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KUBOTA Corporation

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OPERATOR'S MANUAL KUBOTA FRONT MOWER

- Original instructions -

MANUEL DE L'UTILISATEUR KUBOTA TONDEUSE FRONTALE

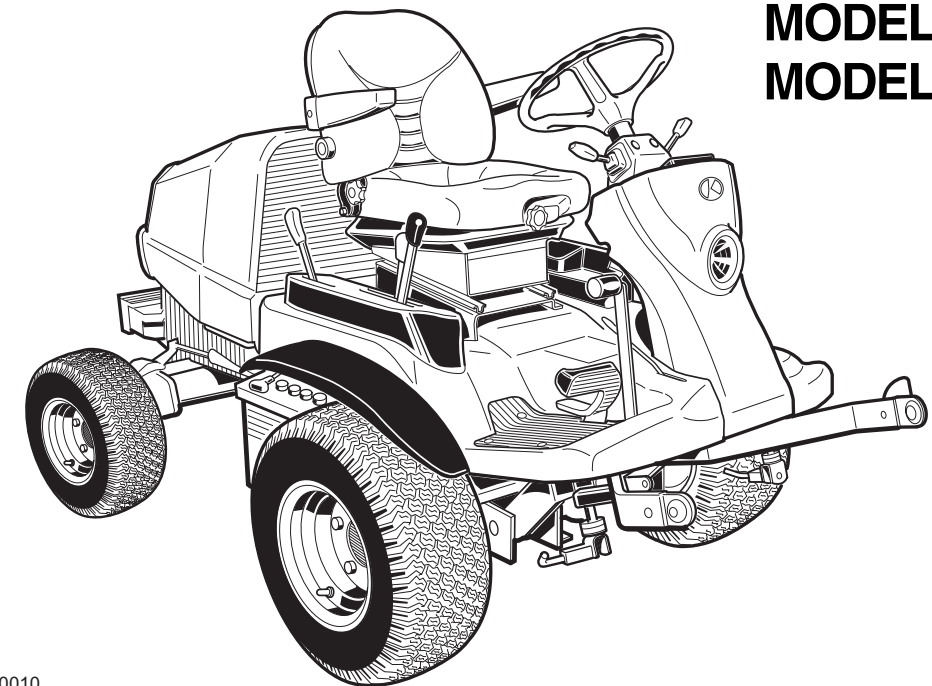
- Traduction de la notice originale -

BEDIENUNGSANLEITUNG KUBOTA FRONTMÄHER

- Übersetzung der Originalanleitung -

MODELS
MODELES
MODELLE

F2880
F3680



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READ AND SAVE THIS MANUAL
MANUEL A LIRE ET A CONSERVER
DIESE ANLEITUNG SORGFÄLTIG
DURCHLESEN UND AUFBEWAHREN

ABBREVIATION LIST

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

KUBOTA Corporation C'EST ...

Depuis sa fondation en 1890, KUBOTA Corporation a progressé pour figurer au rang des plus grandes entreprises du Japon.

Pour parvenir à cette position, la Société a diversifié, au cours des années, la gamme de ses produits et services de façon remarquable. Aujourd'hui, 19 usines et 16,000 employés produisent plus de 1,000 articles et produits différents petits et grands.

Tous ces produits et les services qui en dépendent sont toutefois liés à un souci majeur:

KUBOTA fabrique des produits qui, pris à une échelle nationale sont des nécessités de base, produits indispensables, produits conçus pour aider les hommes et leurs nations à tirer parti du potentiel inhérent à leur environnement, KUBOTA est le géant des nécessités de base.

Ce potentiel inclut l'approvisionnement en eau, la production d'aliments tirés du sol et de la mer, le développement industriel, l'architecture et la construction, les transports.

Des milliers de personnes font confiance au savoir faire de KUBOTA, à sa technologie, à son expérience et à son service après vente, vous aussi pouvez faire confiance à KUBOTA.

KUBOTA ist ...

Seit der Firmengründung im Jahre 1890 ist KUBOTA zu einem der wichtigsten Unternehmen in Japan angewachsen.

































Hierzu hat zum großen Teil die ständige Erweiterung der Produktpalette und das ständig wachsende Angebot an Dienstleistungen beigetragen. Heute werden von 16000 Beschäftigten in 19 Werken mehr als 1000 verschiedene Produkte hergestellt.

Das vorrangige Ziel von KUBOTA ist es, mit seinen Produkten und den dazugehörigen Dienstleistungen Grundbedürfnissen gerecht zu werden, auch auf internationaler Ebene.

Die von KUBOTA hergestellten Produkte sind unverzichtbar; sie helfen einzelnen Personen, sogar ganzen Nationen die örtlich gegebenen Möglichkeiten in Bereichen wie Wasserversorgung, Landwirtschaft, Fischerei, Industrie, Architektur, Bau- und Transportwesen bestmöglich auszuschöpfen. Tausende bauen auf KUBOTA -und Sie?

UNIVERSAL SYMBOLS

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

	Safety Alert Symbol		Remote Cylinder-Retract
	Diesel Fuel		Remote Cylinder-Extend
	Fuel-Level		Steering Wheel-Tilt Control
	Hourmeter/Elapsed Operating Hours		Head Lights OFF
	Engine Coolant-Temperature		Head Lights ON
	Brake		Fast
	Parking Brake		Slow
	Battery Charging Condition		Read Operator's Manual
	Engine Oil-Pressure		Machine-Forward Movement-Overhead View of Machine
	Engine Shut-Off Control		Machine-Rearward Movement-Overhead View of Machine
	Engine-Run		Engine Speed Control
	Starter Control		Neutral
	Preheat		Full Time 4WD This position provides 4WD mechanically in any kind of the ground condition.
	Power Take-Off Clutch Control-Off Position		Dual-Acting Overrunning 4WD This position provides 4WD automatically only when the ground speed dictate between front and rear wheels (forward and backward).
	Power Take-Off Clutch Control-On Position		
	Differential Lock		
	Position Control-Raised Position		
	Position Control-Lowered Position		

FOREWORD

You are now the proud owner of a KUBOTA FRONT MOWER. This machine is a product of KUBOTA's quality engineering and manufacturing. It is made of fine materials and under a rigid quality control system. It will give you long, satisfactory service. To obtain the best use of your 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 be 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, may 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 section carefully before operation. All operators, no matter how experienced they may be, should read this and other related manuals before operation of the machine or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

1. BEFORE OPERATING

1. Know your equipment and its limitations. Read, understand and follow all instructions in this manual before attempting to start and operate the machine.
2. Pay special attention to the safety labels on the machine and mower.
3. The exhaust gas from the muffler is very hot. To prevent fire, do not expose dry grass, mowed grass, oil or any other combustible materials to exhaust gas. Use a spark arrester where required. Also keep the engine and muffler clean all the time. Replace the muffler if it has a fault.
4. Never wear loose, torn, or bulky clothing. It may catch on moving parts or controls, leading to the risk of accident. Safety boots or shoes, eye and hearing protection, gloves, dust mask, etc. are recommended.
5. While mowing, always wear substantial foot wear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
6. Do not wear radio or music headphones while operating the machine.
Safe operation requires your full attention.
7. Carefully check the vicinity before operating machine or any implement attached to it. Clear the work area of objects (wires, rocks, etc.) that might be picked up and thrown.
8. Do not operate machine or any implement attached to it while under the influence of alcohol, drugs, or other substances or while fatigued.
9. Check brakes, and other mechanical parts for faulty adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. (For further details, see "MAINTENANCE" section.)
10. Keep the machine and attachments in good operating condition and keep safety devices in place and in proper working condition.
11. Do not modify the machine. Unauthorized modification may affect the function of the machine, which may result in personal injury.
12. Keep all shields and guards in place. Replace all missing or damaged items for your safety.
13. Never allow any bystanders around or near machine during operation.
Be sure the area is clear of other people before mowing.
Stop machine if anyone enters the area.
14. Before allowing other people to use your machine, explain proper operation to them and have them read this manual before operation.
15. Never allow passengers or non-qualified operators on the machine at any time. You must operate the machine from the seat only.
16. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent up on the awareness, concern, and prudence of personnel involved in the operation, transport, maintenance of facilities.
17. Keep your machine clean. Dirt, grease, and trash accumulations contribute to fires or lead to personal injury.
18. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
Check the mower blade mounting bolts for proper tightness at frequent intervals. On multi-bladed mowers, take care as rotating one blade can cause other blades to rotate.
19. Use only attachments recommended by KUBOTA.
Use proper ballast to front or rear of machine to reduce the risk of upsets. Follow the "Safe Operation" procedures, specified in the Equipment's Manual.

2. OPERATING

◆ Starting

1. Never start engine or operate levers from anywhere other than the seat.
2. Before starting the engine make sure that all levers and speed control pedal are in neutral, the parking brake is engaged, and Power Take Off (PTO) is disengaged.
3. Do not start engine while tilting the deck.
4. Do not start engine by shorting across starter terminals or by by-passing the safety start switch. The machine may start and move if normal starting circuitry is bypassed.
5. Do not operate or idle engine in a poorly ventilated area. Exhaust contains poisonous carbon monoxide, a colorless and odorless gas.

▲-2 SAFE OPERATION

◆ Working

1. Watch where you are going at all times. Watch for and avoid obstacles. Be alert near trees and other obstructions.
2. To avoid tip over, slow down when turning on uneven terrain or before stopping.
3. Park the machine on a firm, level surface.
4. Do not drive at high speeds or turn the machine when the differential is locked.
5. Know what is behind you before backing up. Look to the rear before and while backing up. Do not mow while in reverse unless 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 the grass catcher. Your view to the rear is restricted.
6. When working in groups, always let others know what you are doing ahead of time.
7. Do not drive the machine on streets or highways. Watch for traffic when you cross roads or operate near roads.
8. Be aware of the mower discharge direction and do not point it at anyone.
9. When using any attachments, never direct discharge material toward bystanders. Do not allow anyone near the attachments while in operation.
Do not mow when bystanders are present in the mowing area.
10. To reduce fire hazards, keep the engine exhaust area free of grass or leaves.
11. Be sure rotating blades and engine are stopped and the key is removed before placing hands or feet near blades.
12. Shut the engine off and wait for all movement to stop before unclogging the chute of the grass catcher. [if equipped]
13. Always inspect the mower and the grass catcher [if equipped] after striking any foreign object. This will insure that all mower and grass catcher parts are safe and secure and not damaged.
Repair or replace any damaged parts before re-starting.
14. Operate during daylight or in bright artificial light.
15. Do not operate the mower without either the grass container or the guard in place.
Be aware of the mower discharge direction and do not point it at anyone.
16. Stop the blades rotating before crossing surface other than grass.
17. Do not operate where machine could tip or slip.
Do not operate near ditches, holes, embankments, or other terrain which may collapse under the machine's weight. The risk of machine tip-over is increased when the ground is loose or wet.
18. 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.

◆ Operation 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. The control of a ride-on machine sliding on a slope will not be regained by the application of the brake.
- Do not lift the grass container on a slope.

DO

1. To avoid tip over, operate up and down slowly, not across. Stay off hills and slopes too steep for safe operation.
2. Remove obstacles such as rocks, tree limbs, etc.
3. 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.
4. Follow KUBOTA's recommendations for wheel weights or counterweights to improve stability.
5. The weight of grass in the grass container may increase the possibility of tip over. [if equipped]
6. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction.
7. Avoid starting or stopping on a slope. If tires lose traction, disengage the blades and proceed slowly straight down the slope.
8. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tip-over or loss of control.
9. Use special caution when changing direction on slopes.
10. Shift "High - Low Gear Shift Lever" to the Low position when mowing or operating on slopes.

DO NOT

1. Do not turn on slopes unless necessary and then turn slowly and gradually downhill, if possible.
2. Do not use the machine on slopes of more than 14°.
3. Do not mow near drop-offs, ditches, or embankments. The machine could suddenly turn over if a wheel falls over the edge of a cliff or ditch, or if an edge caves in.
4. Do not mow on wet grass. Reduced traction could cause sliding.
5. Do not try to stabilize the machine by putting your foot on the ground.
6. Do not use the grass catcher on steep slopes. [if equipped]
7. Do not stop or start suddenly when going uphill or downhill.
8. Never "freewheel". Do not let the machine travel downhill with HST pedal at neutral position.
9. Do not use the trailer and the towing implement.

◆ Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn the machine off if children enter the area.
3. Before and when backing, look behind and down for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with safe machine operation.
5. Never allow children to operate the machine, even under adult supervision. Local regulation can restrict the age of the operator.
6. Use extra care when approaching blind corners, shrubs, trees, or other obstructions that might hide children from sight.

◆ Operators, age 60 years and above

Data indicates that operators, age 60 years and above, 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.

◆ Stopping

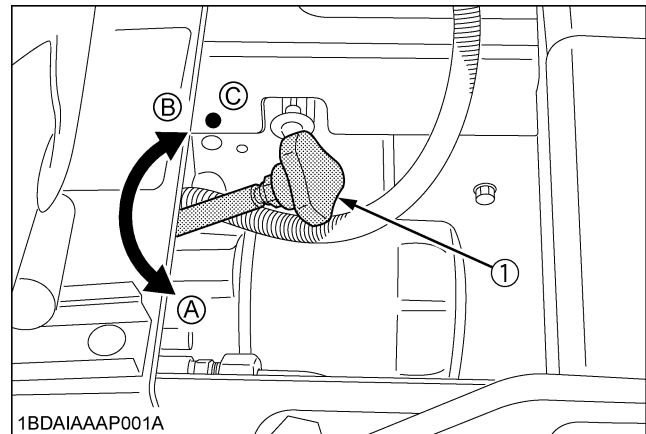
1. Make sure that the machine and all attachments have come to complete stop before dismounting.
2. Before dismounting, disengage the PTO, lower all implements, place all control levers in their neutral positions, apply parking brake, turn off the engine and remove the key.
3. Do not park the machine on a steep incline. Park on relatively flat areas.

3. USING THE PTO

1. Before installing or using PTO-driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment.
2. Wait until all moving components have completely stopped before connecting, disconnecting, adjusting, cleaning, or servicing any PTO-driven equipment.
3. Use the PTO with KUBOTA approved attachments. The speed of the PTO is 2545 rpm at 3000 engine rpm.

4. USING THE LIFT LINK

1. Use lift link only with authorized attachments designed for lift link usage.
2. When using a lift link mounted attachment, be sure to install the adequate counter ballast weight specified in the attachment's manual.
3. When moving the machine a long distance, set the implement lowering control in the "LOCK" position to hold the implement in the raised position.
4. Do not turn the knob quickly.



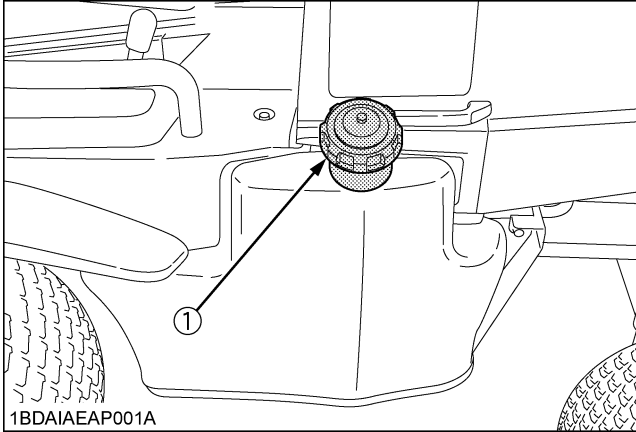
- (1) Lift link lowering speed control knob
 (A) "FAST": Turn counterclockwise slowly
 (B) "SLOW": Turn clockwise
 (C) "LOCK": Turn clockwise to the end

5. TRANSPORTING

1. Disengage power to attachment(s) when transporting or not in use.
2. Do not tow this machine. Use a suitable truck or trailer when transporting on public roads.
3. It is recommended that this machine not be used on public roads.
4. Use extra care when loading or unloading the machine into a trailer or truck.
5. Keep attachment(s) low when transporting.
6. Move very slowly when attachment is removed.

6. SERVICING

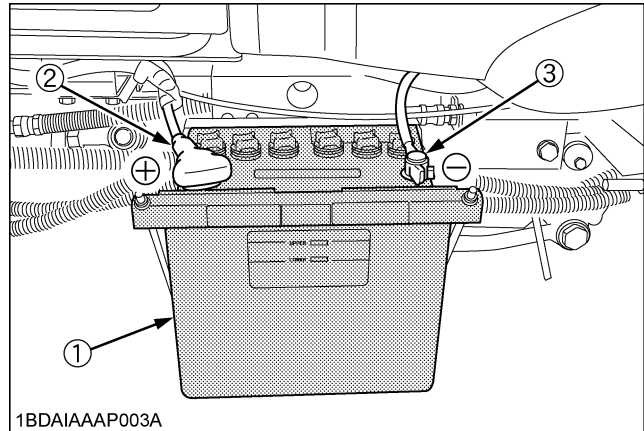
1. Before servicing the machine, park the machine on a firm, level surface, set the parking brake, stop the engine and remove the key.
2. Allow the machine to cool off before servicing the engine, muffler, etc.
3. Always stop the engine before refueling. Avoid spills and overfilling. Wipe up spilled fuel immediately.



(1) Fuel tank cap

4. Use extra care in handling diesel fuels. They are flammable.
 - (1) Use only an approved container.
 - (2) Do not remove fuel cap or refuel with the engine running. Allow 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.
 - (5) If the fuel tank has to be drained, this should be done outdoors.
 - (6) Replace all fuel tanks and container caps securely
5. Do not change the engine governor setting or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
6. Do not smoke when working around the battery. Keep all sparks and flames away from battery. The battery presents an explosion hazard because it gives off hydrogen and oxygen...especially when recharging.

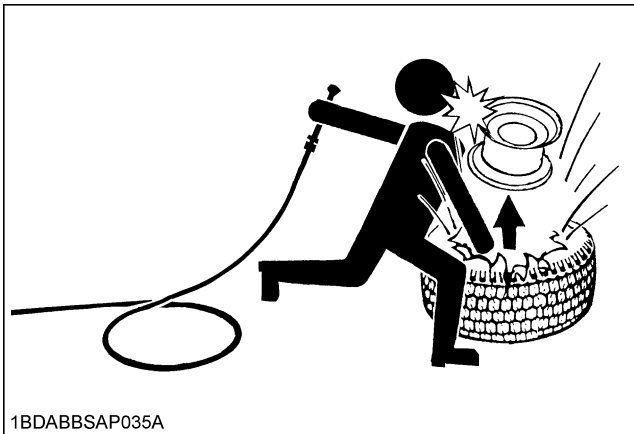
7. Before "JUMP STARTING" a dead battery, read and follow all of the instructions to help protect the alternator from damage due to extreme load changes. (See "JUMP STARTING" in "OPERATING THE ENGINE" section.)
Batteries contain sulfuric acid and produce explosive gases. Follow the instructions below to prevent personal injury.
 - Wear eye and skin protection.
 - Keep sparks and flame away.
 - Always have adequate ventilation while charging or using the battery.
8. Keep first aid kit and fire extinguisher available at all times.
9. Disconnect the battery's negative (-) cable before working on or near electric components.
10. 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.
11. To avoid sparks from an accidental short circuit, always disconnect the battery's negative (-) cable first and connect it last.



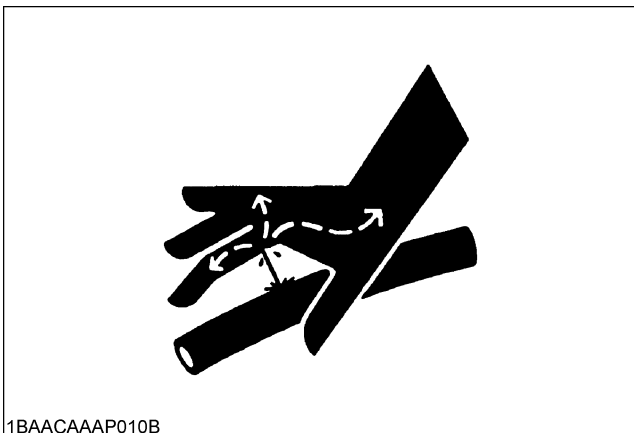
(1) Battery
(2) Positive cable (+)
(3) Negative cable (-)

12. Do not remove the radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely. If the machine has a coolant recovery tank, add coolant there instead of the radiator.
13. Provide adequate support when changing wheels or the wheel.
14. Make sure that wheel nuts have been tightened to the specified torque.
15. Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.

16. Always maintain the correct tire inflation pressure. Do not inflate tires above the recommended pressure shown in the Operator's Manual.

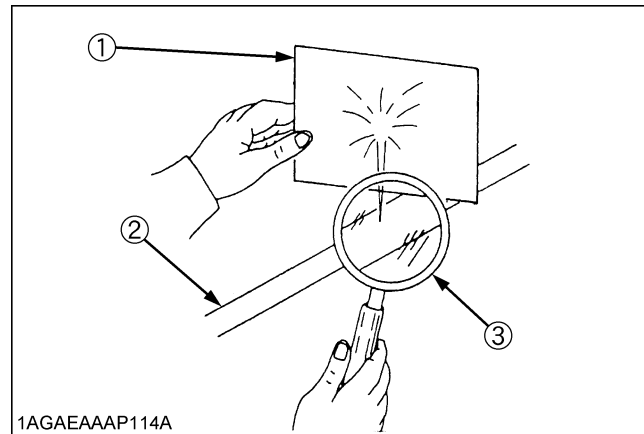


17. Securely support the machine when changing wheels.
 18. Make sure that wheel bolts have been tightened to the specified torque.
 19. Escaping hydraulic fluid under pressure has sufficient force to penetrate the skin causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, make sure all connections are tight and that lines, pipes, and hoses are not damaged.



20. Fluid escaping from pinholes may be invisible. Use a piece of cardboard or wood to search for suspected leaks: do not use hands. Use safety goggles or other eye protection.

If injured by escaping fluid, see a medical doctor at once. Serious infection or reaction will result if proper medical treatment is not administered immediately. This fluid can produce gangrene or severe allergic reaction.



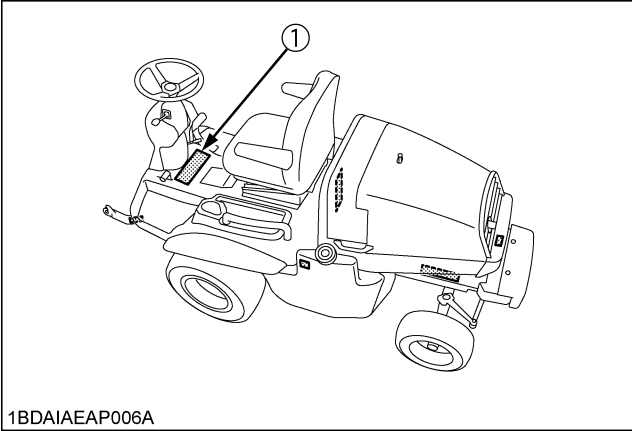
- (1) Cardboard
 (2) Hydraulic line
 (3) Magnifying glass

21. Do not make adjustments or repairs with the engine running.
 22. Keep machine free of grass, leaves, or other debris build-up.
 23. Do not run a machine inside a closed area.
 24. Waste products such as used oil, fuel, hydraulic fluid, and batteries, can harm the environment, people, pets and wildlife. Please dispose properly.
 See your local Recycling Center or KUBOTA Dealer to learn how to recycle or get rid of waste products.

