

Product: Kubota G23 G26 Service Manual

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WSM

WORKSHOP MANUAL

G23, G26

Kubota

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KISC issued 06, 2012 A

TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of the G23 and G26. It contains 4 parts: "**Information**", "**General**", "**Mechanism**" and "**Servicing**".

■ Information

This section contains information below.

- Safety First
- Safety Label
- Specification
- Dimension

■ General

This section contains information below.

- Engine Identification
- Model Identification
- General Precautions
- Maintenance Check List
- Check and Maintenance
- Special Tools

■ Mechanism

This section contains information on the structure and the function of the unit. Before you continue with the subsequent sections, make sure that you read this section.

Refer to the latest version of Workshop Manual (Code No. 9Y021-01870) for the diesel engine mechanism that this workshop manual does not include.

■ Servicing

This section contains information below.

- Troubleshooting
- Servicing Specifications
- Tightening Torques
- Checking, Disassembling and Servicing

All illustrations, photographs and specifications contained in this manual are of the newest information available at the time of publication.

KUBOTA reserves the right to change all information at any time without notice.

Since this manual includes many models, information or illustrations and photographs can show more than one model.

May, 2009

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I INFORMATION

INFORMATION

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1. SAFETY FIRST

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 repair or use this unit.

DANGER

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

WARNING

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

CAUTION

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

■ IMPORTANT

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

■ NOTE

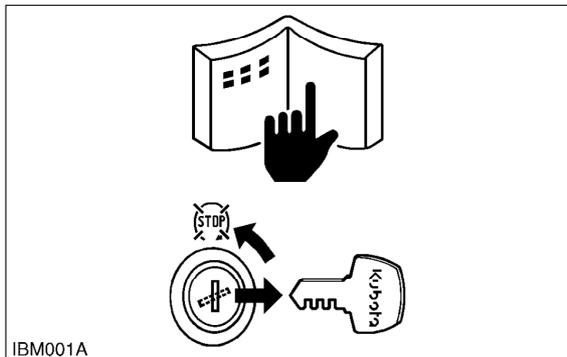
- Gives helpful information.

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BEFORE YOU START SERVICE

- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a stable and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, then remove the key.
- Disconnect the battery negative cable.
- Hang a "**DO NOT OPERATE**" tag in the operator station.

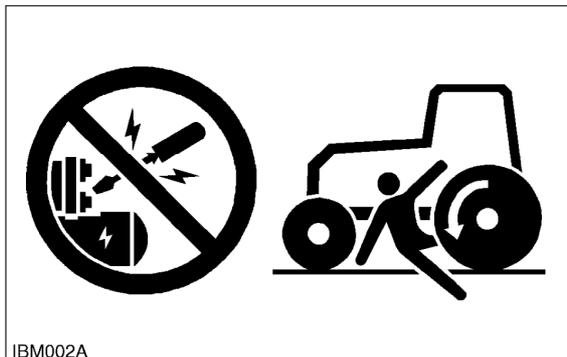
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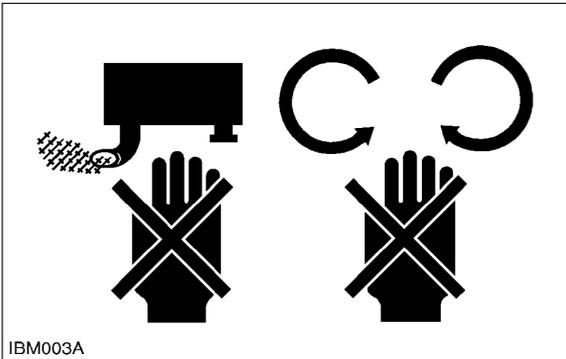


START SAFELY

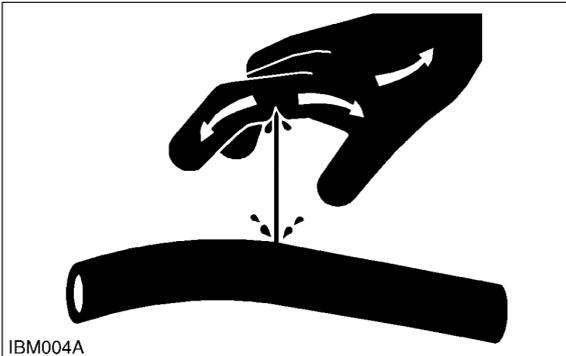
- Do not do the procedures below when you start the engine.
 - short across starter terminals
 - bypass the safety start switch
- Do not alter or remove any part of machine safety system.
- Before you start the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Do not start the engine when you stay on the ground. Start the engine only from operator's seat.

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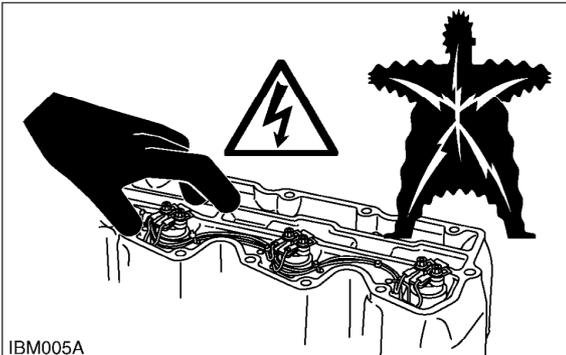




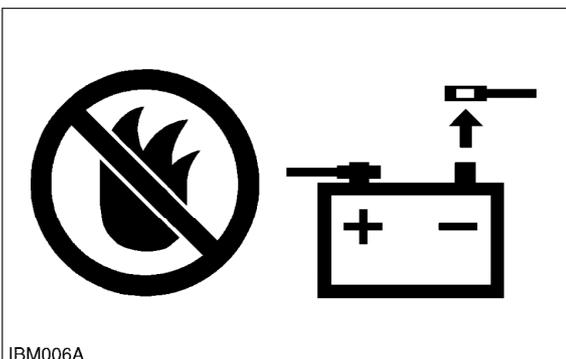
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OPERATE SAFELY

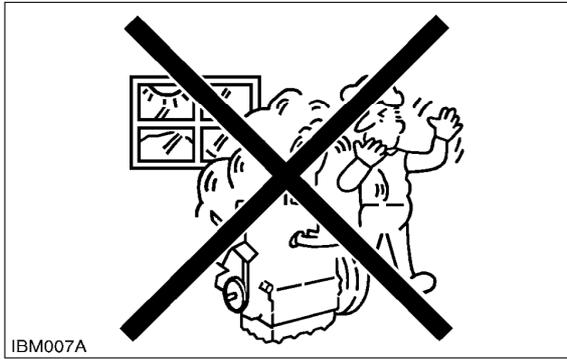
- Do not use the machine after you consume alcohol or medication or when you are tired.
- Put on applicable clothing and safety equipment.
- Use applicable tools only. Do not use alternative tools or parts.
- When 2 or more persons do servicing, make sure that you do it safely.
- Do not operate below the machine that only a jack holds. Always use a safety stand to hold the machine.
- Do not touch the hot parts or parts that turn when the engine operates.
- Do not remove the radiator cap when the engine operates, or immediately after it stops. If not, hot water can spout out from the radiator. Only remove the radiator cap when it is at a sufficiently low temperature to touch with bare hands. Slowly loosen the cap to release the pressure before you remove it fully.
- Released fluid (fuel or hydraulic oil) under pressure can cause damage to the skin and cause serious injury. Release the pressure before you disconnect hydraulic or fuel lines. Tighten all connections before you apply the pressure.
- Do not open a fuel system under high pressure. The fluid under high pressure that stays in fuel lines can cause serious injury. Do not disconnect or repair the fuel lines, sensors, or any other components between the fuel pump and injectors on engines with a common rail fuel system under high pressure.
- Put on an applicable ear protective device (earmuffs or earplugs) to prevent injury against loud noises.
- Be careful about electric shock. The engine generates a high voltage of more than DC100 V in the ECU and is applied to the injector.

