

# WSM

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WORKSHOP MANUAL  
**TRACTOR**

**L2501**

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**Kubota**

# TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of the L2501. It contains 4 parts: "**Information**", "**General**", "**Mechanism**" and "**Servicing**".

## ■ **Information**

This section primarily contains information below.

- Safety First
- Safety Decal
- Specifications
- Dimensions

## ■ **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, 2014**

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# **| 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 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.

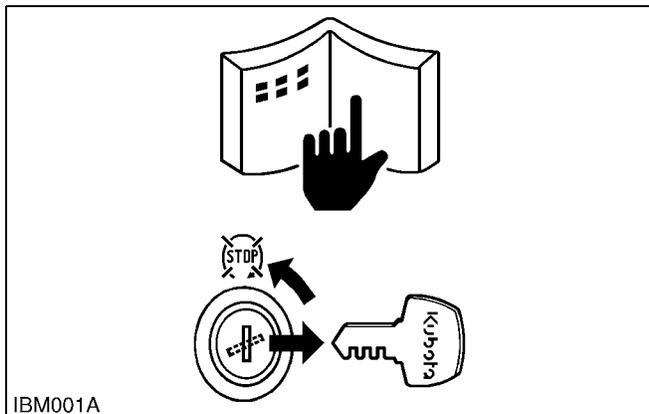
### ■ IMPORTANT

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

### ■ NOTE

- Gives helpful information.

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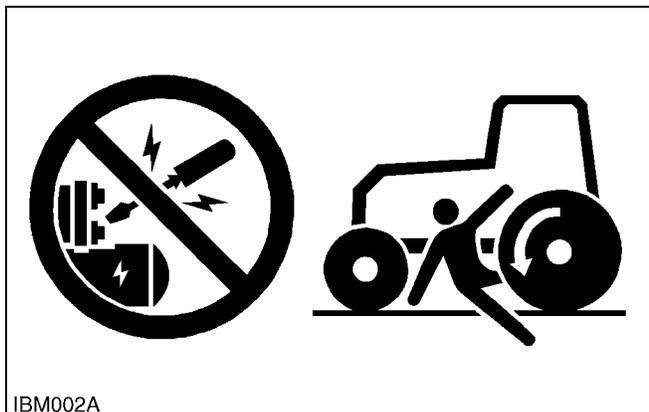


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### BEFORE YOU START SERVICE

- 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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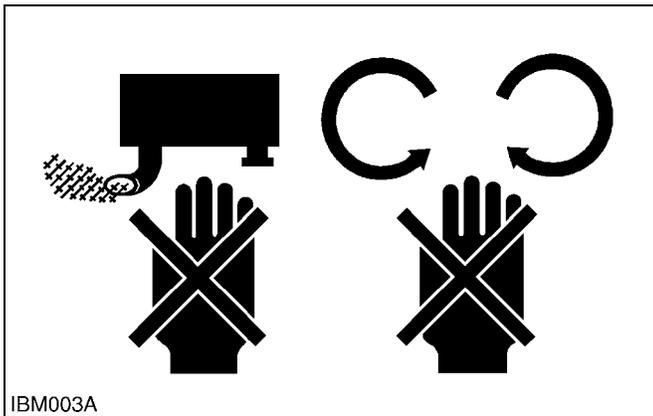


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### START SAFELY

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

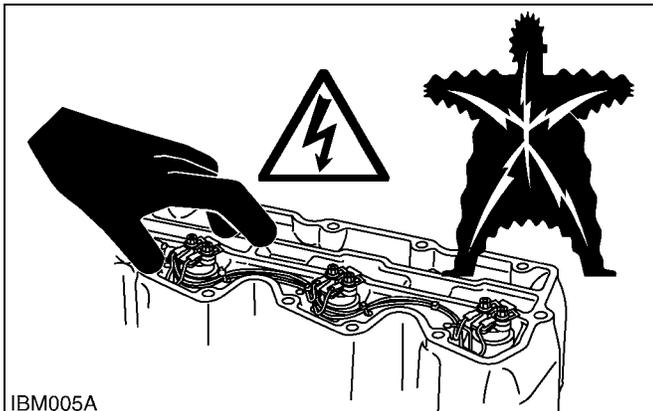
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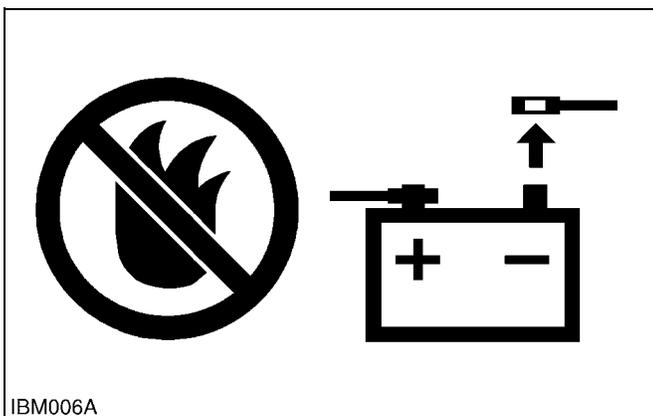
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## OPERATE SAFELY