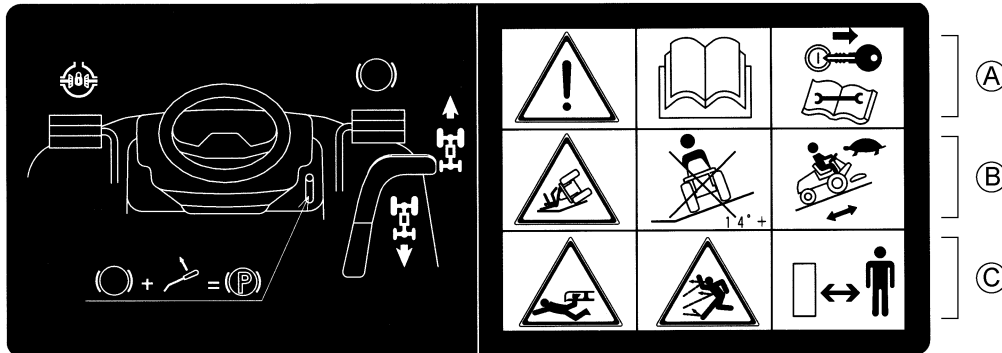
7. STORAGE

1. Keep the machine and supply of fuel in locked storage and remove the key to prevent children or others from playing or tampering with them.
2. Do not store the machine with fuel in the tank inside a building where fumes may ignite. Allow the engine to cool before storing.
3. To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without adequate ventilation.
4. To reduce fire hazards, clean the machine thoroughly before storage. Dry grass and leaves around the engine and mufflers may ignite.

8. DANGER, WARNING AND CAUTION LABELS

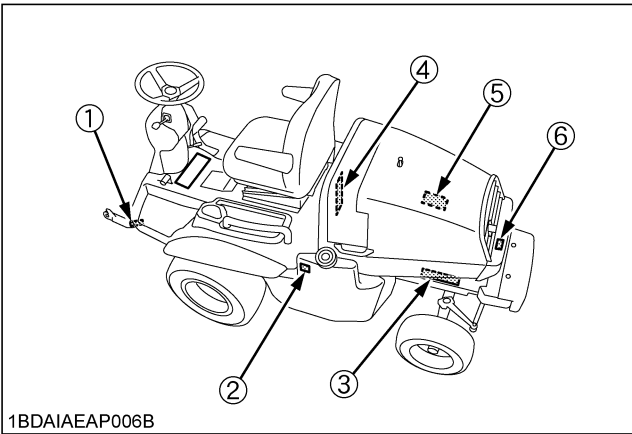


(1) Part No. K3653-4717-1



TO AVOID INJURY OR DEATH:

- (A)
 - Read and understand Operator's Manual.
 - Stop the engine and remove key before servicing.
- (B)
 - DO NOT operate where machine could slip or tip.
 - DO NOT operate on slopes of more than 14°.
 - Mow up and down slopes, not across.
- (C)
 - DO NOT allow any bystanders or children around or near machine at any time when the engine is running.



1BDAIAEAP006B

- (1) Part No. K3512-4721-1
 This arm can spring up upward.
 See operator's manual when disassembling



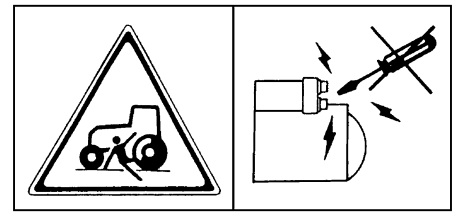
1BDAIAEAP013B

- (2) Part No. K3611-4741-1
 Diesel fuel No fire only



1BDADAP030A

- (3) Part No. 3512-4718-1

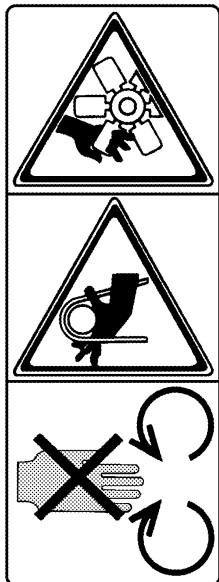


1BDABANAP083B

TO AVOID MACHINE RUNAWAY:

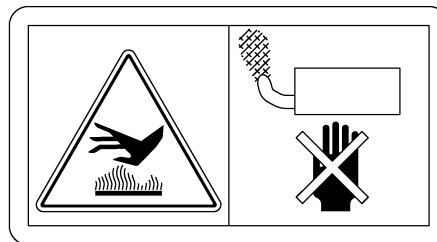
- DO NOT start engine by shorting across starter terminals or bypassing the safety start switch.

- (4) Part No. TA040-4957-1
 Do not get your hands close to engine fan and fan belt.



1BDABARAP113B

- (5) Part No. K3653-4719-1 (Engine)
 Do not touch hot surface like muffler, etc.



1BDAIAEAP023A

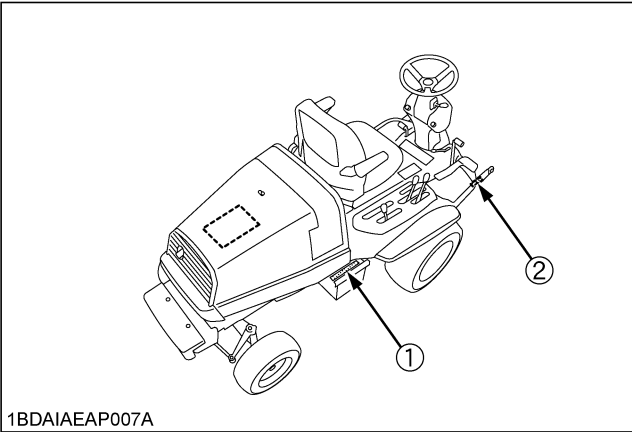
- (6) Part No. K3512-4719-1
 HOT SURFACE
 DO NOT TOUCH



1BDABANAP080B

1BDAIAEAP0180

▲-8 SAFE OPERATION



1BDAIAEAP007A

(1) Part No. 6A320-5559-1

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.



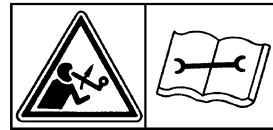
- Danger explosive gases.

1BDAIAEAP0200

(2) Part No. K3512-4721-1

This arm can spring up upward.

See operator's manual when disassembling



1BDAIAEAP013B

9. CARE OF DANGER, WARNING AND CAUTION LABELS

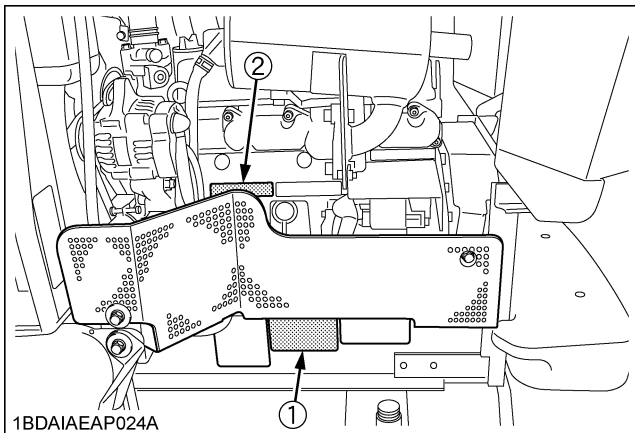
1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA Dealer.
4. If a component with danger, warning and caution label(s) affixed is replaced with new parts, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to 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 is interested in helping you get the best performance from your new machine and wants to help you get the most value from it. When in need of parts or major service, be sure to see your local KUBOTA Dealer. When in need of parts, be prepared to give your dealer the machine and engine serial numbers.

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

	Type	Serial No.
Machine		
Engine		
Date of Purchase		
Name of Dealer		
(To be filled in by purchaser)		



(1) Machine serial No.

(2) Engine serial No.

SPECIFICATIONS

		Model	F2880	F3680
Engine	Model		D1105 - E2 - FM2-EU	V1505 - E2 - FM3-EU
	Engine gross power (SAE) *1	kW (PS)	20.6 (28)	26.5 (36)
	Type		Indirect Injection. Vertical water - cooled, 4cycle diesel	
	Number of cylinders		3	4
	Bore and stroke	mm	78 x 78.4	
	Total displacement	cm ³	1123	1498
	Rated revolution	rpm	3000	
	Fuel		Diesel fuel No.1 [below -10 °C (14 °F)] Diesel fuel No.2 [below -10 °C (14 °F)]	
	Starter		Electric starter with battery, glow plug, 12 V, 1.1 kW	
	Lubrication		Forced lubrication by gear pump	
	Cooling		Liquid with pressurized radiator	
	Battery		12 V, RC: 112 min, CCA: 490 A	
Capacities	Fuel tank	L	61	
	Engine crankcase (with filter) *3	L	3.5	5.0
	Engine coolant	L	4.6	
	Recovery tank	L	0.6	
	Transmission case	L	14	
	Rear axle differential case	L	1.5	
	Rear axle gear case	L	0.5	
Dimensions	Overall length	mm	2500	
	Overall width	mm	1370	
	Overall height	mm	1350	
	Wheelbase	mm	1300	
	Min. ground clearance	mm	185	
	Tread	Front	mm	1063
Rear		mm	1020	
Weight (W/O mower deck)		kg	727	744

		Model		F2880	F3680	
Traveling system	Tires	Front		24 x 12 - 12 (4PR) Turf		
		Rear		18 x 9.5 - 8 (4PR) Turf		
	Traveling speeds *2	Forward	Low		0 to 9 km/h	
			High		0 to 20 km/h	
		Reverse	Low		0 to 4.8 km/h	
			High		0 to 11 km/h	
	Steering			Power, hydrostatic		
	Transmission			Main - hydrostatic transmission. High - Low gear shift (2 forward, 2 reverse)		
	Brake			Wet disk type		
	Min. turning radius		mm		≤ 750 (Inside of Front Tire)	
	Differential	Front		Bevel gear		
Rear		Bevel gear				
4WD system			Dual - Acting Overrunning 4WD			
PTO	Revolution			1 speed (2545 rpm at 3000 engine rpm)		
	Drive system			Shaft drive. KUBOTA 10 tooth involute spline (2545 rpm)		
	Clutch type			Wet multi plates		
	PTO brake			Wet single plate		

(Specifications and design subject to change without notice)

NOTE:

*1 Manufacture's estimate

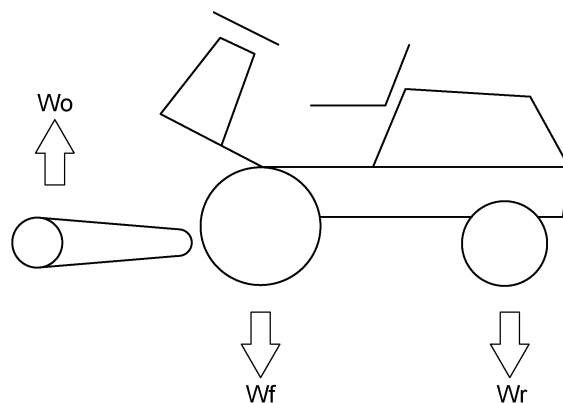
*2 At 3000 engine rpm

*3 Oil amount when the oil level is at the center of the oil level gauge

IMPLEMENT LIMITATIONS

The KUBOTA Machine has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use of implements which exceed the maximum loading weight listed below, or which are not recommended for use with the KUBOTA Machine may result in malfunctions or failures of the machine, damage to other property and injury to the operator or others. (Any malfunctions or failures of the machine resulting from use with improper implements are not covered by the warranty.)

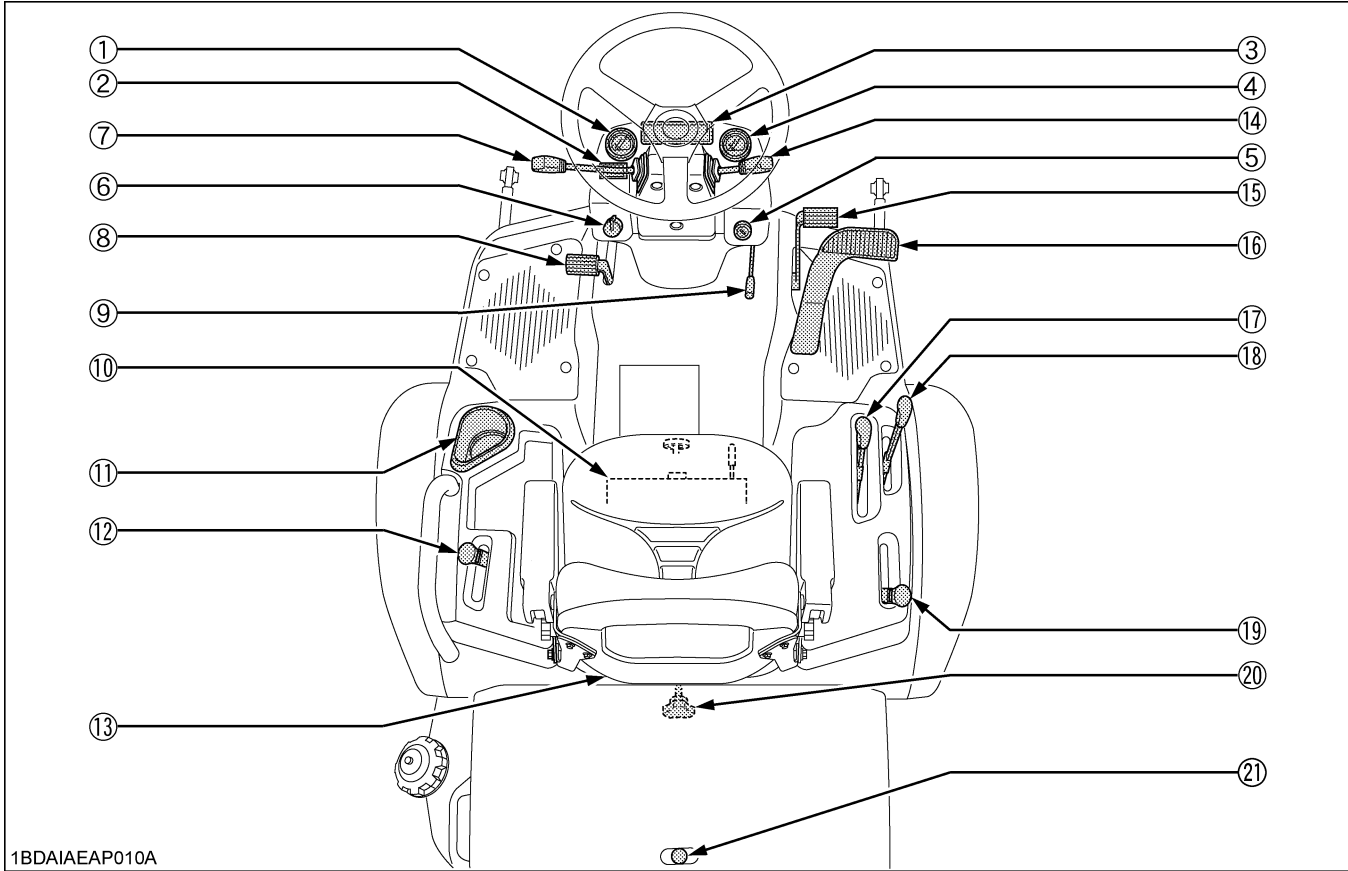
	Maximum loading weight		Lift link end maximum loading weight W_o	Maximum total weight
	Front axle W_f	Rear axle W_r		
F2880, F3680	900 kg	600 kg	260 kg	1500 kg



1BDAIAAAP005A

INSTRUMENT PANEL AND CONTROLS

ENGLISH



1BDAIAEAP010A

ILLUSTRATED CONTENTS

ILLUSTRATED CONTENTS

INSTRUMENT PANEL

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 (8) Differential lock pedal..... 18
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MOWER MOUNTING

MOUNTING THE MOWER

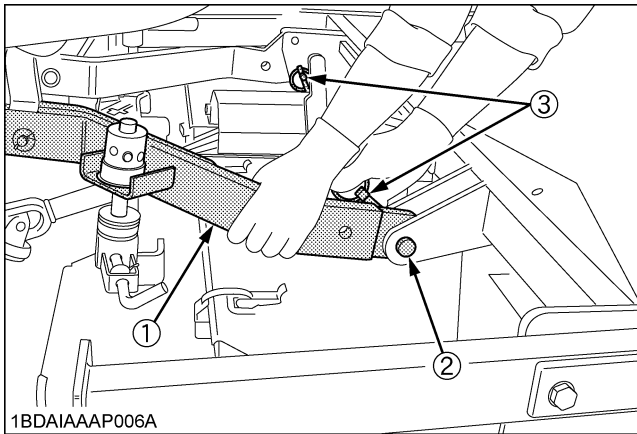


CAUTION

To avoid personal injury:

- Before mounting the mower deck, read and understand the use of the lift link lowering speed control knob. (See "Lift Link Lowering Speed Control Knob" in "OPERATING THE MACHINE" section in the operator's manual of the machine.)
- Place the PTO lever in the "DISENGAGE" position.
- Place the High-Low gear shift lever in the "NEUTRAL" position.
- The mower links (left hand, right hand) are spring-loaded. Have an assistant hold the arm in position when mounting the mower deck.

1. Move the mower deck under the mower links and place the hydraulic lift lever in the "DOWN" position.
2. Attach the front end of the mower links to the mower deck with clevis pins and set pins.



- 1BDAIAAAP006A
- (1) Mower link
 - (2) Set pin
 - (3) Clevis pin

3. Start the engine, raise the mower deck, lock the lift link lowering speed control knob and shut off the engine.
4. Install the lift rods to the mower deck with lock pins and down the mower deck on the ground.

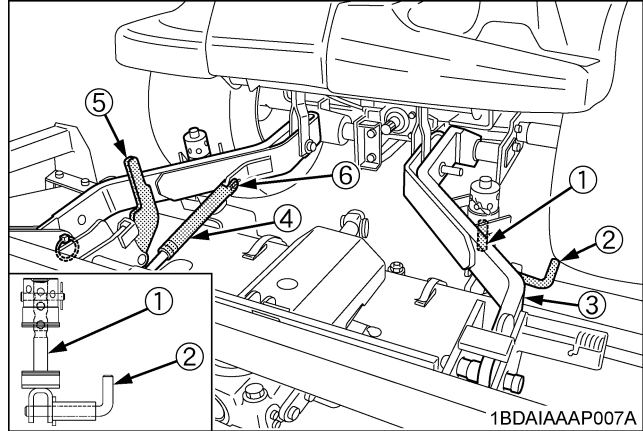
[RCK72P-F36 / RCK72R-F36]

5. Attach the gas spring to the mower link with the clevis pin and the rue ring cotter.

NOTE :

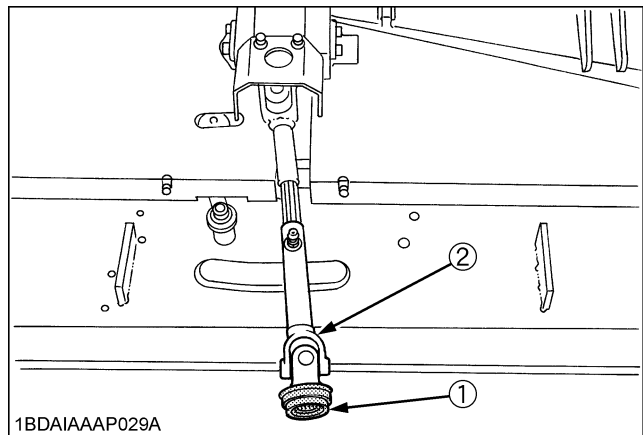
- When operating the mower, make sure the tilt lever is unlocked.

- For tilting up the mower, see "MOWER TILT UP" section in the operator's manual of the mower.



- 1BDAIAAAP007A
- (1) Lift rod
 - (2) Lock pin
 - (3) Mower link
 - (4) Gas spring
 - (5) Tilt lever ("UNLOCKED" position)
 - (6) Rue ring cotter

6. Pull back the coupler of the universal joint. Push the universal joint onto the PTO shaft until the coupler locks. Slide the universal joint backward and forward to check that the universal joint is locked securely.



- 1BDAIAAAP029A
- (1) Coupler
 - (2) Universal joint

IMPORTANT :

- Finally pull the universal joint to see if it is locked tight in position.

After mounting the mower deck, adjust the lift link lowering speed.

(See "CONTROLS" in "INSTRUMENT PANEL AND CONTROLS" section.)

DISMOUNTING THE MOWER DECK

For dismounting the mower deck, reverse the above procedures.



CAUTION

To avoid personal injury:

- The mower links (left hand, right hand) are spring-loaded. Have an assistant hold the arm in position when mounting the mower deck.

MOWER TILT UP



WARNING

To avoid personal injury:

- Do not start the engine while tilting the mower deck.



CAUTION

To avoid personal injury:

- Be sure to tilt the mower on a level surface and the parking brake ON.
- Place the PTO lever in the "DISENGAGE" position.
- Place the High-Low gear shift lever in the "NEUTRAL" position.

■ How To Tilt Up

For detailed procedure, refer to the mower operator's manual.

■ How To Mount Another Implement

For detailed procedure, refer to the implement instruction manual.

OPERATING THE ENGINE



CAUTION

To avoid personal injury:

- Read "SAFE OPERATION" in the front of this manual.
- Read the danger, warning and caution labels located on the machine.
- To avoid danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start the engine while standing on the ground. Start the engine only from the operator's seat.

STARTING THE ENGINE

1. Make sure that the hood is closed.

IMPORTANT :

- If the hood is opened, the engine does not start.
- If the hood has been opened while the engine is running, the engine stalls.

2. Sit on the operator's seat.

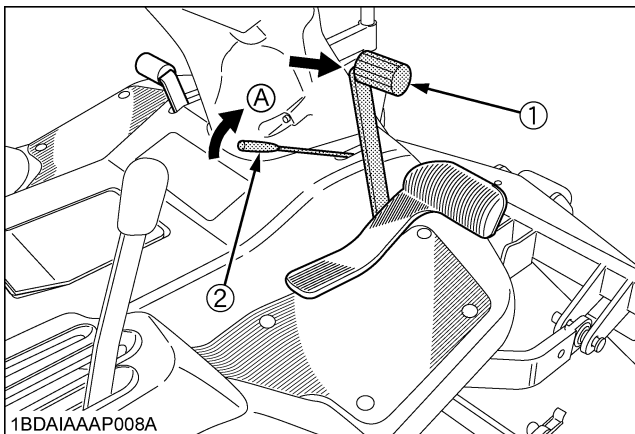
3. Apply the parking brake.

To apply the parking brake:

Depress the brake pedal firmly and hold in position. Pull and hold the parking brake lever, and release the brake pedal.

To release the parking brake:

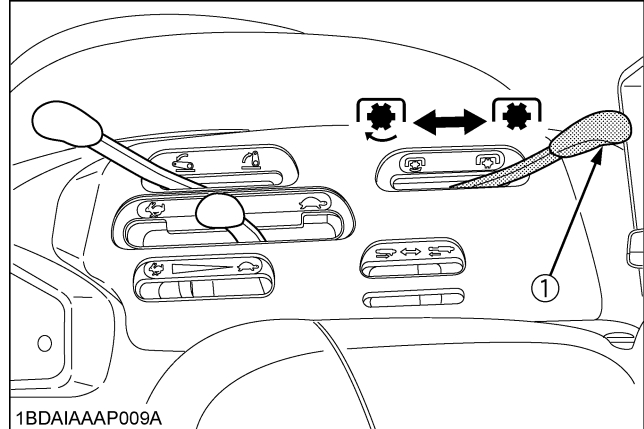
Depress the brake pedal and release slowly.



(1) Brake pedal
(2) Parking brake lever

(A) "PARKING"

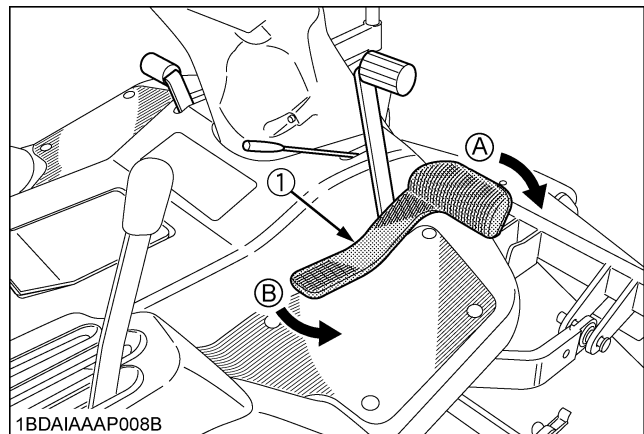
4. Make sure that the PTO lever is in the "DISENGAGED" position.



