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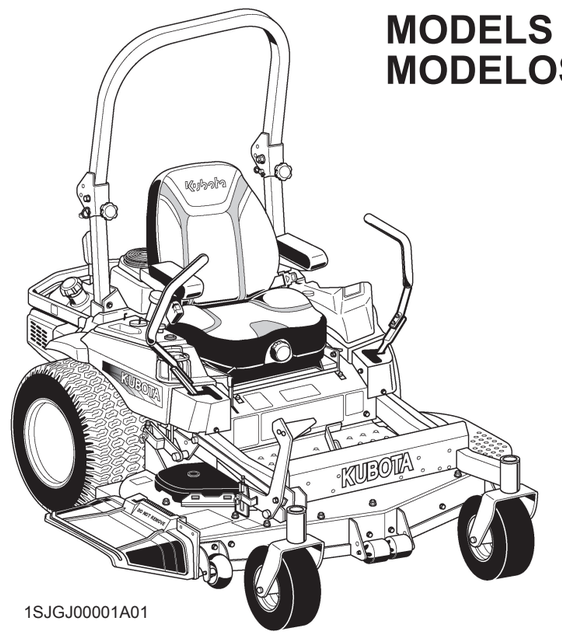
OPERATOR'S MANUAL
KUBOTA
ZERO TURN MOWER

MANUAL DEL OPERADOR
KUBOTA
SEGADORA DE GIRO CERO

MODELS **Z751KWi**
MODELOS **Z781KWi**
Z781KWTi



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LEA Y CONSERVE ESTE MANUAL

Kubota

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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, until today, 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 intended to help individuals and nations fulfill the potential inherent in their environment. For KUBOTA is the Basic Necessities Giant.

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

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

KUBOTA Corporation es ···

Desde su creación en 1890, KUBOTA Corporation ha crecido hasta convertirse en una de las empresas más importantes de Japón.

Para conseguir esta posición, la empresa a lo largo de los años, ha diversificado la gama de sus productos y servicios de forma notable, hasta llegar hoy en día, con 30 fábricas y 35.000 empleados a fabricar por encima de 1.000 elementos distintos grandes y pequeños.

Todos estos productos y todos los servicios que los acompañan, sin embargo están unificados por un compromiso central. KUBOTA fabrica productos que, tomados a escala nacional, cubren necesidades básicas. Productos que son indispensables, productos destinados a ayudar a las personas y a las naciones y a desarrollar el potencial inherente de su entorno. Por eso KUBOTA es el gigante de las necesidades básicas.

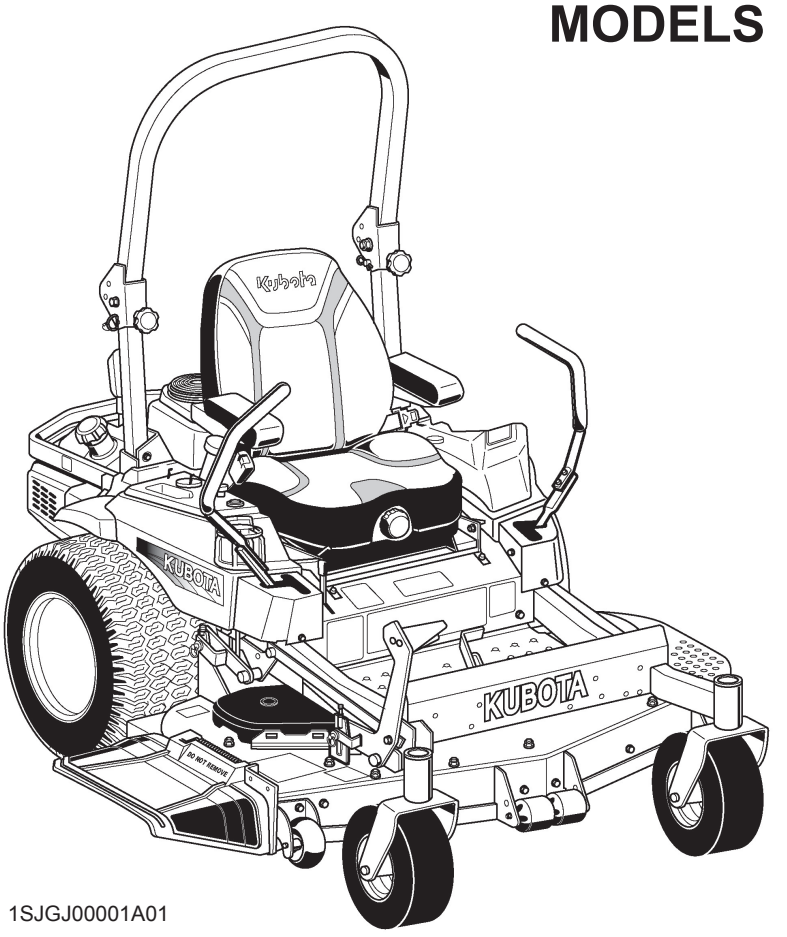
Estas aptitudes potenciales incluyen el abastecimiento de aguas, la producción de alimentos en la tierra y en el mar, el desarrollo industrial, la arquitectura, la construcción y el transporte.

Miles de personas confían en el saber hacer de KUBOTA y su tecnología, experiencia y servicio al cliente. Usted también puede confiar en KUBOTA.

OPERATOR'S MANUAL

KUBOTA
ZERO TURN MOWER

MODELS **Z751KWi**
Z781KWi
Z781KWTi



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ABBREVIATION LIST

Abbreviations	Definitions
API	American Petroleum Institute
fpm	Feet Per Minute
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

UNIVERSAL SYMBOLS

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


Safety Alert Symbol


Read Operator's Manual


Gasoline Fuel


Fuel-Level


Parking Brake-Engaged position


Parking Brake-Disengaged position


Battery Charging Condition

Engine-Stop


Engine-Run


Starter Control


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


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


Hours


Cutting Height


Fast


Slow


Engine Speed Control

California Proposition 65

⚠ WARNING ⚠

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

IMPORTANT

The engine in this machine is not equipped by the manufacturer with a standard spark arrester.
It is a violation of California Public Resource Code Section 4442 to use or operate this engine on or near any forest-covered, brush-covered land, or grass- covered land unless the exhaust system is equipped with a working spark arrester meeting state laws. Other states or federal areas may have similar laws.

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

FOREWORD

You are now the proud owner of a KUBOTA ZERO TURN MOWER. This machine is a product of KUBOTA's quality engineering and manufacturing. It is made of excellent materials and under a rigid quality control system. It will give you long, satisfactory service. To obtain the best use of your machine, please read this manual carefully. It will help you become familiar with the operation of the machine and contains many helpful hints about machine 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 manufacturing of products may cause some small parts of this manual to become outdated. KUBOTA distributors and dealers will have the most up-to-date information. Please do not hesitate to consult them.

SAFETY FIRST

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

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

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SAFE OPERATION

Careful operation is your best insurance against an accident.
Read and understand this manual carefully before operating the machine. All operators, no matter how much experience they may have had, must read and understand this and other related manuals before operating the machine or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.
If the operator(s) or mechanic(s) cannot understand the contents, it is the owner's responsibility to explain this material to them. This mowing machine is capable of amputating hands, feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

BEFORE OPERATING THE MACHINE

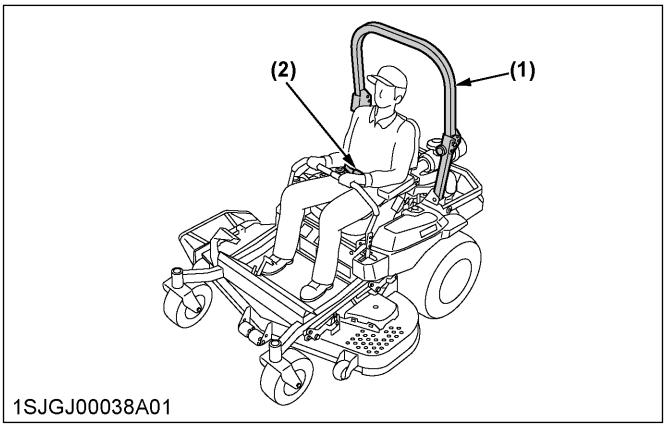
Know your equipment and its limitations. Read all instructions in this manual before attempting to start and operate the machine.

1. General

- The zero turn mowing machine has different steering characteristics than other machines with a steering wheel and does not have a service brake pedal. Normal slowing down and stopping is done with the motion control levers. Read and understand the operator's manual before operating the machine. Practice operating the machine at low engine speed in an unobstructed area without engaging the mower.
- Pay special attention to the safety labels on the machine itself.
- Do not allow any bystanders around or near the machine during operation.
- Do not allow passengers, children or non-qualified operators on the machine at any time. The operator must remain in the machine seat throughout operation.
- Do not operate the machine or any attachments while under the influence of alcohol, medication, controlled substances or when fatigued.
- Do not wear loose, torn, or bulky clothing around the machine. The clothing may catch on moving parts or controls, leading to the risk of an accident. Wear and use any 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 wear radio or music headphones while operating the machine. Do not operate the machine or any attachments while using or texting with a cellphone or any other electronic device.
  Safe operation requires your full attention.
- Carefully check the vicinity before operating machine or any implement attached to it. Clear the work area of objects (such as wires and rocks,) that might be picked up and thrown. Check for overhead clearance which may interfere with the grass catcher or ROPS.
- Check parking brake and other mechanical parts for correct adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly.
  (See MAINTENANCE on page 52 and ADJUSTMENT on page 80.)
- Keep all shields and guards in place. Replace any that are damaged or missing. Do not operate unless they are functioning properly.
- Before allowing other people to use your machine, explain how to operate and have them read this manual before operation.
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern and prudence of personnel involved in the operation, transport and maintenance of the equipment.
- Keep the machine and attachments in good operating condition and keep safety devices in place and in proper working condition. Do not operate unless they are functioning properly.
- Do not modify the machine. Unauthorized modification may affect the function of the machine, which may result in personal injury.
- Use only implements approved by KUBOTA. Use proper ballast on the front or rear of the machine to reduce the risk of upsets. Follow the safe operating procedures specified in the manuals of the equipment.
- Keep your machine clean. Accumulations of dirt, grease, and trash can contribute to fires and lead to personal injury.
- The exhaust gas from the muffler is very hot. To prevent fire, do not expose dry grass, mowed grass, oil and any other combustible materials to the exhaust gas. Use a spark arrester where required. Keep the engine and muffler clean all the times.

2. ROPS

- The ROPS is an integral and effective safety device.
- KUBOTA recommends the use of a roll-over protective structure (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the machine be upset.
- The machine is equipped with a foldable ROPS, which may be temporarily folded down only when absolutely necessary for areas with height constraints.
  There is no operator protection provided by the ROPS in the folded position. For operator safety the ROPS must be placed in the upright and locked position and the seat belt fastened for all other operations.
- Do not remove the ROPS.
- If the ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the machine.
- Never modify or repair a ROPS because welding, bending, drilling, grinding, or cutting may weaken the structure.
- If any structural member of the ROPS is damaged, replace the entire structure at your local KUBOTA Dealer. Any alterations to a ROPS must be approved by the manufacturer.
- Check the area to be mowed and never fold down a foldable ROPS in areas where there are slopes, drop-offs or water.
- Check carefully for overhead clearances (such as branches, doorways and electrical wires) before driving under any objects and do not contact them.
- Keep the ROPS in safe operating condition by periodically and thoroughly inspecting for damage and keeping all mounting fasteners tight.
- Always use the seat belt when the ROPS is upright. Do not use the seat belt if the ROPS is down or if there is no ROPS. Check the seat belt regularly and replace if frayed or damaged. Be certain that the seat belt can be released quickly in the event of an emergency.



(1) ROPS
(2) Seat belt

OPERATING THE MACHINE

1. Starting to operate the machine

- Always sit in the operator's seat when starting the engine or operating levers or controls.
- Before starting the engine make sure that the motion control levers are in neutral lock, the parking brake is applied, and the power take-off (PTO) is disengaged (OFF).
- Do not start the engine by shorting across starter terminals. 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.
- Do not start the engine when the front or rear tires are not on the ground.
- Check before each use that the operator presence control (OPC) system is functioning correctly.
  Test the safety systems.
  (See Checking the engine start system on page 61 and Checking the OPC system on page 62.)
  Do not operate unless they are functioning correctly.
- Check all fluids before starting.

2. Working the machine

- Do not turn sharply when driving at high speed.
- To avoid tip-over accidents, slow down when turning on uneven terrain or before stopping.
- Do not operate near ditches, holes, embankments, or other terrain, which may collapse under the machine's weight. The risk of machine tip-overs increases when the ground is loose or wet.
- Park the machine on a firm and level surface.
  Before you get off, apply the parking brake, place the motion control levers in their neutral lock positions, disengage the PTO, lower all attachments to the ground, turn off the engine, and remove the key.

- Watch where you are going at all times. Watch for and avoid obstacles. Be alert at curbs, near trees, and other obstructions and hidden hazards.
- Know what is behind you before backing up. Look to the rear before and when backing. Do not mow while in reverse. Operate in reverse with the blades engaged only when absolutely necessary and make sure the area immediately behind you is clear of obstructions or holes, and small children. Use extra caution when the machine is equipped with a grass catcher as your view to the rear is restricted.
- When working in groups, always let others know what you are doing ahead of time.
- Do not drive the machine on streets or highways. Watch for traffic when you cross roads or operate near roads.
- Be aware of the mower discharge direction and do not point it at anyone.
  Never operate with the discharge chute raised, removed or altered, unless using a grass catcher.
- When using any attachments, never direct discharge material toward bystanders. Do not allow people or pets near the attachments while in operation.
  Do not mow when bystanders are present in the mowing area.
- To reduce fire hazards, keep the engine exhaust area free of grass or leaves.
- Be sure that the rotating blades and the engine are stopped and the key is removed before placing hands or feet near blades and cleaning blockages or unclogging the chute. Keep hands and feet away from the cutting units.
- Shut the engine off and wait for all movement to stop before removing the grass catcher or unclogging the chute.
- Maintain all screens to avoid overheating conditions.
- Always inspect the mower for damage after striking a foreign object. Repair or replace any damaged parts before restarting.
- Operate during daylight or in bright artificial light.
- If the machine starts to vibrate abnormally, disengage the drive to the attachments, stop the engine and remove the key. Then check the machine immediately.
- Do not operate the machine when there is a possibility of lightning. Even if the machine is equipped with a cabin, the operator is not protected from lightning.
- Never raise the deck with the blades running. Disengage the PTO and stop the blades from rotating if not mowing.

3. Safety for children

Tragic accidents can occur if the operator is not alert of the presence of children. Children are attracted to the machine and mowing activity.

- Never assume that children will remain where you last saw them.
- Keep children out of the mowing area and under the watchful care of another responsible adult.
- Be alert and turn the machine off if children enter the area.
- Before and when backing, look behind and down for small children.
- Never carry children. There is no safe place for them to ride. They may fall off and be seriously injured or interfere with safe machine operation.
- Never allow children to operate the machine, even under adult supervision.
- Use extra care when approaching blind corners, shrubs, trees, or other obstructions that might hide children from sight.
- Do not mow in reverse. Operate in reverse with the blades engaged only when it is absolutely necessary and make sure that the area to the rear is clear of children before doing so.

4. Operators, age 60 years and older

Data indicates that operators, age 60 years and older, are involved in a large percentage of machine-related injuries. These operators should evaluate their ability to operate the machine safely enough to protect themselves and others from serious injury.

5. 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.
If you cannot back up the slope or if you feel uneasy on it, do not mow it.
If the engine stops when operating on a slope, apply the parking brake immediately to prevent machine runaway.

Do

- To avoid tip-over accidents, operate across slopes, not up and down. Stay off hills and slopes too steep for safe operation.
- Remove obstacles such as rocks and tree limbs.
- Stay alert for holes in the terrain and other hidden hazards. Keep away from drop-offs. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Follow the manufacturer's recommendations for wheel weight or counterweights to improve stability.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction.

- Avoid starting or stopping on a slope. If tires lose traction, disengage the PTO and proceed slowly straight down the slope.
- Reduce the speed and exercise extreme caution on slopes and in sharp turns to prevent tip-over accidents or loss of control.
- Use special caution when changing direction on slopes. Slow down, and use extra caution when changing direction on a slope.

Do not

- Do not turn on slopes unless necessary. If necessary, turn uphill slowly and gradually.
- Do not mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of cliff or ditch, or if an edge caves in.
- Do not mow on wet grass. Reduced traction could cause sliding and loss of control.
- Do not try to stabilize the machine by putting your foot on the ground.
- Do not use the grass catcher on steep slopes.
- Do not start or stop suddenly on slopes. If tires lose traction, disengage the PTO and proceed slowly straight down the slope.
- Never *"freewheel"*. Do not let the machine travel downhill with motion control levers at the neutral lock position or in neutral.
- Do not operate the machine without the mower deck installed.

6. Stopping the machine

- Park the machine on level ground.
- Make sure that the machine and all attachments have come to a complete stop before you get off.
- Before you get off, apply the parking brake, place the motion control levers in their neutral lock positions, disengage the PTO, lower all attachments to the ground, turn off the engine, and remove the key.
- Do not park the machine on dry grass or leaves.

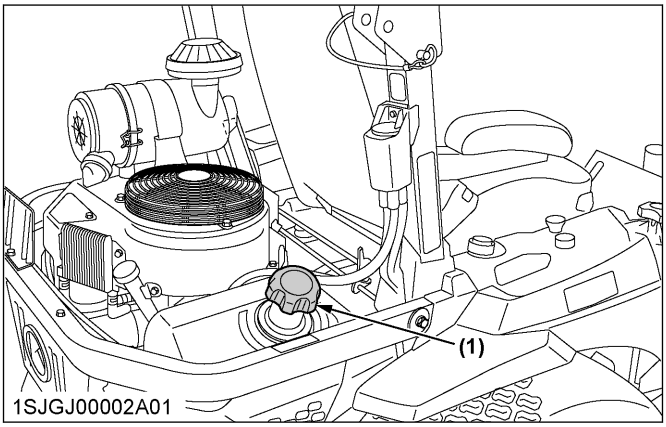
TRANSPORTING THE MACHINE

- Disengage power to attachment(s) when transporting or not in use.
- Do not tow this machine. Use a suitable truck or trailer when transporting on public roads.
- Use extra care when loading or unloading the machine into a trailer or truck.
- This machine is not allowed to be used on public roads.

SERVICING AND STORAGE

1. Servicing the machine

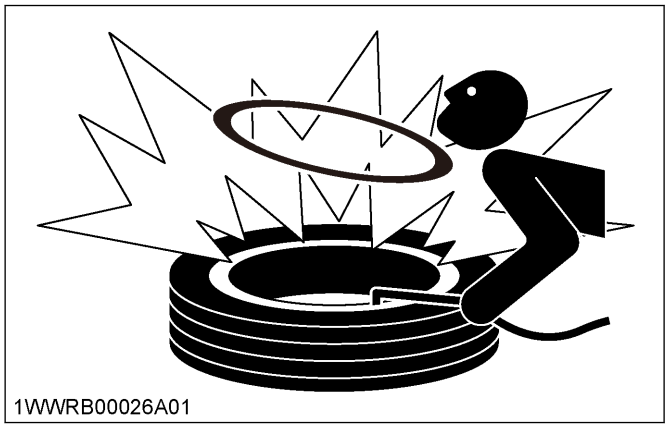
- Before servicing, park the machine on a firm, level surface and apply the parking brake. Remove the key to prevent an accidental start-up.
- Allow the machine time to cool before touching the engine, muffler and so on.
- Always stop the engine before refueling. Avoid spills and overfilling. Wipe up spilled fuel immediately.



(1) Fuel tank cap

- Use extra care when handling gasoline fuels. They are flammable.
  1. Use only an approved container.
  2. Do not remove the fuel cap or refuel with the engine running. Allow the engine to cool before refueling. Do not smoke while refueling or when standing near fuel.
  3. Do not refuel the machine indoors and always clean up spilled fuel or oil.
  4. Do not store the machine or fuel container inside where there is an open flame, such as in a water heater.
- Do not smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank.
  A battery, especially when charging, will give off hydrogen and oxygen gases, which can explode and cause serious personal injury.
- Before *"jump starting"* a dead battery, read and observe all of the instructions:
- Disconnect the battery's ground cable before working on or near electric components.
- Do not use or charge the refillable type battery if the fluid level is below the **[LOWER]** (lower limit level) mark. Otherwise, the 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.

- Keep a first aid kit and fire extinguisher handy at all times.
- Do not attempt to mount a tire on a rim unless qualified to do so and all proper safety precautions are followed.
- Always maintain the correct tire inflation pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.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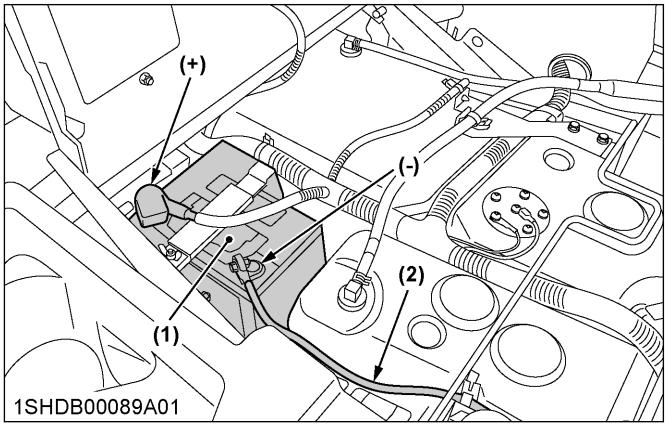
- Provide adequate support when changing wheels.
- Make sure that wheel nuts and bolts have been tightened to the specified torque.
- Keep hands and feet away from moving parts. If possible, do not make adjustments or repairs with the engine running.
- Keep the machine free of grass, leaves, or other debris build-up.
- Do not change the engine governor setting or overspeed the engine.
- Do not run the machine inside a closed area.
- Mower blades are sharp and can cut your hands. Wrap the blade(s) or wear gloves, and use extra caution when servicing them. Never straighten or weld blades.
- Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
- Never tamper with safety devices. Check their operation for proper function regularly.
- Waste products such as used oil, fuel, coolant, brake fluid, and batteries can harm the environment, people, pets and wildlife. Please dispose of the waste products properly.
- Do not use beverage containers for waste fluids or other products. Someone, particularly children, may drink them by mistake.
- Securely support the machine or any machine elements with stands or suitable blocking before working underneath. For your safety, do not rely on hydraulically supported devices as they may leak down, suddenly drop or be accidently lowered.
- Consult your local recycling center or KUBOTA Dealer to learn how to recycle or get rid of waste products.
  - A material safety data sheet (MSDS) provides specific details on chemical products, physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the MSDS for that product upon request.

2. Storage

- Keep the machine and supply of fuel in locked storage and remove the ignition key to prevent children or others from playing or tampering with them.
- To avoid sparks from an accidental short circuit, always disconnect the battery's ground cable (-) first and reconnect it last.



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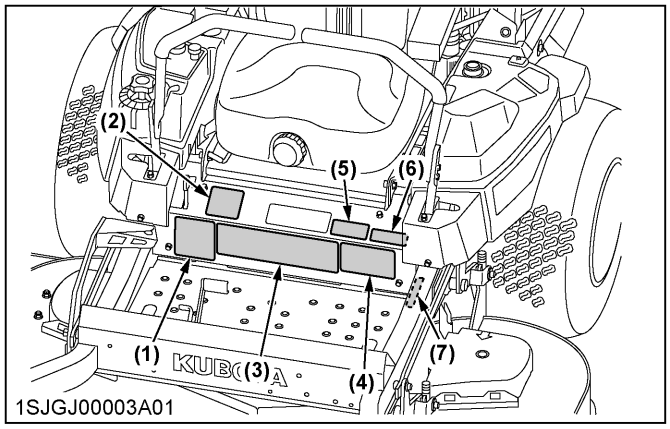
(1) Battery
(2) Ground cable
(+) Positive terminal
(-) Negative terminal

- To avoid the danger of exhaust fume poisoning, do not operate the engine indoors without adequate ventilation.
- To reduce fire hazards, clean the machine thoroughly before storage. Dry grass and leaves around the engine and muffler may ignite.
- Let the engine cool before storing and do not store near flames.
- Shut off fuel while storing or transporting.

SAFETY LABELS



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(1) Part No. K3811-6581-1

⚠WARNING

TO AVOID SERIOUS INJURY OR DEATH

1. Mow across slopes
   - Not up and down.
2. Use extreme caution when operating on slopes.
3. Loss of traction may occur when operating on slopes.
4. Drive slowly on slopes.
5. Do not operate on wet slopes.
6. Avoid sudden starts.
7. Execute turns slowly.

⚠ADVERTENCIA

PARA EVITAR LESIONES PERSONALES GRAVES O LA MUERTE

1. Corte el césped de manera transversal en las colinas
   - No de arriba hacia abajo.
2. Tenga mucho cuidado durante la operación en colinas.
3. Se puede perder tracción durante la operación en colinas.
4. Conduzca lentamente en las colinas.
5. No use la máquina en colinas húmedas.
6. Evite arranques súbitos.
7. Realice las vueltas lentamente.

1BDABEAAP087A

(2) Part No. K3811-6571-1

⚠WARNING

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

⚠ADVERTENCIA

La operación de este equipo puede generar chispas que pueden iniciar incendios en cercanlas de vegetación seca. Podrla requerirse un parachispas. El operador deberla contactar a las agencias de bomberos locales para informarse sobre leyes o normas relacionadas con los requisitos de prevención de incendios.

1BDABEAAP088A

(4) Part No. K3851-6582-1

⚠WARNING

TO AVOID SERIOUS INJURY OR DEATH

1. Park the machine on level ground.
2. If necessary to park on an incline,
   ① Stop the machine.
   ② Apply the parking brake.
   ③ Stop the engine.
   If you stop the engine on an incline without applying the parking brake, the machine could move and run away.
3. If the engine stops suddenly during operation, apply the parking brake immediately to prevent machine runaway.

⚠ADVERTENCIA

PARA EVITAR LESIONES PERSONALES GRAVES O LA MUERTE

1. Estacione la máquina en la tierra del nivel.
2. Si es necesario estacionar en una cuesta,
   ① Apagar la máquina.
   ② Aplique el freno de estacionamiento.
   ③ Luego apague el motor.
   Si apaga el motor en una cuesta sin aplicar el freno de estacionamiento, la máquina puede moverse sin control.
3. Si la máquina se detiene repentinamente durante la operación, enganche el freno de estacionamiento inmediatamente para evitar la pérdida de control.

1BDABEAAP171A

(3) Part No. K3851-6585-1

⚠WARNING TO AVOID SERIOUS INJURY OR DEATH

1. Read and understand the operator's manual before operation.
2. Do not operate this machine unless you are trained.
3. Before allowing other people to use the machine, have them read the operator's manual.
4. Check the tightness of all nuts and bolts regularly.
5. Before starting the engine, make certain that everyone is at a safe distance from the machine, PTO is disengaged and motion control levers are in neutral lock.
6. Remove objects that could be thrown by the blade.
7. Do not operate the machine when children and/or others are around.
8. Do not carry children or others on the machine at any time.
9. Before dismounting, disengage PTO clutch, lower the implement, place motion control levers in neutral lock position, set the parking brake, stop the engine and remove the key.
10. Keep safety devices (guards, shields and switches) in place, and working.
11. To reduce the fire hazard, keep the exhaust clear of dry grass, dry leaves or other combustible materials.
12. This machine is not for street or highway use.
13. Securely support the machine and implement before working underneath.

⚠ ADVERTENCIA PARA EVITAR LESIONES PERSONALES GRAVES O LA MUERTE

1. Lea y entienda el manual del operador antes de efectuar la operación.
2. No ponga en funcionamiento la máquina a menos que esté capacitado para hacerlo.
3. Antes de permitir que otras personas usen la máquina, indíqueles que lean el manual del operador.
4. Verifique con regularidad el apriete de todas las tuercas y pernos.
5. Antes de arrancar el motor, asegúrese de que todos esten a una distancia segura de la máquina. La toma de fuerza debe estar desactivada y las palancas de control de movimiento bloqueadas en neutro.
6. Retire los objetos que pueden ser lanzados por la cuchilla.
7. No opere la máquina cuando hayan niños u otras personas alrededor.
8. No lleve a niños ni a otras personas en la máquina en ningún momento.
9. Antes de desmontar, desenganche el embrague de la toma de fuerza, baje el implemento, cambie a neutro, aplique el freno de estacionamiento, apague el motor y retire la llave.
10. Mantenga los dispositivos de protección(guardas, barreras de protección e interruptores) en su lugar y en buen estado de funcionamiento.
11. Para reducir los riesgos de incendio, mantenga el escape exento de hierbaseca, hojas secas u otros materiales combustibles.
12. Esta máquina no está diseñada para uso en calles ni carreteras.
13. Use un soporte seguro para la máquina y el implemento antes de trabajar debajo de los mismos.

1BDABEAAP146A

(5) Part No. K3441-6598-1

Propuesta 65 de California

⚠ADVERTENCIA⚠

Los gases de escape del motor, algunos de sus elementos, y unos componentes y fluidos del vehículo contienen o despiden productos químicos conocidos por el Estado de California que causan el cáncer, los defectos de nacimiento o el otro daño reproductivo.

1BDABENAP115B

(6) Part No. K3441-6596-1

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.

1BDABENAP115A

(7) Part No. K3881-6534-1

IMPORTANT

NOT APPROVED FOR SALE OR USE IN THE STATE OF CALIFORNIA AS THIS UNIT DOES NOT HAVE CARB APPROVAL.

IMPORTANTE

NO APROBADO PARA LA VENTA O UTILIZAR EN EL ESTADO DE CALIFORNIA COMO ESTA UNIDAD NO TIENE APROBACIÓN DE CARB.

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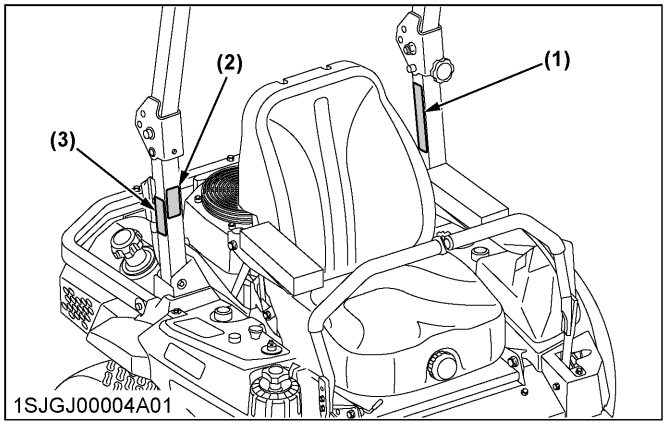

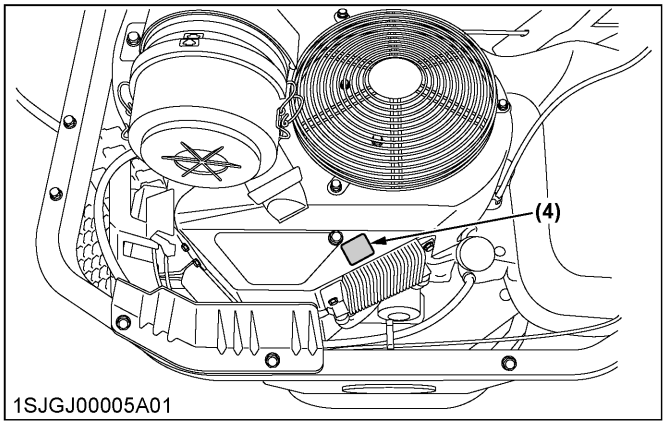

(1) Part No. K3851-6566-1

⚠ ADVERTENCIA

Nunca modifique ni repare una estructura de protección contra volcaduras(ROPS, por sus siglas en inglés) porque soldar, esmerilar, perforar o cortar cualquier parte puede debilitar la estructura.

PARA EVITAR LESIONES PERSONALES AL ELEVAR O PLEGAR LA ESTRUCTURA DE PROTECCIÓN CONTRA VOLCADURAS:

1. Ponga el freno de estacionamiento para detener el motor.
2. Retire cualquier obstrucción que pueda impedir la elevación o plegado de la estructura de protección contra volcaduras.
3. No permita la presencia de otras personas.
4. Siempre realice la función desde una posición estable en la parte posterior del tractor.
5. Mantenga fija de manera segura la parte superior de la estructura de protección contra volcaduras durante la elevación o plegado.
6. Asegúrese de que todos los pines estén instalados y bloqueados.

1BDABEAAP147A

(2) Part No. K3851-6574-1

⚠ ADVERTENCIA

PUEDE HABER FUGAS DE COMBUSTIBLE

Abertura de ventilación del tanque de combustible situada dentro de la cubierta de la ROPS. La retirada o la modificación de la ROPS y/o la cubierta podria causar fugas de combustible y violar las normas relacionadas con las emisiones de gases.
No retire ni modifique la ROPS y/o la cubierta de ninguna forma.

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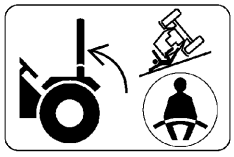
(3) Part No. K3811-6563-1

⚠ WARNING



TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:

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

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

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

1BDABEAAP093A

(4) Part No. K3851-6533-1

- Hot surface - Burn to finger or hand
- Do not touch muffler.

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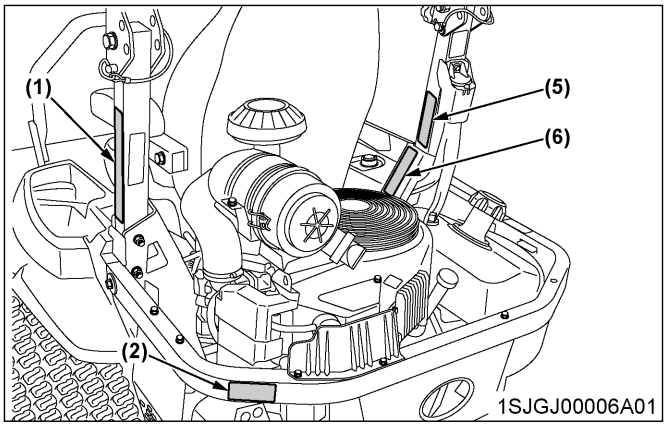

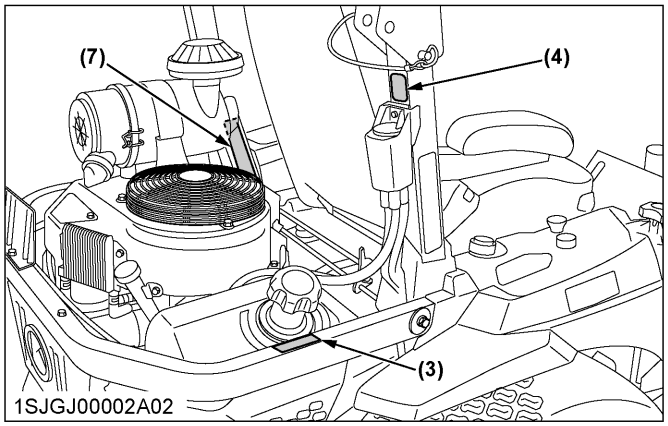

(1) Part No. K3811-6565-1

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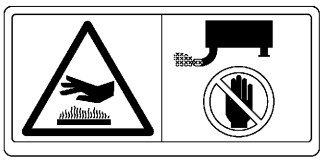
(2) Part No. K3811-6532-1

- Hot surface - Burn to finger or hand
- Do not touch muffler.



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(3) Part No. K3811-6587-1

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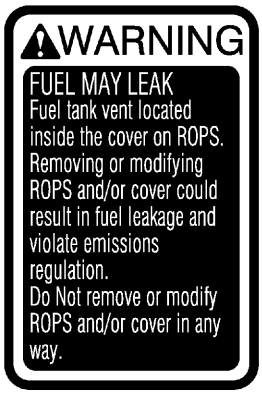
(4) Part No. K3851-6573-1



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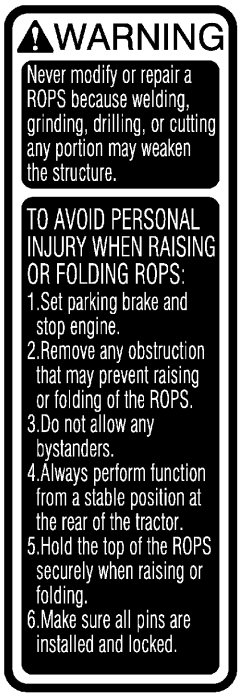

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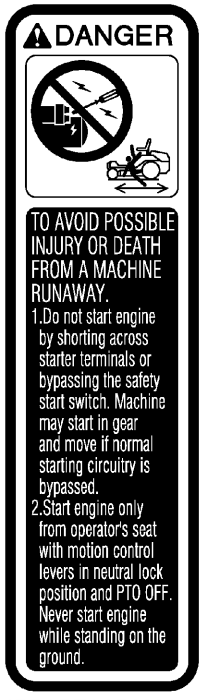

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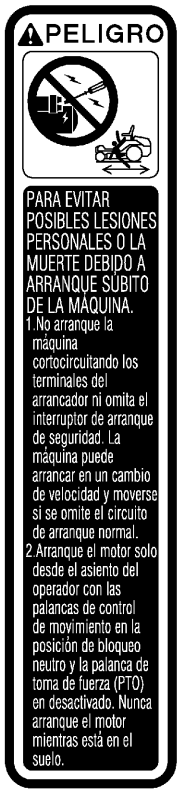

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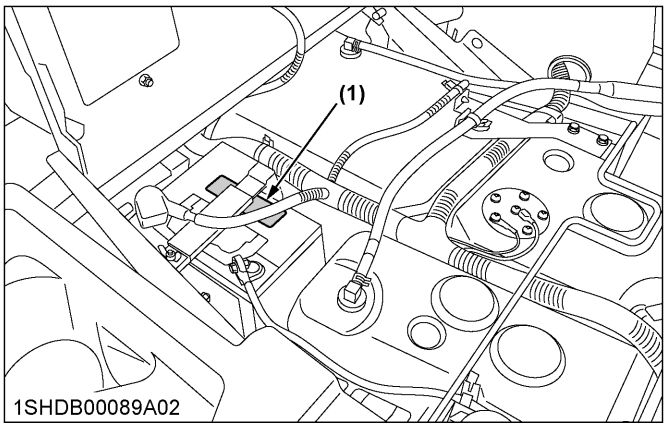
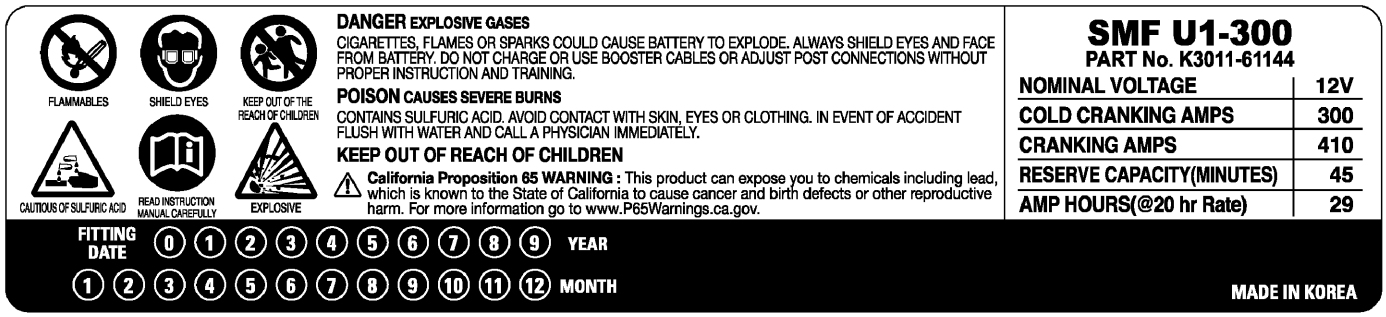


(1) Part No. K3011-6118-4



TO AVOID INJURY FROM BATTERY GASES AND ACIDES

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

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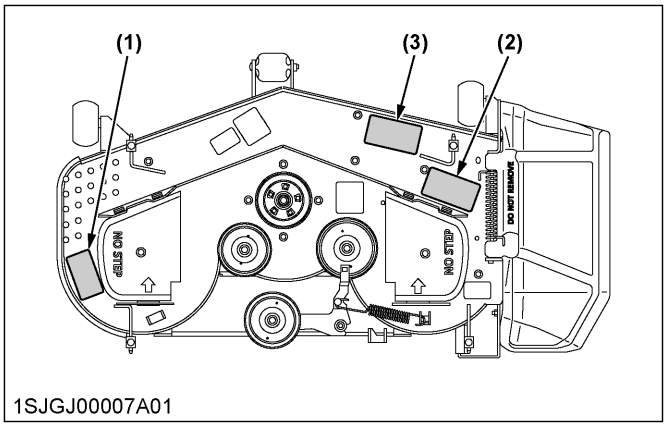

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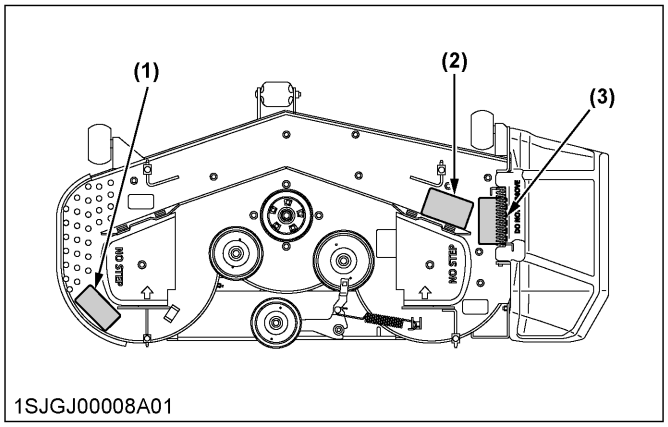
RCK54P



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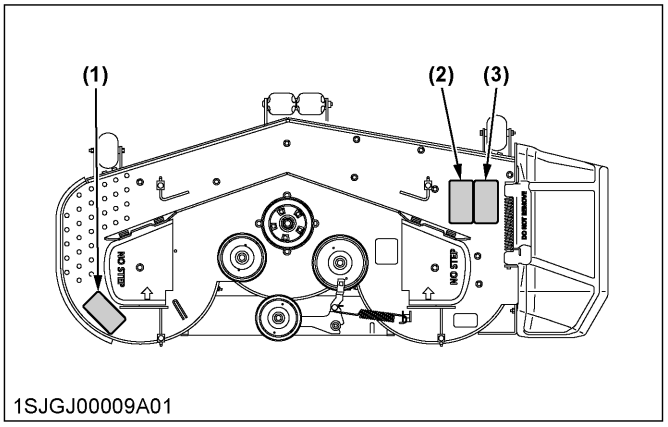
RCK60P



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(1) Part No. K5681-7312-2

(2) Part No. K5681-7311-2

1SJGJ00047A01enUS

(3) Part No. K5681-7310-1

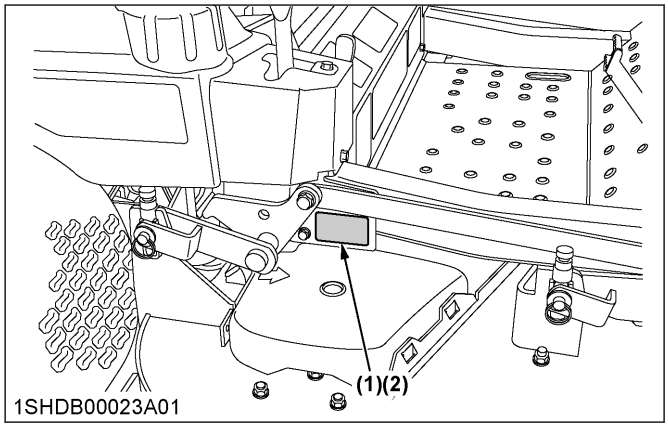
CARE OF SAFETY LABELS

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

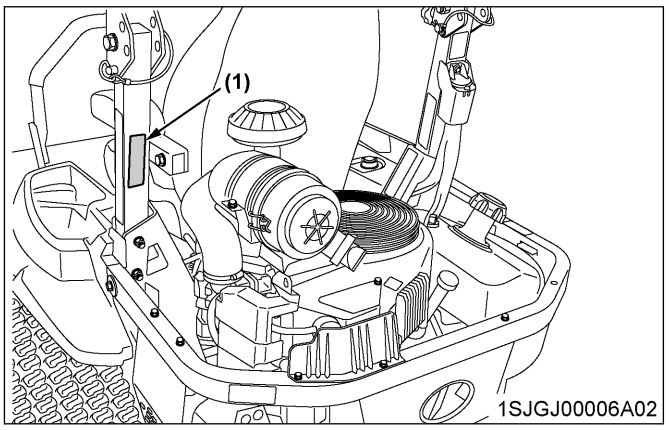
SERVICING OF MACHINE

After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself. Your dealer has knowledge of your new machine and has the desire to help you get the best performance and the most value from it.
When in need of parts or major service, be sure to consult your local KUBOTA Dealer. When in need of parts, be prepared to give your dealer the machine, ROPS, engine and mower serial numbers.
Locate the serial numbers now and record them in the space provided.