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PREVENT A FIRE

- Fuel is very flammable and explosive under some conditions. Do not smoke or let flames or sparks in your work area.
- To prevent sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- The battery gas can cause an explosion. Keep the sparks and open flame away from the top of battery, especially when you charge the battery.
- Make sure that you do not spill fuel on the engine.

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KEEP A GOOD AIRFLOW IN THE WORK AREA

- If the engine is in operation, make sure that the area has good airflow. Do not operate the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.

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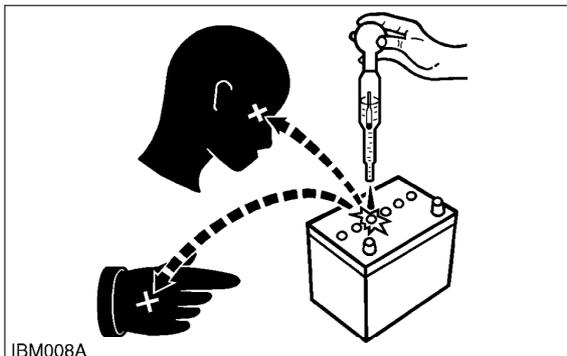


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DISCARD FLUIDS CORRECTLY

- Do not discard fluids on the ground, down the drain, into a stream, pond, or lake. Obey related environmental protection regulations when you discard oil, fuel, coolant, electrolyte and other dangerous waste.

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PREVENT ACID BURNS

- Keep electrolyte away from your eyes, hands and clothing. Sulfuric acid in battery electrolyte is poisonous and it can burn your skin and clothing and cause blindness. If you spill electrolyte on yourself, clean yourself with water, and get medical aid immediately.

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PREPARE FOR EMERGENCIES

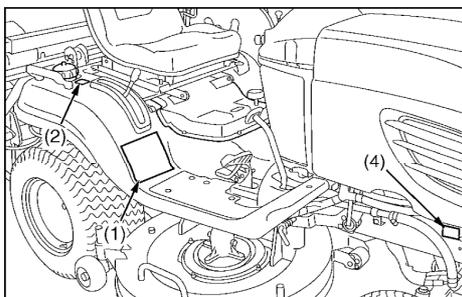
- Keep a first aid kit and fire extinguisher ready at all times.
- Keep the emergency contact telephone numbers near your telephone at all times.

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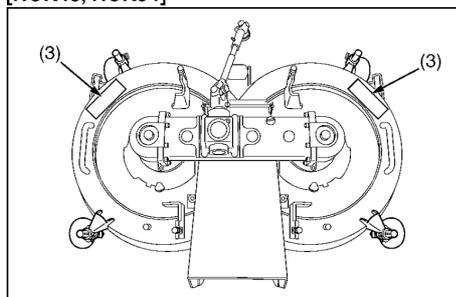
2. SAFETY DECALS

The following safety decals (pictorial safety labels) are installed on the machine. If a decal becomes damaged, illegible or is not on the machine, replace it. The decal part number is listed in the parts list.

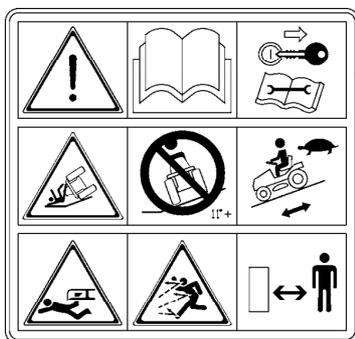
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[RCK48, RCK54]



(1) Part No. K2063-6551-1



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TO AVOID INJURY OR DEATH:

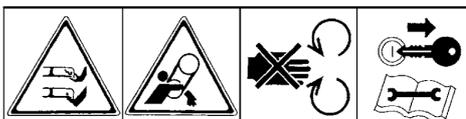
- Read and understand Operator's Manual.
- Stop the engine and remove key before servicing.
- DO NOT operator where machine could slip or tip.
- DO NOT operator on slopes of more than 11°.
- Mow up and down slopes, not across.
- DO NOT allow any bystanders or children around or near machine at any time the engine is running.

(2) Part No. K2110-6585-1



1BDAHADAP0300

(3) Part No. K5254-7311-1

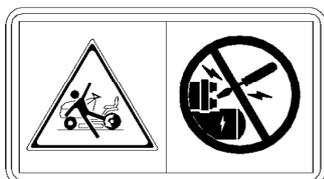


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ROTATING BLADES HAZARDOUS:

- 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.

(4) Part No. K2063-6555-1



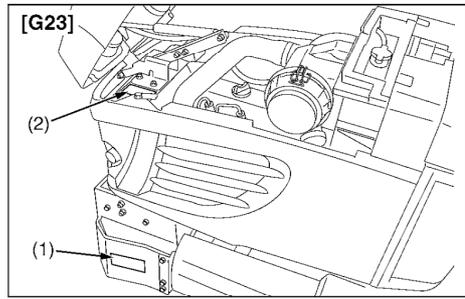
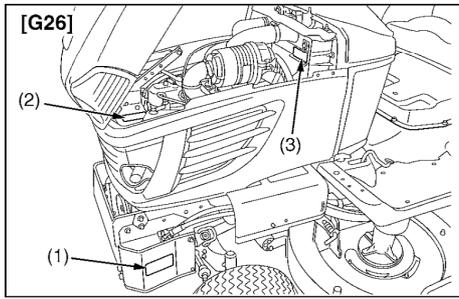
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TO AVOID MACHINE RUNAWAY:

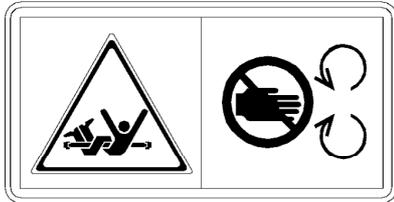
- DO NOT start engine by shorting across starter terminals or bypassing the safety start switch.

