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Western Division : 1175 S. Guild Avc., Lodi, CA 95240
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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
Delta Distribution Center : 7979 82nd St, Delta B.C. V4G 1L7
Telephone : (604)940-6061
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France : **KUBOTA EUROPE S.A.S**
19-25, Rue Jules Vercruysse, Z.I. BP88, 95101 Argenteuil Cedex, France
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Telephone : (39)02-51650377
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U.K. : **KUBOTA (U.K.) LTD.**
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Telephone : (61)-3-9279-2000
Malaysia : **SIME KUBOTA SDN. BHD.**
No.3 Jalan Sepadu 25/123 Taman Perindustrian Axis,
Seksyen 25, 40400 Shah Alam, Selangor Darul Ehsan Malasia
Telephone : (60)3-736-1388
Philippines : **KUBOTA AGRO-INDUSTRIAL MACHINERY 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, Taliao 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 : **THE SIAM KUBOTA INDUSTRY CO., LTD.**
101/19-24 Navanakorn, Tambol Klongneung, Amphur Klongluang, Pathumtani 12120, Thailand
Telephone : (66)2-529-0363

KUBOTA Corporation

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GR1600-II·GR2100-II

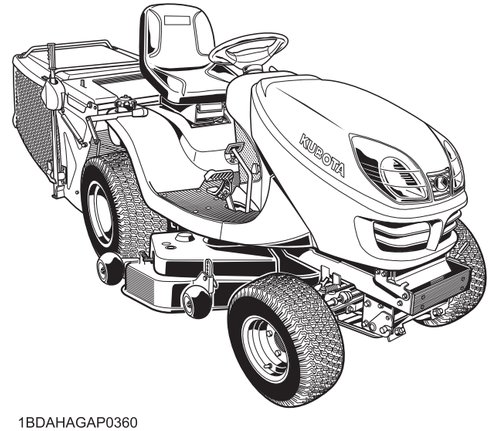
OPERATOR'S MANUAL
KUBOTA RIDING MOWER

MANUEL DE L'UTILISATEUR
TONDEUSE AUTOPORTEE KUBOTA

BEDIENUNGSANLEITUNG
KUBOTA AUFSITZMAHER

ENGLISH
FRANÇAIS
DEUTSCH

MODELS
MODELES **GR1600-II**
MODELLE **GR2100-II**



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

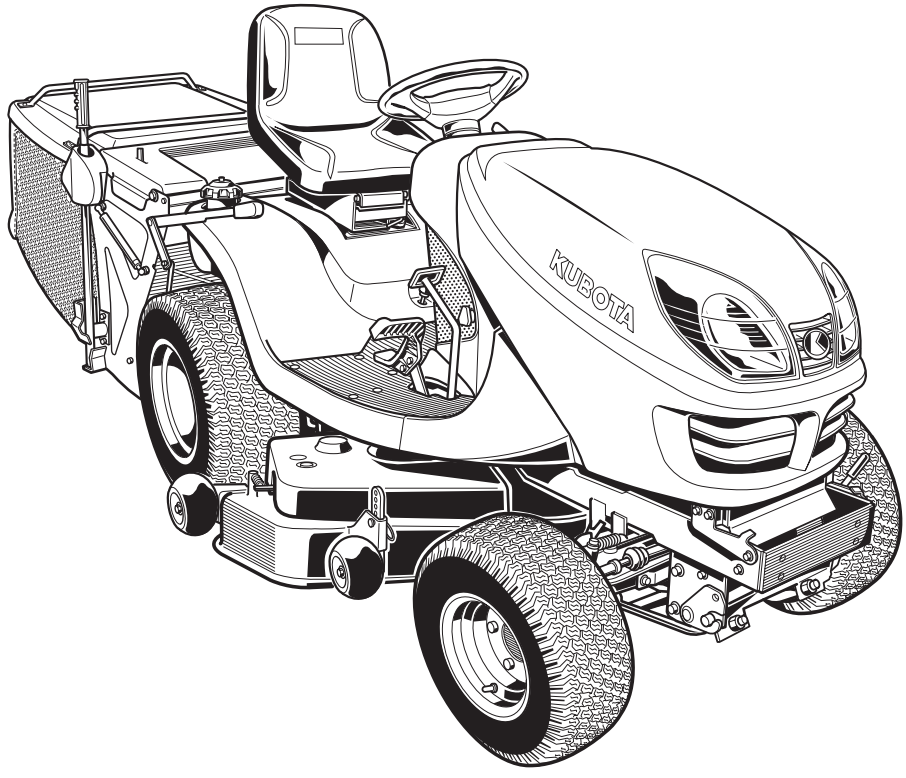
ENGLISH

OPERATOR'S MANUAL

KUBOTA

RIDING MOWER

MODELS GR1600-II
GR2100-II



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READ AND SAVE THIS MANUAL

Kubota

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

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


Diesel Fuel


Brake


Parking Brake


Engine-Stop


Preheat


Engine-Run


Starter Control


Power Take-Off Clutch Control-Off Position


Power Take-Off Clutch Control-On Position


Cutting Height


Mower-Lowered position


Mower-Raised position


Headlight

Headlight-ON


Headlight-OFF


Fast


Slow


Engine Speed Control


Battery


Oil Pressure


Coolant Temperature


Grass Container-Unlock


Lever Pulled


Grass Container Dump


Grass Container-Lock


Full of Grass Container

FOREWORD

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

SAFETY FIRST

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

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

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

CAUTION : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

NOTE : Gives helpful information.

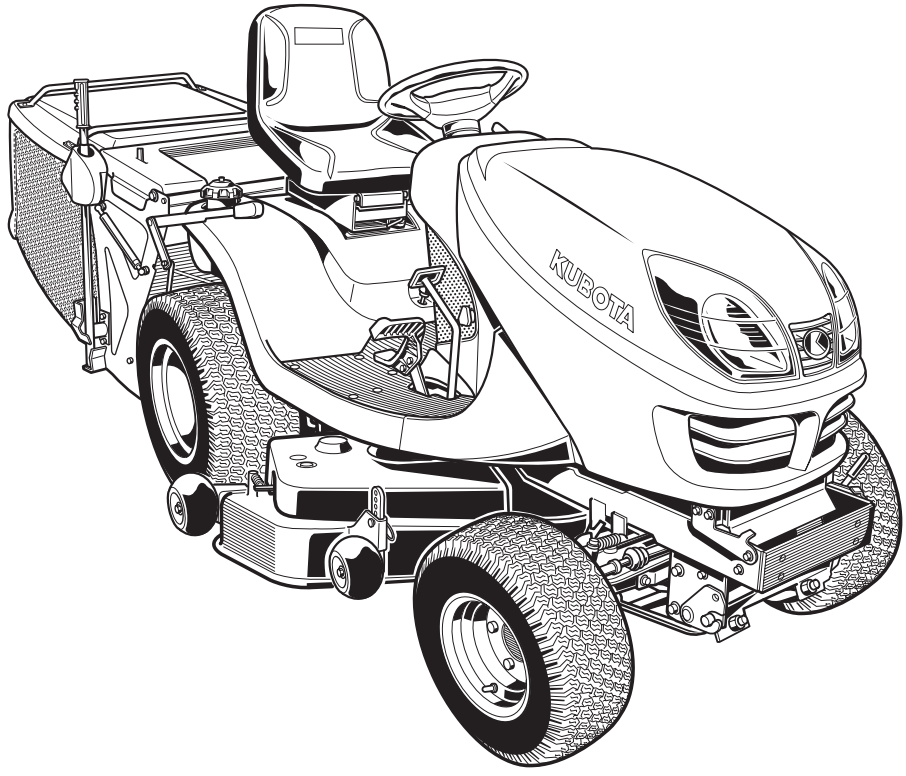
MANUEL DE L'UTILISATEUR

FRANÇAIS

KUBOTA

TONDEUSE AUTOPORTEE

MODELES GR1600-II
GR2100-II



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MANUEL A LIRE ET A CONSERVER

Kubota

ABREVIATIONS

Abréviations	Définitions
API	Institut américain du pétrole
PDF	Prise de force
PT	Type permanent (=antigel au glycol éthylène)
tr/min	Tours par minute
SAE	Société des ingénieurs automobiles

SYMBOLES UNIVERSELS

Employés comme guide lors de l'utilisation de votre tondeuse, des symboles universels variés ont été apposés sur les contrôles et les instruments. Ces symboles et leur significations sont montrés ci-dessous.


Symbole d'alerte à la sécurité


Carburant diesel


Frein


Frein de stationnement


Arrêt du moteur


Préchauffage


Moteur en marche


Commande de démarrage


Embrayage de la prise de force-Position "DESENGAGEE"


Embrayage de la prise de force-Position "ENGAGEE"


Hauteur De Coupe


Tondeuse position "ABAISSEE"


Tondeuse position "RELEVEE"


Eclairage

Phares allumés


Phares éteints


Rapide


Lente


Commande de régime du moteur


Batterie


Pression d'huile


Température du liquide de refroidissement


Collecteur d'herbe - Déverrouillage


Levier tiré


Déversement du collecteur d'herbe


Collecteur d'herbe - Verrouillage


Collecteur d'herbe plein

AVANT-PROPOS

Vous êtes maintenant l'heureux propriétaire d'une TONDEUSE AUTOPORTEE KUBOTA. Cette machine est le produit de l'étude et de la fabrication de haute qualité KUBOTA. Elle est fabriquée avec les meilleurs matériaux et sous un système de contrôle qualité très rigoureux, et vous donnera de longues années de service satisfaisant. Pour tirer le meilleur parti de votre tondeuse autoportée KUBOTA, lisez attentivement ce manuel. Il vous aidera à vous familiariser avec son fonctionnement et vous y trouverez de nombreux conseils sur l'entretien de la machine. Chez KUBOTA, nous avons pour principe d'appliquer, aussi tôt que possible, tous les progrès réalisés grâce à notre recherche. La mise en œuvre immédiate de nouvelles techniques dans la fabrication de certains produits pourra faire que de petites parties de ce manuel soient périmées. Les distributeurs et concessionnaires KUBOTA disposeront cependant des informations les plus récentes. N'hésitez pas à les consulter.

SYMBOLE DE DANGER

Ce symbole est celui utilisé dans l'industrie pour indiquer un danger. Il est utilisé pour attirer votre attention sur des éléments ou des opérations qui pourraient être dangereux pour vous-mêmes ou d'autres utilisateurs de cette machine. Lisez donc attentivement les consignes qu'il signale. Il est essentiel que vous lisiez les instructions et les réglementations de sécurité avant d'entreprendre l'assemblage ou l'utilisation de cette machine.

DANGER : Indique une situation éminemment dangereuse, des blessures graves ou la mort peuvent survenir si cette situation n'est pas évitée.

AVERTISSEMENT : Indique une situation potentiellement dangereuse, des blessures graves ou la mort peuvent survenir si cette situation n'est pas évitée.

ATTENTION : Indique une situation potentiellement dangereuse, des blessures mineures ou graves peuvent survenir si cette situation n'est pas évitée.

IMPORTANT : Si les instructions se sont pas suivies des dommages à l'équipement ou à la propriété peuvent survenir.

NOTE : Donne des informations pertinentes.

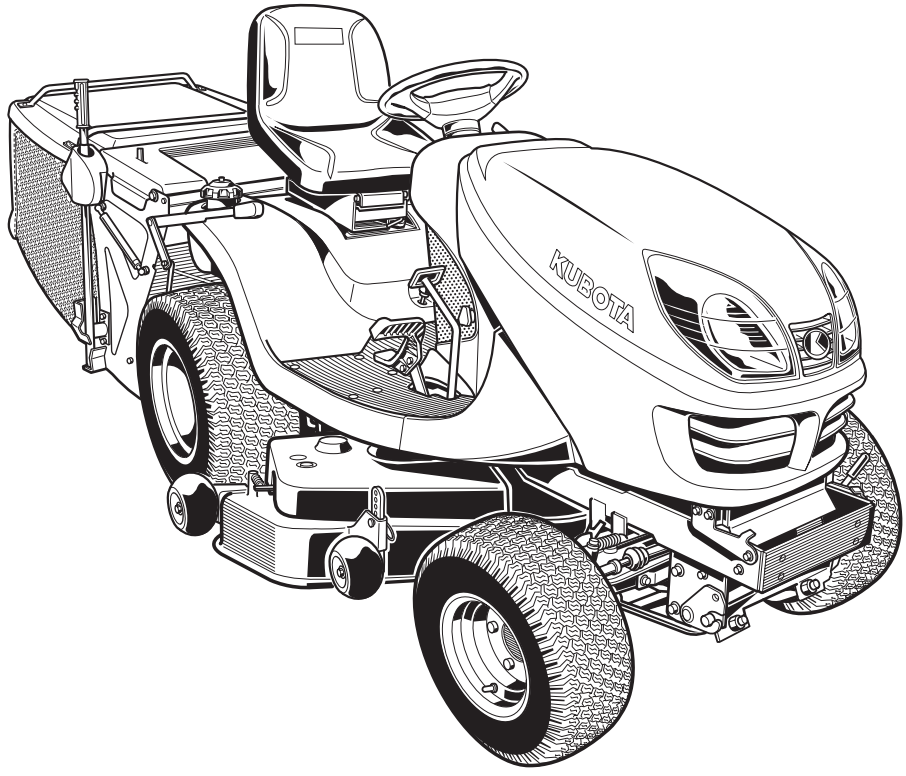
BEDIENUNGSANLEITUNG

KUBOTA

AUFSITZMAHER

MODELLE GR1600-II
GR2100-II

DEUTSCH



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DIESE ANLEITUNG SORGFÄLTIG DURCHLESEN UND AUFBEWAHREN

Kubota

LISTE DER ABKÜRZUNGEN

Abkürzungen	Beschreibung
API	American Petroleum Institute
PTO	Zapfwelle
PT	Ganzjahrestyp (Athylen-Glykol Frostschutz)
U/min	Umdrehungen per Minute
SAE	Society of Automotive Engineers

ALLGEMEINE SYMBOLE

Um Ihnen die Bedienung Ihres Traktors zu erleichtern wurden Instrumente und Bedienungselemente mit einer Reihe von Symbolen versehen. Diese Symbole sind nachfolgend mit ihren entsprechenden Beschreibungen aufgeführt.


Sicherheits Warnsymbol


Diesel Kraftstoff


Bremse


Parkbremse


Motorstoppleuchte


Vorglühen


Motorlaufkontrolleuchte


Anlasserkontrolleuchte


Zapfwellen-Kontrolleuchte “AUS”


Zapfwellen-Kontrolleuchte “EIN”


Schnitthöhe


Mähdeck “ABSENKEN”


Mähdeck “ANHEBEN”


Scheinwerfer

Scheinwerfer “EIN”


Scheinwerfer “AUS”


Schnell


Langsam


Gashebel


Batterie


Öldruck


Kühlflüssigkeitstemperatur


Grasauffangbehälter - Öffnen


Angezogener Hebel


Grasauffangbehälter - Kippen


Grasauffangbehälter - Schließen


Voller Grasauffangbehälter

VORWORT

Nun sind Sie der stolze Besitzer eines KUBOTA ZERO TURN-MÄHERS. Dieser Mäher ist ein Produkt der KUBOTA-Qualitätstechnik und -fertigung. Er ist aus hochwertigen Materialien und unter einem strengen Qualitätssicherungssystem gefertigt worden. Er wird Ihnen einen langen und befriedigenden Betrieb ermöglichen. Zur optimalen Nutzung des Mähers lesen Sie bitte diese Bedienungsanleitung sorgfältig durch. Sie hilft Ihnen, sich mit der Bedienung des Mähers vertraut zu machen, und enthält viele hilfreiche Hinweise zur Wartung des Mähers. Es ist ein Grundsatz von KUBOTA, jede Innovation aus unserer Forschung so schnell wie möglich zu nutzen. Der sofortige Einsatz neuer Herstellungstechniken kann dazu führen, daß ein geringer Teil dieser Bedienungsanleitung nicht mehr aktuell ist. KUBOTA-Händler besitzen die aktuellsten Informationen, daher sollten Sie nicht zögern, sich an sie zu wenden.

DIE SICHERHEIT IST OBERSTES GESETZ

Dieses Sicherheits Warnsymbol finden Sie vor jedem speziellen Sicherheits Hinweis innerhalb dieses Handbuches und auf den speziellen Maschinenaufklebern, die vor Verletzungen durch Bedie nungsfehler und Unachtsamkeiten warnen. Beachten Sie diese Hinweise besonders sorgfältig. Lesen Sie diese Anweisungen und Sicherheitsvorschriften vor Zusammenbau und Inbetriebnahme Ihres Gerätes aufmerksam durch.

GEFAHR : Dieses Zeichen weist auf die Möglichkeit einer äußerst gefährlichen Situation hin die zu einem schweren Unfall führen kann, wenn sie nicht vermieden wird.

WARNUNG : Dieses Zeichen warnt davor, keine gefährlichen Situationen einzugehen, die zu schweren Unfällen führen können.

ACHTUNG : Dieses Zeichen macht Sie darauf aufmerksam, daß es durch unaufmerksames Verhalten zu Unfällen kommen kann.

WICHTIG : Dieses Zeichen macht Sie darauf aufmerksam, die entsprechenden Hinweise der Anleitung zu beachten, damit es nicht zu Beschädigungen von Traktor und Anbaugeräten kommen kann.

HINWEIS : Hinter diesem Zeichen finden Sie wichtige Informationen.

EC-DECLARATION OF CONFORMITY
DECLARATION CE DE CONFORMITE
EG-KONFORMITÄTSERKLÄRUNG

CE

Maker:
Fabricant:
Hersteller:

KUBOTA

Authorized Representative:
Représentatif légal:
Bevollmächtigter Vertreter:

Kubota Technical Center Europe
19 a 25 rue Jules Vercruysse
95101 Argenteuil
France

Model:
Modèle:
Modell:

GR1600-II GR2100-II

Lawn mower:
Tondeuse à gazon:
Mähwerk:

RCK42 RCK48

Serial No.:
N° de série:
Serien-Nr.:

20001~

Lawn mower combination	Engine		Measured sound power level dB(A)	Guaranteed sound power level dB(A)	Cutting width cm	Blade speed rpm
	Type	RPM				
GR1600-II RCK42	Z482	3300	100	100	107	2470
GR2100-II RCK48	D782	3100	105	105	122	3220

Kubota Corporation keeps technical documentation.
64, Ishizu-Kitamachi, Sakai-City, Osaka, Japan 590-0823

Notified Body:
Organisme notifié:
Benannte Stelle:

Société Nationale de Certification
et d'Homologation
11, route de Luxembourg
L-5230 Sandweiler

This machine complies with the essential health and safety requirements relating to design and construction of machinery, according to EC directive 98/37/EC and conform to the directive 2000/14/EC (ANNEX VI) and also complied with the electromagnetic compatibility according to EC directive 89/336/EEC.

Cette machine est conforme aux exigences essentielles de sécurité et de santé selon la Directive EC 98/37/CE et de la Directive EC 2000/14/CE (ANNEX VI) et satisfait aussi à la compatibilité électromagnétique de la directive EC 89/336/CEE.

Entwurf und Konstruktion dieser Machine entsprechen den erforderlichen, grundlegenden Sicherheits- und Gesundheitsanforderungen der Richtlinien 98/37/EG, 2000/14/EG (ANNEX VI) und 89/336/EWG.

23 January 2006

Takashi Yoshii
President

KUBOTA Manufacturing of America Corporation
Industrial Park North, 2715 Ramsey Road, Gainesville, GA, 30501 U.S.A.

KUBOTA Corporation is · · ·

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

To achieve this status, the company has through the years diversified the range of its products and services to a remarkable extent, until today, 19 plants and 16,000 employees produce over 1,000 different items, large and small.

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

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

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

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, Archtitektur, Bau-und Transportwesen bestmöglich auszuschöpfen. Tausende bauen auf KUBOTA -und Sie?

ENGLISH

CONTENTS

ENGLISH

ENGLISH

SAFE OPERATION

Careful operation is your best insurance against an accident. Read and understand this section carefully before operation. All operators, no matter how experienced they may be, should read this and other related manuals before operation of the machine or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.
This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

1. BEFORE OPERATING

1. Know your equipment and its limitations. Read, understand and follow all instructions in this manual before attempting to start and operate the machine.
2. Know the controls and how to stop quickly.
3. Pay special attention to the safety labels on the machine and mower.
4. 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.
5. 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.
6. While mowing, always wear substantial foot wear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
7. Do not operate machine or any implement attached to it while under the influence of alcohol, drugs, or other substances or while fatigued.
8. 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.)
9. Keep the machine and attachments in good operating condition and keep safety devices in place and in proper working condition.
10. This machine is equipped with many safety devices. Do not attempt to remove or alter them.
11. Keep all shields and guards in place. Replace all missing or damaged items for your safety.
12. 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.
13. Before allowing other people to use your machine, explain proper operation to them and have them read this manual before operation.
14. Never allow passengers or non-qualified operators on the machine at any time. You must operate the machine from the seat only.
15. 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.
16. Keep your machine clean. Dirt, grease, and trash accumulations contribute to fires or lead to personal injury.
17. 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.
18. 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.
19. Follow the maintenance recommendations. See "MAINTENANCE " section.
20. It is recommended that your machine be thoroughly inspected at least once a year by an authorized KUBOTA Dealer.

2. OPERATING

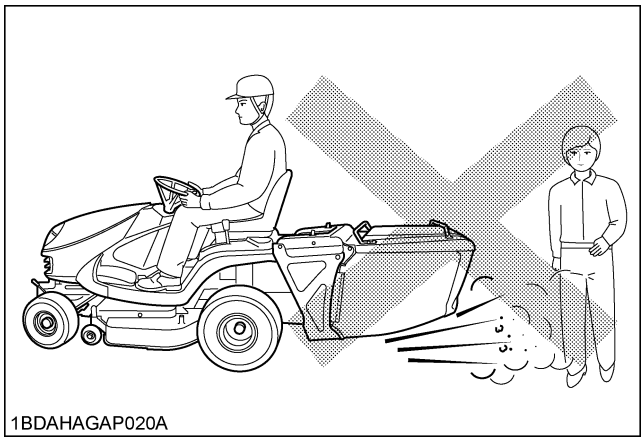
◆ **Starting**

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

◆ **Working**

1. Watch where you are going at all times. Watch for and avoid obstacles. Be alert near trees and other obstructions.
2. When working in groups, always let others know what you are doing ahead of time.

3. Never try to get on or off a moving machine.
4. 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.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5. To reduce fire hazards, keep the engine exhaust area free of grass or leaves.
6. Slow down before turning.
7. Turn off blades when not mowing.
8. Mow only in daylight.
9. 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.
10. Shut the engine off and wait for all movement to stop before unclogging chute.
11. Know what is behind you and disengage power to mower before backing up. Do not mow while in reverse unless absolutely necessary and only after observation of the entire area behind the mower.
12. 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.
13. Always inspect the mower and grass catcher after striking any foreign object. This will insure that all mower and grass catcher parts are safe and secure and not damaged.
    Repair or replace any damaged parts before re-starting.
14. Use only attachment recommended in this manual. Use proper ballast to front or rear of machine to reduce the risk of upsets. Follow the "SAFE OPERATION" procedures specified in the manuals included with the equipment.
15. Do not operate the mower without either the grass container or the guard in place.
    Be aware of the mower discharge direction and do not point it at anyone.
16. Watch for traffic when operating near or crossing roadways.
17. Stop the blades rotating before crossing surface other than grass.
18. Never leave a running machine unattended.
    Always turn off blades, set parking brake, stop engine, and remove the key before dismounting.
19. Be extremely alert for all other traffic when operating the mower and grass catcher near public roads or highways.
20. Do not operate where machine could tip or slip.
    Do not operate near ditches, holes, embankments, or other terrain which may collapse under the machine's weight. The risk of machine tip-over is increased when the ground is loose or wet.
21. Raise and dump collected leaves or grass clippings ONLY while sitting on the operator's seat.
22. 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.
23. Make sure the dumping area is clear of all bystanders and pets, before emptying grass clippings or leaves from the grass container.
24. 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.

◆ **Pulling loads**

Use extra care when pulling loads to reduce the risk of serious personal injury or death due to a machine tip-over.

a) Pull only from the hitch. Never attach loads to the axle housing or any other point above hitch.
b) Limit loads to those you can safely control.
c) Do not turn sharply.
d) Use care when backing.
e) Use front ballast or wheel weights when suggested in this Operator's Manual.

◆ **Operation on slopes**

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it. The control of a ride-on machine sliding on a slope will not be regained by the application of the brake.

- Do not lift the grass container on a slope.

DO

1. Mow up and down slopes, not across, to avoid machine tip-over. 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 KUBOTA's recommendations for wheel weights 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 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 the blades and proceed slowly straight down the slope.
9. If the machine stops going uphill, disengage PTO and back slowly down.
10. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tip-over or loss of control.
11. Use special caution when changing direction on slopes.

DO NOT

1. Do not turn on slopes unless necessary and then turn slowly and gradually downhill, if possible.
2. Do not use the machine on slopes of more than 11°.
3. Do not mow near drop-offs, ditches, or embankments. The machine could suddenly turn over if a wheel falls over the edge of a cliff or ditch, or if an edge caves in.
4. Do not mow on wet grass. Reduced traction could cause sliding.
5. Do not try to stabilize the machine by putting your foot on the ground.
6. Do not stop or start suddenly when going uphill or downhill.
7. Never "freewheel". Do not let the machine travel downhill with HST pedal at neutral position.
8. Do not modify or alter the riding mower.

◆ **Children**

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

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

◆ **Operators, age 60 years and above**

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

◆ **Stopping**

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

3. USING THE PTO

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

4. USING THE LIFT LINK

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

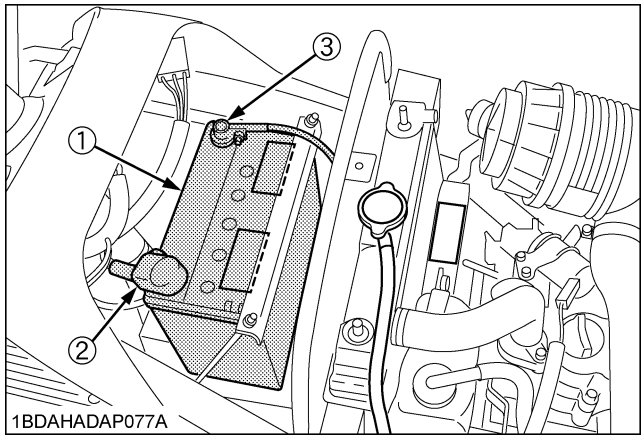
5. TRANSPORTING

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. It is recommended that this machine not be used on public roads.
4. Use extra care when loading or unloading the machine into a trailer or truck.

6. SERVICING

1. Before servicing the machine, park the machine on a firm, level surface, set the parking brake, stop the engine and remove the key.
2. Securely support machine or any machine elements with stands or suitable blocking before working underneath. For your safety do not rely or hydraulically supported devices, they may leak down, suddenly drop or be accidently lowered.

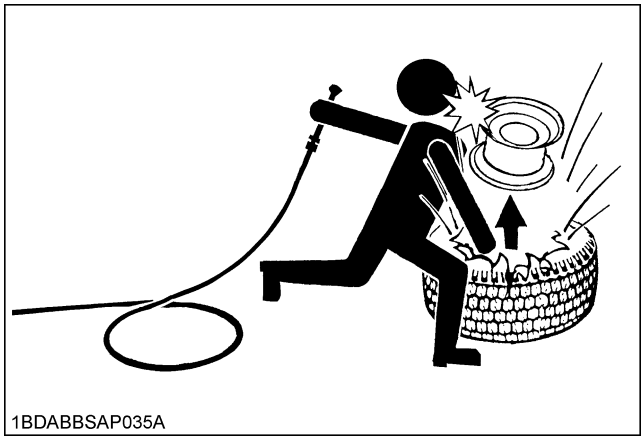
3. To avoid injury, do not adjust, unclog or service the mower or grass catcher with the engine running. Make sure rotating blades are stopped before dismounting the riding mower.
4. Disengage power to attachment(s), stop the engine and remove the key before making any repairs or adjustments.
5. Allow the machine to cool off before servicing the engine, muffler, etc.
6. Keep your riding mower clean. Dirt and grass build-up can cause fires and may lead to serious personal injury.
   Periodically wash the grass container to insure the safety signs can be read.
   Replace all safety signs that are damaged, lost or have otherwise become illegible. If a part to be replaced has a sign on it, obtain a new safety sign from your KUBOTA Dealer and install it in the same place as on the removed part.
7. 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
8. Do not change the engine governor setting or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
9. Never run a machine inside a closed area.
10. Mower blades are sharp and can cut your hands. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
11. 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.
12. Do not smoke when working around the battery.
    Keep all sparks and flames away from battery. The battery presents an explosion hazard because it gives off hydrogen and oxygen...especially when recharging.
13. 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.
14. Keep first aid kit and fire extinguisher available at all times.
15. Disconnect the battery's negative (-) cable before working on or near electric components.
16. 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.
17. To avoid sparks from an accidental short circuit, always disconnect the battery's negative (-) cable first and connect it last.



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

18. Make sure cir-clips, nuts and spring lock washers are properly secured on the front and rear wheels, respectively.
19. Never tamper with safety devices.
    Check their proper operation regularly.
20. Check brake operation frequently. Adjust and service as required.
21. Properly dispose of used lubricants, filters, batteries, and other such components.
22. Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.

23. Always maintain the correct tire inflation pressure. Do not inflate tires above the recommended pressure shown in the Operator's Manual.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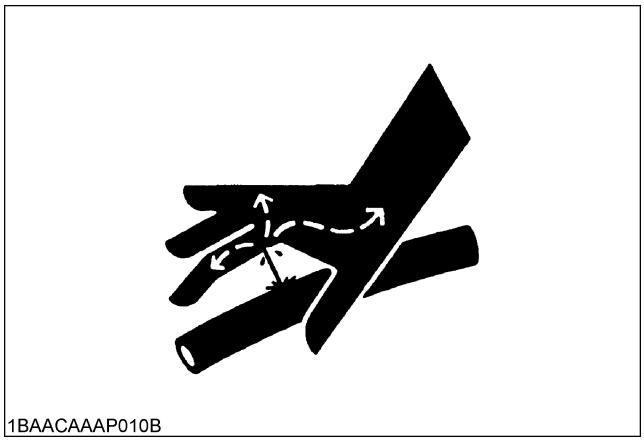
24. Securely support the machine when changing wheels.
25. Make sure that wheel bolts have been tightened to the specified torque.
26. Escaping hydraulic fluid under pressure has sufficient force to penetrate the skin causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, make sure all connections are tight and that lines, pipes, and hoses are not damaged.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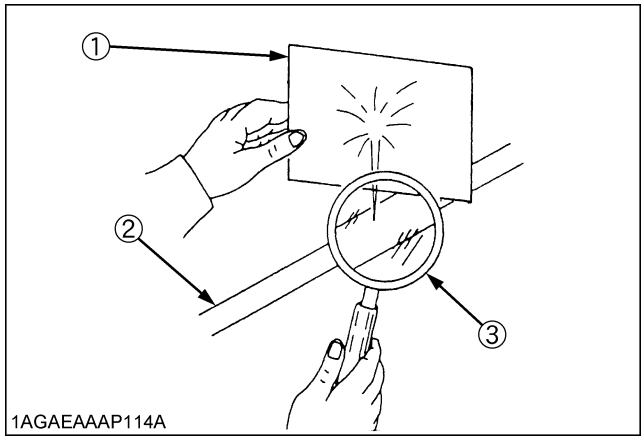
27. Fluid escaping from pinholes may be invisible. Use a piece of cardboard or wood to search for suspected leaks: do not use hands. Use safety goggles or other eye protection.
    If injured by escaping fluid, see a medical doctor at once. Serious infection or reaction will result if proper medical treatment is not administered immediately. This fluid can produce gangrene or severe allergic reaction.



