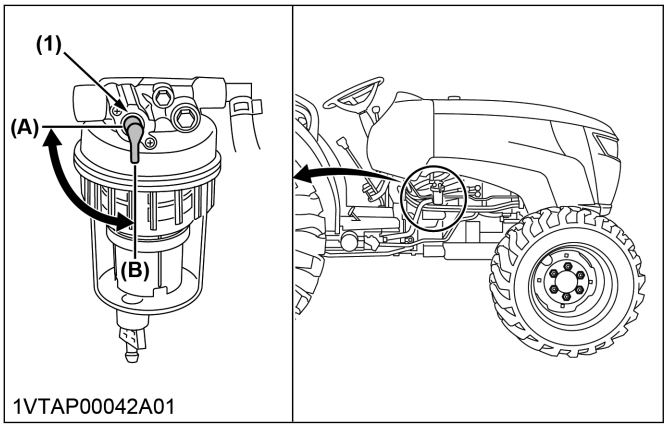
4. Replacing the fuel filter

1. Remove the fuel filter.
2. Put a film of clean fuel on the rubber seal of the new filter.
3. Tighten the fuel filter quickly until it contacts the mounting surface.
4. Tighten the fuel filter by hand an additional 1/2 turn only.



(1) Fuel filter

5. Bleed the fuel system.
   (See How to purge air from the fuel on page 153)



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

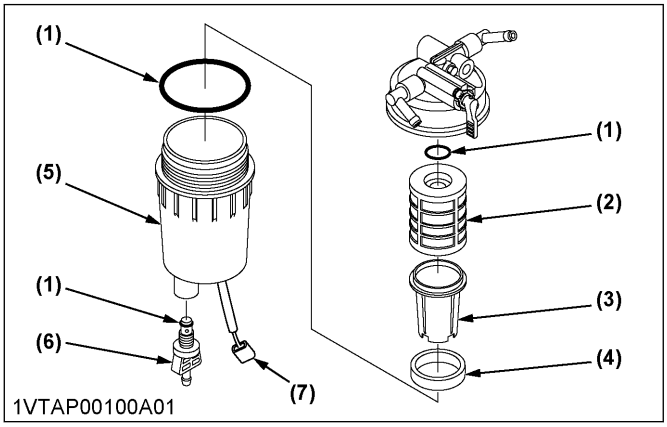
5. Cleaning the water separator

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

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

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

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



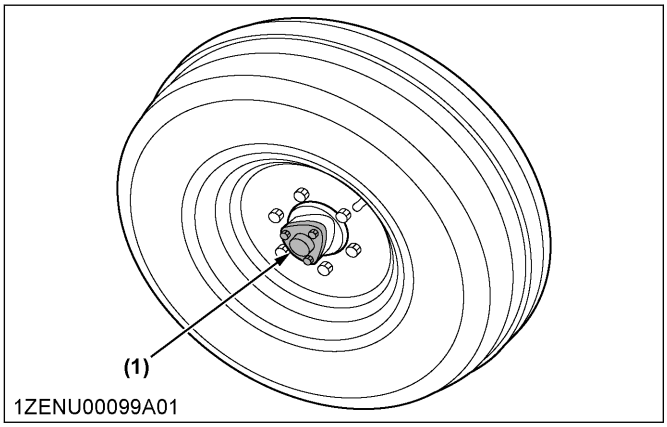
(1) O ring
(2) Element
(3) Element cup
(4) Red float
(5) Cup
(6) Drain plug
(7) Water sensor connector

7. Bleed the fuel system.
   (See How to purge air from the fuel on page 153)

   IMPORTANT :
   - **If the water separator and/or fuel filter is not well maintained, the supply pump and injector may be damaged earlier than expected.**

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

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



(1) Front wheel hub cover

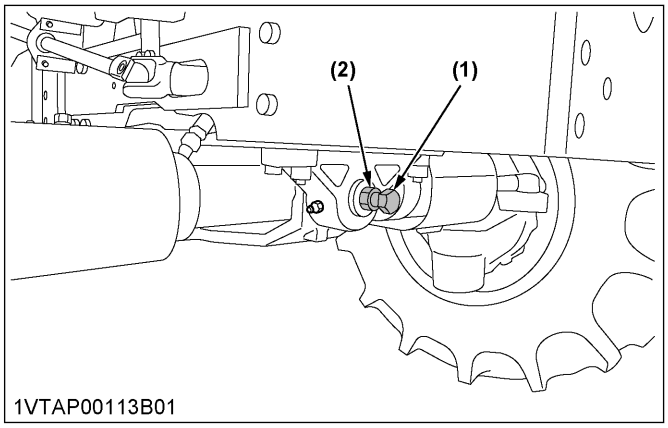
SERVICE EVERY 600 HOURS

1. Adjusting the front axle pivot

⚠ WARNING
To avoid personal injury or death:
- **Be sure to stop the engine and remove the starter key before adjusting 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. Re-tighten the lock nut.



(1) Adjusting screw (2) Lock nut

SERVICE EVERY 800 HOURS

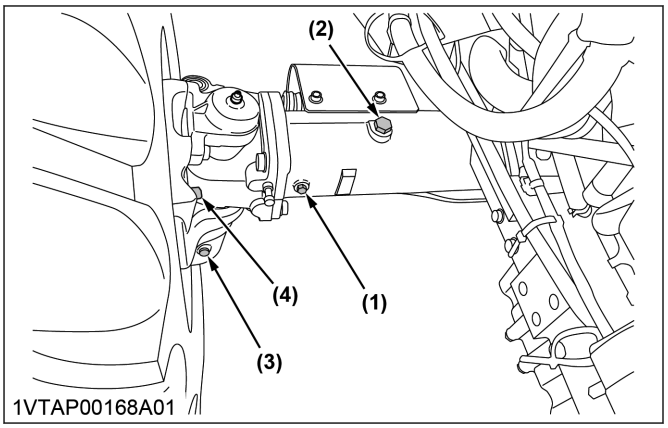
1. Changing the front axle case oil [4WD]

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

1. To drain the used front-axle-case-oil, remove the right drain plug, left drain plug, and filling plug at the front-axle-case.
2. Drain the front-axle-case-oil completely into the oil pan.
3. After draining, reinstall the drain plugs.
4. Remove the check plug, right breather plug, and left breather plug.
5. Fill with the new front-axle-case-oil up to the port of check plug.
   (See LUBRICANTS, FUEL, AND COOLANT on page 120)

6. After filling, reinstall the filling plug, check plug, and breather plugs.

Front axle case oil capacity	8.5 L (8.9 U.S.qts.)



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

2. Adjusting the engine valve clearance

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

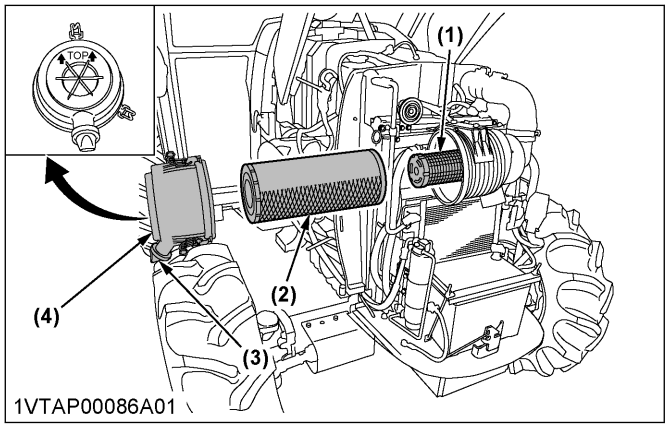
SERVICE EVERY 1000 HOURS OR 1 YEAR

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

1. Replacing the air cleaner primary element and secondary element

Be sure to perform once every 1000 hours or yearly, whichever comes first.
(See Cleaning the air cleaner primary element on page 135)

1. Remove the cover, the primary element, and the secondary element of the air cleaner.
2. Attach new primary element and secondary element of the air cleaner.



