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KUBOTA Corporation

English (U.S.A.)
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OPERATOR'S MANUAL

KUBOTA TRACTOR

MODEL M6S-111



1NHNP00001A01

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READ AND SAVE THIS MANUAL



ABBREVIATION LIST

Abbreviations	Definitions
2WD	2-wheel drive
4WD	4-wheel drive
API	American Petroleum Institute
ASABE	American Society of Agricultural and Biological Engineers, USA
ASTM	American Society for Testing and Materials, USA
DIN	Deutsches Institut für Normung, Germany
DEF	Diesel exhaust fluid
DPF	Diesel particulate filter
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
SCR	Selective catalytic reduction
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.

■ General

	Safety alert symbol
	Master system warning
	Fast
	Slow
	Creep
	Lock

■ Engine-related

	Diesel fuel
	Full
	Hour meter / elapsed operating hours
	Engine coolant - temperature
	Low temperature regulation
	Engine oil - pressure
	Water separator
	Engine - warning
	Engine - rotational speed
	Engine - rev limiter
	Engine - constant rpm management
	Engine - over-speed
	Engine - rpm increase

	Engine - run
	Engine - start
	Engine - stop
	Electrical power - accessories
	Diesel preheat / glow plugs (low temperature start aid)
	Emission control
	Regeneration
	Regeneration inhibit
	Regeneration (switch)
	Parked regeneration
	DEF (AdBlue) - level
	DEF (AdBlue) - low level
	DEF (AdBlue) - poor quality
	SCR system warning
	DEF (AdBlue) - freeze

■ Vehicle body-related

	4-wheel drive - on
	4-wheel drive - off
	4-wheel drive - on



Swing shift - high



Swing shift - low



Clutch



Brake



Parking brake



Differential lock



Steering wheel - tilt



Turn signal



Hazard warning lights



Audible warning device



Windshield wiper



Windshield wiper - intermittent



Windshield washer



Rear window defroster

■ PTO-related



PTO - off (disengaged)



PTO - on (engaged)



PTO - 540 rpm



PTO - 1000 rpm

■ Hydraulic-related



Draft control - shallow position



Draft control - deep position



Position control - raised position



Position control - lowered position



3-point lowering speed control



Remote cylinder - retract



Remote cylinder - extend

■ Electric-related



Battery charging condition



Headlight - low beam



Headlight - high beam

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.

OTHERS

About trademarks

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

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SAFE OPERATION

Careful operation is your best insurance against an accident.

Read and understand this manual carefully before operating the tractor.

All operators, no matter how much experience they may 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.

BEFORE OPERATING THE TRACTOR

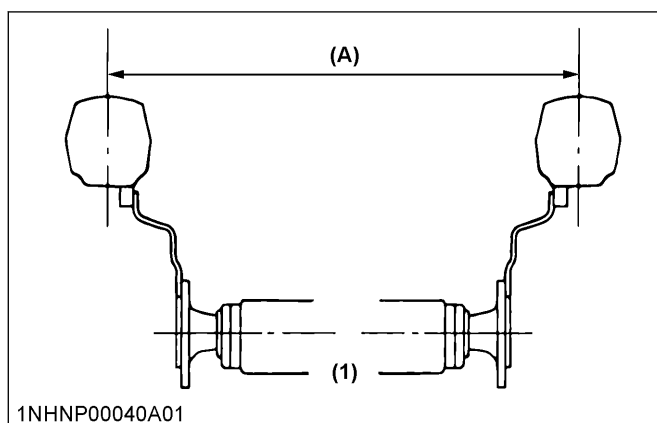
Know your equipment and its limitations. Read this entire manual before attempting to start and operate the tractor.

1. General

- Pay special attention to the safety labels on the tractor.
- Do not operate the tractor or any implement attached to it while under the influence of alcohol, medication, controlled substances or while fatigued.
- Before allowing other people to use your tractor, explain how to operate and have them read this manual before operation.
- Never wear loose, torn, or bulky clothing around the tractor. It may catch on moving parts or controls, leading to the risk of an accident.
Use additional safety items, such as a 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 operation.
- 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. (See MAINTENANCE on page 108.)
- Keep your tractor clean. Dirt, grease, and trash buildup may contribute to fires and lead to personal injury.
- Use only implements meeting the specifications listed in this manual or implements approved by Kubota. (See IMPLEMENT LIMITATIONS on page 27.)
- Use proper weights on the front or rear of the tractor to reduce the risk of upsets. When using the front loader, put an implement or ballast on the 3-point hitch to maintain proper balance and braking.

Follow the safe operating procedures specified in the implement or 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 TIRES, WHEELS, AND BALLAST on page 92.)



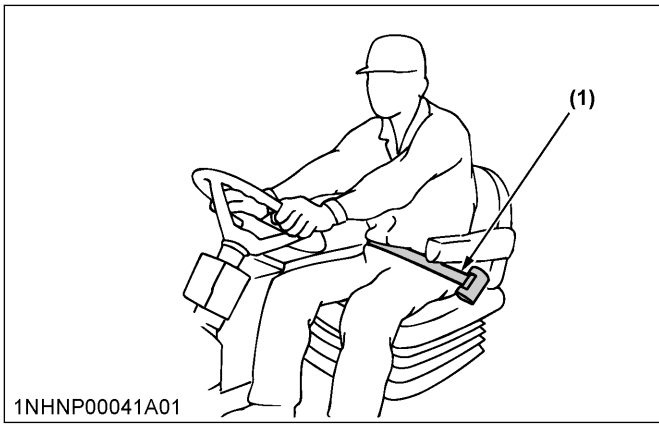
(1) Rear wheels (A) Tread width

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

2. CAB and ROPS

- Kubota recommends the use of a CAB or roll-over protective structures (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the tractor be upset. Check for overhead clearance which may interfere with a CAB or ROPS.
- 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 may weaken the structure.
- If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.
- Always use the seat belt if the tractor has a CAB or ROPS. Do not use the seat belt if there is no ROPS. Check the seat belt regularly and replace if frayed or damaged.

SAFE OPERATION



(1) Seat belt

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.

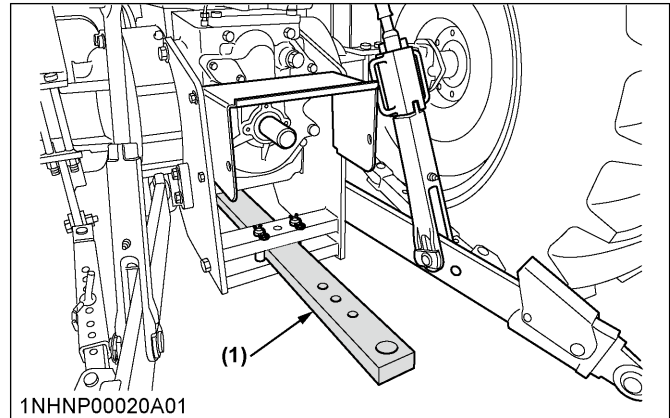
Some prohibited uses which can affect overturning hazards include traveling and turning with implements, loads carried too high and so on. This manual sets forth some of the obvious risks, but the list is not, and cannot be, exhaustive. It is the operator's responsibility to be alert for any equipment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

1. Starting to operate the tractor

- Always sit in the operator's seat when starting engine or operating levers or controls. Adjust seat per instructions in the operating the tractor section. Never start engine while standing on the ground.
- Before starting the engine, make sure that all levers (including auxiliary control levers) are in their neutral positions, that the parking brake is engaged, and that both the clutch and the power take-off (PTO) are disengaged or "OFF". Fasten the seat belt if the tractor has a CAB, a fixed ROPS or a foldable ROPS in the upright and locked position.
- Do not start engine by shorting across starter terminals or bypassing the safety start switch. The machine may start in gear and move if the 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 before each use that the operator presence controls (OPC) are functioning correctly. Test the safety systems.
(See Checking engine start system on page 124.)
Do not operate unless they are functioning correctly.

2. Working the tractor

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



(1) Drawbar

- For trailing 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 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 rear-wheel or 4-wheel differential locked and attempting to do so could be dangerous.
- Do not operate near ditches, holes, embankments, or other ground surface features which may collapse under the tractor's weight. The risk of tractor upset is even higher when the ground is loose or wet. Tall grass can hide obstacles; 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 do before you do it.
- Never try to get on or off a moving tractor.
- Always sit in the operator's seat when operating levers or controls.
- Do not stand between tractor and implement or trailed vehicle unless the parking brake is applied.
- Whenever the tractor is operated in reverse, confirm visibility to the rear.

3. Safety for children

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

- Never assume that children will remain where you last saw them.

! SAFE OPERATION

- Keep children out of the work area and under the watchful eye of another responsible adult.
- Be alert and shut your machine down if children enter the work area.
- Never carry children on your machine. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the machine.
- Never allow children to operate the machine even under adult supervision.
- Never allow children to play on the machine or on the implement.
- Use extra caution when backing up. Look behind and down to make sure area is clear before moving.

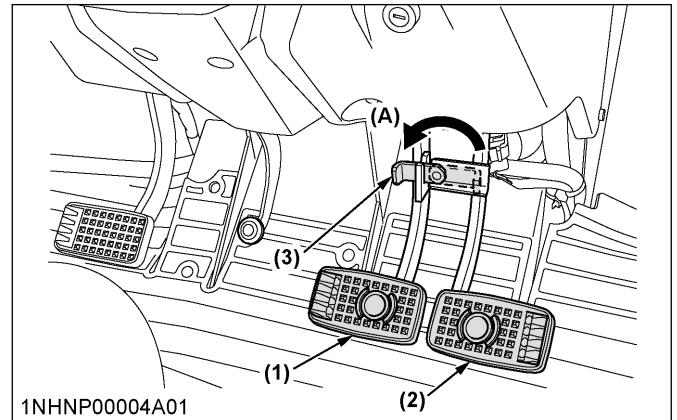
4. Operating on slopes

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, always back up steep slopes. If you cannot back up the slope or if you feel uneasy on it, 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 rear rollovers. Always back out of these situations. Extra caution is required with 4-wheel drive models because their increased traction can give the operator false confidence in the tractor's ability to climb slopes.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, direction or braking, nor make sudden motions with the steering wheel.
- Avoid disengaging the clutch or changing gears when climbing or going down a slope. If on a slope, disengaging the clutch or changing gears to neutral could cause the loss of control.
- Special attention should be paid to the weight and location of implements and loads as such will affect the stability of the tractor.
- To improve stability on slopes, set the widest possible wheel tread.
(See TIRES, WHEELS, AND BALLAST on page 92.)
Follow the recommendations for proper ballasting.
- To avoid free wheeling:
 - Do not shift the shuttle lever while on a slope.
 - Stop completely by using the brakes and by depressing the clutch pedal, then shift the shuttle lever.
 - Start off after selecting shuttle direction, by releasing the clutch pedal.
- When driving down a slope, ensure that 4-wheel drive is engaged to increase traction and braking efficacy (if equipped).

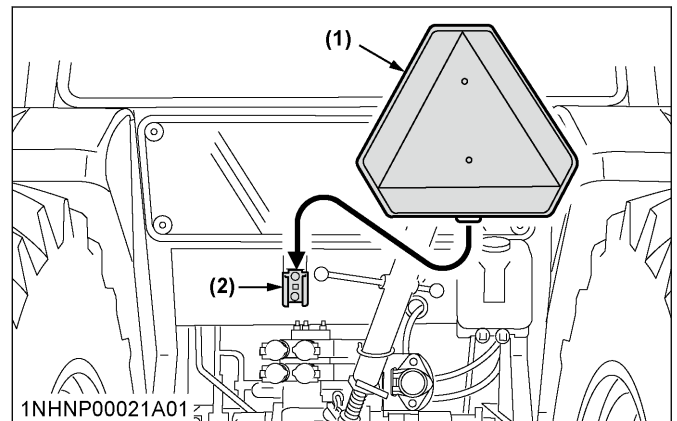
5. Driving the tractor on the road

- Lock the 2 brake pedals together to help assure straight-line stops. Uneven braking at road speeds could cause the tractor to tip over.



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

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



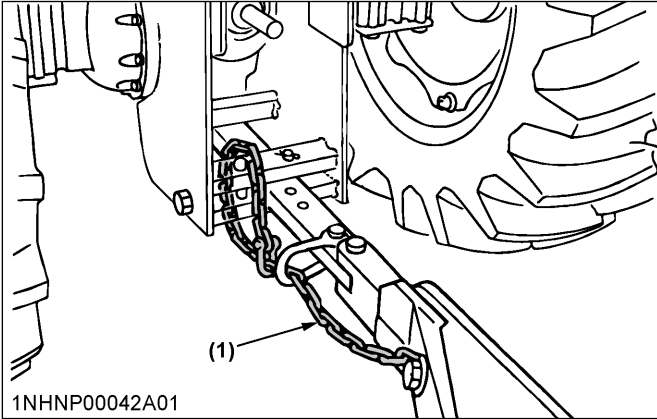
- (1) SMV emblem
(2) Bracket

- On public roads use the SMV emblem and hazard lights, if required by local traffic and safety regulations.
- Observe all local traffic and safety regulations.
- Turn the headlights on. Dim them 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

SAFE OPERATION

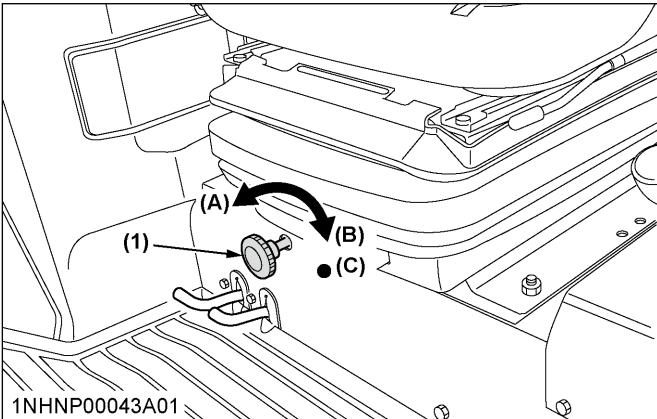
especially great when the tractor is traveling at road speeds.

- 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 it 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"

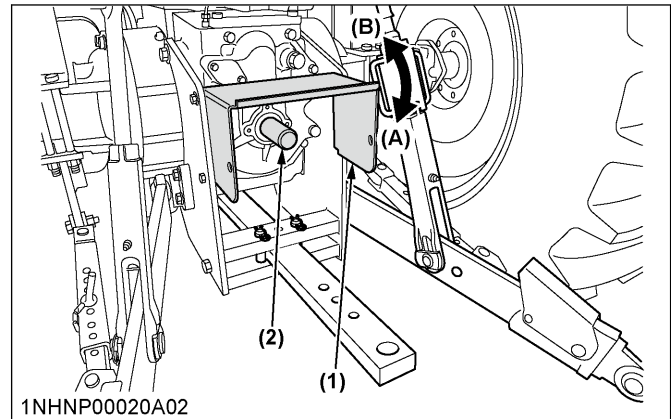
PARKING THE TRACTOR

- Disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine, remove the key from the ignition and lock the CAB door (if equipped).
Leaving transmission in gear with the engine stopped will not prevent the tractor from rolling.
- Make sure that the tractor has come to a complete stop before dismounting.
- Avoid parking on steep slopes. If at all possible, park on a firm and level surface; if not, 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.

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. Put back the PTO shaft cap when the shaft is not in use.

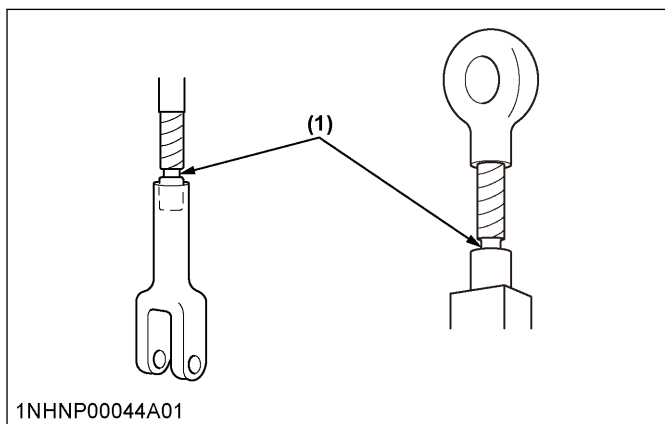


(1) PTO shaft cover
(2) PTO shaft cap
(A) "NORMAL position"
(B) "RAISED position"

- Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment.
To prevent PTO driven equipment from improper or unsafe use, select the lower speed (540 rpm) unless the higher one is specifically recommended as safe by the equipment manufacturer.
- 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.

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 the lift rod beyond the groove on the threaded rod.

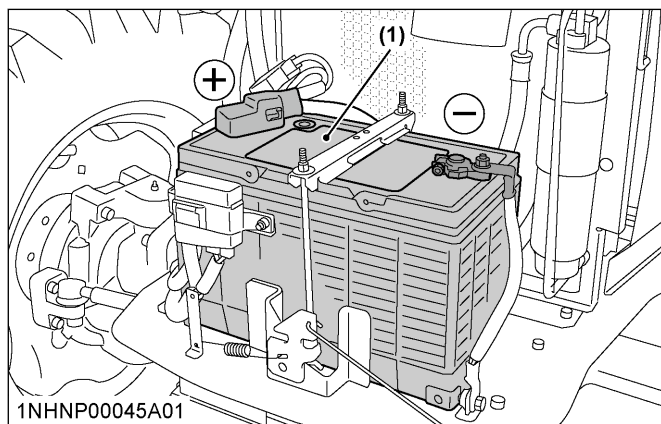


(1) Groove

SERVICING THE TRACTOR

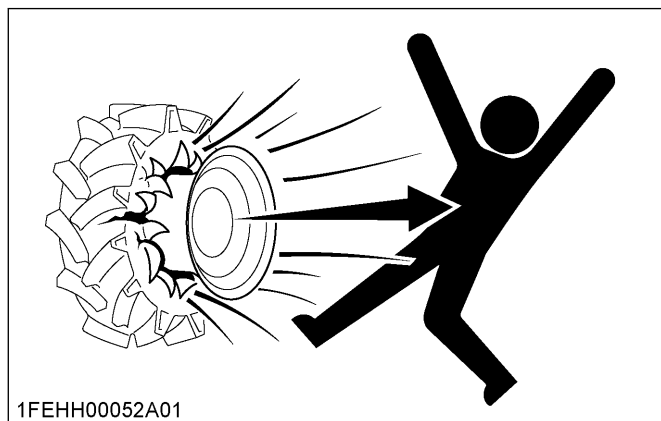
Before servicing the tractor, park it on a firm, flat and level surface, set the parking brake, lower all implements to the ground, place the gear shift lever in neutral, stop the engine and remove the key.

- Allow the tractor time to cool off before working on or near the engine, muffler, radiator and so on.
- Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely. If the tractor has a coolant recovery tank, add coolant or water to the recovery tank, not the radiator.
(See Checking coolant level on page 121.)
- Always stop the engine before refueling. Avoid spills and overfilling. Use only approved fuels.
- Always use grounded refueling facilities.
- Do not smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when recharging.
- Before "jump starting" a dead battery, read and follow all of the instructions.
(See JUMP STARTING THE ENGINE on page 54.)
- Keep first aid kit and fire extinguisher handy at all times.
- Disconnect the battery's ground cable 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 battery's ground cable (-) first and reconnect it last.



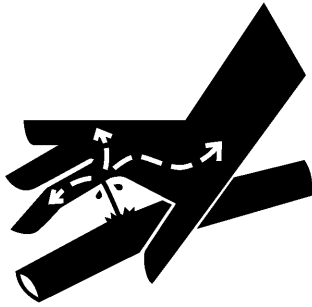
(1) Battery

- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.



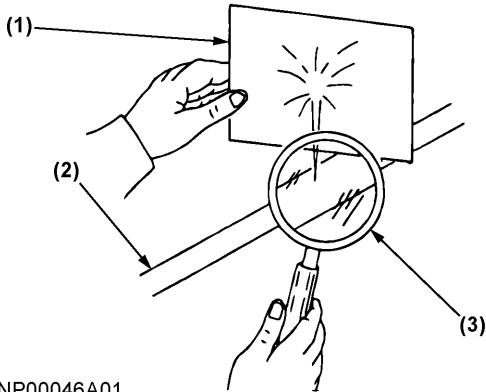
- Securely support the tractor when either changing wheels or adjusting the wheel tread width.
- Make sure that wheel bolts have been tightened to the specified torque.
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary 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 has sufficient force to penetrate skin, causing serious personal injury. Before disconnecting 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.

SAFE OPERATION



1FEHH00053A01

- Fluid escaping from pinholes may be invisible. Do not use hands to search for suspected leaks; use a piece of cardboard or wood. Use of safety goggles or other eye protection is also highly recommended. If injured by escaping fluid, see a medical doctor at once. This fluid will produce gangrene or severe allergic reactions.



1NHNP00046A01

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

- Do not open the high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or 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 or repair the computer, harness or connectors.
- During diesel particulate filter (hereinafter called 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.
- To prevent fires, keep the DPF muffler / SCR device and their surroundings clear of anything flammable

and keep clean at all times (selective catalytic reduction - hereinafter called SCR).

- 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, aqueous urea 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.

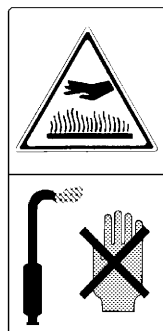
SAFETY LABELS

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



1AGAIAZAP110A

- (2) Part No. 32310-4958-1
Do not touch hot surface like muffler, etc.



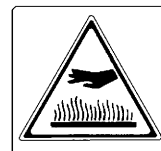
1AGAIAZAP071A

- (3) Part No. 3B291-9853-1
Diesel fuel only No fire



1AGBDAAAP052A

- (4) Part No. K3512-4719-1
Do not touch hot surface like supply pump, etc.



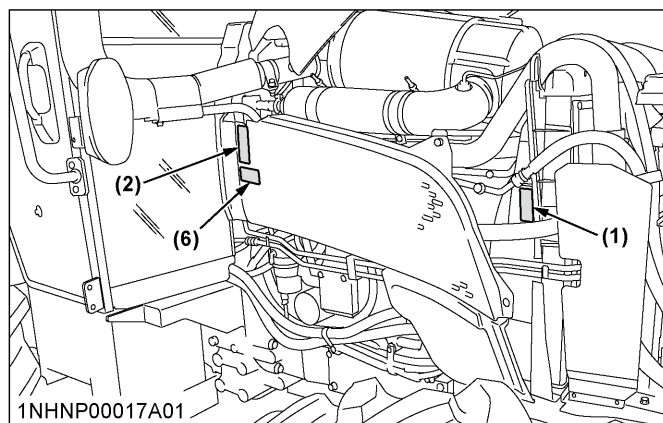
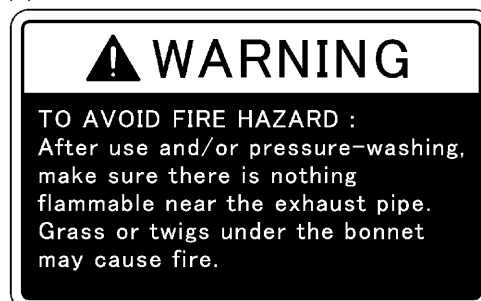
1AGAIDXAP073A

- (5) Part No. TC660-9861-1

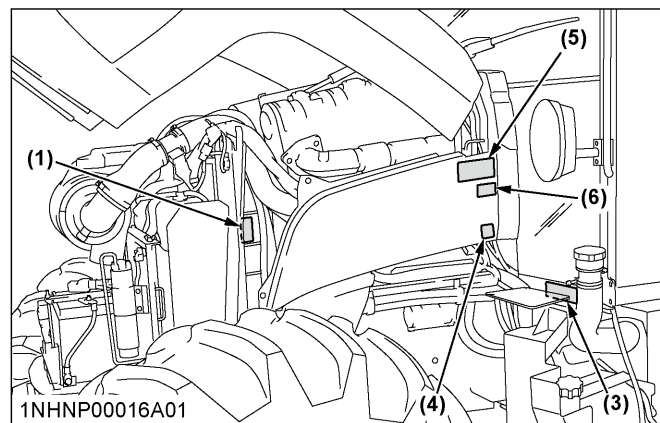


1AGAHAKAP051A

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



1NHNP00017A01



1NHNP00016A01

1NHNP00115A01enUS

⚠️ SAFE OPERATION

(1) Part No. 6C150-4743-1

⚠️ 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. 4. STOP THE ENGINE.
	

1AGAIBDAP040A

(2) Part No. 3C581-9858-1

	⚠️ DANGER TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY. 1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed. 2. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground.
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1AGAIAP009A

(3) Part No. 3F240-9857-1

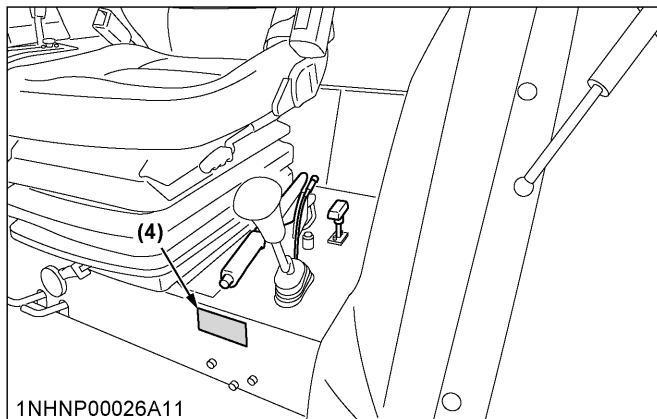
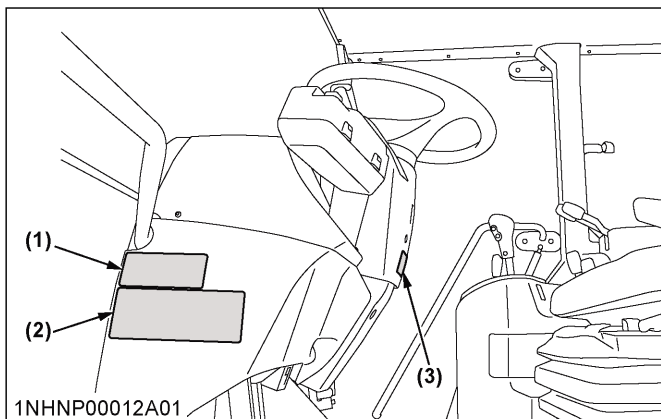
⚠️ WARNING To avoid free wheeling when shifting the shuttle lever while on a slope : Stop completely by using the brake and by depressing the clutch pedal. Start off after selecting shuttle direction by releasing the clutch pedal.
--

1AGAIBDAP039A

(4) 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.

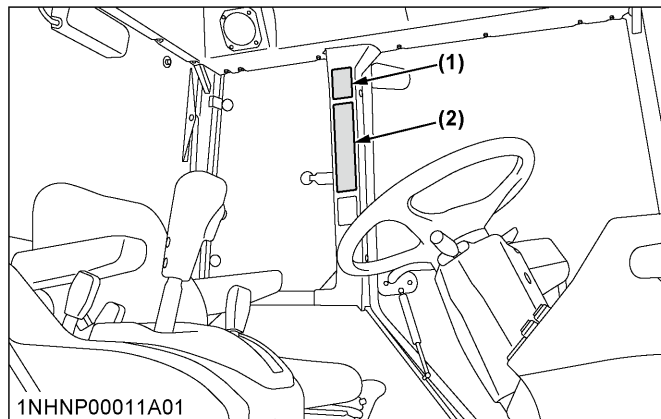
1HNADAAAP130A



(1) Part No. TA040-4902-1



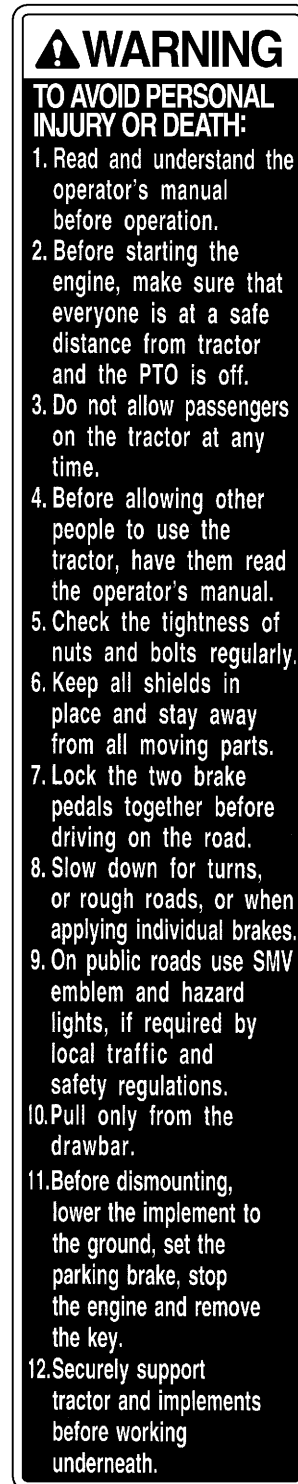
1AGAMAOAP078A



1NHNP00011A01

1NHNP00119A01enUS

(2) Part No. 3S205-9836-1



1AGBEAAP061A

⚠️ SAFE OPERATION

(1) Part No. 3Y205-9892-2

⚠️ DANGER/POISON

SHIELD EYES.
 EXPLOSIVE
 GASES CAN
 CAUSE BLINDNESS
 OR INJURY.

NO
 SPARKS
 CAN CAUSE
 FLAMES
 SMOKING
 SEVERE BURNS.

SULFURIC ACID
 CAN CAUSE
 BLINDNESS OR
 SEVERE BURNS.

KEEP OUT OF REACH OF CHILDREN.
DO NOT TIP. DO NOT OPEN BATTERY.

FLUSH EYES
IMMEDIATELY
WITH WATER.

GET
MEDICAL
HELP FAST.

CALIFORNIA PROPOSITION 65
⚠️ WARNING: THIS PRODUCT CAN
 EXPOSE YOU TO CHEMICALS INCLUDING
 LEAD, WHICH IS KNOWN TO THE STATE
 OF CALIFORNIA TO CAUSE CANCER AND
 BIRTH DEFECTS OR OTHER REPRODUCTIVE
 HARM. FOR MORE INFORMATION GO
 TO WWW.P65WARNINGS.CA.GOV

DK103027

105E41R 12V

AMP. HR (5HR)	80
AMP. HR (20HR)	100
RESERVE CAPACITY (MIN)	160
BCI CCA	900
EN CCA	800

S.O.C
Indicator

OK Charge Replace

Pb

1AGAIJAP134A

(2) Part No. TA040-7295-1

CAUTION REFRIGERANT UNDER HIGH PRESSURE

Improper service methods may cause personal injury.
 This air conditioning system should be serviced by
 your dealer or any other qualified service shop.
 See Repair Manual for details.

Refrigerant

R134a Max. 1.05kg (2.31 lbs.)
 USE ONLY Min. 0.95kg (2.09 lbs.)

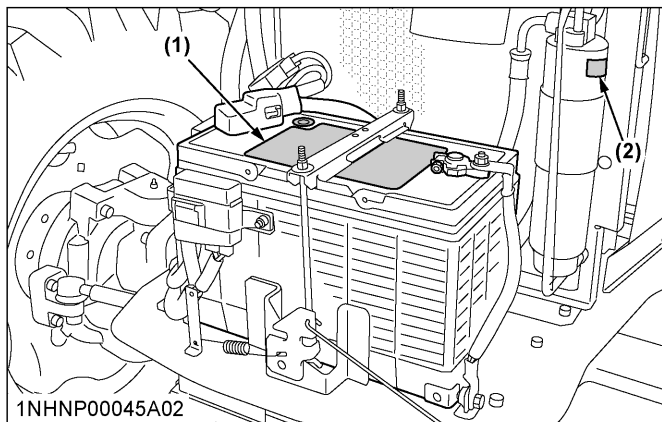
oil

ND-OIL8 SAE
 USE ONLY J-639

MFD. BY NIPPONDENSO CO.,LTD. JAPAN

A100

1AGAICHAP077A



1NHNP00045A02

1NHNP00117A01enUS

! SAFE OPERATION

(1) Part No. 3B291-9856-1

! WARNING

TO AVOID PERSONAL INJURY OR DEATH FROM SEPARATION:



GROOVE
LH

DO NOT EXTEND LIFT ROD BEYOND THE GROOVE ON THE THREADED ROD.



GROOVE
RH

1AGBDAAAP053A

(2) Part No. 6C200-4959-1

! WARNING

TO AVOID PERSONAL INJURY:

1. Attach pulled or towed loads to the drawbar only.
2. Use the 3-point hitch only with equipment designed for 3-point hitch usage.

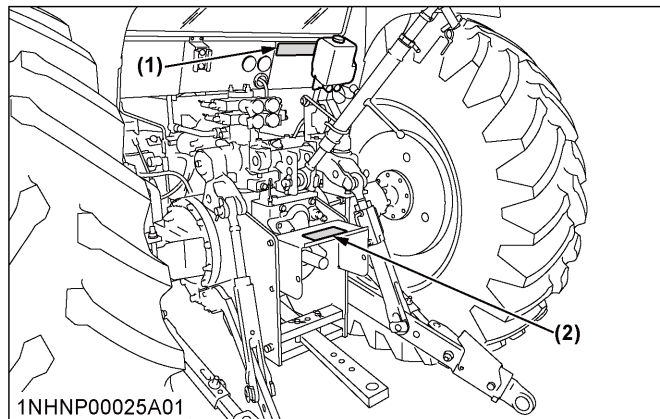


! WARNING

TO AVOID PERSONAL INJURY:

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

1AGAIHFAP067A



1NHNP00025A01

1NHNP00118A01enUS



SAFE OPERATION

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 new label(s) is (are) attached in the same location(s) as the replaced component.
- Mount new safety labels by applying on a clean dry surface and pressing any bubbles to outside edge.

SERVICING OF TRACTOR

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 do some of the regular maintenance yourself. However, when in need of parts or major service, be sure to see your KUBOTA Dealer.

For service, contact the KUBOTA Dealership from which you purchased your machine or your local KUBOTA Dealer.

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

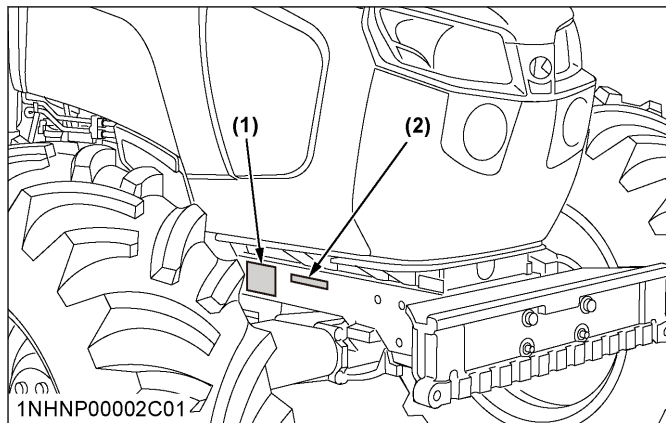
Locate the PIN and serial numbers now and record them in the space provided.

Date of purchase	
Name of dealer	

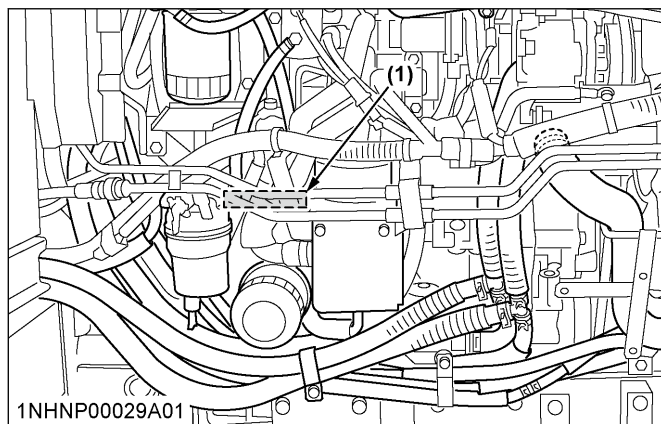
To be filled in by purchaser

	Type	PIN / Serial No.
Tractor		
CAB/ROPS		
Engine		

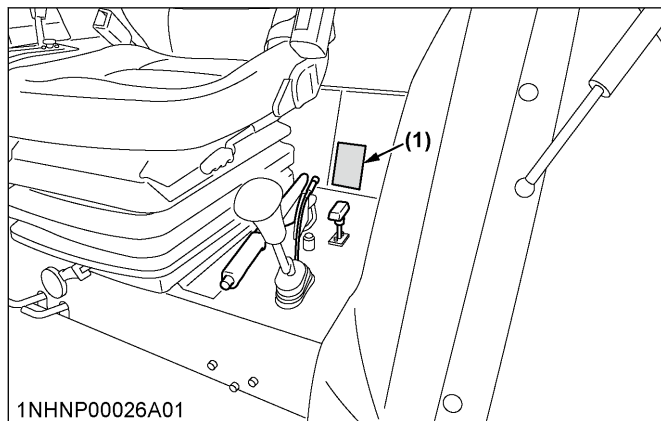
To be filled in by purchaser



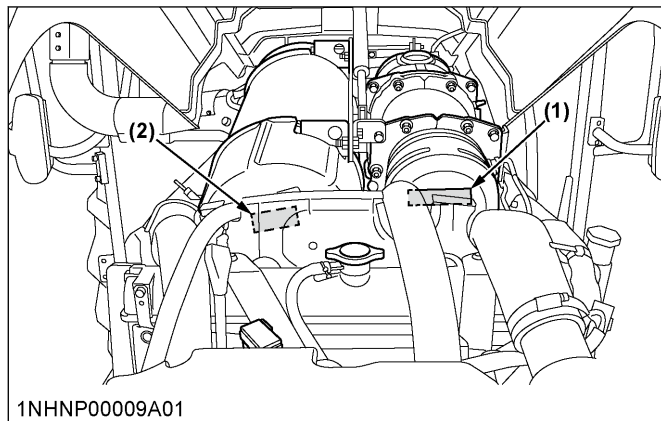
- (1) Identification plate
(2) Product identification number



- (1) Engine serial number



- (1) CAB identification plate (CAB serial No.)



- (1) Diesel particulate filter (DPF) serial number
(2) Selective catalytic reduction (SCR) device serial number

WARRANTY

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

SCRAPPING THE TRACTOR AND ITS PROCEDURE

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

If you have questions, consult your local KUBOTA Dealer.

SPECIFICATIONS

SPECIFICATION TABLE

Model				M6S-111	
				2WD	4WD
Engine	Model			V3800-TIEF4	
	Type			Direct injection, water-cooled 4 cycle diesel, common rail system, turbo-charger, intercooler	
	Number of cylinders			4	
	Total displacement	cm ³ (in ³)		3769 (230)	
	Bore and stroke	mm (in.)		100 × 120 (3.9 × 4.7)	
	Rated revolution	rpm		2600	
	Low idling revolution	rpm		800 to 850	
	Rated engine HP (97/68/EC)	kW (HP)		85.1 (114.1) @ 2600	
	Net power *1 (SAE J1349)	kW (HP)		78.2 (104.9)	
	PTO power *1 (at rated engine rpm)	kW (HP)		70.8 (95)	
	Maximum torque	N·m (lbf·ft) / rpm		370.9 (273.6) / 1500	
	Battery capacity			12V, RC: 160 min, CCA 900A	
	Fuel tank capacity	L (U.S.gals)		175 (46.2)	
	Engine oil capacity	L (U.S.qts)		10.7 (11.3)	
	Coolant capacity	L (U.S.qts)		10.2 (10.8)	
	DEF tank capacity	L (U.S.qts)		12.3 (3.2)	
Dimensions	Overall length		mm (in.)	4145 (163)	
	Overall width (factory-set)		mm (in.)	2350 (93)	
	Overall height		mm (in.)	2680 (106)	
	Wheel base		mm (in.)	2435 (95.9)	
	Tread	Front	mm (in.)	1540 to 2040 (60.6 to 80.3)	1580 to 1680 (62.2 to 66.1)
		Rear	mm (in.)	1705 to 2005 (67.1 to 78.9)	1730 to 2035 (68.1 to 80.1)
	Minimum ground clearance		mm (in.)	430 (16.9) (drawbar bracket)	
Weight			kg (lbs.)	3330 (7341)	4070 (8973)
Traveling system	Standard tire size	Front tires		10.00-16	13.6-24
		Rear tires/disk type *2		18.4-34 steel	18.4-34 cast
	Clutch			Multiple wet disc	
	Steering			Hydraulic power steering	
	Braking system			Multiple wet disc	
	Differential			Bevel gears with differential lock (rear)	Bevel gears with differential lock (front and rear)
	Hydraulic unit	Hydraulic control system			Position, draft (top link sensing) and mixed control
Pump capacity		L (U.S.gals) / min		65 (17.2)	
3-point hitch			Category 2		
Max. lifting force *3		At lifting points	kg (lbs.)	2250 (4960), 3300 (7275) with 2 assist cylinders (option)	

(Continued)

SPECIFICATIONS

Model				M6S-111	
				2WD	4WD
Hydraulic unit	Max. lifting force *3	24 in. behind lifting point	kg (lbs.)	1750 (3858), 2600 (5732) with 2 assist cylinders (option)	
	Remote hydraulic control			2 standard (3rd and flow control valve optional)	
	System pressure		MPa (kgf/cm ²)	19.6 (200)	
	Traction system			Swinging drawbar, adjustable in direction	
PTO	Live PTO (independent)	Direction of turning		Clockwise, viewed from tractor rear	
		PTO/engine speed	rpm	6 spline: 540 / 2405 21 spline: 1000 / 2389 (if equipped)	

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

*1 Manufacturer's estimate

*2 Steel/cast iron both available

*3 Max lifting force by full stroke, ISO730

TRAVELING SPEEDS

Model				M6S-111		
Rear tire size				18.4-34		
Transmission type				without Dual speed	with Dual speed	
Shuttle shift lever	Range gear shift lever	Main gear shift lever		km/h (mph)	Hi	Lo
					km/h (mph)	km/h (mph)
Forward 	Creep (option)	Ls	1	0.38 (0.23)	0.38 (0.23)	0.31 (0.19)
			2	0.48 (0.30)	0.48 (0.30)	0.40 (0.25)
			3	0.60 (0.37)	0.60 (0.37)	0.49 (0.30)
			4	0.73 (0.45)	0.73 (0.45)	0.60 (0.37)
		Hs	1	0.94 (0.58)	0.94 (0.58)	0.77 (0.48)
			2	1.19 (0.74)	1.19 (0.74)	0.99 (0.61)
			3	1.47 (0.91)	1.47 (0.91)	1.21 (0.75)
			4	1.80 (1.1)	1.80 (1.1)	1.49 (0.92)
	L	Ls	1	2.12 (1.3)	2.12 (1.3)	1.76 (1.1)
			2	2.70 (1.7)	2.70 (1.7)	2.24 (1.4)
			3	3.33 (2.1)	3.33 (2.1)	2.75 (1.7)
			4	4.08 (2.5)	4.08 (2.5)	3.38 (2.1)
		Hs	1	5.22 (3.2)	5.22 (3.2)	4.32 (2.7)
			2	6.65 (4.1)	6.65 (4.1)	5.50 (3.4)
			3	8.20 (5.1)	8.20 (5.1)	6.78 (4.2)
			4	10.0 (6.2)	10.0 (6.2)	8.3 (5.2)
	H	Ls	1	7.4 (4.6)	7.4 (4.6)	6.1 (3.8)
			2	9.4 (5.8)	9.4 (5.8)	7.8 (4.8)
			3	11.6 (7.2)	11.6 (7.2)	9.6 (6.0)
			4	14.3 (8.9)	14.3 (8.9)	11.8 (7.3)
		Hs	1	18.3 (11.4)	18.3 (11.4)	15.1 (9.4)
			2	23.2 (14.4)	23.2 (14.4)	19.2 (11.9)
			3	28.6 (17.8)	28.6 (17.8)	23.7 (14.7)
			4	37.8 (23.5) *1	37.8 (23.5) *1	29.0 (18.0)

At rated engine rpm

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

*1 At maximum engine rpm

SPECIFICATIONS

Model				M6S-111		
Rear tire size				18.4-34		
Transmission type				without Dual speed	with Dual speed	
Shuttle shift lever	Range gear shift lever	Main gear shift lever		km/h (mph)	Hi	Lo
					km/h (mph)	km/h (mph)
Reverse 	Creep (option)	Ls	1	0.38 (0.24)	0.38 (0.24)	0.32 (0.19)
			2	0.49 (0.30)	0.49 (0.30)	0.40 (0.25)
			3	0.60 (0.37)	0.60 (0.37)	0.50 (0.31)
			4	0.74 (0.46)	0.74 (0.46)	0.61 (0.37)
		Hs	1	0.94 (0.58)	0.94 (0.58)	0.78 (0.48)
			2	1.20 (0.74)	1.20 (0.74)	0.99 (0.61)
			3	1.48 (0.92)	1.48 (0.92)	1.22 (0.75)
			4	1.82 (1.1)	1.82 (1.1)	1.50 (0.93)
	L	Ls	1	2.14 (1.3)	2.14 (1.3)	1.77 (1.1)
			2	2.73 (1.7)	2.73 (1.7)	2.25 (1.4)
			3	3.36 (2.1)	3.36 (2.1)	2.78 (1.7)
			4	4.12 (2.6)	4.12 (2.6)	3.40 (2.1)
		Hs	1	5.27 (3.3)	5.27 (3.3)	4.35 (2.7)
			2	6.71 (4.2)	6.71 (4.2)	5.55 (3.4)
			3	8.27 (5.1)	8.27 (5.1)	6.83 (4.2)
			4	10.1 (6.3)	10.1 (6.3)	8.4 (5.2)
	H	Ls	1	7.5 (4.7)	7.5 (4.7)	6.2 (3.9)
			2	9.5 (5.9)	9.5 (5.9)	7.9 (4.9)
			3	11.7 (7.3)	11.7 (7.3)	9.7 (6.0)
			4	14.4 (8.9)	14.4 (8.9)	11.9 (7.4)
		Hs	1	18.4 (11.4)	18.4 (11.4)	15.2 (9.4)
			2	23.4 (14.5)	23.4 (14.5)	19.4 (12.1)
			3	28.9 (18.0)	28.9 (18.0)	23.9 (14.9)
			4	38.1 (23.7) *1	38.1 (23.7) *1	29.3 (18.2)

At rated engine rpm

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

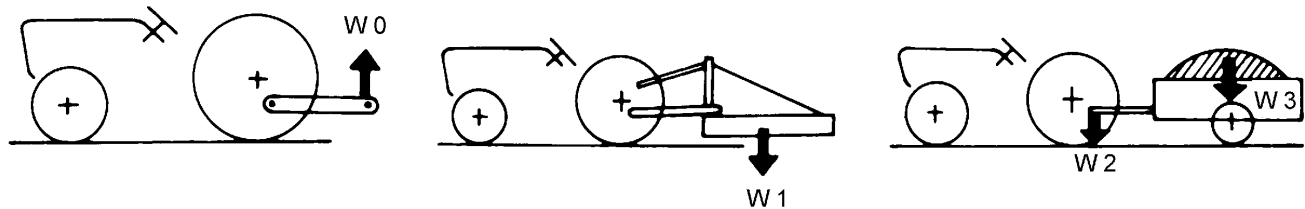
*1 At maximum engine rpm

IMPLEMENT LIMITATIONS

The tractor has been thoroughly tested for proper performance with implements sold or approved by Kubota. Use with implements which are not sold or approved by Kubota and which exceed the maximum specifications listed in the following table, or which are otherwise unfit for use with the tractor, may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.

Tread (max. width)				Operating condition	Lower link end max. lifting capacity: W0
Front			Rear	IMPORTANT : • Tractor with front spacer option is not approved for use with front loader.	
2WD	4WD				
	Without spacer	With spacer			
2040 mm (80.3 in.)	1680 mm (66.1 in.)	2040 mm (80.3 in.)	2035 mm (80.1 in.)		2250 kg (4960 lbs.)

Implement weight: W1	Max. drawbar load: W2	Trailer loading weight: W3	
		2WD	4WD
As in the following list: (See IMPLEMENT SPECIFICATION TABLE on page 28.)	1500 kg (3300 lbs.)	6000 kg (13200 lbs.)	7000 kg (15400 lbs.)



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W0 Lower link end max. hydraulic lifting capacity

W1 Implement weight - the implement's weight which can be put on the lower link

W2 Max. drawbar load

W3 Trailer loading weight - the max. loading weight for trailer (without trailer's weight)

NOTE :

- Implement size may vary depending on soil operating conditions.
- Strictly follow the instructions outlined in the operator's manual of the mounted or trailed machinery, or of the trailer, and do not operate the combination tractor-machine or tractor-trailer unless all instructions have been followed.
- Forestry application
The following hazards exist:
 - toppling trees, primarily with a tree grab-crane mounted at the rear of the tractor;
 - penetrating objects in the operator's enclosure, primarily with a winch mounted at the rear of the tractor.

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

IMPLEMENT SPECIFICATION TABLE

No.	Implement		Remarks		M6S-111	
					2WD	4WD
1	Slurry tank		Max. tank capacity	L (gals.)	5000 (1320)	
			Max. load capacity	kg (lbs.)	6000 (13200)	
2	Trailer		Max. load capacity	kg (lbs.)	6000 (13200)	7000 (15400)
			Max. drawbar load	kg (lbs.)	1500 (3300)	
3	Mower	Rotary-cutter (3P type)	Max. cutting width	mm (in.)	3200 (126)	
			Max. weight	kg (lbs.)	800 (1764)	
		Rotary-cutter (drawbar type)	Max. cutting width	mm (in.)	6096 (240)	
		Disc mower (drawbar type)	Max. cutting width	mm (in.)	3962 (156)	
		Flail mower (heavy)	Max. cutting width	mm (in.)	4267 (168)	
			Max. weight	kg (lbs.)	1360 (3000)	
		Sickle bar	Max. cutting width	mm (in.)	2743 (108)	3050 (120)
4	Sprayer		Max. tank capacity	Mid	L (gals.)	1000 (260)
				Rear 3P	L (gals.)	1000 (260)
				Drawbar	L (gals.)	5000 (1320) 5500 (1450)
5	Rotary tiller		Max. tilling width	mm (in.)	2700 (108)	
			Max. weight	kg (lbs.)	1200 (2645)	
6	Bottom plow		Max. size		14 in. × 4, 20 in. × 2 16 in. × 4, 22 in. × 2 18 in. × 3, 24 in. × 1	14 in. × 5, 20 in. × 3 16 in. × 4, 22 in. × 2 18 in. × 4, 24 in. × 1
			Max. weight	kg (lbs.) 3P type	900 (1980)	
7	Disk harrow	3P type	Max. size		24 in. × 28	
			Max. harrowing width	mm (in.)	3300 (130)	
			Max. weight	kg (lbs.)	900 (1980)	
		Drawbar type	Max. harrowing width	mm (in.)	4300 (168)	
8	Disc plow		Max. size		28 in. × 4	
			Max. weight	kg (lbs.)	900 (1980)	
9	Subsoiler		Numbers of cultivating tines		3	
			Cultivating depth	mm (in.)	550 (22)	
10	Cultivator		Max. width	mm (in.)	5490 (216)	
			Number of rows		6	
			Max. weight	kg (lbs.)	900 (1980)	
11	Front blade *1*2		Max. cutting width	mm (in.)	2600 (102)	
			Max. oil pressure	MPa (psi.)	19.6 (2842)	
12	Rear blade		Max. cutting width	mm (in.)	2600 (102)	
			Max. oil pressure	MPa (psi.)	19.6 (2842)	
13	Front loader *1*2		Max. lifting capacity (bucket pivot pin, max. height) *3	kg (lbs.)	1950 (4299)	
			Max. oil pressure (extra hydro kit)	MPa (psi.)	20.5 (2975)	
14	Box blade		Max. cutting width	mm (in.)	2430 (96)	

(Continued)

No.	Implement	Remarks		M6S-111	
				2WD	4WD
14	Box blade	Max. weight	kg (lbs.)	800 (1760)	
15	Snow blade	Max. width	mm (in.)	2600 (102)	
		Max. weight	kg (lbs.)	800 (1760)	

NOTE :

- Implement size may vary depending on soil operating conditions.

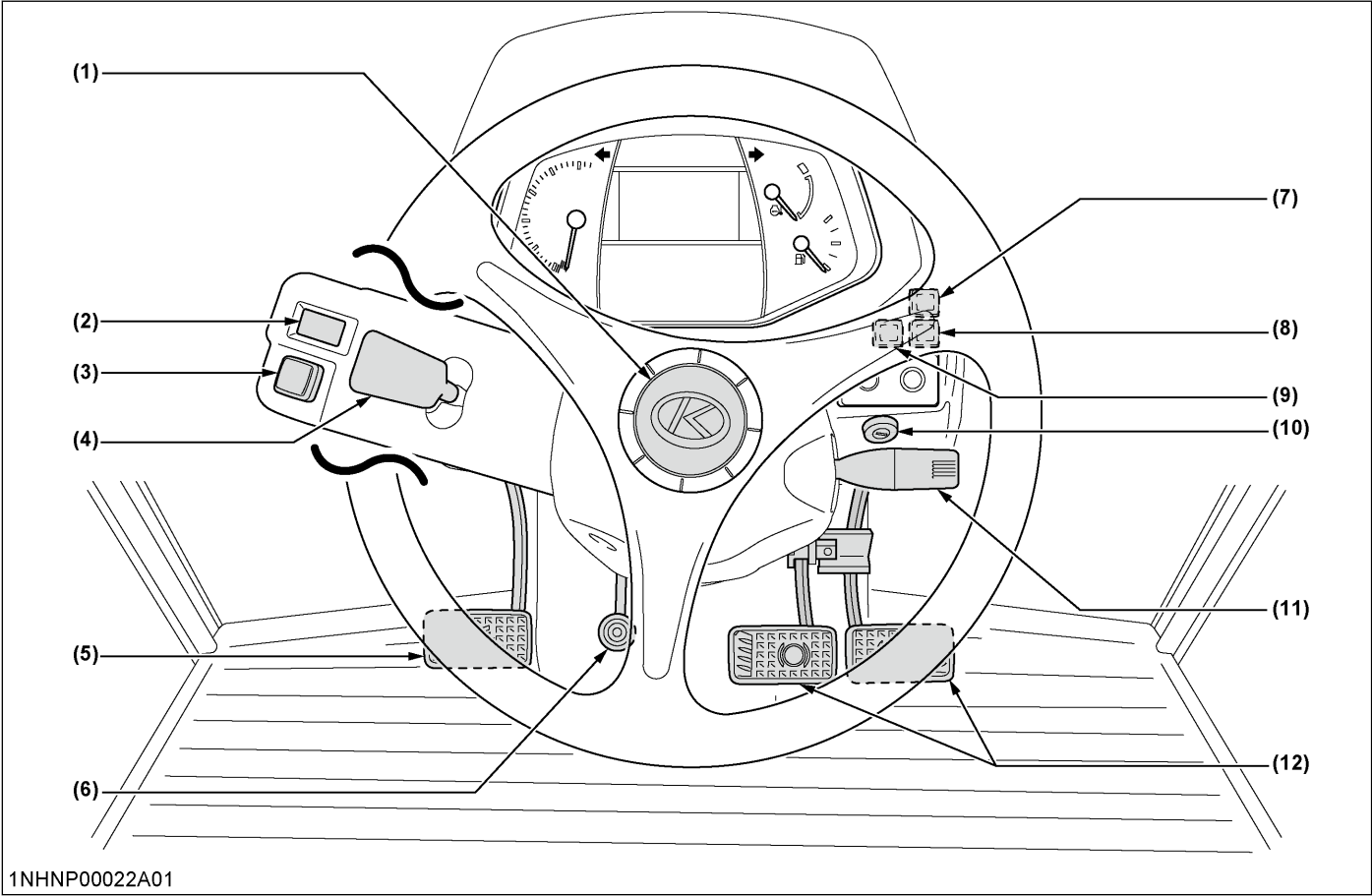
*1 Must remove front weight with this implement.

*2 Need subframe

*3 The value contains the weight of Kubota standard bucket.