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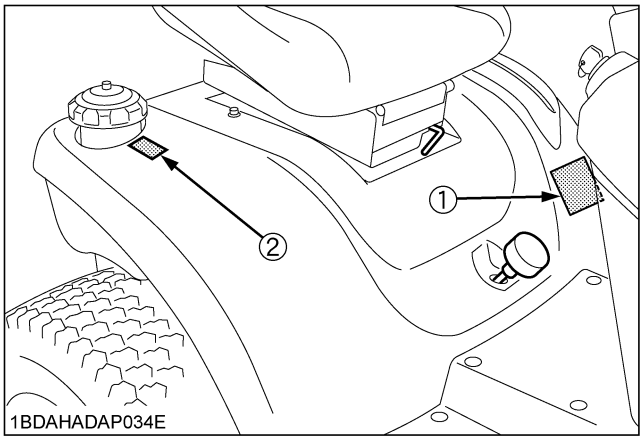
(1) Cardboard
(2) Hydraulic line
(3) Magnifying glass

28. Waste products such as used oil, fuel, hydraulic fluid, and batteries, can harm the environment, people, pets and wildlife. Please dispose of properly.
29. Do not use beverage containers for waste fluids or other products. Someone, particularly children, may drink them by mistake.
30. 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.

7. STORAGE

1. Keep the machine and supply of fuel in locked storage and remove the key to prevent children or others from playing or tampering with them.
2. When machine is to be stored for a long time, disconnect battery cables or remove the battery. Always remove the negative (-) cable first and reinstall the negative (-) cable last.
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 mufflers 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.

8. DANGER, WARNING AND CAUTION LABELS



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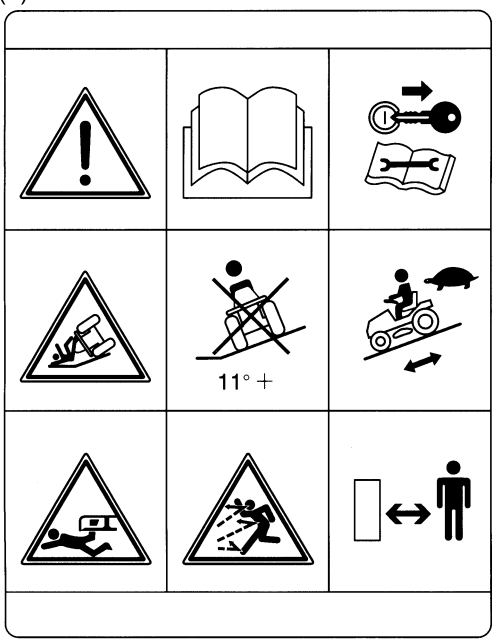
(1) Part No. K1213-6581-1



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TO AVOID INJURY OR DEATH:

- Read and understand Operator's Manual.
- Stop the engine and remove key before servicing.

- DO NOT operate where machine could slip or tip.
- DO NOT operate on slopes of more than 11°.
- Mow up and down slopes, not across.

- DO NOT allow any bystanders or children around or near machine at any time when the engine is running.

(2) Part No. K2110-6585-1

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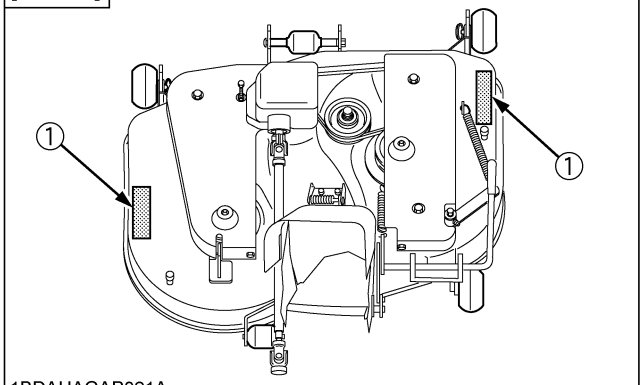
[RCK42]



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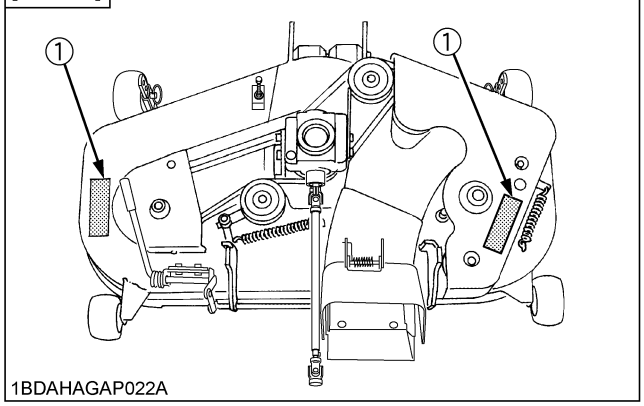

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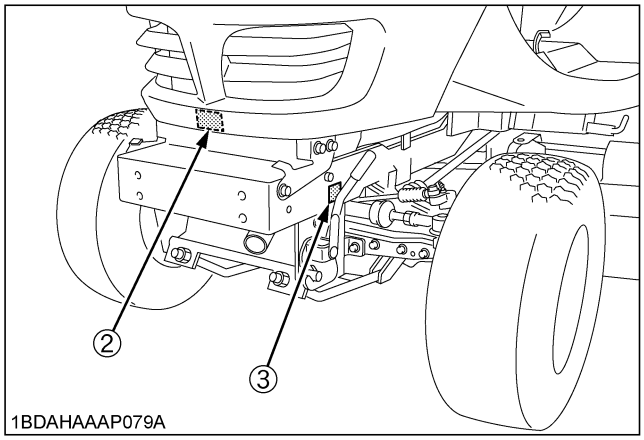

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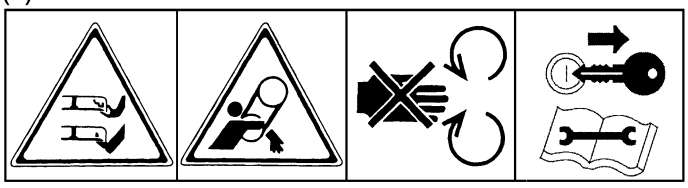
(1) Part No. K5254-7311-1



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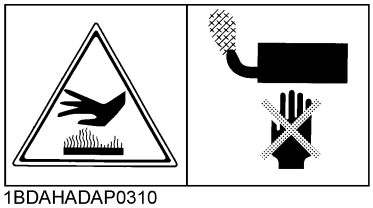
ROTATING BLADES HAZARDOUS:

- 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.

(2) Part No. K2561-6542-1

Do not touch hot surface like muffler, etc.



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(3) Part No. K2110-6573-1

HOT SURFACE
DO NOT TOUCH

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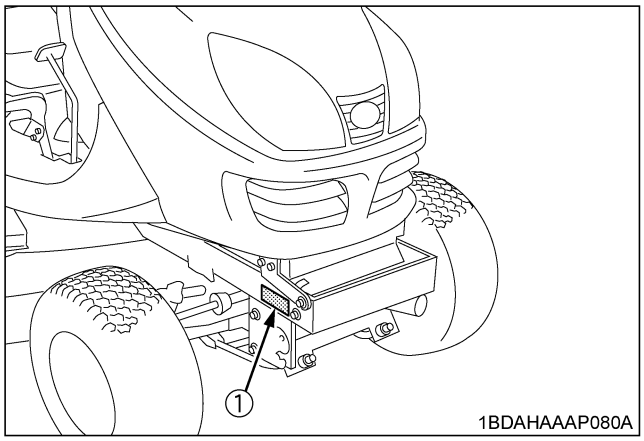

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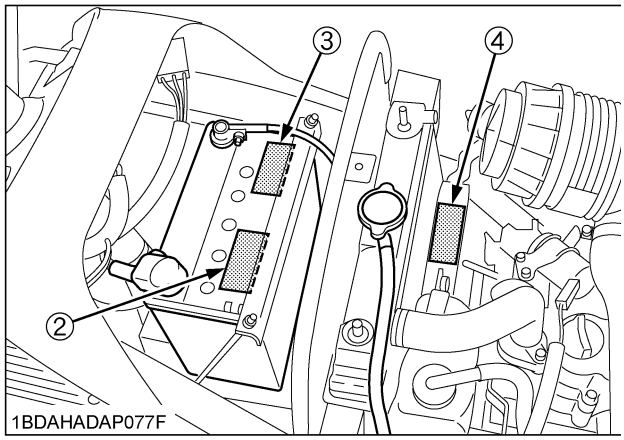

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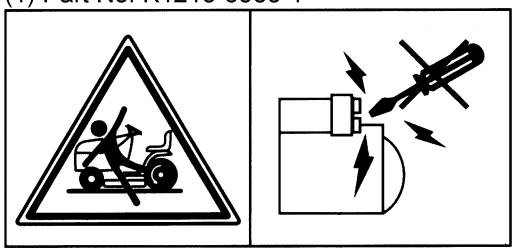
(1) Part No. K1213-6583-1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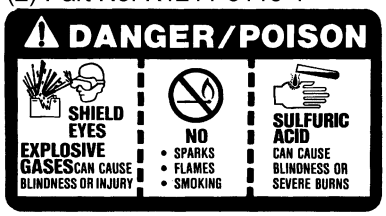
TO AVOID MACHINE RUNAWAY:
- DO NOT start engine by shorting across starter terminals or bypassing the safety start switch.

(2) Part No. K1211-6115-1



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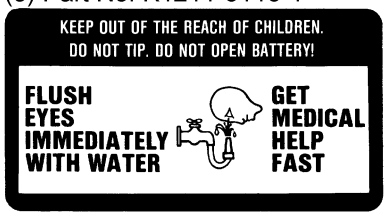
DANGER / POISON
- SHIELD EYES
  EXPLOSIVE GASES can cause blindness or injury.
- NO SPARKS / FLAMES / SMOKING
- SULFURIC ACID can cause blindness or severe burns.

(3) Part No. K1211-6116-1



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KEEP OUT OF THE REACH OF CHILDREN.
DO NOT TIP.
DO NOT OPEN BATTERY!
- Flush eyes immediately with water.
- Get medical help fast.

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


1BDABARAP113A

9. CARE OF DANGER, WARNING AND CAUTION LABELS

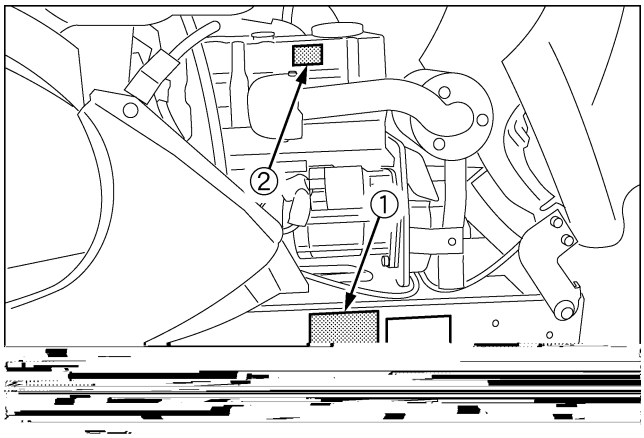
1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA Dealer.
4. If a component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

ENGLISH

SERVICING OF RIDING MOWER

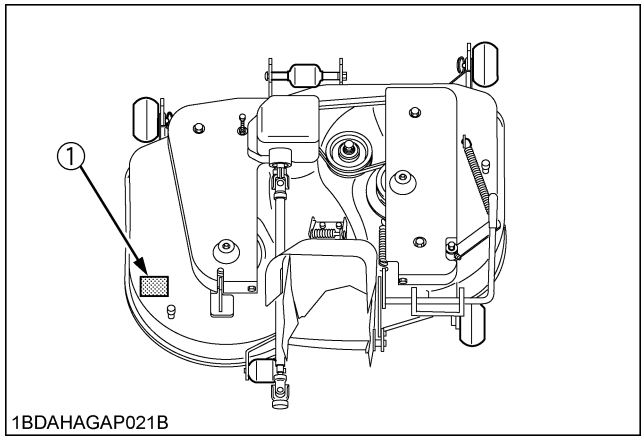
After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself. Your dealer is interested in helping you get the best performance from your new machine and wants to help you get the most value from it. When in need of parts or major service, be sure to see 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)		



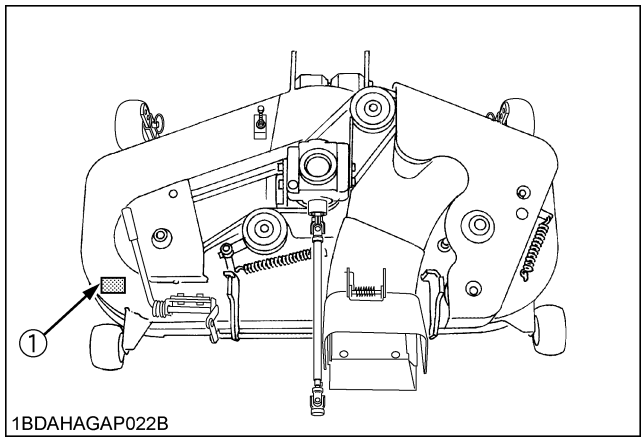
(1) Machine serial No.
(2) Engine serial No.

[RCK42]



(1) Mower serial No.

[RCK48]



(1) Mower serial No.

ENGLISH

SPECIFICATIONS

	Model			GR1600-II	GR2100-II
Engine	Model			Z482-E2-GX	D782-E2-GX
	Type			Liquid-cooled diesel	
	Total displacement		cm^3	479	778
	Gross power		kW	10.0	15.6
	No. of cylinders			2	3
	Starter			Electric starter with battery	
	Battery			51R (12V, 450CCA)	
	Fuel			Diesel fuel No.1 (below -10℃) Diesel fuel No.2 (above -10℃)	
	Preheating system			Super glow	
	Engine stop			Key stop	
Capacity	Fuel tank		L	18	
	Engine oil		L	1.2	2.8
	Radiator coolant		L	1.9	2.1
	Hydrostatic transmission oil		L	2.8	3.3
Machine	PTO			Shaft drive	
	PTO clutch			Mechanical Wet Multi Discs	
	PTO brake			Wet Multi Discs	
	Tires	Front		15 x 6.00 - 6	16 x 7.50 - 8
		Rear		20 x 10.0 - 8	23 x 10.50 - 12
	Steering type			Manual	Full hydraulic power steering (Glide steer)
	Brake			Internal expanding brake	
	Travel speed control			Foot pedal	
	Transmission			Hydrostatic	
	Traveling speeds	Forward	km/h	0 to 10	
		Reverse	km/h	0 to 5	
Dimensions	Overall length (with Grass Catcher)		mm	2710	2880
	Overall width		mm	1110	1280
	Overall height		mm	1190	1230
	Wheel base		mm	1280	
	Tread	Front	mm	750	825
		Rear	mm	800	
	Weight (without Mower and Grass Catcher)		kg	310	360

	Model			RCK42GR-II	RCK48GR-II
Mower	Cutting width		mm	1067	1219
	Cutting height		mm	25 to 102	
	Adjustment of cutting height			Dial gauge	
	Mounting method			Quick joint, Parallel linkage	
	Weight (Approx.)		kg	75	80
	Dimensions	Total length	mm	965	914
		Total width	mm	1110	1270
		Total height	mm	295	305
	Discharge direction			Rear	
	Gear box oil		L	0.33	0.4

	Model		GCK370GR-II	GCK450GR-II
Grass catcher	Container Capacity	L	370	450
	Weight (Approx.)	kg	40	50

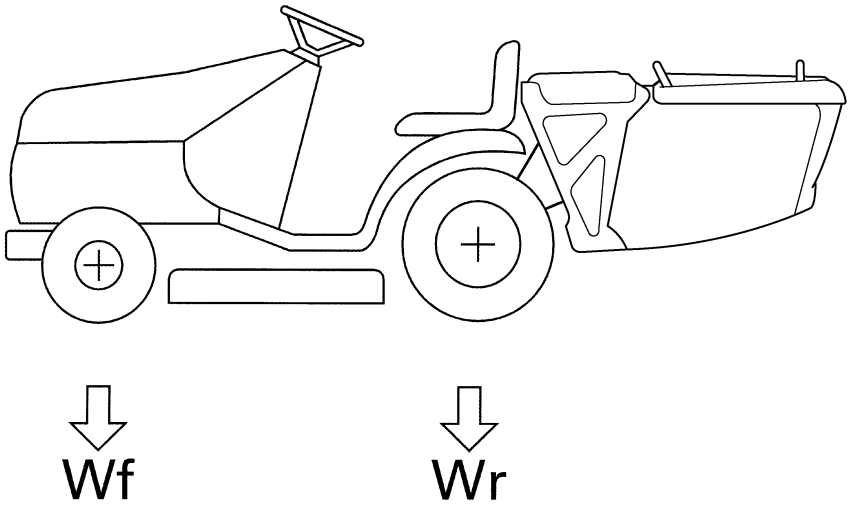
Note: The company reserves the right to change the specifications without notice.

ENGLISH

IMPLEMENT LIMITATIONS

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

	Maximum axle loading weight		
MODEL	Front axle Wf	Rear axle Wr	Total gross weight
GR1600-II	250 kg	450 kg	600 kg
GR2100-II	300 kg	500 kg	700 kg



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■ Ballast

CAUTION

To avoid personal injury:

- **Additional ballast will be needed for operating heavy attachments. When the attachment is raised, drive slowly over rough ground, regardless of how much ballast is used.**
- **Add front ballast to increase front end stability and help prevent possible front end tip up.**
- **Always back up when going up a slope. Driving forward could cause the machine to tip over backward. Stay off hills and slopes too steep for safe operation.**

Front ballast is added for stability and steering control when heavy rear mounted equipment such as the rotary tiller is installed.

Front ballast also compensates for weight transferred to the rear wheels by the draft of towed implements through the hitch.

Add additional front ballast, if necessary, for stability and safety during transport of heavy rear mounted equipment.

Front end ballast may not always maintain the required stability if the machine is driven too fast over rough ground with heavy rear mounted equipment in the raised position. Use care and drive slowly under these conditions.

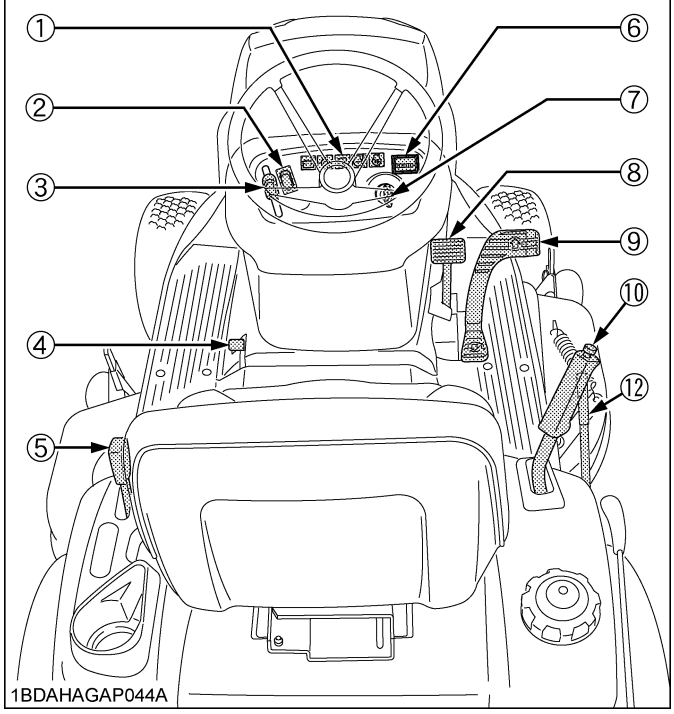
Limit ballast to machine operating capacity. Be sure to remove ballast when it is not needed.

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

ENGLISH

INSTRUMENT PANEL AND CONTROLS

[GR1600-II]



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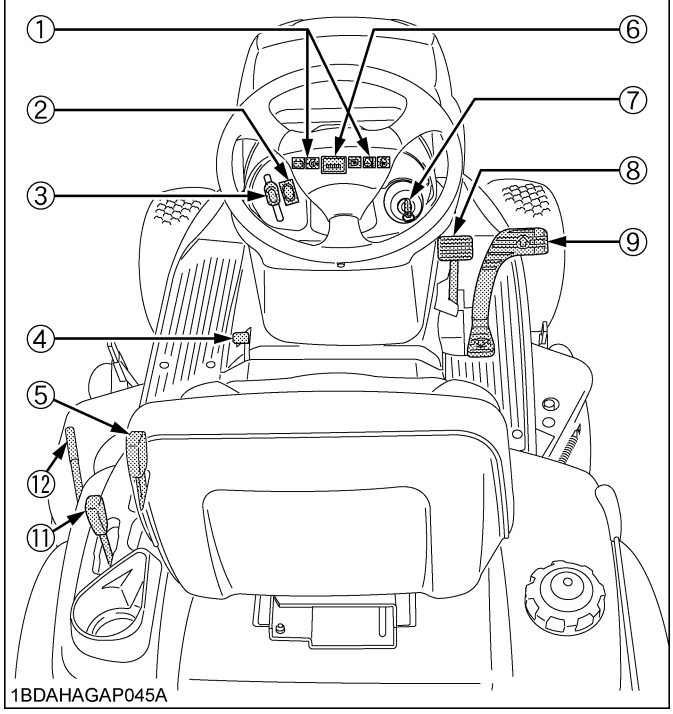
[GR2100-II]



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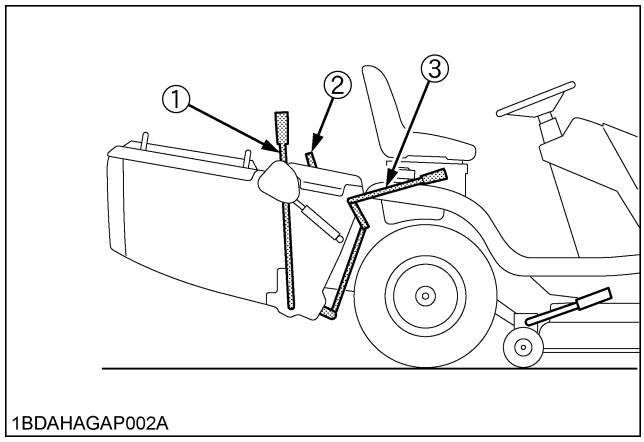

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MOWER MOUNTING

ATTACHING THE MOWER

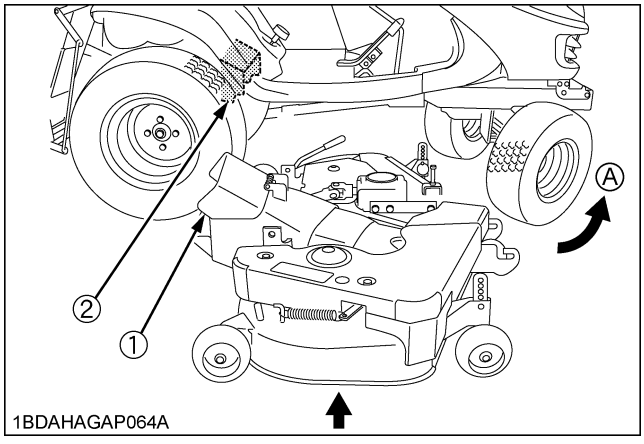
CAUTION

To avoid personal injury:

- **Shut off the engine and remove the key before attaching the mower.**

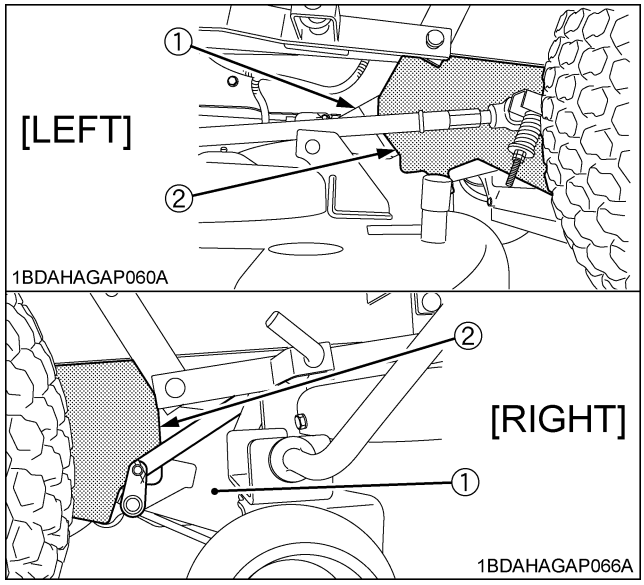
■Mounting the Mower Deck

1. Park the machine on level ground and place the mower deck at the right side of the machine.
2. Set the front anti-scalp rollers at the topmost position. Turn the front wheel to the left.
3. **[GR1600-II]**
   Raise the mower lift lever and lock in the raised position.
   [GR2100-II]
   Pull the hydraulic lift lever to raise rear links.
4. Adjust the height control dial to "1". Slide the mower deck under the machine.
   Insert the container discharge duct between the mower duct and the lift link so that neither the container discharge duct, the mower duct nor the lift link may interfere one another.



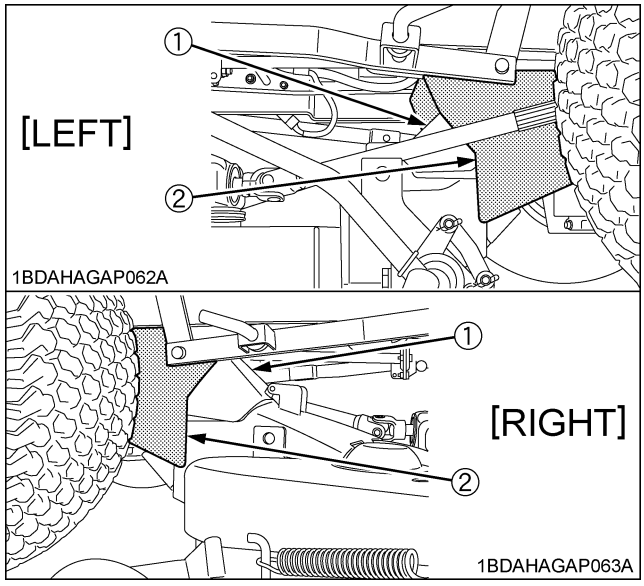
(1) Mower duct *(A) "LEFT"*
(2) Container discharge duct

[RCK42GR-II]



(1) Mower duct
(2) Container discharge duct

[RCK48GR-II]



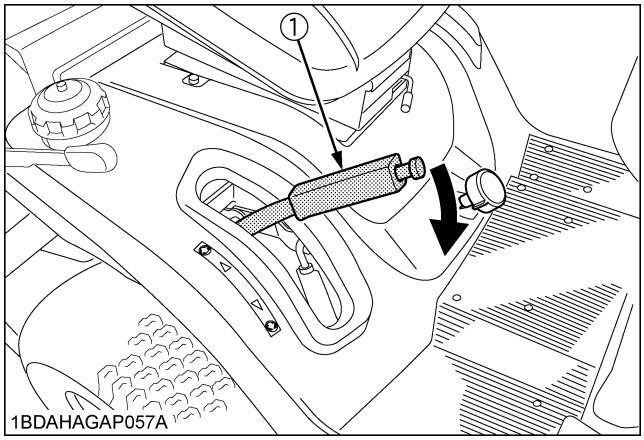
(1) Mower duct
(2) Container discharge duct

NOTE :

- Make sure that the mower duct is positioned properly inside of the container discharge duct.

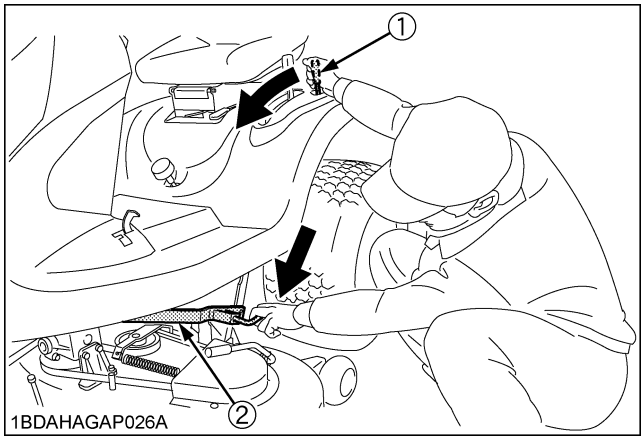
ENGLISH

5. **[GR1600-II]**
   Lower the mower lift lever and lock in the lower position.



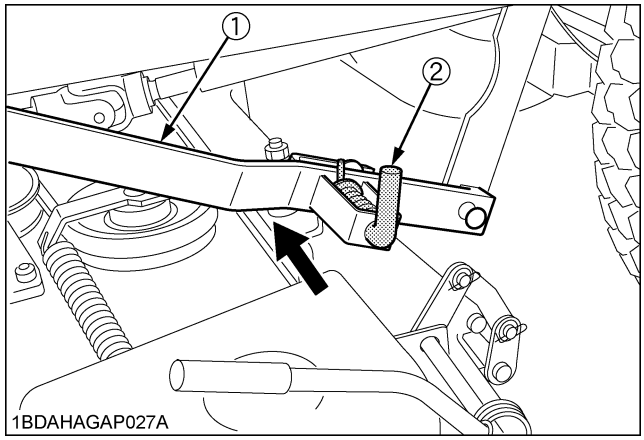
(1) Mower lift lever

[GR2100-II]
Place the hydraulic lift lever in the "DOWN" position. Push down the rear links to align with the mower bracket.



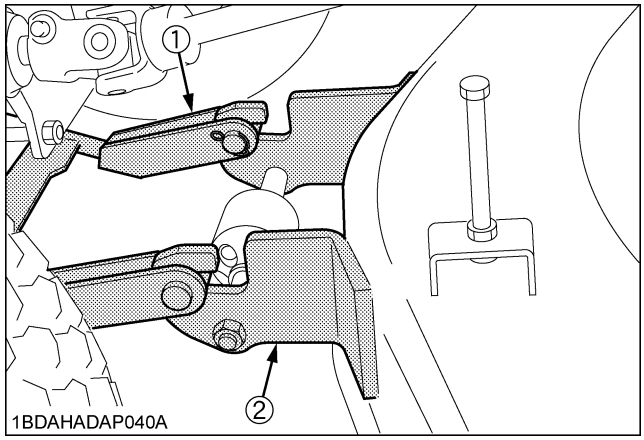
(1) Hydraulic lift lever
(2) Mower's rear link

6. Release the L pins lock to attach the rear links to the mower deck.



(1) Mower's rear link
(2) L pin

7. Attach the front links to the front roller brackets.

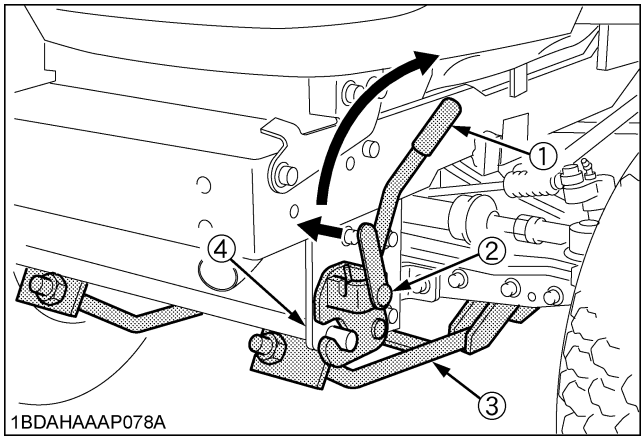


(1) Front link
(2) Front roller bracket

NOTE :
- Adjust the length (L) of the front link.
  (See "ADJUSTING THE PARALLEL LINKAGE" in "MOWER MOUNTING" section.)

