WSM

WORKSHOP MANUAL
TRACTOR

B3300SU-AUS

Kubota

KiSC issued 10, 2012 A

TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of the B3300SU-AUS. 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.

September, 2010

KiSC issued 10, 2012 A

I INFORMATION

INFORMATION

CONTENTS

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 try 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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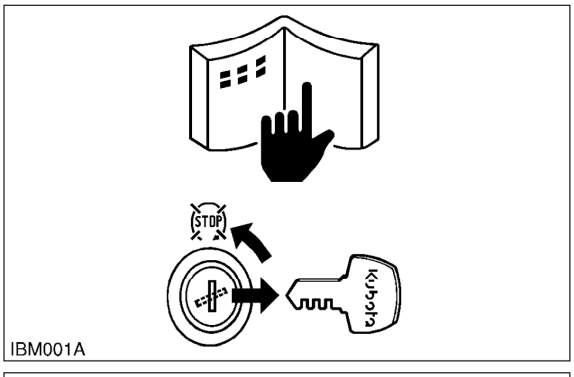

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BEFORE YOU START SERVICE

- 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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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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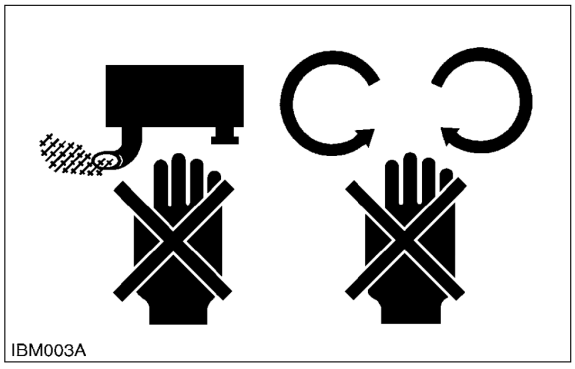
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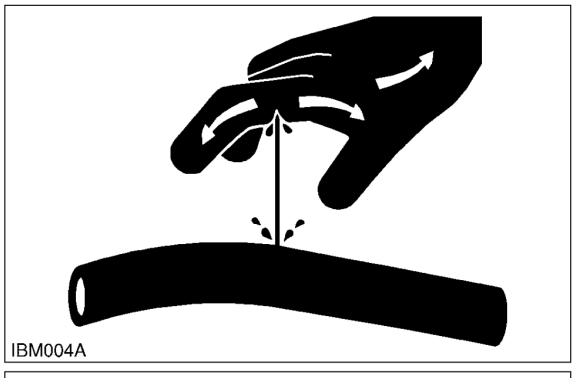
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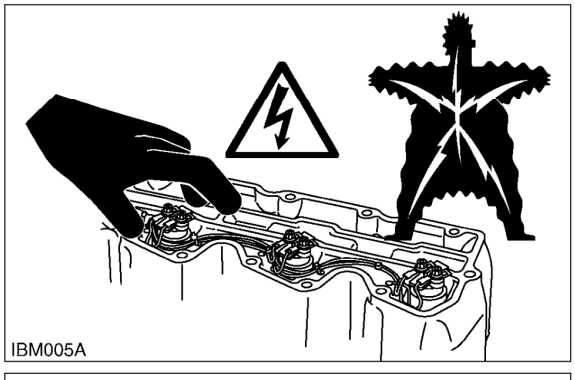
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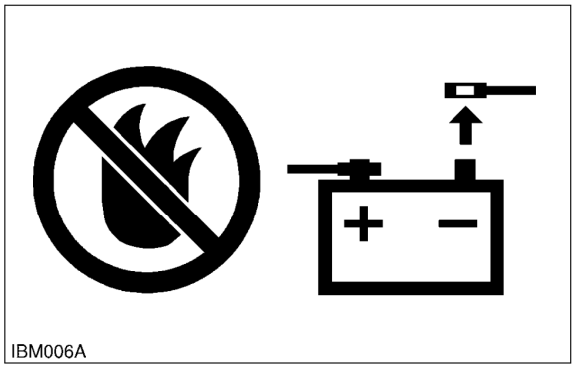
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OPERATE SAFELY

- 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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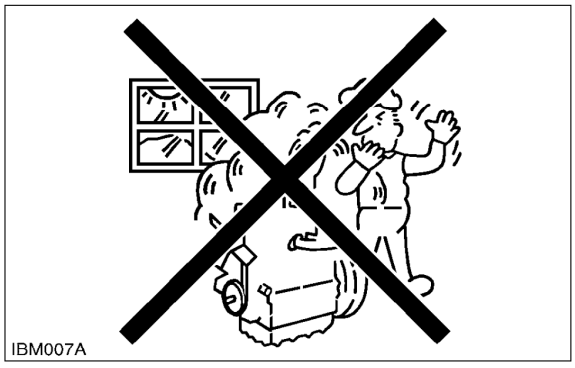
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KEEP A GOOD AIRFLOW IN THE WORK AREA

- 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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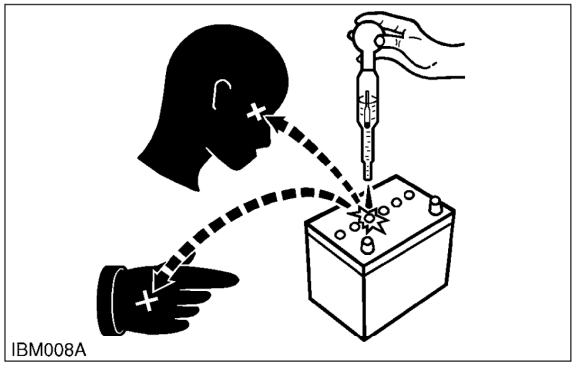
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PREVENT ACID BURNS

- 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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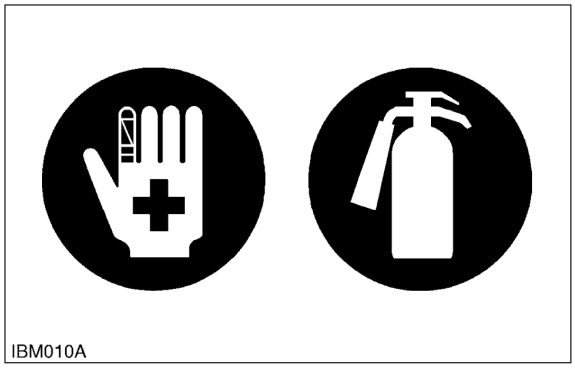
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PREPARE FOR EMERGENCIES

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

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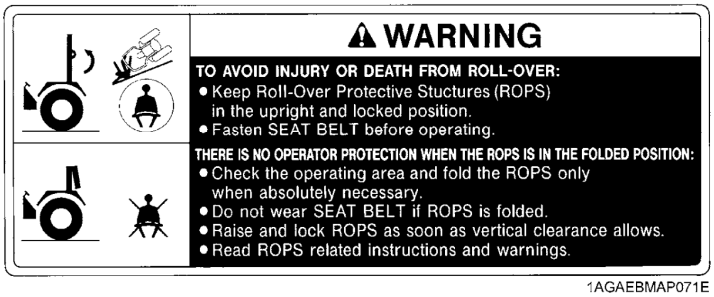
(1) Part No. TA240-9848-1



1AGAEBMAP071E

(2) Part No. 32751-4958-1
Do not get your hands close to engine fan and fan belt.