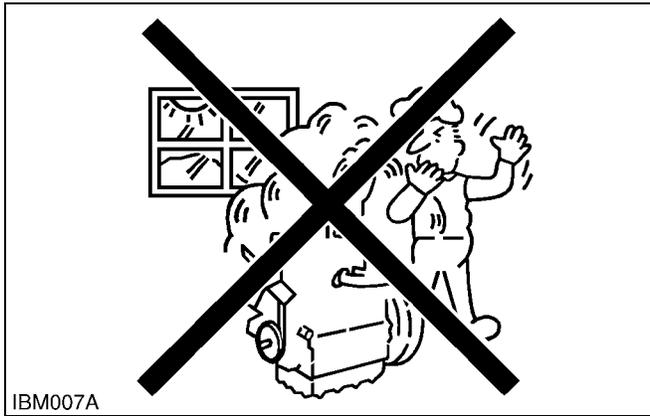
- Do not use the machine after you consume alcohol or medication or when you are tired.
- Put on applicable clothing and safety equipment.
- Use applicable tools only. Do not use alternative tools or parts.
- When 2 or more persons do servicing, make sure that you do it safely.
- Do not operate below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

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## PREVENT A FIRE

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

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### KEEP A GOOD AIRFLOW IN THE WORK AREA

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

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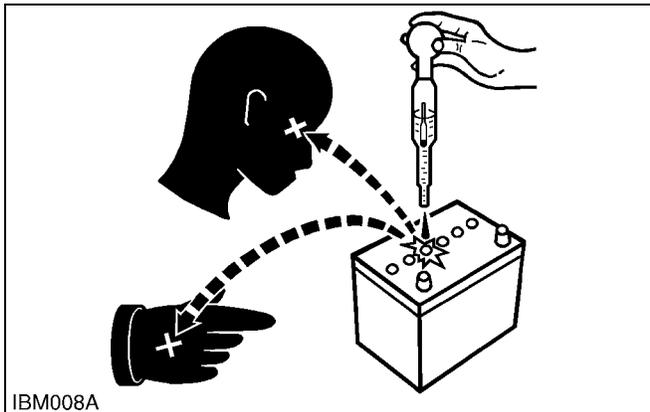


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### DISCARD FLUIDS CORRECTLY

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

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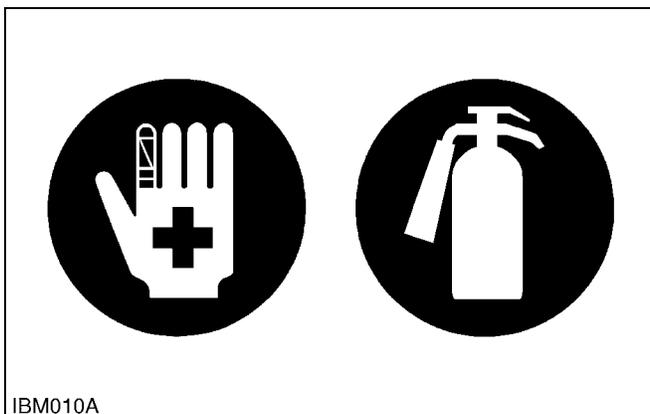


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### PREVENT ACID BURNS

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

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### PREPARE FOR EMERGENCIES

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

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## 2. SAFETY DECALS

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

WSM000001INI0013US0

(1) Part No. TA040-4965-2

	<p><b>⚠ DANGER</b></p>
	<p><b>TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.</b></p> <ol style="list-style-type: none"> <li>1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.</li> <li>2. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground.</li> </ol>