(1) Secondary (safety) element
(2) Primary element
(3) Evacuator valve
(4) Cover

IMPORTANT :

- **Be sure to refit the cover with the arrow ⬆ (on the rear of cover) upright. If the cover is improperly fitted, the evacuator valve will not function and dust will adhere to the primary element.**

2. Checking the exhaust manifold

Be sure to perform once yearly or after every sixth cleaning, whichever comes first.

- 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. Replacing the oil separator element

⚠ WARNING

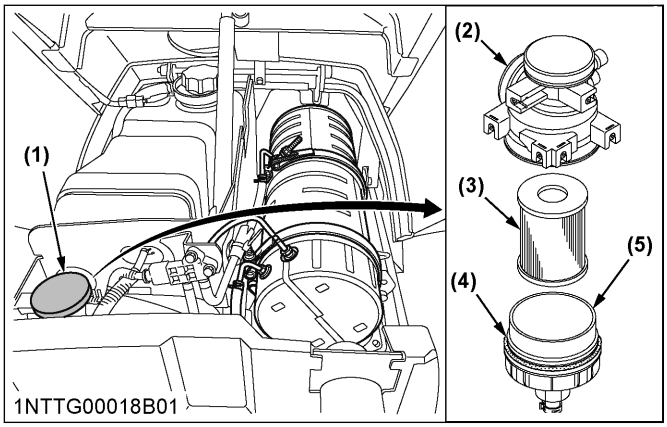
To avoid personal injury or death:

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

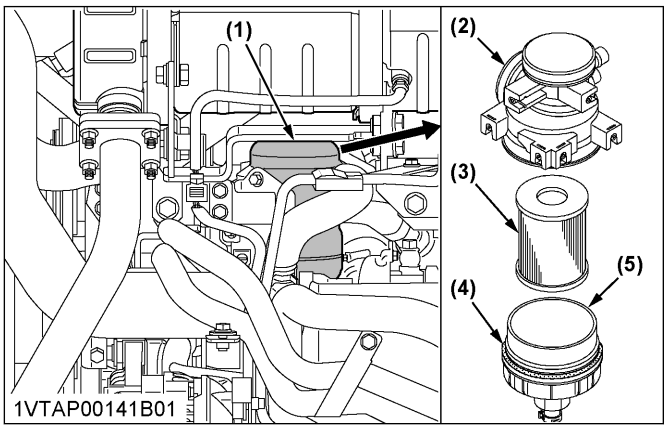
1. Remove the cover.
2. Remove the oil-separator-element. Wipe off the oil and carbon in the case with a clean rag.
3. Fit a new oil-separator-element.

4. Tighten the cover.

[ROPS type]



[CAB type]



(1) Oil separator
(2) Body
(3) Oil separator element
(4) Gasket
(5) Cover

3. Checking the positive crankcase ventilation (PCV) valve

- Consult your local KUBOTA Dealer for checking the positive crankcase ventilation (PCV) valve.

4. 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.**

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

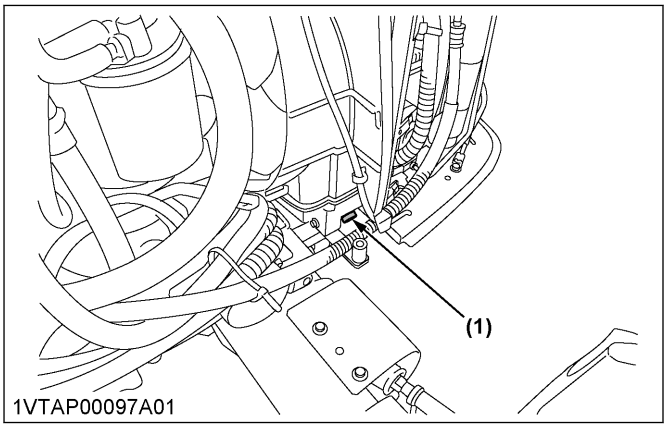
1. Stop the engine, remove the starter key, and let the engine cool down.
2. To drain the coolant, open the radiator-drain-plug and remove the radiator cap.
   Remove the radiator cap to completely drain the coolant.
3. After all coolant is drained, reinstall the drain plug.
4. Fill with clean soft water and cooling-system-cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean soft water and antifreeze until the coolant level is just below the radiator cap.
   (For antifreeze, see Antifreeze on page 149)

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

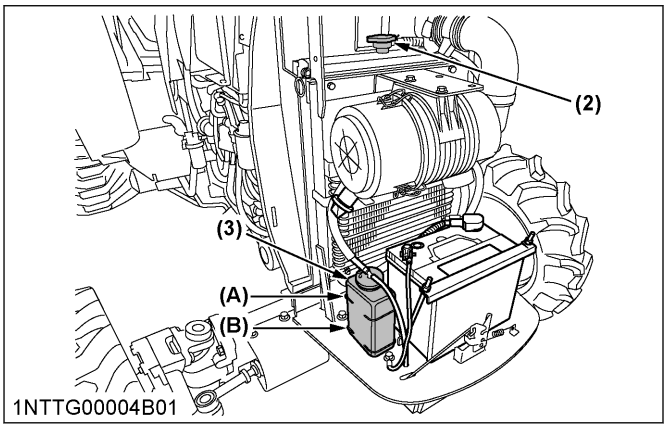
   IMPORTANT :
   - **Securely tighten the radiator cap. If the radiator cap is loose or improperly fitted, water may leak out and the engine could overheat.**
8. Fill with coolant up to the *"FULL"* mark of recovery tank.
9. Start and operate the engine for a few minutes.
10. Stop the engine, remove the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

11. Check the coolant level of the recovery tank and add coolant if it is necessary.
12. Properly dispose of the used coolant.

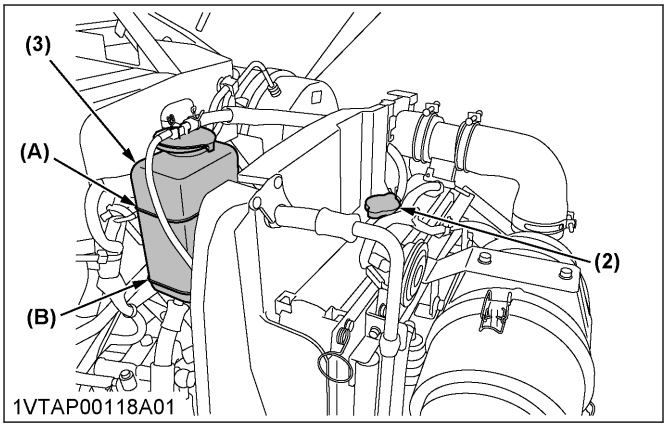
	Coolant capacity
Radiator	6.8 L (7.2 U.S.qts.)
Recovery tank	0.6 L (0.6 U.S.qts.)