INSTRUMENT PANEL AND CONTROLS

SWITCHES AND HAND CONTROLS

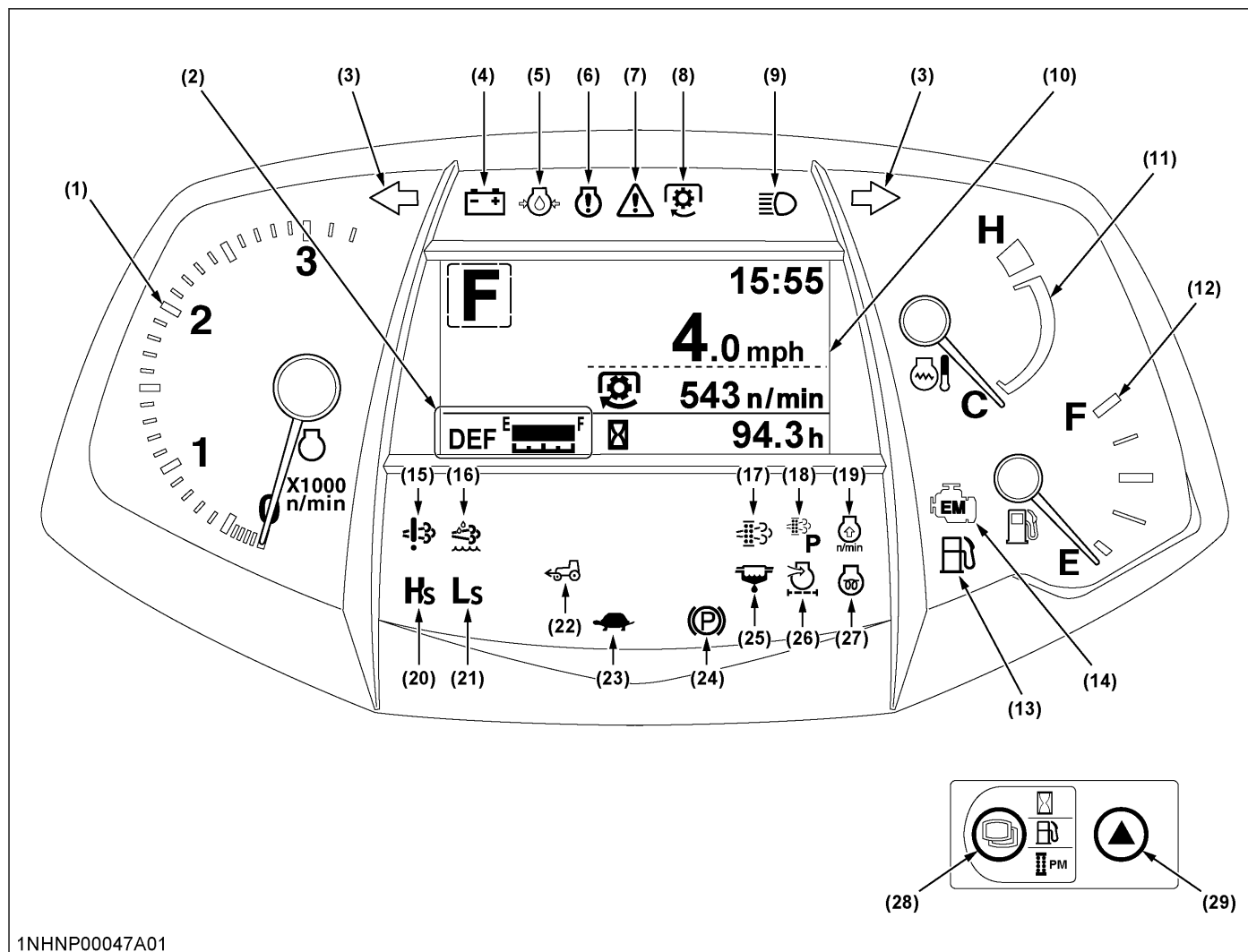


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Illustrated contents

(1) Horn button	59	(7) Constant RPM Management switch	74
(2) Front wiper and washer switch	102	(8) DPF inhibit switch	38
(3) Hazard light switch.....	58	(9) Parked regeneration switch	40
(4) Hydraulic-shuttle shift lever.....	62	(10) Key switch.....	50
(5) Clutch pedal.....	60	(11) Turn signal and headlight switch.....	58
(6) Tilt pedal	58	(12) Brake pedals.....	59

INSTRUMENT PANEL

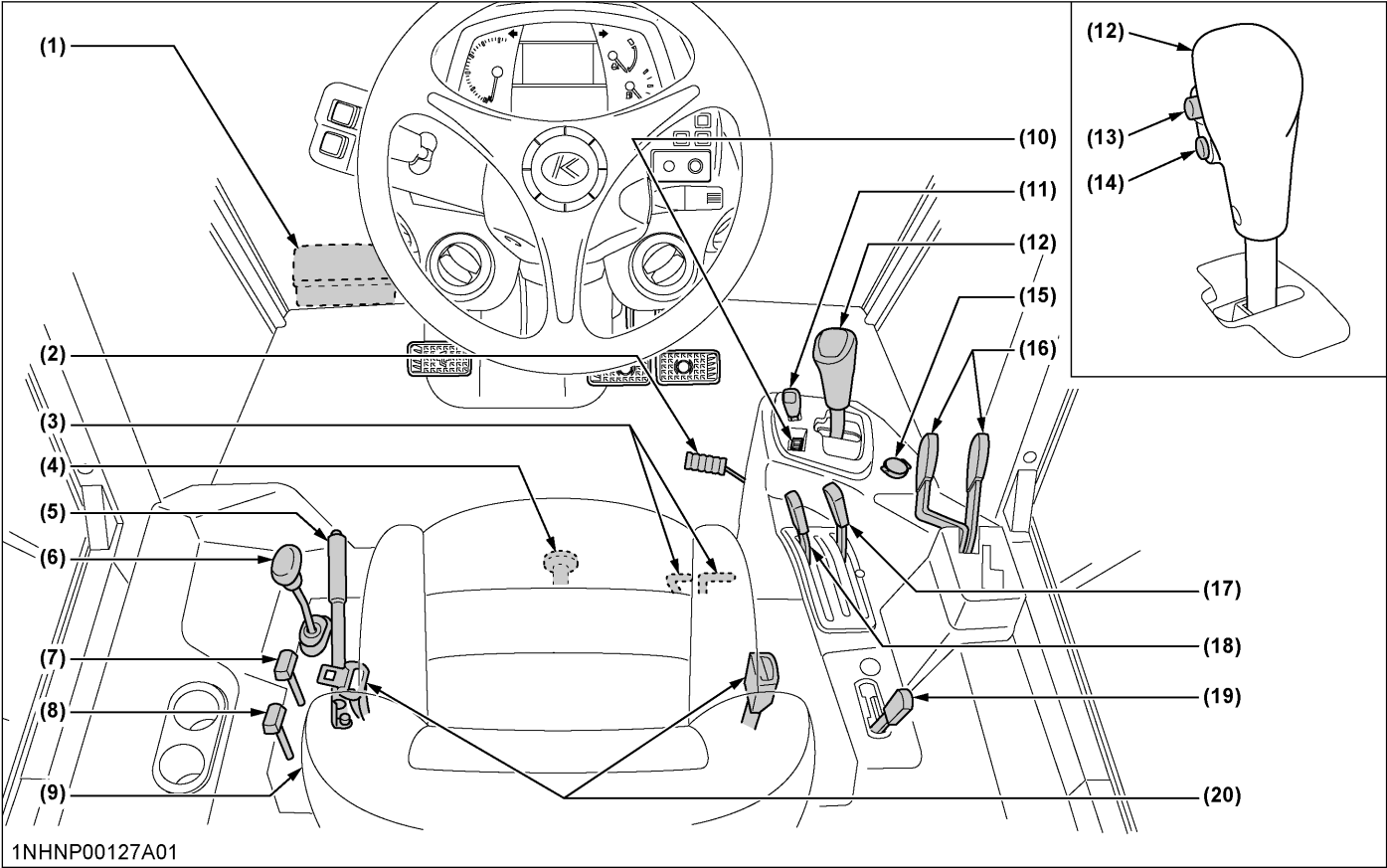


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Illustrated contents

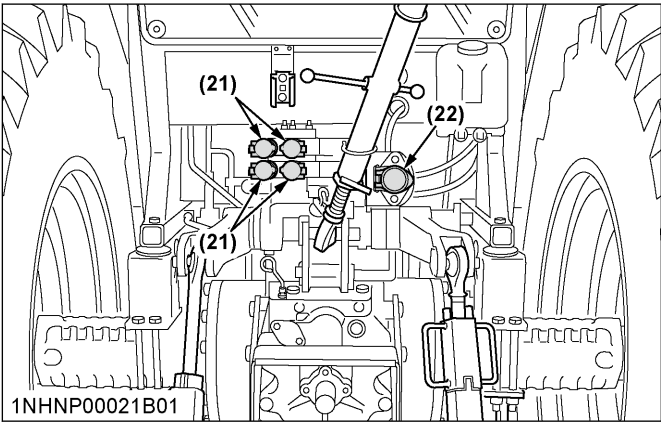
(1) Tachometer.....	68	(16) DEF (AdBlue) level and quality warning indicator.....	65
(2) DEF (AdBlue) gauge.....	67	(17) Regeneration indicator.....	36
(3) Hazard and turn signal indicator.....	58	(18) Parked regeneration indicator.....	40
(4) Electrical charge warning indicator.....	65	(19) Engine rpm increase indicator.....	36
(5) Engine oil pressure warning indicator.....	65	(20) Pilot lamp (high).....	61
(6) Engine warning indicator.....	65	(21) Pilot lamp (low).....	61
(7) Master system warning indicator.....	65	(22) 4WD indicator.....	61
(8) PTO clutch indicator.....	78	(23) Dual speed shift indicator (dual speed model).....	62
(9) High beam indicator.....	58	(24) Parking brake warning indicator.....	54
(10) Liquid crystal display (LCD).....	68	(25) Water separator indicator.....	65
(11) Coolant temperature gauge.....	67	(26) Air cleaner indicator.....	65
(12) Fuel gauge.....	67	(27) Heater indicator.....	54
(13) Fuel level indicator.....	65	(28) Mode selector switch.....	73
(14) Emission indicator.....	65	(29) Select switch.....	73
(15) SCR system warning indicator.....	65		

FOOT AND HAND CONTROLS



Illustrated contents

(1) Tool box	(11) Hand throttle lever	64
(2) Foot throttle	(12) Main gear shift lever	62
(3) Differential lock pedal	(13) Clutch-off switch	62
(4) 3-Point hitch lowering speed knob	(14) Dual speed shift switch (dual speed model)	62
(5) Parking brake lever	(15) Electrical outlet	107
(6) Range gear shift lever	(16) Remote control valve lever	88
(7) Front-wheel drive lever	(17) Position control lever	86
(8) Creep lever (if equipped)	(18) Draft control lever	86
(9) Operator's seat	(19) PTO clutch control lever	78
(10) RPM dual memory switch	(20) Seat belt	58



Illustrated contents

(21) Remote control valve coupler	88
(22) Trailer electrical outlet	77

PRE-OPERATION CHECK

DAILY CHECK

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



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 list

- Walk around inspection
- Check engine oil level
- Check transmission oil level
- Clean remote control valve coupler
- Check coolant level
- Check washer liquid level
- Check water separator
- Clean grill and radiator screen
- Clean air conditioner condenser screen
- Clean intercooler
- Clean oil cooler
- Clean fuel cooler
- Check DPF muffler / SCR device
- Check air cleaner evacuator valve (when used in a dusty place)
- Check brake pedal
- Check parking brake lever
- Check indicators, gauges and meter
- Check lights
- Check seat belt
- Check movable parts
- Check antifrost heater for oil separator (if equipped)
- Check DEF (AdBlue) level
- Refuel
(See DAILY CHECK on page 116.)
- Care of the safety labels
(See SAFETY LABELS on page 15.)

OPERATING THE ENGINE

WARNING

To avoid personal injury or death:

- Read and understand the safe operation section.
- Read and understand the safety labels located on the tractor.
- To avoid the danger of exhaust fume poisoning, do not operate the engine indoors without proper ventilation.
- Never start the engine while standing on ground. Start the engine only from the operator's seat.
- Make it a rule to set all shift levers to the "NEUTRAL" positions and to place the PTO lever in "OFF" position before starting the engine.

IMPORTANT :

- Do not use starting fluid or ether.
- To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.

EXHAUST AFTERTREATMENT DEVICES

WARNING

To avoid personal injury or death:

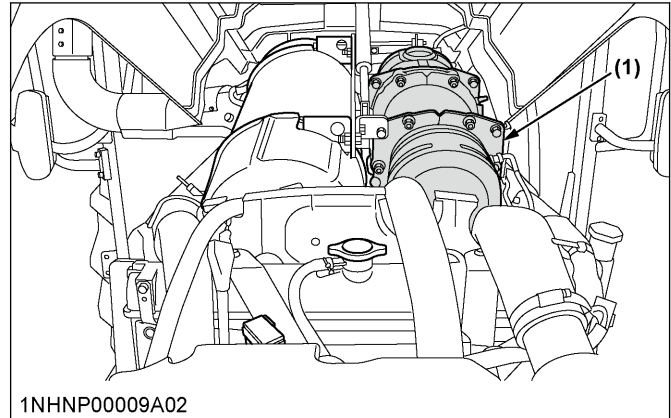
- During diesel particulate filter (DPF) regenerating operations, exhaust gases and exhaust filter components reach temperatures hot enough to burn people or ignite or melt common materials.
- Keep tractor away from people, animals or structures which may be susceptible to harm or damage from hot exhaust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

1. Dual exhaust aftertreatment devices

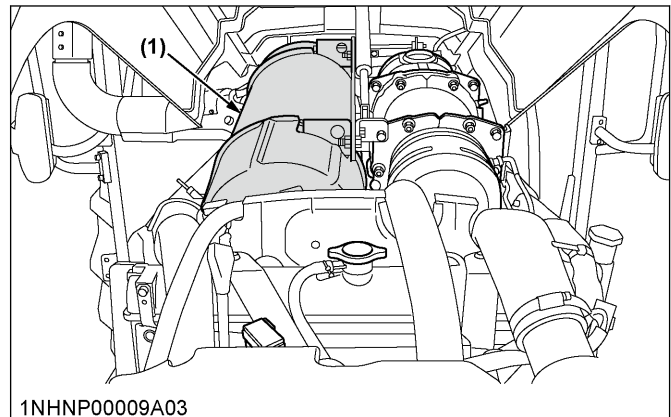
Particulate matter (PM) and black smoke contained in exhaust gases are trapped and removed by the diesel particulate filter (DPF) muffler.

The SCR system then decomposes residual nitrogen oxides (NO_x) into harmless nitrogen (N₂) and water (H₂O) for purification.

This dual exhaust gas purifying device provides for clean exhaust gas at low fuel consumption.



(1) Diesel particulate filter (DPF)



(1) SCR device

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 diesel engine emissions, to harmless carbon dioxide and water. The DPF also traps particulate matter (PM).

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

1. Handling points

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 operating time to reach this regeneration, and to avoid DPF muffler trouble, make sure to observe the following handling matters.

Fuel

Be sure to use 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 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 burned, and begins to accumulate. Therefore, do not idle unnecessarily.

Regeneration

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

IMPORTANT :

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

2. DPF regeneration process

DPF regeneration process can be performed by choosing *"Auto regeneration"* or *"Regeneration inhibit"* mode according to your job conditions.

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

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 41.)

In this way, work efficiency is improved. For more details, read the *"Auto regeneration"* section of this manual.

(See Operating procedure for auto regeneration mode on page 36.)

Regeneration inhibit mode

After starting the engine, if the *"DPF inhibit switch"* is pressed to turn on the 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 burned, unless the operator performs the regeneration work manually. The *"Regeneration inhibit"* mode is effective for work in poorly ventilated workspaces.

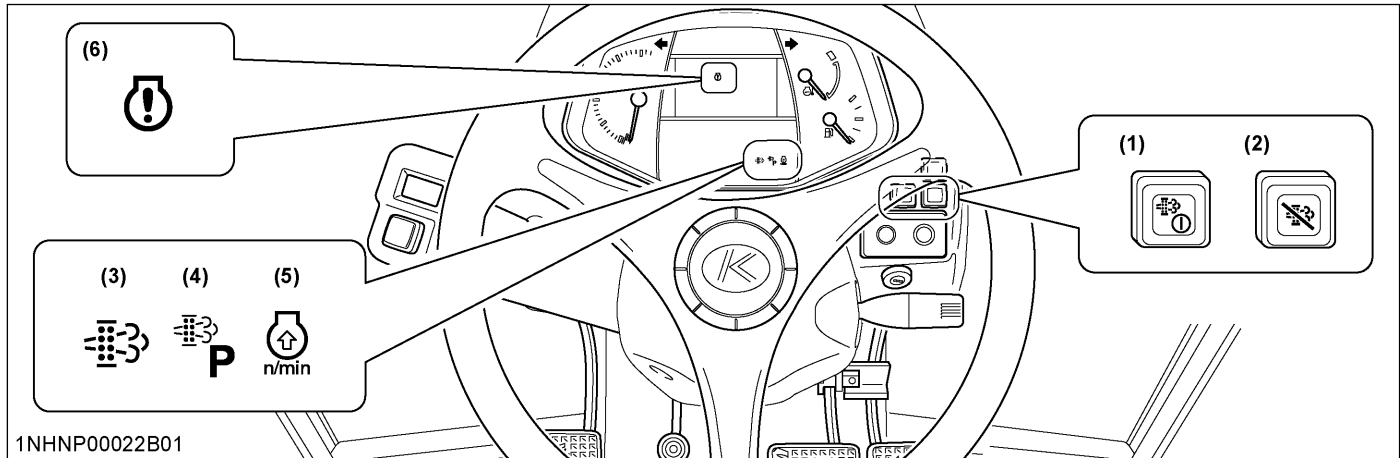
For more details, read the regeneration prohibition section of this manual.

(See Operating procedure for regeneration inhibit mode on page 38.)

NOTE :

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

3. Operating procedure for auto regeneration mode



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(1) Parked regeneration switch

(2) DPF inhibit switch

(3) Regeneration indicator

(4) Parked regeneration indicator

(5) Engine rpm increase indicator

(6) Engine warning indicator

Regeneration operating procedure

1. Start the engine.

Make sure that the DPF inhibit switch lamp  is "OFF".

Switch lamp "OFF": Auto regeneration mode activated.

Switch lamp "ON": Regeneration inhibit mode 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, and the regeneration process will begin automatically; make sure the working place is in a safe area as 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 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 41.)

3.1 PM warning level and required procedures

During auto regeneration mode when the PM level has built up in the DPF, the regeneration cycle will begin automatically.

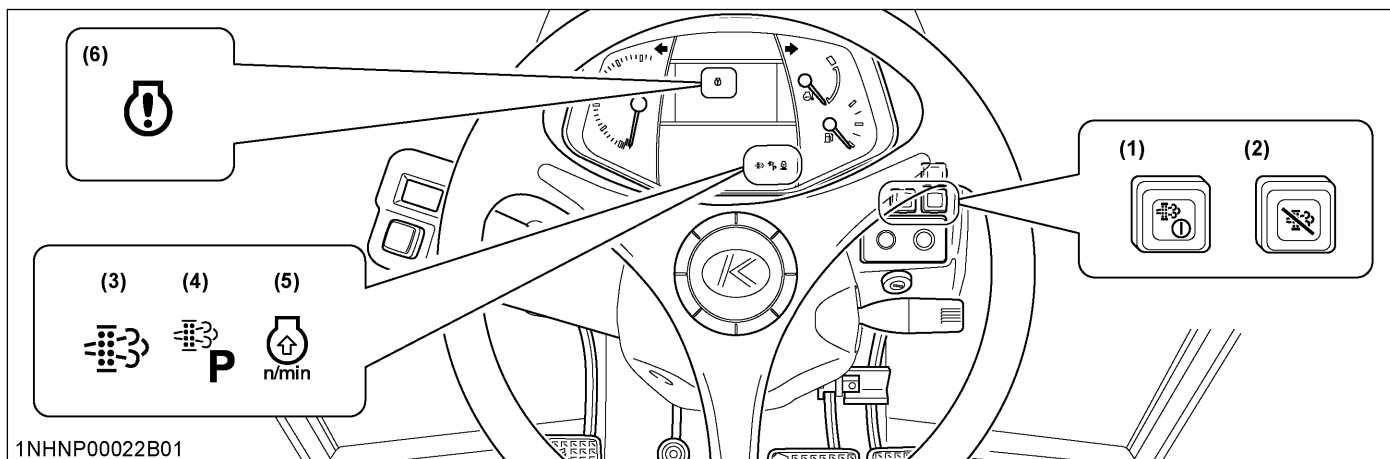
If the regeneration cycle is interrupted or the regeneration conditions are not satisfied, the buzzer starts sounding and the indicator display changes in response to the PM level in order to prompt the operator to perform the required procedure listed in the following table.

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 mode		
	DPF system status	Required procedure
PM warning level: 1 Buzzer: Not sounding	 The regeneration indicator starts flashing.  The rpm increase indicator starts flashing.  The regeneration indicator will stop flashing and remain "ON" constantly.	A specific amount of PM has accumulated in the DPF muffler. Continue to work the tractor to raise the DPF temperature. Continue the work and increase the engine rpm until the indicator turns "OFF". The regeneration cycle begins and continues until cycle is complete then the indicator will turn "OFF".
PM warning level: 2-1 Buzzer: Sounding every 5 seconds	If the regeneration cycle was interrupted or conditions are not satisfied for regeneration then DPF system is now in Level 2.	
PM warning level: 2-2 Buzzer: Sounding every 3 seconds	 The regeneration indicator starts flashing.  The rpm increase indicator starts flashing.  The parked regeneration indicator starts flashing.	Start the regeneration, referring to PM warning level: 1 above. Now the parked regeneration indicator starts flashing, and the parked regeneration can also be started. If the regeneration conditions are not met, perform the parked regeneration procedure. (See Operating procedure for parked regeneration on page 40.)
PM warning level: 3 Buzzer: Sounding every 1 second Engine output: 50%	If the regeneration fails in the warning level 2:	
	 The engine warning indicator starts flashing.  The parked regeneration indicator starts flashing.	Immediately discontinue working the tractor and begin the parked regeneration cycle process. (See Operating procedure for parked regeneration on page 40.) At this PM warning level, the auto regeneration mode does not function. If the tractor is operated further, the regeneration cycle will be disabled.
PM warning level: 4 Buzzer: Sounding every 1 second Engine output: 50%	If the parked regeneration is interrupted or the tractor is continuously operated in the warning level 3:	
	 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 this level, do not continue to operate the tractor; otherwise, damage will result to the DPF and engine.

4. Operating procedure for regeneration inhibit mode



(1) Parked regeneration switch

(2) DPF inhibit switch

(3) Regeneration indicator

(4) Parked regeneration indicator

(5) Engine rpm increase indicator

(6) Engine warning indicator

Regeneration operating procedure

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

Switch lamp "ON": Regeneration inhibit mode selected.

Switch lamp "OFF": Auto regeneration mode selected.

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.

(See Operating procedure for parked regeneration on page 40.)

4.1 PM warning level and required procedures

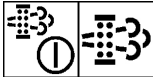
In the regeneration inhibit mode, the buzzer starts sounding and the indicator display changes in response to the PM level in order to prompt the operator to perform the required procedure listed in the following table.

IMPORTANT :

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

Regeneration inhibit mode		
	DPF system status	Required procedure
PM warning level: 1 Buzzer: Not sounding	 The regeneration indicator starts flashing.	A specific level of PM has built up in the DPF muffler. Continue with the operation as it is.
	 At PM warning levels range from 1 to 2-2, it is also possible to change DPF inhibit switch to auto regeneration mode, then perform the regeneration.	
PM warning level: 2-1 Buzzer: Sounding every 5 seconds	 The regeneration indicator starts flashing.	Move the tractor to a safe area, then begin the parked regeneration cycle process. (See Operating procedure for parked regeneration on page 40.)
PM warning level: 2-2 Buzzer: Sounding every 3 seconds	 The parked regeneration indicator starts flashing.	
PM warning level: 3 Buzzer: Sounding every 1 second Engine output: 50%	If the parked regeneration cycle is interrupted or the tractor is continuously operated in the PM warning level 2:	
	 The engine warning indicator starts flashing.	Immediately stop working the tractor, move the tractor to a safe area, then begin the parked regeneration cycle process. (See Operating procedure for parked regeneration on page 40.) If the tractor is operated further and the operator ignores the warning signs, then regeneration will be disabled.
	 The parked regeneration indicator starts flashing.	
PM warning level: 4 Buzzer: Sounding every 1 second Engine output: 50%	If the regeneration cycle is interrupted or the tractor is continuously operated ignoring the warning signs, in the PM warning level 3:	
	 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 this level, do not continue to operate the tractor; otherwise, damage may result to the DPF and engine.

5. 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 shuttle shift lever to the neutral position.
4. Set the PTO clutch control lever to the "OFF" position.
5. Return the engine rpm to the idle speed.
6. Lower the implement to the ground.
7. Press the DPF inhibit switch , and the switch lamp turns "OFF".
8. When the regeneration conditions are satisfied (2 to 5 and 7 mentioned previously), the parked regeneration switch lamp  starts flashing.
9. Press the parked regeneration switch  to start the regeneration cycle.
The switch lamp will stop flashing and remain "ON" constantly during the cycle.
10. The engine rpm will automatically rise, and the regeneration process will begin.
11. Both indicators  stay "ON" while regenerating the DPF.
They turn "OFF" when the cycle is complete.
12. After the lamp turns "OFF", normal tractor work may resume.
When driving in "Regeneration Inhibit" mode, press the DPF inhibit switch to turn on the switch lamp.

NOTE :

- During the regeneration cycle, do not touch the above levers and switches (in steps 2, 3, 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 this period, keep the hand throttle lever and foot throttle pedal at the idle position. Do not move them. They will function again in 30 seconds.
- If one of the following conditions applies to the tractor, the parked regeneration will not function. (See Warning indication and countermeasures on page 43.)
 - DEF (AdBlue) level and quality warning indicator  lights up and "Lv.1" or "Lv.2" is being displayed on the LCD (limited engine output).
 - SCR warning indicator  lights up and the DTC is being displayed on the LCD.
 - Freeze icon of DEF (AdBlue)  or limited engine output is displayed on the LCD.
- Diagnostic trouble code (DTC)
DTC can be used to diagnose the problem in the engine and SCR system.
For example, "ENG P-208B": The code beginning with the letter "P" or "U" is the DTC.

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

- The engine coolant temperature.
- The DPF temperature.
- The engine speed is 1200 rpm or higher.

- Usually, it takes 15 to 20 minutes to complete the regeneration cycle.

Actual regeneration time may depend on ambient temperature, exhaust temperature and engine speed.

- It is recommended to do 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 engine air flow rate is automatically limited to keep up the exhaust temperature. Because of this, the engine may sound differently, but this 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.

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

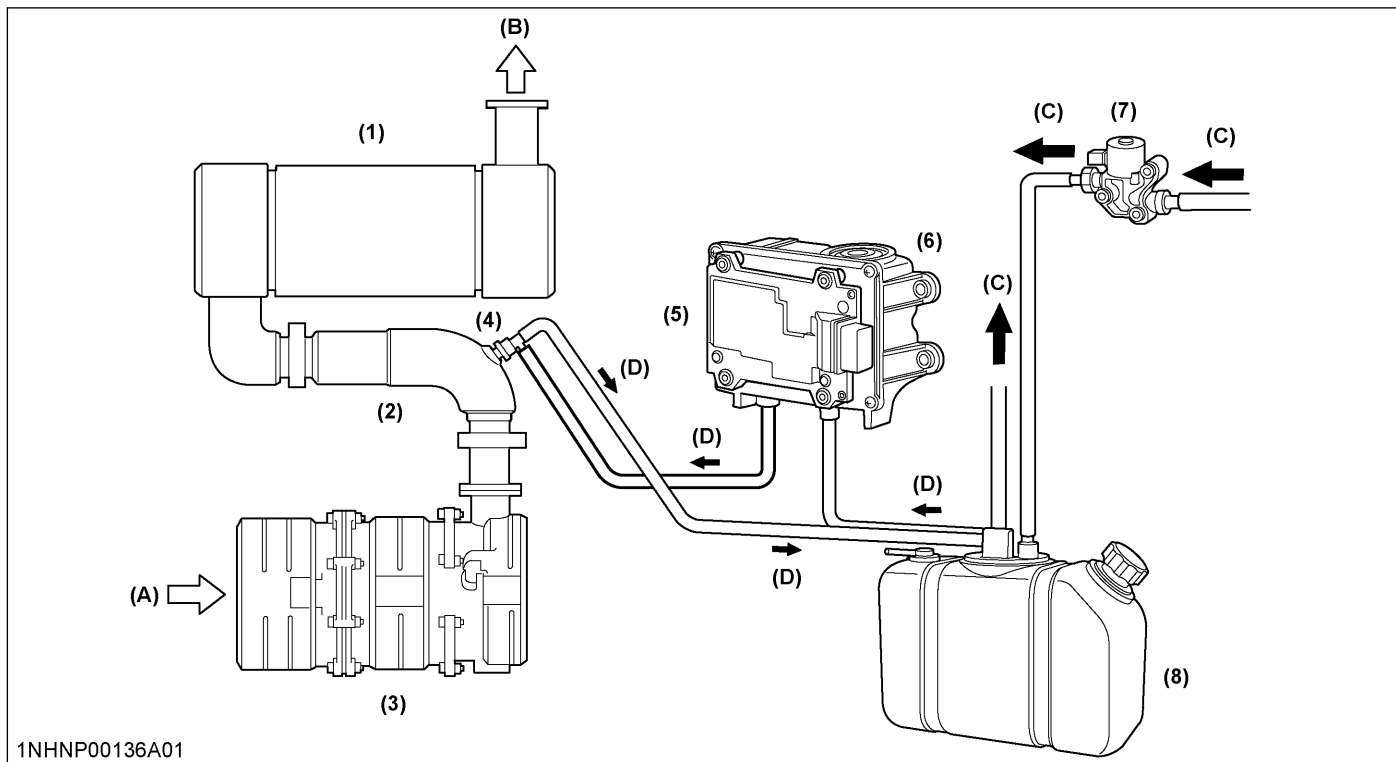
1. Outline of the SCR system

- The SCR system is intended to reduce or eliminate nitrogen oxides (NO_x) from diesel exhaust gas. The system uses Diesel Exhaust Fluid (DEF) as a reducing agent and hydrolyzes it with the heat of exhaust gas to produce ammonia (NH₃). The generated ammonia reduces NO_x and decomposes them into nitrogen and water for emissions reduction. Due to this NO_x reduction from the exhaust gas, the odor of the exhaust gas discharged from the SCR device differs from that of conventional diesel engines.
- Diesel Exhaust Fluid (DEF) is sold under many brand names, with one of the more common ones being AdBlue. In the text, DEF is described as DEF (AdBlue).
- DEF (AdBlue) freezes below -11 °C (12 °F), but this does not affect the start-up of the engine. The frozen DEF (AdBlue) is thawed by the heat of the engine coolant while the engine is running.

IMPORTANT :

- Modifying the SCR system is a violation of local laws and regulations. Do not modify the SCR system for any reason, as doing so could result in monetary sanctions and fines.**
- Do not run the engine when the DEF tank is empty.**
- If the remaining amount of DEF (AdBlue) is insufficient, the quality is poor, or if an abnormality occurs in the SCR system, the auto regeneration and parked regeneration functions of the Diesel Particulate Filter (DPF) muffler may not operate properly.**

Structural drawing



- | | |
|--|---------------------------------------|
| (1) Selective catalytic reduction (SCR) device | (5) Aftertreatment control unit (ACU) |
| (2) Mixing pipe | (6) DEF pump |
| (3) Diesel particulate filter (DPF) | (7) Coolant valve |
| (4) DEF injector | (8) DEF tank |

- | |
|-------------------------------------|
| (A) Exhaust gas before purification |
| (B) Exhaust gas after purification |
| (C) Coolant flow |
| (D) DEF (AdBlue) flow |

2. DEF (AdBlue)

- The DEF (AdBlue), used as a reducing agent for the SCR system, is a 32.5% aqueous urea solution.
- No qualification is needed for handling DEF (AdBlue). In addition, DEF (AdBlue) is not designated as a hazardous material.
- Use DEF (AdBlue) that conforms to ISO 22241.

NOTE :

- In North America, the high-grade NO_x reducing agent (aqueous urea solution) is sold under the name of DEF (Diesel Exhaust Fluid). In Europe and in Japan, aqueous urea solution is sold under the brand name AdBlue.

3. Handling DEF (AdBlue)



CAUTION

To avoid personal injury, note the following when handling DEF (AdBlue):

- If DEF (AdBlue) gets into your eyes, immediately rinse your eyes with a large amount of water for at least 15 minutes and consult a doctor.
- Do not swallow DEF (AdBlue). If you have accidentally swallowed DEF (AdBlue), seek medical attention immediately.
- If DEF (AdBlue) gets on your skin, rinse immediately with water. In rare cases, DEF (AdBlue) may irritate the skin.
- If DEF (AdBlue) gets on your clothes or shoes, wash it off immediately. Simply wiping off or leaving DEF (AdBlue) on clothes or shoes will leave a white residue.

For more details, obtain and read the Safety Data Sheet (SDS) from the DEF (AdBlue) supplier.

If you spill DEF (AdBlue), immediately rinse with clean water. If left untouched, DEF (AdBlue) may rust metal parts or corrode painted surfaces. Also, resin and rubber parts may be deformed.

4. Quality of DEF (AdBlue)

IMPORTANT :

- If the DEF (AdBlue) emits a strong ammonia odor, the quality of the fluid may have deteriorated. To check the quality of the DEF (AdBlue), check the odor of the DEF (AdBlue) in the DEF tank once every 3 months.
- If the DEF (AdBlue) in the DEF tank emits a strong ammonia odor, drain all DEF (AdBlue) from the DEF tank into a container.
(See Draining DEF (AdBlue) on page 48.)

After draining the DEF (AdBlue), flush the inside of the DEF tank with distilled water, then refill the tank with new or high-quality DEF (AdBlue).

- When you do not use the machine for more than 3 months, drain all DEF (AdBlue) from the DEF tank.
- Purchasing DEF (AdBlue) from a Kubota Dealer is recommended. The product is also available at gas stations, truck stops and specialty shops. Be sure to use an ISO 22241 compliant product. Using non-compliant products may lead to engine failure.
- The appropriate environment for storing DEF (AdBlue) is between -5 °C to 30 °C (23 °F to 86 °F). See the following table for more information about the storage life of DEF (AdBlue). To prevent the shortening of the DEF (AdBlue) storage life, avoid storing the DEF (AdBlue) in environments that exceed 30 °C (86 °F).
Details regarding the storage of DEF (AdBlue) can be found in a different section.
(See Storing purchased DEF (AdBlue) on page 48 and Storing DEF (AdBlue) in the DEF tank on page 49.)

Ambient temperature	Storage life
≤10 °C (50 °F)	36 months
≤25 °C (77 °F)	18 months
≤30 °C (86 °F)	12 months
≤35 °C (95 °F)	6 months
≤40 °C (104 °F)	3 months

- Do not dilute the DEF (AdBlue) fluid.
- DEF (AdBlue) of deteriorated quality may cause a drop in engine output or an engine malfunction.

NOTE :

- If distilled water is not available for flushing the inside of the DEF tank, rinse with clean water first, then rinse thoroughly with DEF (AdBlue) again. Afterward, replenish with new or high-quality DEF (AdBlue).
- Be sure to turn the key switch to “OFF” position when replacing the DEF (AdBlue).

5. Warning indication and countermeasures

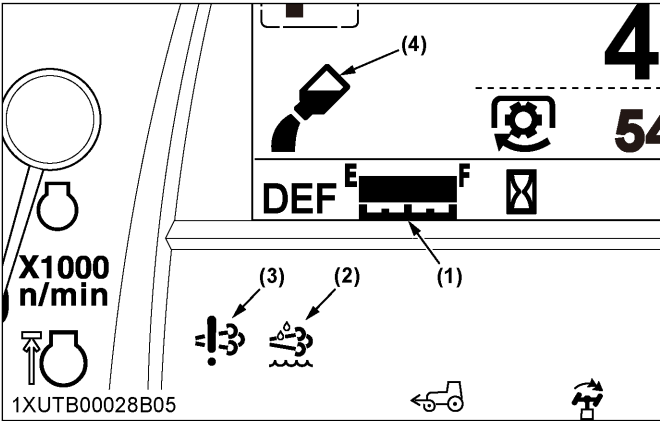
5.1 Warning display when the remaining amount of DEF (AdBlue) is low

This machine controls the engine output according to the remaining amount of DEF (AdBlue) to comply with emission regulations.

After starting the engine, check the remaining amount of DEF (AdBlue) with the DEF (AdBlue) gauge located on the instrument panel.

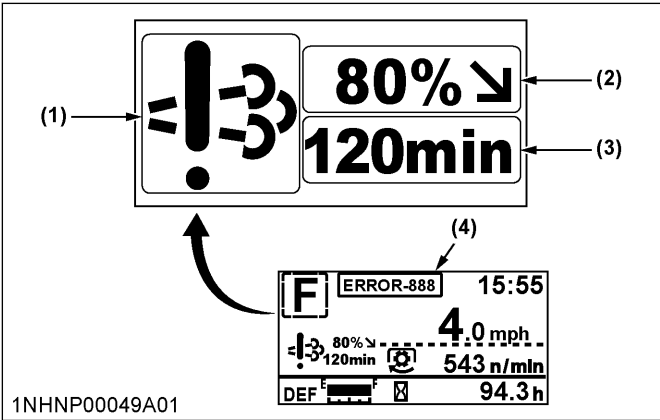
If the DEF (AdBlue) runs low, the low-level warning icon flashes and the buzzer sounds. If you continue running the machine in its current state, the engine output will be limited to about 50%. If operation is continued, the engine will be limited to idling.

These limitations are stipulated in conformity with the emission controls of each country and territory.



- (1) DEF (AdBlue) gauge
- (2) DEF (AdBlue) level and quality warning indicator
- (3) SCR system warning indicator
- (4) Low-level warning icon of DEF (AdBlue)

5.2 SCR system inducement display on the LCD



- (1) SCR system warning icon
- (2) Engine output level
- (3) Time limit to next level or remaining DEF (AdBlue)
- (4) Performance monitor (error code and DTC)

5.3 SCR system icon appearing on inducement display

	Low-level icon of DEF (AdBlue)		SCR system warning icon
	Poor-quality icon of DEF (AdBlue)		Freeze icon of DEF (AdBlue)

5.4 SCR system inducement display and measures

On the SCR system, the remaining amount and quality of DEF (AdBlue) as well as machine troubles are monitored. If anything goes wrong during operation, the following warnings are issued. Follow the warning contents to take proper measures.

Displays	Warning indicator	Status	Measures	DPF parked re-generation
 40%		1	The amount of remaining DEF (AdBlue) has dropped below 40% of the maximum capacity. Refill the DEF tank to reset the warning system. To maintain tractor performance, it is recommended to add DEF (AdBlue) to the specified level quickly. If operation is continued without refilling, the engine output will be limited.	permit
 Lv.1		2	The amount of remaining DEF (AdBlue) has dropped below 5% of the maximum capacity. Refill the DEF tank. ^{*1} The engine output is limited to 50% (limited engine output: "Lv.1"). If operation is continued without refilling, the engine output will be limited to idle status (limited engine output: "Lv.2").	inhibit
 Lv.1 30min		2	The amount of remaining DEF (AdBlue) has dropped below 5% of the maximum capacity. Refill the DEF tank. ^{*1} The engine output is limited to 50% (limited engine output: "Lv.1"). If operation is continued without refilling, after 30 minutes, the engine output will be limited to idle status (limited engine output: "Lv.2").	inhibit
 Lv.2		3	The amount of remaining DEF (AdBlue) has dropped below 5% of the maximum capacity. The engine output will remain limited. Refill the DEF tank. ^{*1} The engine output is limited to idle status (limited engine output: "Lv.2").	inhibit
 195min		1	Contains poor quality DEF (AdBlue) or other non-regulated solutions. After draining the DEF tank, refill with DEF (AdBlue) to reset the warning system. If operation is continued without refilling the DEF tank, after 195 minutes, the engine output will be limited to 50% (limited engine output: "Lv.1").	permit
 Lv.1 45min		2	Contains poor quality DEF (AdBlue) or other non-regulated solutions. After draining the DEF tank, refill with DEF (AdBlue). ^{*1} The engine output is limited to 50% (limited engine output: "Lv.1"). If operation is continued without refilling the DEF tank, after 45 minutes, the engine output will be limited to idle status (limited engine output: "Lv.2").	inhibit
 Lv.2		3	Contains poor quality DEF (AdBlue) or other non-regulated solutions. After draining the DEF tank, refill with DEF (AdBlue). ^{*1} The engine output is limited to idle status (limited engine output: "Lv.2").	inhibit

^{*1} When DEF (AdBlue) has been added or a poor-quality solution replaced by a genuine product, the warning indicator and icons turn off. The engine output limitation will also be cleared.

Displays	Warning indicator	Status	Measures	DPF parked re-generation
 195min		1	The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA Dealer. The engine output is unrestricted. After 195 minutes, the engine output will be limited to 50% (limited engine output: "Lv.1").	inhibit
 80% 120min		1	The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA Dealer. The engine output is limited to 80%. After 120 minutes, the engine output will be limited to 50% (limited engine output: "Lv.1").	inhibit
 Lv.1 45min		2	The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA Dealer. The engine output is limited to 50% (limited engine output: "Lv.1"). After 45 minutes, the engine output will be limited to idle status (limited engine output: "Lv.2").	inhibit
 Lv.2		3	The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA Dealer. The engine output is limited to idle status (limited engine output: "Lv.2").	inhibit
	—	—	Due to low temperatures, the DEF (AdBlue) has frozen. Continue the warm-up operation and the DEF (AdBlue) will thaw.	inhibit
 80% 40h	—	—	Due to low temperatures, the DEF (AdBlue) has frozen. The engine output is limited to 80%. Continue the warm-up operation and the DEF (AdBlue) will thaw.	inhibit

NOTE :

- **The limited engine output level:**
The text "Lv.1" and "Lv.2" displayed next to the icon represents the limited engine output level.
"Lv.1" (Level 1): Within 50% of max torque and 60% of engine speed.
"Lv.2" (Level 2): Within engine near idling speed.
- **After an error has occurred, it may be necessary for the engine output to become limited to "Lv.2".**
Depending on trouble spots and contents, the indicator-prompted warnings and the engine output limits and timings may vary accordingly.
The SCR warning status (from 1 to 3) represents the severity order of the engine output limitation. If the SCR system experiences abnormalities, an error code will be displayed, and it may be necessary to limit the engine output to idle status ("Lv.2").
For example, when a "ENG P-204F" error code is displayed, the engine output changes from unrestricted to "Lv.2" limited.
- **Points after taking measures.**
After the engine has stopped and the DEF (AdBlue) has drained, if the amount that was refilled is less than the pre-drain amount, the SCR system may experience a malfunction ("ENG P-20F5" error code is displayed).
When the error occurs, turn the key switch to "OFF", wait for the SCR system to complete the purge process (this may take several minutes) and then turn the key switch to "ON" again in order to clear the SCR system malfunction.
- **The time displayed on the icon's lower-right represents the minimum time until the beginning of limitation.**
- **The 40 hours warning record.**
 1. Basically, warning and/or inducement reduction cancel when the fault location is repaired.

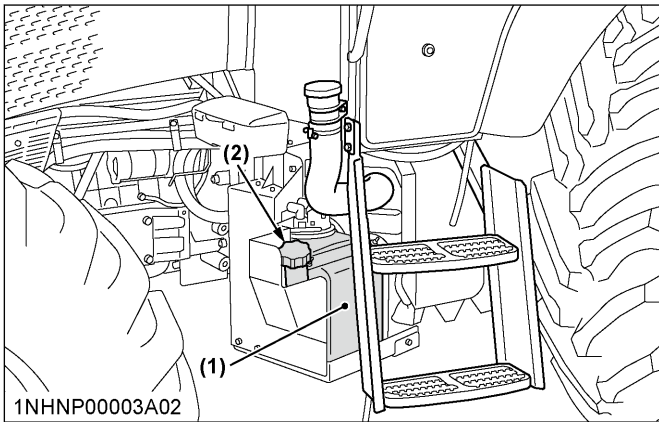
2. However, if it detects any fault within 40 hours of the restoration, it soon returns to the previous failure and the timer restarts counting down.
3. The 40 hours warning record will be reset if any fault has not been detected over 40 hours from the repair.

If a fault is detected after the 40 hours warning record reset, then the new countdown will be stated.

6. Adding DEF (AdBlue)

IMPORTANT :

- The DEF tank cap is blue.
Do not add DEF (AdBlue) to the fuel tank. Also, do not add diesel fuel to the DEF tank.
- If anything other than DEF (AdBlue) is mixed into the DEF tank and the engine is started, the SCR system may fail. Do not start the engine if the DEF (AdBlue) is contaminated with diesel fuel. Consult your Kubota Dealer immediately.
- The warranty does not cover failures caused by adding or mixing anything other than DEF (AdBlue) into the DEF tank. If that occurs, all repair costs will be the customer's responsibility.



(1) DEF tank
(2) DEF tank cap (blue)

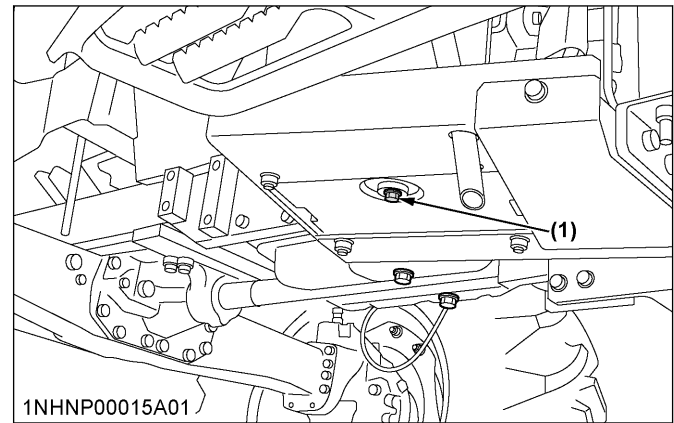
- Before adding DEF (AdBlue) to the DEF tank, clean the area around the nozzle and supply port to prevent foreign matter such as soil and dust from entering.
- Be sure to turn the key switch to "OFF" position before adding DEF (AdBlue).
After stopping the engine, the SCR system continues to operate for up to about 15 minutes. Do not add DEF (AdBlue) before the SCR system stops. Otherwise, DEF (AdBlue) may overflow from the breather hose of the DEF tank.
- If DEF (AdBlue) is stored in a reusable container, periodically clean and refill it. If the container is dirty, wash with distilled water. If distilled water is not available for washing the container, rinse with clean water first, then rinse again with DEF (AdBlue) before refilling.
- In order to maintain the performance of the SCR system, it is recommended to refill the DEF tank with DEF (AdBlue) each time the fuel tank is refueled.

7. Draining DEF (AdBlue)

IMPORTANT :

- Do not run the engine when the DEF tank is empty.
- Remove the drain plug shown in the following illustration, then drain the DEF (AdBlue) into a container.
- Make sure to keep the rubber O-ring of the drain plug clean of oil.
- Do not use a power tool when reinstalling the drain plug. Overtightening the drain plug may cause damage.

Drain plug tightening torque	4.0 N·m to 6.0 N·m (3.0 lbf·ft to 4.4 lbf·ft) (35.4 lbf·in to 53.1 lbf·in)
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(1) Drain plug

- Be sure to turn the key switch to "OFF" position when draining DEF (AdBlue).
- When draining and refilling the DEF (AdBlue) in the DEF tank, if the refilled amount is less than the drained amount, an SCR system error "ENG P-20F5" will be displayed on the instrument panel. When the error code "ENG P-20F5" is displayed, run the engine for 10 minutes in order to clear the SCR error/warning code. If the error/warning is displayed after running the engine for more than 10 minutes, consult your local Kubota dealer. In order to avoid the aforementioned error, it is recommended that you fully refill the DEF tank every time.
- For the disposal of drained DEF (AdBlue), read the following information.
(See Disposing of DEF (AdBlue) on page 49.)

8. Storing purchased DEF (AdBlue)

- Note the following when storing DEF (AdBlue):
 - Close the container firmly.
 - Avoid direct sunlight.
 - Store in a well-ventilated room.
 - Store in a place with little temperature change.

- Do not use the following DEF (AdBlue) even if it is still unused. The DEF (AdBlue) may be deteriorated, which may cause SCR system failure.
 - When the storage period is unknown.
 - When the storage environment is unknown (especially in a high-temperature environment).
 - When DEF (AdBlue) has a strong ammonia odor.
- When storing and carrying DEF (AdBlue), use the original container. Otherwise, prepare a dedicated container. For the dedicated container, use a clean polyethylene resin tank (PE) or a stainless steel container free of foreign matter such as water and dust.
- Keep containers used for storing and refilling DEF (AdBlue) free from dirt and dust. Use distilled water to clean the containers. If distilled water is not available for cleaning the containers, rinse with clean water first, then rinse again thoroughly with DEF (AdBlue) before refilling.
- The appropriate environment for storing DEF (AdBlue) is between -5 °C to 30 °C (23 °F to 86 °F). See the following table for more information about the storage life of DEF (AdBlue). To prevent the shortening of the DEF (AdBlue) storage life, avoid storing the DEF (AdBlue) in environments that exceed 30 °C (86 °F).

Ambient temperature	Storage life
≤10 °C (50 °F)	36 months
≤25 °C (77 °F)	18 months
≤30 °C (86 °F)	12 months
≤35 °C (95 °F)	6 months
≤40 °C (104 °F)	3 months

NOTE :

- The aforementioned storage life is only a guide. Depending on how DEF (AdBlue) is stored, the storage life may be shorter than indicated.
- DEF (AdBlue) freezes when the temperature drops below -11 °C (12 °F). The quality of DEF (AdBlue) will not be affected even if frozen. Thaw the DEF (AdBlue) before use.

9. Storing DEF (AdBlue) in the DEF tank

IMPORTANT :

- If the DEF (AdBlue) emits a strong ammonia odor, the quality of the fluid may have deteriorated. To check the quality of the DEF (AdBlue), check the odor of the DEF (AdBlue) in the DEF tank once every 3 months.

- If the DEF (AdBlue) in the DEF tank emits a strong ammonia odor, drain all DEF (AdBlue) from the DEF tank into a container. (See Draining DEF (AdBlue) on page 48.) After draining the DEF (AdBlue), flush the inside of the DEF tank with distilled water. Then refill the DEF tank with new or high-quality DEF (AdBlue).
- When you do not use the machine for more than 3 months, drain all DEF (AdBlue) from the DEF tank. When using the machine after 3 months of inactivity, refill the DEF tank with new or high-quality DEF (AdBlue).

NOTE :

- DEF (AdBlue) of deteriorated quality may cause a drop in engine output or an engine malfunction.
- If distilled water is not available for flushing the inside of the DEF tank, rinse with clean water first, then rinse thoroughly with DEF (AdBlue) again. Afterward, replenish with new or high-quality DEF (AdBlue).
- Be sure to turn the key switch to “OFF” position when replacing the DEF (AdBlue).
- When draining and refilling the DEF (AdBlue) in the DEF tank, if the refilled amount is less than the drained amount, an SCR system error is displayed on the instrument panel, but this is not a malfunction. (See Draining DEF (AdBlue) on page 48.)

10. Disposing of DEF (AdBlue)

Although not a hazardous substance, dispose of the used DEF (AdBlue) properly to avoid environmental pollution. For disposal methods, consult your supplier or an industrial waste disposal contractor.

11. Handling precautions after stopping the engine

After stopping the engine, the SCR system automatically operates for up to about 15 minutes and returns the DEF (AdBlue) in the piping to the DEF tank to prevent freezing and clogging.

The SCR system may generate operating noise after the engine has stopped, but this is not a malfunction. Note the following precautions after stopping the engine:

- Do not remove the battery terminal until the SCR system stops. This is to prevent damage to the system device.
- Do not refill with DEF (AdBlue) before the SCR system stops. Otherwise, DEF (AdBlue) may overflow from the breather hose of the DEF tank.

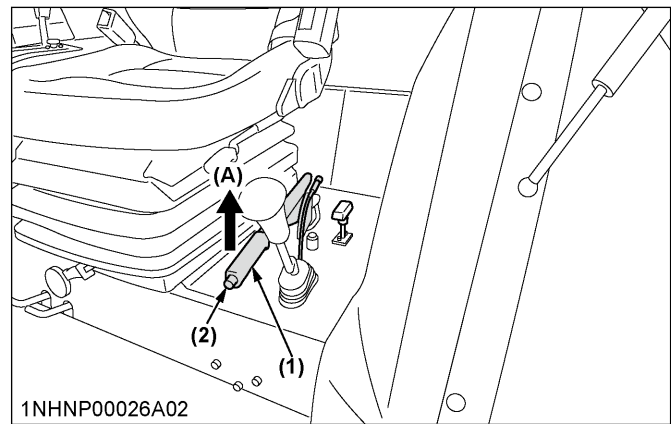
12. Precautions when using in cold regions

- DEF (AdBlue) freezes below -11 °C (12 °F), but this does not affect the start-up of the engine.
- The DEF (AdBlue) is automatically thawed while the engine is running.
- While thawing, output may be limited to protect the SCR system.
- However, in weather conditions of under -30 °C (22 °F), the DEF (AdBlue) cannot be completely thawed and therefore, an error/warning code “ENG P-208B” appears on the instrument panel.

If the error/warning code “ENG P-208B” appears on the screen, stop the engine and restart it after 10 seconds.

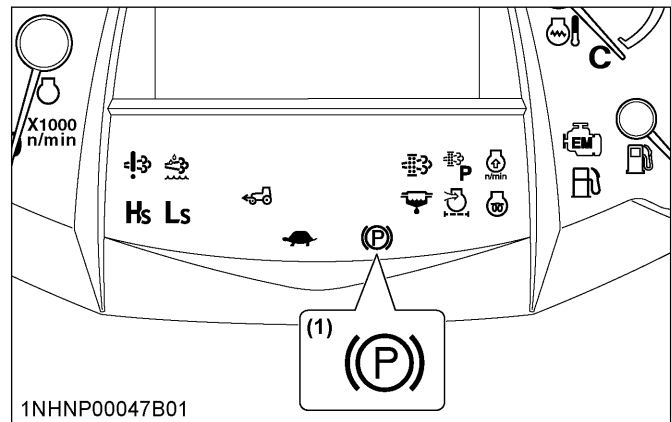
After restarting the engine, the error/warning code “ENG P-208B” will disappear and the thawing of the DEF (AdBlue) will resume.

If the error/warning code “ENG P-208B” remains on the screen even after restarting the engine several times, consult your local Kubota Dealer.



(1) Parking brake lever
(2) Release button

(A) “PULL”

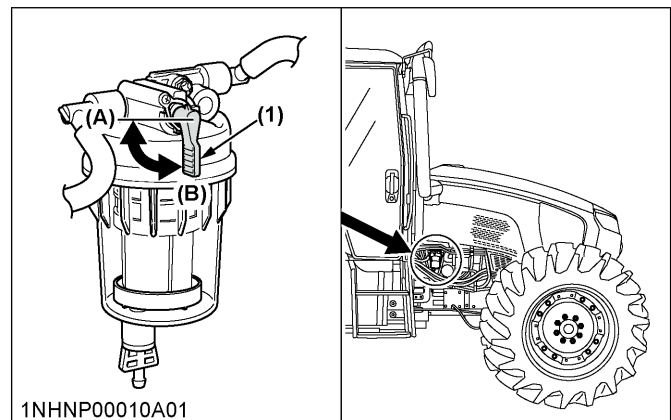


(1) Parking brake warning indicator

IMPORTANT :

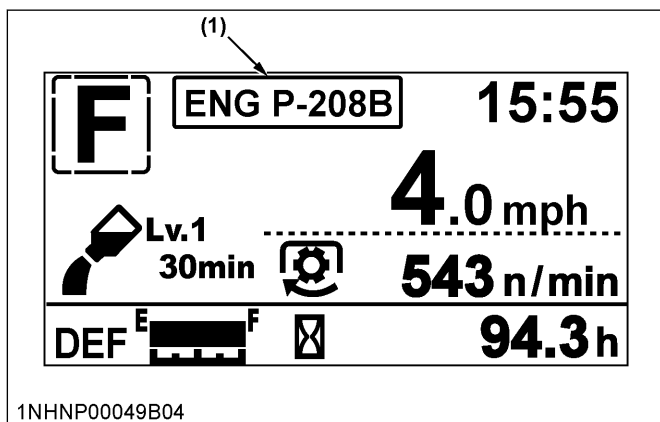
- If the tractor is operated with the parking brake set, the parking brake will be damaged.

2. Make sure the fuel shutoff-valve is in the “OPEN” position.



(1) Fuel shutoff-valve

(A) “CLOSE”
(B) “OPEN”



(1) Error/warning code

13. Maintenance of SCR system related parts

Regularly check, clean, and replace the SCR system related parts.

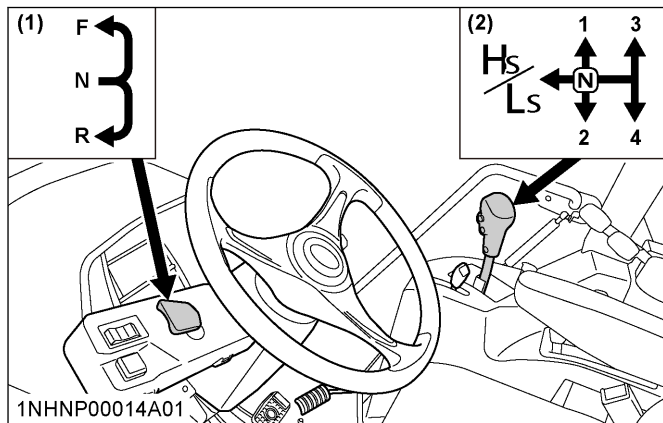
Details regarding maintenance can be found in a different section.

(See SERVICE INTERVALS on page 108.)

STARTING THE ENGINE

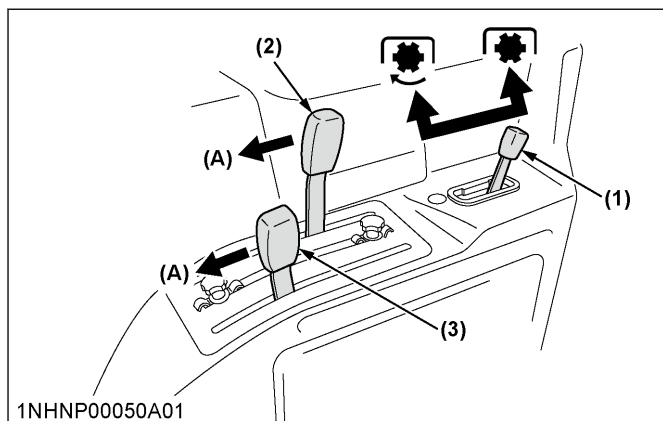
1. Make sure the parking brake is set.
Pull the parking brake lever up to park.
The parking brake warning indicator on the Easy Checker will come on while the parking brake is set.

3. Place the shift levers in "NEUTRAL" position.



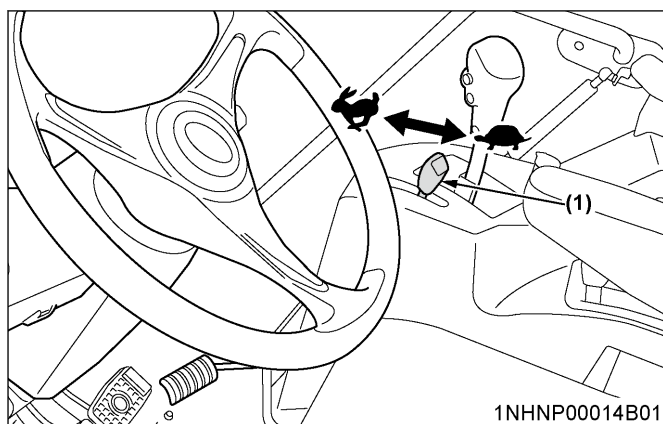
- (1) Hydraulic-shuttle shift lever (F) "FORWARD"
 (2) Main gear shift lever (N) "NEUTRAL POSITION"
 (R) "REVERSE"

4. Place the PTO clutch control lever in "OFF" position and hydraulic control levers in "LOWEST" position.



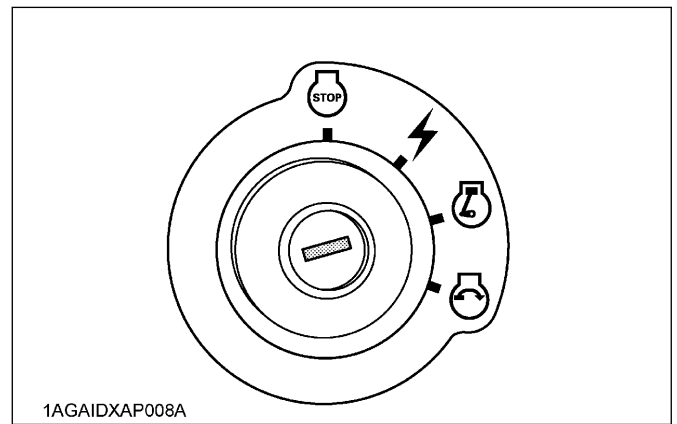
- (1) PTO clutch control lever (ON)
 (2) Position control lever (OFF)
 (3) Draft control lever (A) "DOWN"

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

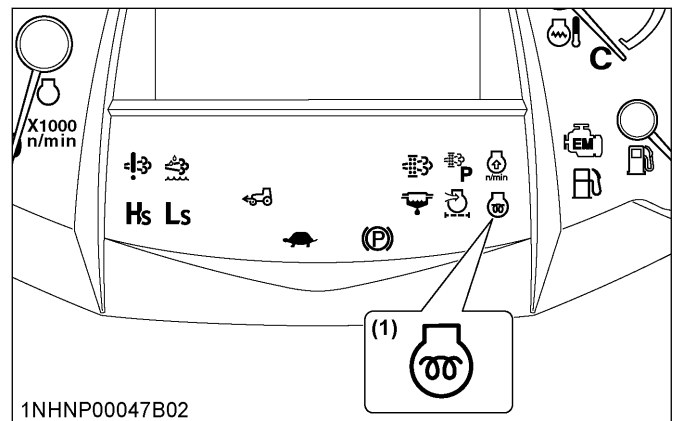


- (1) Hand throttle lever (INCREASE)
 (DECREASE)

6. Insert the key into the key switch and turn it "ON".
 If the ambient temperature is below 0 °C (32 °F) and the engine is very cold, turn the key to "ON" position and hold it until the heater indicator turns off.



- (OFF) (Engine-stop)
 (ACC) (Electrical power-accessories)
 (ON) (Engine-run)
 (START) (Engine-start)



- (1) Heater indicator

NOTE :

- The accessories can be used while the engine is stopped.
- Do not leave the key at "ACC" position. The battery will be quickly discharged. Turn it back to "OFF" after use.

7. Check the Easy Checker indicators.
 (See Checking Easy Checker indicators on page 52.)
8. Fully depress the clutch pedal.

9. Turn the key to "START" position and release when the engine starts.

IMPORTANT :

- Because of the safety devices, the engine will not start except when the PTO clutch control lever is placed in the "OFF" position and shuttle shift lever is placed in the "NEUTRAL" position.
- If the engine fails to start after 10 seconds, turn off the key for 30 seconds. Then repeat steps 6 through 9. To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.

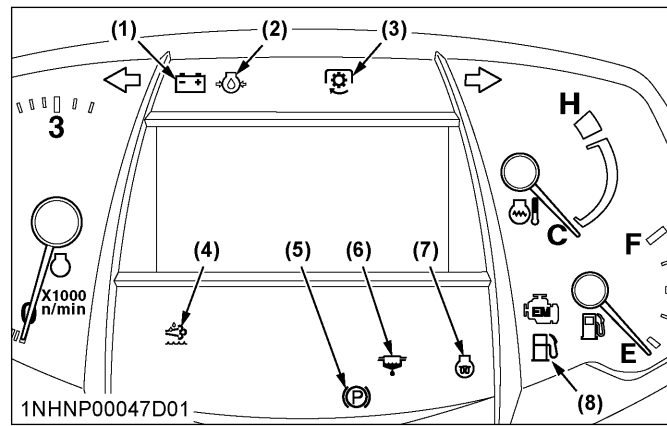
NOTE :

- DEF (AdBlue) freezes at temperatures below -11 °C (12 °F). Even if it is frozen, the engine is not affected at its start-up and running.

10. Check to see that all the indicators on the Easy Checker are "OFF".
If an indicator is still on, immediately stop the engine and determine the cause.
11. Release the clutch pedal.

1. Checking Easy Checker indicators

1. When the key is turned "ON", indicators (1) (2) should come on. If trouble should occur at any location while the engine is running, the indicator corresponding to problem will turn "ON".
2. Suppose that the engine coolant temperature is not high enough yet. The heater indicator (7) also turns "ON" when the key 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.
3. The PTO clutch indicator (3) comes on while PTO clutch control lever is engaged "ON" and goes off when disengaged.
4. If the fuel level indicator (8) lights up, the fuel level is very low. Add fuel and the indicator will turn "OFF".
5. If the DEF (AdBlue) level and quality warning indicator (4) lights up, check to see icon on LCD.
(See Warning indication and countermeasures on page 43.)
6. If the water separator indicator (6) lights up, the water in the water separator is very high. Drain the water and the indicator will turn "OFF".
7. If the parking brake warning indicator (5) does not illuminate, set the parking brake.



- (1) Electrical charge warning indicator
- (2) Engine oil pressure warning indicator
- (3) PTO clutch indicator
- (4) DEF (AdBlue) level and quality warning indicator
- (5) Parking brake warning indicator
- (6) Water separator indicator
- (7) Heater indicator
- (8) Fuel level indicator

NOTE :

- Some of the Easy Checker indicators may illuminate or start flashing depending on the positions of the levers and switches.

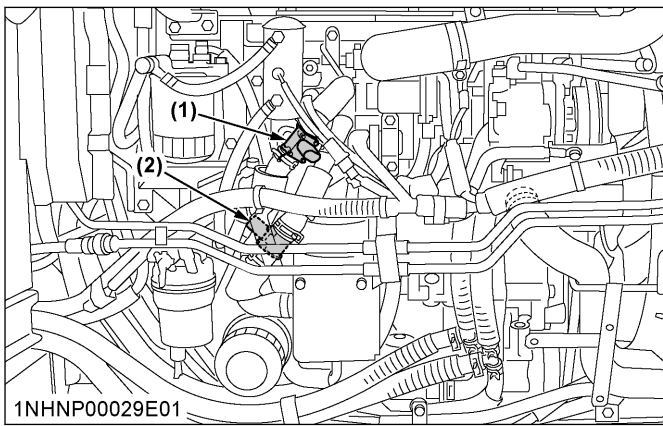
IMPORTANT :

- Daily checks with the Easy Checker only, are not sufficient. Never fail to conduct daily checks carefully by referring to daily check.
(See DAILY CHECK on page 116.)