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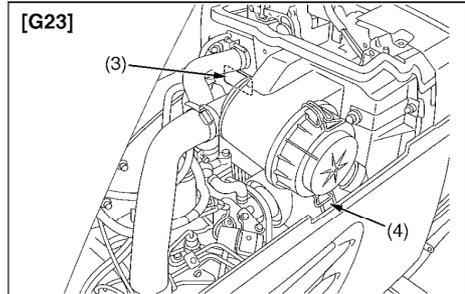
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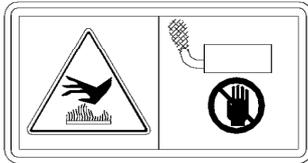
- (1) Part No. K2063-6554-1
Stay clear of the PTO belt.



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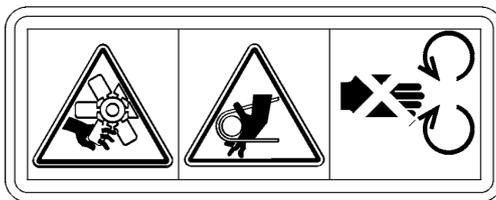
- (2) Part No. K2063-6553-1
Do not touch hot surface like muffler, etc..



1BDAEABAP1740

- (4) Part No. K2581-6547-1
Do not get your hands close to engine fan and fan belt.

- (3) Part No. K2581-6543-1
Do not get your hands close to engine fan and fan belt.

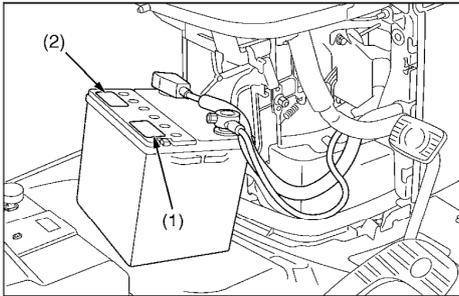


1AGAJAXAP052E



1AGAJAXAP049E

(1) Part No. K1211-6115-1



1BDAHADAP0240

DANGER / POISON:

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

(2) Part No. K1211-6116-1

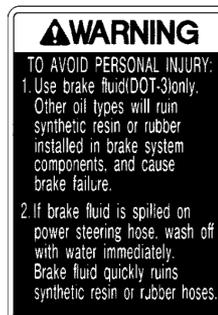
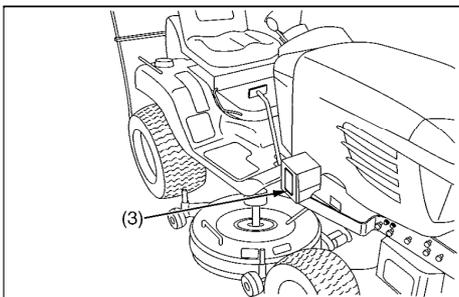


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**KEEP OUT OF THE REACH OF CHILDREN.
DO NOT TIP.
DO NOT OPEN BATTERY!**

- Flush eyes immediately with water.
- Get medical help fast.

(3) Part No. K7311-6549-2, K7311-6548-2

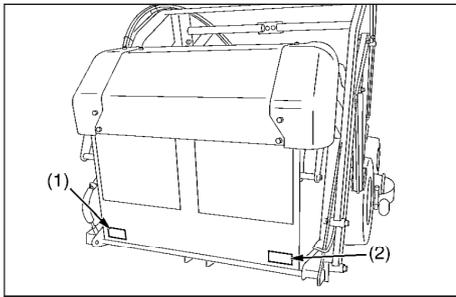


← K7311-6549-2

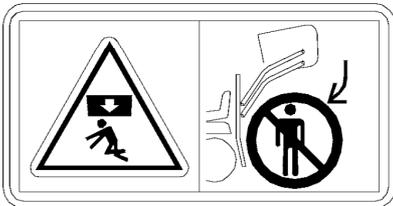


← K7311-6548-2

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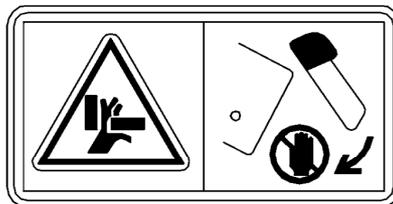


- (1) Part No. K6313-6583-2 [HD]
Do not put yourself below the grass container.
It may fall accidentally.



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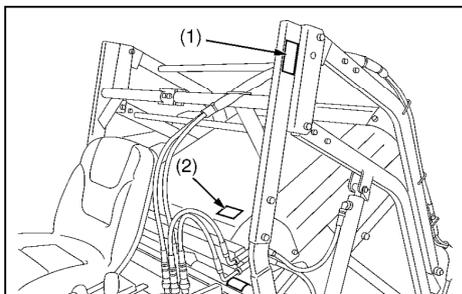
- (2) Part No. K6313-6582-1 [HD]
Do not reach your hands too close.
They may get caught.



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(1) Part No. K6313-6581-1 [HD]

Do not put yourself below the grass container.
It may fall accidentally.



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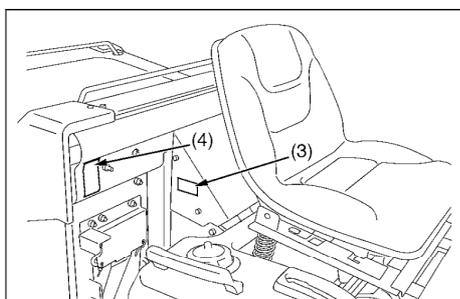
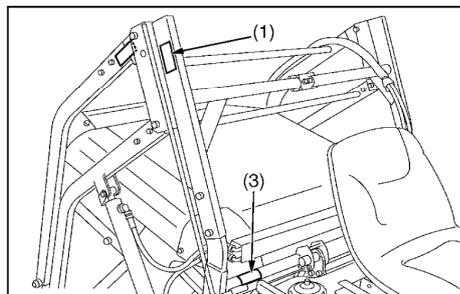
(2) Part No. K6313-6584-2 [HD]

WHEN USING THE UNIT YOU ARE ADVISED.

1. To reduce forward speed when cutting long or wet grass.
2. Never to raise the grass container while the tractor is on soft sloping or uneven ground.
3. Never drive the tractor or turn sharply while the grass container is raised.
4. Always disengage the PTO before raising the grass container.
4. Always to stop the tractor engine before clearing any blockages.
6. To fit counter weights to the front of the tractor.



1BDAEABAP1180



(3) Part No. K6312-6582-1 [HD, LD] (Both sides)

Do not reach your hands too close.
They may get caught.



1BDAEABAP1780

(4) Part No. K6312-6581-1 [LD] (Both sides)

Do not reach your hands too close.
They may get caught.