[ROPS type]



[CAB type]



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

1.1 Antifreeze

⚠ WARNING

To avoid personal injury or death:

- **When using the antifreeze, put on some protection such as rubber gloves. Antifreeze contains poison.**
- **If someone drank the antifreeze, seek immediate medical help. Do not ask the person to throw up unless told to throw up by a poison control or a health care professional. Use standard first aid and CPR for signs of shock or cardiac arrest. Call your local poison-control-center or your local emergency number for further assistance.**
- **When antifreeze comes in contact with the skin or clothing, wash it off immediately.**
- **Do not mix different types of antifreeze. The mixture can produce chemical reactions causing harmful substances.**
- **Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.**
- **When draining the fluids from the engine, place a container underneath the engine body.**
- **Do not pour waste onto the ground, down a drain, or into any water source.**
- **Also, follow the relevant environmental protection regulations when disposing of antifreeze.**

Always use a 50/50 mix of long-life coolant and clean soft water in KUBOTA engines.
Consult your local KUBOTA Dealer concerning coolant for extreme conditions.

NOTE :

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

- Long-life coolant (LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
- Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat filling and emptying the radiator with fresh water 2 or 3 times to clean up the inside.
- Mixing the LLC
  Premix 50% LLC with 50% clean soft water. When mixing, stir it up well, and then fill into the radiator.
- The procedure for the mixing of water and antifreeze differs according to the type of the antifreeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

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

- Adding the LLC
  - Add only water if the mixture reduces in amount by evaporation.
  - If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.
  - Never add any long-life coolant of different manufacturer. Different brands may contain different additive components, and the engine may fail to perform as specified.
- When the LLC is mixed, do not employ any radiator-cleaning-agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
- Service life of KUBOTA's genuine long-life coolant is 2 years. Be sure to change the coolant every 2000 hours or every 2 years whichever comes faster.

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

SERVICE EVERY 3000 HOURS

1. Checking the turbocharger

- Consult your local KUBOTA dealer for checking the turbocharger.

2. Checking the supply pump

- Consult your local KUBOTA Dealer for checking the supply pump

3. Checking and cleaning the EGR system

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

4. 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.

- 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

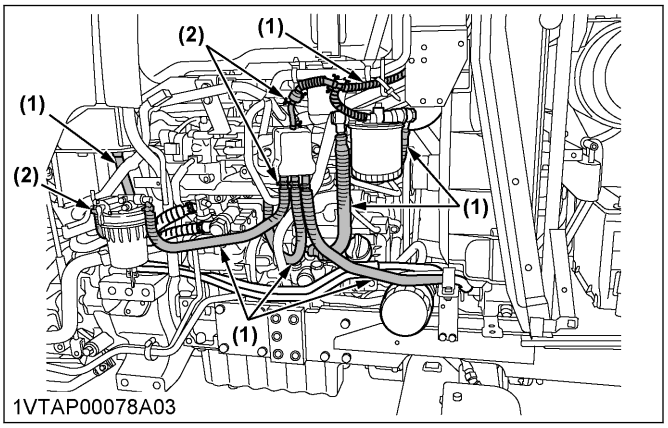
⚠ WARNING

To avoid personal injury or death:

- **Be sure to 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 running engine, causing a fire.**

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

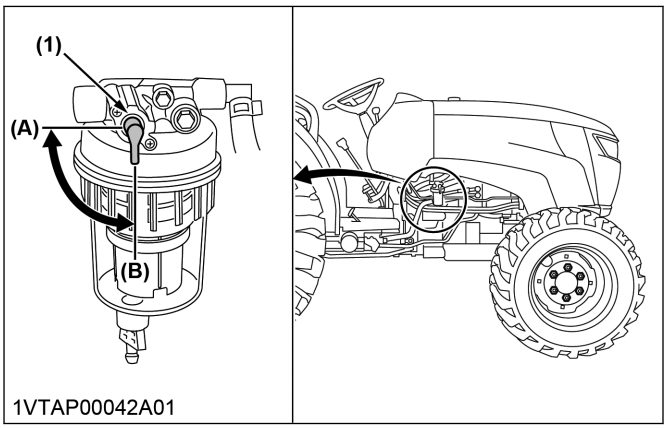
2. If the hoses and the hose clamps are found worn or damaged, replace or repair them at once.



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

NOTE :

- **If the fuel line is removed, be sure to properly bleed the fuel system.**
  (See How to purge air from the fuel on page 153)



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

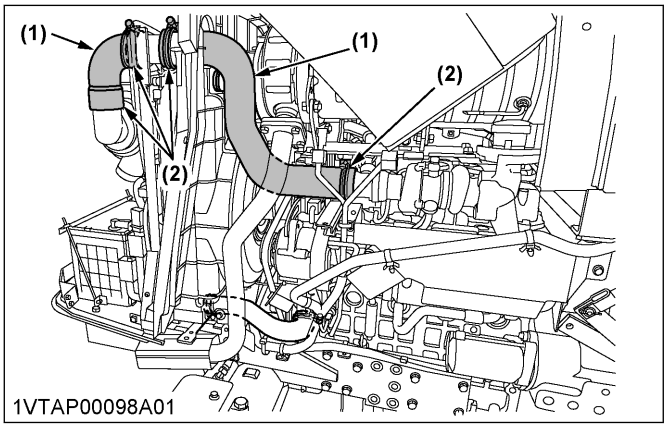
2. Checking the intake air line

⚠ WARNING

To avoid personal injury or death:

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



(1) Hose *(2) Hose clamps*

3. Checking the radiator hose and clamp

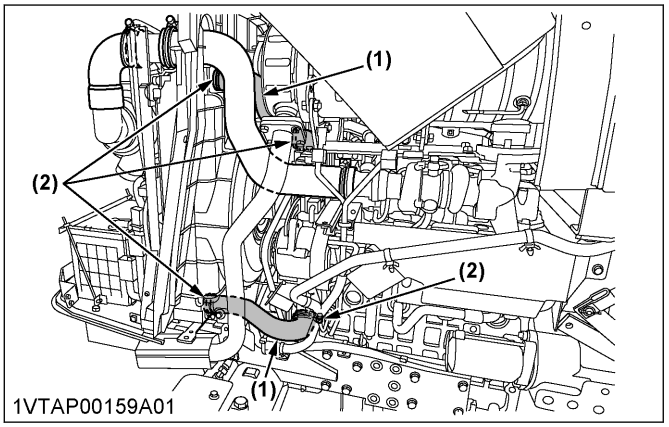
⚠ WARNING

To avoid personal injury or death:

- **Be sure to stop the engine and remove the starter key before 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. Replace hoses and tighten the hose securely, if the radiator hoses are swollen, hardened or cracked.