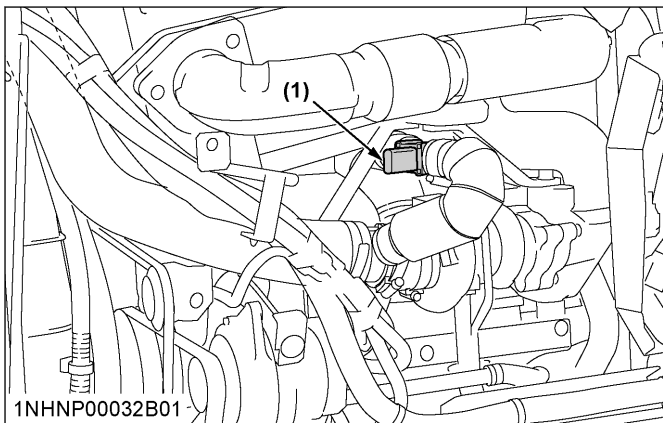
OPERATING THE ENGINE IN FREEZING CONDITIONS

1. Antifrost heater for oil separator (if equipped)

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



(1) Heater (oil separator, OUT)
(2) Heater (oil separator, IN)



(1) Heater (oil separator, OUT)

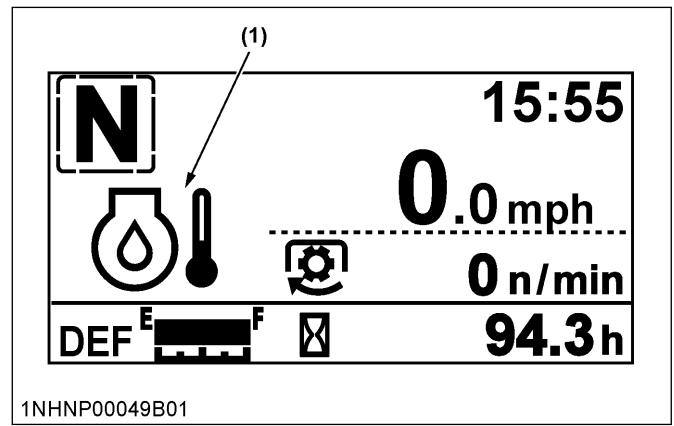
2. Block heater (if equipped)

A block heater is available as an option from your dealer. It will assist you in starting your tractor when the ambient temperature is below -20°C (-4°F).

3. Engine low temperature regulation

In order to prevent engine damage due to rapid acceleration, if starting the engine when coolant temperature is approximately 0°C (32°F) or below, the engine rpm will be kept at approximately 1400 for up to 3 minutes, and the operator will be informed by indicator and intermittent buzzer. The regulation time varies in response to the coolant temperature.

During regulation, perform warm-up operation without using the accelerator. After regulation, the engine rpm can be gradually increased. When regulation has been completely released, the indicator will go off and the buzzer will stop.



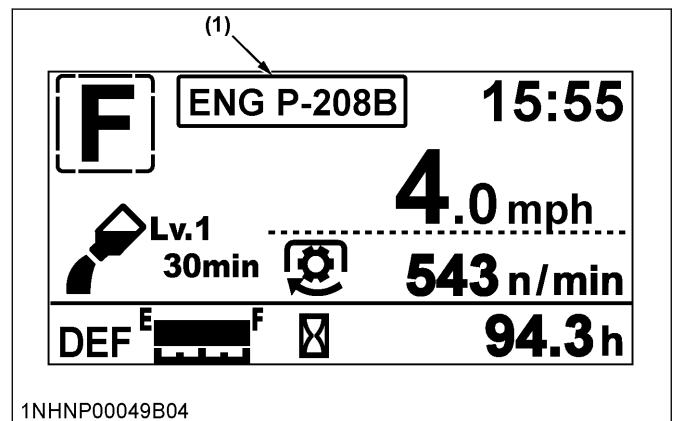
(1) Low temperature regulation indicator

4. DEF (AdBlue) freeze warning

When operating in cold weather, the DEF (AdBlue) is automatically thawed while the engine is running. However, in weather conditions of under -30°C (-22°F), the DEF (AdBlue) cannot be completely thawed and thus, an error/warning code “ENG P-208B” appears on the instrument panel's LCD screen.

If the error/warning code “ENG P-208B” appears on the screen, stop the engine and restart it after 10 seconds. After restarting the engine, the error/warning code “ENG P-208B” will disappear and the thawing of the DEF (AdBlue) will resume.

In case the error/warning code “ENG P-208B” remains on the screen even after restarting the engine several times, contact your local KUBOTA Dealer.



(1) Error/warning code

STOPPING THE ENGINE

After stopping the engine, the SCR system automatically operates for up to about 15 minutes and returns the DEF (AdBlue) in the piping to the DEF tank to prevent freezing and clogging.

The SCR system may generate operating noise after the engine has stopped, but this is not a malfunction.

Note the following precautions after stopping the engine:

- Do not remove the battery terminal until the SCR system stops. This is to prevent damage to the system device.
 - Do not refill with DEF (AdBlue) before the SCR system stops. Otherwise, DEF (AdBlue) may overflow from the breather hose of the DEF tank.
1. After slowing the engine to idle, wait 3 to 5 minutes for turbo to slow down and then turn the key to "OFF".
 2. Remove the key.

WARMING UP THE ENGINE

WARNING

To avoid personal injury or death:

- Be sure to set the parking brake during warm-up.
- Be sure to set all shift levers to the "NEUTRAL" positions and to place the PTO lever in the "OFF" position during warm-up.

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

1. Warm-up and transmission fluid at low temperature range

Hydraulic oil serves as transmission fluid. In cold weather, the oil may be cold with increased viscosity. This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This, in turn, can result in trouble in the hydraulic system.

To prevent the above, observe 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 0 °C (32 °F)	Approx. 5 minutes
0 to -10 °C (32 to 14 °F)	10 to 20 minutes
-10 to -20 °C (14 to -4 °F)	20 to 30 minutes
Below -20 °C (-4 °F)	More than 30 minutes

IMPORTANT :

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

JUMP STARTING THE ENGINE

WARNING

To avoid personal injury or death:

- Battery gases can explode. Keep cigarettes, sparks, and flames away from the battery.
- If the tractor battery is frozen, do not jump start engine.
- Do not connect the other end of the negative (-) jumper cable to the negative (-) terminal of the tractor battery.
- When taking out the dead battery, putting in the battery or fixing the battery, do not allow the positive (+) terminal of the battery to touch other parts.

When jump starting the engine, follow the instructions below to safely start the engine.

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

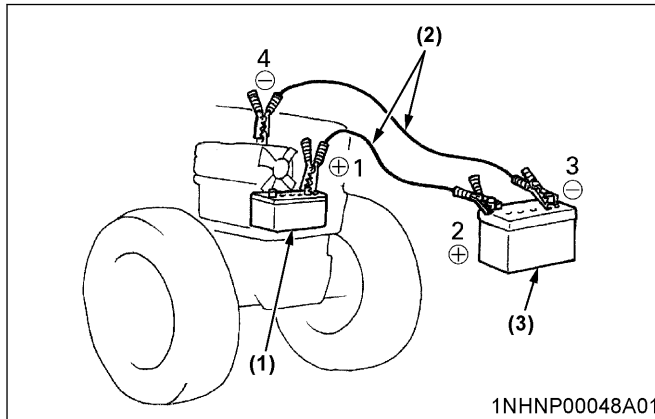
IMPORTANT :

- The vehicles must not touch.
2. Engage the parking brakes of both vehicles and put the shift levers in "NEUTRAL". Shut both engines off.
 3. Wear eye protection and rubber gloves.
 4. Attach the red clamp to the positive (red, (+) or positive) terminal of the dead battery and clamp the other end of the same cable to the positive (red, (+) or positive) terminal of the helper battery.
 5. Clamp the other cable to the negative (black, (-) or negative) terminal of the helper battery.
 6. Clamp the other end 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 (steps 6, 5 and 4).

Connect cables in numerical order.

Disconnect in reverse order after use.



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

IMPORTANT :

- This tractor has a 12 volt negative (-) ground starting system.
- Use only the same voltage for jump starting.
- Use of a higher voltage source on tractor's electrical system could result in severe damage to tractor's electrical system.
Use only matching voltage source when "Jump starting" a low or 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 before operating the tractor.
Otherwise, the tractor might malfunction.

OPERATING THE TRACTOR

OPERATING NEW TRACTOR

How a new tractor is handled 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 care should be taken to operate the tractor for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become "*broken-in*". The manner in which the tractor is handled 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 handling a new tractor, the following precautions should be observed.

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

- Do not start quickly nor 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 high speed.

The above precautions are not limited only to new tractors, but to all tractors. However, they should be especially observed in the case of new tractors.

2. Changing lubricating oil for new tractors

The lubricating oil is especially important in the case of a new tractor. 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, and this may wear out or damage the parts. Therefore, care should be taken to change the lubricating oil a little earlier than would ordinarily be required.

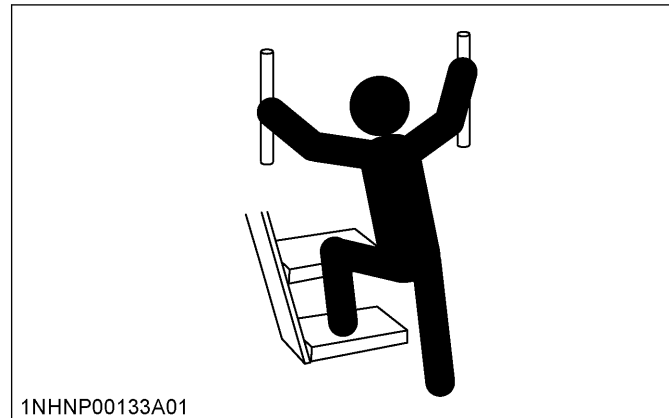
For more details, read the maintenance section of this manual.

(See MAINTENANCE on page 108.)

BOARDING AND LEAVING THE TRACTOR

- Never try to get on or off a moving tractor or jump off the tractor to exit.

- Face the tractor when getting into or out of the tractor. Do not use the controls as handholds to prevent inadvertent machine movements.
- Always keep steps and floor clean to avoid slippery conditions.



STARTING THE TRACTOR

1. Adjusting the operator's position.

NOTE :

- The seat and suspension should be adjusted to ensure that the controls are comfortably at hand for the operator, ensuring that the operator maintains a good posture and minimizes risks from whole body vibration.

- Operator's seat on page 57
 - Seat belt on page 58
 - Tilt steering adjustment on page 58
2. Selecting light switch positions.
 - Headlight switch on page 58
 - Turn signal switch and hazard light switch on page 58
 3. Checking the brake pedal.
 - Brake pedals (right and left) on page 59
 4. Pull the position control lever to raise the implement.
 - Position control on page 86
 5. Depress the clutch pedal.
 - Clutch pedal on page 60

6. Selecting the travel speed.
 - Travel speed control on page 61
 - Main gear shift lever on page 62
 - Range gear shift lever on page 62
 - Hydraulic-shuttle shift lever on page 62
 - **Dual speed** shift switch (**dual speed** model) on page 62
 - *Clutch-off* switch on page 62
 - Creep lever (if equipped) on page 63
 - Front-wheel drive lever on page 63
7. Accelerate the engine.
 - Hand throttle lever on page 64
 - Foot throttle on page 64
8. Unlock the parking brake.
 - Parking brake lever on page 64
9. Unlock the brake pedals and slowly release the clutch.

1. Operator's seat



WARNING

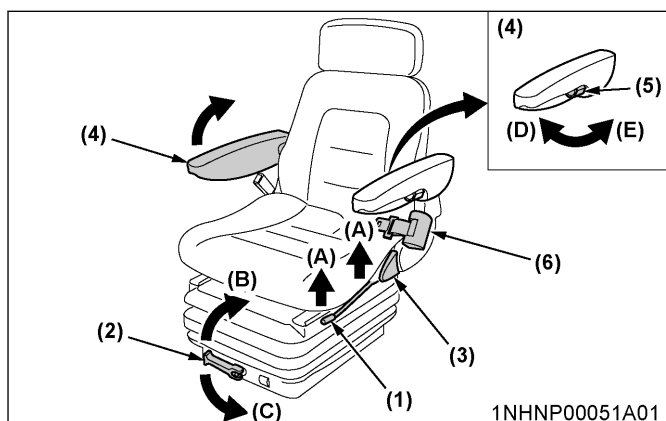
To avoid personal injury or death:

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

IMPORTANT :

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

1.1 Mechanical suspension type



- | | |
|--------------------------------|---------------------------|
| (1) Travel adjust lever | (A) "UNLOCK" |
| (2) Weight adjust lever | (B) "TO INCREASE TENSION" |
| (3) Backrest tilt adjust lever | (C) "TO DECREASE TENSION" |
| (4) Armrest | (D) "TO INCREASE ANGLE" |
| (5) Armrest angle adjust knob | (E) "TO DECREASE ANGLE" |
| (6) Seat belt retractor | |

Travel adjustment

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

Weight adjustment

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

Height adjustment

Pull the seat up with your hands to the desired height of the three available positions.

Once it has reached the highest level, it will return to the lowest level.

Tilt adjustment

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

Armrest

Armrest may be set at upright position if desired.

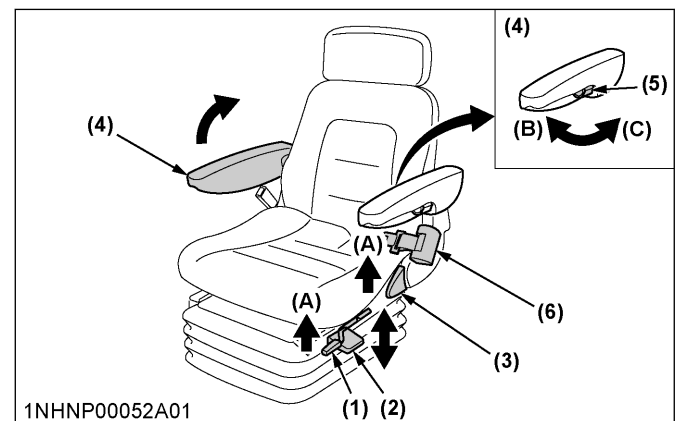
Armrest angle adjustment

Turn the armrest angle adjust knob to the desired angle.

IMPORTANT :

- Do not hit the seat belt retractor when using the armrest angle adjust knob.

1.2 Air suspension type (if equipped)



- | | |
|------------------------------------|-------------------------|
| (1) Travel adjust lever | (A) "UNLOCK" |
| (2) Weight and height adjust lever | (B) "TO INCREASE ANGLE" |
| (3) Backrest tilt adjust lever | (C) "TO DECREASE ANGLE" |
| (4) Armrest | |
| (5) Armrest angle adjust knob | |
| (6) Seat belt retractor | |

Travel adjustment

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

Weight and height adjustment

Turn on the key switch. The seat should be adjusted for the operator's weight by briefly pulling up or pushing down the weight and height adjust lever with the tractor

in a stationary position and the operator sitting on the seat.

The seat can be adjusted in its adjustable range.

NOTE :

- If the seat is lowered below the adjustable range, it automatically comes up to the lower limit of the adjustable range just as the weight and height adjust lever is released.
- When turning on the key switch, the seat may slightly move up depending on the preset seat position (height).

IMPORTANT :

- In order to avoid damaging the seat, do not operate the weight and height adjust lever for more than 1 minute.

Tilt adjustment

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

Armrest

Armrest may be set at upright position if desired.

Armrest angle adjustment

Turn the armrest angle adjust knob to the desired angle.

IMPORTANT :

- Do not hit the seat belt retractor when using the armrest angle adjust knob.

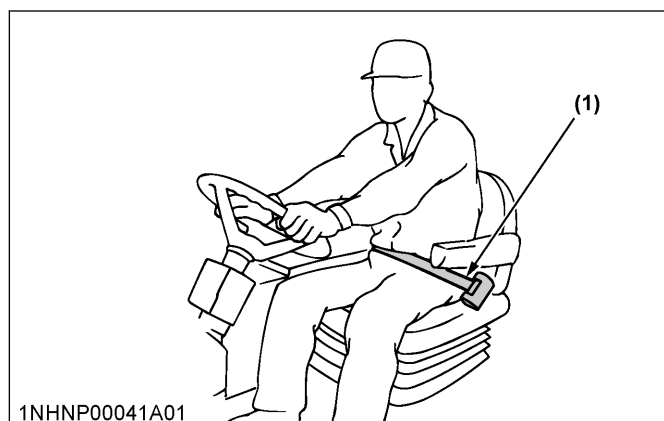
2. Seat belt

WARNING

To avoid personal injury or death:

- Always use the seat belt when a ROPS or CAB is installed.

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



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(1) Seat belt

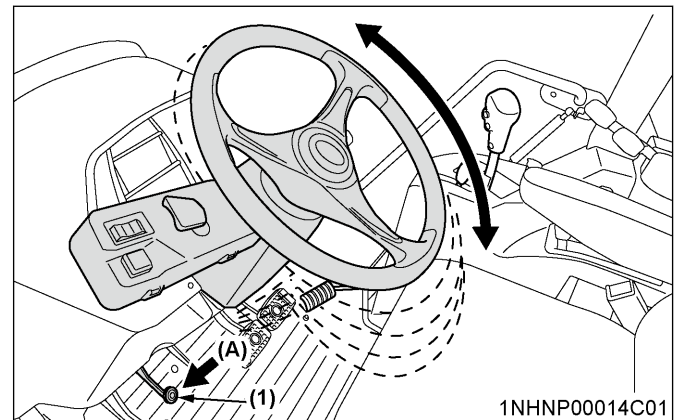
3. Tilt steering adjustment

CAUTION

To avoid personal injury:

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

Press down the steering wheel tilt pedal to release the lock, so that the steering wheel can be adjusted to the desired position.

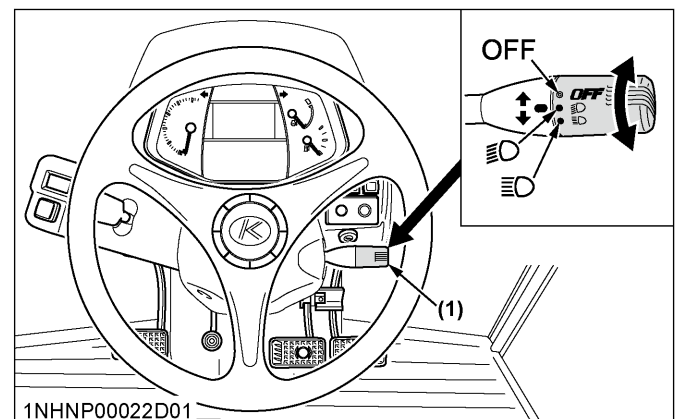


(1) Steering wheel tilt pedal

(A) "PRESS DOWN"

4. Headlight switch

Turn the headlight switch clockwise, and the following lights are activated on the switch position.



(1) Headlight switch

OFF Headlights OFF.

 Headlights dimmed, low beam.

 Headlights ON, high beam.

5. Turn signal switch and hazard light switch

Hazard light

1. When the hazard light switch is pushed, the hazard lights flash, along with the LH and RH indicators on the instrument panel.

2. Push the hazard light switch again to turn off the hazard lights.

Turn signal with hazard light

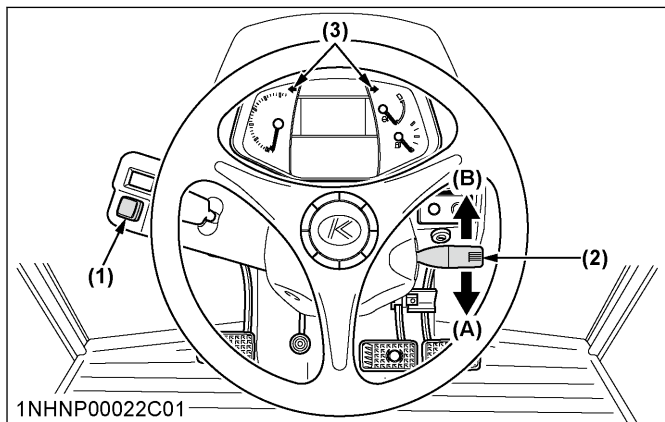
1. To indicate a right turn with the hazard lights already flashing, turn the switch clockwise.
2. To indicate a left turn with the hazard lights already flashing, turn the switch counterclockwise.
3. When the left or right turn signal is activated in combination with the hazard lights, the indicated turning light will flash and the other will stay on.

Turn signal without hazard light

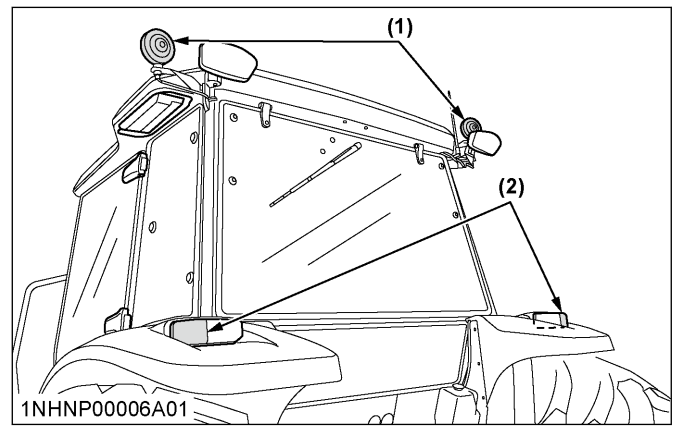
1. To indicate a right turn without hazard lights, turn the switch clockwise.
2. To indicate a left turn without hazard lights, turn the switch counterclockwise.
3. When the left or right turn signal is activated without the hazard lights, the indicated turning light will flash and the other will stay off.

NOTE :

- The hazard light switch is operative when the key switch is in the “ON”, “ACC” or “OFF” position.
- The turn signal light switch is only operative when the key switch is in the “ON” position.
- Be sure to return the turn signal switch to center position after turning.



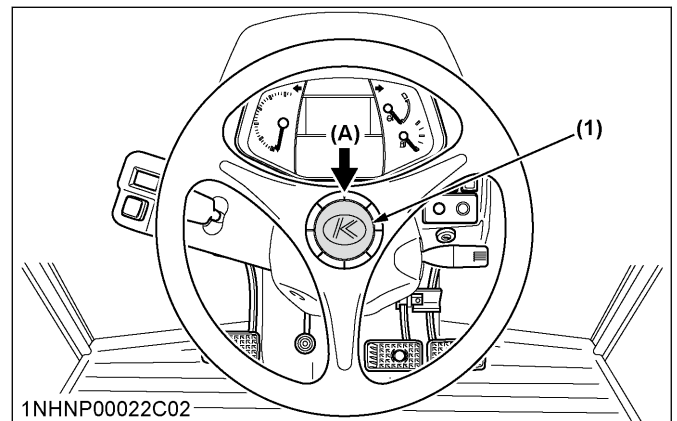
- | | |
|--------------------------------------|------------------|
| (1) Hazard light switch | (A) “RIGHT TURN” |
| (2) Turn signal light switch | (B) “LEFT TURN” |
| (3) Hazard and turn signal indicator | |



- (1) Hazard light
(2) Turn signal light

6. Horn button

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



- (1) Horn button (A) “PUSH”

7. Brake pedals (right and left)

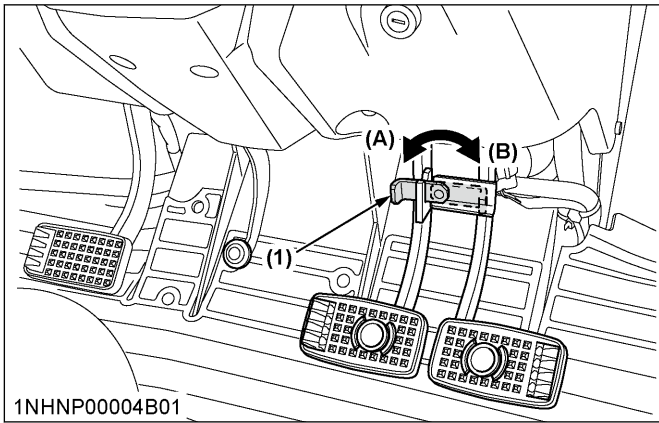
⚠ WARNING

To avoid personal injury or death:

- Be sure to interlock the right and left pedals. Applying only one rear wheel brake at high speeds could cause the tractor to swerve or roll-over.
- Be sure brake pedals have equal adjustment when using locked together. Incorrect or unequal brake pedal adjustment 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 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 and 4-wheel drive. Be aware of the difference and use carefully.
- Engage 4-wheel drive for 4-wheel braking when traveling down a slope.

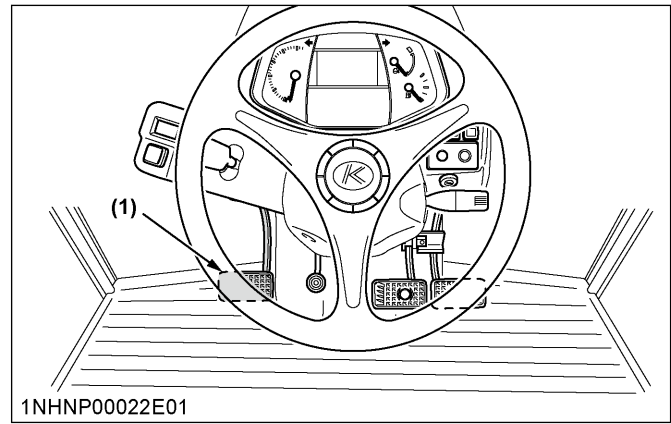
1. Before operating the tractor on the road or before applying the parking brake, be sure to interlock the right and left pedals as in the following illustration.
2. Use individual brakes to assist in making sharp turns at low speeds (field operation only). Disengage the brake pedal lock and depress only one brake pedal.
3. Be sure brake pedals have equal adjustment when using locked together.



(1) Brake pedal lock

(A) "LOCK"

(B) "RELEASE"



(1) Clutch pedal

IMPORTANT :

To help prevent premature clutch wear:

- The clutch pedal must be quickly disengaged and be slowly engaged.
- Avoid operating the tractor with your foot resting on the clutch pedal.
- Select proper gear and engine speed depending on the type of job.

8. Clutch pedal

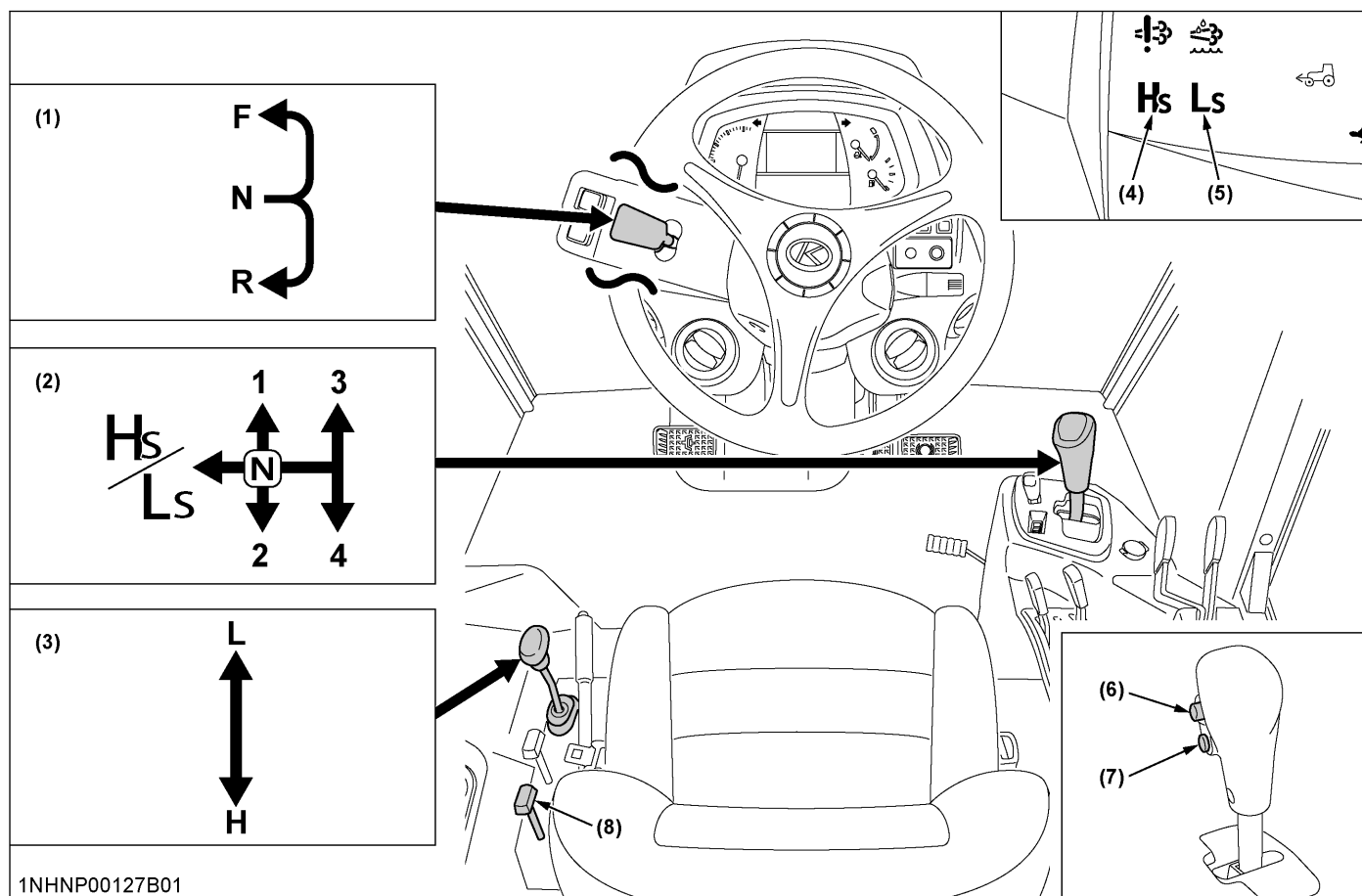
WARNING

To avoid personal injury or death:

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

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

9. Travel speed control



1NHNP00127B01

(1) Hydraulic-shuttle shift lever

(2) Main gear shift lever

(3) Range gear shift lever

(4) Pilot lamp (high)

(5) Pilot lamp (low)

(6) Clutch-off switch

(7) **Dual speed** shift switch (**dual speed** model)

(8) Creep lever (if equipped)

(F) "FORWARD"

(N) "NEUTRAL POSITION"

(R) "REVERSE"

(Ls) "LOW"

(Hs) "HIGH"

By using the shift lever-shift switch combination, the forward speeds and reverse speeds shown in the following table are obtained.

Standard model	Without creep	16 forward speeds 16 reverse speeds
	With creep	24 forward speeds 24 reverse speeds
Dual speed model	Without creep	32 forward speeds 32 reverse speeds
	With creep	48 forward speeds 48 reverse speeds

10. Main gear shift lever

WARNING

To avoid personal injury or death:

- Before moving the main gear shift lever (1 ↔ 2 ↔ 3 ↔ 4), make sure the pilot lamp is on. If the pilot lamp fails to come on, stop the tractor completely and start the gear shifting all over.
- Do not shift between [Ls] and [Hs] on a downhill slope. The shifting may fail. Be sure to do the shifting before going downhill.

8 speeds can be selected with the main gear shift lever. The main gear shift is fully synchronized to shift without stopping.

IMPORTANT :

- The main gear shift may be shifted between speeds on-the-go, but the clutch must be depressed.

Shifting between [Ls] and [Hs]

1. Keep the engine running and the main gear shift lever at “neutral”. Move the lever against the left-side face, and the speed changes each time between [Ls] and [Hs]. Be sure to use the clutch while shifting.
2. The pilot lamps (low) and (high) indicate that the shift is changed between [Ls] and [Hs].
3. The buzzer sounds when the shifting is underway with both the pilot lamps (low) and (high) off.

11. Range gear shift lever

The range gear shift can only be shifted when the tractor is completely stopped and the clutch is depressed.

IMPORTANT :

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

12. Hydraulic-shuttle shift lever

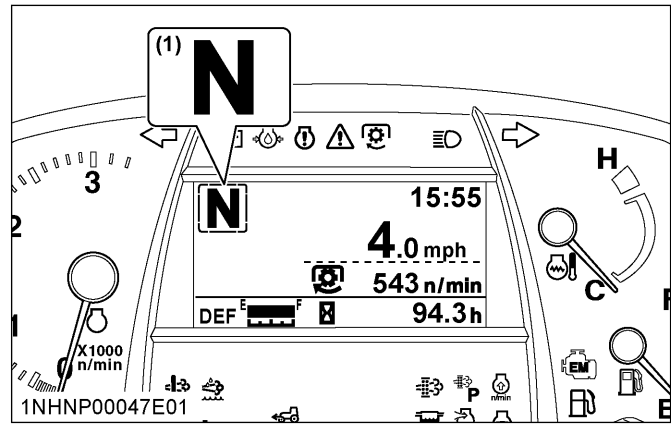
Raise up and shift the shuttle shift lever forward to obtain forward speeds and shift back to obtain reverse speeds. This shifting does not require clutch operation.

IMPORTANT :

- The hydraulic-shuttle shift lever may be shifted while the tractor is moving slowly.

NOTE :

- While the shuttle shift lever is at the “NEUTRAL” position, the [N] character appears on the LCD monitor.



(1) “NEUTRAL”

13. Dual speed shift switch (dual speed model)

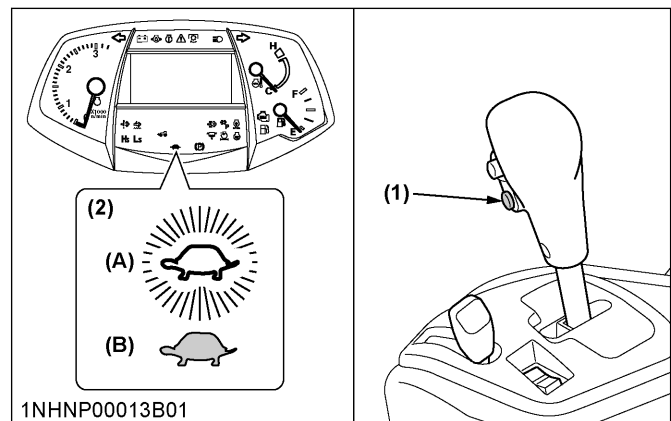
The **dual speed** shift switch can be operated when the tractor is traveling without using the clutch.

This switch affects tractor travel speed change by about 19%. “LO” speed and “HI” speed switch back and forth each time this switch is pushed.

Dual speed indicator

The indicator comes on when the **dual speed** switch is set to “LO”.

The indicator goes off when the **dual speed** switch is set to “HI”.



(1) Dual speed shift switch
(2) Dual speed indicator

(A) “LO”
(B) “HI”

14. Clutch-off switch

WARNING

To avoid personal injury or death:

- If you release the **clutch-off** switch when the travel speed is selected, the clutch becomes engaged and the tractor will begin to move.
- Always use the clutch pedal to start the tractor.

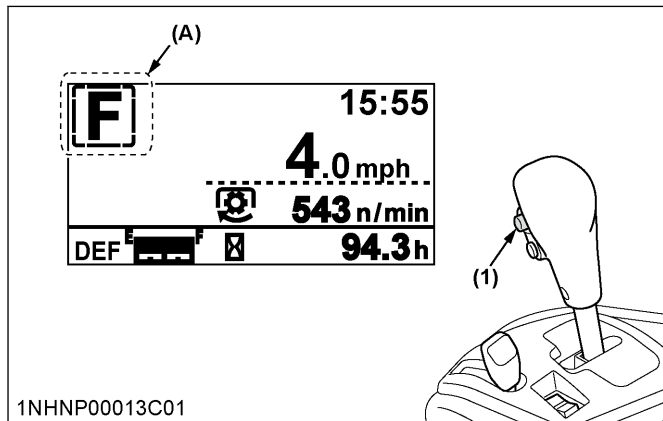
The *clutch-off* switch allows shifting gears without using the clutch pedal.

While pressing the *clutch-off* switch, the clutch is disengaged.

When the *clutch-off* switch is released, the clutch is engaged. Similarly to how the shuttle shift lever is shifted from [N] to [F] (or [R]), the clutch is engaged through a smooth wave-like motion.

NOTE :

- While pressing the *clutch-off* switch, the position display of the shuttle shift lever on the LCD monitor flashes.



1NHNP00013C01

(1) Clutch-off switch

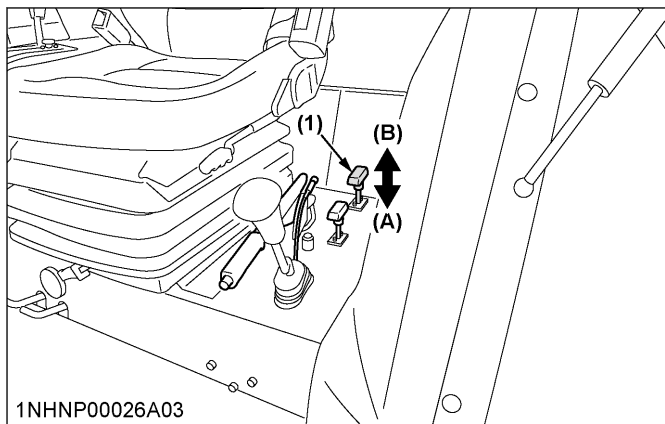
(A) "FLASHES"

15. Creep lever (if equipped)

Push down the creep lever to  in order to obtain low speeds with the range gear shift lever selected at [L] range.

With the creep lever engaged "ON", the range gear shift lever cannot shift to [H]. (The creep mode does not operate in the high-speed range.)

This shifting requires clutch operation.



1NHNP00026A03

(1) Creep lever

(A)  "LOW".....Creep on

(B) "HIGH".....Creep off

Creep speed should be used only when doing one of the following jobs:

- Deep rotary-tilling and harrowing

- Planting
- Turf application

Creep speed cannot be used for any of the following jobs:

- Pulling a trailer
- Front-loader operation
- Front-blade operation
- Earth-moving
- Entering and leaving a field
- Loading onto and unloading from a truck

! WARNING

To avoid personal injury or death:

- When you leave the tractor, be sure to apply the parking brake and stop the engine.
 - In applying the brakes:
 - The torque of the wheel axle is extremely high while creep speed is being used. Be sure to step down on the clutch pedal completely before applying the brakes, or the torque will overcome the brakes.
 - When starting to operate the tractor, be sure to release the parking brake.
- Misuse of the brakes may cause damage to the transmission and is therefore not acceptable to KUBOTA for coverage under the warranty.

IMPORTANT :

- Press the clutch pedal completely down and stop the tractor's motion before shifting the creep lever.

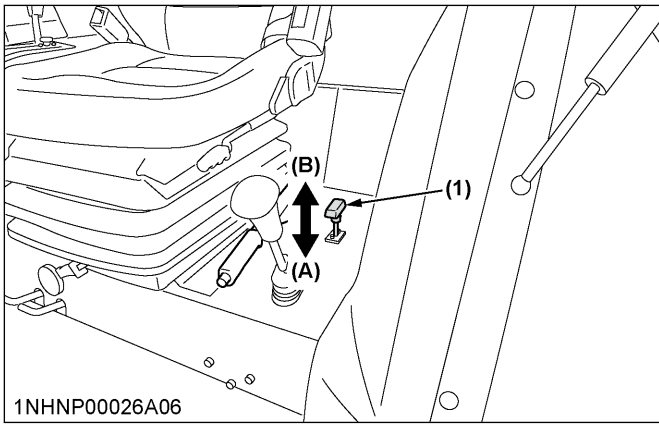
16. Front-wheel drive lever

! 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 the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate at reduced speed and engage the front-wheel drive.
- An accident may occur if the tractor is suddenly braked, such as by heavy towed loads shifting forward or loss of control.
- The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.

The front-wheel drive lever can be operated with the tractor moving slowly and with the engine decelerating without clutch operation. Shift the lever to "ON" to engage the front-wheel drive.



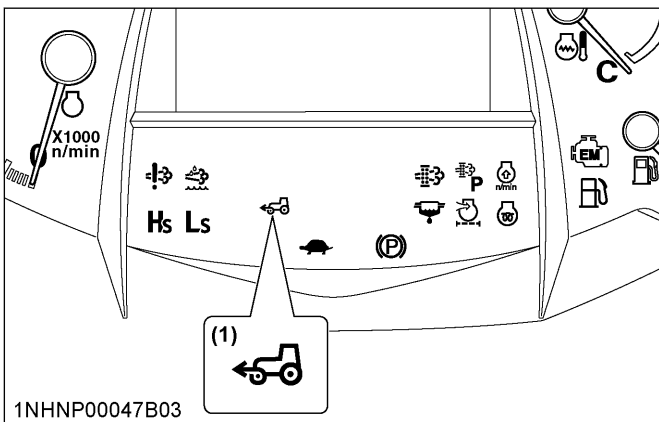
(1) Front-wheel drive lever

(A) "ON"
(B) "OFF"

16.1 4WD Indicator

The 4WD indicator turns on while the front-wheel drive lever is in "ON" (4WD) position.

The 4WD indicator goes off when the front-wheel drive lever is in "OFF" (2WD) position.



1NHNP00047B03

(1) 4WD indicator

NOTE :

- Even when the front-wheel drive lever is moved, the 4WD indicator may fail to light up or go out immediately. Just keep on running the tractor, and the indicator will light up or go out accordingly.

If the indicator fails to come on or go out with the tractor at a stop, turn the steering wheel clockwise and counterclockwise, and the indicator will light up or go out accordingly.

16.2 Front-wheel drive (4WD) usage

Front-wheel drive is effective for the following jobs:

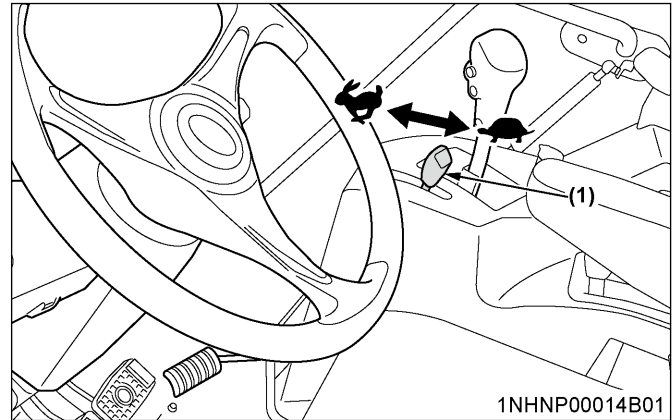
- When greater pulling force is needed, such as working in a wet field, when pulling a trailer, or when working with a front-end loader.
- When working in sandy soil.
- When working on a hard soil where a rotary tiller might push the tractor forward.

IMPORTANT :

- Tires will wear quickly if the front-wheel drive is engaged on paved roads.
- Reduce the rear wheel traction before engaging the front-wheel drive lever.

17. Hand throttle lever

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

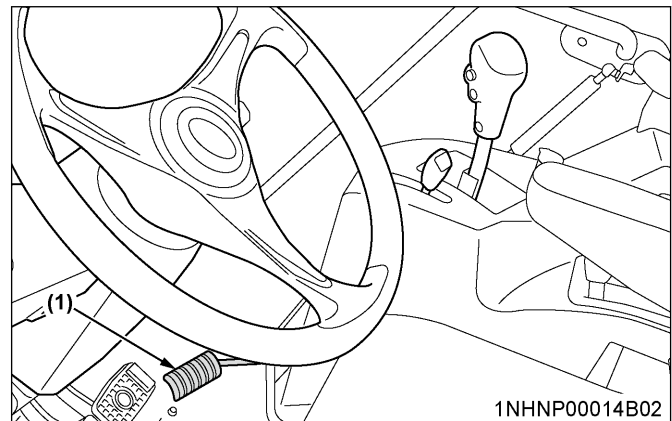


(1) Hand throttle lever

↑ "INCREASE"
↓ "DECREASE"

18. Foot throttle

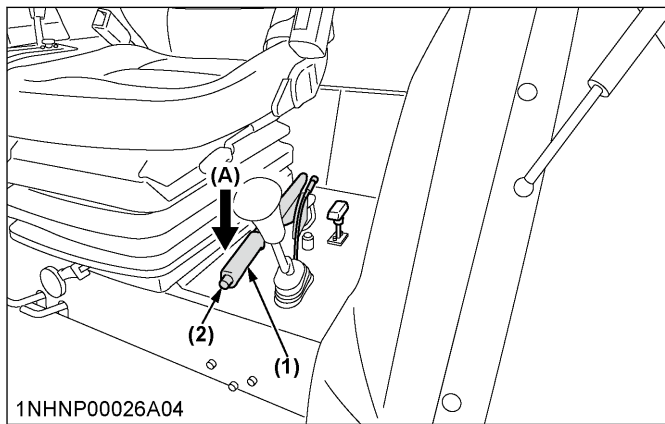
Use the foot throttle when traveling on the road. Press down on it for higher speed. The foot throttle is interlocked with the hand throttle lever; when using the foot throttle, keep the hand throttle lever in low idling position.



(1) Foot throttle

19. Parking brake lever

To release the parking brake, depress the brake pedals, push the release button and push the parking brake lever down.



1NHNP00026A04
(1) Parking brake lever
(2) Release button

(A) "RELEASE"

NOTE :

- The parking brake indicator light on the Easy Checker will turn off when the parking brake is released.

IMPORTANT :

- Do not attempt to put the tractor in motion before the parking brake indicator light turns off.
If the tractor is operated with the parking brake set, the warning buzzer sounds and the parking brake indicator light starts flashing.
- If the tractor is operated with the parking brake set, the parking brake might be damaged.
- If the parking brake is released but the parking brake indicator light does not go out, check the level of brake oil.

STOPPING THE TRACTOR

1. Slow down the engine.
2. Step on the clutch and brake pedal.
3. Wait for the tractor to stop.
4. Disengage the PTO.
5. Lower the implement to the ground.
6. Shift the transmission to "NEUTRAL".
7. Release the clutch pedal.
8. Set the parking brake.

CHECK DURING DRIVING

IMPORTANT :

Immediately stop the engine if:

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

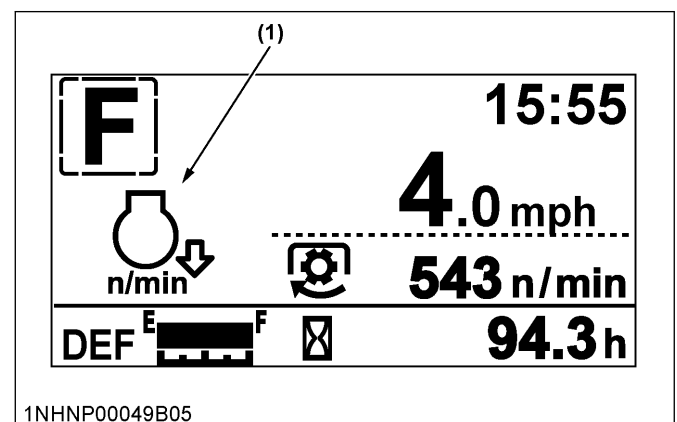
While driving, check the following items to see that the all parts are functioning normally:

- Engine over-speed limiting indicator on page 65
- Easy Checker on page 65
- Fuel gauge on page 67
- DEF (AdBlue) gauge on page 67
- Coolant temperature gauge on page 67
- Tachometer on page 68

1. Engine over-speed limiting indicator

The engine over-speed limiting indicator informs the operator of engine over-speed by indicator and warning buzzer.

If the warning sounds, immediately lower the engine rpm with brakes and such. When the engine rpm decreases, the warning will stop.



1NHNP00049B05

(1) Engine over-speed limiting indicator

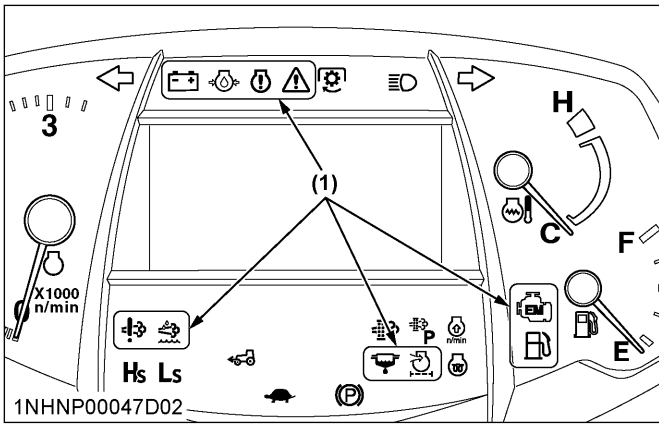
NOTE :

- Normal operation will not lead to over-speed, but, for instance, if suddenly shifting down when running with a trailer at full speed, the tractor will be pushed by the trailer and may go into over-speed.

2. Easy Checker

If the indicators on the Easy Checker come on during operation, immediately stop the engine and find the cause as follows.

Never operate the tractor while an Easy Checker indicator is on.



(1) Easy Checker

⚠ Engine warning

This indicator serves the following 2 functions. If the indicator lights up, pinpoint the cause and take proper measures.

1. Error with the engine control system

If during operation the water temperature gauge reads an acceptable level but the indicator on the Easy Checker comes on, stop the engine and then restart it. If the error happens again, consult your local KUBOTA Dealer.

IMPORTANT :

- If the warning indicator lights up, the following phenomena may appear depending on the engine's trouble spot.
 - The engine stops unexpectedly.
 - The engine fails to start or gets interrupted just after starting.
 - The engine output is not enough.
 - The engine output is enough, but the 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.

2. Engine overheat

If the water temperature gauge reads an unusual level and the indicator on the Easy Checker comes on, the engine may have overheated. Check the tractor by reading the troubleshooting section of this manual.

(See TROUBLESHOOTING on page 153.)

⚠ Engine oil pressure

If the oil pressure in the engine drops below the prescribed level, the indicator on the Easy Checker will come on.

If this should happen during operation, and it does not go off when the engine is accelerated to more than 1000 rpm, check the engine oil level.

(See Checking engine oil level on page 120.)

⚠ SCR system warning

If trouble should occur in the SCR system, the indicator on the Easy Checker will light up.

If this should happen during operation, check the SCR system or consult your local KUBOTA Dealer.

⚠ Fuel level

If the fuel in the tank drops below the prescribed level (less than 11.8 L (3.1 gals.)), the indicator on the Easy Checker will come on.

If this should happen during operation, refuel as soon as possible.

(See Checking and refueling on page 117.)

IMPORTANT :

- **When the fuel indicator lights up, refuel the tank as soon as possible. If the tractor runs out of fuel and stalls, the engine and its components may be damaged.**



Water separator

If water or impurities collect in the water separator, the indicator on the Easy Checker will light up.

If this should happen during operation, drain the water from the water separator as soon as possible.

(See Checking water separator on page 119.)



DEF (AdBlue) level and quality

If the DEF (AdBlue) in the DEF tank drops below the prescribed level, or if a poor-quality product is added, the indicator on the Easy Checker will light up.

If this should happen during operation, refill or replace with DEF (AdBlue) as soon as possible.

(See SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM on page 42.)



Air cleaner

If the air cleaner is clogged, the indicator on the Easy Checker will come on.

If this should happen during operation, clean the air cleaner element.

(See Cleaning air cleaner primary element on page 127.)



Emission indicator

If this indicator lights up, take steps to lower the water temperature. This helps keep the emission clean.



Electrical charge

If the alternator is not charging the battery, the indicator on the Easy Checker will come on.

If this should happen during operation, check the electrical charging system or consult your local KUBOTA Dealer.

⚠ Master system warning

If trouble should occur at the engine, transmission or other control parts, the indicator flashes as a warning.

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.

3. Fuel gauge

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

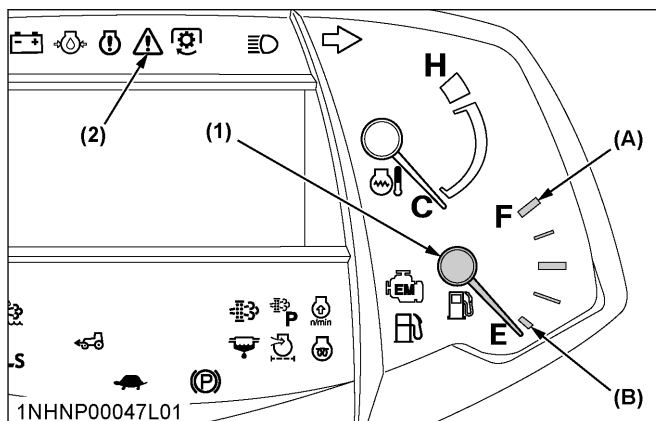
Be careful not to empty the fuel tank. Otherwise, air may enter the fuel system.

Should this happen, the system should be bled.

(See Bleeding fuel system on page 146.)

If the engine runs out of fuel and stalls, the master system warning indicator lights up. When the indicator appears, turn the key switch to "OFF" and then to "ON" again in order to turn off the indicator.

If the indicator does not turn off by restarting the tractor, consult your local KUBOTA Dealer.



- (1) Fuel gauge (A) "FULL"
(2) Master system warning indicator (B) "EMPTY"

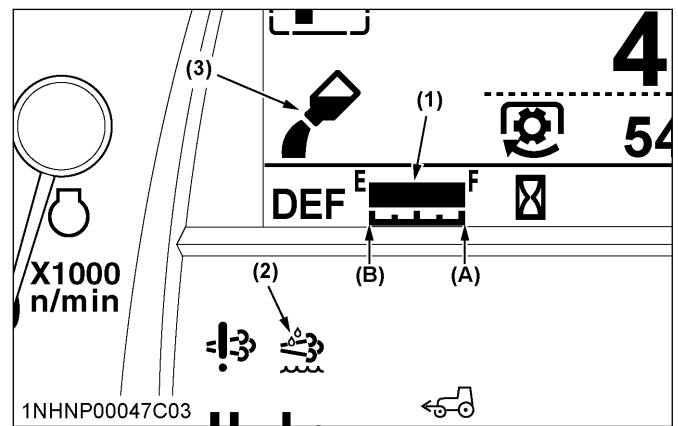
4. DEF (AdBlue) gauge

The DEF (AdBlue) level in the DEF tank is indicated with LCD blocks.

If DEF (AdBlue) level drops too low, the engine output is restricted. With this in mind, be careful not to empty the DEF tank.

When the fluid level in the DEF tank has dropped below 40%, the DEF (AdBlue) level and quality warning indicator and the low-level icon of DEF (AdBlue) on the instrument panel light up and stay on, and the buzzer sounds.

To maintain tractor performance, it is recommended to add DEF (AdBlue) to the specified level quickly.



- (1) DEF (AdBlue) gauge (A) "FULL"
(2) DEF (AdBlue) level and quality warning indicator (B) "EMPTY"
(3) Low-level warning indicator of DEF (AdBlue)

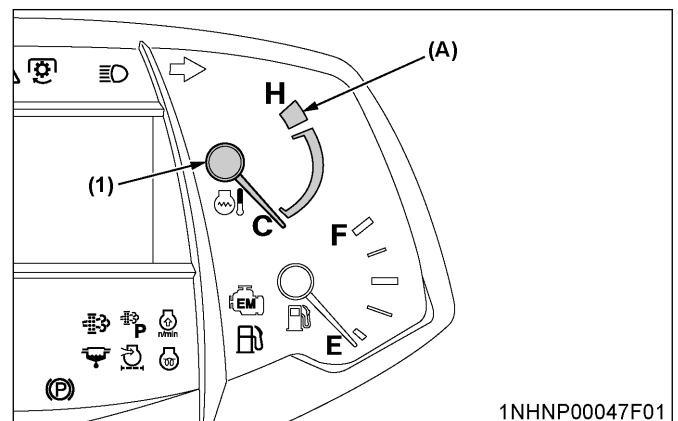
5. Coolant temperature gauge

⚠ WARNING

To avoid personal injury or death:

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

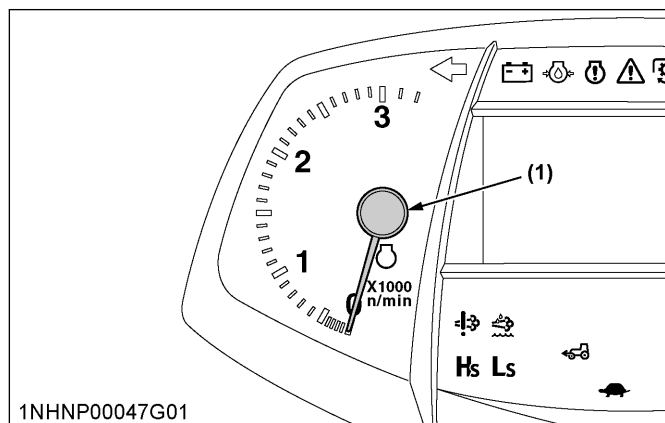
1. With the key switch at "ON", this gauge indicates the temperature of the coolant. [C] is for cold and [H] is for hot.
2. If the indicator reaches the red zone position, the engine coolant is overheated. Check the tractor by reading the troubleshooting section of this manual. (See TROUBLESHOOTING on page 153.)



- (1) Coolant temperature gauge (A) "RED ZONE"

6. Tachometer

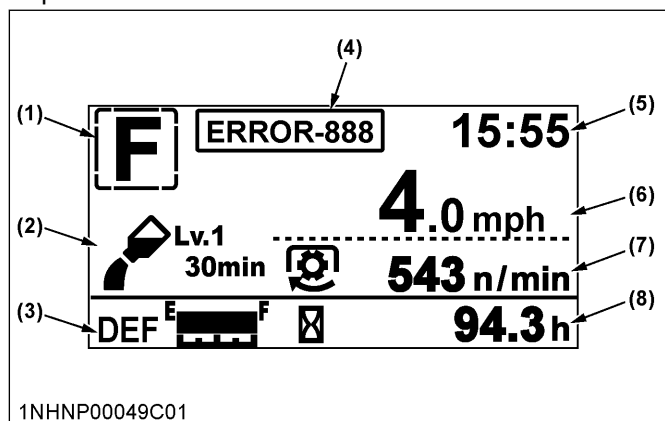
The tachometer indicates the engine speed on the dial.



(1) Engine revolution

LCD MONITOR

This display provides the operator with a variety of information necessary to operate the tractor. Further, part of the display can be modified by the operator as required.



No.	Description	Reference page
(1)	Forward operation is selected with the shuttle lever.	---
	Reverse operation is selected with the shuttle lever.	---
	The shuttle lever is at neutral position.	---
	Blinking Clutch-off switch is pushed. Clutch is disengaged.	---
	No display Shuttle lever system trouble.	---
(2)	DEF (AdBlue) low level indicator	43
	DEF (AdBlue) poor quality indicator	
	DEF (AdBlue) freeze indicator	
	SCR system warning	
	Low temperature regulation indicator	53
	Engine over-speed limiting indicator	65
(3)	DEF (AdBlue) gauge Displays the fluid level in the DEF tank.	43
(4)	Trouble display Displays the trouble-spot-pinpointing error code and the related control unit.	155
(5)	Clock	69
(6)	Travel speed	69
(7)	PTO speed	69
(8)	Performance monitor Various information can be selected by the operator.	72

NOTE :

- Errors may occur in the fuel consumption display depending on the conditions of use. Use the displayed data only as an approximate guide. In particular, do not use the total fuel consumption display mode in place of the fuel gauge.
- The travel speed displayed when the wheels slip under traction is different from the actual one.

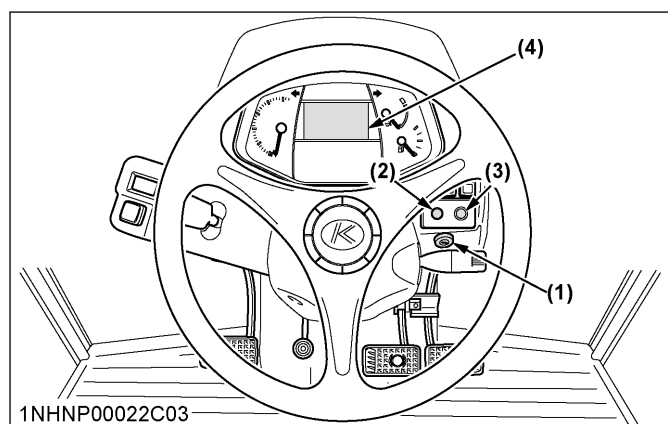
- In cold weather, the LCD monitor response will normally be slower and the visibility be less than in warmer weather.

1. Various setting mode

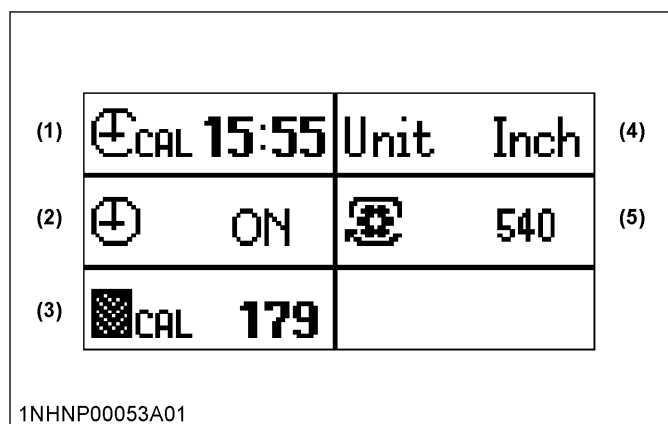
While pressing the “Mode selector switch”, turn the key switch to “ON” position.

The various setting mode screen appears on the LCD monitor. The various setting mode can set 5 items.

Turn the key switch to “OFF” position to finish setting.