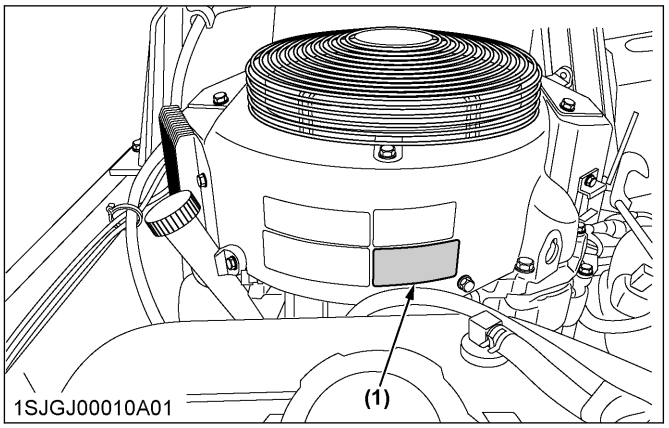
	Type	Serial no.
Machine		
ROPS		
Engine		
Mower		
Date of purchase		
Name of dealer		
(To be filled in by purchaser)		



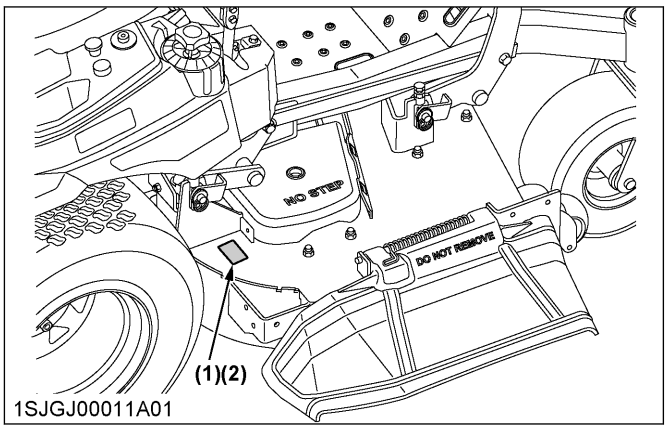
(1) Machine identification plate
(2) Machine serial no.



(1) ROPS serial no.



(1) Engine serial no.



(1) Mower identification plate
(2) Mower serial no.

WARRANTY

This machine 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 machine has not been handled according to

the instructions given in the operator's manual, even if it is within the warranty period.
The engine is warranted under the Kawasaki Limited Warranty, a copy of which has been provided with your machine purchase.
Refer to the Kawasaki Limited Warranty for details regarding warranty coverage, owner obligations, warranty limitations, and liabilities.

SCRAPPING THE MACHINE AND ITS PROCEDURE

To put the machine 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				Z751KWi	Z781KWi	Z781KWTi
Engine	Model			**KAWASAKI FX730V-EFI**	**KAWASAKI FX850V-EFI**	
	Max. engine power (gross)		kW (HP)	19.0 (25.5) *1*2	22.0 (29.5) *1*2	
	Type			Air-cooled EFI gasoline engine		
	Number of cylinders			2 (V-Twin)		
	Bore and stroke		mm (in.)	78 x 76 (3.07 x 2.99)	84.5 x 76 (3.33 x 2.99)	
	Total displacement		cm^3 (cu. in.)	726 (44.3)	852 (52)	
	Rated revolution		rpm	3600		
	Fuel			Unleaded gasoline		
	Starter			Electric		
	Lubrication			Full pressure lubrication		
	Cooling			Air-cooled		
	Battery			U1 (12 V, RC: 45 min, CCA: 300, CA: 410)		
Capacities	Fuel tank		L (U.S.gals.)	44 (11.6)		
	Engine crankcase (with filter)		L (U.S.qts.)	2.1 (2.2)	2.3 (2.4)	
	Transmission case including rear axle gear case		L (U.S.qts.)	RH : 3.3 (3.5) *3 LH : 3.3 (3.5) *3		
Dimensions	Overall length		mm (in.)	2130 (83.9)		
	Overall width without mower deck		mm (in.)	1280 (50.4)	1390 (54.7)	
	Overall height (with ROPS)		mm (in.)	1780 (70.0)		
	Wheelbase		mm (in.)	1295 (51.0)		
	Min. ground clearance		mm (in.)	130 (5.12) with **48"**	130 (5.12) with **54"**	130 (5.12) with **60"**
	Tread	Front	mm (in.)	955 (37.6)		
		Rear	mm (in.)	1020 (40.2)		1085 (42.7)
Weight (with mower deck)			kg (lbs.)	551 (1215) with **48"**	569 (1254) with **54"**	583 (1285) with **60"**
Traveling system	Tires	Front		13 x 6.5 - 6 (semi-pneumatic non flat tire) smooth		
		Rear		24 x 9.5 - 14 (4PR) turf		24 x 12 - 14 (4PR) turf
	Traveling speeds	Forward	mph (km/h)	0 to 11.2 (0 to 18.0)		
		Reverse	mph (km/h)	0 to 5.6 (0 to 9.0)		
	Steering			2 - hand levers		
	Transmission			2 HST - G rotor type		
	Parking brake			Drum / Foot applied, released		
	Min. turning radius		mm (in.)	0 (0)		
PTO	Drive system			Belt		
	Clutch type			Electric		

Specifications and design subject to change without notice.

*1 Manufacturer's estimate

*2 These Kawasaki engines have been tested in accordance with SAE J1995, verified by TÜV Rheinland Group, and certified by SAE International. The gross power ratings of these engines were determined by using measurements according to SAE J1995 which were witnessed by SAE-approved witnesses from TÜV Rheinland Group. Torque ratings of these engines were not certified by SAE. Actual power and torque

output will vary depending on numerous factors, including, but not limited to, the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

*3 Oil amount when the oil level is at the upper level.

Model				RCK48P-751Z	RCK54P-781Z	RCK60P-781Z
PRO commercial deck (fabricated deck)	Suitable machine			**Z751KWi**	**Z781KWi**	**Z781KWTi**
	Mounting method			Parallel linkage		
	Adjustment of cutting height			Dial gauge		
	Cutting width		mm (in.)	1219 (48)	1372 (54)	1524 (60)
	Cutting height		mm (in.)	25 to 127 (1.0 to 5.0)		
	Weight (approximation)		kg (lbs.)	102 (225)	110 (243)	119 (262)
	Blade spindle speed		r/s (rpm)	71.1 (4266) *1	62.7 (3762) *1	57.5 (3450) *1
	Blade tip velocity		m/s (fpm)	94.5 (18600) *1	93.4 (18400) *1	94.5 (18600) *1
	Blade length		mm (in.)	423 (16.7)	474 (18.7)	523 (20.6)
	Number of blades			3		
	Dimensions	Total length	mm (in.)	835 (32.9)	850 (33.5)	905 (35.6)
		Total width	mm (in.)	1557 (61.3)	1710 (67.3)	1875 (73.8)
		Total height	mm (in.)	370 (14.6)		

*1 Engine maximum rpm

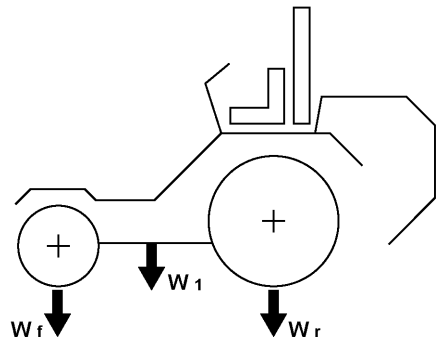
IMPLEMENT LIMITATIONS

The KUBOTA Machine has been thoroughly tested for proper performance with implements sold or approved by KUBOTA.
Use with implements below may result in malfunctions or failures of the machine, damage to other property and injury to the operator or others.

- Implements which are not sold or approved by KUBOTA
- Implements which exceed the maximum specifications listed below, or
- Implements which are otherwise unfit for use with the KUBOTA Machine

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

Unit	Maximum loading weight		Implement weight W_1	Maximum total weight
	Front axle W_f	Rear axle W_r		
Z751KWi	142 kg (313 lbs.)	737 kg (1624 lbs.)	129 kg (284 lbs.)	879 kg (1937 lbs.)
Z781KWi	152 kg (335 lbs.)	757 kg (1669 lbs.)	137 kg (301 lbs.)	909 kg (2004 lbs.)
Z781KWTi	152 kg (336 lbs.)	768 kg (1693 lbs.)	149 kg (328 lbs.)	920 kg (2029 lbs.)



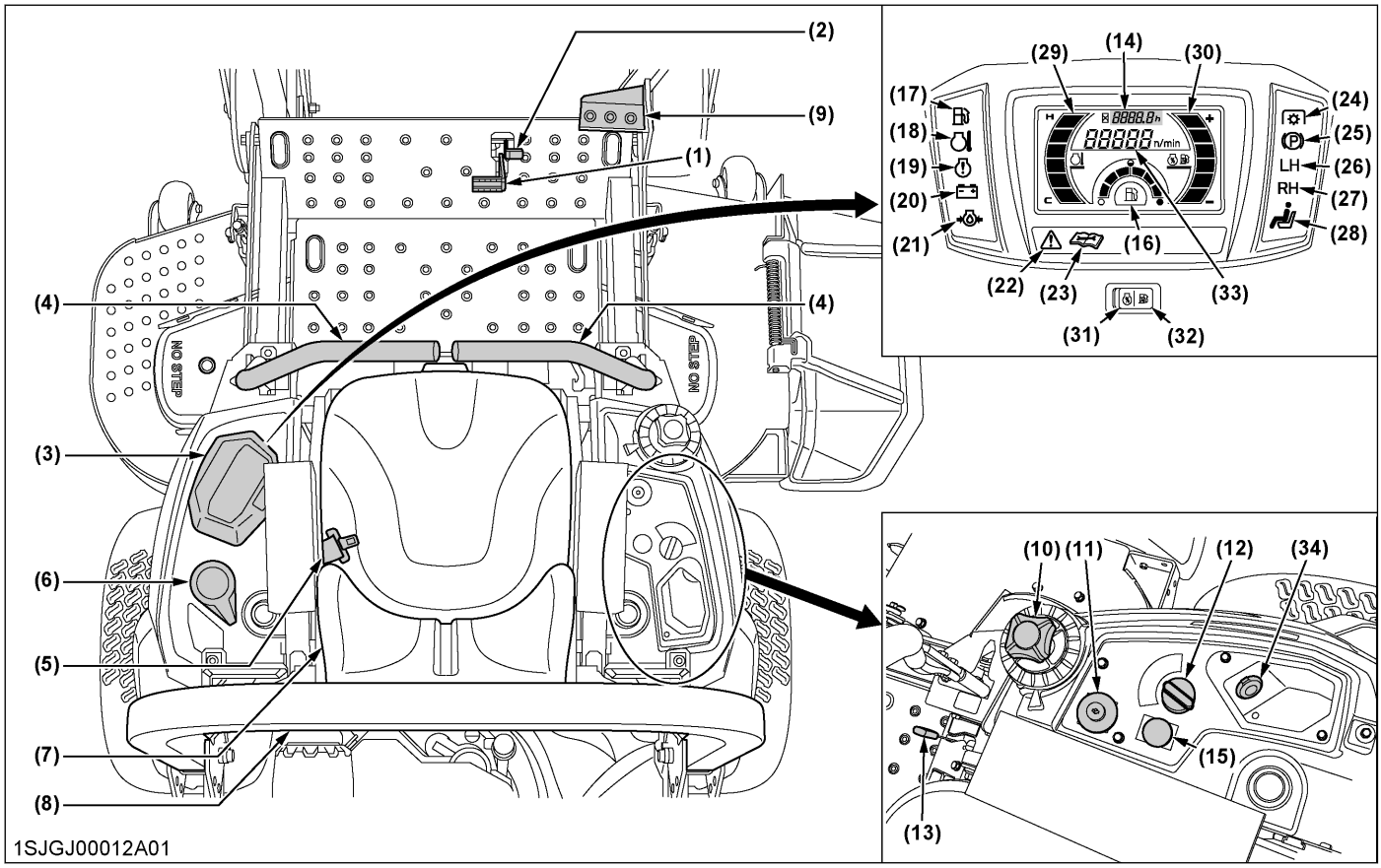
1SFRT00011A01

IMPORTANT :

- **These limits include operator weight with seat in rearmost position.**

INSTRUMENT PANEL AND CONTROLS

INSTRUMENT PANEL, SWITCHES AND CONTROLS



Illustrated contents

(1) Parking brake pedal ..... 28 … 41
(2) Parking brake lock pedal ..... 28 … 41
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(4) Motion control lever ..... 28 … 42
(5) Seat belt 40
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(9) Mower lift pedal 40
(10) Cutting height control dial 46
(11) Key switch 29
(12) Throttle dial 41
(13) Mower lock lever 40
(14) Hour meter 31
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(16) Fuel gauge 31
(17) Fuel level warning lamp 30
(18) Engine overheat warning lamp 30
(19) Engine master warning lamp 30
(20) Electrical charge warning lamp 30
(21) Engine oil pressure warning lamp 30
(22) Master system warning lamp 30
(23) Maintenance warning lamp 30
(24) PTO clutch indicator 33
(25) Parking brake indicator 33
(26) LH control lever indicator 33
(27) RH control lever indicator 33
(28) OPC indicator 33
(29) Engine temperature gauge 31
(30) Power usage and fuel economy monitor 34
(31) Power usage mode switch 34
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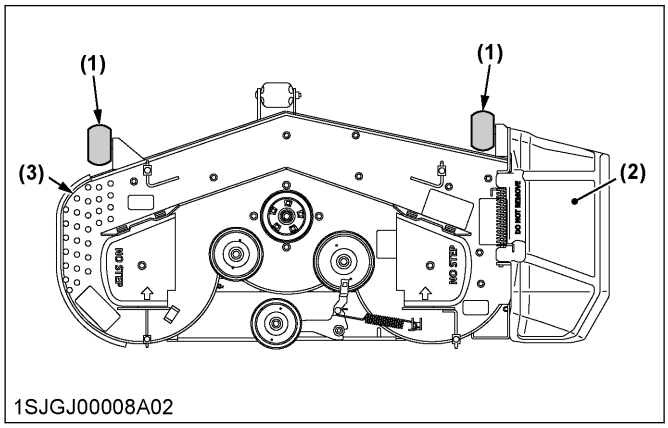
(33) Engine RPM display 33
(34) 12 V electric power socket 45

NOTE :

- **Items (17) to (23) correspond to the Easy Checker™.**

MOWER

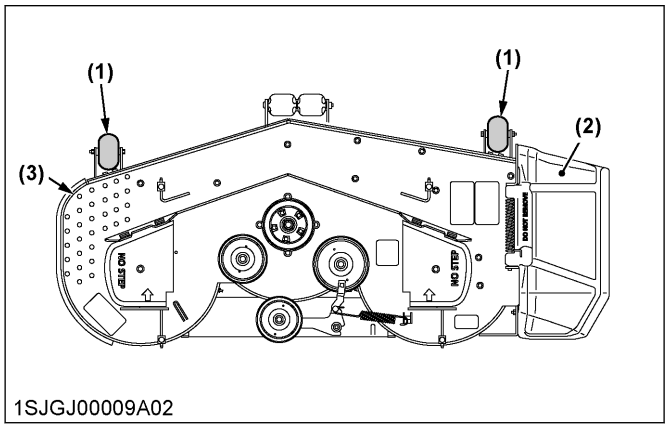
RCK48P, RCK54P



1SJGJ00008A02

(1) Anti-scalp roller (front, bolt shift type) 46
(2) Discharge chute
(3) Step area indicator

RCK60P



1SJGJ00009A02

(1) Anti-scalp roller (front, bolt shift type) 46
(2) Discharge chute
(3) Step area indicator

MOWER MOUNTING

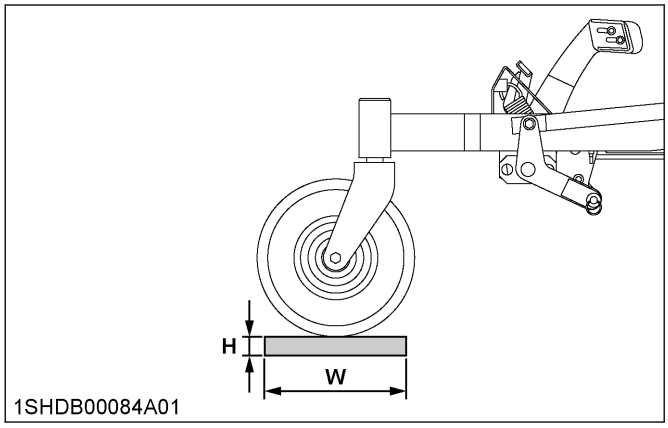
MOUNTING THE MOWER DECK

⚠ WARNING

To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key.**
- **Fix mower link at 25.4 mm (1 in.) position.**

1. Before mounting the mower deck, raise the lift links to the full up position.
2. Adjust the cutting height control dial to 1 in. position.
3. Adjust the anti-scalp rollers to 25.4 mm (1 in.) position.
   (See ADJUSTING THE CUTTING HEIGHT on page 46.)
4. Go backward so that right and left front tires would be on the board 38.1 mm (1.5 in.) high.

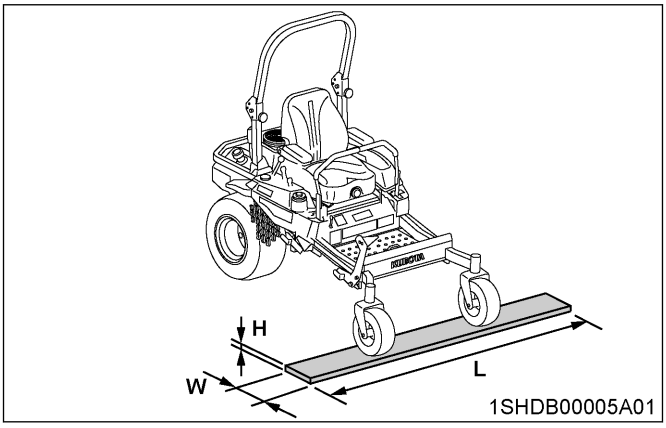


(H) 38.1 mm (1.5 in.)
(W) 133 mm (5.25 in.)

IMPORTANT :

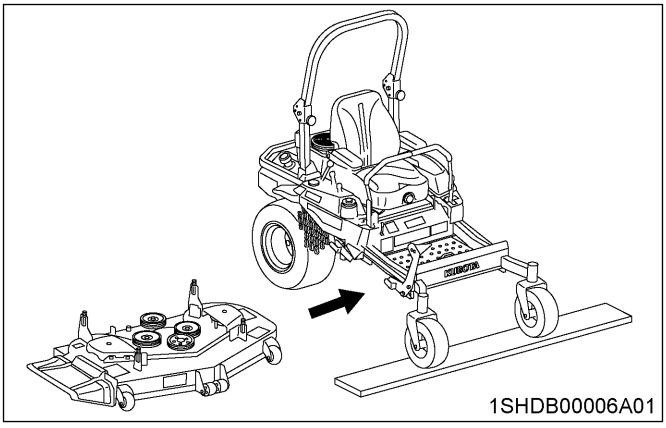
- **Use a board more than 133 mm (5.25 in.) wide and 1600 mm (63.0 in.) long.**
- **Make sure that right and left front tires are firm on the board.**

5. Make sure the direction of the front tires is as shown in the figure.



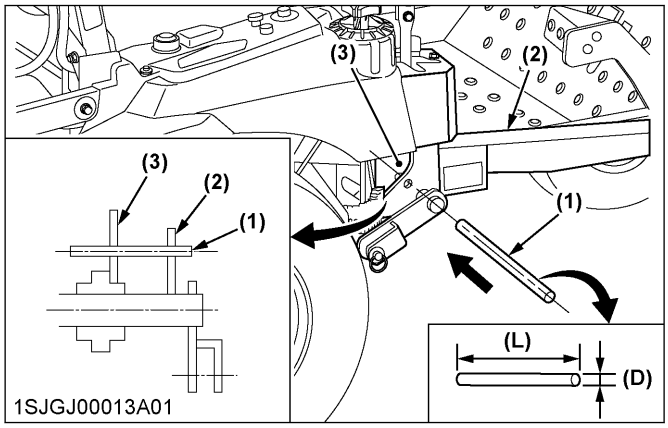
(H) 38.1 mm (1.5 in.)
(L) 1600 mm (63.0 in.)
(W) 133 mm (5.25 in.)

6. Place the mower deck at the right side of the machine.



7. Slide the mower deck under the machine, then lower mower lift links.

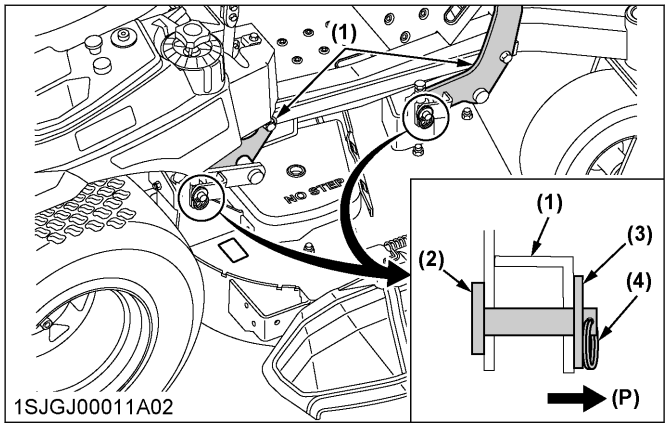
8. Put a Φ14 mm (0.55 in.) shaft in the hole in the rear right side lift link.



(1) Shaft
(2) Lift link
(3) Frame
(D) Φ14 mm (0.55 in.)
(L) More than 150 mm (6 in.)

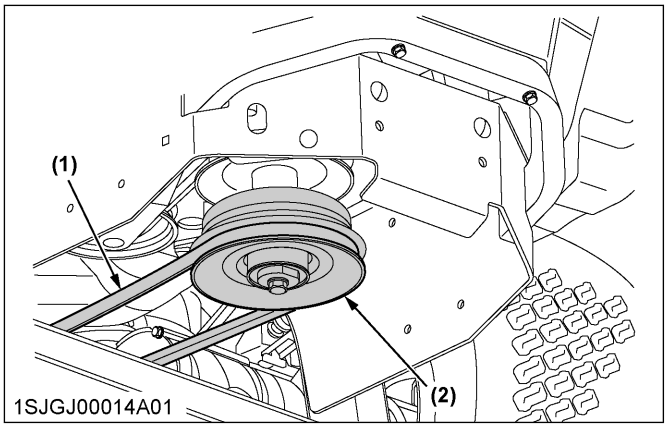
IMPORTANT :
- **Use a shaft more than 150 mm (6 in.) long.**
- **It passes through a hole in the frame.**

9. Attach the lift links to the mower deck with attaching hardware.



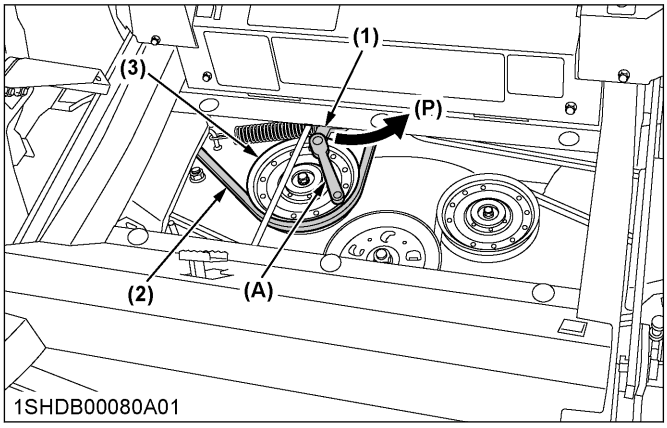
(1) Lift link
(2) Clevis pin
(3) Plain washer
(4) Snap ring
(P) Outside

10. Remove the Φ14 mm (0.55 in.) shaft from the hole in the rear right side lift link.
11. Raise the mower deck to 76 mm (3.0 in.) or higher and attach the mower belt to the PTO clutch pulley.



(1) Mower belt
(2) PTO clutch pulley

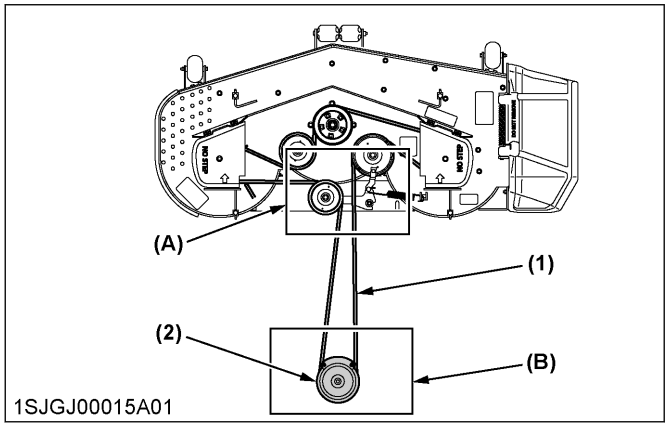
12. Remove the step.
(See OPENING THE STEP on page 56.)
13. Turn the tension arm counterclockwise with a square wrench.



(1) Tension arm
(2) Mower belt
(3) Mower pulley
(A) Square wrench
(P) "COUNTERCLOCK WISE"

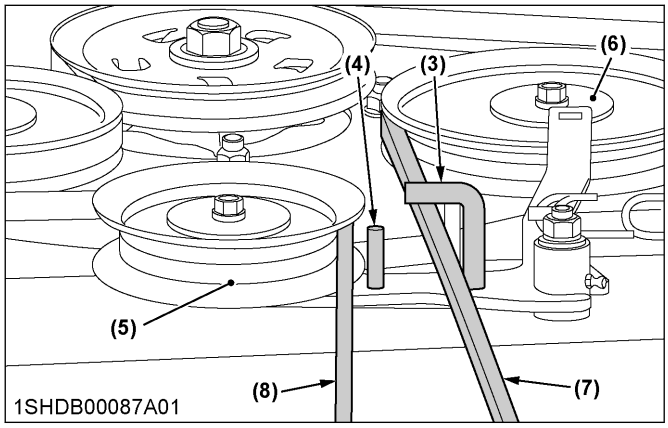
14. Attach the mower belt to the mower pulleys. Refer to the routing label.

    IMPORTANT :
    - **The belt between the idler pulley and PTO clutch pulley should be to the left of pin-1 as shown in figure A, and to the left of the PTO clutch guide as shown in figure B.**
    - **The belt between the tension pulley and the PTO clutch pulley must be to the left of pin-2 as shown in figure A, and to the right of pin-3 as shown in figure B.**



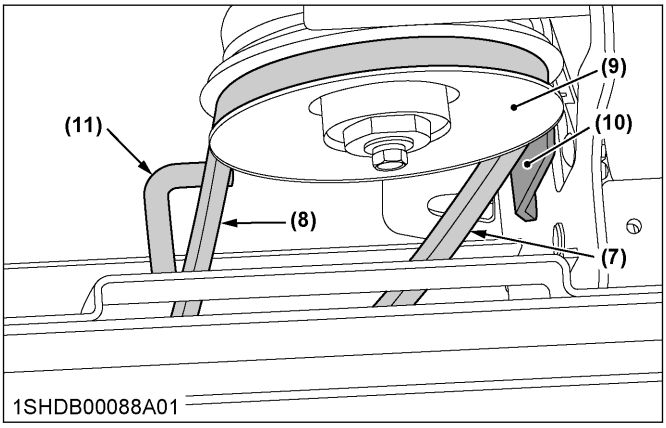
(1) Mower belt
(2) PTO clutch pulley
(A) Mower tension arm area
(B) PTO clutch area

Figure A



(3) Pin-1
(4) Pin-2
(5) Tension pulley
(6) Idler pulley
(7) Belt between the idler pulley and PTO clutch pulley
(8) Belt between the tension pulley and the PTO clutch pulley

Figure B



(7) Belt between the idler pulley and PTO clutch pulley
(8) Belt between the tension pulley and the PTO clutch pulley
(9) PTO clutch pulley
(10) PTO clutch guide
(11) Pin-3

15. After mounting the mower, check the mower level. If necessary, adjust the mower level and anti-scalp rollers.

ADJUSTING THE MOWER

(See OPERATING THE MOWER on page 46 and ADJUSTMENT on page 80.)

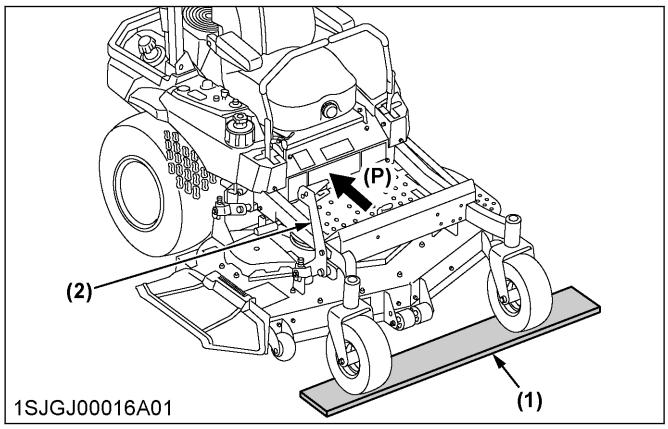
DISMOUNTING THE MOWER DECK

⚠ WARNING

To avoid serious injury or death:

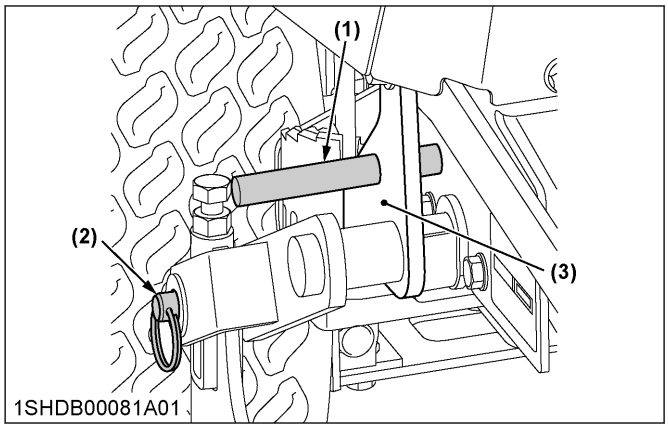
- **Push the mower deck lift pedal with enough force. If the force on the mower deck lift pedal in step 6 is not sufficient, the mower link will come loose suddenly when the 14 mm (0.55 in.) shaft is removed.**
  Be sure to push the lift pedal with sufficient force to prevent this sudden movement.
- **Keep all hands and feet clear of the mower links when removing the shaft.**

1. Adjust the cutting height control dial to 25.4 mm (1 in.) position with the machine placed on the board.



(1) Board
(2) Mower lift pedal
(P) "PUSH"

2. Adjust the anti-scalp rollers to 25.4 mm (1 in.) position.
(See ADJUSTING THE CUTTING HEIGHT on page 46.)
3. Put a Φ14 mm (0.55 in.) x 150 mm (6 in.) shaft in the hole of the rear right side lift link.



(1) Shaft (Φ14 mm (0.55 in.) x 150 mm (6 in.))
(2) Clevis pin
(3) Lift link

4. Remove the mower belt.
5. Remove 4 clevis pins mounting the mower deck.
6. Push the mower lift pedal toward the seat and remove the Φ14 mm (0.55 in.) shaft from the hole in the rear right side lift link.
7. Slowly let the mower lift pedal move to the full up position.
8. Slide the mower deck from under the machine to the right side of it.

OPERATING THE ENGINE

⚠ WARNING

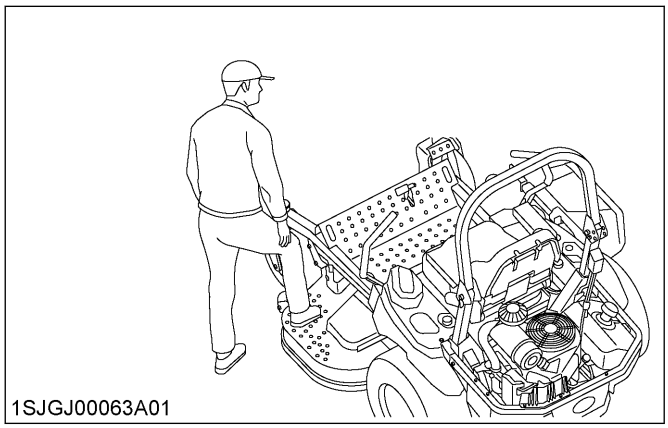
To avoid serious injury or death:

- **Read and understand the safe operation section.**
- **Read and understand the safety labels located on the machine.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine indoors without proper ventilation.**
- **Never start the engine while standing on the ground. Start the engine only from the operator's seat.**

Details regarding safe operation can be found in a different section.
(See SAFE OPERATION on page 5.)

GETTING ON AND OFF THE MACHINE SAFELY

A step area indicator has been provided on the left side of mower deck. If necessary, please use it to assist in getting in and out of the mower operator area.

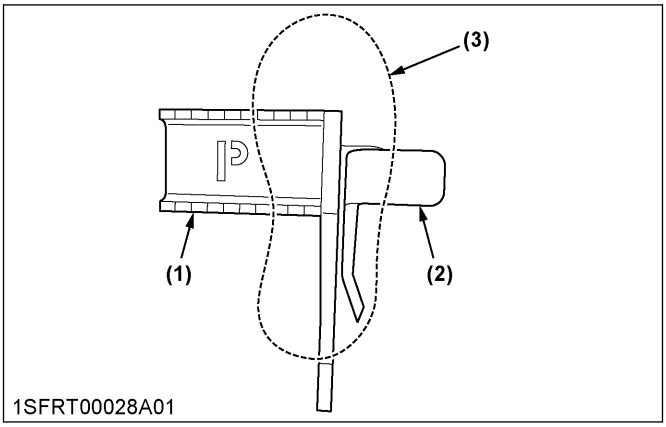


STARTING THE ENGINE

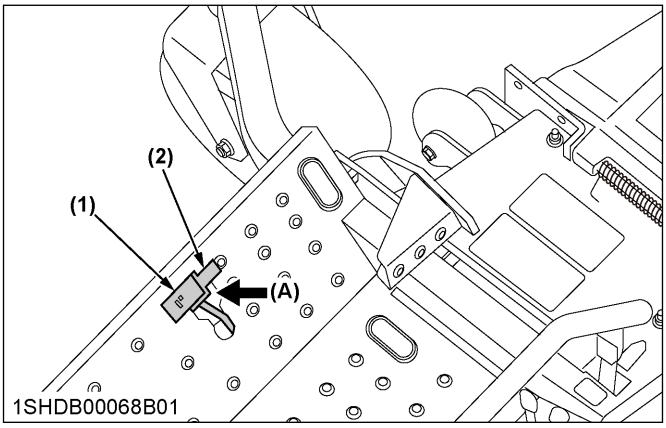
1. Sit on the operator's seat. Put on the seat belt.
2. Apply the parking brake.

   To apply the parking brake:

   a. Depress the parking brake pedal firmly with the left side of your right foot.
   b. While keeping the parking brake pedal depressed, use the right side of your right foot to depress the parking brake lock pedal.
   c. Release the parking brake pedal while holding down the parking brake lock pedal.
   d. Release the parking brake lock pedal.



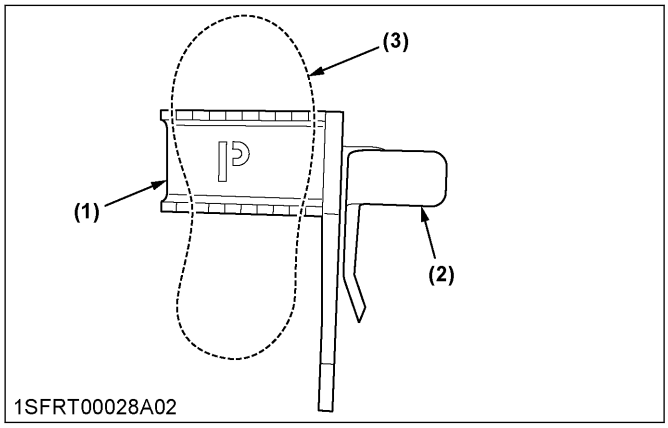
(1) Parking brake pedal
(2) Parking brake lock pedal
(3) Right foot



(1) Parking brake pedal
(2) Parking brake lock pedal
(A) "DEPRESS"

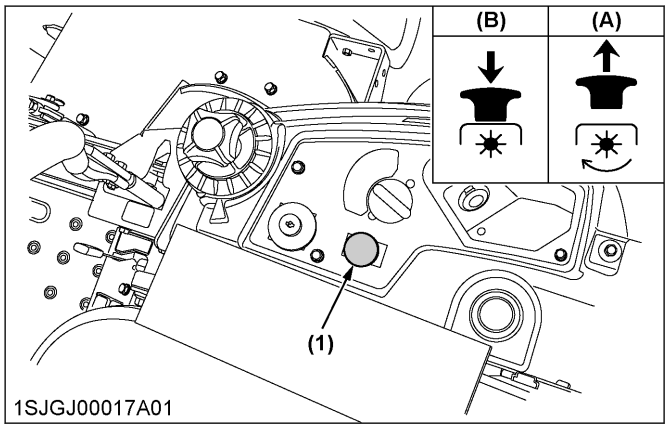
To release the parking brake:

Depress the parking brake pedal and release it slowly with your right foot without pressing the parking brake lock pedal.