(1) PTO lever

☒: "ENGAGED"
☑: "DISENGAGED"

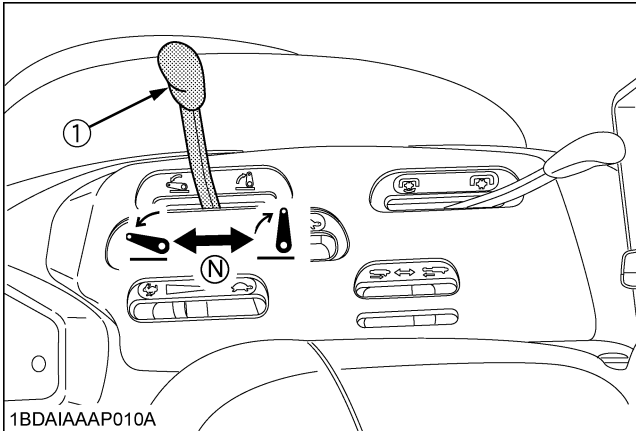
5. Make sure that the speed control pedal is in the "NEUTRAL" position.



(1) Speed control pedal

(A) "FORWARD"
(B) "REVERSE"

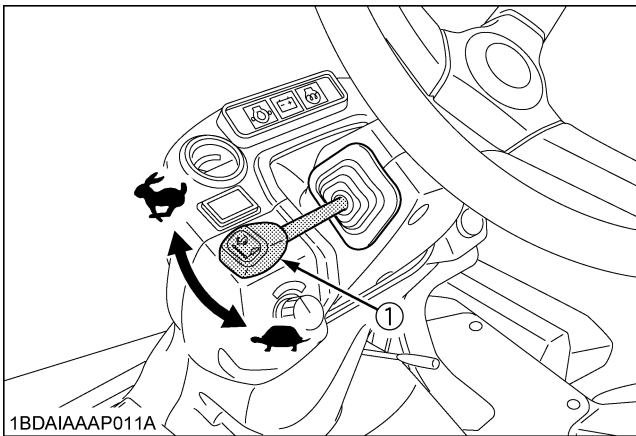
6. Make sure that the hydraulic lift lever is in the "NEUTRAL" position.



(1) Hydraulic lift lever

↙: "DOWN"
N: "NEUTRAL"
↗: "UP"

7. Set the throttle lever 1/2 way forward.

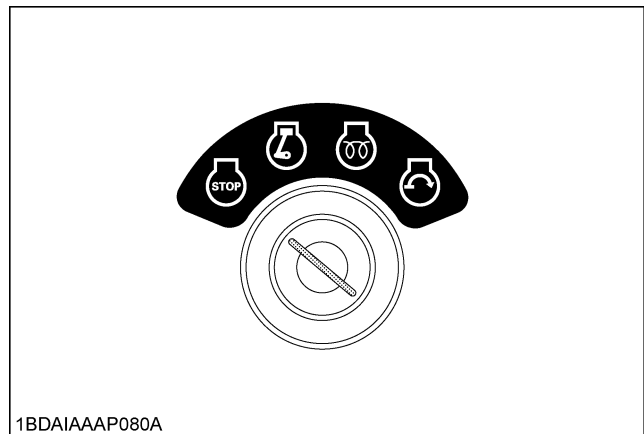


(1) Throttle lever

↗: "FAST"
↙: "SLOW"

8. Insert the key into the key switch and turn clockwise 1 notch. Make sure the easy checker lights are "ON".

■ Key Switch



⏻: "OFF" (Engine - Stop) ⏻: "PREHEAT" (Preheat)
⏻: "ON" (Engine - Run) ⏻: "START" (Engine - Start)

IMPORTANT :

- Do not turn the key switch to the "START" position while the engine is running.
- When the temperature is below 0 °C (32 °F), 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 life will be shortened.
- Do not operate the machine under full load until it is sufficiently warmed.
- Do not use starting fluid or ether.
- When the ambient temperature is less than -15 °C (5 °F), remove the battery from the machine and store it somewhere warm until the next operation.

9. Turn the key switch to the "PREHEAT" position clockwise, and hold it for about 5 seconds. For the appropriate preheating time, refer to the table below:

Temperature	Preheating Time
Over 0 °C (32 °F)	5 sec.
Below 0 °C (32 °F)	10 sec.

10. Turn the key switch to the "START" position and release the key to the "ON" position when the engine starts.

IMPORTANT :

- Because of the safety devices, the engine may not be started except when the PTO clutch is disengaged, the brake pedal is fully depressed and the operator sits in the seat.

■ Cold Weather Starting

When the ambient temperature is below -5°C (23°F) and the engine is very cold. (If the engine fails to start after 10 seconds, turn off the key for 30 seconds. Then repeat steps 9 and 10. To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.)

■ Block Heater (Option)

A block heater is available as an option from your local dealer. It will assist you in starting your machine when the ambient temperature is below -15°C (5°F).

11. Check to see that all the lamps on the Easy Checker(TM) are "OFF".

If the lamp is still on, immediately stop the engine and determine the cause.

12. Warm the engine by running at medium speed.

STOPPING THE ENGINE

1. Set the parking brake.
2. After slowing the engine to idle, turn the key switch to the "OFF" position.
3. Remove the key.
4. Do not leave the key switch "ON" (key in the "ON" position) as the battery will discharge when the engine is not running.

WARMING UP



CAUTION

To avoid personal injury:

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

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

■ Warm-up and Transmission Oil in the Low Temperature Range

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

To prevent the above, observe the following instructions: Warm up the engine at about 50% of rated rpm according to the table below:

Atmospheric temperature	Warm-up time requirement Higher
Higher than 0°C (32°F)	Approx. 5 minutes
0 to -10°C (32 to 14°F)	5 to 10 minutes
-10 to -20°C (14 to -4°F)	10 to 15 minutes
Below -20°C (-4°F)	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 the hydraulic control lever has been activated and the implement is lifting, the hydraulic mechanism is not adjusted properly. Unless corrected, the unit will be damaged. Contact your local KUBOTA Dealer for adjustment.

JUMP STARTING



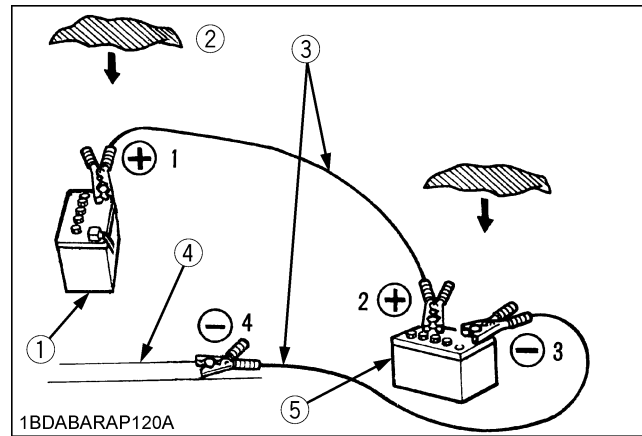
WARNING

To avoid personal injury:

- Battery gases can explode. Keep cigarettes, sparks, and flames away from battery.
- If machine battery is frozen, do not jump start engine.
- Do not connect other end of negative (-) jumper cable to negative (-) terminal of machine battery.

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

1. Bring helper vehicle with a battery of the same voltage as disabled machine within easy cable reach. "THE VEHICLES MUST NOT TOUCH".
2. Apply the parking brakes of both vehicles and put the shift levers in neutral. Shut the engine off.
3. Put on safety goggles and rubber gloves.
4. Ensure the vent caps are securely in place. (if equipped)
5. Cover vent caps with damp rags. Do not allow the rag to touch the battery terminals.
6. 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.
7. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
8. Clamp the other end to the engine block or frame of the disabled machine as far from the dead battery as possible.
9. Start the helper vehicle and let its engine run for a few moments. Start the disabled machine.
10. Disconnect the jumper cables in the exact reverse order of attachment. (Steps 8, 7 and 6).
11. Remove and discard the damp rags.



- (1) Dead battery
- (2) Lay a damp rag over the vent caps
- (3) Jumper cables
- (4) Engine block or frame
- (5) Helper battery

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

IMPORTANT :

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

OPERATING THE MACHINE

OPERATING NEW MACHINE

How a new machine is operated and maintained determines the life of the machine.

A new machine just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other, so care should be taken to operate the 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 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.

■ Changing Lubricating Oil for New Machines

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 would ordinarily be required.

For further details of change interval hours, see "SERVICE INTERVALS" in "MAINTENANCE" section.

■ Engine Break-in

After the first 50 hours of operation, change the engine oil and filter. (See "EVERY 100 HOURS" "EVERY 200 HOURS" in "PERIODIC SERVICE" section.)

■ Machine Break-in

After the first 200 hours of operation, change the transmission fluid.

After the first 50 hours of operation, change the oil filter cartridge. (See "EVERY 200 HOURS" in "PERIODIC SERVICE" section.)



WARNING

To avoid serious injury:

- Do not allow any person 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.
- Slow down before turning.
- To avoid tip over, operate up and down slopes, not across. Avoid sudden starts and stops on slopes. Slow down, and use extra caution when changing direction on a slope. Do not use the machine on steep incline.
Park the machine on a firm, 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 drive a 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 a machine is equipped with Grass Catcher.

STARTING

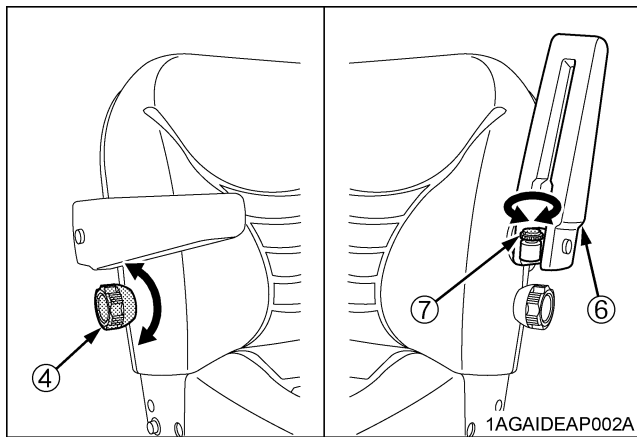
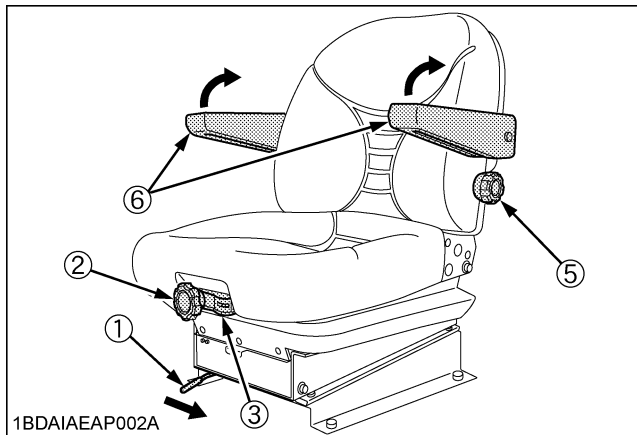
1. Adjusting the operator's position

Operator's Seat

CAUTION

To avoid personal injury:

- 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 any person other than the driver to ride on the machine.



- (1) Travel adjust lever
- (2) Suspension adjust knob
- (3) Indicator of suspension
- (4) Backrest tilt adjust knob
- (5) Lumbar support adjust knob
- (6) Arm rest
- (7) Arm rest angle adjust knob

◆ Travel adjustment

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

CAUTION

To avoid personal injury:

- Use extra caution when unlocking the travel adjust lever because the seat might slide forward by itself.

◆ Suspension adjustment

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

◆ Lumbar support adjustment

Turn the lumbar support adjust knob to the desired position.

◆ Backrest tilt adjustment

Turn the backrest tilt adjust knob to the desired angle.

◆ Arm rest

Arm rest may be set at upright position if desired.

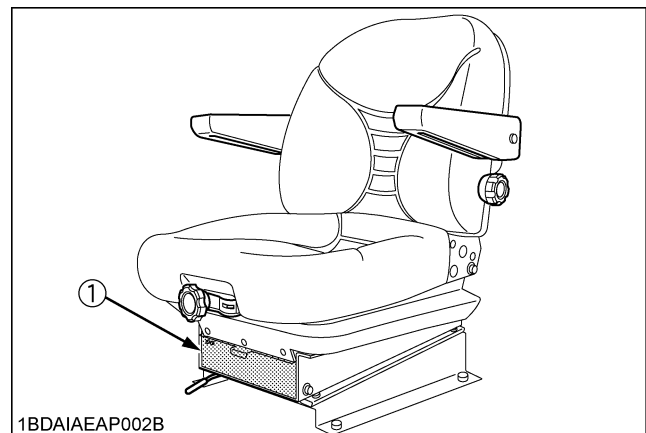
◆ Arm rest angle adjustment

Turn the arm rest angle adjust knob to the desired angle.

IMPORTANT :

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

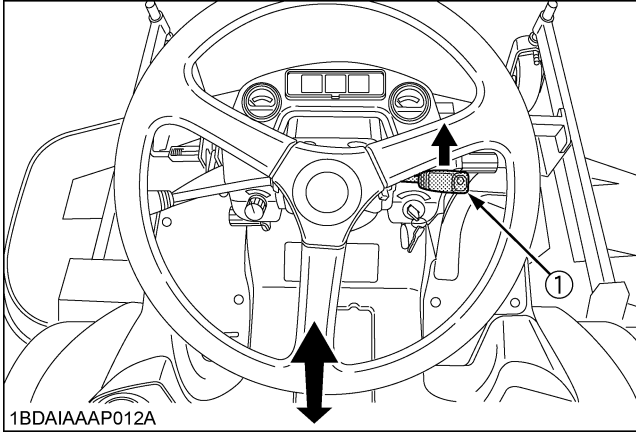
Globe Box



- (1) Globe box

Steering Wheel Tilt Lever

By pulling the steering wheel tilt lever upward, the lock is released and the steering wheel can be adjusted to a desired tilt angle from the choice of 4 settings.

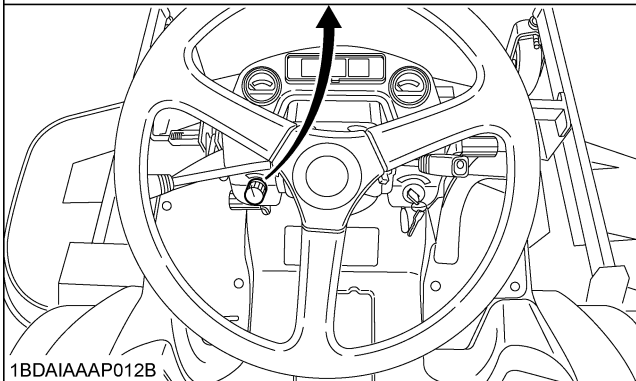
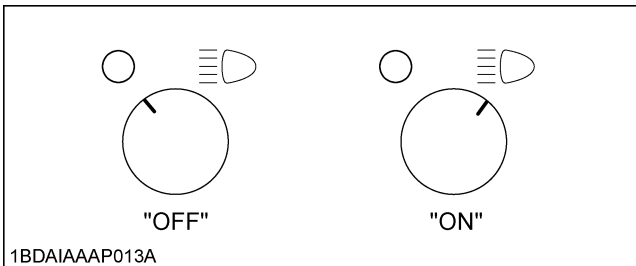


(1) Steering wheel tilt lever

2. Selecting Light Switch Positions

Head Light Switch

Turning the light switch clockwise illuminates the headlight.



○Head light OFF
 ≡○Head light ON

3. Raising the implement

Lift Link Lowering Speed Control Knob

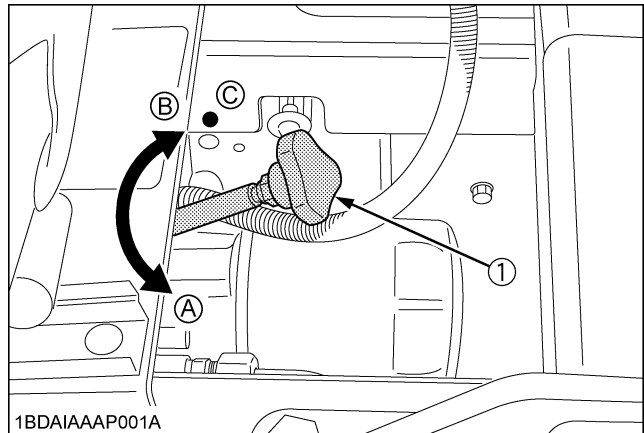


CAUTION

To avoid personal injury:

- Fast lowering speed may cause damage or injury. Lowering speed of the implement should be adjusted to 2 or more seconds.

The lowering speed of the lift link can be controlled by adjusting the lift link lowering speed control knob.



- (1) Lift link lowering speed control knob
 (A) "FAST": Turn counterclockwise slowly
 (B) "SLOW": Turn clockwise
 (C) "LOCK": Turn clockwise to the end

◆ How to adjust the Lowering Speed

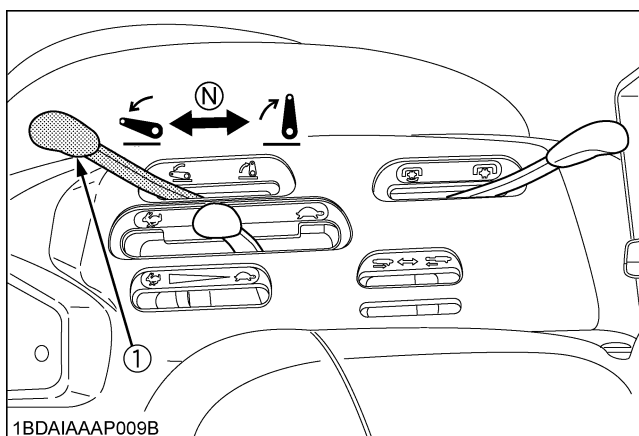
1. Park the machine on a level surface and apply the parking brake.
2. Move the PTO lever in the "DISENGAGE" position.
3. Move the High-Low gear shift lever in the "NEUTRAL" position.
4. Start the engine and raise the implement fully.
5. Turn the lift link lowering speed knob clockwise to the "LOCK" position.
6. Stop the engine and move the Hydraulic lift lever in the "DOWN" position.
7. Turn the knob counterclockwise slowly to adjust the lowering speed.

IMPORTANT :

- Before adjustment, never check near or under the implement.
- Turn the knob slowly and carefully to avoid sudden fall of the implement.

Hydraulic Lift Lever

The hydraulic lift lever is used to raise and lower the implement used with the machine (ex. Mower).
 To lower the implement, push the lever FORWARD.
 To raise it, pull the lever BACKWARD.



(1) Hydraulic lift lever

↓ : "DOWN"
 N : "NEUTRAL"
 ↑ : "UP"

IMPORTANT :

- Do not operate until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.
- Do not operate at slow Engine rpm. Move the throttle lever above 1/2.
- If noises are heard when implement is lifting after the hydraulic lift lever has been activated, the hydraulic mechanism is not adjusted properly. Contact your local KUBOTA Dealer for adjustment.

4. Selecting the Travel Speed

High-Low Gear Shift Lever



WARNING

To avoid personal injury or death:

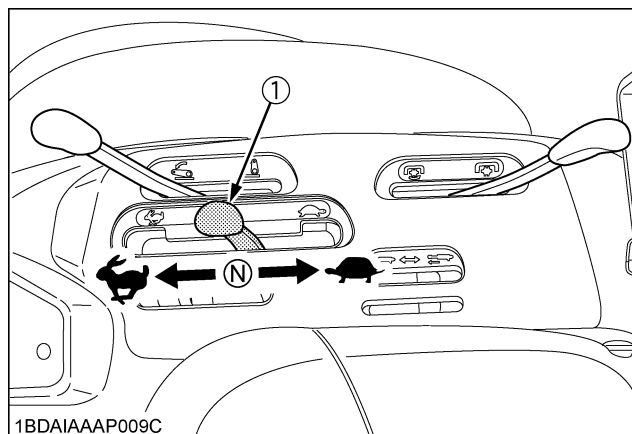
- Shift "High-Low Gear Shift Lever" to the Low position before mowing or operating on slopes.

High-Low gear shift lever moves in the form of an "I" in 3 stages, "LOW", "NEUTRAL" and "HIGH".

By using the speed control pedal and high-low gear shift lever, additional speeds can be obtained.

IMPORTANT :

- To shift high-low gear shift lever, stop the machine before attempting to proceed with speed change.



(1) High-Low gear shift lever

← : "HIGH"
 N : "NEUTRAL"
 → : "LOW"

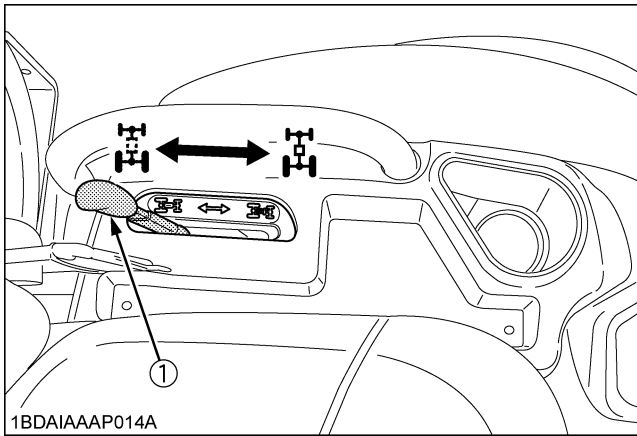
■ 4WD Lock Lever

! WARNING

To avoid personal injury or death:

- Do not change the 4WD lock lever to the Dual-Acting Overrunning 4WD position on slopes. Set it Full time 4WD position on slopes. Do not change the 4WD lock lever to the Full time 4WD position when turning or transporting.

1. Change the lever to the Dual-Acting Overrunning 4WD position so that you can turn smoothly without damaging the lawn.



(1) 4WD lock lever

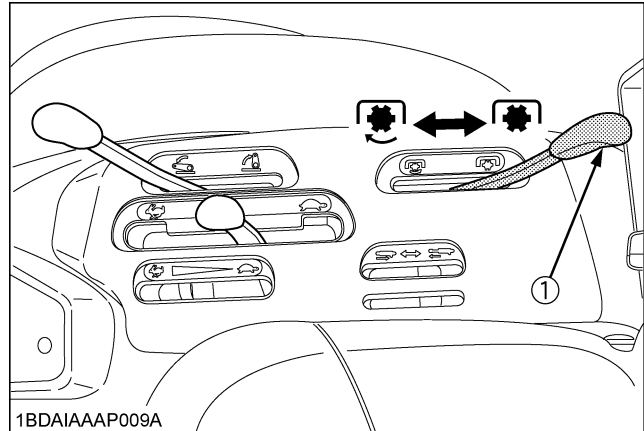
: Full time 4WD
 : Dual-Acting Overrunning 4WD

IMPORTANT :

- Do not steer the rear wheel sharply when the 4WD lock lever is in the "Full Time 4WD" position.

■ PTO Lever

To drive the PTO, move the PTO lever to the "ENGAGED" position.



(1) PTO lever

: "ENGAGED"
 : "DISENGAGED"

1. If you get off the seat while the PTO is running, the engine will stop automatically. (Seat safety control)
2. Before starting the engine, pull the PTO lever to the "DISENGAGE" position. If it is at the "ENGAGED" position, the engine will not start.

