

Product: Kubota WSM RTV400Ci Utility Vehicle Service Repair Workshop Manual

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# WSM

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## WORKSHOP MANUAL UTILITY VEHICLE

# RTV400Ci

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# Kubota

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## TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of the RTV400Ci. It contains 4 parts: "**Information**", "**General**", "**Mechanism**" and "**Servicing**".

### ■ **Information**

This section primarily contains information below.

- Safety First
- Safety Decal
- Specification
- Dimension

### ■ **General**

This section primarily 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 / 9Y021-18200) for the diesel engine / tractor mechanism that this workshop manual does not include.

### ■ **Servicing**

This section primarily 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.

**February, 2012**

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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.

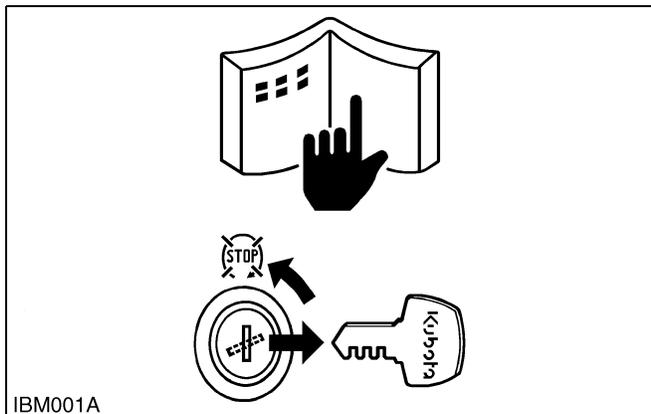
### ■ IMPORTANT

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

### ■ NOTE

- Gives helpful information.

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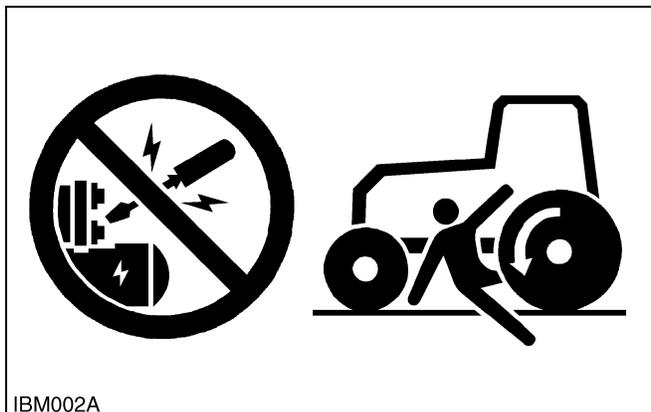


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### BEFORE YOU START SERVICE

- 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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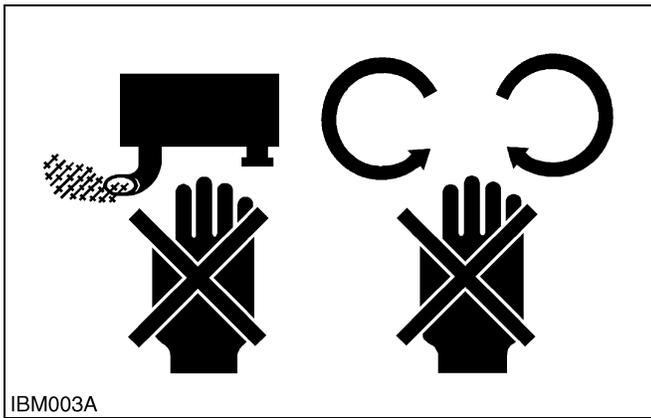


IBM002A

### 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.

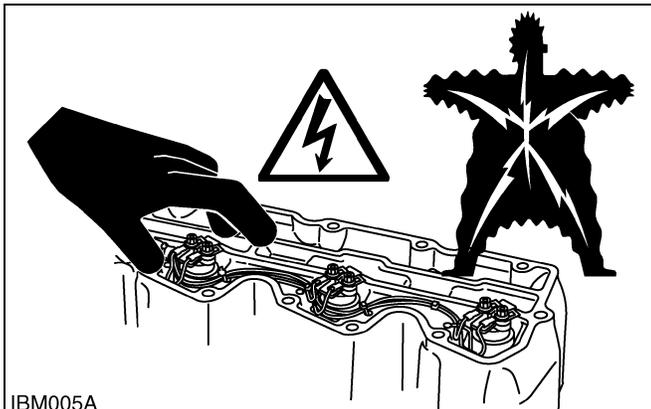
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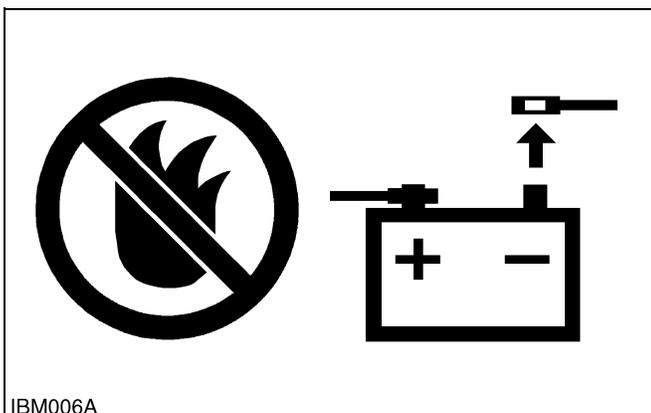
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## OPERATE SAFELY

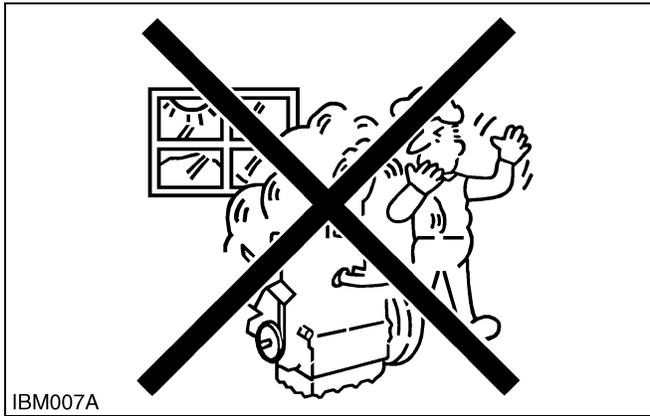
- Do not use the machine after you consume alcohol or medication or when you are tired.
- Put on applicable clothing and safety equipment.
- Use applicable tools only. Do not use alternative tools or parts.
- When 2 or more persons do servicing, make sure that you do it safely.
- Do not operate below 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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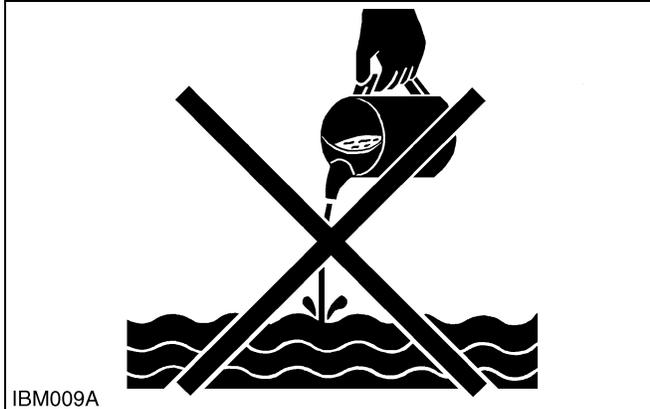
## PREVENT A FIRE

- 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.

