

Product: Kubota RTV1100 Service Manual

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WSM

WORKSHOP MANUAL UTILITY VEHICLE

RTV1100

Kubota

KiSC issued 05, 2014 A

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TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of RTV1100. It is divided into three parts, "General", "Mechanism" and "Servicing".

■ General

Information on the product identification, the general precautions, maintenance check list, check and maintenance and special tools are described.

■ Mechanism

Information on the construction and function are included. This part should be understood before proceeding with troubleshooting, disassembling and servicing.

Refer to Diesel Engine Mechanism Workshop Manual (Code No. 9Y021-01874) for the one which has not been described to this workshop manual.

■ Servicing

Information on the troubleshooting, servicing specification lists, tightening torque, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

All information illustrations and specifications contained in this manual are based on the latest product information available at the time of publication.

The right is reserved to make changes in all information at any time without notice.

Due to covering many models of this manual, information or picture being used have not been specified as one model.

May 2007

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Record of Revisions

For pdf, use search function {Search word} to find all the revised locations.

Last digit of the Code No.	Issue month	Main Revised Point and Corrective Measures {Search word}	Reference Page
4	2013.11	The value of Rear Wheel (Axle) Rotation at L Speed was corrected.	2-S4
5	2014.05	The topic of steering cylinder is corrected.	6-M5, 6-S12



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

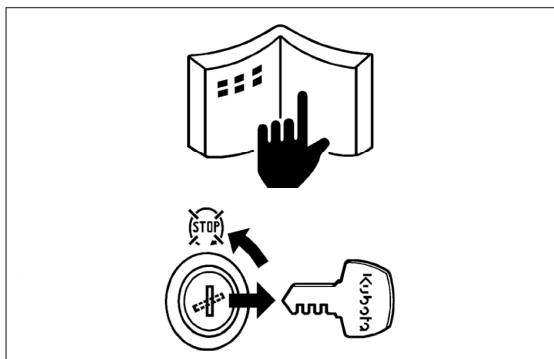
: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

■ IMPORTANT

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

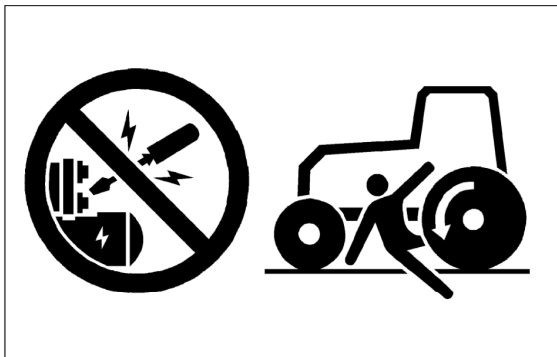
■ NOTE

: Gives helpful information.



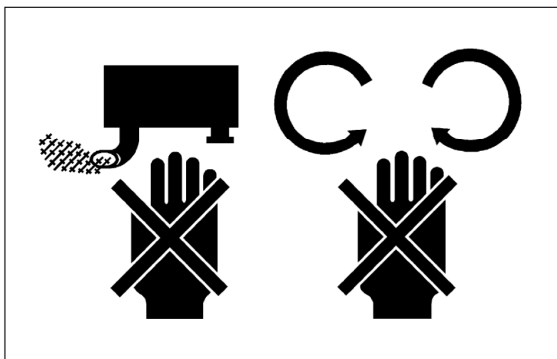
BEFORE SERVICING AND REPAIRING

- 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 firm and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, and remove the key.
- Disconnect the battery negative cable.
- Hang a "DO NOT OPERATE" tag in operator station.



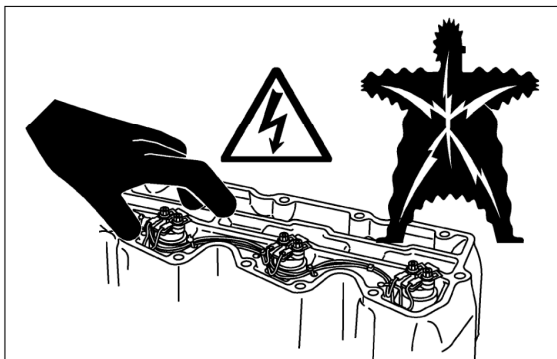
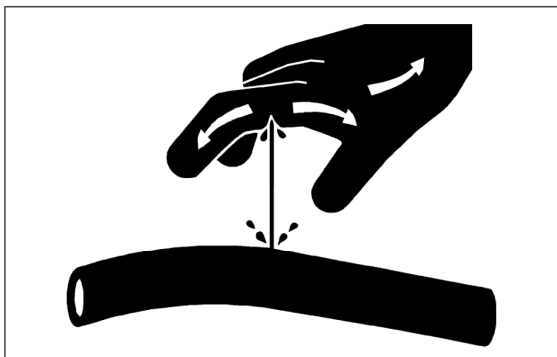
SAFETY STARTING

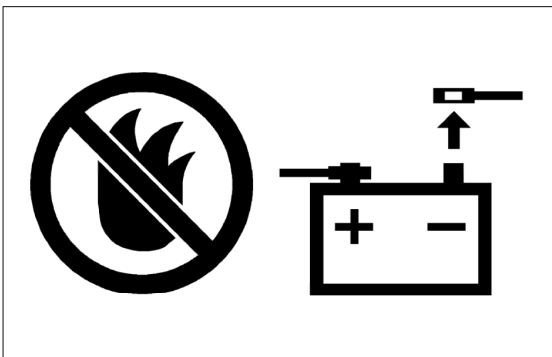
- Do not start the engine by shorting across starter terminals or bypassing the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before starting the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Never start the engine while standing on ground. Start the engine only from operator's seat.