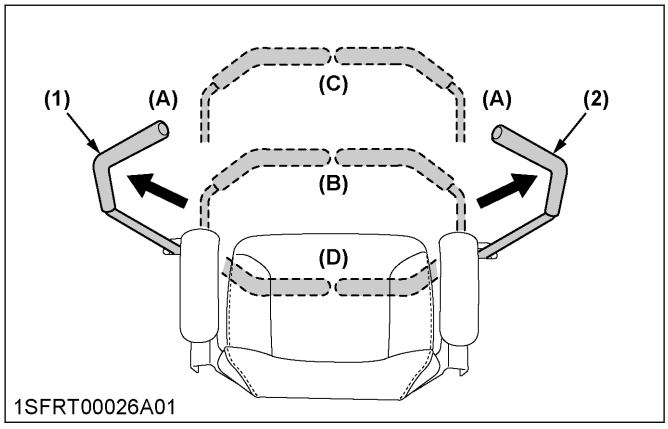
(1) Parking brake pedal
(2) Parking brake lock pedal
(3) Right foot

3. Make sure that the PTO switch is in the *"DISENGAGED"* (OFF) position.



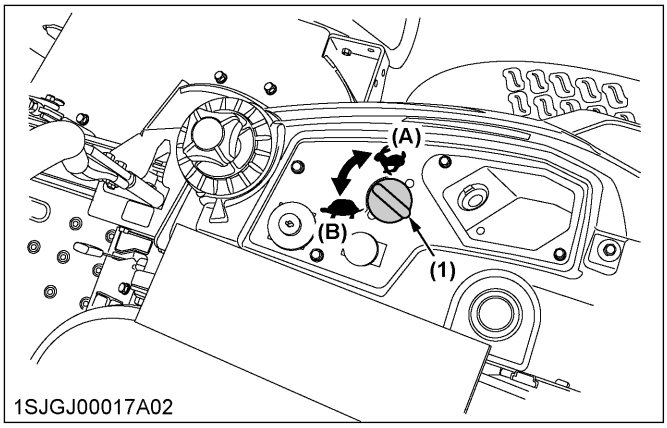
(1) PTO switch
(A) "ENGAGED" (ON)
(B) "DISENGAGED" (OFF)

4. Place the motion control levers in the *"NEUTRAL LOCK"* position.



(1) Motion control lever (LH)
(2) Motion control lever (RH)
(A) "NEUTRAL LOCK" position
(B) "NEUTRAL" position (held by hands)
(C) "FORWARD"
(D) "REARWARD"

5. Set the throttle dial as follows.
   Place the throttle dial midway between the *"SLOW"* and the *"FAST"* positions.



(1) Throttle dial
(A) "FAST"
(B) "SLOW"

6. Insert the key into the key switch. Turn the key switch to the *"START"* position and release the key to the *"ON"* position when the engine starts.
   (See Key switch on page 29.)

   IMPORTANT :
   - **Because of the start interlocks, the engine can not be started except when the PTO switch is disengaged (OFF), the parking brake lock pedal is applied, motion control levers are in *"NEUTRAL LOCK"* position and the operator is sitting on the seat.**

7. Make sure that the Easy Checker™ lights have gone off. If the light is still on, immediately stop the engine and check the remedy following the instruction.
   (See CHECK DURING OPERATING on page 30.)
8. Warm up the engine by running at medium speed.

1. Throttle dial

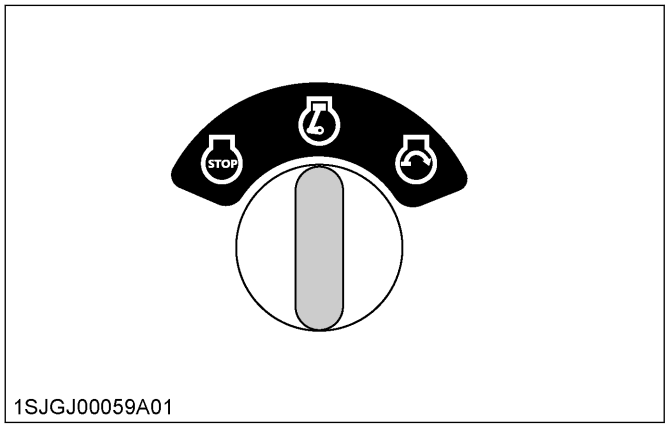
Turn the throttle dial counterclockwise to decrease the engine speed. Turn it clockwise to increase the engine speed.

2. Key switch

OFF
The position where the key can be inserted into or removed from the key switch. When the key is turned to this position, the engine shuts off.

ON
The engine keeps running.

START
Apply the parking brake and turn the key switch to this position to start 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 at a time.**
  If the engine does not start, allow a 60 seconds cool down period between starting attempts.
- **If the starter does not turn the engine over, shut off the starter immediately. Do not make further attempts to start the engine until the condition is corrected.**
  Consult your local KUBOTA Dealer.
- **Do not turn the key switch to the *"START"* position while the engine is running.**
- **When the temperature is below 0 ℃ (32 ℉), run the engine at medium speed to warm up the lubricant of the engine and the transmission for at least 10 minutes. If the machine is operated before the lubricant is warm enough, the machine operating life will be shortened.**
- **Do not operate the machine under full load until it is sufficiently warmed up 2 or 3 minutes for temperature above 0 ℃ (32 ℉).**
- **When the ambient temperature is less than -15 ℃ (5 ℉), remove the battery from the machine and store it somewhere warm until the next operation.**

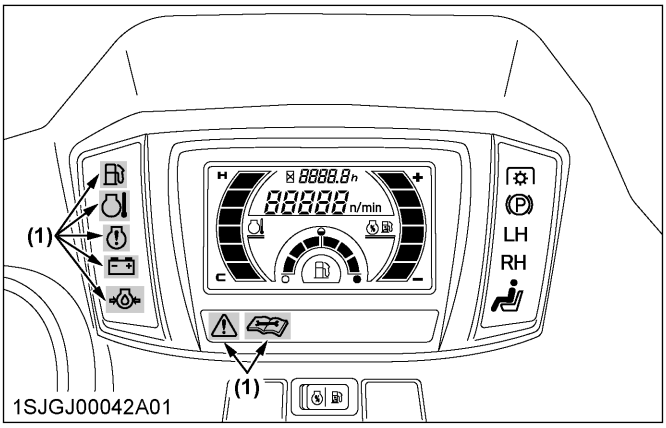
CHECK DURING OPERATING

IMPORTANT :
Immediately stop the engine if:

- **The engine suddenly slows down or accelerates.**
- **Unusual noises suddenly occur.**
- **Exhaust fumes suddenly become discolored.**

While operating, make the following checks to see that all the parts are functioning normally:

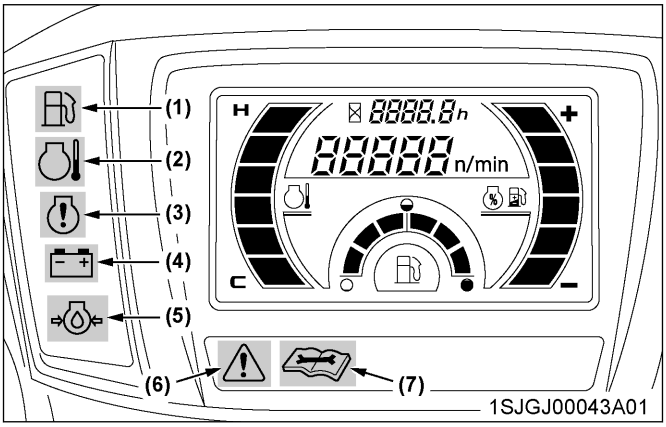
- Easy Checker™ on page 30



(1) Easy Checker™

1. Easy Checker™

If the warning lamps of the Easy Checker™ come on during operation, immediately stop the engine, and find the cause as shown below.
Never operate the machine while Easy Checker™ lamp is on.



(1) Fuel level warning lamp

If the fuel in the tank goes below the prescribed level, the warning lamp in the Easy Checker™ will start blinking.
If this should happen during operation, refuel as soon as possible (within 20 minutes).
(See Checking the amount of fuel and refueling on page 58.)

IMPORTANT :

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

(2) Engine overheat warning lamp

If the engine temperature gauge reads an unusual level and the warning lamp in the Easy Checker™ comes on, the engine may be overheated.
Stop machine operation.

Check the machine by reading the troubleshooting section of this manual.
(See ENGINE TROUBLESHOOTING on page 88.)

(3) Engine master warning lamp
If the engine has a malfunction, the engine master warning comes on.

(4) Electrical charge warning lamp
If the alternator is not charging the battery, the warning lamp in the Easy Checker™ will come on. If this should happen during operation, check the electrical charging system or consult your local KUBOTA Dealer.

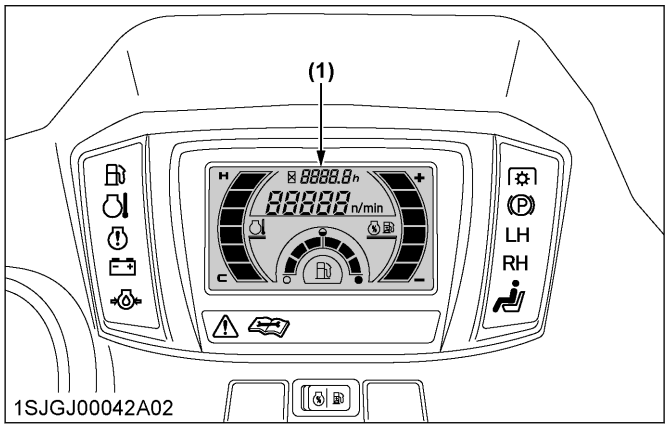
(5) Engine oil pressure warning lamp
If the oil pressure in the engine goes below the prescribed level, the warning lamp in the Easy Checker™ will come on.
If this should happen during operation, and it does not go off when the engine is accelerated to more than 1000 rpm, check level of engine oil.
(See Checking the engine oil level on page 57.)

(6) Master system warning lamp
If trouble should occur at the disconnection of fuel sensor, or LCD monitor malfunction, the lamp flashes as a warning. If the trouble is not corrected by restarting the machine, consult your local KUBOTA Dealer.

(7) Maintenance warning lamp
If maintenance is necessary, the maintenance warning comes on. If you put a fuse in the empty fuse box, this blinks.

NOTE :
- **For checking and servicing of your machine, consult your local KUBOTA Dealer for instructions.**

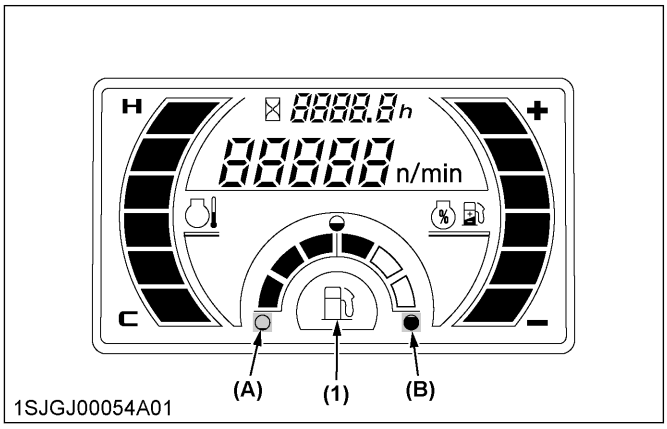
LCD MONITOR



(1) LCD monitor

1. Fuel gauge

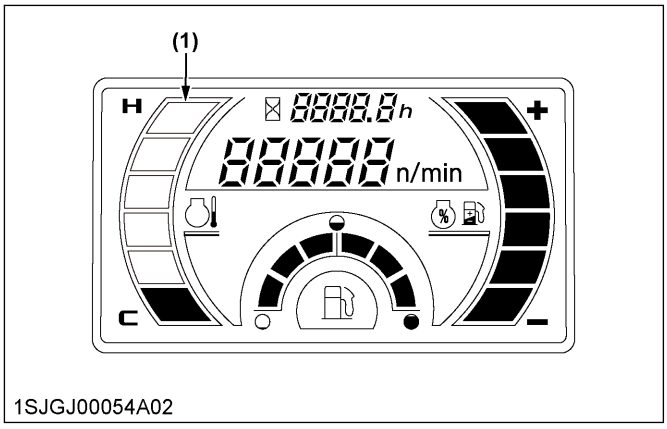
When the key switch is on, the fuel gauge indicates the fuel level.
Fuel gauge has 6 bars to show how much fuel remains in the fuel tank.
If the fuel level is less than 1 bar, the warning light starts blinking. Refuel within 20 minutes.
Be careful not to run the fuel tank completely empty. Otherwise air may enter the fuel system.
Should this happen, the fuel system must be bled.



(1) Fuel gauge
(A) "EMPTY"
(B) "FULL"

2. Engine temperature gauge

The engine temperature gauge has 6 bars to show how hot the engine is.
If the bars are filled up and the engine gets even hotter, all the bars will start blinking and the warning light will turn on. Then park the machine and reduce engine rpm to idle. To allow the engine to cool itself.
If the engine continues to get hotter, the engine will go into a reduced power mode (engine rpm will automatically reduce to low idle) to protect itself. Refer to Kawasaki engine owner's manual for more details.



(1) Engine temperature gauge

3. Hour meter and code display

The hour meter has 3 display modes.

3.1 Normal mode

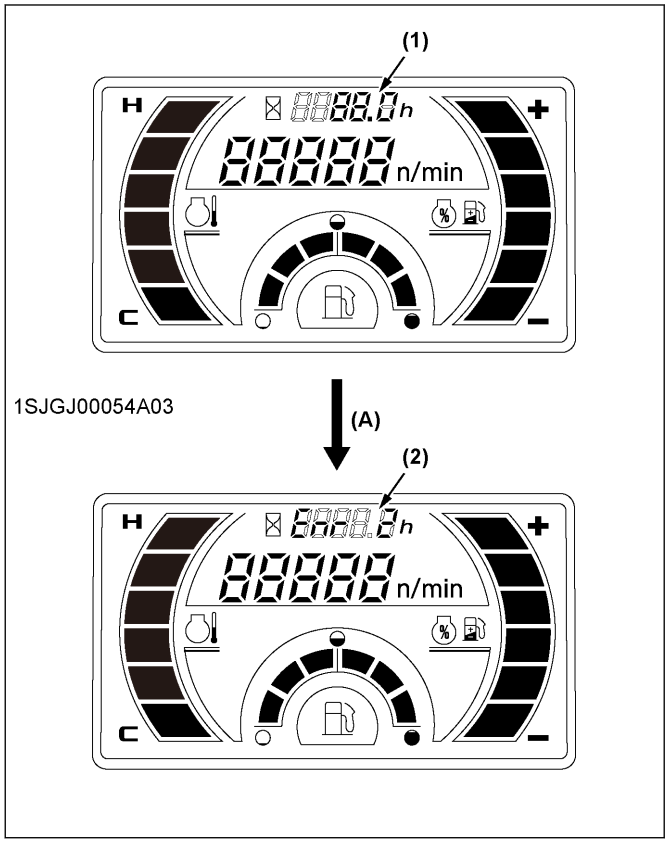
The hour meter gives readings for the hours the machine has been operated.
The hour meter indicates in 5 digits the hours the tractor has been used; the last digit indicates 1/10 of an hour.

IMPORTANT :

- **If the key is on but engine not running, the hours are not counted by the hour meter.**
- **The hour meter only counts the hours if the engine is running.**

3.2 Error code mode

This mode displays error codes for the LCD monitor. For example, if the machine's hour meter displays 88.0 and the hour meter has some trouble with its internal memory, the display will change between 88.0h and E0002. To get help, contact your local KUBOTA Dealer when these codes appear.
For some error codes, the engine will enter a reduced power mode to minimize or prevent engine damage. (Refer to Kawasaki engine operator's manual for more details.) The PTO will automatically disengage, and the engine will automatically reduce throttle to low idle. Park the machine and stop the engine as soon as safely possible and contact your local KUBOTA Dealer.

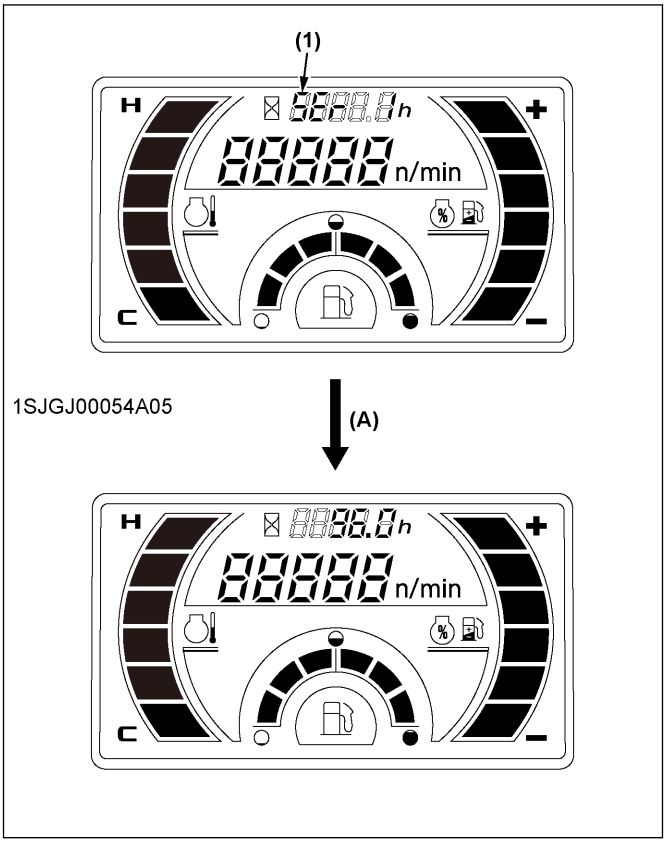


(1) Hour meter *(A) The display change*
(2) Hour meter error code

3.3 Service code mode

The engine and/or transmission must be serviced every 100 hours. So between 95 and 105 hours, this display will show the maintenance reminder code whenever the key is turned *"ON"*. It will show the code for the first 10 seconds that the key is *"ON"*. For example, if you turn the key *"ON"* and the machine has 96.0 hours, it will show SErvI for 10 seconds. After 10 seconds, it will show 96.0h.
The SErvI code means you need to change the engine oil. Also, the maintenance warning lamp will be *"ON"* constantly between 95 and 105 hours so you will not forget about the service code.

Service item display	Change engine oil	Change engine oil filter	Change HST oil and filter
"SEr 1"	•		
"SEr 2"	•	•	
"SEr 3"	•		•
"SEr 4"	•	•	•

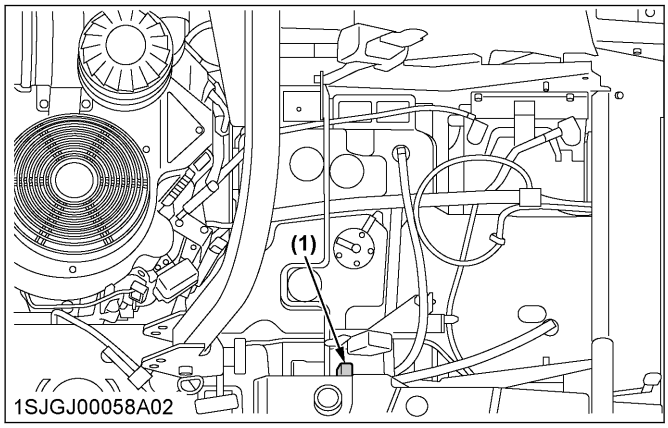


(1) Service code *(A) The display change*

3.4 Resetting

In case you changed the oil at 98 hours, you can reset the maintenance reminder.

1. Find the service reset box between the seat and the right-hand fender. It is empty.

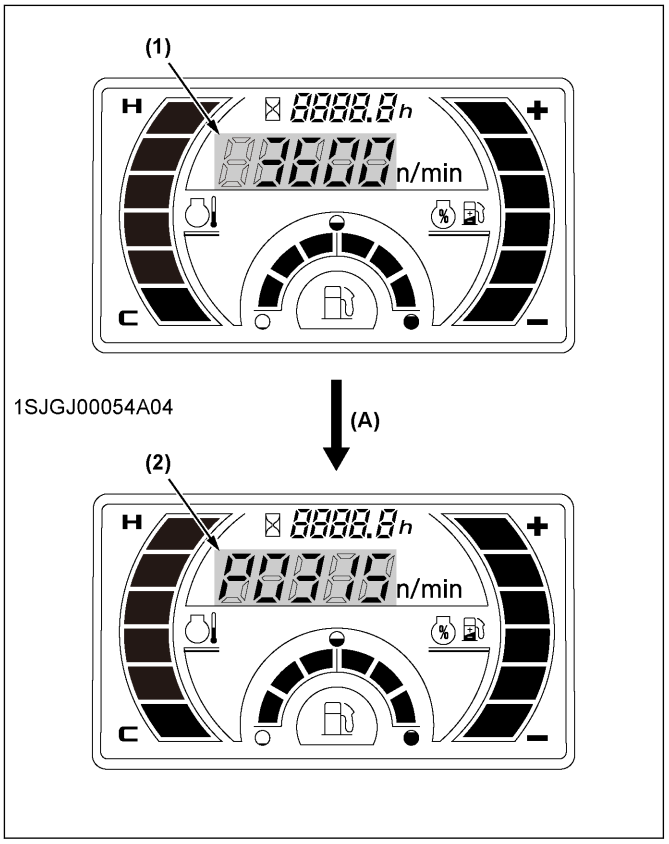


(1) Service reset box

2. Get a spare fuse (1 A or larger) from the fuse group 2 of the fuse box (See Replacing the fuses on page 77.) and install it in the service reset box.
   The warning lamp will start blinking.
3. After 15 seconds of blinking, the display will show SECUR.
   Remove the fuse and put it back where it came from. The warning lamp will turn *"OFF"* and the SERVI code will not show anymore.
   If error code "ErrXX" is displayed, consult your local KUBOTA Dealer to diagnose the problem. (See Error code mode on page 32.)

4. Engine RPM numerical display

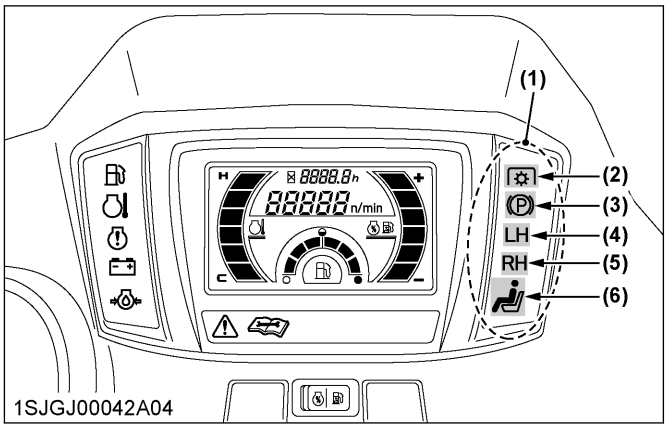
Under normal usage, this display shows the engine rpm. You can use this gauge to precisely choose the engine rpm you want to use for operation, and to engage and disengage the PTO clutch.
If the engine has some trouble, this display will show the engine error code so you or the dealer can diagnose the problem.
For example, if the crankshaft position sensor loses synchronization while the engine is running at 3600 rpm, this display will change between 3600 n/min and P0335. This allows the dealer to diagnose the engine problem quickly.
If error code "PXXXX" is displayed, consult your local KUBOTA Dealer to diagnose the problem.



(1) RPM
(2) Engine error code
(A) The display change

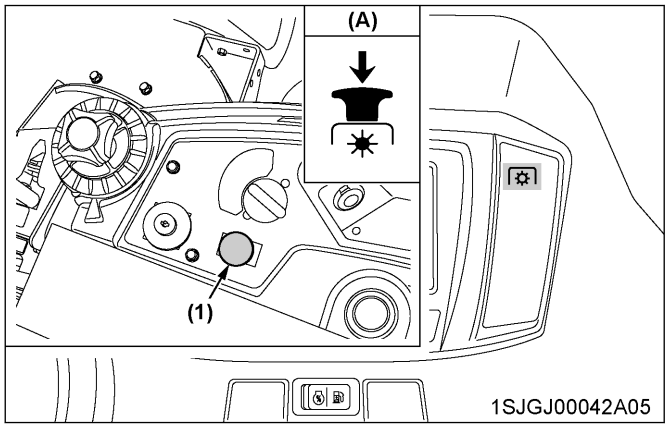
5. Safety switch status lights

When you turn the key to the *"ON"* position, these lights will turn green only if the switches are in the correct position for cranking. If they are all green, you can crank the engine.
If more than one light is not green, start at the top and correct each switch as you work your way down to the bottom.



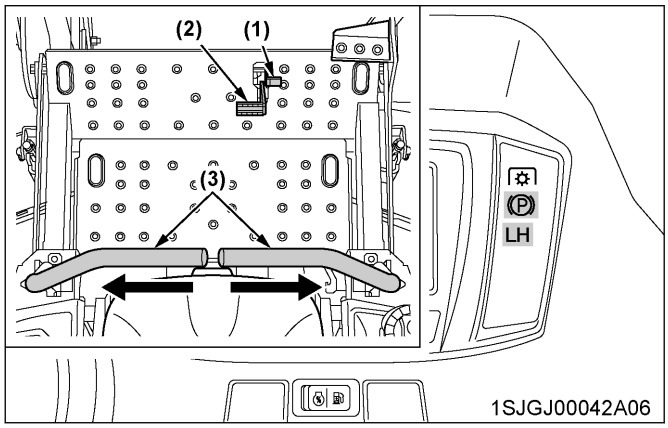
(1) Safety switch status lights
(2) PTO clutch indicator
(3) Parking brake indicator
(4) LH control lever indicator
(5) RH control lever indicator
(6) OPC indicator

For example, the key is in the *"ON"* position but the engine does not start.



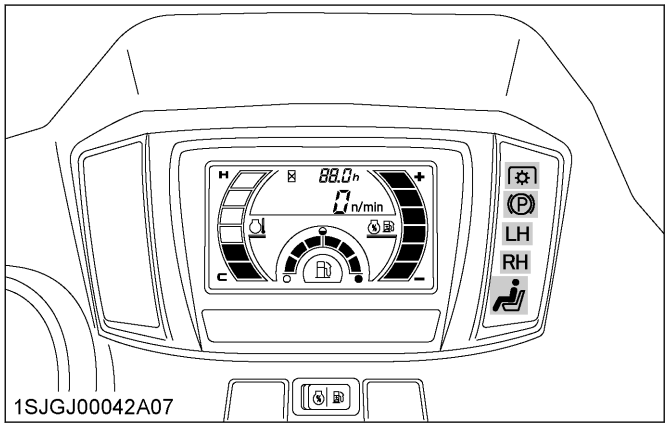
(1) PTO switch (A) "DISENGAGED" (OFF)

The parking brake is applied but the **[RH]** light is not green. Check the motion control lever (RH).



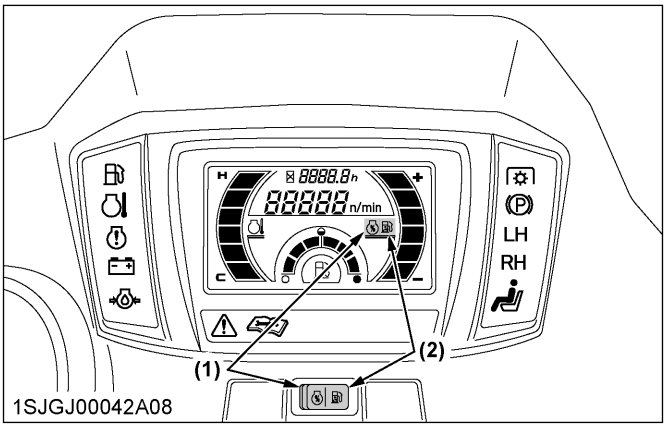
(1) Parking brake lock pedal
(2) Parking brake pedal
(3) Motion control levers

The motion control levers have been set to the *"NEUTRAL LOCK"* position. The lights are now all green and the engine may be cranked.



6. Power usage and fuel economy monitor

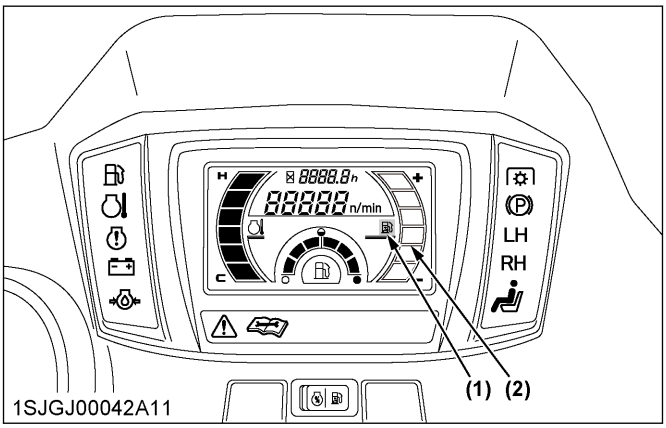
This machine has 2 modes of operation.



(1) Power usage monitoring mode
(2) Fuel economy monitoring mode

6.1 Fuel economy monitoring mode

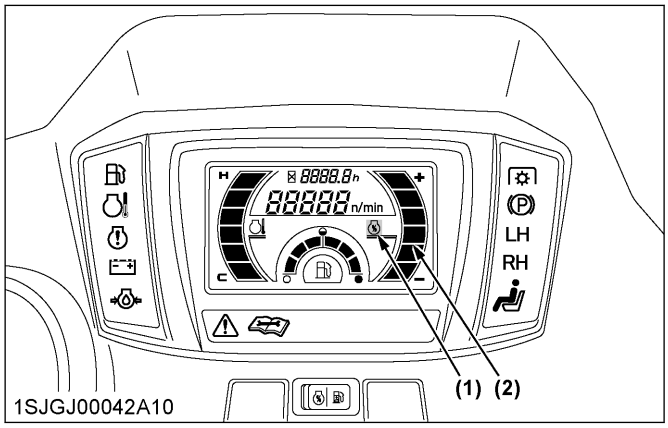
The gauge is full when the machine is very fuel efficient.
When the gauge is full, you are getting maximal hours of usage per gallon of fuel. (example: more than 1 hour of usage per gallon of fuel)
The gauge is empty when the machine is not fuel efficient. When the gauge is empty, you are getting minimal hours of usage per gallon of fuel. (example: less than 20 minutes of usage per gallon of fuel)



(1) Fuel economy monitoring mode
(2) Gauge

6.2 Power usage monitoring mode

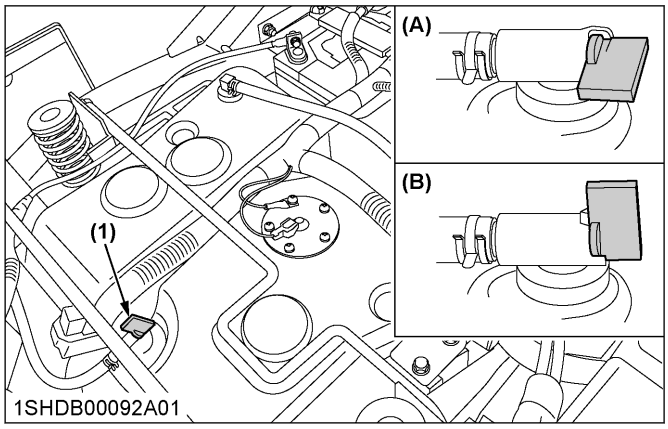
The gauge is full when you are using all of the engine power.
The gauge is empty when you are using very little engine power.



(1) Power usage monitoring mode
(2) Gauge

STOPPING THE ENGINE

1. After setting the engine throttle to *"SLOW"*, turn the key switch to the *"OFF"* position.
2. Remove the key.
3. Do not leave the key switch at *"ON"* (key in the *"ON"* position), as the battery will discharge when the engine is not running.
4. Apply the parking brake.
5. If stopping the machine for a long time. Turn the fuel valve to the *"STOP"* (OFF) position.



(1) Fuel valve
(A) "STOP" (OFF)
(B) "RUN"

IMPORTANT :

- **Do not stop the engine when the machine is on an incline for a long time. Should you have to, immediately apply the parking brake.**
- **Before stopping the engine, place the throttle control dial to the half speed position to help prevent the engine from backfiring.**

COLD WEATHER STARTING

If the ambient temperature is below 0 ℃ (32 ℉) and the engine is very cold, start it in the following manner:

1. Turn the key switch to the *"START"* position.
   a. Operate the starter 5 seconds.
   b. If the engine does not start, wait 15 seconds.
   c. Repeat this procedure until the engine starts.
2. When the engine starts, release the key to the *"ON"* position.

IMPORTANT :

- **To protect the battery and the starter, make sure not to turn the starter continuously for more than 5 seconds.**
- **If it is difficult to start the engine, turn the throttle dial slightly.**
  Engine stalling is likely to occur without warming up.
  In this case re-start engine while turning the throttle dial approximately 1/4.

WARMING UP THE ENGINE

⚠ WARNING

To avoid serious injury or death:

- **Be sure to apply the parking brake during warm-up.**

For 5 minutes after the engine start-up, allow the engine to warm up without applying any load. This is to allow oil to reach every part of the engine. If load is applied to the engine without this warm-up period, problems such as seizure, breakage or premature wear may appear.

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

Hydraulic oil serves as transmission oil. In cold weather conditions, 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 create problems with the hydraulic system.
To prevent this from happening warm up the engine at about 50% of rated rpm according to the following table.

Ambient temperature	Warm-up time requirement
Higher than 0 ℃ (32 ℉)	Approximately 5 minutes
-10 to 0 ℃ (14 to 32 ℉)	5 to 10 minutes
-20 to -10 ℃ (-4 to 14 ℉)	10 to 15 minutes
Below -20 ℃ (-4 ℉)	More than 15 minutes

IMPORTANT :
- **Do not operate unless the engine is well warmed up. If operation is attempted while the engine is still cold, the hydraulic mechanism will not function properly and its service life will be shortened.**
- **If noises are heard after you operate the motion control levers, the hydraulic mechanism is not adjusted properly. Unless corrected, the unit will be damaged. Contact your local KUBOTA Dealer for adjustment.**

JUMP STARTING

⚠ WARNING

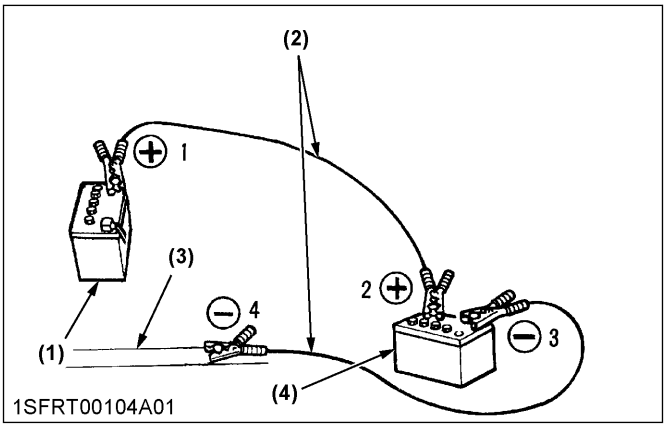
To avoid serious injury or death:
- **Keep cigarettes, sparks, and flames away from the battery.**
- **If the machine battery is frozen, do not jump start the engine.**
- **Do not connect the other end of the negative jumper cable to the negative terminal of the machine battery.**

When jump starting the engine, observe the following instructions to start the engine safely:

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

   IMPORTANT :
   - **The vehicles must not touch.**
2. Apply the parking brakes of both vehicles and put the shift levers in the neutral position. Shut the engine off.
3. Put on safety goggles and rubber gloves.
4. Ensure that vent caps are securely in place (if equipped).
5. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery and clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.
6. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
7. Clamp the other end to the engine block or the frame of the disabled machine as far from the dead battery as possible.
8. Start the helper vehicle and let its engine run for a few moments. Start the disabled machine.
9. Disconnect the jumper cables in the exact reverse order of attachment (steps 7, 6 and 5).

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



(1) Dead battery
(2) Jumper cables
(3) Engine block or frame
(4) Helper battery

IMPORTANT :
- **This machine has a 12 V (volt) negative (-) ground starting system.**
- **Use only same voltage for jump starting.**
- **Use of a higher voltage source on the machine could result in severe damage to the machine electrical system.**
  Use only a matching voltage source when *"jump starting"* a low or dead battery.

OPERATING THE MACHINE

OPERATING A NEW MACHINE

How a new machine is operated and maintained will determine the operating life of the machine.
A new machine just off the factory production line has been tested, but the various parts are not accustomed to each other, so care should be taken to operate the machine 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 machine is handled during the *"breaking-in"* period greatly affects the life of your machine. Therefore, to obtain the maximum performance and the longest operating life of the machine, it is very important to properly break-in your machine. In handling a new machine, the following precautions should be observed.

1. Changing lubricating oil for new machine

The lubricating oil is especially important in the case of a new machine. The various parts are not *"broken-in"* and are not accustomed to each other. Small metal grit may develop during the operation of the machine and this may wear out or damage the parts. Therefore, care should be taken to change the lubricating oil a little earlier than it would ordinarily be required.
Details regarding normal service intervals can be found in a different section.
(See SERVICE INTERVALS on page 52.)

2. Machine break-in

After the first 8 hours, change the engine oil.
(See EVERY 100 HOURS on page 64.)
After the first 300 hours of operation, change the transaxle fluid and oil filter.
(See EVERY 500 HOURS AFTER 300 HOURS on page 72.)