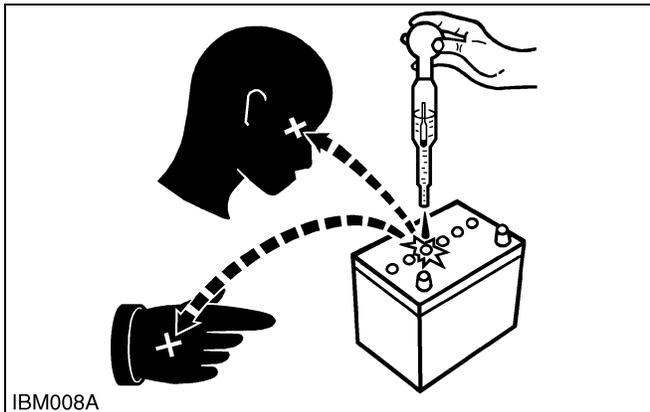
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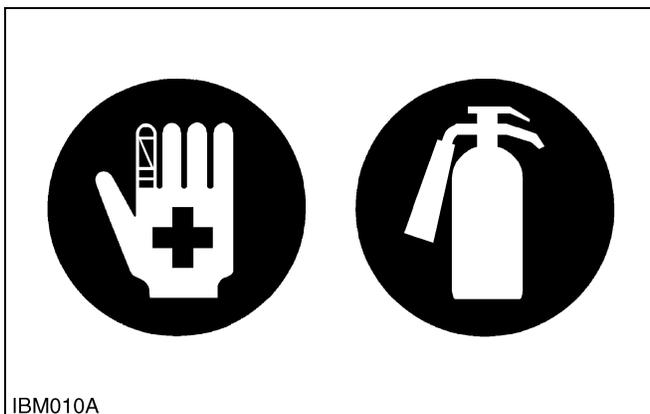
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### KEEP A GOOD AIRFLOW IN THE WORK AREA

- 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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### 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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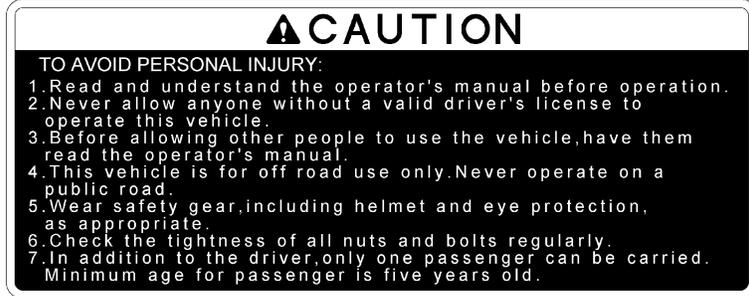
## 2. SAFETY DECALS

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(2) Part No. 7311-6522-1



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(3) Part No. K7311-6533-4



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(4) Part No. K7311-6524-1

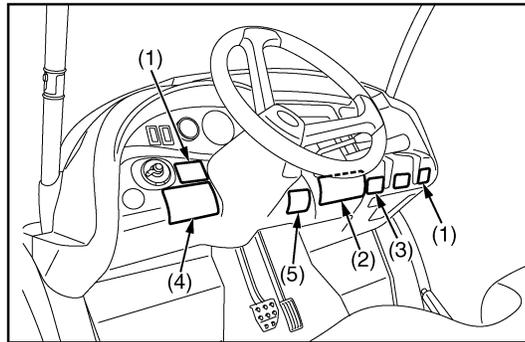


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(5) Part No. K7311-6530-1



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(1) Part No. K7211-6525-1



**⚠ DANGER**

**TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY:**

1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. The vehicle may start in gear and move if normal starting circuitry is bypassed.
2. Start engine only from operator's seat with range shift lever in neutral position and hydraulic outlet off (if equipped).

1AYAAAYAP0970

(2) Part No. K7561-6541-2

**⚠ WARNING**



**TO AVOID PERSONAL INJURY OR DEATH:**

1. Do not remove Roll-Over Protective Structures (ROPS) for any application.
2. Do not modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.

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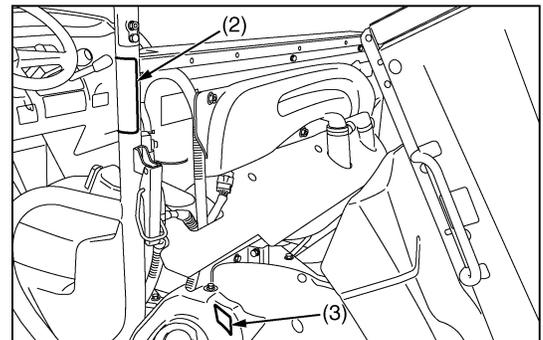
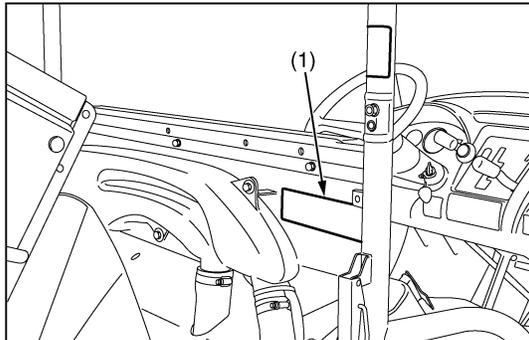
(3) Part No. K7311-6537-1

Gasoline fuel only No fire



**GASOLINE ONLY**

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**⚠ WARNING**



**TO AVOID PERSONAL INJURY:**

1. Do not place gas container inside cargo box bed when filling.
2. Place gas container on ground when filling.

**⚠ CAUTION**

**TO AVOID PERSONAL INJURY:**

1. Before touching any part of an exhaust system, be absolutely sure that it has had sufficient time to cool.
2. Always wear safety goggles and a (face)mask.
3. The particulate matter contained in the muffler contains chemicals that are harmful to people, animal and marine life.
4. If you are unable to do this work, have it done by your KUBOTA Dealer.

