



- U.S.A. : **KUBOTA TRACTOR CORPORATION**
3401 Del Amo Blvd., Torrance, CA 90503, U.S.A.
Telephone : (310)370-3370
- Western Division : 1175 S. Guild Av., Lodi, CA 95240
Telephone : (209)334-9910
- Central Division : 14855 FAA Blvd., Fort Worth, TX 76155
Telephone : (817)571-0900
- Northern Division : 6300 at One Kubota Way, Groveport, OH 43125
Telephone : (614)835-1100
- Southeast Division : 1025 Northbrook Parkway, Suwanee, GA 30024
Telephone : (770)995-8855
- Canada : **KUBOTA CANADA LTD.**
5900 14th Avenue, Markham, Ontario, L3S 4K4, Canada
Telephone : (905)294-7477
- France : **KUBOTA EUROPE S.A.S**
19-25, Rue Jules Vercey, Z.I. BP88, 95101 Argenteuil Cedex, France
Telephone : (33)1-3426-3434
- Italy : **KUBOTA EUROPE S.A.S Italy Branch**
Via Grandi, 29 20068 Peschiera Borrome (MI) Italy
Telephone : (39)02-51650377
- Germany : **KUBOTA (DEUTSCHLAND) GmbH**
Senefelder Str. 3-5 63110 Rodgau /Nieder-Roden, Germany
Telephone : (49)6106-873-0
- U.K. : **KUBOTA (U.K.) LTD.**
Dormer Road, Thame, Oxfordshire, OX9 3UN, U.K.
Telephone : (44)1844-214500
- Spain : **KUBOTA ESPAÑA S.A.**
Avenida Recomba No.5, Poligno Industrial la Laguna, Leganes, 28914 (Madrid) Spain
Telephone : (34)91-508-6442
- Australia : **KUBOTA TRACTOR AUSTRALIA PTY LTD.**
25-29 Permas Way, Truganina, VIC 3029, Australia
Telephone : (61)-3-9394-4400
- Malaysia : **SIME KUBOTA SDN. BHD.**
No.3 Jalan Sepadu 25/123 Taman Perindustrian Axis,
Seksyen 25, 40400 Shah Alam, Selangor Darul Ehsan Malaysia
Telephone : (60)3-736-1388
- Philippines : **KUBOTA PHILIPPINES, INC.**
155 Panay Avenue, South Triangle Homes, 1103 Quezon City, Philippines
Telephone : (63)2-9201071
- Taiwan : **SHIN TAIWAN AGRICULTURAL MACHINERY CO., LTD.**
16, Fengping 2nd Rd, Taliaw Shiang Kaohsiung 83107, Taiwan R.O.C.
Telephone : (886)7-702-2333
- Indonesia : **P.T. KUBOTA INDONESIA**
Jalan Setyabudi 279, Semarang, Indonesia
Telephone : (62)-24-7472849
- Thailand : **SIAM KUBOTA CORPORATION CO., LTD.**
101/19-24 Moo 20, Navanakorn Industrial Estate, Tambon Khlongnueng, Amphur Khlongluang,
Pathumthani 12120, THAILAND
Telephone : (66)2-909-0300
- Korea : **KUBOTA KOREA CO., LTD.**
106-24 Mongsan-Ri, Mankyung-Up, Kimje-City, Chonrapuk-Do, KOREA
Telephone : (82)-63-544-5822
- India : **KUBOTA AGRICULTURAL MACHINERY INDIA PVT. LTD.**
Regus, Level 2 Altius, Olympia Tech Park, No.1 SIDCO Industrial Estate, Guindy, Chennai 600032, TN, India
Telephone : (91)-44-4299-4237
- Vietnam : **KUBOTA VIETNAM CO., LTD.**
Lot B-3A2-CN, My Phuoc 3 Industrial Park, Ben Cat District, Binh Duong Province, Vietnam
Telephone : (84)-650-3577-507

KUBOTA Corporation

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OPERATOR'S MANUAL KUBOTA ZERO TURN MOWER

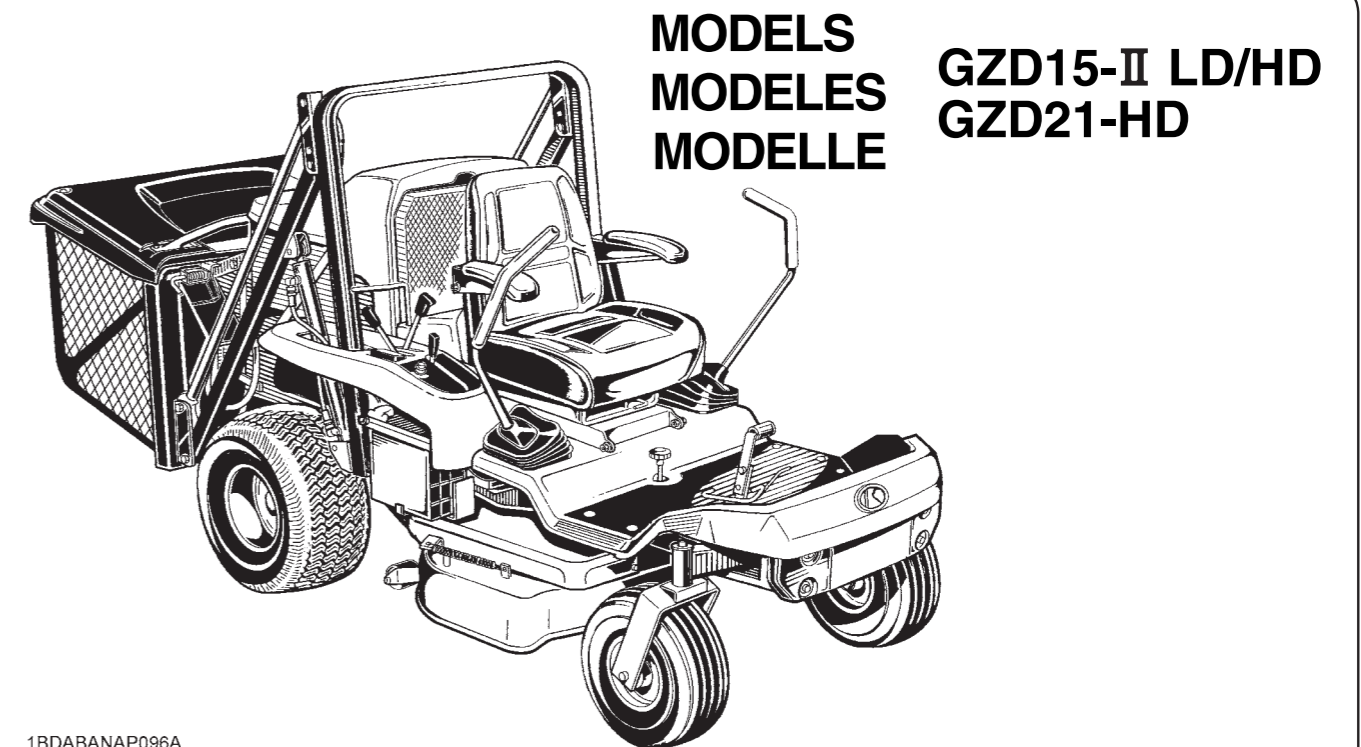
- Original instructions -

MANUEL DE L'UTILISATEUR KUBOTA TONDEUSE "ZERO TURN"

- Traduction de la notice originale -

BEDIENUNGSANLEITUNG KUBOTA ZERO TURN-MÄHER

- Übersetzung der Originalanleitung -




















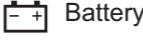

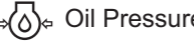

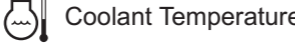
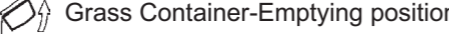

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ABBREVIATION LIST

Abbreviations	Definitions
API	American Petroleum Institute
PTO	Power Take Off
PT	Permanent Type (=Ethylene glycol anti-freeze)
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers
RH/LH	Right-hand and left-hand sides are determined by facing in the direction of forward travel

UNIVERSAL SYMBOLS

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

 Safety Alert Symbol	 Cutting Height
 Diesel Fuel	 Mower-Lowered position
 Fuel-Level	 Grass Container-Lowered position
 Brake	 Mower-Raised position
 Parking Brake	 Grass Container-Raised position
 Engine-Stop	 Fast
 Preheat	 Slow
 Engine-Run	 Engine Speed Control
 Starter Control	 Battery
 Power Take-Off Clutch Control-Off Position (Disengaged)	 Oil Pressure
 Power Take-Off Clutch Control-On Position (Engaged)	 Coolant Temperature
	 Grass Container-Emptying position
	 Grass Container-Close position

NOTE:

- This machine is meant for cutting lawn only, not for cutting extensive maintained grass, not for cutting hedges or brushwood, not for removing snow and not for pulling any implement or trailer.

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?

FOREWORD

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



SAFETY FIRST

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



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



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



CAUTION : Indicates a potentially hazardous situation which, if not avoided, 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 manual carefully before operating the machine. All operators, no matter how much experience they may have had, should read this and other related manuals before operating the machine or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

This mowing 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. The ZERO TURN MOWING MACHINE has different steering characteristics than other machines with a steering wheel. This machine has a service brake pedal, but normal slowing down and stopping is done with the motion control levers. Read and understand the operators manual before operating the machine. Practice operating machine at low engine speed without mower engaged in an unobstructed area.
2. Know your equipment and its limitations. Read, understand and follow all instructions in this manual before attempting to start and operate the machine.
3. Know the controls and how to stop quickly.
4. Pay special attention to the safety labels on the machine and mower.
5. Do not operate machine or any implement attached to it while under the influence of alcohol, drugs, or other substances or while fatigued.
6. Carefully check the area to be mowed and clear any objects such as rocks, bottles, cans, toys, etc., that may damage the mower, the grass catcher or cause personal injury.
7. 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.
8. Before allowing other people to use your machine, explain proper operation to them and have them read this manual before operation.
9. 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.
10. While mowing, always wear substantial foot wear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
11. Do not wear radio or music headphones while operating the machine.
Safe operation requires your full attention.
12. Never allow passengers or non-qualified operators on the machine at any time. You must operate the machine from the seat only.
13. 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.)
14. Keep all shields and guards in place. Replace all missing or damaged items for your safety.
15. Keep your machine clean. Dirt, grease, and trash accumulations contribute to fires or lead to personal injury.
16. 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.
17. Do not modify the machine. Unauthorized modification may affect the function of the machine, which may result in personal injury.
18. 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.
19. Keep the machine and attachments in good operating condition and keep safety devices in place and in proper working condition.
20. Do not ride on or put anything on any grass catcher component.
21. This machine is equipped with many safety devices. Do not attempt to remove or alter them.
22. 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.
23. Follow the maintenance recommendations. See "MAINTENANCE" section.

2. OPERATING

◆ Starting

1. Always sit in the operator's seat when starting engine or operating levers or controls.
2. Before starting the engine make sure that the motion control levers are in neutral lock, the parking brake is applied, and Power Take Off (PTO) is disengaged (OFF).
3. Do not start engine by shorting across starter terminals. The machine may start in gear and move if normal starting circuitry is bypassed.
4. Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly.

◆ Working

1. Do not turn sharply when driving at high speed.
2. To avoid tip over, slow down when turning on uneven terrain or before stopping.
3. Do not operate near ditches, holes, embankments, or other terrain, which may collapse under the machine weight. The risk of machine tip over increases when the ground is loose or wet.
4. Park the machine on a firm and level surface.
5. 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.
6. Know what is behind you before backing up. Look to the rear before and when backing. 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 machine is equipped with Grass Catcher. Your view to the rear is restricted.
7. When working in groups, always let others know what you are doing ahead of time.
8. Do not drive machine on streets or highways. Watch for traffic when you cross roads or operate near roads.
9. Be aware of the mower discharge direction and do not point it at anyone.
10. 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.
11. To reduce fire hazards, keep the engine exhaust area free of grass or leaves.
12. Be sure rotating blades and engine are stopped and the key is removed before placing hands or feet near blades and cleaning blockages or unclogging chute.
13. Shut the engine off and wait for all movement to stop before removing grass catcher or unclogging chute.
14. Always inspect the mower for damage after striking a foreign object. Repair or replace any damaged parts before restarting.
15. Operate during daylight or in bright artificial light.

16. When mowing for the first time, cut the grass higher than desired.

This will uncover any unseen object that may damage the mower or grass catcher.

17. Raise and dump collected leaves or grass clippings ONLY while sitting on the operator's seat.
18. Empty the grass container ONLY from a firm and level surface, with the mower stopped, and the unit stationary. Dumping the grass container on soft or uneven ground, or while moving, could cause the unit to tip over, causing serious injury and extensive equipment damage.
19. Make sure the dumping area is clear of all bystanders and pets, before emptying grass clippings or leaves from the grass container.
20. Be extremely alert for all other traffic when operating the mower and grass catcher near public roads or highways.
21. Stop the blades rotating before crossing surface other than grass.
22. 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.

For High-Dump grass catcher.

23. With the grass container raised, do not run the machine too fast, on slopes, nor make a sharp turn. Otherwise the machine may turn over.
24. Keep hands away from the grass container, while lowering it. Otherwise they may get caught.

◆ Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are attracted to the machine and 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 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.
7. Do not mow in reverse unless it is absolutely necessary.

◆ 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.

◆ 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

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. Use slow speed.
5. Follow the manufacturer's recommendations for wheel weight or counterweights to improve stability.
6. The weight of grass in the grass container may increase the possibility of tip over.
7. Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.
8. Avoid starting or stopping on a slope. If tires lose traction, disengage PTO and proceed slowly straight down the slope.
9. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tip-over or loss of control.
10. Slow down, and use extra caution when changing direction on a slope.

DO NOT

1. Do not turn on slopes unless necessary. If necessary, turn uphill slowly and gradually.
2. Do not use the machine on slopes of more than 10°.
3. Do not mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of cliff or ditch, or if an edge caves in.
4. Do not mow on wet grass. Reduced traction could cause sliding and loss of control.
5. Do not try to stabilize the machine by putting your foot on the ground.
6. Do not stop or start suddenly when going uphill or downhill.
7. Never "freewheel". Do not let the machine travel downhill with motion control levers at neutral lock position or in neutral.

8. Do not operate machine without the mower deck installed.

◆ Stopping

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

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.

4. USING THE LIFT LINK

1. Use lift link only with authorized attachments designed for lift link usage.

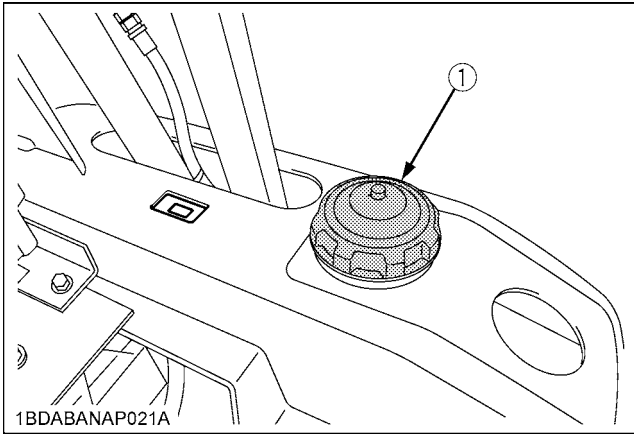
5. TRANSPORTING

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. Use extra care when loading or unloading the machine into a trailer or truck.
4. This machine is not allowed to be used on public roads.

6. SERVICING AND STORAGE

◆ Servicing

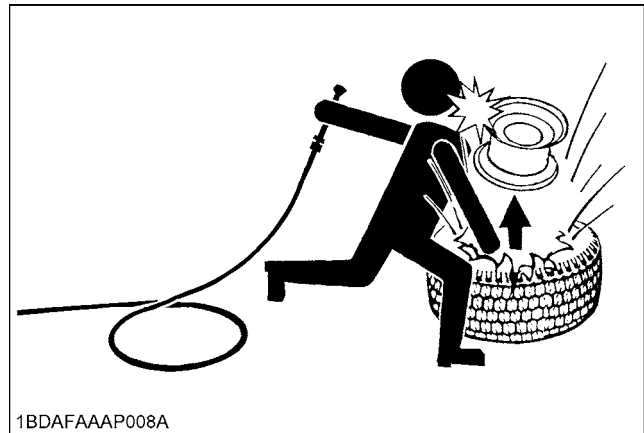
1. Before servicing, park the machine on a firm, level surface and apply the parking brake. Remove the key to prevent accidental start-up.
2. Allow the machine time to cool before touching the engine, muffler, radiator, etc.
3. Always stop the engine before refueling. Avoid spills and overfilling. Wipe 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 smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank.
A battery, especially when charging, will give off hydrogen and oxygen gases, which can explode and cause serious personal injury.

6. 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.
7. Disconnect the battery's ground cable before working on or near electric components.
8. 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.
9. Keep first aid kit and fire extinguisher handy at all times.
10. 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.
11. Do not attempt to mount a tire on a rim unless qualified to do so and all proper safety precautions are followed.
12. Always maintain the correct tire inflation pressure. Do not inflate tires above the recommended pressure shown in the Operator's Manual.



13. Provide adequate support when changing wheels.
14. Make sure that wheel nuts and bolts have been tightened to the specified torque.

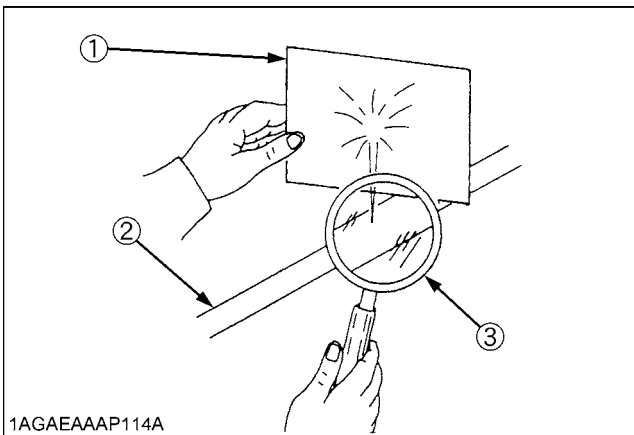
15. Escaping hydraulic fluid under pressure has sufficient force to penetrate the skin causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, make sure all connections are tight and that lines, pipes, and hoses are not damaged.



1BAACAAAP010B

16. 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.



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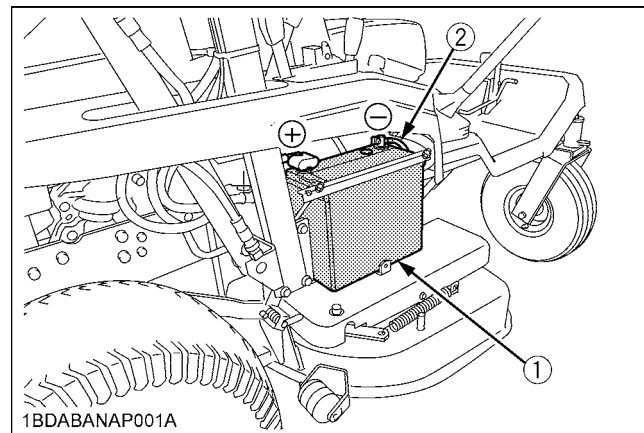
- (1) Cardboard
(2) Hydraulic line
(3) Magnifying glass

17. Do not make adjustments or repairs with the engine running.
18. Keep machine free of grass, leaves, or other debris build-up.
19. Do not change the engine governor setting or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
20. Do not run a machine inside a closed area.

21. Mower blades are sharp and can cut your hands. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
22. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition. On multi-bladed mowers, take care as rotating one blade can cause other blades to rotate.
23. Never tamper with safety devices. Check their operation for proper function regularly.
24. Waste products such as used oil, fuel, coolant, brake fluid, and batteries, can harm the environment, people, pets and wildlife. Please dispose of properly.
25. Do not use beverage containers for waste fluids or other products.
Someone, particularly children, may drink them by mistake.
26. Securely support the machine or any machine elements with stands or suitable blocking before working underneath. For your safety do not rely on hydraulically supported devices, they may leak down, suddenly drop or be accidentally lowered.
27. See your local Recycling Center or KUBOTA Dealer to learn how to recycle or get rid of waste products.
● A Material Safety Data Sheet (MSDS) provides specific details on chemical products; physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the MSDS for that product upon request.
28. Do not put yourself below the raised grass container.

◆ Storage

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



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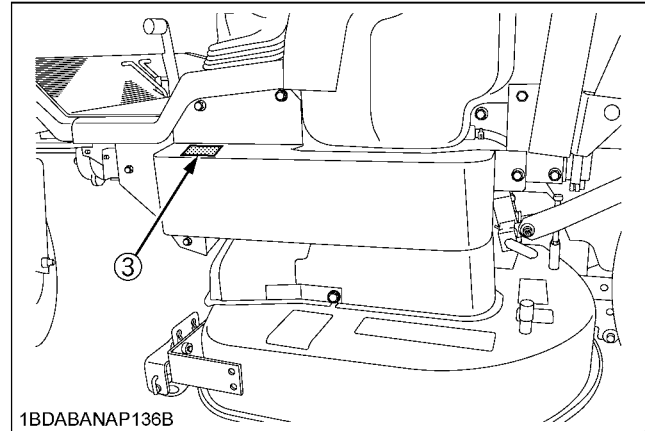
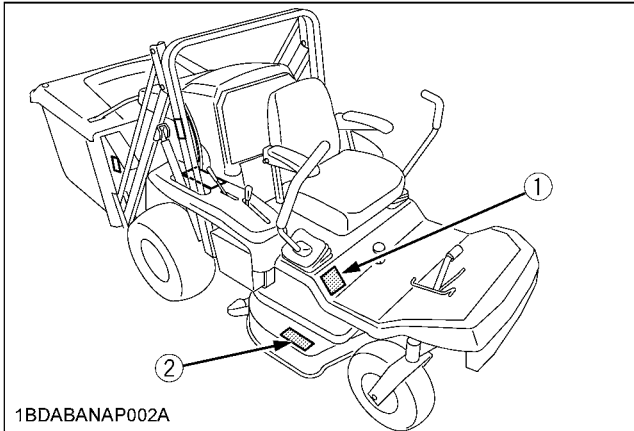
- (1) Battery
(2) Ground cable

- (+): Positive terminal
(-): Negative terminal

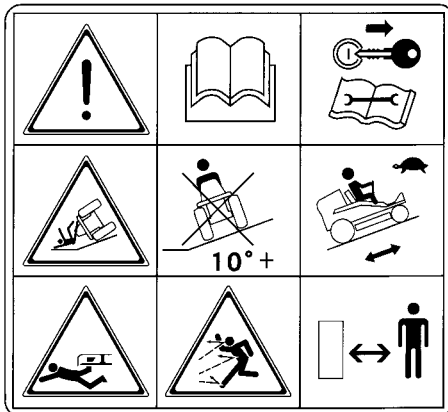
▲-6 SAFE OPERATION

3. Do not store the machine with fuel in the tank inside a building where fumes may ignite. Allow the engine to cool before storing.
4. To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without adequate ventilation.
5. To reduce fire hazards, clean the machine thoroughly before storage. Dry grass and leaves around the engine and muffler may ignite.
6. Moisture content in most grasses can damage the mower and grass catcher if these components are not properly cleaned after use. Also, dry grass and leaves left in the container can be a fire hazard. Always make sure the container and the duct are clean and completely empty before storage.

7. PICTORIAL SAFETY LABELS

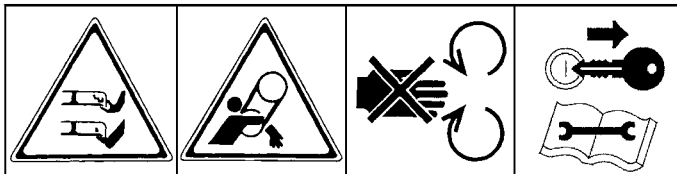


(1) Part No. K2011-6581-1



TO AVOID INJURY OR DEATH:

- Read and understand Operator's Manual.
- Shut off engine and remove key before servicing.
- DO NOT operate where machine could slip or tip.
- DO NOT operate on slopes of more than 10°.
- Mow up and down slowly, not across.
- DO NOT allow any bystanders or children around or near machine at all times when the engine is running.

(2) Part No. K5245-7311-1 [GZD15-II, GZD15-II (F)] (Both sides)
Part No. K5254-7311-1 [GZD21, GZD21 (F)] (Both sides)

ROTATING BLADES HAZARDOUS:

- DO NOT put hands or feet into mower when engine is running.
- Keep all shields and guards in place.
- Stay clear of rotating parts.
- Stop the engine and remove key before servicing.

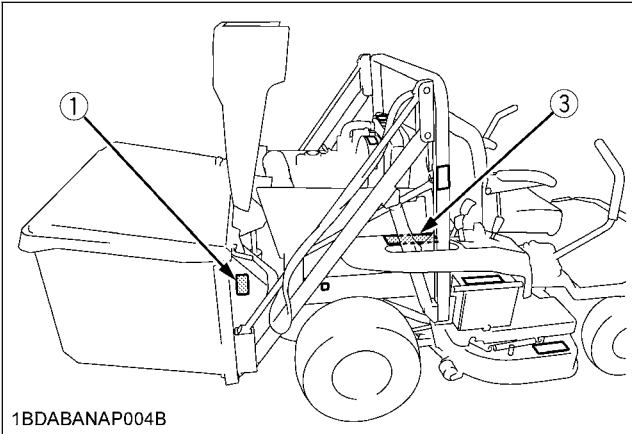
(3) Part No. K2013-6593-1 [GZD15-II (F)]



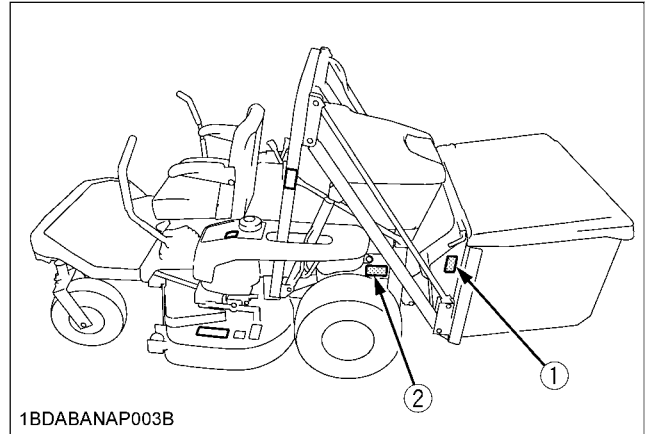
TO AVOID INJURY:

- DO NOT raise the mower when putting hands under the cover.

▲-8 SAFE OPERATION

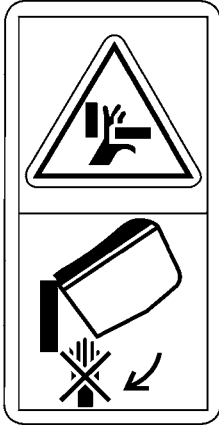


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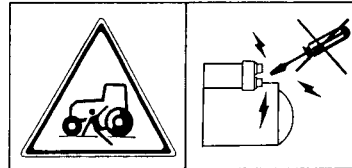
(1) Part No. K6082-6582-1



1BDABANAP082A

- Do not put your hands too close. They may get caught.

(2) Part No. K3512-4718-1



1BDABANAP083A

TO AVOID MACHINE RUNAWAY:

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

(3) Part No. K2011-6591-1

▲ ATTENTION · CAUTION · ACHTUNG

LORSQUE VOUS UTILISEZ CET APPAREIL, IL EST CONSEILLÉ DE...

- 1- REQUIRE LA VITESSE D'AVANCEMENT LORS DE LA COUPE D'HERBE LONGUE OU HUMIDE.
- 2- NE JAMAIS LEVER LE BAC LORSQUE LE TRACTEUR SE TROUVE SUR UNE SURFACE INSTABLE, INEGALE OU EN PENTE.
- 3- NE JAMAIS CONDUIRE LE TRACTEUR OU PRENDRE DES VIRAGES A VIVE ALLURE LORSQUE LE BAC EST EN POSITION HAUTE.
- 4- TOUJOURS DEBRAYER LA PRISE DE FORCE AVANT DE LEVER LE BAC.
- 5- ARRÊTER LE MOTEUR DU TRACTEUR AVANT TOUTE INTERVENTION SUR L'APPAREIL.
- 6- POSER DES CONTREPOIDS A L'AVANT DU TRACTEUR.
- 7- RAMENER LE BAC EN POSITION PRE-BENWAGE AVANT DE LE REDESCENDRE.

WHEN USING THE UNIT YOU ARE ADVISED...

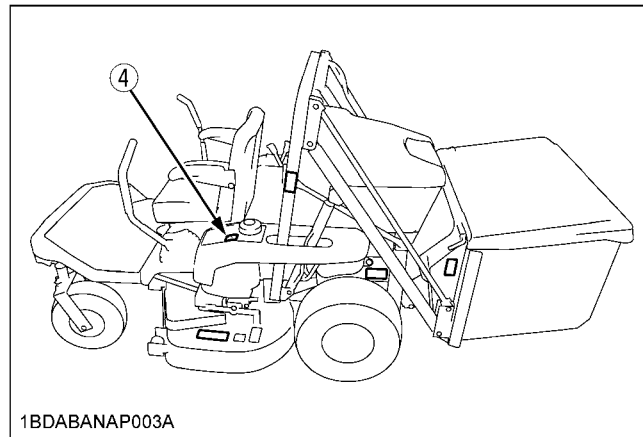
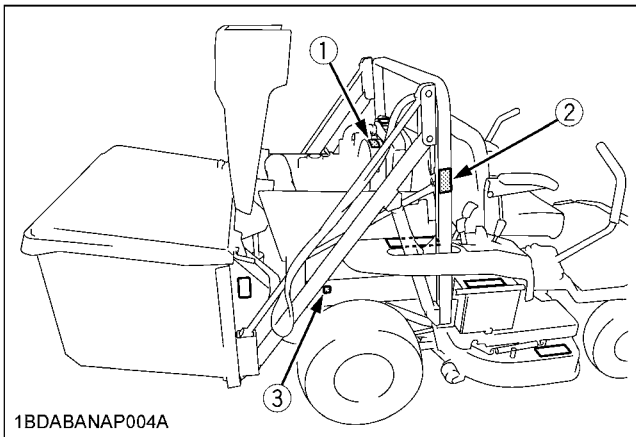
- 1- TO REDUCE FORWARD SPEED WHEN CUTTING LONG OR WET GRASS.
- 2- NEVER TO RAISE THE GRASSBOX WHILE THE TRACTOR IS ON SOFT, SLOPING OR UNEVEN GROUND.
- 3- NEVER DRIVE THE TRACTOR OR TURN SHARPLY WHILE THE GRASSBOX IS RAISED.
- 4- ALWAYS DISENGAGE THE PTO BEFORE RAISING THE GRASSBOX.
- 5- ALWAYS TO STOP THE TRACTOR ENGINE BEFORE CLEARING ANY BLOCKAGES.
- 6- TO FIT COUNTER WEIGHTS TO THE FRONT OF THE TRACTOR.
- 7- ALWAYS RETURN THE GRASSBAG TO THE PRE DUMP POSITION BEFORE LOWERING INTO THE WORKING POSITION.

BEIM EINSATZ FOLGENDE HINWEISE BEACHTEN:

- 1- BEI LANGEM ODER NASSEM GRAS FAHRGESCHWINDIGKEIT REDUZIEREN.
- 2- BEI WEICHEM, ABSCHLÜSSIGEM ODER UNEBENEM GELÄNDE DEN FANGBEHÄLTER NICHT HOCHFÄHREN.
- 3- KEINE ENGEN KURVEN FAHREN MIT ANGEHOBEHEM FANGBEHÄLTER.
- 4- VOR DEM HOCHFÄHREN DES FANGBEHÄLTERS MÄHWERK AUSSCHALTEN.
- 5- WÄHREND DER BESEITIGUNG VON VERSTOPFUNGEN MOTOR ABSTELLEN.
- 6- KONTERGEWICHTE AM FRONTRAHMEN DES AUFSITZMÄHERS ANBRINGEN.
- 7- VOR DEM HERUNTERFAHREN DEN FANGBEHÄLTER ZURÜCK IN AUSGANGSSTELLUNG KIPPEN.

K2011-65911

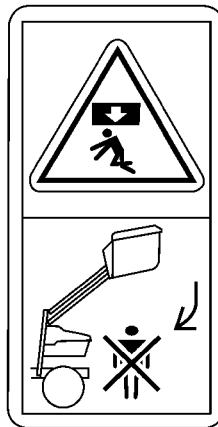
1BDABANAP084A



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



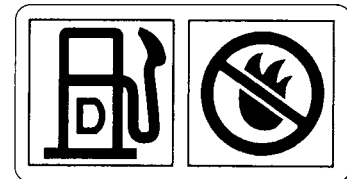
(2) Part No. K6082-6583-1 [HD type only]
● Do not put yourself below the grass container. It may fall accidentally.