SAFETY WORKING

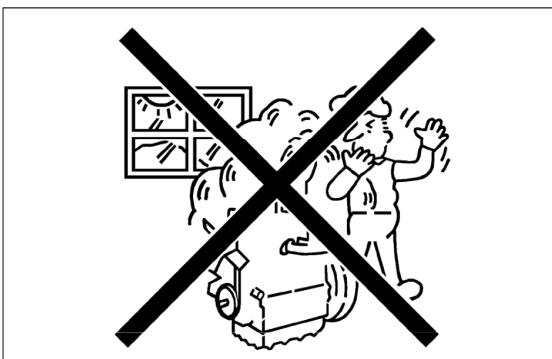
- Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- Wear close fitting clothing and safety equipment appropriate to the job.
- Use tools appropriate to the work. Makeshift tools, parts, and procedures are not recommended.
- When servicing is performed together by two or more persons, take care to perform all work safely.
- Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.
- Do not touch the rotating or hot parts while the engine is running.
- Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Only remove radiator cap when cool enough to touch with bare hands. Slowly loosen the cap to first stop to relieve pressure before removing completely.
- Escaping fluid (fuel or hydraulic oil) under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or fuel lines. Tighten all connections before applying pressure.
- Do not open high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high pressure common rail fuel system.
- High voltage exceeding 100 V is generated in the ECU and injector. Pay sufficient caution to electric shock when performing work activities.





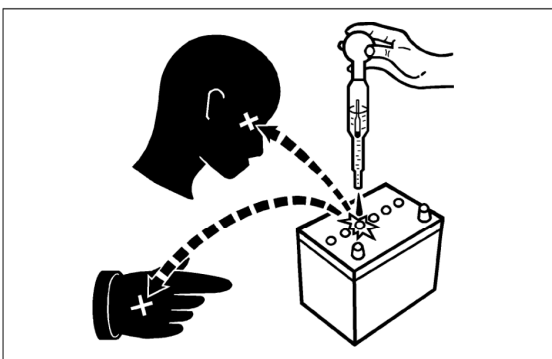
AVOID FIRES

- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.
- Make sure that no fuel has been spilled on the engine.



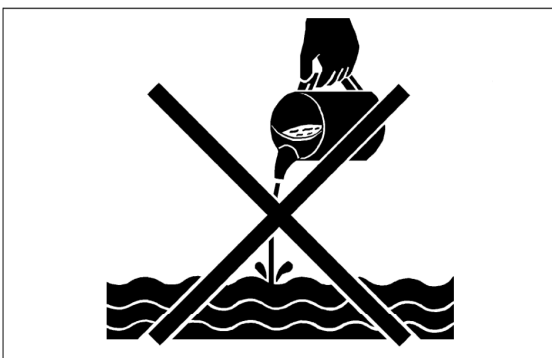
VENTILATE WORK AREA

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.



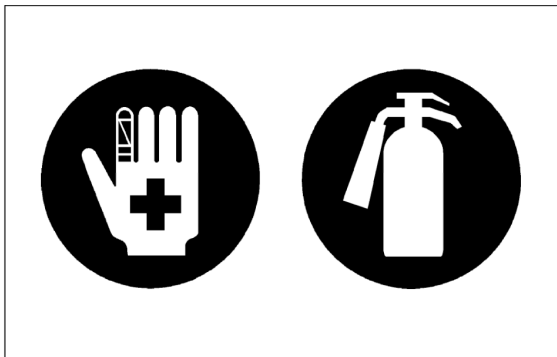
PREVENT ACID BURNS

- Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, clothing and cause blindness if splashed into eyes. Keep electrolyte away from eyes, hands and clothing. If you spill electrolyte on yourself, flush with water, and get medical attention immediately.



DISPOSE OF FLUIDS PROPERLY

- Do not pour fluids into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, electrolyte and other harmful waste.

**PREPARE FOR EMERGENCIES**

- Keep a first aid kit and fire extinguisher handy at all times.
- Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

SAFETY DECALS

The following safety decals are installed on the vehicle.


If a decal becomes damaged, illegible or is not on the machine, replace it. The decal part number is listed in the parts list.

(1) Part No. K7711-6522-0

⚠ CAUTION	
TO AVOID PERSONAL INJURY: 1. Read and understand the operator's manual before operation. 2. Never allow anyone without a valid driver's license to operate this vehicle. 3. Before allowing other people to use the vehicle, have them read the operator's manual. 4. This vehicle is for off road use only. Never operate on a public road. 5. Wear safety gear, including helmet and eye protection, as appropriate. 6. Check the tightness of all nuts and bolts regularly.	7. In addition to the driver, only one passenger can be carried. Minimum age for passenger is five years old. 8. Before starting the engine, make sure that everyone is at a safe distance from the vehicle. 9. Do not operate the vehicle under the influence of drugs or alcohol. 10. Keep all shields in place and stay away from all moving parts. 11. Slow down for turns or rough terrain. 12. Before getting off from the vehicle, apply the parking brake, stop the engine and remove the key.

1AYAAAWAP049A

(2) Part No. K7711-6574-0

⚠ WARNING		IMPORTANT
TO AVOID PERSONAL INJURY OR DEATH: Secure the door properly.		To operate door in ventilation mode, turn the striker clockwise fully.

1AYAAAWAP050A

(4) Part No. K7711-6533-0

⚠ WARNING
TO AVOID PERSONAL INJURY DUE TO LOSS OF STEERING CONTROL: Do not depress the differential lock pedal at high speed.

1AYAAAWAP051A

(2) Part No. K7721-6574-0 (if equipped with sliding window)

⚠ WARNING	
TO AVOID PERSONAL INJURY OR DEATH: Secure the door properly.	

1AYAACDAP024A

(3) Part No. K7561-6565-2

⚠ WARNING	
	TO AVOID PERSONAL INJURY: Always fasten your seat belt.

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(5) Part No. K7711-6541-0

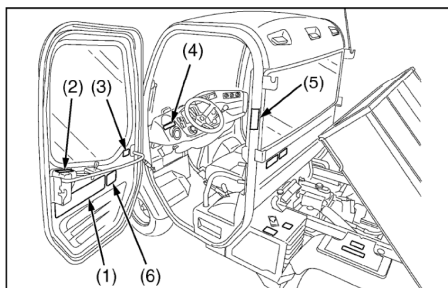
⚠ WARNING
 TO AVOID PERSONAL INJURY OR DEATH: Do not modify or repair a CABIN because welding, grinding, drilling or cutting any portion may weaken the structure.