- (1) Key switch
(2) Mode selector switch
(3) Select switch
(4) LCD monitor

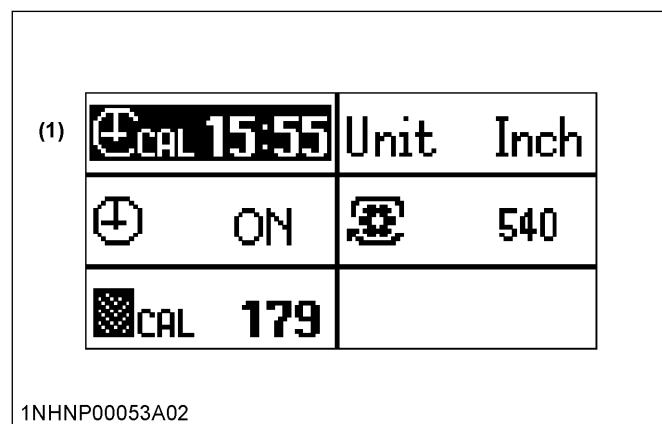


- (1) Clock setting
(2) Clock ON/OFF setting
(3) Tire circumference setting
(4) Unit setting
(5) PTO speed display setting

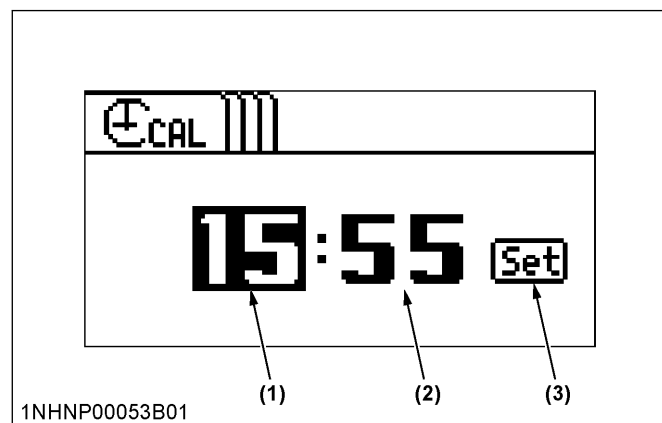
1.1 Clock setting

1. Press the “Mode selector switch” to choose “Clock setting”.

Then press the “Select switch”, and the clock setting screen appears.



- (1) Clock setting



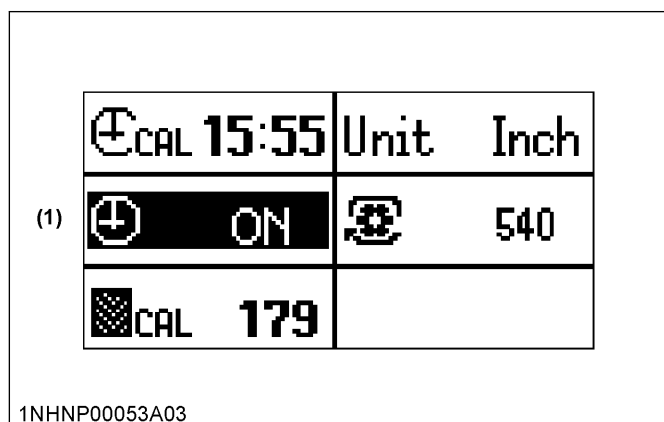
- (1) Hour
(2) Minute
(3) Set switch

2. Setting the “Hour” of the clock:
 - a. Press the “Mode selector switch” to choose the “Hour” (highlighted).
 - b. To put the clock forward, press the “Select switch”.
3. Setting the “Minute” of the clock:
 - a. Press the “Mode selector switch” to choose the “Minute” (highlighted).
 - b. Carry out the “Minute” setting in the same way as the “Hour” setting.
4. Press the “Mode selector switch”.
5. To complete the setting, select “Set” with the “Select switch”.

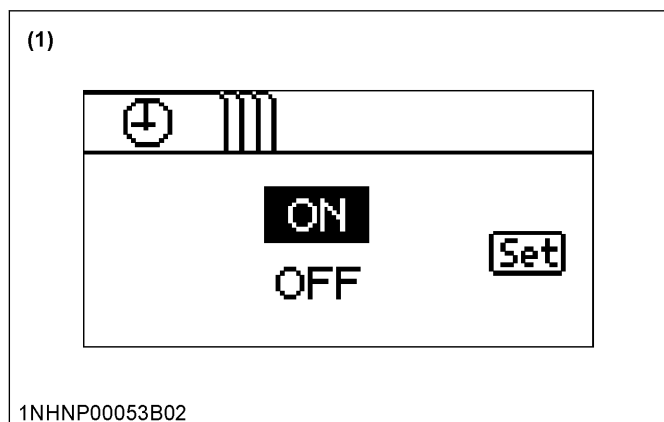
The various setting mode screen appears again.

1.2 Setting the clock display ON/OFF

- Press the "Mode selector switch" to choose "Clock ON/OFF setting".
Then press the "Select switch", and the clock ON/OFF setting screen appears.



(1) Clock ON/OFF setting



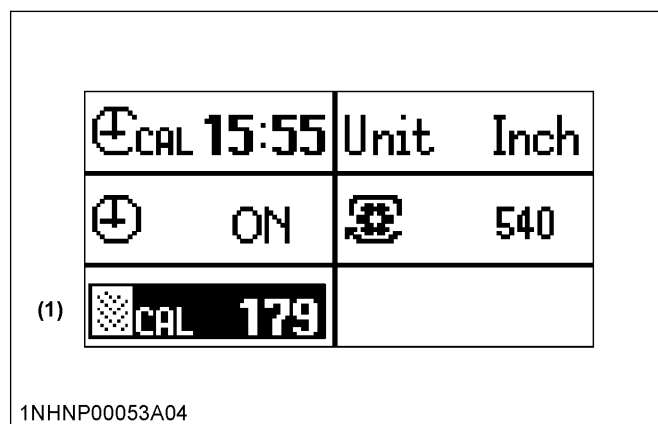
(1) Clock ON/OFF setting screen

- Press the "Select switch" and select "ON" or "OFF".
- Press the "Mode selector switch".
- To complete the setting, select "Set" with the "Select switch".
The various setting mode screen appears again.

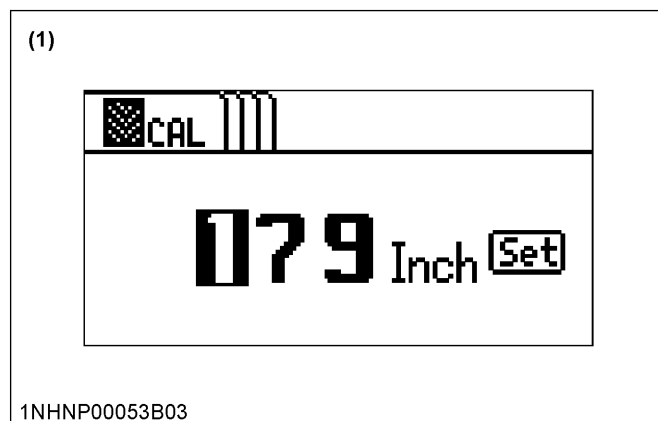
1.3 Setting the tire circumference

When optional different-diameter tires are fitted on the machine, the travel speed display mode must be changed. Otherwise, the travel speed will not be correctly displayed. Such mode switching is also needed when the original tires are back on the machine.

- Press the "Mode selector switch" to choose "Tire circumference".
Then press the "Select switch", and the tire circumference setting screen appears.



(1) Tire circumference



(1) Tire circumference screen

- According to the following table, enter the tire circumference value.
 - Press the "Mode selector switch" to select a digit.
 - To put the number forward, press the "Select switch".
The numeral changes from 0 to 9 at each push of the switch.

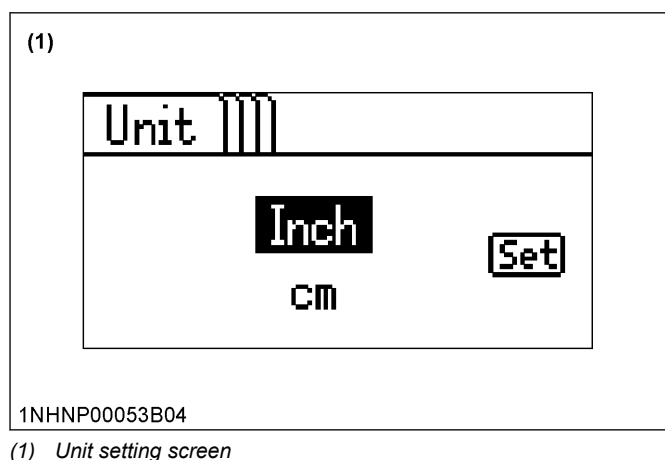
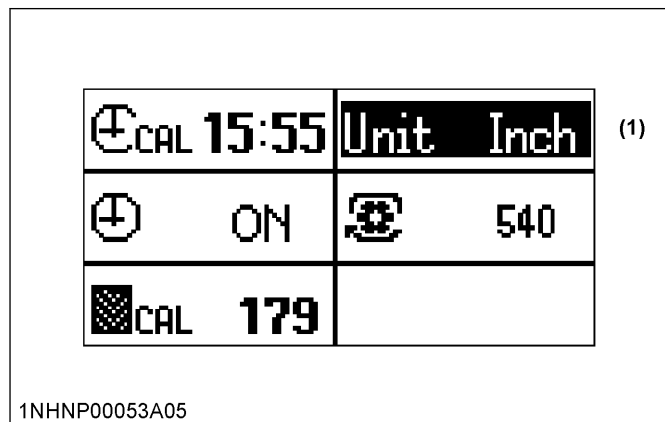
Tire circumference table (reference)

Rear tire size	Entry (in.)	Entry (cm)
18.4-34	194	493
18.4R34	195	495
16.9-34	187	475
18.4-30	183	465
18.4R30	182	462

- Press the "Mode selector switch".
- To complete the setting, select "Set" with the "Select switch".
The various setting mode screen appears again.

1.4 Setting the unit

1. Press the "Mode selector switch" to choose "Unit setting". Then press the "Select switch", and the unit setting screen appears.



2. Press the "Select switch" to select "Inch" or "cm".
3. Press the "Mode selector switch".
4. To complete the setting, select "Set" with the "Select switch".
The various setting mode screen appears again.

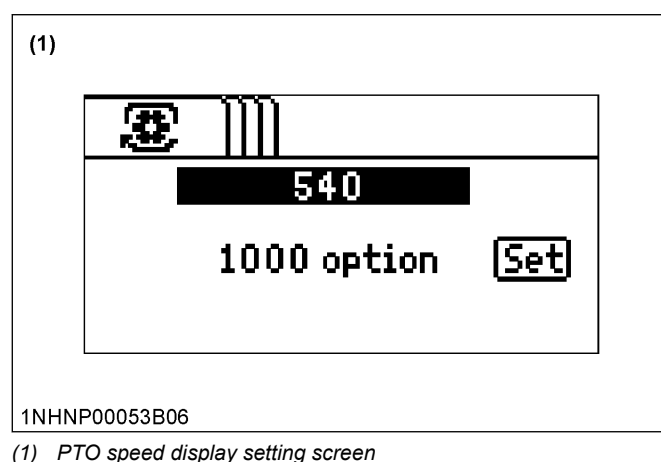
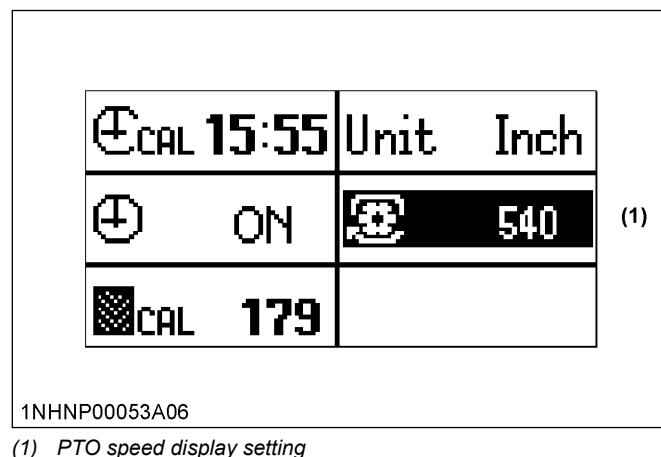
1.5 Setting the PTO speed display

Whenever the PTO speed is changed to the other speed, it is necessary to switch the PTO speed display mode. Otherwise, the PTO speed will not be correctly displayed in the LCD monitor. When the PTO speed is changed from 540 rpm to 1000 rpm or from 1000 rpm to 540 rpm, it is necessary to switch the PTO speed display mode.

NOTE :

- The current setting can be checked in the following procedure.
1. Press the mode selector switch to choose "PTO speed display setting".

Then press the select switch, and the PTO speed display setting screen appears.



2. According to the following table, press the select switch to select the PTO speed.

Select the model	PTO speed (rpm)
540	540
1000 option	1000

3. Press the mode selector switch.
4. To complete the setting, select "Set" with the select switch.
The various setting mode screen appears again.

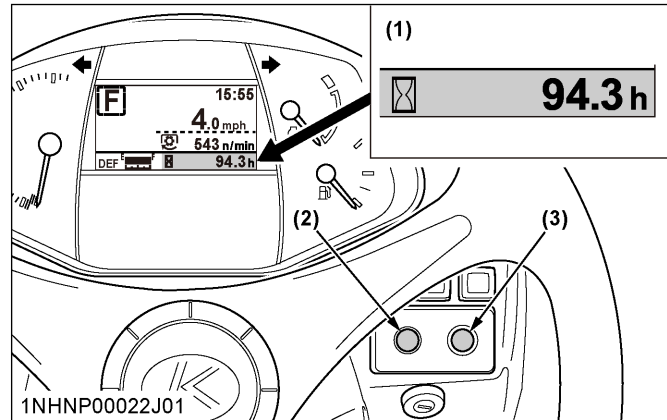
2. Performance monitor

Display change

Use the “Mode selector switch” and “Select switch” to choose one of the items shown in the following table to be displayed on screen.

Priority display

- When the *RPM dual memory* setting is “ON”, the engine rpm A or B is displayed on the screen. When selecting any other information such as “Hour meter” or “PM buildup”, the item will be displayed for approximately 5 seconds before resuming the engine rpm A or B display.
- Turn “OFF” the *RPM dual memory* setting to display any other information continuously.
(See *RPM dual memory* setting on page 73.)



(1) Performance monitor

(2) Mode selector switch

(3) Select switch

List of types of information displayed on the performance monitor

Selected screen (mode)	Display	Remarks		Reference page
1/4		Elapsed time (hour meter)	The hour meter indicates in 6 digits the hours for which the tractor has been used; the last digit indicates 1/10 of an hour.	---
		Trip meter	The total operating hours, counted from the previous resetting, is displayed.	---
2/4		Instantaneous fuel consumption	The “<i>Instantaneous fuel consumption</i>” is measured per hour.	---
		Average fuel consumption	The “<i>Average fuel consumption</i>” is measured per hour from the previous resetting.	---
		Total fuel consumption	The total fuel consumption, measured from the previous resetting, is displayed.	---
3/4		PM buildup (percentage)	- The PM buildup inside the DPF muffler is displayed. - Regeneration is needed when the 100% level has been reached. - The more the bar is extended to the right, the more PM has built up.	---
		PM buildup (graph)		
4/4		Memory A rpm	<i>Engine RPM dual memory</i> A rpm is displayed.	73
		Memory B rpm	<i>Engine RPM dual memory</i> B rpm is displayed.	73

NOTE :

- Hold down the “Mode selector switch” for 2 seconds or longer to reset the “Trip meter”, “Average fuel consumption” and “Total fuel consumption” displays to “0.0”.

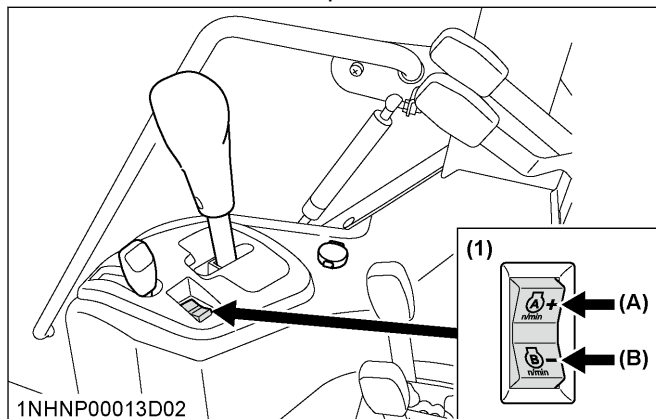
ELECTRONIC ENGINE CONTROL

The electronically controlled engine which is installed in this tractor performs the following 2 types of control.

1. *RPM dual memory setting*
2. *Constant RPM Management control*

1. RPM dual memory setting

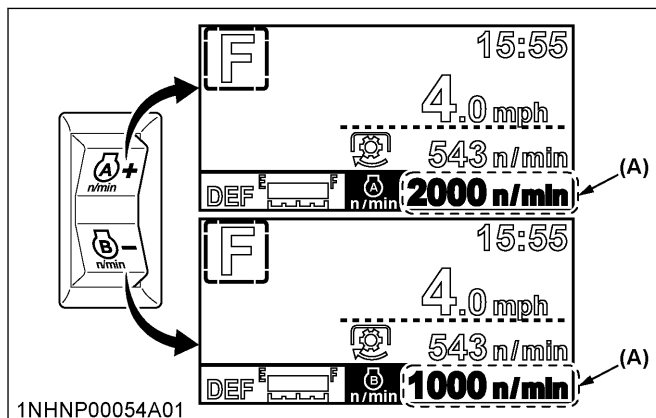
Two different engine speeds can each be set with a single touch by pressing the *RPM dual memory* switch to the (A) or (B) side. This can be used to eliminate troublesome acceleration operations.



(1) RPM dual memory switch (A) Switch A
(B) Switch B

Example of use

Consider an example in which an engine speed of 2000 rpm is set for the switch (A) side and a speed of 1000 rpm is set for the switch (B) side.



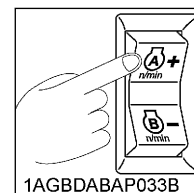
(A) Light up
Engine revolution is operating in the rpm memory setting value.
Flashing
Engine revolution is less than the rpm memory setting value.

Work ↓	 1AGBDABAP033B	During work, simply press the switch to the (A) side to automatically set an engine speed of 2000 rpm.
Turning ↓	 1AGBDABAP033C	When turning, press the switch to the (B) side to lower the speed to 1000 rpm, allowing turning at low speed.
Work	 1AGBDABAP033B	After turning, press the switch again to the (A) side to resume a speed of 2000 rpm.

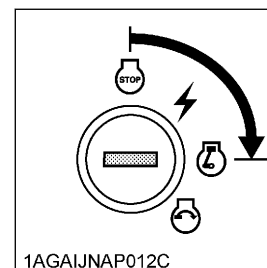
- Keep the hand throttle lever above the minimum speed. At the minimum speed, a memory setup cannot be performed.
- You can also depress the foot throttle to increase the engine speed above the set speed.

Setting the speeds or changing the speed settings

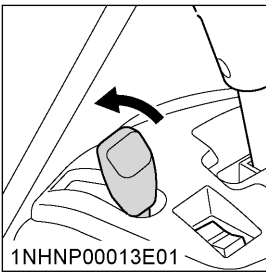
Setting RPM dual memory switch (A).



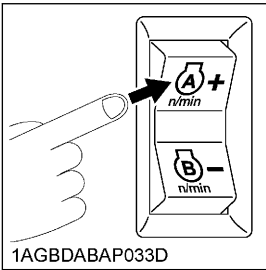
1. Turn the key switch to "ON".
The speed setting can be made both when the engine is running and when it is stopped.



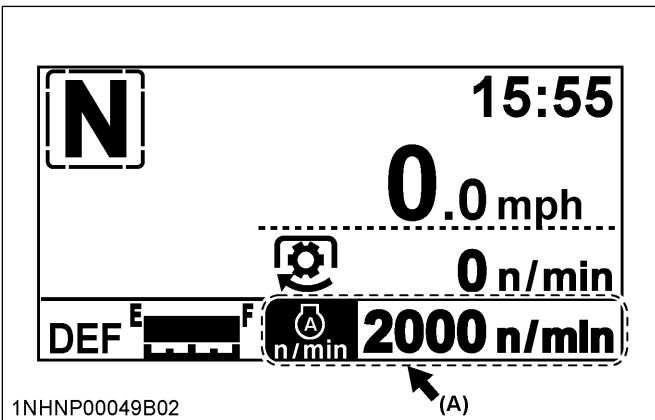
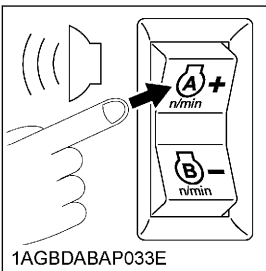
2. Set the hand throttle lever slightly toward the higher-speed side.



- Press the switch (A) side and then release the switch.

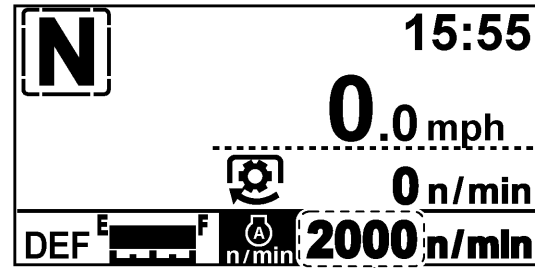
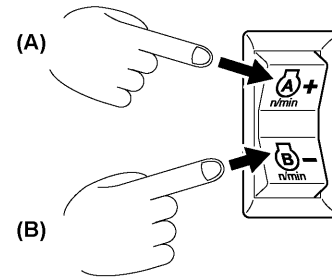


- Press again and hold down the switch (A) side (2.5 seconds) until the buzzer sounds and then release the switch.



(A) Flashes

- Press the switch to the (A) or (B) side and set the speed.
Pressing and holding down the switch will cause the speed to change continuously. Pressing and releasing the switch changes the speed by 10 rpm each time. Set the desired engine speed while watching the speed display.



(A) Increase speed
(B) Decrease speed

- If the switch is released and not operated for 4 seconds, a continuous buzzer sounds and the setting is completed.
- Follow the same procedure as for the (A) side to set the speed for the switch (B) side.

NOTE :

- The set speeds will be stored even after the engine is stopped.

Canceling the setting

Any of the actions below will cancel the *RPM dual memory* settings.

- For the switch (A) side, when the memory speed is engaged, press the switch (A) again to cancel.
For the switch (B) side, when the memory speed is engaged, press the switch (B) again to cancel.
- When the memory speed is canceled, the speed will return to the speed that is determined by the hand throttle lever (foot throttle).
When the switch is pressed, the LCD will display the engine speed that is in effect after memory speed is canceled.
- Return the hand throttle lever to the lowest speed position.
- Turn the key switch to "OFF".

2. Constant RPM Management control

Constant RPM Management can be turned "ON" or "OFF" by operating the switch.

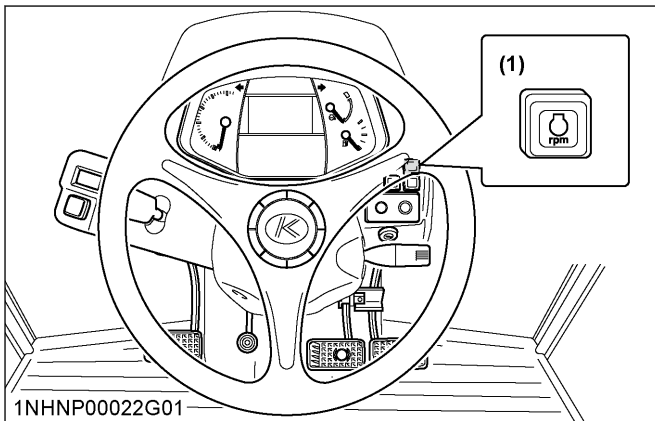
Pressing the switch turns the control "ON" and pressing the switch again turns it "OFF".

When Constant RPM Management is “ON”

Fluctuations in the engine speed due to load fluctuations are reduced and the travel speed and PTO speed are kept nearly constant, allowing stable work. When *Constant RPM Management* is “ON”, the switch's indicator lights up.

When Constant RPM Management is “OFF”

As in a conventional engine, the engine speed increases or decreases according to changes in the load. The operator judges the size of the load from the engine speed and engine sound, and can adjust the travel speed or plowing depth to prevent overload on the tractor.



(1) Constant RPM Management switch with indicator

NOTE :

- In a mechanically-controlled engine, the engine speed changes according to increases and decreases in the load.

For example, when working in a hilly area, the load increases and engine speed drops while ascending a slope, and conversely the engine speed increase and the load drops when descending. These changes in engine speed affect the travel speed and PTO-driven implements. In order to minimize these effects, the operator must make fine adjustments to the travel speed and hand throttle lever.

When the *Constant RPM Management* switch in this tractor with its electronically controlled engine is turned “ON”, the engine speed will be kept nearly constant in response to a certain level of load fluctuations. This improves the accuracy of work without the need for troublesome manipulation of the travel speed and hand throttle lever.

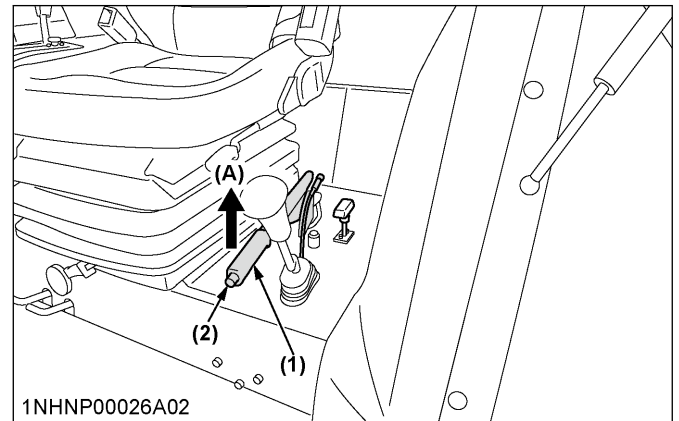
- There is a limit to the range within which a constant speed can be maintained. If a load exceeding the engine performance is applied, the engine speed will drop.
- The purpose of *Constant RPM Management* is not to increase the engine power.

PARKING THE TRACTOR**⚠ WARNING**

To avoid personal injury or death:
Before dismounting tractor

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

1. Before getting off the tractor, disengage the PTO, lower all implements, place all control levers in their neutral positions, pull the parking brake lever up to park, stop the engine and remove the key.
2. If it is necessary to park on an incline, be sure to chock the wheels to prevent accidental rolling of the machine.



(1) Parking brake lever

(2) Release button

(A) “PULL”

IMPORTANT :

- Do not leave your tractor in the rain. If it cannot be avoided, cover the muffler pipe to prevent water from entering.

OPERATING TECHNIQUES**1. Differential lock****⚠ WARNING**

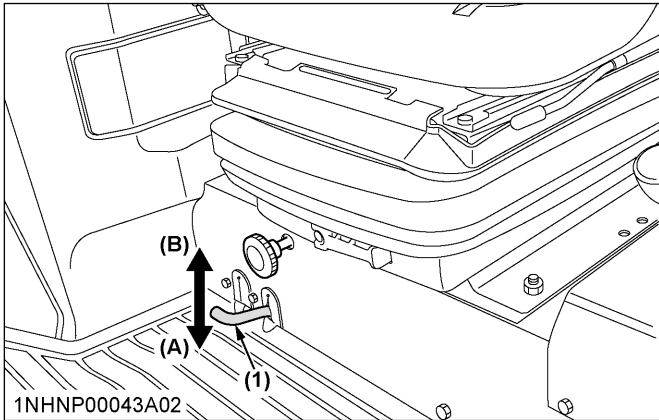
To avoid personal injury or death due to loss of steering control:

- Do not operate the tractor at high speed with differential lock engaged.
- Do not attempt to turn with the rear-wheel or 4-wheel differential lock engaged.
- Be sure to release the rear-wheel or 4-wheel differential lock before making a turn in field conditions.

2WD

If one of the rear wheels should slip, step on the differential lock pedal. Both wheels will turn together, thus reducing slippage.

The differential lock is maintained only while the pedal is depressed.



(1) Differential lock pedal (rear-wheel)

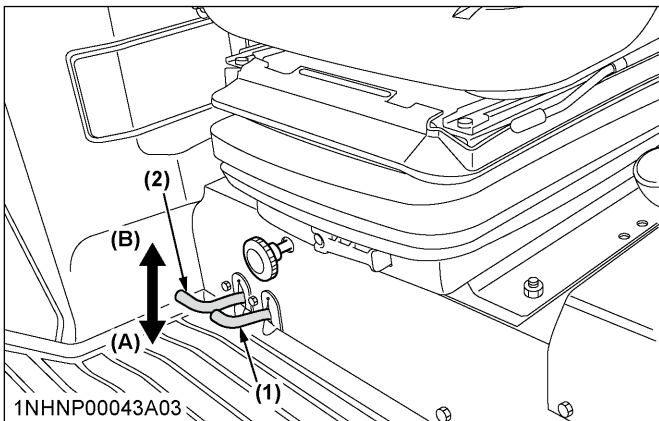
(A) Press to "ENGAGE"
(B) Release to "DISENGAGE"

IMPORTANT :

- When using the differential lock, always slow the engine down.
- To prevent damage to the power train, do not engage the differential lock when one wheel is spinning and the other is completely stopped.
- If the differential lock cannot be released, step lightly on the brake pedals alternately.

4WD

1. If the front and/or rear wheels should slip while driving straight in field conditions, step on the 4-wheel differential lock pedal. The 4 wheels will turn together, thus reducing slippage.
2. If the front and/or rear wheels slip while in a turn in field conditions, step on the front-wheel differential lock pedal only. The front wheels alone will rotate together for easy turning.



(1) 4-wheel differential lock pedal (rear and front wheel)

(A) Press to "ENGAGE"
(B) Release to "DISENGAGE"

(2) Front-wheel differential lock pedal (front wheel only)

IMPORTANT :

- When using the differential lock, always slow the engine down.
- To prevent damage to power train, do not engage differential lock when one wheel is spinning and the other is completely stopped.
- To prevent damage to power train, do not attempt to turn the tractor when 4-wheel differential lock pedal is pressed down.
- If the differential lock cannot be released:
 - 4-wheel differential lock pedal: Step lightly on the brake pedals alternately.
 - Front-wheel differential lock pedal: Turn the steering wheel alternately.

2. Operating the tractor on a road**WARNING**

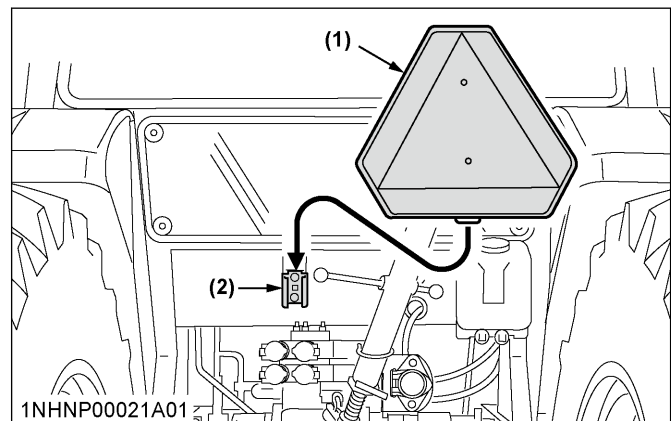
To avoid personal injury or death:

- To help assure 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 the road with a 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability.
- When traveling on the road with or without a trailer, you must comply with local regulations at all time.

The maximum traveling speed with trailer is determined by each country, and regulated speeds may vary according to the size of the trailer and the type of trailer brake system.

Be sure the SMV emblem and warning lamps are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install the SMV emblem and warning lamps on the equipment.

Consult your local Kubota Dealer for further details.



(1) SMV emblem

(2) Bracket

3. Operating on slopes and rough terrain

WARNING

To avoid personal injury or death:

- Always back up when 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.
 - Avoid changing gears when climbing or descending a slope.
 - If operating on a slope, never disengage the clutch or shift levers to “NEUTRAL”. Doing so 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.
1. Be sure wheel tread is adjusted to provide maximum stability.
(See WHEEL ADJUSTMENT on page 92.)
 2. Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear-mounted equipment.
 3. Before descending a slope, shift to a gear low enough to control the speed without using brakes.

4. Transporting the tractor safely

1. The tractor, if damaged, must be carried on a truck.
2. Secure the tractor with chains or straps sized appropriately. Make sure all loading ramps are properly sized. Make sure all local tie-down requirements are met.
3. Follow the instructions below when towing the tractor. Otherwise, the tractor's power train may be damaged.
 - Set all the shift levers to “NEUTRAL” position.
 - If possible, start the engine and select 2WD; if creep speed is fitted ensure that it is disengaged.
 - Tow the tractor using its front hitch or drawbar.
 - Never tow faster than 10 km/h (6.2 mph).

5. Directions for the use of power steering

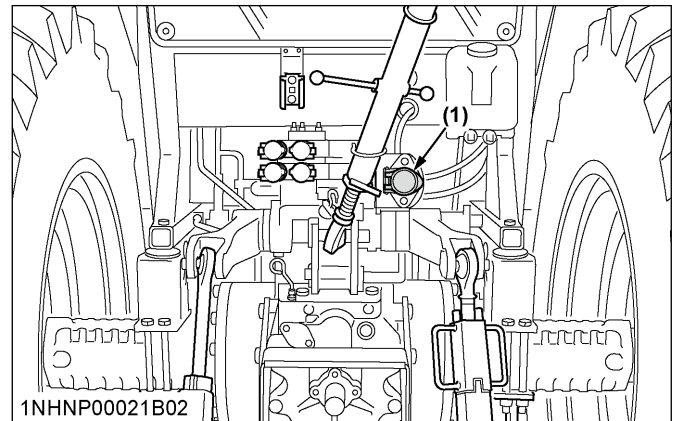
- Power steering is activated only while the engine is running. Slow engine speeds make the steering a little heavier. While the engine is stopped, tractors with power steering function in the same manner as tractors without power steering.
- When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the

steering wheel in this position for a long period of time.

- Avoid turning the steering wheel while the tractor is stopped, or tires may wear out sooner.
- The power steering mechanism makes the steering easier. Be careful when driving on the road at high speeds.

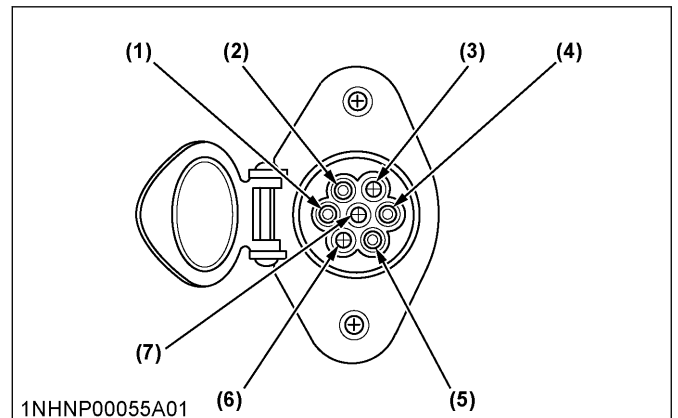
6. Trailer electrical outlet

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



(1) Trailer electrical outlet

Function of each terminal in trailer electrical outlet



Terminal	Function
(1)	Ground
(2)	Tail light Side marker light Parking light
(3)	Turn signal light (LH)
(4)	Brake stop light
(5)	Turn signal light (RH)
(6)	Registration plate light
(7)	---

PTO

PTO OPERATION

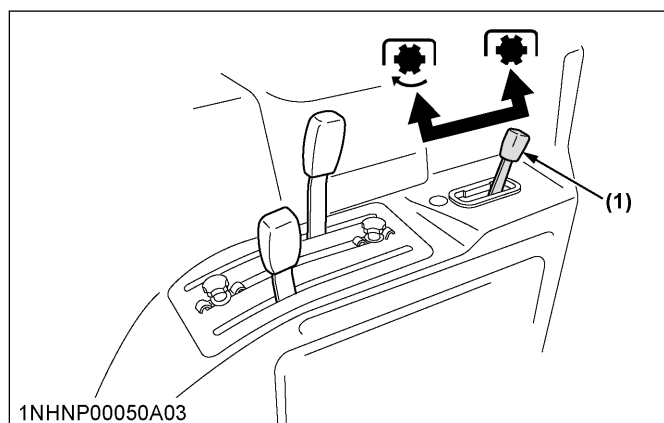
WARNING

To avoid personal injury or death:

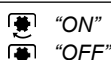
- Disengage the PTO, stop the engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.

1. PTO clutch control lever

1. The tractor has a 540 rpm speed position and 6-spline shaft.
2. The PTO clutch control lever engages or disengages the PTO clutch which gives the PTO independent control.
 - Shift the lever to “ON” to engage the PTO clutch.
 - Shift the lever to “OFF” to disengage the PTO clutch.



(1) PTO clutch control lever



“ON”

“OFF”

IMPORTANT :

- To avoid shock loads to the PTO, reduce engine speed when engaging the PTO, then open the throttle to the recommended speed.
- To avoid damage to the PTO clutch and implement, shift the PTO clutch control lever slowly when engaging the PTO clutch. Do not keep the PTO clutch control lever at the halfway point.
Proper warm up is strongly recommended in cold weather.

Do not continuously shift the PTO clutch control lever.

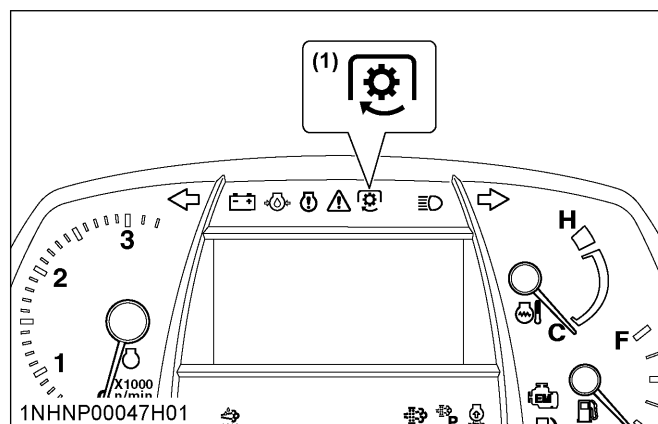
Engine speed rpm	PTO speed rpm
2405	540

NOTE :

- Tractor engine will not start if the PTO clutch control lever is in the engaged “ON” position.
- If the PTO system is engaged and the operator stands up from the seat, the warning buzzer will whistle for about 10 seconds after standing up. This is because the tractor is equipped with an “operator presence control system”.

2. PTO clutch indicator

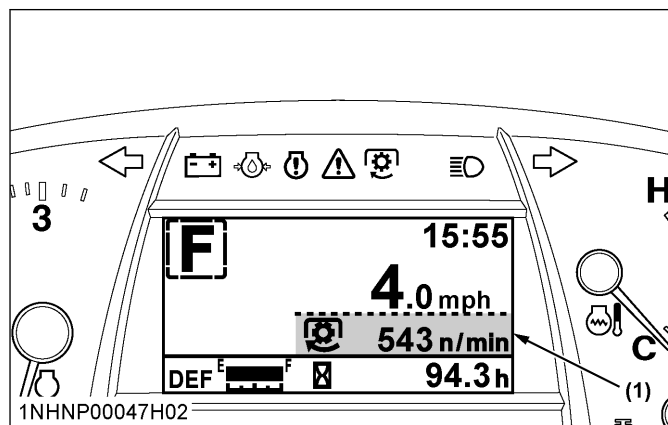
The PTO clutch indicator turns on while PTO clutch control lever is in “ON” (engage) position.



(1) PTO clutch indicator

3. PTO rpm display

The PTO rpm can be checked on the LCD monitor.



(1) PTO rpm

NOTE :

- When the PTO speed is changed from 540 rpm to 1000 rpm, it is necessary to switch the PTO speed display mode. Otherwise, the PTO speed will not be correctly displayed on the LCD monitor. Such mode switching is also needed when returning to the 540 rpm PTO speed. (See Setting the PTO speed display on page 71.)

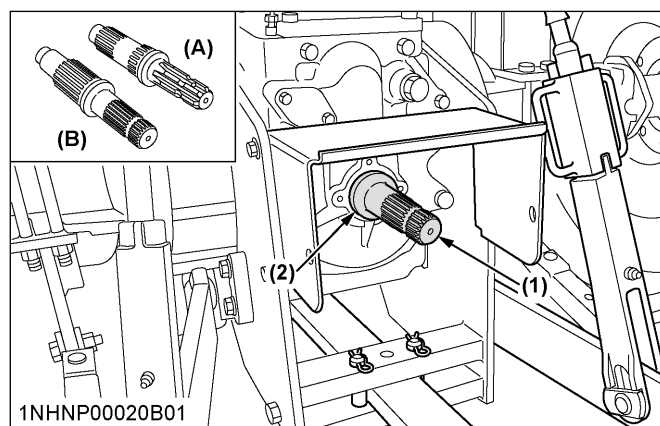
4. 1000 rpm PTO shaft (if equipped)

⚠ WARNING

To avoid personal injury or death:

- Be sure to observe the PTO shaft speed prescribed for the individual implements. It is extremely dangerous to run an implement at high speed that is meant to be operated at low speed. Use only when this higher rpm is specifically recommended by the implement manufacturer.

By interchanging the PTO shafts, 2 different PTO shaft speeds can be obtained.



(1) PTO shaft

(2) Snap ring

(A) 540 rpm PTO shaft

(B) 1000 rpm PTO shaft

PTO shaft interchanging procedure

- The 6-spline 540 rpm PTO shaft is standard equipment.
- Place an oil pan under the PTO shaft to catch oil spillage. Remove the snap ring, and then the PTO shaft.
- Install the 21-spline PTO shaft (1000 rpm). To ensure that it is tight, push it in by turning.
- Reinsert the snap ring.

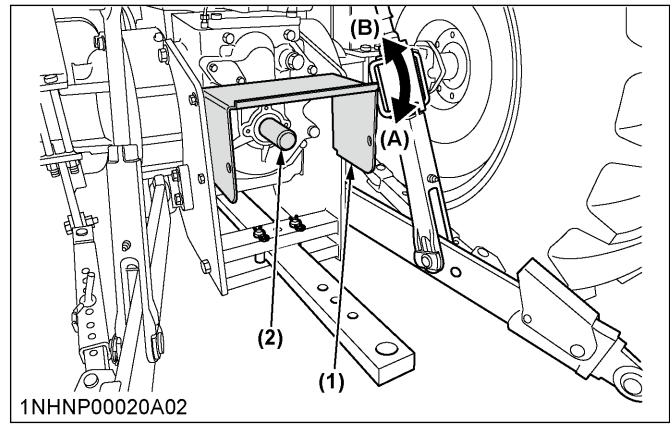
- Set the distance from drawbar pin hole to the rear end of PTO shaft according to the following instructions.

IMPORTANT :

- For maximum PTO shaft speeds of various implements, see the implement operator's manual.

	Engine speed rpm	PTO speed rpm
540 rpm PTO shaft	2405	540
1000 rpm PTO shaft	2389	1000

PTO	PTO shaft type	Distance	Drawbar
540 rpm	6-spline	355 mm (14 in.)	B hole
1000 rpm	21-spline	406 mm (16 in.)	A hole

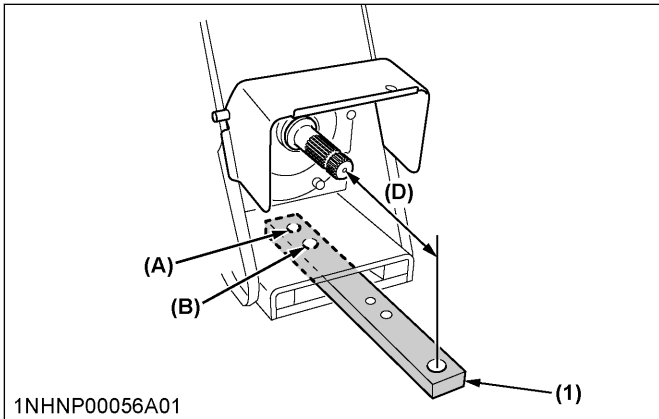


- (1) PTO shaft cover
(2) PTO shaft cap

- (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.



- (1) Drawbar

- (D) "DISTANCE"

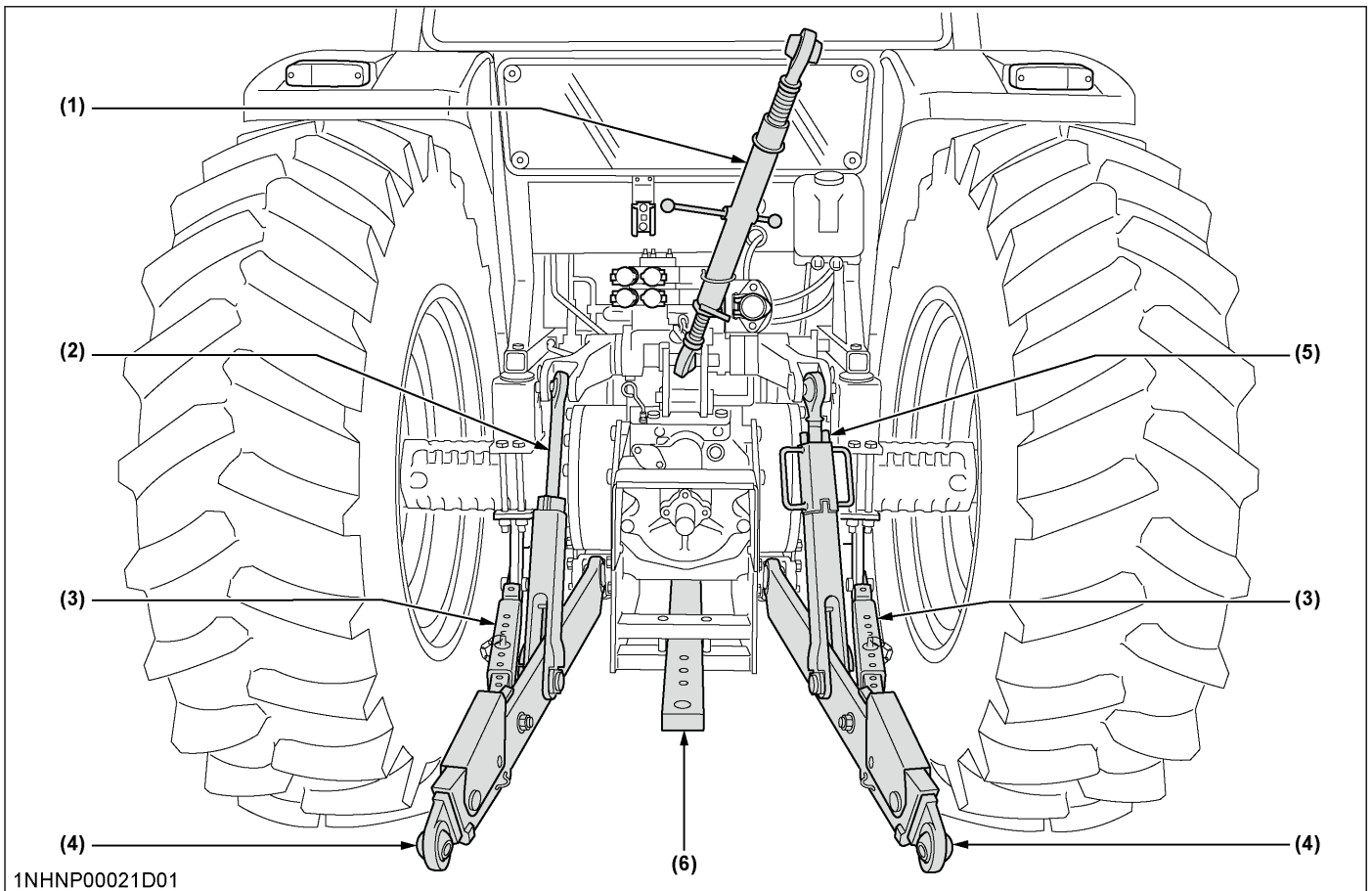
5. PTO shaft cover and shaft cap

WARNING

To avoid personal injury or death:

- Keep the PTO shaft cover in place at all times. Put back the PTO shaft cap when the PTO is not in use.
- Before connecting or disconnecting the drive shaft to the PTO shaft, make sure the engine is turned off and the PTO shaft cover is in the "RAISED" position. Afterward, be sure to return the PTO shaft cover to the "NORMAL" position.

3-POINT HITCH AND DRAWBAR



- (1) Top link
- (2) Lifting rod (left)
- (3) Telescopic stabilizers
- (4) Lower link
- (5) Lifting rod (right)
- (6) Drawbar

3-POINT HITCH SETUP

1. Make preparations for attaching implement.
 - Selecting the holes of lower links on page 82
 - Adjusting lateral float on page 82
 - Selecting the top link mounting holes on page 82
 - Draft stopper on page 83
 - Drawbar on page 83
2. Attaching and detaching implements



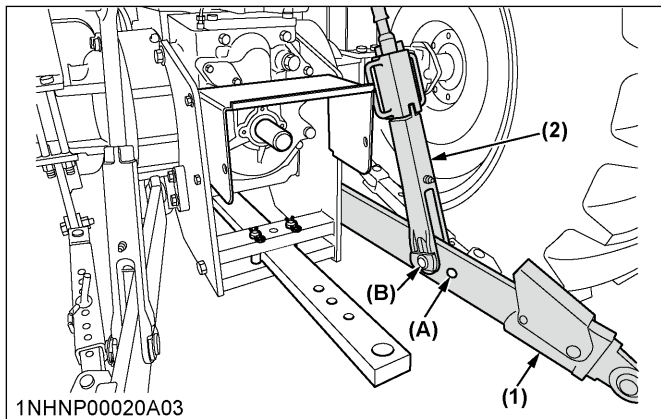
WARNING

To avoid personal injury or death:

- Be sure to stop the engine.
 - Do not stand between the tractor and implement unless the parking brake is applied.
 - Before attaching or detaching the implement, locate the tractor and implement on a firm level surface.
 - Whenever an implement or other attachment is connected to the tractor 3-point hitch, check the full range of operation for interference, binding or PTO separation.
 - Do not exceed the maximum allowable length of either lifting rod, or the lifting rod will come apart and the 3-point equipment may fall.
- Lifting rod (left) on page 83
 - Lifting rod (right) on page 83
 - Top link on page 84
 - Telescopic stabilizers on page 84
 - Telescopic lower links on page 84

1. 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 (B) hole.



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

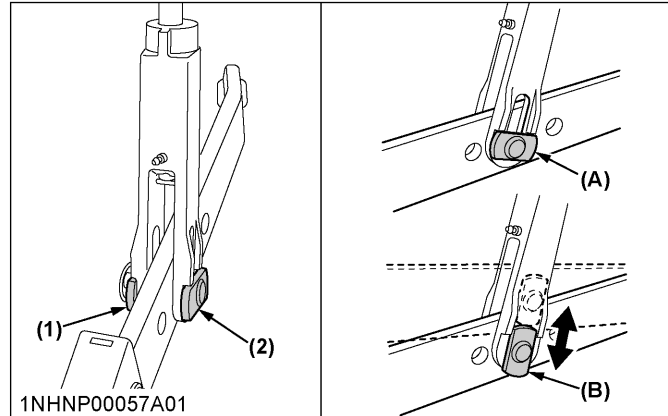
NOTE :

- The lifting rods may be attached to (A) hole for greater lifting height.

2. Adjusting lateral float

To allow the implement to follow the shape of the ground, attach the rectangular washers and pin heads in vertical position.

To hold the implement, reset the rectangular washers and pin heads in horizontal position.



- (1) Rectangular washer
(2) Pin head

- (A) Horizontal position
(B) Vertical position

Floating mechanism

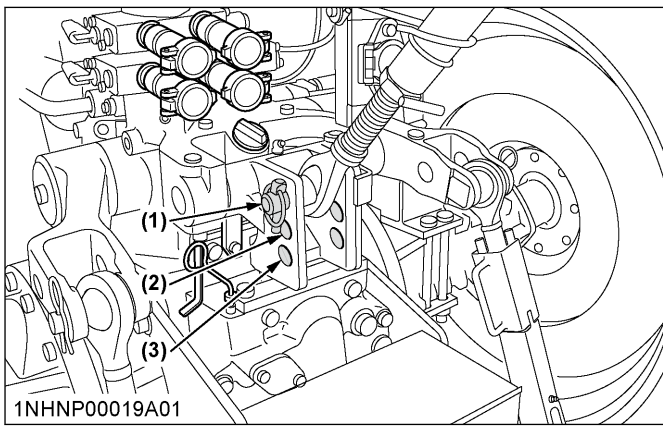
When the floating mechanism is used, the implement is able to follow the tractor freely in response to the soil and ground conditions. This is suited for operation with implements wider than the tractor.

3. Selecting the top link mounting holes

Select the proper set of holes.

(See Hydraulic control unit use-reference chart on page 91.)

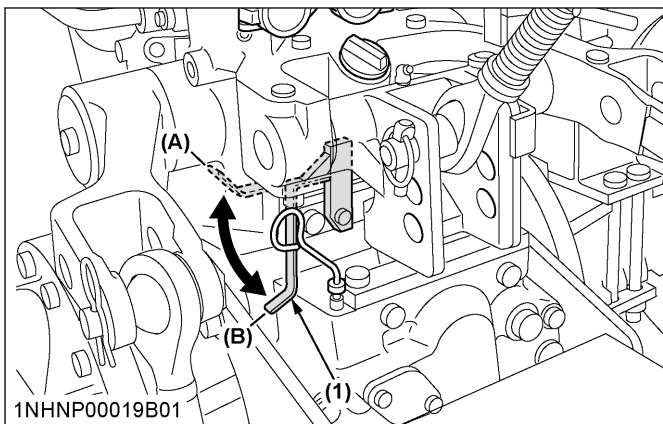
If the hydraulic unit is set for draft control, the draft response is more sensitive when an implement is connected to the lower set of top link mounting holes. If draft control is not required, it is recommended to use the top set (1).



4. Draft stopper

To reduce the vibrations of attachments, set the draft stopper to the "LOCK" position.

When using the draft control for plowing and similar operations, set the draft stopper to the "UNLOCK" position.



(1) Draft stopper

(A) "LOCK"

(B) "UNLOCK"

5. Drawbar

Remove the drawbar if a close-mounted implement is attached.

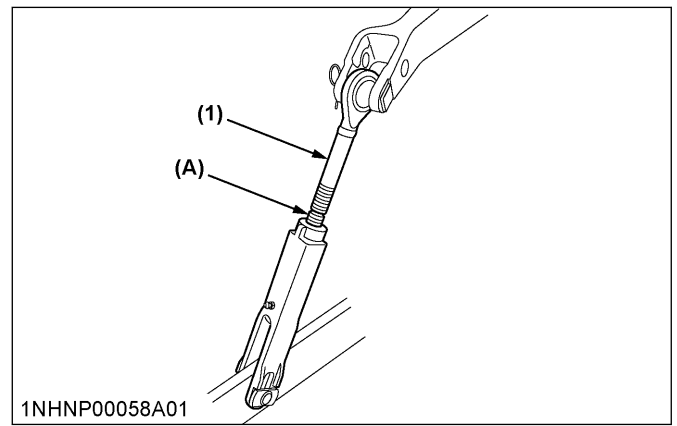
6. Lifting rod (left)

! WARNING

To avoid personal injury or death:

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

By turning the rod itself, the lifting rod changes its length. When extending the rod, do not exceed the groove on the rod thread.



(1) Lifting rod

(A) "GROOVE"

7. Lifting rod (right)

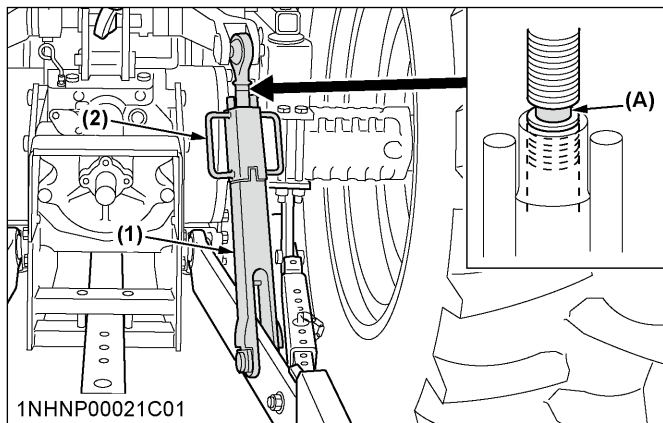
! WARNING

To avoid personal injury or death:

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

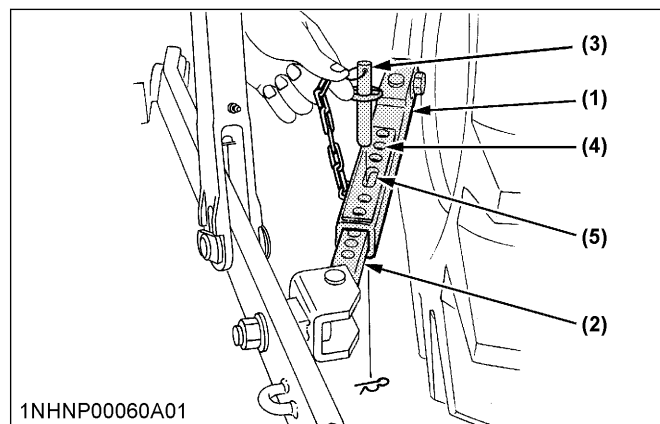
1. To adjust the length of the lifting rod, lift the adjusting handle and turn to desired length.
2. After adjusting, lower the lifting rod adjusting handle to the lock position.

3. When extending the rod using the adjusting handle, do not exceed the groove on the rod thread.



- (1) Lifting rod
(2) Adjusting handle

(A) "GROOVE"

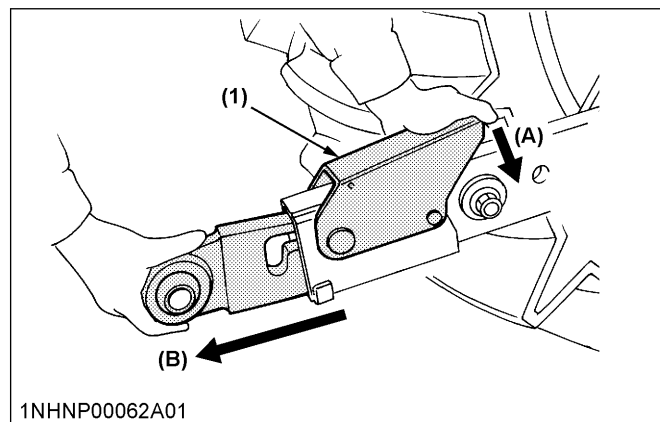


- (1) Outer tube
(2) Inner bar
(3) Set-pin
(4) Hole
(5) Slot

10. Telescopic lower links

To attach an implement, follow the instructions below:

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



- (1) Lever

(A) "PUSH"
(B) "PULL OUT"

8. Top link

1. Adjust the angle of the implement to the desired position by shortening or lengthening the top link.
2. The proper length of the top link varies according to the type of implement being used.

9. Telescopic stabilizers

1. Adjust the telescopic stabilizers to control horizontal sway of the implement.
Select the proper set of holes.
(See Hydraulic control unit use-reference chart on page 91.)
2. After aligning satisfactorily, insert the set-pin through any one of the 5 holes on the outer tube that align with one of the holes on the inner bar and 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.

DRAWBAR



WARNING

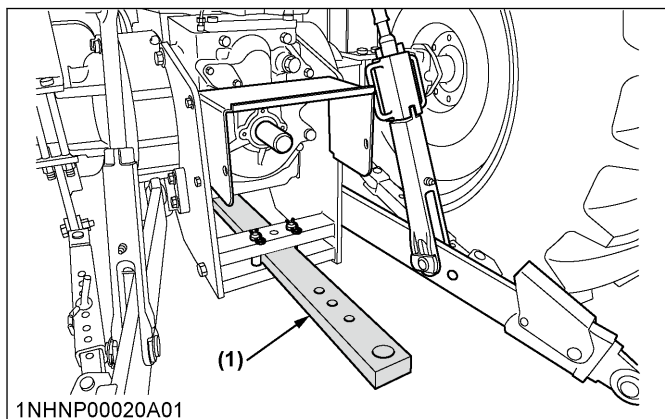
To avoid personal injury or death:

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

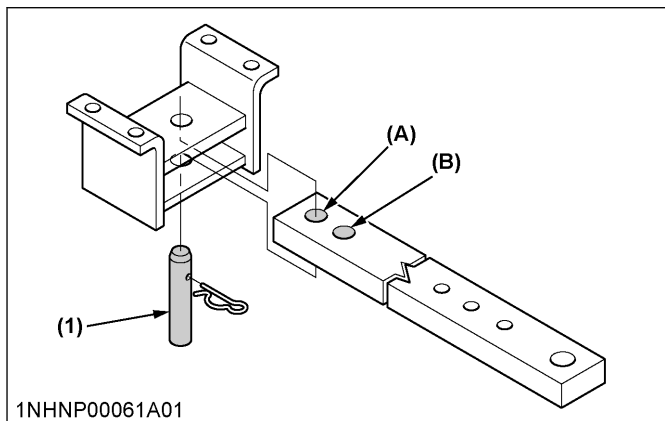
1. Adjusting drawbar length

1. When towing an implement, it is recommended that hole (A) in drawbar be utilized.

2. For information about the drawbar load, read the implement limitations section of this manual.
(See IMPLEMENT LIMITATIONS on page 27.)