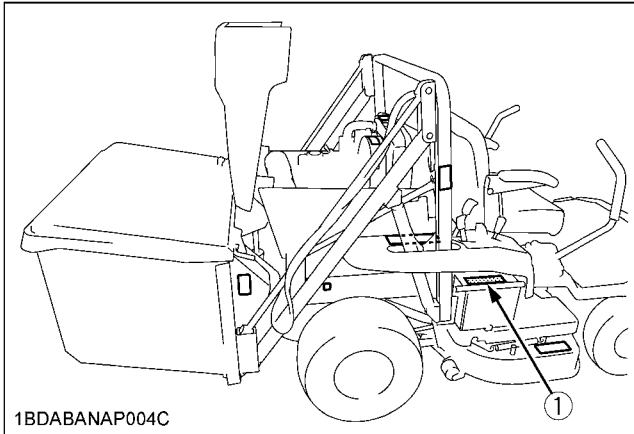
(3) Part No. K3512-4719-1
HOT SURFACE
DO NOT TOUCH



(4) Part No. K2011-6516-4
Diesel fuel only No fire



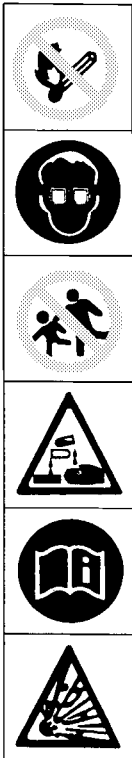
▲-10 SAFE OPERATION



1BDABANAP004C

(1) Part No. K2013-6112-1

TO AVOID INJURY FROM BATTERY GASES AND ACIDS



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

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1BDABANAP1230

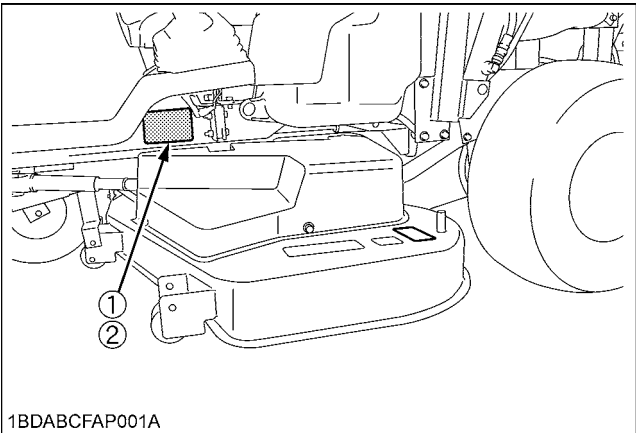
8. CARE OF PICTORIAL SAFETY LABELS

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

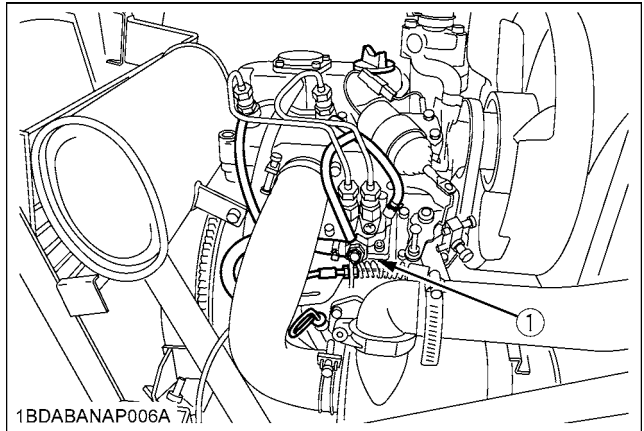
SERVICING OF MACHINE

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 KUBOTA Dealer. When in need of parts, be prepared to give your dealer the machine, engine and mower serial numbers. Locate the serial numbers now and record them in the space provided.

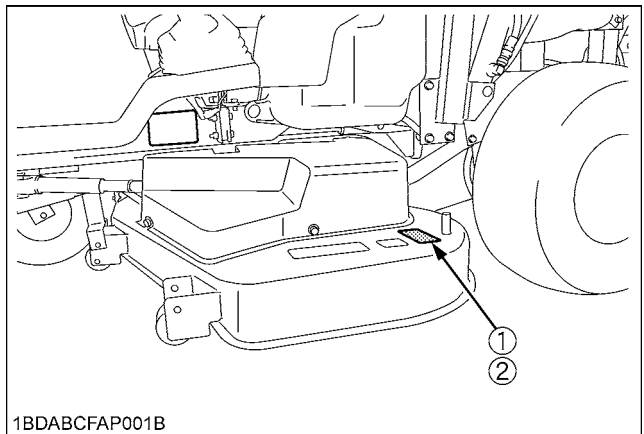
	Type	Serial No.
Machine		
Engine		
Mower		
Date of Purchase		
Name of Dealer		
(To be filled in by purchaser)		



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



(1) Engine serial No.



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

SPECIFICATIONS

	Model		GZD15-II LD	GZD15-II HD	GZD21-HD	
Engine	Model		Z602		D782	
	Type		Liquid - cooled			
	Total displacement	cm ³	599		778	
	Gross power	kW (HP)	11.2 (15)		15.6 (21)	
	No. of cylinders		2		3	
	Starter		Electric starter with battery			
	Battery		65D23L (12V, 52A.H. at 5H.R.)			
	Fuel		Diesel fuel No.1 (below - 10 °C) Diesel fuel No.2 (above - 10 °C)			
	Preheating system		Super glow			
	Engine stop		Key stop			
Capacities	Fuel tank	L	20			
	Engine oil	L	2.1	2.8		
	Radiator coolant	L	1.4	1.9		
	Transmission oil	L	10			
Machine	PTO		Shaft drive			
	Direction of revolution		Counter Clockwise			
	PTO Brake		Wet single disk			
	PTO clutch		Wet multi disk			
	Tires	Front	15 x 6.0 - 6 (4PR)			
		Rear	20 x 10.0 - 8 (4PR)		23 x 10.5 - 12 (4PR)	
	Steering type		2 - Hand levers			
	Brake		Wet multi disk			
	Travel speed control		2 - Hand levers			
	Transmission		2 - HST W / Gear			
Traveling speeds	Forward	km / h	0 to 13.5		0 to 15.5	
	Reverse	km / h	0 to 10.0		0 to 11.5	
Dimensions	Overall length (w / grass catcher)		mm	2785		2830
	Overall width (w / mower)		mm	1210		1280
	Overall height		mm	1115	1345	1385
	Wheel base		mm	1285		
	Weight (with mower, grass catcher)		kg	524 [542]	554 [572]	590 [608]

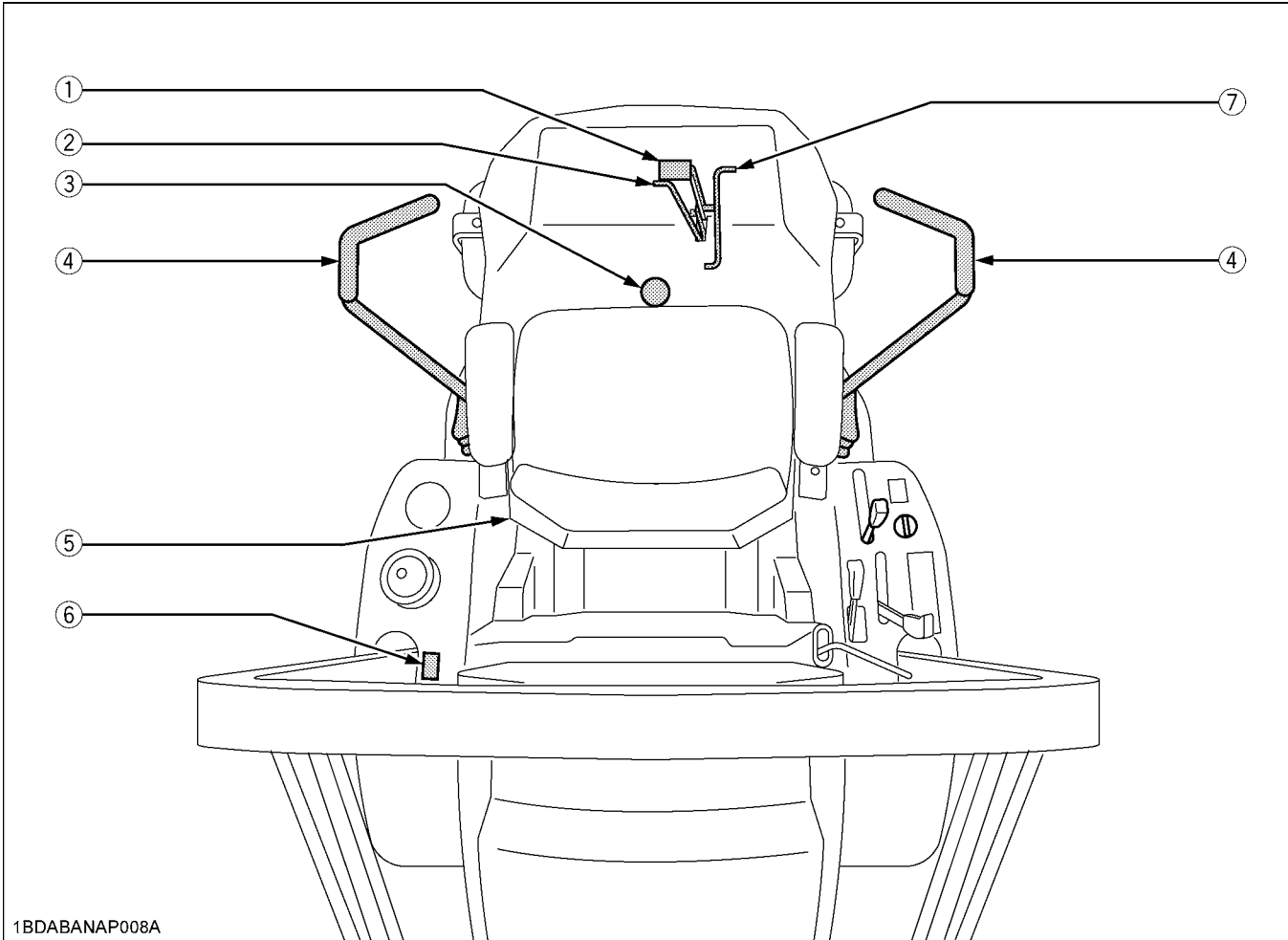
	Type		RC42GZD-II	RCK48GZD	
Mower	Cutting width	mm	1067	1219	
	Cutting height	mm	25 to 127		
	Adjustment of cutting height		Dial gauge		
	Mounting method		Quick joint, Parallel linkage		
	Weight (Approx.)		kg	66 [66]	95 [98]
	Dimensions	Total length	mm	985	950
		Total width	mm	1125	1280
Total height		mm	271	340	

	Model		GC400LZ	GC400HZ	GC500HZ
Grass catcher	Container Capacity	L	400	400	500
	Weight (Approx.)	kg	34	34	40
	Dumping height	mm	-	1800	1800

Note : *The company reserves the right to change the specifications without notice.

*[]: Value for F model

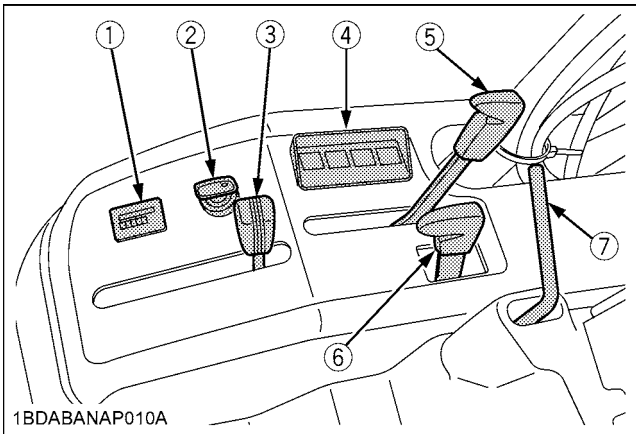
INSTRUMENT PANEL AND CONTROLS



1BDABANAP008A

ILLUSTRATED CONTENTS

(1) Brake pedal.....	13,20
(2) Parking brake lock pedal.....	13,20
(3) Cutting height control dial.....	27
(4) Motion control lever.....	13,20
(5) Operator's seat.....	20
(6) Fuel gauge.....	16
(7) Hydraulic lift pedal.....	13,20



1BDABANAP010A

ILLUSTRATED CONTENTS

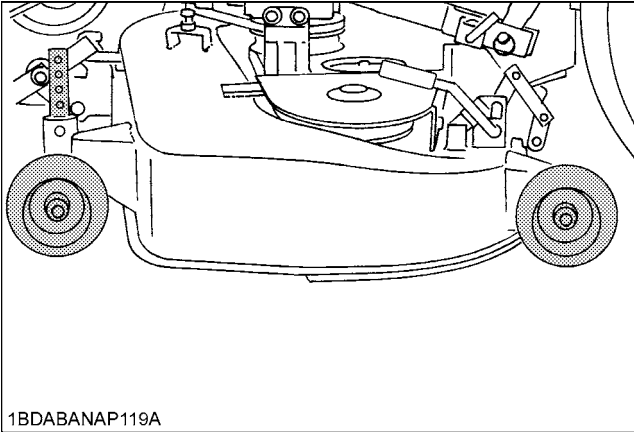
(1) Hour meter.....	17
(2) Key switch.....	13
(3) PTO lever.....	13,28
(4) Easy checker (TM).....	16
(5) Throttle lever.....	13
(6) Grass container control lever.....	29,30
(7) Quick clean lever.....	31

MOWER MOUNTING

SETTING UP THE MOWER

[Only for RCK48, RCK48 (F)]

1. Remove all mower components from the crate.
2. Attach the front anti-scalp rollers to the bracket of the deck with clevis pin and snap ring.
3. Attach the rear anti-scalp rollers to the deck with bolt, nut and collar.



MOUNTING THE MOWER DECK



CAUTION

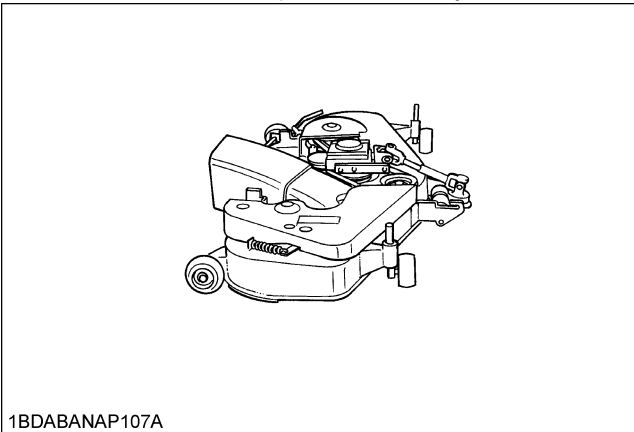
To avoid personal injury or death:

- Park the machine on a hard and level surface.
- Apply the parking brake.
- Stop the engine and remove the key.

1. Place the mower deck at the left side of the machine. Turn the front wheel to the left.

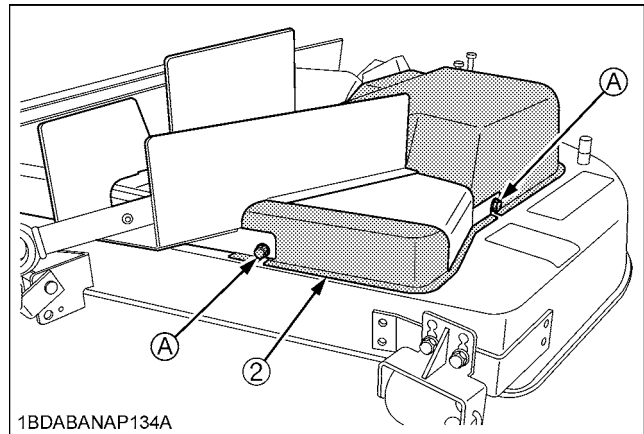
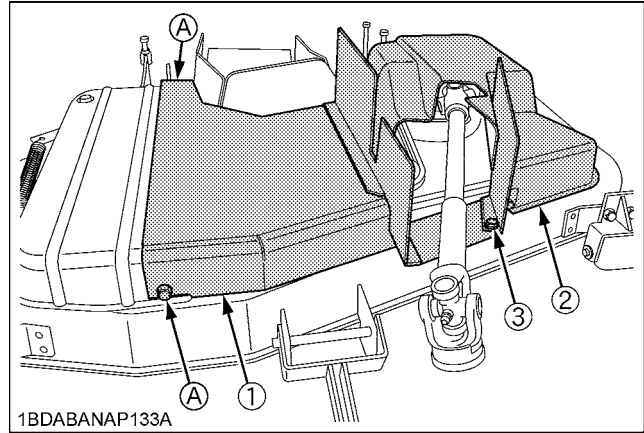
[Only for GZD21, GZD21 (F)]

Set the front anti-scalp rollers sideways.



2. [Only for GZD15-II (F)]

Install the center cover and the center left cover with bolts.



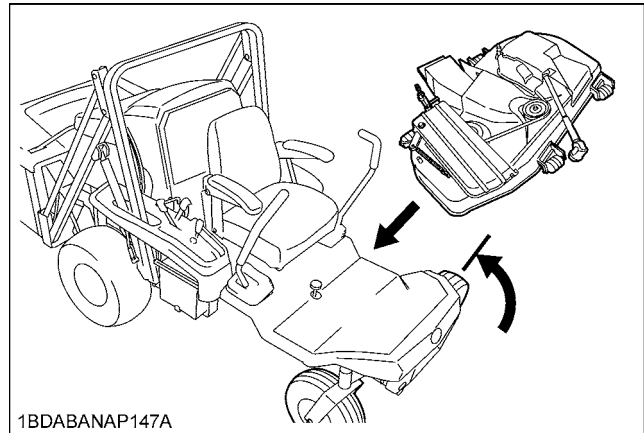
(1) Center cover

(A) Existing bolt

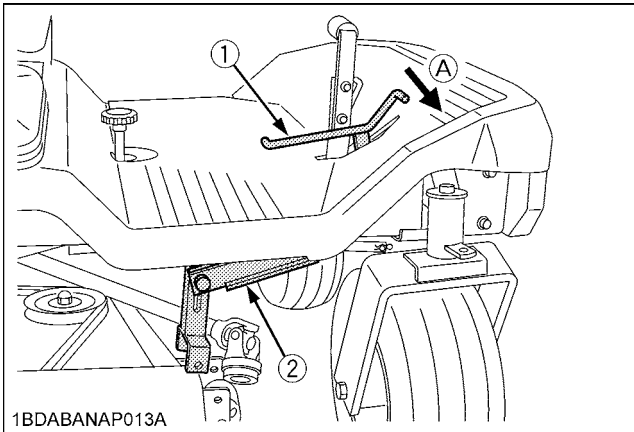
(2) Center left cover

(3) New bolt (M8 x 16)

3. Slide the mower deck under the machine.

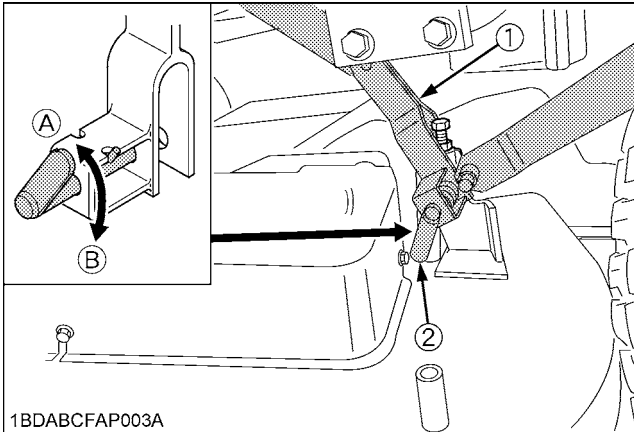


4. Move the lift pedal to lower position and pull down front arm.



(1) Lift pedal (A) "LOWER"
(2) Front arm

5. Attach the rear arm to the mower deck with the L pin.

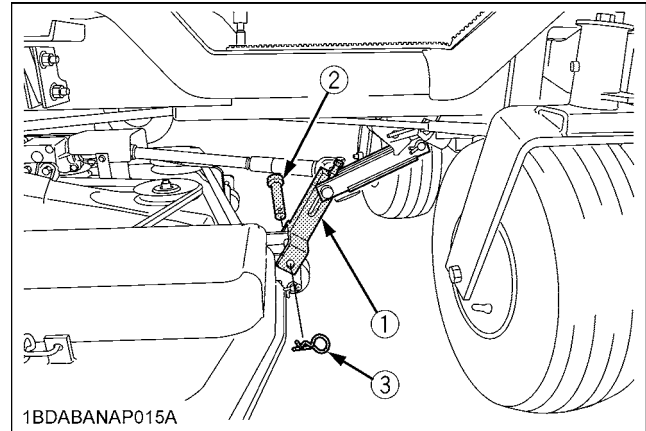


(1) Rear arm (A) "UN-LOCK"
(2) L pin (B) "LOCK"

6. Attach the front link to the mower deck with clevis pin and snap pin.

NOTE :

- Make sure the mower deck's discharge port is inside the duct. Otherwise, the duct may get damaged when the mower is raised.

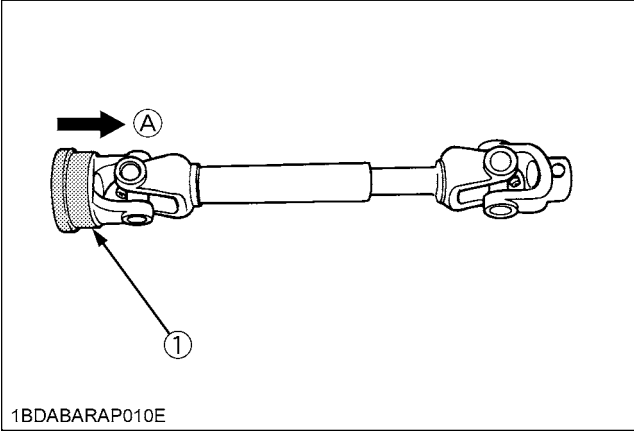


(1) Front link
(2) Clevis pin
(3) Snap pin

[Only for GZD21, GZD21 (F)]

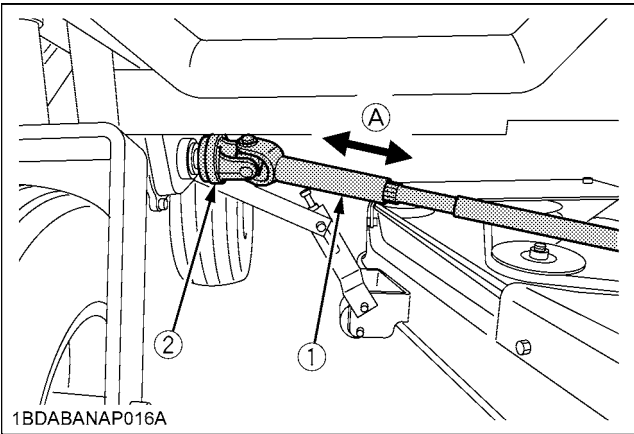
Reset the front anti-scalp rollers to straight ahead position.
(Refer to "ADJUSTING CUTTING HEIGHT" to see the anti-scalp roller's height.)

7. Install universal joint.
 Pull back coupler of the universal joint.
 Push the universal joint onto the PTO shaft until the coupler locks.
 Tug the universal joint backward and forward to make sure it is locked securely.



(1) Coupler

(A) "PULL BACK"



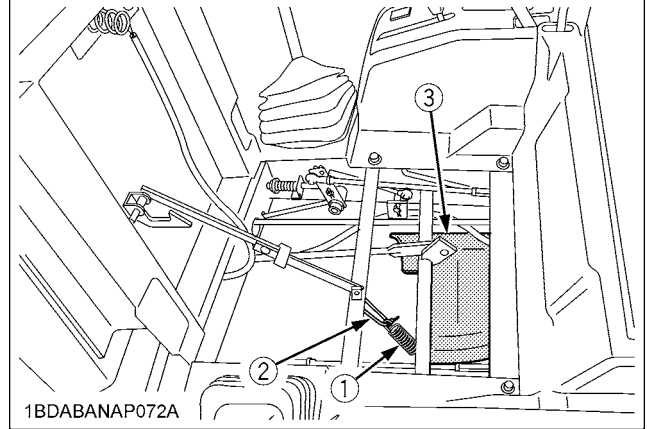
(1) Universal joint
(2) Coupler

(A) "TUG"

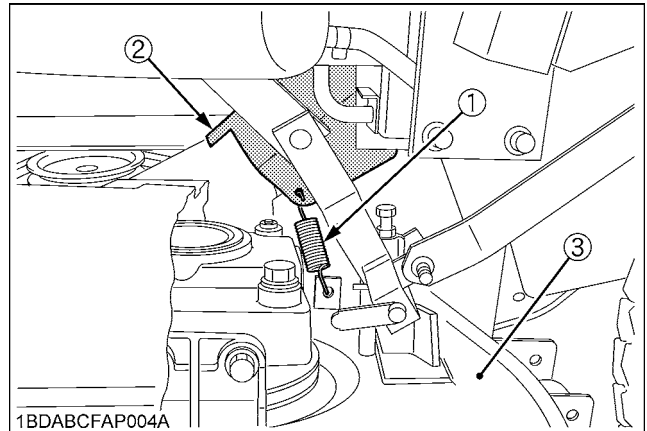
IMPORTANT :

- Finally tug the universal joint to check if it is tight in position.

8. **[Only for GZD15-II, GZD15-II (F)]**
 Raise the operator's seat.
 (See "HOW TO RAISE THE OPERATOR'S SEAT" in "PERIODIC SERVICE" section)
9. **[Only for GZD15-II, GZD15-II (F)]**
 To connect the Cover Duct to the mower deck, remove the spring from the loop of cable tie and hook it to the mower deck.



(1) Spring
(2) Cable tie
(3) Cover duct

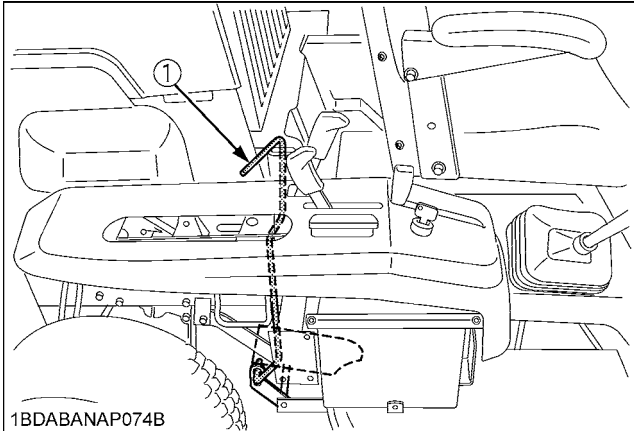


(1) Spring
(2) Cover duct
(3) Mower deck

10. [Only for GZD15-II, GZD15-II (F)]

Lower the operator's seat.
 (See "HOW TO RAISE THE OPERATOR'S SEAT" in "PERIODIC SERVICE" section)

11. Set the quick clean lever to the mower deck.

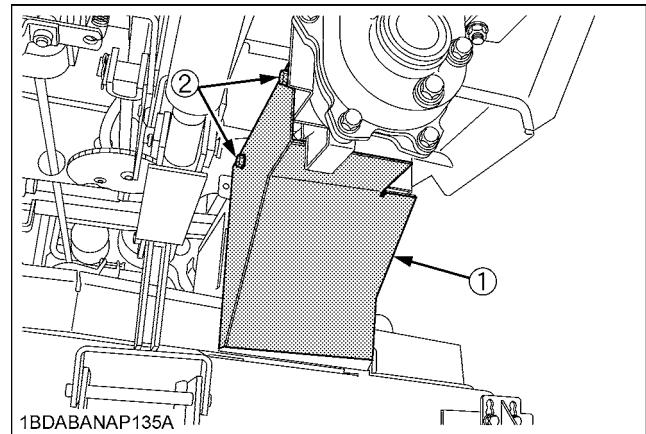


(1) Quick clean lever

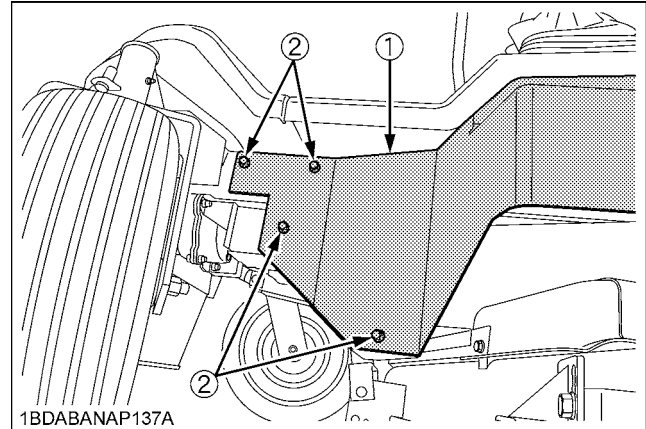
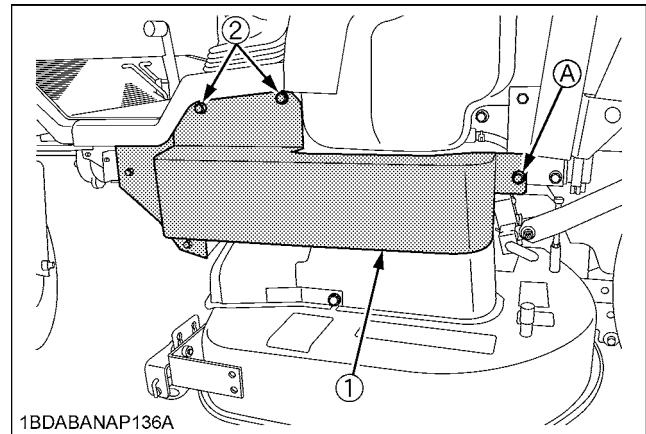
12. After mounting the mower, check the mower level.
 If necessary, adjust the mower level.

13. [Only for GZD15-II (F)]

Install the universal joint cover and the left cover with bolts.



(1) Universal joint cover
 (2) New bolt (M8 x 20)



(1) Left cover
 (2) New bolt (M8 x 20)
 (A) Existing bolt

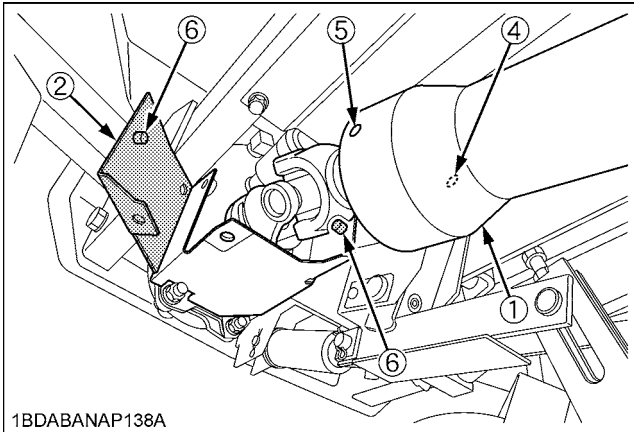
14. [Only for GZD21 (F)]

Extend the universal joint cover to the coupler of the universal joint.

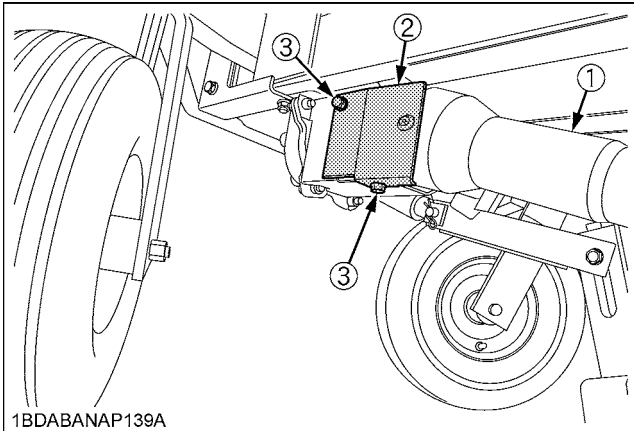
Then set 2 holes to 2 pins as shown in the figure, and use 2 bolts to install the universal joint cover front stay securely.

NOTE :

- Make sure that the pin is inserted into the hole of the cover. (2 places)



1BDABANAP138A



1BDABANAP139A

- | | |
|--------------------------------------|--------------------|
| (1) Universal joint cover | (4) Hole |
| (2) Universal joint cover front stay | (5) Hole (smaller) |
| (3) New bolt | (6) Pin |

ADJUSTING THE MOWER

See "MOWER DECK LEVEL" in Adjustment section.

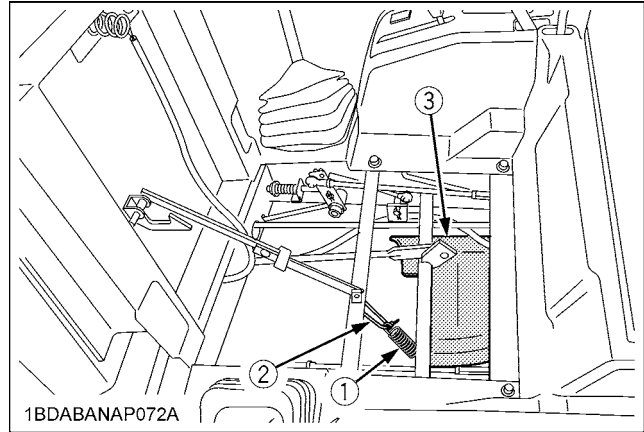
DISMOUNTING THE MOWER DECK

For dismounting the mower deck, reverse the above procedures.

[Only for GZD15-II, GZD15-II (F)]

NOTE :

- At First, remove the spring from the mower deck and hook it to the cable tie.



1BDABANAP072A

- (1) Spring
- (2) Cable tie
- (3) Cover duct

GRASS CATCHER MOUNTING

ATTACHING THE GRASS CATCHER

IMPORTANT :

- It is difficult to attach or detach the grass container because the oil pressure remains in the cylinder. Take the following steps to attach or detach the grass container.



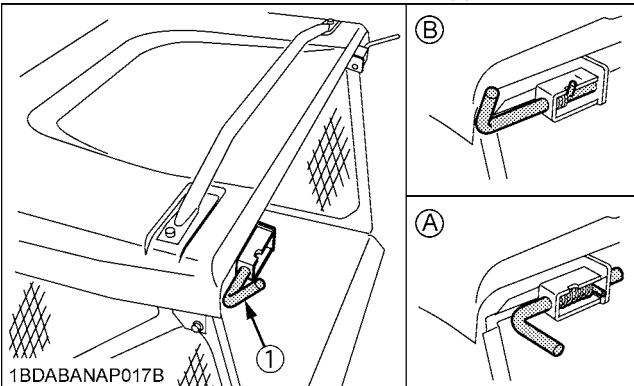
CAUTION

To avoid personal injury:

- Shut off the engine and remove the key before attaching the grass catcher.

■ Mounting the container

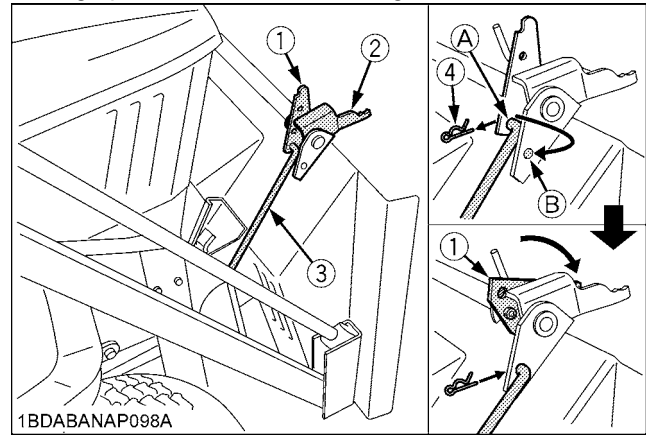
1. Park the machine on a level, spacious ground and apply the parking brake.
2. Start the engine and set the grass container control lever to "Dump" to slightly tilt the bag base.
3. Stop the engine and remove the key.
4. Pull and turn the L pin so that the spring pin can lock on the cut-out. Do the same on the opposite side.