1AGAECDAP0310

(3) Part No. 6C090-4965-1

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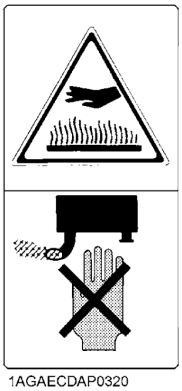
(4) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.



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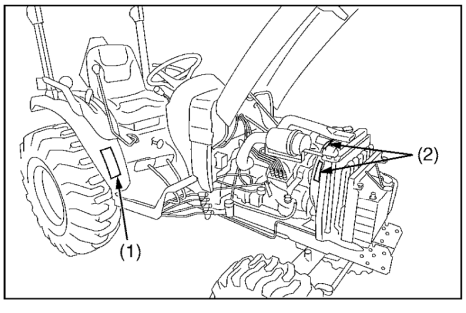

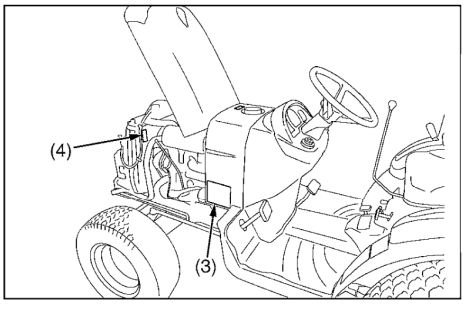

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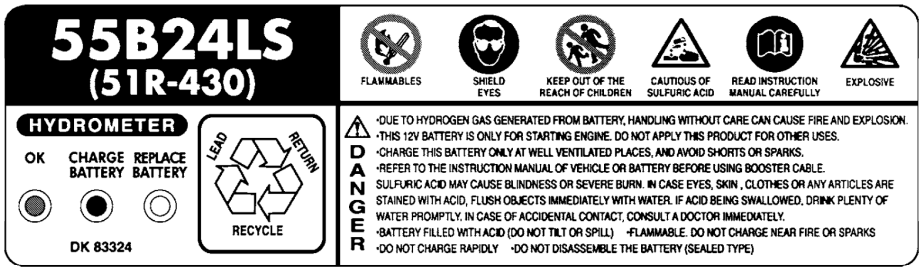
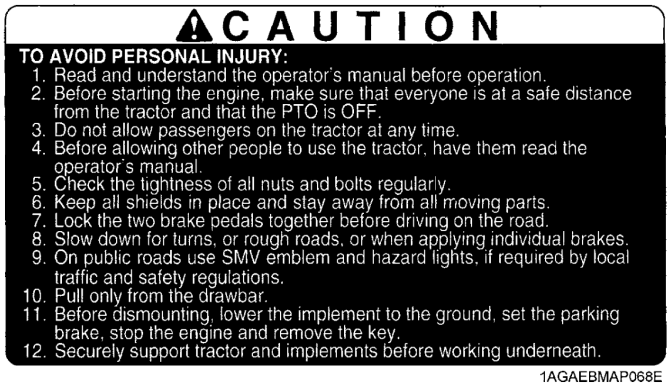
(1) Part No. 6C300-3012-1



(2) Part No. 6C070-4742-2



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(3) Part No. 6C150-4743-1

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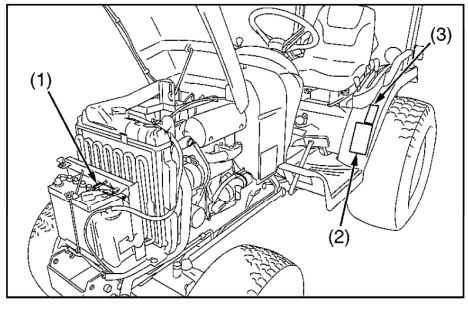

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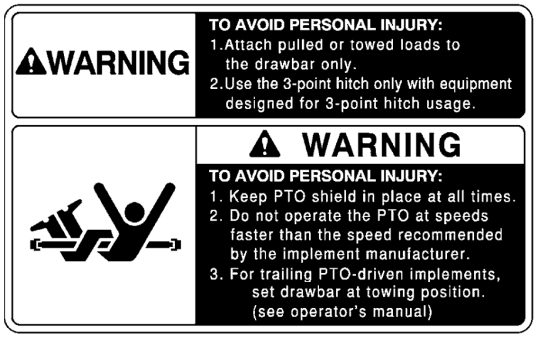
(1) Part No. 6C200-4959-1



(2) Part No. 6C040-4741-2

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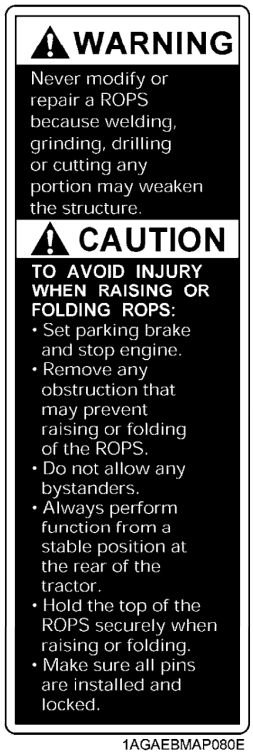
(3) Part No. 3A111-9554-1



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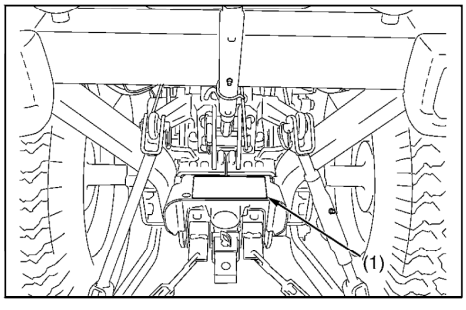

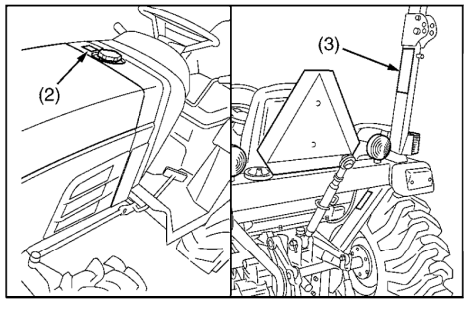

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CARE OF DANGER, WARNING AND CAUTION LABELS

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.
4. If a component with danger, warning and caution label(s) affixed is replace with new part, make sure new label(s) is (are) attached in the same locations(s) as the replace component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressure any bubbles to outside edge.