1BDAEABAP1790

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CARE OF PICTORIAL SAFETY LABELS

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

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3. SPECIFICATIONS

Model		G23		G26	
		LD	HD	LD	HD
Maximum gross power		17.1 kW (23.3 HP)		18.8 kW (25.5 HP)	
Engine	Model	D902-E3-GT		D1005-E3-GT	
	Type	Indirect injection, vertical, water cooled, 4-cycle diesel engine			
	Number of cylinders	3			
	Bore and stroke	72 × 73.6 mm (2.83 × 2.90 in.)		76 × 73.6 mm (2.99 × 2.90 in.)	
	Total displacement	898 cm ³ (54.8 cu.in.)		1001 cm ³ (61.1 cu.in.)	
	Rated revolution	3200 min ⁻¹ (rpm)			
	Combustion chamber	Spherical type (E-TVCS)			
	Fuel injection pump	Bosch MD type mini pump			
	Governor	Centrifugal ball mechanical governor			
	Injection nozzle	Bosch throttle type			
	Injection timing	0.28 to 0.31 rad (16 ° to 18 °) before T.D.C.			
	Injection order	1-2-3			
	Injection pressure	13.73 MPa (140 kgf/cm ² , 1991 psi)			
	Compression ratio	24 : 1			
	Lubricating system	Forced lubrication by gear pump			
	Cooling system	Pressurized radiator, forced circulation with water pump			
	Lubricating oil	API Service Classification CD, CE or CF Below 0 °C (32 °F) : SAE10W, SAE10W-30 or 15W-40 0 to 25 °C (32 to 77 °F) : SAE20, SAE10W-30 or 15W-40 Above 25 °C (77 °F) : SAE30, SAE10W-30 or 15W-40			
Starting system	Electric starter with battery				
Battery	12V, RC: 80 min, CCA: 535A				
Fuel	No.2-D diesel fuel (ASTM D975) [No.1-D diesel fuel, if temperature is below - 10 °C (14 °F)]				
Capacities	Fuel tank	20.5 L (5.4 U.S.gals, 4.5 Imp.gals)			
	Engine crankcase	3.1 L (3.3 U.S.qts, 2.7 Imp.qts)		3.5 L (3.7 U.S.qts, 3.1 Imp.qts)	
	Engine coolant (with recovery tank)	3.1 L (3.3 U.S.qts, 2.7 Imp.qts)		3.3 L (3.5 U.S.qts, 2.9 Imp.qts)	
	Transmission case	11.0 L (11.6 U.S.qts, 9.7 Imp.qts)			
	Mower gear case oil	1.9 L (2.0 U.S.qts, 1.7 Imp.qts)		2.1 L (2.2 U.S.qts, 1.8 Imp.qts)	
Tyres	Front	16 × 7.50-8 (4PR) Turf			
	Rear	24 × 12.00-12 (4PR) Turf			
Traveling speeds	Forward	0 to 15.5 km/h (0 to 9.6 mph)		0 to 17.0 km/h (0 to 10.6 mph)	
	Reverse	0 to 10.0 km/h (0 to 6.2 mph)			
Dimensions	Overall length (with grass collector), without front weight bracket for HD	2980 mm (117.3 in.)	3160 mm (124.4 in.)	3035 mm (119.5 in.)	3215 mm (126.6 in.)
	Overall width (with mower)	1226 mm (48.3 in.)		1418 mm (55.9 in.)	
	Overall height	1350 mm (53.1 in.)	1600 mm (63.0 in.)	1350 mm (53.1 in.)	1600 mm (63.0 in.)
	Wheel base	1390 mm (54.7 in.)		1460 mm (57.5 in.)	
	Tyeard	Front	900 mm (35.4 in.)		
Rear		840 mm (33.1 in.)			
Weight (Without mower deck and grass collector)		555 kg (1220 lbs)	520 kg (1150 lbs)	585 kg (1290 lbs)	555 kg (1220 lbs)
PTO		Shaft drive			
PTO clutch		Belt tension		Wet disks	
Revolution (PTO speed)		2600 min ⁻¹ (rpm)			
PTO brake		Shoe		Wet disks	
Steering		Hydrostatic type power steering			
Transmission		Hydrostatic transmission			
Brakes	Rear	Dry disk brake			
	Parking brake	Rear wheel, hand lever			
Travel speed control		Foot pedal			

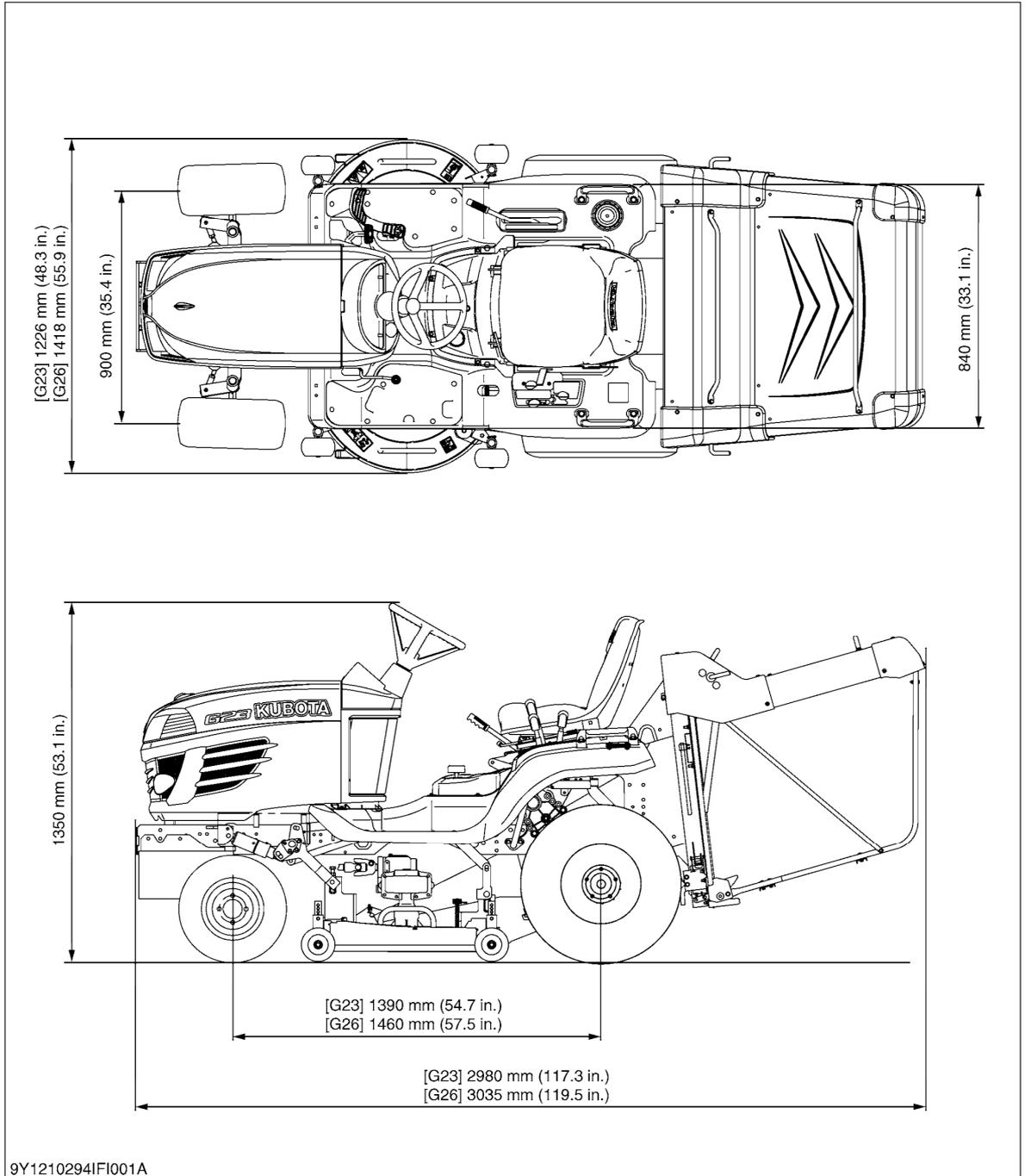
Model		G23		G26	
		LD	HD	LD	HD
Mower	Model	RCK48-G23		RCK54-G26	
	Total length	895 mm (35.2 in.)		980 mm (38.6 in.)	
	Total width	1266 mm (49.8 in.)		1418 mm (55.8 in.)	
	Total height	400 mm (15.8 in.)			
	Mounting method	Quick joint, parallel linkage			
	Adjustment of cutting height	Dial gauge			
	Cutting width	1219 mm (48.0 in.)		1372 mm (54.0 in.)	
	Cutting height	25 to 102 mm (1.0 to 4.0 in.)			
	Number of blades	2			
	Weight (Approx.)	120 kg (265 lbs)		135 kg (298 lbs)	
Discharge direction	Rear side				
Grass collector	Model	GCK-G23LD		GCK-G26HD	
	Container capacity	560 L (148 U.S.gals, 110 Imp.gals)		640 L (169 U.S.gals, 141 Imp.gals)	
	Weight (Approx.)	35 kg (77 lbs)		220 kg (485 lbs)	
	Dumping height	-		1930 mm (76.0 in.)	