(4) Part No. 6C300-4744-1

<p><b>⚠ WARNING</b></p>
<p>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.</p>

(2) Part No. TA040-4959-3

	<p><b>⚠ WARNING</b></p>
	<p><b>TO AVOID PERSONAL INJURY.</b></p> <ol style="list-style-type: none"> <li>1. Keep PTO shield in place at all times.</li> <li>2. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer</li> <li>3. For trailing PTO-driven implements, set drawbar at towing position. (see operator's manual)</li> </ol>

(5) Part No. TC230-4956-1

<p>Diesel fuel only.</p> 	<p>No fire</p> 
<p><b>LOW SULFUR FUEL OR ULTRA LOW SULFUR FUEL ONLY</b></p>	

(3) Part No. TA140-4933-1 [Manual Transmission Type]

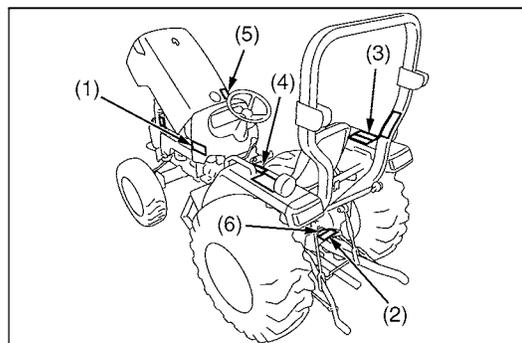
	<p><b>⚠ WARNING</b></p>
	<p><b>BEFORE DISMOUNTING TRACTOR:</b></p> <ol style="list-style-type: none"> <li>1. ALWAYS SET PARKING BRAKE.</li> <li>2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope.</li> <li>3. LOWER ALL IMPLEMENTS TO THE GROUND. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death.</li> <li>4. LOCK SHUTTLE SHIFT LEVER IN NEUTRAL POSITION AND STOP THE ENGINE.</li> </ol>

(6) Part No. TA040-4935-1

<p><b>⚠ WARNING</b></p>
<p><b>TO AVOID PERSONAL INJURY:</b></p> <ol style="list-style-type: none"> <li>1. Attach pulled or towed loads to the drawbar only.</li> <li>2. Use the 3-point hitch only with equipment designed for 3-point hitch usage.</li> </ol>

(3) Part No. TD170-4933-1 [HST Type]

	<p><b>⚠ WARNING</b></p>
	<p><b>BEFORE DISMOUNTING TRACTOR:</b></p> <ol style="list-style-type: none"> <li>1. ALWAYS SET PARKING BRAKE. Leaving transmission in gear with the engine stopped will not prevent tractor from rolling.</li> <li>2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope.</li> <li>3. LOWER ALL IMPLEMENTS TO THE GROUND. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death.</li> <li>4. STOP THE ENGINE.</li> </ol>



(1) Part No. TC660-4997-1

**⚠ WARNING**

**TO AVOID PERSONAL INJURY OR DEATH:**

1. Read and understand the operator's manual before operation.
2. Before starting the engine, make sure that everyone is at a safe distance from the tractor and that the PTO is OFF.
3. Do not allow passengers on the tractor at any time.
4. Before allowing other people to use the tractor, have them read the operator's manual.
5. Check the tightness of all nuts and bolts regularly.
6. Keep all shields in place and stay away from all moving parts.
7. Lock the two brake pedals together before driving on the road.
8. Slow down for turns, or rough roads, or when applying individual brakes.
9. On public roads use SMV emblem and hazard lights, if required by local traffic and safety regulations.
10. Pull only from the drawbar.
11. Before dismounting, lower the implement to the ground, set the parking brake, stop the engine and remove the key.
12. Securely support tractor and implements before working underneath.

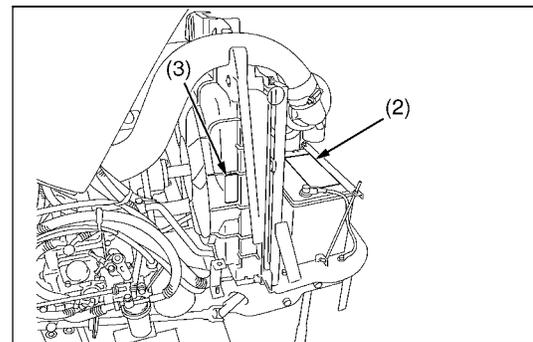
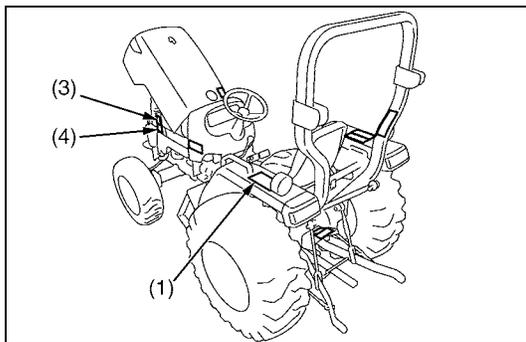
(3) Part No. 6C090-4958-2  
Do not get your hands close to engine fan and fan belt.