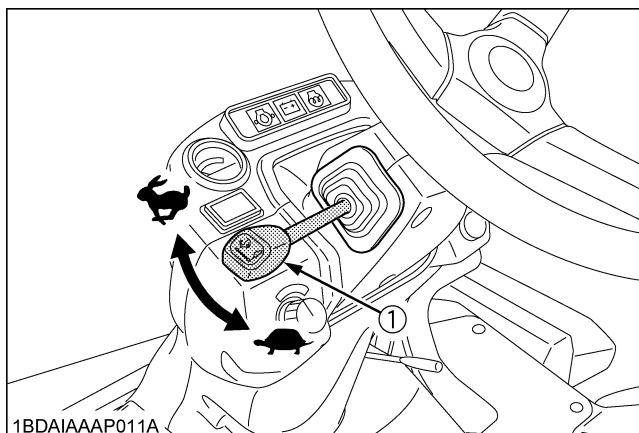
NOTE :

- These safety features are built-in.

5. Accelerating the Engine

■ Throttle Lever

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



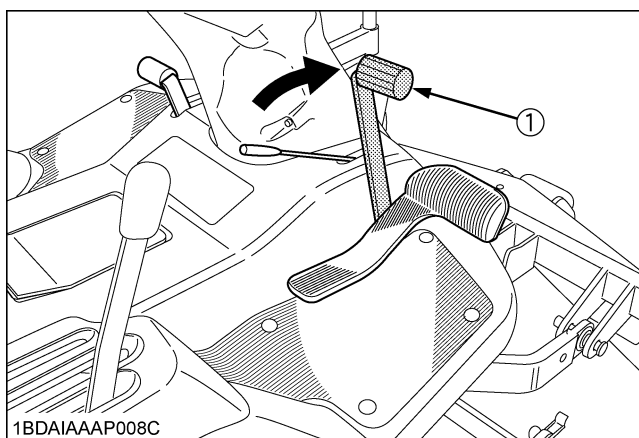
(1) Throttle lever

↖: "FAST"
↗: "SLOW"

6. Unlocking the Parking Brake

■ Parking Brake

To release the parking brake, depress the brake pedal again.



(1) Brake pedal

7. Depressing the Speed Control Pedal

■ Speed Control Pedal



WARNING

To avoid serious injury:

- Do not operate if the machine moves on a level ground with foot off Speed Control Pedal.

"FORWARD"

Depress the speed control pedal with the toe of your right foot to move forward.

"REVERSE"

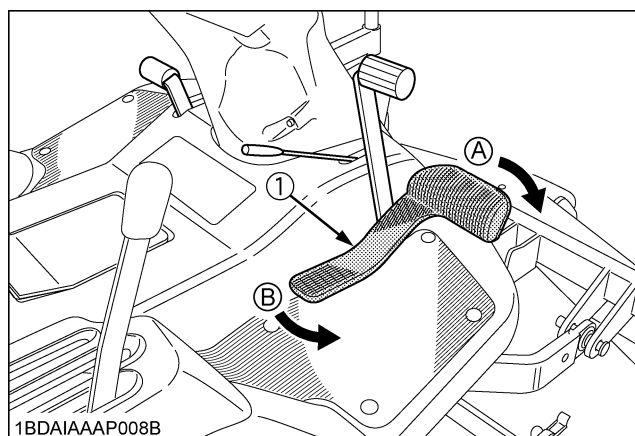
Depress the speed control pedal with the heel of your right foot to move in reverse.

Depress the speed control pedal a little and you can drive slowly.

To increase travel-speed, depress the speed control pedal more until the desired speed is reached.

NOTE :

- When the parking brake is applied, the speed control pedal is locked in the "NEUTRAL" position.



(1) Speed control pedal

(A) "FORWARD"
(B) "REVERSE"

■ Differential Lock Pedal



WARNING

To avoid personal injury:

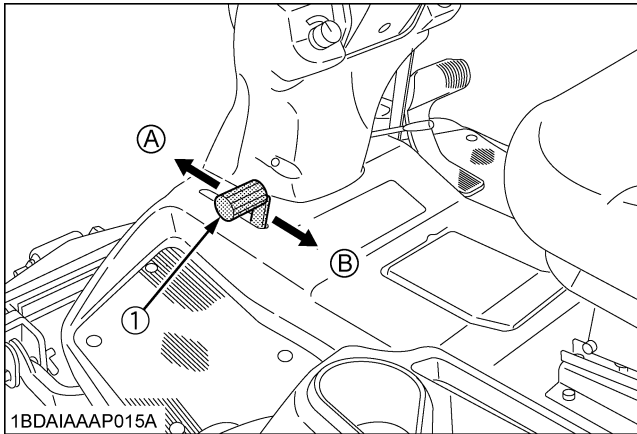
- Do not drive at high speed or turn the machine when the differential is locked. Release the lock before making such a turn.

If 1 of the front wheels should slip, step on the differential lock pedal. Then both wheels will turn together, reducing slippage.

The differential lock is applied only when the pedal is being depressed.

IMPORTANT :

- If the "Differential Lock" will not release when the pedal is released, alternately step the speed control pedal forward and backward slightly.
- Do not apply the differential lock pedal when traveling at high speed, or damage to the transmission may result.



(1) Differential lock pedal

(A) "ENGAGE"

(B) "DISENGAGE"

STOPPING

■ Stopping

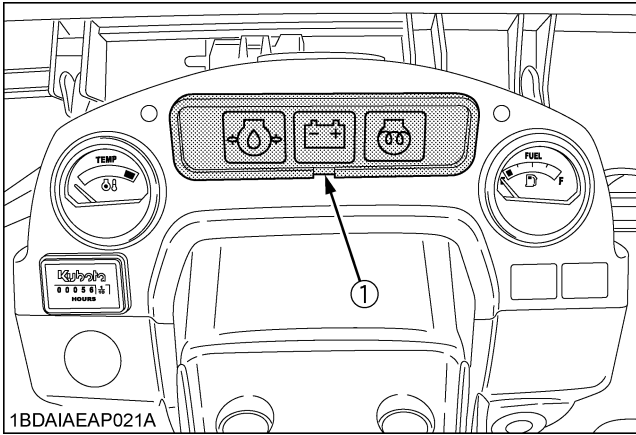
1. Release the speed control pedal and depress the brake pedal to stop the machine.
2. Slow the engine down.
3. Shift PTO lever to the "DISENGAGE" position.
4. Lower all attachments, and place all control levers in their "NEUTRAL" positions.
5. Apply the parking brake, turn off the engine and remove the key from the switch.

CHECK DURING DRIVING

■ Immediately Stop the Engine if:

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

While driving, make the following checks to see that all the parts are functioning normally.




(1) Easy Checker(TM)

■ Easy Checker (TM)

If the warning lamps in the Easy Checker(TM) come on during operation, stop the engine immediately, and find the cause as shown below.

Never operate the machine while Easy Checker(TM) lamp is "ON".

: Engine oil pressure

If the oil pressure in the engine goes below the prescribed level, the warning lamp in the Easy Checker(TM) will come on.


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

(See "Checking Engine Oil Level" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

: Electrical charge

If the alternator is not charging the battery, the warning lamp in the Easy Checker(TM) will come on.

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

: Glow plug Indicator (Pre-heating Indicator)

When the key switch is in the "PREHEAT" position, the glow plug indicator illuminates.

NOTE :

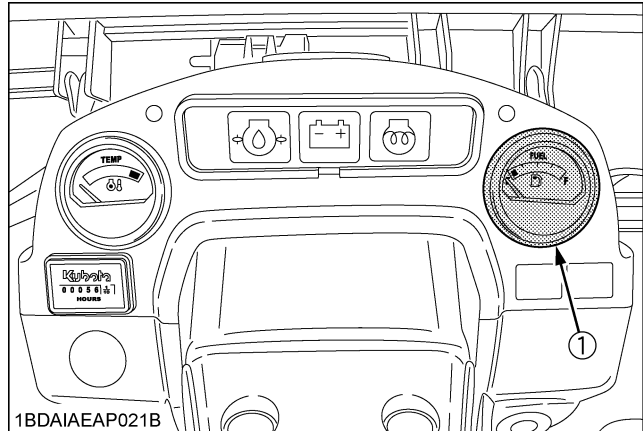
- For checking and servicing of your machine, consult your local KUBOTA Dealer for instructions.

■ Fuel Gauge

The fuel gauge indicates the fuel level.

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

If this should happen, the fuel system should be bled. (See "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)



(1) Fuel gauge

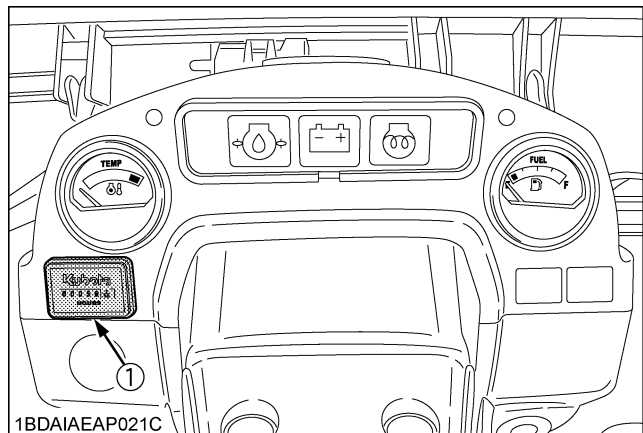
(E) "EMPTY"
(F) "FULL"

■ Hourmeter

The hourmeter indicates in 5 digits the hours the machine has been used; the last digit indicates 1/10 of an hour.

NOTE :

- As the hour meter works electrically, it starts to work when the key switch is turned to "ON", regardless of the engine running or not.



(1) Hours used

■ Coolant Temperature Gauge



CAUTION

To avoid personal injury:

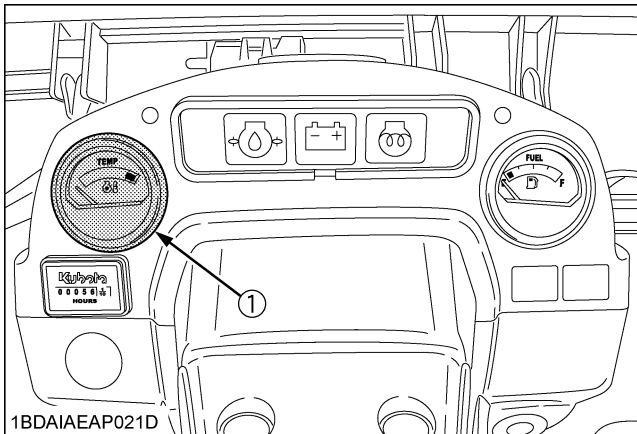
- Do not remove the radiator cap until coolant temperature is well below its boiling point. Then loosen the cap slightly to the stop to relieve any excess pressure before removing the cap completely.

If the indicator reaches the "H" setting (red zone),

- (1) Place the PTO lever in the "DISENGAGE" position.
- (2) Move the machine to the level surface, and apply the parking brake.
- (3) Place the High-Low gear shift lever in the "NEUTRAL" position.
- (4) Place the throttle lever in the "idle engine rpm" position, and allow the engine to idle for a few minutes.
- (5) Check and maintain the Cooling System.

Check the following items:

- (1) Shortage or leakage of the coolant.
- (2) Foreign matters on the radiator net or dust and dirt between the radiator fins.
- (3) Looseness of the drive fan belt.
- (4) Blockage in the radiator hose.
(See "Checking Radiator Hose and Clamp" in "PERIODIC SERVICE" section.)



(1) Coolant temperature gauge

■ Overheat Alarm

If the temperature of the coolant rises to overheat temperature, the overheat alarm whistles.

Check the machine by referring to "TROUBLE SHOOTING" section.

PARKING

■ Parking



CAUTION

To avoid personal injury:

Before leaving the operator's position:

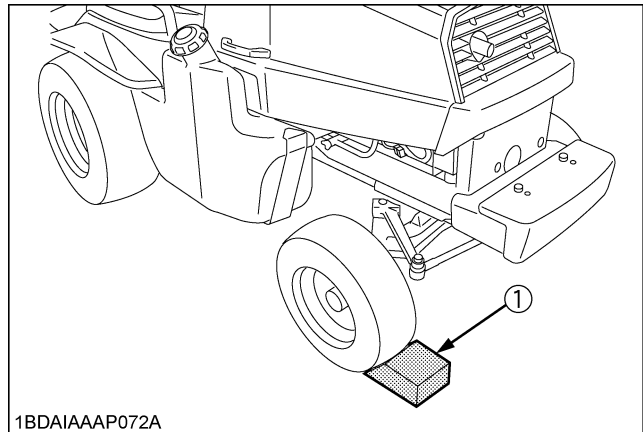
- Apply parking brake.
- Lower all implements to the ground.
- Shut off the engine.
- Remove the key.

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

To apply the parking brake;

Depress the brake pedal firmly and hold in position. Pull and hold parking brake lever, and release the brake pedal.

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



(1) Chocks

TRANSPORTING

1. Do not tow this machine a long distance, or damage to the transmission may result.
2. Transport the machine on a trailer.
 - Fasten the machine to the trailer.
 - Prevent the hood from opening by wind by any chance. If necessary, load the machine backward or use the stable strap.

■ Directions for Use of Power Steering

1. Power steering is activated only while the engine is running. Slow engine speeds make the steering a little heavier. While the engine is stopped, the machine functions in the same manner as machines without power steering.
2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. Avoid turning the steering wheel while the machine is stopped, or tires may wear out sooner.
4. The power steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

TIRE AND WHEELS AND BALLAST

TIRES



WARNING

To avoid personal injury:

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



CAUTION

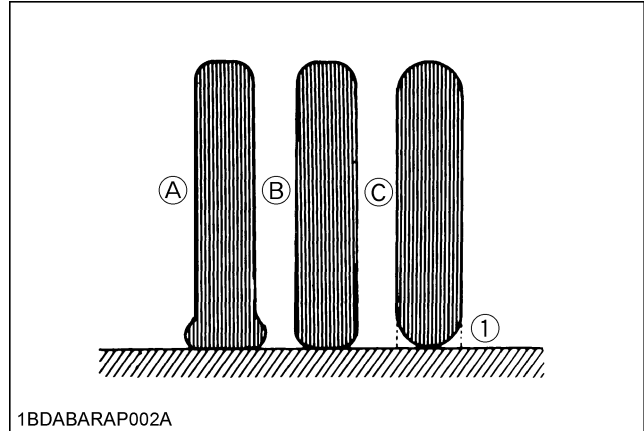
To avoid personal injury:

- Never operate the machine with a loose rim, wheel, or axle.
- Whenever bolts are loosened, retighten to specified torque.
- Check all bolts frequently and keep them tightened.

■ Inflation Pressure

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

		Tire sizes	Recommended Inflation Max. Pressure
Front	F2880 F3680	24 x 12 - 12, 4PR	140 kPa (1.4 kgf/cm ² , 20 psi)
Rear	F2880 F3680	18 x 9.5 - 8, 4PR	200 kPa (2.0 kgf/cm ² , 28 psi)



1BDABARAP002A

(1) Ground

(A) "INSUFFICIENT"

(B) "NORMAL"

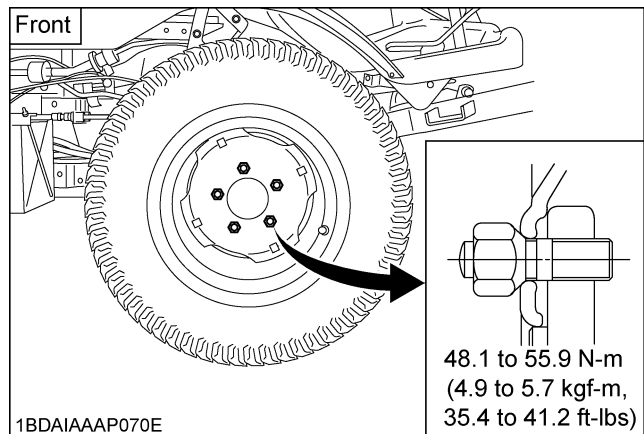
(C) "EXCESSIVE"

WHEELS

IMPORTANT :

- Follow the same checking procedure when the machine is first used.

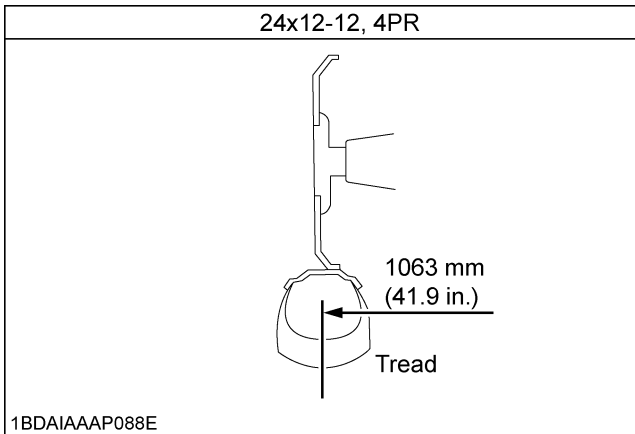
■ Front Wheels (Drive Wheels)



1BDAIAAAP070E

48.1 to 55.9 N-m
(4.9 to 5.7 kgf-m,
35.4 to 41.2 ft-lbs)

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



BALLAST



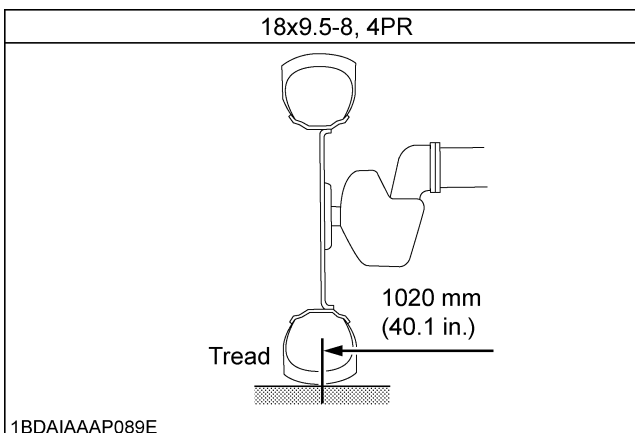
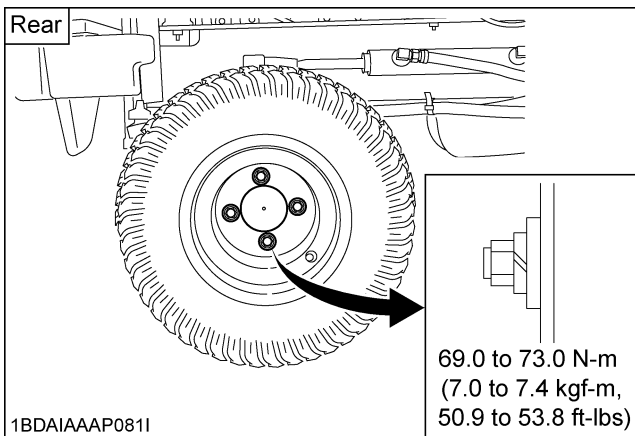
CAUTION

To avoid personal injury:

- Additional ballast will be needed for operating heavy attachments. When the attachment is raised, drive slowly over the rough ground, regardless of how much ballast is used.

Add ballast to the rear end if needed for stability. Heavy front mounted attachments tend to lift rear wheels. Add enough ballast to maintain steering control and prevent tipover. The Attachment's Manual shows how much rear ballast is required for your application. Rear ballast is available from your local KUBOTA Dealer.

■ Rear Wheels (Steering Wheels)



MAINTENANCE

SERVICE INTERVALS

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

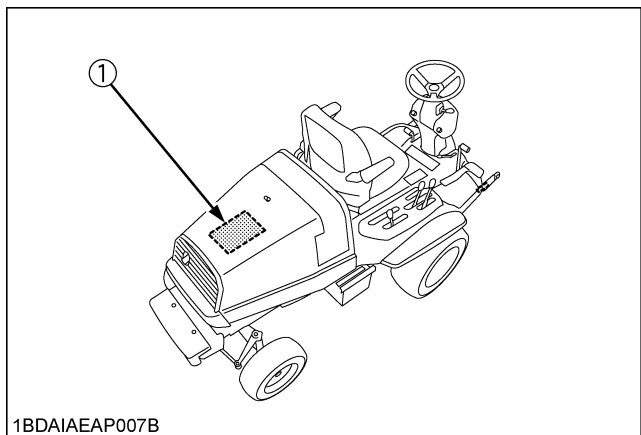
No.	Items		Indication on hour meter (Hr)											Interval	Ref. page			
			50	100	150	200	250	300	350	400	450	500	550					600
1	Engine start system	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	35		
2	OPC system	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	36		
3	Greasing	-	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	37		
4	Oiling	-	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	39		
5	Battery condition	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	39		
6	Air cleaner element	Clean	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	37	*1	@
		Replace													every 1 year	48		
7	Engine oil	Change	◎	○		○		○		○		○		○	every 100 Hr	41		
8	Fan belt	Adjust		○		○		○		○		○		○	every 100 Hr	42	*2	
9	Brake pedal	Adjust		○		○		○		○		○		○	every 100 Hr	42		
10	Fuel filter element	Check		○		○		○		○		○		○	every 100 Hr	41		@
		Replace								○					every 400 Hr	47	*2	
11	Engine oil filter	Replace	◎			○				○				○	every 200 Hr	43		
12	Transmission fluid	Change				◎				○				○	every 200 Hr	44		
13	Transmission oil filter	Replace	◎			○				○				○	every 200 Hr	45		
14	Transmission strainer	Clean				◎				○				○	every 200 Hr	45		
15	Rear axle differential case fluid	Change				◎				○				○	every 200 Hr	46		
16	Rear axle gear case (RH & LH) fluid	Change				◎				○				○	every 200 Hr	46		
17	Radiator hose and clamp	Check				○				○				○	every 200 Hr	46		
		Replace													every 2 years	49	*2	
18	Hydraulic hose	Check				○				○				○	every 200 Hr	46		
		Replace													every 2 years	49	*2	

No.	Items		Indication on hour meter (Hr)											Interval	Ref. page			
			50	100	150	200	250	300	350	400	450	500	550					600
19	Fuel line	Check				○				○				○	every 200 Hr	41		@
		Replace													every 2 years	47	*2	
20	Intake air line	Check				○				○				○	every 200 Hr	47		@
		Replace													every 2 years	49	*4	
21	Engine breather hose	Replace													every 2 years	49	*3	
22	Rear axle pivot	Adjust								○					every 400 Hr	47		
23	Fuel injection nozzle injection pressure	Check													every 1500 Hr	49	*3	@
24	Injection pump	Check													every 3000 Hr	47	*3	@
25	Radiator	Clean													every 1 year	48		
26	Coolant	Change													every 1 year	48		@
27	Fuel system	Bleed													Service as Required	51		
28	Fuse	Replace												50				
29	Light bulb	Replace												50				
30	Lift spring	Adjust												51				

IMPORTANT :

- The jobs indicated by ○ must be done initially.
 - *1 This maintenance should be done daily more often in dusty conditions than in normal conditions. Suggested cleaning interval is every 100 hours 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 Consult your local KUBOTA Dealer for this service.
 - *4 Replace only if necessary.
- The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA non-road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.