8. Pull the lever fulcrum fixing pin and turn it counter clockwise to lock.
9. Hook and raise the front link with the link fixing lever, and then lay the link fixing lever onto the front bracket of the machine.

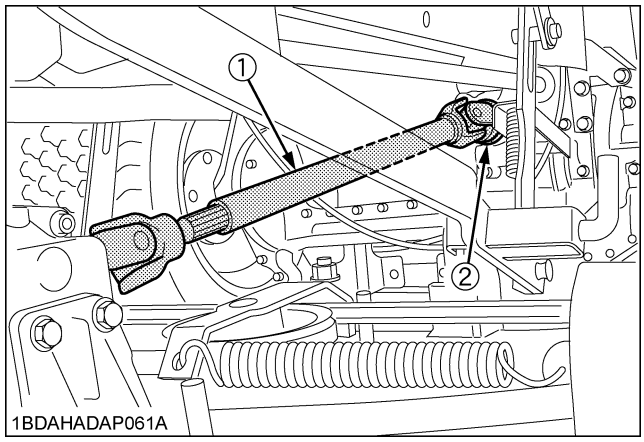
10. Turn the lever fulcrum fixing pin clockwise and push it into position to fix the link fixing lever.

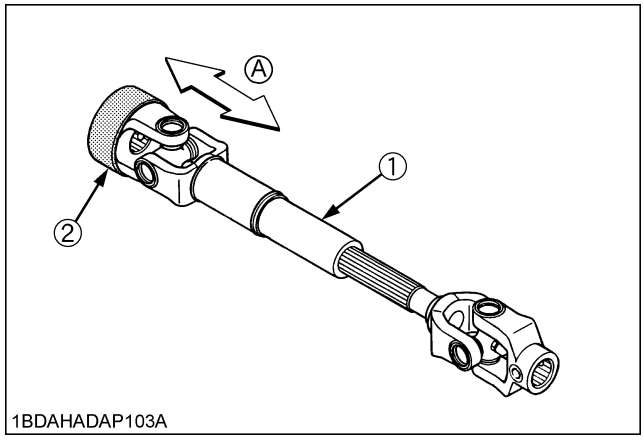


(1) Link fixing lever
(2) Lever fulcrum fixing pin
(3) Front link
(4) Front bracket

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

IMPORTANT :
- Finally pull the universal joint to check if it is tight in position.





(1) Universal joint
(2) Coupler
(A) "TUG"

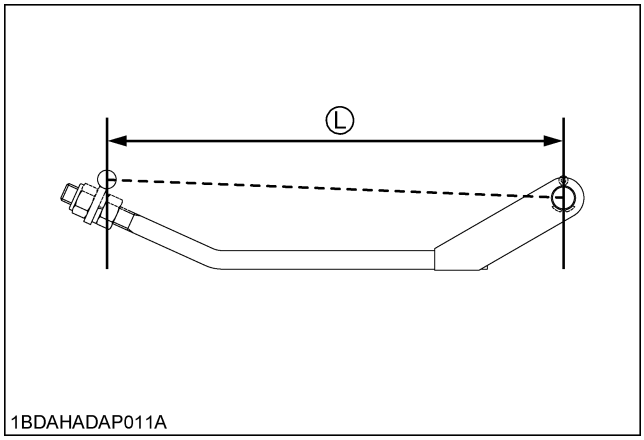
ADJUSTING THE PARALLEL LINKAGE

CAUTION

To avoid personal injury:

- **Shut off the engine and remove the key.**
- **Set parking brake.**
- **Allow the blades to stop before making adjustments.**
- **Blades may be sharp, when you handle blades, wear heavy gloves or wrap end of blade with a rag.**

1. Park the machine on a level surface.
2. Make sure the mower blades are level. Then tighten the lock nuts securely.
   Adjust (L) of front links with lock nut so that A is 0 to 5 mm (0 to 0.2 in.).
   A = (Y) - (X)



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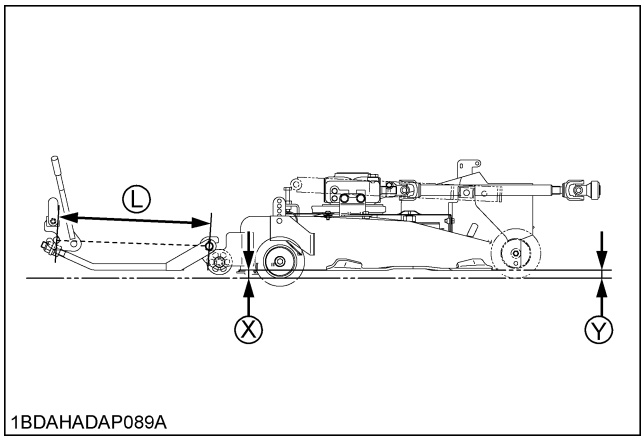

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ADJUSTING THE MOWER DECK (SIDE TO SIDE)

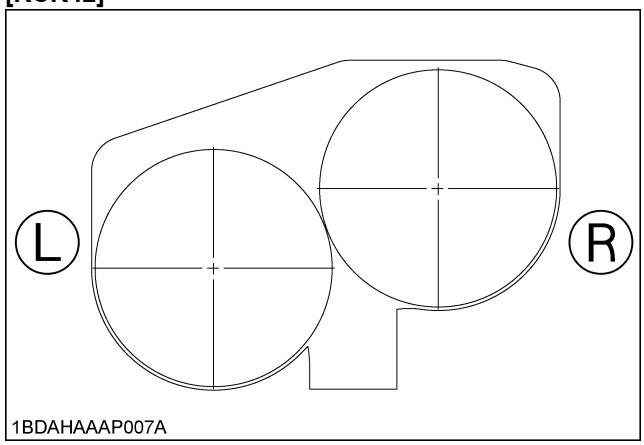
CAUTION

To avoid personal injury:

- **Shut off the engine and remove the key.**
- **Set parking brake.**
- **Allow the blades to stop before making adjustments.**
- **Blades may be sharp. When you handle blades, wear heavy gloves or wrap end of blade with a rag.**

1. Park the machine on a level surface.
2. Tire inflation pressure must be correct.
   (See "TIRE AND WHEELS" section.)
3. **[GR1600-II]**
   Raise the mower lift lever to the top position.
   [GR2100-II]
   Raise the hydraulic lift lever to the top position.
4. Turn the cutting height control dial to adjust height to the desired height.
5. **[GR1600-II]**
   Lower the mower deck with the mower lift lever.
   [GR2100-II]
   Lower the mower deck by pushing the hydraulic lift lever forward.
6. Turn the left blade so that it is parallel to rear axle. Hold drive belt and the turn right blade so that it is parallel to axle.
7. Measure from each outside blade tip (L) and (R) to the level surface. The difference between measurements should be less than 3 mm (0.1 in.).

[RCK42]



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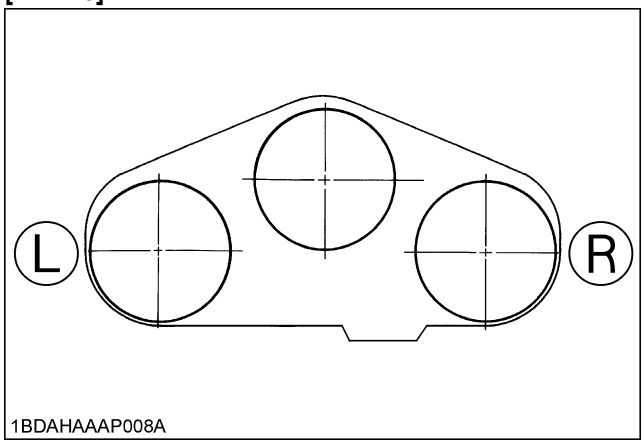
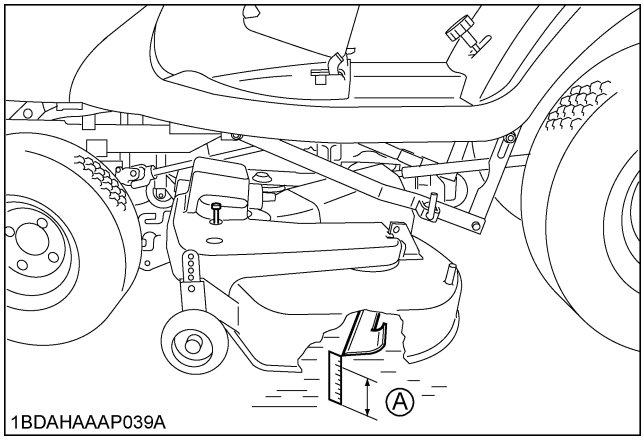
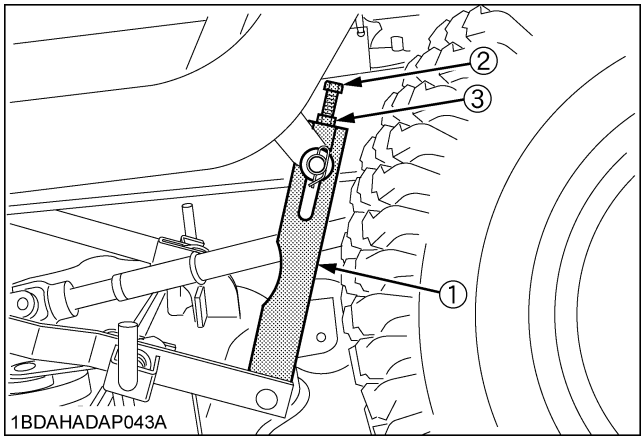
[RCK48]





(A) "Outside blade tip to the level surface"

8. Loosen the locknut of the right side of the machine. Adjust the cutting height fine tuning bolts so that the difference between measurements (L) and (R) is less than 3 mm (0.1 in.).
9. Lock the nuts.



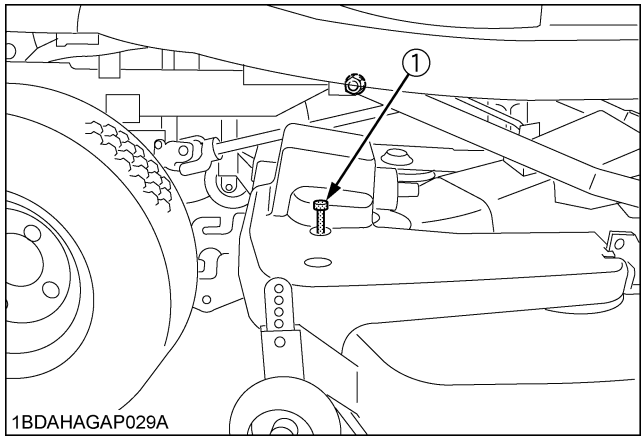
(1) Lift link
(2) Cutting height fine tuning bolt
(3) Lock nut

ADJUSTING THE MOWER LIFT STOPPER

The mower lift stopper is designed for maintaining the balance of the mower deck, when lifting the mower to the highest position. Make sure that the stopper is in contact with the underside of the frame.

To adjust:

1. Lift the mower to the highest position.
2. Loosen the lock nut and adjust the stopper so that the bolt head is in contact with the underside of the frame.
3. Lower the mower deck.
4. Turn the stopper counterclockwise a half turn, and then secure the lock nut.



(1) Mower lift stopper

DISMOUNTING THE MOWER DECK

For dismounting the mower deck, reverse the above procedures.

GRASS CATCHER MOUNTING

ATTACHING THE GRASS CATCHER

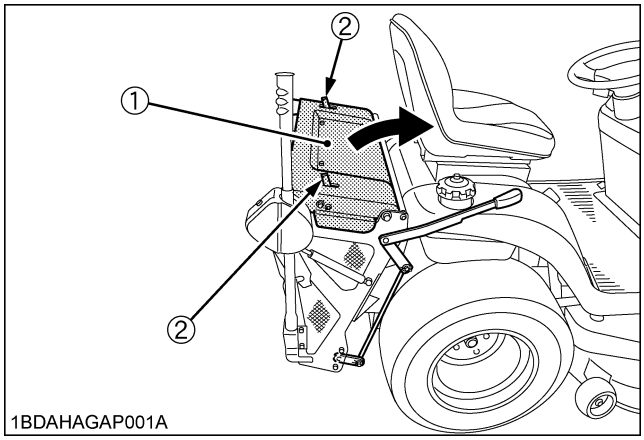
CAUTION

To avoid personal injury:

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

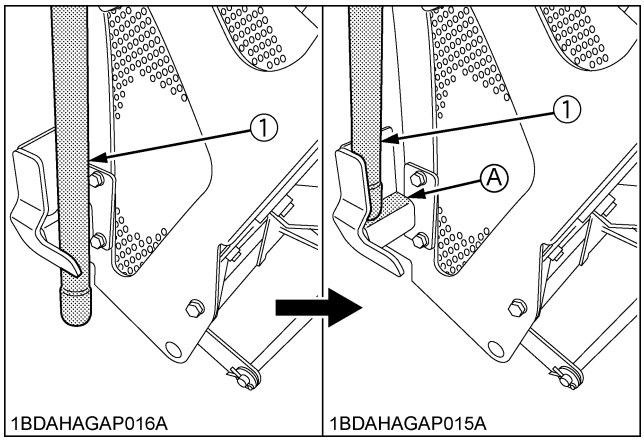
■Mounting the Container

1. Park the machine on a level ground, shut off the engine and remove the key.
2. Open the top cover to pull the top cover lock lever.



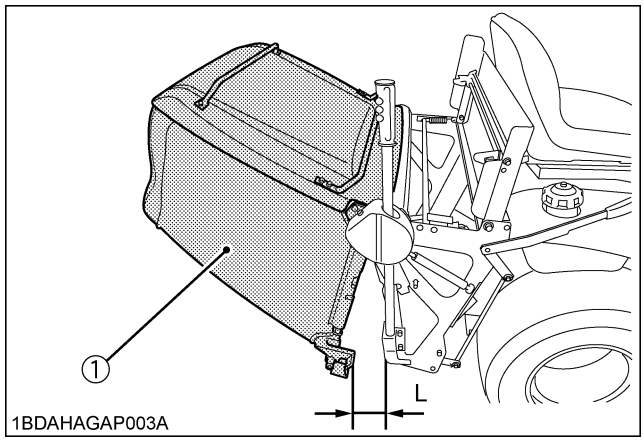
(1) Top cover
(2) Top cover lock lever

3. Place the bottom of the grass container lift lever to the "LEVER LOCK" position.



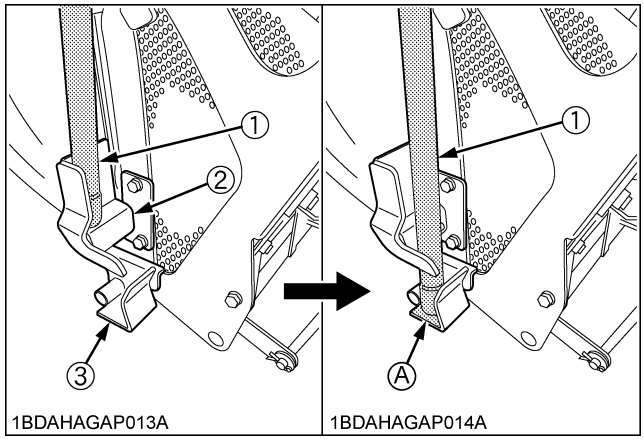
(1) Grass container lift lever *(A) "LEVER LOCK" position*

4. Hook the container to the frame shafts with the container rear edge inclined a little bit upward.



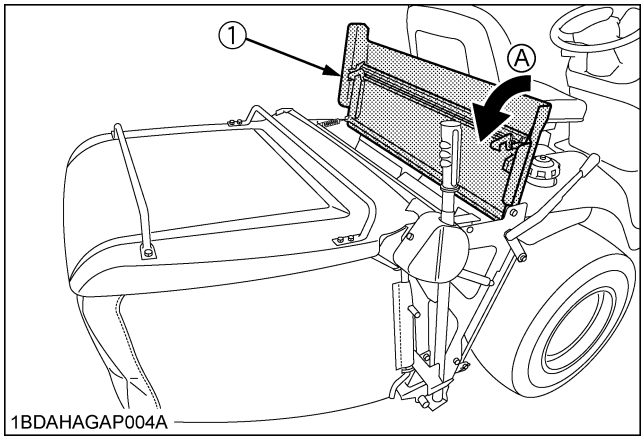
(1) Container *L: 0 to 5 cm*

5. Lock the container by inserting the grass container lift lever between 2 lock plates.



(1) Grass container lift lever
(2) Frame lock plate
(3) Container lock plate
(A) "CONTAINER LOCK" position

6. Close the top cover by pushing it to the frame.



(1) Top cover *(A) "PUSH"*

ENGLISH

OPERATING THE ENGINE

CAUTION

To avoid personal injury:

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

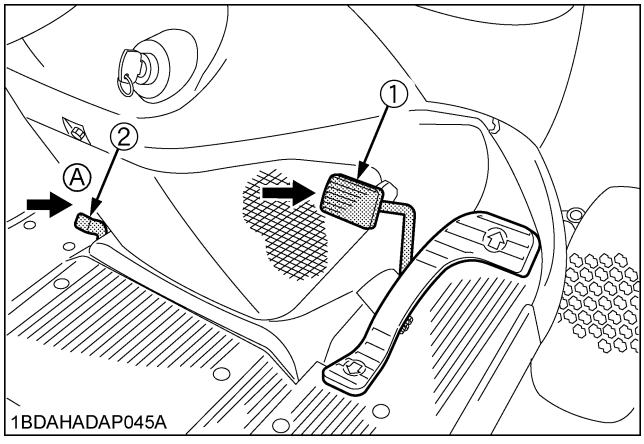
STARTING THE ENGINE

1. Sit on the operator's seat.

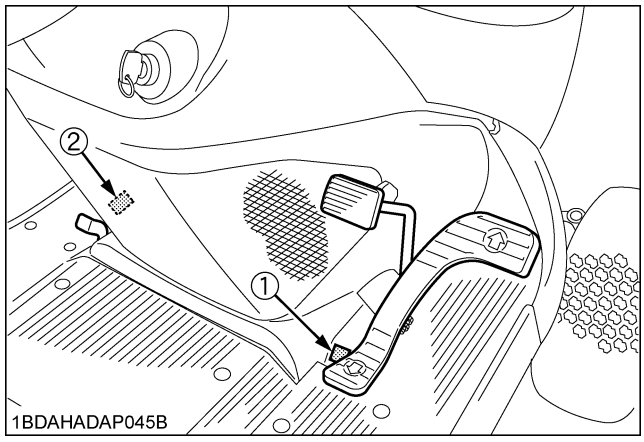
2. Apply the parking brake.

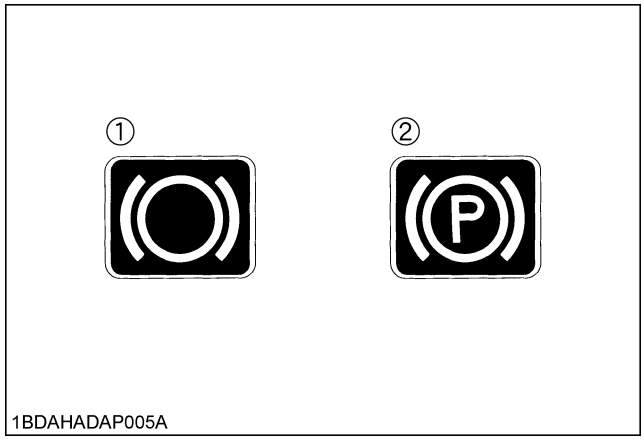
To apply the parking brake:
Depress the brake pedal firmly with your right foot and the parking brake pedal simultaneously with your left foot. Then release the brake pedal while holding the parking brake pedal down.

To release the parking brake:
Depress the brake pedal and release slowly.

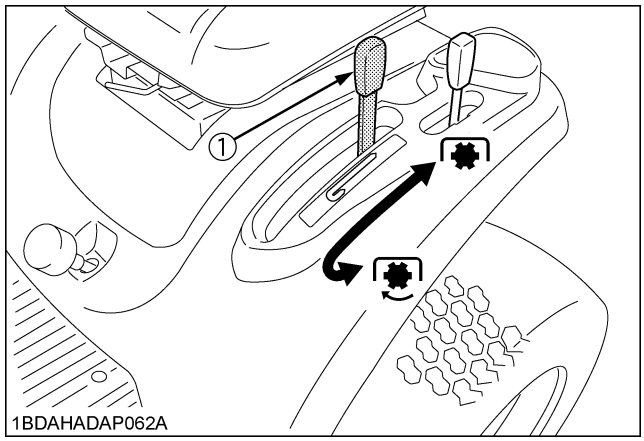


(1) Brake pedal
(2) Parking brake pedal
(A) "PARKING"





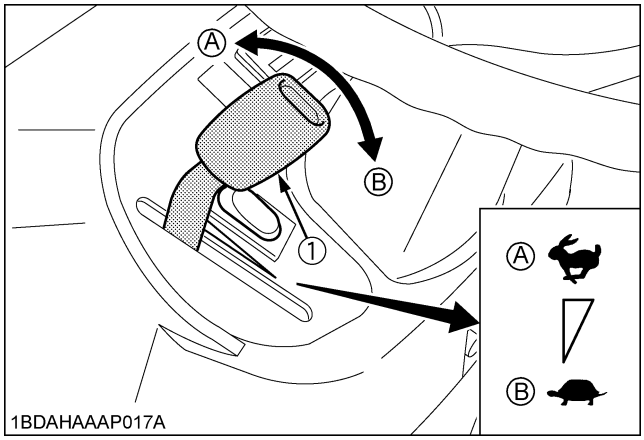
3. Make sure that the PTO lever is in the "DISENGAGED" position.



(1) PTO lever

: "ENGAGED"
: "DISENGAGED"

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



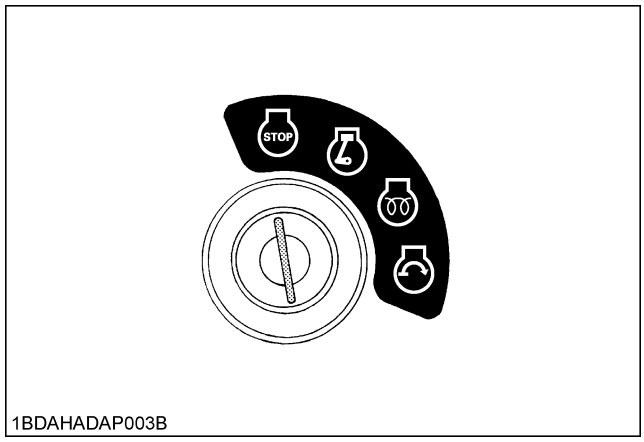
(1) Throttle lever

: "FAST"
: "SLOW"

5. Insert the key into the key switch and turn clockwise one 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 is running.
PREHEAT.....	The super glow plug is heated.
START.....	Depress the brake pedal fully and pull the PTO lever to the "DISENGAGED" position, turn the key switch to this position to start the engine.



: "OFF"
: "ON"
: "PREHEAT"
: "START"

IMPORTANT :

- Do not turn the key switch to the "START" position while the engine is running.
- When the temperature is below 0℃ (32℉), run the engine at medium speed to warm up the lubricant of the engine and the transmission for at least 10 minutes. If the machine is operated before the lubricant is warm enough, the machine life will be shortened.
- Do not operate the machine under full load until it is sufficiently warmed.
- Do not use starting fluid or ether.
- When the ambient temperature is less than -15℃ (5℉), remove the battery from the machine and store it somewhere warm until the next operation.

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

Temperature	Preheating Time
Over 0℃ (32℉)	5 sec.
Below 0℃ (32℉)	10 sec.

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

■Cold Weather Starting

When the ambient temperature is below -5℃ (23℉) 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 6 and 7. To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.)

■Block Heater (Option)

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

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

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

9. Warm the engine by running at medium speed.

STOPPING THE ENGINE

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

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 fluid. In cold weather, the oil may be cold with increased viscosity. This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This in turn can result in trouble in the hydraulic system or a damage to the hydraulic clutch.
To prevent the above, observe the following instructions:
Warm up the engine at about 50% of rated rpm according to the table below:

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

IMPORTANT :

- Do not operate unless the engine is well warmed up. If operation is attempted while the engine is still cold, the hydraulic mechanism will not function properly and its service life will be shortened.
- If noises are heard after the hydraulic control lever has been activated and the implement is lifting, the hydraulic mechanism is not adjusted properly. Unless corrected, the unit will be damaged. Contact your local KUBOTA Dealer for adjustment.

JUMP STARTING

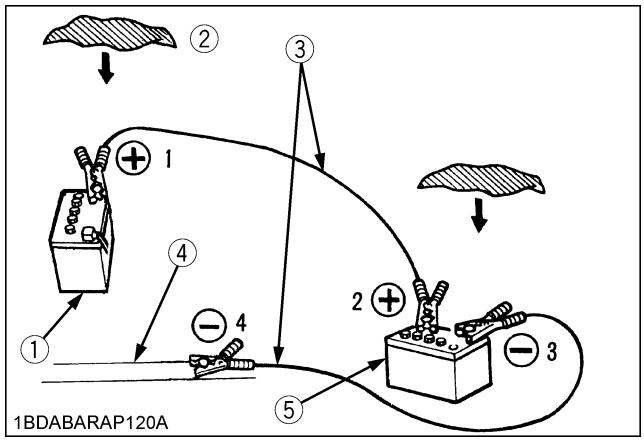
WARNING

To avoid personal injury:

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

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

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



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

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

IMPORTANT :

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

OPERATING THE MACHINE

OPERATING NEW MACHINE

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

A new machine just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other, so care should be taken to operate the machine for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become "broken-in." The manner in which the machine is handled during the "breaking-in" period greatly affects the life of your machine. Therefore, to obtain the maximum performance and the longest life of the machine, it is very important to properly break-in your machine. In handling a new machine, the following precautions should be observed.

■Changing Lubricating Oil for New Machines

The lubricating oil is especially important in the case of a new machine. The various parts are not "broken-in" and are not accustomed to each other; small metal grit may develop during the operation of the machine; and this may wear out or damage the parts. Therefore, care should be taken to change the lubricating oil a little earlier than would ordinarily be required.

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

■Engine Break-in

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

■Machine Break-in

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

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

⚠ WARNING

To avoid personal injury:

- **Do not allow any person other than the driver to ride on the machine.**
- **Do not drive the machine close to the edges of ditches or banks which may collapse under the weight of the machine, especially when the ground is loose or wet.**
- **Slow down before turning.**
- **To avoid tip over, operate up and down slopes, not across. Avoid sudden starts and stops on slopes. Slow down, and use extra caution when changing direction on a slope. Do not use the machine on steep incline.**
  Park the machine on a firm, level surface.
- **Watch where you are going at all times. Watch for and avoid obstacles. Be alert at curbs, near trees, and other obstructions and hidden hazards.**
- **Do not drive a machine on streets or highways. Watch for traffic when you cross roads or operate near roads.**
- **Look to the rear before and when backing. Make sure the area immediately behind you is clear of obstructions or holes and small children. Use extra caution when a machine is equipped with Grass Catcher.**

⚠ 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

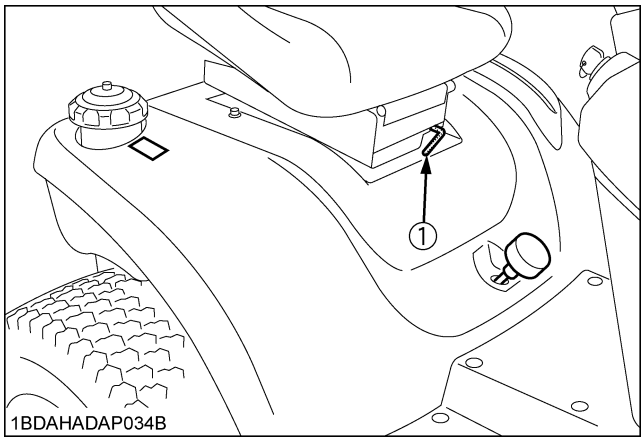
■Seat

CAUTION

To avoid personal injury:

- **Make sure that the seat is completely secured after each adjustment.**
- **Do not allow any person other than the operator to ride on the machine.**

The operator's seat position can be adjusted forward and backward by 175 mm (6.9 in.) range by pulling the seat sliding lever.



(1) Seat sliding lever

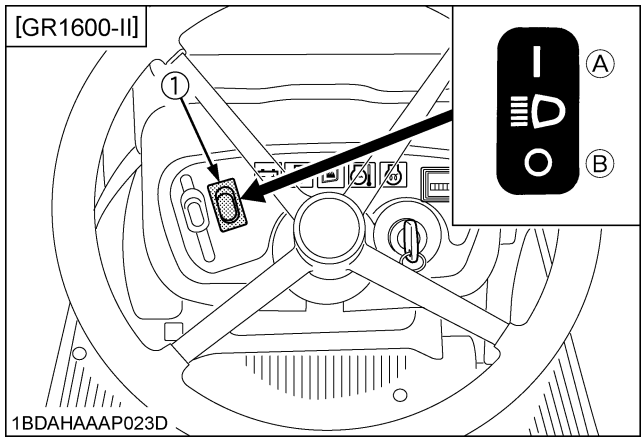
IMPORTANT :

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

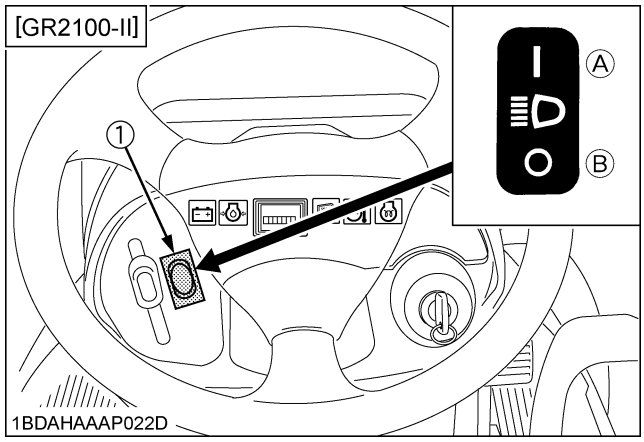
2. Selecting Light Switch Positions

■Head Light Switch

(A).....Head lights ON.
(B).....Head lights OFF.