(1) L Pin

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

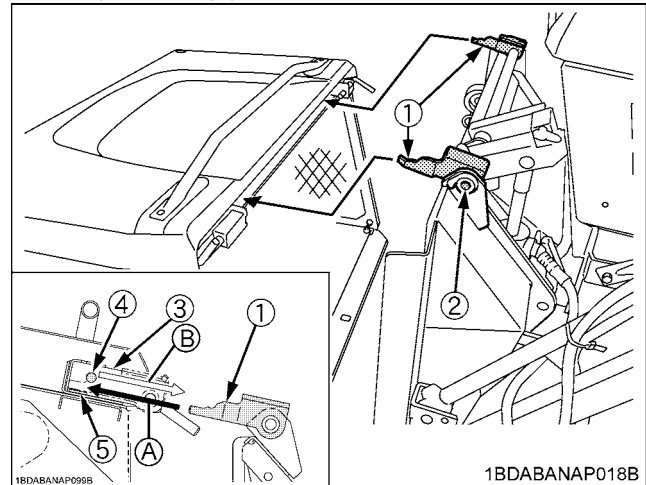
5. Remove snap pin and change the rod position temporarily from hole (A) to hole (B). Put snap pin and align plate switch with lever bag.



(1) Plate switch
(2) Lever bag

(3) Rod
(4) Snap pin

6. Hold the container and hook it to the lever bag. Align the L pin to the pipe hole. Turn L pin and put the edge of L pin to the pipe hole to lock it.

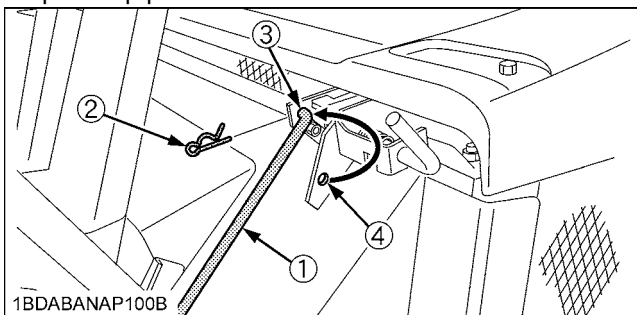


(1) Lever bag
(2) Pipe hole
(3) Container
(4) Pin
(5) Plate

(A) "INSTALL"
(B) "TAKE OUT"

12 GRASS CATCHER MOUNTING

- Return the rod position from hole (B) to hole (A) and put snap pin.



(1) Rod
(2) Snap pin

(3) Hole (A)
(4) Hole (B)

**CAUTION**

To avoid personal injury:

- Safety switch does not work correctly without connecting the rod to plate switch.

■ Dismounting the container

- Park the machine on a level, spacious ground and apply the parking brake and remove the key.
- To release oil pressure, move the control lever between "Dump" position and "Close" position.
- Pull and turn the L pin so that the spring pin can lock on the cut-out. Do the same on the opposite side.
- Take out the container.

OPERATING THE ENGINE



CAUTION

To avoid personal injury:

- Read "SAFE OPERATION" in the front of this manual.
- Read the pictorial safety 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 operator's seat.

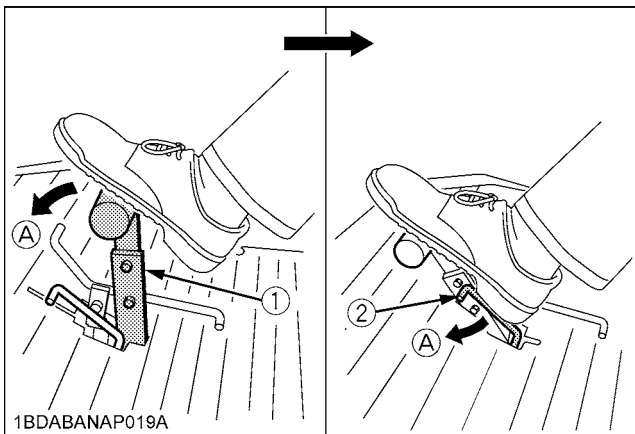
STARTING THE ENGINE

1. Sit on the operator's seat.

2. Apply the parking brake.

To apply the parking brake:

Depress brake pedal and parking brake lock pedal simultaneously.



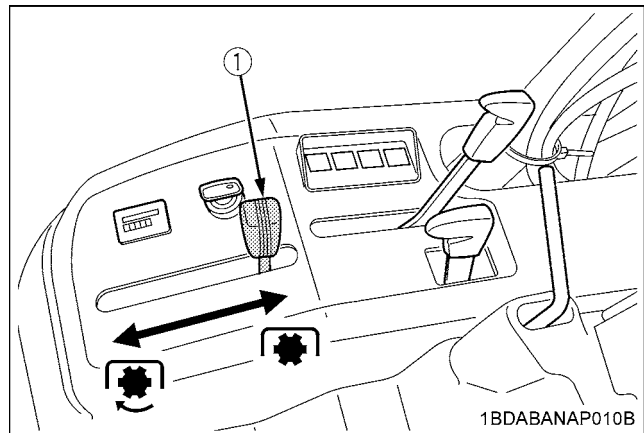
(1) Brake pedal
(2) Parking brake lock pedal

(A) "DEPRESS"

To release the parking brake:

Depress the brake pedal and release slowly.

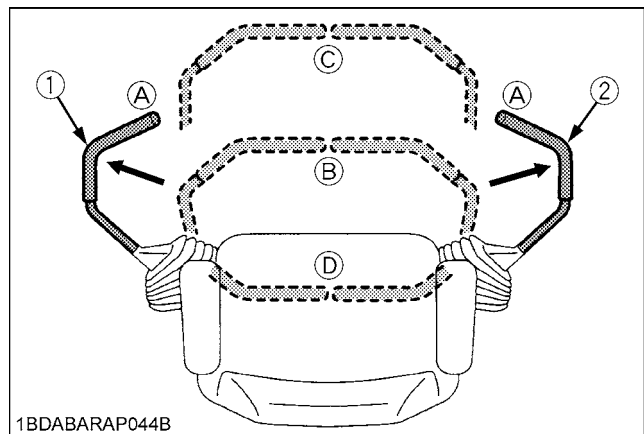
3. Make sure that the PTO lever is in the "DISENGAGED" (OFF) position.



(1) PTO lever

☒ "ENGAGED" (ON)
☒ "DISENGAGED" (OFF)

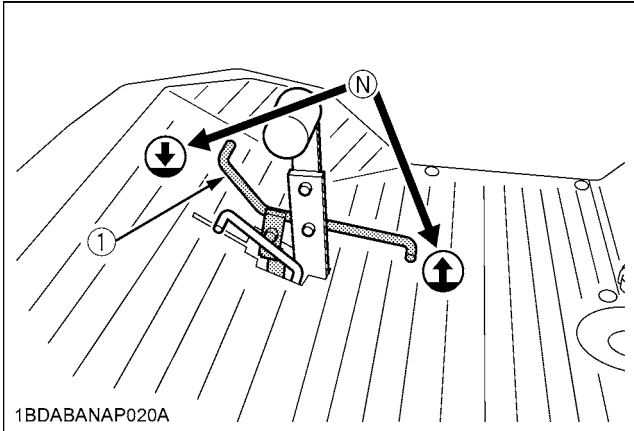
4. Place the motion control levers in the "NEUTRAL LOCK" position.



(1) Motion control lever (LH)
(2) Motion control lever (RH)

(A) "NEUTRAL LOCK" position
(B) "NEUTRAL" position
(C) "FORWARD"
(D) "REVERSE"

5. Place the hydraulic lift pedal in the "NEUTRAL" position.



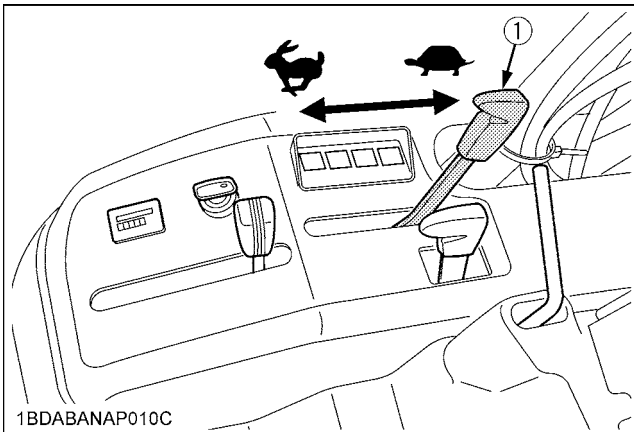
(1) Hydraulic lift pedal

- ⬇️ "DOWN"
- ⬆️ "UP"
- Ⓝ "NEUTRAL"

NOTE :

- Remove the foot from the hydraulic lift pedal, by doing so, the pedal automatically returns to the neutral position.

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



(1) Throttle lever

- 🐎 "FAST"
- 🐢 "SLOW"

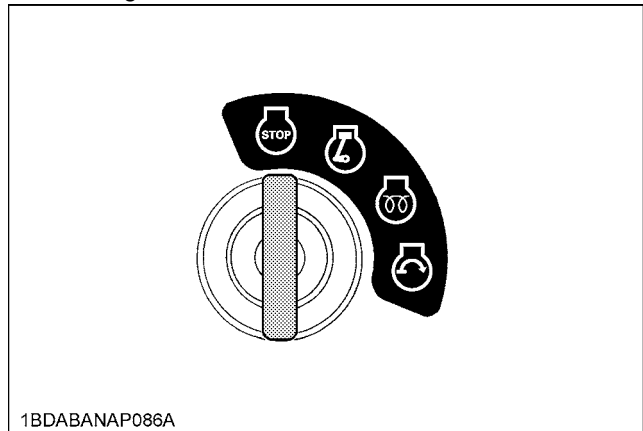
7. Insert the key into the key switch and turn clockwise 1 notch. Make sure the easy checker lights are ON.

■ Key Switch

- ⏻ OFF..... The position where the key can be inserted into or removed from the key switch. [When the key is turned to this position, the engine shuts off.]
- ⏻ ON..... The engine keeps running.
- ⏻ Preheat.. The super glow plug is heated.
- ⏻ Start..... Apply the parking brake and turn the key switch to this position to start the engine.

IMPORTANT :

- Because of the safety devices, the engine may not be started except when the PTO clutch is disengaged (OFF), the parking brake is applied, motion control levers are in "Neutral Lock" position and the operator is sitting in the seat.



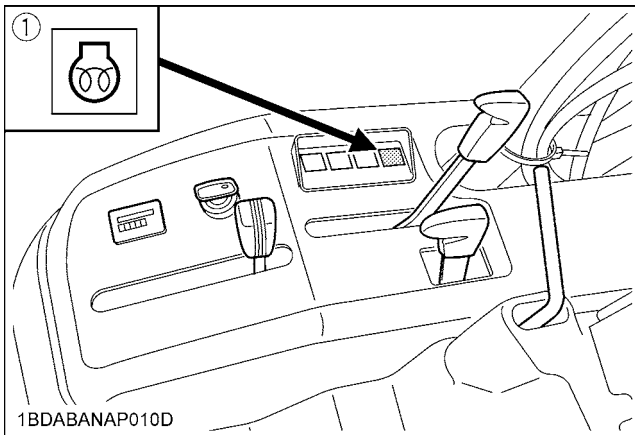
1BDABANAP086A

- ⏻ : "OFF"
- ⏻ : "ON"
- ⏻ : "PREHEAT"
- ⏻ : "START"

- 8. Turn the key switch clockwise, and hold it for about 5 seconds.
(at the "PREHEAT" position)**

For the appropriate preheating time, refer to the table below:

Temperature	Preheating Time
Over 0 °C	5 sec.
Below 0 °C	10 sec.



(1) Glow plug indicator

- 9. Turn the key switch to the "START" position and release the key to the "ON" position when the engine starts.**

IMPORTANT :

- Do not use starting fluid or ether.
 - To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.
 - Do not turn the key switch while the engine is running.
 - When the temperature is below 0 °C, run the engine at medium speed to warm up the lubricant of the engine and 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 up.
 - When the ambient temperature is less than -15 °C, remove the battery from the machine and store it somewhere warm until next the operation.
- 10. Make sure that the easy checker lights have gone off. If the light is still on, immediately stop the engine and check the remedy following the instructions. (See "CHECK DURING OPERATING" in Operating the engine section)**
- 11. Warm the engine by running at medium speed.**

CHECK DURING OPERATING

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

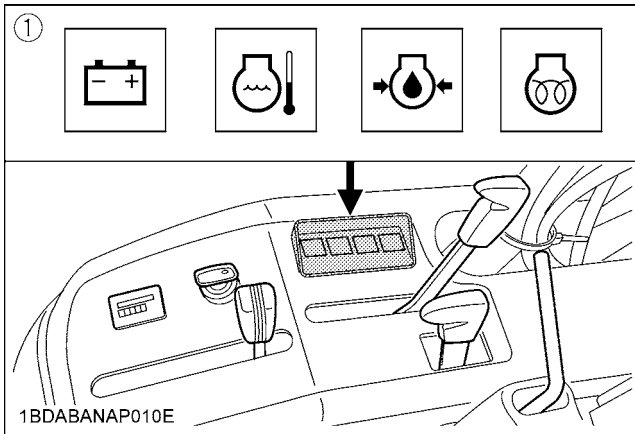
■ Immediately Stop the Engine if:

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

■ 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".



(1) Easy checker (TM)

⚠ 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, stop the engine immediately and check level of engine oil.

⚠ 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.

⚠ Coolant temperature

If this warning light comes on during operation, take the actions according to "Checking and Cleaning Radiator to Prevent Overheating".

⚠ Glow plug Indicator (Pre-heating Indicator)

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

■ Engine Overheating Precautions

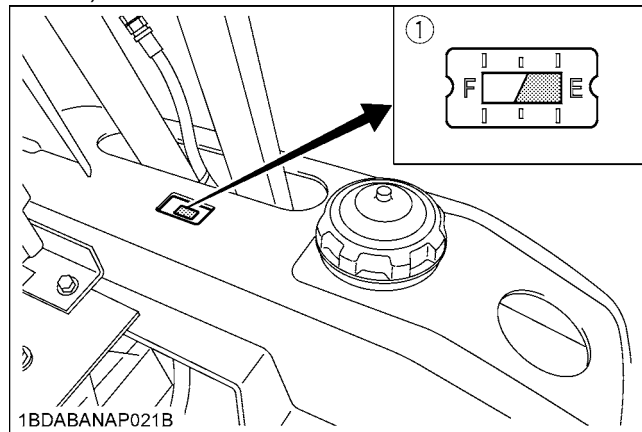
If the coolant temperature warning light come on or the buzzer sounds, take the following actions.

1. Stop machine operation in a safe place, disengage the mower deck and keep the engine idling.
2. Don't stop the engine immediately; stop it after about 5 minutes of unloaded idling.
3. Shut off the engine and keep well away from the machine for 10 minutes or while the steam is blown out.
4. Checking that there is no danger of being burned, get rid of the causes of overheating according to the manual, see "TROUBLESHOOTING" section. Start the engine again.

■ Fuel Gauge

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"

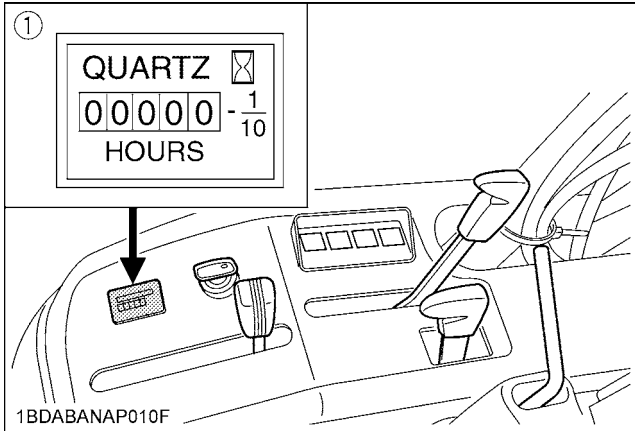
IMPORTANT :

- Do not refuel over "F". Fill tank only to bottom of filler neck in the fuel tank.

Hour Meter

This meter gives readings for the hours the machine has been operated.

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



(1) Hour meter

COLD WEATHER STARTING

When the ambient temperature is below -5°C 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 8, 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 0°C .

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. 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 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:

Ambient temperature	Warm-up time requirement
Higher than 0°C	Approx. 5 minutes
0 to -10°C	5 to 10 minutes
-10 to -20°C	10 to 15 minutes
Below -20°C	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

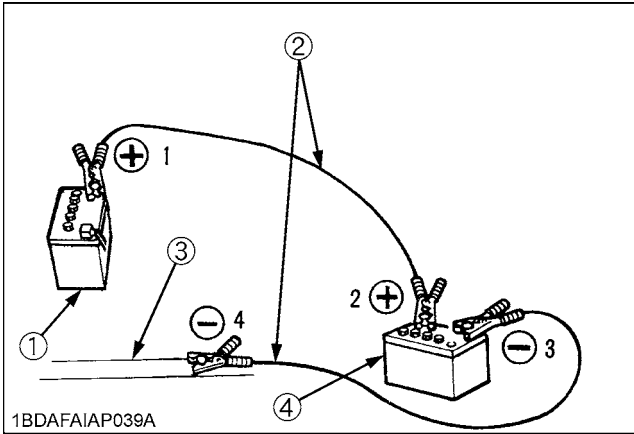
To avoid serious injury:

- 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. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery and clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.

6. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
7. Clamp the other end to the engine block or frame of the disabled machine as far from the dead battery as possible.
8. Start the helper vehicle and let its engine run for a few moments. Start the disabled machine.
9. Disconnect the jumper cables in the exact reverse order of attachment. (Steps 7, 6 and 5).



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

STOPPING THE ENGINE

1. After idling the engine, turn the key switch to "OFF" position. The engine stops when the key is turned to "OFF" position.
2. Apply the parking brake and remove the key.

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 personal injury:

- The machine relies upon the engine driven transmission for speed, direction and steering control. If the engine is not running, the machine cannot be driven or controlled. If the engine stops when operating on a slope, apply the brake immediately to prevent machine runaway.
- 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.
- When turning the machine, be sure to reduce the travel speed and operate motion control levers carefully.
- To avoid tip over, operate up and down slowly, not across. Avoid sudden starts and stops on slopes. Slow down, and use extra caution when changing direction on a slope. Park the machine on a firm, 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 the machine on streets or highways. Watch for traffic when you cross roads or operate near roads.
- Look to the rear before and when backing. Make sure the area immediately behind you is clear of obstructions or holes and small children. Use extra caution when machine is equipped with Grass Catcher.



CAUTION

To avoid personal injury:

- Clear the work area of objects which might be picked up and thrown by blades.
- Do not direct the opening of the chute at bystanders or animals. Ejected objects may cause injury. Plan your mowing carefully before starting operation.
- Keep bystanders especially children and animals away from the mowing area.
- Be sure to disengage the PTO and sit on the operator's seat before starting the engine.

STARTING

1. Adjusting the operator's position.

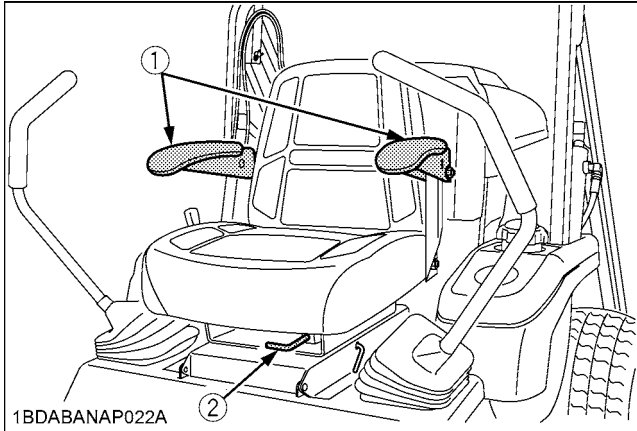
■ Operator's Seat



CAUTION

To avoid personal injury:

- Make sure that the seat is securely locked after each adjustment.
- Do not allow any person other than the driver to ride on the machine.



(1) Armrest

(2) Fore - aft adjusting handle

◆ How to adjust the operator's seat

- Fore-aft adjust
Pull the seat adjusting lever and slide the seat backward or forward.

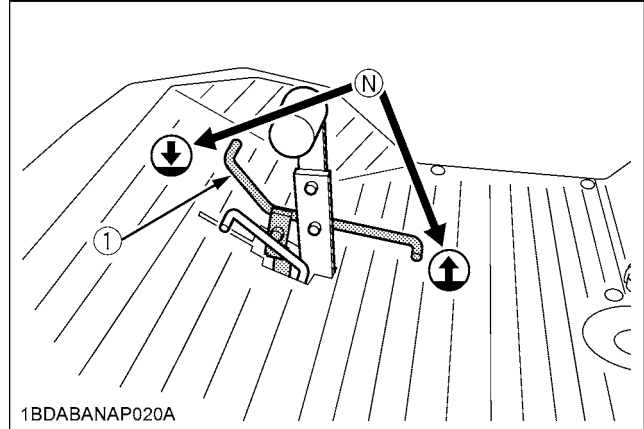
2. Raise the implement.

■ Hydraulic Lift Pedal

The hydraulic lift pedal is used to raise and lower implement used with the machine (ex. Mower).

To lower implement, foot the pedal FORWARD.

To raise it, foot the pedal BACKWARD.



(1) Hydraulic lift pedal

⬇ "DOWN"

N "NEUTRAL"

⬆ "UP"

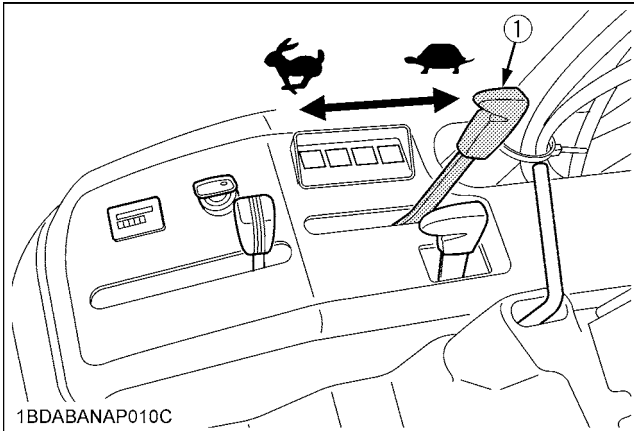
IMPORTANT :

- 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 pedal has been activated, the hydraulic mechanism is not adjusted properly. Contact your local KUBOTA Dealer for adjustment.

3. Accelerate the engine.

■ Throttle Lever

Moving the throttle lever backward decreases the engine speed and moving it forward increases the engine speed.



(1) Throttle lever

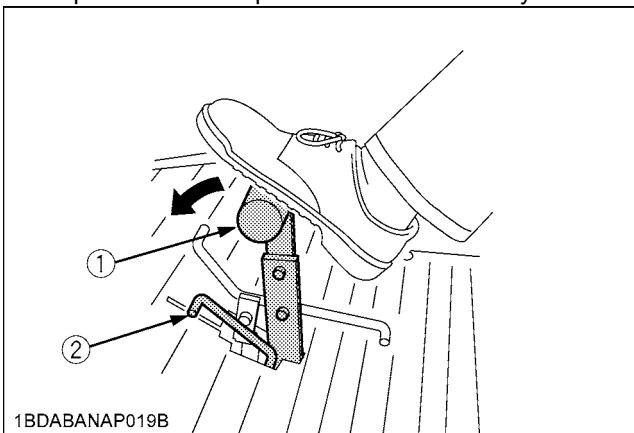
↔ "FAST"
← "SLOW"

4. Unlock the parking brake.

■ Parking Brake Lock Pedal

To release the parking brake:

Depress the brake pedal and release slowly.



(1) Brake pedal

(2) Parking brake lock pedal

5. Operating the machine.

■ Motion Control Lever



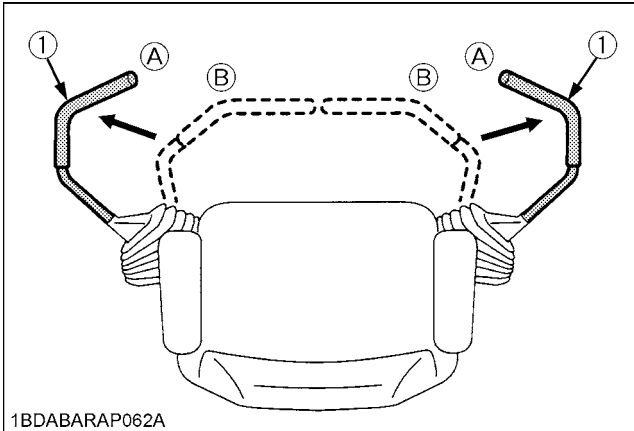
CAUTION

To avoid personal injury:

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

Stop position◆ **Neutral lock position**

- Forward and reverse movement of the motion control levers are prevented when levers are in "NEUTRAL LOCK" position. (Engine can only be started with levers in this position.)



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

Operating position

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

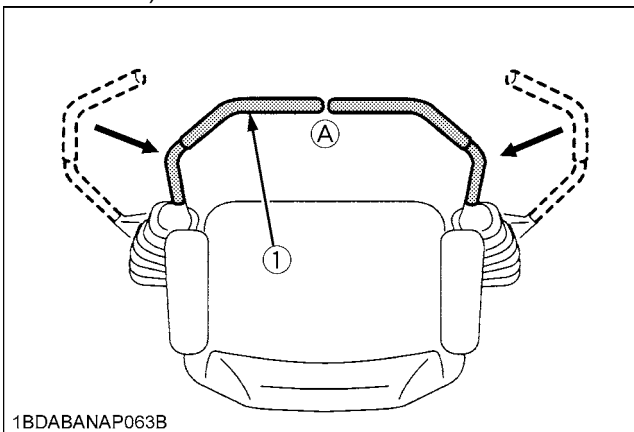
**CAUTION**

To avoid personal injury:

- No control is provided by the motion control levers when the engine is off.

◆ **Neutral position**

- Grasp the motion control levers and move them inward from the "NEUTRAL LOCK" position so that the machine is in "NEUTRAL". (Engine cannot be restarted.)



(1) Motion control lever (A) "NEUTRAL" position

◆ **Forward and Reverse Motion:**

1. Move throttle lever to the "FAST" (👉) position.
2. Release the parking brake.
3. Move both motion control levers from "NEUTRAL LOCK" position inward to the "NEUTRAL" position.
4. Push the control levers slowly forward to begin forward motion.

To move reverse:

Pull both control levers slowly rearward at the same time to begin reverse motion.

To stop:

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

**CAUTION**

To avoid personal injury:

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

NOTE :

- The motion control linkages are adjustable. If adjustment is required, see "ADJUSTMENT" section. We recommend you to contact your local KUBOTA Dealer.

◆ **Re-start on the slopes****CAUTION**

To avoid personal injury:

- Do not stop or change direction on the slopes. These operations could cause loss of the machine traction or control. Starting procedure on the slopes is different from the usual start mode on a flat surface, understand how to re-start on the slopes and use extra caution.

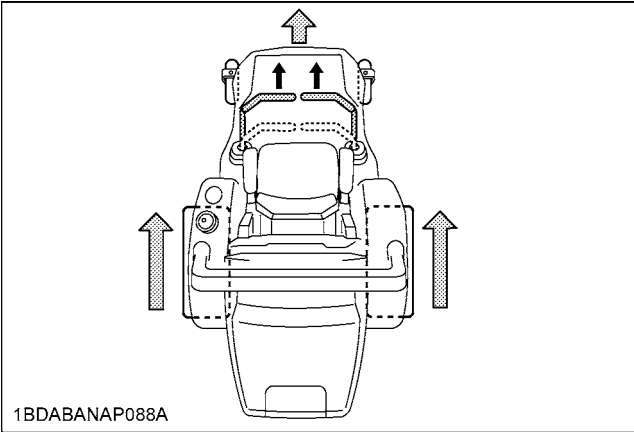
If a situation occurs where it is necessary to stop and re-start on a slope, refer to the following operational steps.

How to re-start on the slopes:

1. Firmly apply parking brake. (enough to prevent movement)
2. Start the engine.
3. Set the throttle lever to the middle position.
4. Place the control levers inward to the "NEUTRAL" position gradually.
5. Release the parking brake.
6. Move the machine slowly and carefully.

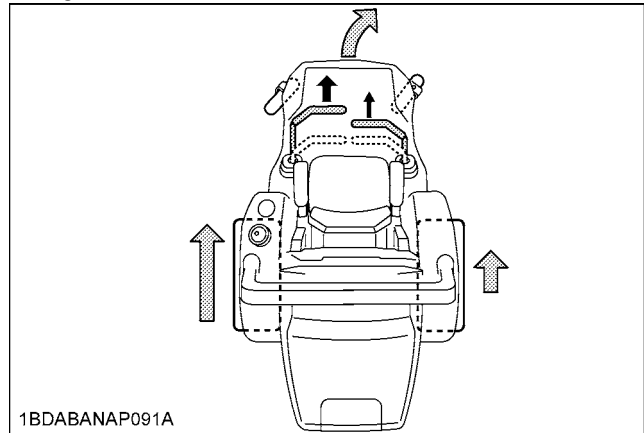
FORWARD:

- Push both motion control levers forward equally at the same time. For travel forward in a straight line.



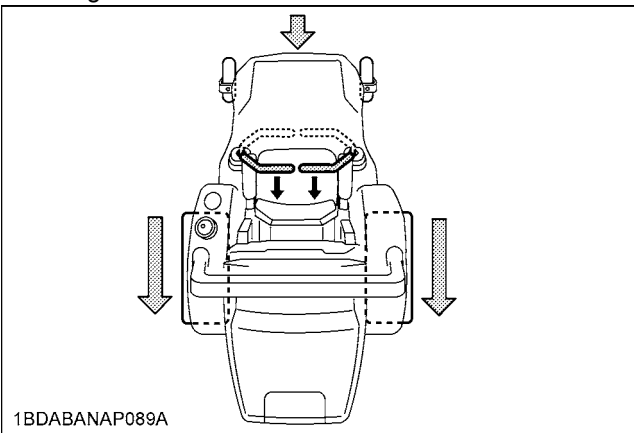
GENERAL RIGHT TURN:

- Push left motion control lever further forward than the right motion control lever. For forward travel to the right.



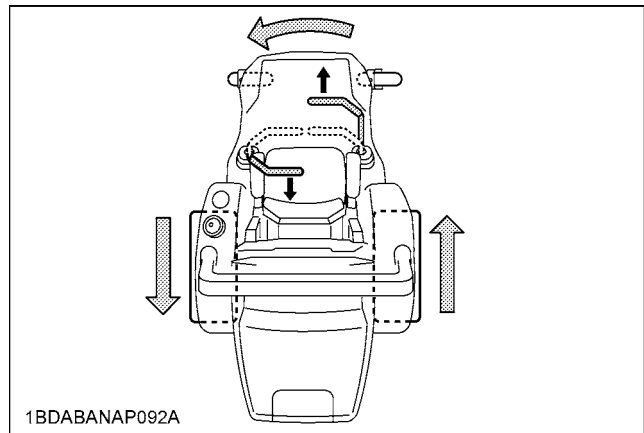
REVERSE:

- Pull both motion control levers past center rearward equally at the same time. For rearward travel in a straight line.



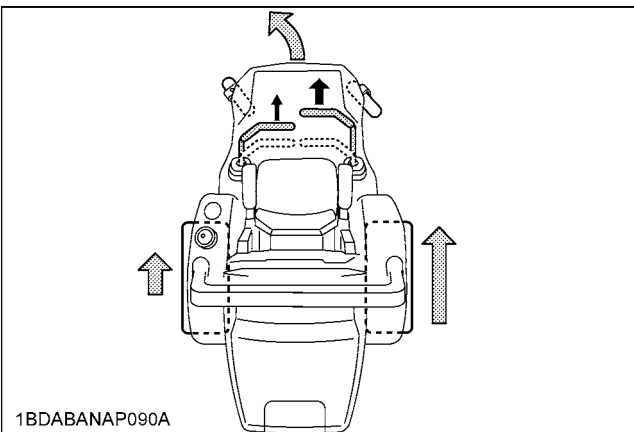
SHARP (ZERO) LEFT TURN:

- Push right motion control lever forward and pull left motion control lever rearward at the same time.



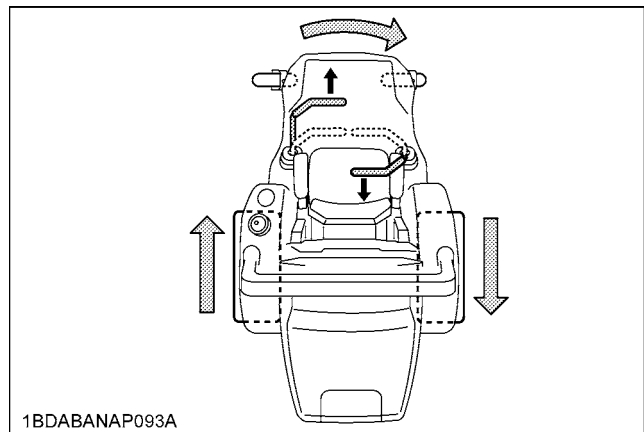
GENERAL LEFT TURN:

- Push right motion control lever further forward than the left motion control lever. For forward travel to the left.



SHARP (ZERO) RIGHT TURN:

- Push left motion control lever forward and pull right motion control lever rearward at the same time.



STOPPING



CAUTION

To avoid personal injury or death:

- Do not park the machine on an incline.
If it is necessary to park on an incline, be sure to stop the machine,
(1) Apply the parking brake, then
(2) Stop the engine.
- If you stop the engine on an incline without applying the parking brake, the machine could move and run away.

1. Move both motion control levers to the "NEUTRAL" position and depress the brake pedal to stop the machine.
2. Apply parking brake.
3. Move both motion control levers to "NEUTRAL LOCK" position.
4. Throttle lever in slow position and shift PTO lever to the "DISENGAGE" (OFF) position.
5. Lower all implements to the ground.
6. Turn off the engine and remove the key.