(1) Radiator hoses *(2) Clamp bands*

4. Checking the power steering line

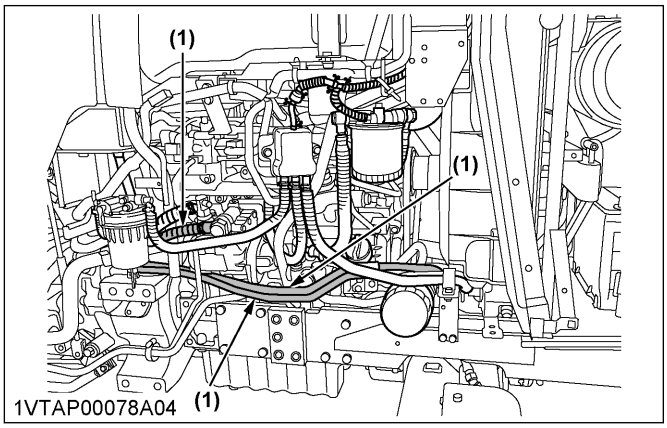
⚠ WARNING

To avoid personal injury or death:

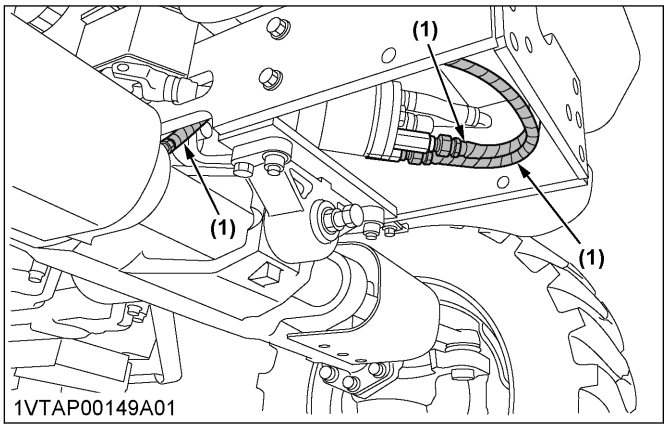
- **Be sure to stop the engine and remove the starter key before checking the power-steering-line.**

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

[ROPS type]



[CAB type]



(1) Power steering pressure hoses

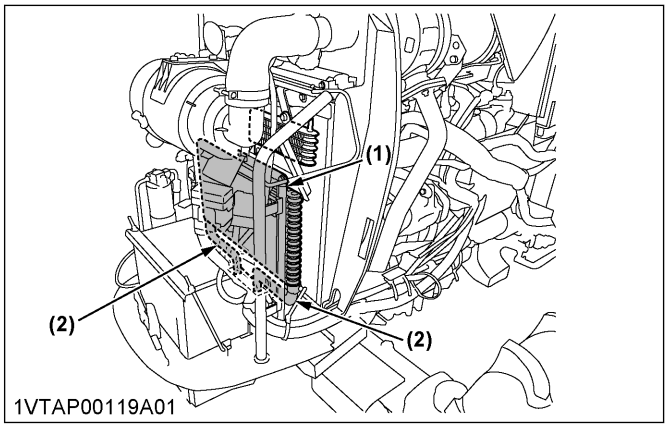
5. Checking the oil cooler line [HST type only]

⚠ WARNING

To avoid personal injury or death:

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

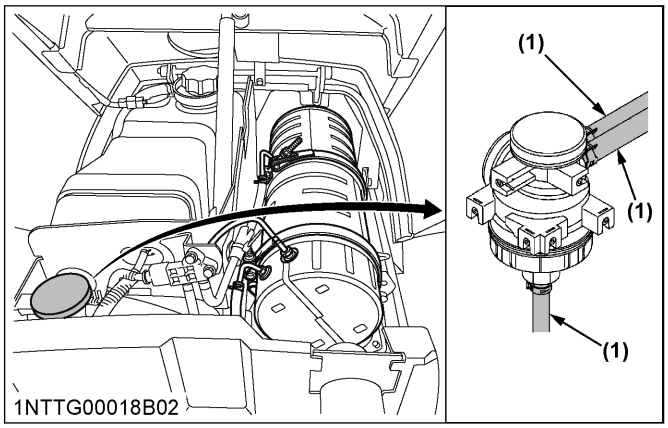


(1) Oil cooler (2) Oil cooler line

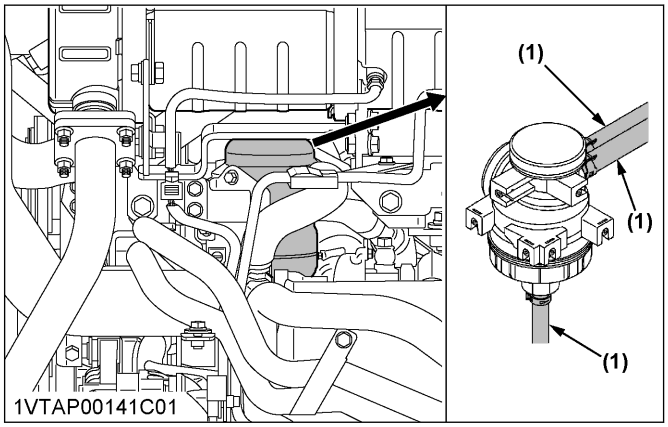
6. Checking the oil separator hose

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

[ROPS type]



[CAB type]



(1) Oil separator hoses

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 related pipe

- Consult your local KUBOTA Dealer for checking the DPF-related-pipe.

9. Checking the EGR pipe

- Consult your local KUBOTA Dealer for checking the EGR pipe.

10. Checking the air-conditioner pipe and hose [CAB type only]

1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, consult your local KUBOTA Dealer for checking the air-conditioner pipe and hose.

11. Checking the CAB isolation cushions [CAB type only]

1. Check the CAB isolation cushions for any breakage or fatigue.
2. Replace the cushions if they are deteriorated.

12. Checking the clutch wire [CABIN manual transmission type]

- Consult your local KUBOTA Dealer for checking the clutch wire.

SERVICE EVERY 2 YEARS

1. Replacing the DPF related rubber pipe

- Consult your local KUBOTA Dealer for replacing the DPF-related-rubber-pipe.

2. Replacing the EGR cooler hose

- Consult your local KUBOTA Dealer for replacing the EGR-cooler-hose.

3. Checking the radiator hose (water pipes)

- Consult your local KUBOTA Dealer for checking the radiator hose.

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

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

5. Checking the oil separator hose

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

6. Checking the power steering line

- Consult your local KUBOTA Dealer for checking the power-steering-line.

7. Checking the air conditioner hose [CAB type]

- Consult your local KUBOTA Dealer for checking the air-conditioner-hose.

SERVICE EVERY 4 YEARS

1. Replacing the fuel line

Consult your local Kubota Dealer for replacing the fuel line.

2. Replacing the intake air line

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

SERVICING AS REQUIRED

1. How to purge air from the fuel

It is necessary to purge air from the fuel in the following cases.

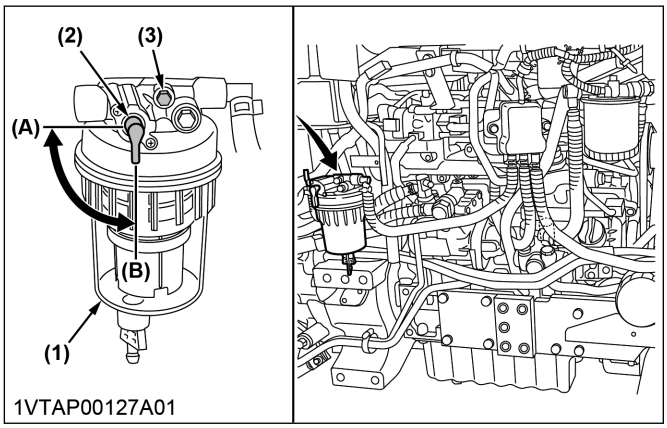
- When water is drained from the separator and when disassembly cleaning is performed
- When the fuel filter and piping are removed
- When the fuel runs out
- When the tractor is not used for many hours

Air purging procedure

For air purging procedure, refer to the following table.