(1) Head light switch



(1) Head light switch

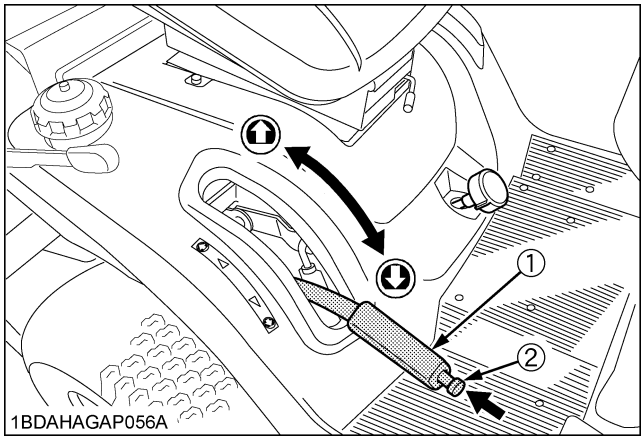
3. Raise the implement.

■Mower Lift Lever

[GR1600-II]

The mower lift lever is used to raise and lower the mower deck. To raise the mower deck, lift the lever slightly, and then push the button at the top of the lift lever, and pull the lever upward.

To lower the mower deck, lift the lever slightly, and then push the button at the top of the lift lever, hold the button in and lower the lever down.



(1) Mower lift lever
(2) Button
: "RAISE"
: "LOWER"

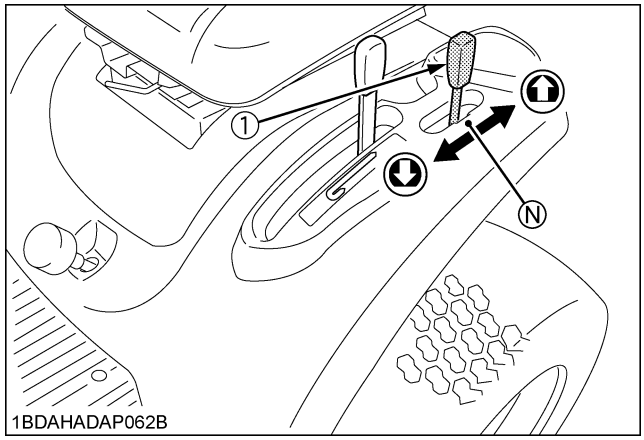
■Hydraulic Lift Lever

[GR2100-II]

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

To lower implement, push the lever FORWARD.

To raise it, pull the lever BACKWARD.



(1) Hydraulic lift lever
: "DOWN"
N: "NEUTRAL"
: "UP"

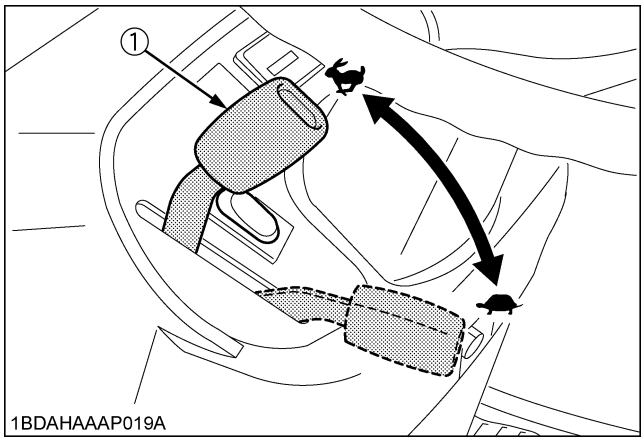
IMPORTANT :

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

4. Accelerate the Engine.

■Throttle Lever

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



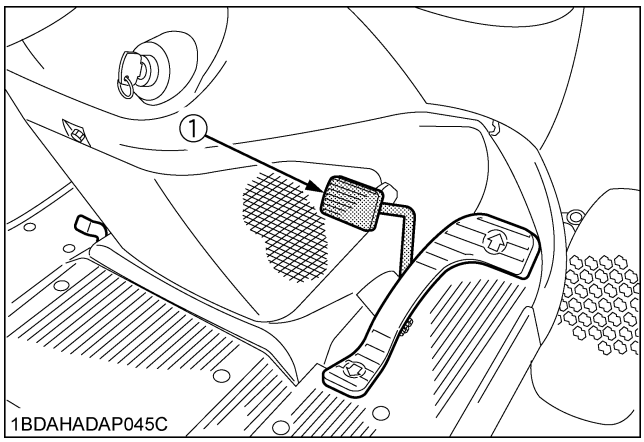
(1) Throttle lever

: "FAST"
: "SLOW"

5. Unlock the Parking Brake.

■Parking Brake

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



(1) Brake pedal

6. Depress the Speed Control Pedal.

■Speed Control Pedal

WARNING

To avoid personal injury:

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

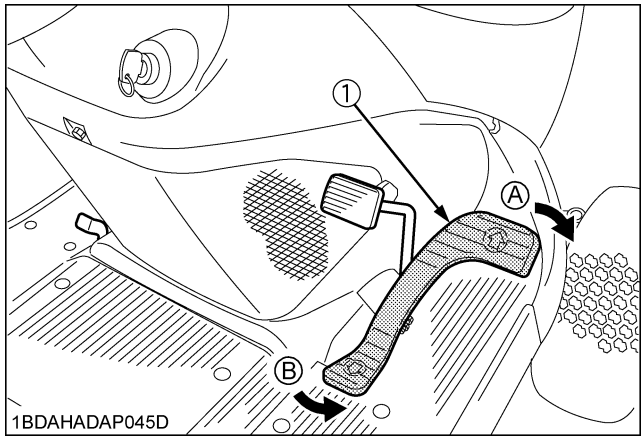
"FORWARD" (⇧)
Depress the speed control pedal with the toe of your right foot to move forward.

"REVERSE" (⇩)
Depress the speed control pedal with the heel of your right foot to move in reverse.

Depress the speed control pedal a little and you can drive slowly.
To increase travel-speed, depress the speed control pedal more until the desired speed is reached.

NOTE :

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



(1) Speed control pedal
(A) "FORWARD"
(B) "REVERSE"

STOPPING

■Stopping

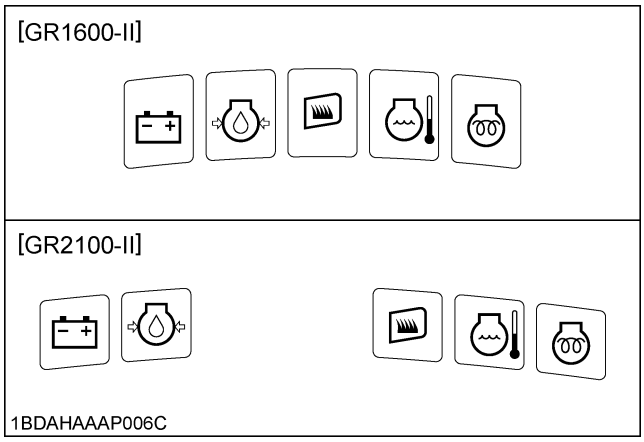
1. Slow down the engine.
2. Step on the brake pedal.
3. After the machine has stopped, disengage the PTO, lower the implement to the ground and set the parking brake.

CHECK DURING DRIVING

■Immediately Stop the Engine if:

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

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



(1) Easy Checker(TM)

■Easy Checker(TM)

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

: Engine oil pressure
If the oil pressure in the engine goes below the prescribed level, the warning lamp in the Easy Checker(TM) will come on.
If this should happen during operation, and it does not go off when the engine is accelerated to more than 1000 rpm, check the level of engine oil.
(See "Checking Engine Oil Level" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

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

: 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.

: Full grass indicator
If the grass container is full of cut grass, this indicator illuminates and a buzzer sounds. If this lamp is on, dump the grass inside the bag.

NOTE :

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

■Engine Overheating Precautions

If the engine is overheated, take the following actions.

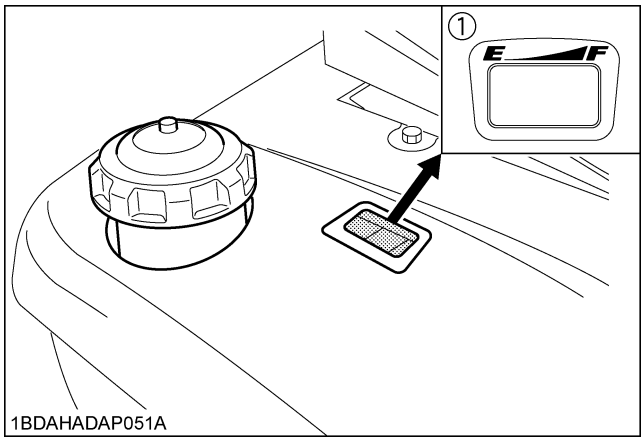
1. Stop machine operation in a safe place, disengage the mower deck and keep the engine idling.
2. Don't stop the engine immediately; stop it after about 5 minutes of unloaded idling.
3. Shut off the engine and keep well away from the machine for 10 minutes or while the steam is blown out.
4. Checking 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

The fuel gauge indicates the fuel level.

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

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



(1) Fuel gauge *(E) "EMPTY"* *(F) "FULL"*

IMPORTANT :

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

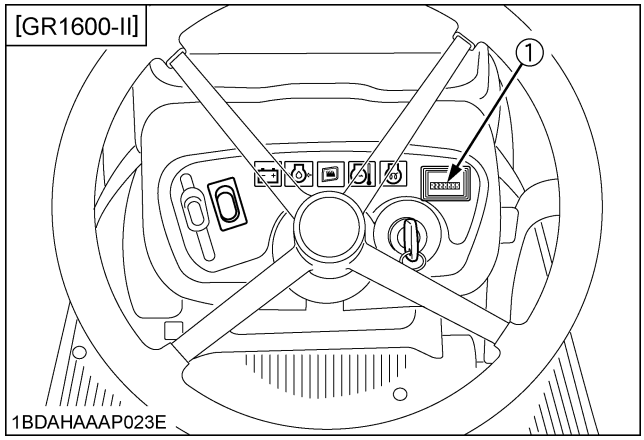
■Hourmeter

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

NOTE :

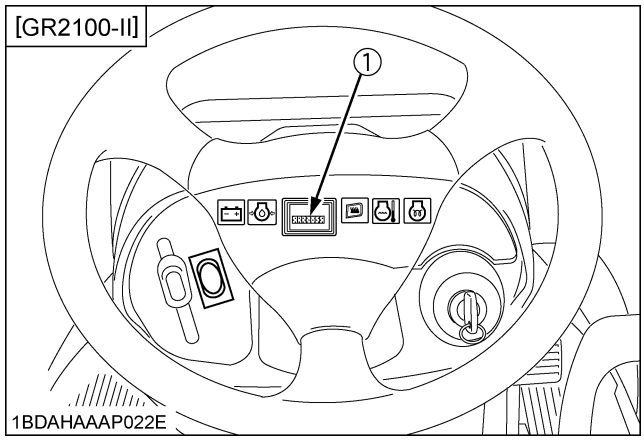
- As the hour meter works electrically, it starts to work when the key switch is turned to "ON", regardless of the engine running or not.

[GR1600-II]



(1) Hours used

[GR2100-II]



(1) Hours used

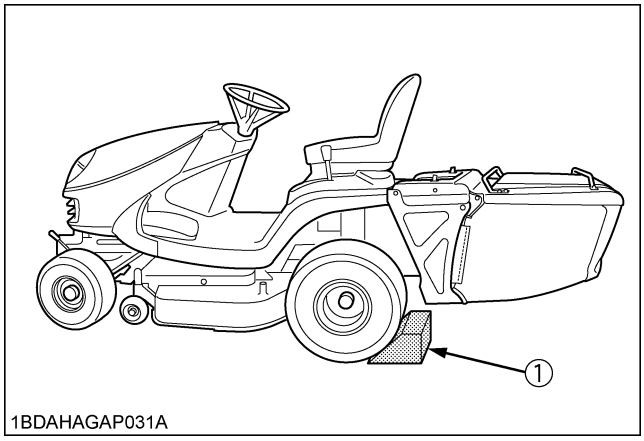
PARKING

■Parking

CAUTION

To avoid personal injury:
Before leaving the operator's position:
- **Apply parking brake.**
- **Lower all implements to the ground.**
- **Shut off the engine.**
- **Remove the key.**

1. When parking, be sure to set the parking brake.
   To apply the parking brake;
   Depress the brake pedal firmly with your right foot and the parking brake pedal simultaneously with your left foot. Then release the brake pedal while holding the parking brake pedal down.
2. Before getting off the machine, disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine and remove the key.
3. If it is necessary to park on an incline, be sure to chock the wheels to prevent accidental rolling of the machine.



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(1) Chocks

TRANSPORTING

IMPORTANT :
1. Transport the machine on a trailer.
   - Fasten the machine to the trailer.
   - To prevent the hood from opening by wind while in transit, it is necessary to either load the machine forward or use a suitable tie down for the hood.
2. Do not attempt to tow this machine, or damage to the transmission may result.

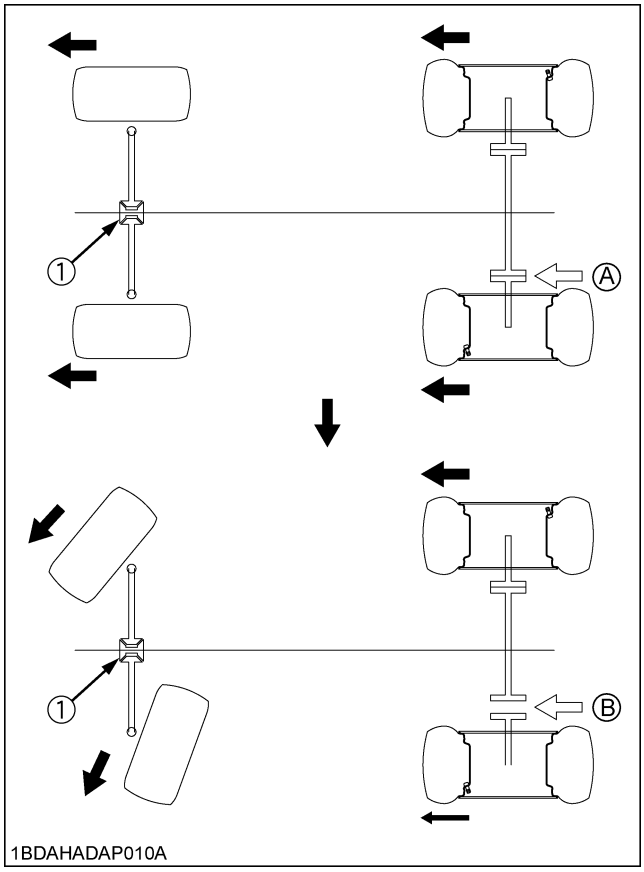
■Directions for Use of Power Steering

[GR2100-II]
1. Power steering is activated only while the engine is running. Slow engine speeds make the steering a little heavier. While the engine is stopped, the machine functions in the same manner as machines without power steering.
2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. Avoid turning the steering wheel while the machine is stopped, or tires may wear out sooner.
4. The power steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

■Glide Steer

[GR2100-II]

This machine is equipped with the Glide Steer.
It allows full time front axle drive preventing turf damage.
The rear axle has left and right axle clutches inside and both clutch arms are connected to the front axle king pin support with wires.
When driving straight, the rear axle clutches are engaged and both L & R tires have traction. When turning right or left, the wires are pulled by the king pin and disengage the inside rear tire clutch. This will make the front tire and outside rear tire speed differences small.



(1) Differential
(A) "Engaged"
(B) "Disengaged"

If the adjustment is not correct or some malfunction occurs in the system, rear clutches are engaged all times and result in larger turn radius or turf damage. In that case, contact your Kubota dealer for checking.

■Hitch Plate

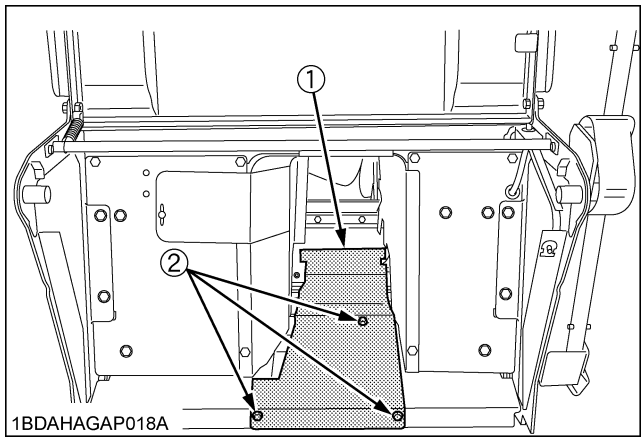
To install the hitch plate:

1. Remove the grass container from the machine.

IMPORTANT :

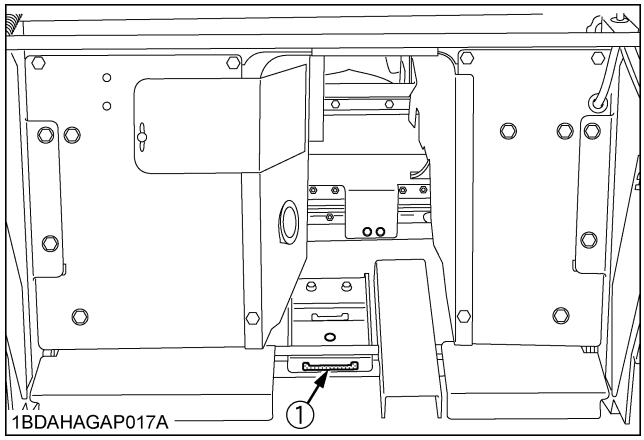
- This hitch plate can use only with the grass container or the discharge cover removed. If the hitch plate is set with the grass container, the duct clean system can not be operated.

2. Remove the duct bottom plate by removing three bolts.

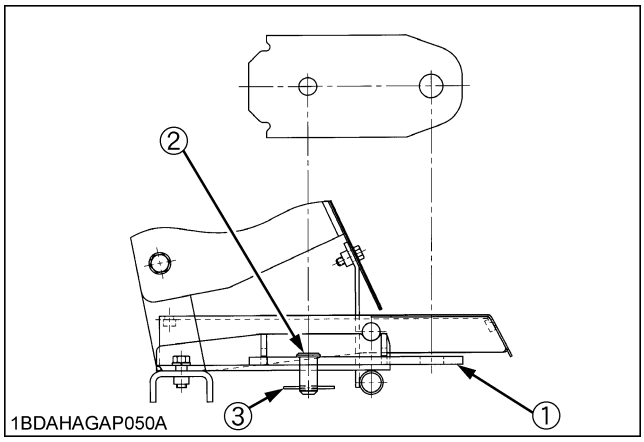


(1) Duct bottom plate
(2) Bolt

3. Insert the hitch plate to the slit.
4. Put the clevis pin into the hole from the top and set the snap pin.



(1) Slit



(1) Hitch plate
(2) Clevis pin
(3) Snap pin

To remove the hitch plate:

1. Reverse the above procedure.

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 (2 to 3 in.) 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 (1 in.) 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 80 mm (3 in.), 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.

DANGER

To avoid serious injury or death:

- **Do not operate mower without Grass Catcher.**

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 mowing area.**
- **Be sure to disengage the PTO and sit on the operator's seat before starting the engine.**

ADJUSTING CUTTING HEIGHT

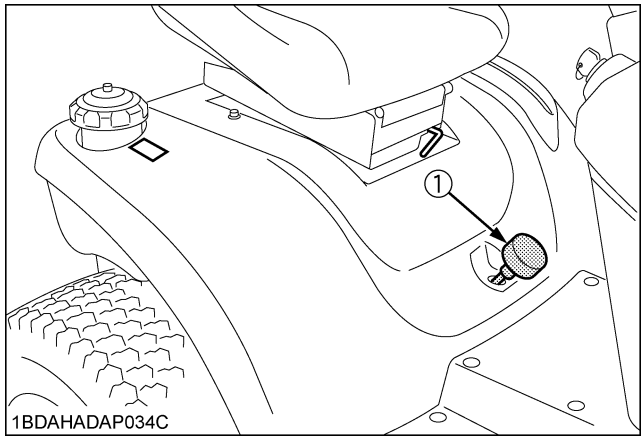
DANGER

To avoid serious injury or death:

- **Do not operate mower in the transport position.**

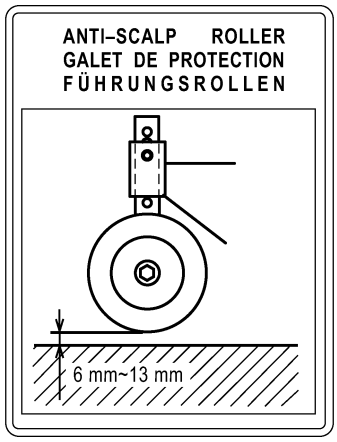
■Cutting Height Control Dial

Raise the mower deck to the top position. Turn the cutting height control dial to the desired cutting height.
Lower the mower deck, and then the mower deck will be set to the cutting height.



(1) Cutting height control dial

1. Before adjusting the cutting height, check that all tire pressures are correct. If necessary, adjust to the correct tire pressure.
2. **[GR1600-II]**
   To set the cutting height, pull the mower lift lever up to raise the mower deck to the transport position.
   [GR2100-II]
   To set the cutting height, pull the hydraulic lift lever backward to raise mower deck to the top position.
3. Turn the cutting height control dial to adjust the height.
4. Set the anti-scalp rollers' height as shown to keep clearance between rollers and ground more than 6 mm (0.2 in.).



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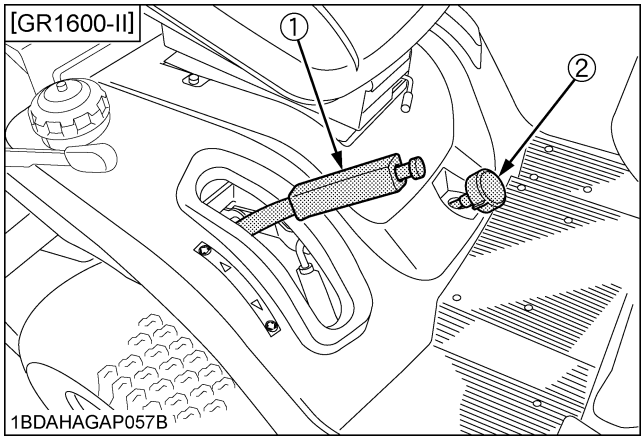
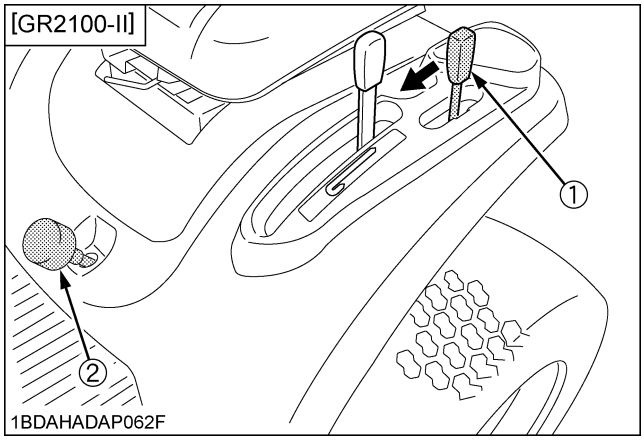
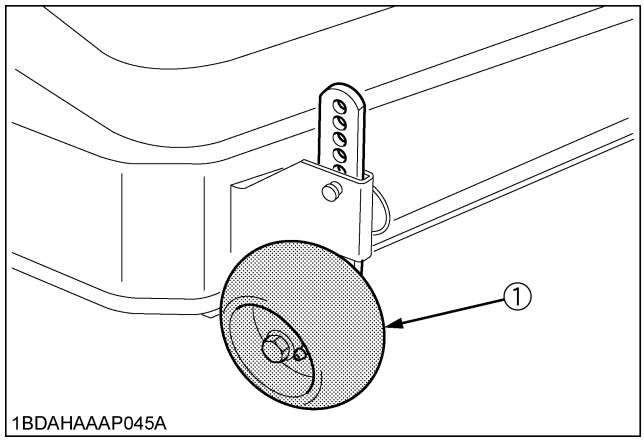


(1) Mower lift lever
(2) Cutting height control dial



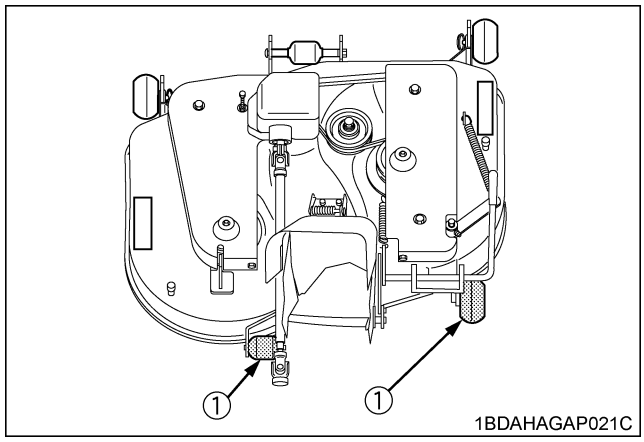
(1) Hydraulic lift lever
(2) Cutting height control dial

5. **[GR1600-II]**
   Lower the mower deck by pushing the mower lift lever downward. This lowers the mower deck from the "Transport" position to the "Operating" position.
   [GR2100-II]
   Lower the mower deck by lifting the lever, pushing in the release button and lowering the lever while holding in the release button. This lowers the mower deck from the "Transport" position to the "Operating" position.
6. 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.



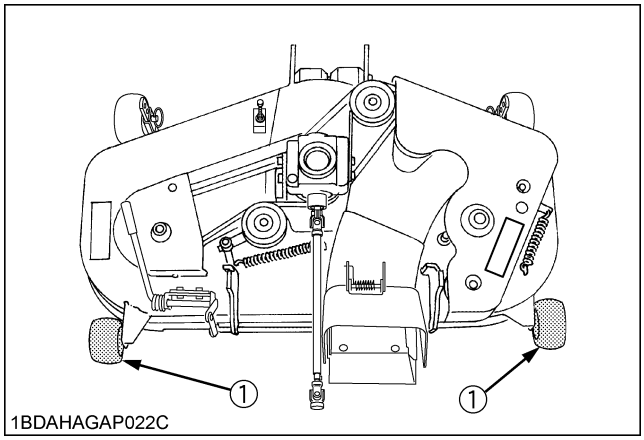
(1) Anti-scalp roller

[RCK42]



(1) Anti-scalp roller (Rear)

[RCK48]

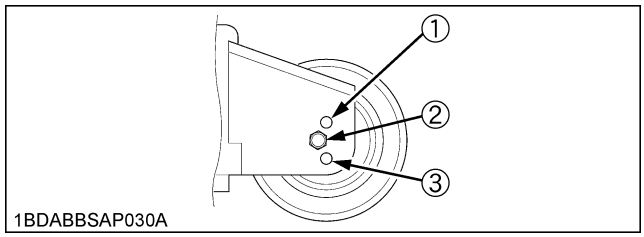


(1) Anti-scalp roller (Rear)

[RCK42]

Reference

- Set the position for a recommended ground clearance of 19 mm (3/4 in.).
  (Figure shows a setting position of cutting height 50 or 55 mm (2.0" or 2.25"))



Cutting height inch (mm)	Position of bolts	(Ref.) Ground clearance between rollers and the ground
1" (25) *1	1	6 mm (0.2 in.)
1.25" (32) *2		12.4 mm (0.5 in.)
1.5" (38)		19.0 mm (0.7 in.)
1.75" (44)		25.4 mm (1.0 in.)
2.0" (50)	2	19.0 mm (0.7 in.)
2.25" (58)		25.4 mm (1.0 in.)
2.5" (64)	3	19.0 mm (0.7 in.)
2.75" (70)		25.4 mm (1.0 in.)
3.0" (76) *3		(31.8 mm) (1.3 in.)
3.5" (89) *3		(44.6 mm) (1.8 in.)
4.0" (102) *3		(57.4 mm) (2.3 in.)

*1. Cutting height 1" is a ground clearance of 6 mm.

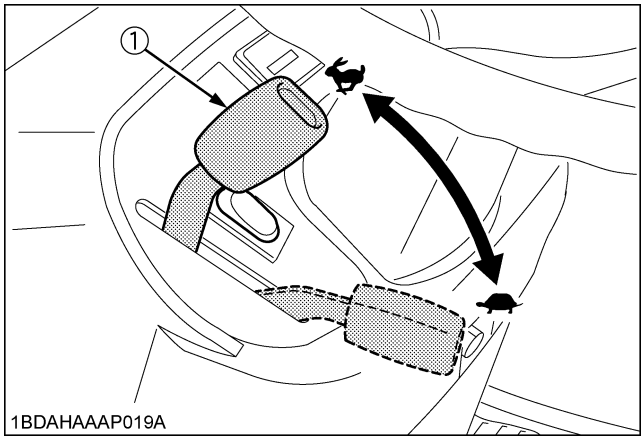
*2. Cutting height 1.25" is a ground clearance of 12.4 mm.

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

OPERATING THE MOWER

■Starting

1. Start the engine.
2. Set the throttle lever to the "FAST" position.



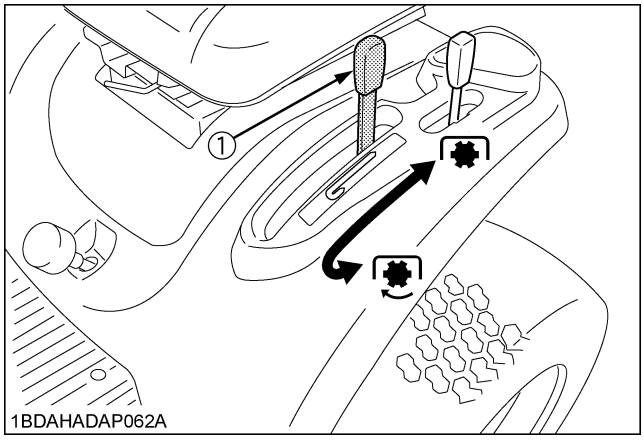
(1) Throttle lever

: "FAST" position
: "SLOW" position

3. Push down the PTO lever to the "ENGAGED" position.

■PTO Lever

To engage mower blade, push the PTO lever to the "ENGAGED" position. To stop the mower blades, pull the PTO lever to the "DISENGAGED" position.



(1) PTO lever

: "ENGAGED"
: "DISENGAGED"

NOTE :

- If you dismount from the seat while the PTO is running, the engine will stop automatically. (Operator Presence Control)
- Before starting the engine, pull the PTO lever to the "DISENGAGED" position and depress brake pedal, otherwise, the starter will not operate.
- For best cut quality and performance, always mow with the throttle lever in "FAST" position.

Use the speed control pedal to select the desired mowing speed range.

(1) During heavy duty use, operate the machine at a slower ground speed or go over the area twice.
The first pass should be with the deck at the highest cutting position, then mow to desired height.
(2) The mower will not cut cleanly if the ground speed is too high or if the blade speed drops due to an overload.

1. Control ground speed by using the speed control pedal of the machine.

NOTE :

- Keep the mower deck in the fully raised position when the mower is not engaged.

WARNING

To avoid serious injury or death:

- **Engine components can get extremely hot from operation. To prevent severe burns, do not touch these areas while the engine is running, or immediately after it is turned off.**
  Never operate the engine with heat shields or guards removed.