PARKING

TO LOCK:

Depress the brake pedal and the parking brake lock pedal simultaneously.

TO UNLOCK:

Depress the brake pedal and release slowly.



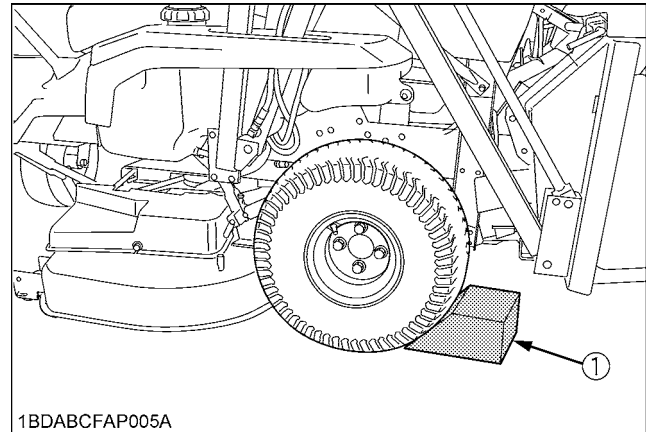
CAUTION

To avoid personal injury:

Before leaving the operator's position,

- Apply parking brake.
- Lower all implements to the ground.
- Shut off engine.
- Remove the key.
- Place motion control levers in neutral lock position.

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



(1) Chocks

TRANSPORTING

WARNING

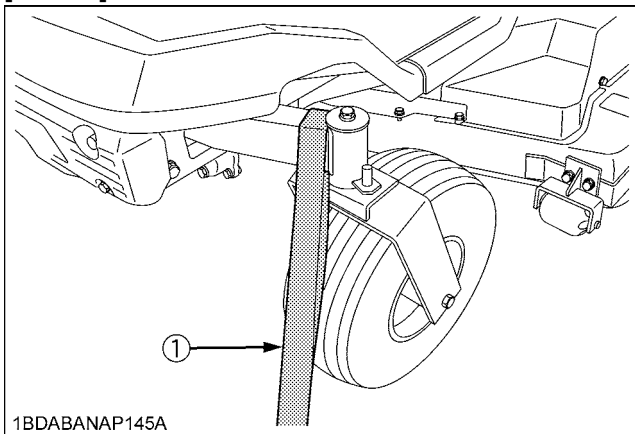
To avoid the machine tipping over or falling from a ramp, move the motion control lever slowly.

- Do not use a short ramp that makes the slope steeper.

IMPORTANT :

1. Transport the machine on a suitable truck or trailer.
 - To prevent the hood from opening by wind while in transit, it is necessary to either load the machine backward or use a suitable tie down for the hood.
 - Apply the parking brake and lift down the mower deck to the lowest position.
 - Remove the key.
 - Secure the portions of the machine, which are shown in the figure below, by using heavy duty straps.

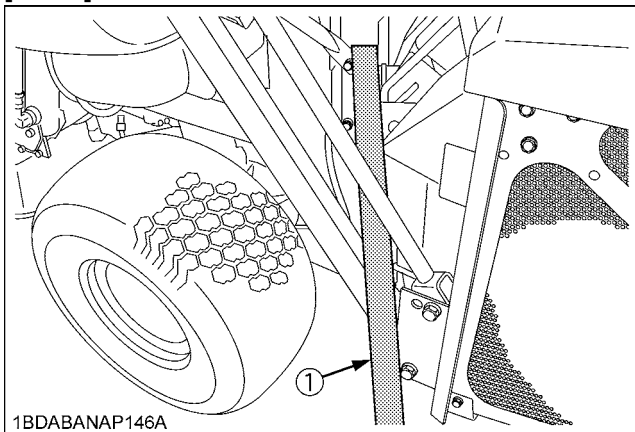
[FRONT]



1BDABANAP145A

(1) Heavy-duty strap (Both sides)

[REAR]



1BDABANAP146A

(1) Heavy-duty strap (Both sides)

2. Do not attempt to tow this machine, or damage to the transmission may result.
3. Follow all federal and local regulations for securement.

Front Wheel Bracket Lock

WARNING

To avoid personal injury:

- Lock front wheel bracket only when loading and unloading the machine. Never operate the machine with the front wheel bracket locked other than when loading and unloading the machine.

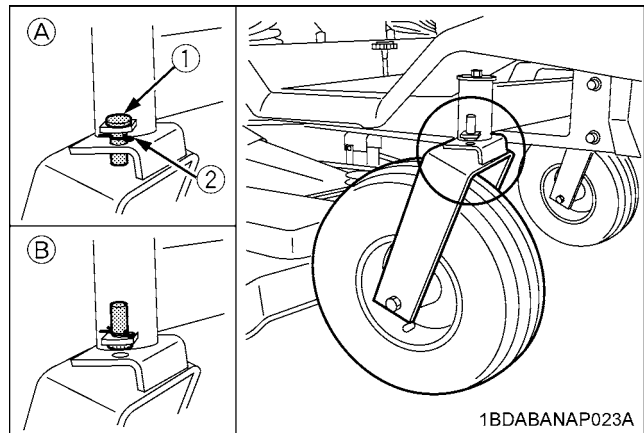
KUBOTA recommends using a ramp which covers the whole machine width. When need to use regular ramp to load and unload the machine, KUBOTA recommends to lock the front wheel bracket following the below procedure.

◆ How to lock the front wheel bracket;

1. Park the machine in front of the ramp after setting the machine direction.
2. Turn the front wheel bracket and remove the snap pin and clevis pin from front axle.
3. Turn back the front wheel bracket to align the 2 holes.
4. Reinstall the clevis pin from the top side of the stay to go through the 2 holes.
5. Put the snap pin to hole (A).

◆ How to unlock the front wheel bracket;

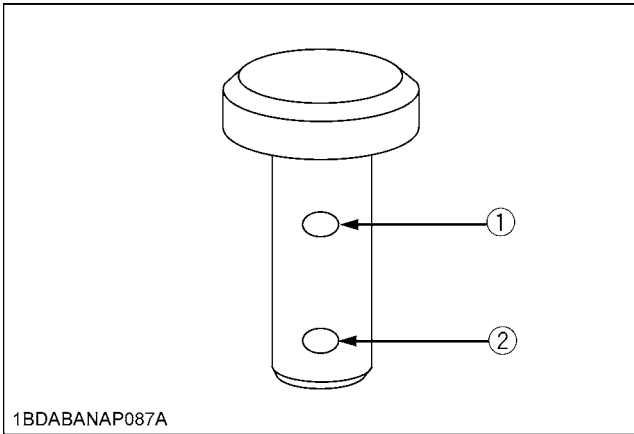
1. Remove the snap pin and clevis pin from front axle.
2. Turn the front wheel.
3. Reinstall the clevis pin from bottom side of front axle plate and put the snap pin to hole (A).
4. Turn back the front wheel.



1BDABANAP023A

(1) Clevis pin
(2) Snap pin

(A) "LOCK" position
(B) "UN-LOCK" position



1BDABANAP087A

(1) Hole (A)

(2) Do not use this hole

OPERATING THE MOWER

MAKING THE MOST OF YOUR MOWER

1. When using your mower for the first time, choose a smooth level area and cut in straight and slightly overlapping strips.
2. The size and type of the area to be mowed will determine the proper mowing pattern. Take into account obstructions, such as trees, fences and buildings. To keep grass clippings off fences, sidewalks, etc., it is advisable to go over the outside of the area to be mowed several times in a clockwise direction. To mow the area remaining, work in a counterclockwise direction so that the clippings are dispersed onto the previously cut area.
3. Always keep the left side of the mower toward trees, posts or other obstacles on the first trip around the obstacle.
4. Most lawns should be mowed to keep the grass approximately 50 to 80 mm high. Best results are obtained by cutting often and not too short. To keep a green lawn, never mow more than one third of the height of the grass or a maximum of 25 mm in one mowing.

For extremely tall grass, set the cutting height at maximum cutting height for the first mowing, then reset to the desired height and mow again. Allow the grass to grow to 8 cm, then cut off only the top inch.

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

ADJUSTING CUTTING HEIGHT



DANGER

To avoid serious injury or death:

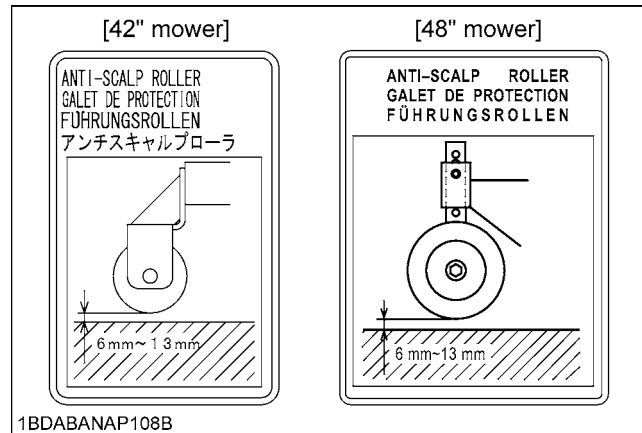
- Do not engage mower in transport position.

1. Before adjusting cutting height, check that all tire pressures are correct. If necessary adjust to the correct tire pressure.
2. To set the cutting height, depress the hydraulic lift pedal backward to raise mower deck to the top position. Adjust the cutting height control dial to the desired height.
Lower the mower deck by depressing the hydraulic lift pedal forward.
Then the mower deck will be set to the cutting height.

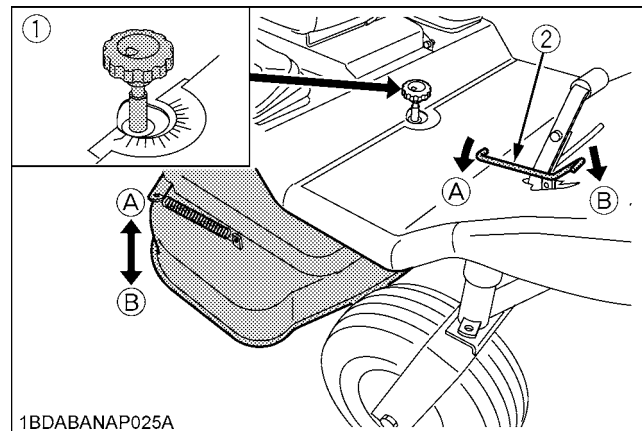
NOTE :

- "0" height point is for mounting and dismounting the mower. To avoid serious damage for your machine, do not operate the machine at "0" point.

Set the anti-scalp roller's height as shown to keep clearance between rollers and the ground more than 6 mm.



3. Use the higher settings for mowing in a rough area or when mowing tall grass. Lower settings should be used only for smooth lawns where short grass is desired.



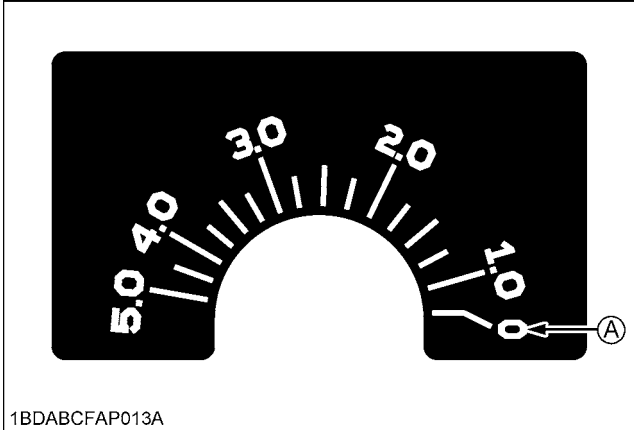
(1) Cutting height control dial

(2) Hydraulic lift pedal

(A) Raise the mower

(B) Lower the mower

4. Lower the mower deck by depressing the hydraulic lift pedal downward. This lowers the mower deck from the "Transport" position to the "Operating" position.



1BDABCFAP013A

(A) "0" height: for mounting and dismounting"

OPERATING MOWER



DANGER

To avoid serious injury or death:

- Do not operate the mower without grass catcher or rear deflector.



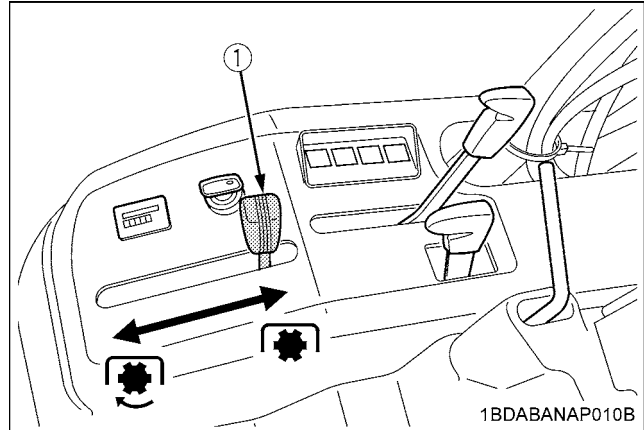
CAUTION

To avoid personal injury:

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

PTO Lever

To drive the PTO, move the PTO lever to the FORWARD position.



1BDABANAP010B

(1) PTO lever

☒ "ENGAGED" (ON)

☒ "DISENGAGED" (OFF)

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 "DISENGAGED" (OFF) position. If it is at the "ENGAGED" (ON) position, the engine will not start.

NOTE :

- These safety features are built-in.

Starting

1. Sit on the operator's seat.
2. Start the engine.
3. Engage the PTO lever.
4. Disengage the parking brake.
5. Speed up the engine by moving the throttle lever forward.
6. Push or pull the motion control levers to move forward or backward.

IMPORTANT :

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

NOTE :

- Keep the engine running at full throttle for best results. Control travel speed with the motion control levers.
- During heavy duty use, operate the machine at a slower ground speed or go over the area twice.
- Keep the mower deck in the raised position when the mower is disengaged.
- The mower will not cut cleanly if the ground speed is too high or if the blade speed drops due to an overload.
- To prevent the engine from overheating, keep the radiator and radiator screen clean.

OPERATING THE GRASS CATCHER



DANGER

To avoid serious injury or death:

- Do not operate mower without grass catcher.

OPERATING PERFORMANCE

1. Overall grass collecting performance depends on the airflow from the mowing blades, through the ducts, into the grass container.
2. Mow and collect when the grass is dry and not too tall. Never mow grass when it is wet or heavy with dew as the grass catcher duct may plug rapidly.
3. If the grass is unusually tall, mow and collect at a higher than desired height of cut. Attempting to mow with the deck too low in tall grass will restrict intake air necessary for good collecting performance. Tall grass clippings may also plug the ducts before the container is filled. After tall grasses have been mowed, reset the mower to the desired height of cut and remove the area.
4. Always mow at full engine throttle. If the engine lugs down while mowing, reduce riding mower ground speed.
5. During the mowing operation, when the lumps of the grass clippings begin to drop on the mowing track, the machine tells you that the discharging duct is plugged and the grass container is filled. In such cases, empty the container, then push down the front quick clean plate lever several times to discharge the grass completely.
6. Thoroughly clean the mower deck, discharge duct and the net of container after each mowing. Grass build-up, left to dry, will be very difficult to remove, and if not removed, will effect future mowing and bagging performance.

EMPTYING GRASS CATCHER (For LD)



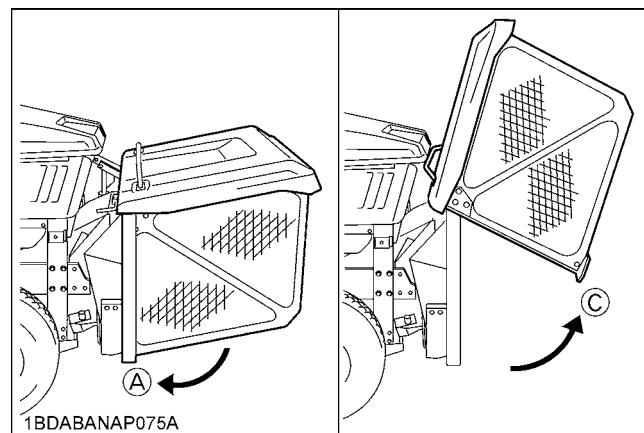
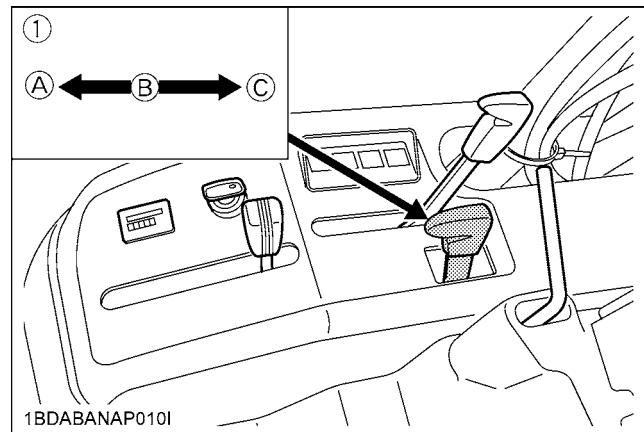
CAUTION

To avoid personal injury:

- Raise and dump collected leaves or grass clippings **ONLY** while sitting on the Operator's Seat.
- Empty the container **ONLY** from a firm and level surface, with the mower stopped, and the machine stationary. Dumping the container on soft or uneven ground, or while moving, could cause the machine to tip over, causing serious injury and extensive equipment damage.
- Make sure the dumping area is clear of all bystanders and pets, before emptying grass clippings or leaves from the container.

To empty :

1. Disengage the PTO lever.
2. Pull the grass container control lever backward to dump the grass and push the lever forward to close the container.



(1) Grass container control lever

(A) "CLOSE"

(B) "NEUTRAL"

(C) "DUMP"

NOTE :

- To facilitate grass collection after mowing, it is also better to put grass in 2 or 3 heaps instead of spreading them over the area to be mowed.
- Due to the simplicity and speed of this hydraulic emptying, there is no point in wanting to fill the container completely. Empty the container even if it is not quite full whenever you are close to a grass heap that you have already started. You will thus avoid unnecessary maneuvering.

EMPTYING THE GRASS CATCHER (For HD)



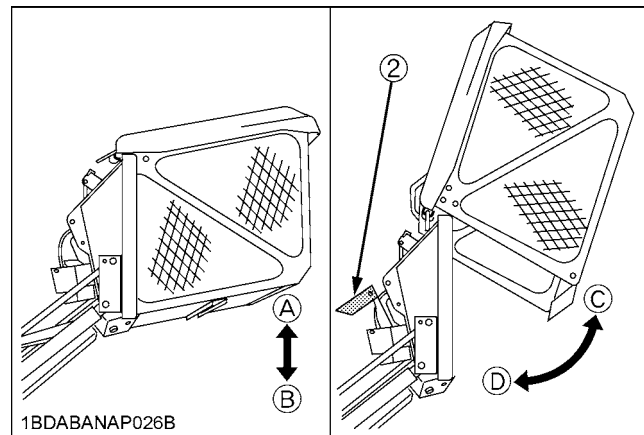
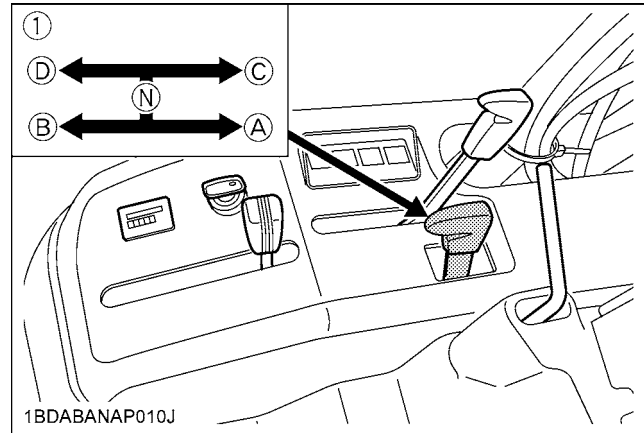
CAUTION

To avoid personal injury:

- Raise and dump collected leaves or grass clippings **ONLY** while sitting on the Operator's Seat.
- Empty the container **ONLY** from a firm and level surface, with the mower stopped, and the machine stationary. Dumping the container on soft or uneven ground, could cause the machine to tip over, causing serious injury and extensive equipment damage.
- Make sure the dumping area is clear of all bystanders and pets, before emptying grass clippings or leaves from the container.
- With the grass container raised, do not run the machine too fast nor make a sharp turn.
- Attach the front weights when collecting grass, otherwise the machine will be difficult to maneuvering. Also increase the front weight depending on a work situation.
- Make sure the grass container is tightly closed and lower the grass container. Otherwise the machine may get damaged.

To empty the grass container:

1. Turn the PTO lever to the "OFF" position.
2. Move the grass container control lever to (A) to lift the container.



- (1) Grass container control lever
(2) Bottom plate

- (A) "UP"
(B) "DOWN"
(C) "DUMP"
(D) "CLOSE"
(N) "NEUTRAL"

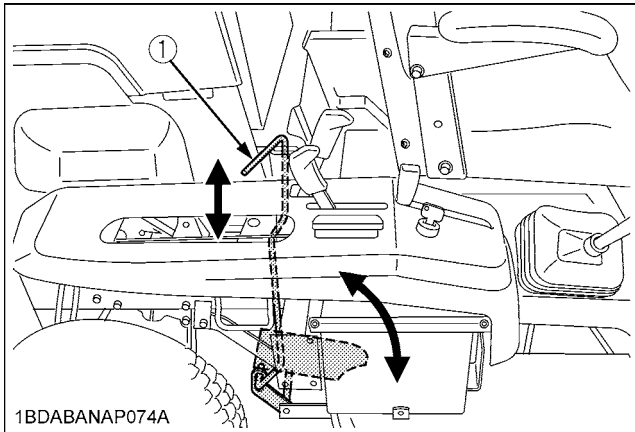
3. Stop the container at a height that you like to empty.
4. Move the control lever to (C) to tilt and empty the container.
5. With grass discharged, move the control lever to (D) to shut the back cover completely. Now move the control lever to (B) to lower the container. Be careful not to hit the container or the bottom plate.

QUICK CLEAN LEVER

The quick clean lever is designed for discharging the grass, when the outlet of the mower is blocked.

To operate:

1. Park the machine on a level surface.
2. Pull the PTO lever to the "DISENGAGED" position.
And allow the blades to stop before operating the lever.
3. Raise the mower deck to the top position.
4. Push down the lever several times.



(1) Quick clean lever

NOTE :

- Quick clean lever can be rotated fully with mower raised position.
- To effectively discharge the grass, be sure to push down the lever several times.

CLEANING



CAUTION

To avoid personal injury:

- Do not clean the machine with engine running.
- Be sure to set the parking brake during cleaning.
- Stop the engine and remove the key.

CLEANING WITH WATER

The use of a high pressure cleaner is not recommended. However if you use one, take care not to splash water on engine parts such as the air filter, exhaust muffler, battery. Do not direct jet towards hydraulic elements.

CLEANING THE MOWING SYSTEM

After each use, carefully clean the mowing deck, particularly underneath. Switch the engine off before cleaning your machine. When your mower deck is F model, remove shields and stays, and then clean them and mower deck. (See "Cleaning Mower Deck" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

The inside part of the mowing system can also be cleaned with water through the discharge duct.

Remove the grass container to access the discharge duct. Operate the mowing system for a few minutes after cleaning.

NOTE :

- If the mower was used under very difficult conditions (very wet grass, mowing in a very low position), it may be necessary to remove the cutting deck to clean it. At the same time, you should take the opportunity to check the condition of the blades, belts and bolts and replace them if needed.

CLEANING THE GRASS CATCHING CONTAINER

The grass catching container must be cleaned after each use in order to allow optimum evacuation of air. This is done with a water jet.

A cutting system with a properly maintained collection container will cut and collect grass more efficiently.

CLEANING THE MOWING SYSTEM USING A HOSE



DANGER

To avoid serious injury or death:

- Do not clean the mower deck without the Grass Catcher attached.

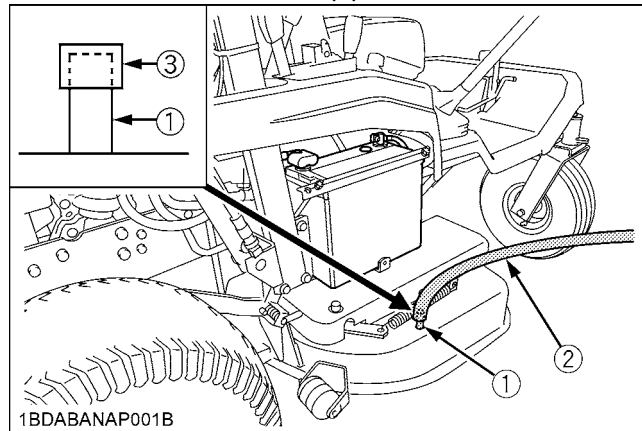


CAUTION

To avoid personal injury:

- Clear the work area of objects which might be picked up and thrown by blades.
- Keep bystanders and animals away from the mower deck.
- Be sure to disengage the PTO and sit on the operator's seat before starting the engine.
- Be sure to set the parking brake during cleaning.

1. (Remove the cap from the mower pipe and) Install the water hose to the mower pipe.



- (1) Pipe
(2) Water hose
(3) Cap (only 42" mower)

2. Turn on water.
3. Start the engine.
4. Set the throttle lever to the "FAST" position.
5. To engage mower blades, push down the PTO lever to the "ENGAGED" position for a few minutes.
6. To stop the mower blades, pull the PTO lever to the "DISENGAGE" position.
7. Stop the engine.
8. Turn off water and remove the water hose.
9. Remove the water hose and put the cap certainly to the mower pipe.
10. Install the water hose to the mower pipe of the opposite side and turn on water.
Repeat steps 3 through 9.

TIRES AND WHEELS

TIRES



WARNING

To avoid personal injury:

- Do not attempt to mount a tire. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the Operator's Manual.
- Inflation pressure in front tires rises quickly when using compressed air.



CAUTION

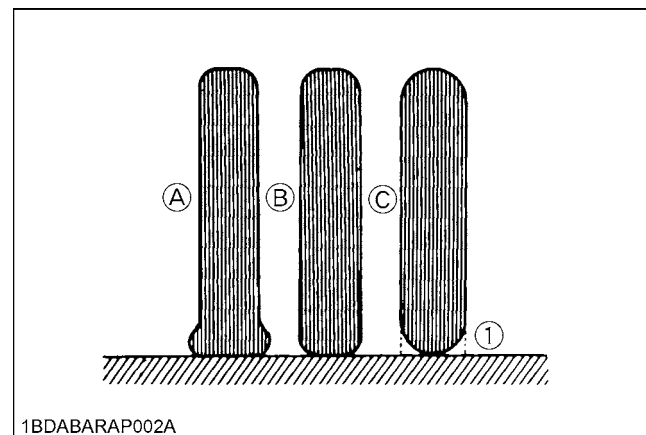
Never operate machine with a loose rim, wheel, or axle.

- 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 Pressure
Front	15 x 6.0-6, 4PR Rib	207 kPa (2.1 kgf/cm ²)
Rear	20 x 10.00-8, 4PR Turf	140 kPa (1.4 kgf/cm ²)
	23 x 10.50-12, 4PR Turf	



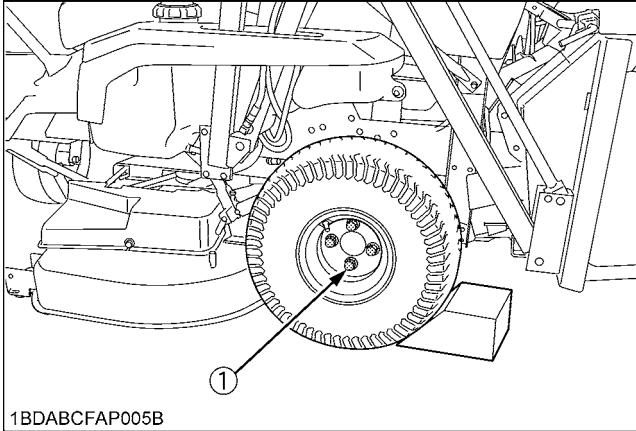
(1) Ground

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

WHEELS

IMPORTANT :

- When re-fitting a wheel, tighten the nuts to the following torques then recheck after traveling 200 m changing directions several times.



(1) 78 to 90 N-m (8.0 to 9.2 kgf-m)

■ Rear Ballast (Option)

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

◆ Rear wheel weights (option)

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

■ Remove and Install Front Caster Wheels

◆ Removing

1. Park machine on a hard, level surface.
2. Stop engine and apply parking brake.
3. Lift front of machine with a safe lifting device.
4. Remove lock nut (A) with nylon sleeve and wheel bolt (B).
5. Remove wheel from assembly yoke (C).

◆ Installing

1. Install replacement wheel.
2. Install wheel bolt (B) and lock nut (A) with nylon sleeve.
3. Install nut. Do not tighten.

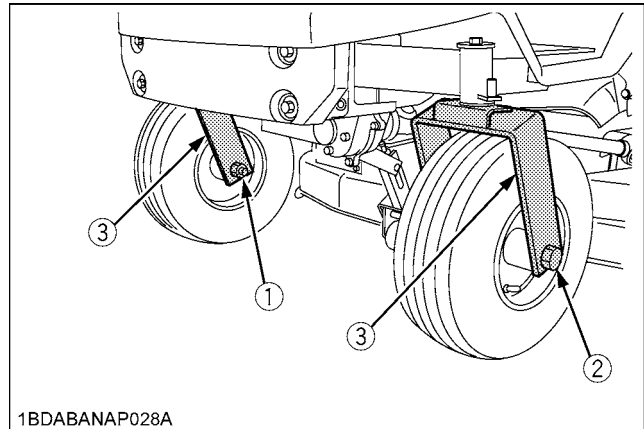
IMPORTANT :

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

Reference

Tightening torque	20 to 25 N-m (2 to 2.5 kgf-m)
-------------------	----------------------------------

4. Lower machine.



- (1) Lock nut (A)
(2) Wheel bolt (B)
(3) Yoke (C)

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)												After since	Ref. page	
			50	100	150	200	250	300	350	400	450	500	550	600			
1	Engine oil	Change	☉	○		○		○		○		○		○	every 100Hr	42	
2	Engine oil filter	Replace	☉			○				○				○	every 200Hr	59	
3	Transmission & Rear axle gear case (RH & LH) fluid	Change				☉				○				○	every 200Hr	59	
4	Transmission oil filter	Replace	☉			○				○				○	every 200Hr	61	
5	Transmission strainer	Clean				☉				○				○	every 200Hr	59	
6	Front PTO case fluid	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	50	
7	Front axle pivot	Adjust		☉		○				○				○	every 200Hr	62	*2
8	Front caster (only GZD 21)	Adjust		☉		○				○				○	every 200Hr	63	*2
9	Safety device	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	47	
10	Oiling	-	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	52	
11	Greasing	-	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	50	
12	Mower gear box oil	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	49	
		Change			○			○			○			○	every 150Hr	58	
13	Air cleaner element	Clean	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	48	*1
		Replace													every 1 year	63	
14	Battery condition	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50Hr	54	
15	Fan belt	Adjust		○		○		○		○		○		○	every 100Hr	57	
16	Parking brake	Adjust		○		○		○		○		○		○	every 100Hr	57	*2
17	Fuel filter element	Check		○		○		○		○		○		○	every 100Hr	56	
		Replace								○					every 400Hr	63	*2
18	Fuel line	Check		○		○		○		○		○		○	every 100Hr	56	
		Replace													every 2 years	65	*2

No.	Items		Indication on hour meter (Hr)												After since	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600				
19	Radiator hose and clamp	Check				○					○				○	every 200Hr	62	
		Replace														every 2 years	65	*2
20	Hydraulic hose	Check				○					○				○	every 200Hr	62	
		Replace														every 2 years	65	*2
21	Intake air line	Check				○					○				○	every 200Hr	63	
		Replace														every 2 years	65	*4
22	Engine breather hose	Replace													every 2 years	65	*3	
23	Radiator	Clean													every 1 year	63		
24	Coolant	Change													every 1 year	63		
25	Mower gear box oil seal	Replace													every 2 years	65	*2	
26	Fuel system	Bleed													Service as Required	71		
27	Fuse	Replace												66				
28	Blade	Replace												66				
29	Mower belt	Replace												69				

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.

LUBRICANTS, FUEL AND COOLANT

Place	Capacities			Lubricants
	GZD15-II LD	GZD15-II HD	GZD21-HD	
Fuel	20 L			<ul style="list-style-type: none"> • No.2-D diesel fuel • No.1-D diesel fuel if temperature is below -10 °C
Coolant	1.4 L		1.9 L	Fresh clean water with anti-freeze
Recovery tank	0.25 L			
Engine crankcase	2.1 L*		2.8 L*	<ul style="list-style-type: none"> • Engine oil: API Service Classification CD, CE or CF Above 25 °C ...SAE30, SAE10w-30 or 15w-40 0 to 25 °CSAE20, SAE10w-30 or 15w-40 Below 0 °CSAE10W, SAE10w-30 or 15w-40
Transmission case & Rear axle gear case (RH & LH)	10.0 L			<ul style="list-style-type: none"> • KUBOTA UDT or SUPER UDT fluid*1
Mower gear box	0.4 L			
Front PTO case	0.13 L			

Greasing	No. of greasing points	Capacity	Type of grease	
Motion control lever boss	2	Until grease overflows	<ul style="list-style-type: none"> • Multipurpose EP2 Grease (NLGI Grade No. 2) 	
King Pin	2			
Center Pin	1			
Front wheel	2			
Front PTO drive shaft	2			
Engine universal joint	1			
Front lift arm (for GZD21)	1			
Motion control lever	-	Moderate amount	<ul style="list-style-type: none"> • Oil 	
Mower link	-			
Seat adjuster	-			
Cable	-			
Hydraulic lift pedal	-			
Grass catcher link	-			
[MOWER]		Until grease overflows	<ul style="list-style-type: none"> • Multipurpose EP2 Grease (NLGI Grade No. 2) 	
Universal joint	3			
2 spindle shafts	2			3
Tension arms	1			2

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, CD or CE lubricating oil with a high total base number. **If the CF-4 or CG-4 lubricating oil is used with a high-sulfur fuel, change the lubricating oil at shorter intervals.**
 - Lubricating oil recommended when a low-sulfur or high-sulfur fuel is employed.