⚠ DANGER

To avoid serious injury or death:

- **Do not operate the mower without the discharge chute in the down position.**

⚠ WARNING

To avoid serious injury or death:

- **The machine relies upon the engine driven transmission for speed, direction, and motion control. If the engine is not running, the machine cannot be driven or controlled.**
  If the engine stops when operating on a slope, apply the parking brake immediately to prevent a machine runaway.
- **Do not allow anyone other than the driver to ride on the machine.**
- **Do not drive the machine close to the edges of ditches or banks which may collapse under the weight of the machine, especially when the ground is loose or wet.**
- **When making a turn, be sure to reduce the travel speed and operate the motion control levers carefully.**
- **To avoid tip-over accidents, operate across slopes, not up and down. Avoid sudden starts and stops on slopes. Slow down and use extra caution when changing direction on a slope.**
  Park the machine on a firm and level surface.
- **Watch where you are going at all times. Watch for and avoid obstacles. Be alert at curbs, near trees, and other obstructions and hidden hazards.**
- **Do not mow near drop-offs, ditches or embankments. The mower could turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.**
- **Do not drive the machine on streets or highways. Watch for traffic when you cross roads or operate near roads.**
- **Look to the rear before and when backing. Make sure the area immediately behind you is clear of obstructions or holes, and small children. Use extra caution when the machine is equipped with a grass catcher.**
- **Keep bystanders, especially children, and animals away from the mowing area.**
- **Clear the work area of objects which might be picked up and thrown by the blades.**
- **Do not direct the opening of the mower at bystanders or animals. Ejected objects may cause injury. Plan your mowing carefully before starting operation.**
- **Be sure to disengage the PTO and sit on the operator's seat before starting the engine.**

OPERATING THE FOLDABLE ROPS

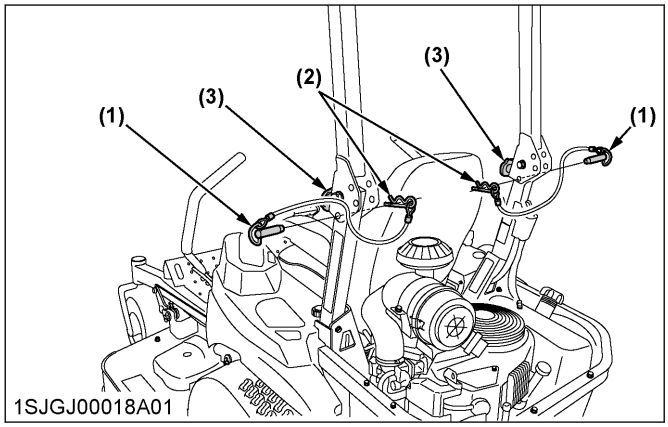
⚠ WARNING

To avoid serious injury or death:

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

1. Folding the ROPS

1. Loosen the knob bolts 1 to 2 turns.
2. Remove both lock pins.



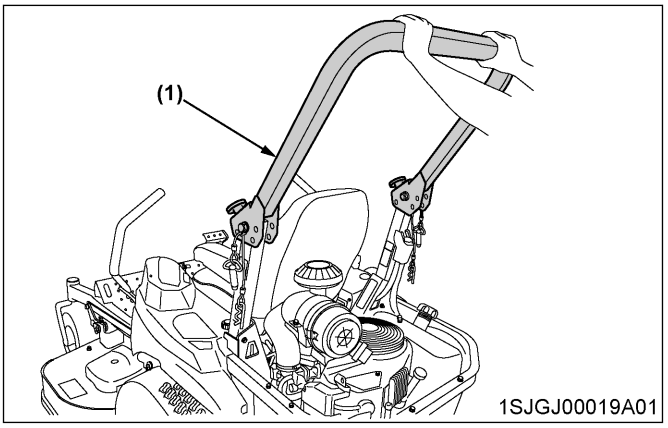
(1) Lock pin
(2) Snap pin
(3) Knob bolt

3. Fold the ROPS.

⚠ CAUTION

To avoid personal injury:

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



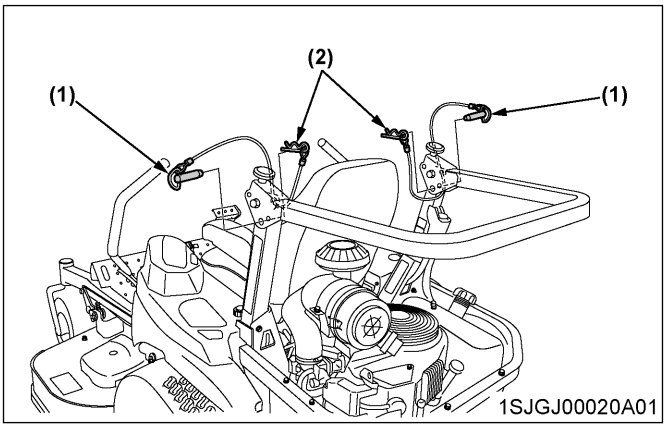
(1) ROPS

4. Align the lock pin holes and insert both lock pins and secure them with the snap pins.

⚠ CAUTION

To avoid personal injury:

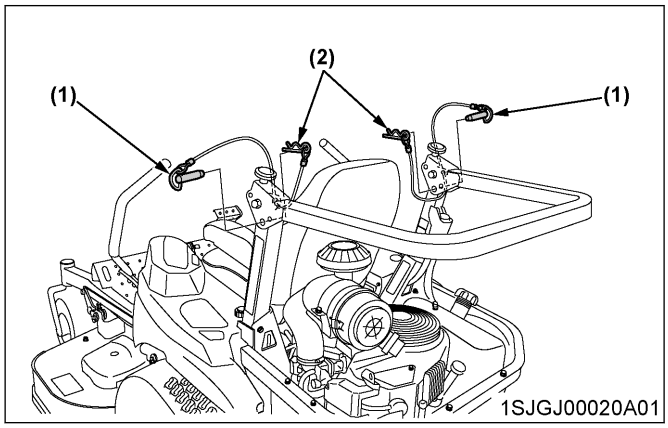
- **Make sure that both lock pins are properly installed and secured with the snap pins.**



(1) Lock pin
(2) Snap pin

2. Raising the ROPS to the upright position

1. Remove both snap pins and lock pins.



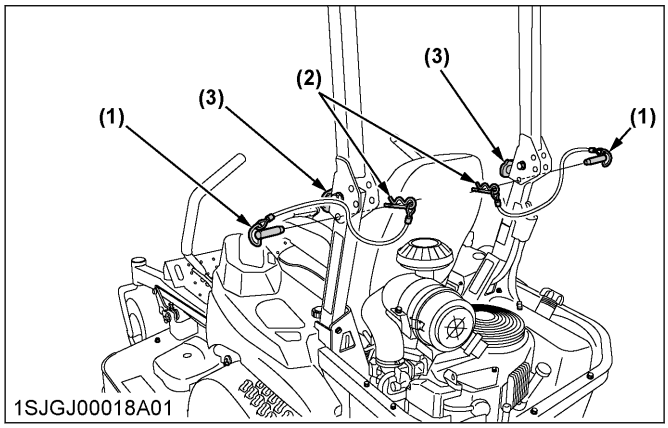
(1) Lock pin
(2) Snap pin

2. Raise the ROPS to the upright position.

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

3. Align the lock pin holes, insert both lock pins and secure them with the snap pins. Do not use your fingers to align the holes.
4. Tighten the knob bolts slightly.

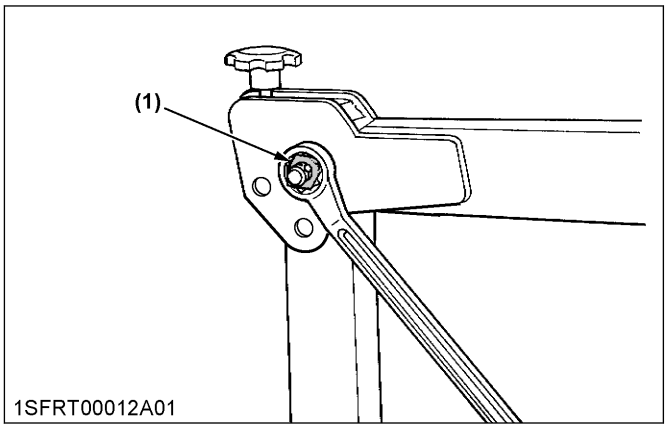
CAUTION
To avoid personal injury:
- **Make sure that both lock pins are properly installed as soon as the ROPS is in the upright position and secured with the snap pins.**



(1) Lock pin
(2) Snap pin
(3) Knob bolt

3. Adjusting the foldable ROPS

1. Adjust the free fall of the ROPS upper frame regularly.
2. If you feel less friction when folding the ROPS, tighten the nut (1) until you feel the right friction when moving it. Then replace the snap pin.



(1) Nut

STARTING THE MACHINE

WARNING
To avoid serious injury or death:
- **Read and understand the safe operation section.**
- **Read and understand the safety labels located on the machine.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine indoors without proper ventilation.**
- **Never start the engine while standing on the ground. Start the engine only from the operator's seat.**

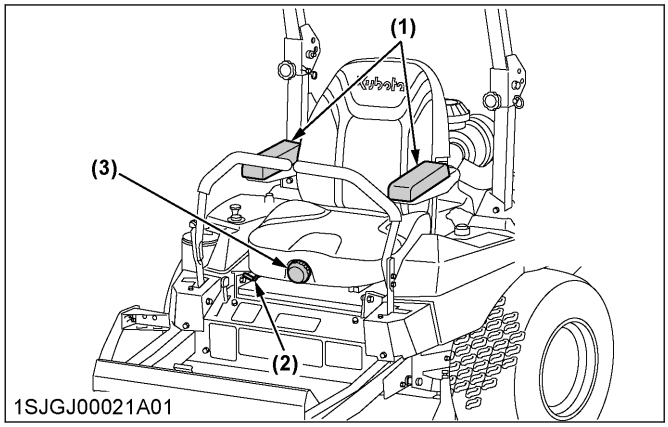
1. Adjust the operator's position and apply the seat belt.
   - Operator's seat on page 40
   - Seat belt on page 40
2. Start the engine.
   See OPERATING THE ENGINE on page 28.
3. Raise the implement.
   - Mower lift pedal on page 40
4. Accelerate the engine.
   - Throttle dial on page 29
5. Unlock the parking brake.
   - Parking brake pedal on page 41
6. Operate the machine.
   - Motion control lever on page 42
   - Stop position of the motion control lever on page 42
   - Operating position of the motion control lever on page 42

1. Operator's seat

WARNING

To avoid serious injury or death:

- **Make adjustments to the seat only while the machine is stopped.**
- **Make sure that the seat is completely secured after each adjustment.**
- **Do not allow anyone other than the driver to ride on the machine.**



(1) Armrest
(2) Seat slide lever
(3) Suspension adjustment knob

Fore-aft adjustment

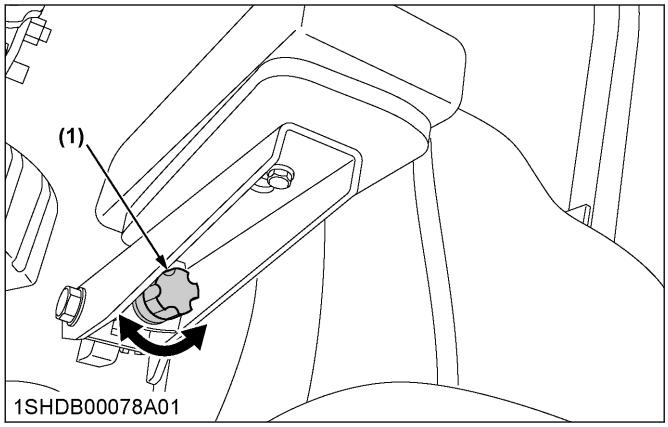
Pull the seat slide lever and slide the seat.

Armrest

The armrest may be set at the upright position if desired.

Armrest angle adjustment

Turn the armrest angle adjustment knob to the desired angle.

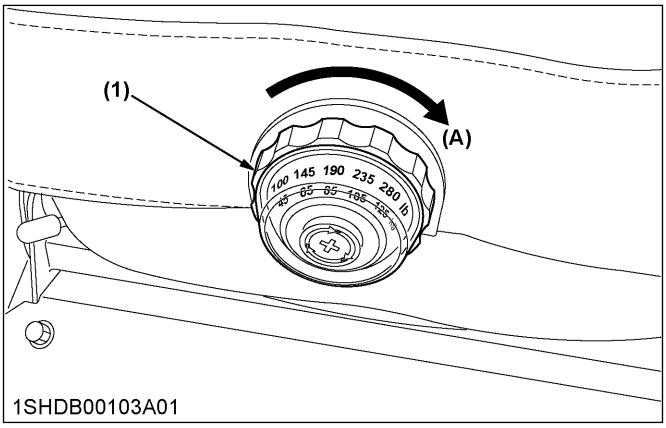


(1) Armrest angle adjustment knob

Suspension adjustment

Turn the suspension adjustment knob to achieve the optimum suspension setting.

To make the suspension hard, turn the suspension adjustment knob clockwise.



(1) Suspension adjustment knob (A) "CLOCKWISE"

IMPORTANT :

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

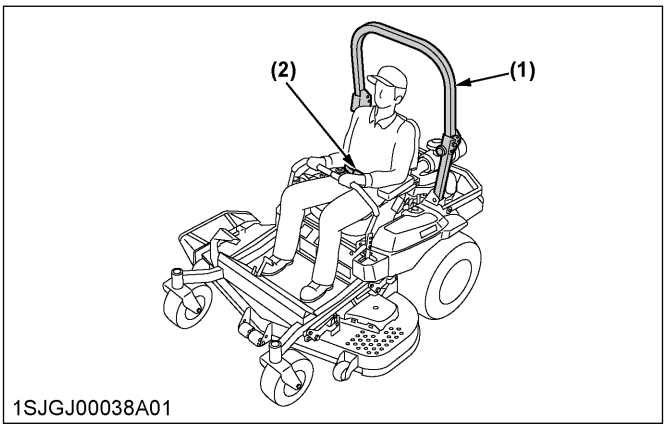
2. Seat belt

WARNING

To avoid serious injury or death:

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

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



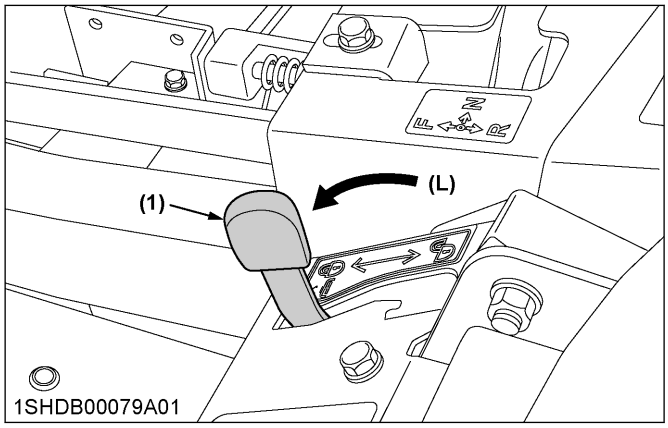
(1) ROPS
(2) Seat belt

3. Mower lift pedal

The mower lift pedal is used to raise and lower the mower deck.

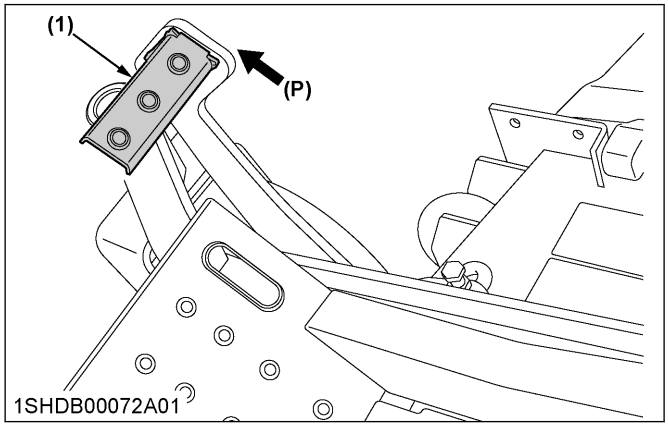
To lock mower in top position:

1. Set mower lock lever in *"LOCK"* position.



(1) Mower lock lever (L) "LOCK"

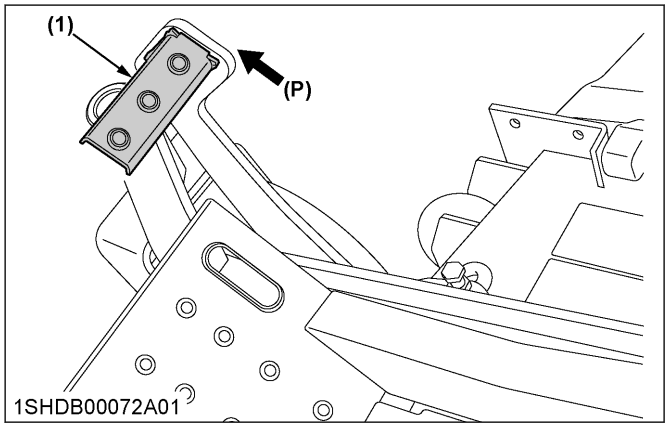
2. Push mower lift pedal to end of pedal stroke.



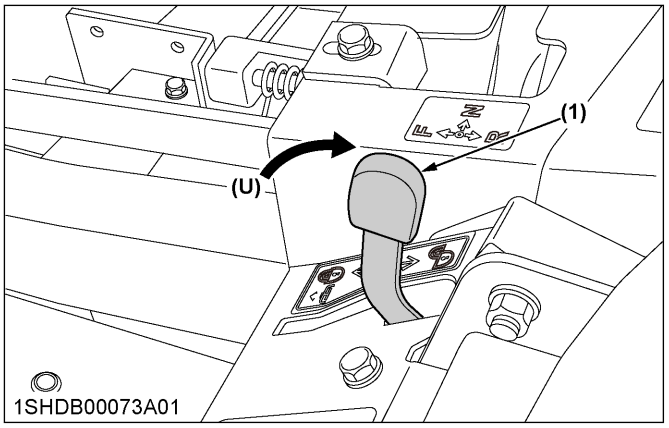
(1) Mower lift pedal (P) "PUSH"

To lower mower from top position:

1. While pushing mower lift pedal to end of stroke, set mower lock lever to *"UNLOCK"* position.



(1) Mower lift pedal (P) "PUSH"

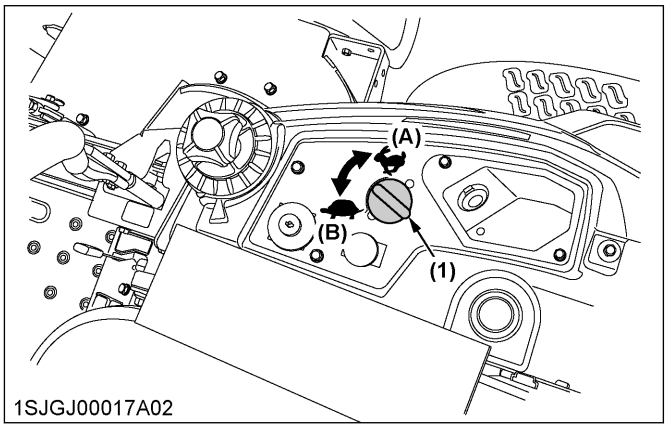


(1) Mower lock lever (U) "UNLOCK"

2. Slowly release mower lift pedal.

4. Throttle dial

- Turn the throttle dial counterclockwise to decrease the engine speed.
- Turn the throttle dial clockwise to increase the engine speed.

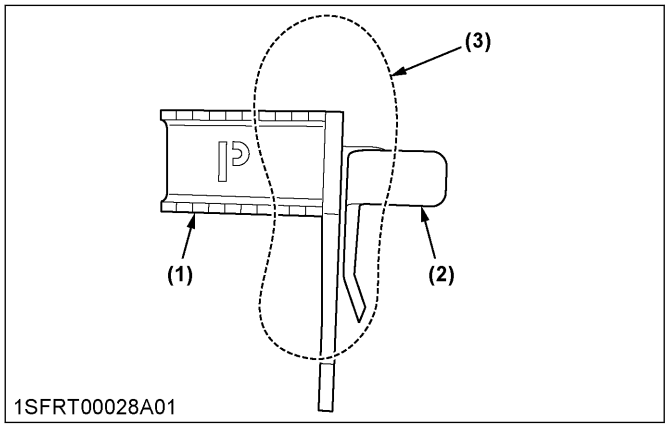


(1) Throttle dial (A) "INCREASE" (B) "DECREASE"

5. Parking brake pedal

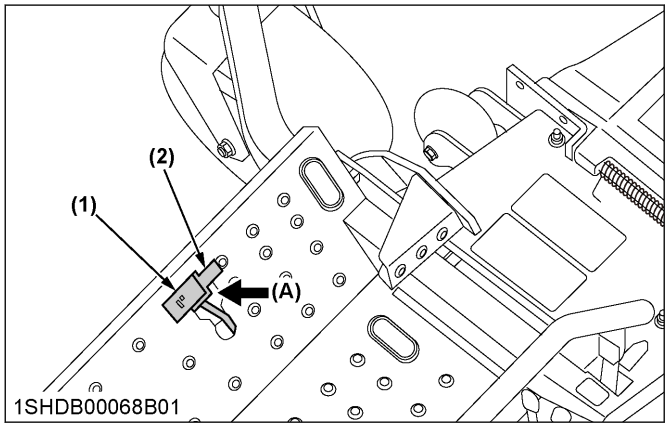
To apply the parking brake:

1. Depress the parking brake pedal firmly with the left side of your right foot.
2. While keeping the parking brake pedal depressed, use the right side of your right foot to depress the parking brake lock pedal.
3. Release the parking brake pedal while holding down the parking brake lock pedal.
4. Release the parking brake lock pedal.



(1) Parking brake pedal
(2) Parking brake lock pedal
(3) Right foot

To release the parking brake:
Depress the parking brake pedal and release it slowly with your right foot, without pressing the parking brake lock pedal.



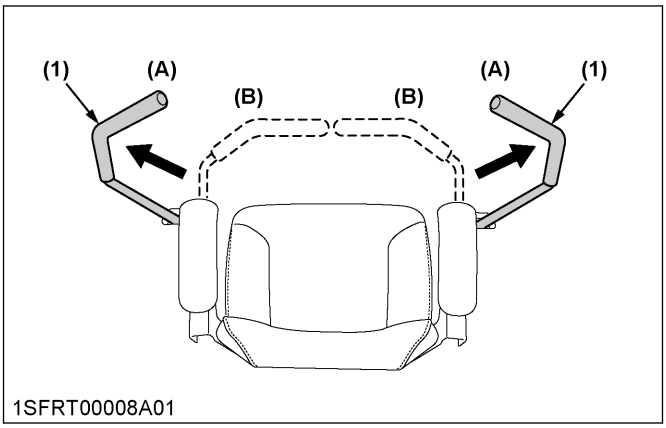
(1) Parking brake pedal
(2) Parking brake lock pedal
(A) "DEPRESS"

6. Motion control lever

⚠ WARNING
To avoid serious injury or death:
- **Understand how to use the motion control levers and practice in an unrestricted area at slightly more than idle speed without the mower engaged until becoming proficient in the operation of the machine.**
- **Do not move motion control levers from the forward to rearward or from the rearward to forward position rapidly.**
  Sudden direction changes could cause the loss of control or damage to the machine or property.
- **Do not make sharp turns at high speed.**
  Fast and sharp turns could cause the loss of control.
- **Motion control levers must be in the *"NEUTRAL LOCK"* position to safely enter and exit the operator's seat or to carry out maintenance and safety checks.**
- **This machine can make sharp turns. Always make sure your intended path is clear of obstructions or people.**

6.1 Stop position of the motion control lever

Neutral lock position
Forward and rearward movements of the motion control levers are locked when these levers are in the *"NEUTRAL LOCK"* position (the engine can only be started with levers in this position).



(1) Motion control levers
(A) "NEUTRAL LOCK" position
(B) "NEUTRAL" position (held by hand)

6.2 Operating position of the motion control lever

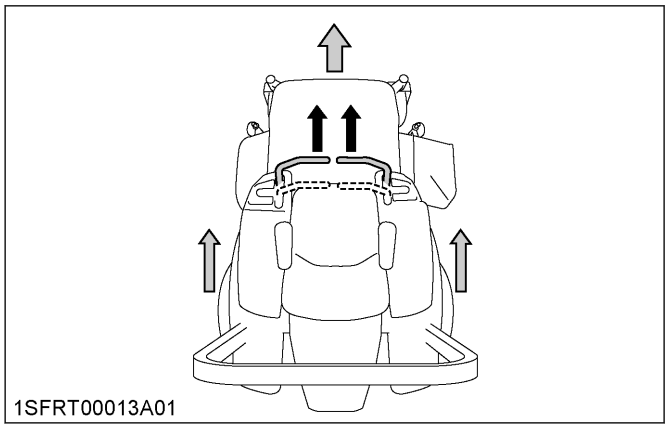
Machine speed and steering is controlled by the motion control levers, when the engine is running and the parking brake is released.

⚠ WARNING
To avoid serious injury or death:
- **No control is provided by the motion control levers when the engine is off.**

Neutral position
Grasp the motion control levers and move them inward from the *"NEUTRAL LOCK"* position so that the machine is in *"NEUTRAL"* (the engine cannot be restarted).
Forward and rearward motion:
1. Turn the throttle dial to the *"FAST"* position.
2. Release the parking brake.
3. Move both motion control levers from the *"NEUTRAL LOCK"* position inward to the *"NEUTRAL"* position.
4. To move your machine, see the following figures.
   To stop:

Move and hold both motion control levers to the *"NEUTRAL"* position until the machine comes to a stop.

Forward:
For forward travel in a straight line, push both motion control levers forward equally and slowly.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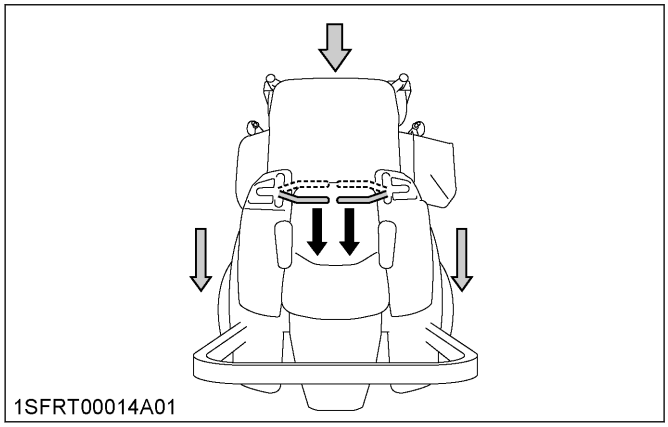
Rearward:
For rearward travel in a straight line, pull both motion control levers past center rearward equally and slowly.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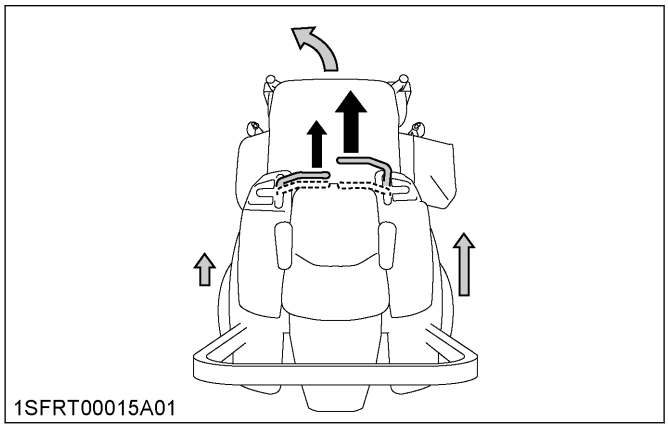
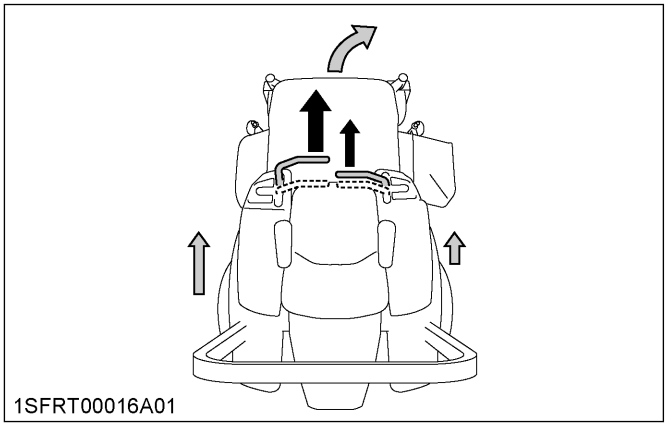
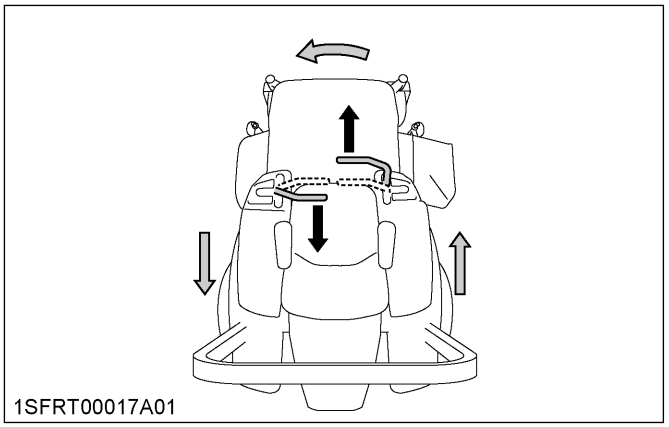
General left turn:
For forward travel to the left, push the right motion control lever further forward than the left motion control lever.


1SFRT00015A01

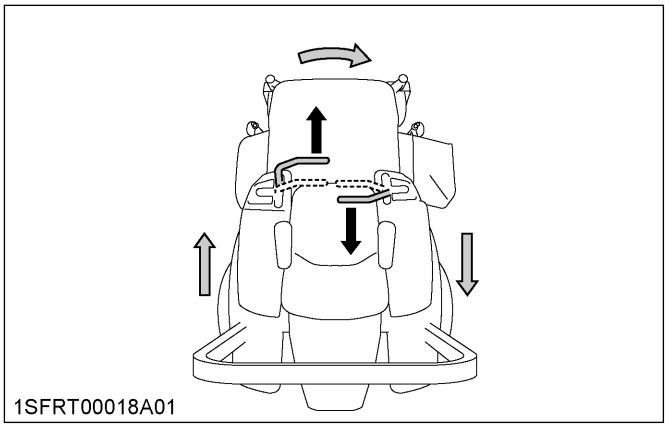
General right turn:
For forward travel to the right, push the left motion control lever further forward than the right motion control lever.


1SFRT00016A01

Sharp (zero) left turn:
Push the right motion control lever forward and pull the left motion control lever rearward at the same time.


1SFRT00017A01

Sharp (zero) right turn:
Push the left motion control lever forward and pull the right motion control lever rearward at the same time.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Adjustment

WARNING

To avoid serious injury or death:

- **The motion control lever adjustment is important to ensure the machine operates properly.**

NOTE :

- **The motion control levers are adjustable.**
  (If adjustment is required, see ADJUSTMENT on page 80.)
  We recommend you to contact your local KUBOTA Dealer.

STOPPING THE MACHINE

WARNING

To avoid serious injury or death:

- **Park the machine on level ground.**
  If necessary to park on an incline, stop the machine, apply the parking brake, and then stop the engine.
- **If you stop the engine on an incline without applying the parking brake, the machine could move and run away.**

IMPORTANT :

- **The parking brake pedal is for parking and emergency use only. If the parking brake is applied when the motion control levers are not in the *"NEUTRAL LOCK"* position, the engine will stop. This feature is to prevent brake and transmission damage during operation.**
- **If on a slope and the engine quits, use the parking brake as the emergency brake and immediately stop the unit.**

1. Move both motion control levers to the *"NEUTRAL"* position to stop the machine.
2. Move both motion control levers to the *"NEUTRAL LOCK"* position.
3. Apply the parking brake.
4. Turn the throttle dial to the half speed position and push PTO switch to the *"DISENGAGE"* (OFF) position.
5. Lower all implements to the ground.
6. Turn off the engine and remove the key.

IMPORTANT :

- **Do not stop the engine when the machine is on an incline for a long time.**
- **Before stopping the engine, place the throttle control lever in the half speed position to help prevent the engine from backfiring.**

PARKING THE MACHINE

WARNING

To avoid serious injury or death:
Before leaving the operator's position:

- **Apply the parking brake.**
- **Lower all implements to the ground.**
- **Shut off the engine.**
- **Remove the key.**
- **Place the motion control levers in the *"NEUTRAL LOCK"* position.**

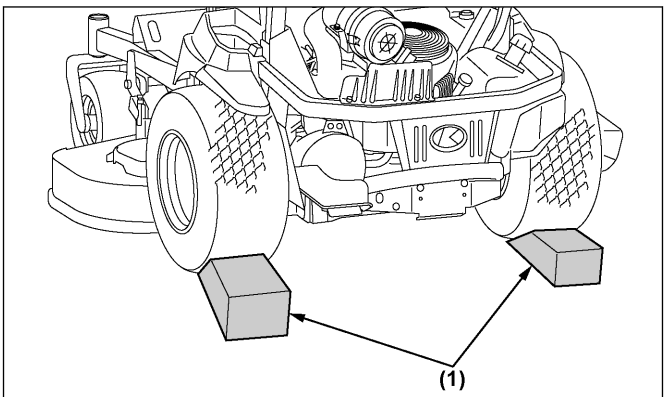
To lock:

1. Depress the parking brake pedal firmly with the left side of your right foot.
2. While keeping the parking brake pedal depressed, use the right side of your right foot to depress the parking brake lock pedal.
3. Release the parking brake pedal while holding the parking brake lock pedal down.
4. Release the parking brake lock pedal.

To unlock:

Depress the parking brake pedal and release it slowly with your right foot without pressing the parking brake lock pedal.

If necessary to park on an incline, be sure to chock the wheels on the downhill side to prevent accidental rolling of the machine.



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(1) Chock

ACCESSORY

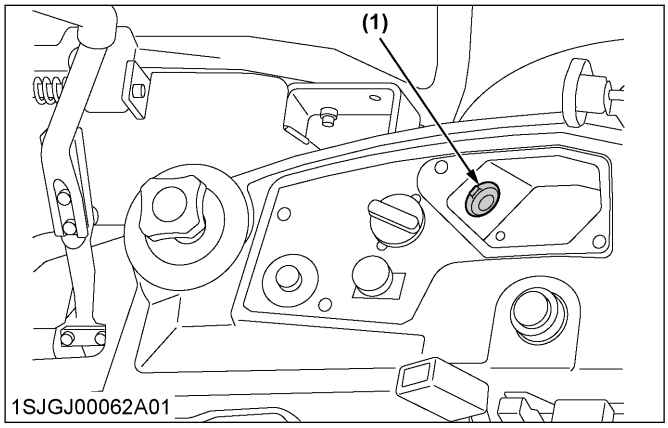
1. 12 V electric power socket

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

- A 12 V outlet is on the right-hand fender. An electrical charger or other device may be connected to this outlet.
- The outlet and plug are only powered when the key switch is at the *"ON"* or *"START"* position.
- Do not connect any electric devices that draw more than a total of 62 W (watts) to these power outlets. The battery may discharge very rapidly, or the outlet or plug may fail.
- Maximum allowable W with LED light kit is 48 W.

IMPORTANT :

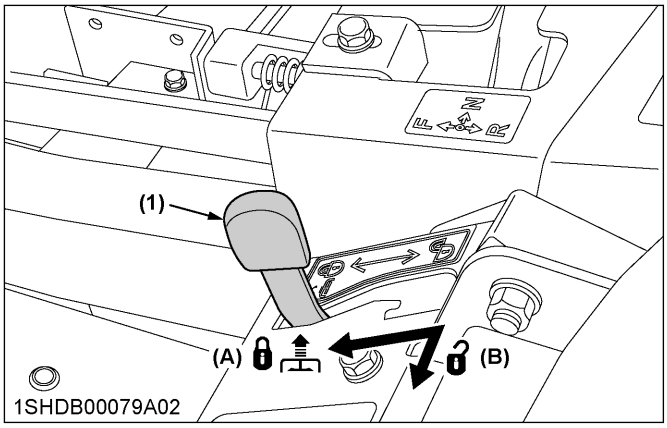
- **Do not use the outlet as a cigarette lighter.**
- **Do not use the outlet or the plug when it is wet.**
- **Make sure that the outlet cap is closed when the outlet is not used.**



(1) 12 V electric power socket

TRANSPORTING THE MACHINE

- To transport the machine on a trailer:
  - Turn the fuel valve to the *"OFF"* position.
  - Fasten the machine to the trailer.
- Do not attempt to tow this machine, or damage to the transmission may result.
- When trailering the machine over a long distance:
  - Move the mower lock lever to the *"UNLOCK"* position.
  - Make sure to lower the mower to the 25.4 mm (1 in.) cutting height by using the mower lift pedal.
- When transporting the machine under its own power:
  - Move the mower lock lever to the *"LOCK"* position.
  - Make sure to lift the mower to the top position by using the mower lift pedal.
- When transporting, make sure all local state and federal transport laws are met.



(1) Mower lock lever
(A) "LOCK"
(B) "UNLOCK"

1. Hydrostatic transaxle bypass lever

DANGER

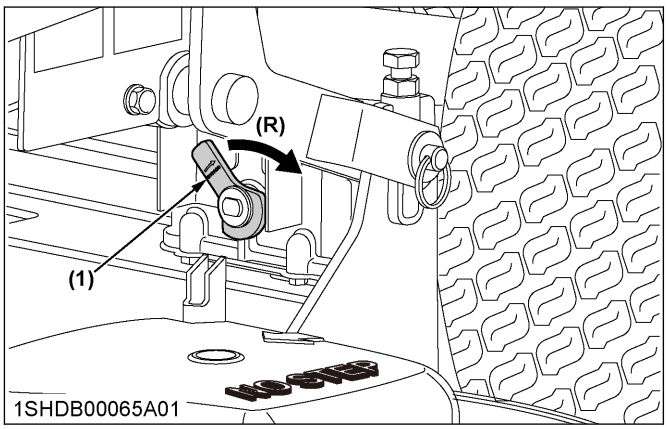
To avoid serious injury or death:

- **Do not use bypass levers on or around slopes. The machine can run away and cause injury or death easily.**

IMPORTANT :

- **Do not push the machine without rotating the bypass levers, or transmission damage may occur.**
- **Never rotate the levers with the engine running.**

1. From the front of the transaxle, rotate the bypass lever to the right.
   Do this for both transaxle (LH and RH).
   See the figure below.



(1) Bypass lever
(R) "ROTATE THE LEVER TO THE RIGHT"

2. After moving the machine, rotate both the right side and left side bypass levers completely to the left.

OPERATING THE MOWER

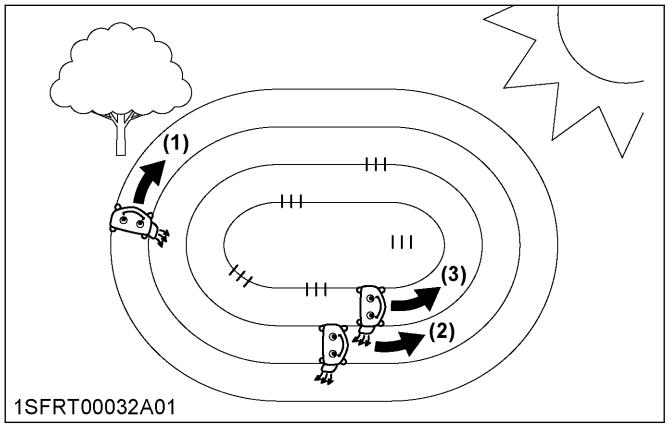
MOWING TIPS

⚠ WARNING

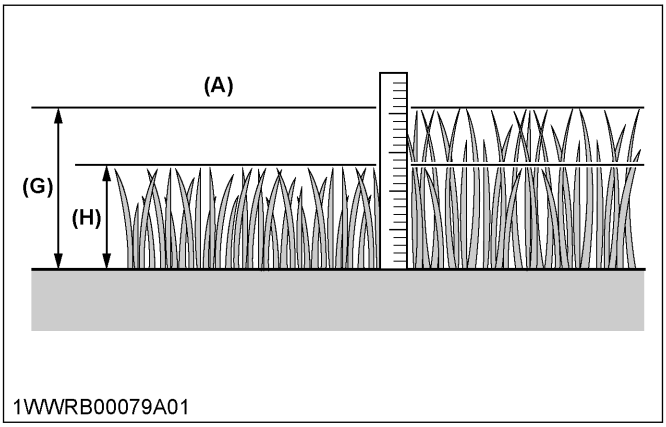
To avoid serious injury or death:

- **Clear the work area of objects which might be picked up and thrown by the blades.**
- **Keep bystanders and animals away from the mowing area.**

1. When using the mower for the first time, choose a smooth level area and cut in straight and slightly overlapping strips.
2. The size and type of the area to be mowed will determine the proper mowing pattern. Take into account obstructions, such as trees, fences and buildings.
   To keep grass clippings off fences, sidewalks and so on, it is advisable to go over the outside of the area to be mowed several times in a clockwise direction.
   To mow the area remaining, work in a counterclockwise direction so that the clippings are dispersed onto the previously cut area.



3. Always keep the left side of the mower toward trees, posts or other obstacles on the first trip around the obstacle.
4. Most lawns must be mowed to keep the grass approximately 50 to 80 mm (2 to 3 in.) high. Best results are obtained by cutting often and not too short.
   For a healthy lawn, only 1/3 of the grass plant should be removed in one mowing. For example, tall grass with the height of 75 mm (3 in.) can be cut to a minimum of 50 mm (2 in.).
   For extremely tall grass, set the cutting height at maximum cutting height for the first mowing, then reset to the desired height and mow again. Allow the grass to grow to 80 mm (3 in.), then cut off only the top 25 mm (1 in.).
5. Clippings may be left on the lawn unless they form clumps or rows.