OPERATING THE GRASS CATCHER

DANGER

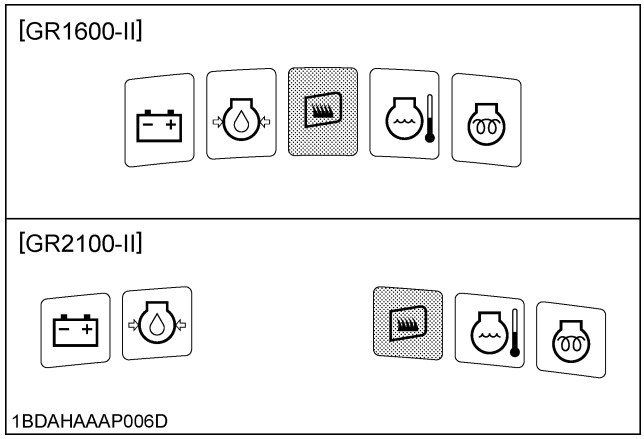
To avoid serious injury or death:

- **Do not operate mower without grass catcher.**
- **Do not operate mower with the top cover opened.**

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 remow the area.
4. Always mow at full engine throttle. If the engine lugs down while mowing, reduce riding mower ground speed.

◆ **EASY Checker(TM)**



: Full grass indicator
If grass gets stuck up to the grass sensor set position, this indicator lights up and the buzzer sounds. If this lamp is on, dump the grass inside the bag.

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 and clean the duct by operating the lever of the duct clean system to discharge the grass completely.
6. Thoroughly clean the mower deck, discharge duct and the 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 THE GRASS CATCHER

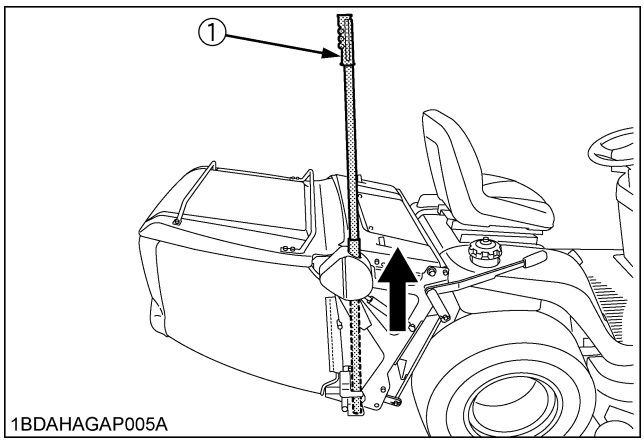
CAUTION

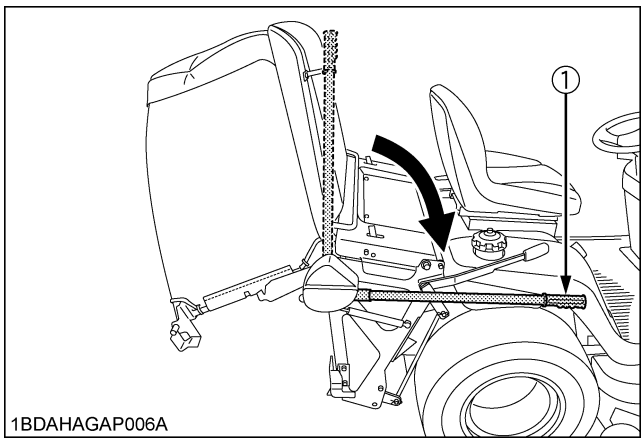
To avoid personal injury:

- **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:

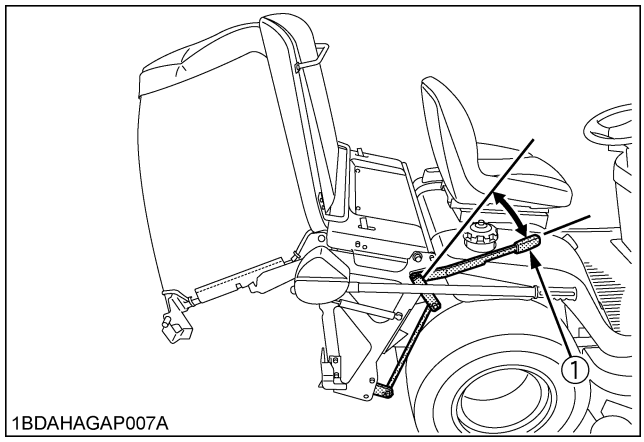
1. Disengage the PTO lever.
2. Pull up the grass container lift lever completely and then rotate it forward to dump the grass.





(1) Grass container lift lever

3. Operate the rear quick clean lever several times to dump the grass in the duct.

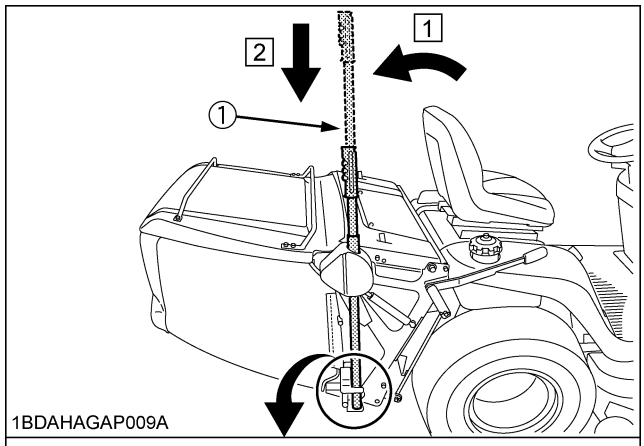


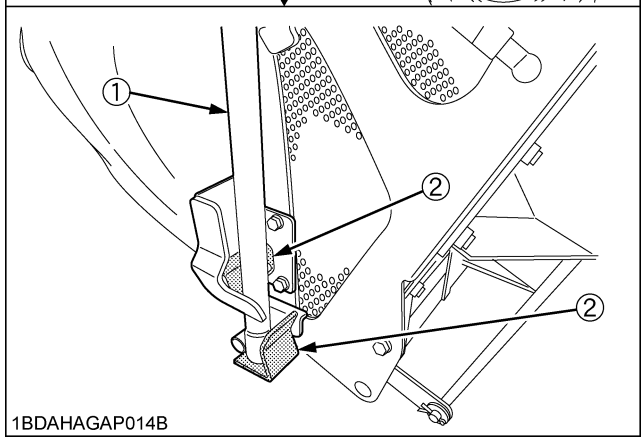
(1) Rear quick clean lever

NOTE :

- If needed, operate the front quick clean lever. (See "FRONT QUICK LEVER" in "OPERATING THE GRASS CATCHER" section.)

4. Close the container to rotate the grass container lift lever backward and return the lever between the lock plates.





(1) Grass container lift lever
(2) Lock plate

IMPORTANT :
- Make sure the bottom of the lift lever is fully inserted between the lock plates.

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 manual 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.

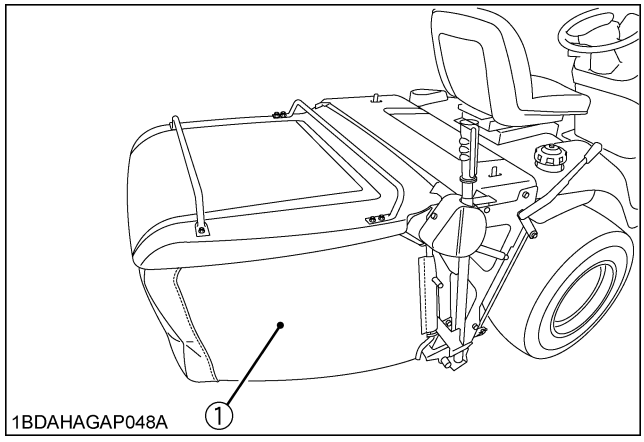
GRASS CONTAINER NET MATERIAL

■Checking

CAUTION

To avoid personal injury:
- **Be sure to stop the engine before checking the grass container net condition.**
- **The grass container net material is subject to deterioration and wear. Check it frequently. Use only genuine replacement net from KUBOTA.**
- **Make sure all shields and guards are securely in place following all service, cleaning, or repair work.**

The grass container net material should be checked daily.



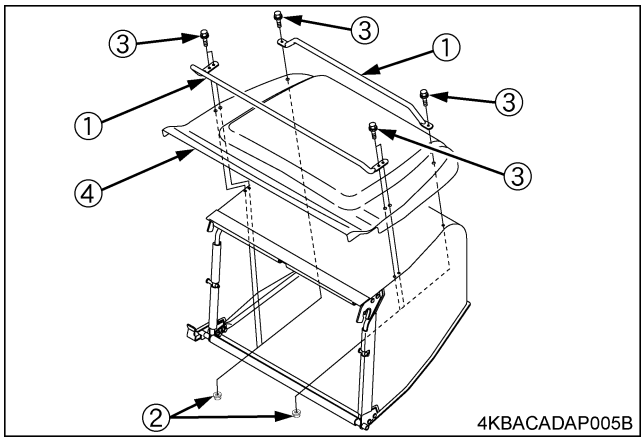
(1) Grass container net

1. The net material is made of cloth and plastic.
2. Check grass container net material for deterioration, wear and damage.
3. After inspection, if the net material is found worn or deteriorated, replace it as shown in "Replacing".
4. If the grass container net is unusually dirty or grass stained, it should be washed with a mild detergent and hung up to dry. Reinstall it as shown in "Replacing".

NOTE :
- Do not attempt to dry the container net in a clothes dryer!

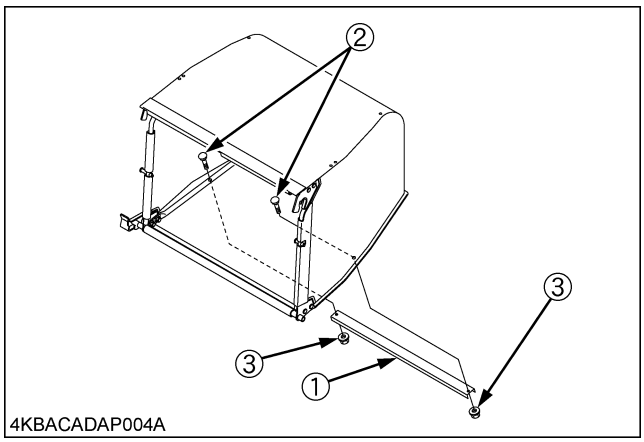
■Replacing

1. Remove handles, flange nuts and black flange bolts from the top of the grass container cover.
2. Remove the plastic cover from the container.



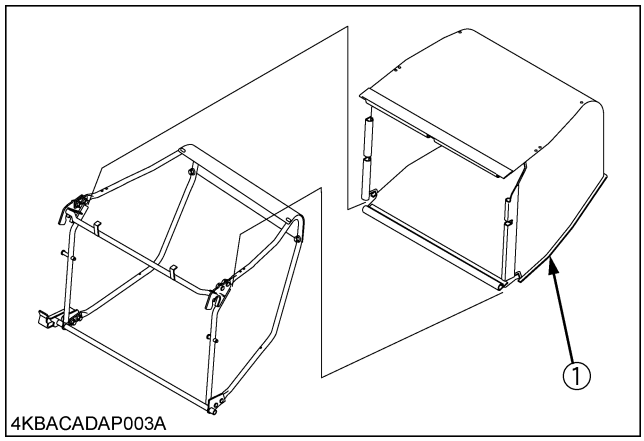
(1) Handle
(2) Flange nut
(3) Black flange bolt
(4) Cover

3. Remove square neck bolts and nuts to remove the bottom plate.



(1) Bottom plate
(2) Square neck bolt
(3) Flange nut

4. Then remove the container net from the frame.
5. To attach new or cleaned net, reverse the above procedures and be sure to install removed components.



(1) New or cleaned net

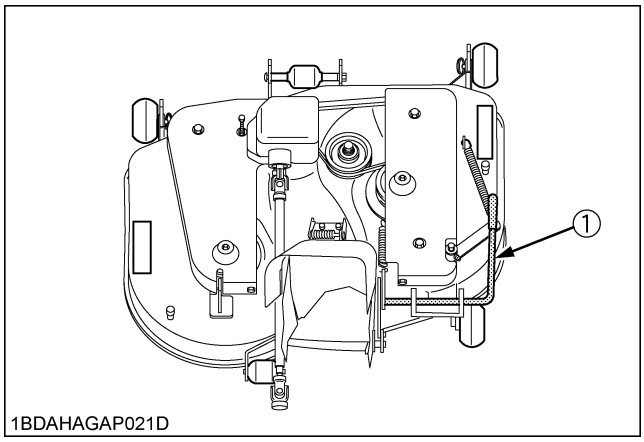
FRONT QUICK CLEAN LEVER

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

To operate:

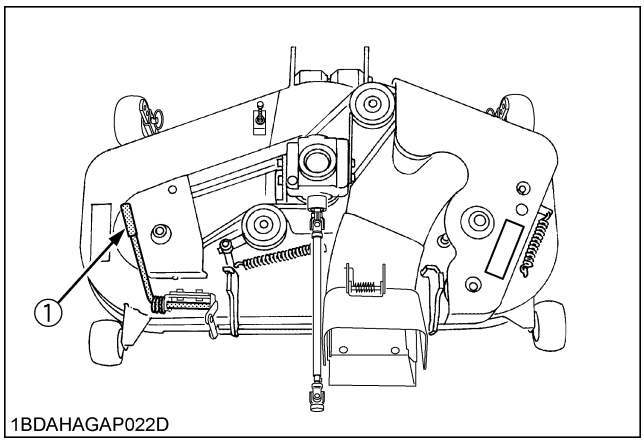
1. Park the machine on a level surface.
2. Raise the mower to the highest position.
3. Pull the PTO lever to the "DISENGAGED" position. And allow the blades to stop before operating the lever.
4. Pull the lever several times.

[RCK42]



(1) Front quick clean lever

[RCK48]



(1) Front quick clean lever

NOTE :

- To effectively discharge the grass, be sure to pull 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.**

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 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

After each use, carefully clean the mowing deck, particularly underneath. Switch the engine off before cleaning your machine.

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.

DANGER

To avoid serious injury or death:

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

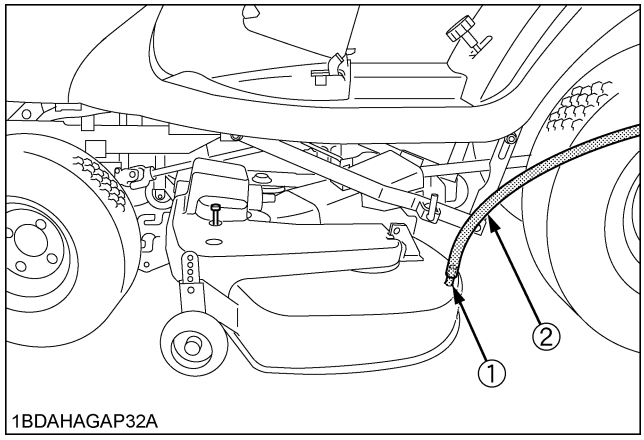
CAUTION

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.**

CLEANING THE MOWING SYSTEM USING HOSE

1. Install the water hose to the mower pipe and turn on water.



(1) Pipe
(2) Water hose

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

TIRE 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

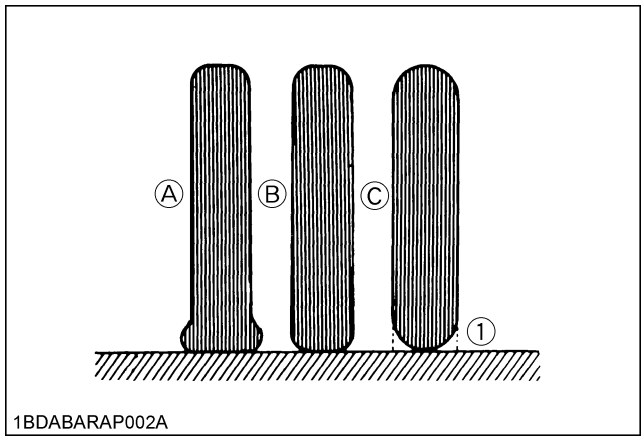
Though the inflation pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

[GR1600-II]

	Tire sizes	Recommended Inflation Max. Pressure
Front	15 x 6.00 - 6, 4PR	200 kPa (2.0 kgf/cm², 29 psi)
Rear	20 x 10.00 - 8, 4PR	140 kPa (1.4 kgf/cm², 20 psi)

[GR2100-II]

	Tire sizes	Recommended Inflation Max. Pressure
Front	16 x 7.50 - 8 4PR	200 kPa (2.0 kgf/cm², 29 psi)
Rear	23 x 10.5 - 12 4PR	140 kPa (1.4 kgf/cm², 20 psi)



(1) Ground

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

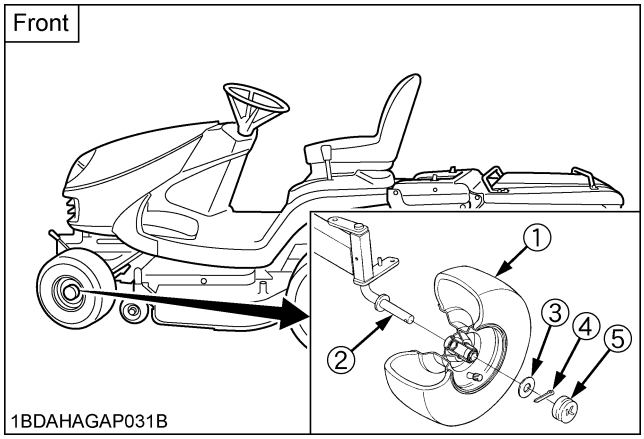
ENGLISH

WHEELS

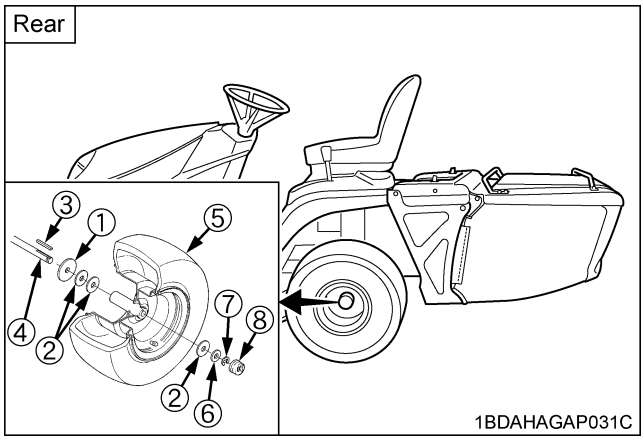
[GR1600-II]

IMPORTANT :

- When re-fitting wheels, make sure the cotter pin of the front wheel and the retaining ring of the rear wheel are set properly.



(1) Front tire assy
(2) Axle
(3) Plain washer
(4) Cotter pin
(5) Front wheel cap



(1) Plain washer
(2) Plain washer
(3) Key
(4) Rear axle
(5) Rear tire
(6) Plain washer
(7) Retaining ring
(8) Rear wheel cap

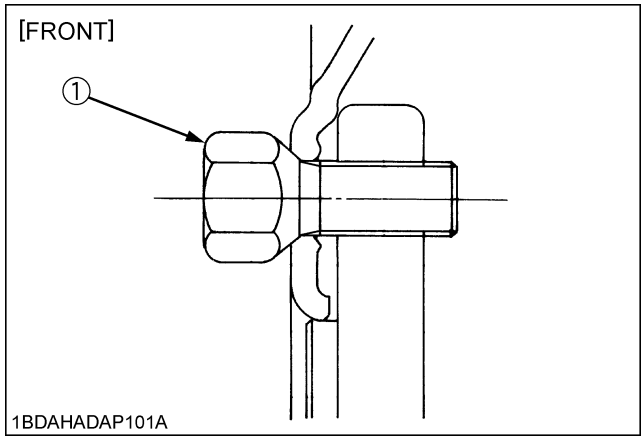
[GR2100-II]

IMPORTANT :

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

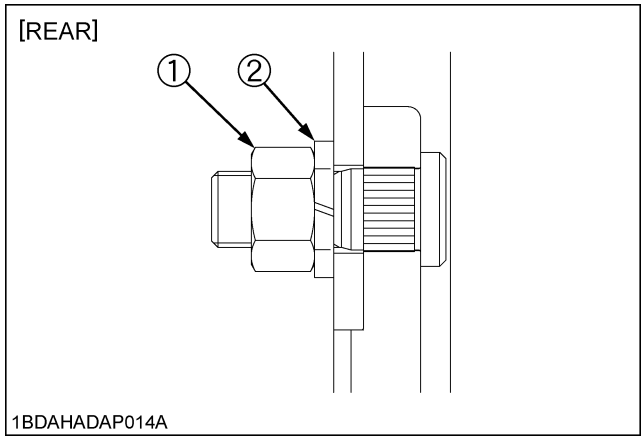
NOTE :

- Wheels with beveled or tapered holes:
  Use the tapered wheel bolt. (Front)



(1) Bolt

Front 108.5 to 130.2 N-m
(11.07 to 13.29 kgf-m)
(80 to 96 ft-lbs.)



(1) Nut
(2) Spring washer

Rear 77.6 to 90.2 N-m
(8.0 to 9.2 kgf-m)
(57.1 to 66.5 ft-lbs.)

ENGLISH

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 100 Hr	56		
2	Engine oil filter	Replace	◎			○				○				○	every 200 Hr	59		
3	Transmission & Front axle cases fluid	Change				◎				○				○	every 200 Hr	60, 62		
4	Transmission oil filter	Replace	◎			○				○				○	every 200 Hr	61		
5	Transmission strainer	Clean				◎				○				○	every 200 Hr	60		
6	Front axle pivot	Adjust		◎		○				○				○	every 200 Hr	64	*2	
7	Safety device	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	49		
8	Oiling	-	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	52		
9	Greasing	-	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	48		
10	Mower gear box oil	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	50		
		Change	○		○			○			○			○	every 150 Hr	59		
11	Air cleaner element	Clean	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	50	*1	@
		Replace													every 1 year	64		
12	Battery condition	Check	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	55		
13	Brake	Adjust		○		○		○		○		○		○	every 100 Hr	58		
14	Fan drive belt	Check		○		○		○		○		○		○	every 100 Hr	58	*2	
15	Fuel filter element	Check		○		○		○		○		○		○	every 100 Hr	57		@
		Replace								○					every 400 Hr	64	*2	
16	Fuel line	Check		○		○		○		○		○		○	every 100 Hr	57		@
		Replace													every 2 years	66	*2	
17	Hydraulic hose	Check				○				○				○	every 200 Hr	63		
		Replace													every 2 years	66	*2	

No.	Items		Indication on hour meter (Hr)												After since	Ref. page		
			50	100	150	200	250	300	350	400	450	500	550	600				
18	Radiator hose and clamp	Check				○				○				○	every 200 Hr	62		
		Replace													every 2 years	66	*2	
19	Intake air line	Check				○				○				○	every 200 Hr	64		@
		Replace													every 2 years	66	*4	
20	Fuel injection nozzle injection pressure	Check													every 1500 Hr	64	*3	@
21	Injection pump	Check													every 3000 Hr	64	*3	@
22	Radiator	Clean													every 1 year	64		
23	Coolant	Change													every 1 year	64		
24	Mower gear box oil seal	Replace													every 2 years	66	*2	
25	Fuel system	Bleed													Service as Required	71		
26	Fuse	Replace														66		
27	Blade	Replace														67		
28	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.
- The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA non-road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction.
  Please see the Warranty Statement in detail.

LUBRICANTS

Place	Capacities		Lubricants
	GR1600-II	**GR2100-II**	
Fuel	18 L		• No.2-D diesel fuel • No.1-D diesel fuel if temperature is below -10 ℃
Coolant	1.9 L	2.1 L	Fresh clean water with anti-freeze
Recovery tank	0.25 L		
Engine crankcase	1.2 L *	2.8 L *	• Engine oil: API Service Classification CD, CE or CF Above 25 ℃ .....SAE30, SAE10W-30 or 10W-40 0 to 25 ℃ .....SAE20, SAE10W-30 or 10W-40 Below 0 ℃ .....SAE10W, SAE10W-30 or 10W-40
Transmission case	2.8 L	3.3 L	• KUBOTA UDT or SUPER UDT fluid*1
Front axle case	---	1.9 L	
Mower gear box	0.33 L	0.4 L	SAE 90 gear oil (API service classification: more than GL-3)

Greasing	No. of greasing points		Capacity	Type of grease
	GR1600-II	**GR2100-II**		
Engine transmission universal joint	1		Until grease overflows	• Multipurpose Grease NLGI-2 OR NLGI-1 (GC-LB)
King Pin	2			
Center Pin	---	2		
Glide steer bolt	---	2		
Glide steer rear arm	---	2		
Speed control pedal shaft	---		Moderate amount	• Oil
Mower link	---			
Seat adjuster	---			
Cable	---			
PTO lever	---			
Hydraulic lift lever	---			
Grass catcher hinge	---			
[MOWER]			Until grease overflows	• Multipurpose Grease NLGI-2 OR NLGI-1 (GC-LB)
Spindle shafts	2	3		
Tension arm	1	2		
Mower universal joint	1		Moderate amount	• Oil

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

NOTE :
- Check the oil level of the transmission case with the mower lifted up. [GR2100-II]

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 ≧ 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.**

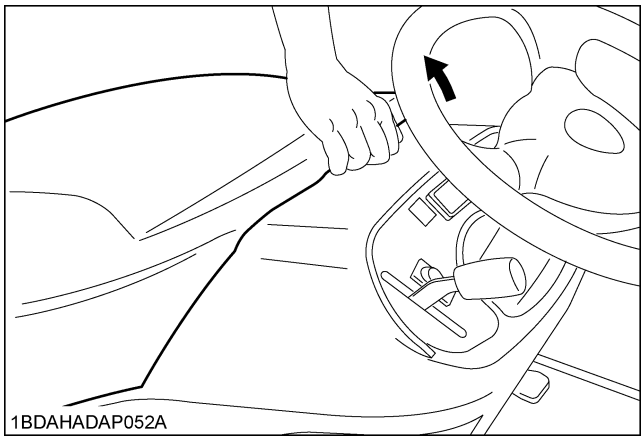
HOW TO OPEN THE HOOD

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.**

To open the hood, lift the hood as shown in the figure.



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	37, 46
	2	Oil and water leak	---
	3	Engine oil level	44
	4	Transmission fluid level	47
	5	Coolant level in the recovery tank	47
	6	Damage to machine body, tightness of all bolts and nuts	---
	7	Radiator screen	46
	8	Panel screen	46
	9	Brake free travel	58
	10	Fuel level	45
	11	Check air cleaner	50
Mower	1	Oil leak	50
	2	Make sure blade cap screws are tight	67
	3	Blade wear or damage	67
	4	Check all hardware.	---
	5	Make sure all pins are in place	---
	6	Mower deck cleaning	---
	7	Greasing ● Spindle shafts	48
While sitting in the operator's seat	1	Speed control pedal Brake pedal	---
	2	Brake	---

	No.	Check item	Ref. Page
Turning the key switch "on"	1	Performance of the easy checker light	22
Starting the engine	1	Color of the exhaust fumes	---
	2	Safety start switch, seat safety control and another safety devices. If either of these do not operate properly, contact your local KUBOTA Dealer immediately.	49
	3	Check for abnormal noise and vibration.	---
Others	1	Check the areas where previous trouble was experienced.	---

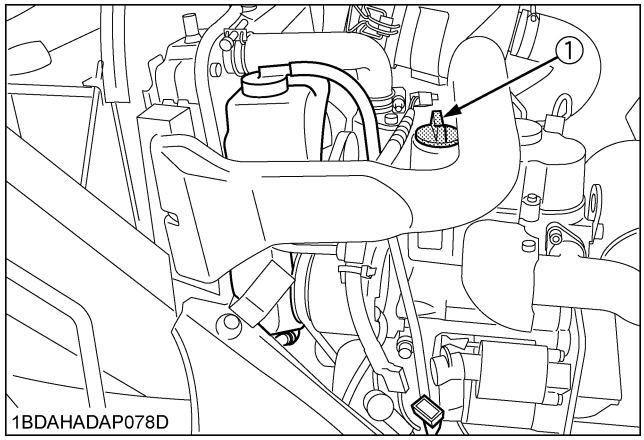
■Checking Engine Oil Level

CAUTION

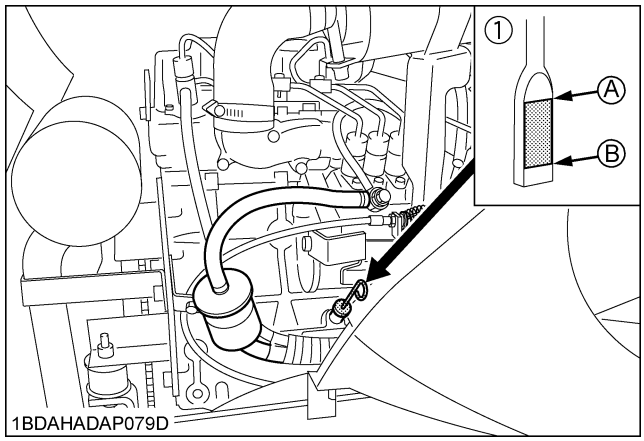
To avoid personal injury:

- **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 two notches.
4. Add new oil to the prescribed level at the oil port if necessary.



(1) Engine oil port



(1) Oil level dipstick *(A) "UPPER LEVEL"* *(B) "LOWER LEVEL"*

5. When using a different brand or viscosity oil from the previous one, remove all of the old oil and oil filter. Never mix two different types of oil.
6. Use the proper Engine Oil SAE according to the ambient temperatures. (See "LUBRICANTS" 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.

Fuel tank capacity	18 L (4.8 U.S.gals.)

IMPORTANT :

- Use Diesel Fuel Only

1. Use No.2 diesel fuel.
2. Use No.1 diesel fuel if the temperature is below -10℃ (14℉).
3. Always use a strainer when refueling to prevent fuel injection pump contamination.

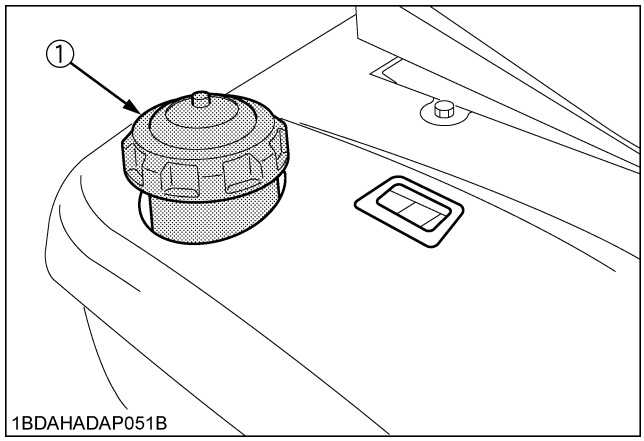
NOTE :

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

Flash point ℃	Water and Sediment, volume %	Carbon Residue on, 10 percent Residuum, %	Ash, weight %
Min	Max	Max	Max
52	0.05	0.35	0.01

Distillation Temperatures ℃ 90% Point		Viscosity Kinematics cSt or mm²/s at 40℃		Viscosity Saybolt, SUS at 100℉	
Min	Max	Min	Max	Min	Max
282	338	1.9	4.1	32.6	40.1

Sulfur, weight %	Copper strip Corrosion	Cetane Number
Max	Max	Min
0.50	No.3	40



1BDAHADAP051B

(1) Fuel port

ENGLISH

■Checking and Cleaning Radiator and Screen to Prevent Overheating

CAUTION

To avoid personal injury:

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

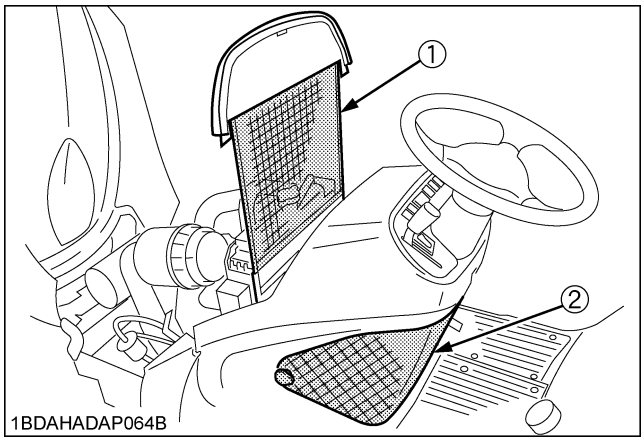
IMPORTANT :

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

Daily or after every 5 hours of operation, check to be sure the radiator screen and 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 the panel screen, and clean inside completely.
   After cleaning, replace the radiator screen properly.