When water is drained from the separator and when disassembly cleaning is performed	Perform in the order of steps 1 to 7.
When an engine stall occurs due to running out of fuel or when fuel pipes are removed	
When the tractor is not used for many hours	
When the fuel filter is replaced	Perform step 1 and steps 4 to 7.

1. Fill the tank with fuel and set the fuel shutoff-valve to *"OPEN"*.
2. Loosen the air-purging-plug of the separator 2 turns or so.
   When the fuel coming out of the air-purging-plug-hole contains no air bubbles, tighten the plug.

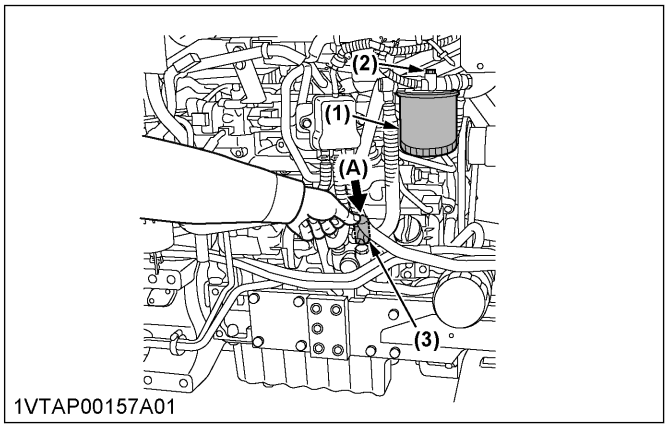


(1) Separator
(2) Fuel shutoff-valve
(3) Air purging plug
(A) Close
(B) Open

3. Loosen the air-purging-plug of the fuel filter 2 turns or so.
4. Slowly move the feed-pump-knob up and down to pump fuel.
   The operating load on the feed-pump-knob is light when air is pumped inside the fuel pipe, and so on, but it becomes heavy when fuel is pumped.
   Refer to the number of operations in the following table to operate the feed-pump-knob.

Work description	Number of operations
When water is drained from the separator and when disassembly cleaning is performed	Approx. 10 times
When the tractor is not used for many hours	
When an engine stall occurs due to running out of fuel or when fuel pipes are removed	Approx. 60 times
When the fuel filter is replaced	

5. Immediately after pumping fuel, tighten the air-purging-plug of the fuel filter.
6. Operate the feed-pump-knob 4 or 5 times to pressurize the circuit.



(1) Fuel filter
(2) Air purging plug
(3) Feed pump knob
(A) Press

7. Set the accelerator lever to the low speed position and start the engine.
   If the engine fails to start even after turning the starter continuously for 10 seconds, turn if off for 30 seconds. And then repeat this a couple of times.
8. When the engine is started, wait for approx. 1 minute without performing any operation. Afterwards, race the engine to purge a small amount of air remaining in the fuel system.
9. In spite of the preceding step, if the engine stall occurs due to air remaining in the system, perform air purging again.

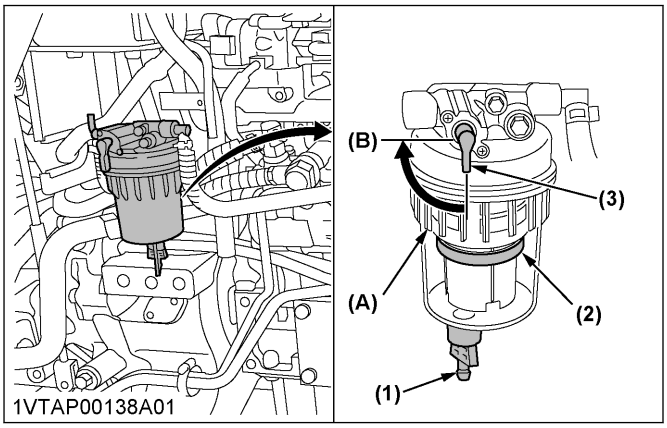
IMPORTANT :
- **Do not operate the feed pump unless the air-purging-plug of the fuel filter is loosened.**

2. Draining water from the water separator

When separated water accumulates, the red float rises up.

1. If water is accumulated, close the fuel shutoff-valve and loosen the drain plug at the bottom to drain water.

2. After draining water, be sure to perform air purging. (See How to purge air from the fuel on page 153)



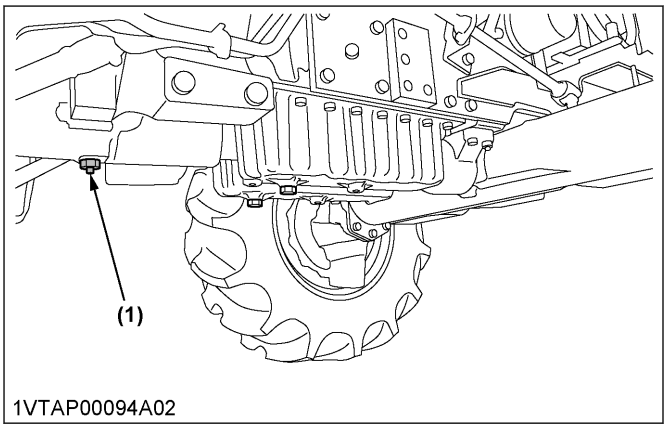
(1) Drain plug
(2) Float
(3) Fuel shutoff-valve
(A) Discharge level
(B) Close

IMPORTANT :
- **When the buzzer sounds, immediately stop the engine, drain water from the separator, and purge air from the fuel.**
- **If the message on the LCD does not appear and if the alarm buzzer does not sound when the engine is started, then it means that the countermeasure has been completed.**

3. Draining the water from the clutch housing

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

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



(1) Split pin plug

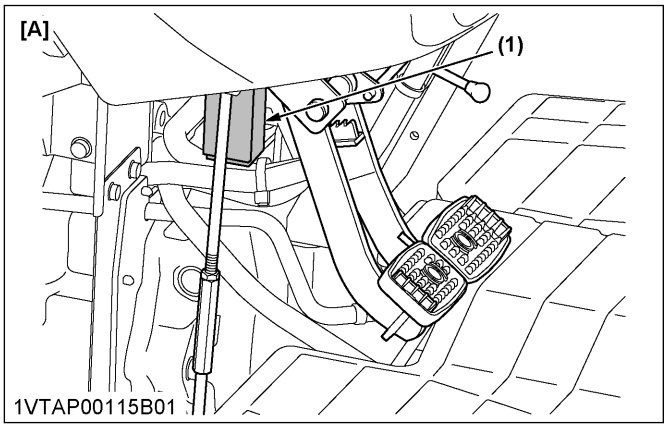
NOTE :
- **Since the seal of the HST input shaft has a high internal pressure, the oil seal might not follow and a small amount of oil leak might occur during high speed at low temperature. There is no need to replace the oil seal when this happens as this is not a failure of the part.**