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

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4. DIMENSIONS

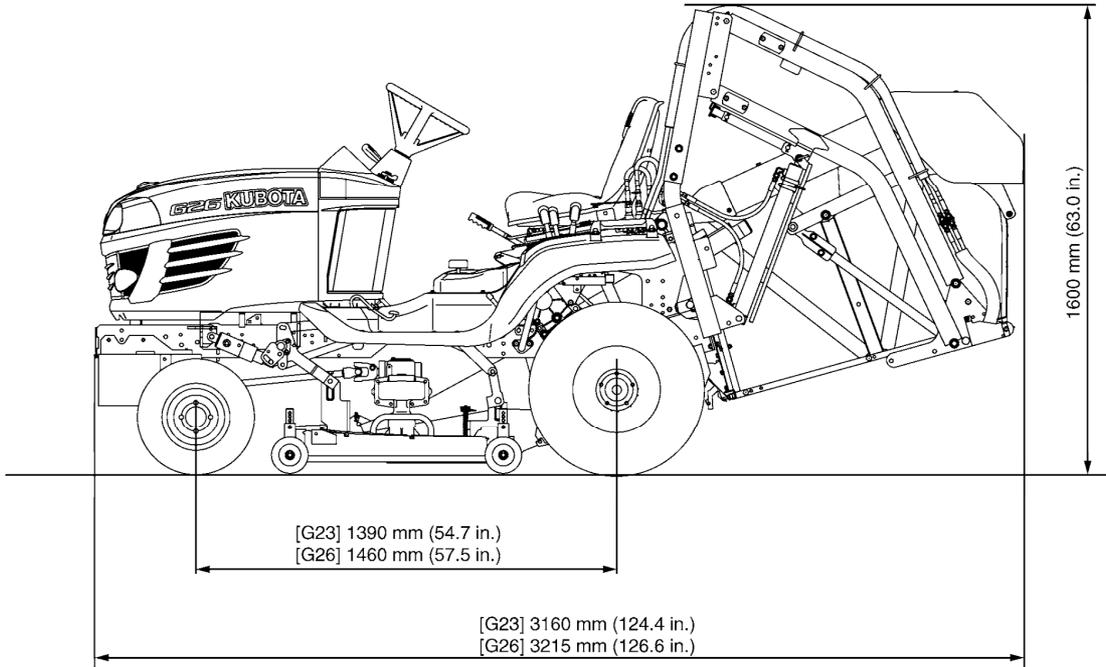
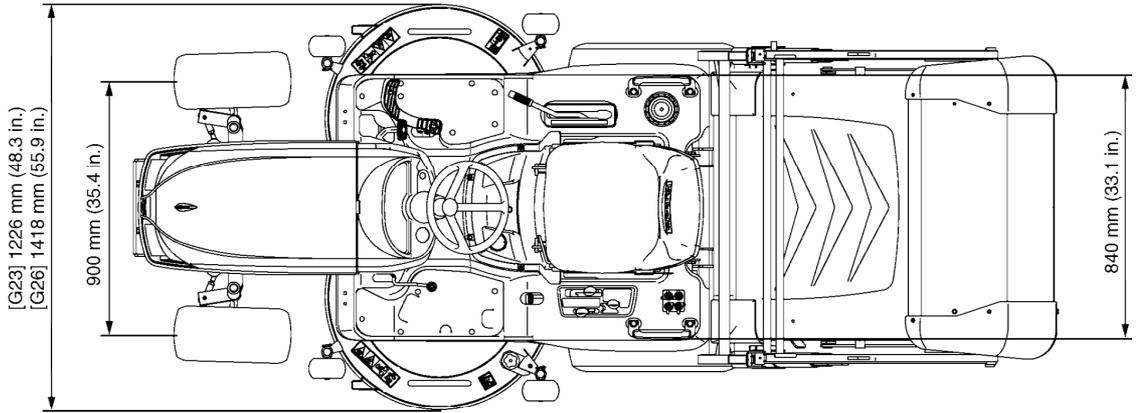
LD



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HD



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G GENERAL

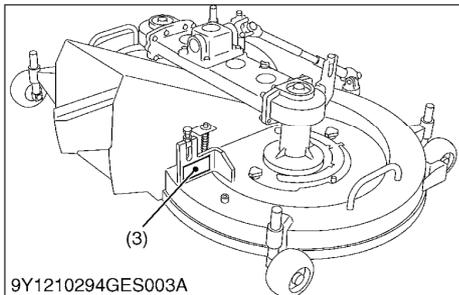
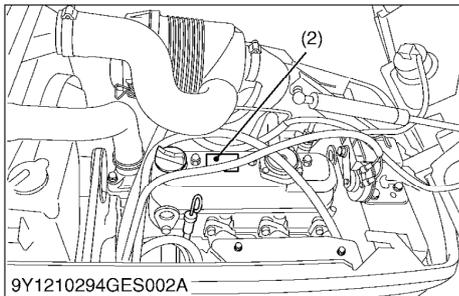
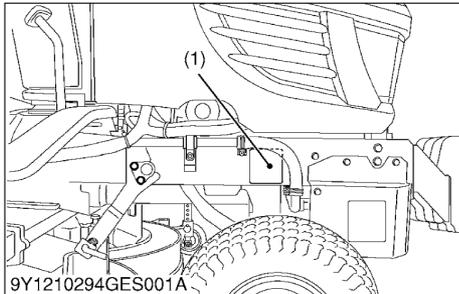
GENERAL

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1. TRACTOR IDENTIFICATION

[1] SERIAL NUMBER

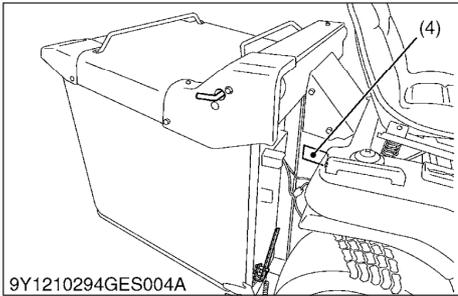


When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number and hour meter reading.