(1) Radiator screen
(2) Panel screen

NOTE :

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

■Checking Tire Pressure

WARNING

To avoid personal injury:

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

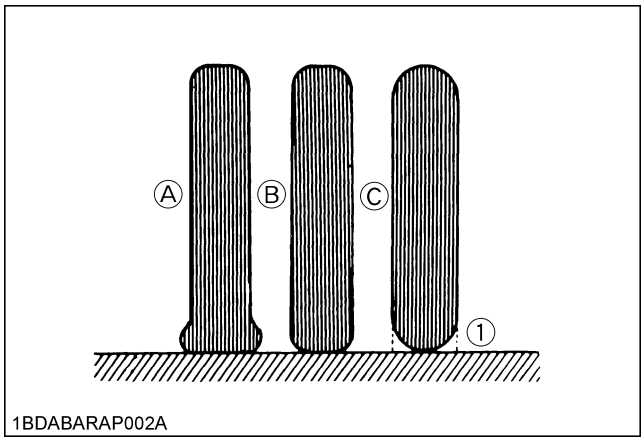
Though the inflation pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

[GR1600-II]

	Tire sizes	Recommended Inflation Max. Pressure
Front	15 x 6.00 - 6, 4PR	200 kPa (2.0 kgf/cm^2, 29 psi)
Rear	20 x 10.00 - 8, 4PR	140 kPa (1.4 kgf/cm^2, 20 psi)

[GR2100-II]

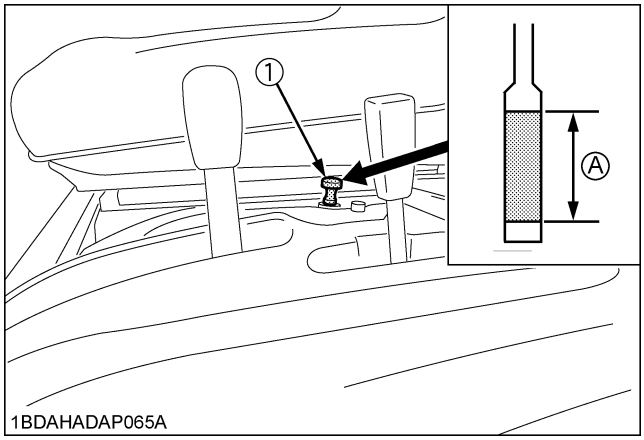
	Tire sizes	Recommended Inflation Max. Pressure
Front	16 x 7.50 - 8, 4PR	200 kPa (2.0 kgf/cm^2, 29 psi)
Rear	23 x 10.5 - 12, 4PR	140 kPa (1.4 kgf/cm^2, 20 psi)



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

■Checking Transmission Fluid Level

1. Park the machine on a flat surface, lower the implement to the ground, shut off engine and remove the key.
2. Raise the operator's seat.
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 two notches.
   If the level is too low, add new oil to the prescribed level at the oil inlet.
   (See "LUBRICANTS" in "MAINTENANCE" section.)



(1) Oil level dipstick
(A) Oil level is acceptable within this range.

NOTE :
- Check the oil level of the transmission case with the mower lifted up.

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

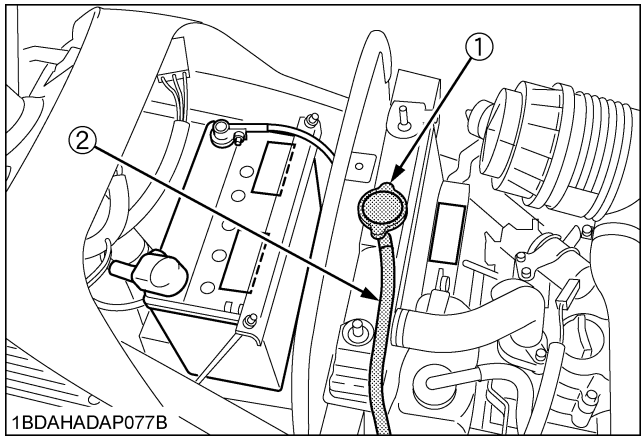
■Checking Coolant Level

CAUTION

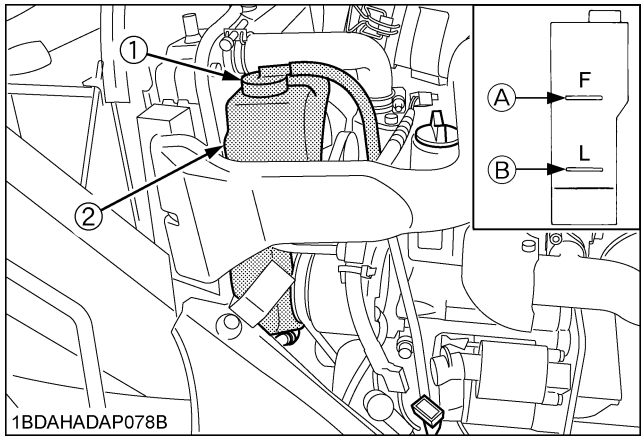
To avoid personal injury:
- **Do not remove the radiator cap when the engine is hot. Loosen cap slightly, to the stop, to relieve any excess pressure before removing cap completely.**

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

1. Remove the radiator cap and check to see that the coolant level is just below the fill port.
2. Check to see that the coolant level is between the "FULL" and "LOW" marks of recovery tank.
3. When the coolant level drops due to evaporation, add water only up to just below the fill port of the radiator and the full level of the recovery tank.
   In case of leakage, add anti-freeze and water in the specified mixing ratio up to the full level.
   (See "Flush Cooling System and Changing Coolant" in "EVERY 1 YEAR" in "PERIODIC SERVICE" section.)



(1) Radiator cap
(2) Over flow pipe



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

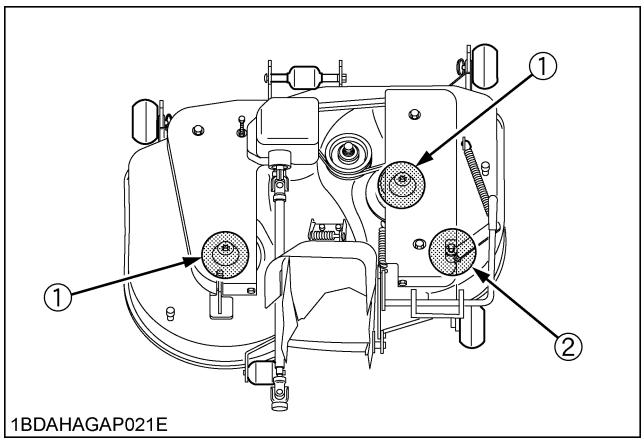
IMPORTANT :
- If the radiator cap has to be removed, follow the caution above and securely retighten the cap.
- Use clean, distilled water and anti-freeze to fill the radiator and the recovery tank.
- If water should leak, consult your local KUBOTA Dealer.

■Greasing

CAUTION

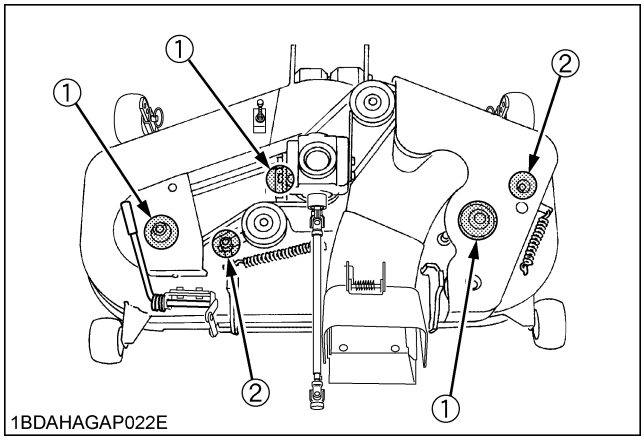
To avoid personal injury:
- **Be sure to stop the engine and remove the key before greasing.**

[RCK42]

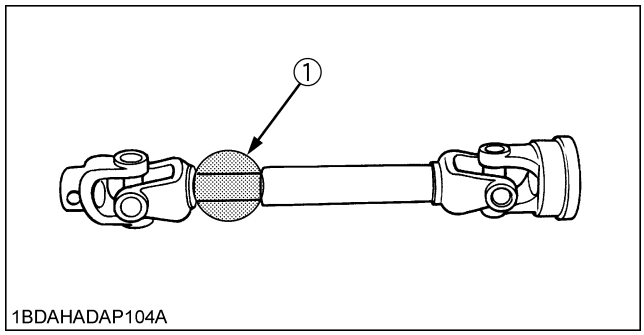


(1) Spindle shaft
(2) Tension arm

[RCK48]



(1) Spindle shaft
(2) Tension arm



(1) Mower universal joint (Apply grease on the spline shaft.)

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.**

IMPORTANT :

- Check the following tests before operating the machine.

■Checking Safety Devices

1. Check the following tests before operating the mower. Sit on the operator's seat for all tests.
2. If the machine does not pass one of the following tests, do not operate the machine. Contact your KUBOTA Dealer.

◆ **Safety Start Control 1**

1. Depress the brake pedal fully.
2. Engage the PTO lever.
3. Turn the key switch to the "START" position.
4. The engine should not crank.

◆ **Safety Start Control 2**

1. Disengage the PTO lever.
2. Release the brake pedal.
3. Turn the key to the "START" position.
4. The engine should not crank.

◆ **Seat Safety Control 1**

1. Run the engine at half throttle.
2. Engage the PTO lever.
3. Stand up. (DO NOT GET OFF THE MACHINE.)
4. Engine should shut off.

◆ **Seat Safety Control 2**

1. Run the engine at half throttle.
2. Disengage the PTO lever.
3. Release the brake pedal.
4. Stand up. (DO NOT GET OFF THE MACHINE.)
5. Engine should shut off.

◆ **PTO Safety Control 1**

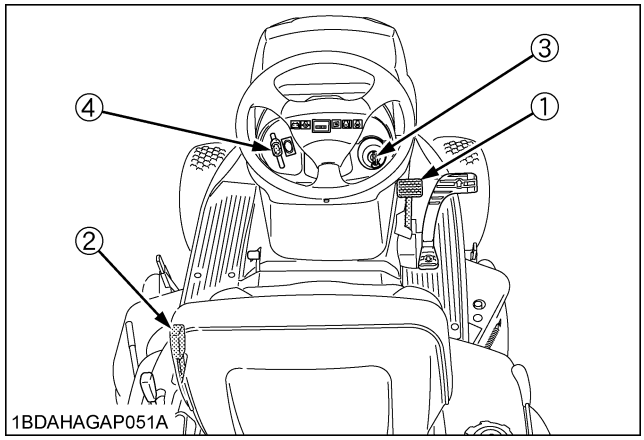
1. Dismount the container from the platform.
2. Run the engine at half throttle.
3. Engage the PTO lever.
4. Engine should shut off.

◆ **PTO Safety Control 2**

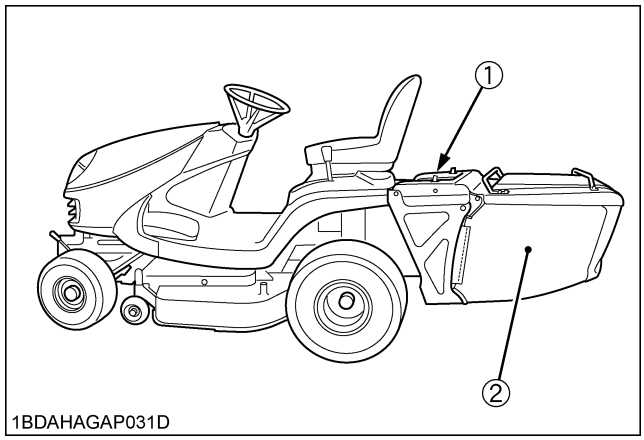
1. Run the engine at half throttle.
2. Engage the PTO lever.
3. Dump the grass catcher.
4. Engine should shut off.

◆ **PTO Safety Control 3**

1. Open the top cover.
2. Run the engine at half throttle.
3. Engage the PTO lever.
4. Engine should shut off.



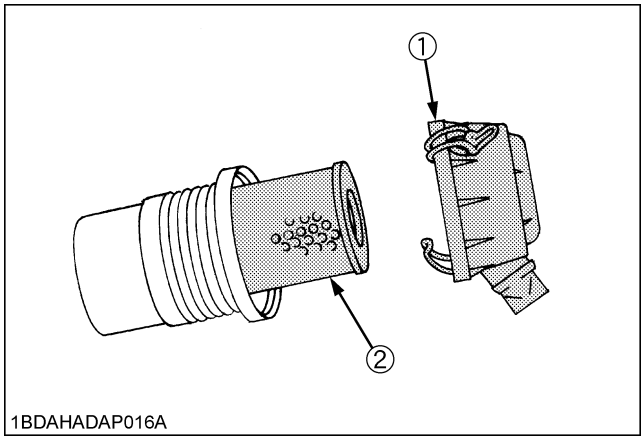
(1) Brake pedal
(2) PTO lever
(3) Key switch
(4) Throttle lever



(1) Top cover
(2) Container

■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 (2.1 kgf/cm², 30 psi).



(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

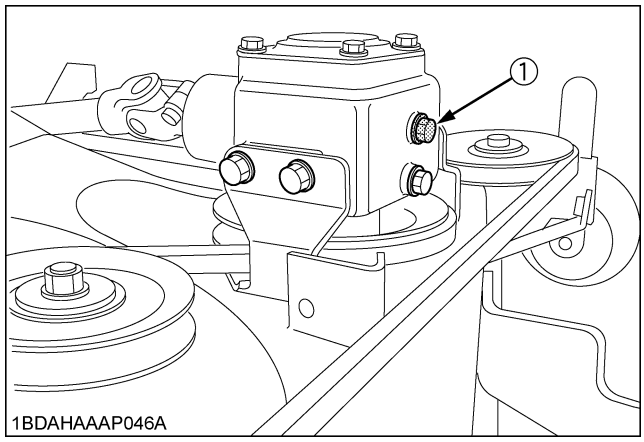
CAUTION

To avoid personal injury:

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

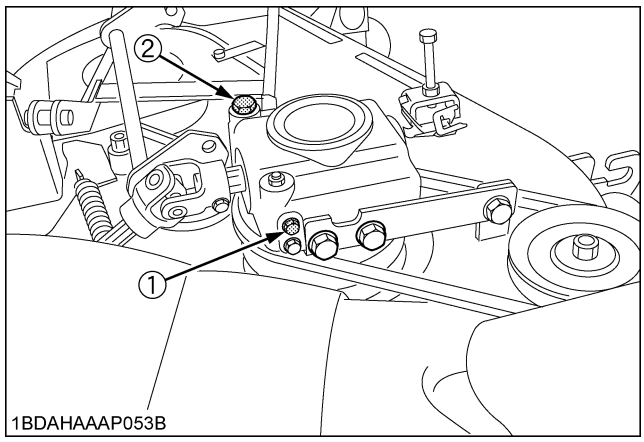
1. Park the machine on a flat surface and lower the mower to the ground.
   To check the oil level, loosen the check plug and check to see that the oil level is just below the check plug port.
   If the level is too low, add new oil to the prescribed level at the oil inlet.
   (See "LUBRICANTS" in "MAINTENANCE" section.)

[RCK42]



(1) Check plug, Oil filler plug

[RCK48]



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

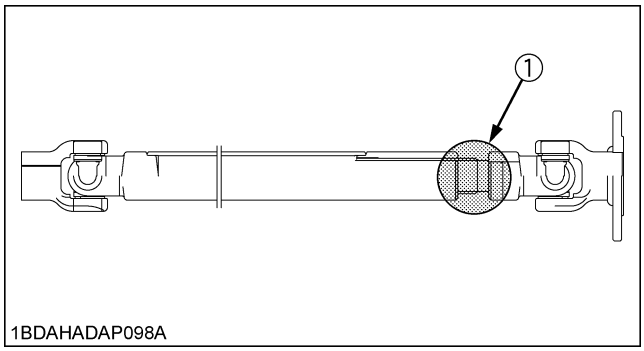
■Greasing

CAUTION

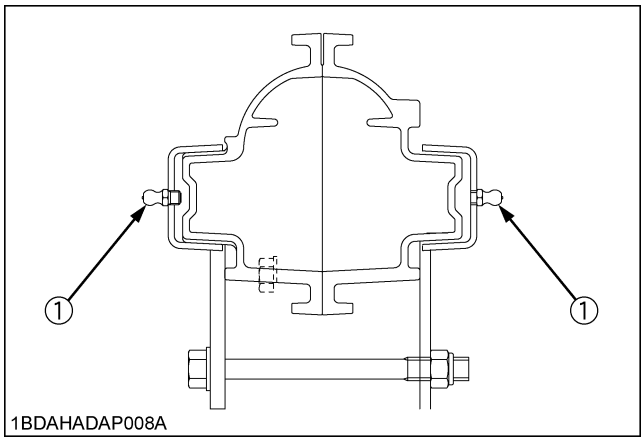
To avoid personal injury:

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

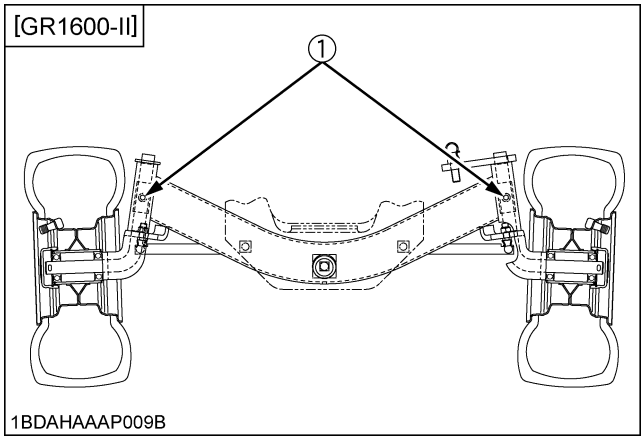
Grease the following location.



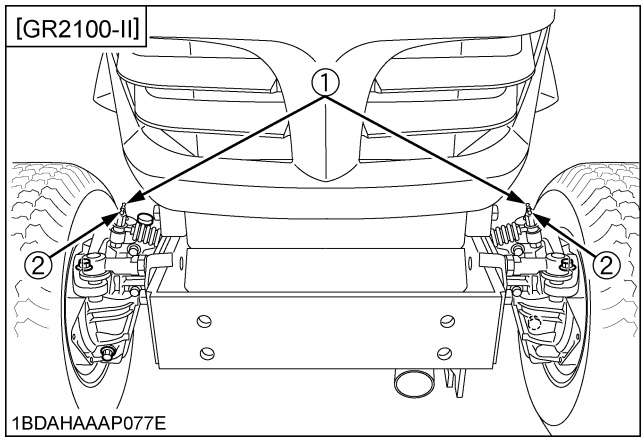
(1) Engine transmission universal joint
(Apply grease on the spline shaft.)



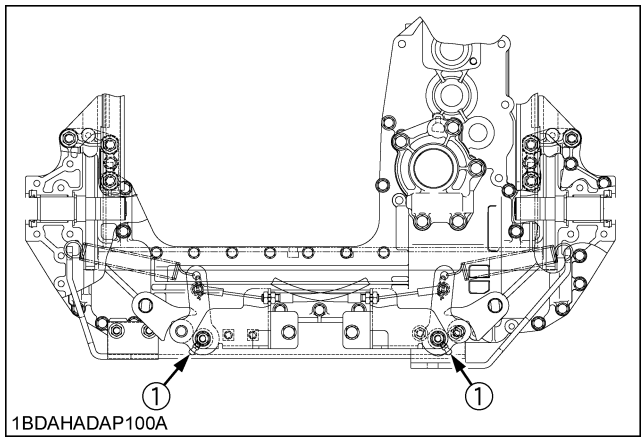
(1) Center pin (GR2100-II)



(1) King pin (LH, RH)



(1) Support king pin (LH, RH)
(2) Glide steer bolt



(1) Glide steer rear arm (GR2100-II)

ENGLISH

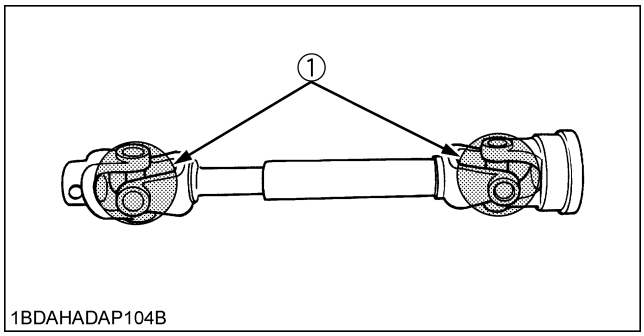
■Oiling

CAUTION

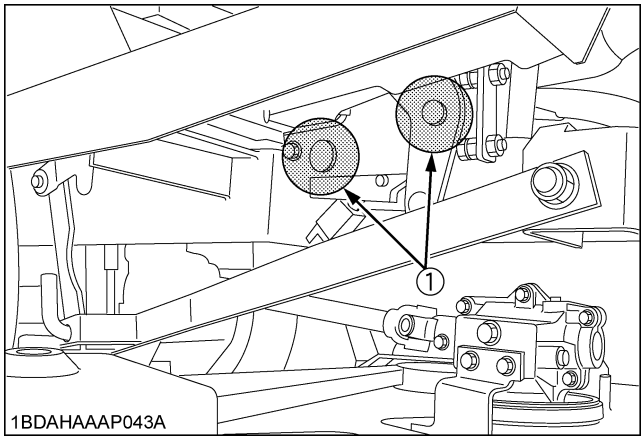
To avoid personal injury:

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

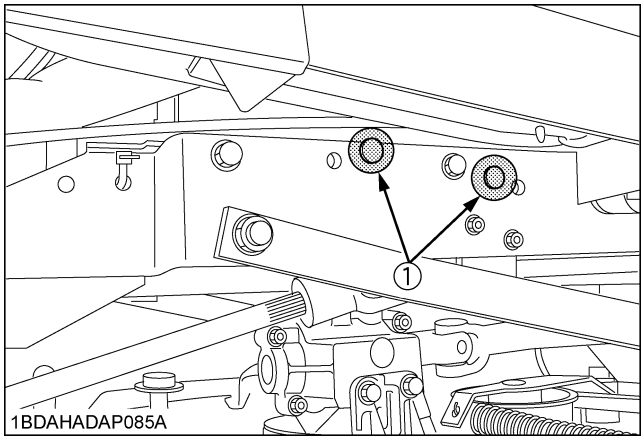
Oil the following locations.



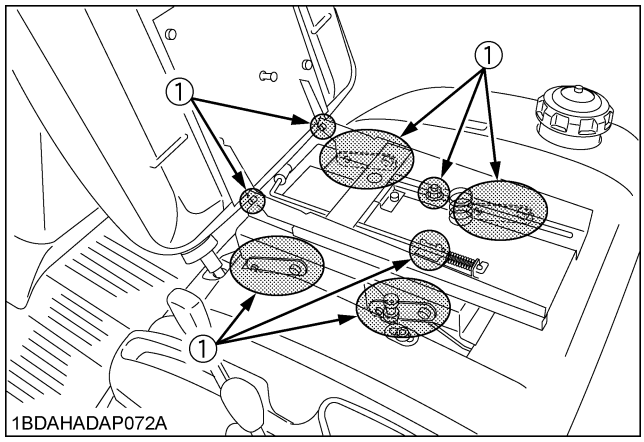
(1) Mower universal joint



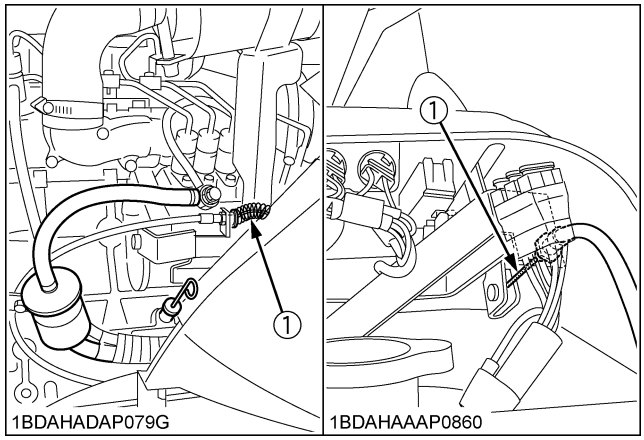
(1) Speed control shaft (RH)



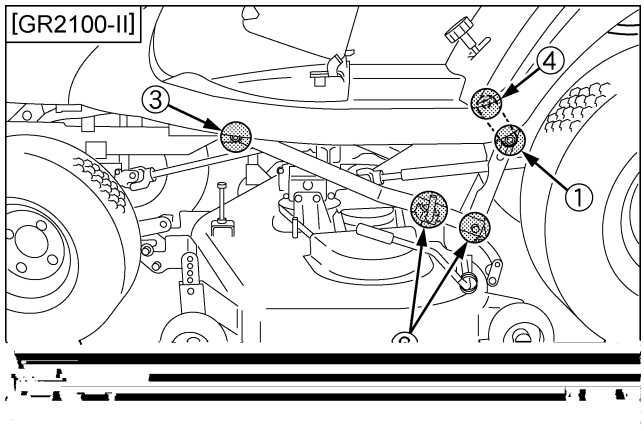
(1) Speed control shaft (LH)



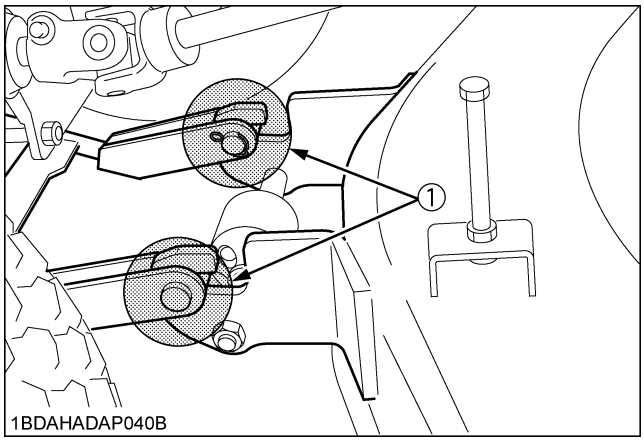
(1) Seat adjuster



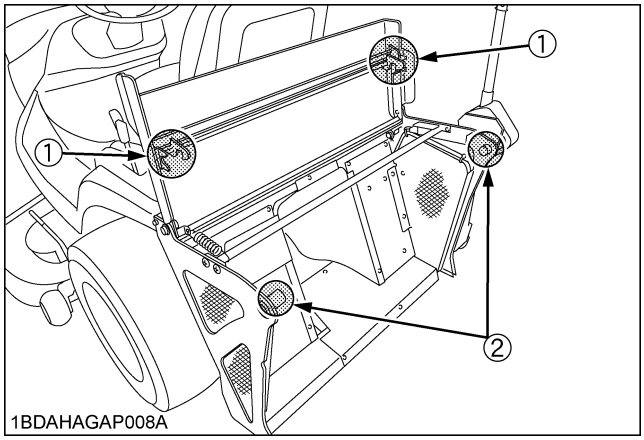
(1) Throttle cable



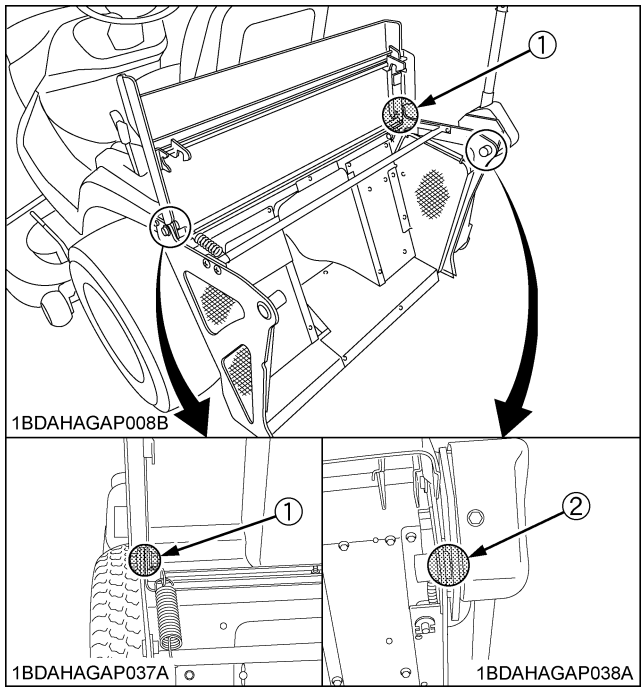
(1) Around the hole of the mower link
(2) Around the pin
(3) Pivot of mower link
(4) Pivot of liftarm



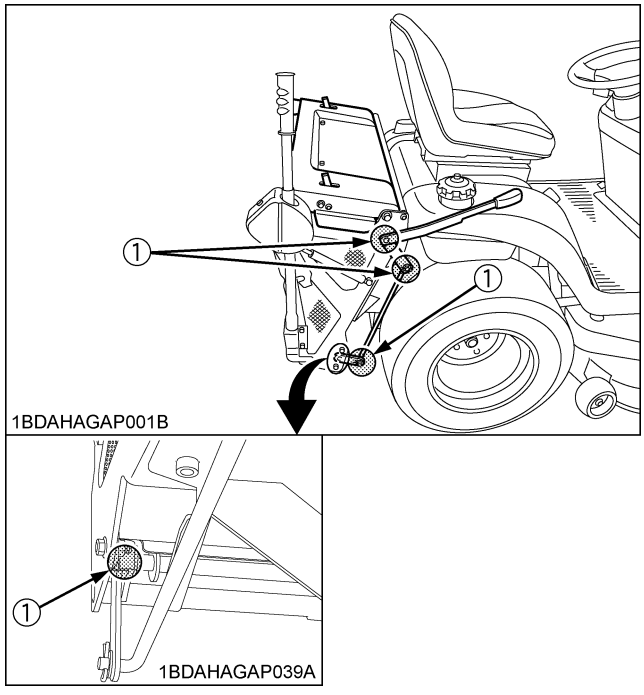
(1) Front link



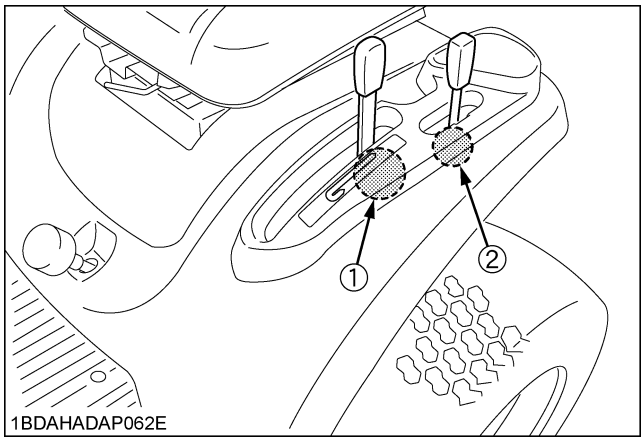
(1) Top cover lock lever
(2) Frame shaft



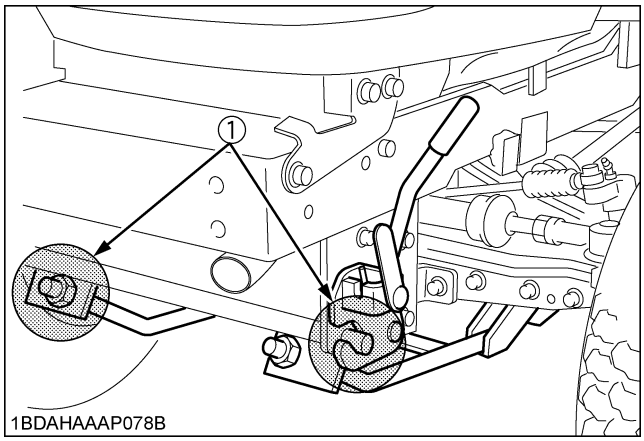
(1) Top cover
(2) Arm bracket



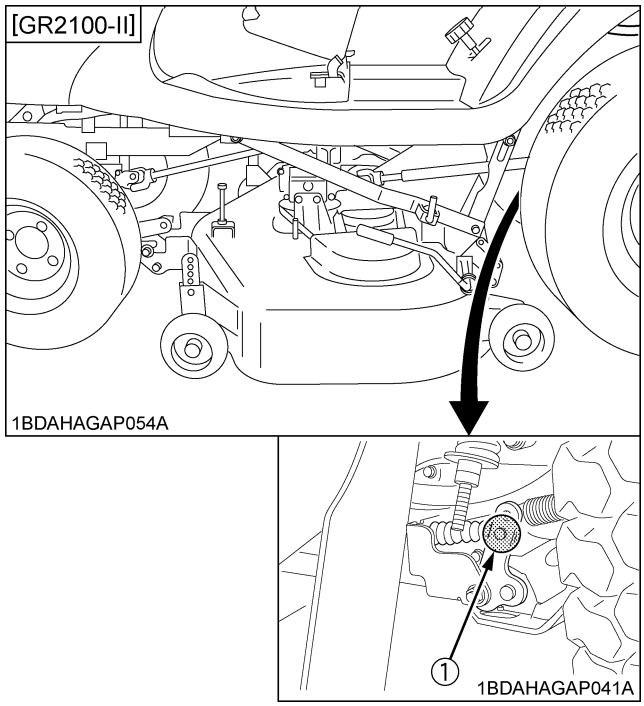
(1) Rear quick clean lever



(1) PTO lever (fulcrum)
(2) Hydraulic lift lever (fulcrum)



(1) Link fulcrum



(1) Glide steer cable (LH, RH)

■Checking Battery Condition

DANGER

To avoid the possibility of battery explosion:
For the refillable type battery, follow the instructions below.