(1) Drawbar

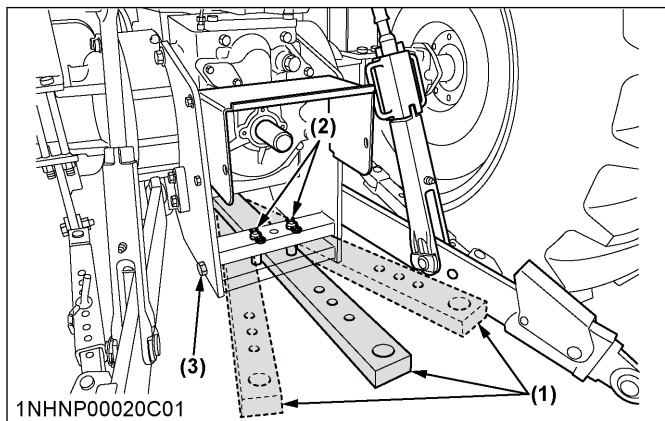


(1) Pivot pin

(A) Hole
(B) Hole

2. Swing drawbar

The drawbar can be used in 3 different ways as shown in the following illustration. Assemble it correctly with locating pins.



(1) Drawbar
(2) Locating pin
(3) Locking bolt

HYDRAULIC UNIT

IMPORTANT :

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

A standard tractor has the following hydraulic control systems. Choose the most appropriate system for the implement you are using.

3-Point hitch control system

- Position control
- Draft control
- Mixed control
- Float control

Remote hydraulic control system

- Combined flow control

3-POINT HITCH CONTROL SYSTEM

⚠ WARNING

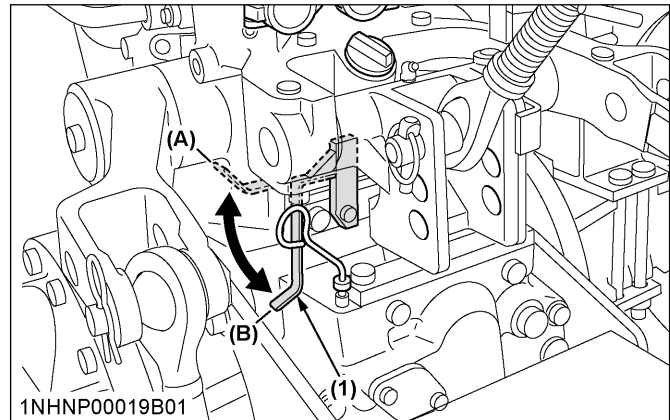
To avoid personal injury or death:

- Before using the 3-point hitch controls, ensure that no person or object is in the area surrounding 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. Draft stopper

To reduce the vibrations of attachments, set the draft stopper to the "LOCK" position.

When using the draft control for plowing and similar operations, set the draft stopper to the "UNLOCK" position.

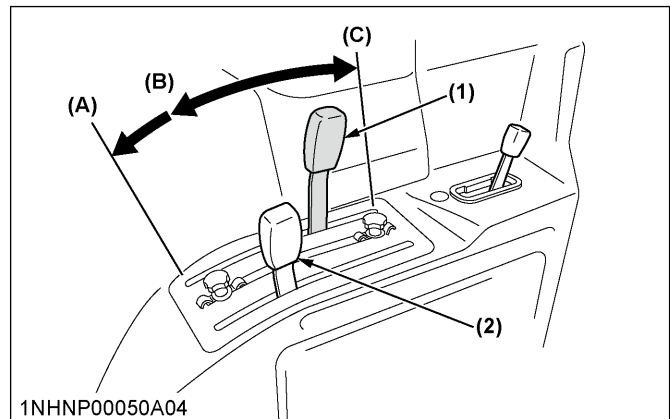


(1) Draft stopper

(A) "LOCK"
(B) "UNLOCK"

2. Position control

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



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

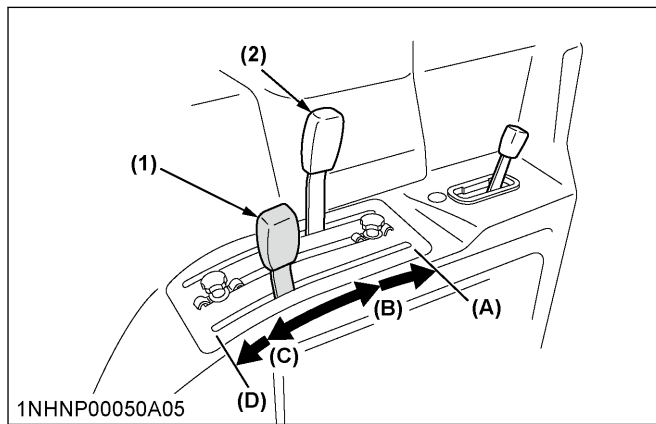
(A) "FLOAT"
(B) "DOWN"
(C) "UP"

3. Draft control

This will control the pull of the 3-point implement.

As 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.

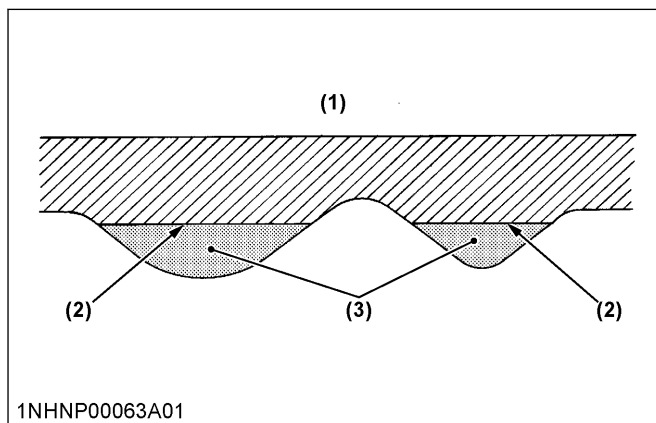


- (1) Draft control lever
(2) Position control lever
- (A) "UP"
(B) "SENSITIVE"
(C) "INSENSITIVE"
(D) "FLOAT"

4. Mixed control

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.

This 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

5. Float control

Place both the draft control lever and the position control lever in the "FLOAT" position to make the lower links move freely along with the ground conditions.

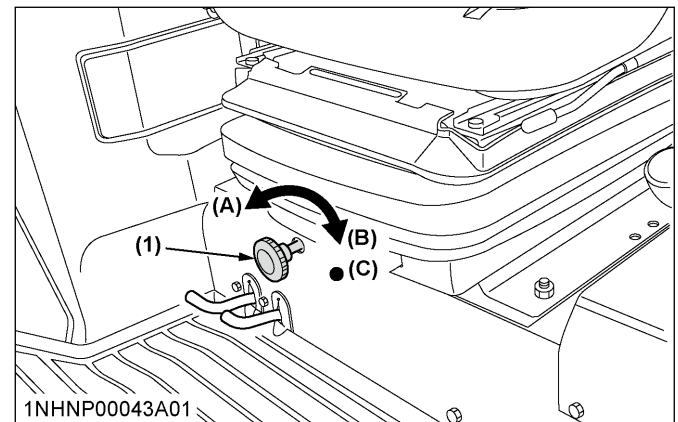
6. 3-point hitch lowering speed knob

⚠ WARNING

To avoid personal injury or death:

- A fast lowering speed may cause damage or injury. The lowering speed of the implement should be adjusted to 2 or more seconds.

The lowering speed of the 3-point hitch can be controlled by adjusting the 3-point hitch lowering speed knob.



- (1) 3-point hitch lowering speed knob
(A) "FAST"
(B) "SLOW"
(C) "LOCK"

REMOTE HYDRAULIC CONTROL SYSTEM

The hydraulic auxiliary control valves can be installed with up to 3 segments.

1. Remote control valve

There are 2 types of remote valves available for these models.

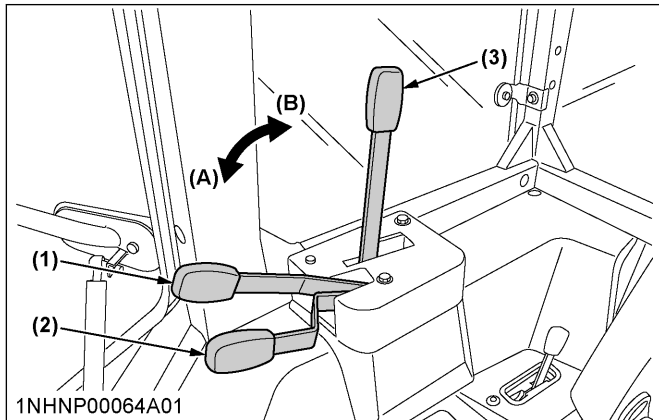
- Double acting valve with detents and self canceling: This valve may be placed in the detent mode. The lever will stay in this position until the pressure reaches a predetermined level or a cylinder reaches the end of its stroke. Then it will automatically return to neutral.
- Double acting valve with float position: This valve may be placed in the float mode with the control lever all the way forward. The cylinder is free to extend or retract, letting an implement such as a loader bucket follow the ground.

2. Remote control valve lever

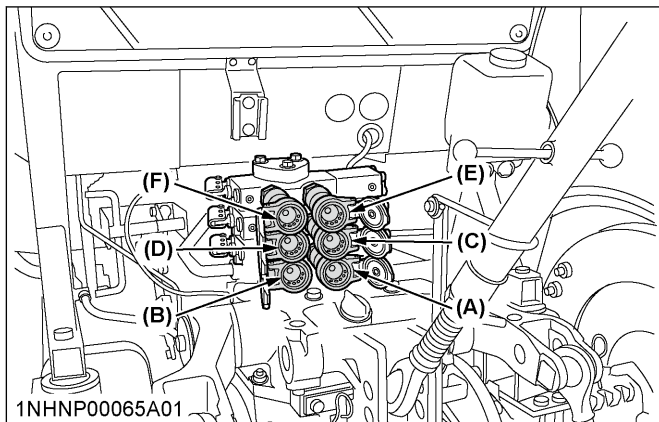
The remote control valve lever directs pressurized oil flow to the implement hydraulic system.

Example: Installing triple segment valves

1st	Double acting valve with detents and self canceling (standard)
2nd	Double acting valve with float position (standard)
3rd	Double acting valve with float position (option)



- (1) Remote control valve lever 1 (A) "PUSH"
 (2) Remote control valve lever 2 (B) "PULL"
 (3) Remote control valve lever 3



Pressure →
 Returning ←

		Double-acting		Single-acting	
Lever 1		Push	Pull	Push	Pull
Port	(A)	Out →	In ←	-	-
	(B)	In ←	Out →	In ←	Out →

Lever 2		Push	Pull
Port	(C)	Out →	In ←
	(D)	In ←	Out →

Lever 3		Push	Pull
Port	(E)	Out →	In ←
	(F)	In ←	Out →

IMPORTANT :

- Do not hold the lever in the "Pull" or "Push" position once the remote cylinder has reached the end of the stroke, as this 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 :

- Connect the pressure of load side of implement cylinders to ports (B), (D) or (F) which have built-in load check valves to prevent leakage.
- To use the single-acting cylinder with the float valve, connect this cylinder to the (B), (D) or (F) port.

To extend a single-acting cylinder, pull the remote control valve lever rearward. To retract a cylinder, push it fully forward to the "FLOAT" position. Do not hold it in the down position or the transmission fluid may overheat.

3. Remote control valve coupler

! WARNING

To avoid personal injury or death:

- Stop the engine and relieve pressure before connecting or disconnecting lines.
- Do not use your hands to check for leaks.

Connecting

- Clean both couplers.
- Remove dust plugs.
- Insert the implement coupler into the tractor hydraulic coupler.
- Pull the implement coupler slightly to make sure couplers are firmly connected.

Disconnecting

- Lower the implement to the ground to release hydraulic pressure from the hoses.
- Clean the couplers.
- Relieve pressure by moving hydraulic control levers with engine shut off. Pull the hose straight from the hydraulic coupler to release it.
- Clean oil and dust from the coupler, then replace the dust plugs.

NOTE :

- Your local KUBOTA Dealer can supply parts for adapting couplers to hydraulic hoses.

4. Flow control valve (option)

The optional flow control valve may be added for the following purposes.

1. To operate within limits the remote control valves (2) or (3) above the flow control valve (4) and the 3-point hitch at the same time without one affecting the other.
2. To operate within limits the remote control valves (2) or (3) above the flow control valve (4) and the other remote control valve (1) at the same time without one affecting the other. Activating the remote control valve (1) will interrupt the operation of the 3-point hitch.
3. To maintain within limits the constant speed of an attachment (hydraulic motor rpm, for example) when connected to the remote control valves (2) or (3) above the flow control valve (4).

NOTE :

- At slower engine speeds the total hydraulic flow rate may be inadequate for simultaneous operation of the remote control valves (2) or (3) and the 3-point hitch or the remote control valve (1), or operation of an attachment connected to the remote control valves (1)(2)(3). Under these conditions, the engine speed must be increased to provide additional hydraulic flow.
- The remote control valves (2) and (3) above the flow control valve (4) cannot be operated at the same time.

4.1 Adjusting the flow rate


WARNING

To avoid the possibility of personal injury or death be aware of the following when making adjustments:

- The 3-point hitch operation is influenced by the combination of the adjustment of the flow control valve and the engine speed.
- The 3-point hitch may rise slowly or not at all at low engine rpm.
- The 3-point hitch may rise suddenly if engine rpm is increased or if flow control adjustment is changed.

Refer to the following illustration.

1. The flow rate for the remote control valves (2) or (3), located above the flow control valve (4), can be adjusted.

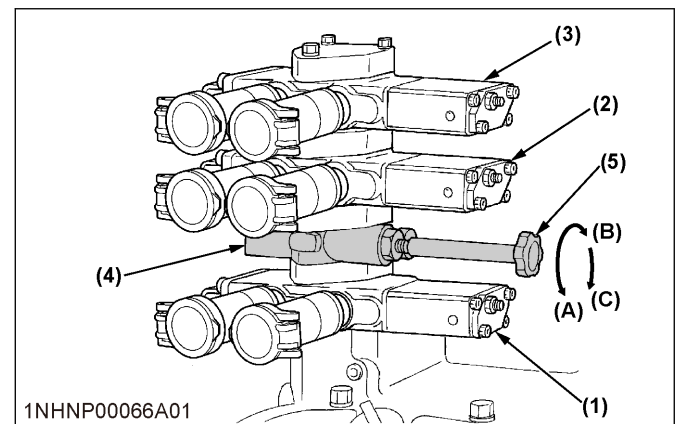
2. Turn the flow control knob (5) counterclockwise (A), and the flow rate for the remote control valves (2) or (3) increases. A clockwise turn (B) of the knob causes the flow to decrease. If the knob is turned all the way (C), there will be no flow.
3. To adjust the flow rate, set the engine speed to the operating rpm, turn the flow control knob once all the way clockwise (C), and then turn it gradually counterclockwise until the required flow rate is reached.

NOTE :

- Full adjustment of the valve will occur in approximately 1 and a half revolutions of the flow control knob. Turning the flow control knob beyond this point will have no effect on the flow rate.

IMPORTANT :

- When there is no need to adjust the flow rate, turn the flow control knob all the way counterclockwise and keep it in this position.



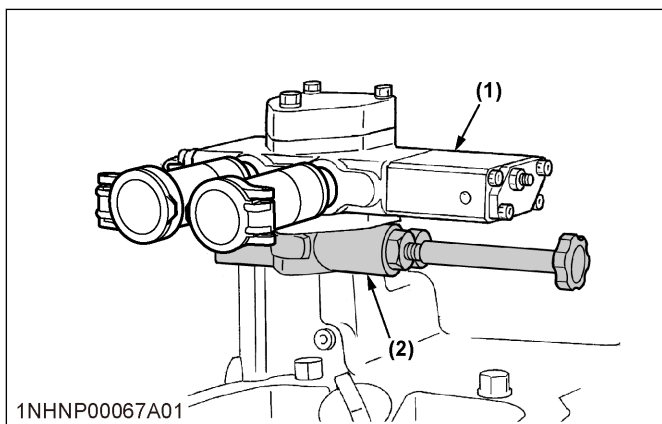
- | | |
|------------------------------|----------------|
| (1) Remote control valve (1) | (A) "INCREASE" |
| (2) Remote control valve (2) | (B) "DECREASE" |
| (3) Remote control valve (3) | (C) "STOP" |
| (4) Flow control valve | |
| (5) Flow control knob | |

4.2 Positions and advantages of the flow control valve

Refer to the following illustration.

Position 1

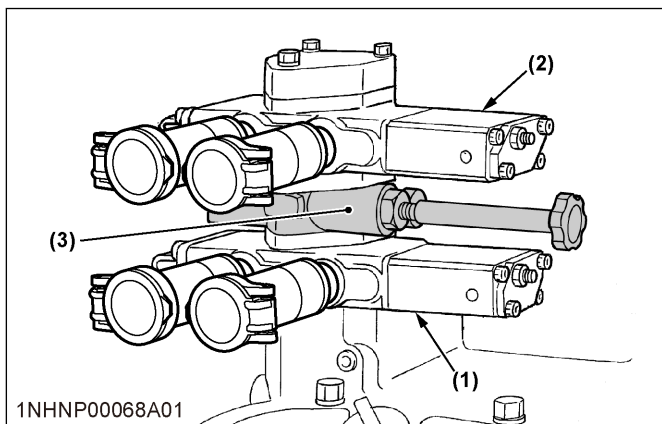
1. The attachment control speed (hydraulic motor rpm, for example) of the remote control valve (1) can be maintained at a constant level within limits.
2. The remote control valve (1) and the 3-point hitch can be operated at the same time. The 3-point lift speed will be influenced by the level of flow required at remote control valve (1).



- (1) Remote control valve (1)
 (2) Flow control valve

Position 2

1. The attachment control speed (hydraulic motor rpm, for example) of the remote control valve (2) can be maintained at a constant level.
2. The remote control valve (2) and the 3-point hitch can be operated at the same time with the speed of the 3-point hitch being influenced by the adjustment range of the flow control valve.
3. Remote control valves (1) and (2) can be operated at the same time with operation of the 3-point hitch being interrupted by activation of valve (1).
4. The operation of valve (1) is influenced by the flow adjustment to valve (2).
5. The 3-point hitch lift speed and the flow available for valve (1) are influenced by the flow adjustment of valve (2).

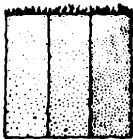
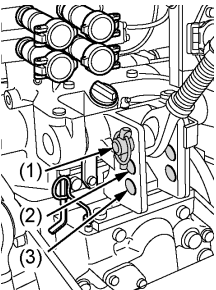
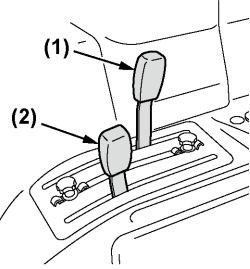
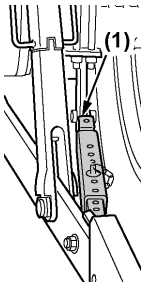


- (1) Remote control valve (1)
 (2) Remote control valve (2)
 (3) Flow control valve

5. Hydraulic control unit use-reference chart

In order to handle the hydraulics properly, the operator must be familiar with the following.

Although this information may not be applicable to all types of implements and soil conditions, it is useful for general conditions.

Implement	 1AGAIAZAP122A Soil condition	 1NHNP00019C01 Top link mounting holes	 1NHNP00050B01 (1) Position control lever (2) Draft control lever	 1AGAIAZAP070A Gauge wheel	 1NHNP00069A01 (1) Telescopic stabilizer	Remarks
Moldboard plow	Light soil Medium soil Heavy soil	3 2 or 3 2	Draft and mixed control (place the draft control lever to the suitable position and set the implement pull with the position control lever).	Yes/No	Loose	Insert the set-pin through the slot on the outer tube that aligns with one of the holes on the inner bar. For implements with gauge wheels, lower the position control lever fully.
Disc plow	---	2 or 3				
Harrow (spike, spring-tooth, disc type)	---	2				
Subsoiler, etc.	---	2				
Weeder, ridger, etc.	---	1	Position control (hold the draft control lever at the frontmost position during operation).	Yes	Tighten	Telescopic stabilizer should be tight enough to prevent excessive implement movement when implement is in raised position. For implements with gauge wheels, lower the position control lever fully.
Earth mover, digger, scraper, manure fork, rear carrier, etc.				Yes/No		
Mower (mid-and rear-mount type) Hay rake, tedder, etc.				No		

TIRES, WHEELS, AND BALLAST

TIRES



WARNING

To avoid personal injury or death:

- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.

IMPORTANT :

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

NOTE :

- When optional different-diameter tires are fitted on the machine, the travel speed display mode must be changed. Otherwise, the travel speed will not be correctly displayed. Such mode switching is also needed when the original tires are back on the machine.
(See Setting the tire circumference on page 70.)

1. Inflation pressure

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

NOTE :

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

	Tire sizes	Inflation pressure
Front	9.5L-15	250 kPa (2.5 kgf/cm ² , 36 psi.)
	10.00-16, 6PR	220 kPa (2.2 kgf/cm ² , 32 psi.)
	12.4-24, 6PR	170 kPa (1.7 kgf/cm ² , 24 psi.)
	13.6-24, 6PR	150 kPa (1.5 kgf/cm ² , 22 psi.)
	13.6R24	160 kPa (1.6 kgf/cm ² , 23 psi.)
Rear	16.9-34, 6PR	120 kPa (1.2 kgf/cm ² , 18 psi.)
	18.4-34	140 kPa (1.4 kgf/cm ² , 20 psi.)
	18.4R34	120 kPa (1.2 kgf/cm ² , 18 psi.)
	18.4R30	110 kPa (1.1 kgf/cm ² , 16 psi.)
	18.4-30	110 kPa (1.1 kgf/cm ² , 16 psi.)

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.

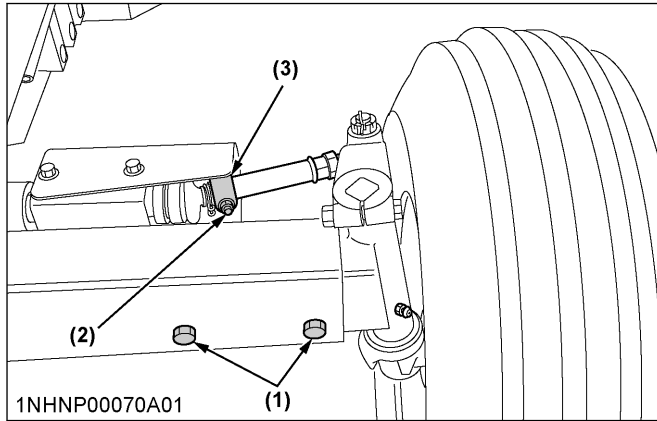
1. Front wheels-2WD

Front tread width can be adjusted, as shown, with the standard equipped tires.

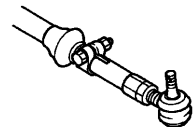
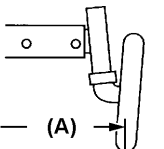
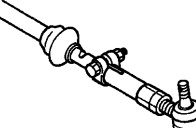
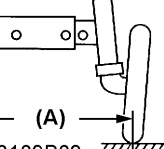
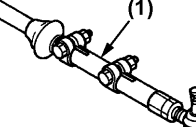
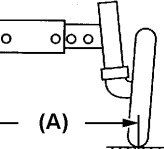
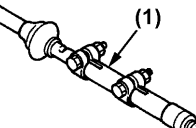
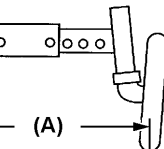
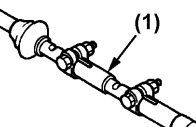
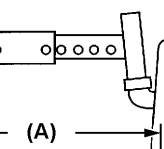
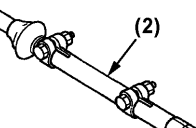
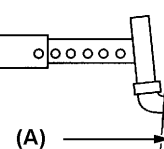
To change the tread width:

1. Remove the front axle mounting bolts and the tie-rod mounting bolts.
2. Move the right and left front axles to the desired position, and tighten the bolts.

3. Adjust the toe-in as 1 to 5 mm (0.04 to 0.2 in.).
(See Adjusting toe-in on page 131.)



- (1) Front axle mounting bolt
260 to 303 N·m / 26.5 to 31.0 kgf·m / 192 to 224 lbf·ft
(2) Tie-rod mounting bolt
61 to 71 N·m / 6.2 to 7.2 kgf·m / 44.8 to 52.1 lbf·ft
(3) Tie-rod clamp

 1NHNP00109A01	 1NHNP00109B01 1540 mm (60.6 in.)
 1NHNP00109A02	 1NHNP00109B02 1640 mm (64.6 in.)
 1NHNP00109A03	 1NHNP00109B03 1740 mm (68.5 in.)
 1NHNP00109A04	 1NHNP00109B04 1840 mm (72.4 in.)
 1NHNP00109A05	 1NHNP00109B05 1940 mm (76.4 in.)
 1NHNP00109A06	 1NHNP00109B06 2040 mm (80.3 in.)

- (1) Extension 1 (short spacer)
(2) Extension 2 (long spacer)
(A) "TREAD"

IMPORTANT :

- When attaching the 12 front end weight pieces on 2WD models, the front tread

should not be longer than 1840 mm (72.4 in.).

- When using the maximum front tread (2040 mm / 80.3 in.) on 2WD models, there should not be more than 10 front end weight pieces.
- The front tread width for the front loader application on 2WD models should not be greater than 1640 mm (64.6 in.).

2. Front wheels-4WD

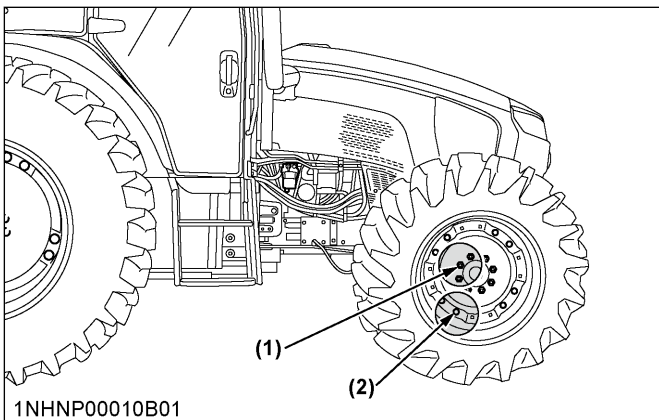
Front tread width can be adjusted, as shown, with the standard equipped tires.

To change the tread width:

1. Remove the wheel rim and disc mounting bolts.
2. Change the position of the rim and disc (right and left) to the desired position, and tighten the bolts.
3. Adjust the toe-in as 2 to 8 mm (0.1 to 0.3 in.).
(See Adjusting toe-in on page 131.)

IMPORTANT :

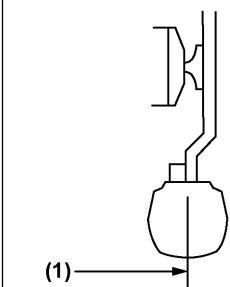
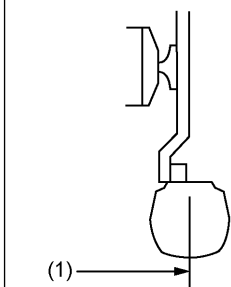
- Always attach wheels as shown in the drawing.
- If not attached as illustrated, transmission parts may be damaged.
- When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards), and thereafter according to service interval.
(See MAINTENANCE on page 108.)



- (1) 260 to 304 N·m / 26.5 to 31 kgf·m / 192 to 224 lbf·ft
 (2) Except waffle wheel
 244 N·m / 24.9 kgf·m / 180 lbf·ft
 Waffle wheel
 298 to 366 N·m / 30.4 to 37.3 kgf·m / 220 to 270 lbf·ft

NOTE :

- Wheels with beveled or tapered holes: Use the tapered side of lug nut.

13.6-24 13.6R24 12.4-24		
	1580 mm (62.2 in.) *1	1680 mm (66.1 in.) *2

(1) Tread

*1 It is necessary to limit turning angle to 42 degrees. Refer to the chart provided for additional instructions.

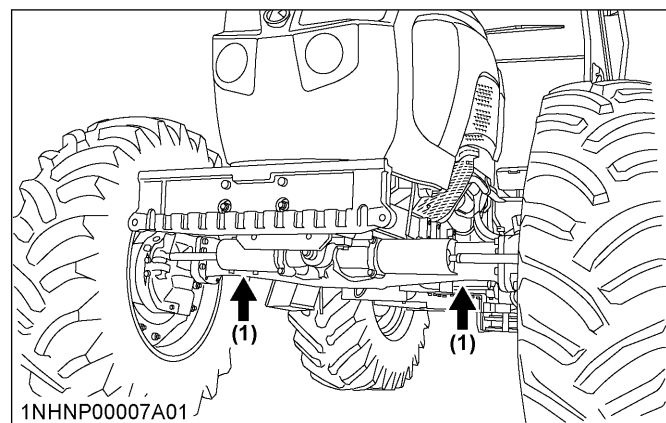
*2 When front loader is equipped.

2.1 Front jack point

! 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 jacks that withstand the machine weight and set them up as follows.

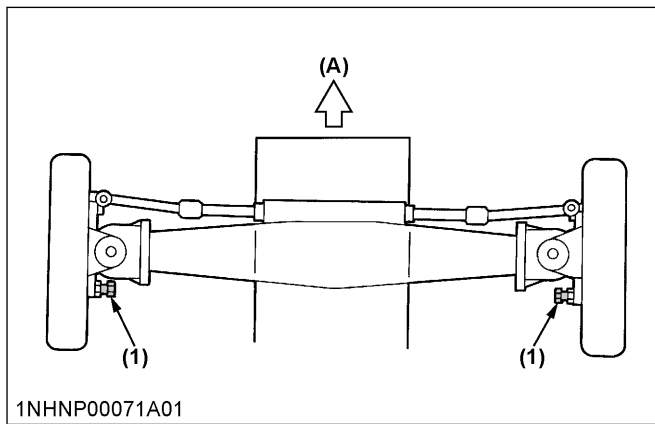


(1) Jack point

3. Adjusting front wheel turning stopper bolt

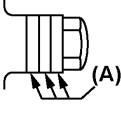
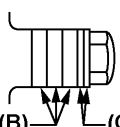
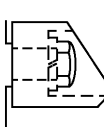
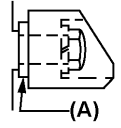
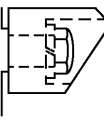
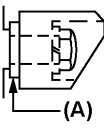
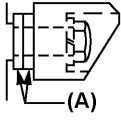
IMPORTANT :

- Always check if tires are in contact with tractor or loader frame assemblies.
- Adjust turning angle with the provided stoppers if necessary.



(1) Stopper bolts

(A) "FRONT"

	Stopper bolts (ex. LH stopper bolt)		
Angle	50°	48° *1	45°
Stopper	 (Factory setting)		
Angle	42°	37°	33°
Stopper			
Angle	30°		
Stopper			

(A) 5 mm (0.2 in.) collar

(B) 6 mm collar

(C) 2.3 mm collar

*1 It is necessary to change turning angle to 48 degrees when front loader is equipped.

4. Rear wheels

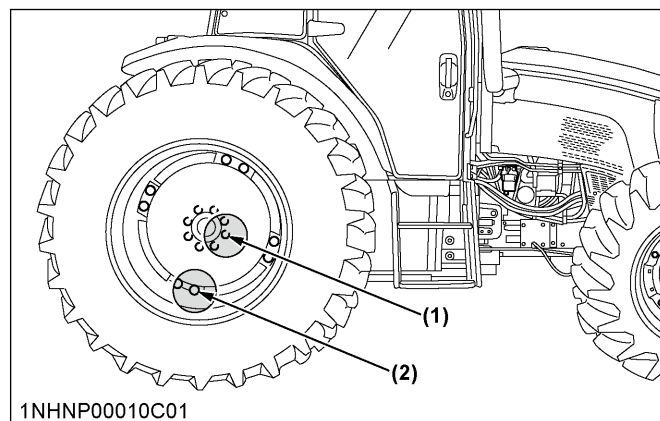
Rear tread width can be adjusted, as shown, with the standard equipped tires.

To change the tread width:

1. Remove the wheel rim and/or disc mounting bolts.
2. Change the position of the rim and/or disc (right and left) to the desired position, and tighten the bolts.

IMPORTANT :

- Always attach wheels as shown in the drawing.
- If not attached as illustrated, transmission parts may be damaged.
- When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards), and thereafter according to service interval.
(See MAINTENANCE on page 108.)



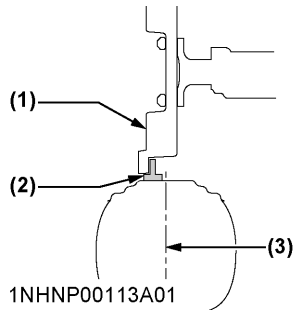
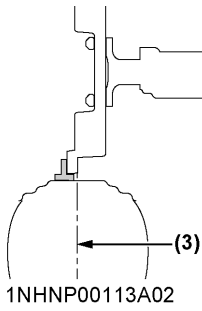
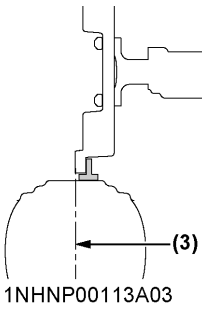
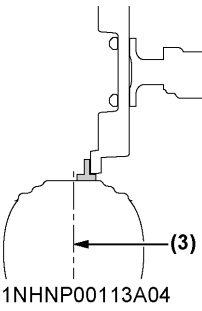
- (1) 372 to 401 N·m / 38.0 to 41.0 kgf·m / 275 to 297 lbf·ft
 (2) Steel disc
 244 N·m / 24.9 kgf·m / 180 lbf·ft
 Cast iron disc
 260 to 304 N·m / 26.5 to 31.0 kgf·m / 192 to 224 lbf·ft

Steel disc

 1NHNP00112A01		 1NHNP00112A02		 1NHNP00112A03		 1NHNP00112A04	
18.4R34 18.4-34 16.9-34	1705 mm (67.2 in)	1805 mm (71.1 in)	1905 mm (75.0 in)	2005 mm (79.0 in)			
18.4-30	1720 mm (67.7 in)	1820 mm (71.7 in)	1920 mm (75.6 in)	2020 mm (79.5 in)			

- (1) Rear wheel disc
 (2) Rear wheel rim
 (3) Tread

Cast iron disc

							
1NHNP00113A01		1NHNP00113A02		1NHNP00113A03		1NHNP00113A04	
18.4R34 18.4-34 16.9-34	1730 mm (68.1 in)	1835 mm (72.2 in)	1930 mm (76.0 in)	2035 mm (80.1 in)			
18.4-30 18.4R30	1705 mm (67.2 in)	1860 mm (73.2 in)	1905 mm (75.0 in)	2060 mm (81.1 in)			

(1) Rear wheel disc

(2) Rear wheel rim

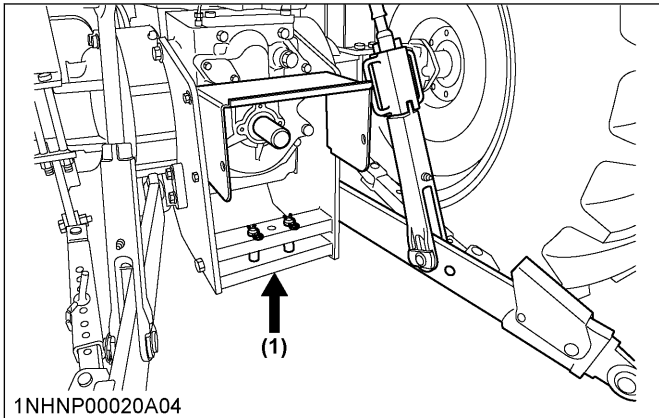
(3) Tread

4.1 Rear jack point

WARNING

To avoid personal injury or death:

- Before jacking up the tractor, park it on a firm and level ground and chock the front wheels.
- Fix the front axle to keep it from pivoting.
- Select a jack that withstands the machine weight and set it up as follows.



(1) Jack point

BALLAST

WARNING

To avoid personal injury or death:

- Additional ballast will be needed for transporting 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, 4WD models) and improved traction (4WD model).

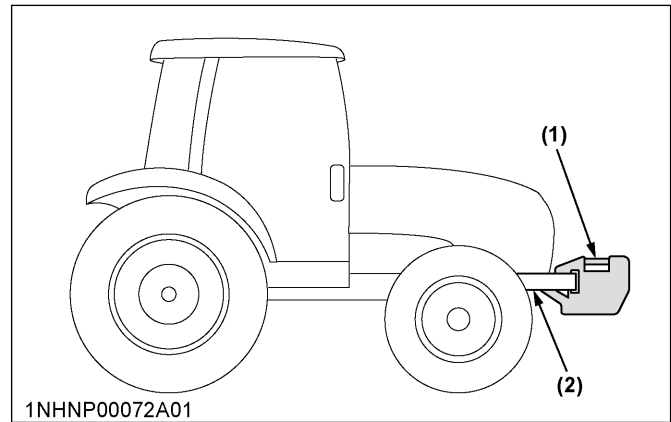
Heavy pulling and heavy rear mounted implements tend to lift up the front wheels.

Add enough ballast to maintain steering control and to prevent tipping over. Remove the weight when it is no longer needed.

1.1 Front end weights (option)

Front end weights can be attached to the bumper.

See your implement operator's manual for required number of weights or consult your local KUBOTA Dealer about their usage.



(1) Front end weights
(2) Bumper

IMPORTANT :

- Do not overload tires.
- Add no more weight than indicated in chart.

Maximum weight	47 kg x 12 pieces (1240 lbs.)
----------------	----------------------------------

2. Rear ballast

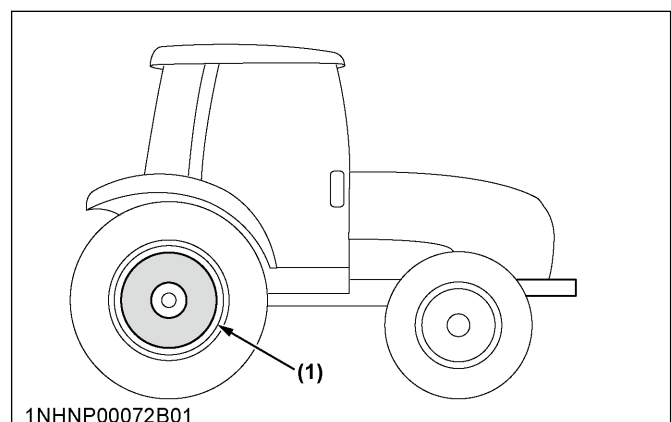
Add weight to rear wheels if needed to improve traction or for stability.

The amount of rear ballast should be matched to job and the ballast should be removed when it is not needed.

The weight should be added to the tractor in the form of liquid ballast, rear wheel weights or a combination of both.

2.1 Rear wheel weights (option)

Rear wheel weights can be attached to the rear wheel. See your implement operator's manual for required number of weights or consult your local KUBOTA Dealer about their usage.



(1) Rear wheel weights

IMPORTANT :

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

	34 in. cast iron disc	Steel disc, 30 in. cast iron disc
Maximum weight per wheel	72.5 kg x 2 pieces (160 lbs. x 2 pieces)	72.5 kg x 3 pieces (160 lbs. x 3 pieces)

OVERALL BALLAST

Overall, the tractor, depending on the job, terrain, implement and purpose should be ballasted.

2.2 Liquid ballast in rear tires

A water and calcium chloride solution provides safe and economical ballast. Used properly, it will not damage tires, tubes or rims. The addition of calcium chloride is recommended to prevent the water from freezing.

Use of this method of weighting the wheels has the full approval of the tire companies.

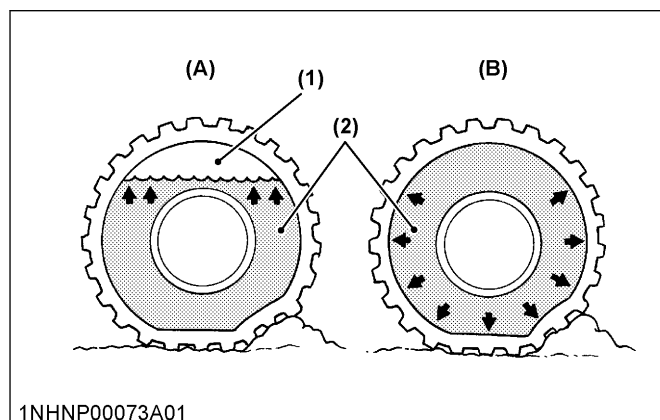
See your tire dealer for this service.

Liquid weight per tire (75% filled)

Tire sizes	16.9-34	18.4R30 18.4-30	18.4R34 18.4-34
Slush free at -10 °C (14 °F) Solid at -30 °C (-22 °F) Approx. 1 kg (2 lbs.) CaCl ₂ per 4 L (1 gal.) of water	342 kg (755 lbs.)	385 kg (848 lbs.)	417 kg (920 lbs.)
Slush free at -24 °C (-11 °F) Solid at -47 °C (-53 °F) Approx. 1.5 kg (3.5 lbs.) CaCl ₂ per 4 L (1 gal.) of water	376 kg (829 lbs.)	414 kg (912 lbs.)	457 kg (1007 lbs.)
Slush free at -47 °C (-53 °F) Solid at -52 °C (-62 °F) Approx. 2.25 kg (5 lbs.) CaCl ₂ per 4 L (1 gal.) of water	399 kg (880 lbs.)	436 kg (960 lbs.)	490 kg (1081 lbs.)

IMPORTANT :

- Do not fill tires with water or solution to more than 75% of full capacity (to the valve stem level).



- (1) Air
(2) Water

- (A) Correct - 75% full, air compresses like a cushion
(B) Incorrect - 100% full, water cannot be compressed

CAB OPERATION

DOORS AND WINDOWS

1. Locking and unlocking the door

From the outside:

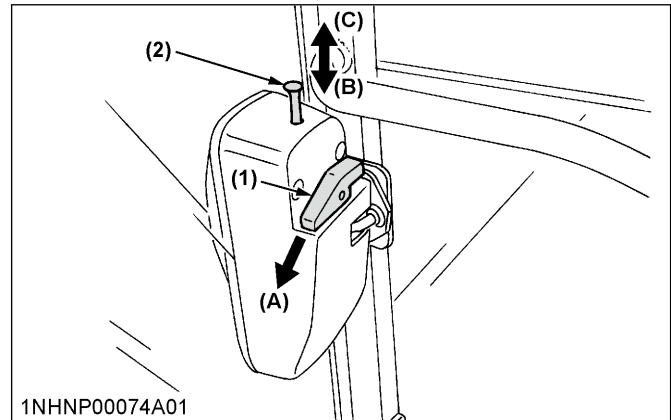
Insert the key into the door lock. Turn the key clockwise to unlock the door. To lock the door, turn the key in the opposite direction.

The key can be removed when it is in the vertical position.

From the inside:

Push down the lock knob to lock the door.

Pull up the lock knob to unlock the door.



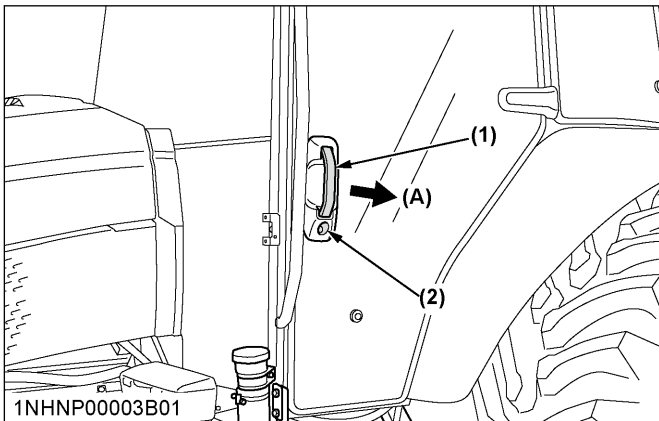
- (1) Inner door handle
(2) Lock knob

- (A) "PULL"
(B) "PUSH" (lock)
(C) "PULL" (unlock)

2. Opening the door

From the outside:

Unlock the door, and pull the outer door handle.



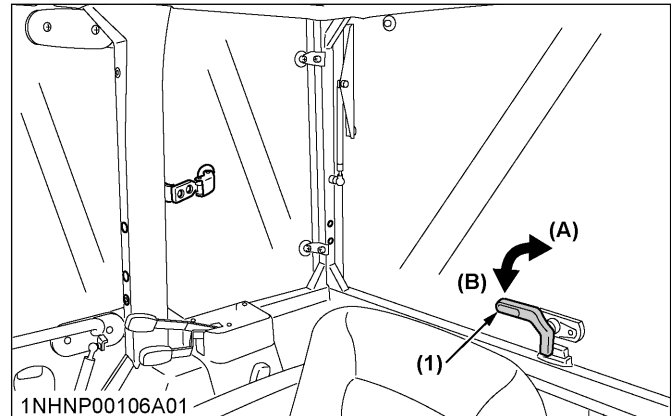
- (1) Outer door handle
(2) Door lock
(A) "PULL"

From the inside:

Unlock the door and pull the inner door handle.

3. Rear window

Turn the rear window handle clockwise to the vertical position and push the handle. The rear window is opened by the gas spring cylinder.

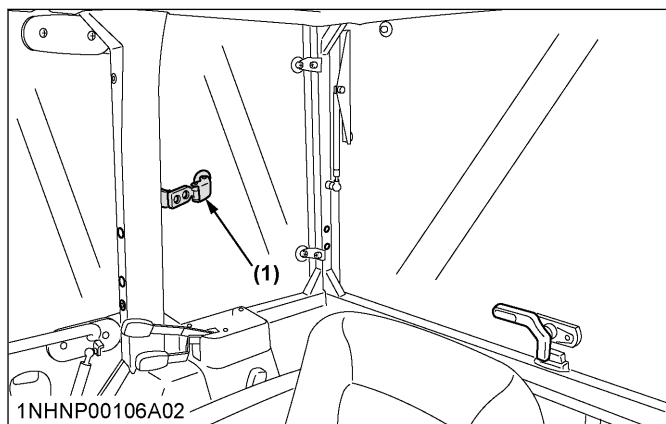


- (1) Rear window handle

- (A) "OPEN"
(B) "CLOSE"

4. Side window

Pull the side window handle and push the side window to open.



(1) Side window handle

5. Emergency exit

1. In an emergency situation, open the right door of the CAB if the left door is blocked and vice versa.
2. Exit through the rear window if the CAB doors are blocked.

DOMELIGHT

Sliding the dome light lens will give the following light conditions:

“OFF”

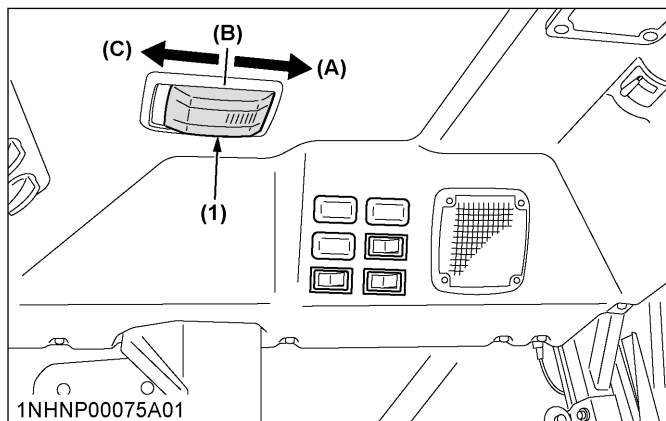
The light does not turn on when the door is opened.

“DOOR”

The light turns on when the door (LH) is opened. It turns off when the door (LH) is closed.

“ON”

The light remains on regardless of the door position.



(1) Dome light

- (A) “OFF”
(B) “DOOR”
(C) “ON”

IMPORTANT :

- The battery will discharge if the dome light remains on. Be sure to check the dome light lens position and/or door closure.

WORK LIGHT



WARNING

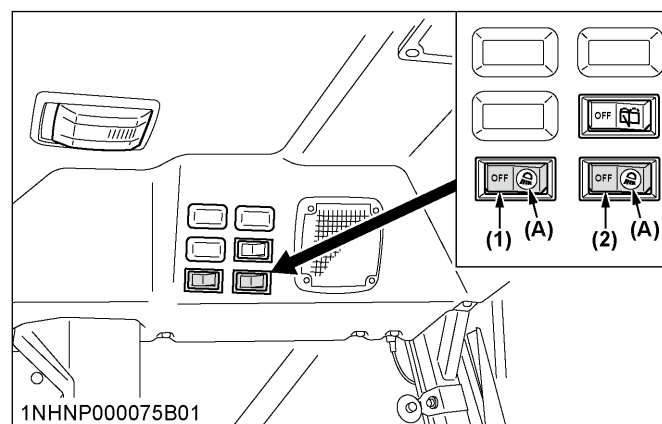
To avoid personal injury or death:

- 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 right half of the work light switch.

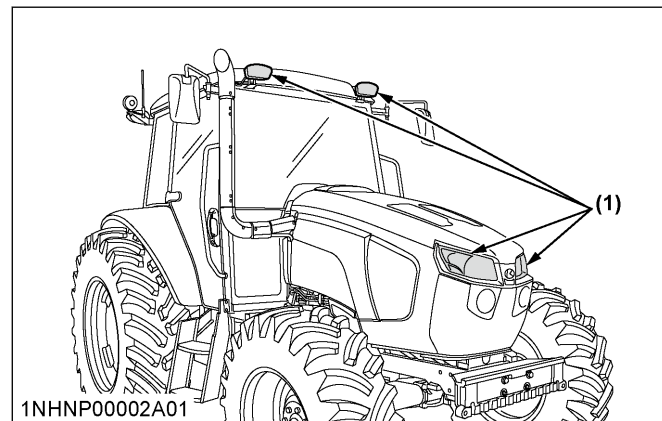
The work light and the switch's indicator light up. Press the left half of the work light switch to turn off the light and indicator.



- (1) Front work light switch
(2) Rear work light switch

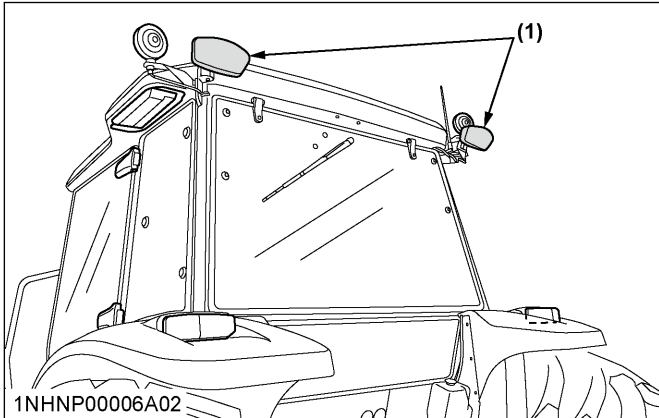
(A) Indicator for work lights

2. Front work light



(1) Front work light

3. Rear work light



(1) Rear work light

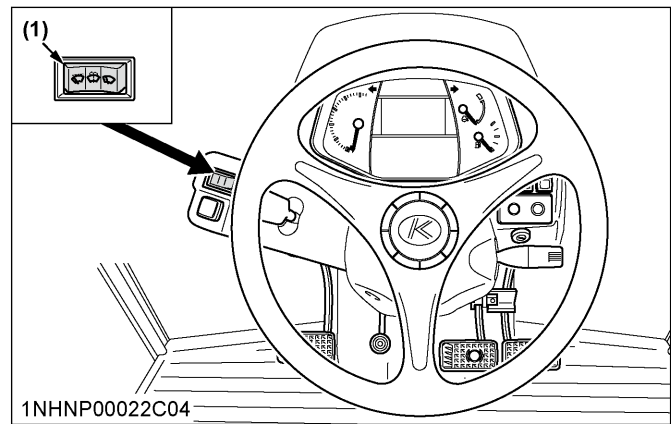
WIPER

1. Front wiper and washer switch

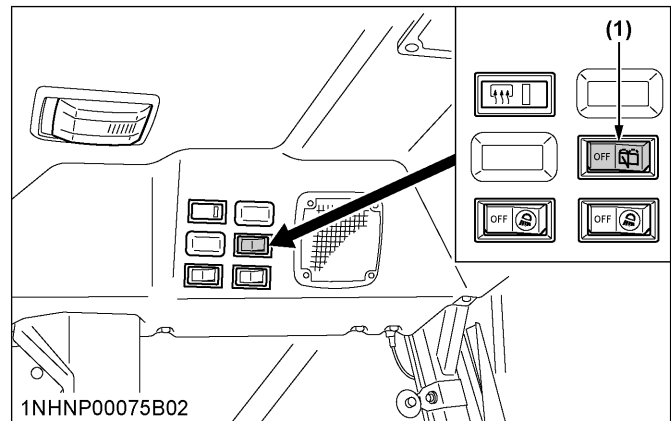
1. Turn on the key switch and press the right half of the wiper switch to the first step to activate the continuous wiper.
When the switch is pressed further to the second step, washer liquid jets out.
The jetting continues while the switch is pressed and the continuous wiper is activated.
2. Press the left half of the wiper switch to the first step to activate the intermittent wiper.
When the switch is pressed further to the second step, washer liquid jets out and the intermittent wiper is activated.

2. Rear wiper and washer switch (if equipped)

1. Turn on the key switch and press the right half of the wiper switch to the first step to activate the wiper.
When the switch is pressed further to the second step, washer liquid jets out.
The jetting continues while the switch is pressed and the wiper is activated continuously.
2. When the left half of the wiper and washer switch is pressed, washer liquid jets out without activating the wiper.



(1) Front wiper and washer switch



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

IMPORTANT :

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

3. Using the wipers in cold season

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

IMPORTANT :

- In the cold season, the wiper blades and the wiper motor may become overloaded, and cause damage. To avoid this, be sure to take the above precautions.

AIR CONDITIONER

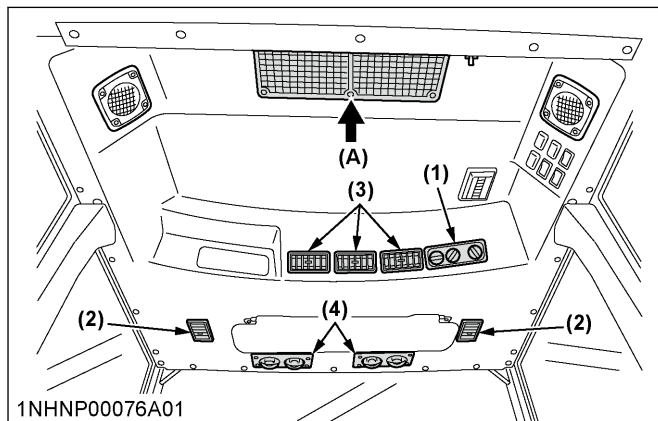
CAUTION

To avoid personal injury:

- 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.

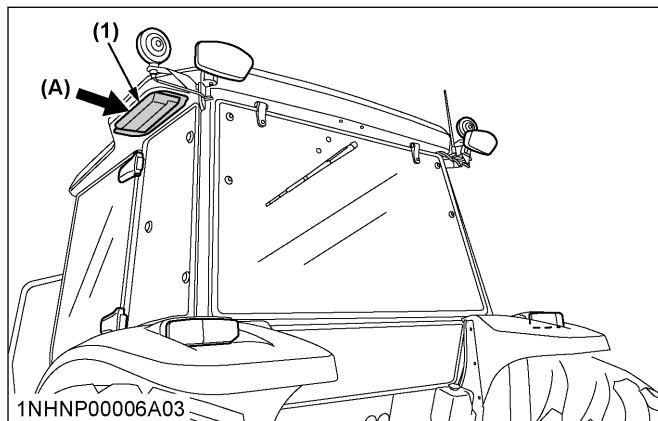
1. Airflow

Air in the CAB and fresh air introduced into the CAB flows as follows. Adjust the air ports to obtain the desired condition.



- (1) Control panel
(2) Door air outlet
(3) Face air outlet
(4) Front air outlet

(A) "INNER AIR RECIRCULATION"



- (1) Fresh air filter

(A) "FRESH AIR INLET"

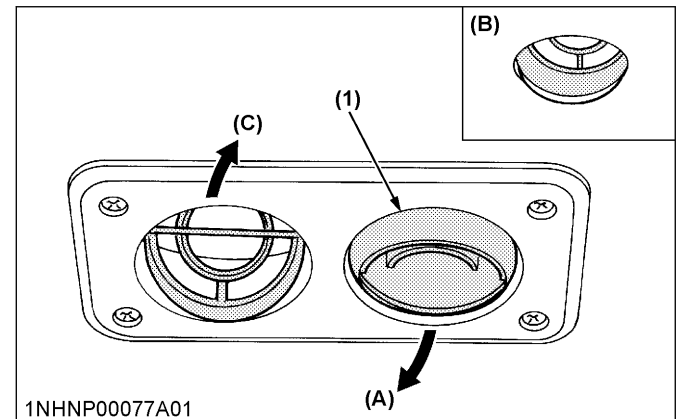
IMPORTANT :

- Do not pour water directly into the fresh air port while washing the tractor.

2. Air control vent

2.1 Front air outlet

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

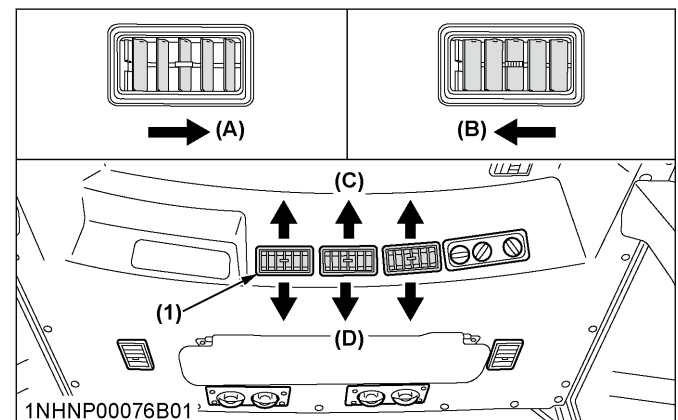


- (1) Front air outlet

(A) "WINDSHIELD"
(B) "CLOSED"
(C) "CHEST AREA"

2.2 Face air outlet

The face air outlets can be adjusted to direct air toward the operator or the rear of the CAB.

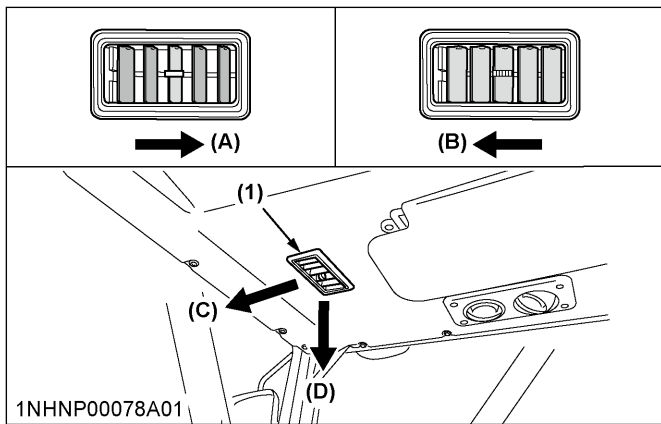


- (1) Face air outlet

(A) "OPEN"
(B) "SHUT"
(C) "BACK AREA"
(D) "FACE AREA"

2.3 Door air outlet

The door air outlets can be adjusted to direct air toward the door window or the foot area.



(1) Door air outlet

- (A) "OPEN"
 (B) "SHUT"
 (C) "DOOR WINDOW"
 (D) "FOOT AREA"

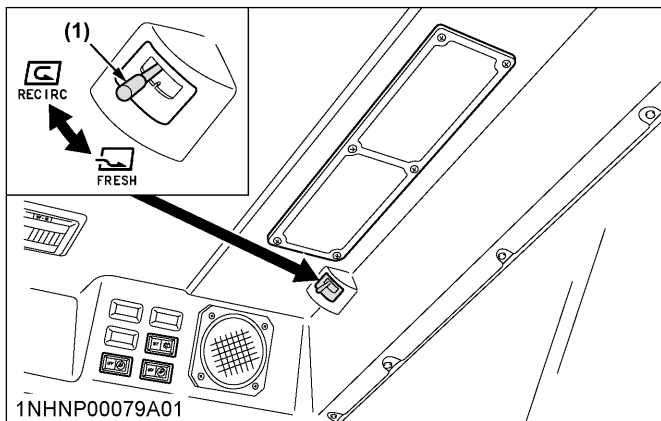
2.4 Recirculation or fresh air selection lever

FRESH AIR:

Set the lever to the  position, and fresh air will flow into the CAB. This is helpful when you work in dusty conditions or if the glass windows get foggy.

RECIRCULATION:

Set the lever to the  position, and the in-CAB air will be recirculated. This is useful for cooling or heating the CAB quickly or keeping it extra cool or warm.



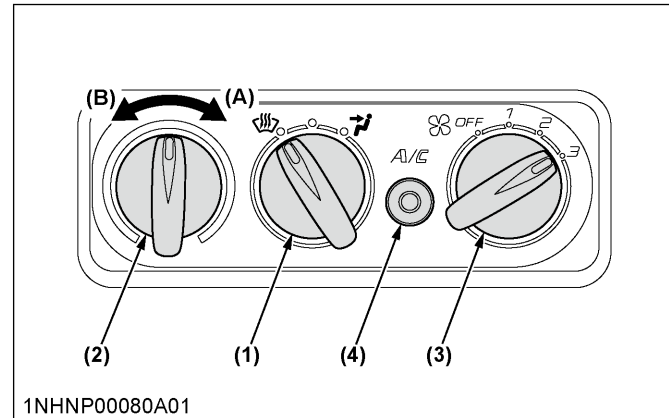
(1) Recirculation or fresh air selection lever

-  "FRESH AIR"
 "RECIRCULATION"

NOTE :

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

3. Control panel



- (1) Mode switch
 (2) Temperature control dial
 (3) Blower switch
 (4) Air conditioner switch with indicator light

- (A) "WARM"
 (B) "COOL"

3.1 Mode switch

Set the mode switch to the desired position.