(2) Part No. TD020-3012-3

 FLAMMABLES	 SHIELD EYES	 KEEP OUT OF THE REACH OF CHILDREN	 CAUTION OF SULFURIC ACID	 READ INSTRUCTION MANUAL CAREFULLY	 EXPLOSIVE
<p><b>⚠ DANGER EXPLOSIVE GASES</b> Cigarettes, flames or sparks could cause battery to explode. Always shield eyes and face from battery. Do not charge or use booster cables or adjust post connections without proper instruction and training.</p> <p><b>⚠ POISON CAUSES SEVERE BURNS</b> Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of accident flush with water and call a physician immediately.</p> <p><b>KEEP OUT OF REACH OF CHILDREN</b></p>					
<p><b>⚠ DANGER</b> SULFURIC ACID MAY CAUSE BLINDNESS OR SEVERE BURN. IN CASE EYES, SKIN, CLOTHES OR ANY ARTICLES ARE SPILLED WITH ACID, FLUSH OBJECTS IMMEDIATELY WITH WATER. IF ACID BEING SWALLOWED, DRINK PLENTY OF WATER PROMPTLY. IN CASE OF ACCIDENTAL CONTACT, CONSULT A DOCTOR IMMEDIATELY.</p> <p><b>⚠ BATTERY FILLED WITH ACID. DO NOT TILT OR SPILL. - FLAMMABLE. DO NOT CHARGE NEAR FIRE OR SPARKS. - DO NOT CHARGE RAPIDLY. - DO NOT DISASSEMBLE THE BATTERY - SEALED TYPE.</b></p>					
<p><b>PROPOSITION 65 WARNING</b> BATTERY POSTS, TERMINALS, AND RELATED ACCESSORIES CONTAIN LEAD AND LEAD COMPOUNDS, CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND REPRODUCTIVE HARM. WASH HANDS AFTER HANDLING.</p>					
<p>S.O.C INDICATOR    <input type="radio"/> OK    <input type="radio"/> CHARGE BATTERY    <input type="radio"/> REPLACE BATTERY</p>					
<p>FITTING DATE    0 1 2 3 4 5 6 7 8 9 YEAR 1 2 3 4 5 6 7 8 9 10 11 12 MONTH</p>					
<p><b>75D26R</b> <b>12V</b></p>		<p><b>490CCA (SAE)</b> <b>65Ah(20HR)</b></p>		<p><b>460CCA (EN)</b> <b>RC 123(MIN)</b></p>	
DK 85462					

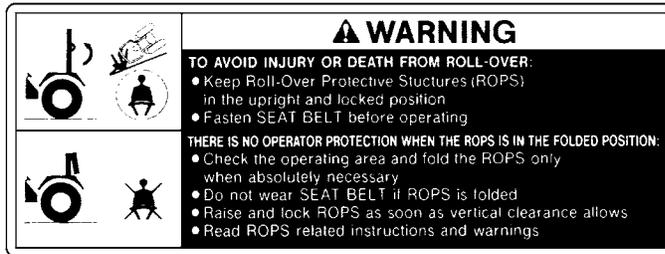
(4) Part No. TC030-4958-1  
Do not touch hot surface like muffler etc.