1AYAAAWAP052A

(6) Part No. K7611-6557-0

⚠ WARNING
Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

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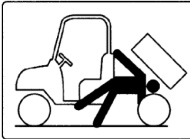
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(1) Part No. K7711-6524-0

	<p align="center">⚠ DANGER</p> <p>TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY:</p> <p>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.</p> <p>2. Start engine only from operator's seat with range shift lever in neutral position.</p>	<p align="center">⚠ WARNING</p> <p>TO AVOID PERSONAL INJURY:</p> <p>1. Do not carry passengers in cargo bed.</p> <p>2. Do not travel with the cargo bed in the raised position.</p>
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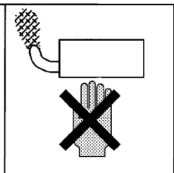
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(2) Part No. K7561-6544-0

	<p align="center">⚠ WARNING</p> <p>TO AVOID PERSONAL INJURY: Always use the safety support or propping rod when working near a raised cargo bed or attachment.</p>
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(3) Part No. K7561-6551-0

	
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(4) Part No. K7561-6584-0

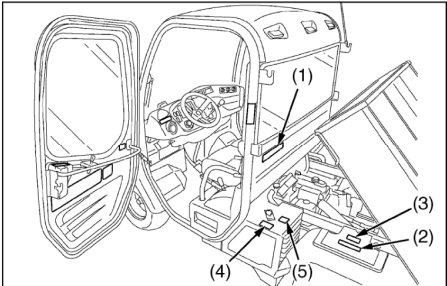
<p align="center">⚠ CAUTION</p>  <p align="center">NO STEP</p>

1AYAAAJAP027E

(5) Part No. K7711-6555-0

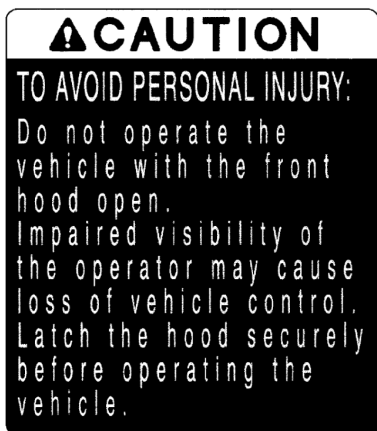


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(1) Part No. K7711-6530-0



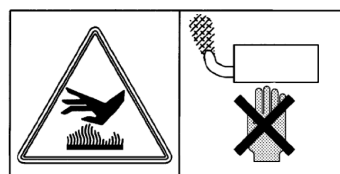
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(3) Part No. K7711-6548-0



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(4) Part No. K7561-6551-0



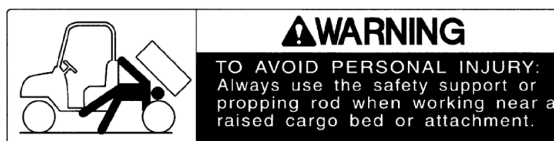
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(2) Part No. K7561-6565-0

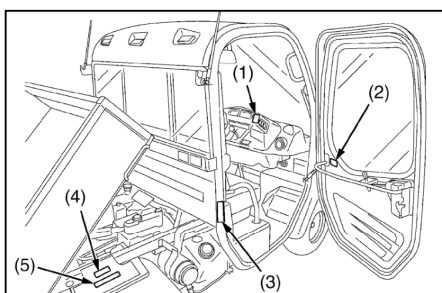


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(5) Part No. K7561-6544-0



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9Y1210011ICI003US

(1) Part No. K7561-6546-2

⚠ WARNING

TO AVOID PERSONAL INJURY:

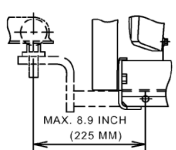
1. Use brake fluid (DOT-3) only. Other oil types will ruin synthetic resin or rubber installed in brake system components, and cause brake failure.
2. If brake fluid is spilled on power steering hose, wash off with water immediately. Brake fluid quickly ruins synthetic resin or rubber hoses.

1AYAAAAAP111H

(2) Part No. K7561-6542-2

⚠ WARNING

TO AVOID PERSONAL INJURY:
Attach pulled or towed loads to the drawbar only.



MAX. 8.9 INCH
(225 MM)

1AYAAAAAP135G

IMPORTANT

1. Carefully read the loading information and trailer hitch sections in the Operator's Manual.
2. Towing Capacity
 - Max. Towing Load : 295kg (650lbs)
 - Max. Tongue Weight : 50kg (110lbs)

(3) Part No. K7711-6575-0

CAUTION REFRIGERANT UNDER HIGH PRESSURE

Improper service methods may cause personal injury. This air conditioning system should be serviced by your dealer or any other qualified service shop. See Workshop Manual for details.

Refrigerant
R134a Max. 0.65kg (1.43lbs.)
USE ONLY Min. 0.55kg (1.21lbs.)

oil
ND-OIL
USE ONLY **8** SAE
J-639

IMPORTANT**TO AVOID DAMAGE TO AIR CONDITIONER**

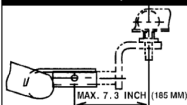
1. Do not spray water on any air conditioner parts.
2. Use air when cleaning the air conditioner.

1AYAAAWAP062A

(4) Part No. K7561-6543-2

⚠ WARNING

TO AVOID PERSONAL INJURY:
Attach pulled or towed loads to the drawbar only.

**IMPORTANT**

1. Carefully read the loading information and trailer hitch sections in the Operator's Manual.
2. Towing Capacity
 - Max. Towing Load 590kg (1300lbs)
 - Max. Tongue weight 50kg (110lbs)

1AYAAADAP001H

(5) Part No. K7711-6554-0

⚠ CAUTION**TO AVOID PERSONAL INJURY:**

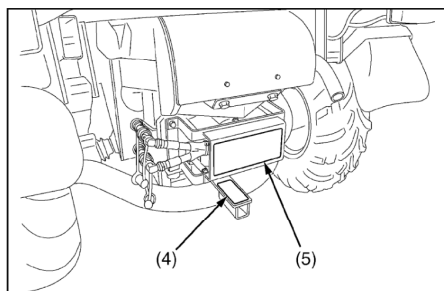
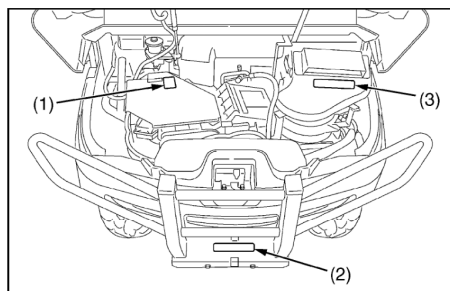
1. Before touching any part of an exhaust system, be absolutely sure that it has had sufficient time to cool.
2. Always wear safety goggles and a (face) mask.
3. The particulate matter contained in the muffler contains chemicals that are harmful to people, animal and marine life.
4. If you are unable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

1AYAAAWAP056A

◆ Maintenance

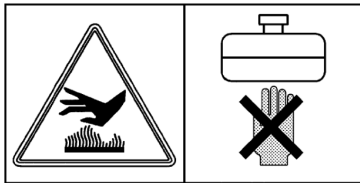
The screen type spark arrester should be removed, cleaned, and inspected after every 100 hours of use.