○ : Recommendable X : Not Recommendable

Lubricating oil class	Fuel		Remark
	Low-sulfur	High-sulfur	
CF	○	○	TBN \geq 10
CF-4	○	X	
CG-4	○	X	

- Transmission oil (KUBOTA SUPER UDT *1):
KUBOTA Original Transmission hydraulic fluid
The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and complete lubrication of the transmission, it is important that a multi-grade transmission fluid be 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 capacity of water and oil are manufacture'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



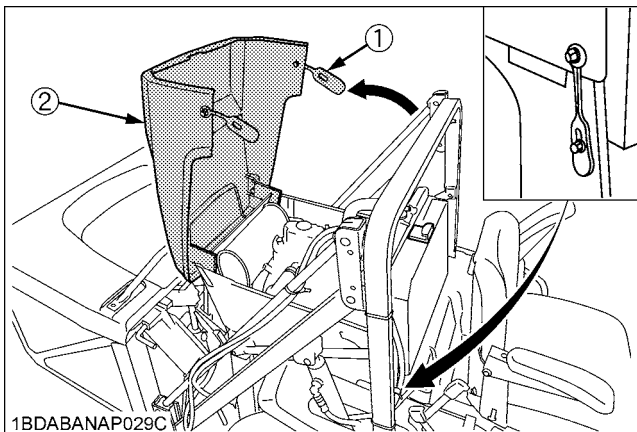
CAUTION

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.

■ Hood

To open the hood, remove the bands and lift the front end of the hood.



- (1) Band
- (2) Hood

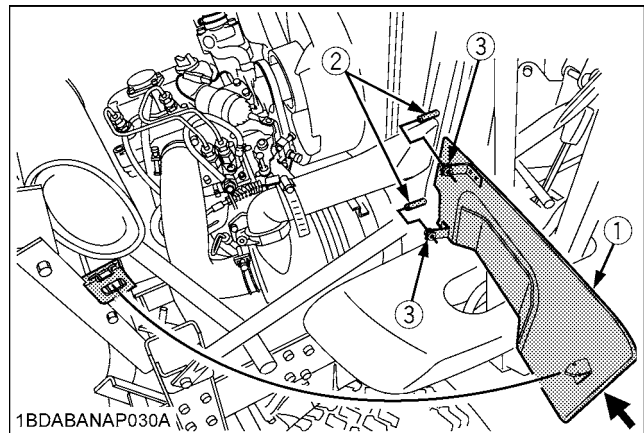
■ Engine Side Cover

◆ Detaching

1. Pull the arrow part of a cover and release the cover lock.
2. Detach the cover rearward, along the guide pins.

◆ Installation

1. Pass through the guide pin to the guide hole of the cover.
2. Push the arrow section of the cover inside, lock the cover.



- (1) Engine side cover
- (2) Guide pin
- (3) Guide hole

HOW TO RAISE THE OPERATOR'S SEAT

◆ Raise

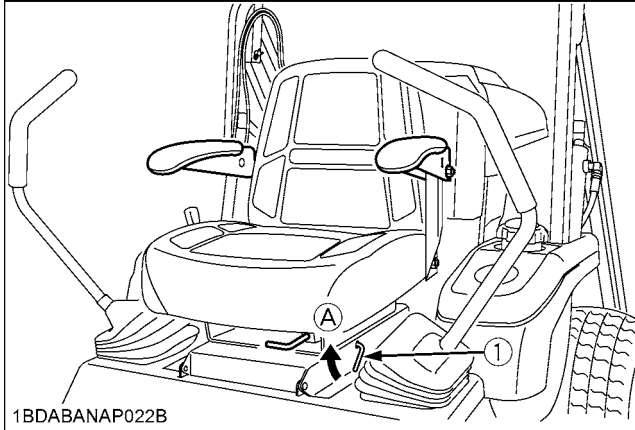


CAUTION

To avoid personal injury:

- Fully raise the operator's seat.
(To the locked position)
Do not keep the seat halfway.

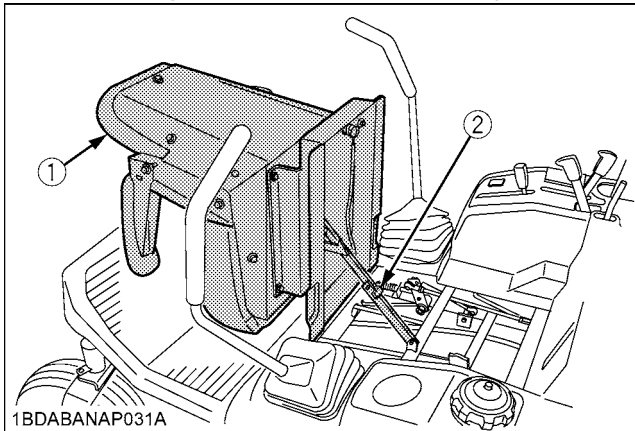
1. Pull up the latch lever and release the lock.



(1) Latch lever

(A) "RELEASE"

2. Raise the operator's seat to the "LOCK" position.



(1) Operator's seat

(2) Seat support rod

◆ Lower



CAUTION

To avoid personal injury:

- Do not drop the seat to close it.
- Watch your hands. Do not place your hands under the seat, when closing.

1. Pull up the seat support rod and release the "LOCK".
2. Lower the seat slowly.

HOW TO OPEN THE BOOT



CAUTION

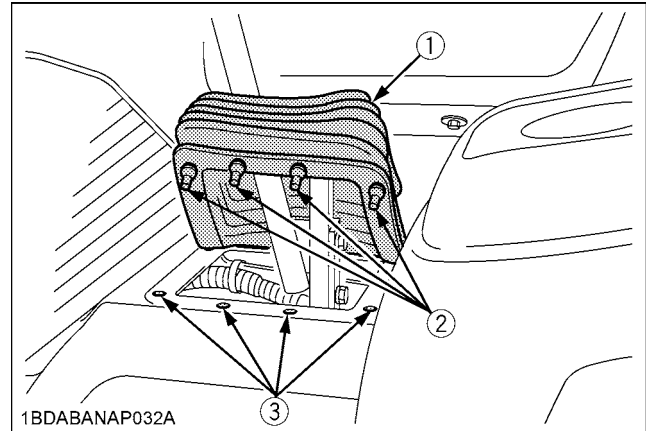
To avoid personal injury or death:

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

1. Remove the rubber stopper from the step.
2. Pull up the boot.

How to install the boot.

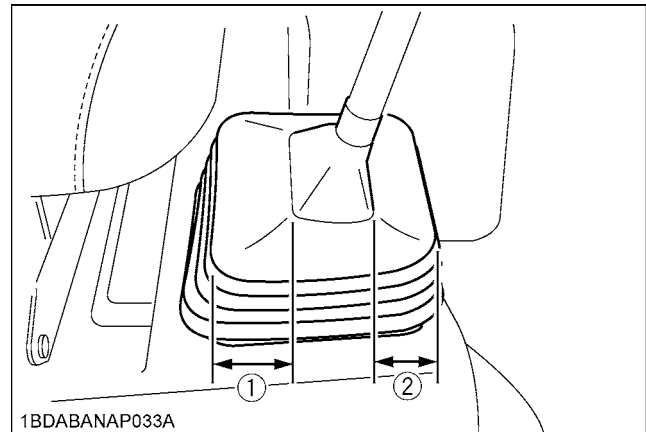
1. Install the boot so that the long shoulder set inside.
2. Set the rubber stoppers in the holes.



(1) Boot

(2) Rubber stopper

(3) Hole



(1) Long shoulder

(2) Short shoulder

LIFT-UP POINT



WARNING

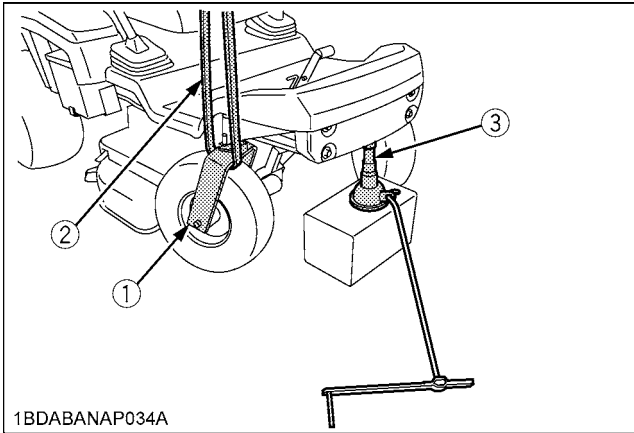
To avoid personal injury, death or machine damage:

- Do not work under the machine unless it is secured by safe stands or suitable blocking.

■ Front side:

Hoist the front wheel bracket with a nylon sling, or jack up the front bumper.

Never lift up the mower deck.

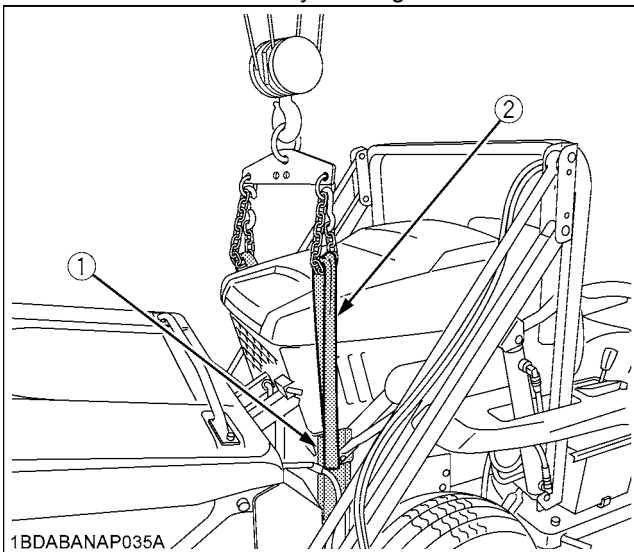


1BDABANAP034A

- (1) Front wheel bracket
- (2) Nylon sling
- (3) Jack

■ Rear side:

Hoist the rear frame with nylon slings.



1BDABANAP035A

- (1) Rear frame
- (2) Nylon sling

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	33,44
	2	Oil and water leak	-
	3	Engine oil level	42
	4	Transmission fluid level	44
	5	Coolant level in the recovery tank	45
	6	Damage to machine body, tightness of all bolts and nuts	-
	7	Radiator screen	43
	8	Panel screen	43
	9	Brake play	57
	10	Fuel level	42
	11	Check air cleaner	48
Mower	1	Oil leak	49
	2	Make sure blade bolts are tight	66
	3	Blade wear or damage	66
	4	Check all hardware.	-
	5	Make sure all pins are in place	-
	6	Mower deck cleaning	32,46
While sitting in the operator's seat	1	Motion control lever	-
	2	Parking brake	-
	3	Other movable parts	47
Turning the key switch "on"	1	Performance of the easy checker light	16

	No.	Check item	Ref. Page
Starting the engine	1	Color of the exhaust fumes	-
	2	Safe devices. If either of these do not operate properly, contact your local KUBOTA Dealer immediately.	47
	3	Check for abnormal noise and vibration.	-
Others	1	Check the areas where previous trouble was experienced.	-

■ Checking Engine Oil Level

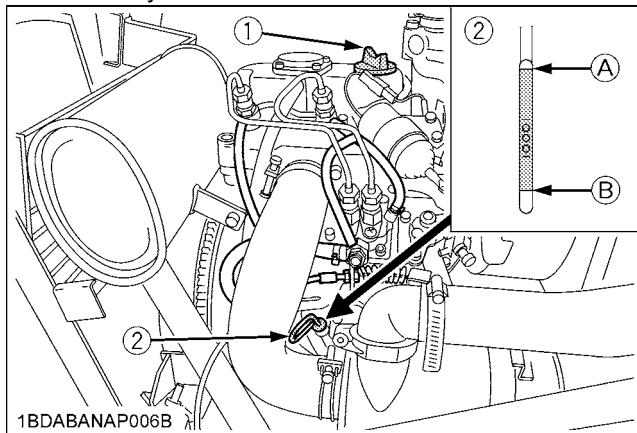


CAUTION

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
(2) Oil level dipstick

(A) "UPPER LEVEL"
(B) "LOWER LEVEL"

IMPORTANT :

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



1BDABARAP121A

Check the fuel level. Take care that the fuel tank does not become empty. When refueling it, park the machine on a level surface.

Fuel tank capacity	20 L
--------------------	------

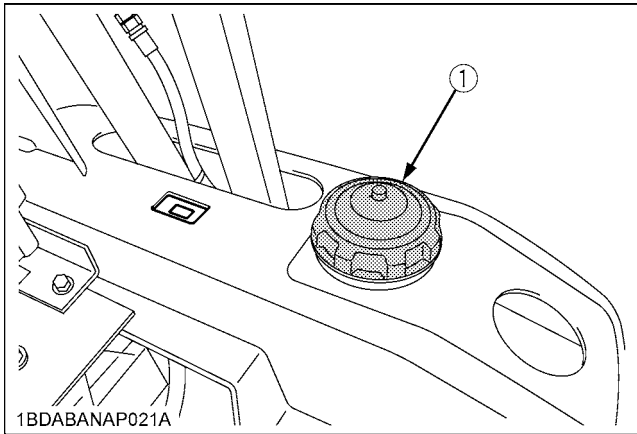
IMPORTANT :

- Use Diesel Fuel Only

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

IMPORTANT :

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



(1) Fuel tank cap

■Checking and Cleaning Radiator to Prevent Overheating



CAUTION

To avoid personal injury:

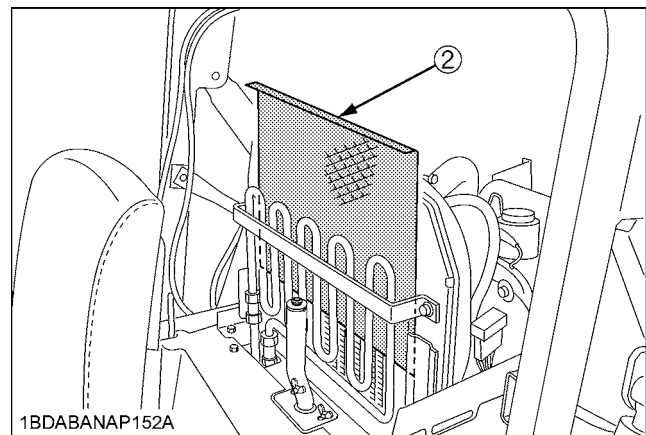
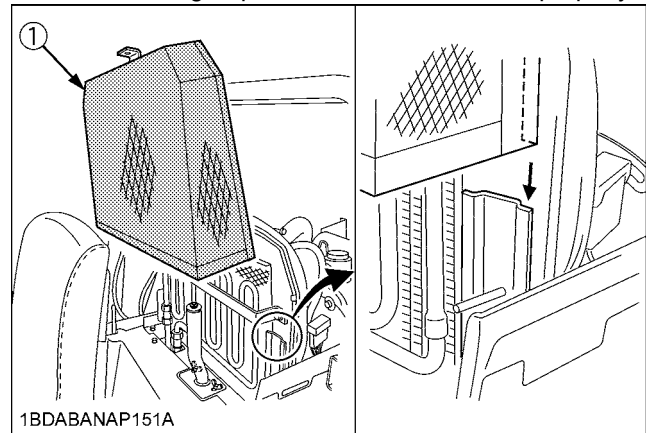
- Be sure to stop the engine and remove the key before cleaning.

Daily or after every 5 hours of operation, check to be sure the radiator screen and radiator core are clean. Dirt or chaff on the radiator screen or radiator core decrease cooling performance.

1. Remove the radiator screen and panel 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 Maintenance section.
4. If scale forms in the tube, clean with the scale inhibitor or its equivalent.
5. Each time the panel 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.

6. If the dust or chaff has accumulated inside the panel, remove the radiator screen and clean inside completely.

After cleaning, replace the radiator screens properly.



(1) Panel screen
(2) Radiator screen

NOTE :

- When assembling the panel screen, be sure to fit it in the runners with no clearance at the bottom.

■ Checking Tire Pressure



WARNING

To avoid personal injury:

- Do not attempt to mount a tire. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the Operator's Manual.
- Inflation pressure in front tires rises quickly when using compressed air.



CAUTION

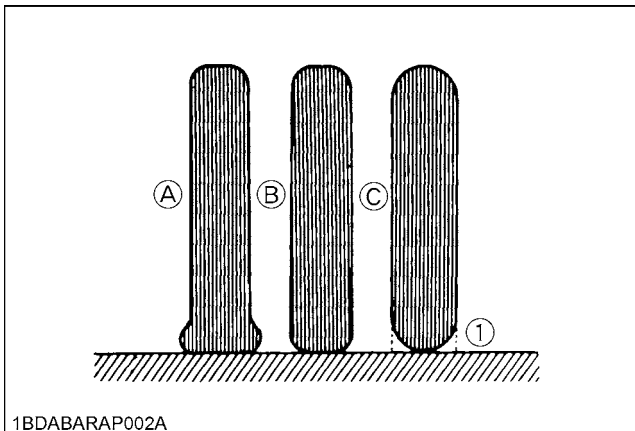
Never operate machine with a loose rim, wheel, or axle.

- 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 Pressure
Front	15 x 6.0-6, 4PR Rib	207 kPa (2.1 kgf/cm ²)
Rear	20 x 10.00-8, 4PR Turf	140 kPa (1.4 kgf/cm ²)
	23 x 10.50-12, 4PR Turf	



1BDABARAP002A

(1) Ground

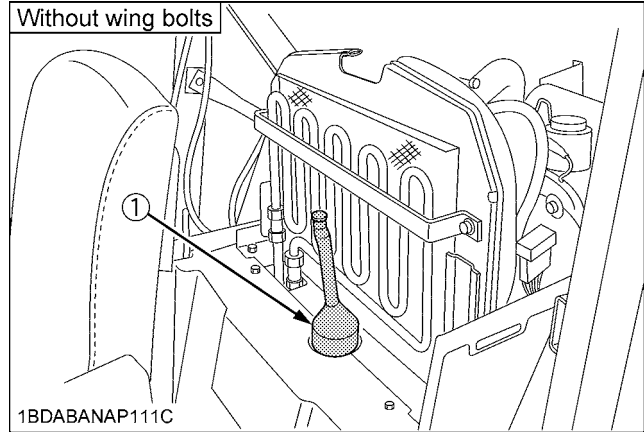
(A) "INSUFFICIENT"

(B) "NORMAL"

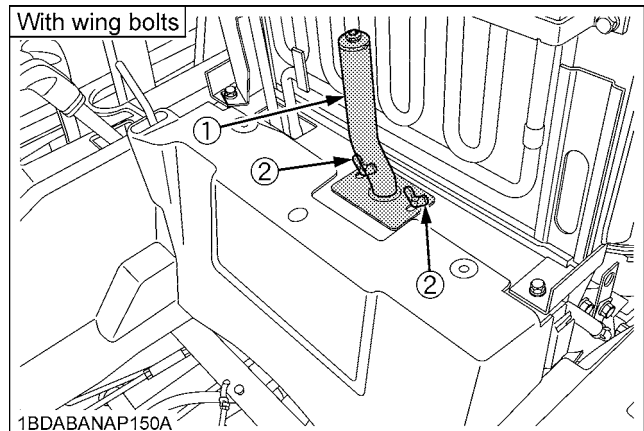
(C) "EXCESSIVE"

■ Checking Transmission Fluid Level

1. Park the machine on a flat surface, lower the implement to the ground, shut off engine and remove the key.
2. Open the hood and detach the engine side cover (L.H)
3. 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)

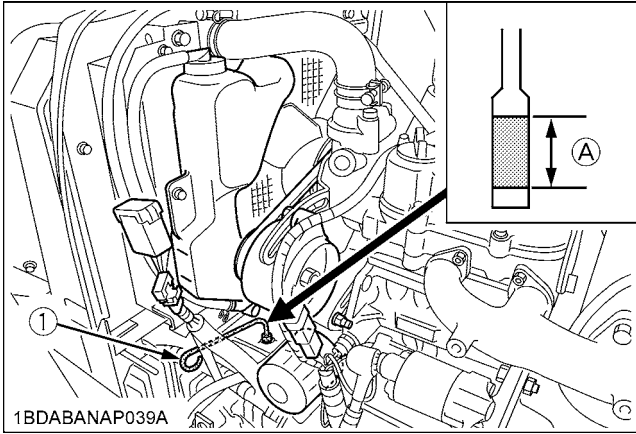


(1) Oil plug and breather cup



(1) Oil plug and breather cup

(2) Wing bolt



1BDABANAP039A

(1) Oil level dipstick

(A) Oil level is acceptable within this range.

IMPORTANT :

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

■ **Checking Coolant Level**



CAUTION

To avoid personal injury:

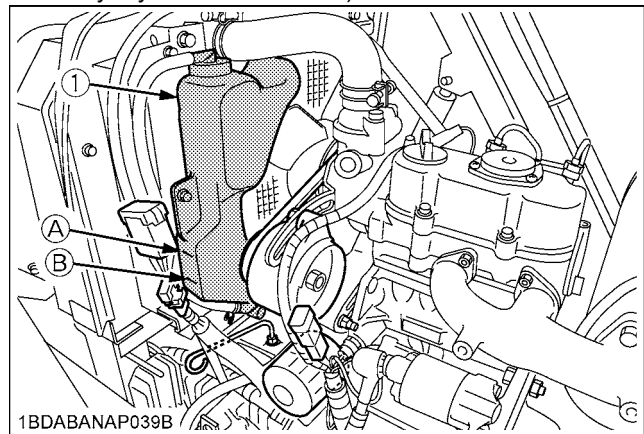
- Do not remove the radiator cap when the engine is hot. Loosen cap slightly, to the stop, to relieve any excess pressure before removing cap completely.

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 maintenance.)

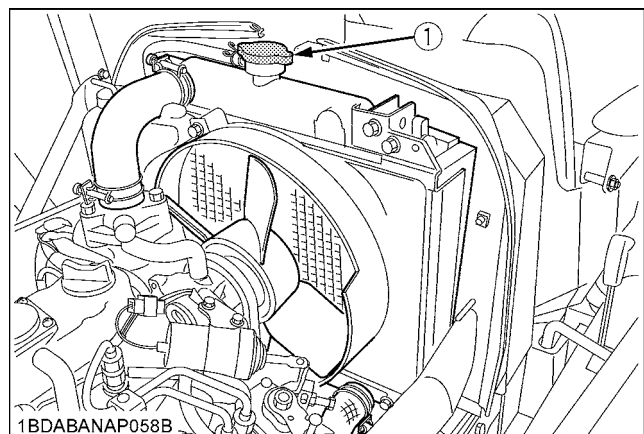


1BDABANAP039B

(1) Recovery tank

(A) "FULL"

(B) "LOW"



1BDABANAP058B

(1) Radiator cap

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.

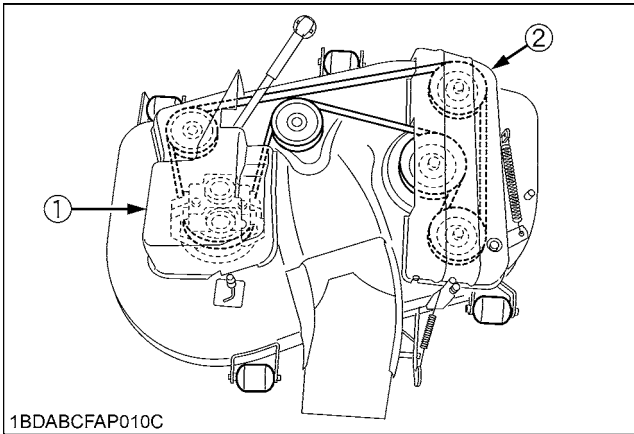
■ Cleaning Mower Deck

1. Remove shields and stays as shown in the figure. Then clean the insides of them.

IMPORTANT :

- After cleaning, make sure to place the shields and stays back in place.

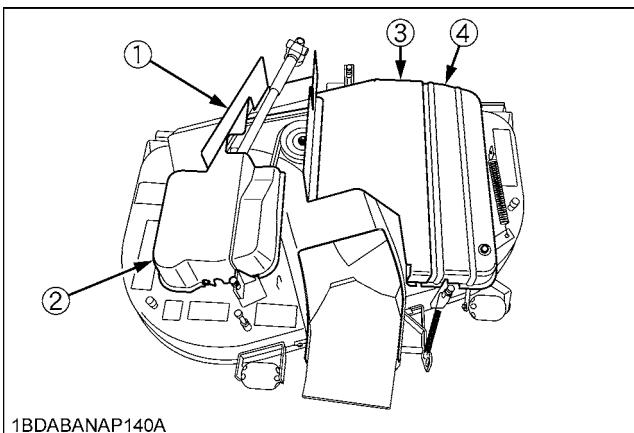
[GZD15-II]



1BDABCFAP010C

- (1) Left shield
- (2) Right shield

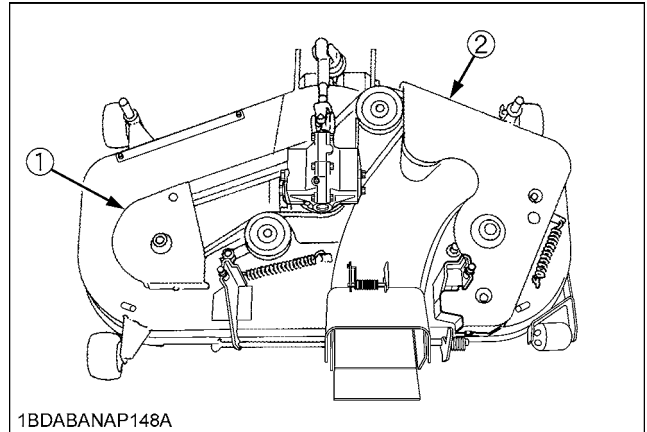
[GZD15-II (F)]



1BDABANAP140A

- (1) Center left cover
- (2) Left shield
- (3) Center cover
- (4) Right shield

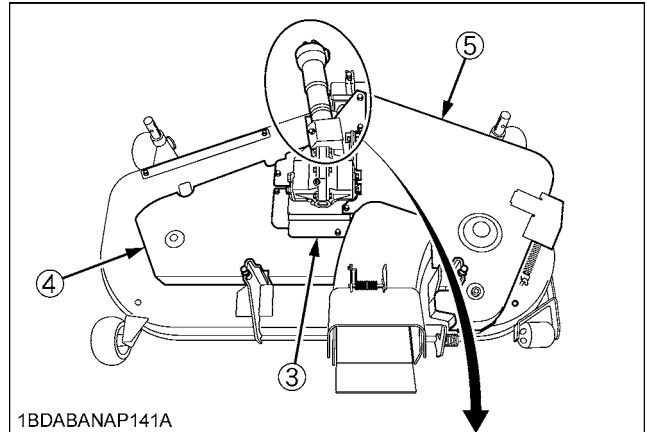
[GZD21]



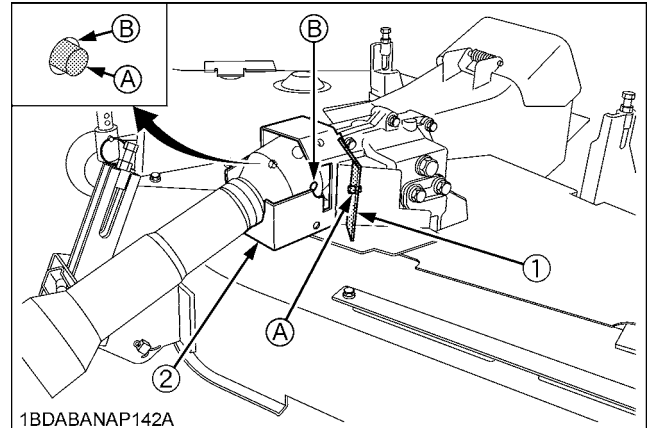
1BDABANAP148A

- (1) Left shield
- (2) Right shield

[GZD21 (F)]



1BDABANAP141A



1BDABANAP142A

- (1) Universal joint cover stay
 - (2) Center front cover
 - (3) Center cover
 - (4) Left shield
 - (5) Right shield
- (A) Pin
(B) Hole

NOTE :

- Make sure that the pin (A) is inserted into the hole (B) of the cover. (2 places)

■ Checking Movable Parts

If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or anything sticky, do not attempt to force it into motion.

In the above case, remove the rust or the sticky thing, and apply oil or grease on the relevant spot.

Otherwise, the machine may get damaged.

EVERY 50 HOURS

■ Safety Devices

The Safety Devices in your machine are designed to protect you while operating. Please check these Safety Devices periodically - daily is best - to test function of the Safety Devices before operation.



CAUTION

To avoid personal injury:

- Do not allow anyone near the machine while testing.
- If the machine does not pass one of the following tests, do not operate the machine. See your local KUBOTA Dealer.
- Sit on operator's seat for all tests except for Test 1.

IMPORTANT :

- Check the following tests before operating the machine.

◆ Check the safety switches

Test 1 (OPERATOR NOT ON THE SEAT)

1. Securely set the parking brake.
2. Shift the PTO lever to "DISENGAGE" (OFF) position.
3. Set the motion control levers to the "NEUTRAL LOCK" position.
4. Turn the key switch to "START" position.
5. The engine must not crank.

Test 2 (OPERATOR ON THE SEAT)

1. Do not set the parking brake. (release it from test 1)
2. Shift the PTO lever to "DISENGAGE" (OFF) position.
3. Set the motion control levers to the "NEUTRAL LOCK" position.
4. Turn the key switch to "START" position.
5. The engine must not crank.

Test 3 (OPERATOR ON THE SEAT)

1. Securely set the parking brake.
2. Shift the PTO lever to "DISENGAGE" (OFF) position.
3. Grasp the motion control levers and move them inward from "NEUTRAL LOCK" position to "NEUTRAL" position and then release the levers.
4. Turn the key switch to "START" position.
5. The engine must not crank.

Test 4 (OPERATOR ON THE SEAT)

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

Test 5 (OPERATOR ON THE SEAT)

1. Start the engine.

2. Do not set the parking brake.
3. Shift the PTO lever to "DISENGAGE" (OFF) position.
4. Grasp the motion control levers and move them inward from "NEUTRAL LOCK" position to "NEUTRAL" position and then release the levers.
5. Stand up. (Do not get off the machine.)
6. The engine must shut off.

Test 6 (OPERATOR ON THE SEAT)

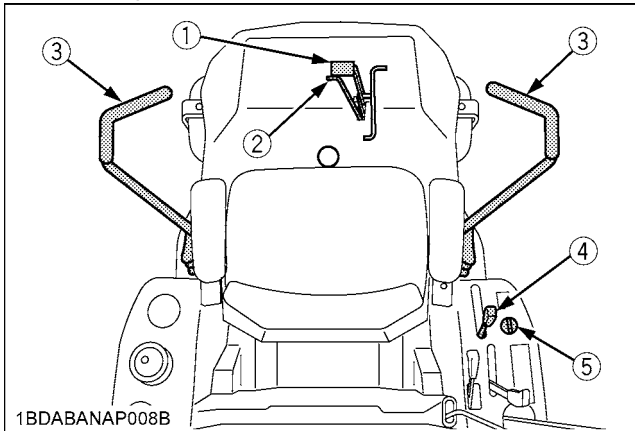
1. Start the engine.
2. Do not set the parking brake.
3. Shift the PTO lever to "ENGAGE" (ON) position.
4. Stand up. (Do not get off the machine.)
5. The engine must shut off.

Test 7 (OPERATOR ON THE SEAT)

1. Start the engine.
2. Lift the container (for HD), or emptying the container (for LD).
3. Shift the PTO lever to "ENGAGE" (ON) position.
4. The engine must shut off.

NOTE :

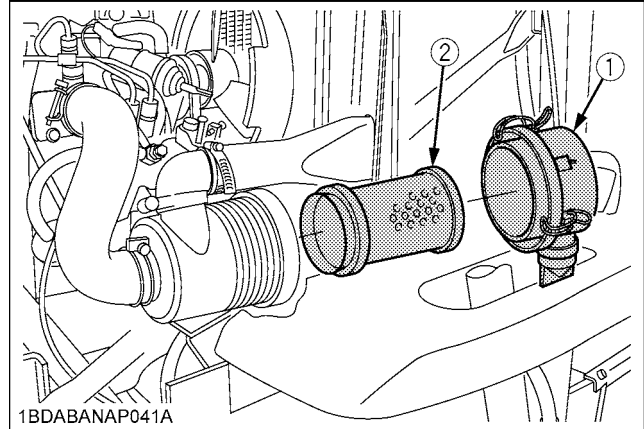
- If the engine cranks during any of these tests, consult your local KUBOTA Dealer to have the unit checked before operation.



- | | |
|------------------------------|----------------|
| (1) Brake pedal | (4) PTO lever |
| (2) Parking brake lock pedal | (5) Key switch |
| (3) Motion control lever | |

■ Cleaning Air Cleaner Element

1. The air cleaner uses a dry element, never apply oil.
2. Do not touch the filter element except when cleaning is required. To clean the element, use clean and dry compressed air on the inside of the element. Air pressure should not exceed 205 kPa (2.1kg/cm², 30psi).



- (1) Air cleaner cover
(2) Air cleaner element

NOTE :

- Operating in dusty conditions requires more frequent maintenance.
- Align the arrow marks when reinstalling the air cleaner cover.

■ Checking Gear Box Oil Level



CAUTION

To avoid personal injury:

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

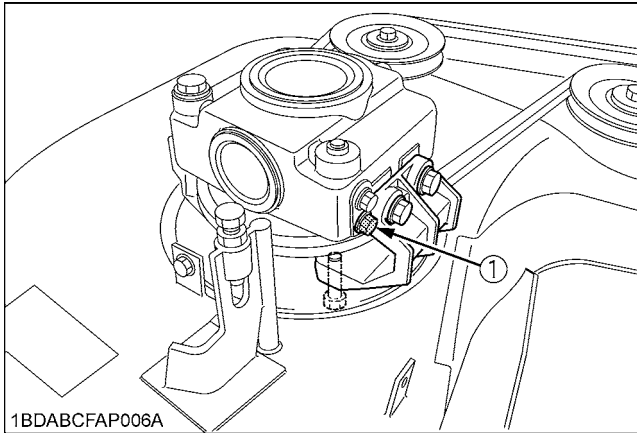
[GZD15-II, GZD15-II (F)]

1. Park the machine on a flat surface and lower the mower to the ground.

To check the oil level, loosen filler plug and check to see that the oil level is just below the filler plug port.