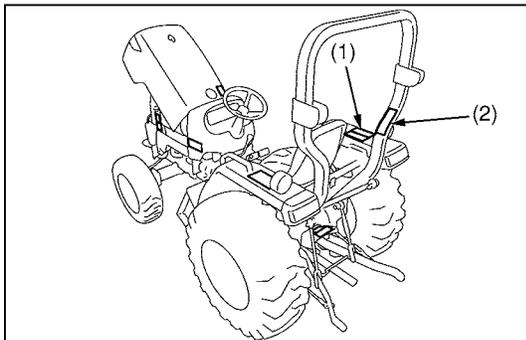
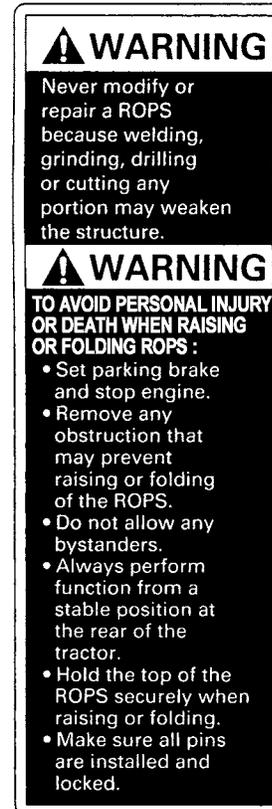
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9Y1211121INI0002US0

(1) Part No. TA240-9848-2



(2) Part No. 6C540-9554-1



9Y1211121ICI002US

9Y1211121INI0003US0

### **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 replace 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		L2501			
		Manual Transmission		HST	
		2WD	4WD	4WD	
PTO power*		15.3 kW (20.5 HP)		14.2 kW (19.0 HP)	
Engine	Maker	KUBOTA			
	Model	D1703-M-DI-E4			
	Type	Indirect injection, Vertical, Water-cooled 4 cycle diesel			
	Number of cylinders	3			
	Bore and stroke	87 × 92.4 mm (3.4 × 3.6 in.)			
	Total displacement	1.647 L (100.47 cu.in.)			
	Engine gross power*	18.5 kW (24.8 HP)			
	Engine net power*	17.8 kW (23.9 HP)			
	Rated revolution	36.7 rps (2200 min <sup>-1</sup> (rpm))			
	Low idling revolution	17.5 to 19.2 rps (1050 to 1150 min <sup>-1</sup> (rpm))			
	Maximum torque	95.2 N·m (9.71 kgf·m, 70.2 lbf·ft)			
Battery	12 V RC: 123 min., CCA: 490 A				
Capacities	Fuel tank	38.0 L (10.0 U.S.gals, 8.4 Imp.gals)			
	Engine crankcase (with filter)	5.7 L (6.0 U.S.qts, 5.0 Imp.qts)			
	Engine coolant	6.0 L (6.3 U.S.qts, 5.3 Imp.qts)			
	Transmission case	27.0 L (7.1 U.S.gals, 5.9 Imp.gals)	27.5 L (7.3 U.S.gals, 6.1 Imp.gals)	23.5 L (6.2 U.S.gals, 5.2 Imp.gals)	
Dimensions	Overall length (without 3P)	2810 mm (110.6 in.)	2700 mm (106.3 in.)		
	Overall width (min. tread)	1400 mm (55.1 in.)			
	Overall height (with ROPS)	2330 mm (91.7 in.)			
	Overall height (Top of steering wheel)	1475 mm (58.1 in.)			
	Wheel base	1610 mm (63.3 in.)			
	Min. ground clearance	345 mm (13.6 in.)	340 mm (13.4 in.)		
	Tread	Front 1050 mm (41.3 in.)	1095 mm (43.1 in.)		
	Rear	1115 mm (43.8 in.), 1195 mm (47.1 in.), 1290 mm (50.8 in.)			
Weight (with ROPS)		1100 kg (2425 lbs)	1180 kg (2601 lbs)	1190 kg (2623 lbs)	
Traveling system	Tires	AG front	5-15	7-16	
		AG rear	11.2-24		
	Indust. (option)	Front	N/A	27 × 8.50-15	
		Rear	N/A	15-19.5 R4	
	Clutch	Dry type single stage			
	Steering	Integral type power steering			
	Transmission	Gear shaft, 8 forward and 4 reverse		Hydrostatic transmission, 3 range speed	
	Brake	Wet disk type			
Min. turning radius (with brake)	2.4 m (7.9 feet)	2.5 m (8.2 feet)			
Hydraulic unit	Hydraulic control system	Position control			
	Pump capacity (main)	20.9 L/min. (5.52 U.S.gals/min., 4.60 Imp.gals/min.)			
	Pump capacity (PS)	12.7 L/min. (3.36 U.S.gals/min., 2.79 Imp.gals/min.)			
	Three point hitch	Category 1			
	Max. lift force	At lift points	870 kg (1918 lbs)		
		24 in. behind lift points	630 kg (1389 lbs)		
System pressure	15.2 MPa (155 kgf/cm <sup>2</sup> , 2205 psi)				
PTO	Rear PTO	PTO shaft size	SAE 1-3/8, 6-splines		
		Type	Transmission driven with overrunning	Live-continuous running	
	PTO / Engine speed	540 / 1910 min <sup>-1</sup> (rpm)		540 / 2105 min <sup>-1</sup> (rpm)	