1. The spark arrester is located inside of the exhaust pipe, and is fastened with two bolts.
2. Unfasten the bolts and remove the spark arrester.
3. Shake loosened particles out of the screen assembly and lightly clean the screen with a wire brush. Soak in solvent and again clean with a wire brush if necessary.
4. If any breaks in the screen or weldments are discovered, the assembly must be replaced.
5. Reinstall the spark arrester in the muffler body and refasten the bolts.



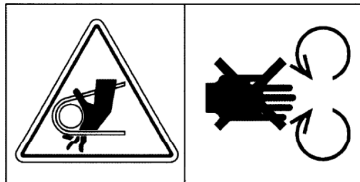
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(1) Part No. K7561-6553-0



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(2) Part No. K7711-6550-0



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(3) Part No. K7711-6564-0

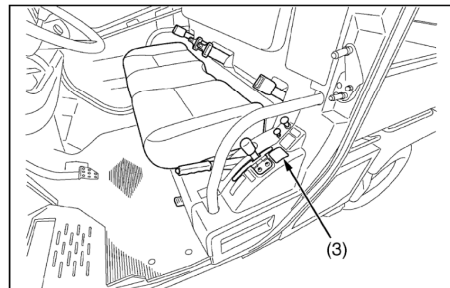
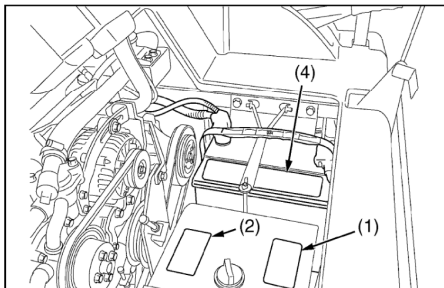


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(4) Part No. K7711-6117-1



1AYAACAP0990



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.
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 pressure any bubbles to outside edge.

9Y1210011ICI005US

SPECIFICATIONS

Model			Worksite	Recreational
Engine	Maker		KUBOTA	
	Model		D1105-E2-UV	
	Type		Indirect Injection. Vertical, water-cooled, 4-cycle diesel	
	Number of cylinders		3	
	Bore and stroke		78 × 78.4 mm (3.1 × 3.09 in.)	
	Total displacement		1123 cm ³ (68.53 cu.in.)	
	Engine gross power (DIN)		18.5 kW (24.8 HP)	
	Rated revolution		50.00 r/s [3000 min ⁻¹ (rpm)]	
	Maximum torque		69 N·m (7.0 kgf·m, 51 lbf·ft) / 33.34 to 40.00 r/s [2000 to 2400 min ⁻¹ (rpm)]	
	Battery		12 V, CCA: 535 A, RC: 80 min.	
	Starting system		Electric starting with cell starter, 12 V, 1.2 kW	
	Lubrication system		Forced lubrication by trochoidal pump	
	Cooling system		Pressurized radiator, forced circulation with water pump	
Capacities	Fuel		Diesel fuel No. 2-D [above -10 °C (14 °F)], Diesel fuel No. 1 [below -10 °C (14 °F)]	
	Fuel tank		30 L (7.9 U.S.gals, 6.6 Imp.gals)	
	Engine crankcase (with filter)		4.0 L (4.3 U.S.qts, 3.6 Imp.qts)	
	Engine coolant (with recovery tank)		5.2 L (5.5 U.S.qts, 4.6 Imp.qts)	
	Transmission case		12 L (3.2 U.S.gals, 2.6 Imp.gals)	
	Front axle case		0.6 L (0.6 U.S.qts, 0.5 Imp.qts)	
	Knuckle case		Ref. 0.15 L (0.16 U.S.qts, 0.13 Imp.qts)	
	Brake fluid (reservoir and lines)		0.87 L (0.92 U.S.qts, 0.77 Imp.qts)	
Travelling system	Tires	Front	25 × 10-12 HDWS, 6PLY 25 × 10-12 ATV, 6PLY 25 × 12-12 Turf, 4PLY	25 × 10-12 HDWS, 6PLY 25 × 10-12 ATV, 6PLY
		Rear	25 × 10-12 HDWS, 6PLY 25 × 11-12 ATV, 6PLY 25 × 12-12 Turf, 4PLY	25 × 10-12 HDWS, 6PLY 25 × 11-12 ATV, 6PLY
	Steering		Hydrostatic power	
	Transmission		Continuously variable hydro transmission (VHT)	
	Wheels and drive		4 wheels, rear 2WD or 4WD	
	Gear selection		H-M-L range, forward, neutral, reverse	
	Differential lock		Standard; foot operated with mechanical holder	
	Brake	Front / Rear	Wet disc type	
		Parking brake	Rear wheel, hand lever	
	Turning diameter		7.8 m (26 feet)	
Suspension	Front		Independent, MacPherson strut-type	
	Rear		Semi-independent, DeDion axle with leaf springs and shock absorber	

NOTE: * Manufacture's estimate

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

W1028103

Model			Worksite	Recreational
Dimensions	Overall length		3280 mm (129.1 in.)	
	Overall width		1700 mm (66.93 in.)	
	Overall height		2070 mm (81.50 in.)	
	Front tread center		1150 mm (45.28 in.) HDWS, ATV 1180 mm (46.46 in.) Turf	1150 mm (45.28 in.)
	Rear tread center		1180 mm (46.46 in.) HDWS, ATV 1210 mm (47.64 in.) Turf	1180 mm (46.46 in.)
	Wheel base		1970 mm (77.56 in.)	
	Ground clearance	Front axle	210 mm (8.27 in.)	
		Rear axle	175 mm (6.89 in.)	
Weight			1125 kg (2480 lbs)	
Max. rolling weight (Towing capacity)			590 kg (1300 lbs)	
Payload capacity			690 kg (1520 lbs)	
Cargo bed	Width		1320 mm (51.97 in.)	
	Length		1180 mm (46.47 in.)	
	Depth		290 mm (11.4 in.)	
	Volume		0.455 m ² (16.1 cu.ft.)	
	Bed height (unload)		800 mm (31.5 in.)	
	Cargo bed load		500 kg (1102 lbs)	
Sound level (operator ear)			83 db (A)	
Front deluxe guard			Standard	
Body color			Orange	Camo
Bed lift			Standard	
Speedometer			Standard	