 Air is blown from only the face air outlets.

• Air is blown from the front, face and door air outlets.

 Air is blown from the front and door air outlets.

3.2 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.

3.3 Blower switch

Air volume can be changed in 3 steps. At the [3] position, the largest air volume is obtained.

3.4 Air conditioner switch

Push this switch to activate the air conditioner. An indicator light will light up when the switch is set to "ON".

Push the switch again to turn the air conditioner off, in which case the indicator light will turn off.

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.

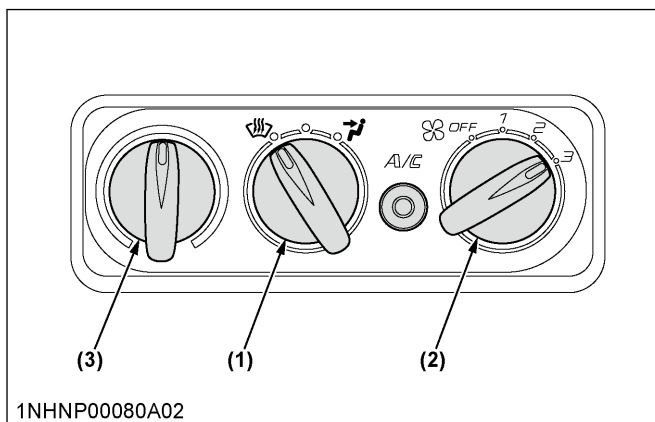
If the air conditioner switch is set to "ON" with the engine running at high rpm, the compressor may be damaged.

NOTE :

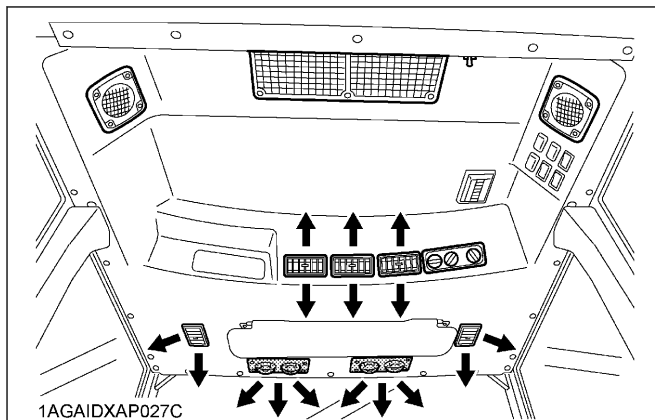
- With the blower switch at the “OFF” position, the indicator light will not light up even when the air conditioner switch is set to “ON”.

4. Operation**4.1 Heating**

1. Set the mode switch to the , ● or  position.
2. Set the recirculation or fresh air selection lever to the “FRESH AIR” position. To raise the temperature in the CAB quickly, set this lever to the “RECIRCULATION” position.
3. Adjust the blower ([1/2/3]) switch and the temperature control dial to achieve a comfortable temperature level.



- (1) Mode switch
- (2) Blower switch
- (3) Temperature control dial

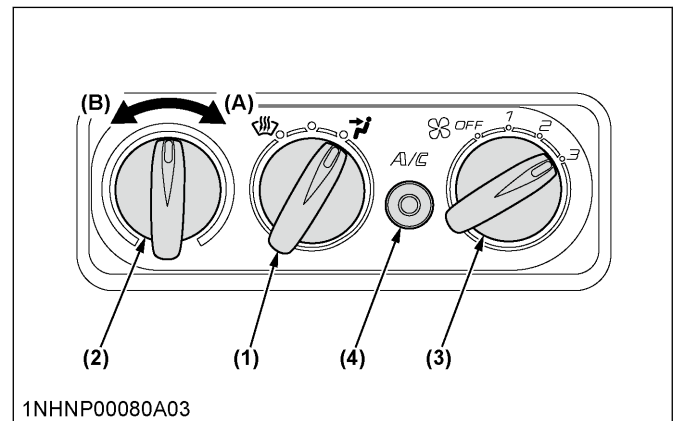
**4.2 Cooling or dehumidifying-heating**

1. Set the mode switch to the  or ● position.
2. Set the recirculation or fresh air selection lever to the “FRESH AIR” position. To lower the temperature in the CAB quickly, set this lever to the “RECIRCULATION” position.

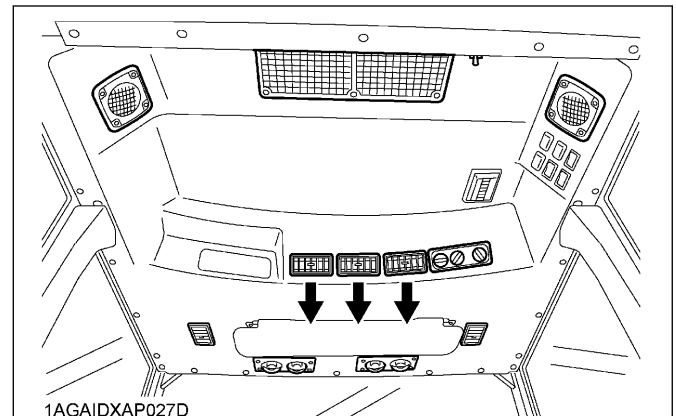
3. Press and turn on the air conditioner switch with indicator.
4. Turn on the blower ([1/2/3]) switch.
5. Adjust the temperature control dial to “COOL” or intermediate position to achieve a comfortable temperature level.

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.

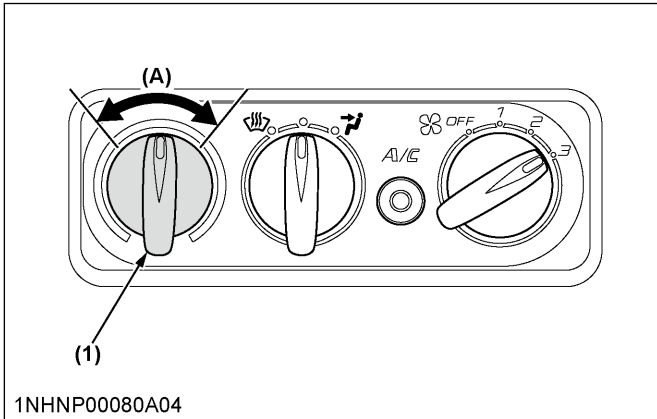


- (1) Mode switch
 - (2) Temperature control dial
 - (3) Blower switch
 - (4) Air conditioner switch with indicator light
- (A) “WARM”
(B) “COOL”

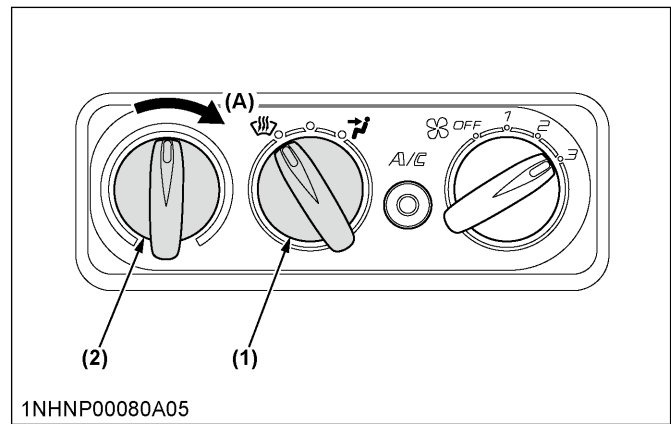
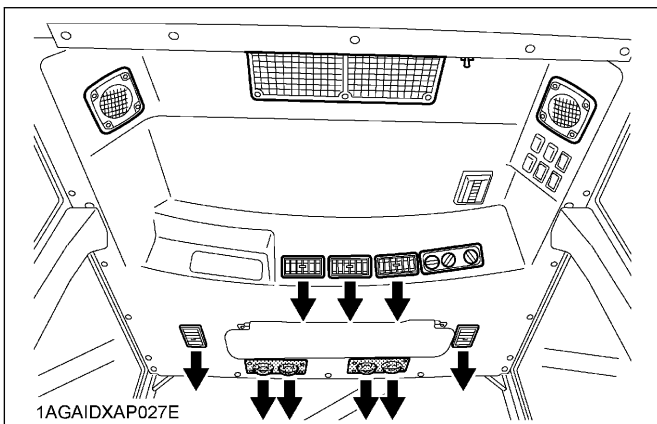
**4.3 Foot warming and head cooling**

1. Set the mode switch to the ● position.
2. In the cooling or dehumidifying-heating mode, set the temperature control dial to the center position area.
3. Open the front air outlet and the door air outlet to direct air to the foot area.

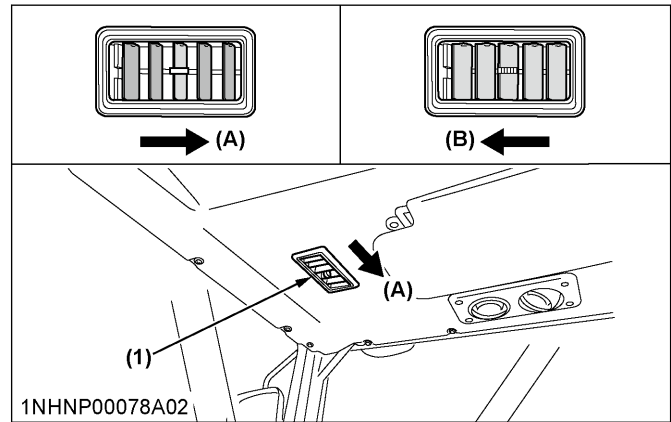
4. This will keep the feet cool and the head warm.



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



(1) Mode switch (A) "WARM"
(2) Temperature control dial

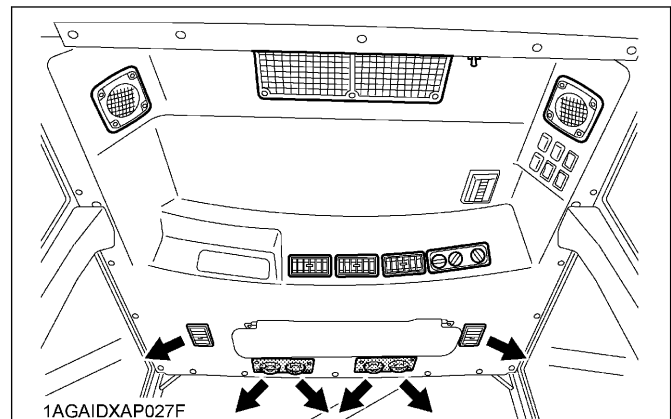


(1) Door air outlet (A) "OPEN"
(B) "SHUT"

4.4 Defrosting or demisting

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

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



NOTE :

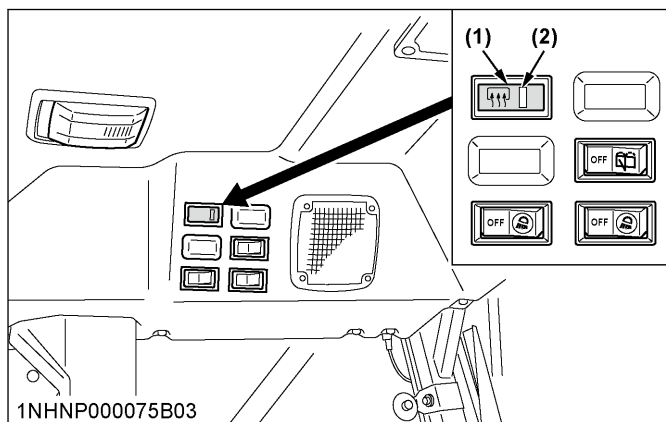
- If you set the temperature control dial to "COOL" side position at position, cool air will come out from the face air outlets.

REAR AND SIDE DEFOGGER WITH TIMER (IF EQUIPPED)

To activate the rear and side 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 and the yellow light turn off automatically. To turn the defogger off, press the switch once more.



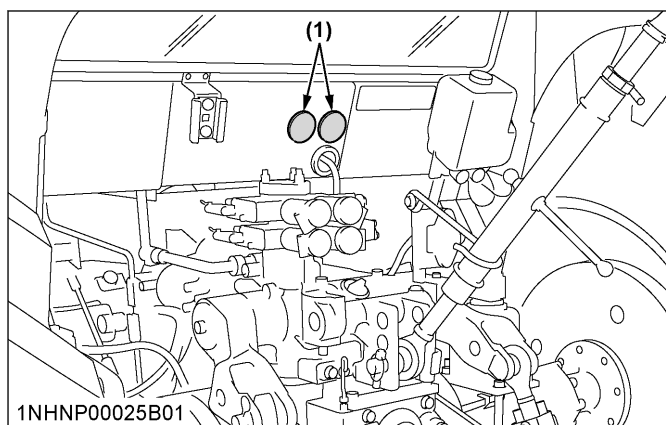
- (1) Defogger switch
(2) Yellow light

IMPORTANT :

- The battery will discharge if the defogger and the key switch remain in the "ON" or "ACC" positions with the engine stopped. Always use the defogger with the engine running.

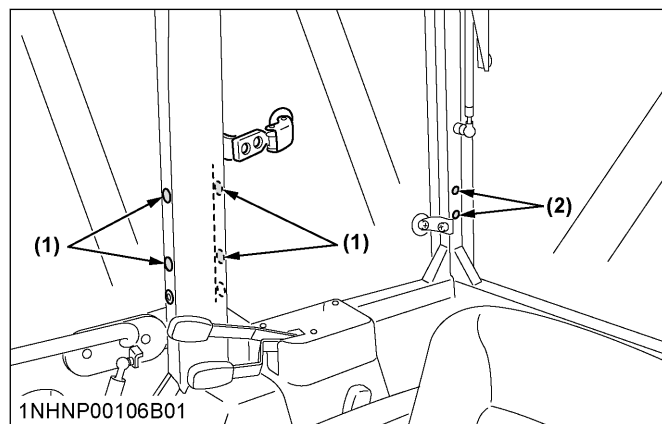
INSTALLING THE IMPLEMENT CONTROL BOX

- Make an opening in each rubber cap. Introduce the implement control cable and hydraulic hose through these openings into the CAB.



- (1) Rubber cap

- Make holes in each of the pillar covers, as shown following illustration. Install the implement control box in place.

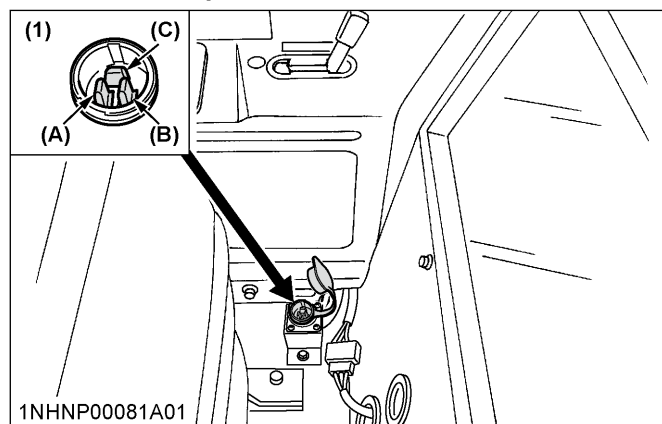


- (1) 4 - M8 nuts
(2) 2 - M6 nuts

ELECTRICAL OUTLET

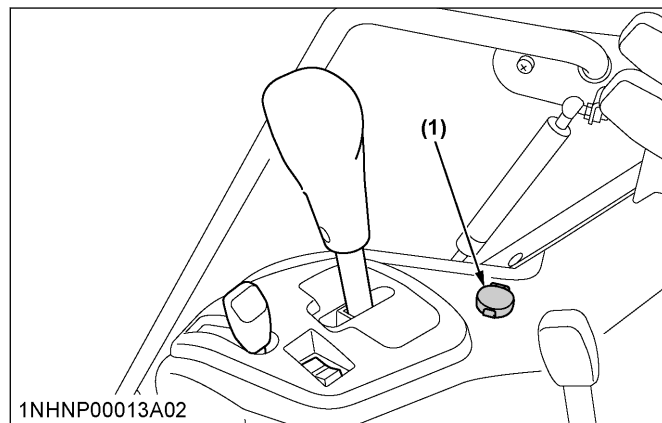
The tractor is equipped with electrical outlets which serve the following functions.

For use with implement



- (1) Accessory electrical outlet (30 A)
(A) Terminal : Through the ACC position of the key switch (Max 5 A)
(B) Terminal : Through the battery direct (Max 25 A)
(C) Terminal : Ground

For use with accessory



- (1) Accessory electrical outlet (Max 5 A)

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	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	124	
2	Wheel bolt torque	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	125	
3	Tie-rod dust cover	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	125	
4	Battery condition	Check		○		○		○		○		○		○		○	every 100 Hr	129	*1
5	Greasing	---		○		○		○		○		○		○		○	every 100 Hr	126	
6	Fan belt	Adjust		○		○		○		○		○		○		○	every 100 Hr	128	
7	Brake pedal	Adjust		○		○		○		○		○		○		○	every 100 Hr	128	
8	Parking brake lever	Adjust		○		○		○		○		○		○		○	every 100 Hr	129	
9	Air cleaner primary element	Clean		○		○		○		○		○		○		○	every 100 Hr	127	*2
		Replace															every 1000Hr or 1 year	140	*3
	Air cleaner secondary element	Replace																140	*3
10	Toe-in	Adjust				○				○				○			every 200 Hr	131	
11	Fuel tank water	Drain				○				○				○			every 200 Hr	132	
12	Water separator	Clean								○							every 400 Hr	133	
13	Greasing (2WD front wheel hub)	---								○							every 400 Hr	134	
14	Engine oil	Change	○									○					every 500 Hr	134	
15	Engine oil filter	Replace	○									○					every 500 Hr	135	
16	Fuel filter	Replace										○					every 500 Hr	135	@
17	Hydraulic oil filter	Replace										○					every 500 Hr	135	
18	Power steering oil line	Check										○					every 500 Hr	136	*5
19	Radiator hose and clamp	Check										○					every 500 Hr	136	*5
20	Fuel line	Check										○					every 500 Hr	137	*5
21	Intake air line	Check										○					every 500 Hr	137	*5 @
22	Oil cooler line	Check										○					every 500 Hr	138	*5
23	King-pin pivot	Adjust												○			every 600 Hr	139	
24	Front axle pivot	Adjust												○			every 600 Hr	138	
25	Transmission fluid	Change															every 1000 Hr	139	
26	Front differential case oil	Change															every 1000 Hr	139	
27	Front axle gear case oil	Change															every 1000 Hr	140	
28	Engine valve clearance	Adjust															every 1000 Hr	140	*4
29	Exhaust manifold	Check															every 1000 Hr or 1 year	140	*4

(Continued)

No.	Items		Indication on hour meter														Interval	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
30	Fuel injection nozzle Active test	Check															every 1500 Hr	140	*4	@
31	DEF injector tip	Check															every 1500 Hr	140	*4	@
32	DEF (AdBlue) line	Check															every 1500 Hr	140		@
33	Oil separator element	Replace															every 1500 Hr	141		@
34	Positive crankcase ventilation (PCV) valve (oil separator)	Check															every 1500 Hr	141	*4	@
35	EGR cooler	Check Clean															every 1500 Hr	141	*5	@
36	Cooling system	Flush															every 2000 Hr or 2 years	141	*6	
37	Coolant	Change																143	*6	
38	Supply pump	Check															every 3000 Hr	143	*4	@
39	Turbocharger	Check															every 3000 Hr	143	*4	@
40	Intake air heater	Check															every 3000 Hr	143	*4	
41	EGR system	Check Clean															every 3000 Hr	143	*4	@
42	DPF muffler	Clean															every 3000 Hr	144	*4	@
43	DEF injector	Check															every 3000 Hr	144	*4	@
44	DEF pump filter	Replace															every 3000 Hr	144	*4	
45	DEF tank suction filter	Check															every 8000 Hr	144	*4	
46	DEF (AdBlue) quality	Check															every 3 months	144		
47	Rustproofing operation	Perform															Every 3 to 4 months	145		
48	Antifrost heater for oil separator (if equipped)	Check															every 1 year	145	*4	
49	DPF related pipe	Check															every 1 year	145	*4	
50	EGR pipe	Check															every 1 year	145	*4	
51	Master cylinder filter	Clean															every 2 years	145	*4	
52	PCV valve hose	Replace															every 2 years	145	*4	
53	DPF related rubber pipe	Replace															every 2 years	145	*4	
54	EGR cooler rubber pipe	Replace															every 2 years	145	*4	
55	Boost sensor hose	Replace															every 2 years	145	*4	
56	Oil separator related rubber pipe	Check															every 2 years	145	*4	

(Continued)

MAINTENANCE

No.	Items		Indication on hour meter														Interval	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
57	Brake hose	Check															every 2 years	145	*4	
58	Power steering oil line	Check															every 2 years	145	*4	
59	Radiator hose and clamp	Check															every 2 years	145	*4	
60	Fuel line	Check															every 2 years	145	*4	
61	Oil cooler line	Check															every 2 years	145	*4	
62	Parking brake cable	Replace															every 3 years	145	*4	
63	Intake air line	Replace															every 4 years	145	*4	@
64	Master cylinder kit	Replace															every 4 years	145	*4	
65	Equalizer kit	Replace															every 4 years	145	*4	
66	Brake seal 1 and 2	Replace															every 4 years	146	*4	
67	DEF (AdBlue)	Add															every fuel refilling interval	118		@
68	Fuel system	Bleed															Service as required	146		
69	Brake system	Bleed																146	*4	
70	Clutch housing water	Drain																146		
71	Fuse	Replace																147		
72	Light bulb	Replace																149		

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

*2 Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

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

*4 Consult your local KUBOTA Dealer for this service.

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

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

No.	Items		Indication on hour meter														Interval	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
1	Air conditioner drive belt	Adjust		○		○		○		○		○		○		○	every 100 Hr	131		
2	Inner air filter	Clean				○				○				○			every 200 Hr	132		
3	Fresh air filter	Clean				○				○				○			every 200 Hr	133		
4	Air conditioner pipes and hoses	Check										○					every 500 Hr	138	*1	
5	CAB isolation cushion	Check															every 1 year	145		
6	Air conditioner pipes and hoses	Check															every 2 years	145	*2	
7	Washer liquid	Add															Service as required	149		
8	Refrigerant (gas)	Check																150		

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

*2 Consult your local KUBOTA Dealer for this service.

IMPORTANT :

- The jobs indicated by ☉ must be done after the first 50 hours of operation.
- The items marked with @ are registered as emission related critical parts by Kubota in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instructions.
See the Warranty Statement for details.
- When using biodiesel, be sure to check the maintenance requirements of biodiesel fuel as the intervals will change in some of the items.

LUBRICANTS, FUEL AND COOLANT

No.	Locations	Capacities	Lubricants	
1	Fuel	175 L (46.2 U.S.gals.)	No.2-D S15 diesel fuel No.1-D S15 diesel fuel if temperature is below -10 °C (14 °F)	
2	DEF (AdBlue)	12.3 L (3.2 U.S.gals.)		
3	Coolant	10.2 L (10.8 U.S.qts.) (Recovery tank: 1.0 L / 1.1 U.S.qts.)	Fresh clean soft water with antifreeze	
4	Washer liquid	1.3 L (1.4 U.S.qts.)	Automobile washer liquid	
5	Engine crankcase (with filter)	10.7 L (11.3 U.S.qts.)	• Engine oil: API service classification	CJ-4 (DPF type engine oil)
			Above 25 °C (77 °F)	SAE30, SAE10W-30 or 15W-40
			-10 °C to 25 °C (14 to 77 °F)	SAE10W-30 or 15W-40
			Below -10 °C (14 °F)	SAE10W-30
6	Transmission case	60 L (63.4 U.S.qts.)	• Kubota SUPER UDT2 fluid	
7	Front differential case (4WD)	7 L (7.4 U.S.qts.)	• Kubota SUPER UDT2 fluid or SAE 80 - SAE 90 gear oil	
8	Front axle gear case (4WD)	3.5 L (3.7 U.S.qts.)		
9	Greasing	No. of greasing points	Capacity	Type of grease
	Top link	2	Until grease overflows.	Multipurpose grease NLGI-2 or NLGI-1 (GC-LB)
	Top link bracket	2		
	Lift rod	3		
	Front axle gear case support (4WD)	2		
	Front axle support	2		
	Front wheel hub (2WD)	2		
	Knuckle shaft (2WD)	2		
	Steering joint shaft	1		
	Battery terminal	2	A small 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

- The oil used in the engine should have an American Petroleum Institute (API) service classification and proper SAE engine oil according to the ambient temperatures shown in the previous table.
- Refer to the following table for the suitable API classification engine oil according to the diesel particulate filter (DPF) type engines and the fuel.

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

Fuel

- Use the ultra low sulfur diesel fuel only (below 0.0015% or 15 ppm) for these engines.
- Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20 °C (-4 °F) or elevations above 1500 m (5000 ft).
- Diesel fuels specified to EN 590 or ASTM D975 are recommended.
- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service (SAE J313 JUN87).

DEF (AdBlue):

The DEF (AdBlue), used as reducing agent of SCR, is a 32.5% aqueous urea solution.

The product is available at gas stations, truck stops and specialty shops. Be sure to use the genuine product only.

- Use exclusively DEF (AdBlue) that complies with the requirements of ISO 22241-1.

Transmission oil

***Kubota Super UDT2:** For an enhanced ownership experience, we highly recommend **Super UDT2** to be used instead of standard hydraulic and transmission fluid.

Super UDT2 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

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% through 20% BDF (B6 - B20) which comply with American Society for Testing and Materials (ASTM) D7467 Standard, as revised, can be used without adversely affecting the performance and durability of the engine and fuel system components.
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 (meaning, 100% BDF). The blended fuel ratio shall be less than 20% B100 and 80% or more diesel fuel. The B100 source used for Biodiesel blends must be purchased from an accredited BQ-9000 marketer or producer. More information about qualified marketer(s) and producer(s) can be found at <http://www.bq-9000.org>.

Preparation:

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. Details regarding the replacement procedures can be found in a different section. (See Changing engine oil on page 134, Replacing engine oil filter on page 135, and Replacing fuel filter on page 135.)

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% (namely, 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 (that is, higher viscosity) at lower temperatures. Consequently, fuel filter performance may be reduced, particularly during cold weather conditions.
8. The KUBOTA Warranty, as specified in the owner's warranty information guide, only covers defects in product materials and workmanship. Accordingly, any problems that may arise due to the use of poor quality fuels that fail to meet the above requirements, whether biodiesel or mineral oil based, are not covered by the KUBOTA Warranty.

Routine handling:

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

Maintenance requirements when using BDF B0 through B5:

Follow the recommended oil change intervals. (See MAINTENANCE on page 108.)

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

Maintenance requirements when using BDF B6 through B20:

The maintenance intervals for fuel related parts changes.

See the following table for the new maintenance intervals.

Items		Interval	Remarks
Fuel filter	Replace	Every 250 hrs	
Fuel line	Check	Every 250 hrs	Replace if any deterioration (crack, hardening, scar or deformation) or damage occurred.
	Replace	Every 2 years	Consult your local KUBOTA Dealer for this service.

Long term storage:

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

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, aqueous urea 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.

HOW TO OPEN THE HOOD

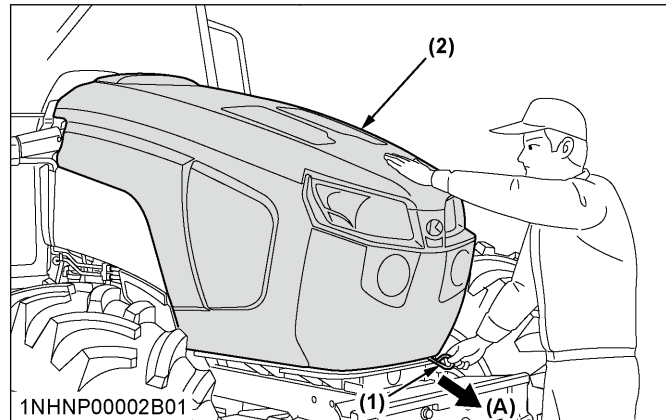
WARNING

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

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

1. Hood

- To open the hood, hold the hood, pull the release lever and then open the hood.



- (1) Release lever
(2) Hood

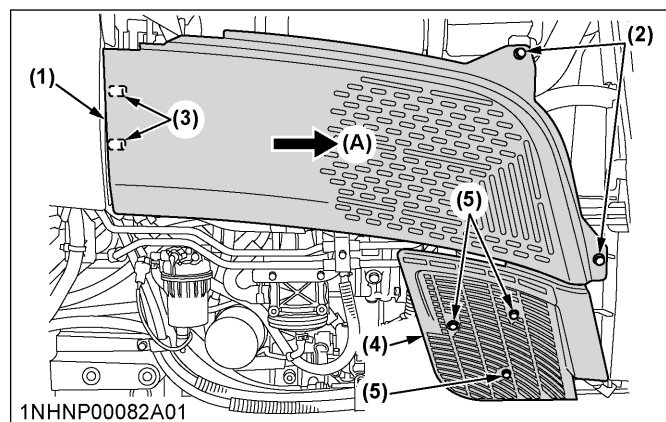
(A) "PULL"

NOTE :

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

2. Side cover

- Remove the bolts (2). Move the side cover 1 forward, and pull out the cover from pins.
- Loosen the bolts (5), and remove the side cover 2.



- (1) Side cover 1
(2) Bolt
(3) Pin
(4) Side cover 2
(5) Bolt

(A) "MOVE"

DAILY CHECK

For your own safety and maximum service life of the machine, make 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

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

2. Checking and refueling

WARNING

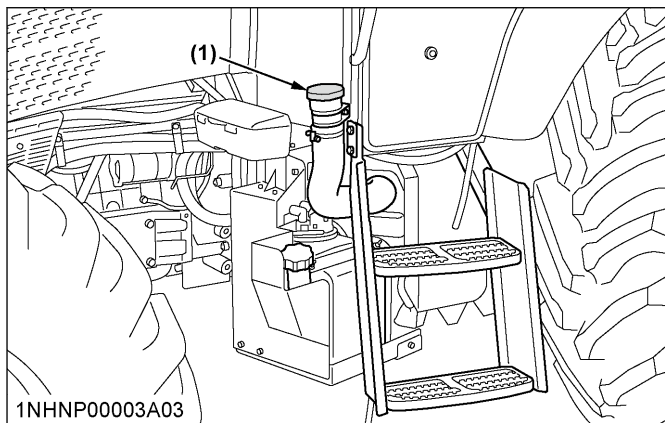
To avoid personal injury or death:

- Never refuel near an open flame.
- Do not smoke while refueling.
- Be sure to stop the engine and remove the key before refueling.
- Use properly grounded fueling systems. Make sure that there is no static discharge while refueling.
- Be sure to close the fuel tank cap after refueling.

To avoid allergic skin reaction:

- Wash hands immediately after contact with diesel fuel.

1. Check the amount of fuel by looking at the fuel gauge.
2. When the fuel warning indicator lights up, it is time to add fuel.



(1) Fuel tank cap

Fuel tank capacity	175 L (46.2 U.S.gals.)
--------------------	------------------------

IMPORTANT :

- Be sure to use ultra-low sulfur fuel (S15).
- 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.
- If the engine runs out of fuel and stalls, engine components may become damaged.
- Be careful not to spill during refueling. If a spill occurs wipe it off at once or it may cause a fire.
- To prevent condensation (water) accumulation in the fuel tank, fill the tank before parking overnight.

NOTE :

- The DEF tank cap is blue.
Do not add DEF (AdBlue) to the fuel tank. Also, do not add diesel fuel to the DEF tank.

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

WARNING

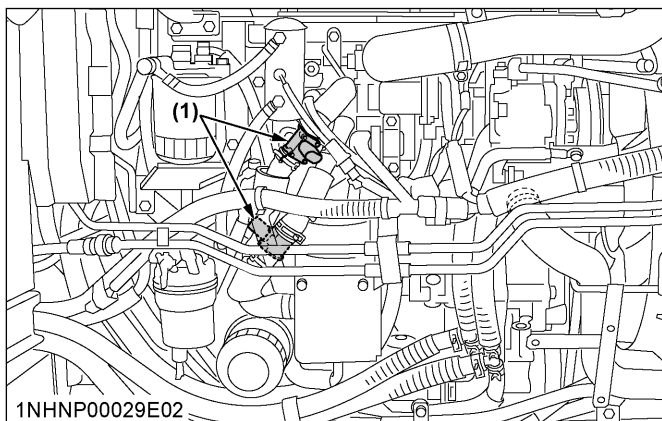
To avoid personal injury or death:

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

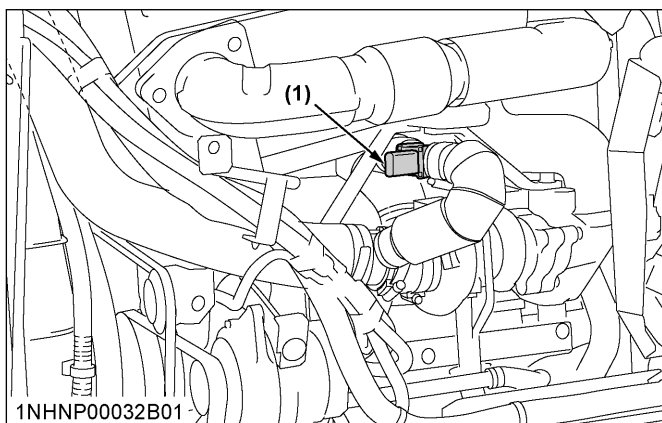
When operating tractors with antifrost heaters for oil separator in cold regions (below the freezing point: 0 °C / 32 °F), carry out inspection by using the following procedure before starting work:

1. Turn the key switch to "ON", and 1 minute later, inspect by touch whether the heater is working. If the heater is working, its temperature will rise to roughly 70 °C (158 °F), so you will be able to feel its warmth.

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



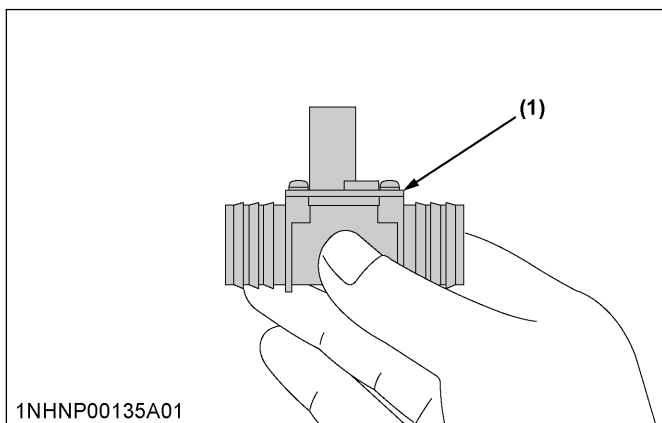
(1) Heater



(1) Heater

NOTE :

- Refer to the following figure for the heater inspection position.



(1) Heater

4. Checking the DEF (AdBlue) level and adding fluid

! WARNING

To avoid personal injury or death:

- Before adding DEF (AdBlue), stop the engine. When adding the fluid, preferably wear protective goggles and rubber gloves.

! CAUTION

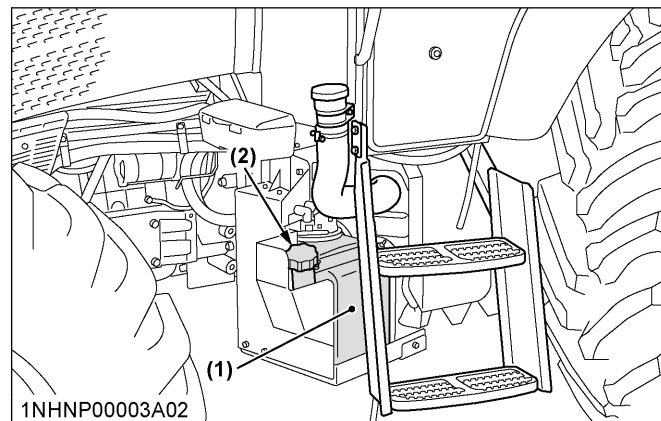
To avoid personal injury, note the following when handling DEF (AdBlue):

- If DEF (AdBlue) gets into your eyes, immediately rinse your eyes with a large amount of water for at least 15 minutes and consult a doctor.
- Do not swallow DEF (AdBlue). If you have accidentally swallowed DEF (AdBlue), seek medical attention immediately.
- If DEF (AdBlue) gets on your skin, rinse immediately with water. In rare cases, DEF (AdBlue) may irritate the skin.
- If DEF (AdBlue) gets on your clothes or shoes, wash it off immediately. Simply wiping off or leaving DEF (AdBlue) on clothes or shoes will leave a white residue.

For more details, obtain and read the Safety Data Sheet (SDS) from the DEF (AdBlue) supplier.

NOTE :

- The DEF tank cap is blue. Do not add DEF (AdBlue) to the fuel tank. Also, do not add diesel fuel to the DEF tank.
- If you spill DEF (AdBlue), immediately rinse with clean water. If left untouched, DEF (AdBlue) may rust metal parts or corrode painted surfaces. Also, resin and rubber parts may be deformed.



(1) DEF tank
(2) DEF tank cap (blue)

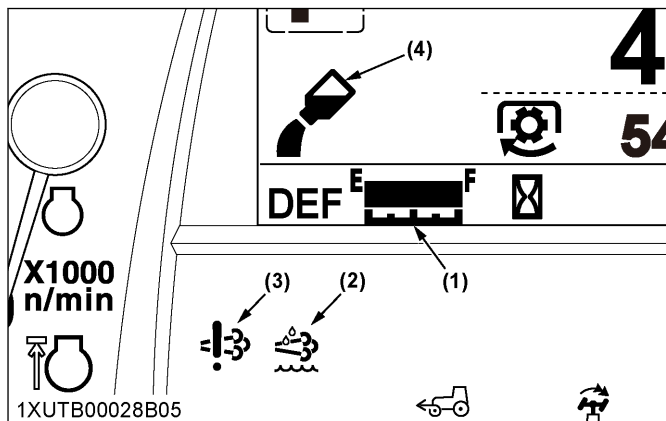
Look at the DEF (AdBlue) gauge on the instrument panel to see how much fluid remains. If the level is too low, add DEF (AdBlue) as required.

Before removing the DEF tank cap, clean dirt away from the cap and the cap's surroundings.

If the DEF (AdBlue) runs low, the low-level warning icon flashes and the buzzer sounds. If you continue running the machine in its current state, the engine output will be limited to about 50%. If operation is continued, the engine will be limited to idling.

(For details, refer to Warning indication and countermeasures on page 43.)

In order to maintain the performance of the SCR system, it is recommended to fully refill the DEF tank with DEF (AdBlue) each time the fuel tank is refueled.



- (1) DEF (AdBlue) gauge
- (2) DEF (AdBlue) level and quality warning indicator
- (3) SCR system warning indicator
- (4) Low-level warning icon of DEF (AdBlue)

DEF tank capacity	12.3 L (3.2 U.S.gals.)
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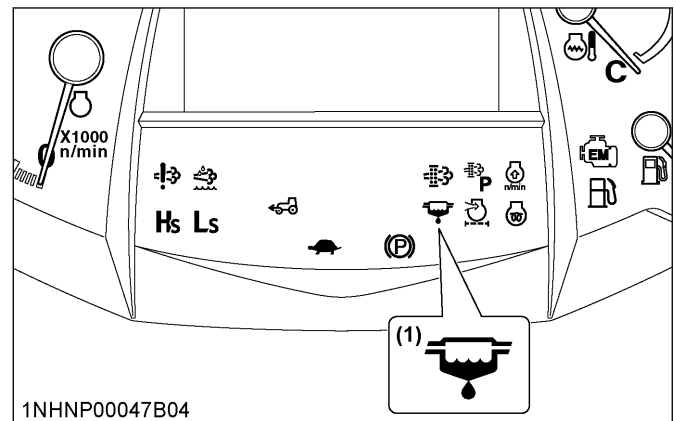
IMPORTANT :

- Use exclusively DEF (AdBlue) that complies with the requirements of ISO 22241-1.
- If anything other than DEF (AdBlue) is mixed into the DEF tank and the engine is started, the SCR system may fail. Do not start the engine if the DEF (AdBlue) is contaminated with diesel fuel. Consult your Kubota Dealer immediately.
- The warranty does not cover failures caused by adding or mixing anything other than DEF (AdBlue) into the DEF tank. If that occurs, all repair costs will be the customer's responsibility.
- When removing the DEF tank cap, be careful not to allow mud or any debris into the DEF tank. Otherwise, the DEF filter may become clogged or the DEF (AdBlue) quality degraded, possibly resulting in a SCR system failure.
- If contamination such as above has occurred, inspection of the SCR system by your local dealer is necessary. Repair or overhaul as needed.

- Do not stand on or place anything on the DEF tank as the tank, piping and sensor damage may result.
- Do not tamper with the exhaust pipe and muffler. Do not relocate the DEF tank, either. Such action may adversely affect the exhaust gas purifying performance.
- When DEF (AdBlue) stuck on the filler port has dried up, white powder may be found. This is nothing unusual. Wipe it off carefully so as not to allow it into the DEF tank.

5. Checking water separator

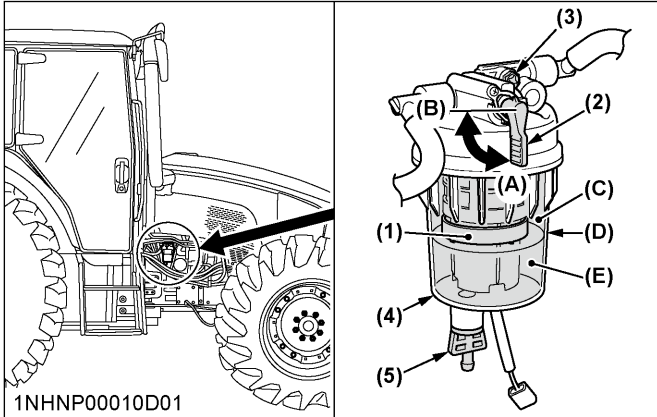
1. When the water has collected up to the upper limit in the water separator, the water separator indicator on the instrument panel lights up and a warning buzzer sounds.



- (1) Water separator indicator

2. In this case, close the fuel shutoff-valve and loosen the air plug and drain plug by several turns.
3. Allow the water to drain. When no more water comes out and fuel starts to flow out, retighten the air plug and drain plug.

4. Bleed the fuel system.
(See SERVICE AS REQUIRED on page 146.)



- | | |
|------------------------|-------------------|
| (1) Red float | (A) [ON] |
| (2) Fuel shutoff-valve | (B) [OFF] |
| (3) Air plug | (C) "FUEL" |
| (4) Cup | (D) "UPPER LIMIT" |
| (5) Drain plug | (E) "WATER" |

IMPORTANT :

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

NOTE :

- When the red float reaches near the upper limit level, start from step 2 in the above procedure to drain water from the water separator.

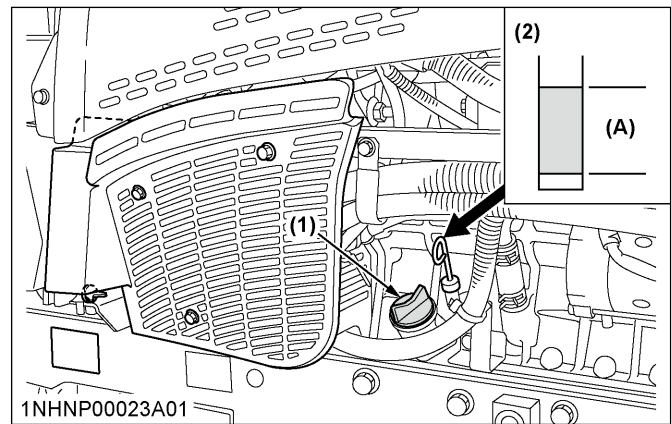
6. Checking engine oil level

WARNING

To avoid personal injury or death:

- Be sure to stop the engine before checking the oil level.

- Park the machine on a flat surface.
- Check engine oil before starting the engine or 5 minutes or more after the engine has stopped.
- To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the 2 notches. If the level is too low, add new oil to the prescribed level at the oil inlet.
(See LUBRICANTS, FUEL AND COOLANT on page 112.)



- (1) Oil inlet
(2) Dipstick

(A) Oil level is acceptable within this range.

IMPORTANT :

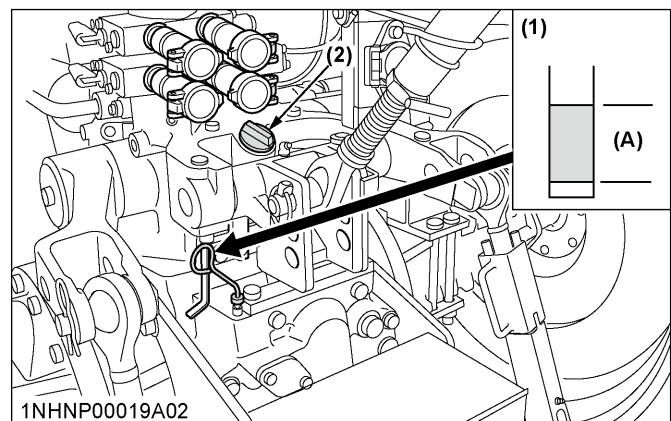
- When using an oil of different manufacturer or viscosity from the previous one, remove all of the old oil.
Never mix 2 different types of oil.
- If the oil level is low, do not run the engine.

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.

7. Checking transmission fluid level

- Park the machine on a flat surface, lower the implement and shut off the engine.
- To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the 2 notches. If the level is too low, add new oil to the prescribed level at the oil inlet.
(See LUBRICANTS, FUEL AND COOLANT on page 112.)



- (1) Dipstick
(2) Oil inlet

(A) Oil level is acceptable within this range.

IMPORTANT :

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

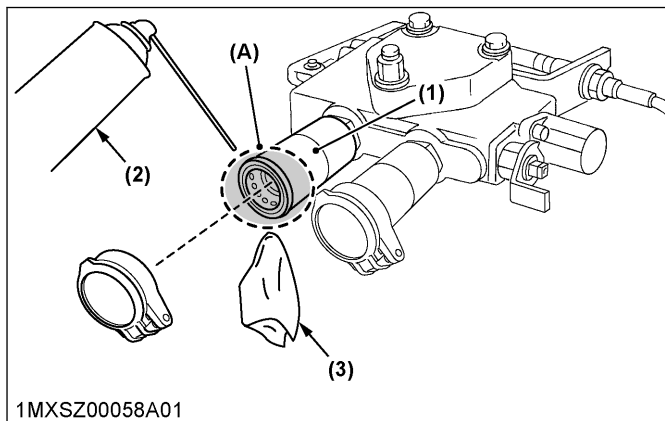
8. Cleaning remote control valve coupler

WARNING

To avoid personal injury or death:

- Stop the engine before cleaning the coupler.
- The remote control valve coupler becomes hot after use. Allow sufficient time for the coupler to cool down before checking and cleaning it.

1. During use, mud and other debris that adheres to the remote control valve coupler may enter the inner part of the coupler. Check and clean the coupler (both tractor side and implement side) frequently in order to prevent malfunctions such as oil leakage.
2. If any dirt or debris remains stuck to the coupler, use a general lubricant spray to clean the parts (both tractor side and implement side). Remove any residue with a clean cloth or paper.



- (1) Remote control valve coupler (A) "Clean the coupler on both the tractor side and the implement side"
- (2) General lubricant spray
- (3) Clean cloth or paper

9. Checking coolant level

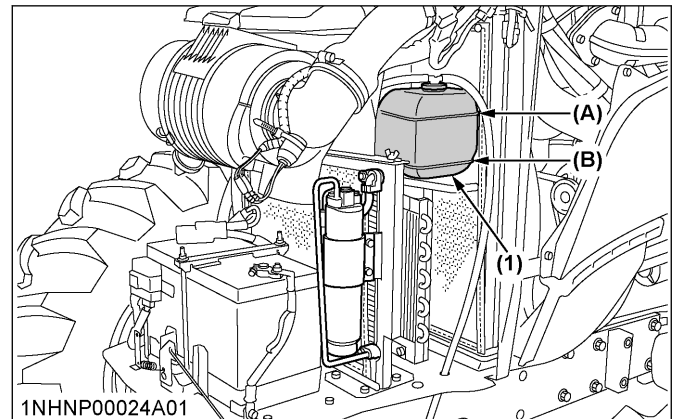
WARNING

To avoid personal injury or death:

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

1. Check to see that the coolant level is between the **[FULL]** and **[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 cooling system and changing coolant on page 141.)
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 level is low, add coolant.



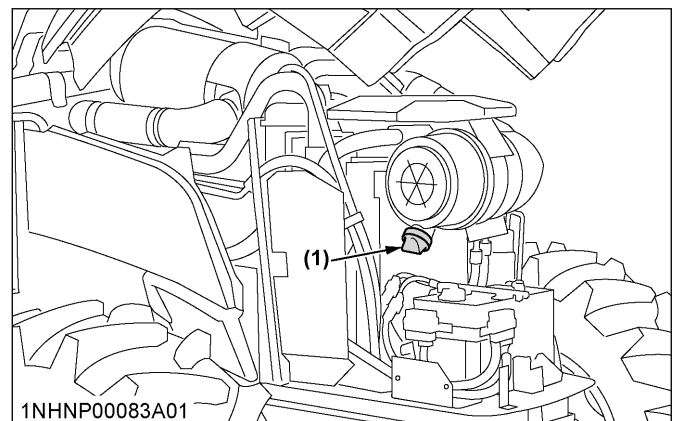
- (1) Recovery tank (A) **[FULL]**
(B) **[LOW]**

IMPORTANT :

- If the radiator cap has to be removed, follow the caution above and securely retighten the cap.
- Use clean, fresh soft water and antifreeze to fill the radiator.
- If coolant should leak, consult your local KUBOTA Dealer.

10. Cleaning evacuator valve

Open the evacuator valve to get rid of large particles of dust and dirt.



- (1) Evacuator valve

11. Cleaning grill, radiator screen, oil cooler, fuel cooler, air conditioner condenser and battery mount



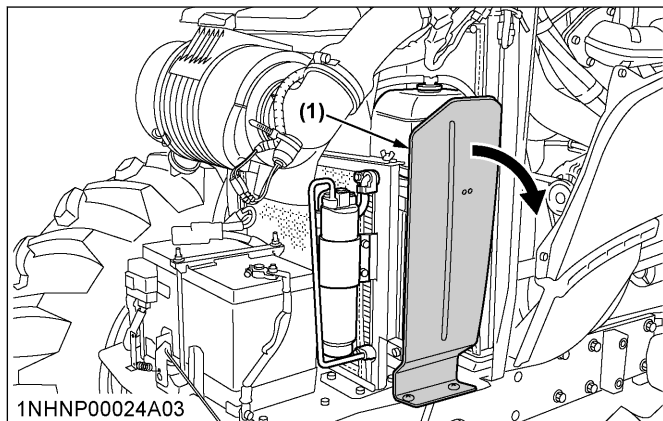
WARNING

To avoid personal injury or death:

- Be sure to stop the engine before removing the screen.
- The condenser and receiver become hot while the air conditioner is running. Before checking or cleaning them, wait until they cool down enough.

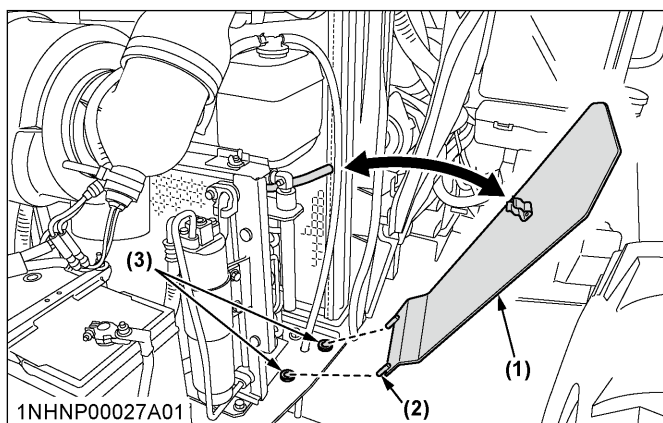
11.1 Detaching the panel

1. Pull upper panel outward.



(1) Panel

2. Raise the panel until pin (A) clears the hole, and take out the panel.



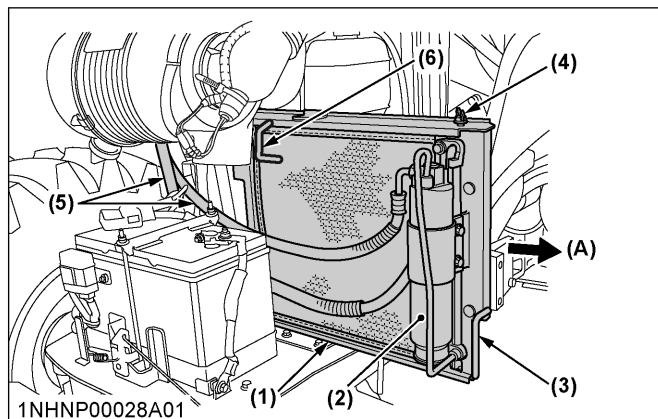
(1) Panel
(2) Pin (A)
(3) Hole

3. Attaching the panel is performed vice versa.

11.2 Sliding the air conditioner condenser

1. Release the air conditioner hoses off the hook.

2. Loosen the wing nut.
3. Hold the handle, slide the air conditioner condenser assembly toward yourself.



(1) Condenser
(2) Receiver
(3) Handle
(4) Wing nut
(5) Air conditioner hose
(6) Hook

(A) "PULL"

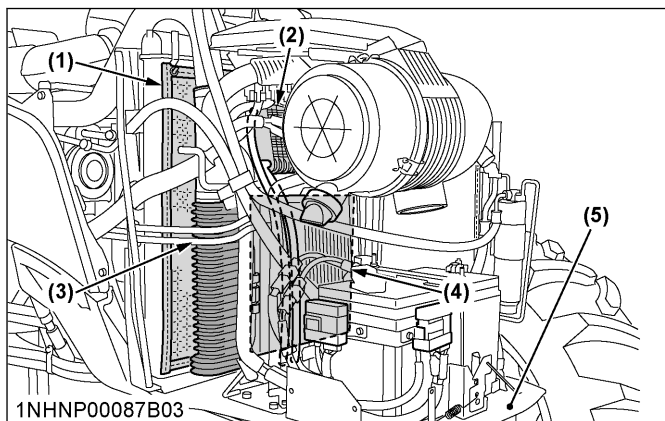
IMPORTANT :

- Do not hold the air conditioner receiver or the air conditioner pipes when sliding out the condenser for cleaning.

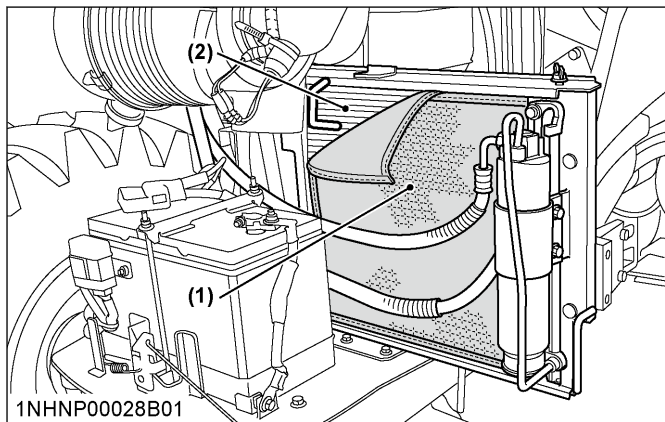
11.3 Cleaning

1. Check the front grill to make sure it is clean from debris.
2. Detach the radiator screen and remove all foreign materials.

3. Check radiator, intercooler, oil cooler, fuel cooler, air conditioner condenser and battery mount to be sure they are clean from debris.



- (1) Radiator screen
- (2) Fuel cooler
- (3) Intercooler
- (4) Oil cooler
- (5) Battery mount



- (1) Air conditioner condenser screen
- (2) Air conditioner condenser

IMPORTANT :

- The grill and screen must be clean from debris to prevent the engine from overheating and to allow good air intake for the air cleaner.

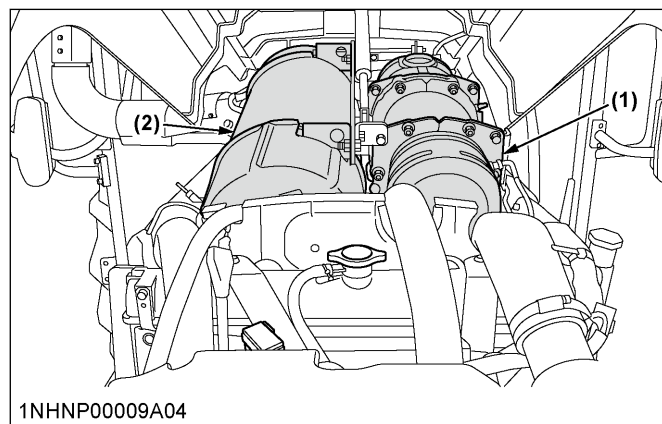
12. Checking DPF muffler / SCR device

! WARNING

To avoid personal injury or death:

- Before checking or cleaning the DPF muffler / SCR device, stop the engine and wait until it cools down enough.

Check the DPF muffler / SCR device and their surroundings for accumulation of anything flammable. Otherwise a fire may result.



- (1) DPF muffler
- (2) SCR device

13. Checking brake pedal

! WARNING

To avoid personal injury or death:

- Make sure that the brake pedals have equal adjustments when being locked together. Incorrect or unequal brake pedal adjustments can cause the tractor to swerve or roll-over.

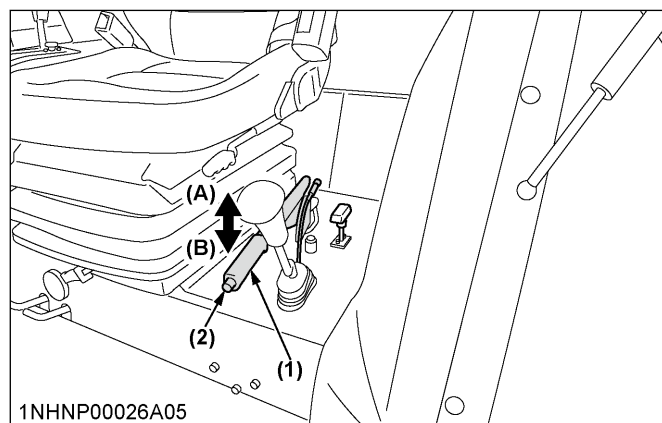
1. Inspect the brake pedals for free travel and smooth operation.
2. Adjust if incorrect measurement is found.
(See Adjusting brake pedal on page 128.)

14. Checking parking brake

Pull the parking brake lever to apply the brakes. With the key switch at "ON" position, the parking brake indicator on the instrument panel lights up.

To release the brakes, push in the button at the tip of the parking brake lever and tilt down the lever.

After releasing the brakes, the parking brake indicator on the instrument panel will turn off.



- (1) Parking brake lever
- (2) Release button
- (A) "PULL"
- (B) "RELEASE"

15. Checking gauges, meter and Easy Checker

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

16. Checking headlight, turn signal light, hazard light, and so on

1. Inspect the lights for broken bulbs and lenses.
2. Replace if broken.

17. Checking seat belt

1. Always check the condition of the seat belt attaching hardware before operating the tractor.
2. Replace if damaged.

18. Checking movable parts

If any of the movable parts, such as levers and pedals, are not moving smoothly because of rust or sticky material, do not attempt to force them into motion. In the above case, remove the rust or the sticky material and apply oil or grease to the relevant spot. Otherwise, the machine may be damaged.

INITIAL 50 HOURS

With a new machine, be sure to do the following servicing after the first 50 operating hours.

1. Changing engine oil

(See Changing engine oil on page 134.)

2. Replacing engine oil filter

(See Replacing engine oil filter on page 135.)

EVERY 50 HOURS

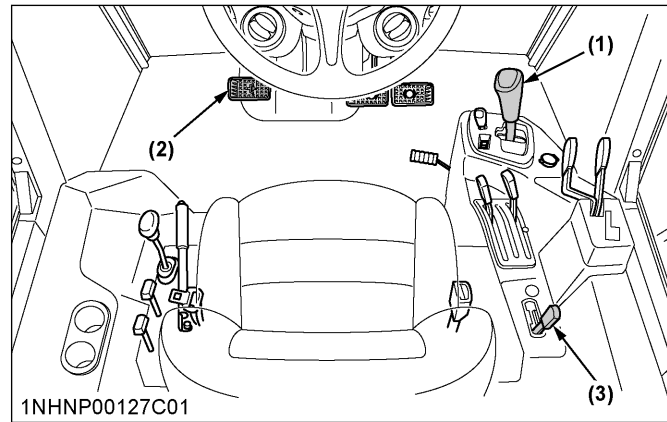
1. Checking engine start system



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.



- (1) Main gear shift lever
(2) Clutch pedal
(3) PTO clutch control lever

1.1 Preparation before testing

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

1.2 Testing switch for the main gear shift lever

1. Follow the "PARKING THE TRACTOR" instructions. (See PARKING THE TRACTOR on page 12.)
2. Sit on the operator's seat.
3. Shift the main gear shift lever to the desired position.
4. Depress the clutch pedal fully.
5. Disengage the PTO clutch control switch or lever.
6. Turn the key to "START" position.
7. The engine must not crank.
8. If it cranks, consult your local KUBOTA Dealer for this service.

1.3 Testing switch for PTO clutch control switch or lever

1. Follow the "PARKING THE TRACTOR" instructions. (See PARKING THE TRACTOR on page 12.)
2. Sit on the operator's seat.
3. Engage the PTO clutch control switch or lever.
4. Depress the clutch pedal fully.
5. Shift the main gear shift lever to the "NEUTRAL" position.
6. Turn the key to "START" position.
7. The engine must not crank.
8. If it cranks, consult your local KUBOTA Dealer for this service.