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3. SPECIFICATIONS

Model			B3300SUHSD	
PTO power*			18.6 kW (25.0 HP)	
Engine	Maker		KUBOTA	
	Model		V1505-E3-D24H	
	Type		Indirect Injection, Vertical, water-cooled, 4 cycle diesel	
	Number of cylinders		4	
	Bore and stroke		78 × 78.4 mm (3.1 × 3.1 in.)	
	Total displacement		1498 cm^3 (91.5 cu.in.)	
	Engine gross power*		24.6 kW (33.0 HP)	
	Rated revolution		2700 min^{-1} (rpm)	
	Low idling revolution		1000 to 1100 min^{-1} (rpm)	
	Maximum torque		91 N·m (9.3 kgf·m, 67 lbf·ft)	
	Battery		12 V, RC: 79 min, CCA: 433 A	
Capacities	Fuel tank		31 L (8.1 U.S.gals, 6.7 Imp.gals)	
	Engine crankcase (with filter)		5.4 L (5.7 U.S.qts, 4.7 Imp.qts)	
	Engine coolant		4.5 L (4.7 U.S.qts, 3.9 Imp.qts)	
	Transmission case		14.5 L (3.83 U.S.gals, 3.19 Imp.gals)	
Tires	Front		Farm 7-12	Industry 23 × 8.50-14
	Rear		12.4-16	12.4-16
Dimensions	Overall length (without 3P)		2520 mm (99.2 in.)	2510 mm (98.8 in.)
	Overall width		1365 mm (53.7 in.)	
	Overall height (with ROPS)		2245 mm (88.4 in.)	2235 mm (88.0 in.)
	Wheel base		1696 mm (66.8 in.)	
	Min. ground clearance		370 mm (14.6 in.)	
Tread	Front		935 mm (36.8 in.)	905 mm (35.6 in.)
	Rear		1050 mm (41.3 in.)	
Weight (with ROPS)			800 kg (1764 lbs)	810 kg (1786 lbs)
Traveling system	Clutch		Dry single plate	
	Steering		Integral type power steering	
	Transmission		Main-hydrostatic transmission, 3 range gear shift (3 forward, 3 reverse)	
	Brake		Wet disk type	
	Min. turning radius (with brake)		2.4 m (7.9 feet)	
Hydraulic unit	Hydraulic control system		Quarter inching valve	
	Pump capacity		3P: 25.3 L/min (6.7 U.S.gals/min, 5.6 Imp.gals/min), Power steering: 12.2 L/min (3.2 U.S.gals/min, 2.7 Imp.gals/min)	
	3-point hitch		SAE Category 1	
	Max. lift force	At lift points	810 kg (1786 lbs)	
		24 in. behind lift point	635 kg (1400 lbs)	
PTO	Rear-PTO		SAE 1-3/8, 6 splines	
	PTO / Engine speed		1 speed 540 / 2600 min^{-1} (rpm)	

■ **NOTE**

- *** Manufacturer's estimate**
  The company reserves the right to change the specifications without notice.

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4. TRAVELING SPEEDS

(At rated engine rpm)

Model		B3300SU		
Tire size (Rear)		12.4-16 Farm	13.6-16 Turf	12.4-16 Industry
	Range gear shift lever	km/h (mph)	km/h (mph)	km/h (mph)
Forward	Low	0 to 5.0 (3.1)	0 to 5.2 (3.2)	0 to 4.9 (3.0)
	Middle	0 to 8.6 (5.3)	0 to 9.0 (5.6)	0 to 8.4 (5.2)
	high	0 to 19.1 (11.9)	0 to 20.0 (12.4)	0 to 18.6 (11.6)
Reverse	Low	0 to 4.0 (2.5)	0 to 4.2 (2.6)	0 to 3.9 (2.4)
	Middle	0 to 6.9 (4.3)	0 to 7.2 (4.5)	0 to 6.7 (4.2)
	high	0 to 15.3 (9.5)	0 to 16.0 (9.9)	0 to 14.9 (9.3)

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

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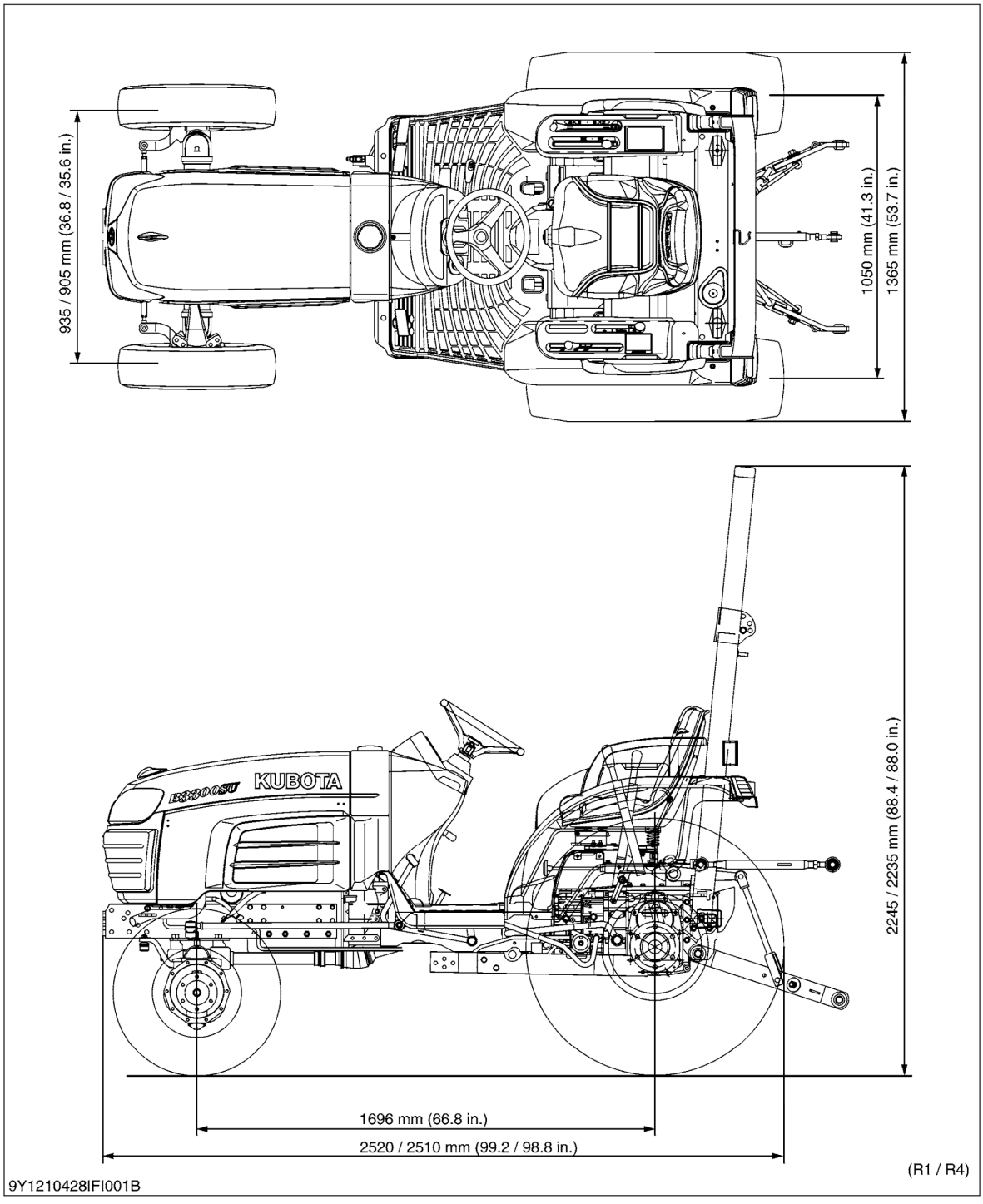
5. DIMENSIONS