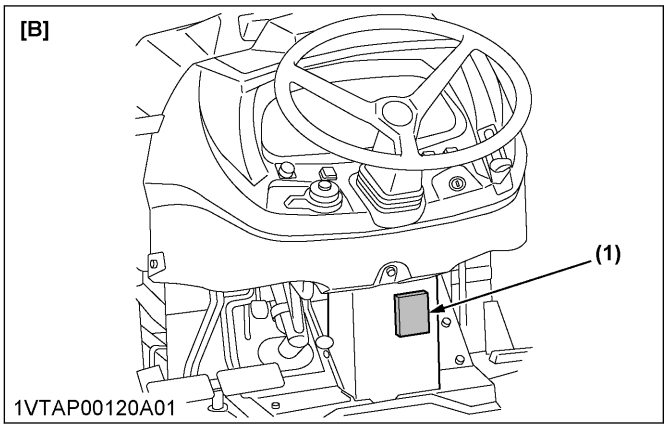
4. Replacing the fuse

IMPORTANT :
- **Before replacing a blown fuse, determine why the fuse blew and carry out any necessary repairs. Failure to follow the replacing procedure may result in serious damage to the electrical system of the tractor. See ENGINE TROUBLESHOOTING on page 162 or your local KUBOTA Dealer for specific information dealing with electrical problems.**

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

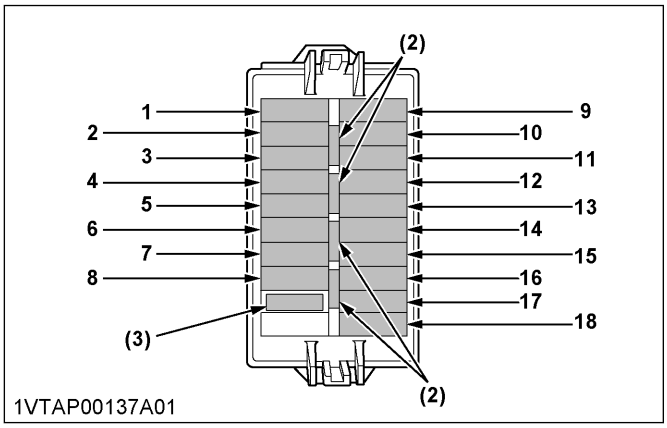
1. If any of the fuses should blow, replace with a new fuse with the same capacity.





(1) Fuse *[A] ROPS type* *[B] CAB type*

Fuse (1)



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

Protected circuit [ROPS]

Fuse No.	Capacity (A)	Protected circuit
1	-	-
2	15	Power supply
3	5	Engine ECU (Ignition key)
4	5	Main ECU (Ignition key)
5	10	Meter panel (Ignition key)
6	5	Combination switch
7	15	Work light
8	5	Starter relay
9	10	Heater (Oil separator, IN 1) (if equipped)
10	10	Heater (Oil separator, IN 2) (if equipped)
11	20	Engine ECU (Battery)
12	5	Main ECU (Battery)
13	5	Meter panel (Battery)
14	10	Hazard
15	10	Head light
16	-	-
17	10	Heater (Oil separator, OUT 1) (if equipped)
18	10	Heater (Oil separator, OUT 2) (if equipped)

Protected circuit [CAB]

Fuse No.	Capacity (A)	Protected circuit
1	20	Work light
2	15	Horn
3	5	Engine ECU (Ignition key)
4	5	Main ECU (Ignition key)
5	10	Meter panel (Ignition key)
6	10	Combination switch
7	30	Cigar lighter
8	30	Starter relay
9	30	Aircon blower
10	5	Radio (ACC)
11	20	Engine ECU (Battery)
12	5	Main ECU (Battery)
13	5	Meter panel (Battery)
14	20	Hazard
15	10	Head light
16	7.5	Aircon compressor

(Continued)

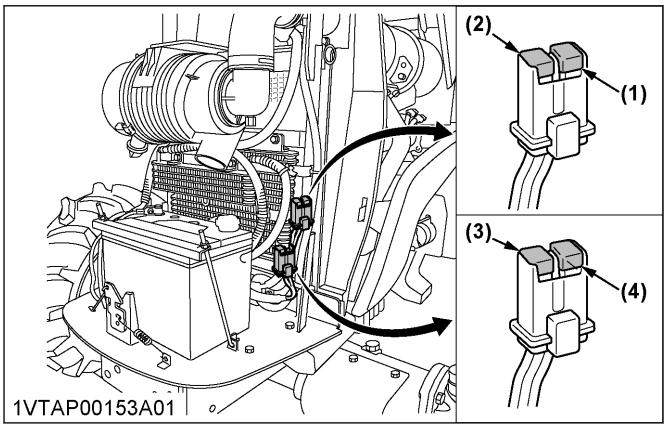
Fuse No.	Capacity (A)	Protected circuit
17	30	Wiper
18	10	Heater (if equipped)

5. Replacing the slow-blow fuses

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

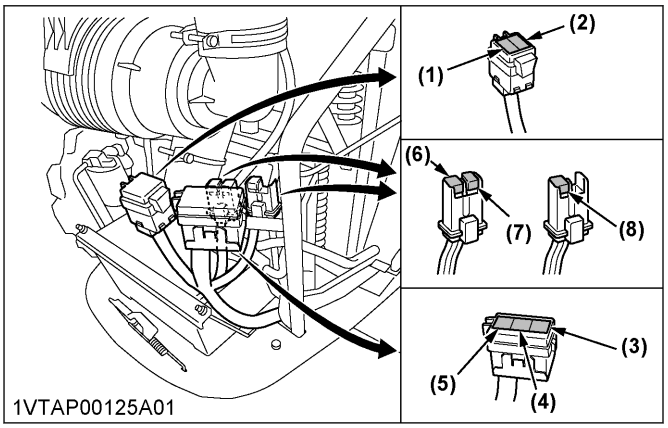
1. If any of the slow-blow fuses has blown out, be sure to pinpoint the cause.
   Never use any substitute, use only a KUBOTA genuine part.

Protected circuit [ROPS type]



No.	Capacity (A)	Protected circuit
1	40	Main
2	60	Key switch
3	50	Heater (Oil separator) (if equipped)
4	60	Grow

Protected circuit [CAB type]



No.	Capacity (A)	NA	CA
1	20	-	CCV Heater
2	30	-	Defogger
3	60	Battery	Key switch
4	60	Grow	Grow
5	100	Main	Battery
6	60	Key switch	-
7	60	Lamp	-
8	30	Defogger	-

6. Replacing the light bulb

Light	Capacity	
	ROPS	CABIN
Head lights	35 W / 35 W	
Tail light	5 W	
Turn signal / hazard light (Left)	21 W	
Turn signal / hazard light (Right)	27 W	
Instrument panel light	1.7 W	
Room light	-	5 W
Work light	-	35 W

Head light and rear combination lights

1. Take the bulb out of the light body and replace with a new one.

Other lights

1. Detach the lens and replace the bulb.

7. Replacing the head lamp

⚠ WARNING

To avoid personal injury:

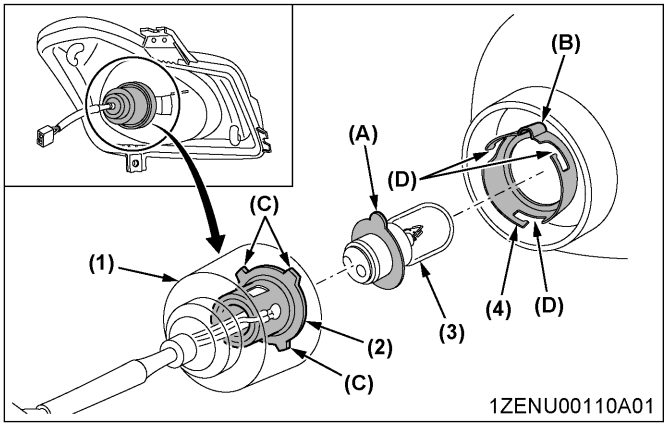
- **Be careful not to drop the bulb, hit anything against the head lamp, apply the excess force, or get the head lamp scratched. If the head lamp is broken, glass may cause injury. Pay more attention to halogen lamps in particular, which include high pressure inside.**
- **Before replacing the head lamp,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

Removing the bulb

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

Attaching the bulb

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



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

IMPORTANT :

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

8. 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.