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 filler plug

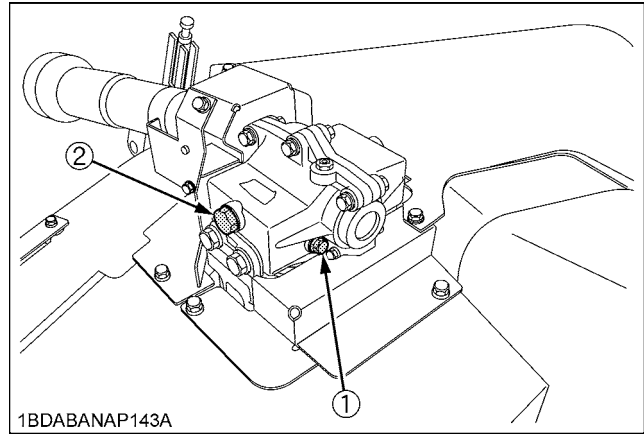
[GZD21, GZD21 (F)]

1. Park the machine on a flat surface and lower the mower to the ground.

To check the oil level, loosen the check plug and check to see that the oil level is just below the check plug port.

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) Check plug (Bolt)
(2) Oil filler plug

■ Checking Front PTO Case Oil Level



CAUTION

To avoid personal injury:

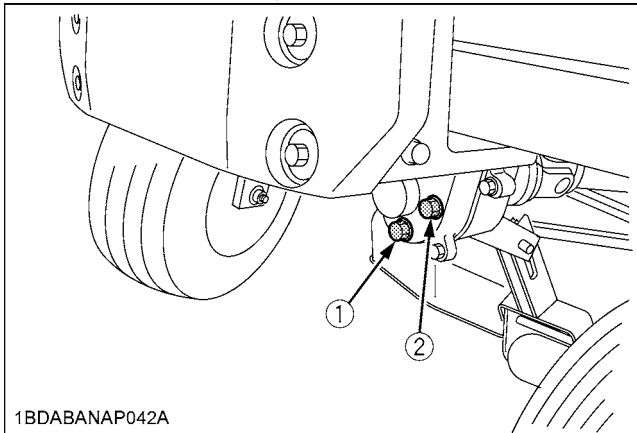
- Always stop the engine and remove the key before checking oil.

1. Park the machine on a flat surface and lower the mower to the ground.

To check the oil level, loosen check plug bolt and check to see that the oil level is just below the check plug port.

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)



1BDABANAP042A

- (1) Drain plug (Bolt)
- (2) Check plug (Bolt), oil inlet

■ Lubricating All Grease Fittings

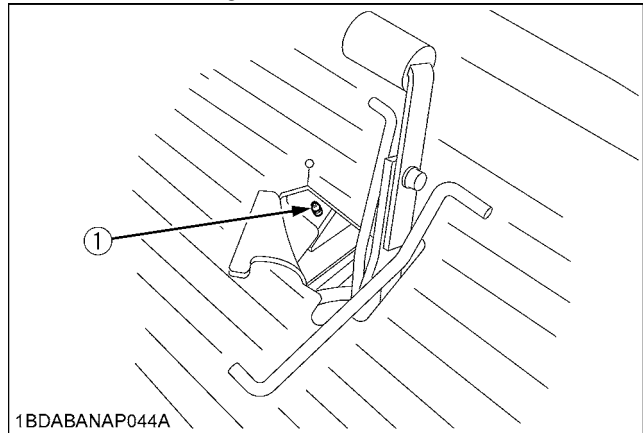


CAUTION

To avoid personal injury:

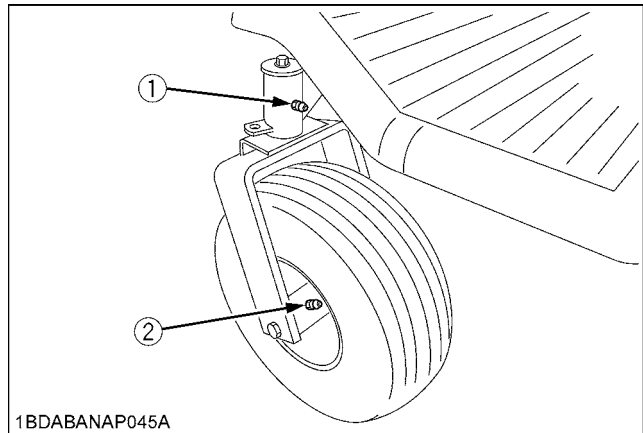
- Be sure to stop the engine and remove the key before greasing.

Grease the following location.



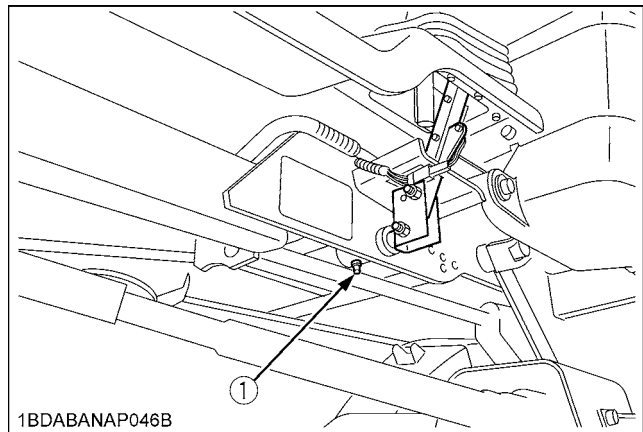
1BDABANAP044A

- (1) Center pin



1BDABANAP045A

- (1) King pin (LH, RH)
- (2) Front wheel (LH, RH)



1BDABANAP046B

- (1) Motion control lever boss (LH, RH)

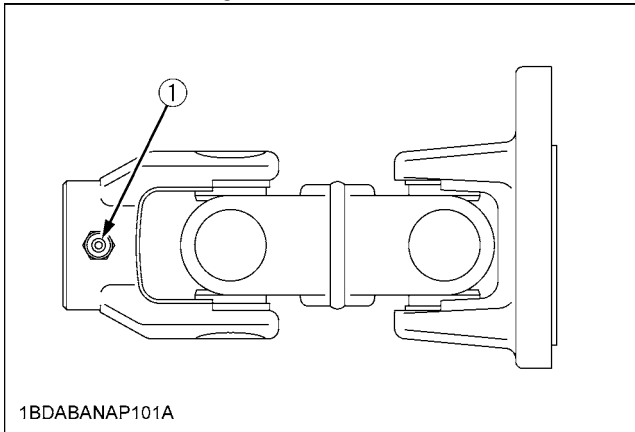


CAUTION

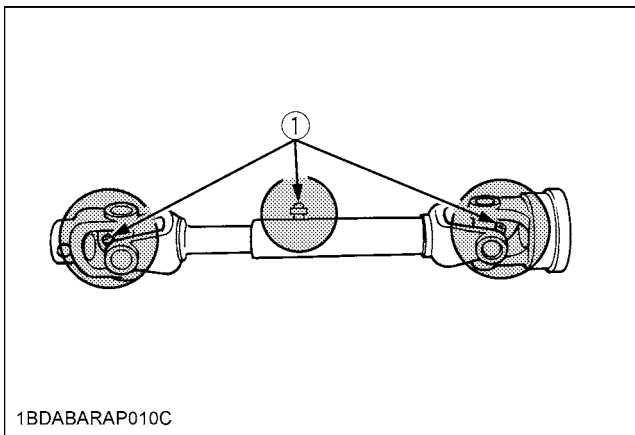
To avoid personal injury:

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

Grease the following location.



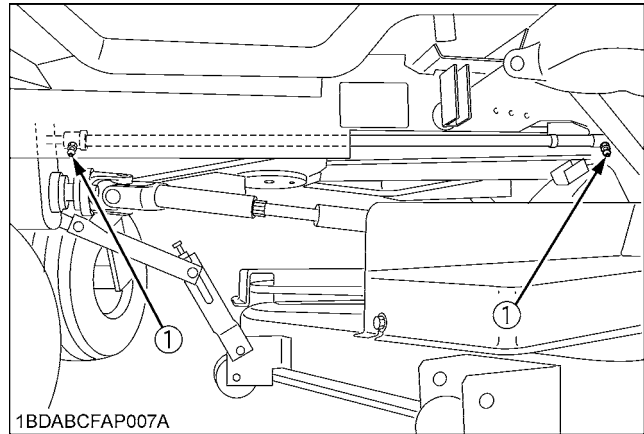
(1) Engine universal joint



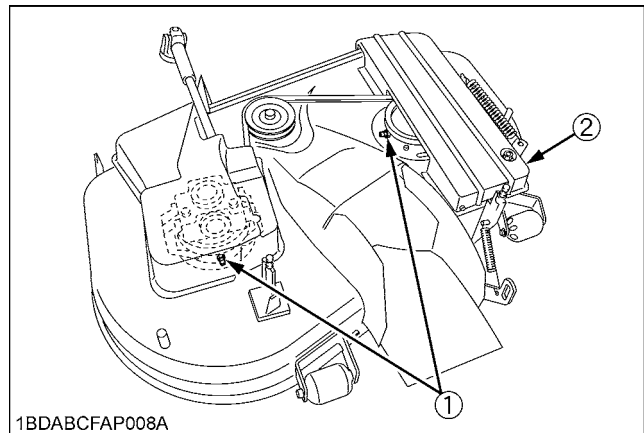
(1) Mower universal joint

NOTE :

- For F model, remove shields and apply grease. (See "Cleaning Mower Deck" in "DAILY CHECK" in "PERIODIC SERVICE" section.)



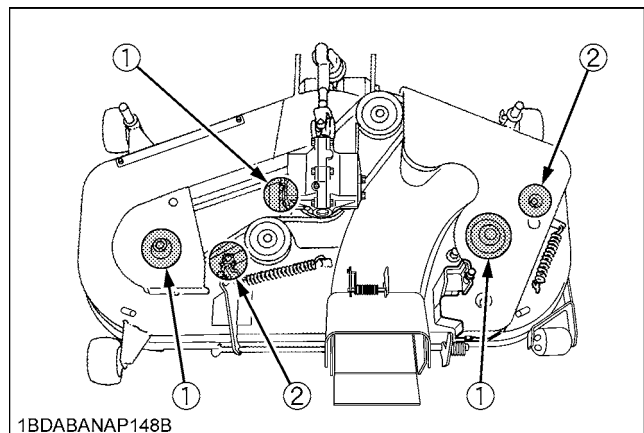
(1) Front PTO drive shaft



(1) Spindle shaft (42" mower)
(2) Tension arm

NOTE :

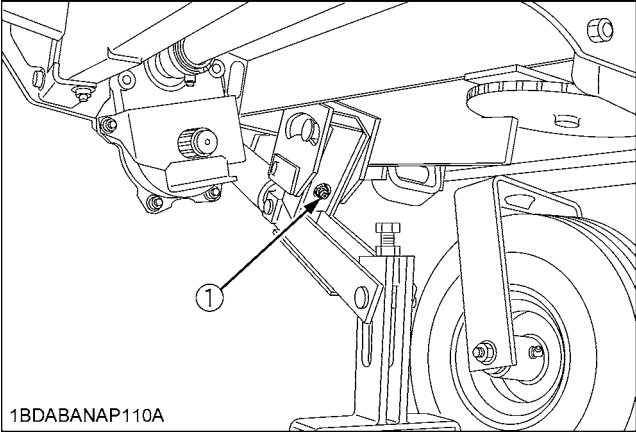
- For F model, remove shields and apply grease. (See "Cleaning Mower Deck" in "DAILY CHECK" in "PERIODIC SERVICE" section.)



(1) Spindle shaft (48" mower)
(2) Tension arm

NOTE :

- For F model, remove shields and stays, and apply grease.
(See "Cleaning Mower Deck" in "DAILY CHECK" in "PERIODIC SERVICE" section.)



(1) Front lift arm

Oiling

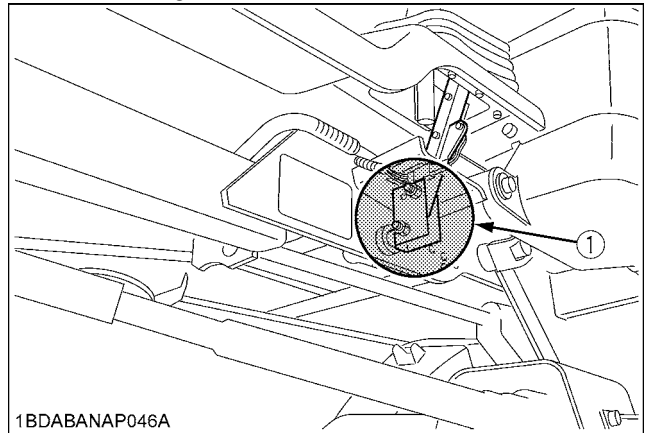


CAUTION

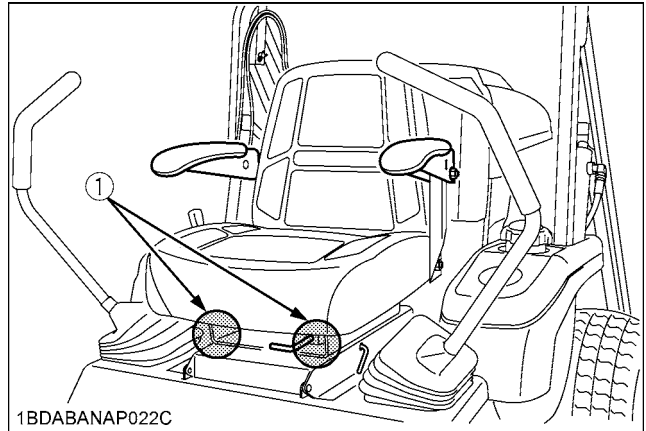
To avoid personal injury:

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

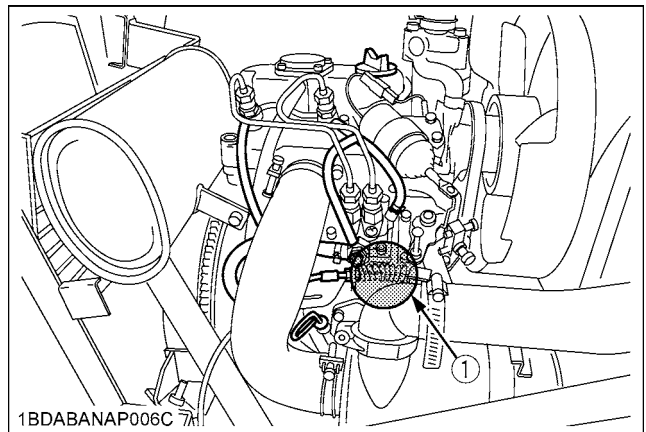
Oil the following locations.



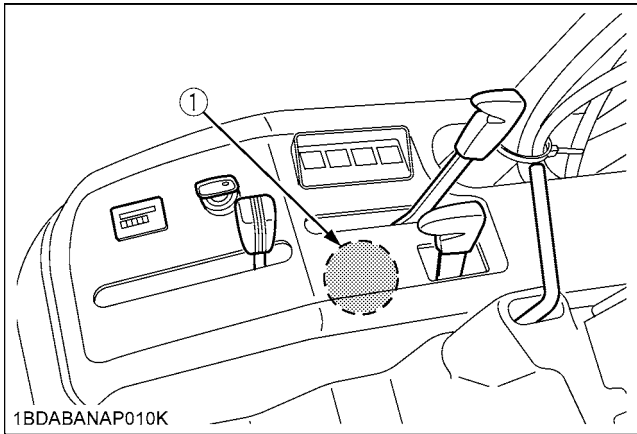
(1) Motion control levers (LH, RH) (Oil)



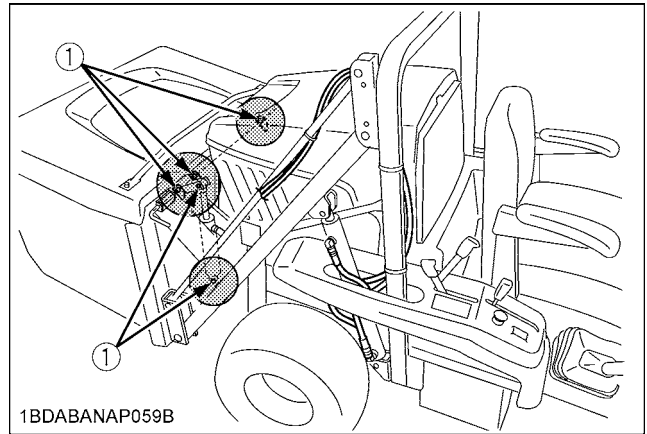
(1) Seat adjuster (Oil)



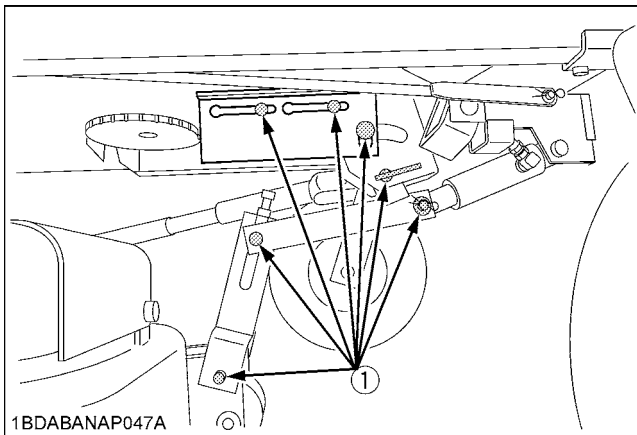
(1) Throttle cable (Oil)



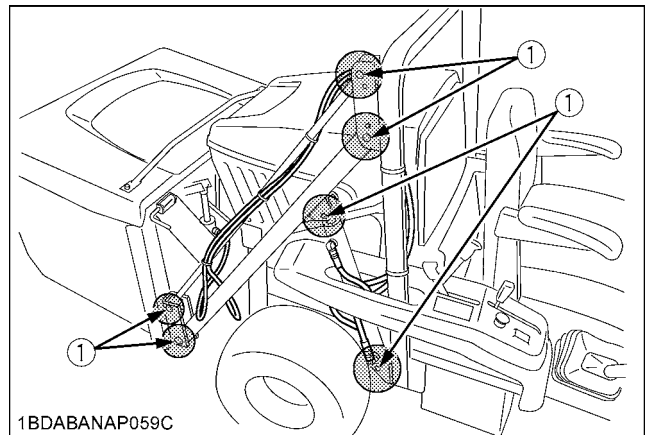
(1) Throttle cable (Oil)



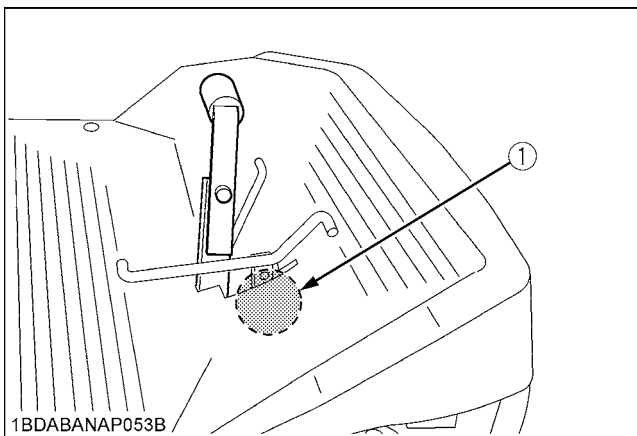
(1) Grass catcher link (oil)



(1) Mower link (Oil)



(1) Grass catcher link (For HD, LH, RH) (Oil)



(1) Hydraulic lift pedal (oil)

■ **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:

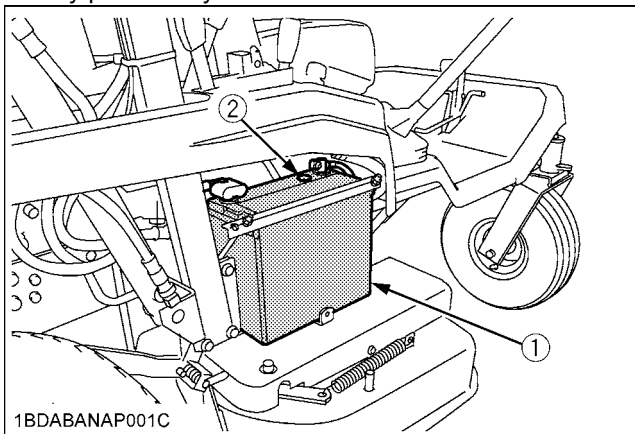
- Never remove the vent caps while the engine is running.
- Keep electrolyte away from eyes, hands and clothes. If you are splattered with it, wash it away completely with water immediately and get medical attention.
- Wear eye protection and rubber gloves when working around the battery.

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

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

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

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



(1) Battery
(2) Indicator

◆ **How to read the indicator**

Check the battery condition by reading the indicator.

State of indicator display	
Green	Specific gravity of electrolyte and quality of electrolyte are both in good condition.
Black	Needs charging battery.
White	Needs changing battery.

◆ **Battery Charging**

! DANGER

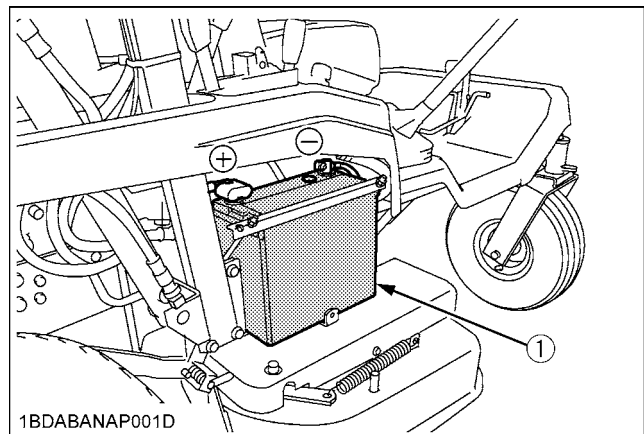
To avoid serious injury or death:

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



(1) Battery

1. 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.

2. A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible. Failure to do this will shorten the battery's service life.
3. The battery is charged if the indicator display turns green from black.
4. When exchanging an old battery for a new one, use battery of equal specification shown in **table 1**.

Table 1

Battery TYPE	Volts (V)	Capacity at 5H.R(A.H)
65D23L	12	52

◆ **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 every 3 months in hot seasons and once every 6 months in cold seasons.

EVERY 100 HOURS

■ Changing Engine Oil

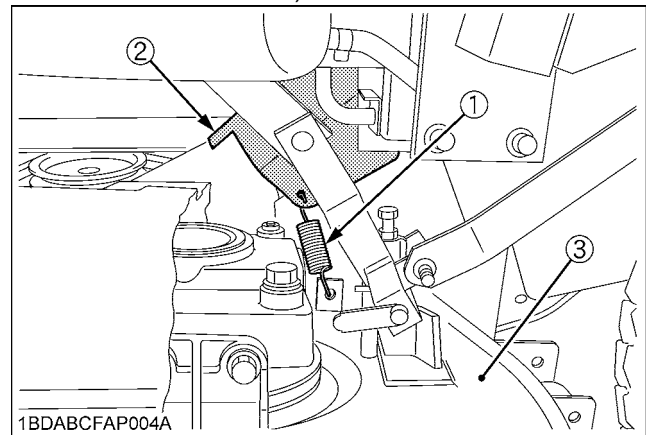


CAUTION

To avoid personal injury:

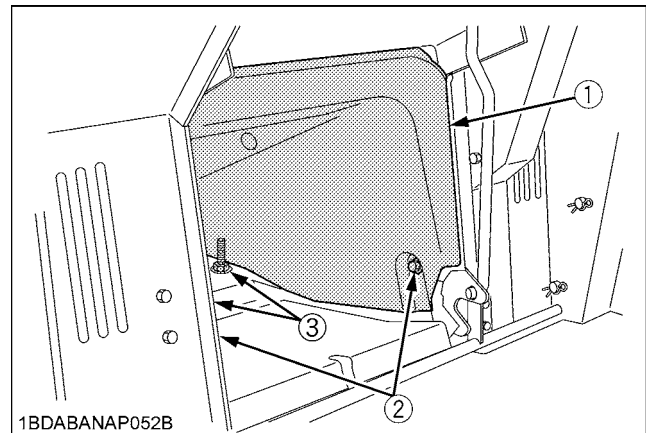
- Be sure to stop the engine and remove the key before changing the oil.
- Allow engine to cool down sufficiently; oil can be hot and may cause burns.

1. Dismount the container from the machine. (See "ATTACHING THE GRASS CATCHER" in GRASS CATCHER MOUNTING)
2. **[Only for GZD15-II, GZD15-II (F)]** Remove the spring connecting the duct and mower deck. (See "MOUNTING THE MOWER DECK" in MOWER MOUNTING)



- (1) Spring
- (2) Cover duct
- (3) Mower deck

3. Remove the duct

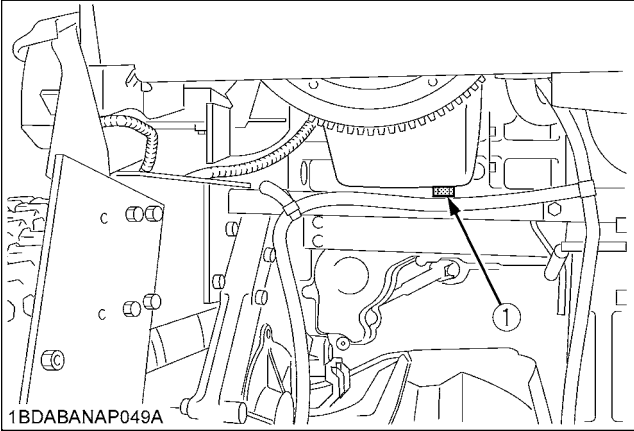


- (1) Duct
- (2) Bolt
- (3) Regulating bolt (Right & Left)

NOTE :

- Install the duct so that its right and left ends should come outside of the regulating bolts.

4. To change the used oil, remove the drain plug at the bottom of the engine and drain the oil completely. The used oil can be drained out more easily if the engine is warm.



(1) Drain plug

5. Fill with the new oil up to the upper notch on the dipstick.
6. To check the oil level. Remove the dipstick, wipe it clean, insert it and draw it out again. Check to see that the oil level is between the 2 marks.

■ Checking Fuel Lines and Fuel Filter



CAUTION

To avoid personal injury:

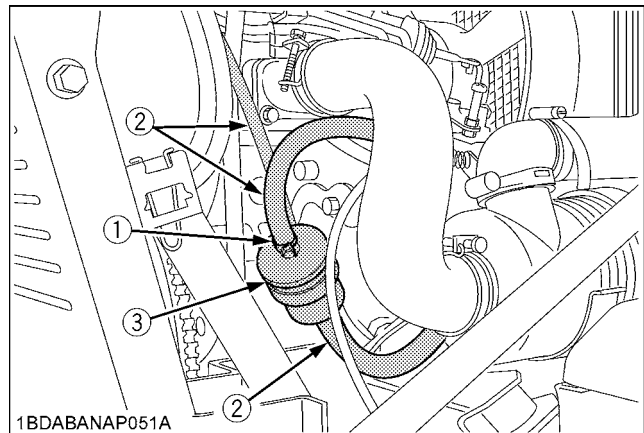
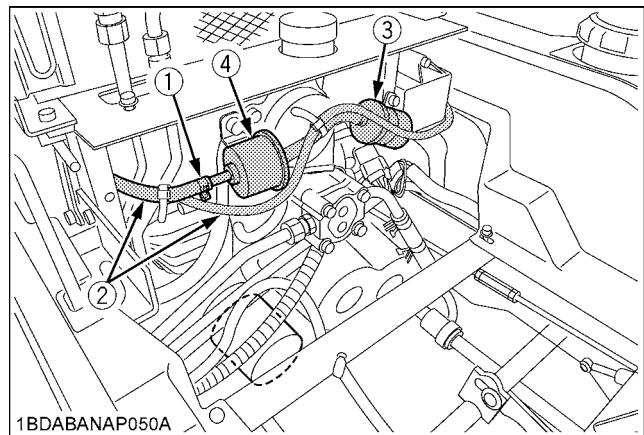
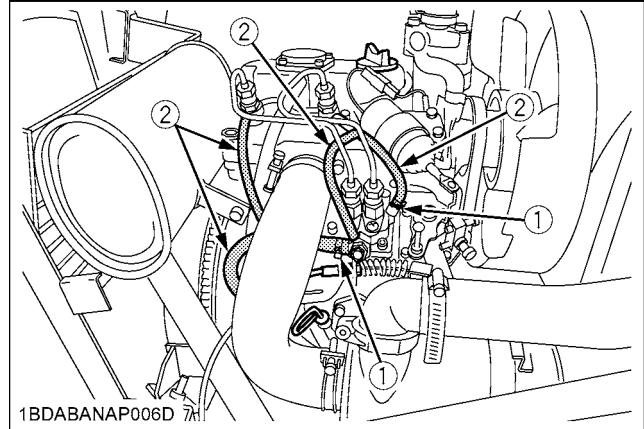
- Be sure to stop the engine and remove the key when attempting to make the following checks and changes.
- Never fail to check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.

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) Pipe clamps
- (2) Fuel line
- (3) Fuel filter
- (4) Fuel pump

■ Checking Fan Drive Belt Tension



CAUTION

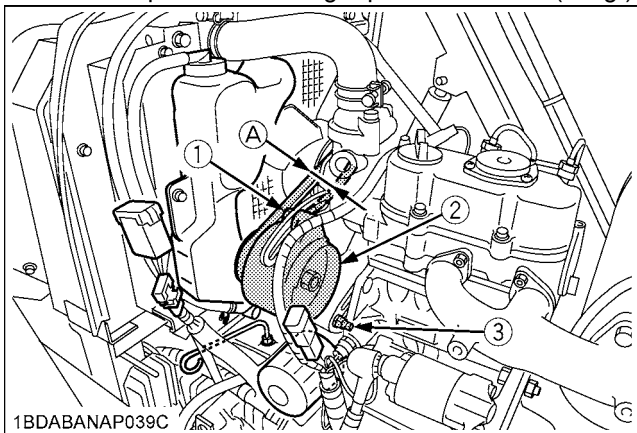
To avoid personal injury:

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

If the fan drive belt becomes loose, the engine may overheat. To adjust, loosen bolts and move the alternator outward to tighten the belt. After adjustment, securely tighten the bolts.

Moderate belt tension:

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



- (1) Tension bolt
 - (2) Alternator
 - (3) Adjusting bolt
- (A) 10 mm

■ Checking Parking Brake



CAUTION

To avoid personal injury:

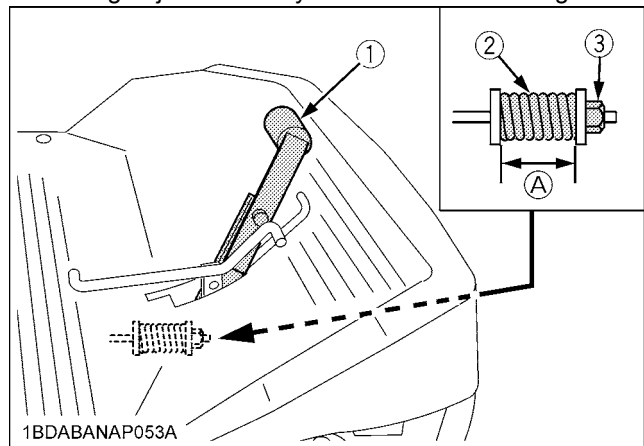
- Stop the engine and chock the wheels before checking or adjusting.
- Park the machine on a hard and level surface.

Apply parking brake and check the length (A) of the spring (2).

If it is not correct, turn the lock nut (3) in the desired direction until the proper length is achieved.

IMPORTANT :

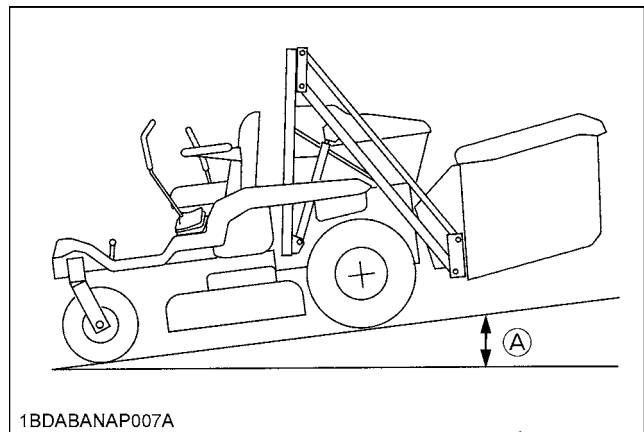
- Wrong adjustment may cause machine damage.



- (1) Brake pedal
 - (2) Spring
 - (3) Lock nut
- (A) 27 mm

◆ Check on the slope

1. Place the machine on the under 17° ramp.
2. Apply the parking brake fully.
3. Place the motion control levers in "NEUTRAL LOCK" position and shut off the engine.
4. Check that the machine does not move.



(A) "Under 17°"

NOTE :

- For parking brake test purposes only use 17° ramp.

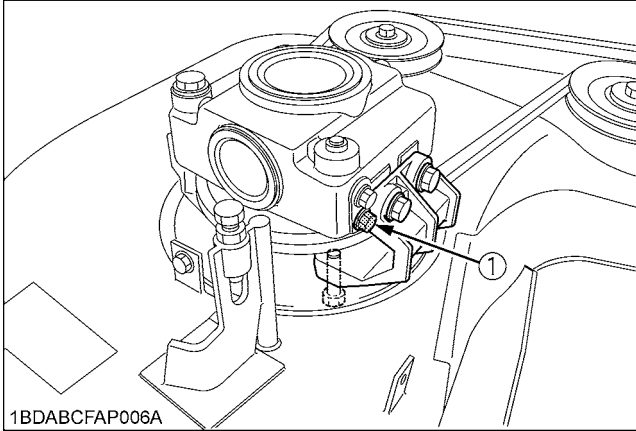
EVERY 150 HOURS**■ Changing Gear Box Oil****CAUTION**

To avoid personal injury:

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

[GZD15-II, GZD15-II (F)]

1. To drain the used oil, remove the filler plug at the gear box, tilt the mower deck and drain the oil completely into the oil pan.
2. Fill with the new oil.
(See "LUBRICANTS, FUEL AND COOLANT" in Maintenance Section)
3. After filling reinstall the filler plug.