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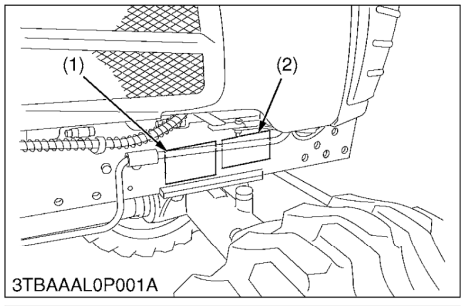
G GENERAL

GENERAL

CONTENTS

1. TRACTOR IDENTIFICATION

[1] MODEL NAME AND SERIAL NUMBER



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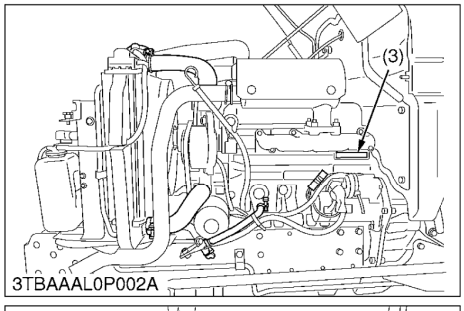

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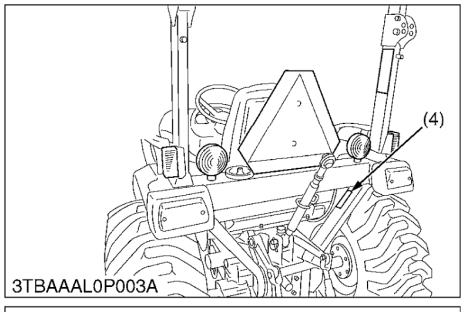

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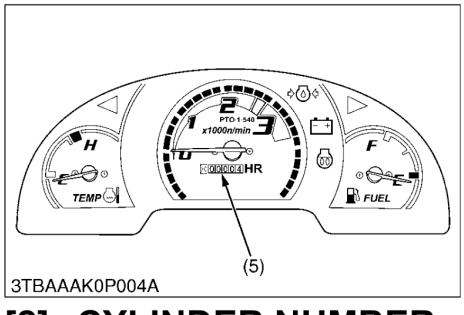

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When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number, ROPS serial number and hour meter reading.

(1) Tractor Identification Plate
(2) Tractor Serial Number
(3) Engine Serial Number
(4) ROPS Identification Plate
(5) Hour Meter

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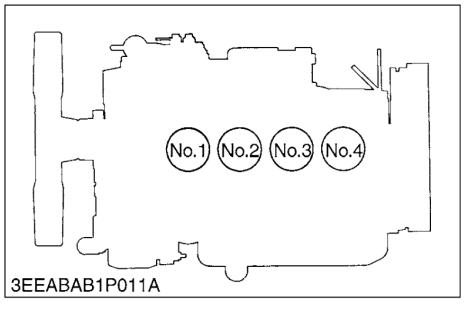
[2] CYLINDER NUMBER



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The cylinder numbers of KUBOTA diesel engine are designated as shown in the figure.

The sequence of cylinder numbers is given as No.1, No.2. No.3 and No.4 starting from the gear case side.

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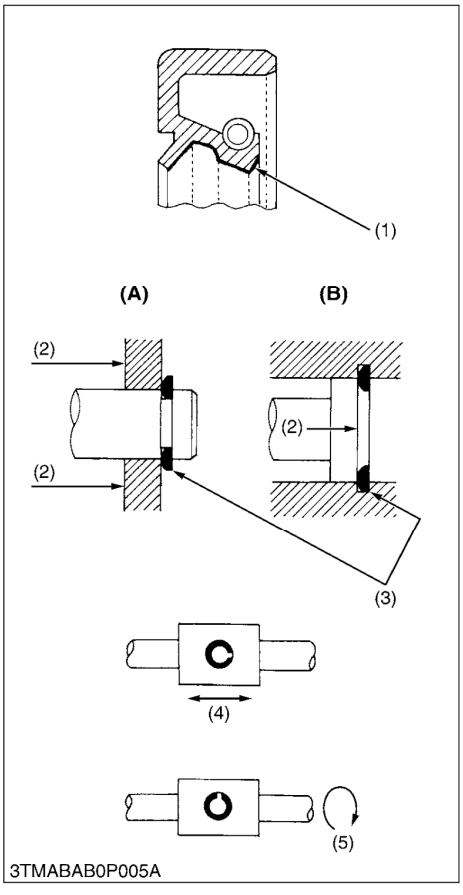
2. GENERAL PRECAUTIONS



- 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 fittings to the specified torque. Too much torque can cause damage to the hydraulic units or the fittings. 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 fittings, 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 Circlip
(B) Internal Circlip