9. 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.

10. 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.

11. Replacing the power steering line if required

Replace the power-steering-line if any deterioration such as crack, hardening, scar, or deformation, or damage occurred.
Consult your local Kubota Dealer for replacing the power-steering-line.

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

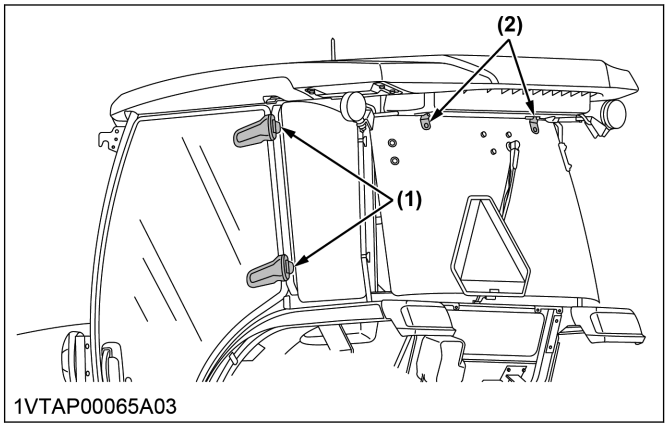
Replace the oil-cooler-line if any deterioration such as crack, hardening, scar, or deformation, or damage occurred.
Consult your local Kubota Dealer for replacing the oil-cooler-line.

13. 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.

14. Lubricating the hinges [CAB type]

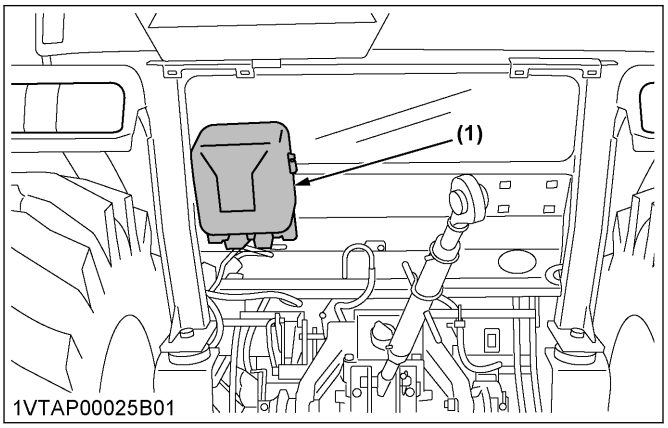
1. Lubricate the following points in the figure.



(1) Door hinge
(2) Rear window hinge

15. Adding the washer liquid [CAB type]

1. Add a proper amount of automobile washer liquid.



(1) Washer liquid tank

Washer tank capacity	1.2 L

16. Checking the amount of refrigerant (gas) [CAB type]

⚠ WARNING

To avoid personal injury or death:

- **Liquid contact with eyes or skin may cause frostbite.**
- **In the event of a leakage, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes.**
- **In contact with a flame, R134a refrigerant gives a toxic gas.**
- **Do not disconnect any part of the refrigeration circuit of the air conditioning system. Consult your local KUBOTA Dealer for assistance and service.**

Fluorinated greenhouse gases

Air conditioner gas contains fluorinated greenhouse gases.

Industrial designation	Quantity (kg)	CO_2 equivalent (ton)	GWP
HFC-134a	0.68	0.97	1430

GWP

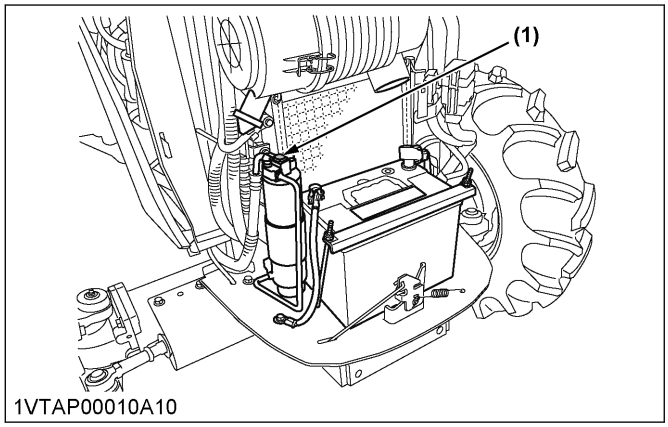
Global warming potential

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

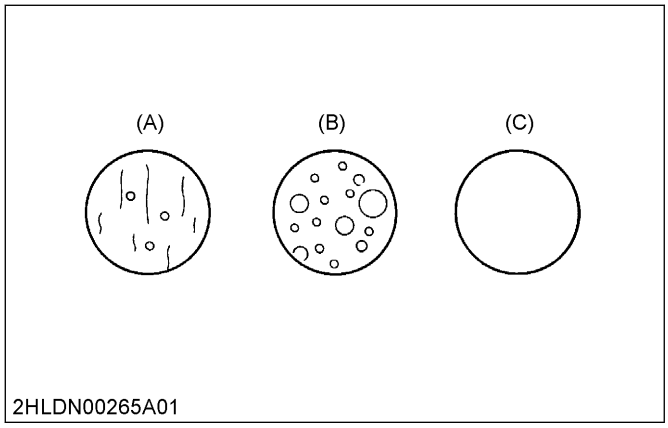
1. Run the air-conditioner in the following conditions.

Engine speed	About 1500 rpm
Temperature control dial	Maximum cooling position
Fan switch	Highest blow (HI)
Air-conditioner switch	On

2. Look into the sight glass to see if the refrigerant is flowing through its circuit.



(1) Sight glass



(A) Proper
(B) Low
(C) Overfull or no refrigerant

Proper (A)	Little or no air bubbles in the refrigerant flow.
Low (B)	Lots of air bubbles in the refrigerant flow (air bubbles or foam passing continuously).
Overfull or no refrigerant (C)	Colorless and transparent.