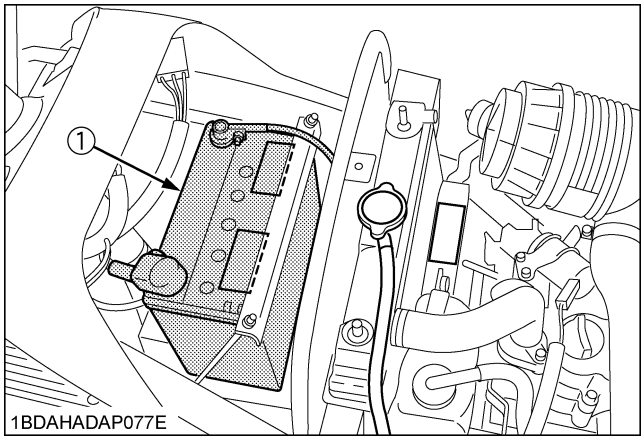
- **Do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Otherwise, the battery component parts may prematurely deteriorate, which may shorten the battery's service life or cause an explosion. Check the fluid level regularly and add distilled 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 spattered with it, wash it away completely with water immediately and get medical attention.**
- **Wear eye protection and rubber gloves when working around the battery.**

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



(1) Battery

■Battery Charging

DANGER

To avoid serious injury or death:

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

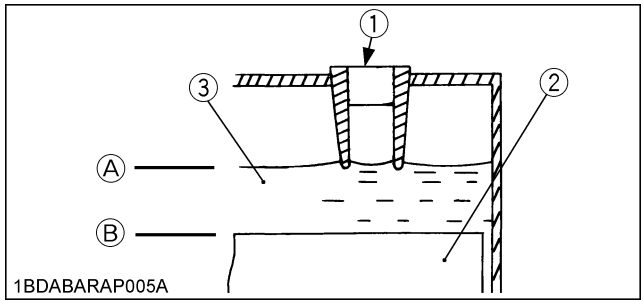
CAUTION

To avoid personal injury:

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

(For accessible maintainable type batteries with removable vent caps.)

1. Make sure each electrolyte level is at the bottom of vent wells, if necessary add distilled water in a well-ventilated area.



(1) Vent well
(2) Separator
(3) Electrolyte
(A) "HIGHEST LEVEL"
(B) "LOWEST LEVEL"

2. The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery. Excessive liquid spills over and damages the machine body.
3. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
4. A boost charge is only for emergencies. It will partially charge the battery at a higher rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as soon as possible. Failure to do this will shorten the battery's service life.

5. When the specific gravity of electrolyte reaches 1.27 to 1.29 charge has completed.
6. When exchanging an old battery with new one, use a battery of equal specification shown in "SPECIFICATIONS"

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

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

◆ **Direction for Storage**

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

EVERY 100 HOURS

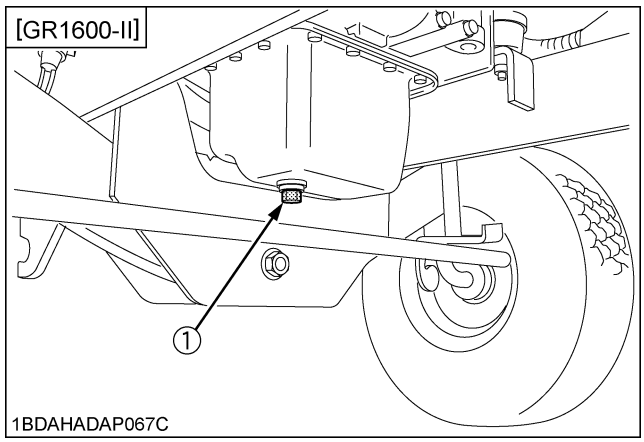
■Changing Engine Oil

CAUTION

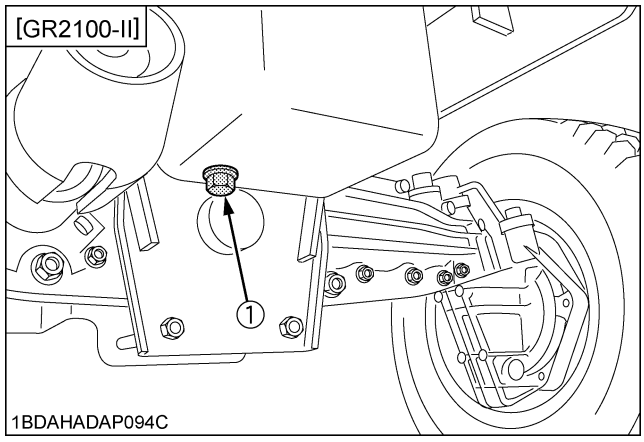
To avoid personal injury:

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



(1) Drain plug



(1) Drain plug

■Checking Fuel Lines and Fuel Filter

CAUTION

To avoid personal injury:

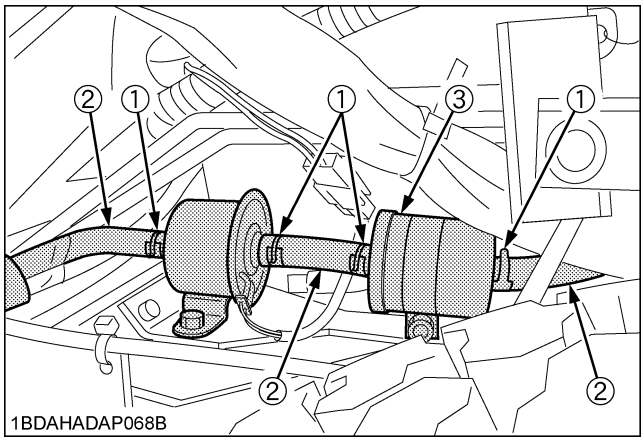
- **Be sure to stop the engine and remove the key when attempting to make the following checks and changes.**
- **Never fail to check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.**

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

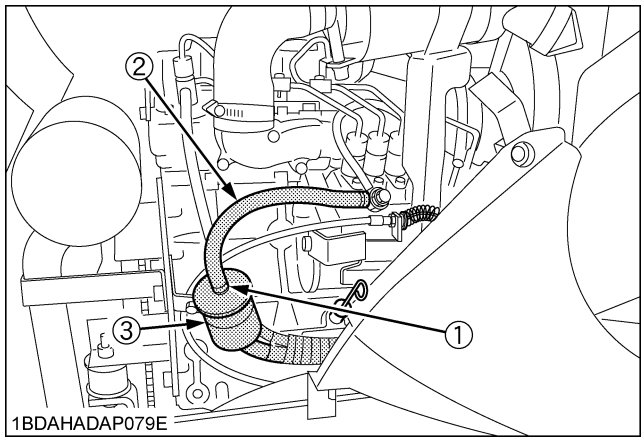
1. The fuel line is made of rubber and ages regardless of service period.
2. If the fuel line and clamps are found to be damaged or deteriorated, replace them.
3. Check fuel filter, if it is clogged by debris or contaminated with water, replace it.

IMPORTANT :

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



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



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

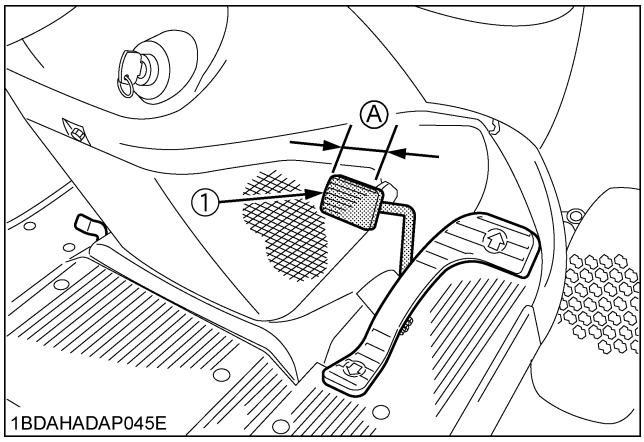
■Checking Brake

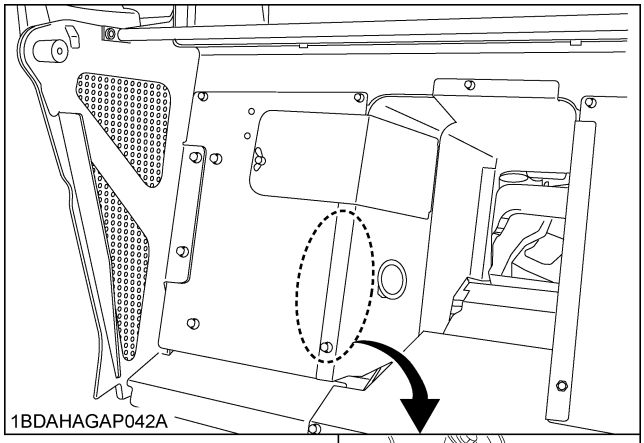
CAUTION

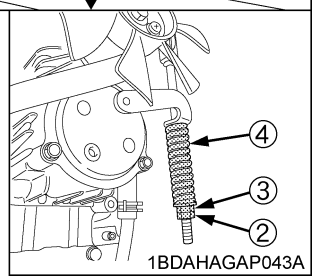
To avoid personal injury:

- **When making adjustments, park the machine on a flat area, block wheels, stop the engine and remove the key.**

Correct free travel ranges from 15 to 25 mm (0.59 to 0.98 in.). If it is not correct, loosen the lock nut (2) and turn the nut (3) in the desired direction until the proper free travel is achieved. After adjustment, retighten lock nut securely.







(1) Brake pedal
(2) Lock nut
(3) Nut
(4) Spring

(A) Free travel 15 to 25 mm (0.59 to 0.98 in.)

■Checking Fan Drive Belt Tension

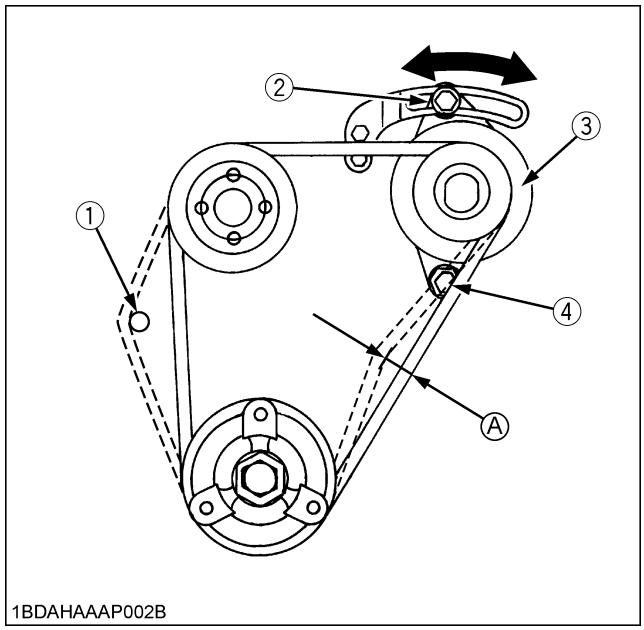
CAUTION

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 dynamo outward to tighten the belt. After adjustment, securely tighten the bolts.

Moderate belt tension:
The belt should deflect approx. 10 mm (0.39 in.) when the center of the belt is depressed with finger pressure of 98 N (10 kgf).



(1) Cap
(2) Tension bolt
(3) Dynamo
(4) Adjusting bolt

(A) 10 mm (0.39 in.)

IMPORTANT :

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

EVERY 150 HOURS

■Changing Gear Box Oil

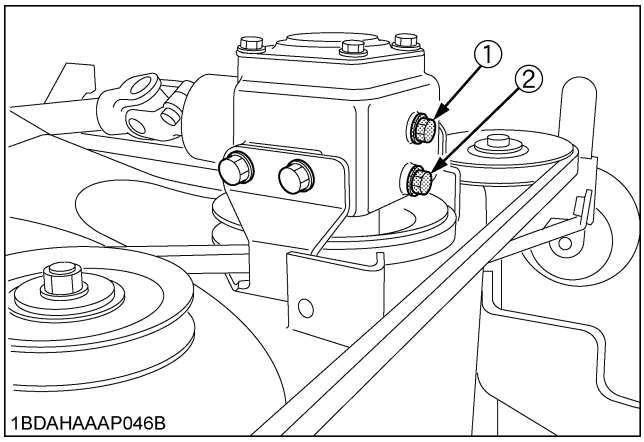
CAUTION

To avoid personal injury:

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

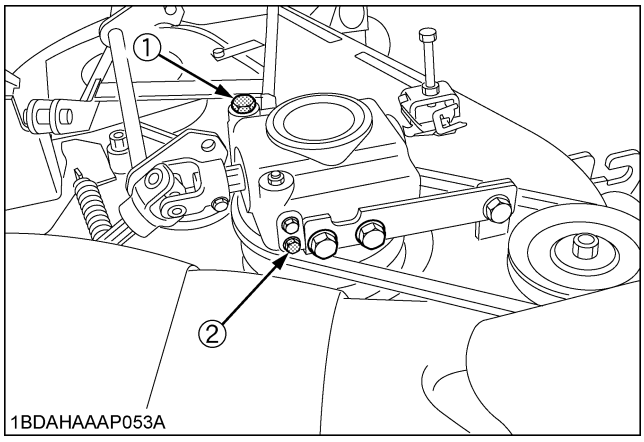
1. To drain the used oil, remove the filler plug and the drain plug at the gear box, tilt the mower deck and drain the oil completely into the oil pan.
2. Fill with the new oil.
   (See "LUBRICANTS" in "MAINTENANCE" section.)
3. After filling reinstall the filler plug.

[RCK42]



(1) Oil filler plug
(2) Drain plug

[RCK48]



(1) Oil filler plug
(2) Drain plug

EVERY 200 HOURS

■Replacing Engine Oil Filter Cartridge

CAUTION

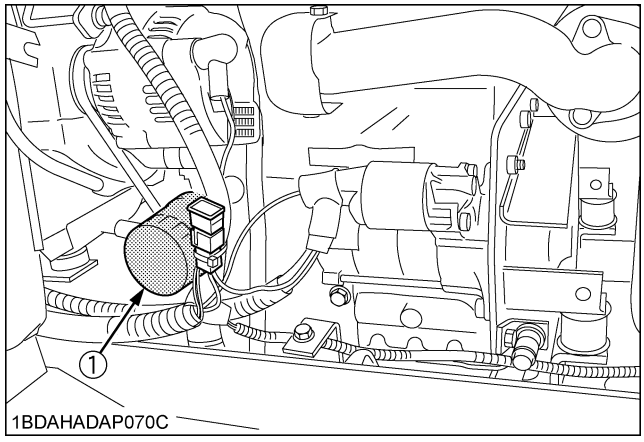
To avoid personal injury:

- **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 Fluid

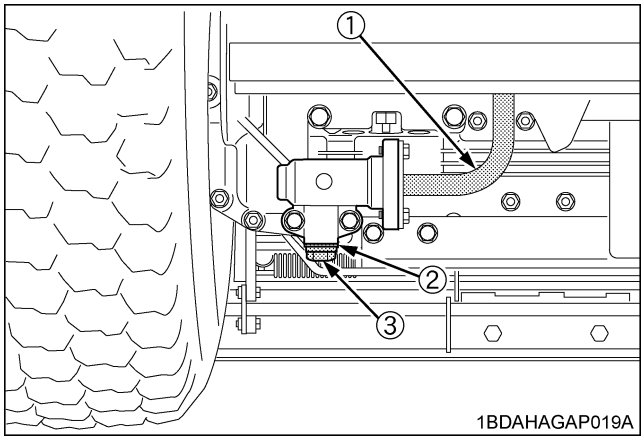
CAUTION

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.**

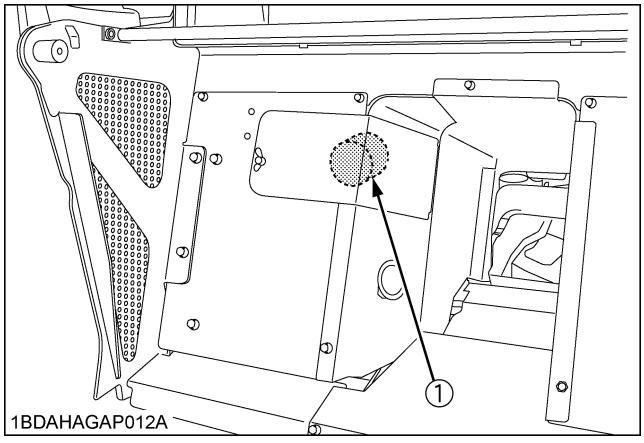
The fluid in the transmission case is also used for the hydrostatic drive system.

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



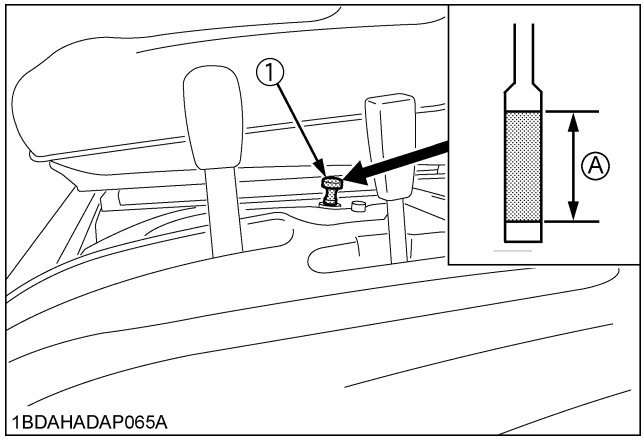
(1) Suction pipe
(2) Seal washer
(3) Drain plug

2. 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.



(1) Transmission oil filter cartridge

3. Remove the oil plug and fill with the new oil.
4. After running the engine for a few minutes, stop it and check the oil level again; add oil to the prescribed level.



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

NOTE :

- Check the oil level of the transmission case with the mower lifted up.

IMPORTANT :

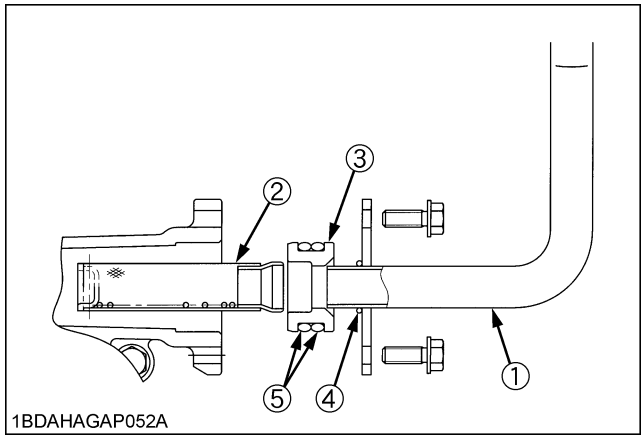
- Operate only at low RPM's immediately after changing the transmission fluid and filter cartridge.
  Keep the engine at medium speed for a few minutes to insure proper lubrication of all parts so there is no damage to transmission.
- Do not engage PTO before checking the oil level.

◆ 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.



(1) Suction pipe
(2) Strainer
(3) Boss
(4) O-ring (Small)
(5) O-ring (Large)

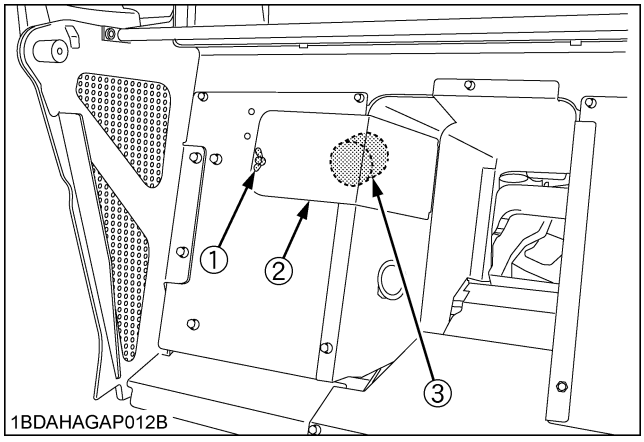
NOTE :
- Since the fine filings in the oil can damage the precision component parts of the hydraulic system, the end of the suction line is provided with an oil strainer.

■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.



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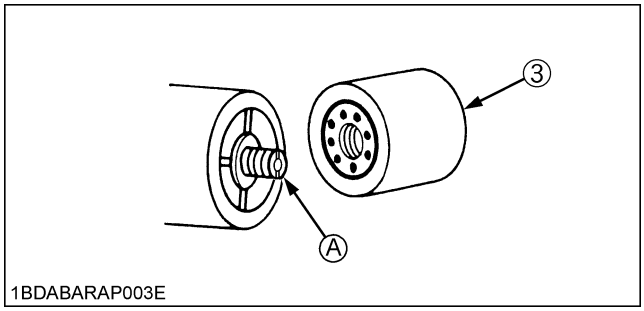


1BDABARAP003E

(1) Wing bolt
(2) Filter cover
(3) Transmission oil filter cartridge

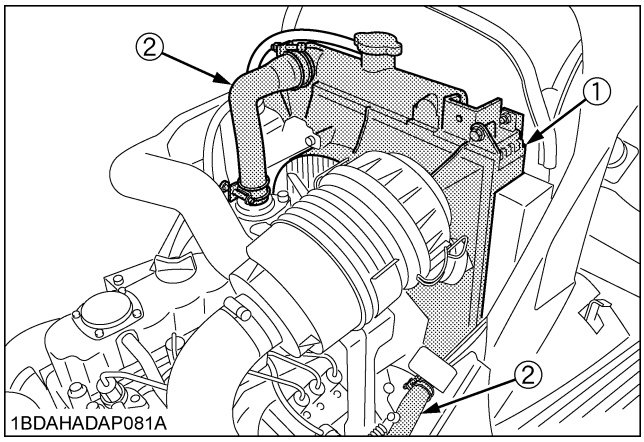
2. Remove the grass container and clean the area indicated. (See "GRASS CATCHER MOUNTING" section.)
3. Loosen the wing bolt and remove the filter cover. Then remove the oil filter cartridge by using the filter wrench.
4. Lightly tighten the screw (A) by using a screwdriver.
5. Apply a slight coat of oil onto the cartridge gasket.
6. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
7. Assemble the cover and mount the grass container.
8. 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 six 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

■Changing Front Axle Case Oil

[GR2100-II]

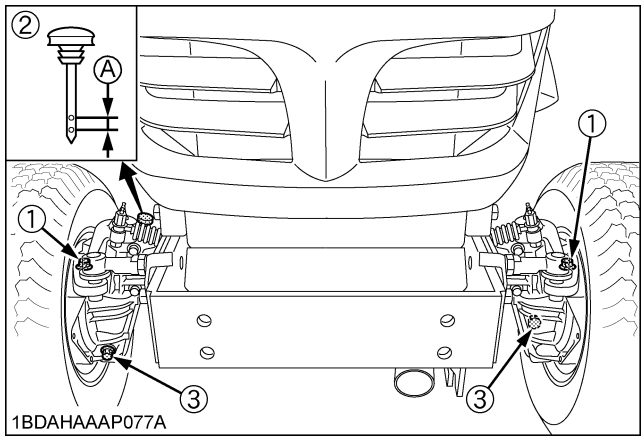
1. Park the machine on a firm, flat and level surface.
2. To drain the used oil, remove the right and left drain plugs and filling plug at the front axle case and drain the oil completely into the oil pan.
3. After draining reinstall the drain plugs.
4. Remove the right and left breather plugs.
5. Fill with the new oil up to the upper notch on the dipstick.
   (See "LUBRICANTS" in "MAINTENANCE" section.)

IMPORTANT :

- After ten minutes, check the oil level again; add oil to prescribed level.

6. After filling reinstall the filling plug and breather plugs.

Oil capacity	1.9 L (2.0 U.S.qts)



(1) Breather plug
(2) Filling plug with dipstick
(3) Drain plug
(A) Oil level is acceptable within this range

■Checking Hydraulic Hose

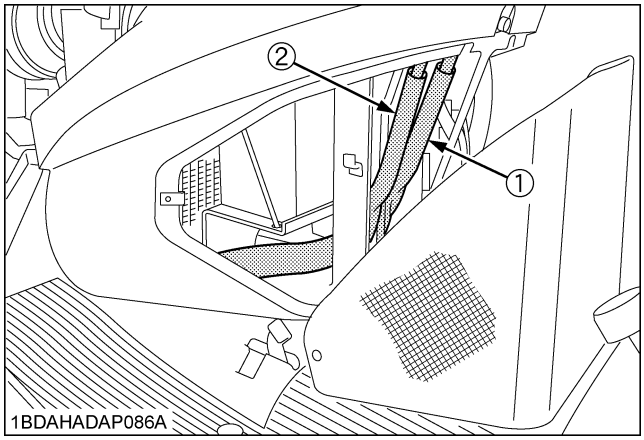
CAUTION

To avoid personal injury:

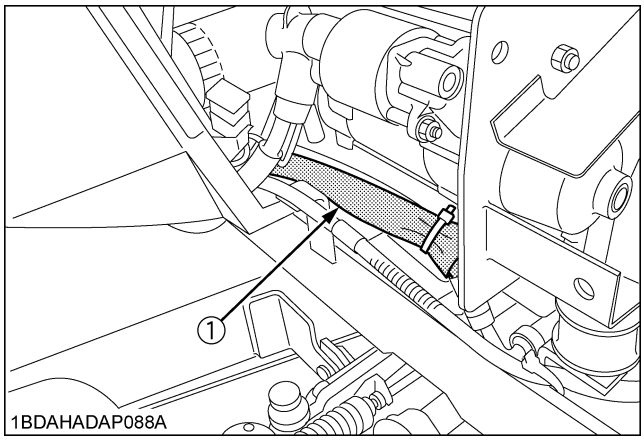
- **Be sure to stop the engine and remove the key before checking and replacing hydraulic hose.**
- **Allow transmission case to cool down sufficiently; oil can be hot and may cause burns.**

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

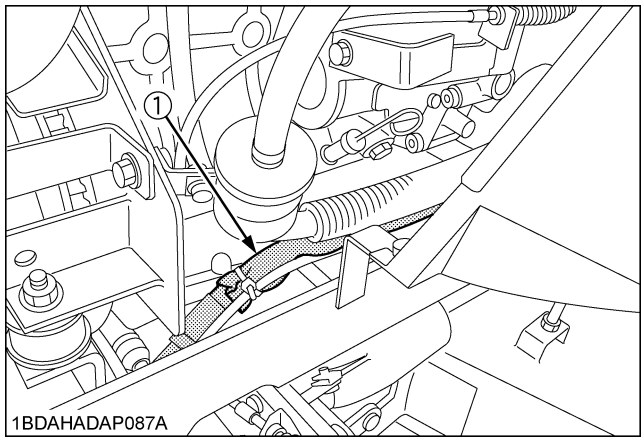
1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.



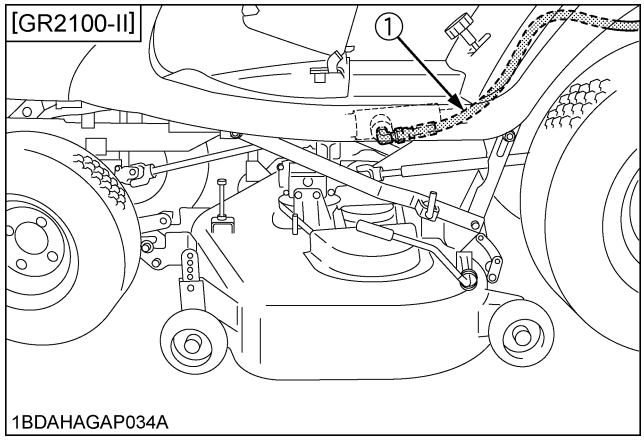
(1) Power steering hose (RH)
(2) Power steering hose (LH)



(1) Power steering hose (RH)



(1) Power steering hose (LH)



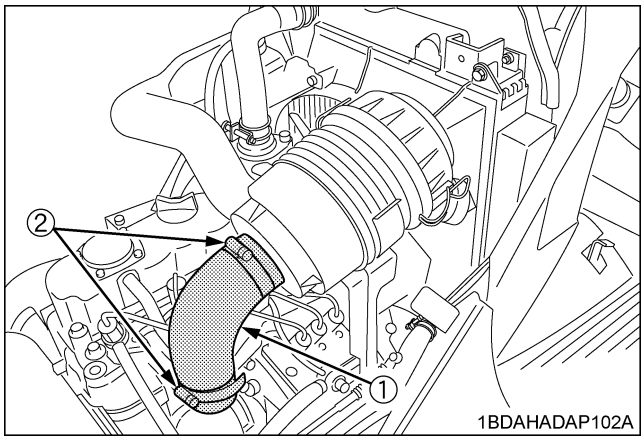
(1) Mower lift cylinder hose

■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 free travel of front axle.