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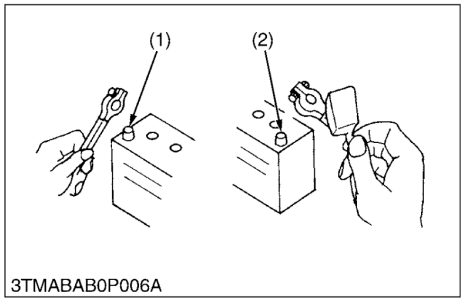
3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



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To ensure safety and prevent damage to the machine and surrounding equipment, obey 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 try 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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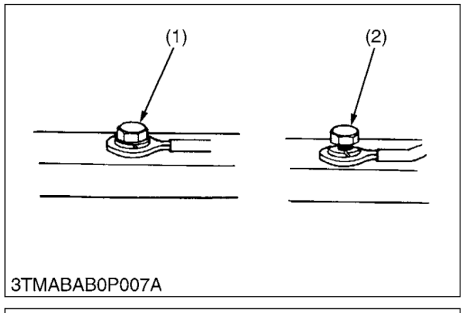
[1] WIRING



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- Securely tighten wiring terminals.

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

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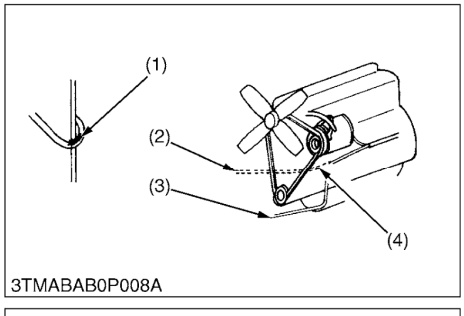
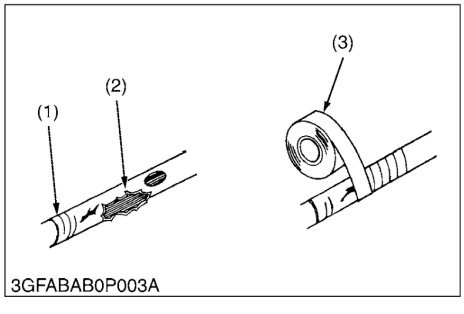


3TMABAB0P008A

- Do not let wiring contact dangerous part.

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

WSM000001GEG0064US1

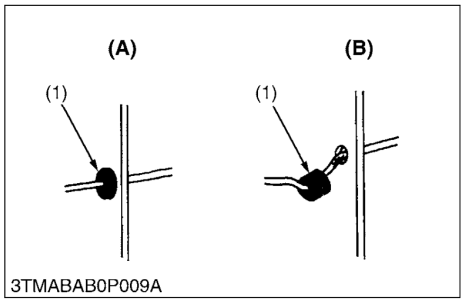


3GFABAB0P003A

- Repair or change torn or aged wiring immediately.

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

WSM000001GEG0065US1



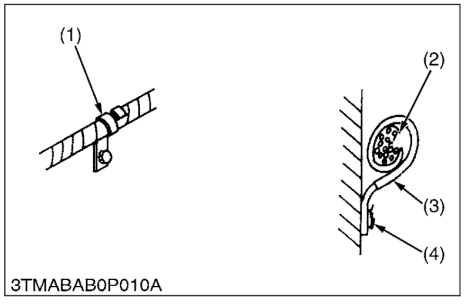
3TMABAB0P009A

- Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

WSM000001GEG0066US1

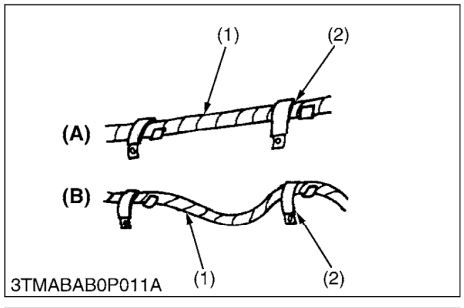


3TMABAB0P010A

- Securely clamp, being careful not to damage wiring.

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

WSM000001GEG0067US1



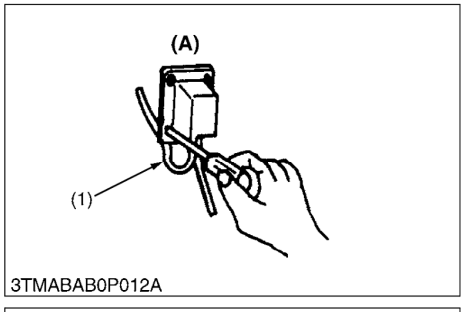
3TMABAB0P011A

- 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

WSM000001GEG0068US1



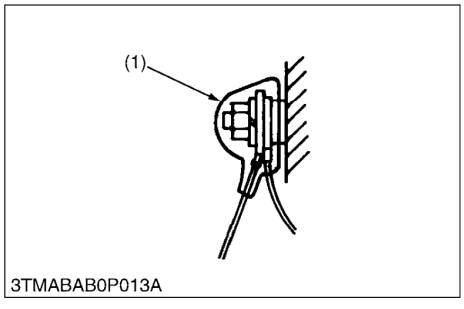
3TMABAB0P012A

- In installing a part, be careful not to get wiring caught by it.

(1) Wiring

(A) Incorrect

WSM000001GEG0069US1



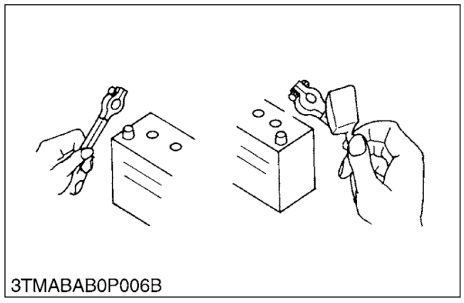
3TMABAB0P013A

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

(1) Cover
(Securely Install Cover)

WSM000001GEG0070US1

[2] BATTERY


3TMABAB0P006B

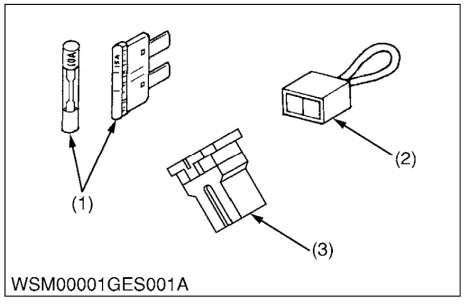
- Be careful not to confuse positive and negative terminal posts.
- When you remove battery cables, disconnect negative cable first. When you install battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After you connect 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