(1) Part No. K7211-6526-2

<p><b>⚠ WARNING</b></p> <p><b>TO AVOID PERSONAL INJURY:</b></p> <ol style="list-style-type: none"> <li>1. Do not carry passengers in cargo bed.</li> <li>2. Do not travel with the cargo bed in the raised position.</li> </ol>	<p><b>⚠ WARNING</b></p>  <p><b>TO AVOID PERSONAL INJURY:</b></p> <ol style="list-style-type: none"> <li>1. Do not place gas container inside cargo box bed when filling.</li> <li>2. Place gas container on ground when filling.</li> </ol>	<p><b>⚠ CAUTION</b></p> <p><b>TO AVOID PERSONAL INJURY:</b></p> <p>Do not raise the cargo bed while the engine is running above low idle.</p>	<p><b>⚠ CAUTION</b></p> <p><b>TO AVOID PERSONAL INJURY:</b></p> <ol style="list-style-type: none"> <li>1. Before touching any part of an exhaust system, be absolutely sure that it has had sufficient time to cool.</li> <li>2. Always wear safety goggles and a (face)mask.</li> </ol>	<p><b>⚠ CAUTION</b></p> <p><b>TO AVOID PERSONAL INJURY:</b></p> <ol style="list-style-type: none"> <li>3. The particulate matter contained in the muffler contains chemicals that are harmful to people, animal and marine life.</li> <li>4. If you are unable to do this work, have it done by your KUBOTA Dealer.</li> </ol>	<p><b>◆ Maintenance</b></p> <p>The screen type spark arrester should be removed, cleaned and inspected after every 100 hours of use.</p> <ol style="list-style-type: none"> <li>1. The spark arrester is installed in the muffler with bolts.</li> <li>2. Loosen the bolts and remove the spark arrester.</li> <li>3. Shake particulate off the screen and lightly clean the screen with a wire brush.</li> <li>4. Soak in solvent and clean with a wire brush again, if necessary.</li> <li>5. Reinstall the spark arrester to the muffler and tighten the bolts.</li> </ol>	<p><b>IMPORTANT</b></p> <ol style="list-style-type: none"> <li>1. Max. cargo load should not exceed "GB" or "GL".</li> <li>2. TO AVOID TAILGATE DAMAGE: Remove the rear tow hitch when tail gate stopper wire is removed and cargo bed is raised.</li> </ol> <p>080(Cargo Bed Capacity): 200kg (440 lbs) (Cargo Load) may vary on models. Refer to operator's manual for details.</p> <p>Ex. M009B model: 400kg (880 lbs) *operator+passenger+opt. = acc. max. rd weight.</p>
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**⚠ WARNING**

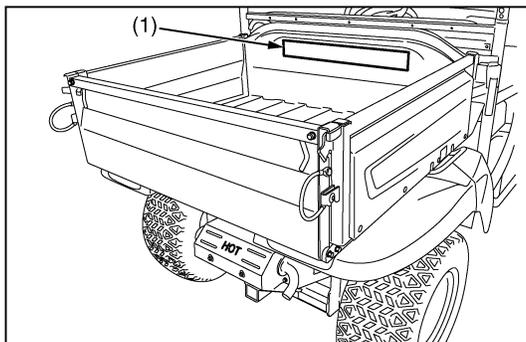
**TO AVOID PERSONAL INJURY:**

1. Do not carry passengers in cargo bed.
2. Do not travel with the cargo bed in the raised position.

**⚠ CAUTION**

**TO AVOID PERSONAL INJURY:**

Do not raise the cargo bed while the engine is running above low idle.



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(2) Part No. K7311-6559-1



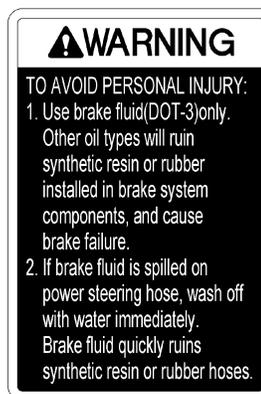
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(4) Part No. K2651-6568-1



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(3) Part No. K7311-6548-2

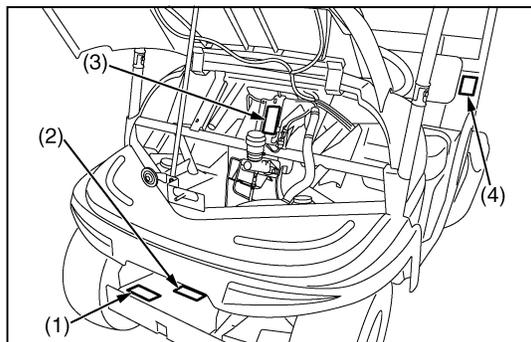


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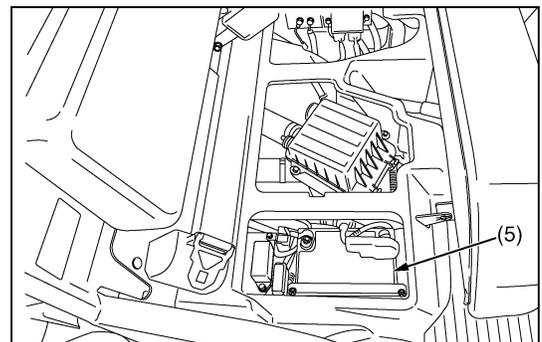
(5) Part No. K1221-6118-1

<p>MAINTENANCE FREE • SANS ENTRETIEN • LIBRE DE MANTENIMIENTO</p> <p><b>! DANGER/POISON ! PELIGRO/VENENO!</b></p>			
<p><b>SHIELD EYES.</b> EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY.</p>	<p><b>NO</b> • SPARKS • FLAMES • SMOKING</p>	<p><b>SULFURIC ACID</b> CAN CAUSE BLINDNESS OR SEVERE BURNS.</p>	<p><b>FLUSH EYES</b> IMMEDIATELY WITH WATER. GET MEDICAL HELP FAST.</p>
<p><b>PROTÉGEZ LES YEUX.</b> LES GAZ EXPLOSIFS PEUVENT BLESSEZ OU RENDRE AVEUGLE.</p>	<p><b>ÉVITER</b> • LES ÉTINCELLES! • LES FLAMMES! • DE FUMER</p>	<p><b>L'ACIDE</b> SULFURIQUE PEUT CAUSER LA CECITE OU DES BRULURES GRAVES.</p>	<p><b>RINCEZ LES YEUX A L'EAU</b> IMMEDIATEMENT CONSULTEZ UN MEDECIN RAPIDEMENT.</p>
<p><b>PROTEJA LOS OJOS.</b> LOS GASES EXPLOSIVOS PUEDEN CAUSAR DAÑOS O CEGUERA.</p>	<p><b>NO</b> • CHISPAS • FLAMAS • CIGARROS</p>	<p><b>ACIDO</b> SULFURICO PUEDE CAUSAR CEGUERA O QUEMADURAS FUERTES.</p>	<p><b>ENJUAGUE LOS OJOS</b> INMEDIATAMENTE CON AGUA. ACUDA RAPIDO CON EL MEDICO.</p>
<p><b>KEEP OUT OF THE REACH OF CHILDREN. DO NOT TIP. DO NOT OPEN BATTERY!</b>  <b>TEÑIR HORAS DE LA PONTEZ DES ENFANTS. NE PAS RENVERSER. NE PAS OUVRIE LA BATERIA!</b>  <b>ALEJESE DEL ALCANCE DE LOS NIÑOS. NO VOLTEAR. NO ABRIR LA BATERIA!</b></p>			
<p><b>CALIFORNIA PROPOSITION 65 WARNING:</b> Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.</p>			
<p>Si la batería se pud into service after 60th charge, charge for minimum of 1 hour at 6-10 amps.</p> <p>Si la mise en service de cette batterie s'effectue après la 60e recharge, veuillez recharger de 0 à 10 ampères pendant 1 heure.</p> <p>Si la batería se puesta en servicio después de 60 factos que se muestra, cargueta durante un mínimo de 1 hora a 6-10 amperes.</p>			<p>PART NO. CCA CA</p>
<p>RECYCLE • RECYCLER • RECICLAR</p> <p>3-7246</p>			

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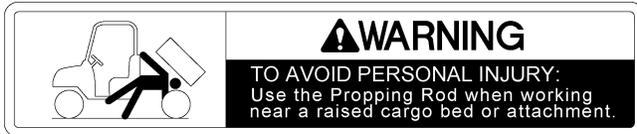


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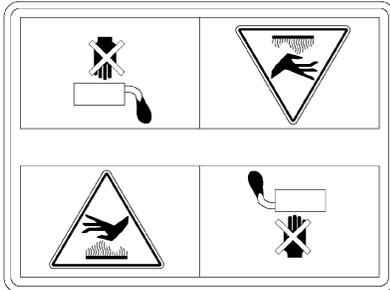
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(2) Part No. K7311-6547-2

Do not touch hot surface like muffler, etc..