(A) H/G>2/3
(G) Before mowing
(H) Best cut grass height: 50 to 80 mm

6. For best appearance, grass must be cut in the afternoon or evening when it is free of moisture.

ADJUSTING THE CUTTING HEIGHT

⚠ DANGER

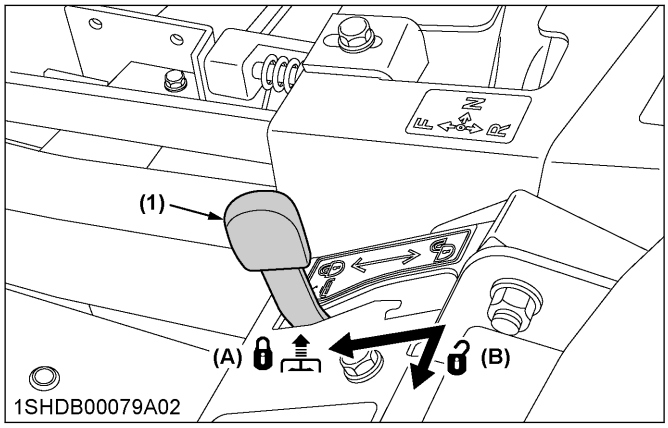
To avoid serious injury or death:

- **Do not engage the mower in the top position.**

1. Cutting height control dial

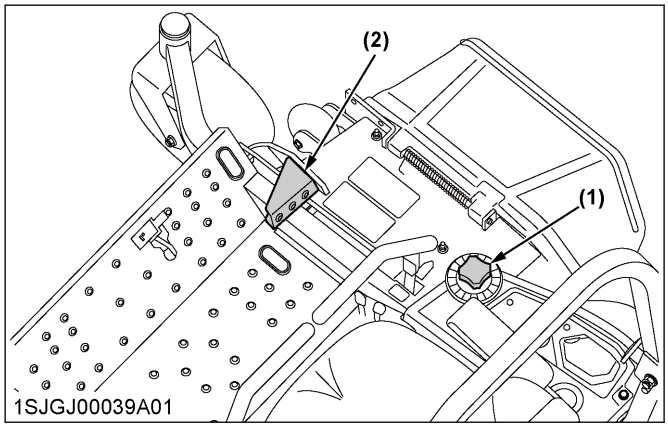
Cutting height control dial can adjust the cutting height from 25 mm (1 in.) to 127 mm (5 in.) with 6 mm (0.25 in.) step.

1. Before adjusting cutting height, check that all tire pressures are correct. If necessary adjust to the correct tire pressure.



(1) Mower lock lever *(A) "LOCK"* *(B) "UNLOCK"*

2. To set the cutting height, keep depressing the mower lift pedal to raise mower deck to the top position. Make sure that the mower lock lever is in unlock position. Adjust the cutting height control dial to desired height.
3. Use the higher settings for mowing in a rough area or when mowing tall grass. Lower settings should be used only for smooth lawns where short grass is desired.



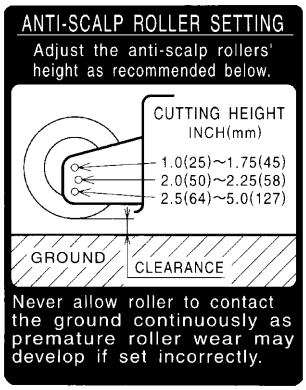
(1) Cutting height control dial
(2) Mower lift pedal

4. Lower the mower deck by releasing the mower lift pedal. This lowers the mower deck from the *"TOP"* position to the *"OPERATING"* position.
5. Adjust the anti-scalp rollers' height as recommended below for normal operating condition. To minimize gouging and roller damage or wear, the anti-scalp rollers will maintain the ground clearance of 6 mm (0.25 in.).

IMPORTANT :

- **Never allow the rollers to contact the ground continuously as premature roller wear may develop if set incorrectly.**
- **Anti-scalp rollers must maintain a minimum clearance of 6 mm (0.25 in.) to the ground.**

Bolt setting



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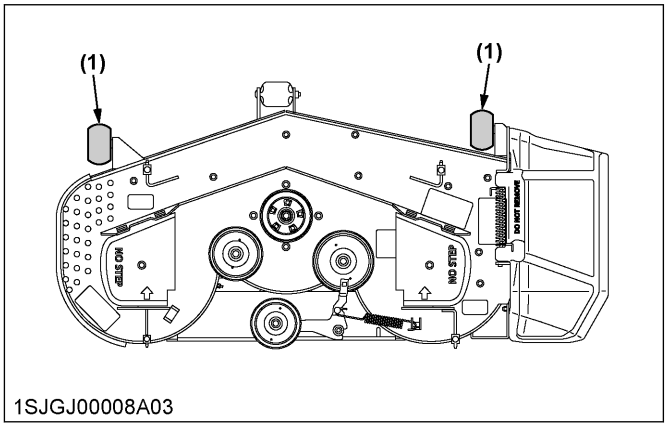
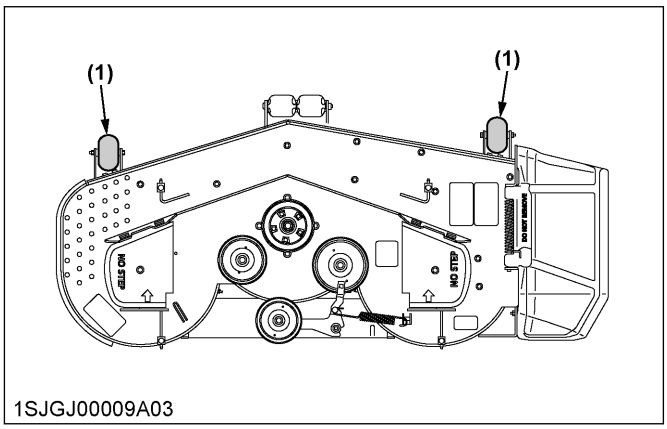
RCK48P, RCK54P



(1) Anti-scalp roller (front, bolt shift type)

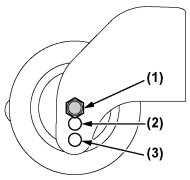
RCK60P



(1) Anti-scalp roller (front, bolt shift type)

2. Cutting height reference chart

- Set the position for a recommended ground clearance of 19 mm (0.75 in.).

Cutting height inch (mm)	Position of bolts  1SHDB00082A01	Ground clearance mm (Reference)
1.00" (25)	1	6
1.25" (32)		12
1.50" (38)		19
1.75" (44)		25
2.00" (50)	2	19
2.25" (58)		25
2.50" (64)	3	19
2.75" (70)		25
3.00" (76)		(31) *1
3.25" (83)		(38) *2
3.50" (89)		(44) *2
3.75" (95)		(51) *2
4.00" (102)		(57) *2
4.25" (108)		(63) *2
4.50" (114)		(70) *2
4.75" (121)		(76) *2
5.00" (127)		(83) *2

*1 For cutting heights above 3.0". The anti-scalp rollers will still be effective against scalping.

*2 Use it if necessary.

OPERATING THE MOWER

⚠ DANGER

To avoid serious injury or death:

- **Do not operate the mower without the discharge chute being in place properly.**

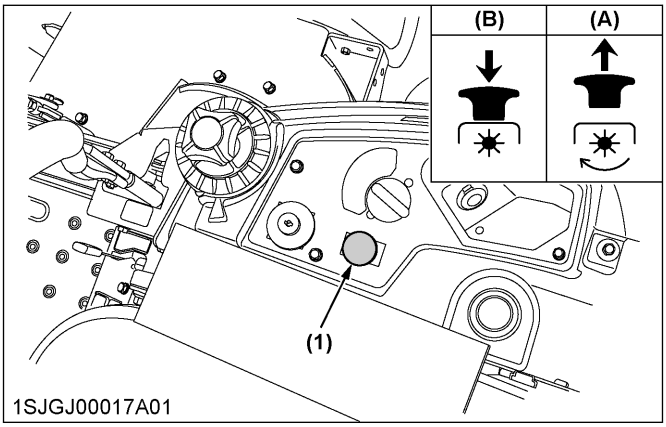
⚠ WARNING

To avoid serious injury or death:

- **Clear the work area of objects which might be picked up and thrown.**
- **Do not direct the opening of the discharge chute at bystanders, especially children, or animals. Discharged objects may cause injury. Plan your mowing carefully before starting the operation.**
- **Keep bystanders and animals away from the mowing area.**
- **Be sure to disengage the PTO clutch of the mower before attempting to start the engine.**

1. PTO switch

1. To engage the PTO, pull the PTO switch to the *"ENGAGED"* (ON) position.
2. To disengage the PTO, push the PTO switch *"DISENGAGED"* (OFF) position.



(1) PTO switch

(A) "ENGAGED" (ON)
(B) "DISENGAGED" (OFF)

NOTE :

- **If you get off the seat while the PTO is running, the engine will stop automatically (operator presence control).**
- **Before starting the engine, push the PTO switch to the *"DISENGAGED"* (OFF) position. If it is at the *"ENGAGED"* (ON) position, the engine will not start.**
- **These interlock features are built-in.**

2. Starting the machine

⚠ WARNING

To avoid serious injury or death:

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

1. Sit on the operator's seat.
   Put on the seat belt. Make sure that the parking brake is engaged.
2. Start the engine.
3. Engage the PTO switch.
4. Disengage the parking brake.
5. Speed up the engine by turning the throttle dial clockwise.

6. Push or pull the motion control levers to move forward or rearward.

IMPORTANT :

- **Never attempt to move the machine with the parking brake *"ON"*.**

NOTE :

- **Keep the engine running at full throttle for best results. Control the travel speed with the motion control levers.**
- **During heavy duty use, operate the machine at a slower ground speed or go over the area twice.**
- **Keep the mower deck in the raised position when the mower is disengaged.**
- **The mower will not cut cleanly if the ground speed is too high or if the blade speed drops due to an overload.**
- **If debris builds up on the grass screen or other cooling air intake areas, stop the engine and clean them. Operating the engine with blocked or dirty air intake and cooling areas causes engine damage due to overheating.**

TIRES AND WHEELS

TIRES

WARNING

To avoid serious injury or death:

- **Do not attempt to mount a tire. 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.**
- **The inflation pressure in the front tires rises quickly when using compressed air.**
- **Never operate the machine with a loose rim, wheel, or axle.**
- **Whenever bolts are loosened, retighten to the specified torque.**
- **Check all the bolts frequently and keep them tightened.**

1. Inflation pressure

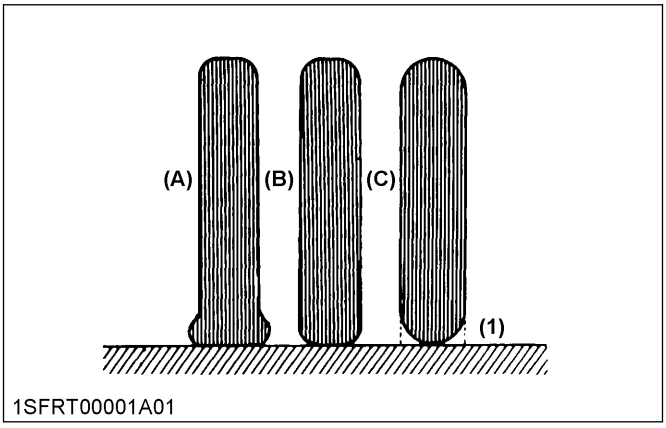
Even though the inflation pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Therefore, check it everyday and inflate as necessary.

Z751KWi, Z781KWi

	Tire sizes	Recommended inflation pressure
Front	13 x 6.5 - 6, (non flat) smooth	-
Rear	24 x 9.5 - 14, (4PR) turf	83 kPa 0.84 kgf/cm^2 12 psi

Z781KWTi

	Tire sizes	Recommended inflation pressure
Front	13 x 6.5 - 6, (non flat) smooth	-
Rear	24 x 12 - 14, (4PR) turf	83 kPa 0.84 kgf/cm^2 12 psi



(1) Ground

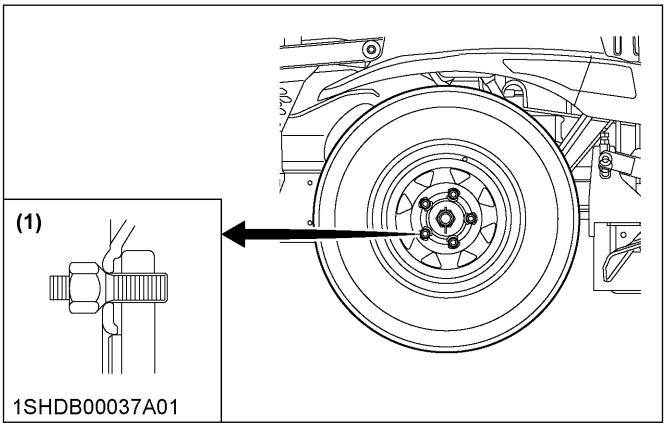
(A) "INSUFFICIENT"
(B) "NORMAL"
(C) "EXCESSIVE"

WHEELS

IMPORTANT :

- **When refitting a wheel, tighten the wheel bolt to the following torques then recheck after traveling 200 m (200 yards), changing directions several times.**

Rear



(1) 108.5 to 130.2 N·m
80 to 96 lbf·ft
11.1 to 13.3 kgf·m

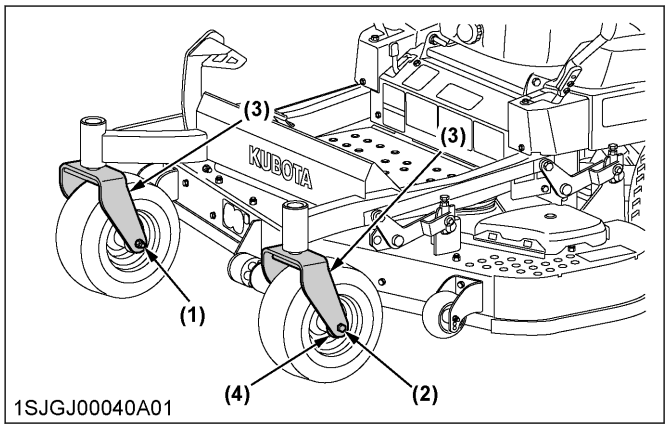
When using wheels with beveled or tapered holes, use tapered wheel nuts.

1. Removing the front caster wheels

WARNING

To avoid serious injury or death:

- **Do not place your body under the machine or the mower deck while lifting the machine.**
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before removing the front caster wheels.**



(1) Lock nut
(2) Wheel bolt
(3) Yoke
(4) Dust cover

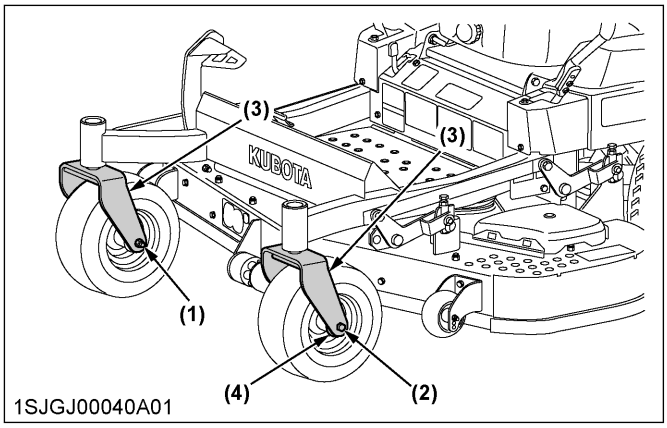
1. Lift the front of the machine with a safe lifting device.
2. Remove the lock nut with nylon sleeve and the wheel bolt.
3. Remove the wheel and dust covers from the yoke assembly.

2. Installing the front caster wheels

⚠ WARNING

To avoid serious injury or death:

- **Do not place your body under the machine or the mower deck while lifting the machine.**
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before removing the front caster wheels.**



(1) Lock nut
(2) Wheel bolt
(3) Yoke
(4) Dust cover

1. Install the replacement wheel and dust covers.
2. Install the wheel bolt and the lock nut with nylon sleeve.
3. Tighten the nut.
4. After installing, add grease to the grease fittings.

IMPORTANT :

- **Insert the wheel bolt from the outside of the yoke.**
- **Tighten the nut gradually until the wheel bearing play is eliminated and the wheel turns freely by hand.**

Tightening torque	20 to 25 N·m 14.8 to 18.4 lbf·ft 2 to 2.5 kgf·m

5. Lower the machine.

MAINTENANCE

SERVICE INTERVALS

The following servicing tasks should be carried out on the machine at the stated running-time intervals.

No.	Items			Indication hour meter (Hr)														Ref. Page	
				8	50	100	150	200	250	300	350	400	450	500	550	600	After since		
1	Engine oil		Change	●		●		●		●		●		●		●	every 100Hr after 8Hr	64	
2	Engine oil filter		Replace					●				●				●	every 200Hr	71	
3	Transaxle oil filter		Replace							◎							every 500Hr after 300Hr	72	
4	Transaxle fluid		Change							◎							every 500Hr after 300Hr	73	
5	Engine start system		Check		●	●	●	●	●	●	●	●	●	●	●	●	every 50Hr	61	
6	OPC system		Check		●	●	●	●	●	●	●	●	●	●	●	●	every 50Hr	62	
7	Front axle and wheel, seat adjuster		Grease		●	●	●	●	●	●	●	●	●	●	●	●	every 50Hr	62	
8	Mower link bushings, mower belt tension pivot		Grease			●		●		●		●		●		●	every 100Hr	70	
9	Engine cooling areas		Clean		●	●	●	●	●	●	●	●	●	●	●	●	every 50Hr	63	
10	Muffler and spark arrester (if equipped)		Check		●	●	●	●	●	●	●	●	●	●	●	●	every 50Hr	63	
11	Air cleaner	Outer element	Check			●		●		●		●		●		●	every 100Hr	64	*1
			Replace						●					●			every 250Hr	72	
		Inner element	Check						●					●			every 250Hr	72	*1
			Replace											●			every 500Hr	75	
12	Fuel filter		Check			●		●		●		●		●		●	every 100Hr	65	
			Replace					●				●				●	every 200Hr	72	*2
13	Fuel line		Check														every 1 year	75	*3
			Replace														every 4 years	77	*2
14	Battery condition		Check			●		●		●		●		●		●	every 100Hr	67	
15	Parking brake		Adjust			●		●		●		●		●		●	every 100Hr	65	*2
16	Spark plug condition and gap		Check			●		●		●		●		●		●	every 100Hr	70	
			Replace											●			every 500Hr	75	
17	Engine oil cooler fins (if equipped)		Clean			●		●		●		●		●		●	every 100Hr / every 1 year	68, 75	
18	Engine cooling areas		Clean			●		●		●		●		●		●	every 100Hr / every 1 year	68, 75	
19	Combustion chamber		Clean							●						●	every 300Hr	72	*2
20	Valve seats and clearance		Clean							●						●	every 300Hr	72	*2

(Continued)

No.	Items		Indication hour meter (Hr)													Ref. Page	
			8	50	100	150	200	250	300	350	400	450	500	550	600	After since		
20	Valve seats and clearance	Adjust							●						●	every 300Hr	72	*2
21	Electric clutch	Adjust											●			every 500Hr	73	
22	Crankshaft	Lubricate											●			every 500Hr	75	
23	Hydraulic hose	Check														every 1 year	77	*3
		Replace														every 4 years	77	*2
24	Fuse	Replace														Service as required	77	
25	Blade	Replace															78	
26	Mower belt	Replace															79	

*1 This maintenance should be done daily or more often in dusty condition than in normal conditions.

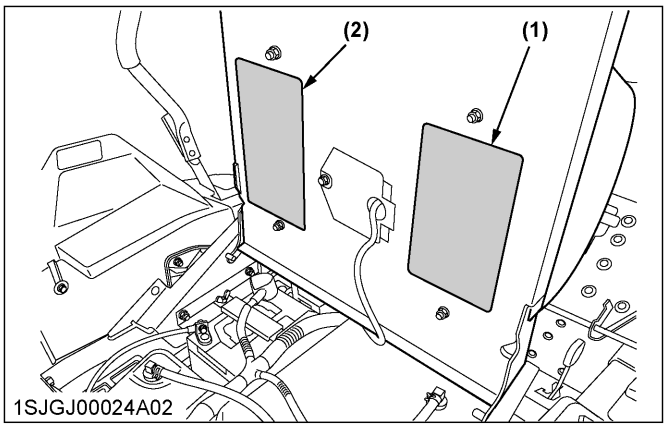
*2 These items should be serviced by an authorized KUBOTA Dealer, unless the owner has the proper tools and is mechanically proficient.

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

IMPORTANT :

- **The jobs indicated by ◎ must be done initially.**
- **Maintenance instructions related to gasoline engine emissions:**
  - **Non-warranty maintenance, repairs, or replacement of the emission control devices and systems should be performed by a qualified repair establishment or an individual who has the experience and equipment to perform such work.**
    See the Emissions Warranty Statement.
  - **To ensure the best quality and reliability, use new KUBOTA genuine parts or their equivalents for repairs and replacement, whenever you have maintenance done.**

PERIODIC SERVICE CHART LABEL



(1) Part No. K3881-6551-3 (ENGLISH)

PERIODIC SERVICE CHART

INTERVAL		RECOMMENDED SERVICE ※	
DAILY		CHECK	1.Tire pressure, wear, or damage. 2.Fuel and oil leakage from machine and mower. 3.Engine and transmission oil and fuel level. 4.Damage to machine body, tightness of all bolts, nuts and pins, etc. 5.All blades and belts for wear or damage. 6.Parking brake, speed control levers, all safety switches and easy checker functions. 7.Color of the exhaust fumes, abnormal noise and vibrations. 8.Dial cam rotation force.
		CLEAN	Mower deck / Engine and muffler area / Cutting height cam area / Air inlet screen ★
FIRST 8 Hrs.		CHANGE	Engine oil [BREAK-IN](MUST BE DONE)
FIRST 300 Hrs. [BREAK-IN](MUST BE DONE)		CHANGE	Transmission fluid
		REPLACE	Transmission oil filter
EVERY	50 Hrs.	CHECK	Engine start system / OPC system/Engine Cleanout cover
		GREASE	Front axle and wheel (4 places) / Seat adjuster (2 places)
	100 Hrs.	CHECK	Fuel filter element / Spark plug condition and gap / Battery condition /Air cleaner outer element ★ /
		CLEAN	Engine cooling shroud ★ / Engine oil cooler fins (if equipped) / Cylinder & Cylinder head fins ◆☆
		CHANGE	Engine oil ◆
		GREASE	Mower link bushing (5 places) / Mower belt tension pivot
		ADJUST	Parking brake ☆
	200 Hrs.	REPLACE	Engine oil filter / Fuel filter element
	250 Hrs.	CHECK	Air cleaner inner element
		CHANGE	Air cleaner outer element ★
	300 Hrs.	CLEAN	Combustion Chamber ☆/ Valve seats (Relap) ☆
		ADJUST	Valve Clearance ☆
	500 Hrs.	CHANGE	Transmission fluid / Air cleaner inner element ★
		REPLACE	Transmission oil filter / Spark plugs
		LUBRICATE	Crankshaft
	1 Year	CHECK ■	Fuel line / Hydraulic hose
	4 Years	REPLACE☆	Fuel line / Hydraulic hose

※ : See Operator's manual in details.
☆ : Should be serviced by KUBOTA Dealer.
■ : Replace if necessary.
★ : Required more often in dusty conditions.
◆ : More frequently under severe conditions.

Approximate fluid capacities.

	Z751KWi	Z781KWi, Z781KWTi
Engine	2.1 L (2.2 qts.)	2.3 L (2.4 qts.)
Transmission	3.0 L per side (3.2 qts. per side)	

Tire pressure and tightening torque recommendation.

Front	13x6.5-6(NO FLAT)	NO NEED	Ensure smooth rotation of wheel. <Do not over tighten.>
Rear	24x9.5-14 24x12-14	83 kPa (12 psi)	108.5-130.2 Nm (80.0-96.0 ft·lbs)

(2) Part No. K3881-6552-3 (SPANISH)

TABLA DE SERVICIO PERIÓDICO

INTERVALO		SERVICIO RECOMENDADO ※	
DIARIO		REVISAR	1.Presión, desgaste y daño de los neumáticos. 2.Escape de combustible y aceite de la máquina y la segadora. 3.Aceite del motor, fluido de transmisión y nivel de combustible. 4.Daño a la carrocería de la máquina, ajuste de todos los pernos, tuercas y pines, etc. 5.Desgaste y daños de todas las cuchillas y las correas. 6.Freno de estacionamiento, palancas de control de velocidad, todos los interruptores de seguridad y funciones para una fácil inspección. 7.Color del humo del escape, ruido y vibraciones anormales. 8.Fuerza rotativa de la leva del cuadrante.
		LIMPIAR	Plataforma de segadora / Zona del motor y del silenciador / Zona de la leva de altura de corte / Reja de entrada de aire ★
PRIMERAS 8 hrs.		CAMBIAR	Aceite del motor [USO INICIAL](DEBE HACERSE)
PRIMERAS 300 hrs. [USO INICIAL](DEBE HACERSE)		CAMBIAR	Aceite de transmisión
		REEMPLAZAR	Filtro del aceite de transmisión
CADA	50 hrs.	REVISAR	Sistema de arranque del motor / Sistema OPC/Cubierta de limpieza
		ENGRASAR	Eje frontal y rueda (4 lugares) / Regulador del asiento (2 lugares)
	100 hrs.	REVISAR	Elemento de filtro de combustible / Condición de la batería / Condición de la bujía y distancia entre electrodos / Elemento externo del filtro de aire ★ /
		LIMPIAR	Carcaza de refrigeración del motor ★ / Aletas de refrigeración de aceite del motor (si está equipado) / Cilindro y aletas del cilindro ◆☆
		CAMBIAR	Aceite del motor ◆
		ENGRASAR	Casquillo del brazo de la segadora (5 lugares) / Pivote de tensión de correa de la segadora
		AJUSTAR	Freno de estacionamiento ☆
	200 hrs.	REEMPLAZAR	Filtro de aceite del motor / Elemento de filtro de combustible
	250 hrs.	REVISAR	Elemento interno del filtro de aire
		CAMBIAR	Elemento externo del filtro de aire ★
	300 hrs.	LIMPIAR	Cámara de combustión ☆ / Asiento de válvula (repulir) ☆
		AJUSTAR	Juego de válvulas ☆
	500 hrs.	CAMBIAR	Aceite de transmisión / Elemento interno del filtro de aire ★
		REEMPLAZAR	Filtro del aceite de transmisión / Bujías
		LUBRIQUE	Cigüeñal
	1 año	REVISAR☆	Línea de combustible / Manguera del sistema hidráulico
	4 años	REEMPLAZAR☆	Línea de combustible / Manguera del sistema hidráulico

※ : Consulte el Manual del Operador para obtener más información.
☆ : El servicio de mantenimiento debe proporcionarlo un distribuidor de KUBOTA.
★ : Se requiere más seguido en condiciones polvorosas.
◆ : Más frecuentemente bajo condiciones severas.
■ : Reemplace si es necesario.

Capacidades de fluido(aproximadas).

	Z751KWi	Z781KWi, Z781KWTi
Motor	2.1 L (2.2 cuartos de galón)	2.3 L (2.4 cuartos de galon)
Transmisión	3.0 L por cada lado (3.2 cuartos de galón por cada lado)	

Recomendación de presión para neumáticos y par de ajuste.

Frontal	13x6.5-6(No pinchada nada)	Ninguna necesidad	Asegure rotación libre de la rueda. <No apriete en exceso.>
Posterior	24x9.5-14 24x12-14	83 kPa (12 psi)	108.5-130.2 Nm (80.0-96.0 pies·lbs)

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LUBRICANTS AND FUEL

Locations	Capacities			Lubricants
	Z751KWi	Z781KWi	Z781KWTi	
Fuel tank	44 L (11.6 U.S. gals.)			• Automobile unleaded or regular gasoline • Unleaded gasoline 87 octane or higher
Engine crankcase	2.1 L (2.2 U.S.qts.) *1	2.3 L (2.4 U.S.qts.) *1		• Engine oil: API service Classification **SJ** or **SL** Above 20 ℃ (68 ℉)...SAE40 Above 0 ℃ (32 ℉)...SAE20W-50 Above -10 ℃ (14 ℉)...SAE10W-40 (recommended) Below 0 ℃ (32 ℉)...SAE5W-20
Transmission case with filter, hose and tank (RH and LH)	6.0 L (6.3 U.S.qts.)			• Kubota HST oil for **Z700** series

Greasing	No. of greasing points	Capacity	Type of grease
Front axle	2	Until grease overflows	• Multipurpose EP2 Grease (NLGI Grade no.2)
Front wheel	2		
Mower lift links	5	Moderate amount	
Cutting height cam	1		
Seat adjuster	2		
MOWER		Until grease overflows	
Belt tension pivot	1		
Crankshaft	1	Moderate amount	• Copper-based anti-seize

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

IMPORTANT :

- **To prevent serious damage to the hydraulic systems, use only the fluid recommended in the previous table.**

Fuel:

- Clean, fresh, unleaded gasoline.
- A minimum of 87 octane/87AKI (90 RON).
- Gasoline with up to 10% ethanol (ethyl or grain alcohol) or up to 15% methyl tertiary butyl ether (MTBE) by volume is acceptable.
- Do not use unapproved gasoline, such as E85. Do not mix oil in gasoline or modify the engine to run on alternate fuels. This will damage the engine components and void the engine warranty.
- The indicated capacity of fuel is the manufacturer's estimate.

Engine oil:

- Oil used in the engine should have an American Petroleum Institute (API) service classification and proper SAE Engine oil according to the ambient temperatures as shown in the previous table.
- The indicated capacity of oil is the manufacturer's estimate.

Transmission oil:

- The indicated capacity of oil is the manufacturer's estimate.

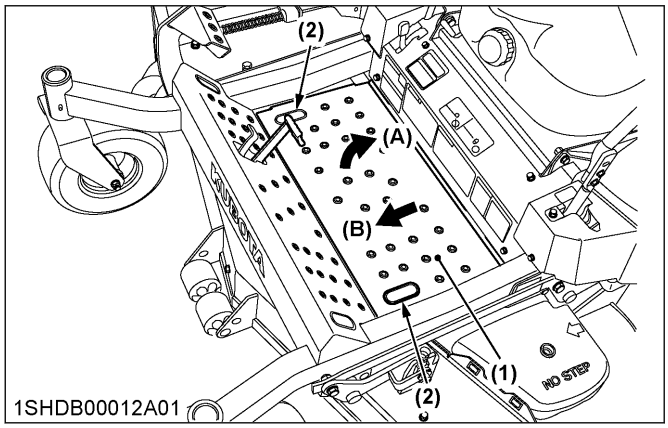
PERIODIC SERVICE

OPENING THE STEP

WARNING
To avoid serious injury or death from contact with moving parts:
- **Never open the step while the engine is running.**

1. Step

1. To open the step, use the grip to rotate the step in direction (A), then remove the step in direction (B).



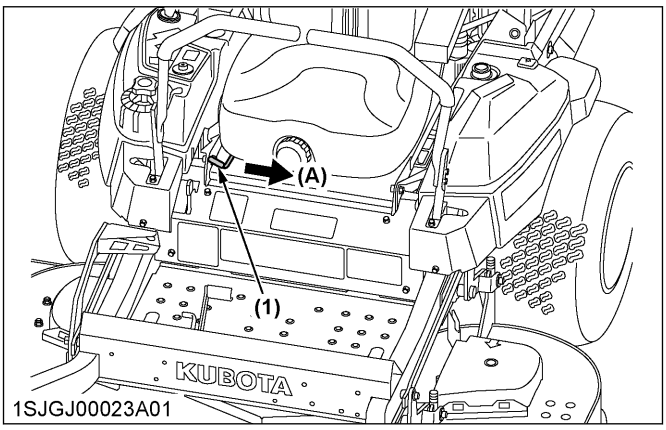
(1) Step *(A) "ROTATE"*
(2) Grip *(B) "REMOVE"*

RAISING AND LOWERING THE OPERATOR'S SEAT

Raising

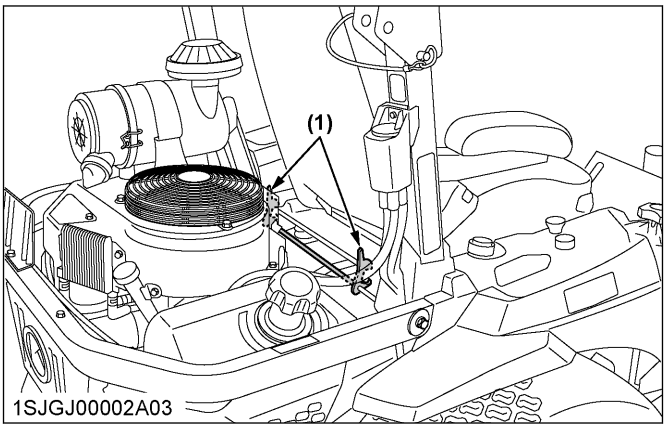
WARNING
To avoid serious injury or death:
- **Fully raise the operator's seat to the resting position.**
  Do not keep the seat halfway.

1. Slide seat to rearmost position.



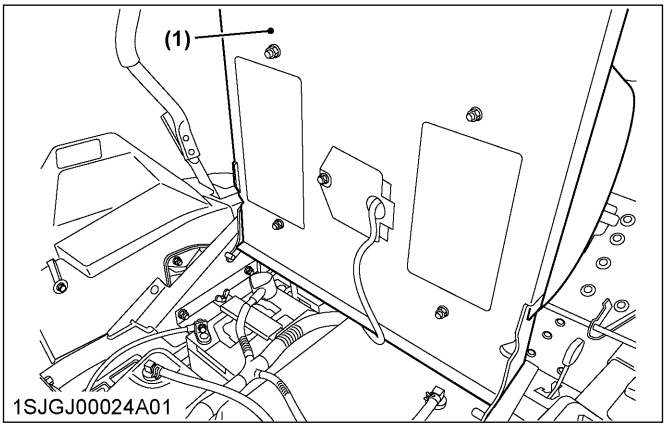
(1) Seat slide lever *(A) "UNLOCK"*

2. Pull the latch lever on the seat panel rearward.



(1) Latch lever

3. Raise the operator's seat to the resting position.



(1) Operator's seat

Lowering

WARNING
To avoid serious injury or death:

- **Do not drop the seat when lowering it.**
- **Watch your hands. Do not place your hands under the seat when lowering it.**

1. Lower the seat slowly to lock.

DAILY CHECK

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

⚠ WARNING

To avoid serious injury or death:

- **Be sure to check and service the machine on a level surface with the engine shut off, the key removed and the parking brake securely set or the rear wheels chocked.**

	No.	Check item	Ref. page
Walking around the machine	1	Damage to machine body, tightness of all bolts, nuts, pins, and so on.	-
	2	Fuel and oil leak	-
	3	Tire pressure, wear and damage	50 60
	4	Engine oil level	57
	5	Fuel level	58
	6	Transaxle fluid level	59
	7	Machine body cleaning	-
	8	Clean area around muffler, engine and cutting height cam.	-
	9	Clean area around safety switches	61
Mower	1	Check all hardware.	-
	2	Make sure all pins are in place.	-
	3	Mower deck cleaning	-
	4	Make sure blade bolts are tight.	78
	5	Blades and belt wear or damage	78
While sitting in the operator's seat	1	Motion control lever	-
	2	Parking brake	-
	3	Dial cam rotation force	60
	4	Other movable parts	61
Turning the key switch *"ON"*	1	Performance of the Easy Checker™ light	30

(Continued)

	No.	Check item	Ref. page
Starting the engine	1	Color of the exhaust fumes	-
	2	Check for abnormal noise and vibration.	-
	3	Engine start system/OPC system. If either of these do not operate properly, contact your local KUBOTA Dealer immediately.	61 62
Others	1	Check the areas where previous trouble was experienced.	-

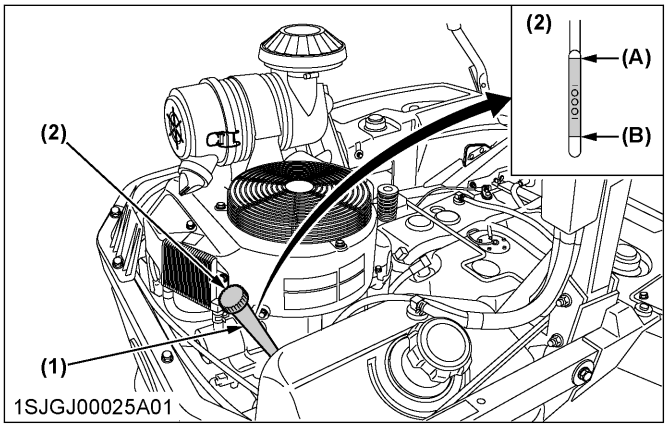
1. Checking the engine oil level

⚠ WARNING

To avoid serious injury or death:

- **Always stop the engine and remove the key before checking the oil.**

1. Check the engine oil before starting and 5 minutes or more after the engine has stopped.
2. Wipe the dipstick area clean.
3. To check the oil level, remove the dipstick and wipe it clean. Reinsert the dipstick into the tube, rest the cap on the tube and do not thread the cap onto the tube. Remove the dipstick again. Check to see that the oil level is between the 2 notches.
4. Add new oil to the prescribed level at the oil port if necessary.



(1) Engine oil port
(2) Oil level dipstick
(A) "UPPER LEVEL"
(B) "LOWER LEVEL"

IMPORTANT :

- **When using a different brand or viscosity oil from the previous one, remove all of the old oil and the oil filter. Never mix 2 different types of oil.**
- **Use the proper SAE engine oil according to the ambient temperature.**
  (See LUBRICANTS AND FUEL on page 55.)

2. Checking the amount of fuel and refueling

WARNING

To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Handle the fuel carefully. If the engine is running, do not fill the fuel tank. If the engine is hot, let the engine cool down several minutes before adding fuel.**
- **Do not smoke while filling the fuel tank or servicing the fuel system. Fill the fuel tank only to the bottom of the filler neck. Do not fill until completely full. The empty space in the tank allows gasoline to expand when it heats up.**
- **Never remove the fuel tank cap or add fuel when the fuel tank is hot.**

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Check the fuel level. Take care that the fuel tank does not become empty.

Fuel tank capacity	44 L (11.6 U.S.gals.)

IMPORTANT :

- **Do not mix oil with gasoline.**
- **Tighten the fuel cap until it clicks.**
- **Do not use a fuel cap other than one approved by KUBOTA.**
- **Do not permit dirt, trash or water to get into the fuel system.**
- **Be careful not to spill fuel while refueling. If a spill should occur, wipe it off at once, or it may cause a fire.**
- **Use grounded system to refuel.**

Use only unleaded gasoline with an octane rating index of 87 or higher.

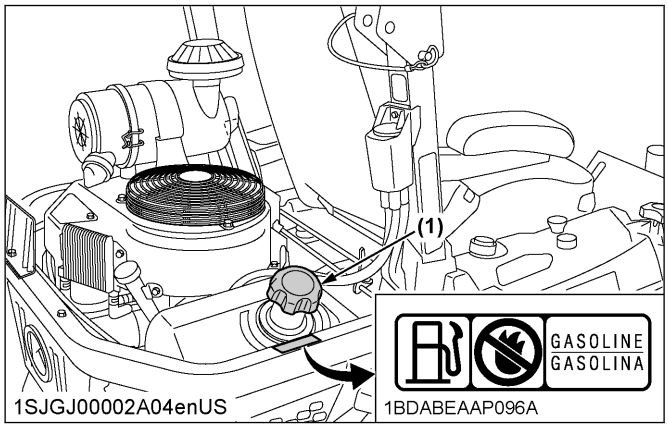
NOTE :

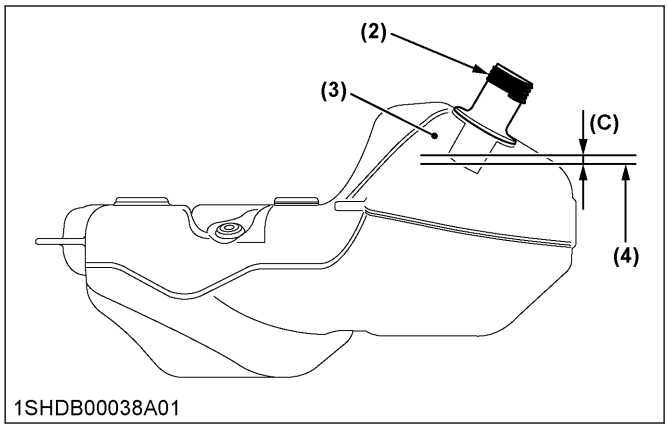
- **Use fuel within approximately 30 days after purchase to avoid deterioration in fuel quality, or add fuel stabilizer to keep fuel fresh and stabilized.**
- **Fuel blend differs from season to season for the best seasonal engine performance. To prevent engine performance troubles such as vapor lock or hard starting, use fuel within the season in which the fuel is purchased.**
- **Infrequent use of the engine during a season can make fuel stale in the fuel tank of the machine. Stale fuel condition can cause engine performance troubles due to issues with the fuel system.**
- **Seal the fuel storage container tightly and store it out of sunlight and heat to prevent fuel degradation.**
- **Condensation in the fuel tank may occur because of various operating or environmental conditions. To reduce condensation and to avoid affecting the machine operation, fill the fuel tank at the end of daily operations.**

IMPORTANT :

- **Do not use old fuel.**

Use of alcohol mixed gasoline
Only use gasoline containing ethanol when the ethanol is 10% or less of the fuel. When using gasoline containing MTBE, the MTBE is 15% or less of the fuel mixture. The use of methanol additive is not recommended. For the best results, use unleaded fuel with a minimum of 87 octane.