NOTE: * Manufacture's estimate

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

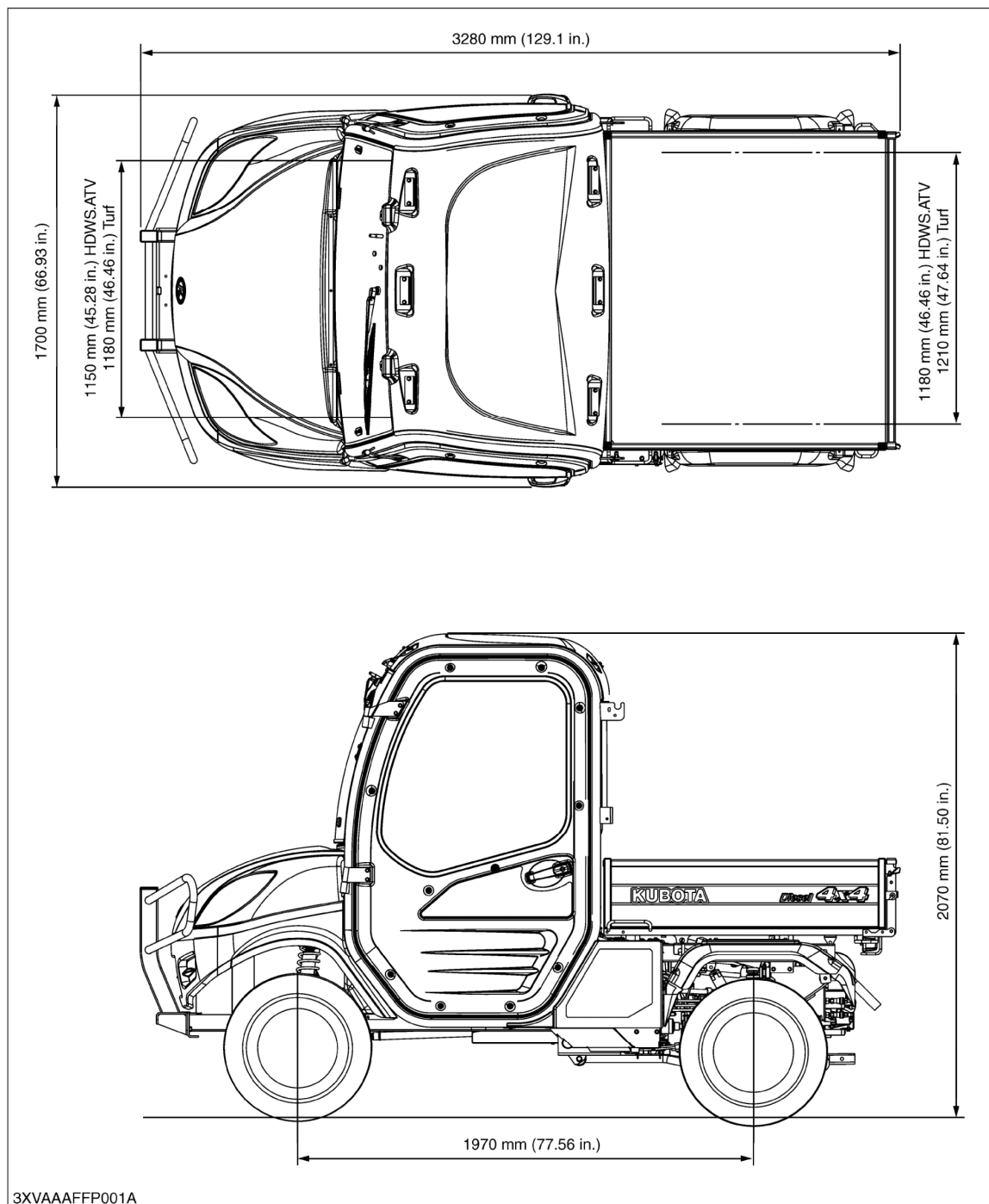
W1030858

TRAVELING SPEEDS

Model	Worksite	Recreational
Tire size (Rear)	25 × 10-12 HDWS, 6PLY 25 × 11-12 ATV, 6PLY 25 × 12-12 Turf, 4PLY	25 × 10-12 HDWS, 6PLY 25 × 11-12 ATV, 6PLY
Range gear shift lever	km/h (mph)	
Low	15 (9)	
Medium	26 (16)	
High	40 (25)	
Reverse	18 (11)	

W1035065

DIMENSIONS



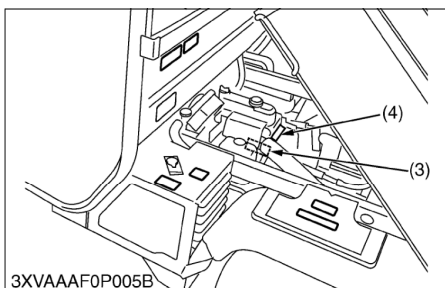
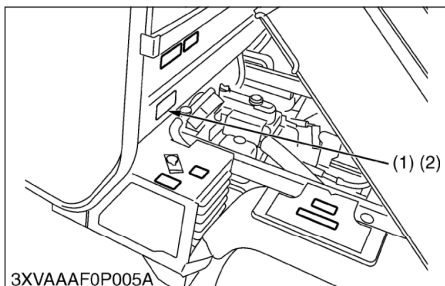
G GENERAL