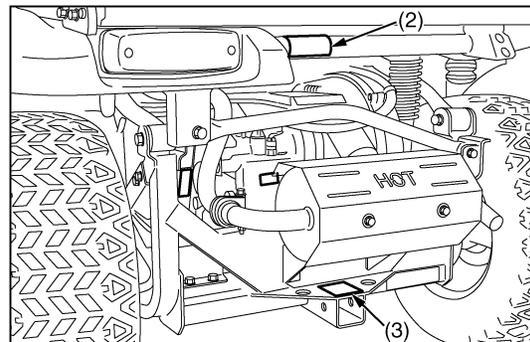
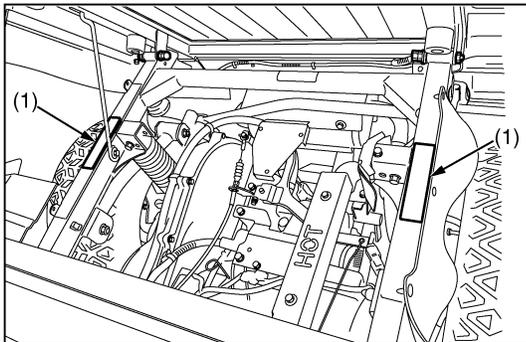


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(3) Part No. K7211-6544-1



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### **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 a 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 part, 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.

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### 3. SPECIFICATIONS

Model		RTV400Ci		
Engine	Model	SUBARU GH4120		
	Type	1 cylinder OHC, Air-cooled, EFI Gas		
	Displacement	0.404 L (24.7 cu. in.)		
Fuel Capacity		20 L (5.3 U.S.gals, 4.4 Imp.gals)		
Transmission		Continuously variable transmission (CVT)		
Wheels, Drive system		4, Rear 2WD or 4WD		
Differential lock		Standard; hand operated with mechanical holder		
Gear selection		Hi-Lo range forward, neutral, reverse		
Brakes	Front / Rear	Dry disk brake		
	Parking brake	Rear wheel, hand lever		
Steering		Rack and Pinion		
Suspension	Front	Independent, Mac Pherson strut-type		
	Rear	Semi-independent, Multi-link		
Dimensions	Length		2690 mm (105.9 in.)	
	Width		1390 mm (54.7 in.)	
	Height, overall		1829 mm (72 in.)	
	Front tread centers		1016 mm (40 in.)	
	Rear tread centers		1041 mm (41 in.)	
	Wheelbase		1800 mm (70.9 in.)	
	Ground clearance	front axle	205 mm (8.1 in.)	
		rear axle	175 mm (6.9 in.)	
Turning diameter		7 m (22.9 ft.)		
Max. rolling weight (Towing Capacity)		Rear: 500 kg (1102 lbs) / Front: 250 kg (551 lbs)		
Payload capacity		480 kg (1058 lbs)		
Weight		565 kg (1246 lbs) with ATV Tires / 570 kg (1257 lbs) with HDWS Tires		
Cargo bed	Width		1032 mm (40.6 in.)	
	Length		856 mm (33.7 in.)	
	Depth		290 mm (11.4 in.)	
	Volume		0.25 m <sup>3</sup> (9 cu.ft.)	
	Bed height (unloaded)		810 mm (31.9 in.)	
	Max. cargo bed load		200 kg (441 lbs)	
Tires	Front	24 × 9-12 HDWS, 6PLY	24 × 9-12 ATV, 6PLY	
	Rear	24 × 11-12 HDWS, 6PLY	24 × 11-12 ATV, 6PLY	
Front deluxe guard		Option		
Body color		Orange / Camouflage		
Speedometer		Option		
Rear net		Option		

#### ■ NOTE

- The company reserves the right to change the specifications without notice.
- The values in "Ground clearance" and "Weight" are those of the machine equipped with the tires in the table above.

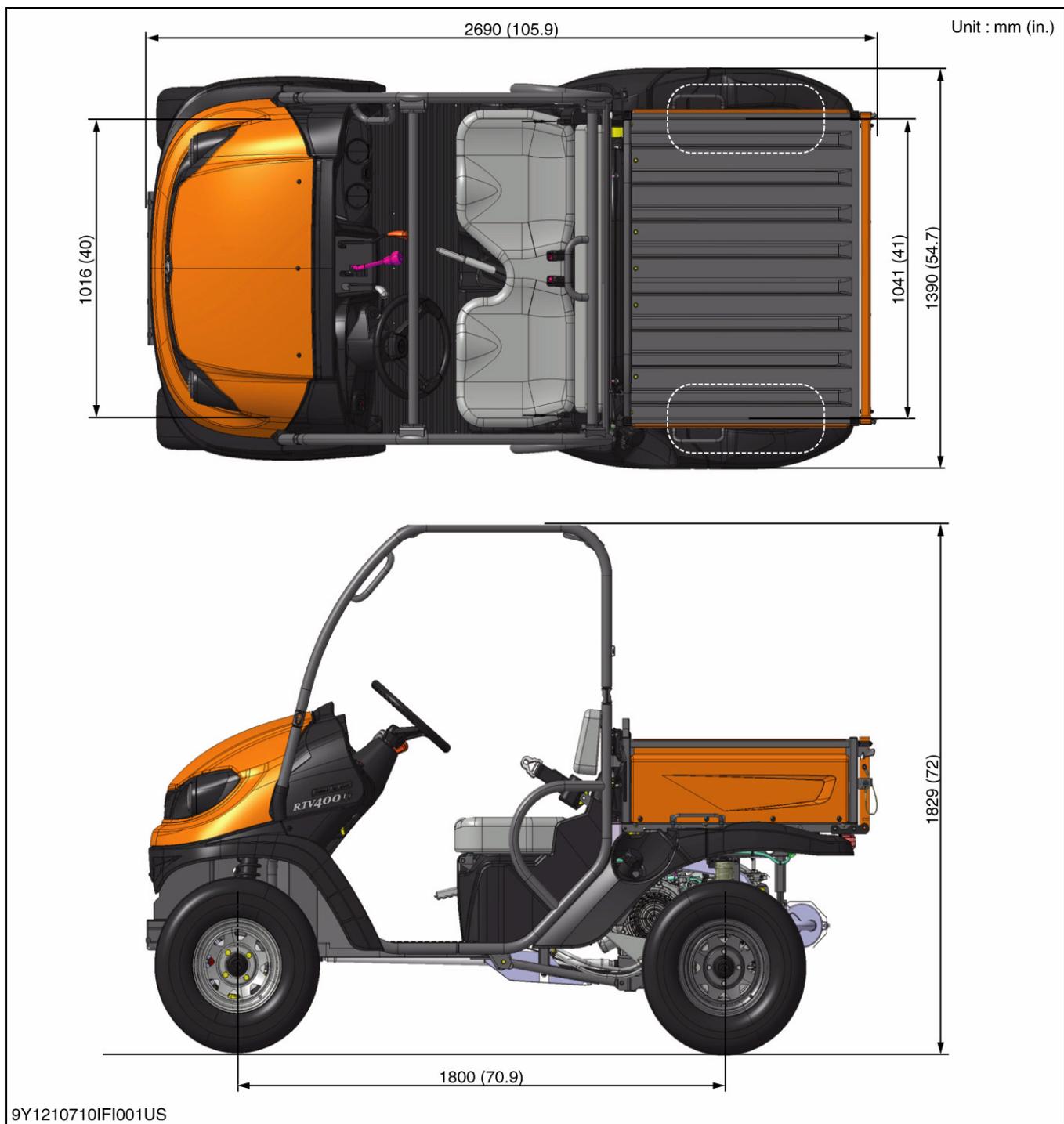
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## 4. TRAVELLING SPEEDS