(1) Fuel tank cap
(2) Fuel tank filler neck
(3) Empty space
(4) Maximum fuel level
(C) Clearance (fuel level is under the filler neck)

3. Checking and cleaning the air intake screen

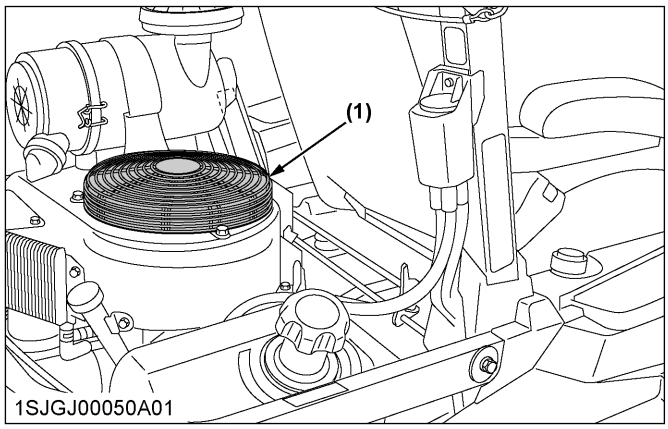
⚠ WARNING
To avoid serious injury or death:
- **Be sure to stop the engine and remove the key before cleaning.**
- **Make sure that the engine is cool to the touch before cleaning.**

IMPORTANT :
- **The air intake screen and air intake area must be clear of debris to prevent the engine from overheating.**

Daily or after every 5 hours of operation, make sure the air intake screen and the air intake area are clean.

Dirt or chaff around the air intake screen, air intake area, or the engine cooling area decrease cooling performance.

1. Check that the air intake screen is clear of grass clippings and debris.
2. If the screen is dirty, clean it with a brush or cloth.
3. Remove the dust and all foreign material from the engine plate.



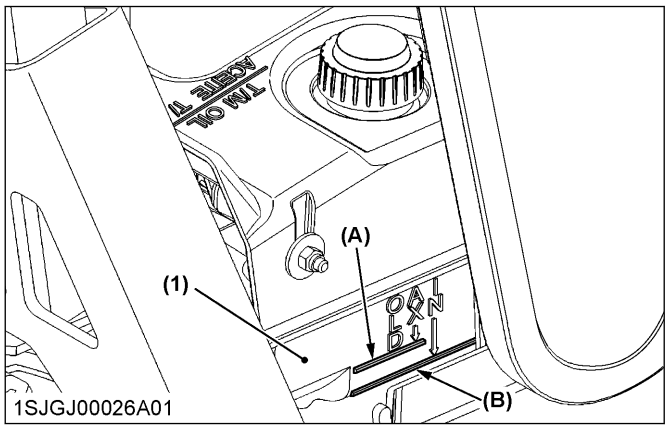
(1) Air intake screen

4. Checking the transaxle fluid level

⚠ WARNING
To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before checking the transaxle fluid level.**

1. Check to see that the oil level lies between the **[MAX]** and **[MIN]** lines while the machine and oil are at ambient temperature.
   If the level is too low, add the new oil to the prescribed level into the expansion tank.
   (See LUBRICANTS AND FUEL on page 55.)

2. Do not overfill past **[MAX]** line.
   Oil expands with heat and may leak from cap during usage if overfilled.



(1) Transaxle fluid expansion tank
*(A) **[MAX]** line*
*(B) **[MIN]** line*

IMPORTANT :
- **If the oil level is low, do not run the engine. Add new oil into the expansion tank up to the prescribed level.**
- **Do not overfill the expansion tank.**

5. Checking the tire pressure

⚠ WARNING

To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before checking the tire pressure.**
- **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.**
  The inflation pressure in the front tires rises quickly when using compressed air.
  Do not inflate the tires above the recommended pressure shown in the operator's manual.

IMPORTANT :
- **Do not use tires larger than specified.**

5.1 Inflation pressure

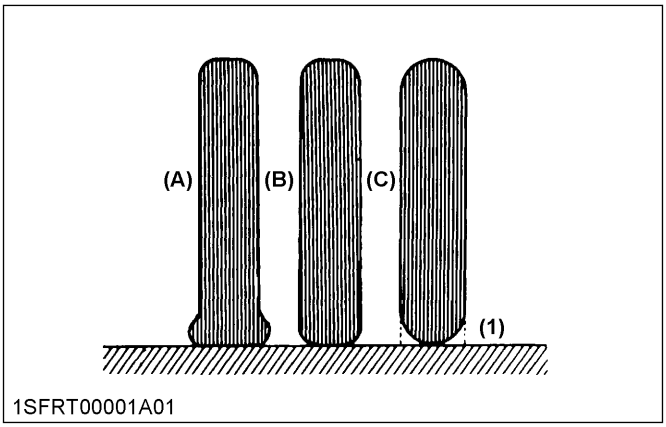
Even though the inflation pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Therefore, check it everyday and inflate as necessary.

Z751KWi, Z781KWi

	Tire sizes	Recommended inflation pressure
Front	13 x 6.5 - 6, (non flat) smooth	-
Rear	24 x 9.5 - 14, (4PR) turf	83 kPa 0.84 kgf/cm^2 12 psi

Z781KWTi

	Tire sizes	Recommended inflation pressure
Front	13 x 6.5 - 6, (non flat) smooth	-
Rear	24 x 12 - 14, (4PR) turf	83 kPa 0.84 kgf/cm^2 12 psi



(1) Ground
(A) "INSUFFICIENT"
(B) "NORMAL"
(C) "EXCESSIVE"

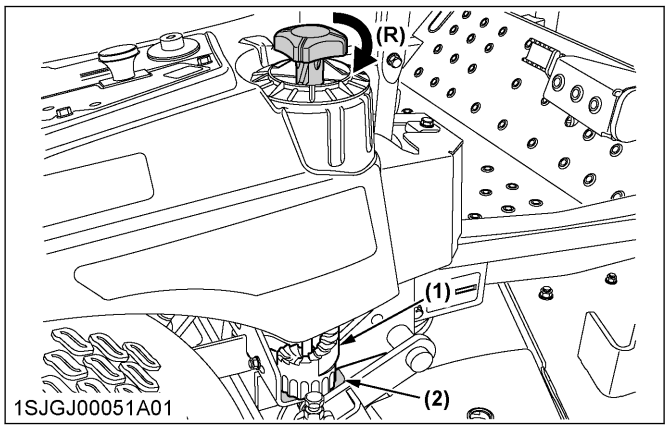
6. Checking the dial cam rotation strength

⚠ WARNING

To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Disengage the PTO (OFF).**
- **Stop the engine and remove the key before checking the dial cam rotation strength.**

1. Raise the implement to the top position.
   (See ADJUSTING THE CUTTING HEIGHT on page 46.)
2. Rotate the cutting height control dial and check for smoothness.

3. If the rotation strength is too high, clean the dial cam area and apply grease under the dial cam between the dial cam and the frame.

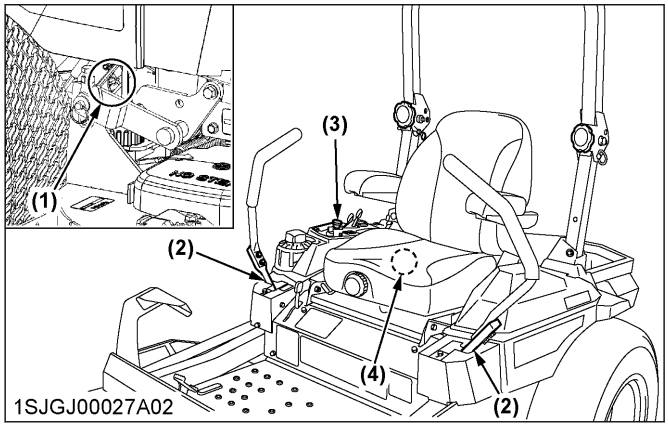


(1) Dial cam *(R) "ROTATE"*
(2) Frame surface

7. Cleaning area around safety switches

Since debris decreases the performance of safety switches, it is necessary to keep the area around the safety switches.

1. Clean the area around the safety switches.



(1) Parking brake pedal switch
(2) Motion control lever switch
(3) PTO switch
(4) Seat switch

8. Checking movable parts

If any of the movable parts, such as levers and pedals, cannot be smoothly moved because of rust or anything sticky, do not attempt to force it into motion.
In this case, remove the rust or the sticky object, and apply oil or grease on the relevant spot. Otherwise, the machine may get damaged.

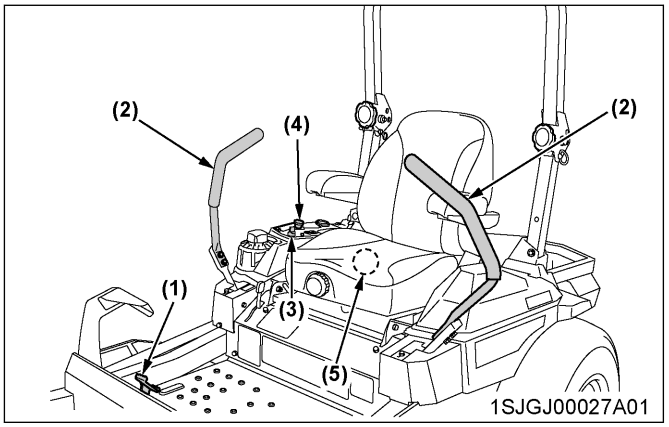
EVERY 50 HOURS

1. Checking the engine start system

The engine start system in your machine is designed to protect you while operating. Check the engine start system periodically (daily is best) to test the function of the engine start system before operation.

⚠ WARNING
To avoid serious injury or death:
- **Do not allow anyone near the machine while testing.**
- **If the machine does not pass one of the following tests, do not operate the machine. Consult your local KUBOTA Dealer.**
- **Sit on the operator's seat for all tests except for test 1.**

IMPORTANT :
- **Test the following before operating the machine:**



(1) Parking brake pedal
(2) Motion control lever
(3) Key switch
(4) PTO switch
(5) Seat switch

Test 1 (operator not on the seat)
1. Sit in seat and securely set the parking brake.
2. Set the PTO switch to the *"DISENGAGE"* (OFF) position.
3. Set the motion control levers to the *"NEUTRAL LOCK"* position.
4. Stand up. Do not get off the machine.
5. Turn the key switch to the *"START"* position.
6. The engine must not crank.

Test 2 (operator on the seat)
1. Do not set the parking brake (release it from test 1).
2. Set the PTO switch to the *"DISENGAGE"* (OFF) position.
3. Set the motion control levers to the *"NEUTRAL LOCK"* position.
4. Turn the key switch to the *"START"* position.

5. The engine must not crank.

Test 3 (operator on the seat)
1. Securely set the parking brake.
2. Set the PTO switch to the *"DISENGAGE"* (OFF) position.
3. Grasp the motion control levers and move them inward from the *"NEUTRAL LOCK"* position to the *"NEUTRAL"* position.
4. Turn the key switch to the *"START"* position.
5. The engine must not crank.

Test 4 (operator on the seat)
1. Securely set the parking brake.
2. Set the PTO switch to the *"ENGAGE"* (ON) position.
3. Set the motion control levers to the *"NEUTRAL LOCK"* position.
4. Turn the key switch to the *"START"* position.
5. The engine must not crank.

NOTE :
- **If the engine cranks in tests 1 through 4, consult your local KUBOTA Dealer to have the unit checked before operation.**

Test 5 (operator on the seat)
1. Start the engine.
2. Keep the parking brake securely set.
3. Set the PTO switch to the *"DISENGAGE"* (OFF) position.
4. Grasp the motion control levers and move them inward from the *"NEUTRAL LOCK"* position to the *"NEUTRAL"* position.
5. The engine must shut off.

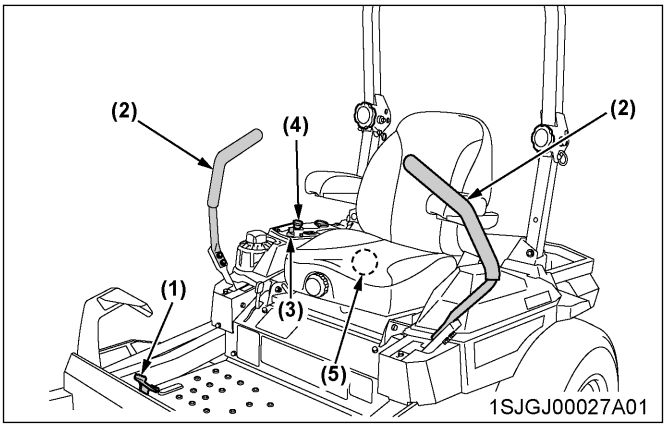
NOTE :
- **If the engine keeps running in test 5, consult your local KUBOTA Dealer to have the unit checked before operation.**

2. Checking the OPC system

The operator presence control (OPC) system in your machine is designed to protect you while operating. Check the OPC system periodically (daily is best) to test function of the OPC system before operation.

⚠ WARNING

To avoid serious injury or death:
- **Do not allow anyone near the machine while testing.**
- **If the machine does not pass one of the following tests, do not operate the machine. Consult your local KUBOTA Dealer.**



(1) Parking brake pedal
(2) Motion control lever
(3) Key switch
(4) PTO switch
(5) Seat switch

Test 1 (operator on the seat)
1. Start the engine.
2. Do not set the parking brake.
3. Set the PTO switch to the *"DISENGAGE"* (OFF) position.
4. Stand up. Do not get off the machine.
5. The engine must shut off.

Test 2 (operator on the seat)
1. Start the engine.
2. Do not set the parking brake.
3. Set the PTO switch to the *"ENGAGE"* (ON) position.
4. Stand up. Do not get off the machine.
5. The engine must shut off after 1 second.

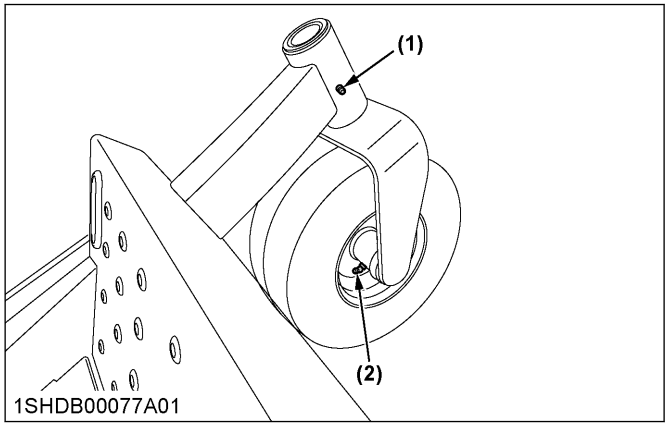
NOTE :
- **If the engine keeps running in tests 1 through 2, consult your local KUBOTA Dealer to have the unit checked before operation.**

3. Greasing

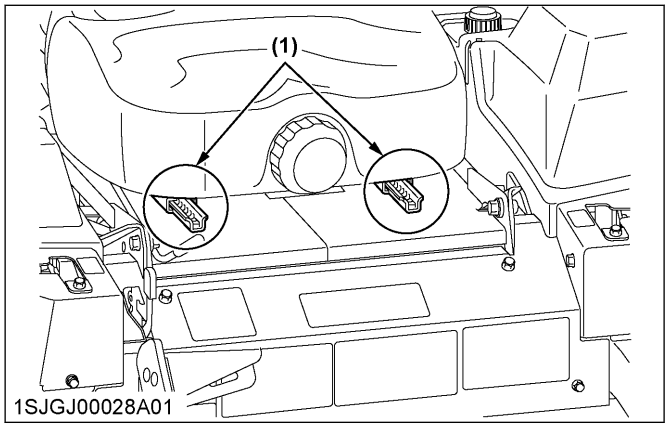
⚠ WARNING

To avoid serious injury or death:
- **Be sure to stop the engine and remove the key before greasing.**

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



(1) Front axle (LH, RH)
(2) Front wheel (LH, RH)



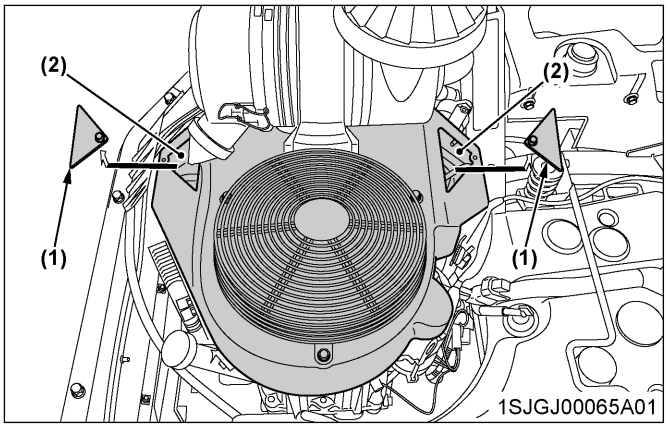
(1) Seat adjuster

4. Cleaning the engine cooling areas

⚠ WARNING
To avoid serious injury or death:
- **Make sure engine is cool to the touch before removing shrouds.**
- **Always shield eyes and face from air deposits and objects.**

NOTE :
- **Consult your local KUBOTA Dealer before disassembling engine.**

1. Remove the bolts securing the triangular ports to inspect the fan housing.
2. Blow out any debris or dirt trapped inside.



(1) Cleanout cover
(2) Inspection ports

5. Checking the muffler and spark arrester (if equipped)

The muffler and spark arrester should be checked every 50 hours operation or every 1 year, whichever comes first.

⚠ WARNING
Running engines produce heat. Engine parts, especially the muffler, become extremely hot.
Severe thermal burns can occur on contact.
Combustible debris, such as leaves, grass, brush, and so on can catch fire.
To avoid serious injury or death:
- **Allow the muffler, engine cylinder and fins to cool before touching.**
- **Remove accumulated debris from the muffler area and cylinder area.**
- **It is a violation of California Public Resource Code, Section 4442, to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact the original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for the exhaust system installed on this engine.**
- **Replacement parts must be of the same design and installed in the same position as the original parts. Other parts may not perform as well, may damage the unit, and may result in injury.**

1. Remove accumulated debris from the muffler and cylinder area.
2. Inspect the muffler for cracks, corrosion, or other damage.

3. Remove the spark arrester, if equipped, and inspect for damage or carbon blockage.
4. If damage is found, install replacement parts before operating.

EVERY 100 HOURS

1. Changing the engine oil

The engine oil should be changed every 100 hours operation or every 1 year, whichever comes first.

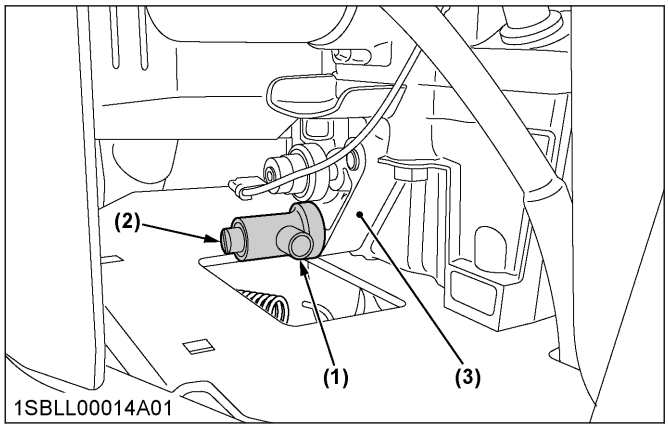
⚠ WARNING

To avoid serious injury or death:

- **Be sure to stop the engine and remove the key before changing the oil.**
- **Allow the engine to cool down sufficiently, as oil can be hot and may cause burns.**

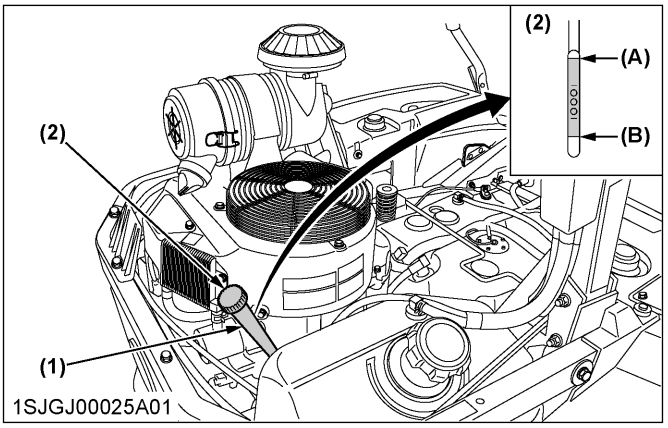
1. To change the used oil, use the drain valve connected to the engine block. To drain the oil, loosen the hex plug until oil begins to drain. Then, remove the oil level dipstick to allow the engine to vent.

   NOTE :
   - **The used oil can be drained out more easily if the engine is warm.**



(1) Oil drain valve
(2) Plug bolt
(3) Engine block

2. After all used oil has drained, reinstall the drain plug and return the hose to the hook.
3. Fill with new oil up to the upper level on the dipstick.



(1) Engine oil port
(2) Oil level dipstick
(A) "UPPER LEVEL"
(B) "LOWER LEVEL"

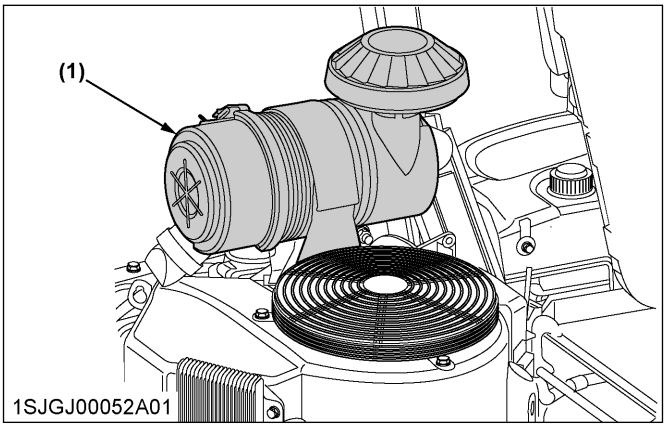
4. To check the oil level:
   Remove the dipstick, wipe it clean, insert it without screwing it in and draw it out again. Check to see that the oil level is between the 2 marks.

   NOTE :
   - **Do not overfill.**

2. Checking the air cleaner outer element

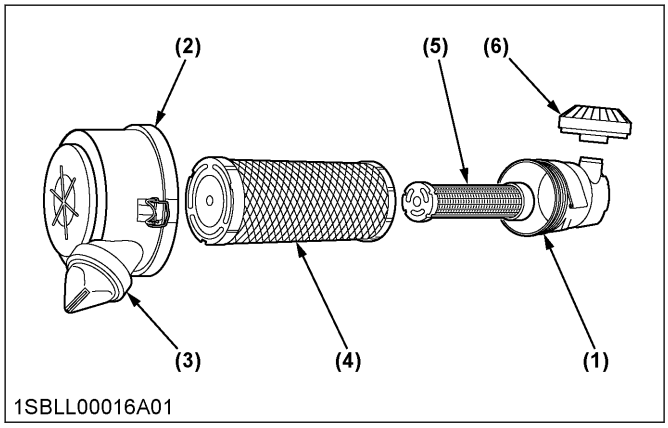
Check the air cleaner daily or before starting the engine. Check for a buildup of dirt and debris around the air cleaner system. Keep this area clean. Also check for loose or damaged components.
Check the air cleaner outer element every 100 hours of operation.

NOTE :
- **Operating the engine with loose or damaged air cleaner components could allow unfiltered air into the engine causing premature wear and failure.**



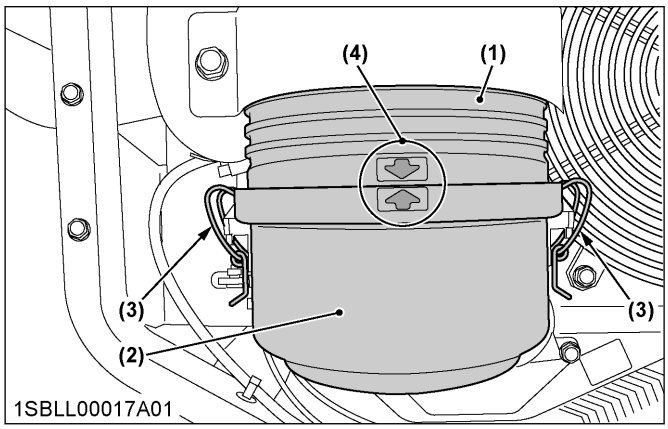
(1) Air cleaner

Air cleaner components



(1) Air cleaner housing
(2) End cap
(3) Rubber vent/Ejector area
(4) Outer element
(5) Inner element
(6) Rain cap

1. Unhook retaining clips and remove end caps.
2. Check inlet screen and clean if necessary.
3. Remove and check outer element. Replace if dirty.
4. If replacing outer element, remove and check inner element. Replace inner element if dirty.
5. Check all parts for wear, cracks, or damage, and that ejector area is clean.
6. After checking parts, reassemble the air cleaner. When installing the end cap, make sure the alignment arrow on the end cap and the alignment arrow on the air cleaner housing are aligned, showing correct installation.
7. Reinstall end caps with ejector area down with retaining clips.



(1) Air cleaner housing
(2) End cap
(3) Retaining clips
(4) Alignment arrow

NOTE :
- **Outer element cannot be cleaned with compressed air.**

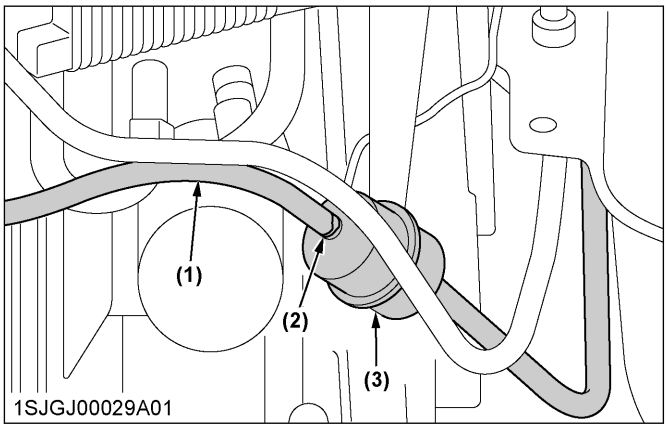
3. Checking the fuel filter

⚠ WARNING
To avoid serious injury or death:
- **Be sure to stop the engine and remove the key when attempting to make the following checks and changes.**
- **Never fail to check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.**

The fuel line is made of rubber and ages regardless of service period.

1. If the fuel filter or clamps are found damaged or deteriorated, replace them.
2. Check fuel filter. If it is clogged by debris or contaminated with water, replace it.
3. If the dust or chaff has accumulated around the fuel filter, remove them by hand or air blow.

IMPORTANT :
- **When the fuel line is disconnected for maintenance or repairs, close both ends of the fuel line with a piece of clean cloth or paper to prevent dust and dirt from entering.**
- **Particular care must be taken not to allow dust and dirt to enter into the fuel pump. Entrance of dust and dirt causes malfunction of the fuel pump.**



(1) Fuel line
(2) Pipe clamp
(3) Fuel filter

4. Adjusting the parking brake

If you feel you are unable to make the following service correctly and safely, contact your local KUBOTA Dealer.

⚠ WARNING
To avoid serious injury or death:
- **Park the machine on a firm and level surface.**

- **Stop the engine and chock the wheels before checking or adjusting.**

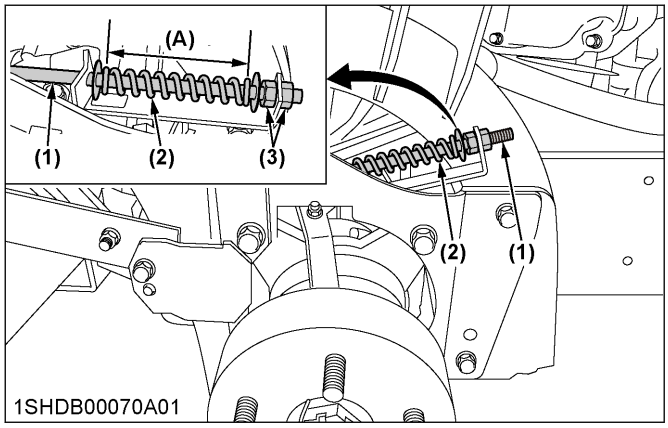
IMPORTANT :
- **Wrong adjustment may cause machine damage.**

4.1 Check brake spring

1. Place the motion control levers to the *"NEUTRAL LOCK"* position.
2. Be sure to chock the rear wheels.
3. Apply the parking brake to the lock position.
4. Check the length of the brake springs on both sides.

(A): Proper brake spring length with the brake applied to the lock position	114 to 115 mm (4.49 to 4.53 in.)

When the parking brake is locked.

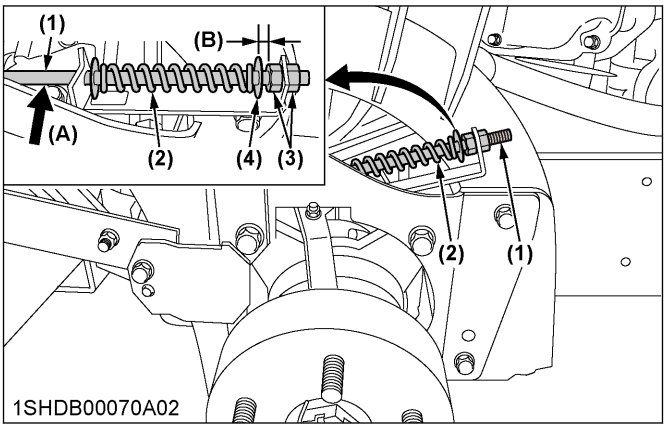


(1) Brake rod
(2) Brake spring
(3) Lock nut
(A) "Parking brake spring length"

5. If the length of the brake spring is not correct, adjust it.
   (See *"Adjustment of brake spring length"* as follows.)
6. Release the parking brake completely.
7. Hold the brake rod lightly.
8. Check the brake spring play.

(B): Proper brake spring play	The spring must have play. Reference: 0.5 to 1.0 mm (0.02 to 0.04 in.)

When the parking brake is released.



(1) Brake rod
(2) Brake spring
(3) Lock nut
(4) Plain washer
(A) "Hold the brake rod"
(B) "Parking brake spring play"

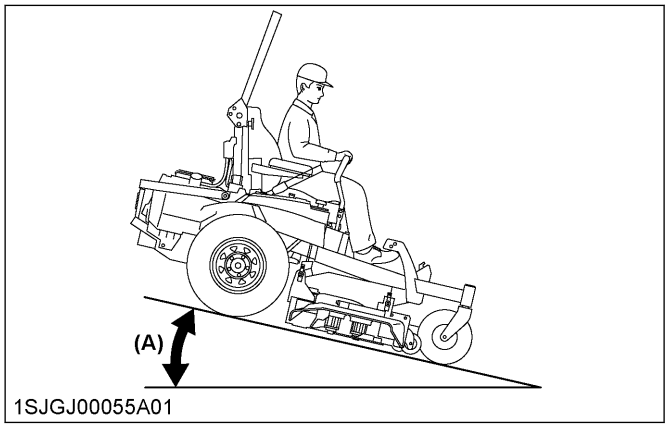
9. If the brake spring play is not correct, adjust it.
   (See *"Adjustment of brake spring play"* as follows.)

Adjustment of brake spring length
1. Place the motion control lever to the *"NEUTRAL LOCK"* position.
2. Apply the parking brake to the lock position.
3. Loosen the lock nuts.
4. Adjust the spring length to the recommendation.
5. Lock the nuts.
6. Check the brake spring play to the recommendation.
   If there is no play, adjust the brake spring play again.
   (See *"Adjustment of brake spring play"* as follows.)
7. Adjust the other side spring to the same dimension.

Adjustment of brake spring play
1. Place the motion control lever to the *"NEUTRAL LOCK"* position.
2. Be sure to chock the rear wheels.
3. Release the parking brake completely.
4. Loosen the lock nuts.
5. Hold the brake rod by hand.
6. Tighten the nut to the correct space between the end of the spring and the nut.
7. Lock the nuts.
8. Adjust the other side spring to the same dimension.

4.2 Check on the slope

1. Place the machine on a 17° ramp.
2. Apply the parking brake.
3. Place the motion control levers in *"NEUTRAL LOCK"* position and shut off the engine.
4. Check that the machine does not move.
5. If the machine moves, consult your local KUBOTA Dealer to have the unit checked before operation.



(A) 17° ramp

NOTE :
- **For parking brake test purposes, only use 17° ramp.**

5. Checking the battery condition

DANGER

To avoid the possibility of battery explosion:
For the refillable type battery, follow these instructions:
- **Do not use or charge the refillable type battery if the fluid level is below the [LOWER] (lower limit level) mark. Otherwise, the 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.**
- **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.**

WARNING

To avoid serious injury or death:
- **Batteries, battery posts, terminals and related accessories contain lead, lead compounds and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.**
- **Never remove the battery cap while the engine is running.**
- **Keep electrolyte away from eyes, hands and clothes. If you are spattered with electrolyte, wash it away completely with water immediately and get medical attention.**
- **Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.**
- **Wear eye protection and rubber gloves when working around the battery.**

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

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

Battery type	Volts (V)	Reserve capacity (min)	Cold cranking amps	Normal charging rate (A)
U1-300	12	45	300	6.5

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

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

5.1 Charging the battery

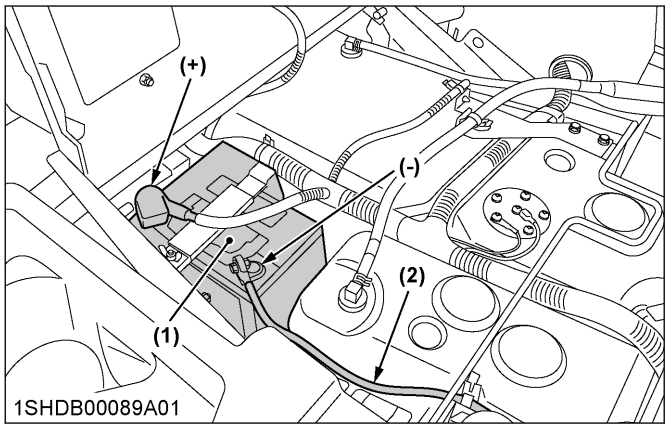
DANGER

To avoid serious injury or death:
- **When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.**

⚠ WARNING

To avoid serious injury or death:

- **When disconnecting the cable from the battery, start with the negative terminal first. When connecting the cable to the battery, start with the positive terminal first.**
- **Never check the battery charge by placing a metal object across the posts.**
  Use a voltmeter or hydrometer.



(1) Battery
(2) Ground cable
(+) Positive terminal
(-) Negative terminal

1. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative. Then, charge for at least 1 hour at 6.5 amperes.
2. 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.
3. When the specific gravity of electrolyte is between 1.27 and 1.29, the charging is completed.

5.2 Storing the battery

1. When storing the machine for a long period, remove the battery from the machine, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
2. The battery self-discharges while it is stored. Recharge it once every 3 months in the hot season and once every 6 months in the cold season.

6. Cleaning the engine oil cooler fins (if equipped)

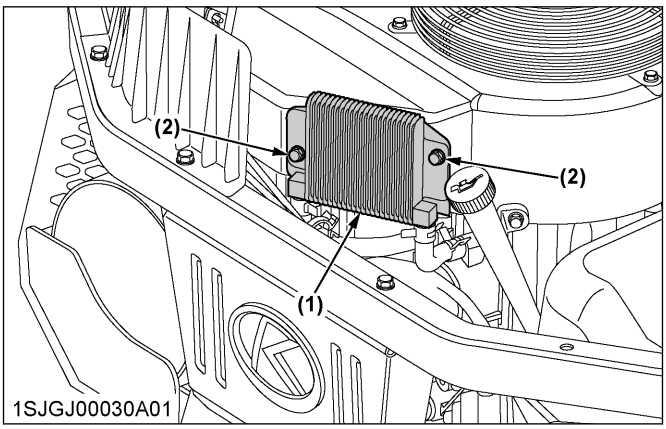
The engine oil cooler fins should be cleaned every 100 hours operation or every 1 year, whichever comes first.
The models **Z781KWi** and **Z781KWTi** are equipped with an oil cooler. The oil cooler is mounted on the blower housing. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm , 30 psi).

⚠ WARNING

To avoid serious injury or death:

- **Make sure the engine is cool enough to touch before removing shrouds and other components.**
- **Always shield eyes and a face from air deposits and objects.**

1. Stop the engine and apply the parking brake.
2. Loosen the 4 bolts for the engine oil cooler.



(1) Oil cooler
(2) Oil cooler bolts (x2)

3. Pull out the engine oil cooler.
4. Remove large debris from both sides of the engine oil cooler fin by hand, and then blow off small debris with the compressed air. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm , 30 psi).
5. Put back the engine oil cooler in the original position and tighten bolts.

7. Cleaning the engine cooling areas

⚠ WARNING

To avoid serious injury or death:

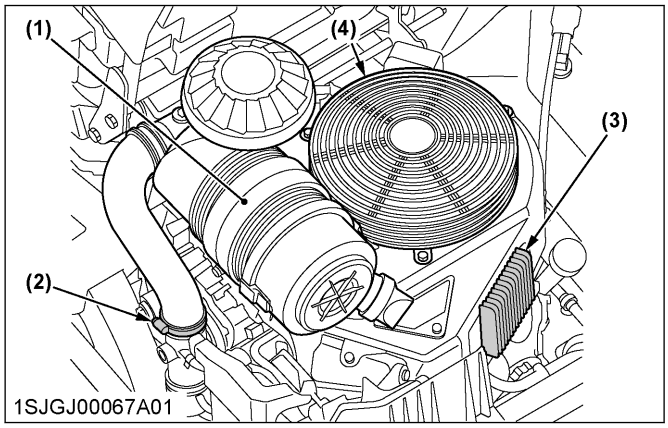
- **Make sure engine is cool to the touch before removing shrouds.**
- **Always shield eyes and face from air deposits and objects.**

NOTE :

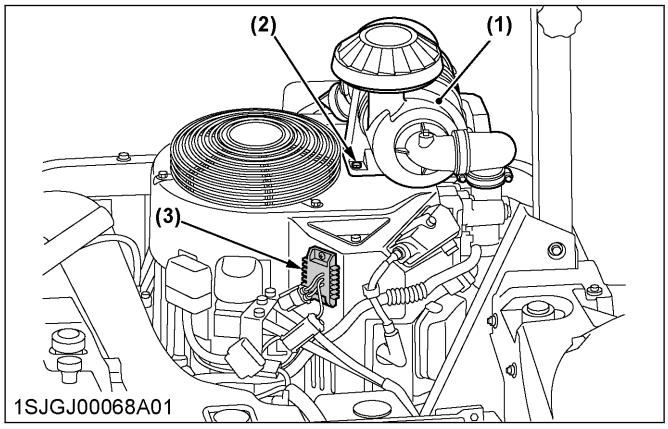
- **Consult your local KUBOTA Dealer before disassembling engine.**

1. Remove the fan guard for better access to clean cooling fins.
   - Remove the fan guard for better access to clean cooling fins.
   - Loosen the clamp that attaches the air inlet tube to the engine.

- Remove the 4 bolts that secures the base of the air cleaner assembly and remove.
- Remove the screws securing the regulator and remove.
- Remove 2 bolts to remove the oil cooler. (850 V engine only)
- Remove the 3 bolts securing the fan guard so that it can be removed.

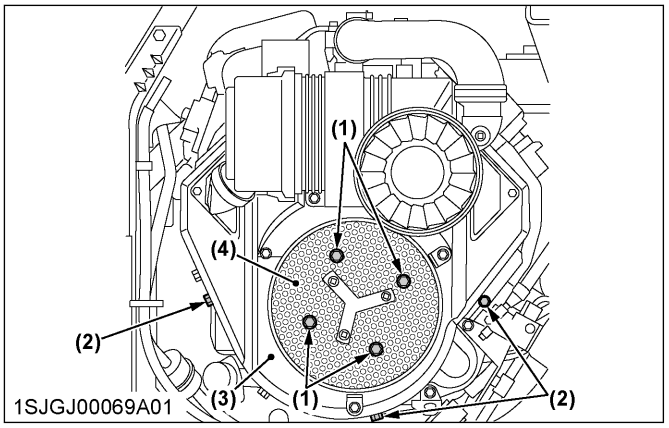


(1) Air cleaner
(2) Clamp
(3) Oil cooler
(4) Fan guard



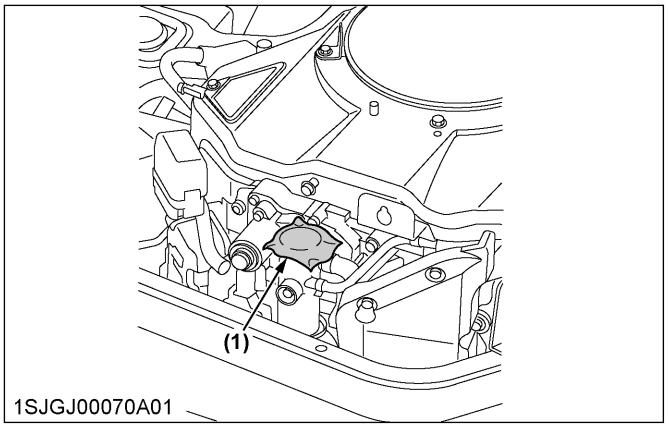
(1) Air cleaner
(2) Bolt
(3) Regulator

2. Remove the 4 torx bolts which secure the air inlet screen so that it can be removed.
   Remove the 3 bolts located on the side of the fan housing so that it can be removed.