- (1) Machine Serial Number
- (2) Engine Serial Number
- (3) Mower Serial Number

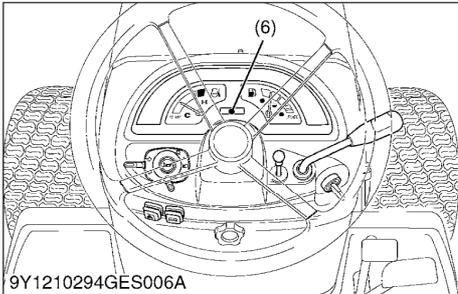
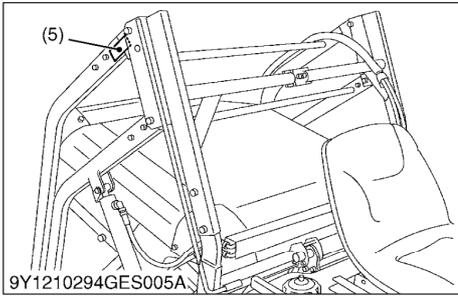
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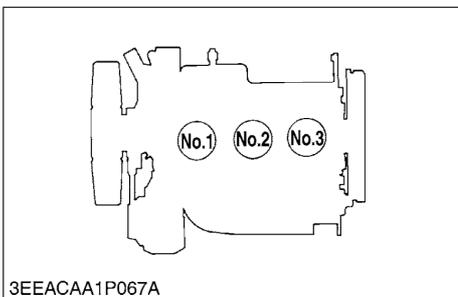


- (4) Grass Catcher Serial Number (LD) (6) Hour Meter / Tachometer
- (5) Grass Catcher Serial Number (HD)

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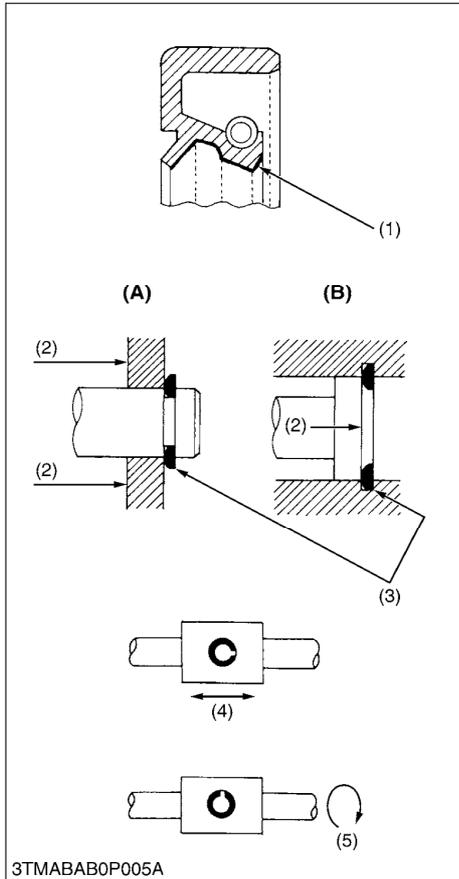
[2] CYLINDER NUMBER



You can see the cylinder numbers of KUBOTA diesel engine in the figure. The sequence of cylinder numbers is No. 1, No. 2 and No. 3 and it starts from the gear case side.

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2. GENERAL PRECAUTIONS



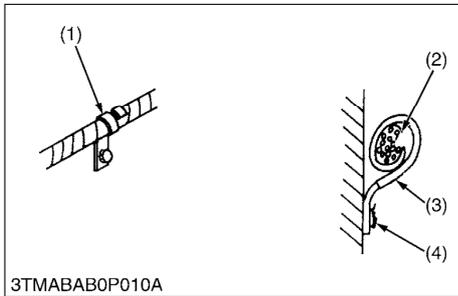
3TMABAB0P005A

- When you disassemble, carefully put the parts in a clean area to make it easy to find the parts. You must install the screws, bolts and nuts in their initial position to prevent the reassembly errors.
- When it is necessary to use special tools, use KUBOTA special tools. Refer to the drawings when you make special tools that you do not use frequently.
- Before you disassemble or repair machine, make sure that you always disconnect the ground cable from the battery first.
- Remove oil and dirt from parts before you measure.
- Use only KUBOTA genuine parts for replacement to keep the machine performance and to make sure of safety.
- You must replace the gaskets and O-rings when you assemble again. Apply grease (1) to new O-rings or oil seals before you assemble.
- When you assemble the external or internal snap rings, make sure that the sharp edge (3) faces against the direction from which force (2) is applied.
- When inserting spring pins, their splits must face the direction from which a force is applied. See the figure left side.
- To prevent damage to the hydraulic system, use only specified fluid or equivalent.

- (1) Grease
- (2) Force
- (3) Sharp Edge
- (4) Axial Force
- (5) Rotating Movement

- (A) External Snap Ring
- (B) Internal Snap Ring

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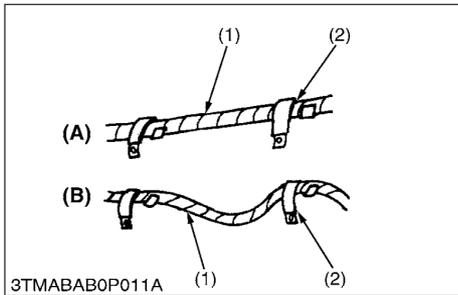


3TMABAB0P010A

• Securely clamp, being careful not to damage wiring.

- (1) Clamp (Wind Clamp Spirally)
- (2) Wire Harness
- (3) Clamp
- (4) Welding Dent

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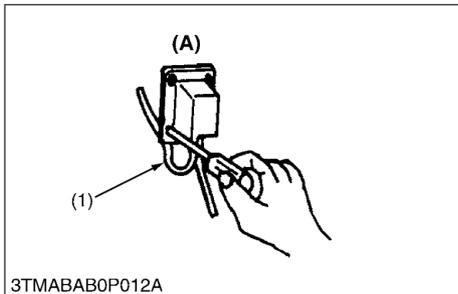


3TMABAB0P011A

• Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag be required.