	<b>Model</b>	<b>RTV400Ci</b>
	<b>Gear position</b>	<b>km/h (mph)</b>
Range gear shift lever	Low	24 (15)
	High	40 (25)
	Reverse	24 (15)

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# 5. DIMENSIONS



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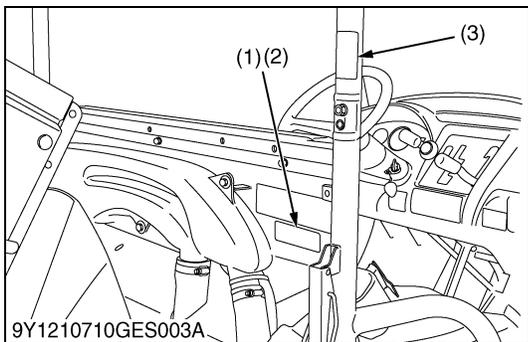
# **G GENERAL**

# GENERAL

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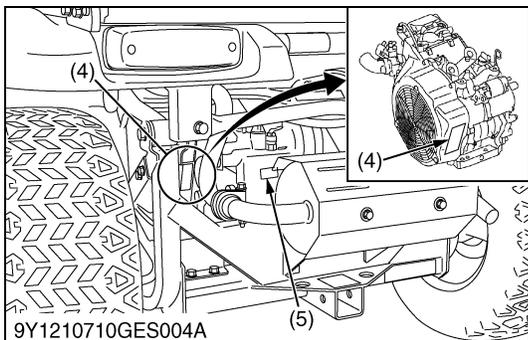
# 1. PRODUCT IDENTIFICATION



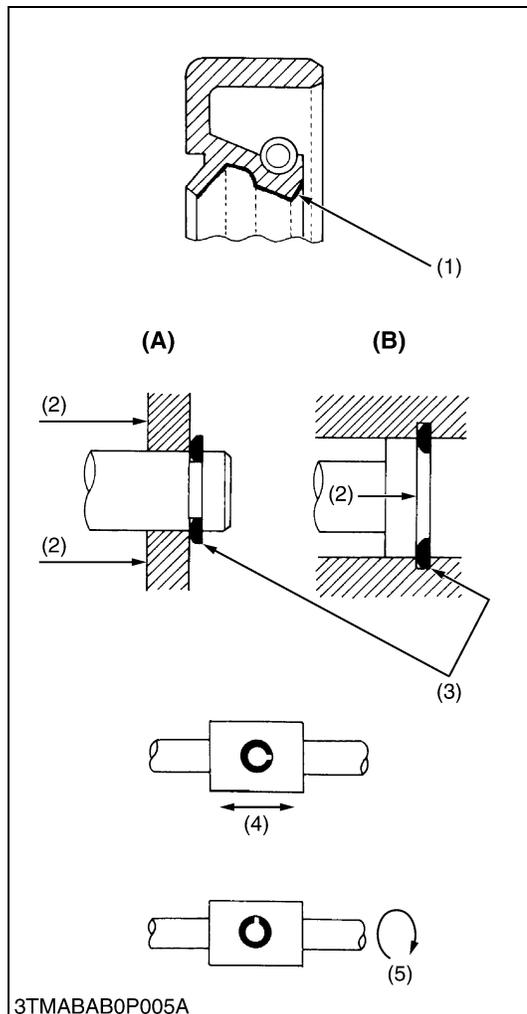
When contacting your local KUBOTA distributor, always specify engine serial number, product serial number and hour meter reading.

- (1) Vehicle Serial Number
- (2) Vehicle Identification Number
- (3) ROPS Serial Number
- (4) Engine Serial Number
- (5) Transmission Assembly Serial Number

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## 2. GENERAL PRECAUTIONS



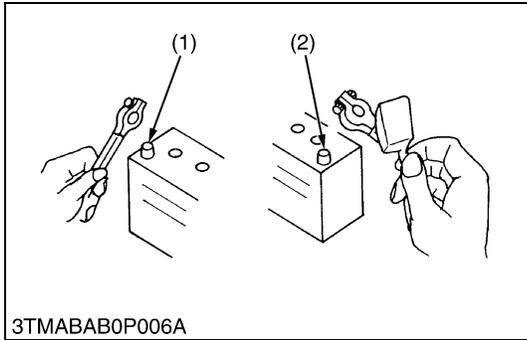
- When you disassemble, carefully put the parts in a clean area to make it easy to find the parts. You must install the screws, bolts and nuts in their initial position to prevent the reassembly errors.
- When it is necessary to use special tools, use KUBOTA special tools. Refer to the drawings when 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.
- Clean the parts before you measure them.
- Tighten the nipples to the specified torque. Too much torque can cause damage to the hydraulic units or the nipples. Not sufficient torque can cause oil leakage.
- When you use a new hose or pipe, tighten the nuts to the specified torque. Then loosen (approx. by 45 °) and let them be stable before you tighten to the specified torque (This is not applied to the parts with seal tape).
- When you remove the two ends of a pipe, remove the lower end first.
- Use two pliers in removal and installation. One to hold the stable side, and the other to turn the side you remove to prevent twists.
- Make sure that the sleeves of flared connectors and tapers of hoses are free of dust and scratches.
- After you tighten the nipples, clean the joint and apply the maximum operation pressure 2 to 3 times to examine oil leakage.

- (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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### 3. HANDLING PRECAUTIONS FOR ELECTRICAL



3TMABAB0P006A

To ensure safety and prevent damage to the machine and surrounding equipment, heed the following precautions in handling electrical parts and wiring.

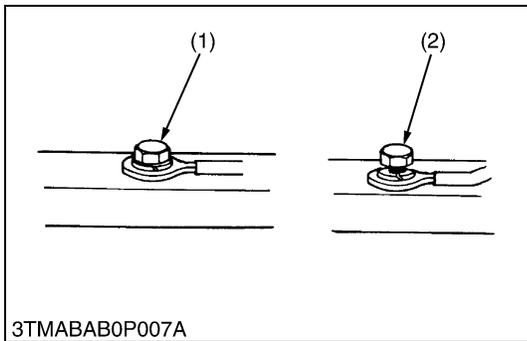
**■ IMPORTANT**

- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the battery cables, disconnect the negative cable first. When installing the battery cables, connect the positive cable first.