PERIODIC SERVICE CHART LABEL



1BDIAIEAP007B

(1) Part No. K3611-4761-1 (ENGLISH)

PERIODIC SERVICE CHART															
INTERVAL	RECOMMENDED SERVICE See Operator's Manual in details.														
DAILY	CHECK <ul style="list-style-type: none"> 1. Tire pressure, wearing and damage. 2. Oil and water leak from machine and mower. 3. Engine oil, transmission fluid, recovery tank coolant and fuel level. 4. Damage of machine body, tightness of all bolts, nuts and pins, etc. 5. Mower blades and belt wearing or damage. 6. Brake pedal, safety switches and easy checker functions. 7. Color of the exhaust fumes, abnormal noise and vibrations. 8. Seat belt and Pops [Rops type] 														
	CLEAN <ul style="list-style-type: none"> - Radiator screen, Bonnet screen and Mower deck 														
	GREASE <ul style="list-style-type: none"> - Mower U-joint (3 places) / Spindle shaft (3 places) / Belt tension pulley (1 place) / Belt tension pivot (1 place) 														
FIRST 50 Hr. (BREAK-IN) (MUST BE DONE)	CHANGE <ul style="list-style-type: none"> - Engine oil and Mower Gear box oil. 														
FIRST 200 Hr. (MUST BE DONE)	REPLACE <ul style="list-style-type: none"> - Engine oil filter and Transmission oil filter. 														
E 50 Hr.	CHANGE <ul style="list-style-type: none"> - Transmission, Rear axle gear case and Differential case fluid 														
	CLEAN <ul style="list-style-type: none"> - Transmission strainer 														
V 100 Hr.	CHECK <ul style="list-style-type: none"> - Safety device, Battery condition and Mower gear box oil. 														
	CLEAN <ul style="list-style-type: none"> - Air cleaner element ★ 														
E 150 Hr.	GREASE <ul style="list-style-type: none"> - Speed control pedal boss / Lift link boss (RH&LH) / Differential lock pedal boss / Universaljoint / DT drive shaft (4WD) / K nuckle arm (4WD) / Rear axle pivot (2WD) / Seat adjuster / Cable (Throttle) / universal joint - Front gauge wheels and gauge wheel brackets / Front roller 														
	ADJUST <ul style="list-style-type: none"> - Fan belt, Brake pedal 														
E 200 Hr.	CHANGE <ul style="list-style-type: none"> - Engine oil 														
	CHECK <ul style="list-style-type: none"> - Fuel filter element 														
R 400 Hr.	CHANGE <ul style="list-style-type: none"> - mower gear box oil. 														
	CHANGE <ul style="list-style-type: none"> - Transmission, Rear axle gear case and Differential case fluid 														
Y 1500 Hr.	CHECK <ul style="list-style-type: none"> - Radiator hose and clamp, Hydraulic hose, Fuel line / Intake air line 														
	CLEAN <ul style="list-style-type: none"> - Transmission strainer 														
Y 3000 Hr.	REPLACE <ul style="list-style-type: none"> - Engine oil filter, Transmission oil filter 														
	ADJUST <ul style="list-style-type: none"> - Rear axle pivot 														
Y 1 year	REPLACE <ul style="list-style-type: none"> - Fuel filter element 														
	CHECK <ul style="list-style-type: none"> - Fuel Injection Nozzle Injection Pressure ☆ 														
Y 2 year	CHANGE <ul style="list-style-type: none"> - Coolant 														
	CLEAN <ul style="list-style-type: none"> - Radiator 														
Y 3000 Hr.	REPLACE <ul style="list-style-type: none"> - Air cleaner element 														
	REPLACE <ul style="list-style-type: none"> - Radiator hose and clamp, Hydraulic hose, Fuel line ☆ - Mower gear box oil seal ☆ Intake air line ☆ 														
☆ : SHOULD BE SERVICED BY KUBOTA DEALER. ★ : REQUIRED MORE OFTEN IN DUSTY CONDITIONS. Tire maximum pressure and tightening torque recommendation.															
<table border="1"> <thead> <tr> <th></th> <th>Tire sizes</th> <th>Inflation Pressure</th> <th>tightening torque.</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Front</td> <td>4WD 24x12.0-12</td> <td rowspan="2">140 kPa (20psi)</td> <td rowspan="2">49.0 Nm (36 ft-lbs)</td> </tr> <tr> <td>2WD 23x10.5-12</td> </tr> <tr> <td rowspan="2">Rear</td> <td>4WD 18x9.5-8</td> <td rowspan="2">250 kPa (36psi)</td> <td rowspan="2">88.3 Nm (65 ft-lbs)</td> </tr> <tr> <td>2WD 16x6.5-8</td> </tr> </tbody> </table>			Tire sizes	Inflation Pressure	tightening torque.	Front	4WD 24x12.0-12	140 kPa (20psi)	49.0 Nm (36 ft-lbs)	2WD 23x10.5-12	Rear	4WD 18x9.5-8	250 kPa (36psi)	88.3 Nm (65 ft-lbs)	2WD 16x6.5-8
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Approximate fluid capacities. Engine: F2880 (D1105) - 3.5L (3.69 U.S.qts.) / F3680 (V1505) - 5.0L (5.28 U.S.qts.) Radiator: 4.6L (4.86 U.S.qts.) / Reserve tank: 0.6L (0.63 U.S.qts.) Transmission: 14L (14.79 U.S.qts.) / Differential case: 1.5L (1.59 U.S.qts.) Rear axle gear case: 0.5L (0.53 U.S.qts.) / Mower gear box: 0.4L (0.42 U.S.qts.)															

1BDIAAAP057A

(1) Part No. K3653-4716-1 (FRENCH)

TABLEAU D'ENTRETIEN PERIODIQUE															
INTERVALLES	ENTRETIEN RECOMMANDÉ: Pour les détails, voir le Manuel de l'Opérateur.														
QUOTIDIENNEMENT	Vérifier <ul style="list-style-type: none"> 1. Pression, usure et endommagement des pneus. 2. Fuite d'huile et d'eau de la machine et de la tondeuse. 3. Huile du moteur, liquide de la transmission, fluide de refroidissement du réservoir de récupération et niveau du carburant. 4. Endommagement du corps de la machine, serrage de tous les boulons, écrous, goupilles, etc. 5. Lames de la tondeuse et usure ou endommagement de la courroie. 6. Fonctionnement de la pédale du frein, des commutateurs de sécurité et du vérificateur de facilité. 7. Couleur des gaz d'échappement, bruit anormal et vibrations. 8. Ceinture de sécurité et POPS (Type ROPS: protection au retournement). 														
	Nettoyer <ul style="list-style-type: none"> - Ecran du radiateur, écran du capot et plateau de la tondeuse. 														
	Graissage <ul style="list-style-type: none"> - Joint en U de la tondeuse (3 endroits) / Arbre du moyeu (3 endroits) / Poule Nettoyer de tension de la courroie (1 endroit) / Pivots de tension de la courroie (1 endroit) 														
LES PREMIÈRES 50 H (R O D A G E) (DOIT ÊTRE EFFECTUÉ)	Changer <ul style="list-style-type: none"> - Huile moteur et Huile boîte engrenage tondeuse 														
LES PREMIÈRES 200 H (DOIT ÊTRE EFFECTUÉ)	Remplacer <ul style="list-style-type: none"> - Filtre huile moteur et Filtre huile transmission 														
C 50 heures	Changer <ul style="list-style-type: none"> - Liquide de la transmission, de la boîte d'engrenages de l'essieu arrière et du carter du différentiel 														
	Nettoyer <ul style="list-style-type: none"> - Crépine transmission 														
A 100 heures	Vérifier <ul style="list-style-type: none"> - Dispositif sécurité, Batterie et Huile boîte engrenage tondeuse 														
	Nettoyer <ul style="list-style-type: none"> - Élément filtre air ★ 														
Q 150 heures	Graissage <ul style="list-style-type: none"> - Bossage de la pédale de régulation de la vitesse / Bossage de la bielle de levage (droit et gauche) / Bossage de la pédale de verrouillage du différentiel / Joint de cardan/Arbre de commande de traction double (4 roues motrices) / Bras articulé (4 roues motrices) / Pivots de l'essieu arrière (2 roues motrices) / Ajusteur du siège / Câble (Papillon) / Joint de cardan - Roulettes de talonnage avant et supports de roulettes de talonnage / Rouleau avant 														
	Régler <ul style="list-style-type: none"> - Courroie ventilateur, Pédale de frein 														
U 200 heures	Changer <ul style="list-style-type: none"> - Huile moteur 														
	Vérifier <ul style="list-style-type: none"> - Élément filtre à carburant 														
E 400 heures	Changer <ul style="list-style-type: none"> - Huile boîte engrenage tondeuse 														
	Changer <ul style="list-style-type: none"> - Liquide de la transmission, de la boîte d'engrenages de l'essieu arrière et du carter du différentiel 														
E 1500 heures	Vérifier <ul style="list-style-type: none"> - Durite et collier radiateur, Flexible hydraulique, Circuit à carburant 														
	Nettoyer <ul style="list-style-type: none"> - Crépine transmission 														
E 3000 heures	Remplacer <ul style="list-style-type: none"> - Filtre huile moteur, Filtre huile transmission 														
	Régler <ul style="list-style-type: none"> - Pivots de l'essieu arrière 														
Année	Remplacer <ul style="list-style-type: none"> - Élément filtre à carburant 														
	Régler <ul style="list-style-type: none"> - Buses d'injecteurs à carburant resson d'injection ☆ 														
○ 2 ans	Vérifier <ul style="list-style-type: none"> - Pompe d'éjection/Temporisateur d'injection du carburant ☆ 														
	Changer <ul style="list-style-type: none"> - Réfrigérant 														
○	Nettoyer <ul style="list-style-type: none"> - Radiateur 														
	Remplacer <ul style="list-style-type: none"> - Élément filtre air 														
☆ : DEVRA ÊTRE ENTRETENU PAR LE REVendeur KUBOTA. ★ : NÉCESSAIRE PLUS SOUVENT DANS DES CONDITIONS POUSSIÉREUSES. Recommandations sur la pression de gonflage maximum des pneus et le couple de serrage.															
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	2RM 16 X 6.5 - 8														
Capacités approximatives du liquide hydraulique Moteur: F2880 (D1105) - 3.5 L / 3680 (V1505) - 5.0 L Radiateur: 4.6 L / Réservoir de secours: 0.6 L Transmission: 14L / Carter du différentiel: 1.5 L réducteur essieu arrière: 0.5 L / Boîte d'engrenage de la tondeuse: 0.4 L															

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(1) Part No. K3653-4718-1 (GERMAN)

TABELLE FÜR REGELMÄSSIGE WARTUNG			
INTERVALL	EMPFOHLENE WARTUNGSSCHRITTE: Siehe Bedienungsanleitung für nähere Beschreibung.		
TÄGLICH	Prüfen	1. Reifendruck, Verschleiß und Beschädigung. 2. Öl- oder Wasserundichtigkeit von der Maschine und vom Mähwerk. 3. Motoröl, Getriebeflüssigkeit, Rücklaufank-Kühlmittel und Kraftstoffstand. 4. Beschädigung des Maschinengehäuses, Festigkeit aller Schrauben, Muttern, Bolzen usw. 5. Verschleiß oder Beschädigung von Schneidmessern und Riemen. 6. Bremspedal, Sicherheitsschalter und einfache Überprüfungen. 7. Farbe der Auspuffgase, abnormes Geräusch und Vibrationen. 8. Sitzgurt und Überrollbügel (ROPS-Typ)	
	Reinigen	• Kühlergitter, Motorhaubengitter und Mähwerk.	
	Fetten	• Mäher U-Verbindung (3 Stellen) / Spindelwelle (3 Stellen) / Riemenspanner-Riemenscheibe (1 Stelle) / Riemenspanner-Drehzapfen (1 Stelle)	
ERSTE 50 STD. [EINFÄHREN] (MUSS AUSGEFUHRT WERDEN)	Wechseln	• Motoröl und Mähergetriebeöl	
	Wechseln	• Motorölfilter und Getriebeölfilter	
ERSTE 200 STD. (MUSS AUSGEFUHRT WERDEN)	Wechseln	• Getriebe-, Hinterradachsegehäuse- und Differentialgehäuseflüssigkeit	
	Reinigen	• Getriebeölseib	
A	Prüfen	• Sicherheitsvorrichtung, Batteriezustand, Mähergetriebeöl	
	Reinigen	• Luftfilterelement ★	
	Fetten	• Geschwindigkeitsregler-Pedalansatz / Hubstangenansatz (rechts und links) / Differential-Spermpedalansatz / Kugelgelenk / DT-Antriebswelle (4WD) / Spurstangenhebel (4WD) / Hinterrad-Achsdrehzapfen (2WD) / Sitzsteller / Seilzug (Drosselklappe) / Kugelgelenk	
		• Vordere Messräder und Messradhalterungen/Vordere Rolle	
		• Lufterkeilnieten, Bremspedal	
	L 100 Stunden	Wechseln	• Motoröl
		Prüfen	• Kraftstofffilterpatrone
	L 150 Stunden	Wechseln	• Mähergetriebeöl
		Wechseln	• Getriebe-, Hinterradachsegehäuse- und Differentialgehäuseflüssigkeit
	E 200 Stunden	Prüfen	• Kühlerschläuche und Schellen, Hydraulikschläuche, Kraftstoffleitung
Reinigen		• Getriebeölseib	
Wechseln		• Motorölfilter, Getriebeölfilter	
400 Stunden	Einstellen	• Hinterradachsen-Drehzapfen	
	Wechseln	• Kraftstofffilterpatrone	
1500 Stunden	Einstellen	• Kraftstoffeinspritzdruck ★	
3000 Stunden	Prüfen	• Einspritzpumpe / Kraftstoff-Einspritztimer ★	
1. Jahr	Wechseln	• Kühlmittel	
	Reinigen	• Kühler	
	Wechseln	• Luftfilterelement	
2. Jahr	Wechseln	• Kühlerschläuche und Schellen, Hydraulikschläuche, Kraftstoffleitung ★	

★: MUSS DURCH EINEN KUBOTA-HÄNDLER GEWARTET WERDEN.
 ★: BEI STAUBIGEN BEDINGUNGEN ÖFTER ERFORDERLICH.
 Empfehlung für maximalen Reifendruck und erforderliches Anzugsdrehmoment.

	Reifengrößen	Reifendruck	Anzugsdrehmoment
Vorn	4WD 24 x 12.0 - 12	140 kPa (20 psi)	49.0 Nm (36 ft-lbs)
	2WD 23 x 10.5 - 12		
Hinten	4WD 18 x 9.5 - 8	250 kPa (36 psi)	88.3 Nm (65 ft-lbs)
	2WD 16 x 6.5 - 8		

Ungefähre Flüssigkeitsmengen
 Motor: F2880 (D1105) - 3,5 L / F3680 (V1505) - 5,0 L
 Kühler: 4,6 L / Reserve tank: 0,6 L
 Getriebe: 14 L / Differentialgehäuse: 1,5 L
 Hinterachsegehäusen: 0,5 L / Mähergetriebe: 0,4 L

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LUBRICANTS, FUEL AND COOLANT

Place	Capacities		Lubricants
	F2880	F3680	
Fuel	61 L		<ul style="list-style-type: none"> • No.2-D diesel fuel • No.1-D diesel fuel if temperature is below -10 °C
Coolant	4.6 L		Fresh clean water with anti-freeze
Recovery tank	0.6 L		
Engine crankcase	3.5 L	5.0 L	<ul style="list-style-type: none"> • Engine oil: API Service Classification CD, CE or CF Above 25 °CSAE30, SAE10W-30 or 15W-40 0 to 25 °CSAE20, SAE10W-30 or 15W-40 Below 0 °CSAE10W, SAE10W-30 or 15W-40
Transmission case	14 L		<ul style="list-style-type: none"> • KUBOTA UDT or SUPER UDT fluid*1
Rear axle Differential case	1.5 L		<ul style="list-style-type: none"> • KUBOTA UDT, SUPER UDT fluid*1 or SAE85W, SAE90 gear oil (API service classification: more than GL-3)
Rear axle gear case (RH & LH)	0.5 L		

Greasing	No. of greasing points	Capacity	Type of grease
	F2880 / F3680		
Speed control pedal shaft	1	Until grease overflows	<ul style="list-style-type: none"> • Multipurpose EP2 Grease (NLGI Grade No. 2)
Lift link boss (RH & LH)	2		
Differential lock pedal boss	1		
Universal joint	1		
Rear wheel drive shaft	2		
Knuckle arm	2		
Seat adjuster	2	Moderate amount	<ul style="list-style-type: none"> • Oil
HST neutral shaft	1		
Cable (Throttle)	1		

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

IMPORTANT :

- To prevent serious damage to hydraulic systems, use only KUBOTA genuine fluid or its equivalent.

NOTE :

◆ **Engine Oil:**

- Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above:
- With the emission control now in effect, the CF-4 and CG-4 lubricating oils have been developed for use of a low-sulfur fuel on on-road vehicle engines. When an off-road vehicle engine runs on a high-sulfur fuel, it is advisable to employ the "CF or better" lubricating oil with a high Total Base Number (TBN of 10 minimum).
- Refer to the following table for the suitable API classification engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the fuel (low-sulfur or high-sulfur fuel).

Fuel used	Engine oil classification (API classification)	
	Oil class of engines except external EGR	Oil class of engines with external EGR
High Sulfur Fuel [≥ 0.05% (500 ppm)]	CF (If the "CF-4, CG-4, CH-4 or CI-4" lubricating oil is used with a high-sulfur fuel, change the lubricating oil at shorter intervals. (approximately half))	---
Low Sulfur Fuel [<0.05% (500 ppm)] or Ultra Low Sulfur Fuel [<0.0015% (15 ppm)]	CF, CF-4, CG-4, CH-4 or CI-4	CF or CI-4 (Class CF-4, CG-4 and CH-4 engine oils cannot be used on EGR type engines)

EGR: Exhaust Gas Re-circulation

- The CJ-4 engine oil is intended for DPF (Diesel Particulate Filter) type engines, and cannot be used on this machine.

	except external EGR	with external EGR
Models	F2880, F3680	---

◆ **Fuel:**

- Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20 °C or elevations above 1500 m.
- If diesel fuel with sulfur content greater than 0.5% (5000 ppm) sulfur content is used, reduce the service interval for engine oil and filter by 50%.
- NEVER use diesel fuel with sulfur content greater than 0.05% (500 ppm) for EXTERNAL EGR type engine.
- DO NOT use diesel fuel with sulfur content greater than 1.0% (10000 ppm).
- Diesel fuels specified to EN 590 or ASTM D975 are recommended.
- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)

◆ **Transmission Oil:**

The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and to complete lubrication of the transmission, it is important that a multi-grade transmission fluid is used in this system. We recommend the use of **KUBOTA UDT or SUPER UDT fluid** for optimum protection and performance. (Consult your local KUBOTA Dealer for further detail.)

Do not mix different brands together.

- Indicated capacities of water and oil are manufacturer's estimate.

PERIODIC SERVICE



CAUTION

To avoid personal injury:

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

HOW TO OPEN THE HOOD

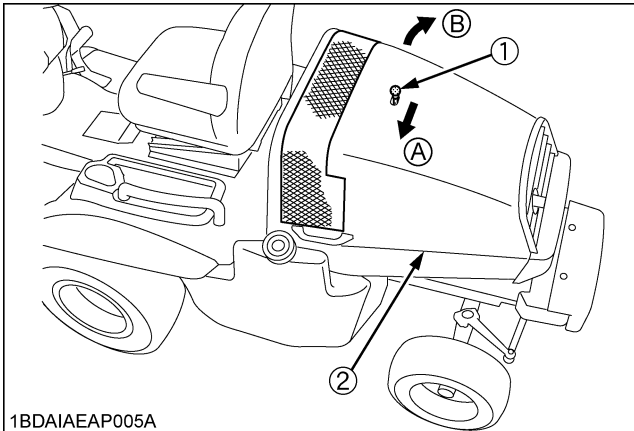


CAUTION

To avoid personal injury from contact with moving parts:

- Never open the hood while the engine is running.
- Do not touch muffler or exhaust pipes while they are hot; Severe burns could result.

◆ How to Open the Hood



1BDAlAEAP005A

- (1) Hood lock lever
(2) Hood

- (A) Pull the lever
(B) Open the hood

To open:

1. Pull the lever.
2. Open the hood.

To close:

1. Close the hood.
2. Check the hood is locked.

DAILY CHECK

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



CAUTION

To avoid personal injury:

- 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.

	No.	Check item	Ref. Page
Walking around the machine	1	Tire pressure, wear and damage	22, 33
	2	Oil and water leak	---
	3	Engine oil level	31
	4	Transmission fluid level	33
	5	Coolant level in the recovery tank	34
	6	Damage to machine body, tightness of all bolts and nuts	---
	7	Radiator screen Bonnet screen	32
	8	Brake pedal	42
	9	Fuel level	31
	10	Air cleaner	37
While sitting in the operator's seat	1	Speed control pedal Brake pedal	---
	2	Parking brake	---
Turning the key switch "ON"	1	Performance of the easy checker light	19

	No.	Check item	Ref. Page
Starting the engine	1	Color of the exhaust fumes	---
	2	Safety start switch and seat safety control. If either of these do not operate properly, contact your local KUBOTA Dealer immediately.	35, 36
	3	Check for abnormal noise and vibration.	---
Others	1	Check the areas where previous trouble was experienced.	---

■ Checking Engine Oil Level

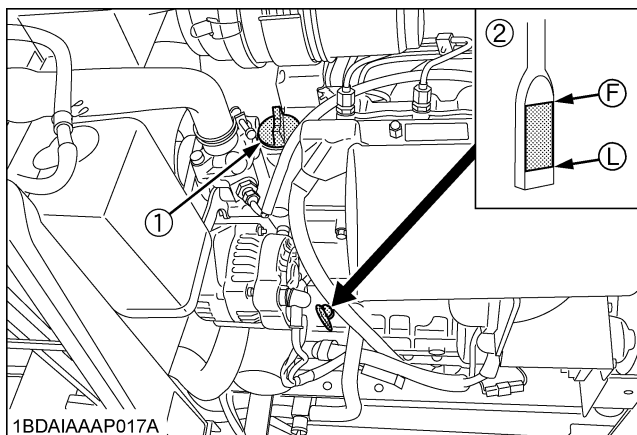


CAUTION

To avoid personal injury:

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

1. Check engine oil before starting and 5 minutes or more after the engine has stopped.
2. Wipe dipstick area clean.
3. To check the oil level, remove the dipstick, wipe it clean, replace it, and draw it out 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 (F) "UPPER LEVEL"
 (2) Oil level dipstick (L) "LOWER LEVEL"

5. When using a different brand or viscosity oil from the previous one, remove all of the old oil and oil filter. Never mix 2 different types of oil.

6. Use the proper Engine Oil SAE according to the ambient temperatures. (See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)

■ Checking Amount of Fuel and Refueling



CAUTION

To avoid personal injury:

- Handle fuel carefully. If the engine is running, do not fill the fuel tank. If engine is hot, let engine cool several minutes before adding fuel. Do not smoke while filling the fuel tank or servicing the fuel system. Fill fuel tank only to bottom of filler neck.



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

Fuel tank capacity	61 L (16.1 U.S.gals.)
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IMPORTANT :

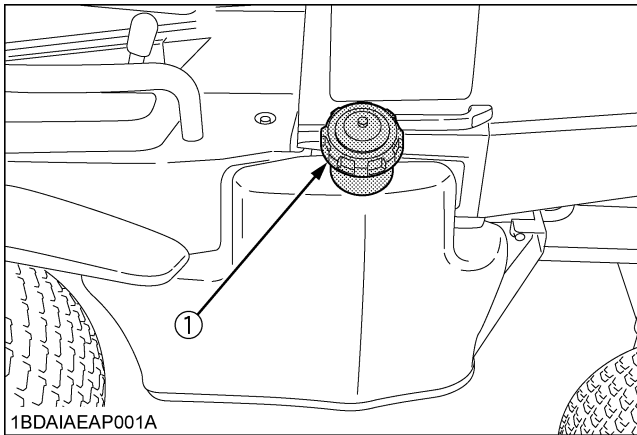
- Use Diesel Fuel Only
1. Use No.2 diesel fuel.
 2. Use No.1 diesel fuel if the temperature is below -10 °C (14 °F).
 3. Always use a strainer when refueling to prevent fuel injection pump contamination.