■ **NOTE**

- \*Manufacturer's estimate

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

9Y1211121INI0005US0

## 4. TRAVELING SPEEDS

### ■ Manual Transmission Type

(At rated engine rpm)

Model			L2501	
Tire size (Rear)			11.2-24	
Shuttle shift lever	Range gear shift lever	Main gear shift lever	km/h	mph
Forward	Low	1	1.4	0.9
		2	1.8	1.1
		3	2.6	1.8
		4	4.5	2.8
	High	1	5.3	3.3
		2	6.9	4.3
		3	10.0	6.2
		4	17.3	10.7
Reverse	Reverse	1	1.9	1.2
		2	2.5	1.8
		3	3.6	2.3
		4	6.2	3.9

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

### ■ HST Type

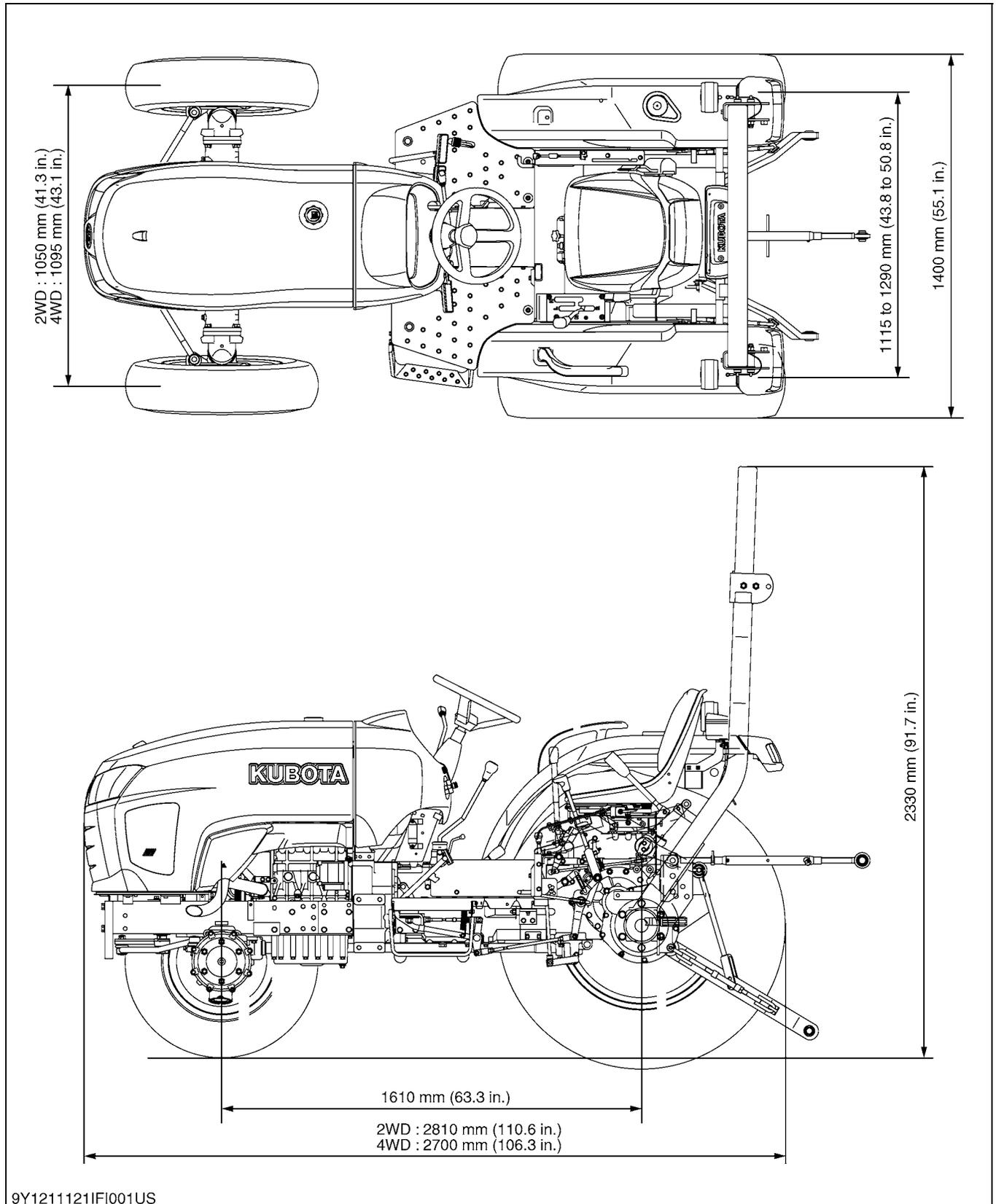
(At rated engine rpm)