- (1) Negative Terminal (2) Positive Terminal

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#### [1] WIRING

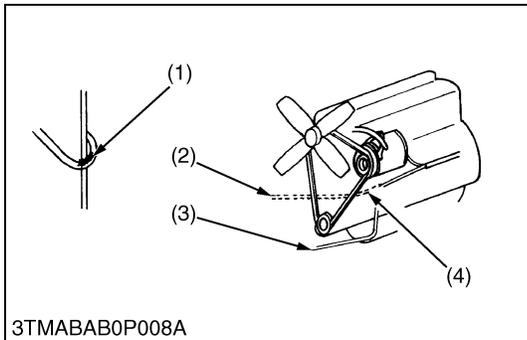


3TMABAB0P007A

- Securely tighten wiring terminals.

- (1) Correct (Securely Tighten) (2) Incorrect (Loosening Leads to Faulty Contact)

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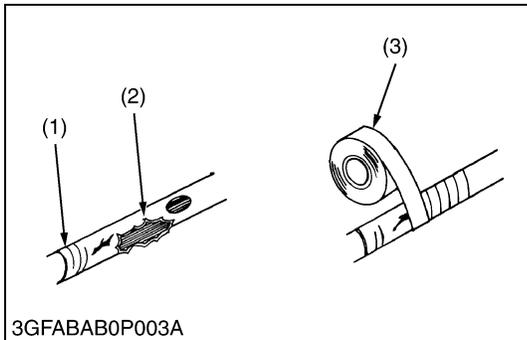


3TMABAB0P008A

- Do not let wiring contact dangerous part.

- (1) Dangerous Part (Sharp Edge) (2) Wiring (Incorrect) (3) Wiring (Correct) (4) Dangerous Part

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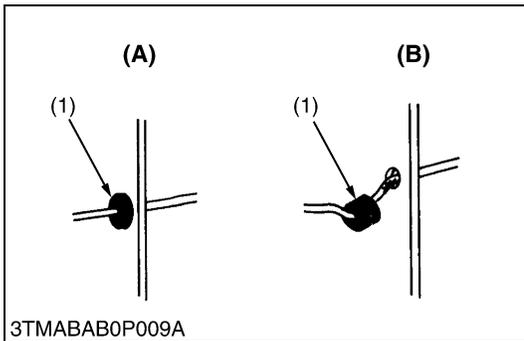


3GFABAB0P003A

- Repair or change torn or aged wiring immediately.

- (1) Aged (2) Torn (3) Insulating Vinyl Tape

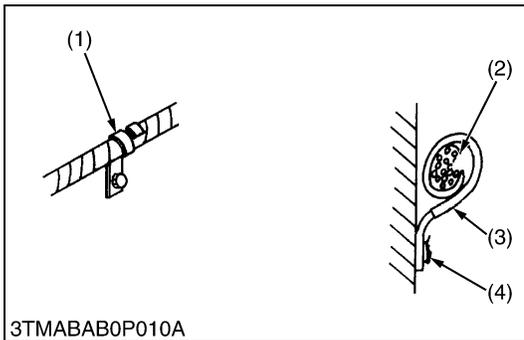
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• Securely insert grommet.

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

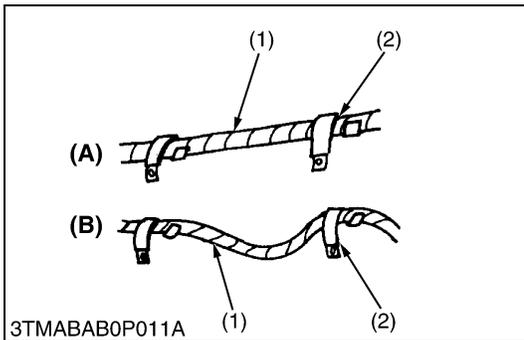
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• Securely clamp, being careful not to damage wiring.

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

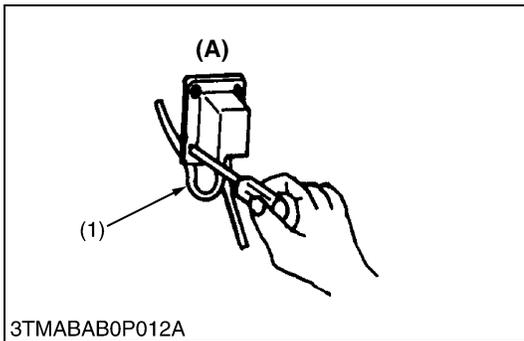
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• Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag be required.

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

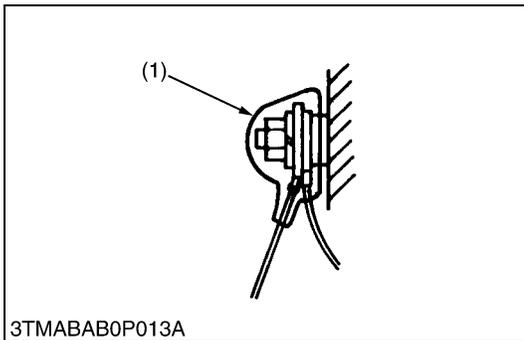
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• In installing a part, take care not to get wiring caught by it.

- (1) Wiring
- (A) Incorrect

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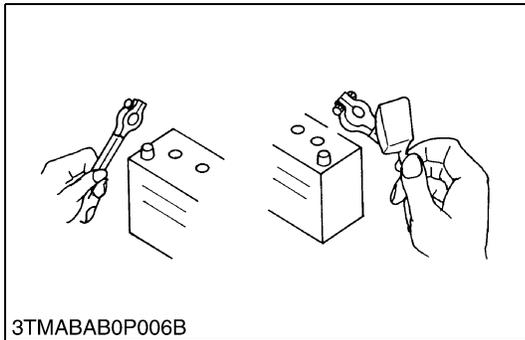


• After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover
- (Securely Install Cover)

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## [2] BATTERY



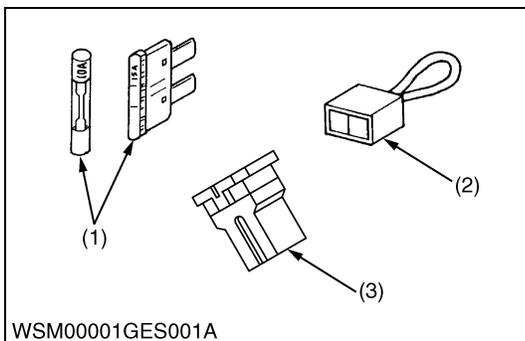
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting 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

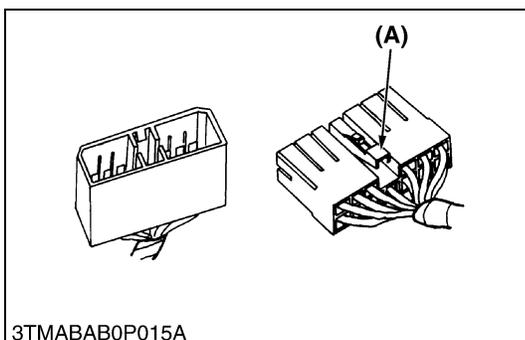


- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

- (1) Fuse (2) Fusible Link (3) Slow Blow Fuse

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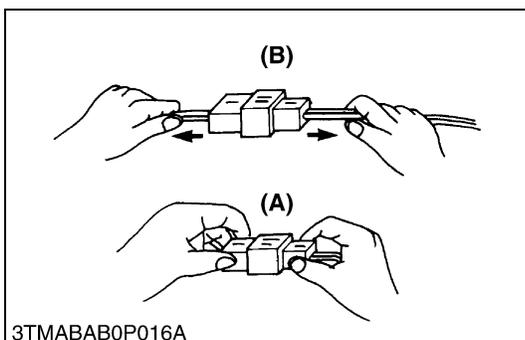
## [4] CONNECTOR



- For connector with lock, push lock to separate.