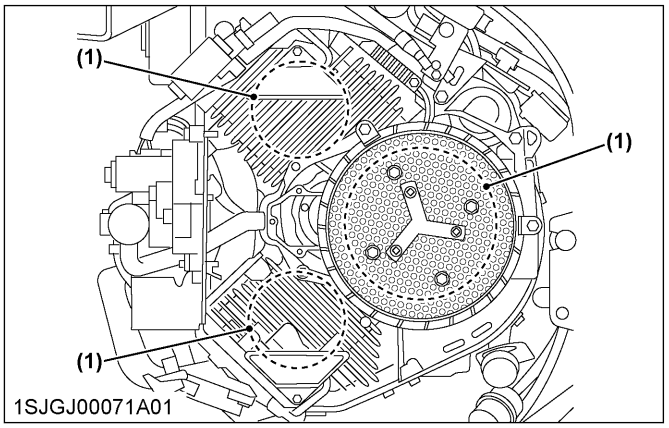
(1) Torx bolt
(2) Bolt
(3) Fan housing
(4) Air inlet screen

3. Cover the intake port.



(1) Intake port

4. Blow out any contaminants such as debris or dust from the cooling fan and engine body.



(1) Blow here

5. Reinstall all parts in the reverse order of the above procedure.

NOTE :

- **Refer to your Kawasaki engine manual, section *"COOLING SYSTEM CLEANING"* for more details.**

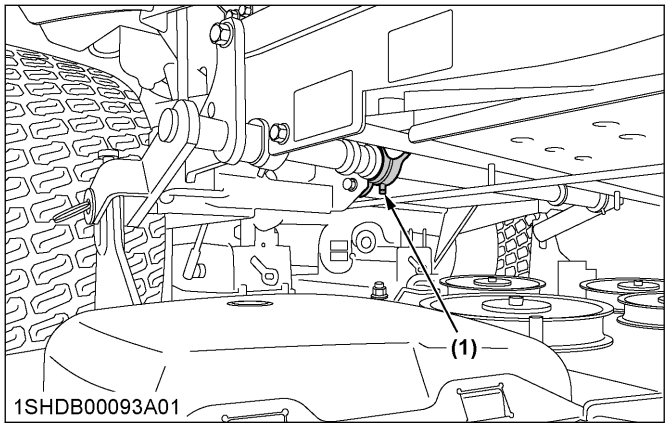
8. Greasing

WARNING

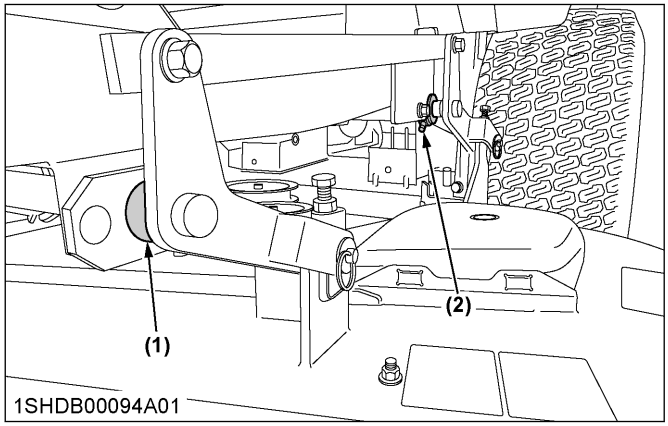
To avoid serious injury or death:

- **Be sure to stop the engine and remove the key before greasing.**

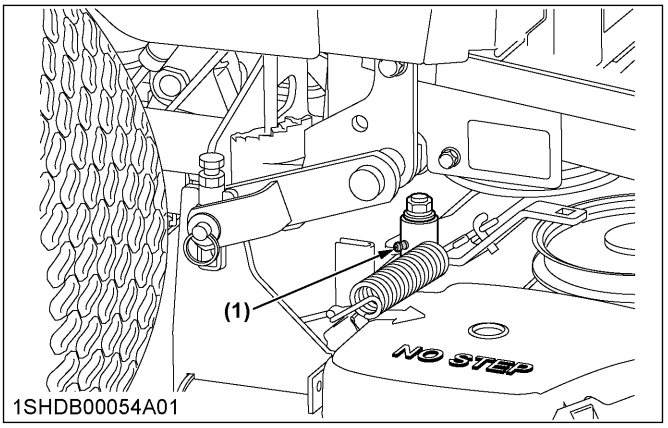
1. Apply a small amount of multipurpose grease to the following points every 100 hours.
   If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often.



(1) Center mower link bushing



(1) Front mower link bushing (LH, RH)
(2) Rear mower link bushing (LH, RH)



(1) Mower belt tension pivot

9. Checking the spark plug condition and gap

WARNING

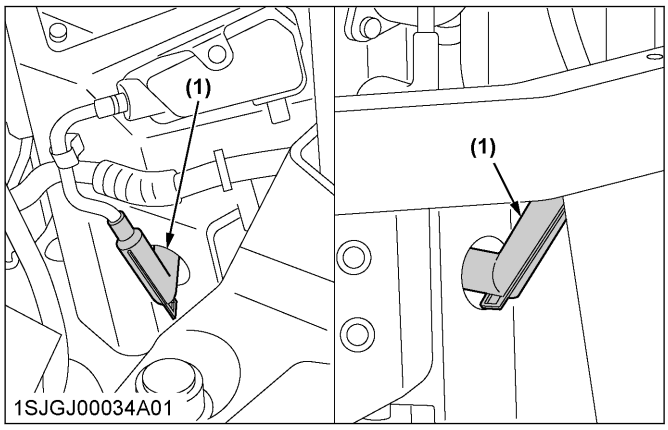
To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before checking the spark plug.**

Remove the spark plugs, check condition, and reset the gap or replace with new plugs as necessary.

1. Before removing spark plugs, clean the area around the base of the plug to keep dirt and debris out of the engine.
2. Disconnect the spark plug cap from spark plugs.
3. Use a spark plug wrench to remove the spark plugs.
4. Remove plugs and check its condition.
   Replace the plug if worn or reuse is questionable.

5. Inspect spark plugs for cracked porcelain, pitted electrodes, or other wear and damage. Replace the spark plug if necessary.



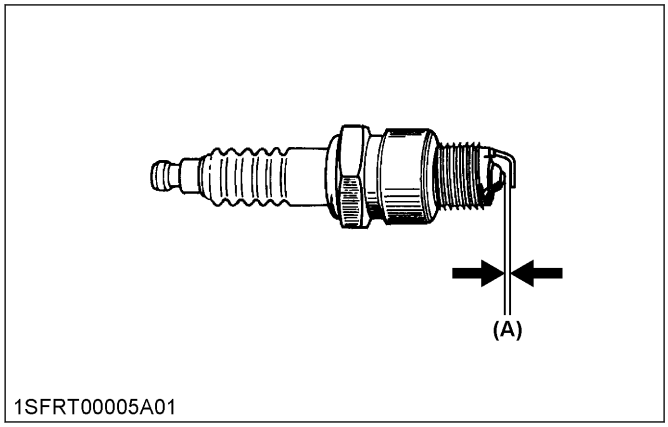
(1) Spark plug cap and spark plug

NOTE :

- **Do not clean the spark plug in a machine using abrasive grit. Some grit could remain in the spark plug and enter the engine, which may cause extensive wear and damage.**

Recommended spark plug	**NGK BPR4ES**

6. Check the gap using a wire feeler gauge. Adjust the gap to 0.76 mm (0.030 in.) by carefully bending the ground electrode.



(A) 0.76 mm (0.030 in.)

7. Reinstall the spark plug into the cylinder head.

Tightening torque	22 N·m 16 lbf·ft

EVERY 200 HOURS

1. Replacing the engine oil filter

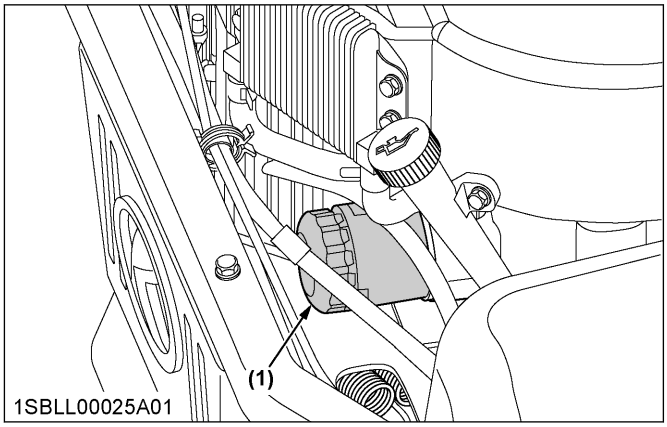
⚠ WARNING

To avoid serious injury or death:

- **Engine oil is a toxic substance. Dispose of used oil properly. Contact your local authorities for approved disposal methods or possible recycling.**
- **Be sure to stop the engine and remove the key before changing the oil and the oil filter.**
- **Allow engine to cool down sufficiently; oil can be hot and may cause burns.**

The oil filter must be changed every 200 service hours. Always use a genuine oil filter.

1. Drain the engine oil.
   Drain the engine oil by following steps 1 and 2 from changing engine oil section.
   (See Changing the engine oil on page 64.)
2. Remove the old filter and wipe off the filter adapter with a clean cloth.



(1) Engine oil filter

3. Place a new replacement filter in a shallow pan with the open end up. Pour new oil, of the proper type, in the threaded center hole. Stop pouring when the oil reaches the bottom of the threads. Allow a few minutes for the oil to be absorbed by the filter material.
4. Apply a thin film of clean oil to the rubber gasket on the new oil filter.
5. Install the new oil filter to the filter adapter. Hand tighten the filter clockwise until the rubber gasket contacts the adapter, then tighten the filter an additional 2/3 turn.
6. Fill the engine with the proper oil up to the **[FULL]** or **[F]** mark on the dipstick. Always check the oil level with the dipstick before adding more oil.
7. Reinstall the oil fill cap and dipstick, and then tighten securely.

8. Start the engine and check for oil leakage. Recheck the oil level before placing the engine into service. Stop the engine, correct any leakage, and allow 1 minute for the oil to drain down, then recheck the level on the dipstick.

NOTE :
- **To prevent extensive engine wear or damage, always maintain the proper oil level in the crankcase. Never operate the engine with the oil level below the [ADD] or [L] mark or above the [FULL] or [F] mark on the dipstick.**

2. Replacing the fuel filter

Consult your local KUBOTA Dealer for this service.

EVERY 250 HOURS

1. Replacing the air cleaner outer element

(See Checking the air cleaner outer element on page 64.)

2. Checking the air cleaner inner element

(See Checking the air cleaner outer element on page 64.)

EVERY 300 HOURS

1. Cleaning the combustion chamber

If you do not have the proper tools and/or are not mechanically proficient, consult your local KUBOTA Dealer for this service.

2. Cleaning and adjusting valve seat and clearance

If you do not have the proper tools and/or are not mechanically proficient, consult your local KUBOTA Dealer for this service.

EVERY 500 HOURS AFTER 300 HOURS

1. Replacing the transaxle oil filter

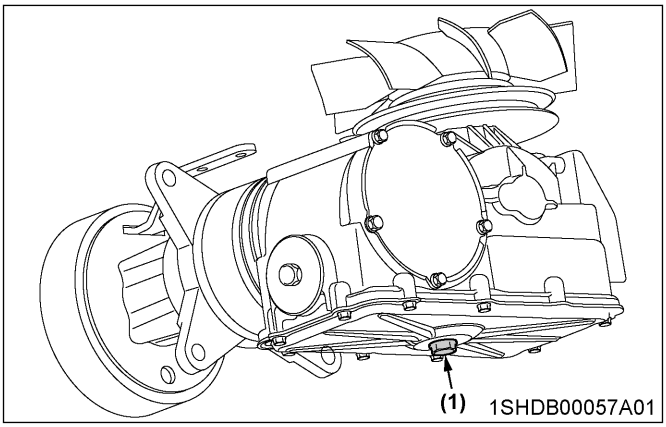
⚠ WARNING

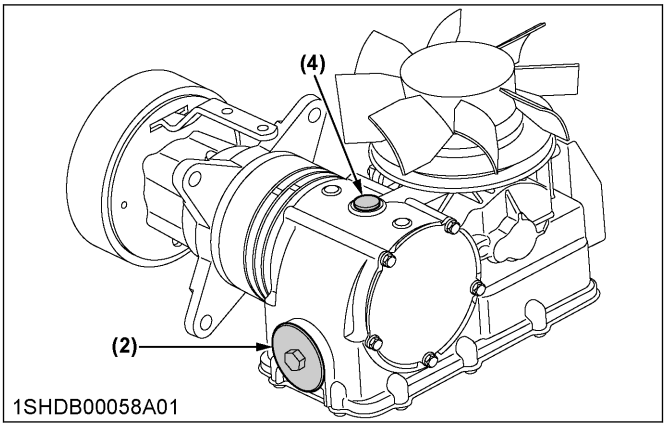
To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Be sure to stop the engine and remove the key before changing or checking the oil.**
- **Allow the transmission case to cool down sufficiently, as oil can be hot and may cause burns.**

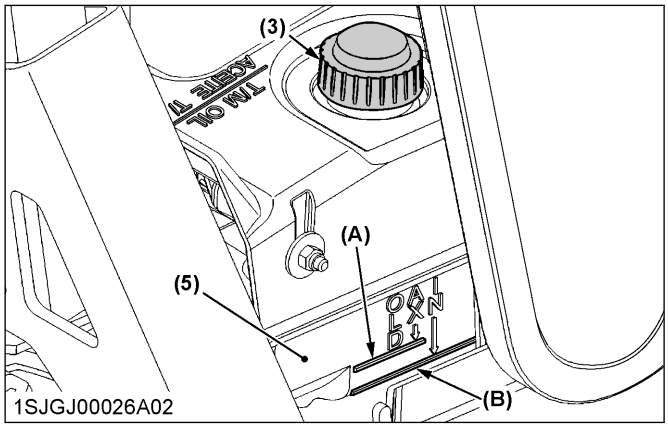
1. Clean any loose debris from around the oil drain plug, oil filter, expansion tank cap, and breather port plug.
2. Place an oil drain pan (8 qt. capacity minimum) beneath the oil drain plug. Remove the oil drain plug and washer and allow used oil to drain completely.

NOTE :
- **Remove the expansion tank cap to speed up the draining process.**

3. Remove the oil filter.







(1) Oil drain plug
(2) Oil filter
(3) Expansion tank cap
(4) Breather port plug
(5) Transaxle fluid expansion tank

*(A) **[MAX]** line*
*(B) **[MIN]** line*

NOTE :
- **Always replace the filter when performing any internal maintenance to the transaxle.**

4. Wipe the oil filter mounting surface and apply a film of new oil to the new oil filter o-ring.
5. Install the new oil filter by hand.
6. After hand tightening, torque the oil filter to 13-15.2 N·m (9.60-11.2 lbf·ft).
7. Inspect oil drain plug and washer. Replace if damaged.
8. Reinstall the oil drain plug and washer. Torque to 5.7-8.4 N·m (4.2-6.1 lbf·ft).
9. Loosen breather port plug by 3 turns.

IMPORTANT :
- **Always loosen the breather port plug when adding oil. If breather port plug is not loosened, air can remain in the transaxle and reduce performance.**

10. Fill expansion tank with new oil and allow oil to drain into transaxle. Continue until oil just comes out from the breather port plug.
11. Tighten the breather port plug. Torque to 11.3-13.5 N·m (8.34-9.95 lbf·ft).
12. Continue to fill the transaxle through the expansion tank until the **[MAX]** line is reached on the expansion tank.
    (See Checking the transaxle fluid level on page 59.)
13. Reinstall the expansion tank cap by hand. Do not overtighten.
14. Repeat steps 1-13 on the opposite side transaxle drive.
15. Purge any remaining air from the transaxles.

Purging procedures
Before starting, make sure the transaxle is at the proper oil level. If it is not, fill to the specifications outlined in this manual.

The following procedures are best performed with the machine drive wheels off the ground, and then repeated under normal operating conditions. If this is not possible, perform this procedure in an open flat area free of any objects or bystanders.

1. Open the bypass valves of both transaxles with the bypass levers.
   (See Hydrostatic transaxle bypass lever on page 45.)
2. Start the engine and disengage the parking brake.
3. Set the engine throttle to low idle.
4. Slowly move the motion control levers to the max forward position. Hold for 30 seconds.
5. Slowly move the motion control levers to the max reverse position. Hold for 30 seconds.
6. Place the motion control levers in neutral lock and apply the parking brake.
7. Close the bypass valves of both transaxles.
8. Set the engine throttle to high idle.
9. Disengage the parking brake.
10. Slowly move the motion control levers to the max forward position. Hold for 30 seconds.
11. Slowly move the motion control levers to the max reverse position. Hold for 30 seconds.
12. Place the motion control levers in neutral lock, apply the parking brake, and stop the engine.
13. Check the transaxle oil level. If oil level is below the **[MIN]** line, proceed to step 14. Otherwise, the purging process is complete.
14. Loosen breather port plug by 3 turns.
15. Fill expansion tank with new oil and allow oil to drain into transaxle. Continue until oil just comes out from the breather port plug.
16. Tighten the breather port plug. Torque to 11.3-13.5 N·m (8.34-9.95 lbf·ft).
17. Continue to fill the transaxle through the expansion tank until the **[MAX]** line is reached on the expansion tank.
    (See Checking the transaxle fluid level on page 59.)
18. Repeat steps 1 through 13 until all air is purged from the transaxles.

2. Changing the transaxle fluid

(See Replacing the transaxle oil filter on page 72.)

EVERY 500 HOURS

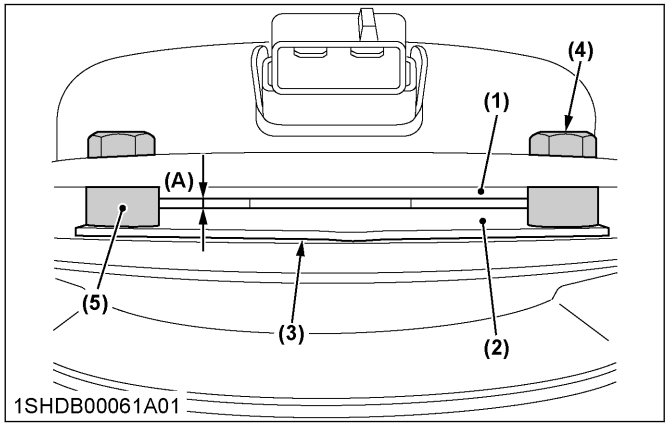
1. Adjusting the electric clutch

⚠ WARNING
To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before adjusting the electric clutch.**

The electric clutch serves 2 functions in the operation of the mower:

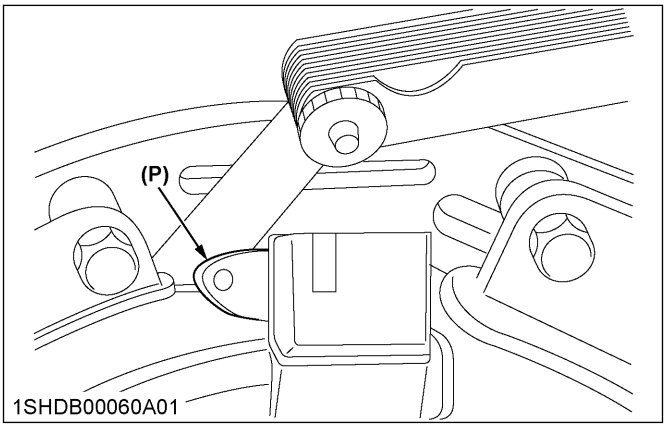
- Starting and stopping the power flow to the cutter blades.
- The clutch also acts as a brake to assist in stopping blade rotation when the PTO is switched off or the operator presence control is interrupted.

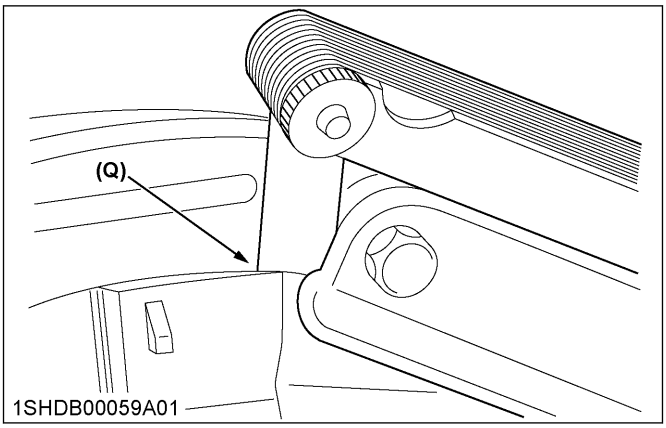
When the clutch is disengaged, the air gap between the armature and rotor should be less than 2.5 mm (0.100 in.) and more than 0.25 mm (0.010 in.). Perform the following procedure to check the electric clutch function.



(1) Rotor
(2) Armature
(3) Shim
(4) Brake mounting bolt
(5) Aluminum spacers
(A) Air gap

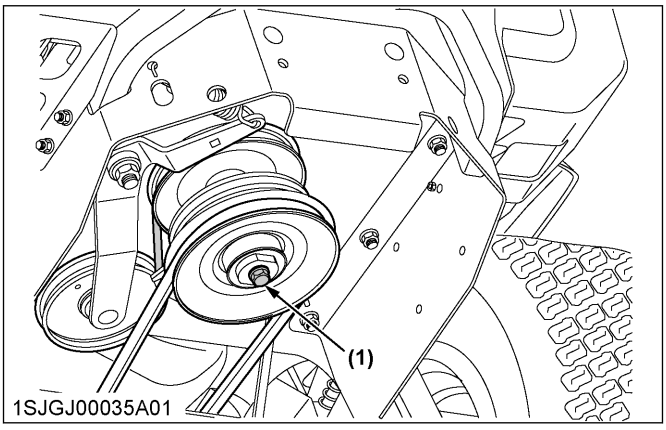
1. Using a pneumatic line, blow out any debris from under the brake pole and around the aluminum spacers.
2. Check air gap between rotor and armature face on both sides of the brake pole. If air gap is 2.5 mm (0.100 in.) or greater, or if clutch is having trouble engaging when hot, proceed to step 3. Otherwise, skip to step 9.
3. Loosen both brake mounting bolts 1 full turn.
4. Use pliers or hand to remove the shim. Do not discard shim until proper clutch function has been confirmed.
5. Using a pneumatic line, blow out any debris from under the brake pole and around the aluminum spacers.
6. Tighten each brake mounting bolt. Torque to 13-14.2 N·m (9.5-10.5 lbf·ft).
7. Using a 0.25 mm (0.010 in.) thick feeler gage, check that a gap is present between the rotor and armature face on both sides of the brake pole.





(P) Check gap on one side
(Q) Check gap on other side

8. If the gap is less than 0.25 mm (0.010 in.), reinstall the shim and consult your local KUBOTA Dealer. If gap is greater than 0.25 mm (0.010 in.), proceed to next step.
9. Check tightness of clutch mounting bolt. Torque to 67-75 N·m (50-55 lbf·ft).



(1) Clutch mounting bolt

10. With the engine running, check clutch function by engaging and disengaging the clutch 10 consecutive times. If clutch does not engage, consult your local KUBOTA Dealer.

This adjustment should be done every 500 hours of operation or annually, whichever comes first. In case

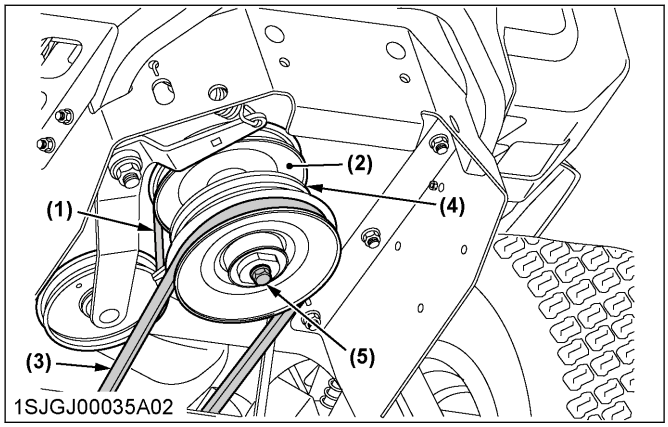
the machine is heavily used, air gap settings should be checked more often.
If the air gap is too narrow, the clutch armature may drag when disengaged, resulting in premature failure.

2. Lubricating the crankshaft

⚠ WARNING
To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before lubricating the crankshaft.**

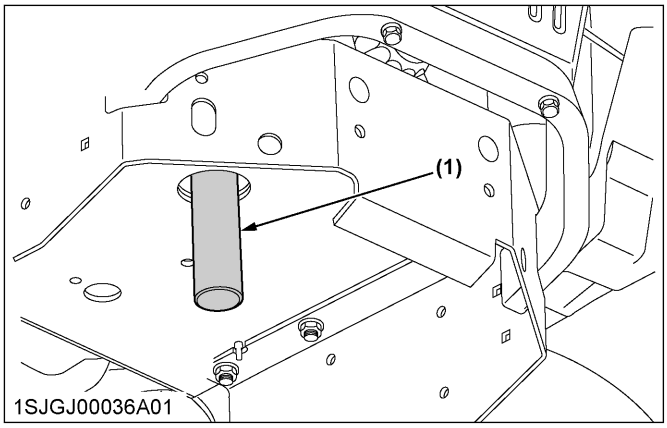
The engine crankshaft should be lubricated every 500 hours to ensure that critical components such as the electric clutch, transaxle drive pulley and the engine can be removed if needed.

1. Remove the mower belt.
2. Remove the transaxle belt.
3. Remove the electric clutch and transaxle drive pulley.



(1) Transaxle belt
(2) Transaxle drive pulley
(3) Mower belt
(4) Electric clutch
(5) Clutch mounting bolt

4. Apply a light coating of copper-based anti-seize lubricant to the engine crankshaft.



(1) Engine crankshaft

5. Reinstall the transaxle drive pulley, electric clutch, and clutch mounting bolt.
6. Torque the clutch mounting bolt to 67-75 N·m (50-55 lbf·ft).
7. Reinstall the transaxle belt.
8. Reinstall the mower belt.

3. Replacing the air cleaner inner element

(See Checking the air cleaner outer element on page 64.)

4. Replacing the spark plug

(See Checking the spark plug condition and gap on page 70.)

EVERY 1 YEAR

1. Cleaning the engine oil cooler fins (if equipped)

(See Cleaning the engine oil cooler fins (if equipped) on page 68.)

2. Changing the engine oil

(See Changing the engine oil on page 64.)

3. Cleaning the engine cooling areas

(See Cleaning the engine cooling areas on page 68.)

4. Checking the fuel lines

⚠ WARNING
To avoid serious injury or death:

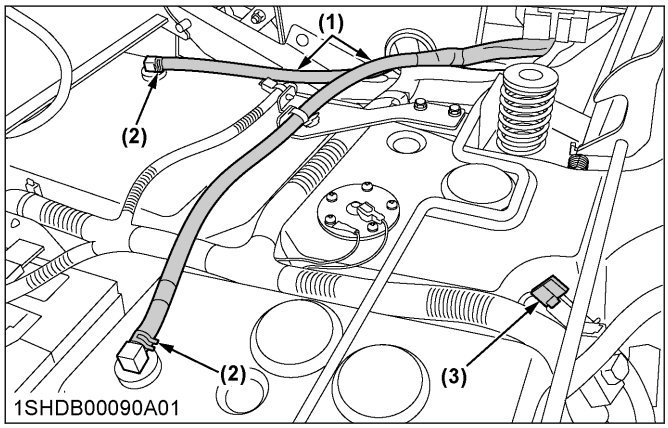
- **Be sure to stop the engine and remove the key when attempting to make the following checks and changes.**
- **Never fail to check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.**

The fuel line is made of rubber and ages regardless of service period.

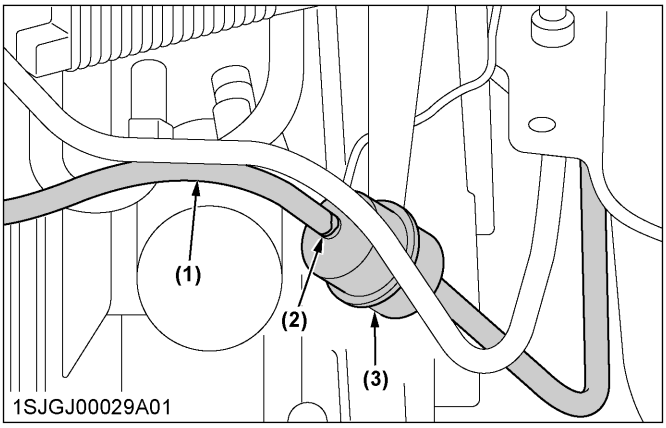
1. If the fuel line and clamps are found damaged or deteriorated, replace them.
2. If the dust or chaff has accumulated around the ends of the fuel line, remove them by hand or air blow.

IMPORTANT :

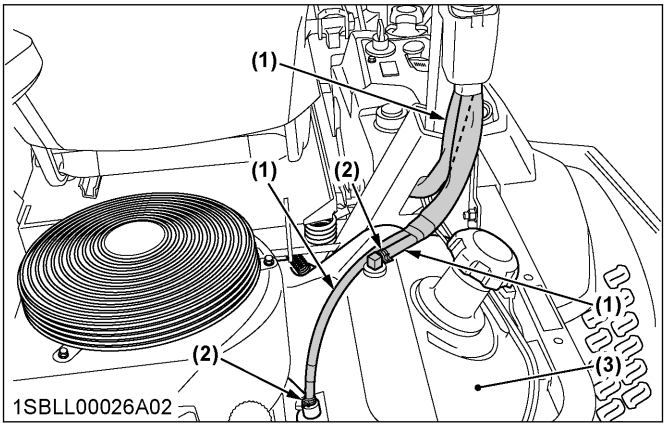
- **When the fuel line is disconnected for maintenance or repair, close both ends of the fuel line with a piece of clean cloth or paper to prevent dust and dirt from entering. In addition, particular care must be taken not to admit dust and dirt into the fuel pump. Entrance of dust and dirt causes malfunction of the fuel pump.**



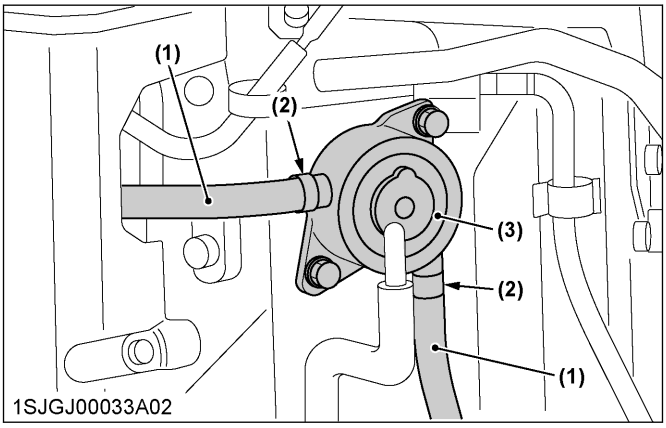
(1) Fuel line
(2) Pipe clamp
(3) Fuel valve



(1) Fuel line
(2) Pipe clamp
(3) Fuel filter



(1) Fuel line
(2) Pipe clamp
(3) Fuel tank



(1) Fuel line
(2) Pipe clamp
(3) Fuel pump

5. Checking the muffler and spark arrester (if equipped)

(See Checking the muffler and spark arrester (if equipped) on page 63.)

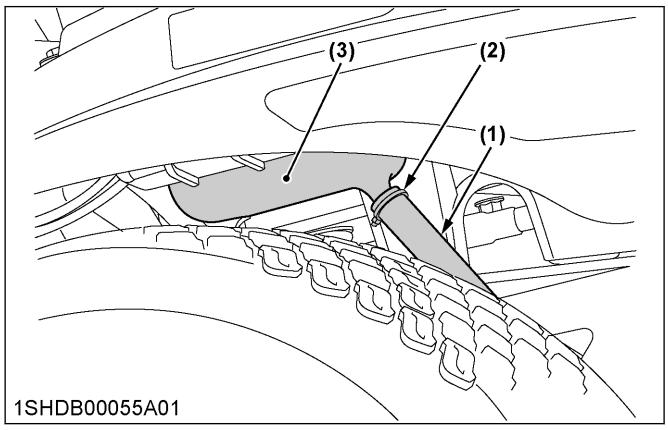
6. Checking the hydraulic hoses

WARNING

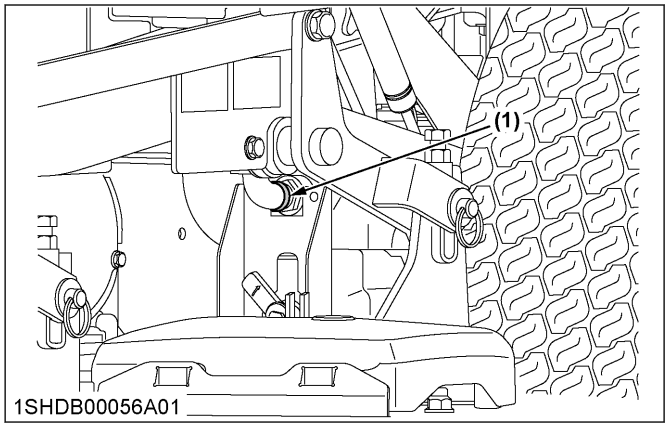
To avoid serious injury or death:

- **Be sure to stop the engine, remove the key, and relieve the pressure before checking and replacing the hydraulic hoses.**
- **Allow the transmission case to cool down sufficiently as oil can be hot and may cause burns.**

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



(1) Hydraulic hose (LH, RH)
(2) Hose clamp (LH, RH)
(3) Transaxle fluid expansion tank (LH, RH)



(1) Hose clamp (LH, RH)

EVERY 4 YEARS

1. Replacing the hydraulic hoses

Consult your local KUBOTA Dealer for this service.

2. Replacing the fuel lines

Consult your local KUBOTA Dealer for this service.

SERVICE AS REQUIRED

1. Replacing the fuses

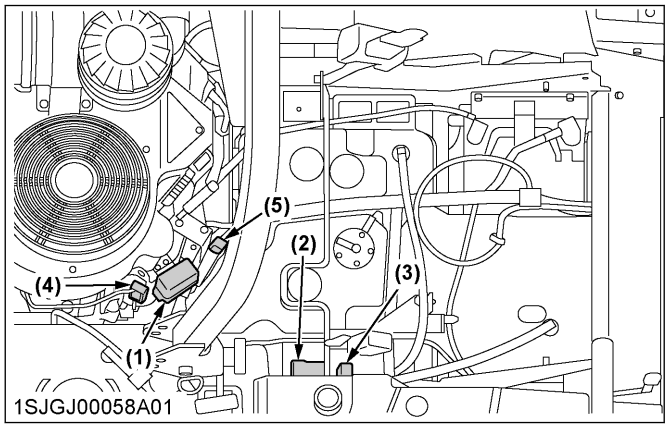
WARNING

To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key before replacing fuses.**

1. Raise the operator's seat.
2. Remove the blown fuse.

3. Place a new fuse of the same capacity in position.



(1) Fuel relay, main fuse
(2) Fuse box
(3) Service reset box
(4) Voltage regulator
(5) Slow blow fuse

IMPORTANT :

- **If the new fuse happens to blow out within a short time, contact your dealer for inspection and repair. Never *"jump"* the fuse with wire or foil, or install a larger capacity fuse than recommended.**

Fuse group	Capacity (A)	Protected circuit	Notes
1	2	Fuel relay	
	10	Main fuse	
2	7.5	Auxiliary outlet	Most rearward fuse ↓ Most frontward fuse
	7.5	PTO system	
	3	Control system	
	3	LCD panel	
	7.5	Spare	Fuses on the side of the box
	3	Spare	
3	-	Service reset	Fuse rating does not matter for reset purposes.
4	40	Voltage regulator	
5	30	Check circuit against wrong battery connection	

2. Checking and replacing blades

⚠ WARNING
To avoid serious injury or death:

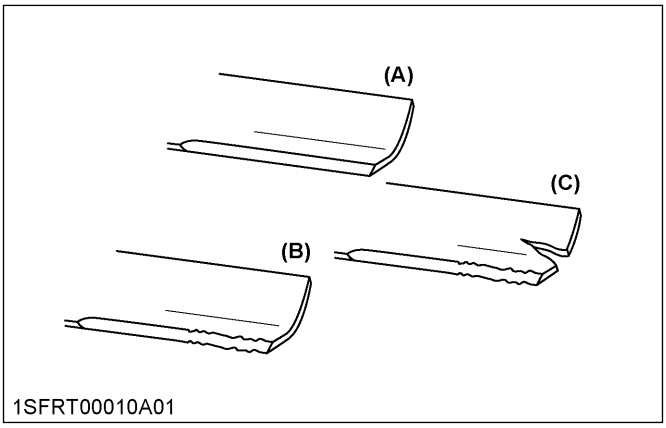
- **Be sure to stop the engine and remove the key.**
- **Blades may be sharp. When you handle blades, wear heavy gloves or wrap the end of the blades with a rag.**

NOTE :

- **Before checking or replacing the blades, wipe grass and mud off the top and inside of the mower.**
  Especially, clean inside the belt cover, otherwise the belt life will be reduced.

Checking

The blade cutting edges should be kept sharp at all times. Sharpen the cutting edges if they look like blade (B). Replace the blades if they look like blade (C).



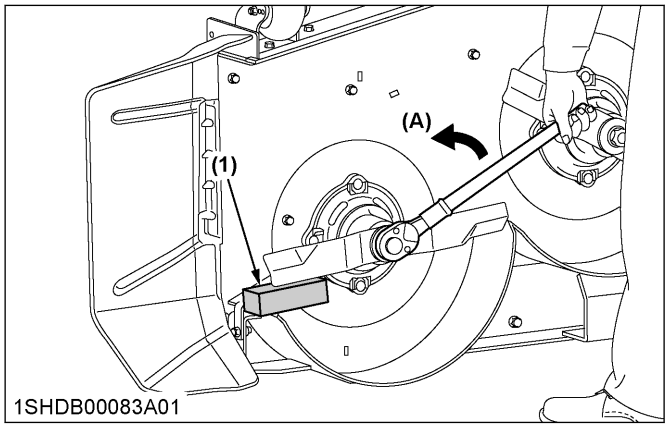
(A) New blade
(B) Worn blade
(C) Cracked blade

Replacing

1. Dismount the mower deck from the machine.
   (See DISMOUNTING THE MOWER DECK on page 26.)
   Then turn it over to expose the blades.
2. Wedge a block of wood between the blade and the mower housing or use a box wrench over the pulley nut to prevent the spindle from rotating while removing the blade bolts. Then, loosen the blade bolt as illustrated.

   IMPORTANT :

   - **Use the proper metric size box or socket wrench to tighten or loosen the blade mounting bolt.**

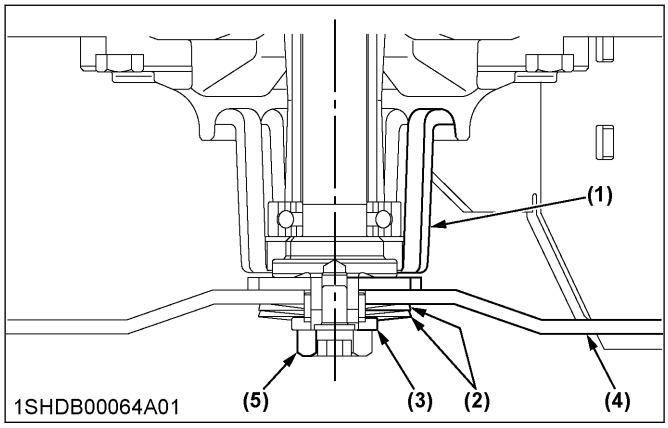


(1) Block *(A) "LOOSEN"*

3. To sharpen the blades yourself, clamp the blade securely in a vise.
   Use a large mill file and file along the original bevel until sharp.
4. To check the blade for balance, place a small rod through the center hole. If the blade is not balanced, file the heavy side of the blade until balance is achieved.
5. Pass the spline boss through the plate, blade and 2 cup washers, and tighten the bolt.