NOTE :

- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)
 Grade of Diesel Fuel Oil according to ASTM D975

Flash point °C (°F)	Water and Sediment, volume %	Carbon Residue on, 10 percent Residuum, %	Ash, weight %
Min	Max	Max	Max
52 (125)	0.05	0.35	0.01

Distillation Temperatures °C (°F) 90% Point		Viscosity Kinematics cSt or mm ² /s at 40 °C		Viscosity Saybolt, SUS at 37.8 °C (100 °F)	
Min	Max	Min	Max	Min	Max
282 (540)	338 (640)	1.9	4.1	32.6	40.1
Sulfur, weight %		Copper strip Corrosion		Cetane Number	
Max		Max		Min	
0.50		No.3		40	



(1) Fuel port

■ Checking and Cleaning Radiator Screen and Bonnet Screen to Prevent Overheating



CAUTION

To avoid personal injury:

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

IMPORTANT :

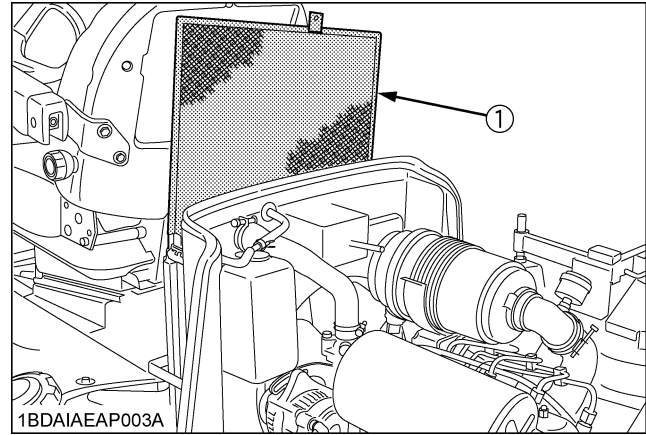
- The air intake area must be clear of debris to prevent the engine from overheating.

Daily or after every 5 hours of operation, check to be sure the radiator screen and the bonnet screen are clean.

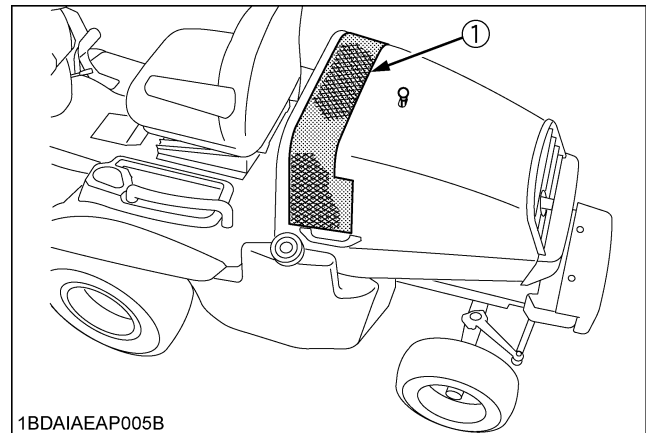
Dirt or chaff on the radiator screen or bonnet screen decrease cooling performance.

1. Remove the radiator screen and the bonnet screen, and remove all foreign material.
2. Remove the dust from between the fins and the tube.
3. Tighten the fan drive belt as necessary. For this, refer to "EVERY 100 HOURS" in "PERIODIC SERVICE" section.

4. If the scale forms in the tube, clean with the scale inhibitor or its equivalent.
5. Each time the bonnet screen is covered with grass during operation, rub it off the screen with the hand. Check the radiator screen from time to time if grass accumulates.



(1) Radiator screen



(1) Bonnet screen

■ **Checking Tire Pressure**



WARNING

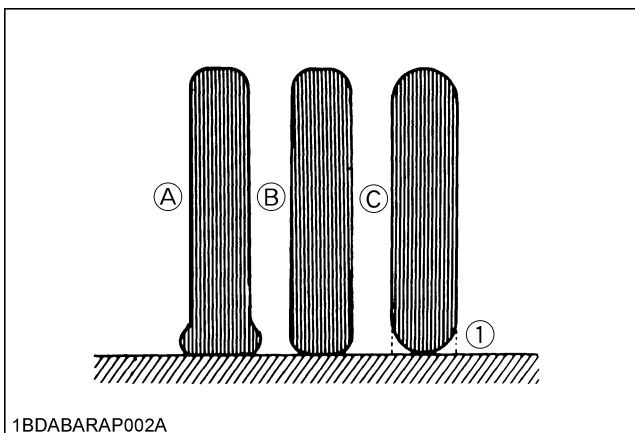
To avoid personal injury:

- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the Operator's Manual.
- Never operate machine with a loose rim, wheel, or axle.
Whenever bolts are loosened, retighten to specified torque.
Check all bolts frequently and keep them tightened.

◆ **Inflation Pressure**

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

		Tire sizes	Recommended Inflation Max. Pressure
Front	F2880 F3680	24 x 12 - 12, 4PR	140 kPa (1.4 kgf/cm ² , 20 psi)
Rear	F2880 F3680	18 x 9.5 - 8, 4PR	200 kPa (2.0 kgf/cm ² , 28 psi)

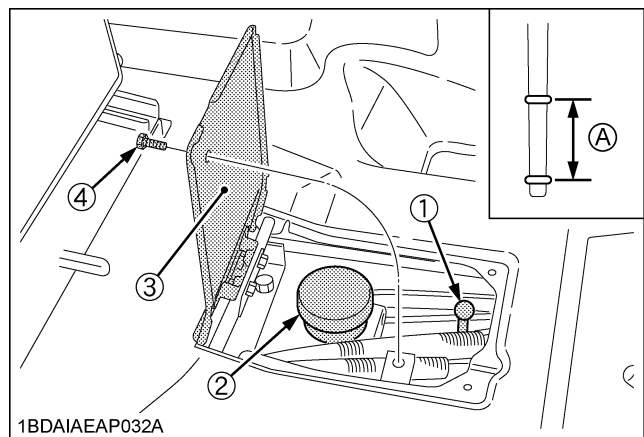


(1) Ground

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

■ **Checking Transmission Fluid Level**

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



- (1) Oil level dipstick
- (2) Oil inlet
- (3) Fender cover
- (4) Bolt

(A) Oil level is acceptable within this range.

NOTE :

- Remove the bolt that tightens the cover to open the fender cover.
- After working tighten the fender cover with the bolt securely as before.

IMPORTANT :

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

■ Checking Coolant Level



CAUTION

To avoid personal injury:

- Do not remove the radiator cap when the engine is hot. Loosen cap slightly, to the stop, to relieve any excess pressure before removing cap completely.

Check the coolant level daily both the radiator and the recovery tank before starting engine.

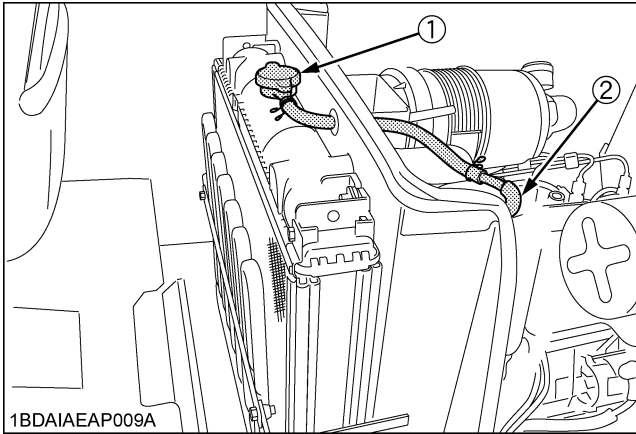
1. Remove the radiator cap and check to see that the coolant level is just below the fill port.
2. Check to see that the coolant level is between the "FULL" and "LOW" marks of recovery tank.
3. When the coolant level drops due to evaporation, add water only up to just below the fill port of the radiator and the full level of the recovery tank.

In case of leakage, add anti-freeze and water in the specified mixing ratio up to the full level.

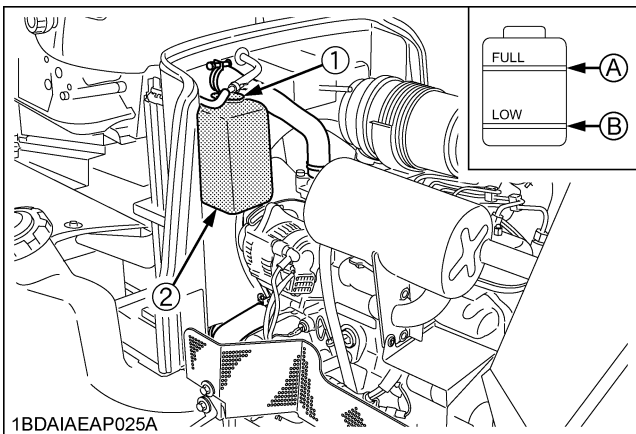
(See "Flush Cooling System and Changing Coolant" in "EVERY 1 YEAR" in "PERIODIC SERVICE" section.)

IMPORTANT :

- If the radiator cap has to be removed, follow the caution above and securely retighten the cap.
- Use clean, distilled water and anti-freeze to fill the radiator and the recovery tank.
- If water should leak, consult your local KUBOTA Dealer.



(1) Radiator cap
(2) Over flow pipe



(1) Recovery tank cap (A) "FULL"
(2) Recovery tank (B) "LOW"

EVERY 50 HOURS

■ Checking Engine Start System

The Engine Start System in your machine are designed to protect you while operating. Please check these Engine Start System periodically. It is recommended to check the Engine Start System before daily operation.



CAUTION

To avoid personal injury:

- Do not allow anyone near the machine while testing.
- If the machine does not pass a test, do not operate the machine.
- Sit on the operator's seat for all tests except for Test 1.

1. Check the following tests before operating the machine.
2. If the machine does not pass one of the following tests, do not operate the machine. See your local KUBOTA Dealer.

Test1: Switch for the operator's seat

1. Do not sit on the operator's seat.
2. Depress the brake pedal fully.
3. Shift the PTO lever to the "DISENGAGE" position.
4. Turn the key switch to the "START" position.
5. The engine must not crank.

Test2: Switch for the brake pedal

1. Sit on the operator's seat.
2. Do not depress the brake pedal.
3. Shift the PTO lever to the "DISENGAGE" position.
4. Turn the key switch to the "START" position.
5. The engine must not crank.

Test3: Switch for the PTO lever

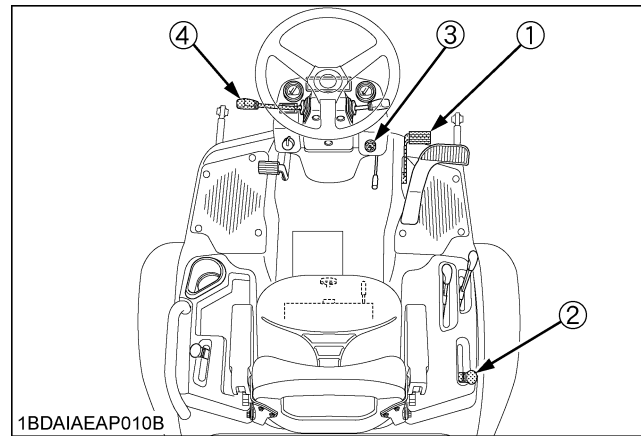
1. Sit on the operator's seat.
2. Depress the brake pedal fully.
3. Shift the PTO lever to the "ENGAGE" position.
4. Turn the key switch to the "START" position.
5. The engine must not crank.

Test4: Engine Safety Control

1. Open the hood.
2. Sit on the operator's seat.
3. Depress the brake pedal fully.
4. Turn the key to the "START" position.
5. The engine should not crank.

NOTE :

- If the engine cranks during any of these tests, consult your local KUBOTA dealer to have the unit checked before operation.



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- (1) Brake pedal
- (2) PTO lever
- (3) Key switch
- (4) Throttle lever

■ Checking OPC System

The OPC (Operator Presence Control) system in your machine are designed to protect you while operating. Please check these OPC system periodically. It is recommended to check the OPC system before dairy operation.



CAUTION

To avoid personal injury:

- Do not allow anyone near the machine while testing.
- If the machine does not pass a test, do not operate the machine.
- Sit on the operator's seat for all tests.

1. Check the following tests before operating the machine.
2. If the machine does not pass one of the following tests, do not operate the machine. See your local KUBOTA Dealer.

Test1: Switch for the operator's seat (OPC)

1. Start the engine.
2. Shift the PTO lever to the "DISENGAGE" position.
3. Release the brake pedal.
4. Stand up. (Do not get off the machine.)
5. The engine must shut off.

Test2: Switch for the operator's seat (OPC)

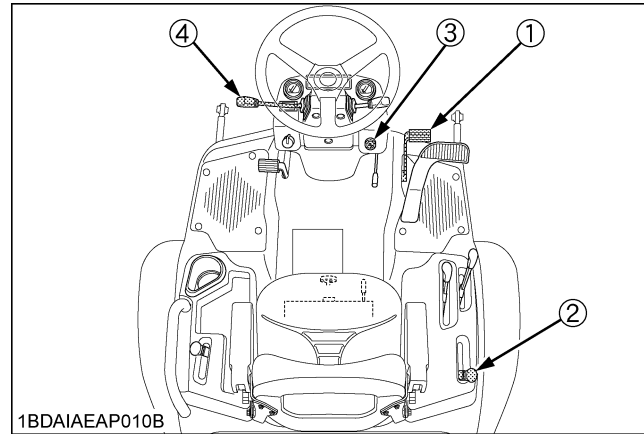
1. Start the engine.
2. Shift the PTO lever to the "ENGAGE" position.
3. Release the brake pedal.
4. Stand up. (Do not get off the machine.)
5. The engine must shut off.

Test3: Switch for the operator's seat (OPC)

1. Start the engine.
2. Depress the brake pedal fully and lock the parking brake.
3. Shift the PTO lever to the "ENGAGE" position.
4. Stand up. (Do not get off the machine.)
5. The engine must shut off.

NOTE :

- If the engine cranks during any of these tests, consult your local KUBOTA dealer to have the unit checked before operation.



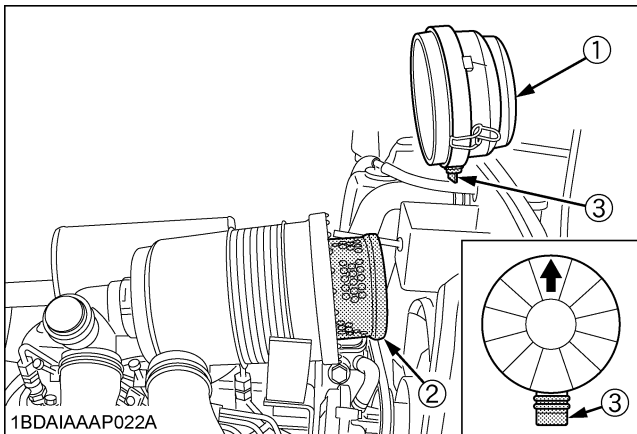
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- (1) Brake pedal
- (2) PTO lever
- (3) Key switch
- (4) Throttle lever

■ Cleaning Air Cleaner Element

1. Remove the element.
2. Clean the element:
 - (1) When dry dust adheres to the element, blow compressed air from the inside turning the element. Pressure of compressed air must be under 205kPa (2.1kgf/cm², 30psi).
 - (2) When carbon or oil adheres to the element, soak the element in detergent for 15 minutes, and then wash it several times in water, rinse with clean water and dry it naturally.
 - (3) After element is fully dried, inspect the inside of the element with a light and check if it is damaged or not. (referring to the instructions on the label attached to the case.)
3. Replace the air cleaner element if:

Once yearly or after every sixth cleaning, whichever comes first.



- (1) Cover
- (2) Element
- (3) Evacuator valve

IMPORTANT :

- The air cleaner uses a dry element. Never apply oil.
- Do not run the engine with the filter element removed.
- Be sure to refit the dust cup with the arrow ↑ (on the rear) upright. If the dust cup is improperly fitted, dust passes by the baffle and directly adheres to the element.

■ Lubricating All Grease Fittings

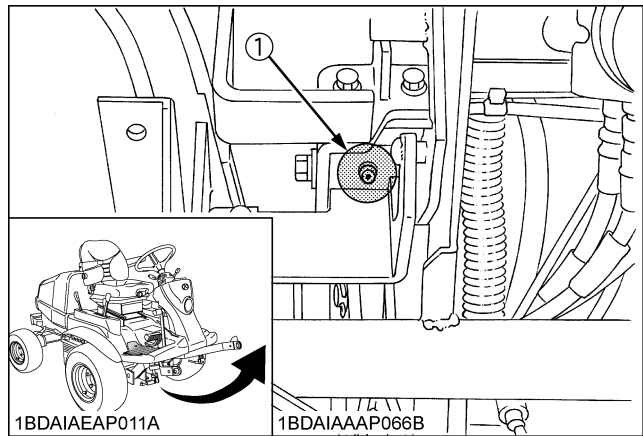


CAUTION

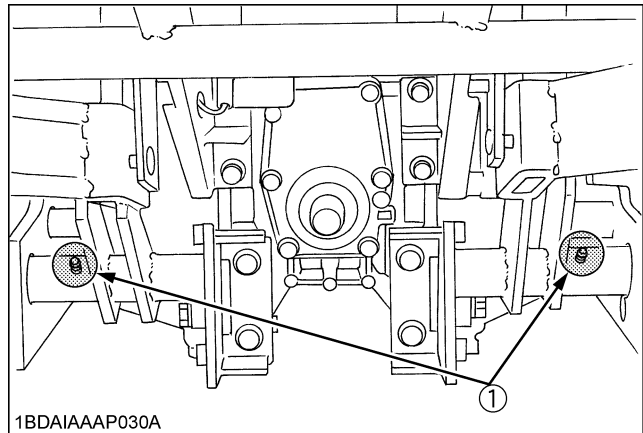
To avoid personal injury:

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

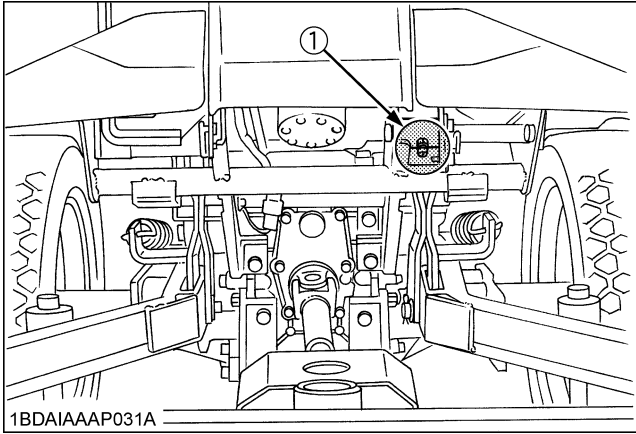
Grease the following location.



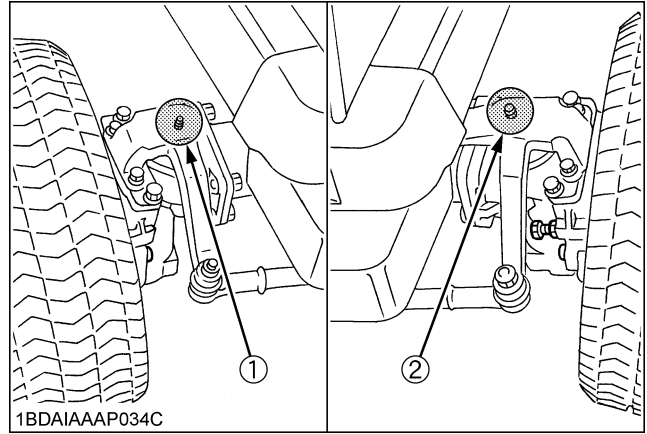
(1) Speed control pedal shaft



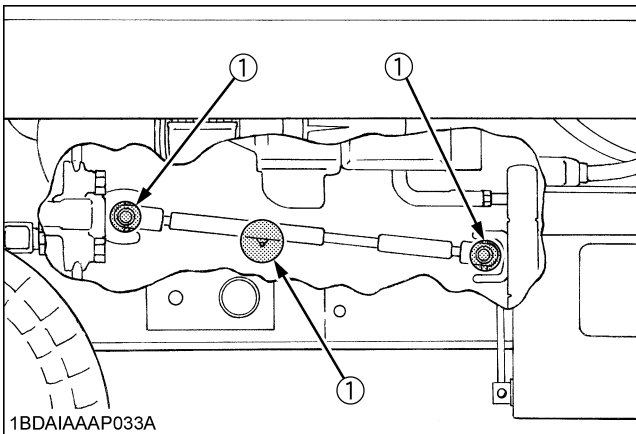
(1) Lift link boss (RH & LH)



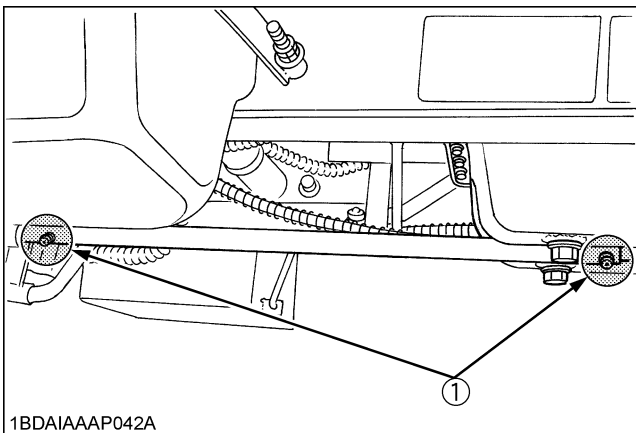
(1) Differential lock pedal boss



(1) Knuckle arm (Left)
(2) Knuckle arm (Right)



(1) Universal joint



(1) Rear wheel drive shaft (Front side & Rear side)

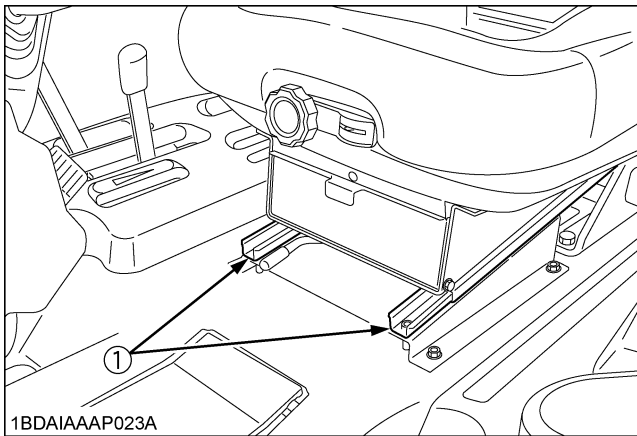
■ Oiling

CAUTION

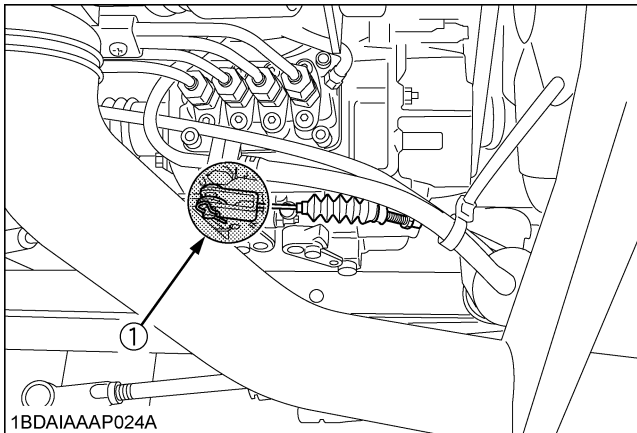
To avoid personal injury:

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

Oil the following locations.



(1) Seat adjuster



(1) Throttle cable

■ Checking Battery Condition

DANGER

To avoid the possibility of battery explosion:

For the refillable type battery, follow the instructions below.

- Do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Otherwise, 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.