(A) Push

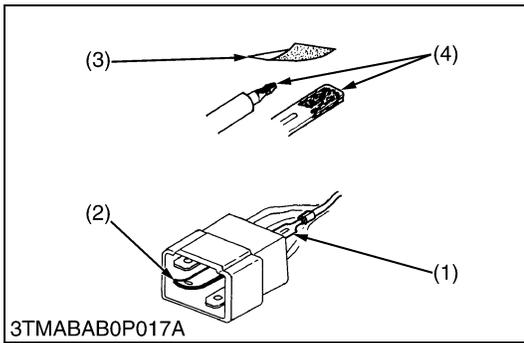
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- In separating connectors, do not pull wire harnesses.
- Hold connector bodies to separate.

(A) Correct (B) Incorrect

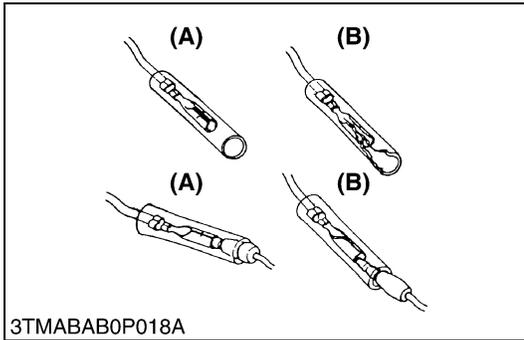
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- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

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

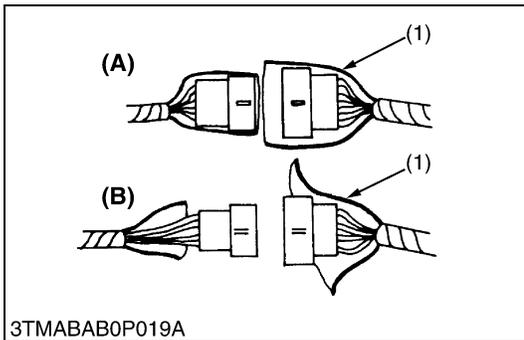
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- Make certain that there is no female connector being too open.

- (A) Correct
- (B) Incorrect

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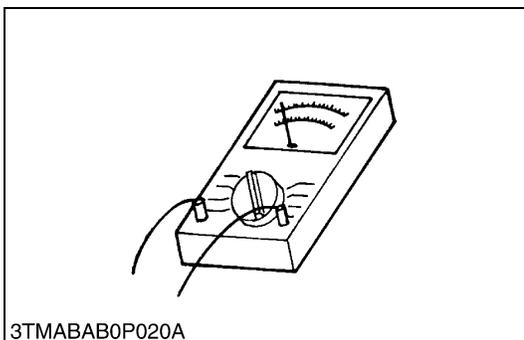


- Make certain plastic cover is large enough to cover whole connector.

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

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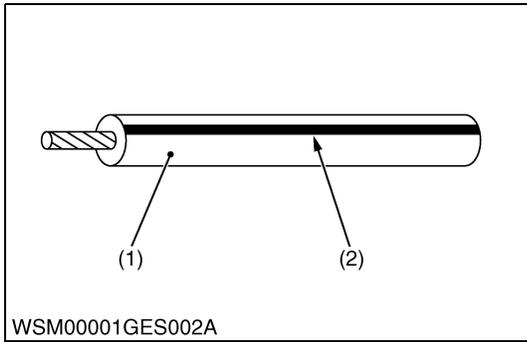
## [5] HANDLING OF CIRCUIT TESTER



- 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	Capacity	Lubricants
		RTV400Ci	
1	Fuel	20 L 5.3 U.S.gals 4.4 Imp.gals	<ul style="list-style-type: none"> <li>• Automobile unleaded or regular gasoline</li> <li>• Unleaded gasoline 87 octane or higher</li> <li>• Gasohol (E10 or less)</li> </ul>
2	Engine crankcase	[Filter exchanged] 1.6 L 1.7 U.S.qts 1.4 Imp.qts** [Filter non-exchanged] 1.4 L 1.5 U.S.qts.** 1.2 Imp.qts	<b>Engine oil:</b> API Service Classification SG, SH, SJ or higher <ul style="list-style-type: none"> <li>• Above -18 °C (0 °F) SAE10W-30</li> <li>• Below 0 °C (32 °F) SAE5W-20 or 5W-30</li> </ul>
3	Transmission case	5.4 L 1.4 U.S.qts 1.2 Imp.qts	KUBOTA UDT or SUPER UDT-2 fluid*
4	Front axle case	0.21 L 0.22 U.S.qts 0.18 Imp.qts	KUBOTA UDT or SUPER UDT-2 fluid*
5	Brake fluid (reservoir and lines)	0.2 L 0.21 U.S.qts 0.18 Imp.qts	KUBOTA <b>DOT3</b> GENUINE BRAKE FLUID

Greasing				
No.	Place	No. of greasing point	Capacity	Type of grease
6	Battery terminal	2	Moderate amount	Spray Type Grease
	Cargo bed pivot	2		
	Parking brake pivot	2		
	Range gear shift lever pivot	1		
	4WD lever pivot	1		
	Differential lock lever	1		

### NOTE

- \*KUBOTA UDT or SUPER UDT-2 fluid: KUBOTA original transmission hydraulic fluid
- \*\*Oil amount when the oil level is at the upper level of the oil level gauge.

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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 above:

**Fuel:**

- Gasohol (up to 10 % ethyl alcohol, 90 % unleaded gasoline by volume) is approved for the engine. Other gasoline/ alcohol blends are not approved.

**Transmission oil:**

- To 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-2 fluid for optimum protection and performance. (Consult your local KUBOTA Dealer for further detail.)

Do not mix different brands or grades.

**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 a 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.

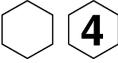
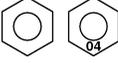
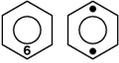
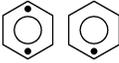
- Indicated capacity of water and oil are manufacturer's estimate.