GENERAL

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1. PRODUCT IDENTIFICATION

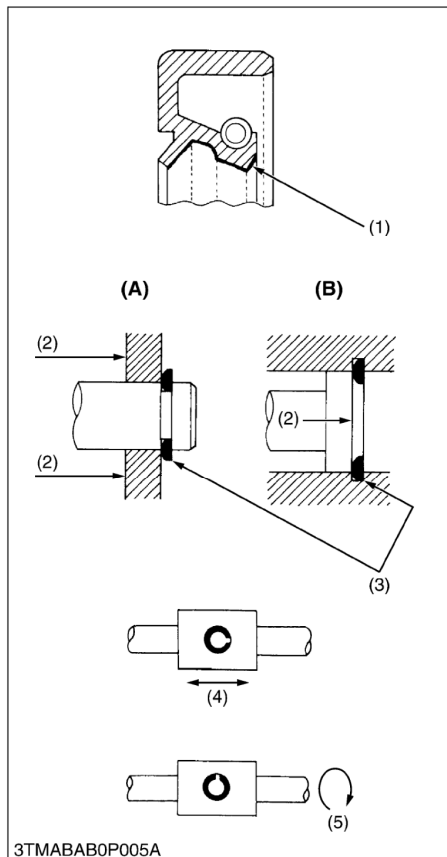


When contacting your local KUBOTA distributor, always specify engine serial number, product serial number and hour meter reading.

- | | |
|-----------------------------------|---|
| (1) Vehicle Identification Plate | (3) Engine Serial Number |
| (2) Product Identification Number | (4) Transmission Assembly Serial Number |

W1011386

2. GENERAL PRECAUTIONS



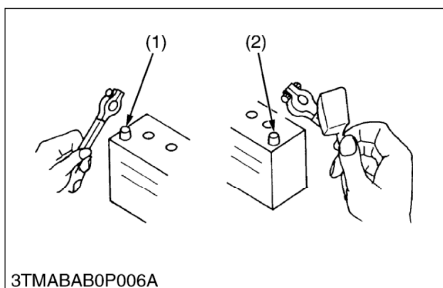
- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Screws, bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently used should be made according to the drawings provided.
- Before disassembling or servicing electrical wires, always disconnect the ground cable from the battery first.
- Remove oil and dirt from parts before measuring.
- Use only KUBOTA genuine parts for parts replacement to maintain machine performance and to assure safety.
- Gaskets and O-rings must be replaced during reassembly. Apply grease to new O-rings or oil seals before assembling. See the figure left side.
- When reassembling external snap rings or internal snap rings, they must be positioned so that sharp edge faces against the direction from which a force is applied. See the figure left side.
- 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

W1010794

3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



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

■ IMPORTANT

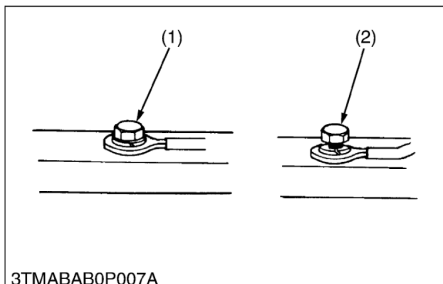
- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the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

(1) Negative Terminal

(2) Positive Terminal

W10111140

[1] WIRING

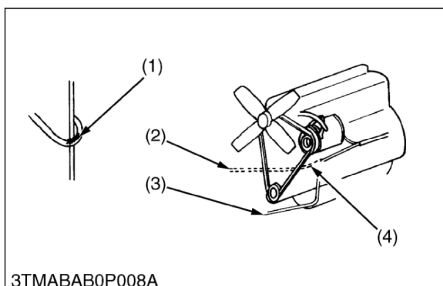


- Securely tighten wiring terminals.

(1) Correct
(Securely Tighten)

(2) Incorrect
(Loosening Leads to Faulty Contact)

W10112160

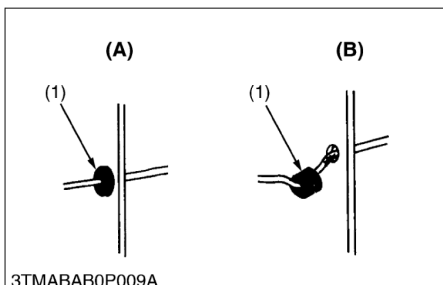


- Do not let wiring contact dangerous part.

(1) Dangerous Part
(2) Wiring (Incorrect)

(3) Wiring (Correct)
(4) Dangerous Part

W10113130

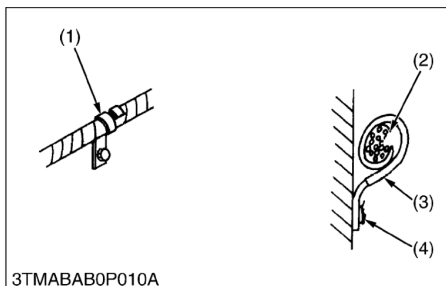


- Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

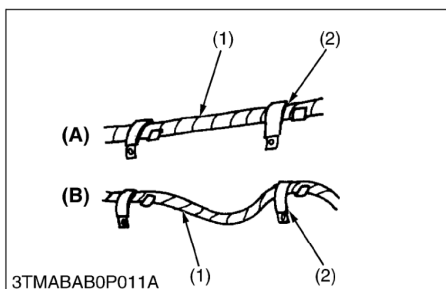
W10113880



- Securely clamp, being careful not to damage wiring.

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

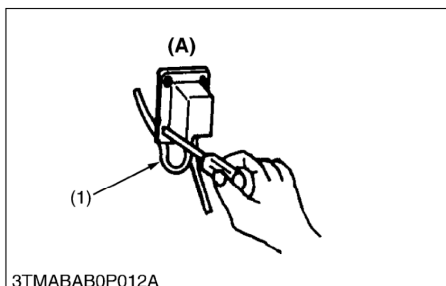
W10114580



- 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

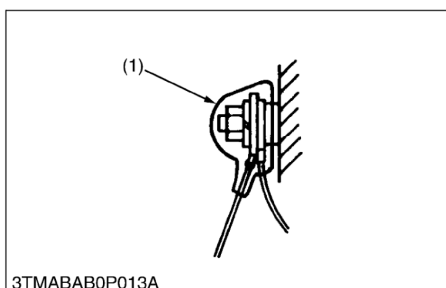
W10115870



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

- (1) Wiring
 (A) Incorrect

W10116700

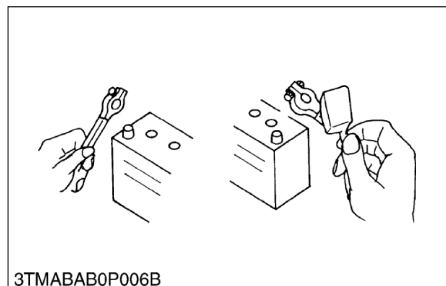


- After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover
 • Securely Install Cover