CAUTION

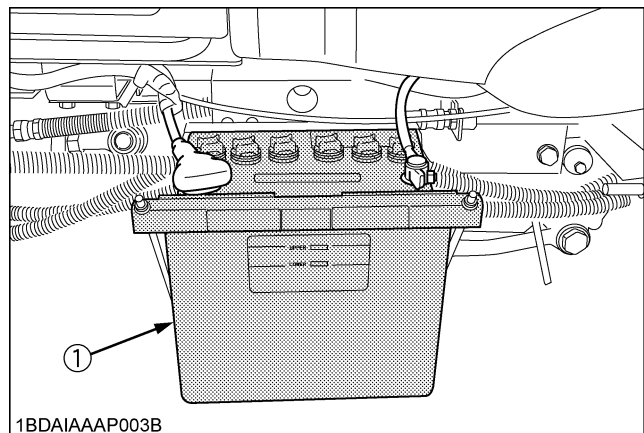
To avoid personal injury:

- Never remove the vent caps while the engine is running.
- Keep electrolyte away from eyes, hands and clothes. If you are splattered with it, wash it away completely with water immediately and get medical attention.
- Wear eye protection and rubber gloves when working around the battery.

Mishandling the battery shortens the service life and adds to maintenance costs.

The original battery is maintenance free, but needs some servicing.

If the battery is weak, the engine will be difficult to start and the lights will be dim. It is important to check the battery periodically.



(1) Battery

Battery Charging



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.

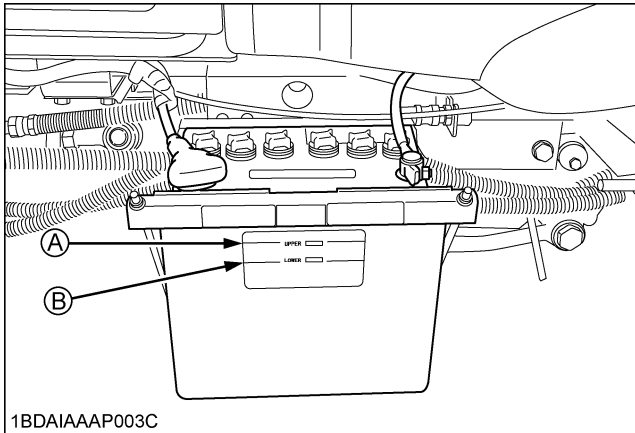


CAUTION

To avoid personal injury:

- When charging battery, ensure that the vent caps are securely in place (if equipped).
- When disconnecting the cables from the battery, start with the negative terminal first. When connecting the cables to the battery, start with the positive terminal first.
- Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

1. Make sure each electrolyte level is somewhere between the markings (A) and (B). Add a proper amount of distilled water up to the highest level as required.



(A) "HIGHEST LEVEL"
(B) "LOWEST LEVEL"

2. The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery. Excessive liquid spills over and damages the machine body.
3. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.

4. A boost charge is only for emergencies. It will partially charge the battery at a higher rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as soon as possible. Failure to do this will shorten the battery's service life.
5. When the specific gravity of electrolyte reaches 1.27 to 1.29 charge has completed.
6. When exchanging an old battery with new one, use a battery of equal specification shown in "SPECIFICATIONS"

(For 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 plates may eventually become depleted due to abnormal conditions such as high heat or improper regulator setting. Use a voltmeter to check the state of charge. (See reference chart below 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%

◆ Direction for Storage

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 a month in hot seasons and once every 2 months in cold seasons.

Table1

Model	Battery Type	Volts (V)	Capacity at 5H.R (A.H)
F2880 F3680	70D2;3R-CF-MF	12	52

Table2

Model	Reserve Capacity (min)	Cold Cranking Amps	Normal Charging Rate (A)
F2880 F3680	112	490	6.5

EVERY 100 HOURS

■ Changing Engine Oil

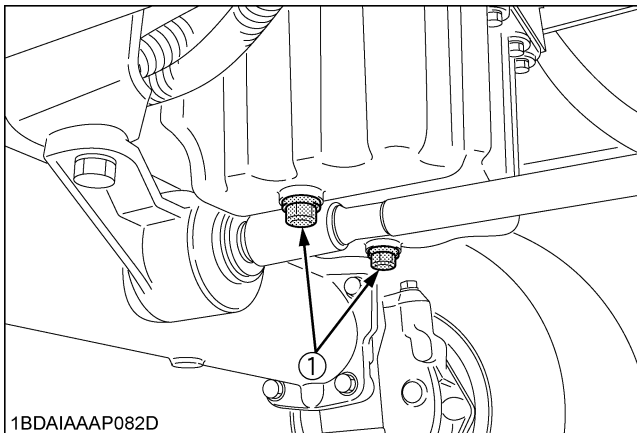
CAUTION

To avoid personal injury:

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

Oil capacity with filter	F2880	3.5 L (3.7 U.S.qts.)
	F3680	5.0 L (5.3 U.S.qts.)

1. To drain the used oil, remove the drain plug at the bottom of the engine and drain the oil completely into the oil pan.
All the used oil can be drained out easily when the engine is still warm.
2. After draining reinstall the drain plug.
3. Fill with the new oil up to the center on the dipstick, between the upper and lower notch.
(See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)



(1) Drain plug

■ Checking Fuel Lines and Fuel Filter

CAUTION

To avoid personal injury:

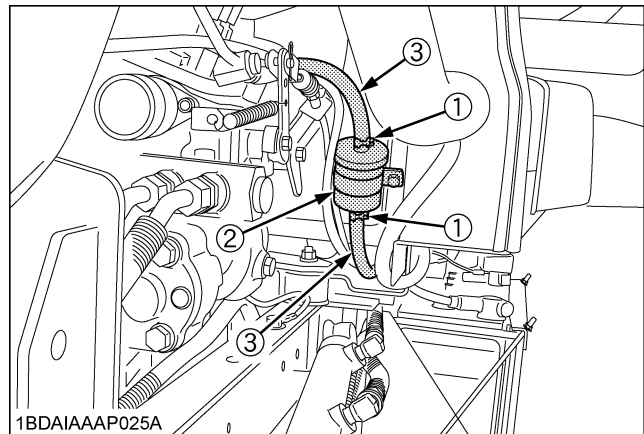
- Be sure to stop the engine and remove the key when attempting to make the following checks and changes.
- Never fail to check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.

The fuel line connections should be checked annually or every 100 service hours, whichever comes first.

1. The fuel line is made of rubber and ages regardless of service period.
2. If the fuel line and clamps are found to be damaged or deteriorated, replace them.
3. Check fuel filter, if it is clogged by debris or contaminated with water, replace it.

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 even a small amount dust or dirt cause premature wear and malfunction of the fuel pump and injector components.



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

■ Checking and Adjusting Brake Pedal



CAUTION

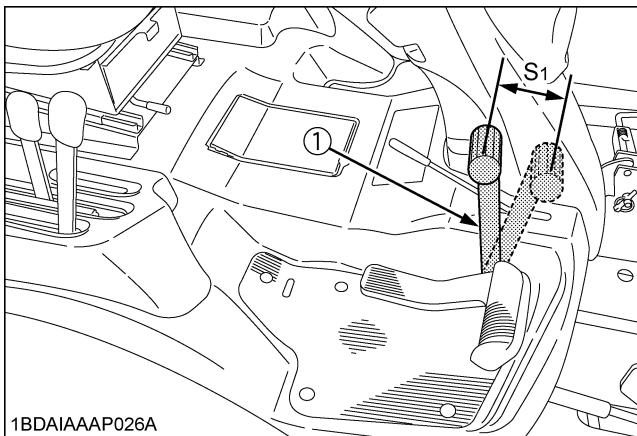
To avoid personal injury:

- Park the machine on a firm and level surface.
- Stop the engine and chock the wheels before checking the brake pedal.

Proper brake pedal free travel	20 to 40mm (0.8 to 1.6 in.) on the pedal
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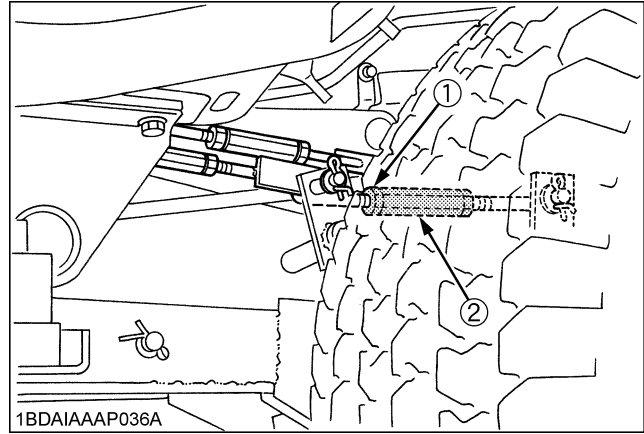
NOTE :

- If the turn assist brake device is attached, adjust the brake pedal. (See Instruction manual for Turn Assist Brake Pedals.)
 - If the speed set device is attached, remove the speed set release rod before adjusting, and replace it after adjusting. (See Instruction manual for Cruise Control.)
1. Release the parking brake.
 2. Slightly depress the brake pedal and measure free travel at the top of pedal stroke.
 3. If adjustment is needed, loosen the lock nut and turn the turnbuckle to adjust the rod length within acceptable limits.
 4. Retighten the lock nut.



(1) Brake pedal

(S₁) Free travel



(1) Lock nut
(2) Turnbuckle

■ Checking Fan Drive Belt Tension



CAUTION

To avoid personal injury:

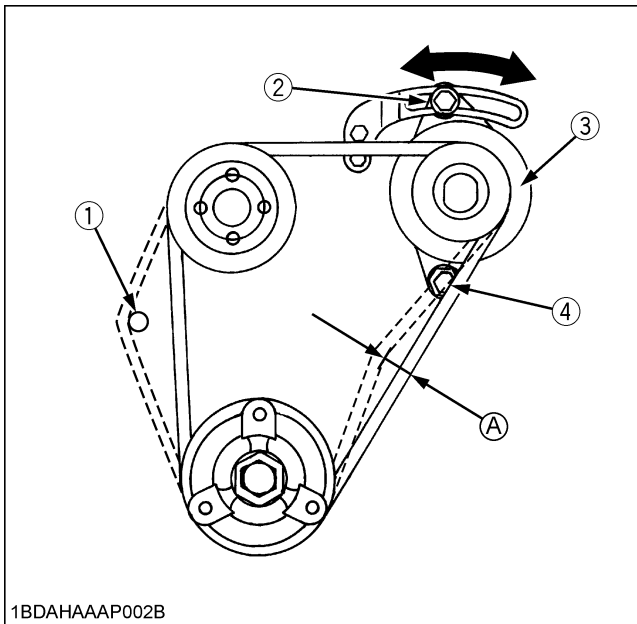
- When making adjustments, park the machine on a level surface, apply the parking brake, stop the engine and remove the key.

Proper fan belt tension	A deflection between 9 to 11 mm (0.35 to 0.41 in.) when the belt is pressed in the middle of the span.
-------------------------	--

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to the belt between pulleys.
3. If tension is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the belt falls within the acceptable limits.
4. Replace the fan belt if it is damaged.

Moderate belt tension:

The belt should deflect approx. 10 mm (0.4 in.) when the center of the belt is depressed with finger pressure of 98N (10 kgf, 22 lbs).



- (1) Cap
- (2) Tension bolt
- (3) Alternator
- (4) Adjusting bolt

(A) 10 mm (0.4 in.)

IMPORTANT :

- When replacing the fan drive belt, be careful not to catch it on the cap under the water pump.

EVERY 200 HOURS

■ Replacing Engine Oil Filter Cartridge

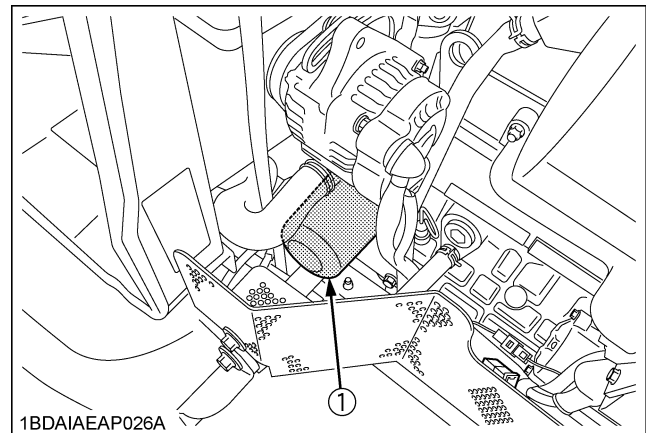


CAUTION

To avoid personal injury:

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

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



(1) Engine oil filter cartridge

IMPORTANT :

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

■ Changing Transmission Fluid



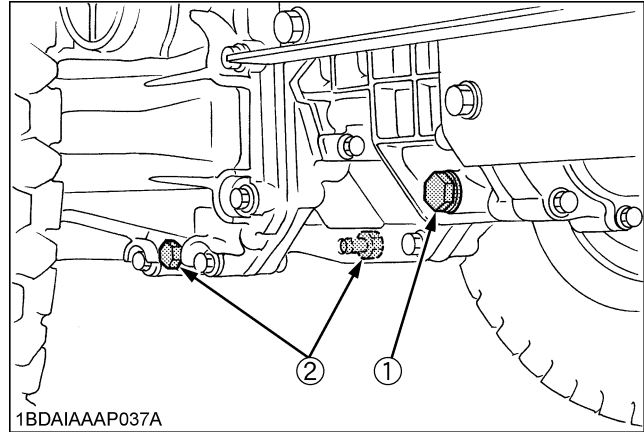
CAUTION

To avoid personal injury:

- Be sure to stop the engine and remove the key before changing or checking the oil.
- Allow transmission case to cool down sufficiently; oil can be hot and may cause burns.

The fluid in the transmission case is also used for the hydrostatic drive system.

1. To drain oil, remove the drain plug at the bottom of the transmission case and drain oil completely into the oil pan.
2. After draining, reinstall the drain plug.
3. Fill with the new KUBOTA SUPER UDT fluid up to the upper notch on the dipstick.
(See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)
4. After running the engine for a few minutes, stop it and check the oil level again; add oil to the prescribed level.



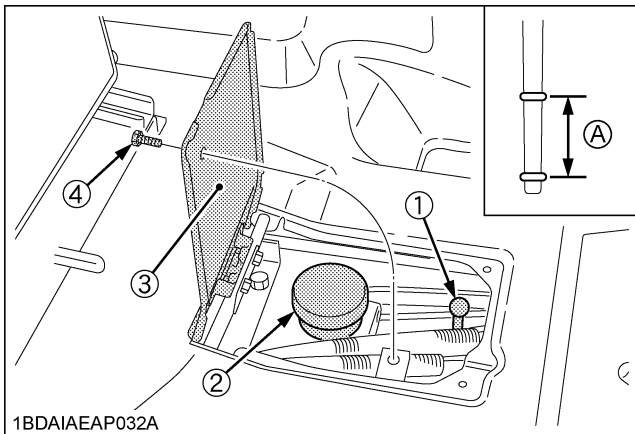
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- (1) Drain plug (LH)
- (2) Drain plugs (Both sides)

IMPORTANT :

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

Oil capacity	14 L (14.8 U.S.qts.)
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- (1) Oil level dipstick
 - (2) Oil inlet
 - (3) Fender cover
 - (4) Bolt
- (A) Oil level is acceptable within this range

NOTE :

- Remove the bolt that tightens the cover to open the fender cover.
- After working tighten the fender cover with the bolt securely as before.

■ Replacing Transmission Oil Filter Cartridge

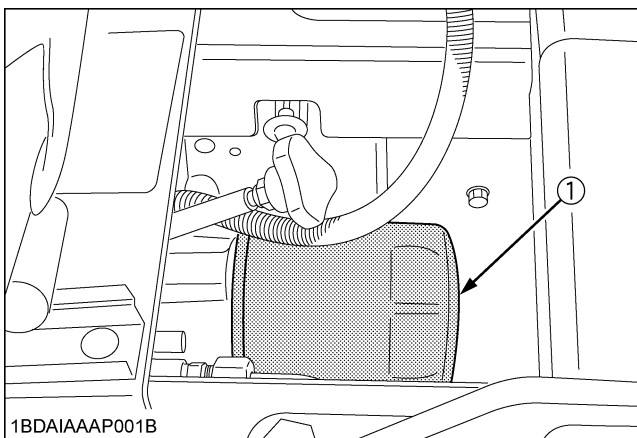


CAUTION

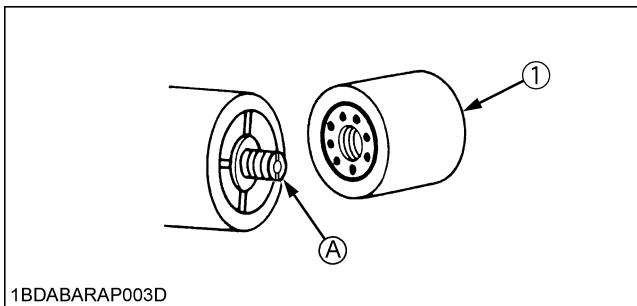
To avoid personal injury:

- Be sure to stop the engine and remove the key before changing the oil filter cartridge.
- Allow transmission case to cool down sufficiently; oil can be hot and may cause burns.

1. The oil filter cartridge must be changed every 200 service hours.



(1) Oil filter cartridge



(1) Oil filter cartridge (A) Screw

2. Remove the oil filter cartridge by using the filter wrench.
3. Apply a slight coat of oil onto the cartridge gasket.
4. To install the new cartridge, screw it in by hand. Over tightening may cause deformation of the rubber gasket.
5. After the new cartridge is replaced, the transmission fluid level normally decreases a little. Add fluid if necessary.
6. Check for oil leaks around the filter gasket.

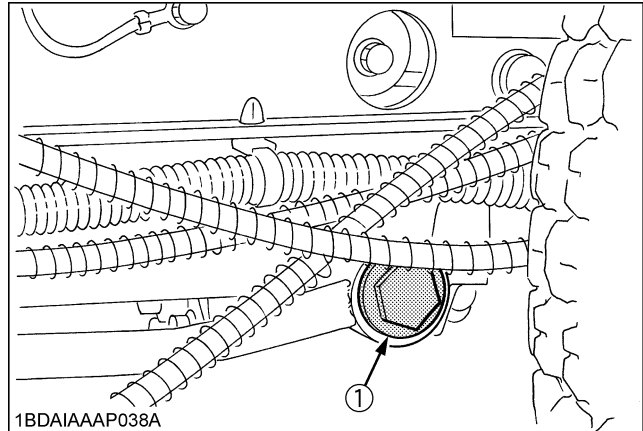
IMPORTANT :

- To prevent serious damage to a hydraulic system, replace a highly efficient, 10 μm filter. Use only a genuine KUBOTA filter.

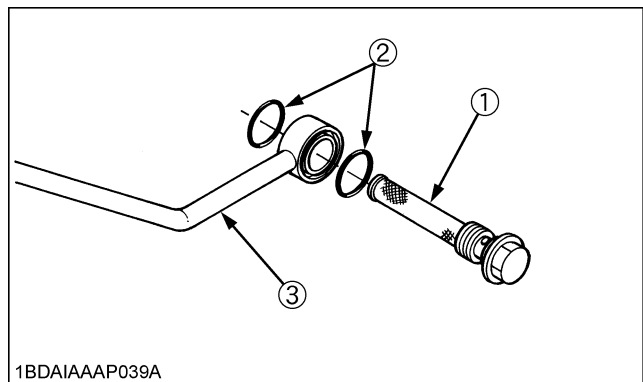
- When using the auxiliary hydraulics, replace the filter cartridge after initial 50 service hours of operation.

■ Cleaning Transmission Strainer

When changing the transmission fluid, remove and clean completely the oil strainers with kerosene. Be careful not to damage the strainer parts when installing.



(1) Strainer



(1) Strainer
(2) O ring
(3) Suction pipe

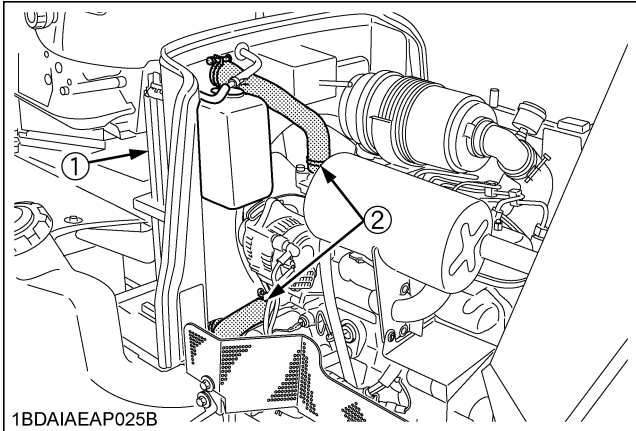
IMPORTANT :

- As the fine filings in the oil could injure the component parts of the hydraulic system precision built to withstand high pressure, the suction line end is provided with an oil strainer.

■Checking Radiator Hose and Clamp

Check to see if radiator hoses are properly fixed every 200 hours of operation or 6 months, whichever comes first.

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



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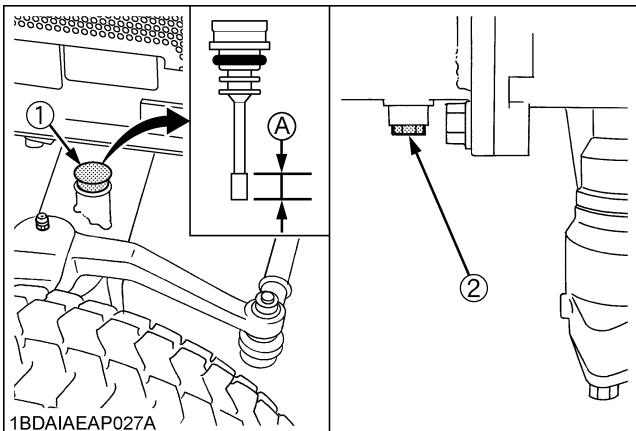
- (1) Radiator core
(2) Radiator hose

■Changing Rear Axle Differential Case Fluid

(See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)

Remove the drain and filling port plug. After draining, replace the drain plug and fill with new oil.

Oil capacity	1.5 L (1.6 U.S.qts.)
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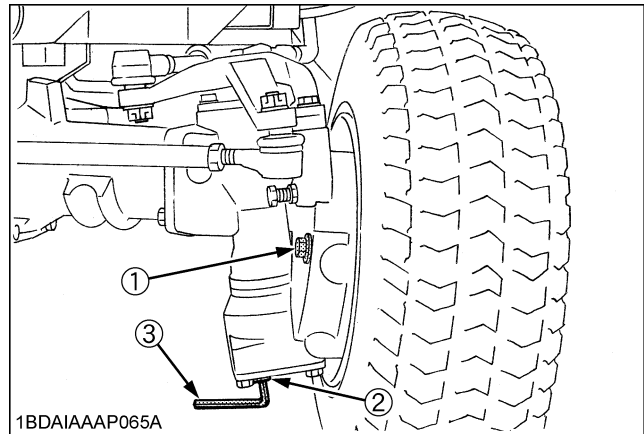
- (1) Filling plug with dipstick
(2) Drain plug
(A) Oil level is acceptable within the range

■Changing Rear Axle Gear Case Fluid

(RIGHT AND LEFT) (See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)

1. To check the oil level, remove the check plug (bolt).
 - Place the mower on a level surface.
Loosen the check plug. Oil should be visible through the opening. If the oil level is too low or high, adjust it.
2. To change gear oil, remove the drain and filling port plug with the hex head wrench to drain the used oil. After draining, replace the drain plug and fill with new oil.