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

WSM000001GEG0071US1

[3] FUSE



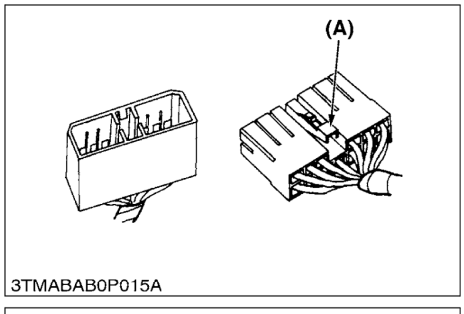
WSM00001GES001A

- Use fuses with specified capacity.
  Neither too large nor small capacity fuse is acceptable.
- Never use steel nor 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

WSM000001GEG0072US1

[4] CONNECTOR

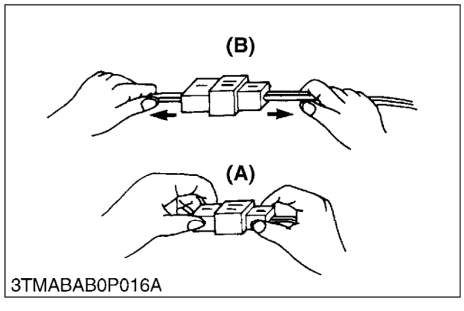


3TMABAB0P015A

- For connector with lock, push lock to separate.

(A) Push

WSM000001GEG0073US1

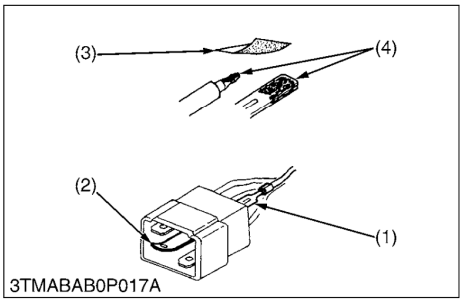


3TMABAB0P016A

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

(A) Correct
(B) Incorrect

WSM000001GEG0074US1

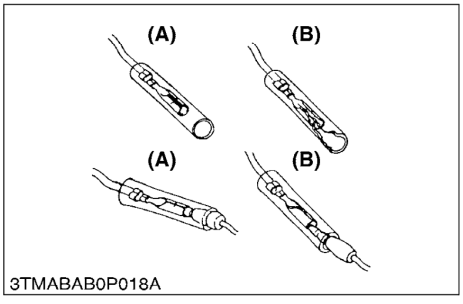


3TMABAB0P017A

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

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

WSM000001GEG0075US1

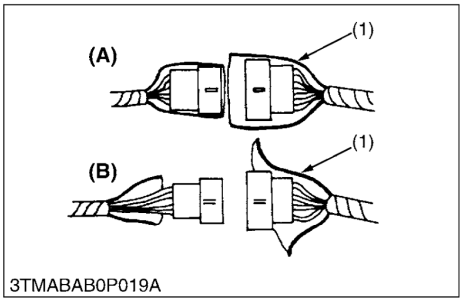


3TMABAB0P018A

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

(A) Correct
(B) Incorrect

WSM000001GEG0076US1



3TMABAB0P019A

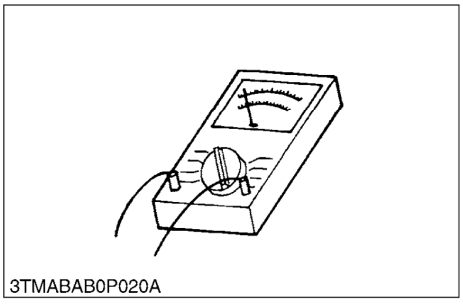
- Make sure that plastic cover is large enough to cover whole connector.

(1) Cover

(A) Correct
(B) Incorrect

WSM000001GEG0077US1

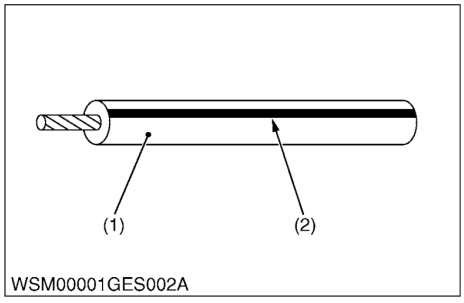
[5] HANDLING OF CIRCUIT TESTER


3TMABAB0P020A

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

WSM000001GEG0078US1

[6] COLOR OF WIRING



WSM00001GES002A

- 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

WSM000001GEG0079US0

4. LUBRICANTS, FUEL AND COOLANT

No.	Locations	Capacities	Lubricants	
		B3300SU		
1	Fuel	31 L 8.2 U.S.gals 6.8 Imp.gals	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below −10 °C (14 °F)	
2	Coolant (with recovery tank)	4.5 L 4.8 U.S.qts 4.0 Imp.qts	Fresh clean water with anti-freeze	
3	Engine crankcase (with filter)	5.4 L 5.7 U.S.qts 4.8 Imp.qts	Engine oil: Refer to next page	
			Above 25 °C (77 °F)	SAE30, 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	14.5 L 3.83 U.S.gals 3.19 Imp.gals	KUBOTA UDT or SUPER UDT fluid*	
5	Front axle case	4.5 L 4.8 U.S.qts 4.0 Imp.qts	KUBOTA UDT or SUPER UDT fluid*, SAE 80-SAE 90 gear oil	

Grease				
	Greasing	No. of greasing points	Capacity	Type of grease
6	Speed control pedal	1	Until grease overflow.	Multipurpose grease NLGI-2 or NLGI-1 (GC-LB)
	Clutch pedal	1		
	Top link	1		
	Lifting rod (RH)	1		
	Battery terminal	2	Moderate amount	

*KUBOTA original transmission hydraulic fluid.

■ **NOTE**

Engine Oil:

- **Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above:**
- **With the emission control now in effect, the CF-4 and CG-4 lubricating oils have been developed for use of a low-sulfur fuel on on-road vehicle engines. When an off-road vehicle engine runs on a high-dulfur fuel, it is advisable to employ the "CF or better" lubricating oil with a high Total Base Number (TBN of 10 minimum).**
- **Refer to the following table for the suitable API classification of engine oil according to the Fuel: (Low Sulfur or High Sulfur Fuels).**

Fuel used	Engine oil classification (API classification)
High Sulfur Fuel (≥ 500 ppm)	CF (If the "CF-4, CG-4, CH-4, or CI-4" lubricating oil is used with a high-sulfur fuel, change the lubricating oil at shorter intervals. (approximately half))
Low Sulfur Fuel (< 500 ppm) or Ultra Low Sulfur Fuel (< 15 ppm)	CF, CF-4, CG-4, CH-4 or CI-4

- **The CJ-4 engine oil is intended for DPF (Diesel Particulate Filter) type engines, and cannot be used on this tractor.**

Fuel:

- Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below −20 °C (−4 °F) or elevations above 1500 m (5000 ft).
- If diesel sulfur content greater than 0.5 % sulfur content is used, reduce the service interval for engine oil and filter by 50 %.
- DO NOT use diesel fuel with sulfur content greater than 1.0 %.
- Diesel fuels specified to EN 590 or ASTM D975 are recommended.
- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)
- Since this engine adopts EPA Tier 4 and Interim Tier 4 standards, the use of low sulfur fuel or ultra low sulfur fuel is mandatory in EPA regulated area (North America). Therefore, please use No.2-D S500 or S15 diesel fuel as an alternative to No.2-D, or use No.1-D S500 or S15 diesel fuel as an alternative to No.1-D if outside air temperature is below −10 °C (14 °F).