1.4 Checking operator presence control (OPC) system

WARNING

To avoid personal injury or death:

- Before checking the PTO OPC, make sure that the PTO drive shaft is disconnected from the tractor.
- If the buzzer does not sound during the PTO OPC check procedure, shut off the engine and consult your local KUBOTA Dealer for immediate servicing of the PTO OPC.
- The unit should not be operated until servicing is completed.

1. Follow the “*PARKING THE TRACTOR*” instructions. (See *PARKING THE TRACTOR* on page 12.)
2. Make sure the PTO drive shaft is disconnected from the tractor.
3. Sit on the operator's seat.
4. Start the engine.
5. Engage the PTO clutch control switch or lever. The PTO should begin to rotate. Disengage the PTO clutch control switch or lever.
6. While getting up from the operator's seat, engage the PTO clutch control switch or lever.
 - a. The PTO should begin to rotate and a buzzer should sound.
 - b. Disengage the PTO clutch control switch or lever.
 - c. If the buzzer does not sound, shut off the engine and consult your local KUBOTA Dealer for immediate servicing of the PTO OPC.
7. If the PTO OPC is operating properly, shut off the engine and reconnect the implement drive shaft to the PTO. Restart the engine per the available instructions.

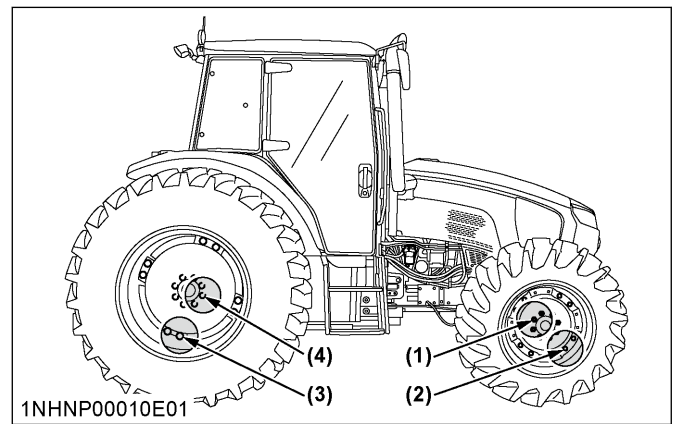
2. Checking wheel bolt torque

WARNING

To avoid personal injury or death:

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

Check wheel bolts and nuts regularly, especially when new. If they are loose, tighten them as follows.



2WD

(1)	168 to 196 N·m / 17.1 to 20.0 kgf·m / 124 to 145 lbf·ft
(2)	---
(3)	Steel disc 244 N·m / 24.9 kgf·m / 180 lbf·ft Cast iron disc 260 to 304 N·m / 26.5 to 31.0 kgf·m / 192 to 224 lbf·ft
(4)	372 to 401 N·m / 38.0 to 41.0 kgf·m / 275 to 297 lbf·ft

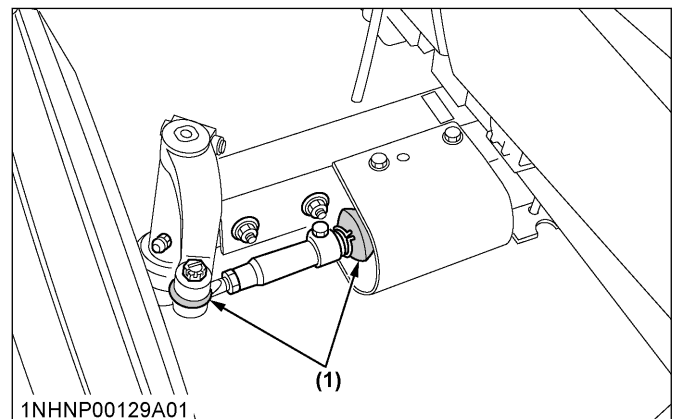
4WD

(1)	260 to 304 N·m / 26.5 to 31.0 kgf·m / 192 to 224 lbf·ft
(2)	Waffle wheel 298 to 366 N·m / 30.4 to 37.3 kgf·m / 220 to 270 lbf·ft Except waffle wheel 244 N·m / 24.9 kgf·m / 180 lbf·ft
(3)	Steel disc 244 N·m / 24.9 kgf·m / 180 lbf·ft Cast iron disc 260 to 304 N·m / 26.5 to 31.0 kgf·m / 192 to 224 lbf·ft
(4)	372 to 401 N·m / 38.0 to 41.0 kgf·m / 275 to 297 lbf·ft

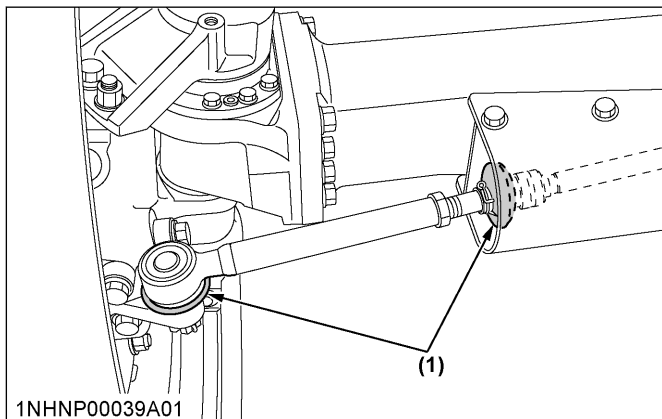
3. Checking tie-rod dust cover

Check to see that dust covers are not damaged. If dust covers are damaged, consult your local KUBOTA Dealer for this service.

2WD model



(1) Dust cover

4WD model

(1) Dust cover

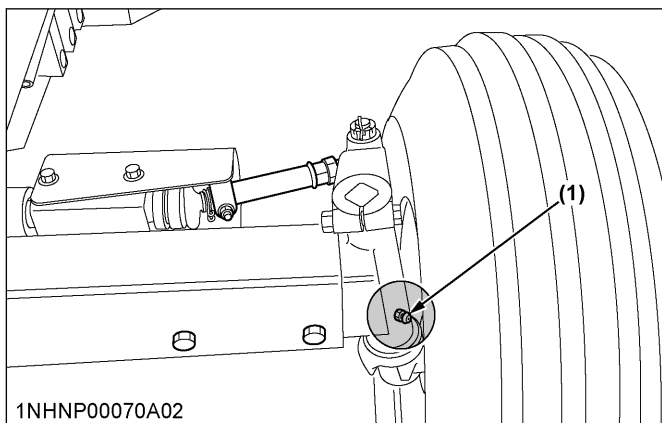
IMPORTANT :

- If dust covers are cracked, water and dust can cause premature wear of the tie-rod.

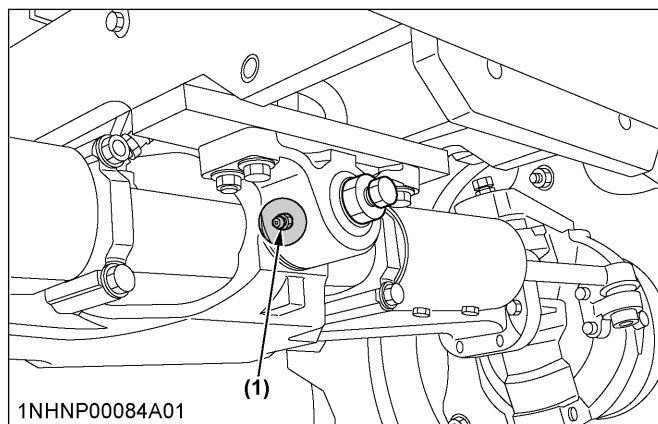
EVERY 100 HOURS**1. Lubricating grease fittings**

Apply a small amount of multipurpose grease to the following points every 100 hours.

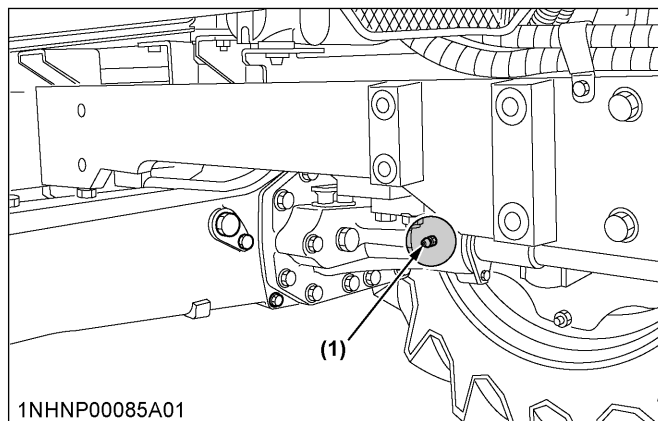
If you have been operating the machine in extremely wet and muddy conditions, lubricate the grease fittings more often.

2WD model

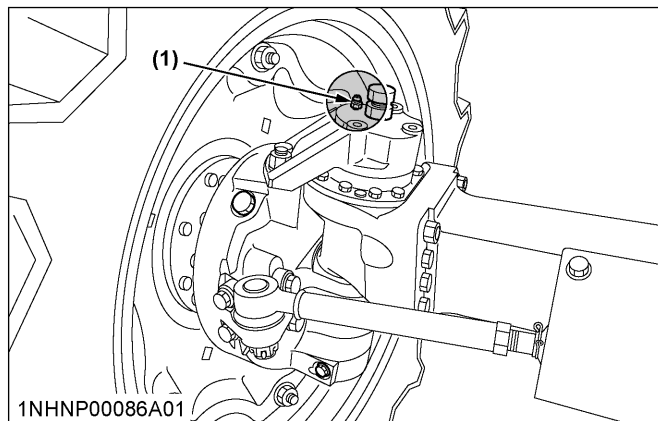
(1) Grease fitting (knuckle shaft) - RH, LH



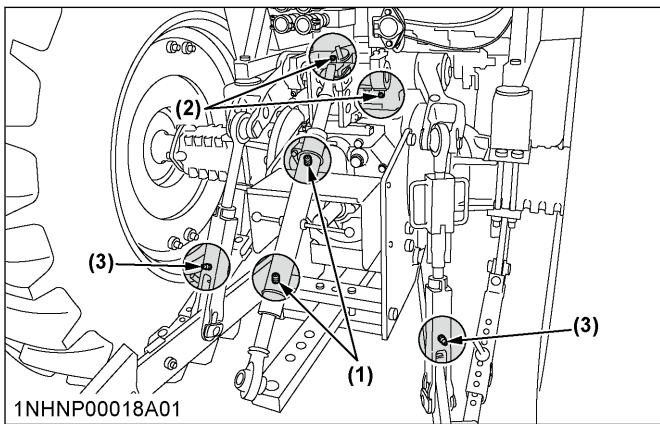
(1) Grease fitting (front axle support)



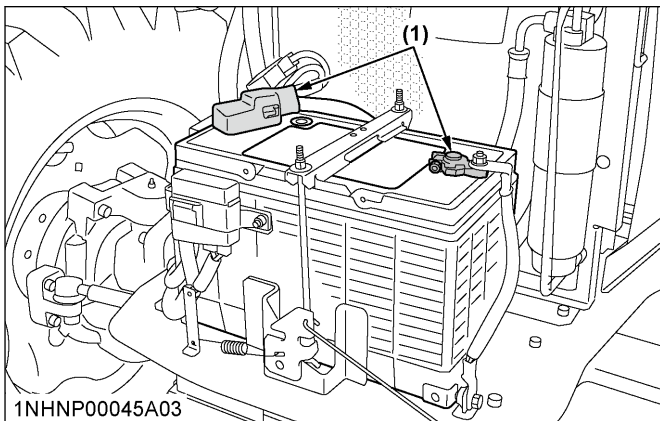
(1) Grease fitting (front axle support)



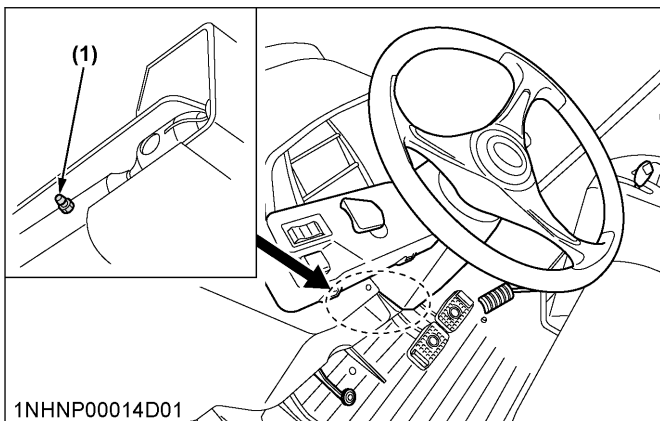
(1) Grease fitting (front axle gear case support) - RH, LH



- (1) Grease fitting (top link)
 (2) Grease fitting (top link bracket)
 (3) Grease fitting (lifting rod)



- (1) Battery terminals



- (1) Grease fitting (steering joint shaft)

2. Cleaning air cleaner primary element

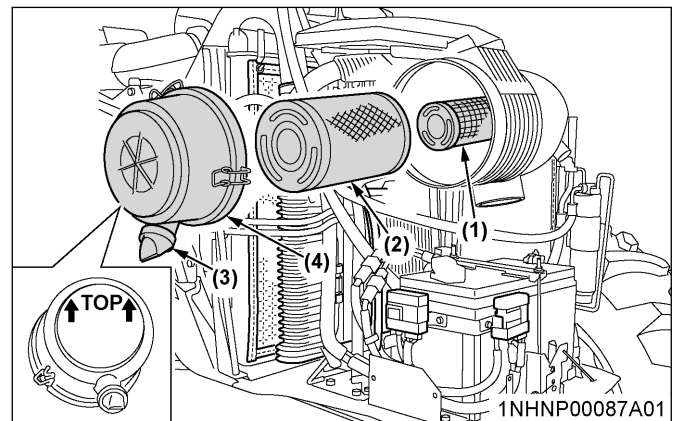
NOTE :

- If the air conditioner condenser is pulled out when cleaning the air cleaner, the air cleaner cover can be detached and attached easily. (See Cleaning grill, radiator screen, oil cooler, fuel cooler, air conditioner condenser and battery mount on page 122.)

- Remove the air cleaner cover and primary element.
- Clean the primary element:
 - When dry dust adheres to the element, blow compressed air from the inside, turning the element. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm², 30 psi).
 - When carbon or oil adheres to the element, soak the element in detergent for 15 minutes, then wash it several times in water, rinse with clean water and dry it naturally. After the element has fully dried, inspect inside the element with a light and check for damage.
- Replace the air cleaner primary element:
 Once every 1000 hours or yearly, whichever comes first.

NOTE :

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



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

IMPORTANT :

- The air cleaner uses a dry element; never apply oil.
- Do not run the engine with the filter element removed.
- Be sure to refit the cover with the arrow ↑ (on the rear of the cover) upright. If the cover is improperly fitted, the evacuator valve will not function and dust will adhere to the element.
- Do not touch the secondary element except in cases where replacing is required. (See Replacing air cleaner primary element and secondary element on page 140.)

Evacuator valve

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

3. Adjusting fan belt tension

WARNING

To avoid personal injury or death:

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

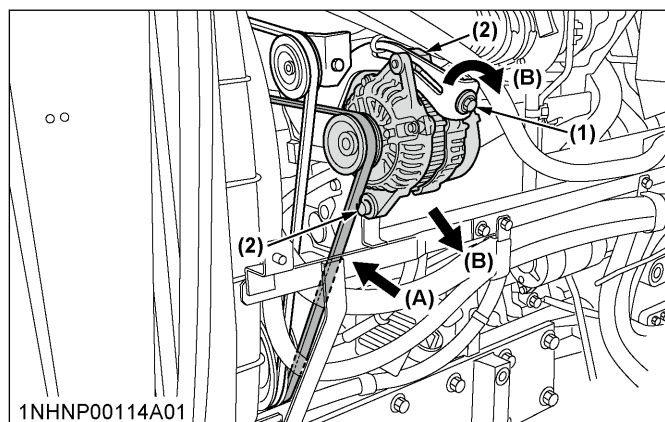
Proper fan belt tension

A deflection of between 10 to 12 mm (0.39 to 0.47 in.) when the belt is pressed in the middle of the span.

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to the belt between pulleys.
3. If the tension is incorrect, loosen the alternator mounting bolts and turn the adjusting bolt to adjust the belt tension within acceptable limits.

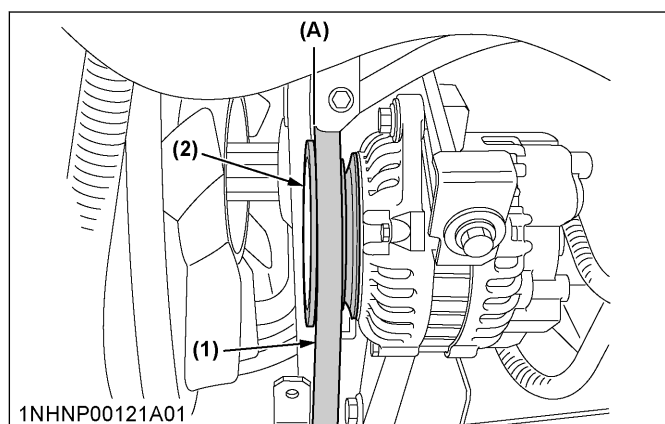
IMPORTANT :

- Before adjusting, make sure that the belt is close to the left edge of the alternator pulley.
4. Replace the fan belt if it is damaged.



1NHNP00114A01

- (1) Adjusting bolt (A) Check the belt tension
(2) Alternator mounting bolt (B) To tighten



1NHNP00121A01

- (1) Belt (A) Left edge of pulley
(2) Alternator pulley

4. Adjusting 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 must be within the recommended limit. If found to be beyond the specification range, contact your local KUBOTA Dealer for adjusting the brakes.

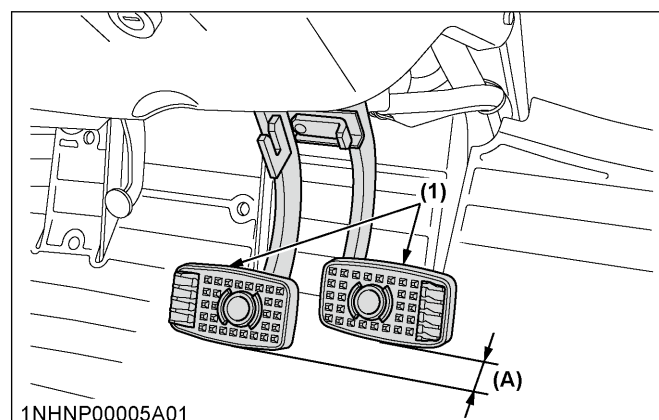
4.1 Checking brake pedal free travel

Proper brake pedal free travel

7 to 14 mm (0.3 to 0.6 in.) on the pedal

Keep the free travel in the right and left brake pedals equal.

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



1NHNP00005A01

- (1) Brake pedals (A) "FREE TRAVEL"

NOTE :

- Brake pedals should be equal when depressed.

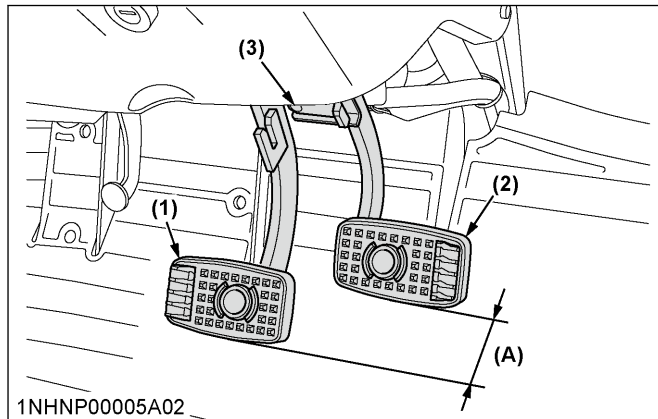
4.2 Checking brake pedal stroke

Pedal stroke

Less than 100 mm (3.9 in.) at each pedal

1. Disengage the brake pedal lock.
2. Depress the brake pedal several times.
3. Step on the right-hand pedal and measure the level difference (pedal stroke) between this pedal and the left-hand pedal.

4. Do the same for the left-hand pedal.



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

(A) "PEDAL STROKE"

4.3 Checking equalizer working level (anti-imbalance device)

Equalizer working level	Minimum level difference of 5 mm (0.2 in.) between both pedals
-------------------------	--

1. Gently step on both brake pedals at once.
2. Further step on the right-hand pedal (the left-hand pedal slightly raises itself) and measure the level difference between the pedals.
3. Do the same for the left-hand pedal.

5. Adjusting parking brake lever

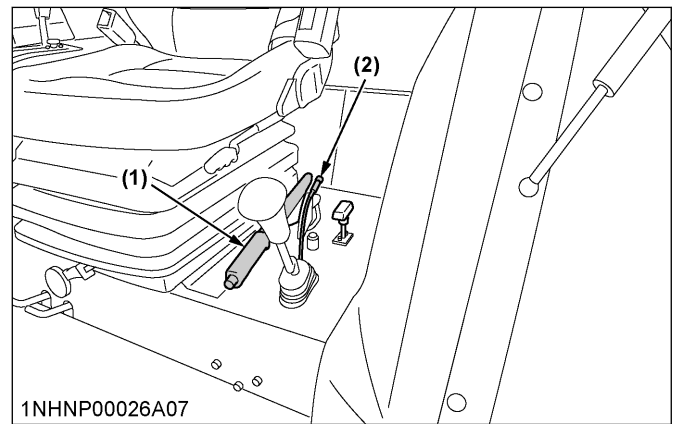
WARNING

To avoid personal injury or death:

- Park on flat ground, stop the engine and chock the wheels before checking parking brake.

Proper parking brake lever free travel	3 to 5 notches (ratchet sound 3 to 5)
--	---------------------------------------

1. Raise the parking brake lever to the parking position while counting the ratchet sound made by the parking brake lever.
2. If adjustment is needed, loosen the lock nut and adjust the parking brake rod length within acceptable limits.
3. Retighten the lock nut.



- (1) Parking brake pedal
(2) Lock nut

6. Checking battery condition

DANGER

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

- 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 battery's service life or cause an explosion. Check the fluid level regularly and add distilled water as required so that the fluid level is between the [UPPER] and [LOWER] levels.

WARNING

To avoid personal injury or death:

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

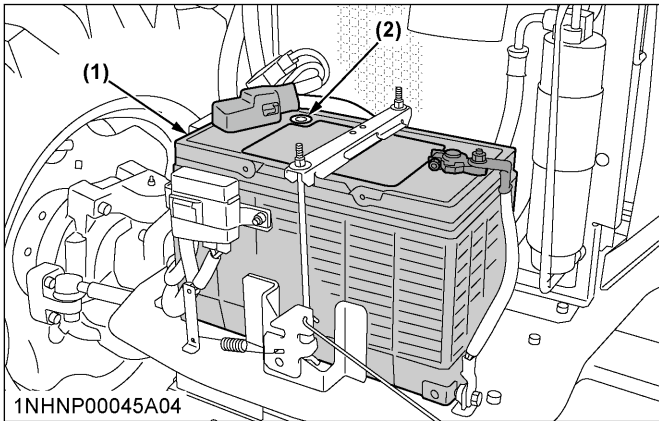
NOTE :

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

Mishandling the battery shortens the service life and adds to maintenance costs.

The original battery is maintenance-free, but needs some servicing.

If the battery is weak, the engine will be difficult to start, and the lights will be dim. It is important to check the battery periodically.



(1) Battery
(2) Indicator

6.1 How to read indicator

Check the battery condition by reading the indicator.

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

NOTE :

- When viewing the indicator, check from directly above by removing the air cleaner cover or using a mirror.

6.2 Charging the battery



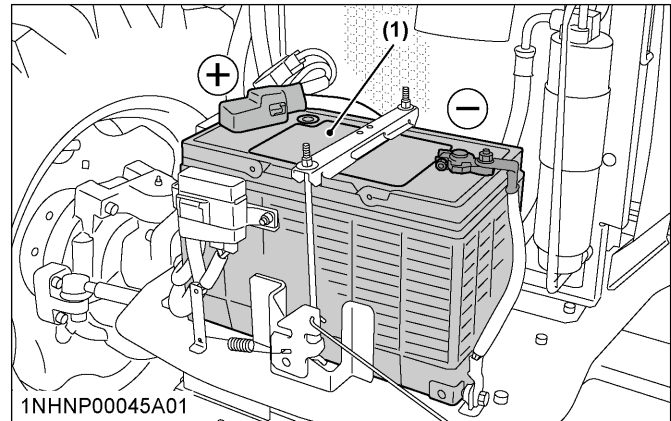
WARNING

To avoid personal injury or death:

- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.
- When charging the battery, ensure 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 battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

NOTE :

- After stopping the engine, wait at least 15 minutes before disconnecting the battery cable. This is to prevent damage to the system device.



(1) Battery

- To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
- A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible. Failure to do this will shorten the battery's service life.
- The battery is charged when the indicator display turns from black to green.
- When exchanging an old battery for a new one, use a battery of equivalent specification to those shown in the following table.

Battery type	Volts (V)	Capacity at 5H.R (A.H)
GP31 (105E41R)	12	80

Reserve capacity (min)	Cold cranking amps	Normal charging rate (A)
160	900	11

6.3 Directions for battery storage

- When storing the tractor for long periods of time, remove the battery from the tractor, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.

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

IMPORTANT :

- In checking and refilling the battery, be careful not to spill battery fluid. Spilled battery fluid may affect the engine controller (ECU) located below the battery, resulting in damage.

NOTE :

- After stopping the engine, wait at least 15 minutes before disconnecting the battery cable. This is to prevent damage to the system device.

7. Adjusting air conditioner belt tension

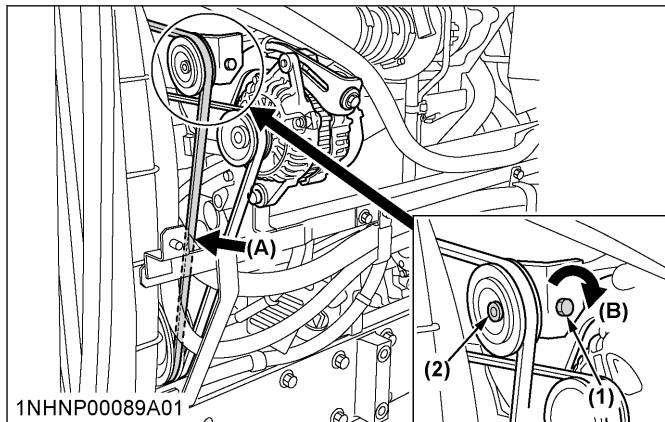
**WARNING**

To avoid personal injury or death:

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

Proper air conditioner belt tension	A deflection of between 10 to 12 mm (0.4 to 0.48 in.) in when the belt is pressed (98 N / 10 kgf / 22.1 lbf) in the middle of the span.
-------------------------------------	---

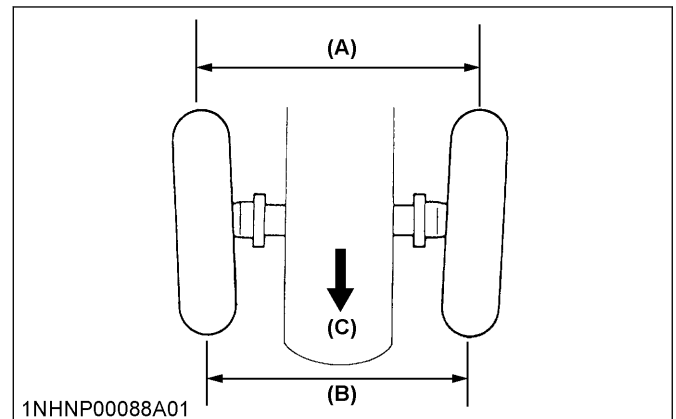
- Stop the engine and remove the key.
- Apply moderate thumb pressure to belt between pulleys.
- If tension is incorrect, loosen the tension pulley mounting nut and turn the adjusting bolt to adjust the belt tension within acceptable limits.
- Replace air conditioner belt if it is damaged.



- (1) Adjusting bolt (A) Check the belt tension
(2) Tension pulley mounting nut (B) To tighten

EVERY 200 HOURS

1. Adjusting toe-in



- (A) Wheel-to-wheel distance at the rear
(B) Wheel-to-wheel distance at the front
(C) "FRONT"

	Proper toe-in = (A) - (B)
4WD	2 to 8 mm (0.08 to 0.31 in.)
2WD	1 to 5 mm (0.04 to 0.2 in.)

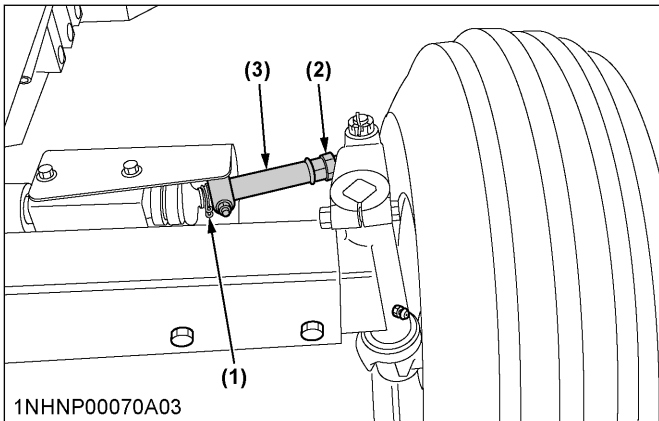
- Park the tractor on a flat surface.
- Turn the steering wheel so that the front wheels are in the straight-ahead position.
- Lower the implement, apply the parking brake and stop the engine.
- Measure the distance between the tire beads at the front of the tire, at hub height.
- Measure the distance between the tire beads at the rear of the tire, at hub height.
- The front distance should be shorter than the rear distance. If not, adjust the tie rod length.

1.1 Adjusting toe-in procedure

- Detach the snap ring.
- Loosen the tie-rod nut.
- Turn the tie-rod joint to adjust the rod length until the proper toe-in measurement is obtained.
- Retighten the tie-rod nut.

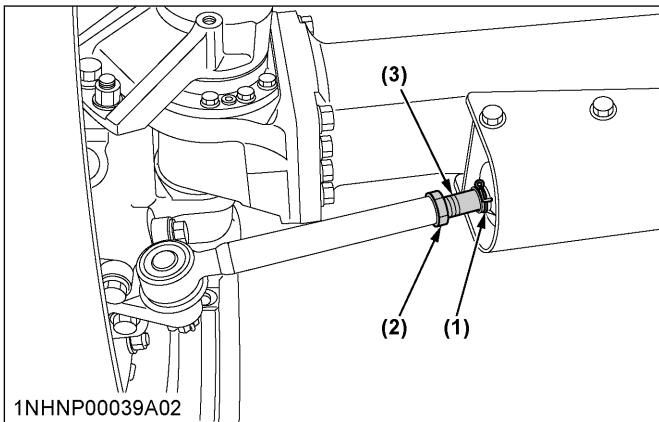
5. Attach the snap ring of the tie-rod joint.

2WD model



- (1) Snap ring
- (2) Tie-rod nut
(167 to 196 N·m / 17 to 20 kgf·m / 123.2 to 144.6 lbf·ft)
- (3) Tie-rod joint

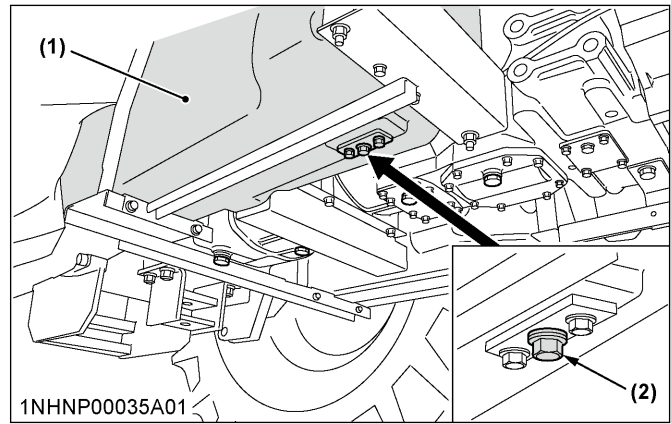
4WD model



- (1) Snap ring
- (2) Tie-rod nut
(167 to 196 N·m / 17 to 20 kgf·m / 123.2 to 144.6 lbf·ft)
- (3) Tie-rod joint

2. Draining fuel tank water

Loosen the drain plug at the bottom of the fuel tank to let sediments, impurities and water out of the tank. Finally, tighten up the plug.



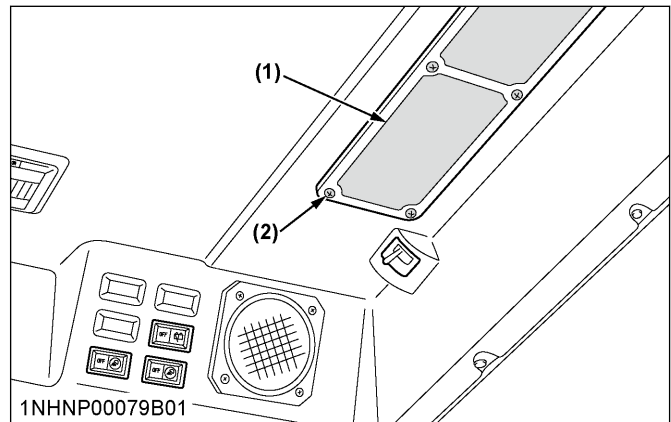
- (1) Fuel tank (right)
- (2) Drain plug

IMPORTANT :

- If the fuel contains impurities, such as water, drain the fuel tank at shorter intervals.
- Drain the fuel tank before operating the tractor after a long period of storage.

3. Cleaning inner air filter

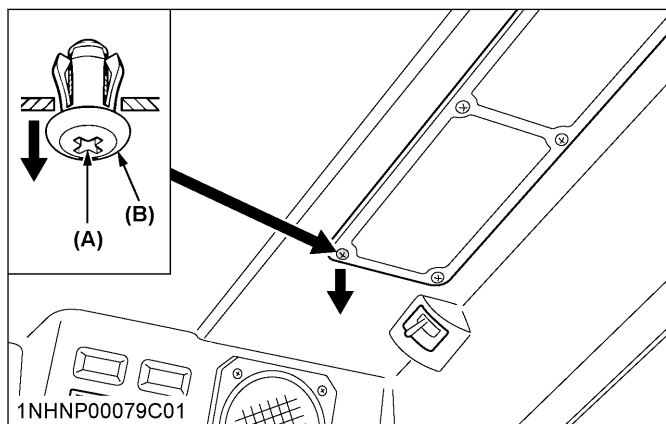
Remove the inner filter, and blow air from the direction opposite to the filter's normal air flow. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm² / 30 psi).



- (1) Inner air filter
- (2) Push-rivet

3.1 Detaching the push-rivet assy

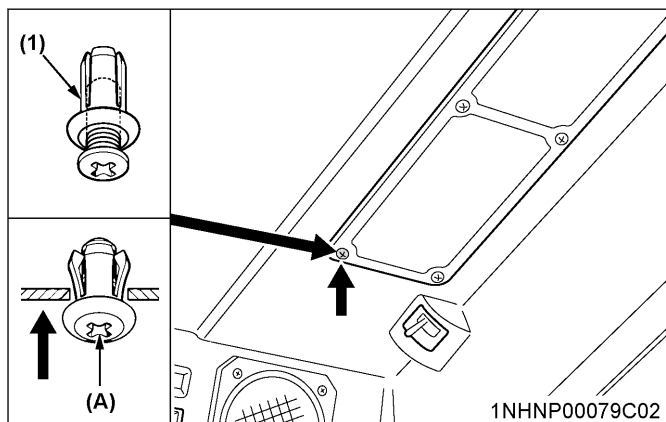
To remove the push rivet of the indoor air filter, hold the rivet around its head (B), apply a Phillips screwdriver to the recess (A) and turn the rivet counterclockwise.



(A) Rivet recess
(B) Rivet head

3.2 Attaching the push-rivet assy

To fix the push rivet in the indoor air filter, put the rivet end into the filter mounting hole and push the rivet head (A) all the way in.

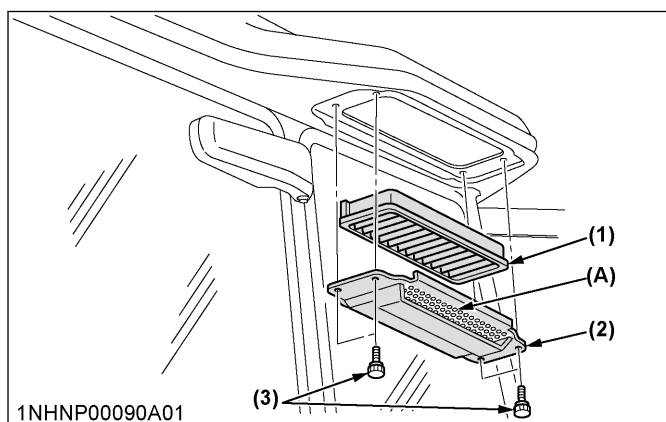


(1) Push rivet removed

(A) "PUSH"

4. Cleaning fresh air filter

Remove the knob bolts and pull out the filter.



(1) Fresh air filter
(2) Cover
(3) Knob bolt

(A) Air inlet port

NOTE :

- After cleaning, attach the filter and cover as in the previous illustration.

4.1 Cleaning the filter

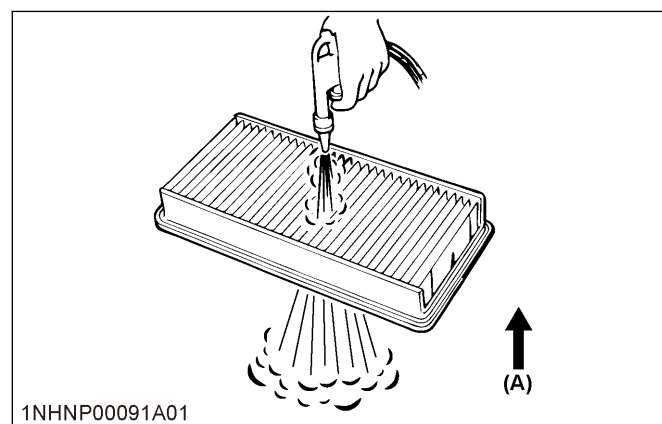
Normal use

Blow air from the opposite direction to the filter's normal air flow.

Pressure of compressed air must be under 205 kPa (2.1 kgf/cm² / 30 psi).

IMPORTANT :

- Do not hit the filter. If the filter becomes deformed, dust may enter into the air-conditioner, which may cause damage and malfunction.



(A) "AIR CONDITIONER AIRFLOW"

NOTE :

- If the filter is very dirty:
Dip the filter in lukewarm water with mild dishwashing detergent.
Move it up and down as well as left and right to loosen dirt. Rinse the filter with clean water and let it air-dry.

IMPORTANT :

- Do not use gasoline, thinner or similar chemicals to clean the filter as damage to the filter may occur.
- It may also cause an unpleasant odor in the CAB next time the system is used.

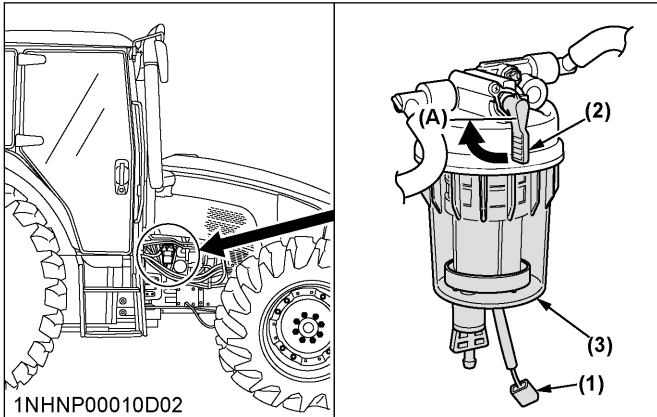
EVERY 400 HOURS

1. Cleaning water separator

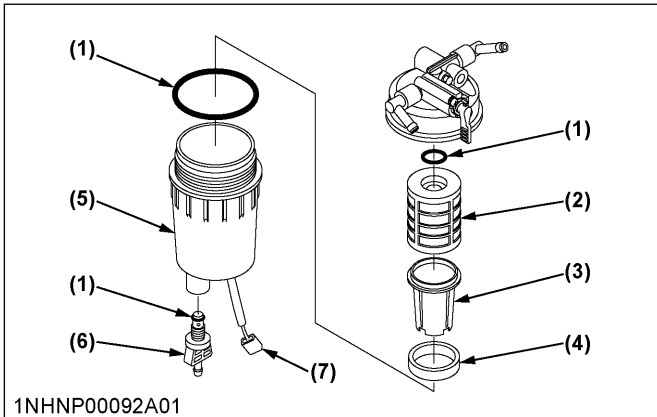
This job should not be done in the field, but in a clean environment.

1. Disconnect the water sensor connector.
2. Close the fuel shutoff-valve.

3. Unscrew the cup and remove it, then rinse the inside with kerosene.
4. Take out the element and dip it in the kerosene to rinse.
5. After cleaning, reassemble the water separator, keeping out dust and dirt.
6. Connect the water sensor connector.
7. Bleed the fuel system.
(See Bleeding fuel system on page 146.)



- (1) Water sensor connector (A) "CLOSE"
(2) Fuel shutoff-valve
(3) Cup



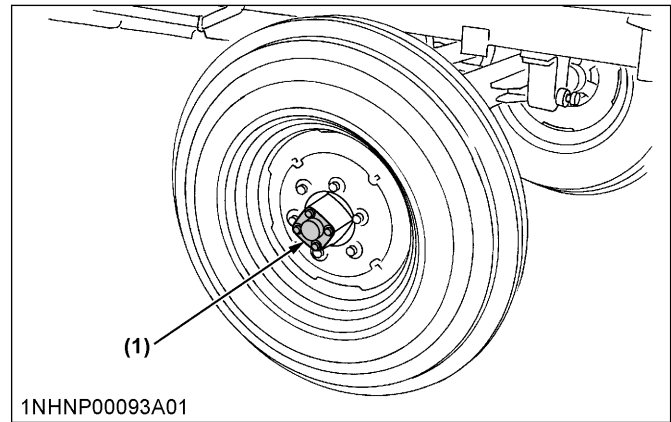
- (1) O ring
(2) Element
(3) Element cup
(4) Red float
(5) Cup
(6) Drain plug
(7) Water sensor connector

IMPORTANT :

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

2. Lubricating grease fitting-2WD

1. Detach the cover, and apply bearing grease.



- (1) Front wheel hub cover

EVERY 500 HOURS

1. Changing engine oil

! WARNING

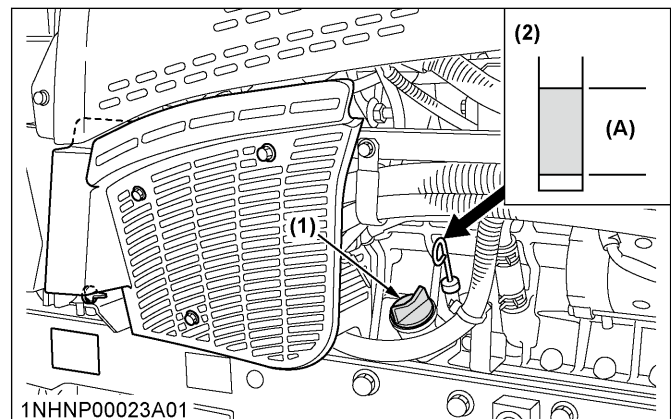
To avoid personal injury or death:

- Be sure to stop the engine before changing the oil.
- Allow the engine to cool down sufficiently; oil can be hot and can burn.

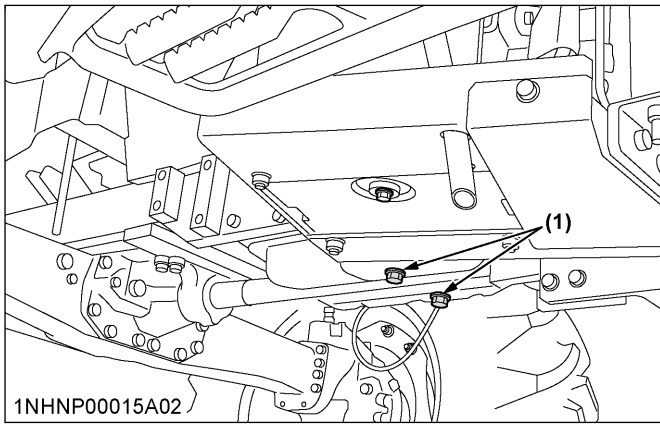
1. To drain the used oil, remove the drain plug at the bottom of the engine and drain the oil completely into the oil pan.
2. After draining, reinstall the drain plug.
3. Fill with new oil up to the upper notch on the dipstick.

(See LUBRICANTS, FUEL AND COOLANT on page 112.)

Oil capacity with filter	10.7 L (11.3 U.S.qts.)
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- (1) Oil inlet (A) Oil level is acceptable within this range
(2) Dipstick



(1) Drain plug

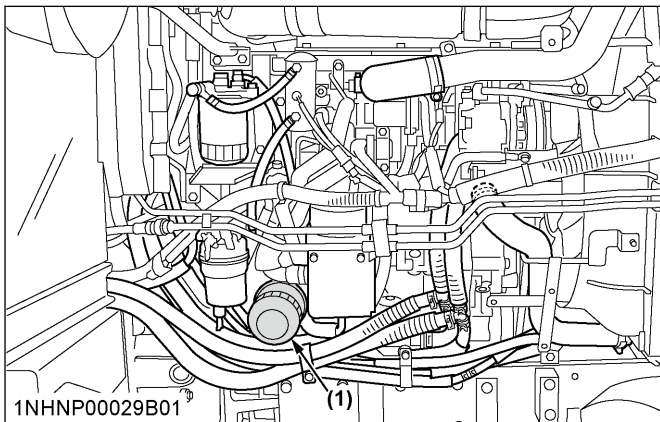
2. Replacing engine oil filter

WARNING

To avoid personal injury or death:

- Be sure to stop the engine before replacing the oil filter cartridge.
- Allow the engine to cool down sufficiently; oil can be hot and can burn.

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



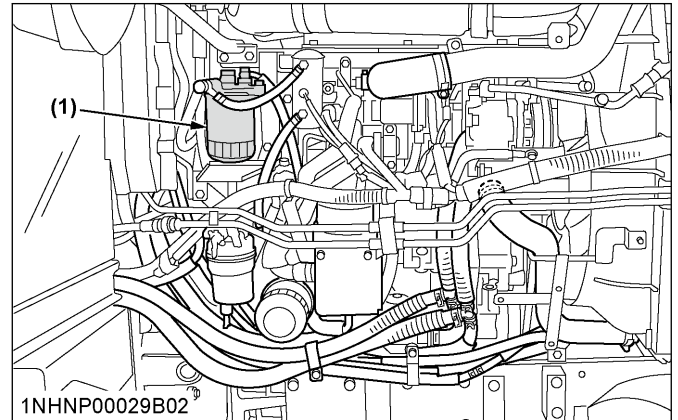
(1) Engine oil filter

IMPORTANT :

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

3. Replacing 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 filter quickly until it contacts the mounting surface.
Tighten the filter by hand an additional 1/2 turn only.
4. Bleed the fuel system.
(See Bleeding fuel system on page 146.)



(1) Fuel filter

4. Replacing hydraulic oil filter

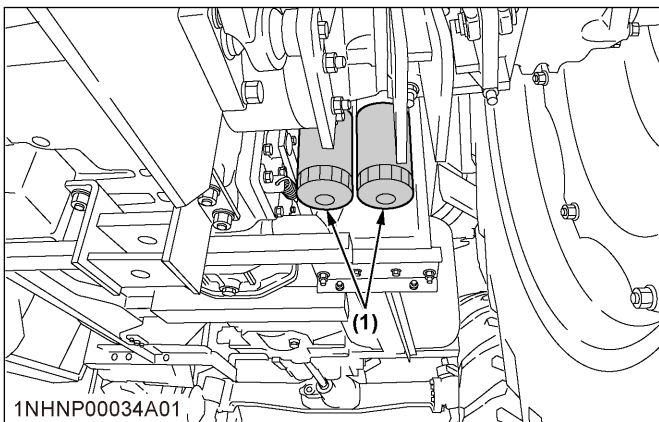
WARNING

To avoid personal injury or death:

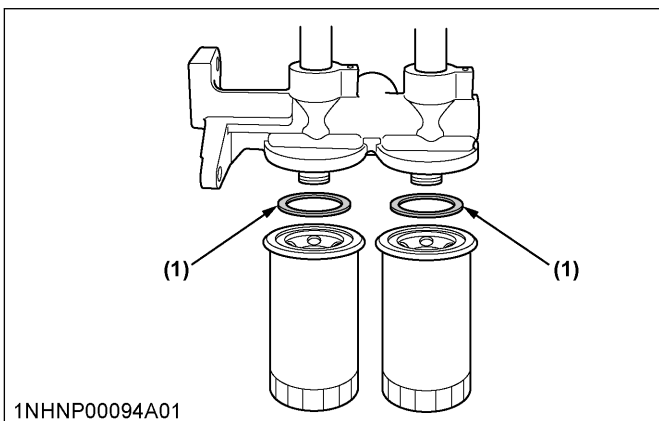
- Be sure to stop the engine before changing the oil filter cartridge.
- Allow the engine to cool down sufficiently; oil can be hot and can burn.

1. Remove the 2 oil filters.
2. Clean off metal filings with clean rags at the magnetic filters.
3. Put a film of clean transmission oil on the rubber seal of the new filters.
4. Tighten the filter quickly until it contacts the mounting surface.
Tighten the filter by hand an additional 1/2 turn only.

5. After the new filter has been replaced, the transmission fluid level will decrease by a small amount. Make sure that the transmission fluid does not leak through the seal, and check the fluid level. Top up if necessary.



(1) Hydraulic oil filter



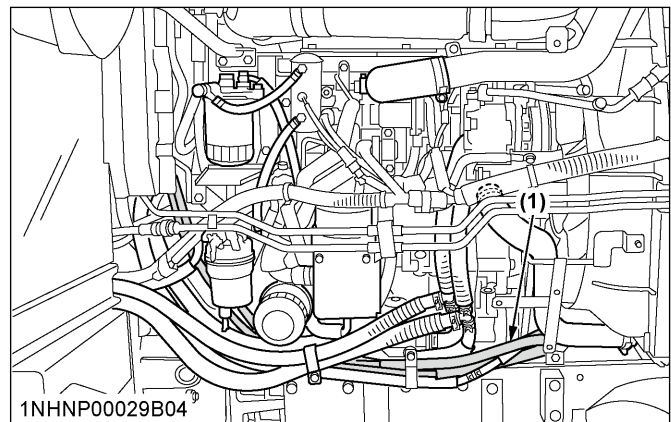
(1) Magnetic filter (wipe off metal filings)

IMPORTANT :

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

5. Checking power steering line

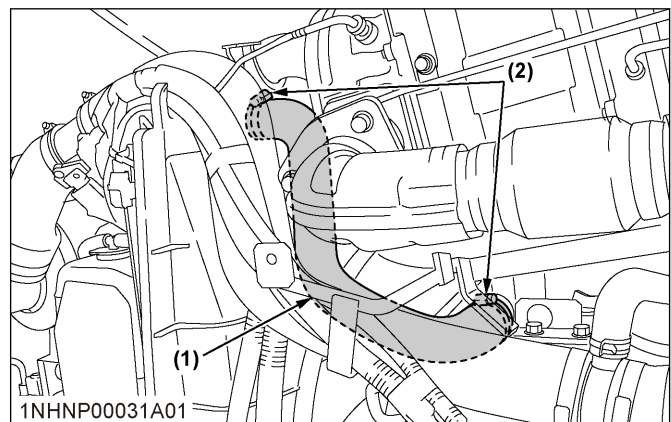
1. Check to see that all lines and hose clamps are tight and not damaged.
2. If the hoses and the clamps are found to be worn or damaged, replace or repair them at once.



(1) Power steering pressure hoses

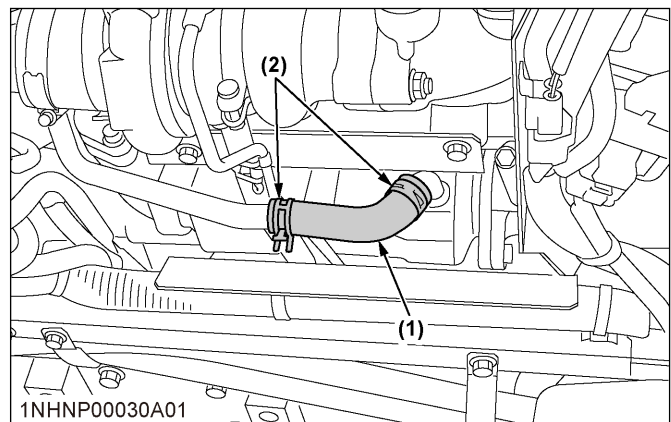
6. Checking radiator hose and clamp

1. If the hose clamps are loose or water leaks, tighten the bands securely.
2. If the hoses are found to be swollen, hardened or cracked, replace the hoses and tighten the hose clamps securely.



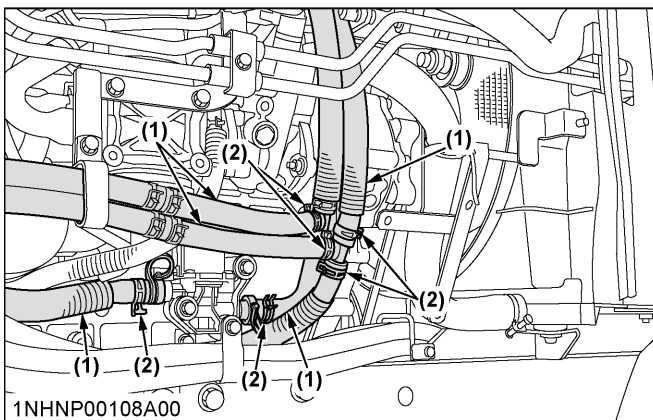
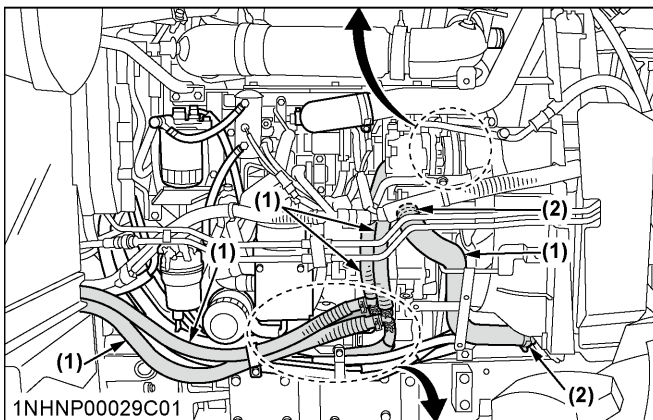
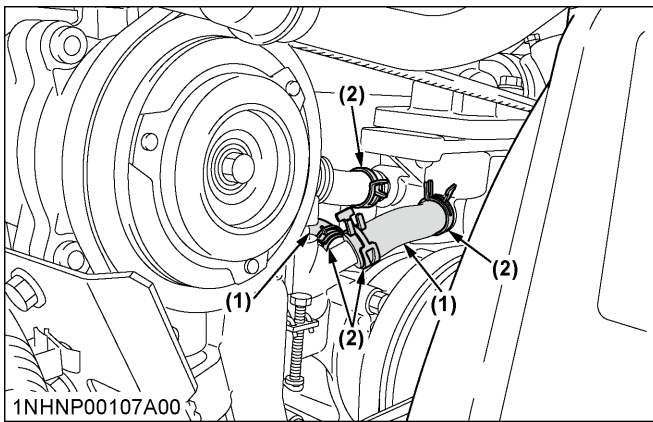
(1) Radiator hoses

(2) Hose clamps



(1) Radiator hoses

(2) Hose clamps



(1) Radiator hoses
(2) Hose clamps

6.1 Overheating countermeasures

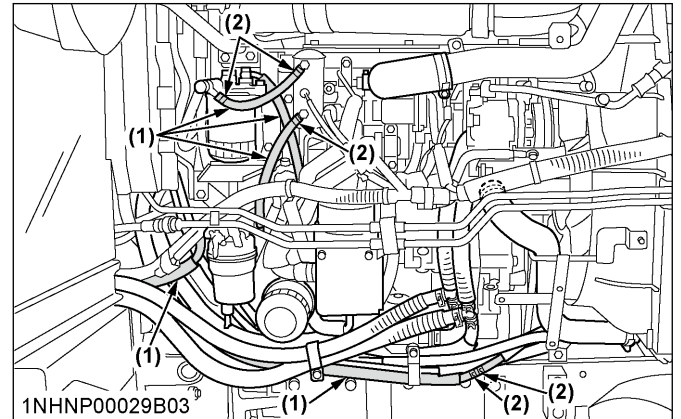
Take the following actions in the event the coolant temperature is nearly at or over the boiling point, also called "overheating".

1. Park the tractor in a safe place and keep the engine idling unloaded.
2. Allow the engine to idle unloaded for about 5 minutes before stopping it, rather than stopping it suddenly.
3. Keep away from the machine for another 10 minutes or while the steam blows out.

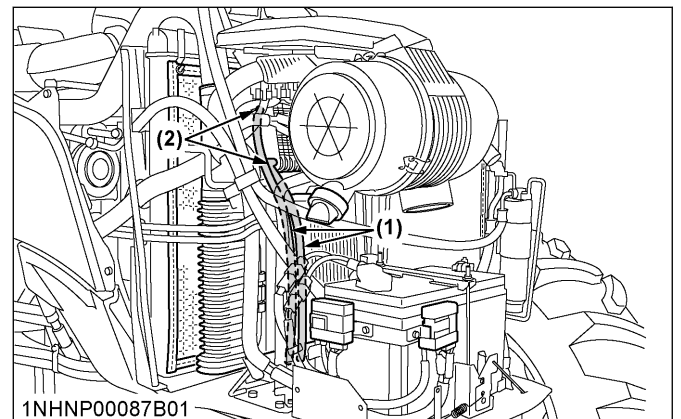
4. Check that there are no dangers such as burns. Get rid of the causes of overheating according to the troubleshooting section of this manual. (See TROUBLESHOOTING on page 153.) Afterwards, restart the engine.

7. Checking fuel line

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



(1) Fuel lines
(2) Clamp bands



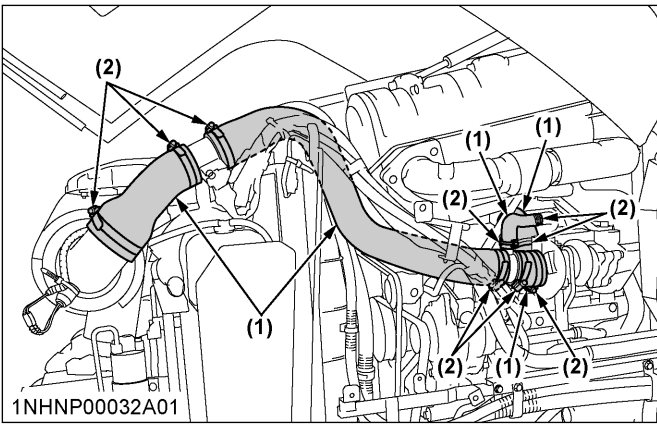
(1) Fuel lines
(2) Clamp bands

NOTE :

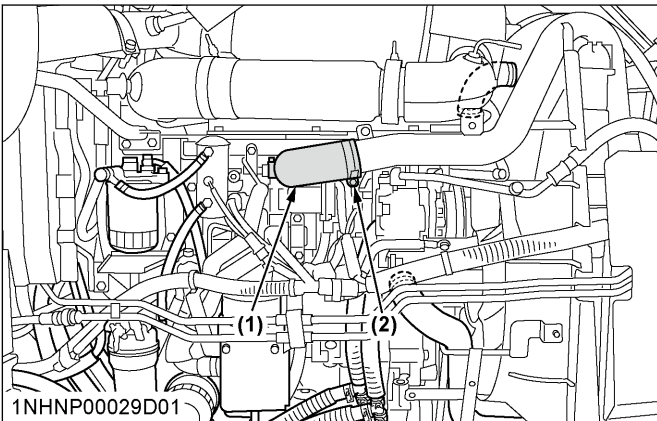
- If the fuel line has been replaced, properly bleed the fuel system. (See Bleeding fuel system on page 146.)

8. Checking intake air line

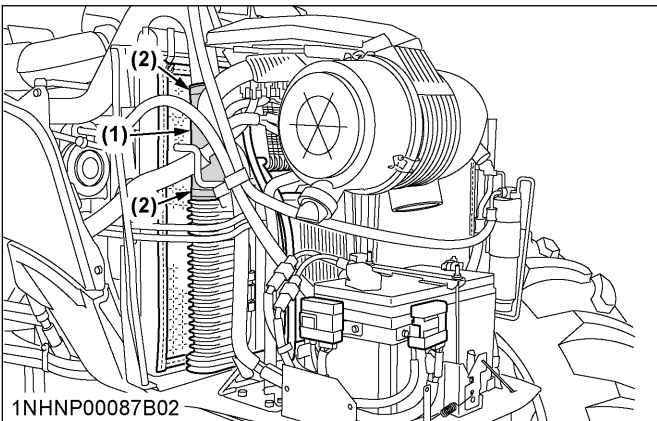
1. Check to see that the hoses and the hose clamps are tight and not damaged.
2. If the hoses and the clamps are found to be worn or damaged, replace or repair them at once.