NOTE :

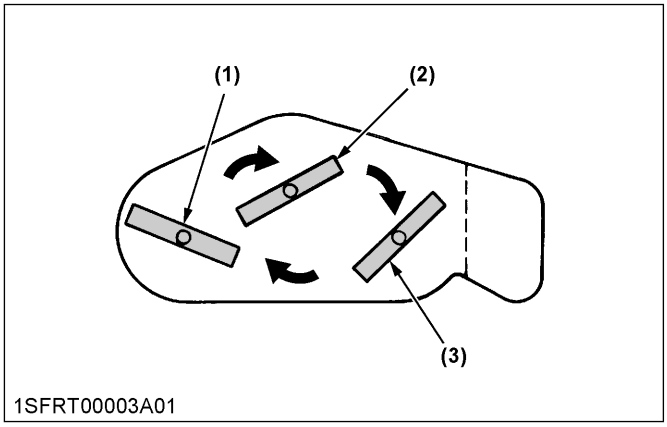
- **Make sure that the cup washer is not flattened out or worn; this cause blade to slip excessively.**
  Replace the 2 cup washers if either is damaged.



(1) Spindle holder
(2) 2-Cup washer
(3) Spline boss
(4) Blade
(5) Bolt

IMPORTANT :

- **Tighten the blade bolts from 103 to 118 N·m (76 to 87 lbf·ft).**
- **The blade bolts have right hand threads. Turn them counterclockwise to loosen.**
- **To prolong the service life of the blades, reposition them as shown in the following figure periodically.**



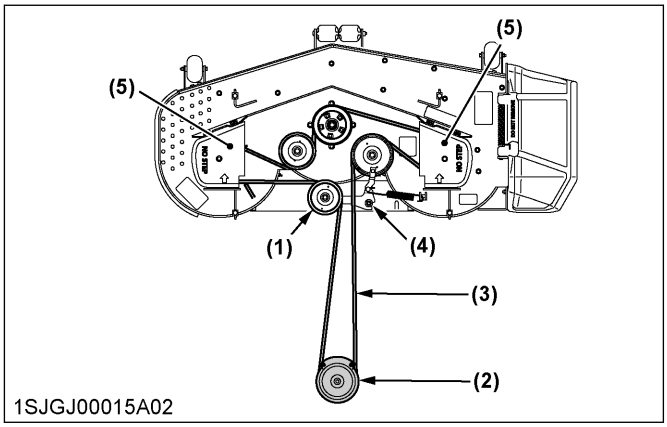
(1) LH blade
(2) Center blade
(3) RH blade

3. Replacing the mower belt

1. Remove the mower deck from the machine.
   (See DISMOUNTING THE MOWER DECK on page 26.)
2. Remove the left and right hand shield from the mower deck.
3. Remove the tension pulley, and remove the belt.
4. To install a new belt, reverse the previous procedure.

NOTE :

- **Tighten the tension pulley bolt securely from 77.6 to 90.2 N·m (8.0 to 9.2 kgf·m, 57.1 to 66.5 lbf·ft).**



(1) Tension pulley
(2) PTO clutch pulley
(3) Mower belt
(4) Bolt
(5) Shield

ADJUSTMENT

MOTION CONTROL LEVER

⚠ WARNING

To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **If it is necessary to run the engine indoors, use a gas tight exhaust pipe extension to remove the fumes.**
- **Always try to work in a well-ventilated area.**
- **Lift up and secure with jack stands or by blocking the rear of the machine. Do not run the machine while adjusting.**
  Remove the rear wheels.
- **Do not make only one of the following adjustments (except *"MOTION CONTROL LEVER ALIGNMENT"*).**
  They are interlinked.
- **If you feel you are unable to make the following adjustments correctly and safely, contact your local KUBOTA Dealer.**

Details regarding motion control lever alignment can be found in a different section.
(See Motion control lever alignment on page 81.)

IMPORTANT :

- **Right and left motion control levers can be adjusted independently.**

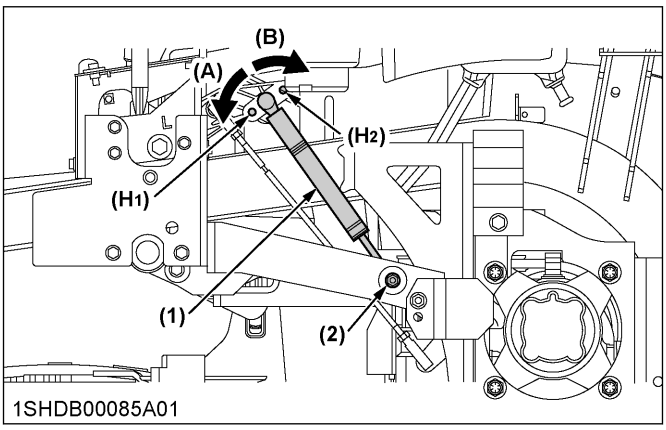
1. Adjusting the motion control lever operating strength

The strength required to move the motion control levers can be adjusted to 3 levels depending on operator preference.

NOTE :

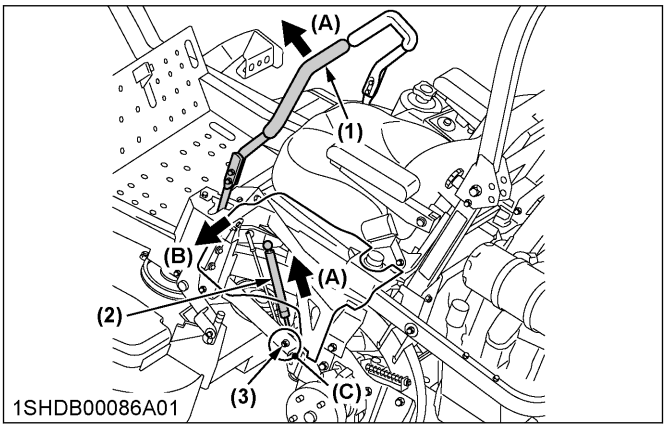
- **Adjust the dampers after adjusting HST neutral.**
- **Adjusting the motion control lever strength will affect the maneuverability.**

1. Change the upper side of the damper to the desired hole location.
   Tighten the upper side damper nut.



(1) Damper
(2) Nut
(A) "LIGHTER"
(B) "HEAVIER"
(H1) Hole for lighter setting
(H2) Hole for heavier setting

2. Loosen the nut on the bottom side of the damper.
3. Move the motion control lever to the rearmost position and release the motion control lever.
4. After the motion control lever and damper have stopped moving, place the motion control lever in the *"NEUTRAL LOCK"* position.



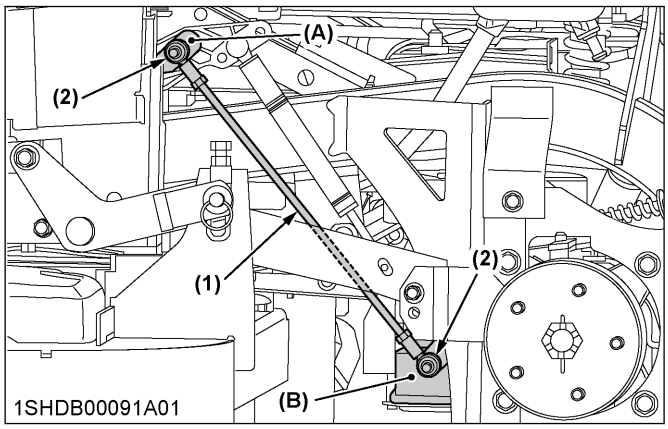
(1) Motion control lever
(2) Damper
(3) Nut
(A) "IT STOPS MOVING"
(B) "NEUTRAL LOCK" position
(C) "TIGHTEN"

5. Tighten the nut on the bottom side of damper.
6. Perform steps 1 through 5 for both motion control levers.

2. HST neutral

1. Lift up and secure with jack stands or by blocking the rear of the machine frame.
2. Remove both rear wheels.
3. Start the engine and run at maximum speed.

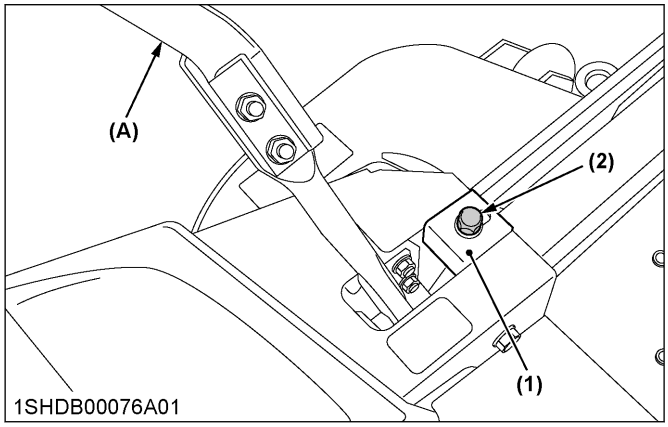
4. Place the motion control lever in the *"NEUTRAL LOCK"* position.
5. If either rear axle is turning, observe the following steps to adjust the neutral position.
6. Put weight on the seat cushion.
7. Lengthen or shorten the rod by 1/2 turn and then tighten the lock nuts.



(1) Rod
(2) Flange bolt and nut
(A) Lever
(B) Transaxle

8. Place the motion control lever to the reverse position, then move it forward slowly.
   Place the lever in the *"NEUTRAL LOCK"* position, and check that the rear axle does not rotate.
   If the axle does not stop rotating, adjust the *"HST NEUTRAL"* again.
9. Adjust the other side *"HST NEUTRAL"* equally.
10. After adjustment, make sure to stop the engine immediately.
11. Push the motion control lever until it contacts the speed adjust plate and reaches the end of its range of motion. Then move the speed adjust plate 2-3 mm backward and tighten 2 front bolts securely.

Tightening torque	23.6 to 27.4 N·m 2.4 to 2.8 kgf·m 17.4 to 20.2 lbf·ft



(1) Speed adjust plate
(2) Bolt
(A) Motion control lever

12. If at full speed the machine pulls one direction or the other, it is an indication that one wheel is turning faster than the other.
    To adjust the condition, proceed as follows:
    a. Park the machine on a firm and level surface.
    b. Stop the engine.
    c. Loosen the front bolt of faster side.
    d. Move the speed adjust plate to backward.
    e. Tighten the front bolt securely.

Tightening torque	23.6 to 27.4 N·m 2.4 to 2.8 kgf·m 17.4 to 20.2 lbf·ft

3. Maximum speed (forward)

Consult your local KUBOTA Dealer for this service.

4. Motion control lever alignment

⚠ WARNING

To avoid serious injury or death:

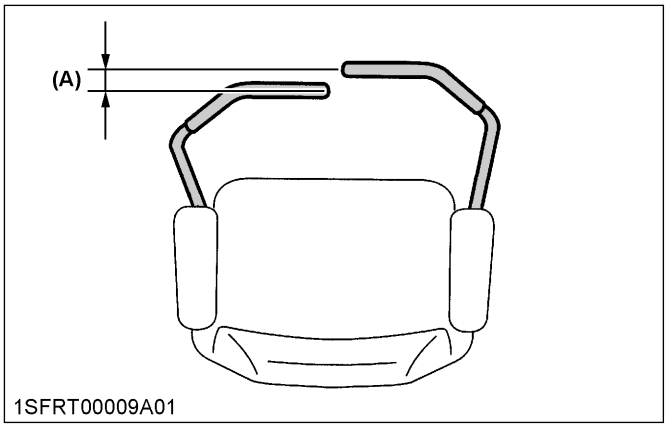
- **Park the machine on a firm and level surface.**
- **Stop the engine, remove the key and apply the parking brake.**

4.1 Checking the alignment

1. Check the gap and space between the levers at the maximum forward position.

Recommended gap:	0 to 2 mm 0 to 0.08 in.

   If the positions of the motion control levers are unequal, adjustment is necessary.



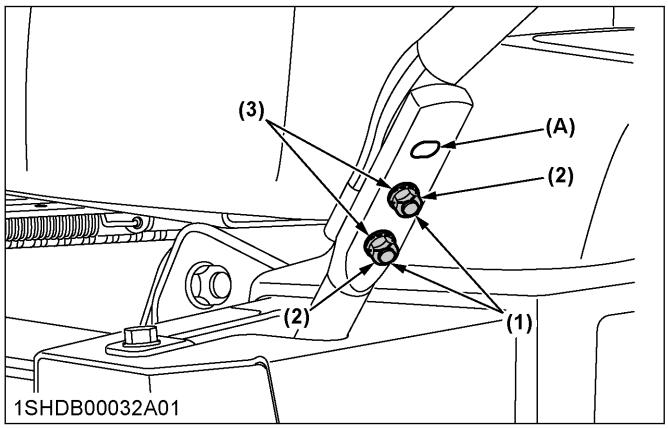
(A) "GAP"

4.2 Aligning the motion control levers

1. Stop the engine and apply the parking brake.

Lever position (high or low)

1. Remove the bolts and select the motion control lever position, high or low.
2. Tighten the bolts.



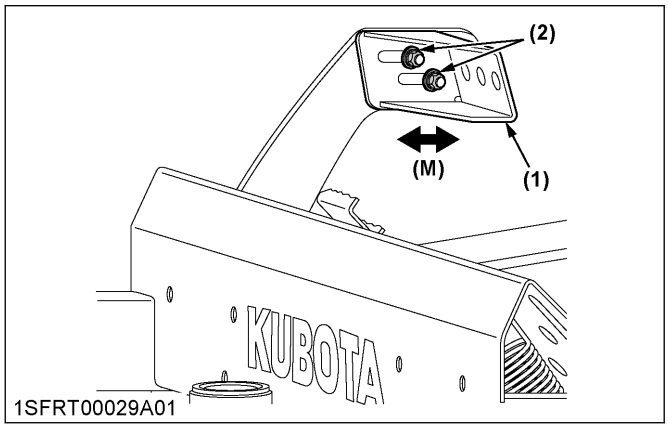
(1) Bolt
(2) Flange nut
(3) Tab slot
(A) High position

Lever alignment (right and left)

1. Loosen the bolts.
2. Slide both levers forward or rearward to the desired position within tab slots until the levers are aligned.
3. Tighten the bolts.

5. Adjusting the mower lift pedal

1. Stop the engine and apply the parking brake.
2. Loosen the nut and adjust the pedal position.



(1) Pedal
(2) Nut (M8)
(M) "MOVE"

3. Tighten the nuts.

MOWER DECK LEVEL

1. Anti-scalp rollers

⚠ WARNING

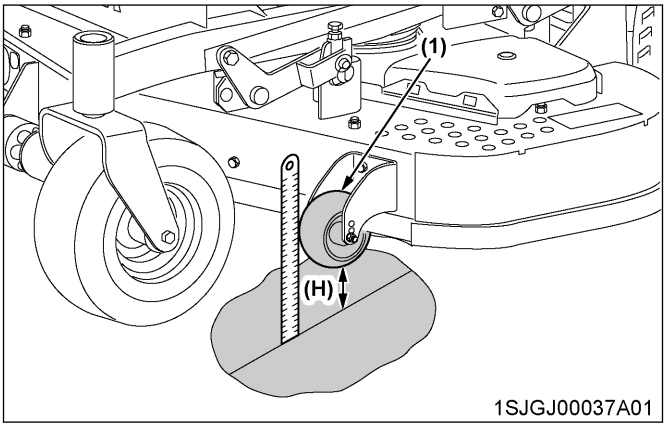
To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

NOTE :

- **The flattest cut can be achieved by having the anti-scalp rollers adjusted off the ground.**
  Check the anti-scalp roller adjustments each time the mower deck cutting height is changed.
  It is recommended that all the anti-scalp rollers be kept off the ground to minimize scuffing.

1. Check the machine tire pressure.
   Inflate tires to the correct pressure.
   (See TIRES AND WHEELS on page 50.)
2. Start the engine.
3. Raise up the mower deck to the top position.
4. Turn the cutting height control dial to adjust the height.
5. Lower the mower deck.
6. Adjust the height of the front side anti-scalp roller to 1 of the 3 positions, to approximately 19 mm (0.75 in.) between the rollers and the ground.
   Adjust the other 2 rollers to the same height.



(1) Front side anti-scalp roller
(H) 19 mm (0.75 in.)

7. Install the roller with the attaching hardware.

2. Leveling the mower deck (side-to-side)

⚠ WARNING

To avoid serious injury or death:

- **Park the machine on a firm and level surface.**
- **Apply the parking brake.**
- **Disengage the PTO (OFF).**
- **Stop the engine and remove the key while checking or adjusting the level of the mower deck.**

IMPORTANT :

- **Check the machine tire pressure.**

Inflate the tires to the correct pressure.
(See TIRES AND WHEELS on page 50.)

Checking the level (side-to-side)

NOTE :
- **The mower deck anti-scalp rollers should not contact the ground.**

1. Raise the mower deck to the top position.
2. Turn the cutting height set dial to the 3 in. cutting height position.
3. Lower the mower deck.
4. Position the right mower blade in the side-to-side position.
5. Measure from outside the blade tip to the level surface with a short ruler or leveling gauge.

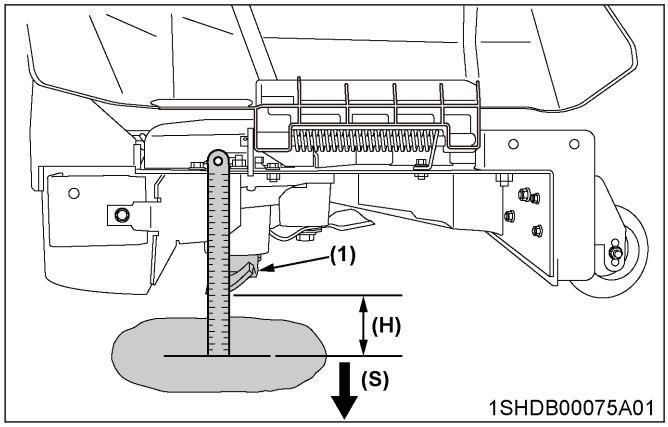
Reference

Height of the blade at the flat surface	76 mm (3 in.)

NOTE :
- **There is a difference of blade height between flat surface and ground measurements.**

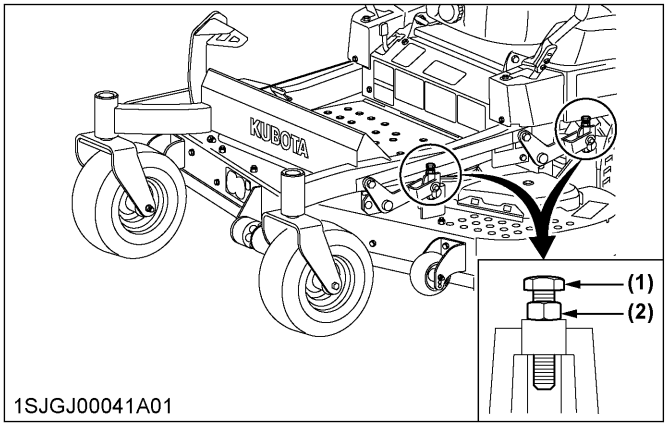
6. Check that the left side blade has the same height. The difference between both measurements is less than 3 mm (0.13 in.).
7. If the side-to-side adjustment is not within the given tolerance, adjustment is necessary.

Side-to-side adjustment	Less than 3 mm (0.13 in.)



(1) Blade
(S) Blade in side-to-side position
(H) Height of blade

Adjusting the level (side-to-side)
1. Raise up the mower deck to the top position.
2. Turn the cutting height set dial to the 76 mm (3 in.) cutting height position.
3. Place 51 mm (2 in.) height wood blocks under each side of the mower deck.
   Anti-scalp rollers must not rest on the wood block.
4. Lower the mower deck.
5. Position the mower blade in the side-to-side position.
6. Loosen the jam nuts of the right side of the machine.
7. Adjust the cutting height fine tuning bolts to set 76 mm (3 in.) blade height.
   Front and rear side bolts must be adjusted.
8. Tighten the jam nuts.
9. Adjust the left side equally.
10. Check the side-to-side level. If it is not level, adjustment is necessary.



(1) Cutting height fine tuning bolt
(2) Jam nut

3. Leveling the mower deck (front-to-rear)

⚠ WARNING
To avoid serious injury or death:
- **Park the machine on a firm and level surface.**
- **Engage the parking brake.**
- **Disengage the PTO.**
- **Stop the engine and remove the key while checking or adjusting the level of the mower deck.**

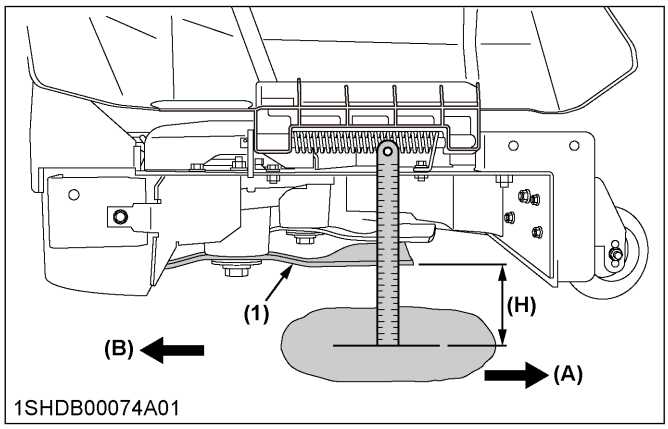
IMPORTANT :
- **Check the machine tire pressure.**
  Inflate the tires to the correct pressure.
  (See TIRES AND WHEELS on page 50.)

Checking level (front-to-rear)

NOTE :
- **The mower deck anti-scalp rollers should not contact the ground.**

1. Raise the mower deck to the top position.
2. Turn the cutting height set dial to the 76 mm (3 in.) cutting height position.
3. Lower the mower deck.
4. Position the right mower blade in the front-to-rear position.

5. Measure from the right front blade tip to the level surface with a short ruler or leveling gauge.
6. Turn the blade 180° and measure from the right rear blade tip to the level surface.
7. Check that the left side blade has the same dimensions. The difference between both measurements should be less than 6 mm (0.25 in.). The front side must be lower than the rear side.
8. If the front-to-rear adjustment is not within the given tolerance, adjustment is necessary.



(1) Blade
(A) Front
(B) Rear
(H) Height of blade

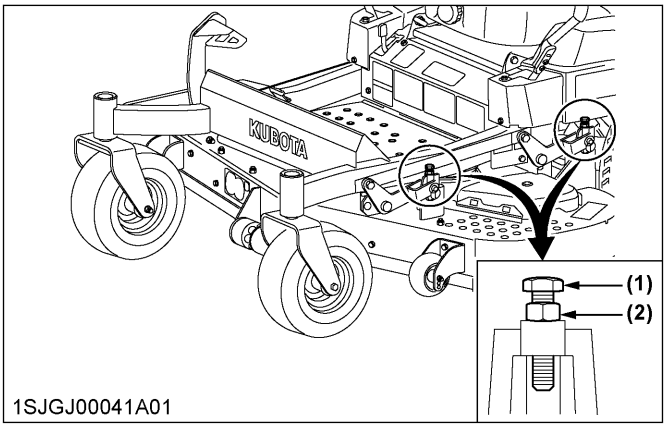
Front-to-rear adjustment	Less than 6 mm (0.25 in.) The front side must be lower than the rear side.

Adjusting the level (front-to-rear)

1. Raise up the mower deck to the top position.
2. Turn the cutting height set dial to the 76 mm (3 in.) cutting height position.
3. Place 51 mm (2 in.) height wood blocks under each side of the mower deck.
   Anti-scalp rollers must not rest on the wood block.
4. Lower the mower deck.
5. Loosen the jam nuts of the front side of the machine.
6. Adjust the cutting height fine tuning bolts to set 76 mm (3 in.) blade height.
   Both front side bolts must be adjusted.
7. Tighten the jam nuts.
8. Adjust the other side equally.

   IMPORTANT :
   - **The difference between both measurements should be less than 6 mm (0.25 in.).**
     The front side must be lower than the rear side.

9. Check the front-to-rear level. If it is not level, adjustment is necessary.



(1) Cutting height fine tuning bolt
(2) Jam nut

GENERAL TORQUE SPECIFICATION

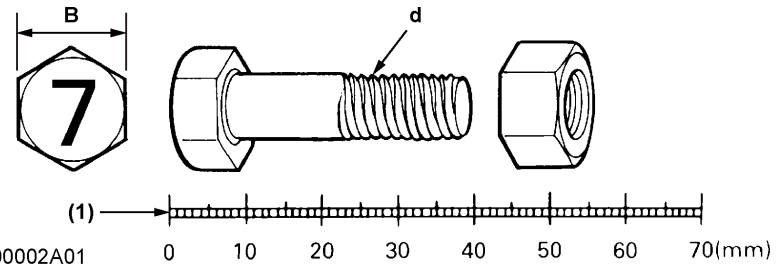
American standard cap screws with UNC or UNF threads				Metric cap screws			
SAE grade no.		GR.5 	GR.8 	Property class		Class 8.8 	Class 10.9 
	(lbf·ft)	8-9.6	12-14.4		(lbf·ft)	7.2-8.3	
1/4	(N·m)	10.7-12.9	16.1-19.3	M6	(N·m)	9.81-11.3	
	(kgf·m)	1.11-1.33	1.66-1.99		(kgf·m)	1.0-1.15	
	(lbf·ft)	17-20.5	24-29		(lbf·ft)	17.4-20.2	21.7-25.3
5/16	(N·m)	23.1-27.8	32.5-39.3	M8	(N·m)	23.6-27.4	29.4-34.3
	(kgf·m)	2.35-2.84	3.31-4.01		(kgf·m)	2.4-2.8	3.0-3.5
	(lbf·ft)	35-42	45-54		(lbf·ft)	35.5-41.2	44.9-52.1
3/8	(N·m)	47.5-57.0	61.0-73.2	M10	(N·m)	48.1-55.8	60.8-70.5
	(kgf·m)	4.84-5.82	6.22-7.47		(kgf·m)	4.9-5.7	6.2-7.2
	(lbf·ft)	80-96	110-132		(lbf·ft)	57.2-66.5	76.0-86.8
1/2	(N·m)	108.5-130.2	149.2-179.0	M12	(N·m)	77.5-90.1	103-117
	(kgf·m)	11.07-13.29	15.22-18.27		(kgf·m)	7.9-9.2	10.5-12.0
	(lbf·ft)	110-132	160-192		(lbf·ft)	91.2-108	123-144
9/16	(N·m)	149.2-179.0	217.0-260.4	M14	(N·m)	124-147	167-196
	(kgf·m)	15.22-18.27	22.14-26.57		(kgf·m)	12.6-15.0	17.0-20.0
	(lbf·ft)	150-180	220-264		(lbf·ft)	145-166	192-224
5/8	(N·m)	203.4-244.1	298.3-358.0	M16	(N·m)	196-225	260-303
	(kgf·m)	20.75-24.91	30.44-36.53		(kgf·m)	20.0-23.0	26.5-31.0

TIGHTENING TORQUE CHART

Thread size d (mm)	Hex. bolt head size B (mm)	No mark			7T		
		lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m
M8	12 or 13	13.0-15.2 (14.1 ± 1.1)	17.8-20.6 (19.2 ± 1.4)	1.9-2.1 (2.0 ± 0.1)	17.5-20.3 (18.9 ± 1.4)	23.5-27.5 (25.5 ± 2.0)	2.4-2.8 (2.6 ± 0.2)
M10	14 or 17	28.9-33.3 (31.1 ± 2.2)	39.3-45.1 (42.2 ± 2.9)	4.0-4.6 (4.3 ± 0.3)	35.4-41.2 (38.3 ± 2.9)	48.1-55.9 (52.0 ± 3.9)	4.9-5.7 (5.3 ± 0.4)
M12	17 or 19	46.3-53.5 (49.9 ± 3.6)	62.8-72.6 (67.7 ± 4.9)	6.4-7.4 (6.9 ± 0.5)	57.1-66.5 (61.8 ± 4.7)	77.6-90.2 (83.9 ± 6.3)	8.0-9.2 (8.6 ± 0.6)
M14	19 or 22	79.6-92.6 (86.1 ± 6.5)	107.9-125.5 (116.7 ± 8.8)	11.0-12.8 (11.9 ± 0.9)	91.1-108.5 (99.8 ± 8.7)	123.6-147.0 (135.3 ± 11.7)	12.6-15.0 (13.8 ± 1.2)

NOTE :

- **Figure [7] on the top of the bolt indicates that the bolt is made of special material.**
- **Before tightening, check the figure on top of the bolt.**



1SFRT00002A01

(1) Scale

STORAGE

⚠ WARNING

To avoid serious injury or death:

- **To reduce fire hazards, allow the engine and the exhaust system to cool before storing the machine indoors or near combustible materials.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine indoors without proper ventilation.**
- **Do not clean the machine with the engine running.**
- **To avoid fire hazards, do not leave grass and leaves in the mower and the grass catcher.**
- **When storing, remove the key from the key switch to avoid operation by unauthorized persons.**

STORING THE MACHINE

When the machine will not be operated for over 2 months, clean the machine and perform the following operations before storage:

1. Repair parts as necessary.
2. Check bolts and nuts and tighten as necessary.
3. Apply grease or engine oil to parts most likely to rust.
4. Inflate the tires to a little above the standard pressure levels (approximately 110%).
5. Lower the mower to the ground.
6. Remove the battery from the machine, recharge it, and store in a cool dry place.
   The battery discharges over time even while in storage. Recharge it once a month in the hot season and once every 2 months in the cold season.
7. Drain the fuel system or use a fuel stabilizer to prevent deterioration of the gasoline. If you choose to use a fuel stabilizer, follow the manufacturers recommendations and add the correct amount for the capacity of the fuel system. Fill the fuel tank with clean, fresh gasoline. Run the engine for 2 to 3 minutes.
8. Store the machine in a dry place sheltered from rain. Cover the machine with a vinyl tarp.
9. Moisture content in most grasses can damage the mower and grass catcher if they are not properly cleaned after use. Make sure the mower and the grass catcher are clean and completely empty before storage.
10. Store the machine only on flat, level ground.

REMOVING THE MACHINE FROM STORAGE

1. Check the tire inflation pressure and adjust as required.
2. Install the battery. Before installing the battery, be sure it is fully charged.
3. Do the daily check.
   (See DAILY CHECK on page 57.)
4. Check all fluid levels (engine oil, hydrostatic oil).
5. Start the engine. Shut the engine off, walk around the machine and make a visual inspection looking for leakage of oil or other fluids.
6. Run the engine a couple of minutes before you put the engine under load.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to the following table for the cause and its corrective measure.

Symptom (if)	Cause	Remedy
The engine is difficult to start or will not start.	• No operator on the seat.	• Sit on the operator's seat.
	• Parking brake lever not in the proper position.	• Apply the parking brake.
	• PTO switch not in the proper position.	• Make sure the PTO switch is in the *"DISENGAGED"* (OFF) position.
	• The motion control levers not in the proper position.	• Make sure motion control levers are in the *"NEUTRAL LOCK"* position.
	• The key switch not in the proper position.	• Make sure the key switch is in the *"ON"* position.
	• No fuel.	• Fill with fuel.
	• Improper or stale fuel. (Fuel quality is poor.)	• Replace fuel and the fuel filter.
	• Water or dirt in the fuel system.	• Replace fuel and consult your local KUBOTA Dealer.
	• Fuel hose or fuel filter clogged or damaged.	• Clean or replace fuel lines and consult your local KUBOTA Dealer.
	• Air cleaner clogged.	• Clean or replace the air cleaner.
	• Spark plug damaged.	• Adjust the spark plug gap or replace the spark plug.
		• Check the spark plug wire connection.
	• Fuse blown.	• Replace the fuse.
	• The engine oil viscosity is wrong.	• Use oils of different viscosities, depending on the ambient temperature.
	• The battery becomes weak and the engine does not turn over quick enough.	• Clean battery cables and terminals.
		• Charge the battery.
		• In cold weather, always remove the battery from the engine, charge and store it indoors. Install it on the machine only when the machine is going to be used.
Insufficient engine power.	• Insufficient or dirty fuel.	• Check the fuel system.
	• Fuel filter clogged.	• Replace the fuel filter.
	• Air cleaner clogged.	• Clean or replace the air cleaner.
	• Spark plug damaged.	• Adjust the spark plug gap or replace it.
The engine stops suddenly.	• Insufficient fuel.	• Refuel. • Check the fuel valve position.
Rough engine running.	• Spark plug damaged.	• Adjust the spark plug gap or replace it.
	• Spark plug wire damaged.	• Consult your local KUBOTA Dealer.
	• Ignition coil damaged.	• Consult your local KUBOTA Dealer.

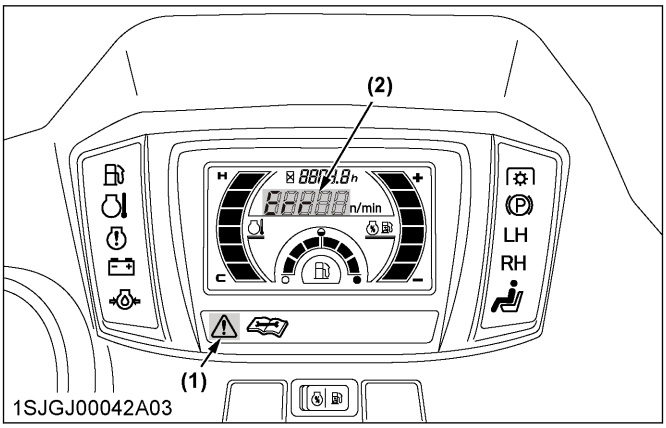
(Continued)

Symptom (if)	Cause	Remedy
Rough engine running.	• Fuel hose or fuel filter clogged or damaged.	• Clean or replace fuel lines and consult your local KUBOTA Dealer.
	• Improper or stale fuel. (Fuel quality is poor.)	• Replace fuel and the fuel filter.
	• Air cleaner clogged.	• Clean or replace the air cleaner.
Exhaust fumes are colored (black, dark or gray).	• Overload.	• Reduce load.
	• Low grade fuel used.	• Use specified fuel.
	• Fuel filter clogged.	• Replace the fuel filter.
	• Air cleaner clogged.	• Clean or replace the air cleaner element.
Exhaust fumes are colored (white or blue).	• Excessive engine oil.	• Reduce to the specified oil level.
	• Piston ring worn or stuck.	• Consult your local KUBOTA Dealer.
Engine overheats.	• Engine overloaded.	• Lower speed or reduce load.
	• Engine oil insufficient.	• Fill engine oil.
	• The engine air intake screen and cooling fins are dirty.	• Clean the air intake screen and cooling fins.
	• Air cleaner element plugged.	• Clean or replace the air cleaner element.
	• Engine speed too low.	• Operate at *"FAST"* speed.
	• Operating ground speed too fast.	• Operate the machine at slower ground speed.
The engine knocks.	• Stale or low octane fuel.	• Use specified fuel.
	• Engine overloaded.	• Lower ground speed or reduce load.
	• Engine speed too low.	• Operate at *"FAST"* speed.
The engine will not idle.	• Spark plug damaged.	• Adjust the spark plug gap or replace it.
	• Faulty spark plug.	• Replace the spark plug.
The LCD monitor displays an error code "PXXXX".	• Engine ECU has detected some error.	• Consult your local KUBOTA Dealer.

If you have any questions, contact your local KUBOTA Dealer.

ELECTRONIC DEVICE TROUBLESHOOTING

If something is wrong with the electronic device, the master system warning lamp 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 lamp
(2) Error code

Displayed error code	Trouble	Operator's action
"Err 2"	Fuel sensor trouble	Contact your local KUBOTA Dealer
"Err 3"	EEPROM trouble	
"Err 21"	CAN communication trouble	

BATTERY TROUBLESHOOTING

Symptom (if)	Cause	Remedy	Preventive measure
The starter does not function.	• Battery overuse, dim lights.	• Charge the battery sufficiently.	• Charge the battery properly.
	• The battery has not been recharged.		
	• Poor terminal connection.	• Clean the terminal and tighten securely.	• Keep the terminal clean and tight. Apply grease and treat with anti-corrosives.
	• The battery life has expired.	• Replace the battery.	
The starter does not function from the beginning, and lights soon become dim.	• Insufficient charging.	• Charge the battery sufficiently.	• The battery must be serviced properly before initial use.
When viewed from the top, the top of the plates look whitish.	• The battery was used too much without recharging.	• Charge the battery sufficiently.	• Charge the battery properly.
Recharging is impossible.	• The battery life has expired.	• Replace the battery.	
Terminals are severely corroded and heated up.	• Poor terminal connection.	• Clean the terminal and tighten securely.	• Keep the terminal clean and tight. Apply grease and treat with anti-corrosives.
The battery electrolyte level drops rapidly.	• There is a crack or pin holes in the electrolytic cells.	• Replace the battery.	
	• Charging system trouble.	• Contact your local KUBOTA Dealer.	

If you have any questions, contact your local KUBOTA Dealer.

MACHINE TROUBLESHOOTING

Symptom (if)	Cause	Remedy
The machine operation is not smooth.	• The hydrostatic transaxle fluid is insufficient.	• Fill with oil.
	• The filter is clogged.	• Replace the filter.
	• Transaxle bypass lever is activated.	• Deactivate bypass lever.
The machine does not move while the engine is running.	• The parking brake is on.	• Release the parking brake.
	• The transaxle fluid level is insufficient.	• Fill with oil.
	• Transaxle bypass lever is activated.	• Deactivate bypass lever.
The machine moves when the motion control levers are in the *"NEUTRAL LOCK"* position (operating the engine).	• The hydrostatic lever linkage is not correctly adjusted.	• Ask your dealer for hydrostatic lever linkage adjustment.
	• The control linkage pivots are sticking.	• Pull up and lubricate linkage.
Master system warning lamp flashes.	• Fuel sensor is disconnected.	• Check wire harness.
	• Coolant temperature sensor is disconnected.	• Check wire harness.
	• LCD monitor malfunction.	• Replace LCD monitor.
Transaxle belt is slipping.	• Weak tension spring	• Replace the tension spring.
	• Worn transaxle belt	• Replace the transaxle belt.

If you have any questions, contact your local KUBOTA Dealer.

MOWER TROUBLESHOOTING

Symptom (if)	Cause	Remedy
Blades do not rotate.	• The PTO system is not normal: PTO system malfunctioning.	• Consult your local KUBOTA Dealer.
	• The PTO system is normal: broken mower belt.	• Replace.
Mower belt slipping.	• Weaken tension spring.	• Replace.
	• Worn mower belt.	• Replace.
	• Mower plugged.	• Unplug and clean the mower deck.
	• Debris in pulleys.	• Clean.
Discharge chute plugged.	• Grass too wet.	• Wait for grass to dry.
	• Grass too long.	• Raise the cutting height and cut grass twice.
	• Cutting too low.	• Raise the cutting height.
	• Engine rpm too low.	• Mow at full throttle.
	• Ground speed too fast.	• Slow down.
Streaking of grass uncut.	• Ground speed too fast.	• Slow down.
	• Engine rpm too low.	• Mow at full throttle, check and reset the engine rpm.
	• Grass too long.	• Cut grass twice.
	• Blades dull or damaged.	• Replace blades or have blades sharpened.
	• Debris in mower deck.	• Clean the mower deck.
Uneven cut.	• Mower deck not level.	• Level the mower deck.
	• Ground speed too fast.	• Slow down.
	• Blades dull.	• Have blades sharpened.
	• Blades worn or damaged.	• Replace the blades.
	• Low tire inflation.	• Add air to correct pressure.
	• Anti-scalp rollers not adjusted correctly.	• Adjust the anti-scalp rollers.
	• Wheels pressure not adjusted correctly.	• Set both tire pressure to the correct pressure. (See TIRES on page 50.)
Blades scalping grass.	• Cutting height too low.	• Raise the cutting height.
	• Turning speed too fast.	• Reduce speed on turns.
	• Ridges in terrain.	• Change the mowing pattern.
	• Rough or uneven terrain.	• Adjust wheels pressure and anti-scalp rollers.
	• Anti-scalp rollers not adjusted correctly.	• Adjust wheels pressure and anti-scalp rollers.
	• Bent blade(s).	• Replace blade(s).
Excessive vibration.	• Debris on mower deck or in pulleys.	• Clean the mower deck and pulleys.
	• Damaged mower belt.	• Replace the mower belt.
	• Damaged pulleys.	• Replace pulleys.
	• Pulleys out of alignment.	• Check pulleys.
	• Blades out of balance.	• Have blades balanced.

(Continued)

Symptom (if)	Cause	Remedy
Mower loads down machine.	• Engine rpm too low.	• Mow at full throttle, check and reset the engine rpm.
	• Ground speed too fast.	• Slow down.
	• Debris wrapped around mower spindles.	• Clean the mower.
	• Front of deck too low.	• Adjust the mower deck. (See MOWER DECK LEVEL on page 82.)

If you have any questions, contact your local KUBOTA Dealer.

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