W10117350

[2] BATTERY



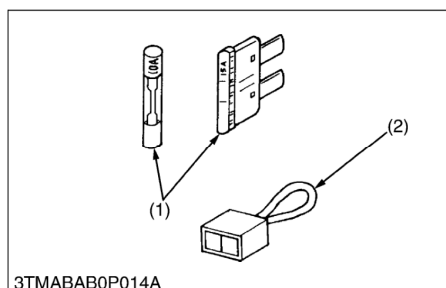
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting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

W10118160

[3] FUSE



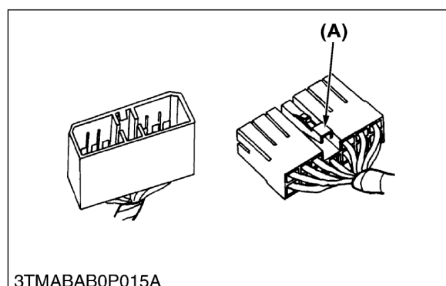
- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

(1) Fuse

(2) Fusible Link

W10120920

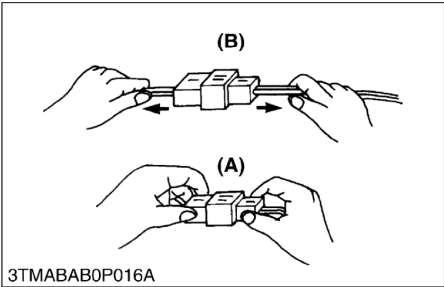
[4] CONNECTOR



- For connector with lock, push lock to separate.

(A) Push

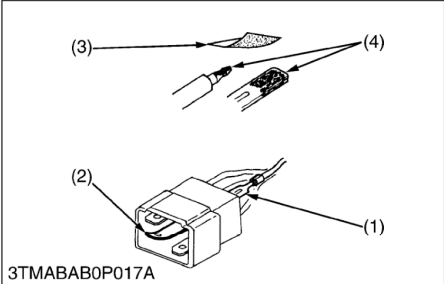
W10122110



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

(A) Correct (B) Incorrect

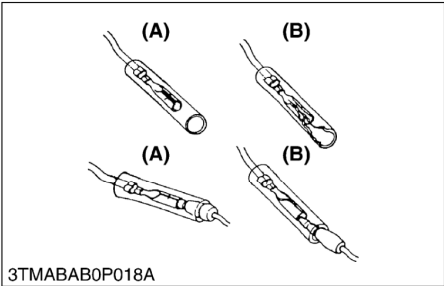
W10122720



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

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

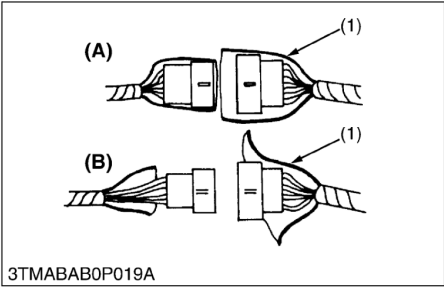
W1012346



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

(A) Correct (B) Incorrect

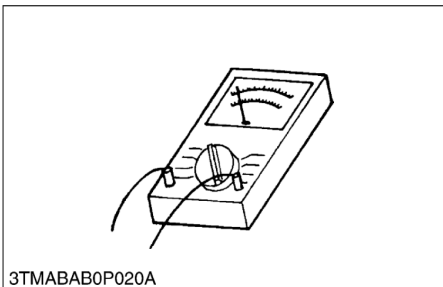
W1012430



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

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

W1012519

[5] HANDLING OF CIRCUIT TESTER

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

W1012684

4. LUBRICANTS, FUEL AND COOLANT

No.	Place	Capacity	Lubricants, fuel and coolant
1	Fuel tank	30 L 7.9 U.S.gals 6.0 Imp.gals	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10°C (14°F)
2	Cooling system with recovery tank	5.2 L 5.5 U.S.qts 4.6 Imp.qts	Fresh clean water with anti-freeze
3	Engine crankcase with oil filter	(Oil filter exchanged) 4.1 L 4.3 U.S.qts 3.6 Imp.qts (Oil filter non-exchanged) 3.8 L 4.0 U.S.qts 3.3 Imp.qts	Engine oil: API Service Classification CF or better Below 0°C (32°F): SAE10W, 10W-30 or 10W-40 0 to 25°C (32 to 77°F): SAE20, 10W-30 or 10W-40 Above 25°C (77°F): SAE30, 10W-30 or 10W-40
4	Transmission case	12 L 3.2 U.S.gals 2.6 Imp.gals	KUBOTA UDT or SUPER UDT fluid*
5	Front axle case	0.6 L 0.6 U.S.qts 0.5 Imp.qts	KUBOTA UDT or SUPER UDT fluid*
6	Knuckle case	Ref. 0.15 L Ref. 0.16 U.S.qts Ref. 0.13 Imp.qts	KUBOTA UDT or SUPER UDT fluid*
7	Brake fluid (reservoir and lines)	0.87 L 0.92 U.S.qts 0.77 Imp.qts	KUBOTA DOT3 GENUINE BRAKE FLUID
8	Hydraulic oil	17.5 L 18.5 U.S.qts 15.4 Imp.qts	KUBOTA UDT or SUPER UDT fluid*

* KUBOTA original transmission hydraulic fluid.

Greasing				
	Place	No. of greasing point	Capacity	Type of grease
10	VHT link	2	Until grease overflows	Multipurpose type grease NLGI-2 or NLGI-1 (GC-LB)
11	Battery terminal	2	Moderate amount	
12	Cargo lift cylinder pivot	2		
13	Cargo bed pivot	2		
14	Parking brake linkage	2		
15	Range gear shift lever pivot	2		
16	4WD lever pivot	1		
17	VHT pressure release	1		
18	Steering joint shaft	1		
19	Accelerator wire	–		
20	Hand throttle cable	–		

■ 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.

- **Transmission oil:**

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 SUPER UDT fluid for optimum protection and performance.

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 lift 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.

- **Lubricating Oil**

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-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.