- (1) Wiring
- (2) Clamp
- (A) Correct
- (B) Incorrect

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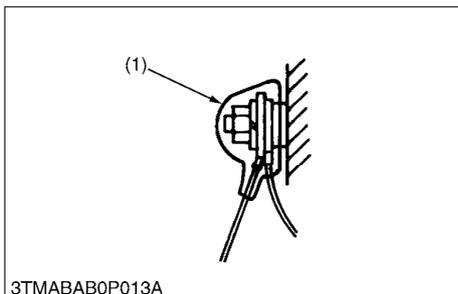


3TMABAB0P012A

• In installing a part, take care not to get wiring caught by it.

- (1) Wiring
- (A) Incorrect

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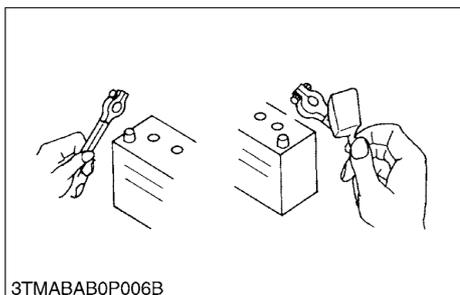
3TMABAB0P013A

• After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover (Securely Install Cover)

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[2] BATTERY



3TMABAB0P006B

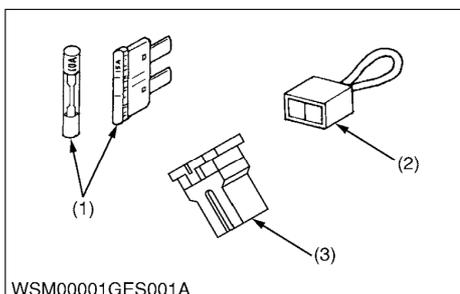
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting cables to battery terminal posts, apply high temperature grease to them and securely install terminal covers on them.
- Do not allow dirt and dust to collect on battery.

⚠ CAUTION

- Take care not to let battery liquid spill on your skin and clothes. If contaminated, wash it off with water immediately.
- Before recharging the battery, remove it from the machine.
- Before recharging, remove cell caps.
- Do recharging in a well-ventilated place where there is no open flame nearby, as hydrogen gas and oxygen are formed.

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[3] FUSE



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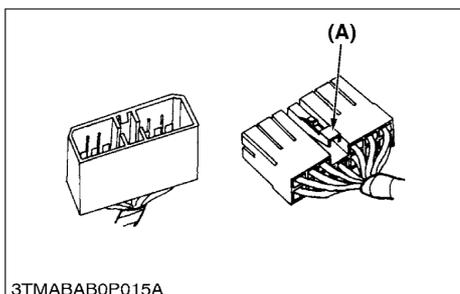
- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of reserve power supply is exceeded.

(1) Fuse
(2) Fusible Link

(3) Slow Blow Fuse

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[4] CONNECTOR

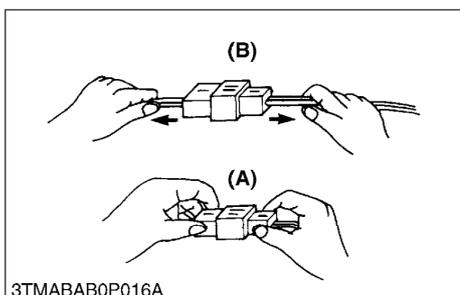


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- For connector with lock, push lock to separate.

(A) Push

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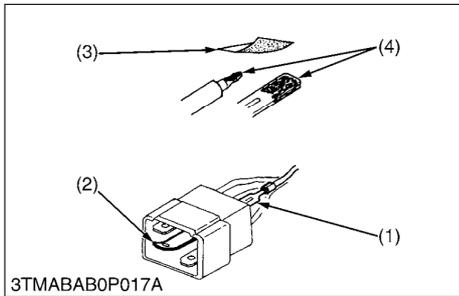
3TMABAB0P016A

- In separating connectors, do not pull wire harnesses.
- Hold connector bodies to separate.

(A) Correct

(B) Incorrect

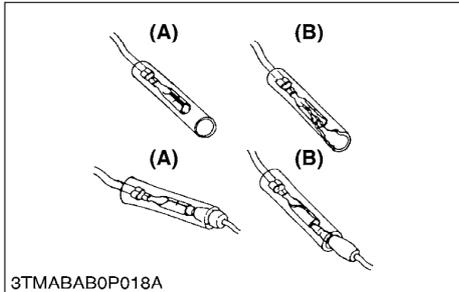
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- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

- (1) Exposed Terminal
- (2) Deformed Terminal
- (3) Sandpaper
- (4) Rust

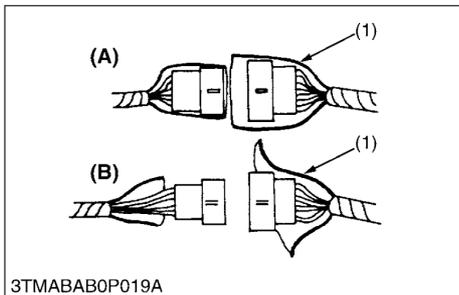
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- Make certain that there is no female connector being too open.

- (A) Correct
- (B) Incorrect

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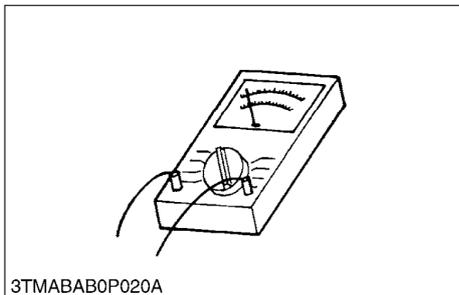


- Make certain plastic cover is large enough to cover whole connector.

- (1) Cover
- (A) Correct
- (B) Incorrect

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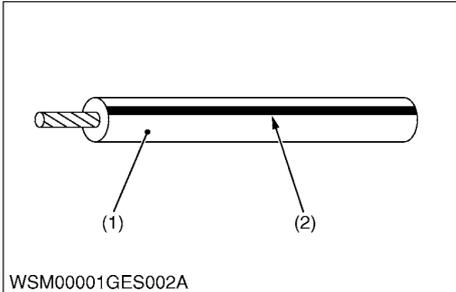
[5] HANDLING OF CIRCUIT TESTER



- Use tester correctly following manual provided with tester.
- Check for polarity and range.

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[6] COLOR OF WIRING



- Colors of wire are specified to the color codes.
- This symbol of "/" shows color with stripe(s).