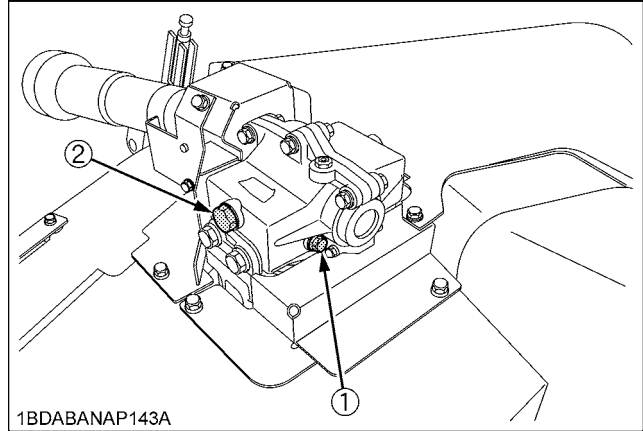


1BDABCFAP006A

(1) Oil filler plug

[GZD21, GZD21 (F)]

1. To drain the used oil, remove the filler plug at the gear box, tilt the mower deck and drain the oil completely into the oil pan.
2. Fill with the new oil up to the check plug port.
(See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)
3. After filling reinstall the filler plug and the check plug.



1BDABANAP143A

- (1) Check plug (Bolt)
(2) Oil filler plug

EVERY 200 HOURS

■ Replacing Engine Oil Filter Cartridge



CAUTION

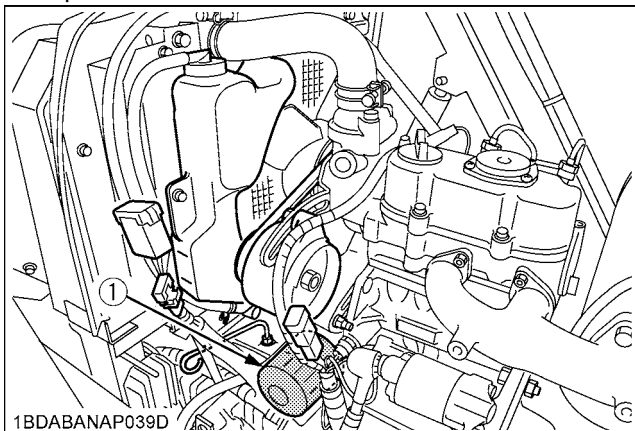
To avoid personal injury:

- 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. The oil filter cartridge must be changed every 200 service hours.
2. Apply a slight coat of oil onto the rubber gasket of new cartridge.
3. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
4. After the new cartridge has been replaced, the engine oil level normally lowers a little. Add engine oil to proper level. Check for oil leaks around filter gasket.

IMPORTANT :

- To prevent serious damage to the engine, replacement element of the recommended type must be used. Use only a genuine KUBOTA filter or its equivalent.



(1) Engine oil filter cartridge

■ Changing Transmission And Rear Axle Gear Case Fluid



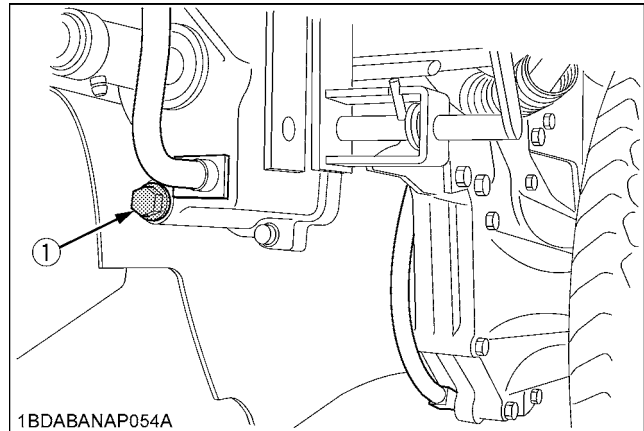
CAUTION

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.

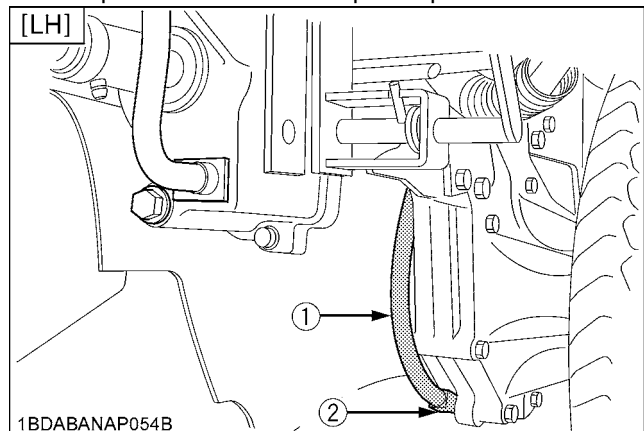
The fluid in the transmission case is also used for the hydrostatic drive system.

1. To drain the transmission oil, place oil pan underneath the transmission case and remove the drain plug at the bottom of the transmission case.

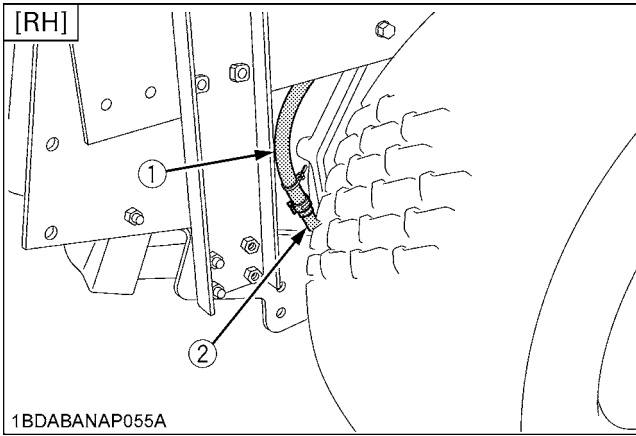


(1) Drain plug

2. To drain Rear axle gear case (RH & LH) fluid, remove clamp and hose from L shape adapter at the bottom.



1BDABANAP054B



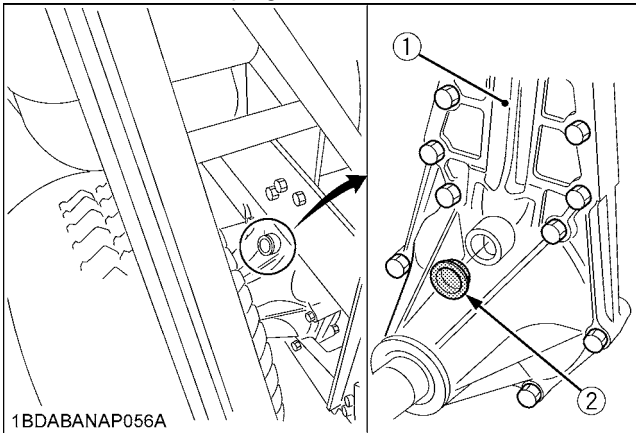
- (1) Hose
- (2) L shape adapter

IMPORTANT :

- Do not pull the L shape adapter from T / M, It can't be removed from out side.

3. After draining, disassemble and clean the strainer and change the oil filter cartridge. After reassembling, fill with UDT or SUPER UDT hydrostatic transmission fluid, or its equivalent.

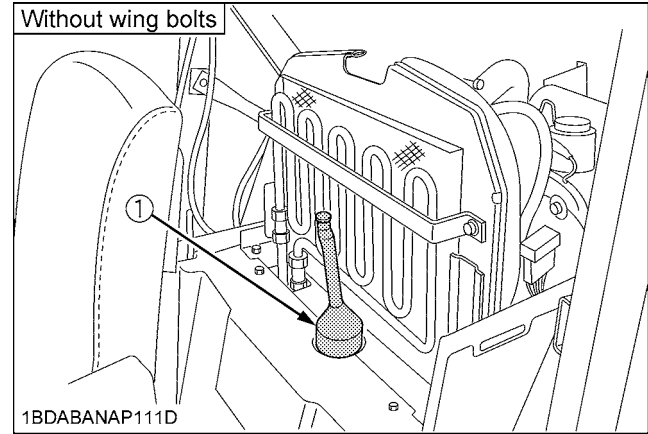
4. Remove the filler plug of the both rear axle gear cases. Fill with the new oil up to the plug port. After filling, reinstall the filler plug.



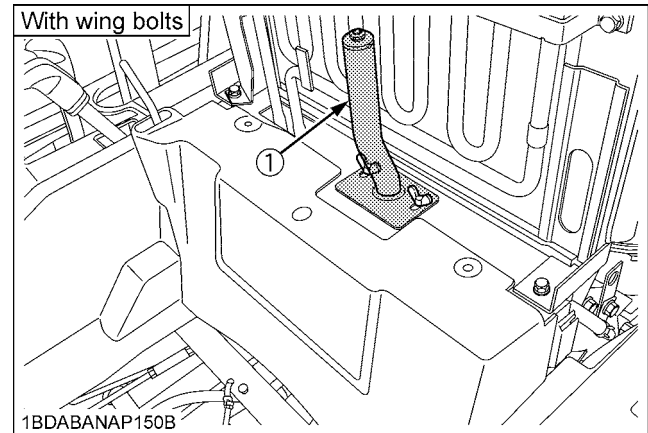
- (1) Rear axle gear case
- (2) Oil filler plug

5. Remove the oil plug and fill with the new oil.

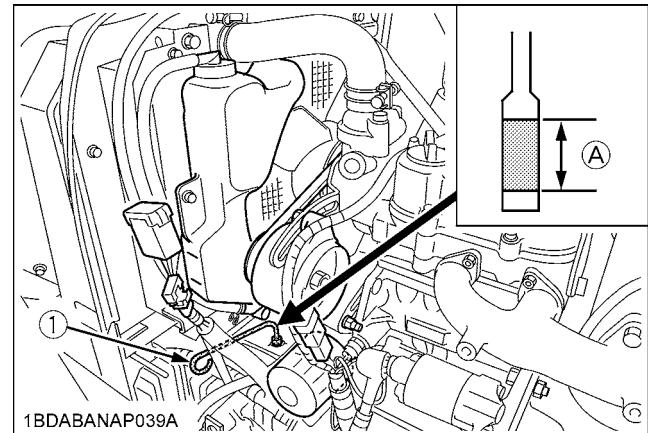
6. After running the engine for a few minutes, stop it and check the oil level again; add oil to the prescribed level.



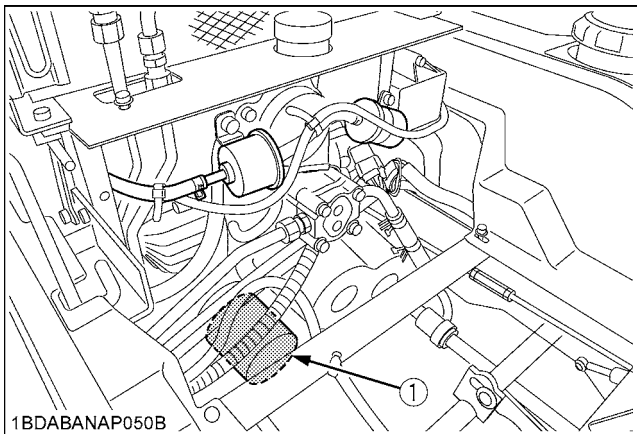
- (1) Oil plug and breather cup



- (1) Oil plug and breather cup



- (1) Dipstick
- (A) Oil level is acceptable within this range



1BDABANAP050B

(1) Transmission oil filter

IMPORTANT :

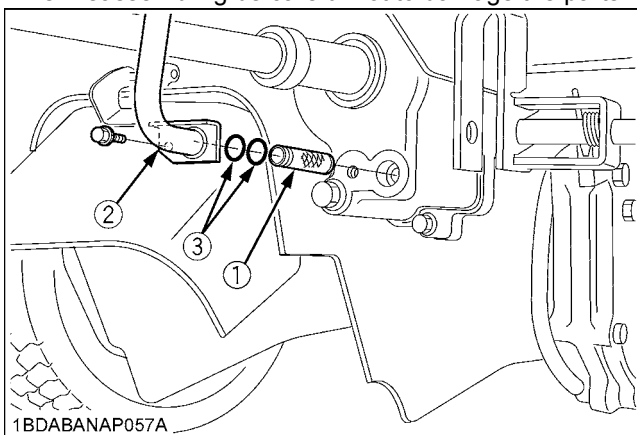
- Operate only at low RPM's immediately after changing the transmission fluid and filter cartridge. Keep the engine at medium speed for a few minutes to insure proper lubrication of all parts so there is no damage to transmission.

◆ **Cleaning Transmission Strainer**

When changing the transmission fluid, disassemble and rinse the strainer with nonflammable solvent to completely clean off filings.

Check "O" rings, replace if damaged, cracked or hardened.

When reassembling be careful not to damage the parts.



1BDABANAP057A

- (1) Strainer
- (2) Suction line
- (3) O-ring

NOTE :

- Since the fine filings in the oil can damage the precision component parts of the hydraulic system, the end of the suction line is provided with an oil strainer.

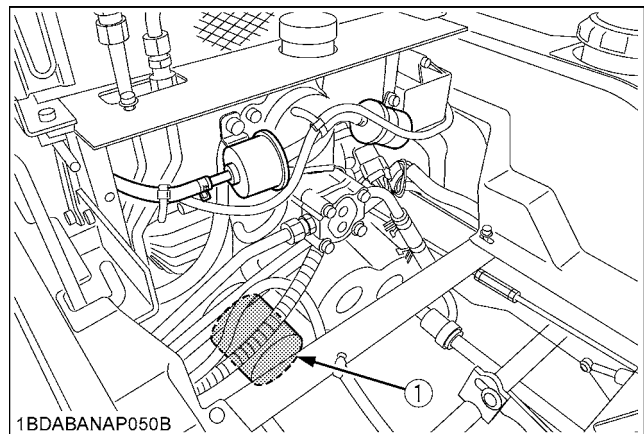
■ **Replacing Transmission Oil Filter Cartridge**

CAUTION

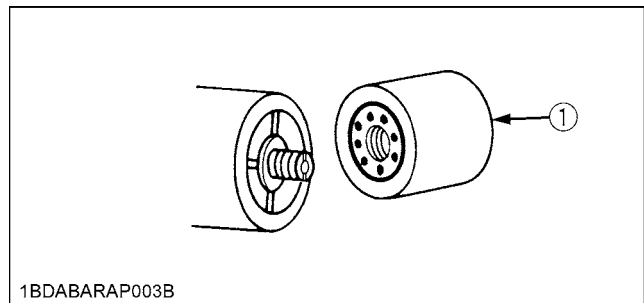
To avoid personal injury:

- 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.



1BDABANAP050B



1BDABARAP003B

(1) Oil filter cartridge

2. Remove the oil filter cartridge by using the filter wrench.
3. Apply a slight coat of oil onto the cartridge gasket.
4. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
5. After the new cartridge has been replaced, the transmission fluid level normally lowers a little. Add fluid to proper level. Check for oil leaks around filter gasket.

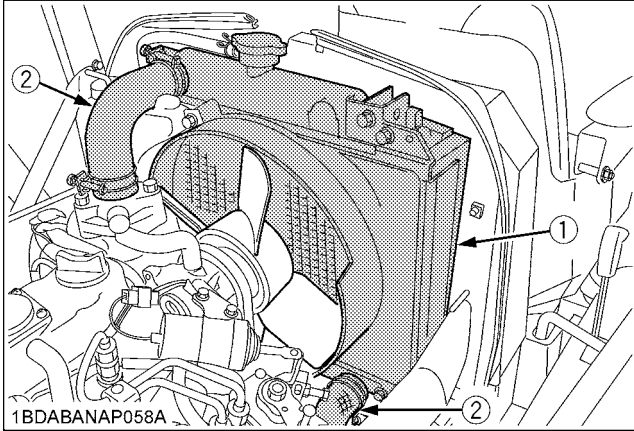
IMPORTANT :

- To prevent serious damage or premature failure to the hydraulic system, the replacement filter must be a highly efficient, 10 μm filter. Use only a genuine KUBOTA filter or its equivalent.

■ 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.



- (1) Radiator core
(2) Radiator hose

■ Checking Hydraulic Hose



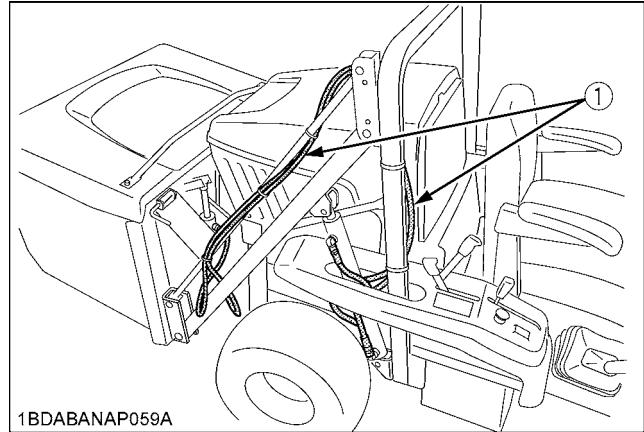
CAUTION

To avoid personal injury:

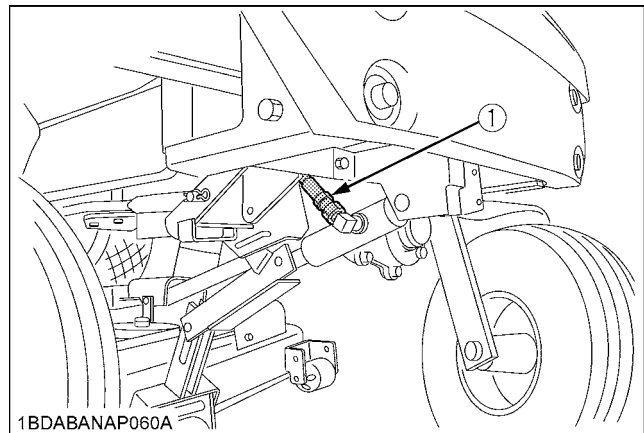
- Be sure to stop the engine and remove the key before checking and replacing hydraulic hose.
- Allow transmission case to cool down sufficiently; oil can be hot and may cause burns.

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) Hydraulic hose



- (1) Mower lift cylinder hose

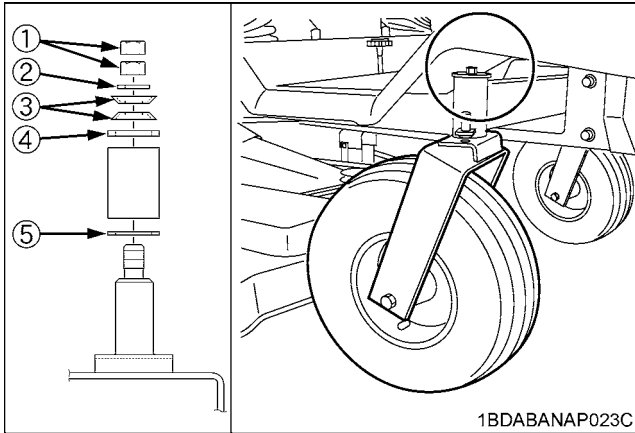
■ Adjusting Front Axle Pivot

If the front axle pivot pin adjustment is not correct, vibration in the front wheel can occur. When vibration occurs please contact your KUBOTA Dealer to adjust the play of front axle.

■ Adjusting Front Caster

[only GZD21, GZD21 (F)]

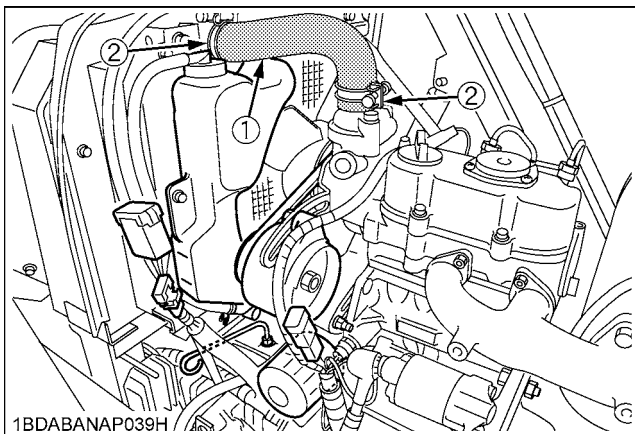
If the front caster adjustment is not correct, vibration in the front wheel can occur. When vibration occurs, please contact your KUBOTA Dealer to adjust the play of the front axle.



- (1) Nut
- (2) Washer (Small)
- (3) 2-cap washers
- (4) Washer (Large)
- (5) Shim

■ 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

■ Replacing Fuel Filter

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

EVERY 1 YEAR

■ Replacing Air Cleaner Element

Change the element once a year.

■ Flushing Cooling System and Changing Coolant

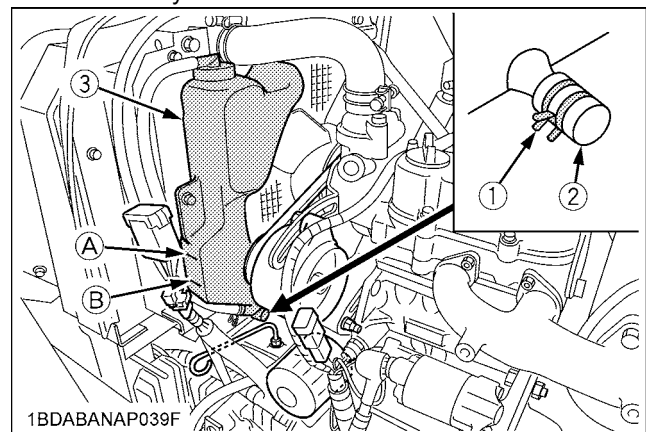


CAUTION

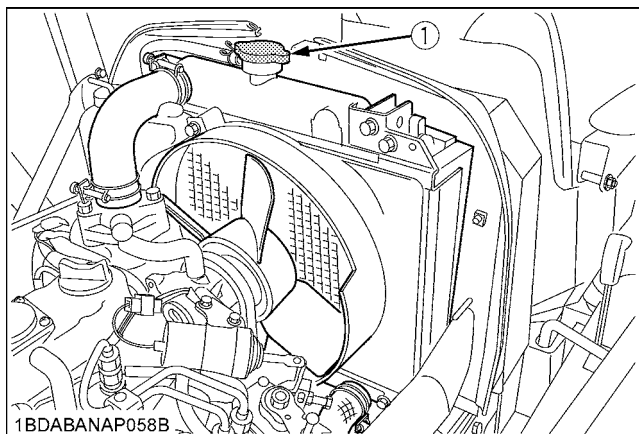
To avoid personal injury:

- 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 radiator drain plug and remove radiator cap. The radiator cap must be removed to completely drain the coolant.
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.



- (1) Clamp
- (2) Drain plug
- (3) Recovery tank
- (A) "FULL"
- (B) "LOW"



(1) Radiator cap

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 you should drink anti-freeze, throw up 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. If swallowed anti-freeze is harmful.
- Do not pour waste onto the grounds, down a drain, or into any water source.
- 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, drain cooling system and mix fresh water with long-life coolant (LLC) and fill the radiator and recovery tank with the mixture to the proper level.

1. LLC comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before adding LLC-mixed with water, fill the radiator with fresh water and empty it again.
Repeat this procedure 2 or 3 times to clean the inside of the engine cooling system.
3. Mix the LLC with water in the percentage (%) for a target temperature. When mixing, stir it up well, and then fill into the radiator and the reserve tank.
4. The procedure for the mixing of water and antifreeze differs according to the make of the antifreeze and the ambient temperature. Refer to SAE J1034 and SAE J814c standard.

IMPORTANT :

- When the antifreeze is mixed with water, the antifreeze 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 1.013 x 10⁵ Pa (760 mmHg) pressure (atmospheric).

A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

5. Adding the LLC
 - (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 mix LLC of 2 different manufacturers. (Different brands may have different additive components, and the engine may fail to perform as specified.)
6. When the LLC is mixed, do not add any radiator cleaning agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
7. Kubota's genuine LLC has a service life of 2 years. Be sure to change the coolant liquid every 2 years.

NOTE :

- The above data represent industry standards that necessitate a minimum glycol content in the concentrated antifreeze.
- When the coolant level drops due to evaporation, add water only to keep the antifreeze mixing ratio less than 50%. In case of leakage, add antifreeze and water in the specified mixing ratio before filling into 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

Consult your local KUBOTA Dealer for this service.

■ 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 Mower Gear Box Oil-Seal

Consult your local KUBOTA Dealer for this service.

■ Replacing Intake Air Line

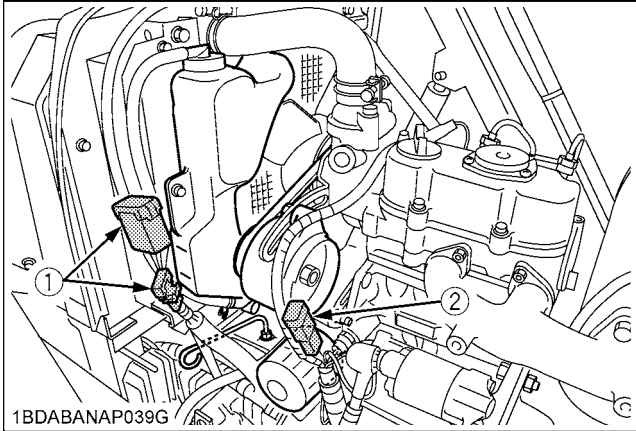
(See "Checking Intake Air Line" in every 200 hours maintenance.)

SERVICE AS REQUIRED

■ Replacing Fuses

Replacement of the fuse

1. Open hood.
2. Remove the blown fuse.
3. Place a new fuse of the same capacity in position.



- (1) Fuse location
(2) Slow blow fuse

IMPORTANT :

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

◆ Protected circuit

FUSE NO. (ID LABEL)	CAPACITY (A)	Protected circuit
(1)	20A	Engine stop
	15A	Charge system
	15A	Aux. outlet
	15A	Main system
	10A	Control system
(2)	Slow blow fuse 30	Check circuit against wrong battery connection

■ Checking and Replacing Blade



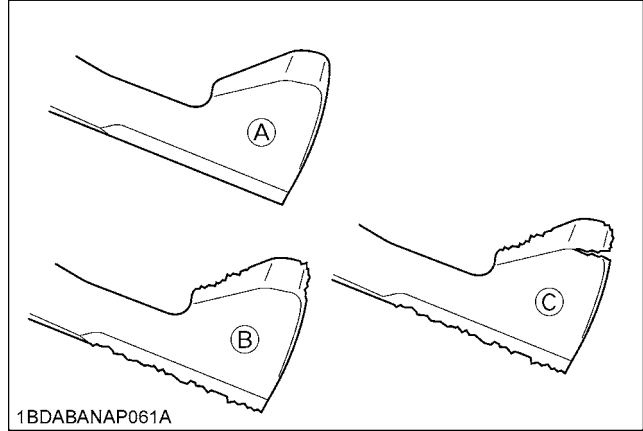
CAUTION

To avoid personal injury:

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

◆ Checking

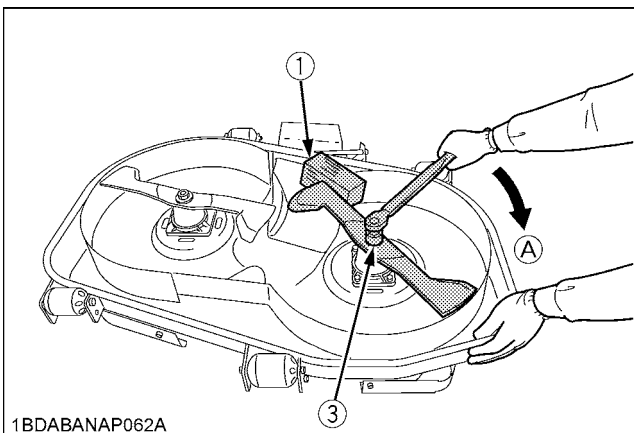
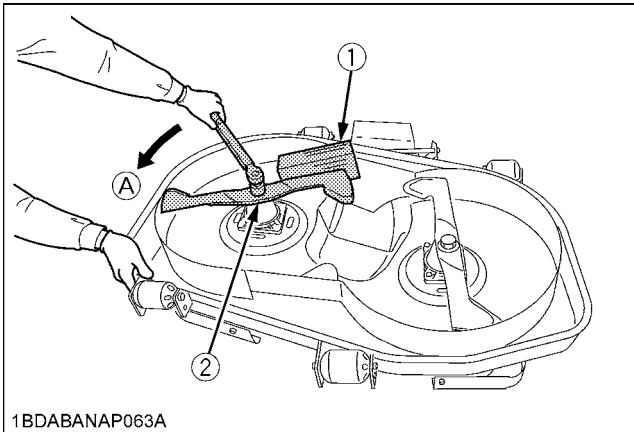
The blade cutting edges should be kept sharp at all times. Sharpen the cutting edges, if they resemble blade (B). Replace the blades if they appear similar to blade (C).



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

◆ Replacing
[GZD15-II, GZD15-II (F)]

1. Remove the mower deck from the machine and turn it over to expose the blades.
2. Wedge a block of wood between the blade and mower housing as illustrated.
3. The blade bolts (2) have right hand threads, turn counterclockwise to loosen.
The blade bolt (3) has left hand threads, turn clockwise to loosen.



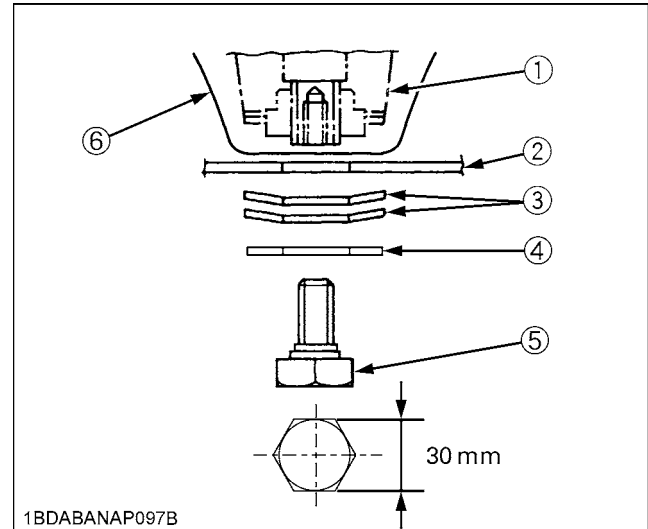
- (1) Block
(2) Blade bolt
(3) Blade bolt
(A) "LOOSEN"

IMPORTANT :

- Use the proper metric size box or socket wrench to tighten or loosen the blade mounting bolt.
4. To sharpen the blades yourself, clamp the blade securely in a vise.
Use a large mill file and file along the original bevel until sharp.
 5. To check the blade for balance, place a small rod through the center hole. If the blade is not balanced, file the heavy side of the blade until balance is achieved.
 6. To attach blades, be sure to install the 2 cup washers between the blade and bolt head.

NOTE :

- Make sure that the cup washer is not flattened out or worn; this may cause blade to slip excessively. Replace the 2 cup washers if either is damaged.
7. Before checking or replacing the blade, wipe grass and mud off the top and inside of the mower. Especially clean up the inside of the belt cover, because otherwise the belt life will be reduced.



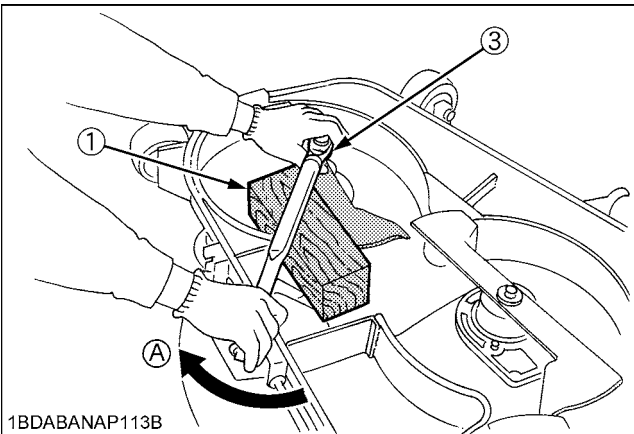
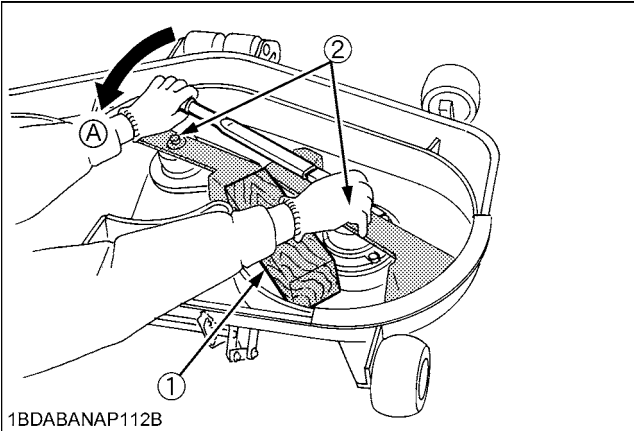
- (1) Spindle holder
(2) Blade
(3) 2-Cup washers
(4) Collar
(5) Bolt
(6) Spindle guard

IMPORTANT :

- Tighten the 2 blade bolts to 98 to 117.6 N-m (10 to 12 kgf-m) of torque.

[GZD21, GZD21 (F)]

1. Remove the mower deck from the machine and turn it over to expose the blades.
2. Wedge a block of wood between the blade and mower housing as illustrated.
3. The blade bolts (2) have right hand threads, turn counterclockwise to loosen.
The blade bolt (3) has left hand threads, turn clockwise to loosen.



- (1) Block
 (2) Blade bolt
 (3) Blade bolt
 (A) "LOOSEN"

IMPORTANT :

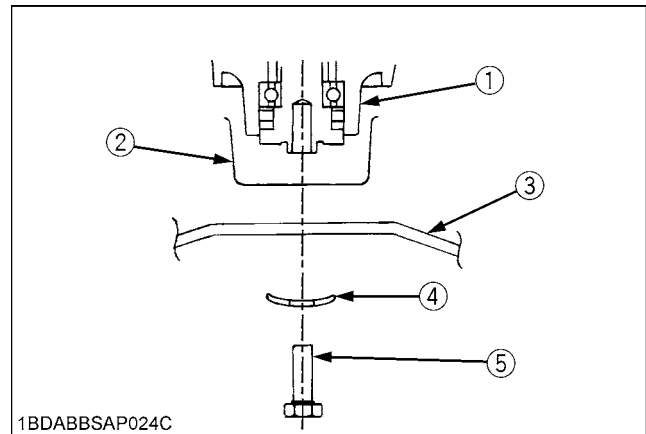
- Use the proper metric size box or socket wrench to tighten or loosen the blade mounting bolt.
4. To sharpen the blades yourself, clamp the blade securely in a vise.
Use a large mill file and file along the original bevel until sharp.
 5. To check the blade for balance, place a small rod through the center hole. If the blade is not balanced, file the heavy side of the blade until balance is achieved.