Oil capacity	0.5 L (0.5 U.S.qts.)
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- (1) Filling and checking port plug
(2) Drain plug
(3) Hex head wrench

■Checking Hydraulic Hose



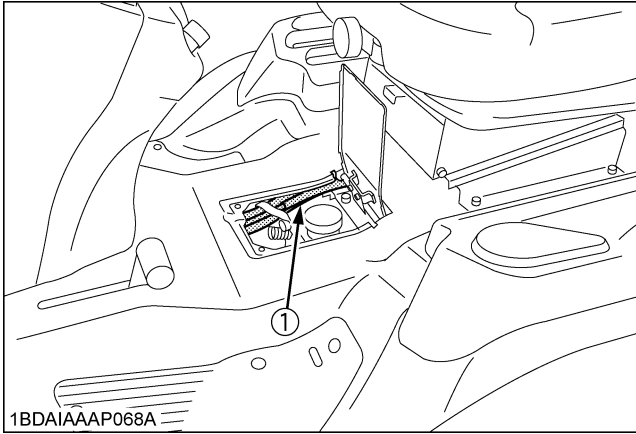
CAUTION

To avoid personal injury:

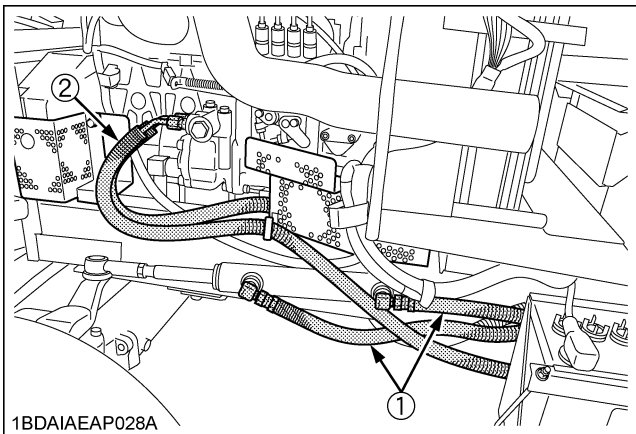
- Be sure to stop the engine and remove the key before checking and replacing hydraulic hose.
- Allow transmission case to cool down sufficiently; oil can be hot and may cause burns.

Check to see if hydraulic hoses are properly fixed every 200 hours of operation.

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.



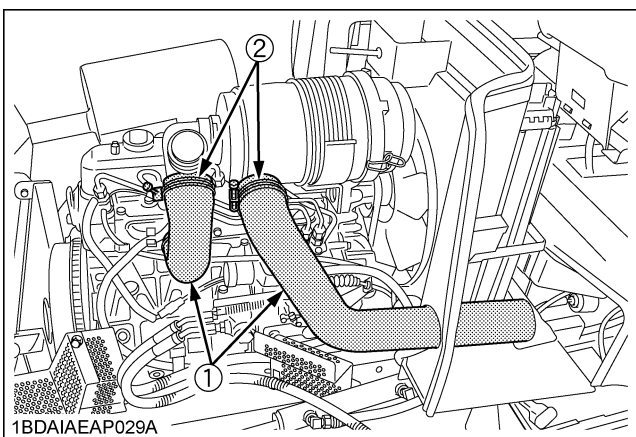
(1) Power steering hoses



(1) Power steering hoses
(2) Pump hoses

■ Checking Intake Air Line

1. Check to see that hoses 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) Hose
(2) Clamp

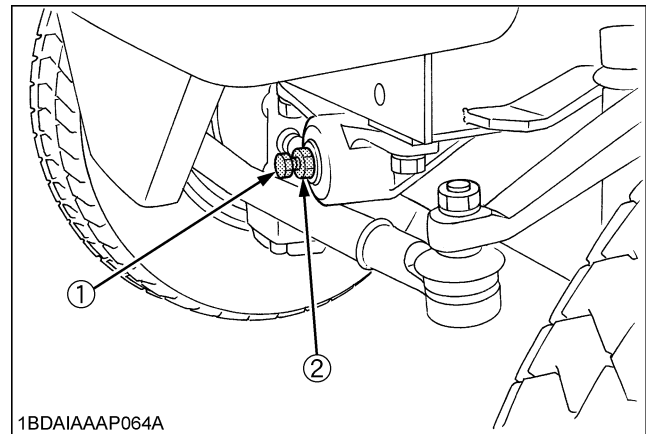
EVERY 400 HOURS

■ Adjusting Rear Axle Pivot

If the rear axle pivot pin adjustment is not correct, rear wheel vibration can occur causing vibration in the steering wheel.

◆ Adjusting procedure

Loosen the lock nut, tighten adjusting screw all the way, and then loosen the screw by 1/6 turn. Retighten the lock nut.



(1) Adjusting screw
(2) Lock nut

■ Replacing Fuel Filter

Change fuel filter every 400 hours. This should be done by your local KUBOTA Dealer.

EVERY 1500 HOURS

■ Checking Fuel Injection Nozzle (Injection Pressure)

Consult your local KUBOTA Dealer for this service.

EVERY 3000 HOURS

■ Checking Injection Pump

Consult your local KUBOTA Dealer for this service.

EVERY 1 YEAR

■ Replacing Air Cleaner Element

Change the element once a year.

■ Flush Cooling System and Changing Coolant

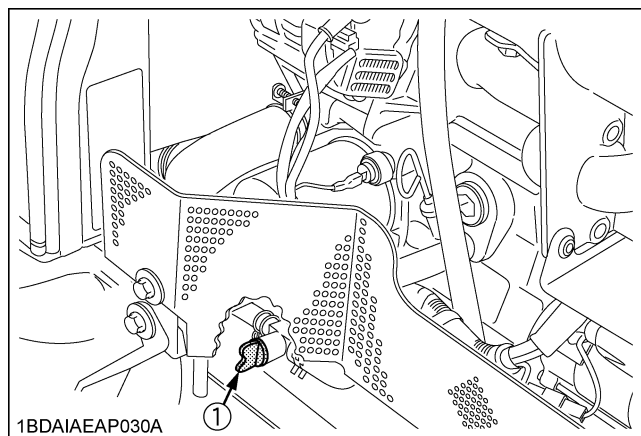


CAUTION

To avoid personal injury:

- Do not remove the radiator cap when the engine is hot. Then loosen cap slightly to the stop to relieve any excess pressure before removing cap completely.

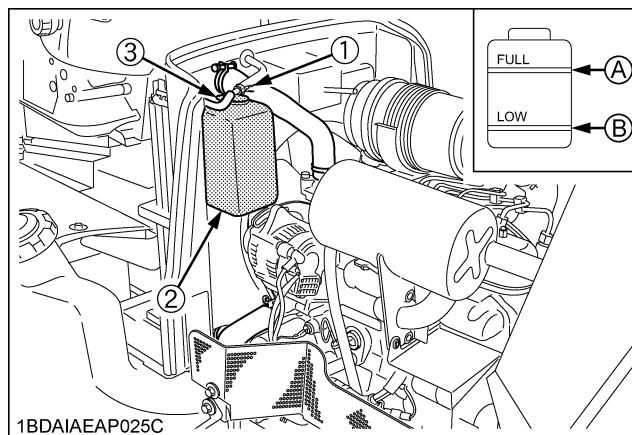
1. Stop the engine and let cool down.
2. To drain the coolant, remove the drain plug, and then the radiator cap. The radiator cap must be removed to completely drain the coolant.



(1) Drain plug

3. After all coolant is drained, install the drain plug.
4. Fill with clean water and cooling system cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean water and anti-freeze until the coolant level is just below the fill port on the radiator.
Install the radiator cap securely.
7. Fill with coolant up to the "FULL" mark on the recovery tank.
8. Start and operate the engine for a few minutes.
9. Stop the engine and let cool.
10. Check coolant level of recovery tank and add coolant if necessary.

Coolant capacity	4.6 L (4.9 U.S.qts)
Recovery tank capacity	0.6 L (0.6 U.S.qts)



- (1) Clamp
- (2) Recovery tank
- (3) Recovery tank cap

- (A) "FULL"
- (B) "LOW"

IMPORTANT :

- Do not start engine without coolant.
- Use clean, distilled water and anti-freeze to fill the radiator and recovery tank.
- When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be less than 50%.
- Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

■ Anti-freeze



CAUTION

To avoid personal injury:

- When using anti-freeze, put on some protection such as rubber gloves (Anti-freeze contains poison.).
- If anti-freeze is ingested, induce vomiting at once and seek medical attention.
- When anti-freeze comes in contact with the skin or clothing, wash it off immediately.
- Do not mix different types of Anti-freeze. The mixture can produce chemical reaction causing harmful substances.
- Anti-freeze is extremely flammable and explosive under certain conditions. Keep fire and children away from anti-freeze.
- When draining fluids from the engine, place some container underneath the engine body.
- Do not pour waste onto the grounds, down a drain, or into any water source.
- Also, observe the relevant environmental protection regulations when disposing of anti-freeze.

If it freezes, coolant can damage the cylinders and radiator. If the ambient temperature falls below 0°C (32°F) or before a long-term storage, let out cooling water completely, or mix fresh water with long-life coolant and fill the radiator and reserve tank with the mixture.

1. Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat this procedure 2 or 3 times to clean up the inside.
3. Mixing the LLC
Put the LLC in cooling water in the percentage (%) for a target temperature. When mixing, stir it up well, and then fill into the radiator.
4. The procedure for the mixing of water and anti-freeze differs according to the make of the anti-freeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

IMPORTANT :

- When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be less than 50%.

Vol% Anti-freeze	Freezing Point	Boiling Point *
	°C (°F)	°C (°F)
40	-24 (-12)	106 (222)
50	-37 (-34)	108 (226)

* At 1.013X10⁵Pa (760mmHg) pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

5. Adding the LLC
 - (1) Add only water if the mixture reduces in amount by evaporation.
 - (2) If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.
*Never add any long-life coolant of different manufacturer. (Different brands may have different additive components, and the engine may fail to perform as specified.)
6. When the LLC is mixed, do not employ any radiator cleaning agent. The LLC contains anti-corrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
7. Kubota's genuine long-life coolant has a service life of 2 years. Be sure to change the coolant every 2 years.

NOTE :

- The above data represent industry standards that necessitate a minimum glycol content in the concentrated anti-freeze.

- When the coolant level drops due to evaporation, add water only to keep the anti-freeze mixing ratio less than 50%. In case of leakage, add anti-freeze and water in the specified mixing ratio before filling in to the radiator.

EVERY 2 YEARS

■ Replacing Hydraulic Hose

Replace hoses and hose clamps every 2 years or earlier if checked and found that hoses are swollen, hardened or cracked.

■ Replacing Fuel Lines

This should be done by your local KUBOTA Dealer.

■ Replacing Engine Breather Hose

Consult your local KUBOTA Dealer for this service.

■ Replacing Radiator Hose

Replace hoses and clamp bands every 2 years or earlier if checked and found that hoses are swollen, hardened or cracked.

■ Replacing Intake Air Line

(See "Checking Intake Air Line" in every 200 hours maintenance.)

SERVICE AS REQUIRED

■ Replacing Fuses

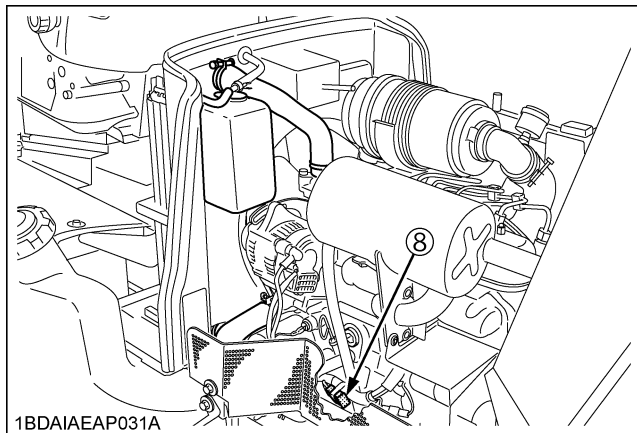
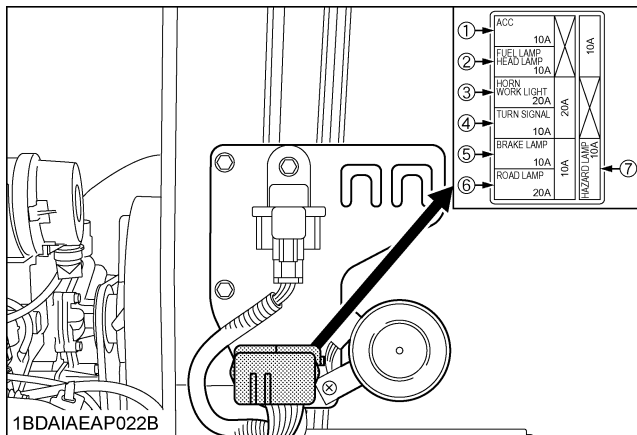
The machine electrical system is protected from potential damage by fuses.

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

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

IMPORTANT :

- Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the machine electrical system. Refer to the "TROUBLESHOOTING" section of this manual or your local KUBOTA Dealer for specific information dealing with electrical problems.
- If any of them should blow, replace with a new one of the same capacity.
- Do not use the fuse except indicated capacity.



FUSE No.	CAPACITY (A)	Protected circuit
①	10	ACC
②	10	Fuel lamp, Head lamp
③	20	Horn, Work light
④	10	Turn signal
⑤	10	Brake lamp
⑥	20	Road lamp
⑦	10	Hazard lamp
⑧	Slow blow fuse 50	Check circuit against wrong

■ Replacing Light Bulb

1. Head light
Take the bulb out of the light body and replace with a new one.
2. Other lights
Detach the lens and replace the bulb.

Light	Capacity
Headlight	15W

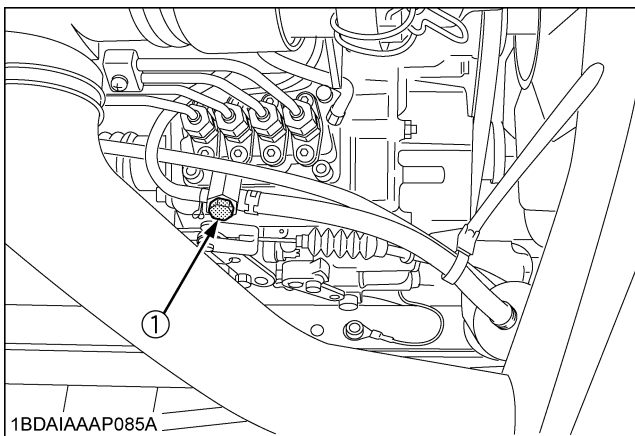
■ Bleeding Fuel System

Air must be removed:

1. When the fuel filter or lines are removed.
2. When tank is completely empty.
3. After the machine has not been used for a long period of time.

◆ Bleeding procedure is as follows:

1. Fill the fuel tank with fuel.
2. Start the engine and run for about 30 seconds, and then stop the engine.
3. Open the bleed screw.
When bubbles disappear from fuel coming out of the plug, tighten the bleed screw.

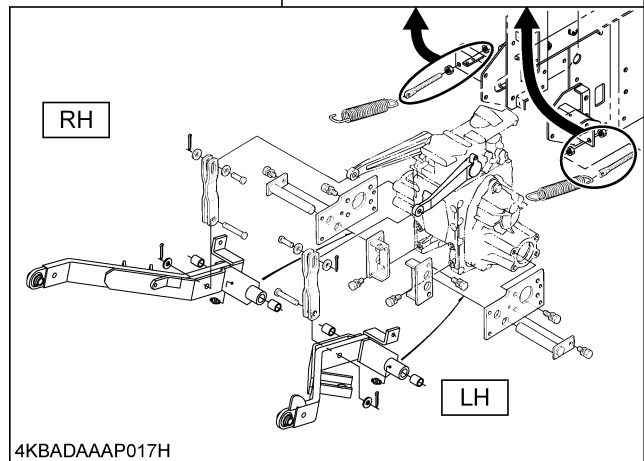
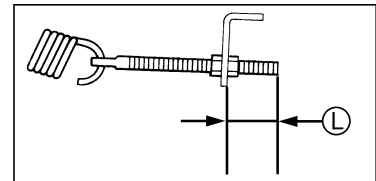


(1) Bleeding screw

■ Adjusting Lift Springs (LH & RH)

In order to help improve traction, adjust the lift springs according to the chart below.

	RCK72P - F36, RCK72R-F36, RCK60P - F36, RCK60R-F36
RH	L = 50 mm (2.0 in.)
LH	L = 70 mm (2.8 in.)



(L) RIGHT HAND: 50mm (2.0 in.)
LEFT HAND: 70mm (2.8 in.)

STORAGE



CAUTION

To avoid personal injury:

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

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, adjust the electrolyte to the proper level, and store in a cool dry place.
The battery discharges over time even while in storage. Recharge it once a month in hot seasons and once every 2 months in cold seasons.
7. Drain fuel tank, fuel lines.
8. Store the machine where it is dry and sheltered from rain. Cover the machine with a tarpaulin.
9. Moisture content in most grasses can damage the mower and grass catcher (if equipped) if these components are not properly cleaned after use.
Make sure the mower and the grass catcher are clean and completely empty before storage.
10. Jack the machine up and place blocks under the front and rear axles so that all 4 tires are off the ground.
Keep the tires out of direct sunlight and extreme heat.

IMPORTANT :

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

REMOVING THE MOWER FROM STORAGE

1. Check the tire air pressure and inflate the tires if they are low.
2. Jack the machine up and remove the support blocks.
3. Install the battery. Before installing the battery, make sure it is fully charged.
4. Check the fan belt tension.
5. Check all fluid levels (engine oil, transmission / hydraulic oil, engine coolant and any attached implements).
6. Start the engine. Observe all gauges. If all gauges are functioning properly and reading normal, move the machine outside.
7. Once outside, park the machine and let the engine idle for at least 5 minutes.
8. Shut the engine off and walk around machine and make a visual inspection looking for evidence of oil water leaks.
9. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes as necessary.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

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

Trouble		Cause	Countermeasure
Engine is difficult to start or won't start.		<ul style="list-style-type: none"> No fuel flow 	<ul style="list-style-type: none"> Check the fuel tank and the fuel filter. Replace the filter if necessary.
		<ul style="list-style-type: none"> Air or water is in the fuel system. 	<ul style="list-style-type: none"> Check to see if the fuel line coupler bolt and nut are tight. Bleed the fuel system. (See "Bleeding Fuel System" as required in "PERIODIC SERVICE" section.)
		<ul style="list-style-type: none"> In winter, oil viscosity increases, and engine revolution is slow. 	<ul style="list-style-type: none"> Use oils of different viscosities, depending on ambient temperatures. Use the engine block heater. (Optional)
		<ul style="list-style-type: none"> Battery becomes weak and the engine does not turn over quick enough. 	<ul style="list-style-type: none"> Clean battery cables & 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		<ul style="list-style-type: none"> Insufficient or dirty fuel The air cleaner is clogged. 	<ul style="list-style-type: none"> Check the fuel system. Clean or replace the element.
Engine stops suddenly.		<ul style="list-style-type: none"> Insufficient fuel 	<ul style="list-style-type: none"> Refuel. Bleed the fuel system if necessary.
Exhaust fumes are colored.	Black	<ul style="list-style-type: none"> Fuel quality is poor. Too much oil The air cleaner is clogged. 	<ul style="list-style-type: none"> Change the fuel and fuel filter. Check the proper amount of oil. Clean or replace the element.
	Blue white	<ul style="list-style-type: none"> The inside of exhaust muffler is dumped with fuel. Injection nozzle trouble Fuel quality is poor. 	<ul style="list-style-type: none"> Heat the muffler by applying load to the engine. Check the injection nozzle. Change the fuel and fuel filter.
Engine overheats.		<ul style="list-style-type: none"> Engine overloaded 	<ul style="list-style-type: none"> Shift to lower gear or reduce load.
		<ul style="list-style-type: none"> Low coolant level 	<ul style="list-style-type: none"> Fill cooling system to the correct level; check the radiator and hoses for loose connections or leaks.
		<ul style="list-style-type: none"> Loose or defective fan belt 	<ul style="list-style-type: none"> Adjust or replace fan belt.
		<ul style="list-style-type: none"> Dirty radiator screen or bonnet screen 	<ul style="list-style-type: none"> Remove all trash.
		<ul style="list-style-type: none"> Coolant flow route corroded 	<ul style="list-style-type: none"> Flush cooling system.

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

BATTERY TROUBLESHOOTING

Trouble	Cause	Remedy	Preventive measure
Starter does not function.	<ul style="list-style-type: none"> ● Battery overused until lights are dim. 	<ul style="list-style-type: none"> ● Charge the battery sufficiently. 	<ul style="list-style-type: none"> ● Charge the battery properly.
	<ul style="list-style-type: none"> ● Battery has not been recharged. 		
	<ul style="list-style-type: none"> ● Poor terminal connection 	<ul style="list-style-type: none"> ● Clean the terminal and tighten securely. 	<ul style="list-style-type: none"> ● Keep the terminal clean and tight. Apply grease and treat with anticorrosive.
	<ul style="list-style-type: none"> ● Battery life expired. 	<ul style="list-style-type: none"> ● Renew the battery. 	
From beginning starter does not function, and lights soon become dim.	<ul style="list-style-type: none"> ● Insufficient charging 	<ul style="list-style-type: none"> ● Charge the battery sufficiently. 	<ul style="list-style-type: none"> ● Battery must be serviced properly before initial use.
When viewed from top, the top of plates looks whitish.	<ul style="list-style-type: none"> ● Battery was used with an insufficient amount of electrolyte. 	<ul style="list-style-type: none"> ● Add distilled water and charge the battery. 	<ul style="list-style-type: none"> ● Regularly check the electrolyte level.
	<ul style="list-style-type: none"> ● Battery was used too much without recharging. 	<ul style="list-style-type: none"> ● Charge the battery sufficiently. 	<ul style="list-style-type: none"> ● Charge the battery properly.
Recharging is impossible.	<ul style="list-style-type: none"> ● Battery life expired. 	<ul style="list-style-type: none"> ● Replace the battery. 	
Terminals are severely corroded and heat up.	<ul style="list-style-type: none"> ● Poor terminal connection 	<ul style="list-style-type: none"> ● Clean the terminal and tighten securely. 	<ul style="list-style-type: none"> ● Keep the terminal clean and tight. Apply grease and treat with anticorrosive.
Battery electrolyte level drops rapidly.	<ul style="list-style-type: none"> ● There is a crack or pin holes in the electrolytic cells. 	<ul style="list-style-type: none"> ● Replace the battery. 	

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

MACHINE TROUBLESHOOTING

Trouble	Cause	Counter measure
Machine operation is not smooth.	<ul style="list-style-type: none"> ● Hydrostatic transmission fluid is insufficient. ● Filter is clogged. ● Strainer is clogged. 	<ul style="list-style-type: none"> ● Replenish oil. ● Replace the filter. ● Clean the strainer.
Machine does not move while engine is running.	<ul style="list-style-type: none"> ● Parking brake is on. ● Transmission fluid level is insufficient. 	<ul style="list-style-type: none"> ● Release the parking brake. ● Replenish oil.
Machine moves when speed control pedal is not depressed. (Engine is operated.)	<ul style="list-style-type: none"> ● Hydrostatic lever linkage is not correctly adjusted. 	<ul style="list-style-type: none"> ● Ask your dealer for hydrostatic lever linkage adjustment or pressure adjustment.

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

SOUND AND VIBRATION MEASUREMENTS

◆ Sound Pressure Level Measured Per EN836-A2

Model	Engine rated speed	Sound pressure at the operator's position
F2880 with RCK60-F36	3200 rpm	90 dB (A)
F3680 with RCK60R-F36	3200 rpm	90 dB (A)

◆ Hand/Arm Vibration Level Measured Per EN836-A2

Model	Engine rated speed	Hand/Arm vibration
F2880 with RCK60-F36	3200 rpm	1.20 m/s ²
F3680 with RCK60R-F36	3200 rpm	1.17 m/s ²

◆ Whole Body Vibration Level Measured Per EN836-A2

Model	Engine rated speed	Whole body vibration
F2880 with RCK60-F36	3200 rpm	0.32 m/s ²
F3680 with RCK60R-F36	3200 rpm	0.26 m/s ²

NOTE :

- Measurement were obtained through actual field data according to STD procedure in EN836-A2.
This value listed above represents the weighted root means square acceleration to which the whole body is subjected on a representative machine during actual mowing and transport conditions.
The acceleration value depends upon the roughness of the ground, the speed at which the machine is operating and the operator weight and driving habits.