IMPORTANT :

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

STORAGE OF THE TRACTOR

⚠ WARNING

To avoid personal injury or death:

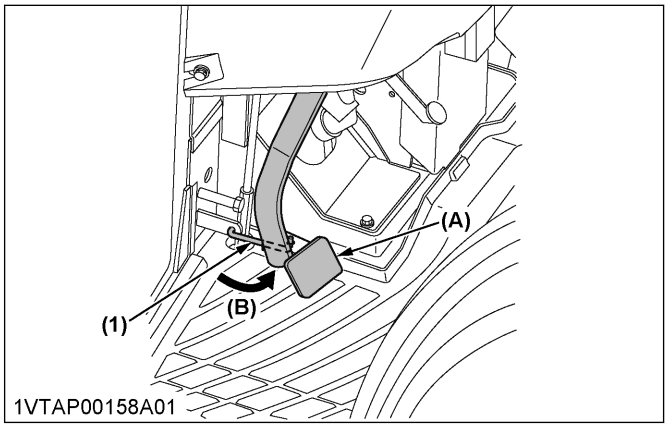
- **Do not clean the tractor while the engine is running.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.**
- **When storing the tractor, remove the starter key from the key switch to avoid unauthorized persons from operating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

STORING THE TRACTOR

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

1. Check the bolts and nuts for looseness, and tighten them if necessary.
2. Apply grease to the areas of the tractor where bare metal will rust and to pivot areas.
3. Detach the weights from the tractor body.
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
6. Keep the clutch disengaged.
   If you leave the clutch engaged for a long period of time, the clutch plate may rust, causing the disengagement of clutch impossible when operating it next time.

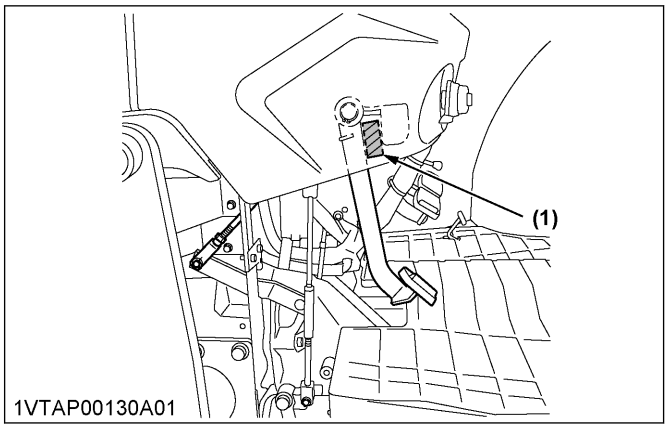
[CABIN manual transmission type]



(1) Lock plate
(A) Depress
(B) Hook to lock

To keep the clutch disengaged, depress the clutch pedal and get it locked with the wooden block as the following figure.

[ROPS manual transmission type]



(1) Wooden block

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 137)
9. Keep the tractor in a dry place where the tractor is sheltered from the elements. Cover the tractor.

10. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat.
    If you must store the tractor outdoors, cover it with a waterproof tarpaulin.
    Jack the tractor up and place blocks under the front and rear axles so that all 4 tires are off the ground. Keep the tires out of direct sunlight and extreme heat.

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

REMOVING THE TRACTOR FROM STORAGE

1. Check the air pressure of the tires and inflate the tires if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Before installing the battery, be sure that it is fully charged.
4. Install the battery.
5. Check the tension of the fan belt.
6. Check all fluid levels: engine oil, transmission/ hydraulic oil, engine coolant, and any attached implements.
7. Start the engine. Check all gauges.
8. If all gauges are functioning properly and reading normal, follow the following procedure.
    a. Move the tractor outside.
    b. Once outside, park the tractor.
    c. Let the engine idle for at least 5 minutes.
9. Shut the engine off. Walk around tractor and make a visual inspection looking for evidence of oil or water leaks.
10. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes if it is necessary for the brakes to be adjusted.
11. For CABIN manual transmission type, inspect the clutch pedal for free travel. Adjust the clutch pedal if incorrect measurement is found.
    (See Adjusting the clutch pedal [Manual transmission type only] on page 136)

[CABIN manual transmission type]

IMPORTANT :
- **In case of high atmosphere temperature, you may feel a sense of incongruity of the clutch operation. However, be restored to its original condition if use a tractor for a while. It is a characteristic of the clutch cable, and there is not the problem in the function.**

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

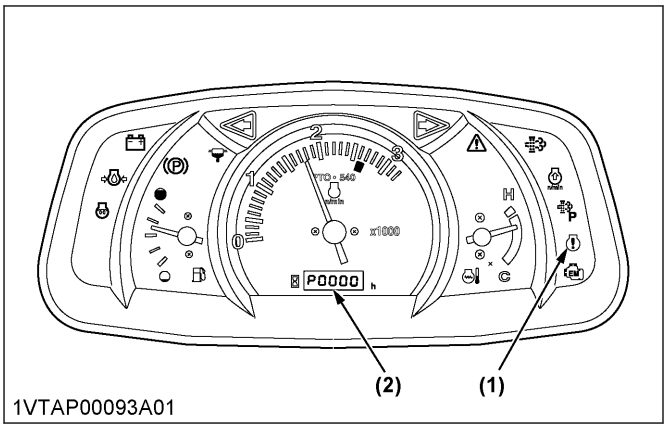
If something is wrong with the engine, see the following table for the cause of the trouble and its corrective measure.

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 How to purge air from the fuel on page 153)
		• 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. • Check to see if the preheat (glow plug) functions in cold weather.
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.	• Check to see if the preheat (glow plug) functions in cold weather. • 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.



(1) Engine warning indicator (2) Error code

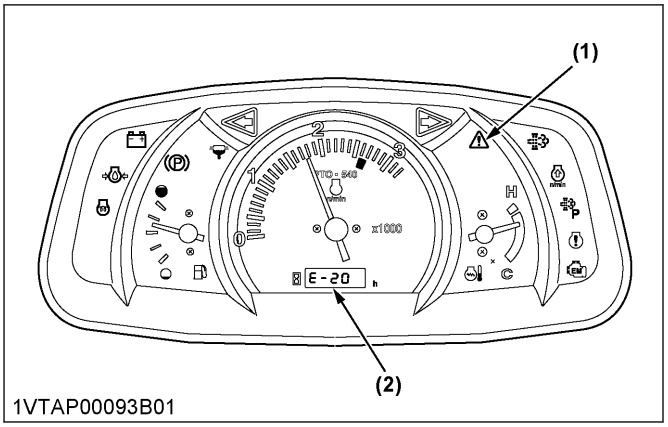
NOTE :

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

Displayed error code	Trouble	Operator's action
E-20	Communication trouble	Contact your local KUBOTA Dealer.
E-21	CAN communication trouble	
E-30	Accelerator adjustment trouble	
E-40	Input voltage of lever sensor from ECU is in trouble.	
E-84	Acceleration sensor maladjusted	
E-93	Relay for engine-starter-motor is in trouble.	Contact your local KUBOTA Dealer. The engine cannot start.
E-94	OPC output is in trouble.	Contact your local KUBOTA Dealer. The operator-presence-control (OPC) system gets activated, and the engine stops itself.
E-95	Solenoid (PTO) is in trouble.	Contact your local KUBOTA Dealer. The PTO shaft cannot rotate.

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.



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

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
- Sunshade
- Front grill guard
- Double acting remote hydraulic control valve with float position
- Double acting remote hydraulic control valve
- Draft control
- Work light
  High visibility for night work
- Side mirror [CABIN]
- Trailer socket
- Alternator

INDEX

Symbols

A

B

C

D

E

F

G

H

I

K

L

M

T

W