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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
<b>M6</b>	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 9.3	to 0.95	to 6.8	to 8.8	to 0.90	to 6.5	to 11.2	to 1.15	to 8.31	to 8.8	to 0.90	to 6.5	to 14.2	to 1.45	to 10.4
<b>M8</b>	18	1.8	13	17	1.7	13	24	2.4	18	18	1.8	13	30	3.0	22
	to 20	to 2.1	to 15	to 19	to 2.0	to 14	to 27	to 2.8	to 20	to 20	to 2.1	to 15	to 34	to 3.5	to 25
<b>M10</b>	40	4.0	29	32	3.2	24	48	4.9	36	40	4.0	29	61	6.2	45
	to 45	to 4.6	to 33	to 34	to 3.5	to 25	to 55	to 5.7	to 41	to 44	to 4.5	to 32	to 70	to 7.2	to 52
<b>M12</b>	63	6.4	47	-	-	-	78	7.9	58	63	6.4	47	103	10.5	76.0
	to 72	to 7.4	to 53	-	-	-	to 90	to 9.2	to 66	to 72	to 7.4	to 53	to 117	to 12.0	to 86.7
<b>M14</b>	108	11.0	79.6	-	-	-	124	12.6	91.2	-	-	-	167	17.0	123
	to 125	to 12.8	to 92.5	-	-	-	to 147	to 15.0	to 108	-	-	-	to 196	to 20.0	to 144
<b>M16</b>	167	17.0	123	-	-	-	197	20.0	145	-	-	-	260	26.5	192
	to 191	to 19.5	to 141	-	-	-	to 225	to 23.0	to 166	-	-	-	to 304	to 31.0	to 224
<b>M18</b>	246	25.0	181	-	-	-	275	28.0	203	-	-	-	344	35.0	254
	to 284	to 29.0	to 209	-	-	-	to 318	to 32.5	to 235	-	-	-	to 402	to 41.0	to 296
<b>M20</b>	334	34.0	246	-	-	-	368	37.5	272	-	-	-	491	50.0	362
	to 392	to 40.0	to 289	-	-	-	to 431	to 44.0	to 318	-	-	-	to 568	to 58.0	to 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
<b>M8</b>	12	1.2	8.7	8.9	0.90	6.5
	to 15	to 1.6	to 11	to 11	to 1.2	to 8.6
<b>M10</b>	25	2.5	18	20	2.0	15
	to 31	to 3.2	to 23	to 25	to 2.6	to 18
<b>M12</b>	30	3.0	22	31	3.2	23
	to 49	to 5.0	to 36			
<b>M14</b>	62	6.3	46	-	-	-
	to 73	to 7.5	to 54			
<b>M16</b>	98.1	10.0	72.4	-	-	-
	to 112	to 11.5	to 83.1			
<b>M18</b>	172	17.5	127	-	-	-
	to 201	to 20.5	to 148			

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### [3] HYDRAULIC FITTINGS

#### (1) Hydraulic Hose Fittings

Hose size	Thread side	Tightening torque		
		N·m	kgf·m	lbf·ft
02	1/8	13.8 to 15.6	1.40 to 1.60	10.2 to 11.5
03	1/4	22.6 to 27.4	2.30 to 2.80	16.7 to 20.2
04				
05	3/8	45.2 to 52.9	4.60 to 5.40	33.3 to 39.0
06				

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#### (2) Hydraulic Pipe Cap Nuts

Pipe size	Tightening torque		
	N·m	kgf·m	lbf·ft
φ4 × t1.0	19.7 to 29.4	2.00 to 3.00	14.5 to 21.6
φ6 × t1.0	24.6 to 34.3	2.50 to 3.50	18.1 to 25.3
φ8 × t1.0	29.5 to 39.2	3.00 to 4.00	21.7 to 28.9
φ10 × t1.0	39.3 to 49.0	4.00 to 5.00	29.0 to 36.1
φ12 × t1.5	49.1 to 68.6	5.00 to 7.00	36.2 to 50.6
φ15 × t1.6	108 to 117	11.0 to 12.0	79.6 to 86.7
φ18 × t1.6	108 to 117	11.0 to 12.0	79.6 to 86.7

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#### (3) Adaptors, Elbows and Others

Item	Thread side	Tightening torque		
		N·m	kgf·m	lbf·ft
POA-PF (Nipple with O-ring)	PF 1/8	45 to 53	4.5 to 5.5	33 to 39
	PF 1/4	74 to 83	7.5 to 8.5	55 to 61
	PF 3/8	93.2 to 102	9.50 to 10.5	68.8 to 75.9
	PF 1/2	113 to 122	11.5 to 12.5	83.2 to 90.4
POB-PF (Elbow with O-ring and no nut)	PF 1/8	23 to 26	2.3 to 2.7	17 to 19
	PF 1/4	36 to 43	3.6 to 4.4	26 to 31
	PF 3/8	54 to 63	5.5 to 6.5	40 to 47
	PF 1/2	73 to 83	7.4 to 8.5	54 to 61
Adaptor (NPT)	PF 1/8	9.8 to 14	1.0 to 1.5	7.3 to 10
	PF 1/4	30 to 34	3.0 to 3.5	22 to 25
	PF 3/8	49 to 68	5.0 to 7.0	37 to 50
	PF 1/2	69 to 88	7.0 to 9.0	51 to 65

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## [4] METRIC SCREWS, BOLTS AND NUTS

Grade	8.8 Property class 8.8			10.9 Property class 10.9			
	Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
<b>M8</b>		24 to 27	2.4 to 2.8	18 to 20	30 to 34	3.0 to 3.5	22 to 25
<b>M10</b>		48 to 55	4.9 to 5.7	36 to 41	61 to 70	6.2 to 7.2	45 to 52
<b>M12</b>		78 to 90	7.9 to 9.2	58 to 66	103 to 117	10.5 to 12.0	76.0 to 86.7
<b>M14</b>		124 to 147	12.6 to 15.0	91.2 to 108	167 to 196	17.0 to 20.0	123 to 144
<b>M16</b>		197 to 225	20.0 to 23.0	145 to 166	260 to 304	26.5 to 31.0	192 to 224

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## [5] AMERICAN STANDARD SCREWS, BOLTS AND NUTS WITH UNC OR UNF THREADS

Grade	SAE GR.5			SAE GR.8			
	Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
<b>1/4</b>		11.7 to 15.7	1.20 to 1.60	8.63 to 11.5	16.3 to 19.7	1.67 to 2.00	12.0 to 14.6
<b>5/16</b>		23.1 to 27.7	2.36 to 2.82	17.0 to 20.5	33 to 39	3.4 to 3.9	25 to 28
<b>3/8</b>		48 to 56	4.9 to 5.7	36 to 41	61 to 73	6.3 to 7.4	45 to 53
<b>1/2</b>		110 to 130	11.3 to 13.2	81.2 to 95.8	150 to 178	15.3 to 18.1	111 to 131
<b>9/16</b>		150 to 178	15.3 to 18.1	111 to 131	217 to 260	22.2 to 26.5	160 to 191
<b>5/8</b>		204 to 244	20.8 to 24.8	151 to 179	299 to 357	30.5 to 36.4	221 to 263

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## [6] PLUGS

Shape	Size	Material of opponent part					
		Ordinariness			Aluminum		
		N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
<b>Tapered screw</b> 	<b>R1/8</b>	13 to 21	1.3 to 2.2	9.4 to 15	13 to 19	1.3 to 2.0	9.4 to 14
	<b>R1/4</b>	25 to 44	2.5 to 4.5	18 to 32	25 to 34	2.5 to 3.5	18 to 25
	<b>R3/8</b>	49 to 88	5.0 to 9.0	37 to 65	49 to 58	5.0 to 6.0	37 to 43
	<b>R1/2</b>	58.9 to 107	6.00 to 11.0	43.4 to 79.5	59 to 78	6.0 to 8.0	44 to 57
<b>Straight screw</b> 	<b>G1/4</b>	25 to 34	2.5 to 3.5	18 to 25	–	–	–
	<b>G3/8</b>	62 to 82	6.3 to 8.4	46 to 60	–	–	–
	<b>G1/2</b>	49 to 88	5.0 to 9.0	37 to 65	–	–	–

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