Lubricating oil class \ Fuel	Fuel		Remarks
	Low sulfur (0.5 % ≤)	High sulfur	
CF	○	○	TBN ≥ 10
CF-4	○	X	
CG-4	○	X	

○: Recommendable X: Not recommendable

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		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
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
Diameter															
M6 (6 mm, 0.24 in.)	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
M8 (8 mm, 0.31 in.)	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
M10 (10 mm, 0.39 in.)	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
M12 (12 mm, 0.47 in.)	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
M14 (14 mm, 0.55 in.)	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
M16 (16 mm, 0.63 in.)	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
M18 (18 mm, 0.71 in.)	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
M20 (20 mm, 0.79 in.)	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



W1034542

[2] STUD BOLTS

Material of opponent part	Ordinariness			Aluminum		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
Diameter						
M8 (8 mm, 0.31 in.)	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
M10 (10 mm, 0.39 in.)	25	2.5	18	20	2.0	15
	to 31	to 3.2	to 23	to 25	to 2.6	to 18
M12 (12 mm, 0.47 in.)	29.5	3.0	21.7	31.4	3.2	23.1
	to 49.0	to 5.0	to 36.1			



W1048139

[3] METRIC SCREWS, BOLTS AND NUTS

Grade	Property class 8.8			Property class 10.9		
						
Unit Nominal Diameter	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M8	24 to 27	2.4 to 2.8	18 to 20	30 to 34	3.0 to 3.5	22 to 25
M10	48 to 55	4.9 to 5.7	36 to 41	61 to 70	6.2 to 7.2	45 to 52
M12	78 to 90	7.9 to 9.2	58 to 66	103 to 117	10.5 to 12.0	76 to 86.7
M14	124 to 147	12.6 to 15.0	91.2 to 108	167 to 196	17.0 to 20.0	123 to 144
M16	197 to 225	20.0 to 23.0	145 to 166	260 to 304	26.5 to 31.0	192 to 224



W1016172

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

Grade	SAE GR.5			SAE GR.8		
						
Unit Nominal Diameter	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
5/16	23.1 to 27.7	2.35 to 2.83	17.0 to 20.5	32.6 to 39.3	3.32 to 4.00	24.0 to 29.0
3/8	48 to 56	4.9 to 5.8	35.0 to 42.0	61.1 to 73.2	6.23 to 7.46	45.0 to 54.0
1/2	109 to 130	11.1 to 13.2	80.0 to 96.0	149.2 to 178.9	15.21 to 18.24	110.0 to 132.0
9/16	149.2 to 178.9	15.21 to 18.24	110.0 to 132.0	217.0 to 260.3	22.12 to 26.54	160.0 to 192.0
5/8	203.4 to 244	20.74 to 24.88	150.0 to 180.0	298.3 to 357.9	30.42 to 36.49	220.0 to 264.0

W1022485

[5] PLUGS

Shape	Size	Material of opponent part					
		Ordinariness			Aluminum		
		N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
	R1/8	13 to 21	1.3 to 2.2	9.4 to 15	13 to 21	1.3 to 2.0	9.4 to 15
	R1/4	25 to 44	2.5 to 4.5	18 to 32	25 to 34	2.5 to 3.5	18 to 25
	R3/8	49 to 88	5.0 to 9.0	37 to 65	49.0 to 58	5.0 to 6.0	37 to 43
	R1/2	59 to 107	6.0 to 11.0	44 to 79.5	59 to 78	6.0 to 8.0	44 to 57
	G1/4	25 to 34	2.5 to 3.5	18 to 25	—	—	—
	G3/8	62 to 82	6.3 to 8.4	46 to 60	—	—	—
	G1/2	49 to 88	5.0 to 9.0	37 to 65	—	—	—

0000001666E

6. MAINTENANCE CHECK LIST

[1] FROM FIRST 50 HOURS TO EVERY 550 HOURS

■ IMPORTANT

- The jobs indicated by ★ must be done after the first 50 hours of operation.

(To be continued)

No.	Item	Period	Indication on hour meter											Important	Reference page
			50	100	150	200	250	300	350	400	450	500	550		
1	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆		G-27
2	Greasing	Apply	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆		G-28
3	Engine oil	Change	★			☆				☆					G-22
4	Muffler (Spark arrester)	Clean		☆		☆		☆		☆		☆			G-31
5	Wheel screw torque	Check	★	☆		☆		☆		☆		☆			G-23
6	Battery condition	Check		☆		☆		☆		☆		☆			G-33
7	Fan belt tension	Adjust		☆		☆		☆		☆		☆			G-34
8	VHT neutral spring	Check		☆		☆		☆		☆		☆			G-30
9	Toe-in	Adjust		☆		☆		☆		☆		☆			G-35
10	Fuel filter element	Check		☆		☆		☆		☆		☆			G-35
		Replace													—
11	Air cleaner element	Clean		☆		☆		☆		☆		☆			G-32
		Replace													—
12	Fuel line	Check		☆		☆		☆		☆		☆			G-35
		Replace													—
13	Engine oil filter	Replace	★			☆				☆					G-23
14	Transmission oil filter (HST) (Yellow color)	Replace	★			☆				☆					G-25
15	Transmission oil filter (Suction) (Orange color)	Replace	★			☆				☆					G-25
16	Transmission oil	Change	★							☆					G-24
17	Parking brake lever	Adjust	★			☆				☆					G-25
18	Brake light switch	Check	★			☆				☆					G-25
19	Front brake case	Check	★			☆				☆					G-26
20	Hydraulic oil	Change				☆				☆					G-37
21	Hydraulic oil line	Check				☆				☆					G-39
22	Hydraulic tank oil filter (Yellow color)	Replace				☆				☆					G-38
23	Radiator hose and clamp	Check				☆				☆					G-36
		Replace													G-43
24	Power steering oil line	Check				☆				☆					G-38
		Replace													G-43
25	Intake air line	Check				☆				☆					G-39
		Replace													G-43
26	Brake hose and pipe	Check	★			☆				☆					G-26
		Replace													G-46
27	Inner air filter	Clean				☆				☆					G-39
28	Fresh air filter	Clean				☆				☆					G-40
29	Air conditioner condenser	Check				☆				☆					G-40
30	Air conditioner drive belt	Adjust				☆				☆					G-41

W10214620