6. To attach blades, be sure to install the spring plate between the blade and bolt head.

NOTE :

- Make sure that the spring plate is not flattened out or worn; this may cause blade to slip excessively. Replace the spring plate if it is damaged.
7. Before checking or replacing the blade, wipe grass and mud off the top and inside of the mower. Especially clean up the inside of the belt cover, because otherwise the belt life will be reduced.

[RCK48]



- (1) Spindle holder
 (2) Cover
 (3) Blade
 (4) Spring plate
 (5) Bolt

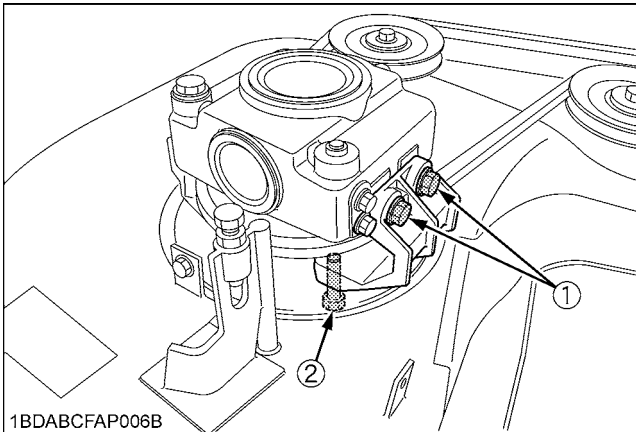
IMPORTANT :

- Tighten the bolts of the blades from 103 to 118 N-m (10.5 to 12.0 kgf-m) of torque.

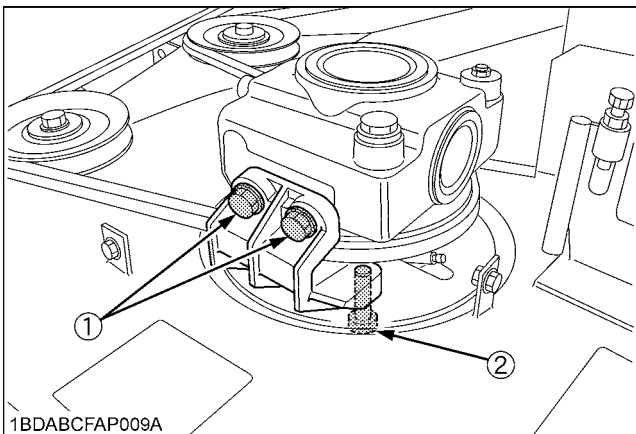
■ Mower Belt Replacement

[GZD15-II, GZD15-II (F)]

1. Remove the mower deck from the machine according to the procedure "DISMOUNTING THE MOWER DECK".
2. Remove shields from the mower deck. (See "Cleaning Mower Deck" in "DAILY CHECK" in "PERIODIC SERVICE" section.)
3. Clean around the pulleys to remove the belt from the pulleys. Slip the belt over the top of the left side pulley.
4. Remove both brackets which mount the gear box to the mower deck.



- (1) Reamer bolt
- (2) Reamer bolt, nut



- (1) Bolt
- (2) Bolt, Nut

5. To install a new belt, reverse the above procedure.

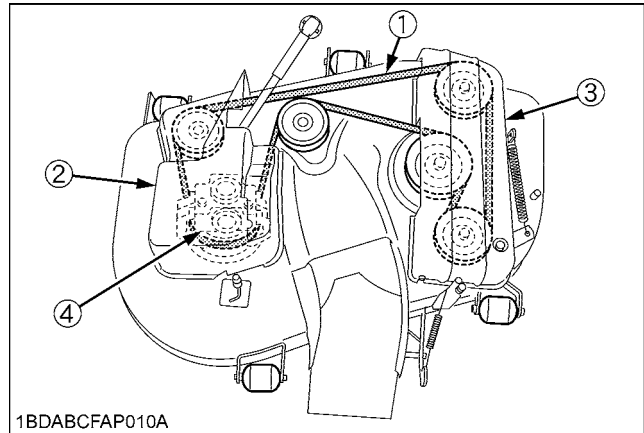
IMPORTANT :

- When attaching the bracket, tighten the reamer bolt first.

NOTE :

Tighten each bolt with following torque.

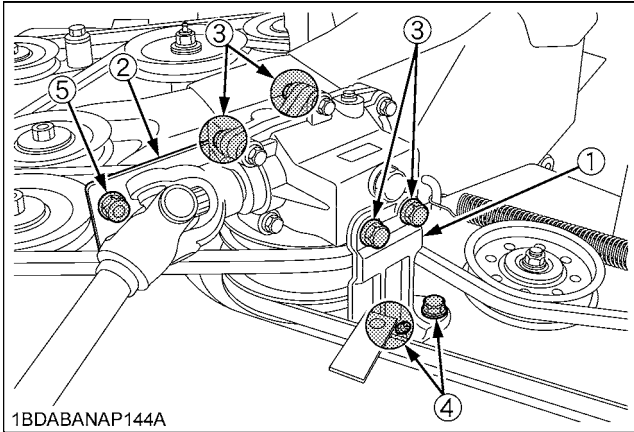
- Reamer bolt (1) and Bolt (1) (for gear case)
77.6 to 90.2 N-m (8.0 to 9.2 kgf-m)
- Reamer bolt (2) and Bolt (2)
48.1 to 55.9 N-m (4.9 to 5.7 kgf-m)



- (1) Belt
- (2) Left hand shields
- (3) Right hand shield
- (4) Gear box

[GZD21, GZD21 (F)]

1. Remove the mower deck from the machine according to the procedure "ATTACHING THE MOWER".
2. Remove shields and stays from the mower deck. (See "Cleaning Mower Deck" in "DAILY CHECK" in "PERIODIC SERVICE" section.)
3. Clean around the pulleys to remove the belt from the pulleys. Slip the belts over the top of the left side pulley and the right side pulley.
4. Remove both brackets which mount the gear box to the mower deck.



- (1) Left bracket
- (2) Right bracket
- (3) Reamer bolt
- (4) Bolt
- (5) Belt, Nut

5. To install a new belt, reverse the above procedure.

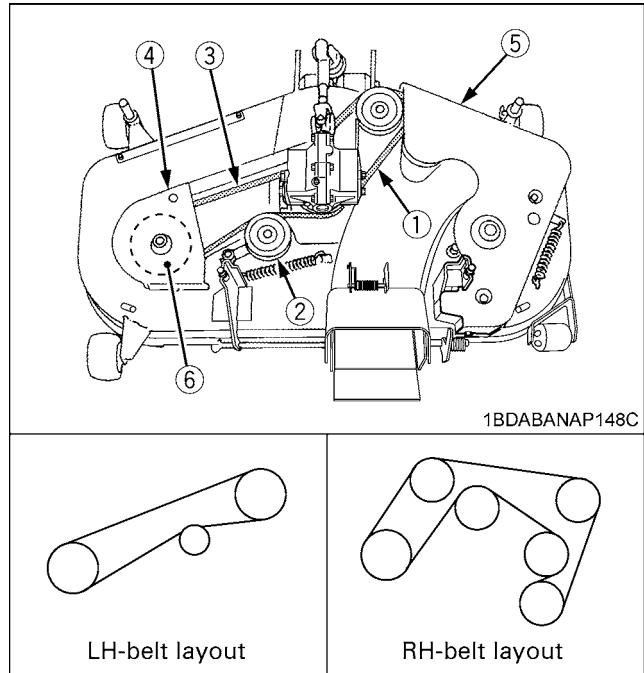
NOTE :

Tighten each bolt with following torque.

- Reamer bolt and Bolt (for Aluminum gear case)
39.2 to 44.1 N-m (4.0 to 4.5 kgf-m)
- Reamer bolt and Bolt (other)
48.1 to 55.9 N-m (4.9 to 5.7 kgf-m)

NOTE :

- Tighten cover bolts securely.



- (1) RH-belt
- (2) Tension pulley
- (3) LH-belt
- (4) Left hand shield
- (5) Right hand shield
- (6) Left side pulley

■ 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.

ADJUSTMENT

MOTION CONTROL LEVER



CAUTION

To avoid personal injury:

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

IMPORTANT :

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

■ HST NEUTRAL

1. Lift-up and secure with jack stands or blocking the rear of the machine frame.
2. Remove both rear wheels.
3. Start the engine, and run at maximum speed.
4. Place the motion control lever in the "NEUTRAL LOCK" position.
5. If the rear axle is still turning, follow following steps to adjust the neutral position.
6. Pull the lever of seat frame, then raise and latch the seat assembly.
7. Remove the connector from the seat safety switch, then **temporarily** install a jumper wire across the terminals in the connector of the wire harness.



CAUTION

To avoid personal injury:

- Do not operate the machine with a jumper wire.
- If you feel you are unable to make the following adjustments correctly and safely, please contact your local KUBOTA Dealer.

8. Loosen the lock nut of the motion control rod.
Adjust the motion control rod until the rear axle rotation stops.

9. Tighten the lock nut.

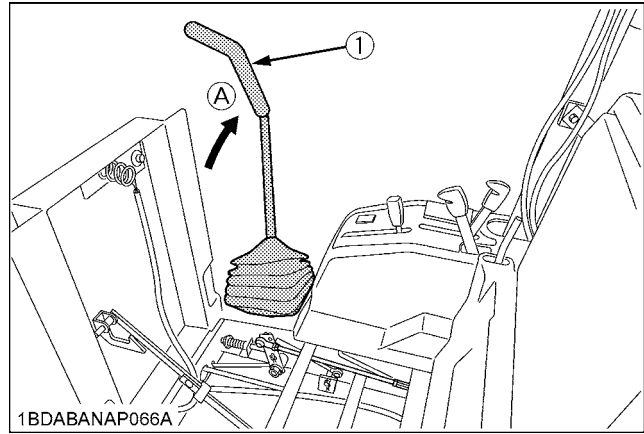
Place the motion control lever to the reverse position, and move them to the forward slowly.

10. Place the lever in the "NEUTRAL LOCK" position, and check the rear axle does not rotate.

If the axle has not stopped rotating, adjust the "HST NEUTRAL" again.

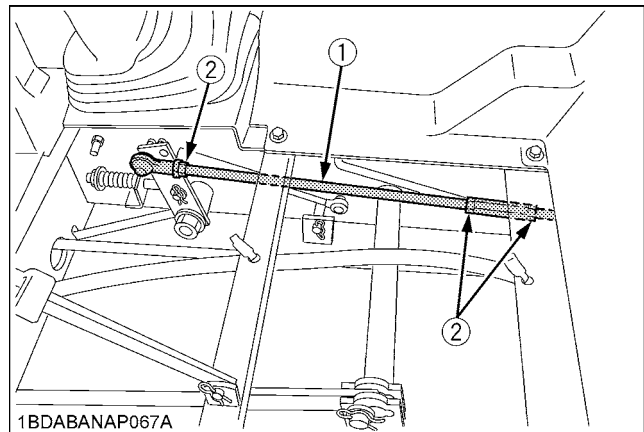
11. Adjust the other side "HST NEUTRAL" equally.

12. After adjustment, be sure to stop the engine immediately.



(1) Motion control lever

(A) "NEUTRAL LOCK" position

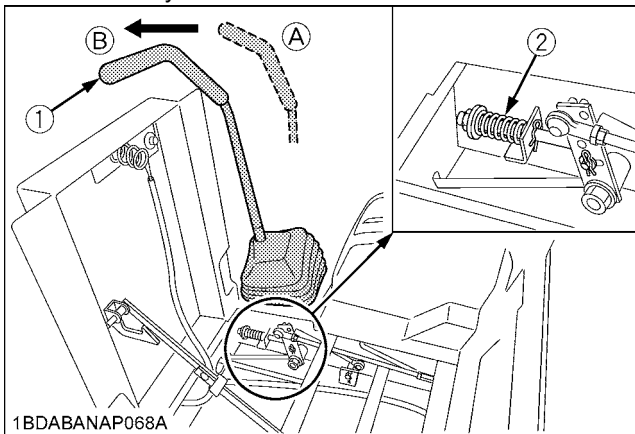


(1) Motion control rod

(2) Lock nut

REVERSE RETURN POSITION

1. Lift-up and secure with jack stands or block the rear of the machine frame.
2. Remove both rear wheels.
3. Start the engine, and run at maximum speed.
4. Place the lever in the "NEUTRAL" position.
5. Pull the lever to the reverse maximum position and release the lever.
6. Check if the axle rotates or not.
7. If the axle rotates, loosen the lock nut and adjust the reverse return spring bolt length so that the axle does not rotate.
8. Lock the nut.
9. Check the lever return position again.
If it is not correct, adjust again.
10. Adjust other side "REVERSE RETURN POSITION" equally.
11. After adjustment, be sure to stop the engine immediately.



(1) Motion control lever (A) "REVERSE" position
 (2) Return spring (B) "NEUTRAL" position

MAXIMUM SPEED (FORWARD)

Consult your local KUBOTA Dealer for this service.

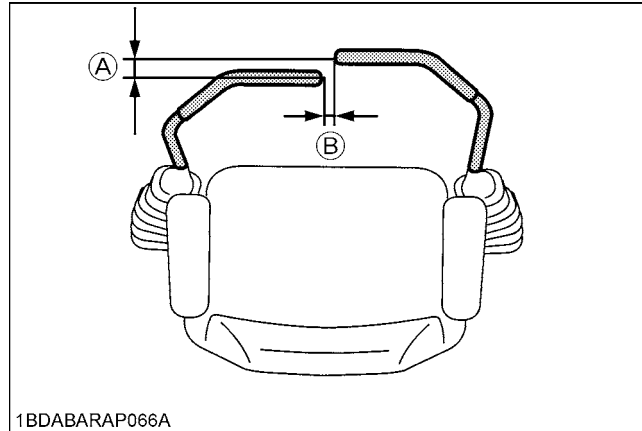
MOTION CONTROL LEVER ALIGNMENT

◆ Check the alignment

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

Recommendation	Gap: 0 to 5 mm
	Space: 10 to 20 mm

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



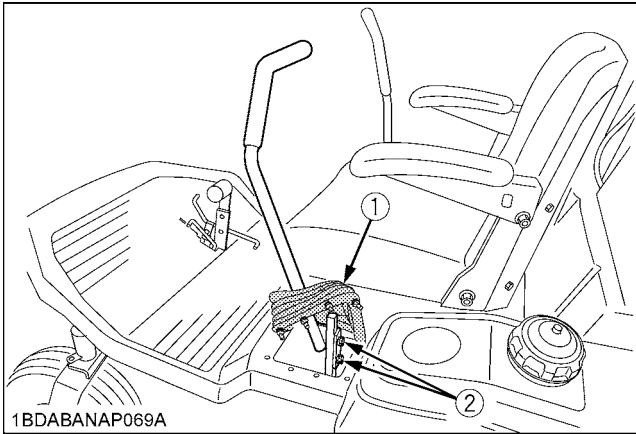
(A) "Gap"
 (B) "Space"

◆ Aligning the control levers

1. Stop the engine and apply the parking brake.
2. Loosen the nut and remove the boot.

Lever position (High or Low)

3. Remove the bolts and select the motion control lever position, high or low.
4. Tighten the bolt and install the boot.



- (1) Boot
(2) Bolts

Lever alignment (Right and Left)

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

NOTE :

- If the ends of the levers strike against each other while in the "NEUTRAL" position, move the levers outward to the "NEUTRAL LOCK" position and carefully bend them outward. Move them back to the "NEUTRAL" position and check for the recommended space.

MOWER DECK LEVEL

■ LEVEL MOWER DECK (Side-to-Side)



CAUTION

To avoid personal injury:

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

IMPORTANT :

- Check the machine tire pressure. Inflate tires to the correct pressure. (See "TIRES AND WHEELS" section.)

◆ Checking level (Side-to-Side)

NOTE :

- Mower deck anti-scalp rollers should not contact the ground.
1. Raise the mower deck to the transport position. (Also the top end).
 2. Turn the cutting height set dial to the 3 in. cutting height position.
 3. Lower the mower deck.
 4. Position the right mower blade in the Side-to-Side position.
 5. Measure from the outside tip of the right blade to the level surface with a short ruler or leveling gauge.

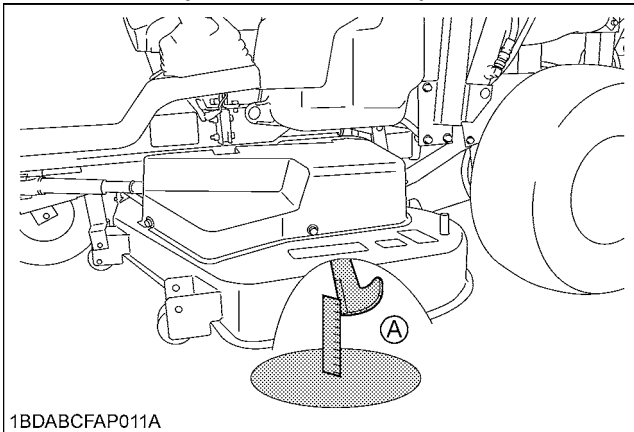
Reference

Height of the blade at the concrete surface	80 mm
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NOTE :

- There is a difference of the blade height between on the concrete and ground.
6. Measure the height from the outside tip of the left blade to the level surface as with the right blade. The difference between both measurements should be less than 3 mm.

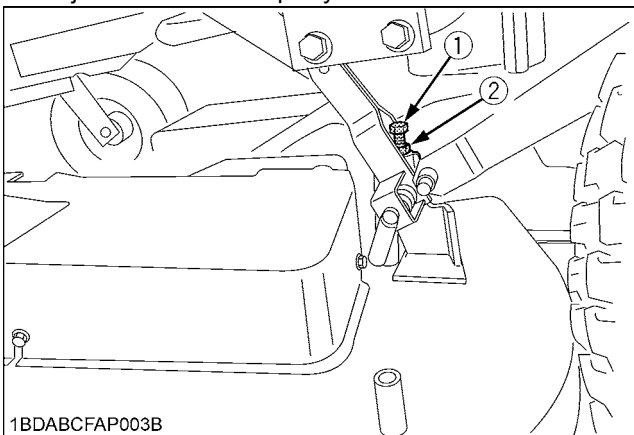
7. If the Side-to-Side adjustment is not within the given tolerance, adjustment is necessary.



(A) "SIDE"

◆ Adjusting level (Side-to-Side)

1. Raise up the mower deck to the transport position. (Also the top end).
2. Turn the cutting height set dial to the 3 in. cutting height position.
3. Place 51 mm height wood blocks under each side of the mower deck.
Anti-scalp rollers must not rest on the wood block.
4. Lower the mower deck.
5. Position the right mower blade in the Side-to-Side position.
6. Loosen the lock nuts of the right side of the machine.
7. Adjust the cutting height fine tuning bolts to set 80 mm height.
8. Lock the nuts.
9. Adjust the left side equally.



- (1) Cutting height fine tuning bolt
(2) Lock nut

10. Measure the height from each blade to the level surface, and check that the difference between both measurements is less than 3 mm.
If it is 3 mm or over, adjustment is necessary again.

■ LEVEL MOWER DECK (Front-to-Rear)



CAUTION

To avoid personal injury:

- Park the machine on a firm and level surface.
- Engage the parking brake.
- Disengage PTO.
- Stop the engine, remove the key and remove the mower u-joint while checking or adjusting the level of the mower deck.

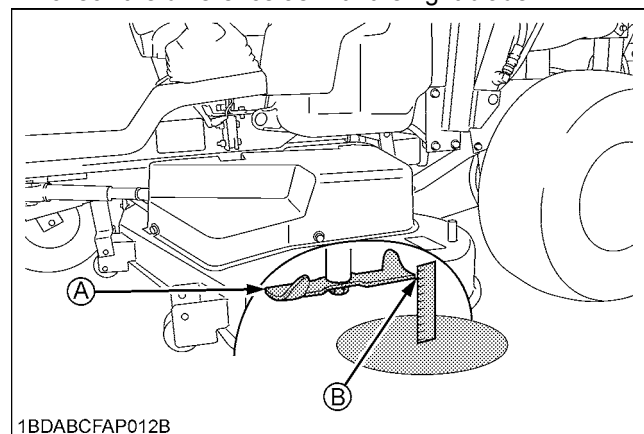
IMPORTANT :

- Check the machine tire pressure.
Inflate tires to the correct pressure.
(See "TIRES AND WHEELS" section.)

◆ Checking level (Front-to-Rear)

NOTE :

- Mower deck anti-scalp rollers should not contact the ground.
1. Raise the mower deck to the transport position. (Also the top end).
 2. Turn the cutting height set dial to the 3 in. cutting height position.
 3. Lower the mower deck.
 4. Position the right mower blade in the Front-to-Rear position.
 5. Measure the distance from the front tip of the right blade (point A) to the level surface with a short ruler or leveling gauge.
 6. Measure the distance from the rear tip of the right blade (point B) to the level surface as with the right blade front.
 7. The difference in height between the right blade front and its rear should be less than 6 mm, and the front must be lower than the rear.
If not so, adjustment is necessary.
 8. Measure the front and rear heights of the left blade and check the difference as with the right blade.



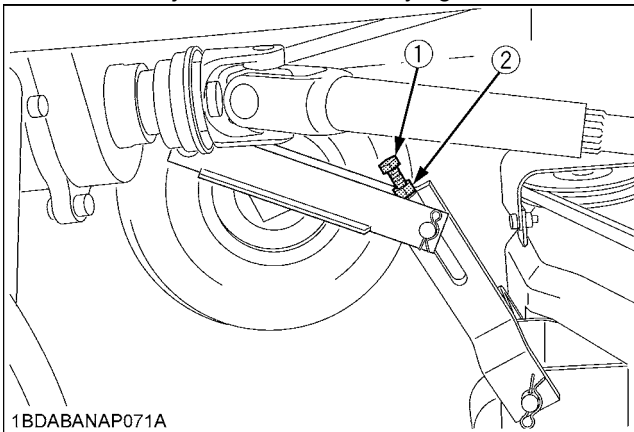
(A) Front
(B) Rear

◆ Adjusting level (Front-to-Rear)

1. Raise up the mower deck to the transport position. (Also the top end).
2. Turn the cutting height set dial to the 3 in. cutting height position.
3. Place 51 mm height wood blocks under each side of the mower deck. Anti-scalp rollers must not rest on the wood block.
4. Lower the mower deck.
5. Loosen the lock nuts of the front side of the machine.
6. Adjust the cutting height fine tuning bolts to set 80 mm height.
7. Lock the nuts.





IMPORTANT :

- The difference between both measurements should be less than 6 mm. Front side must be lower than rear side.
8. Check that the difference in height between the blade front and its rear is less than 6 mm and the front is lower than the rear. If not so, adjustment is necessary again.



- (1) Cutting height fine tuning bolt
(2) Lock nut

GENERAL TORQUE SPECIFICATION

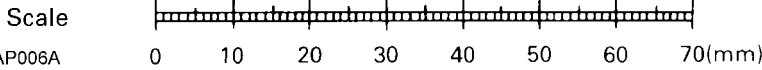
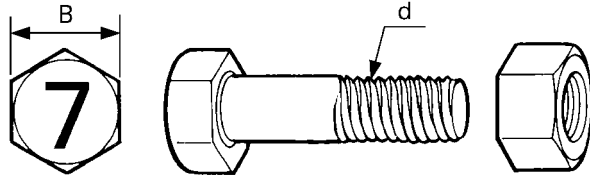
American standard cap screws with UNC or UNF threads			Metric cap screws		
SAE grade No.	GR.5 	GR.8 	Property class	Class 8.8 	Class 10.9 
1/4	(ft-lbs) 8 - 9.6 (N-m) 10.7 - 12.9 (kgf-m) 1.11 - 1.33	12 - 14.4 16.1 - 19.3 1.66 - 1.99	M6	(ft-lbs) 7.2 - 8.3 (N-m) 9.81 - 11.3 (kgf-m) 1.0 - 1.15	
5/16	(ft-lbs) 17 - 20.5 (N-m) 23.1 - 27.8 (kgf-m) 2.35 - 2.84	24 - 29 32.5 - 39.3 3.31 - 4.01	M8	(ft-lbs) 17.4 - 20.2 (N-m) 23.6 - 27.4 (kgf-m) 2.4 - 2.8	21.7 - 25.3 29.4 - 34.3 3.0 - 3.5
3/8	(ft-lbs) 35 - 42 (N-m) 47.5 - 57.0 (kgf-m) 4.84 - 5.82	45 - 54 61.0 - 73.2 6.22 - 7.47	M10	(ft-lbs) 35.5 - 41.2 (N-m) 48.1 - 55.8 (kgf-m) 4.9 - 5.7	44.9 - 52.1 60.8 - 70.5 6.2 - 7.2
1/2	(ft-lbs) 80 - 96 (N-m) 108.5 - 130.2 (kgf-m) 11.07 - 13.29	110 - 132 149.2 - 179.0 15.22 - 18.27	M12	(ft-lbs) 57.2 - 66.5 (N-m) 77.5 - 90.1 (kgf-m) 7.9 - 9.2	76.0 - 86.8 103 - 117 10.5 - 12.0
9/16	(ft-lbs) 110 - 132 (N-m) 149.2 - 179.0 (kgf-m) 15.22 - 18.27	160 - 192 217.0 - 260.4 22.14 - 26.57	M14	(ft-lbs) 91.2 - 108 (N-m) 124 - 127 (kgf-m) 12.6 - 15.0	123 - 144 167 - 196 17.0 - 20.0
5/8	(ft-lbs) 150 - 180 (N-m) 203.4 - 244.1 (kgf-m) 20.75 - 24.91	220 - 264 298.3 - 358.0 30.44 - 36.53	M16	(ft-lbs) 145 - 166 (N-m) 196 - 225 (kgf-m) 20.0 - 23.0	192 - 224 260 - 303 26.5 - 31.0

TIGHTENING TORQUE CHART

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

NOTE :

- Figure "7" on the top of the bolt indicates that the bolt is of special material.
- Before tightening, check the figure on the top of bolt.



1BDABARAP006A

STORAGE



CAUTION

To avoid personal injury:

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

MACHINE STORAGE

If you intend to store your machine for an extended period of time, follow the procedures outlined below. These procedures will insure that the machine is ready to operate with minimum preparation when it is removed from storage,

1. Check for loose bolts and nuts, and tighten if necessary.
2. Apply grease to machine areas where bare metal will rust also to pivot areas.
3. Inflate the tires to a pressure a little higher than usual.
4. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
5. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
6. Remove the battery from the machine. Store the battery following the battery storage procedures. (See "BATTERY" in Periodic service section.)
7. Keep the machine in a dry place where the machine is sheltered from rain. Cover the machine.
8. Store the machine indoors in a dry area that is protected from sunlight and excessive heat. If the machine must be stored outdoors, cover it with a waterproof tarpaulin.
9. Moisture content in most grasses can damage the mower and grass catcher 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 MACHINE 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. Check all control levers and the brake for proper function, free up or lubricate as necessary.
7. Start the engine. Observe all gauges. If all gauges are functioning properly and reading normal, move the machine outside.
8. Once outside, park the machine, securely set the parking brake, place the control levers in the neutral lock position and let the engine idle for at least 5 minutes.
9. Shut the engine off and walk around machine and make a visual inspection looking for evidence of oil or coolant leaks.
10. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes 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 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 "SERVICE 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.
		<ul style="list-style-type: none"> Battery becomes weak and the engine does not turn over quickly enough. 	<ul style="list-style-type: none"> Clean battery cables and terminals. Charge the battery. In cold weather, always remove the battery from the engine, charge and store it indoors. Install it on the machine only when the machine is going to be used.
Insufficient engine power.		<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 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. Engine is overloaded. 	<ul style="list-style-type: none"> Change the fuel and fuel filter. Check the proper amount of oil. Reduce engine load.
	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"> Lower speed 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 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 core or grille screens. 	<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.	● Battery overused until lights are dim.	● Charge battery sufficiently.	● Charge the battery properly.
	● Battery has not been recharged.		
	● Poor terminal connection.	● Clean the terminal and tighten securely.	● Keep the terminal clean and tight. Apply grease and treat with anti-corrosives.
	● Battery life expired.	● Renew battery.	
From beginning starter does not function, and lights soon become dim.	● Insufficient charging.	● Charge battery sufficiently.	● Battery must be serviced properly before initial use.
When viewed from top, the top of plates look whitish.	● Battery was used with an insufficient amount of electrolyte.	● Add distilled water and charge the battery.	● Regularly check the electrolyte level.
	● Battery was used too much without recharging.	● Charge battery sufficiently.	● Charge the battery properly.
Recharging is impossible.	● Battery life expired.	● Replace battery.	
Terminals are severely corroded and heat up.	● Poor terminal connection.	● Clean the terminal and tighten securely.	● Keep the terminal clean and tight. Apply grease and treat with anti-corrosives.
Battery electrolyte level drops rapidly.	● There is a crack or pin holes in the electrolytic cells.	● Replace battery.	
	● Charging system trouble.	● Contact your local KUBOTA Dealer.	

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

MACHINE TROUBLESHOOTING

Trouble	Cause	Remedy
Machine operation is not smooth.	● Hydrostatic transmission fluid is insufficient.	● Replenish oil.
	● Filter is clogged.	● Replace the filter.
Machine does not move while engine is running.	● Parking brake is on.	● Release the parking brake.
	● Transmission fluid level is insufficient.	● Replenish oil.
Machine moves when motion control levers are in the "NEUTRAL LOCK" position. (Engine is operated.)	● Hydrostatic lever linkage is not correctly adjusted.	● Ask your dealer for hydrostatic lever linkage adjustment or pressure adjustment.
	● Control linkage pivots are sticking.	● Lubricate linkage.

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

MOWER TROUBLESHOOTING

Trouble	Cause	Remedy
Discharge chute plugged.	● Grass too wet.	● Wait for grass to dry.
	● Grass too long.	● Raise cutting height and cut grass twice.
	● Cutting too low.	● Raise cutting height.
	● Engine r.p.m. too low.	● Mow at full throttle.
	● Ground speed too fast.	● Slow down.
Streaking of grass uncut.	● Ground speed too fast.	● Slow down.
	● Engine r.p.m. too low.	● Mow at full throttle, check and reset engine r.p.m..
	● Grass too long.	● Cut grass twice.
	● Blades dull or damaged.	● Replace blades or have blades sharpened.
	● Debris in mower deck.	● Clean mower deck.
Uneven cut.	● Mower deck not level.	● Level mower deck.
	● Ground speed too fast.	● Slow-down.
	● Blades dull.	● Have blades sharpened.
	● Blades worn.	● Replace blades.
	● Low tire inflation.	● Add air to correct pressure.
	● Wheels pressure not adjusted correctly.	● Set both tire pressures to the correct pressure. (See "TIRES" in Tires and wheels section.)
Blades scalping grass.	● Cutting height too low.	● Raise cutting height.
	● Turning speed too fast.	● Reduce speed on turns.
	● Ridges in terrain.	● Change mowing pattern.
	● Rough or uneven terrain.	● Adjust wheel pressures.
	● Bent blade(s).	● Replace blade(s).
Belt slipping.	● Mower deck plugged.	● Unplug and clean mower deck.
	● Debris in pulleys.	● Clean pulleys.
	● Worn belt.	● Replace belt.
Excessive vibration.	● Debris on mower deck or in pulleys.	● Clean mower deck and pulleys.
	● Damaged drive belt.	● Replace drive belt.
	● Damaged pulleys.	● Replace pulleys.
	● Pulleys out of alignment.	● See your KUBOTA Dealer.
	● Blades out of balance.	● Have blades balanced.
Mower loads down machine.	● Engine r.p.m. too low.	● Mow at full throttle, check and reset engine r.p.m..
	● Ground speed too fast.	● Slow down.
	● Debris wrapped around mower spindles.	● Clean mower.
Grass tips are jagged and turn grayish brown	● Blades dull.	● Have blades sharpened.
	● Blades worn.	● Replace blades.
	● Mower deck is not level.	● Level mower deck.

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

GRASS CATCHER TROUBLESHOOTING

Trouble	Cause	Remedy
Discharge duct plugged.	● Grass too wet.	● Wait for grass to dry.
	● Grass too long.	● Raise cutting height and cut grass twice.
	● Cutting too low	● Raise cutting height.
	● Engine rpm low.	● Mow at full throttle.
	● Ground speed too fast.	● Slow down.
	● Grass container full.	● Empty grass container.
	● Grass container net clogged.	● Clean grass container net.
Dumped and undischarged clippings.	● Duct plugged.	● Clean duct.
	● Grass container full.	● Empty grass container.
	● Mower deck plugged.	● Clean mower deck.
	● Grass container net clogged.	● Clean grass container net.

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

OPTION

Consult your KUBOTA Dealer for further details.

- **Rear Discharge deflector**
The Rear Discharge Deflector is used when both discharging and scattering the grass clippings to the rear of the machine without collecting.

SOUND AND VIBRATION MEASUREMENTS

◆ Sound Pressure Level Measured Per EN836-A2

Model	Engine rated speed	Sound pressure at the operator's position
GZD15-II with RC42GZD-II	3000 rpm	89.0 dB (A)
GZD21 with RCK48GZD	3000 rpm	89.5 dB (A)

◆ Hand/Arm Vibration Level Measured Per EN836-A2

Model	Engine rated speed	Hand/Arm vibration
GZD15-II with RC42GZD-II	3000 rpm	1.54 m/s ²
GZD21 with RCK48GZD	3000 rpm	0.83 m/s ²

◆ Whole Body Vibration Level Measured Per EN836-A2

Model	Engine rated speed	Whole body vibration
GZD15-II with RC42GZD-II	3000 rpm	0.48 m/s ²
GZD21 with RCK48GZD	3000 rpm	0.45 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.

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