Transmission Oil:

The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and to complete lubrication of the transmission, it is important that a multi-grade transmission fluid is 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.

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

9Y1210519GEG0003US0

5. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLTS AND NUTS

Tighten screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual according to the table below.

Indication on top of bolt	4 No-grade or 4T			7 7T			9 9T		
Indication on top of nut	No-grade or 4T						6T		
Material of opponent part	Ordinariness			Aluminum			Ordinariness		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14	24 to 27	2.4 to 2.8	18 to 20
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25	48 to 55	4.9 to 5.7	36 to 41
M12	63 to 72	6.4 to 7.4	47 to 53	–	–	–	78 to 90	7.9 to 9.2	58 to 66
M14	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–	124 to 147	12.6 to 15.0	91.2 to 108
M16	167 to 191	17.0 to 19.5	123 to 141	–	–	–	197 to 225	20.0 to 23.0	145 to 166
M18	246 to 284	25.0 to 29.0	181 to 209	–	–	–	275 to 318	28.0 to 32.5	203 to 235
M20	334 to 392	34.0 to 40.0	246 to 289	–	–	–	368 to 431	37.5 to 44.0	272 to 318

Material of opponent part	Ordinariness			Aluminum			Ordinariness		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14	24 to 27	2.4 to 2.8	18 to 20
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25	48 to 55	4.9 to 5.7	36 to 41
M12	63 to 72	6.4 to 7.4	47 to 53	–	–	–	78 to 90	7.9 to 9.2	58 to 66
M14	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–	124 to 147	12.6 to 15.0	91.2 to 108
M16	167 to 191	17.0 to 19.5	123 to 141	–	–	–	197 to 225	20.0 to 23.0	145 to 166
M18	246 to 284	25.0 to 29.0	181 to 209	–	–	–	275 to 318	28.0 to 32.5	203 to 235
M20	334 to 392	34.0 to 40.0	246 to 289	–	–	–	368 to 431	37.5 to 44.0	272 to 318

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

[2] STUD BOLTS

[3] 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
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	76.0 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

WSM000001GEG0003US1

[4] 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
1/4	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
5/16	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
3/8	48 to 56	4.9 to 5.7	36 to 41	61 to 73	6.3 to 7.4	45 to 53
1/2	110 to 130	11.3 to 13.2	81.2 to 95.8	150 to 178	15.3 to 18.1	111 to 131
9/16	150 to 178	15.3 to 18.1	111 to 131	217 to 260	22.2 to 26.5	160 to 191
5/8	204 to 244	20.8 to 24.8	151 to 179	299 to 357	30.5 to 36.4	221 to 263

WSM000001GEG0008US1

[5] PLUGS

Shape	Size	Material of opponent part					
		Ordinariness			Aluminum		
		N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
Tapered screw 	R1/8	13 to 21	1.3 to 2.2	9.4 to 15	13 to 19	1.3 to 2.0	9.4 to 14
	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 to 58	5.0 to 6.0	37 to 43
	R1/2	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
Straight screw 	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	–	–	–

WSM000001GEG0005US1

6. MAINTENANCE CHECK LIST

No.	Item			Indication on hour meter										Important		Reference page
				50	100	150	200	250	300	350	400	450	500			
1	Engine oil		Change	★			☆				☆					G-15
2	Engine oil filter		Replace	★			☆				☆					G-15
3	Transmission oil filter (for HST)		Replace	★			☆				☆					G-16
4	Hydraulic oil filter		Replace								☆					G-27
5	Transmission fluid		Change								☆					G-28
6	Transmission strainer		Clean								☆					G-29
7	Front axle case oil		Change								☆					G-30
8	Front axle pivot		Adjust								☆					G-29
9	Engine start system		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-18
10	Greasing		–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-19
11	Wheel bolt torque		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-20
12	Battery condition		Check		☆		☆		☆		☆		☆	*4		G-21
13	Air cleaner element	Primary element	Clean		☆		☆		☆		☆		☆	*1	@	G-23
			Replace											*2		G-31
		Secondary element	Replace													G-31
14	Fuel filter element		Clean		☆		☆		☆		☆		☆		@	G-23
			Replace								☆					G-30
15	Fan belt		Adjust		☆		☆		☆		☆		☆			G-24
16	Clutch		Adjust	★	☆		☆		☆		☆		☆			G-17
17	Brake		Adjust		☆		☆		☆		☆		☆			G-24
18	Radiator hose and clamp		Check				☆				☆					G-26
			Replace													G-32
19	Fuel line		Check		☆		☆		☆		☆		☆		@	G-25
			Replace													G-31
20	Intake air line		Check				☆				☆				@	G-25
			Replace													G-31
21	Toe-in		Adjust				☆				☆					G-26
22	Engine valve clearance		Adjust													G-31
23	Fuel injection nozzle injection pressure		Check												@	G-31
24	Injection pump		Check												@	G-31
25	Cooling system		Flush													G-32
26	Coolant		Change													G-32
27	Fuel system		Bleed													G-35
28	Clutch housing water		Drain													G-35
29	Fuse		Replace													G-35
30	Light bulb		Replace													G-36

■ **IMPORTANT**

- **The jobs indicated by ★ must be done after the first 50 hours of operation.**
- ***1: Air cleaner should be cleaned more often in dusty conditions than in normal conditions.**
- ***2: Every year or every 6 times of cleaning.**
- ***3: Replace only if necessary.**
- ***4: When the battery is used for less than 100 hours per year, check the fluid level annually.**
- **The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA non road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.**