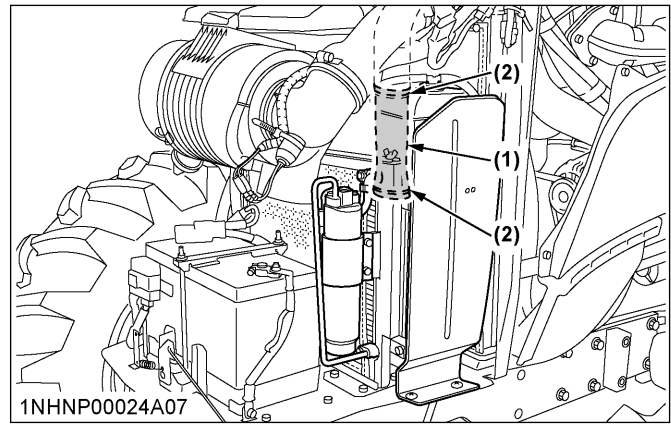
- (1) Hose
- (2) Hose clamps



- (1) Hose
- (2) Hose clamps



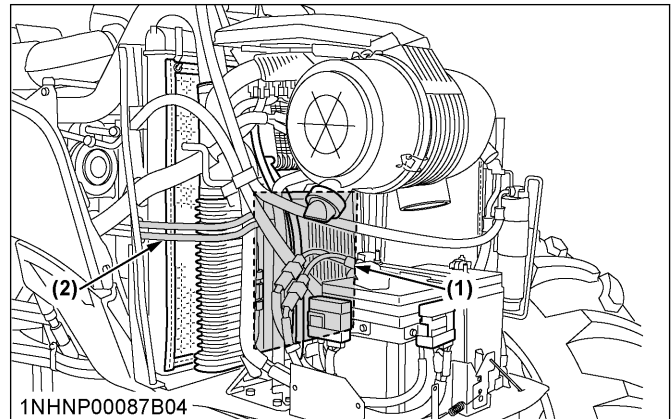
- (1) Hose
- (2) Hose clamps



- (1) Hose
- (2) Hose clamps

9. Checking oil cooler line

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



- (1) Oil cooler
- (2) Oil cooler line

10. Checking air conditioner pipe and hose

1. Check to see that all lines and hose clamps are tight and not damaged.
2. If the hoses and the clamps are found to be worn or damaged, consult your local KUBOTA Dealer for this service.

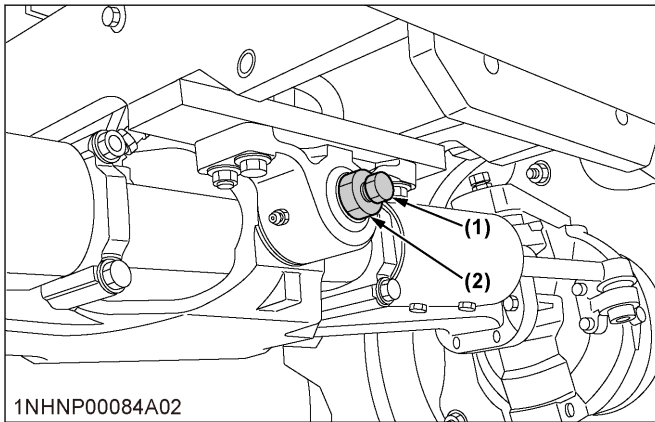
EVERY 600 HOURS

1. Adjusting front axle pivot

If the front axle pivot pin adjustment is incorrect, front wheel vibration can occur, causing vibration in the steering wheel.

Adjusting procedure

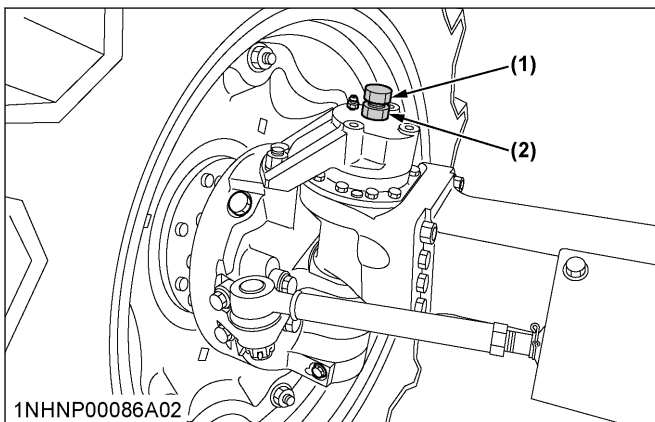
1. Loosen the lock nut and screw-in the adjusting screw until seated.
2. Tighten the screw by an additional 1/6 turn.
3. Re-tighten the lock nut.



(1) Adjusting screw
(2) Lock nut

2. Adjusting king-pin pivot

Loosen the lock nut and tighten the adjusting screw.
Torque: 4.9 to 9.8 N·m / 0.5 to 1.0 kgf·m / 3.62 to 7.24 lbf·ft



(1) Adjusting screw
(2) Lock nut

3. Changing brake oil

Consult your local KUBOTA Dealer for this service.

EVERY 1000 HOURS**1. Changing transmission fluid**

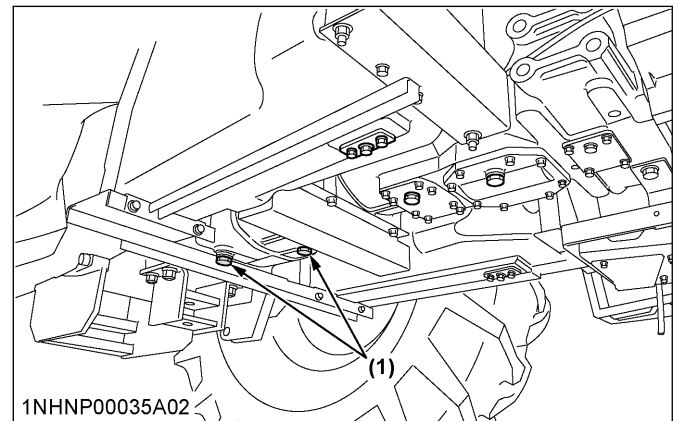
⚠ WARNING

To avoid personal injury or death:

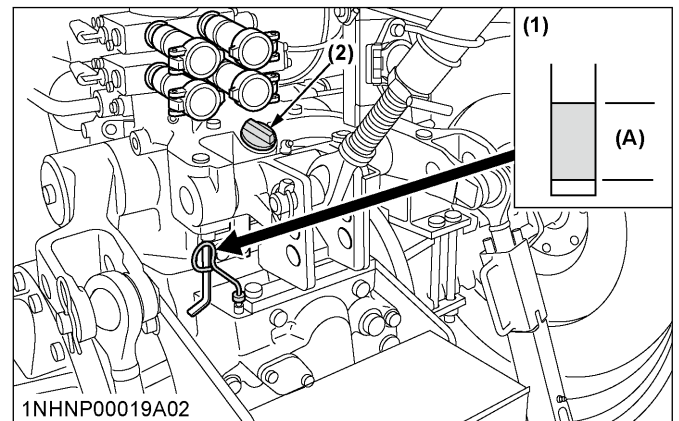
- Allow the engine to cool down sufficiently; oil can be hot and can burn.

1. To drain the used oil, remove the drain plug at the bottom of the transmission case and drain the oil completely into the oil pan.
2. After draining, reinstall the drain plug.
3. Fill with new **KUBOTA SUPER UDT2** fluid up to the upper notch on the dipstick.
(See LUBRICANTS, FUEL AND COOLANT on page 112.)
4. After running the engine for a few minutes, stop the engine, check the oil level again, and add oil to the prescribed level, if necessary.

Oil capacity	60 L (63.4 U.S.qts)
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(1) Drain plug



(1) Dipstick
(2) Oil inlet

(A) Oil level is acceptable within this range.

IMPORTANT :

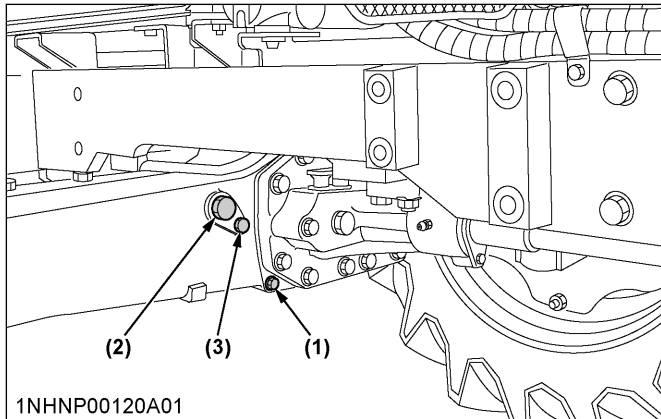
- Do not operate the tractor immediately after changing the transmission fluid.
Run the engine at medium speed for a few minutes to prevent damage to the transmission.

2. Changing front differential case oil

1. To drain the used oil, remove the drain and filling plug at the front differential case and drain the oil completely into the oil pan.

2. After draining, reinstall the drain plug.
3. Remove the oil level check plug.
4. Fill with the new oil up to the lower rim of check plug port.
(See LUBRICANTS, FUEL AND COOLANT on page 112.)
5. After filling, reinstall the filling plug and check plug.

Oil capacity	7 L (7.4 U.S.qts)
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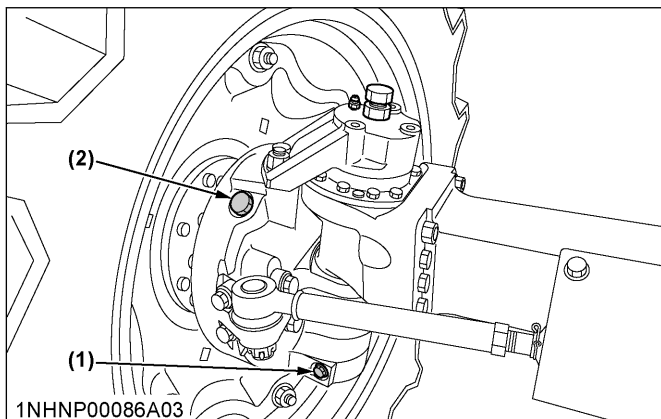


- (1) Drain plug
(2) Filling plug
(3) Check plug

3. Changing front axle gear case oil

1. To drain the used oil, remove the right and left drain plugs and filling plugs at the front axle gear case and drain the oil completely into the oil pan.
2. After draining, reinstall the drain plugs.
3. Fill with the new oil up to the filling plug port.
(See LUBRICANTS, FUEL AND COOLANT on page 112.)
4. After filling, reinstall the filling plugs.

Oil capacity	3.5 L (3.7 U.S.qts.) for each side
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- (1) Drain plug
(2) Filling plug

4. Adjusting engine valve clearance

Consult your local KUBOTA Dealer for this service.

EVERY 1000 HOURS OR 1 YEAR

Be sure to do the following servicing once every 1000 hours or yearly, whichever comes first.

1. Replacing air cleaner primary element and secondary element

(See Cleaning air cleaner primary element on page 127.)

2. Checking exhaust manifold

Consult your local KUBOTA Dealer for this service.

EVERY 1500 HOURS

1. Checking fuel injection nozzle (active test)

Consult your local KUBOTA Dealer for this service.

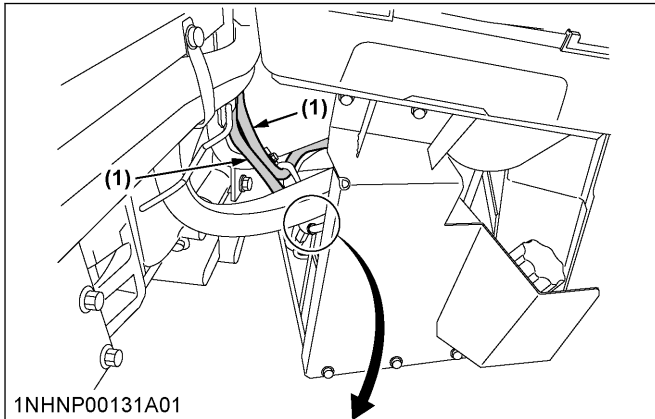
2. Checking DEF injector tip

Consult your local Kubota Dealer for this service.

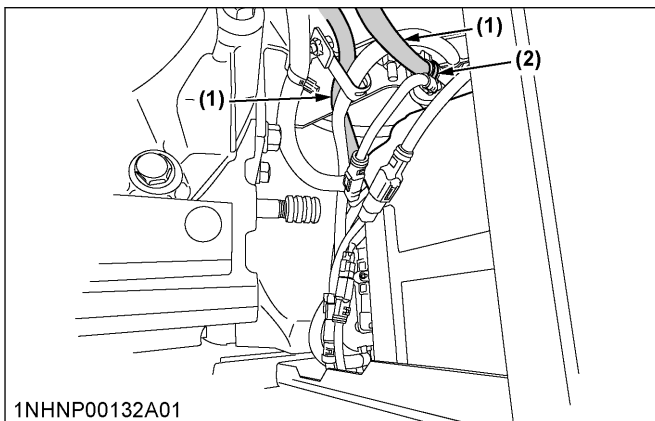
3. Checking DEF (AdBlue) line

1. Check to see that all lines from the DEF injector to the DEF tank are securely connected and not damaged.

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



(1) DEF (AdBlue) lines



(1) DEF (AdBlue) lines
(2) Clamp bands

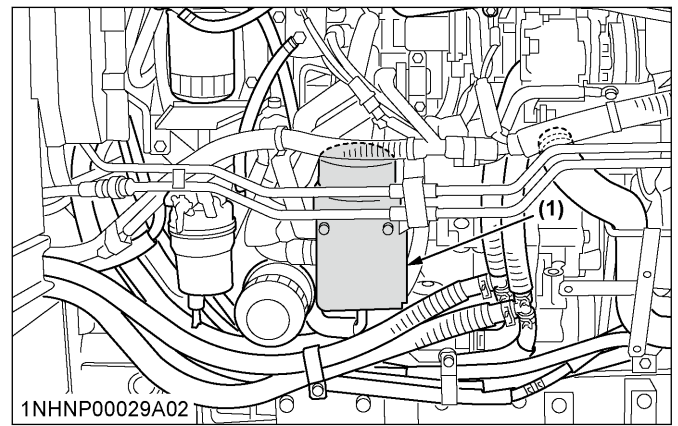
4. Replacing oil separator element



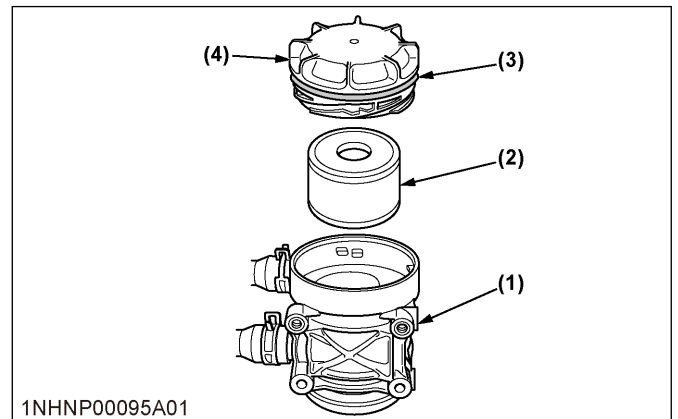
WARNING

To avoid personal injury or death:

- Be sure to stop the engine before replacing the oil separator element.
1. Remove the cover and take out the element. Wipe off the oil and the carbon from inside the case with a clean rag.
 2. Fit in a new oil separator element.
 3. Tighten the cover.



(1) Oil separator



(1) Body
(2) Oil separator element
(3) Gasket
(4) Cover

5. Checking positive crankcase ventilation (PCV) valve

Consult your local KUBOTA Dealer for this service.

6. Checking and cleaning EGR cooler

Consult your local KUBOTA Dealer for this service.

EVERY 2000 HOURS OR 2 YEARS

Be sure to do the following servicing once every 2000 hours or biennially, whichever comes first.

1. Flushing cooling system and changing coolant

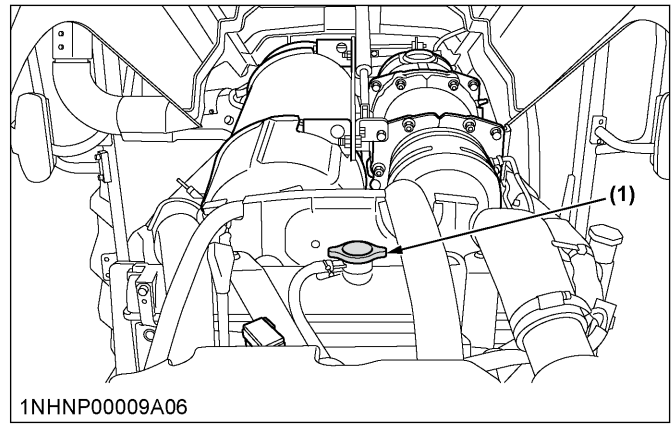


WARNING

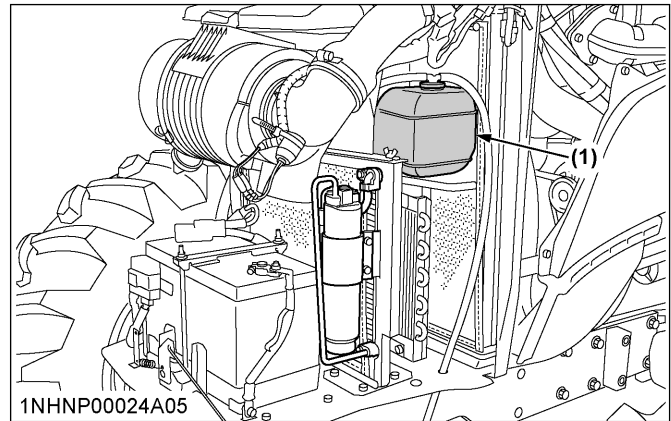
To avoid personal injury or death:

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

1. Stop the engine, remove the key and let it cool down.
2. To drain the coolant, open the radiator drain plug, and remove the radiator cap. The radiator cap must be removed to completely drain the coolant.
3. After the coolant has drained, reinstall the drain plug.
4. Fill with clean soft water and cooling system cleaner.
5. Follow the cleaner instructions.
6. After flushing, fill with clean soft water and anti-freeze until the coolant level is just below the radiator cap. Install the radiator cap securely.
7. Fill with coolant up to the **[FULL]** mark of the recovery tank.
8. Start up and operate the engine for a few minutes.
9. Stop the engine, remove the key and let it cool down.
10. Check the coolant level of the recovery tank and add coolant if necessary.
11. Properly dispose of the used coolant.

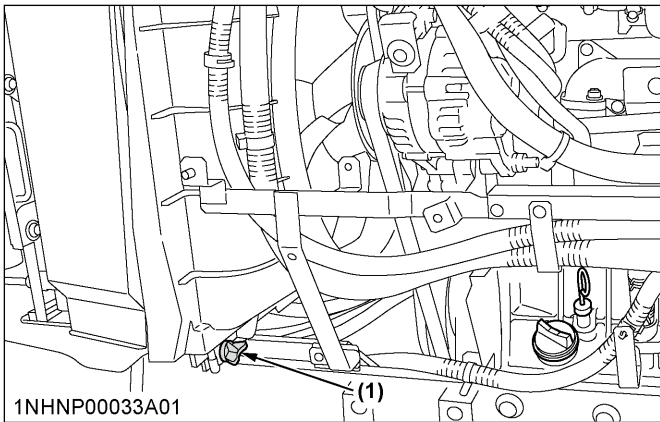


(1) Radiator cap



(1) Recovery tank

Coolant capacity	10.2 L (10.8 U.S.qts.)
------------------	------------------------



(1) Drain plug

IMPORTANT :

- Do not start the engine without any coolant.
- 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%.
- Securely tighten the radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

NOTE :

- On CAB type machines, coolant circulates through the heater. This means that approximately one more liter of coolant is required.

In changing coolant, pour coolant up to the filler port of the recovery tank. Turn "ON" the heater (shift the temperature control dial toward "WARM"), and run the engine for a while in order to warm coolant. Then stop the engine.

When the coolant has cooled down, some of the coolant in the recovery tank is drawn into the pipes. Now the recovery tank is appropriately filled with coolant.

2. Antifreeze



WARNING

To avoid personal injury or death:

- When using antifreeze, put on some protection such as rubber gloves (antifreeze contains poison).
- If you swallow the antifreeze, seek immediate medical help. Do not make a person throw up unless told to do so by a poison control or a healthcare 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 resulting in harmful substances.
- Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.
- When draining 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, observe 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.

1. Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat this procedure 2 or 3 times to clean up the inside.
3. Mixing the LLC
Premix 50% LLC with 50% clean soft water. When mixing, stir it up well, and then pour it into the radiator.
4. The procedure for the mixing of water and antifreeze differs according to the make 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	
	°C	°F	°C	°F
50	-37	-34	108	226

*1 At 1.013 x 10⁵ 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.

5. Adding the LLC

- a. Add only water if the mixture level is reduced by evaporation.
- b. If there is a mixture leak, add LLC of the same manufacturer and type in the same mixture percentage.

IMPORTANT :

- **Never add any long-life coolant from a different manufacturer. Different brands may have different additive components, and the engine may fail to perform as specified.**

6. 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.
7. KUBOTA's genuine long-life coolant has a service life of 2 years. Be sure to change the coolant every 2000 hours or every 2 years, whichever comes first.

NOTE :

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

EVERY 3000 HOURS

1. Checking turbocharger

Consult your local KUBOTA Dealer for this service.

2. Checking supply pump

Consult your local KUBOTA Dealer for this service.

3. Checking intake air heater

Consult your local KUBOTA Dealer for this service.

4. Checking and cleaning EGR system

Consult your local KUBOTA Dealer for this service.

5. Cleaning DPF muffler

1. Remove the 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 :

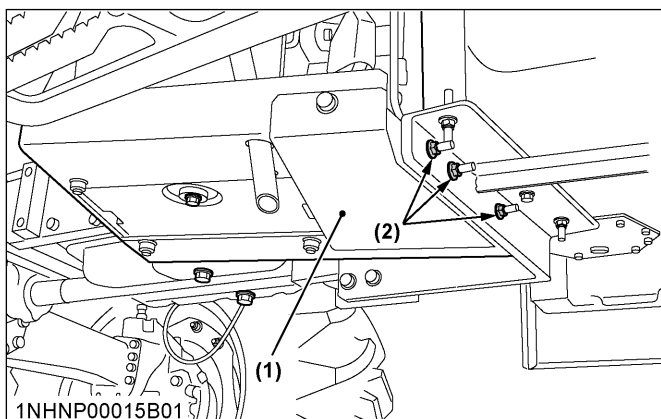
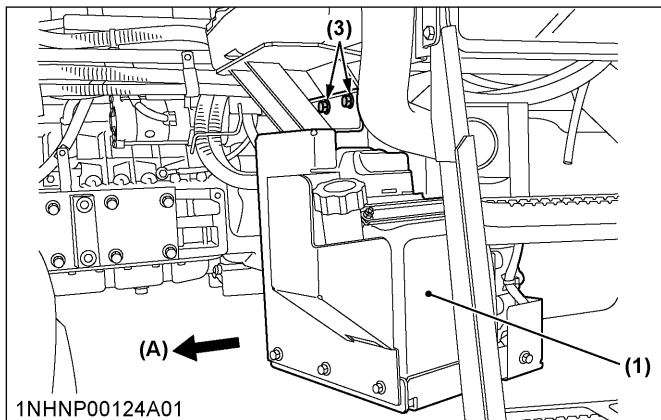
- The DPF needs to be cleaned with a specific cleaning device. Do not disassemble the DPF for cleaning or attempt to clean it yourself. Consult your local KUBOTA Dealer.

6. Checking DEF injector

Consult your local KUBOTA Dealer for this service.

7. Replacing DEF pump filter

1. Place a stand under the DEF tank unit.
2. Remove 3 nuts from the underside and 2 bolts from the top side of the tank unit.
3. Move the unit by pushing the stand forward to reveal the DEF pump cover.
4. Remove 2 bolts and then remove the pump cover.



(1) DEF tank unit

(A) Move

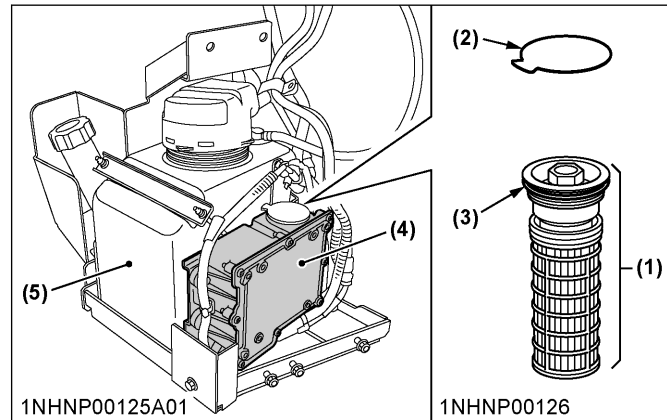
(2) Nut

(3) Bolt

5. Clean around the plug and remove the plug.

6. Loosen the top of the filter assembly and remove it from the pump.

7. Replace the filter assembly with a new one.



(1) Filter assembly

(2) Plug

(3) O-ring

(4) DEF pump

(5) DEF tank

NOTE :

- Even after stopping the engine, the injector cooling DEF (AdBlue) fluid continues to circulate through the circuit for a couple of minutes. When this circulation has ended, do the replacement job. During cooling, the fluid's circulating noise is heard.
- Do not apply oil to the o-ring of the filter.

EVERY 8000 HOURS

1. Replacing DEF tank suction filter

Consult your local KUBOTA Dealer for this service.

EVERY 3 MONTHS

1. Checking the quality of DEF (AdBlue)

Check the odor of the DEF (AdBlue) in the DEF tank.

IMPORTANT :

- If the DEF (AdBlue) emits a strong ammonia odor, the quality of the fluid may have deteriorated. To check the quality of the DEF (AdBlue), check the odor of the DEF (AdBlue) in the DEF tank once every 3 months.
- If the DEF (AdBlue) in the DEF tank emits a strong ammonia odor, drain all DEF (AdBlue) from the DEF tank into a container. (See Draining DEF (AdBlue) on page 48.) After draining the DEF (AdBlue), flush the inside of the DEF tank with distilled water. Then refill

the DEF tank with new or high-quality DEF (AdBlue).

- Do not use a power tool when reinstalling the drain plug. Overtightening the drain plug may cause damage.

(See Storing DEF (AdBlue) in the DEF tank on page 49 for details.)

EVERY 3 TO 4 MONTHS

1. Rustproofing when in storage

While the tractor is in storage, run the engine at idle as a rustproofing operation for 5 to 10 minutes every 3 to 4 months.

When performing the rustproofing operation, a warning about low DEF (AdBlue) level may appear, however the operation can be performed without any problems.

EVERY 1 YEAR

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

Consult your local KUBOTA Dealer for this service.

2. Checking CAB isolation cushion

Check the cushion for any breakage or fatigue. Replace them if they have deteriorated.

3. Checking DPF differential pressure sensor pipe

Consult your local KUBOTA Dealer for this service.

4. Checking EGR pipe

Consult your local KUBOTA Dealer for this service.

EVERY 2 YEARS

1. Cleaning master cylinder filter

Consult your local KUBOTA Dealer for this service.

2. Replacing positive crankcase ventilation (PCV) valve hose

Consult your local KUBOTA Dealer for this service.

3. Replacing DPF differential pressure sensor hose

Consult your local KUBOTA Dealer for this service.

4. Replacing EGR cooler hose

Consult your local KUBOTA Dealer for this service.

5. Replacing boost sensor hose

Consult your local KUBOTA Dealer for this service.

6. Checking oil separator hose

Consult your local KUBOTA Dealer for this service

7. Checking brake hose

Consult your local KUBOTA Dealer for this service.

8. Checking power steering line

Consult your local KUBOTA Dealer for this service.

9. Checking radiator hose (water pipes)

Consult your local KUBOTA Dealer for this service.

10. Checking fuel lines

Consult your local KUBOTA Dealer for this service.

11. Checking oil cooler line

Consult your local KUBOTA Dealer for this service.

12. Checking air conditioner hose

Consult your local KUBOTA Dealer for this service.

EVERY 3 YEARS

1. Replacing parking brake cable

Consult your local KUBOTA Dealer for this service.

EVERY 4 YEARS

1. Replacing intake air line

Consult your local KUBOTA Dealer for this service.

2. Replacing master cylinder kit

Consult your local KUBOTA Dealer for this service.

3. Replacing equalizer kit

Consult your local KUBOTA Dealer for this service.

4. Replacing brake seal 1 and 2

Consult your local KUBOTA Dealer for this service.

SERVICE AS REQUIRED

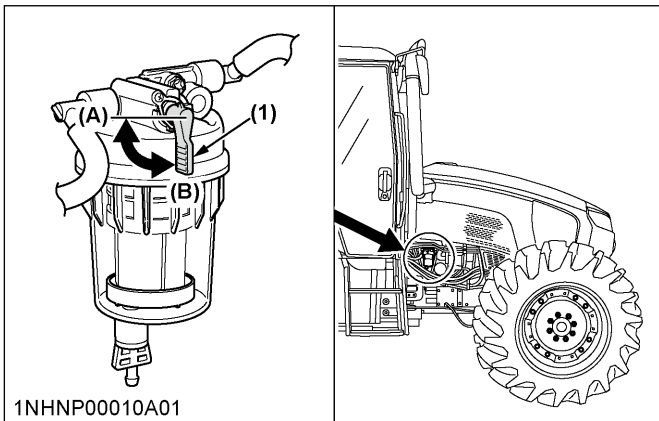
1. Bleeding fuel system

Air must be removed:

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

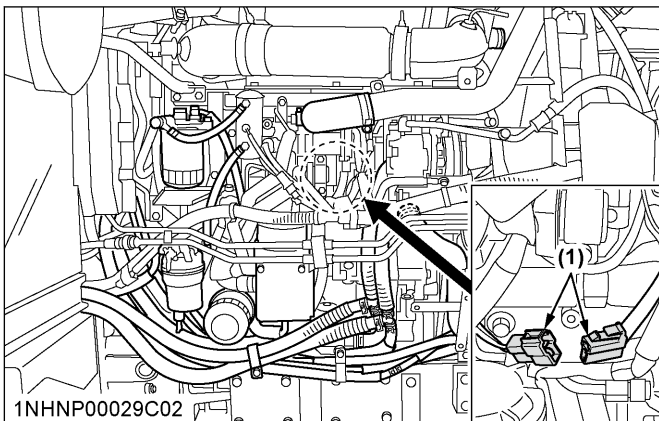
Bleeding procedure is as follows:

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



(1) Fuel shutoff-valve
(A) "CLOSE"
(B) "OPEN"

2. Disconnect the heater connector.



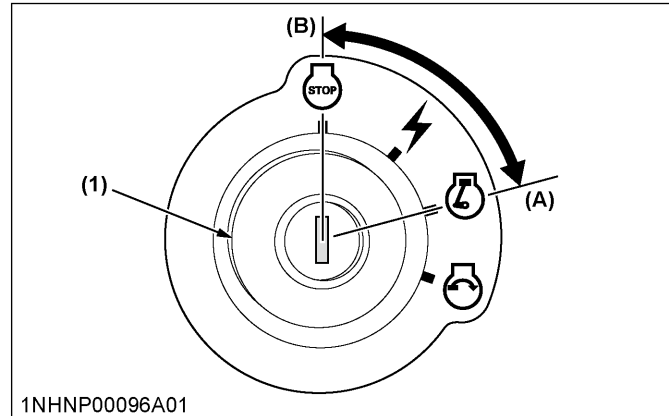
(1) Connector

IMPORTANT :

- Do not try air-bleeding with the heater in operation. Otherwise the battery may be damaged.

3. Turn "ON" and "OFF" the key switch repeatedly 10 times or so at the following intervals. This lets the air out of the fuel line.

- a. Key switch "ON" time: 30 seconds
- b. Key switch "OFF" time: 15 seconds



(1) Key switch
(A) "ON"
(B) "OFF"

4. Set the hand throttle lever at the maximum speed position, turn the key switch to start the engine and then reset the throttle lever at the mid speed (around 1500 rpm) position. If the engine doesn't start, try it several times at 30 second intervals.

IMPORTANT :

- Do not hold the key switch at the engine start position for more than 10 seconds continuously. If more engine cranking is needed, try again after 30 seconds.

5. Accelerate the engine to remove the small portion of air left in the fuel system.
6. If air still remains and the engine stops, repeat the previous steps.

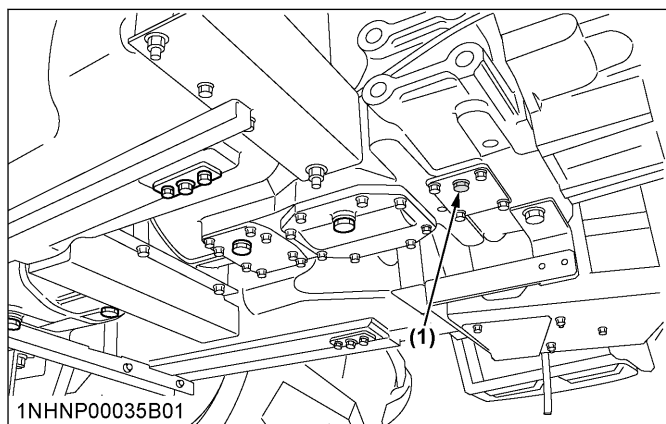
2. Bleeding brake system

Consult your local KUBOTA Dealer for this service.

3. Draining clutch housing water

The tractor is equipped with a drain plug under the clutch housing.

After operating in the rain or snow, or if the tractor has been washed, water may get into the clutch housing. Remove the drain plug, drain the water and then reinstall the plug.



(1) Water drain plug

4. Replacing fuses

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

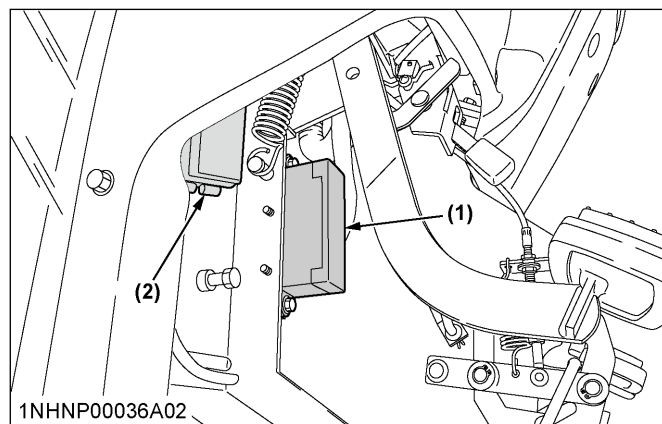
A blown fuse indicates that there is an overload or short somewhere in the electrical system.

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

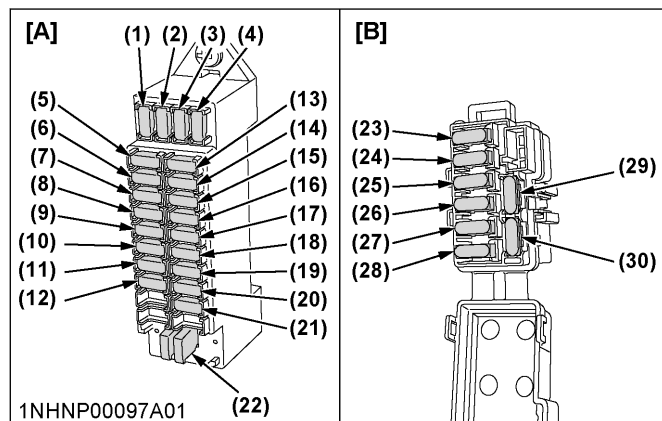
IMPORTANT :

- Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the tractor electrical system. For specific information dealing with electrical problems, read the troubleshooting section of this manual or contact your local KUBOTA Dealer.

(See TROUBLESHOOTING on page 153.)

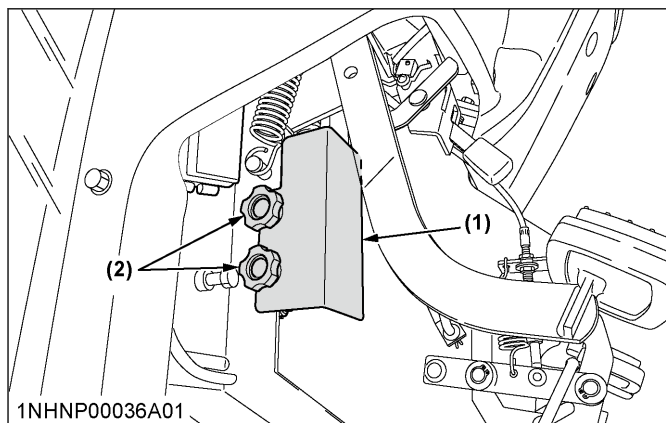


(1) Fuse box 1
(2) Fuse box 2



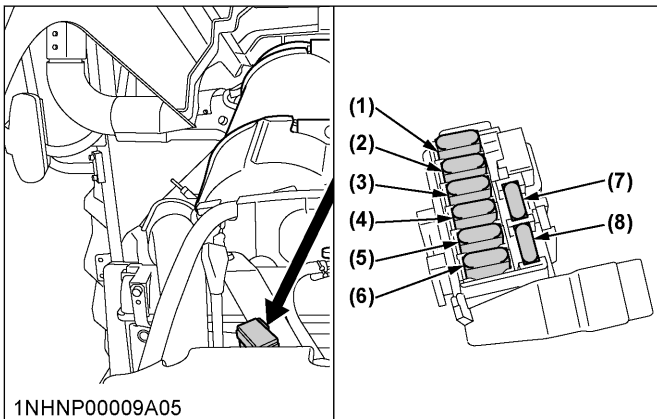
[A] Fuse box 1

[B] Fuse box 2

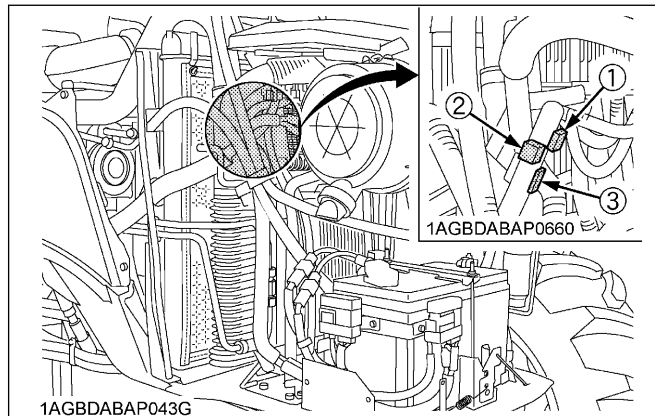


(1) Cover
(2) Knob nut

Fuse No.	Capacity	Protected circuit
(1)	30 A	Spare fuse
(2)	15 A	Spare fuse
(3)	10 A	Spare fuse
(4)	5 A	Spare fuse
(5)	10 A	Engine ECU
(6)	15 A	Loader plug
(7)	15 A	Air suspension
(8)	15 A	Work light (rear)
(9)	15 A	Accessory socket
(10)	20 A	Work light (front option)
(11)	30 A	Air conditioner (fan motor)
(12)	10 A	Air conditioner (compressor)
(13)	5 A	Air conditioner, auxiliary, def control
(14)	15 A	Wiper
(15)	15 A	ECU
(16)	10 A	Meter
(17)	5 A	Transmission control
(18)	10 A	Stop lamp switch
(19)	10 A	Stop lamp
(20)	10 A	Turn signal
(21)	5 A	Starter relay
(22)	-	Fuse puller
(23)	10 A	Back up (ECU, meter)
(24)	10 A	Radio
(25)	15 A	Head light (position)
(26)	20 A	Flasher (hazard)
(27)	20 A	Defogger (rear window)
(28)	20 A	Defogger (side window)
(29)	20 A	Spare fuse
(30)	10 A	Spare fuse



Fuse No.	Capacity	Protected circuit
(1)	30 A	Engine ACU
(2)	10 A	SCR power
(3)	10 A	NOx sensor, SCR tank sensor
(4)	30 A	Heater (ACU)
(5)	20 A	Heater (ACU) relay
(6)	20 A	Head light
(7)	10 A	Spare fuse
(8)	30 A	Spare fuse

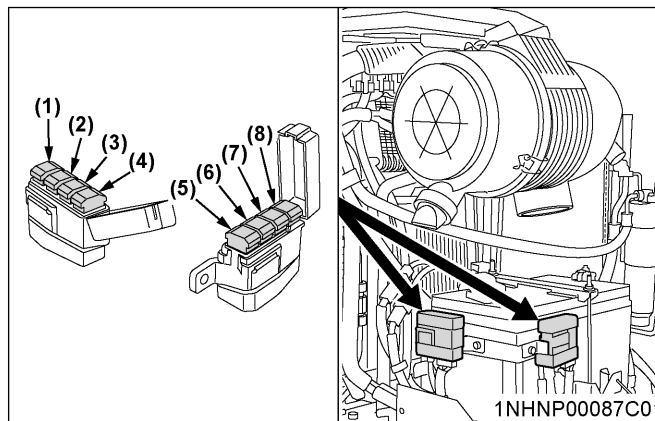


Oil separator fuse (if equipped)

Fuse No.	Capacity	Protected circuit
(1)	15 A	Heater (oil separator, out 1)
(2)	15 A	Heater (oil separator, in)
(3)	15 A	Heater (oil separator, out 2)

5. Replacing slow-blow fuses

The slow-blow fuses are intended to protect the electrical cabling. If any of them has blown, be sure to pinpoint the cause. Never use any substitute, use only a Kubota genuine part.



Fuse No.	Capacity	Protected circuit	Type
(1)	30 A	Main key switch	Bolt fixed
(2)	100 A	Charge	
	120 A (Option)	Charge	
(3)	50 A	Defogger, hazard	Non bolt fixed
(4)	60 A	SCR system	
(5)	120 A	Engine preheat	Bolt fixed
(6)	30 A	Work light	
(7)	30 A	Electrical outlet	Non bolt fixed
(8)	60 A	Starter, air conditioner	

6. Replacing light bulb

Headlight

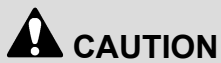
- Take the bulb out of the light body and replace with a new one.

Other lights

- Detach the lens and replace the bulb.

Light	Capacity
Headlight	55 / 60 W
Hazard light	21 W
Rear turn signal	21 W
Tail light	5 W
Rear work light	35 W
Front work light	35 W
Dome light (room lamp)	10 W

7. Replacing headlamp

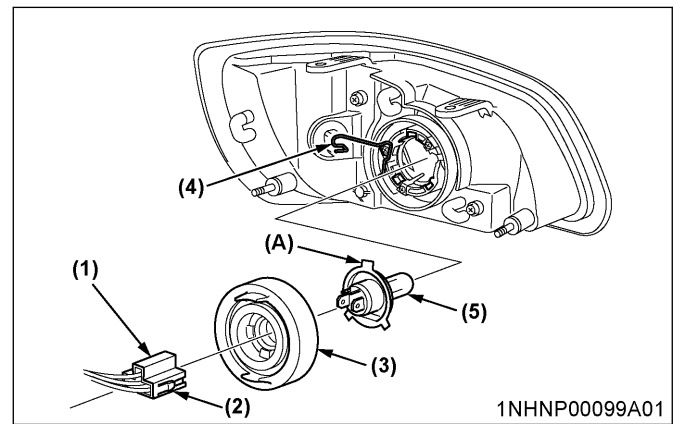


CAUTION

To avoid personal injury:

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

- While pushing the right and left lock buttons, pull and remove the electrical connector.
- Remove the rubber boot.
- Remove the clamping fixture and then remove the bulb.
- Replace it with a new bulb and reinstall the headlamp assembly in the reverse order.



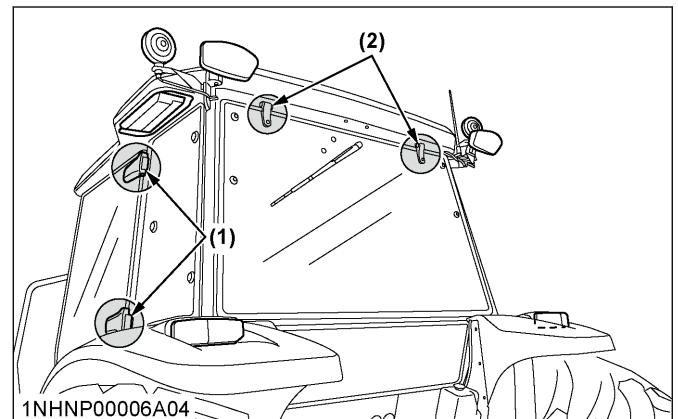
- (1) Electrical connector
(2) Lock buttons
(3) Rubber boot
(4) Clamping fixture
(5) Bulb

(A) "Base's wider projection to face upward"

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.

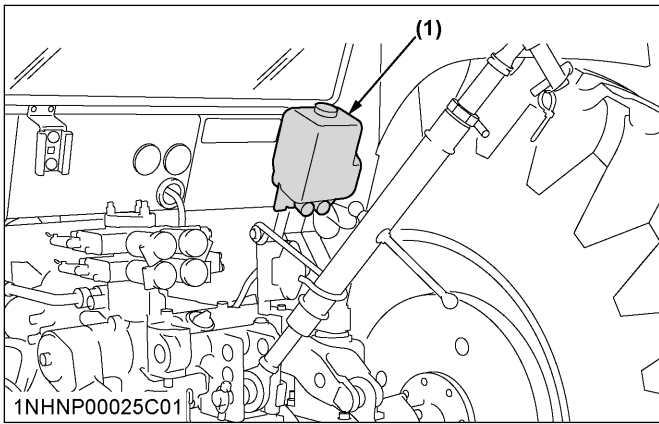
8. Lubricating points for door and window



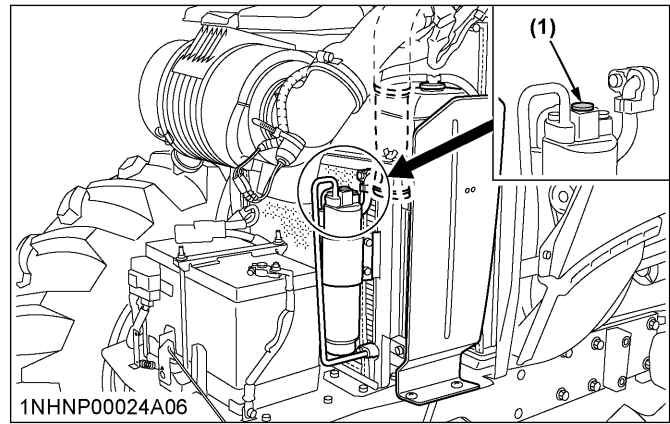
- (1) Door hinge
(2) Rear window hinge

9. Adding washer liquid

Add a proper amount of automobile washer liquid.



(1) Washer liquid tank



(1) Sight glass

10. Checking amount of refrigerant (gas)

WARNING

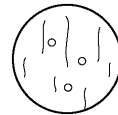
To avoid personal injury or death:

- 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 produces 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.

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 refill.

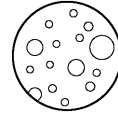
Checking procedure

1. Run the air conditioner in the following conditions.
 - Engine speed - About 1500 rpm
 - Temperature control dial - Maximum cooling position
 - Fan switch - Highest blow
 - Air conditioner switch - "ON"
2. Look into the sight glass to see if and how the refrigerant is flowing through its circuit.



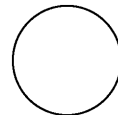
Proper

Little or no air bubbles in the refrigerant flow.



Low

Lots of air bubbles in the refrigerant flow (air bubbles or foam passing continuously).



Overfull or no refrigerant:

Colorless and transparent.

IMPORTANT :

- Charge only with R134a not R12 refrigerant.

STORAGE



WARNING

To avoid personal injury or death:

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

TRACTOR STORAGE

If you intend to store your tractor for an extended period of time, follow the procedures outlined below.

These procedures will ensure that the tractor is ready to operate with minimum preparation when it is removed from storage.

1. Check the bolts and nuts for looseness and tighten if necessary.
2. Apply grease to tractor areas where bare metal will rust, and also 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.
While the tractor is in storage, run the engine at idle as a rustproofing operation for 5 to 10 minutes every 3 to 4 months.
When performing the rustproofing operation, a warning about low DEF (AdBlue) level may appear, however the operation can be performed without any problems.
6. Keep the PTO clutch control switch or lever at the "DISENGAGE" position while tractor is stored for a long period of time.
7. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
8. Remove the battery from the tractor, while noting that after stopping the engine, wait at least 15 minutes before disconnecting the battery cable. Store the battery following the battery storage procedures.
(See Checking battery condition on page 129.)
9. Drain all DEF (AdBlue) from the DEF tank.
Overtightening the drain plug may cause damage.

Do not use a power tool when reinstalling the drain plug.

(See SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM on page 42.)

10. Keep the tractor in a dry place where the tractor is sheltered from the elements. Cover the tractor.
11. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat.
If the tractor must be stored outdoors, cover it with a waterproof tarpaulin.
Jack the tractor up and place blocks under the front and rear axles so that all 4 tires are off the ground. Keep the tires out of direct sunlight and extreme heat.
12. Keep the fuel tank full. Otherwise, water droplets will form and will cause a fuel system failure.

IMPORTANT :

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

REMOVING THE TRACTOR FROM STORAGE

1. Check the tire air pressure and inflate the tires if needed.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Install the battery. Before installing the battery, be sure it is fully charged.
4. Check the fan belt tension.
5. Add new or high-quality DEF (AdBlue) to the DEF tank.
(See Adding DEF (AdBlue) on page 48.)
6. Check all fluid levels (engine oil, transmission and hydraulic oil, engine coolant, DEF (AdBlue) and any attached implements).
7. Start the engine. Observe all gauges.
If all the gauges are functioning properly and have normal readings, move the tractor outside.
Once outside, park the tractor and let the engine idle for at least 5 minutes. Shut the engine off and walk around tractor and make a visual inspection looking for evidence of oil or water leaks.

STORAGE

8. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes as necessary.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to the following table for the cause 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 filter if necessary.
		Air or water is in the fuel system.	- Check to see if the fuel line coupler bolt and nut are tight. - Bleed the fuel system. (See Bleeding fuel system on page 146.)
		In winter, oil viscosity increases, and engine revolution is slow.	- Use oils of different viscosities, depending on ambient temperatures. - Use engine block heater (optional).
		Battery is low and the engine does not turn over quickly enough.	- Clean battery cables and terminals. - Charge the battery. - In cold weather, always remove the battery from the engine, charge, and store it indoors. Install it on the tractor only when the tractor is going to be used.
		Intake air heater system trouble.	- Check to see if the slow blow fuse of the intake air heater is blown. - Check to see if the intake air heater functions in cold weather.
Insufficient engine power.		- Insufficient or dirty fuel. - The air cleaner is clogged.	- Check the fuel system. - Clean or replace the element.
		DEF (AdBlue) is low	Add DEF (AdBlue).
Engine stops suddenly.		Insufficient fuel.	- Refuel. - Bleed the fuel system if necessary.
		DEF (AdBlue) is low	Add DEF (AdBlue).
Exhaust fumes are colored.	Black	- Fuel quality is poor. - Too much oil. - The air cleaner is clogged.	- Change the fuel and fuel filter. - Drain excess oil if necessary. - Clean or replace the element.
	Blue white	- The inside of the exhaust muffler is damp with fuel. - Injection nozzle trouble. - Fuel quality is poor.	- Check to see if the intake air heater functions in cold weather. - Heat the muffler by applying load to the engine. - Check the injection nozzle. - Change the fuel and fuel filter.
Engine overheats.		Engine overloaded.	Shift to lower gear or reduce load.
		Low coolant level.	Fill cooling system to the correct level; check radiator and hoses for loose connections or leaks.
		Loose or damaged fan belt.	Adjust or replace fan belt.
		Dirty radiator core or grille screens.	Remove all trash.
		Coolant flow route corroded.	Flush cooling system.

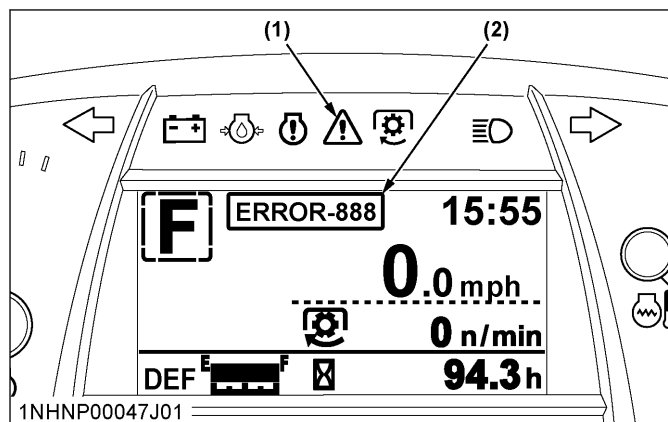
If you have any questions, contact your local KUBOTA Dealer.

Trouble	Operator's action
Engine not overheated, but engine warning indicator is on.	Stop the engine and then restart it. If the engine fails to restart or the indicator stays on, immediately contact your local KUBOTA Dealer. If the warning indicator lights up, the following phenomena may appear depending on the engine's trouble spot. - The engine stops unexpectedly. - The engine fails to start or is interrupted just after starting. - The engine output is insufficient. - The engine output is sufficient but the warning indicator stays on.

If you have any questions, contact your local KUBOTA Dealer.

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 LCD. The error code indicates 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

Displayed error code	Trouble
"ERROR-1"	Acceleration sensor (main) trouble
"ERROR-2"	Acceleration sensor (sub) trouble
"ERROR-3"	Acceleration sensor main/sub phase shifting trouble
"ERROR-4"	Shuttle sensor (main) trouble
"ERROR-5"	Shuttle sensor (sub) trouble
"ERROR-6"	Shuttle sensor main/sub phase shifting trouble
"ERROR-7"	Shuttle sensor signal trouble
"ERROR-14"	Shuttle forward solenoid trouble
"ERROR-15"	Shuttle reverse solenoid trouble
"ERROR-26"	Swing shift Ls solenoid trouble
"ERROR-27"	Swing shift Hs solenoid trouble
"ERROR-28"	Swing shift system trouble
"ERROR-29"	Swing shift Hs switch trouble
"ERROR-30"	Swing shift Ls switch trouble
"ERROR-32"	Swing shift sensor trouble
"ERROR-ENG" ("ERROR-41")	Engine communication trouble
"ERROR-ACU" ("ERROR-42")	ACU communication trouble
"ERROR-ECU" ("ERROR-43")	ECU communication trouble or meter communication trouble
"ERROR-60"	Analog reference supply voltage +5 V trouble
"ERROR-63"	Acceleration and engine adjustment trouble
"ERROR-NET"	Communication trouble

OPTIONS

LIST OF OPTIONS

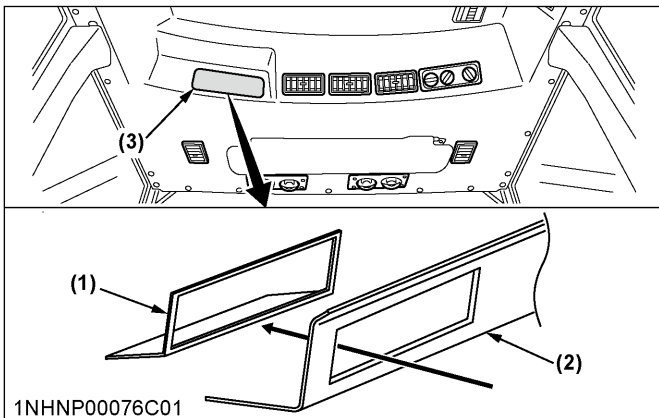
Consult your local KUBOTA Dealer for further details.

- Engine block heater
For extremely cold weather starting
- Double acting remote hydraulic control valve with detents and self-canceling
- Flow control valve kit
- Double acting remote hydraulic control valve with detents and self-canceling for flow control valve
- Double acting remote hydraulic control valve with float position
- Clevis for drawbar
- Front end weights
For front ballast
- Rear wheel weights
For rear ballast
- Creep speed kit
- 80" wide axle
- Dual lift assist cylinder kit
- Rear wiper
- 540/1000 rpm PTO speed kit
- Radio with cassette player
- Radio with CD player
- Fuel tank guard kit
- Rear cast iron disc

MOUNTING THE SUPPORT PLATE

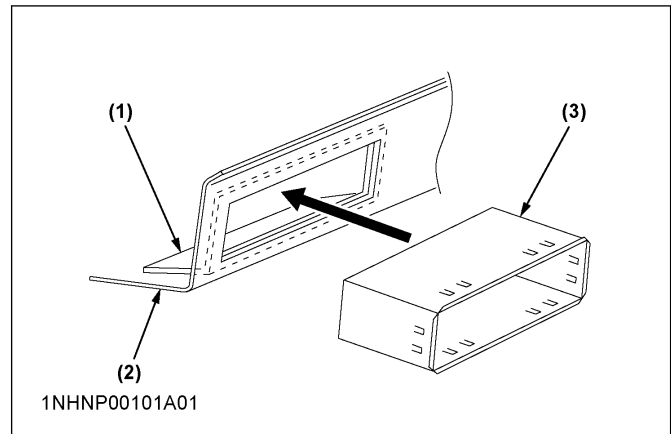
1. Installation procedures

1. Insert the support plate through the CD player mounting opening of the inner roof.



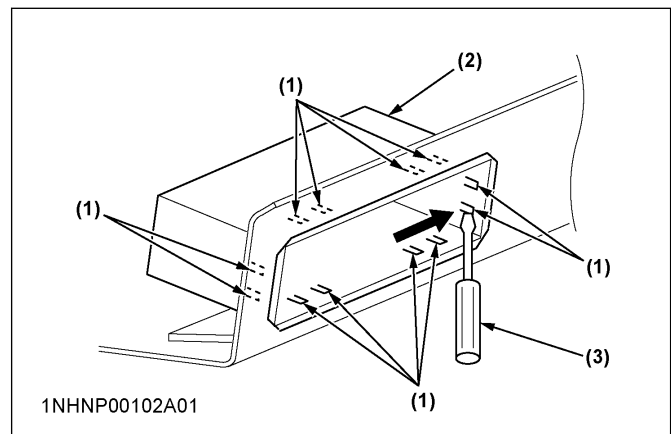
- (1) Support plate
(2) Inner roof
(3) CD player mounting opening

2. Insert the mounting collar into the inner roof and support plate.



- (1) Support plate
(2) Inner roof
(3) Mounting collar

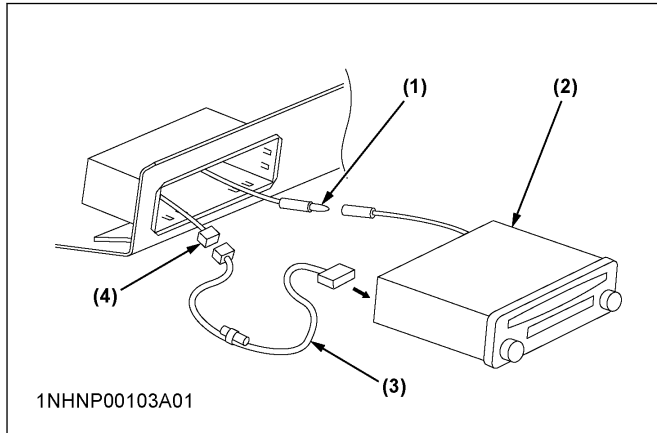
3. Bend the mounting tabs of the mounting collar out with a screwdriver.



- (1) Mounting tabs
(2) Mounting collar
(3) Screwdriver

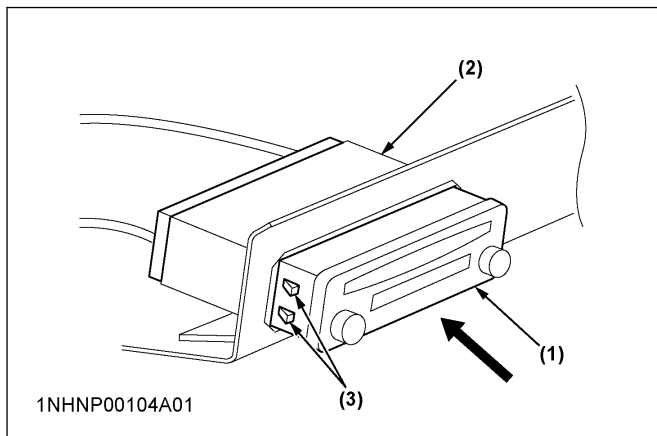
4. Connect the antenna lead to the CD player.

5. Connect the power connector to the CAB wire harness.

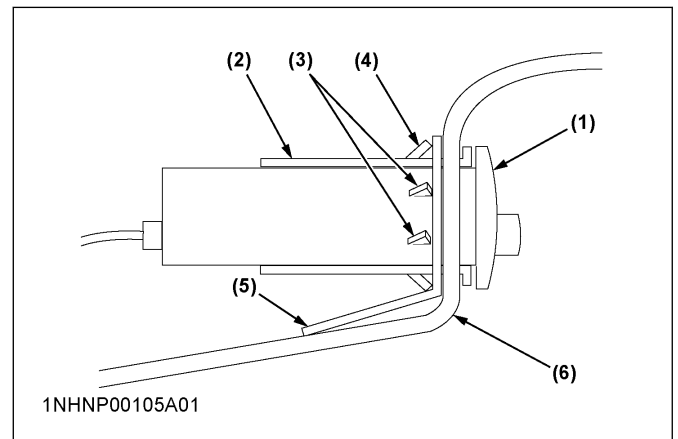


- (1) Antenna lead
(2) CD player
(3) Power connector
(4) CAB wire harness

6. Insert the CD player into the mounting collar and push it in until “click” is heard.
The CD player is secured to the mounting collar by the side tabs.



- (1) CD player
(2) Mounting collar
(3) Side tabs



- (1) CD player
(2) Mounting collar
(3) Side tabs
(4) Mounting tabs
(5) Support plate
(6) Inner roof

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