■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 local KUBOTA Dealer.

EVERY 1500 HOURS

■Checking Fuel Injection Nozzle (Injection Pressure)

Consult your local KUBOTA Dealer for this service.

EVERY 3000 HOURS

■Checking Injection Pump

Consult your local KUBOTA Dealer for this service.

EVERY 1 YEAR

■Replacing Air Cleaner Element

Change the element once a year.

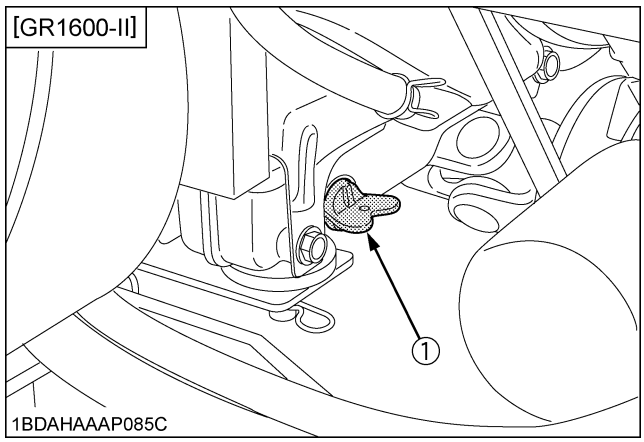
■Flush Cooling System and Changing Coolant

CAUTION

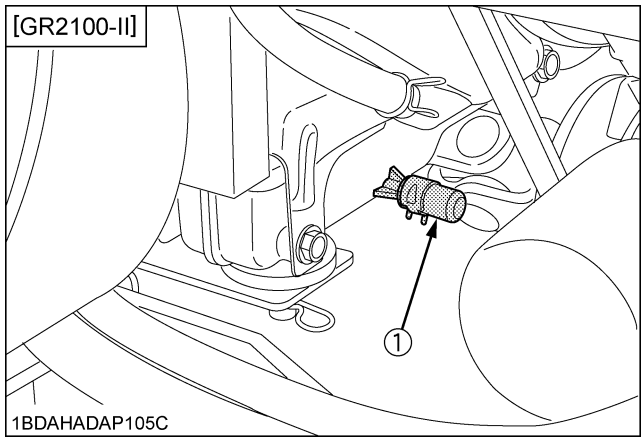
To avoid personal injury:

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

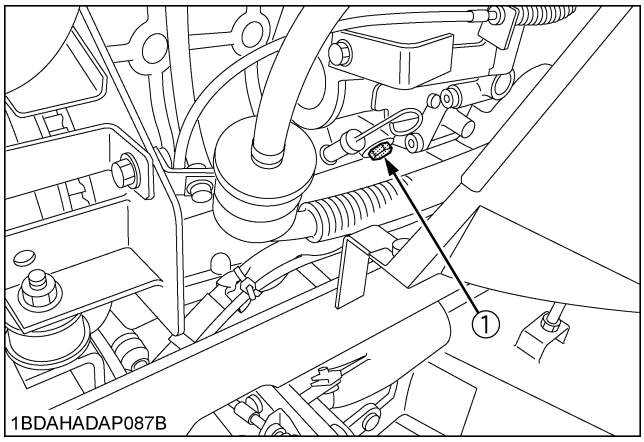
1. Stop the engine and let cool down.
2. To drain the coolant, remove the radiator drain plug and the engine drain plug, and remove the radiator cap. The radiator cap must be removed to completely drain the coolant.



(1) Radiator drain plug

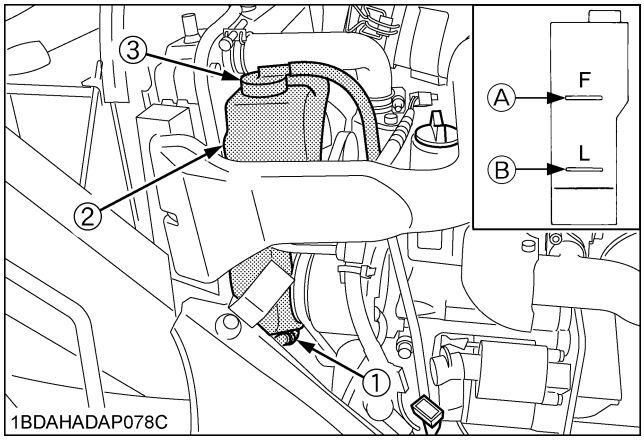


(1) Radiator drain plug



(1) Engine drain plug

3. After all coolant is drained, install the drain plugs.
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) Recovery tank
(3) Recovery tank cap
(A) "FULL"
(B) "LOW"

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

■Anti-freeze

CAUTION

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

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

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

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

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

* At 1.013X10^{5}Pa (760mmHg) pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

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

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

EVERY 2 YEARS

■Replacing Hydraulic Hose

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

■Replacing Fuel Lines

This should be done by your local KUBOTA Dealer.

■Replacing 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

This should be done by your KUBOTA Dealer.

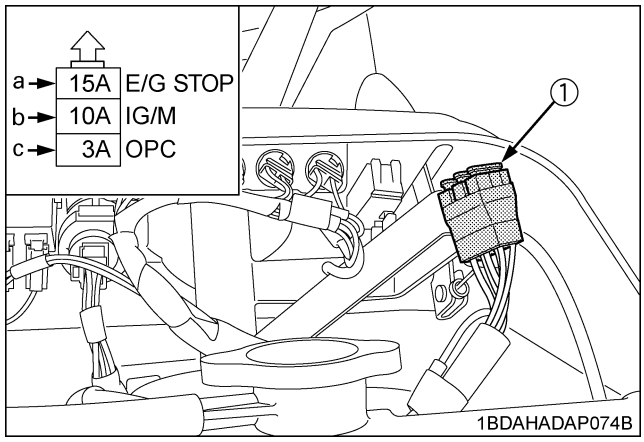
■Replacing Intake Air Line

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

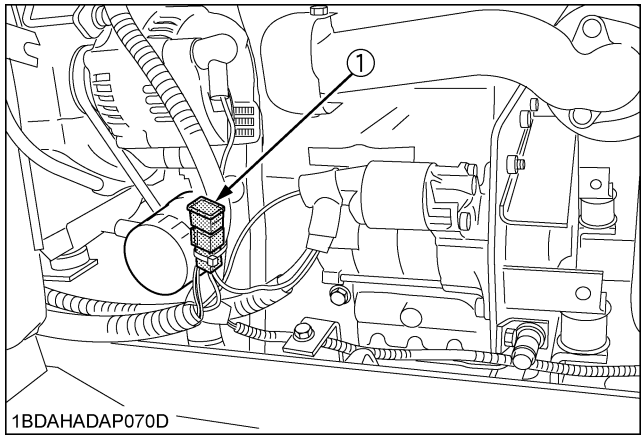
SERVICE AS REQUIRED

■Replacing Fuses

Replacement of the fuse.
1. Open the hood.
2. Remove the blown fuse.
3. Place a new 3A or 10A or 15A or 30A or 40A fuse in position.



(1) Fuse location



(1) 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)	E/G STOP	15	Engine stop timer relay
	IG/M	10	Fuel pump, Head light Power steering control unit, etc.
	---	3	OPC
(2)	---	Slow blow fuse 40	Check circuit against wrong battery connection

■Replacing bulbs

(A) Replacement of the headlight bulb

1. Open hood.
2. Turn bulb socket to remove socket from headlight housing.
3. Push bulb down and turn one quarter turn to remove bulb from the socket.
4. Install new bulb to the socket.
5. Install the socket in housing.
6. Close hood.

Headlight bulb	24W

(B) Replacement of the Indicator light bulb

1. Open hood.
2. Turn bad bulb socket to the left. And remove it.
3. Pull bulb from the socket.
4. Push new bulb into the socket.
5. Install the socket.
6. Close hood.

Indicator light bulb	14.0 Rated Voltage/0.27 AMP/2 MSCP

■Checking and Replacing Blade

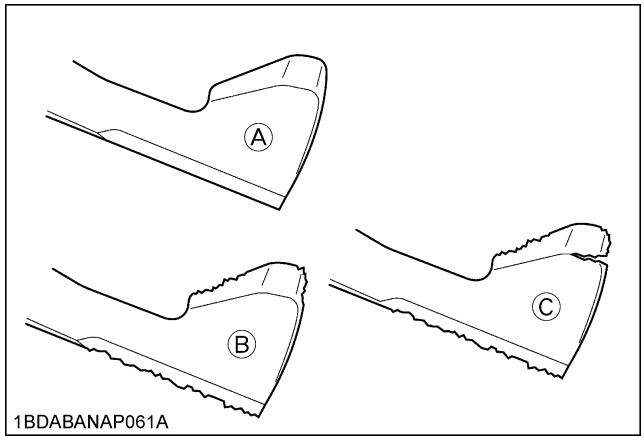
CAUTION

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).

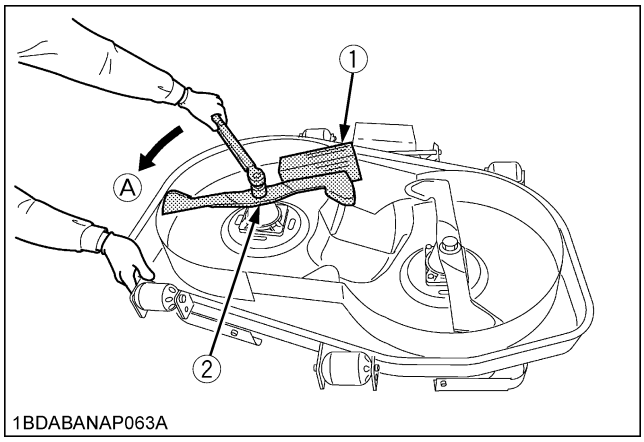


(A) New blade
(B) Worn blade
(C) Cracked blade

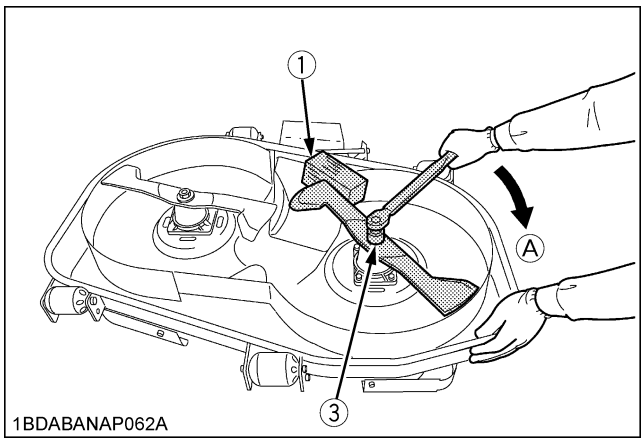
◆ **Replacing**

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.

[RCK42]



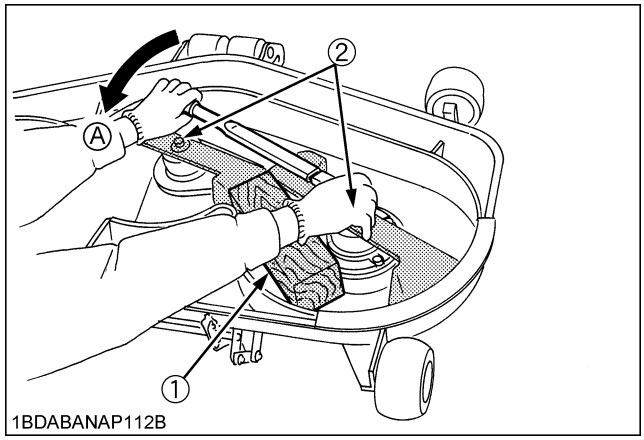
1BDABANAP063A



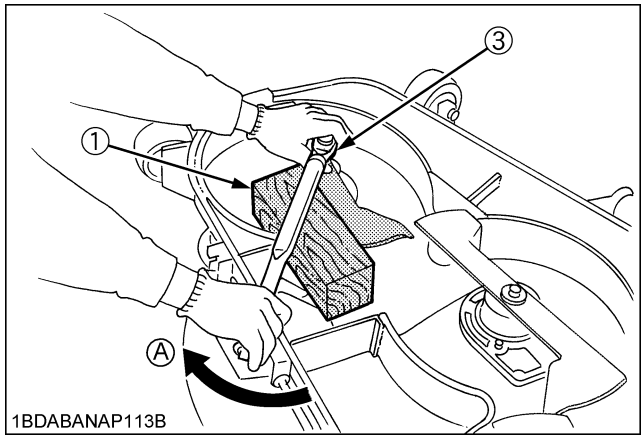
1BDABANAP062A

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

[RCK48]



1BDABANAP112B



1BDABANAP113B

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

NOTE :

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

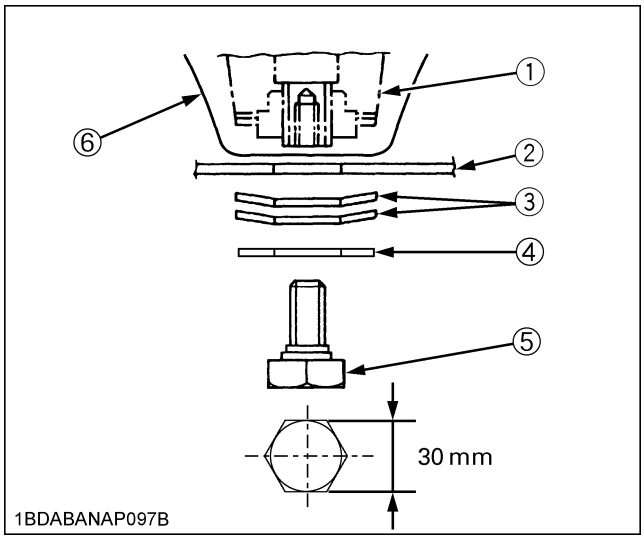
4. To sharpen the blades yourself, clamp the blade securely in a vise.
   Use a large mill file and file along the original bevel until sharp.
5. To check the blade for balance, place a small rod through the center hole. If the blade is not balanced, file the heavy side of the blade until balance is 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.

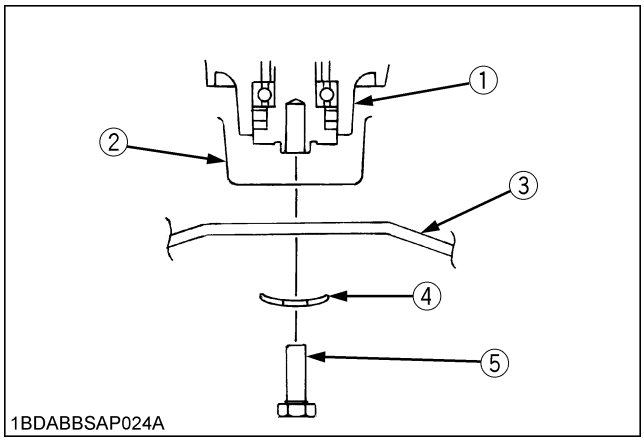
[RCK42]



(1) Spindle holder
(2) Blade
(3) 2-Cup washers
(4) Shim
(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.

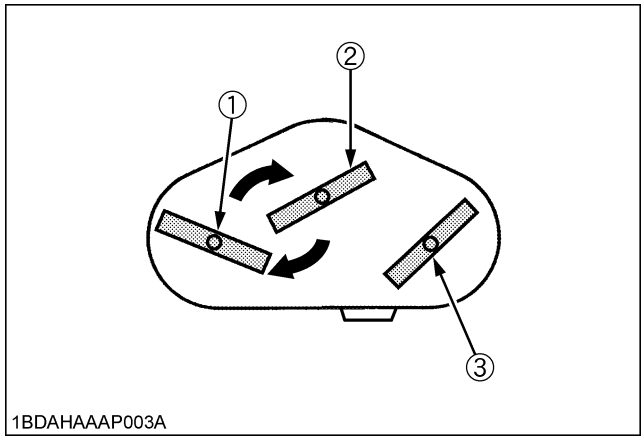
[RCK48]



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

IMPORTANT :
- Tighten the bolts of the outer blades from 103 to 118 N-m of torque.
- To prolong the service life of the blade, reposition to each other ((1), (2)) as shown.

[RCK48]

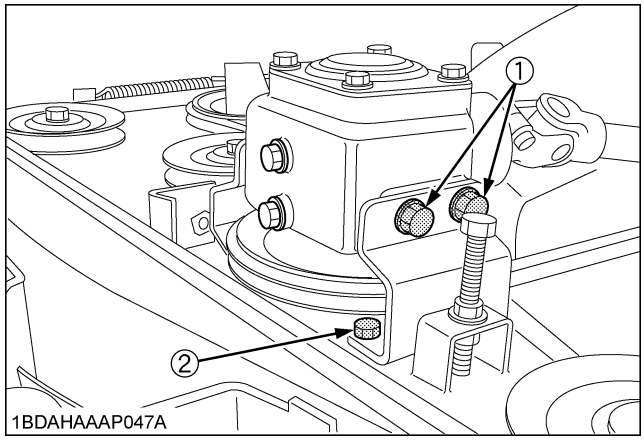


(1) LH blade
(2) Center blade
(3) RH blade (No reposition)

■Mower Belt Replacement

1. Remove the mower deck from the machine according to the procedure "DISMOUNTING THE MOWER DECK".
2. Remove the left and right hand shields from the mower deck.
3. Clean around the pulleys to remove the belt from the pulleys. Slip the belt over the top of the pulley.
4. Remove both brackets which mount the gear box to the mower deck.

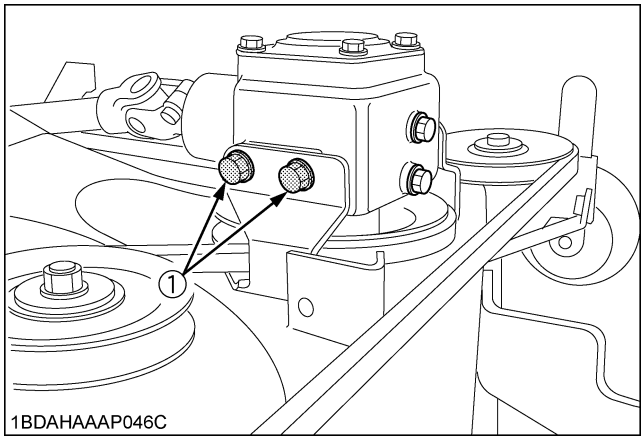
[RCK42]



(1) Bolt
(2) Bolt, nut

NOTE :
Tighten each bolt and nut with following torque.
- Bolt M12
  77.6 to 90.2 N-m (8.0 to 9.2 kgf-m)
- Bolt M10 and Nut M10
  48.1 to 55.9 N-m (4.9 to 5.7 kgf-m)

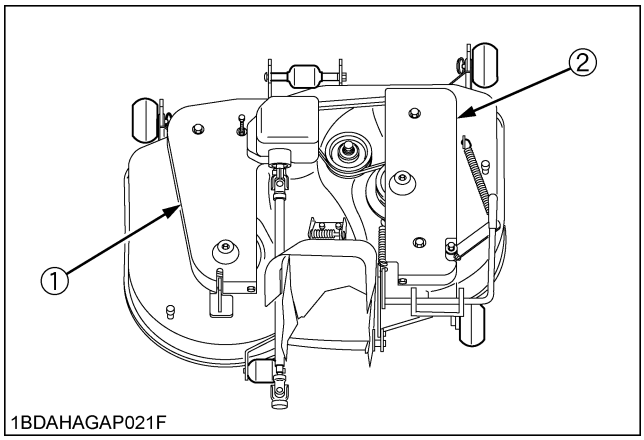
[RCK42]



(1) Bolt

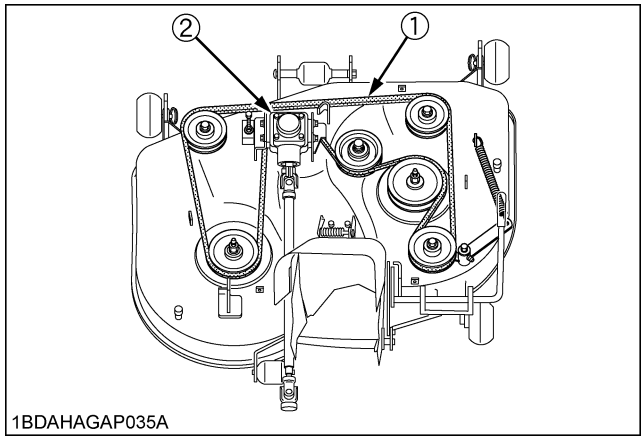
NOTE :
Tighten each bolt with following torque.
- Bolt M12
  77.6 to 90.2 N-m (8.0 to 9.2 kgf-m)

[RCK42]



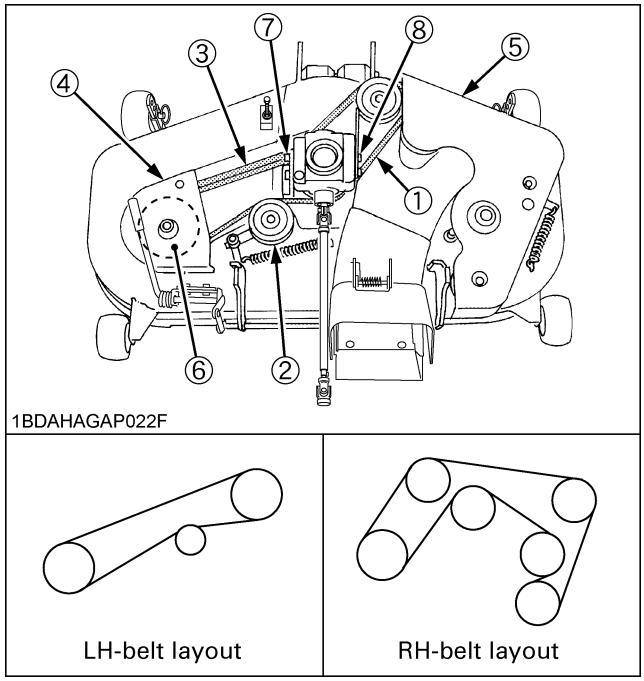
(1) Left hand shields
(2) Right hand shield

[RCK42]



(1) Belt
(2) Gear box

[RCK48]



(1) RH-belt
(2) Tension pulley
(3) LH-belt
(4) Left hand shield
(5) Right hand shield
(6) Left side pulley
(7) Reamer bolt
(8) Bolt

NOTE :
Tighten each bolt with following torque.
- Reamer bolt M12 and Bolt M12
  77.6 to 90.2 N-m (8.0 to 9.2 kgf-m)

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

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

■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.

ENGLISH

ADJUSTMENT

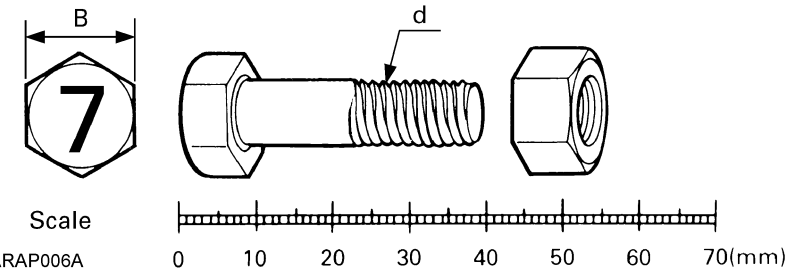
GENERAL TORQUE SPECIFICATION

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 
	(ft-lbs)	8 - 9.6	12 - 14.4		(ft-lbs)	7.2 - 8.3	
1/4	(N-m)	10.7 - 12.9	16.1 - 19.3	M6	(N-m)	9.81 - 11.3	
	(kgf-m)	1.11 - 1.33	1.66 - 1.99		(kgf-m)	1.0 - 1.15	
	(ft-lbs)	17 - 20.5	24 - 29		(ft-lbs)	17.4 - 20.2	21.7 - 25.3
5/16	(N-m)	23.1 - 27.8	32.5 - 39.3	M8	(N-m)	23.6 - 27.4	29.4 - 34.3
	(kgf-m)	2.35 - 2.84	3.31 - 4.01		(kgf-m)	2.4 - 2.8	3.0 - 3.5
	(ft-lbs)	35 - 42	45 - 54		(ft-lbs)	35.5 - 41.2	44.9 - 52.1
3/8	(N-m)	47.5 - 57.0	61.0 - 73.2	M10	(N-m)	48.1 - 55.8	60.8 - 70.5
	(kgf-m)	4.84 - 5.82	6.22 - 7.47		(kgf-m)	4.9 - 5.7	6.2 - 7.2
	(ft-lbs)	56 - 66	75 - 90		(ft-lbs)	57.2 - 66.5	76.0 - 86.8
7/16	(N-m)	75.9 - 89.5	101.7 - 122	M12	(N-m)	77.5 - 90.1	103 - 117
	(kgf-m)	7.74 - 9.12	10.37 - 12.44		(kgf-m)	7.9 - 9.2	10.5 - 12.0
	(ft-lbs)	80 - 96	110 - 132		(ft-lbs)	91.2 - 108	123 - 144
1/2	(N-m)	108.5 - 130.2	149.2 - 179.0	M14	(N-m)	124 - 147	167 - 196
	(kgf-m)	11.07 - 13.29	15.22 - 18.27		(kgf-m)	12.6 - 15.0	17.0 - 20.0
	(ft-lbs)	110 - 132	160 - 192		(ft-lbs)	145 - 166	192 - 224
9/16	(N-m)	149.2 - 179.0	217 - 260.4	M16	(N-m)	196 - 225	260 - 303
	(kgf-m)	15.22 - 18.27	22.14 - 26.57		(kgf-m)	20.0 - 23.0	26.5 - 31.0
	(ft-lbs)	150 - 180	220 - 264				
5/8	(N-m)	203.4 - 244.1	298.3 - 358.0				
	(kgf-m)	20.75 - 24.91	30.44 - 36.53				

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:

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

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

1. Repair parts as necessary.
2. Check bolts and nuts and tighten as necessary.
3. Apply grease or engine oil to parts most likely to rust.
4. Inflate the tires to a little above the standard pressure levels. (Approximately 110%)
5. Lower the mower to the ground.
6. Remove the battery from the machine, recharge it, adjust the electrolyte to the proper level, and store in a cool dry place.
   The battery discharges over time even while in storage. Recharge it once a month in hot seasons and once every two months in cold seasons.
7. Drain fuel tank, fuel lines.
8. Store the machine where it is dry and sheltered from rain. Cover the machine with a tarpaulin.
9. Moisture content in most grasses can damage the mower and grass catcher if 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 four tires are off the ground.
    Keep the tires out of direct sunlight and extreme heat.

IMPORTANT :

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

REMOVING THE MOWER FROM STORAGE

1. Check the tire inflation pressure and adjust as required.
2. Install the battery. Before installing the battery, be sure it is fully charged.
3. Do daily checking. (See "DAILY CHECK" in "PERIODIC SERVICE" section.)
4. Check all fluid levels. (engine oil, hydrostatic oil)
5. Start the engine. Shut the engine off and walk around the machine and make a visual inspection looking for evidence of oil or other fluids.
6. Run engine a couple of minutes before you put engine under load.
7. 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 the engine is not performing correctly, refer to the table below for the cause and its corrective measure.

If	Check
Engine is difficult to start.	● Fuel tank or fuel filter is clogged by dirt.
	● Air or water in the fuel system.
	● In winter, oil viscosity increases, and engine cranks slowly.
	● Battery is discharged.
Insufficient engine power.	● Air cleaner element is clogged. ● Insufficient fuel flow or quality.
Engine stops suddenly.	● Insufficient fuel.
Exhaust fumes are colored.	● Fuel quality is poor.
Black smoke is emitted from the muffler during operation; power output is lowered.	● Air cleaner element clogged.
Bluish white smoke is emitted from the muffler during operation.	● Too much engine oil.
Engine will not idle.	● Fuel filter is clogged.
Engine overheats.	● Low coolant level.
	● Loose or defective fan belt.
	● Coolant flow route corroded.

If you have any questions, contact your KUBOTA Dealer.

BATTERY TROUBLESHOOTING

If	Check
Starter does not function.	● Battery discharged.
	● Poor terminal connection.
	● Battery life expired.
When viewed from top, the top of plates looks whitish.	● Electrolyte level is low.
	● Battery was used too much without recharging.
Recharging is impossible.	● Battery life expired.
Terminals are severely corroded and heat up.	● Poor terminal connection or stained terminal.
Battery electrolyte level drops rapidly.	● There is a crack or pin holes in the electrolytic cells.
	● Charging system trouble.

MACHINE TROUBLESHOOTING

If	Check
Machine operation is not smooth.	● Hydrostatic transmission oil is low.
Machine does not move while engine is running.	● Parking brake is on. ● Transmission oil is insufficient.
Machine moves when speed control pedal is not depressed. (Engine is operated.)	● Hydrostatic neutral system is not correctly adjusted.

If you have any questions, contact your KUBOTA Dealer.

MOWER TROUBLESHOOTING

If	Check
Discharge chute plugged.	● Grass too wet. ● Grass too long. ● Cutting too low. ● Engine rpm too low. ● Ground speed too fast. ● Restricted airflow.
Streaking of uncut grass.	● Ground speed too fast. ● Engine rpm too low. ● Grass too long. ● Blades dull or damaged. ● Debris in mower deck.
Uneven cut.	● Mower deck not level. ● Ground speed too fast. ● Blades dull. ● Blades worn. ● Tire inflation. ● Mower rollers not adjusted correctly.
Blades scalping grass.	● Cutting height too low. ● Blades speed too fast. ● Ridges in terrain. ● Rough or uneven terrain. ● Bent blade(s). ● Low tire inflation. ● Anti-scalp rollers not adjusted correctly.
Belt slipping.	● Belt tension incorrect. ● Mower deck plugged. ● Debris in pulleys. ● Worn belt.
Excessive vibration.	● Debris on mower deck or in pulleys. ● Damaged drive belt or PTO belt twisted. ● Damaged pulleys. ● Pulleys out of alignment. ● Blades out of balance.
Mower loads down machine.	● Engine rpm too low. ● Ground speed too fast. ● Debris wrapped around mower spindles.
Grass tips are jagged and turn grayish brown.	● Blades dull. ● Blades worn. ● Mower deck is not level.

If you have any questions, contact your KUBOTA Dealer.

GRASS CATCHER TROUBLESHOOTING

If	Check
Discharge duct plugged.	● Grass too wet. ● Grass too long. ● Cutting too low. ● Engine rpm low. ● Ground speed too fast. ● Grass container full. ● Grass container net clogged.
Dumped and undischarged clippings.	● Duct plugged. ● Grass container full. ● Mower deck plugged. ● Grass container net clogged.

If you have any questions, contact your 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.

VIBRATION

Model	Engine Rated Speed	Vibration (*1)	
		Arm	Body
GR1600-II	3300 rpm	Below 2.6 m/s^2	Below 0.5 m/s^2
GR2100-II	3100 rpm		

(*1) Arm Vibration evaluated based on ISO 5349.
Body Vibration evaluated in field based on ISO 5008.