No.	Item			Indication on hour meter								After purchase		Important		Reference page
				550	600	650	700	750	800	1500	3000	1 year	2 years			
1	Engine oil		Change		☆				☆							G-15
2	Engine oil filter		Replace		☆				☆							G-15
3	Transmission oil filter (for HST)		Replace		☆				☆							G-16
4	Hydraulic oil filter		Replace						☆							G-27
5	Transmission fluid		Change						☆							G-28
6	Transmission strainer		Clean						☆							G-29
7	Front axle case oil		Change						☆							G-30
8	Front axle pivot		Adjust						☆							G-29
9	Engine start system		Check	☆	☆	☆	☆	☆	☆							G-18
10	Greasing		–	☆	☆	☆	☆	☆	☆							G-19
11	Wheel bolt torque		Check	☆	☆	☆	☆	☆	☆							G-20
12	Battery condition		Check		☆		☆		☆					*4		G-21
13	Air cleaner element	Primary element	Clean		☆		☆		☆					*1	@	G-23
			Replace									☆		*2		G-31
		Secondary element	Replace									☆				G-31
14	Fuel filter element		Clean		☆		☆		☆						@	G-23
			Replace						☆							G-30
15	Fan belt		Adjust		☆		☆		☆							G-24
16	Clutch		Adjust		☆		☆		☆							G-17
17	Brake		Adjust		☆		☆		☆							G-24
18	Radiator hose and clamp		Check				☆									G-26
			Replace										☆			G-32
19	Fuel line		Check		☆		☆		☆						@	G-25
			Replace										☆			G-31
20	Intake air line		Check				☆								@	G-25
			Replace										☆			G-31
21	Toe-in		Adjust				☆									G-26
22	Engine valve clearance		Adjust						☆							G-31
23	Fuel injection nozzle injection pressure		Check							☆					@	G-31
24	Injection pump		Check								☆				@	G-31
25	Cooling system		Flush										☆			G-32
26	Coolant		Change										☆			G-32
27	Fuel system		Bleed									Service as required				G-35
28	Clutch housing water		Drain													G-35
29	Fuse		Replace													G-35
30	Light bulb		Replace													G-36

■ IMPORTANT

- **The jobs indicated by ★ must be done after the first 50 hours of operation.**
- ***1: Air cleaner should be cleaned more often in dusty conditions than in normal conditions.**
- ***2: Every year or every 6 times of cleaning.**
- ***3: Replace only if necessary.**
- ***4: When the battery is used for less than 100 hours per year, check the fluid level annually.**
- **The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA non road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.**

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7. CHECK AND MAINTENANCE

CAUTION

- **Be sure to check and service the tractor on a flat place with engine shut off, the parking brake on and chock the wheels.**

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[1] DAILY CHECK

To prevent trouble from occurring, it is important to know the condition of the tractor. Check the following items before starting.

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Checking

- Check areas where previous trouble was experienced.
- Walk around the tractor.

1. Check the tire pressure, and check for wear and damage.
2. Check for oil and water leaks.
3. Check the engine oil level.
4. Check the transmission fluid level.
5. Check the coolant level.
6. Check the condition of seat belt and ROPS attaching hardware.
7. Check and clean the radiator screen and grille.
8. Check the nuts of the tires are tight.
9. Check the number plate or SMV emblem for damage and cleaner replace as necessary if equipped.
10. Care of danger, warning and caution labels.
11. Clean around the exhaust manifold and the muffler of the engine.

- While sitting in the operator's seat.

1. Check the HST pedal, brake pedals and clutch pedal.
2. Check the parking brake.
3. Check the steering wheel.

- Turning the key switch.

1. Check the performance of the Easy Checker™ lights.
2. Check the head lights, tail lights and hazard lights. Clean if necessary.
3. Check the performance of the meters and gauges.

- Starting the engine.

1. Check to see that the lights on the Easy Checker™ go off.
2. Check the color of the exhaust gas.
3. Check the brakes for proper operation.

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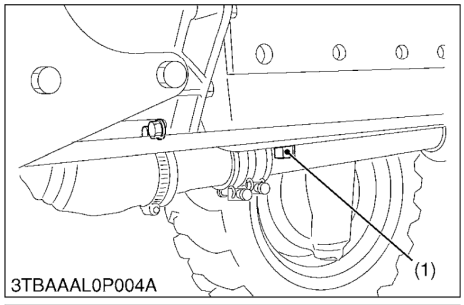
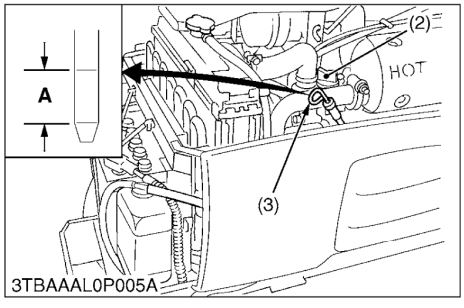
[2] CHECK POINTS OF INITIAL 50 HOURS





Changing Engine Oil

CAUTION

To avoid personal injury:

- **Be sure to stop the engine and remove the key before changing the oil.**
- **Allow engine to cool down sufficiently, oil can be not and can burn.**

1. Place an oil pan underneath the engine.
2. To drain the used oil, remove the drain plug (1) at the bottom of the engine and drain the oil completely.
3. Screw in the drain plug (1).
4. Fill with the new oil up to the upper notch on the dipstick.

IMPORTANT

- **Never mix two different types of oil.**
- **Use the proper SAE Engine Oil according to ambient temperatures.**
- **Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-8.)**

Engine oil	Capacity	5.4 L 5.7 U.S.qts 4.8 Imp.qts

(1) Drain Plug
(2) Oil Inlet
(3) Dipstick
A: Proper Oil Level

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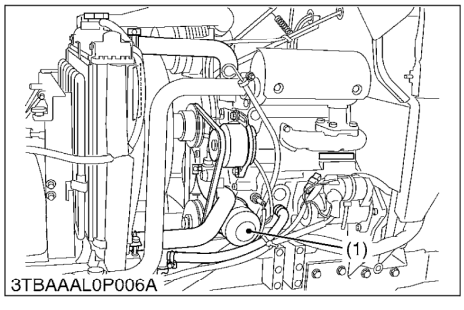

Replacing Engine Oil Filter Cartridge

CAUTION

- **Be sure to stop the engine before changing oil filter cartridge.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Remove the oil filter cartridge with the filter wrench.
2. Apply a slight coat of oil onto the cartridge gasket.
3. To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
4. After the new cartridge has been replaced, the engine oil normally decrease a little. Thus see that the engine oil does not leak through the seal and be sure to read the oil level on the dipstick. Then, replenish the engine oil up to the specified level.

IMPORTANT

- **To prevent serious damage to the engine, replacement element must be highly efficient. Use only a KUBOTA genuine filter or its equivalent.**

(1) Engine Oil Filter Cartridge

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