(An example)

Red stripe on white color: W/R

Color of wiring	Color code
Black	B
Brown	Br
Green	G
Gray	Gy or Gr
Blue	L
Light Green	Lg
Orange	Or
Pink	P
Purple	Pu or V
Red	R
Sky Blue	Sb
White	W
Yellow	Y

(1) Wire Color

(2) Stripe

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4. LUBRICANTS, FUEL AND COOLANT

No.	Place	Capacities				Lubricants
		G23		G26		
		LD	HD	LD	HD	
1	Fuel	20.5 L 5.42 U.S.gals 4.51 Imp.gals				<ul style="list-style-type: none"> No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10°C (14°F)
2	Coolant (with recovery tank)	3.1 L 3.3 U.S.qts 2.7 Imp.qts		3.3 L 3.5 U.S.qts 2.9 Imp.qts		Fresh clean water with anti-freeze
3	Engine crankcase	3.1 L* 3.3 U.S.qts 2.7 Imp.qts		3.5 L* 3.7 U.S.qts 3.1 Imp.qts		Engine oil API Service Classification CD, CE or CF <ul style="list-style-type: none"> Above 25°C (77°F) SAE30W, SAE10W-30 or 15W-40 0 to 25°C (32 to 77°F) SAE20, SAE10W-30 or 15W-40 Below 0°C (32°F) SAE10W, SAE10W-30 or 15W-40
4	Transmission case	11.0 L 11.6 U.S.qts 9.7 Imp.qts				KUBOTA UDT or SUPER UDT fluid*
5	Mower gear box	1.9 L 2.0 U.S.qts 1.7 Imp.qts		2.1 L 2.2 U.S.qts 1.8 Imp.qts		KUBOTA UDT or SUPER UDT fluid*
6	Brake fluid (reservoir and lines)	0.2 L 0.2 U.S.qts 0.2 Imp.qts				KUBOTA DOT3 GENUINE BRAKE FLUID

Greasing							
No.	Place	No. of greasing point				Capacity	Type of grease
		G23		G26			
		LD	HD	LD	HD		
7	Front axle (King pin)	2				Until grease overflows	Multipurpose EP2 grease (NLGI Grade No.2)
	Front axle (Centre pin)	1					
	Brake pedal link	9					
	HST speed change pedal dumper	2					
	HST pedal boss	1					
	Tension PTO arm	1					
	PTO (Spline)	1					
	Parking lock pedal link	2					
	Parking brake lever link	1					
	Cruise control link	2					
	Differential lock pedal link	4					
	Under duct pivot	4					
	Sensor system pivot	2					
	Duct cleanup system link	4					
	Seat adjuster	2					
	Seat pivot	2					
Throttle cable	1				Moderate amount	Oil	
Mower universal joint	3				Until grease overflows	Multipurpose EP2 grease (NLGI Grade No.2)	
Mower universal joint (Grease nipple)	2						
Mower lift cylinder	5						
Mower lift arm front (RH)	1						
Mower lift link front	3						
Mower lift arm rear (LH, RH)	4						
Mower lift pin front (LH, RH)	2						
Mower lift link rear (LH, RH)	4						
Dump cylinder	2	–	2	–			
Grass container rotation pivot	4	–	4	–			
Lock lever (LH, RH)	2	–	2	–			
Grass container pivot (Grease nipple) (LH, RH)	–	10	–	10			
Grass container lift cylinder (LH, RH)	–	4	–	4			
Dump pivot (LH, RH)	–	2	–	2			

■ **NOTE**

- * Oil amount when the oil level is at the upper level of the oil lever gauge.
- * KUBOTA original transmission hydraulic fluid.
- Check the oil lever of the transmission case with the mower lifted up and grass catcher lowered.

■ **IMPORTANT**

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

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■ **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 in the table.
- 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.
Do not mix different brands together.
- **Brake fluid:**
Always use KUBOTA DOT3 GENUINE BRAKE FLUID from a sealed container. If it is not available, you should use only DOT3 fluid as temporary replacement from a sealed container.
However, the use of any non-KUBOTA brake fluid can cause corrosion and decrease the life of the system.
Have the brake system flushed and refilled with KUBOTA DOT3 GENUINE BRAKE FLUID as soon as possible.
- Indicated capacity of water and oil are manufacturer's estimate.

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5. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLTS AND NUTS

Screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual should be tightened according to the table below.

Indication on top of bolt	 No-grade or 4T						 7T						 9T					
Indication on top of nut	  No-grade or 4T												   6T					
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness					
Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft			
M6	7.9	0.80	5.8	7.9	0.80	5.8	9.81	1.00	7.24	7.9	0.80	5.8	12.3	1.25	9.05			
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to			
	9.3	0.95	6.8	8.8	0.90	6.5	11.2	1.15	8.31	8.8	0.90	6.5	14.2	1.45	10.4			
M8	18	1.8	13	17	1.7	13	24	2.4	18	18	1.8	13	30	3.0	22			
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to			
	20	2.1	15	19	2.0	14	27	2.8	20	20	2.1	15	34	3.5	25			
M10	40	4.0	29	32	3.2	24	48	4.9	36	40	4.0	29	61	6.2	45			
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to			
	45	4.6	33	34	3.5	25	55	5.7	41	44	4.5	32	70	7.2	52			
M12	63	6.4	47	-	-	-	78	7.9	58	63	6.4	47	103	10.5	76.0			
	to	to	to	-	-	-	to	to	to	to	to	to	to	to	to			
	72	7.4	53	-	-	-	90	9.2	66	72	7.4	53	117	12.0	86.7			
M14	108	11.0	79.6	-	-	-	124	12.6	91.2	-	-	-	167	17.0	123			
	to	to	to	-	-	-	to	to	to	-	-	-	to	to	to			
	125	12.8	92.5	-	-	-	147	15.0	108	-	-	-	196	20.0	144			
M16	167	17.0	123	-	-	-	197	20.0	145	-	-	-	260	26.5	192			
	to	to	to	-	-	-	to	to	to	-	-	-	to	to	to			
	191	19.5	141	-	-	-	225	23.0	166	-	-	-	304	31.0	224			
M18	246	25.0	181	-	-	-	275	28.0	203	-	-	-	344	35.0	254			
	to	to	to	-	-	-	to	to	to	-	-	-	to	to	to			
	284	29.0	209	-	-	-	318	32.5	235	-	-	-	402	41.0	296			
M20	334	34.0	246	-	-	-	368	37.5	272	-	-	-	491	50.0	362			
	to	to	to	-	-	-	to	to	to	-	-	-	to	to	to			
	392	40.0	289	-	-	-	431	44.0	318	-	-	-	568	58.0	419			

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[2] STUD BOLTS

Material of opponent part	Ordinariness			Aluminum		
Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
M8	12	1.2	8.7	8.9	0.90	6.5
	to	to	to	to	to	to
	15	1.6	11	11	1.2	8.6
M10	25	2.5	18	20	2.0	15
	to	to	to	to	to	to
	31	3.2	23	25	2.6	18
M12	30	3.0	22	31	3.2	23
	to	to	to	-	-	-
	49	5.0	36	-	-	-
M14	62	6.3	46	-	-	-
	to	to	to	-	-	-
	73	7.5	54	-	-	-
M16	98.1	10.0	72.4	-	-	-
	to	to	to	-	-	-
	112	11.5	83.1	-	-	-
M18	172	17.5	127	-	-	-
	to	to	to	-	-	-
	201	20.5	148	-	-	-

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