Model		L2501	
Tire size (Rear)		11.2-24	
	Range gear shift lever	km/h	mph
Forward	L	5.7	3.5
	M	9.9	6.2
	H	18.5	11.5
Reverse	L	5.2	3.2
	M	8.9	5.5
	H	16.6	10.3

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

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# 5. DIMENSIONS



9Y1211121IFI001US

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# **G GENERAL**

# GENERAL

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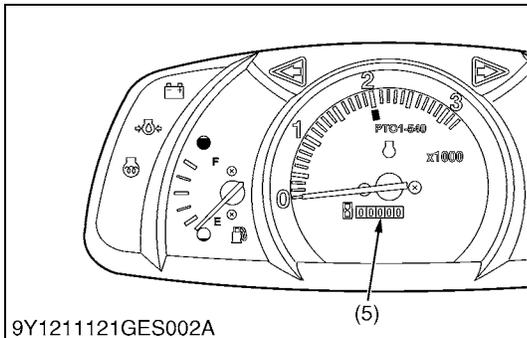
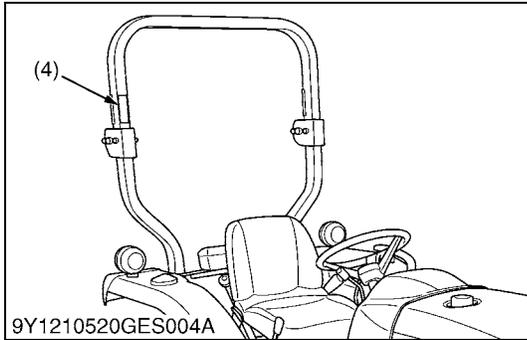
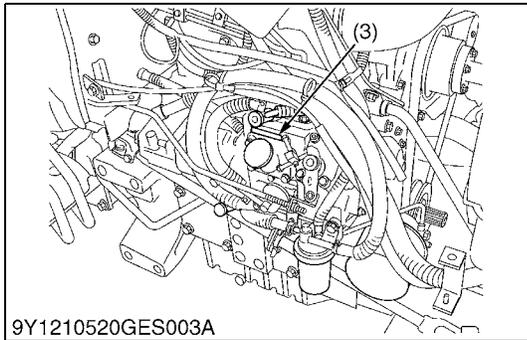
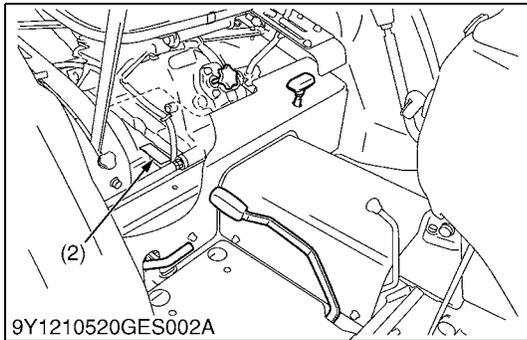
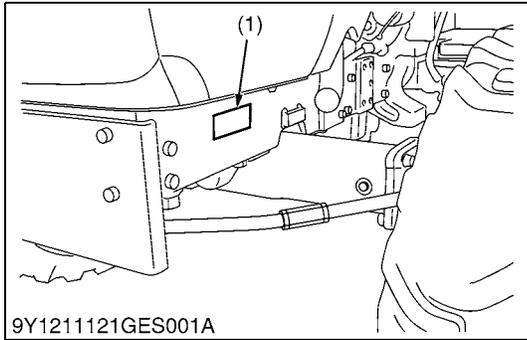
# 1. TRACTOR IDENTIFICATION

## [1] MODEL NAME AND SERIAL NUMBERS

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

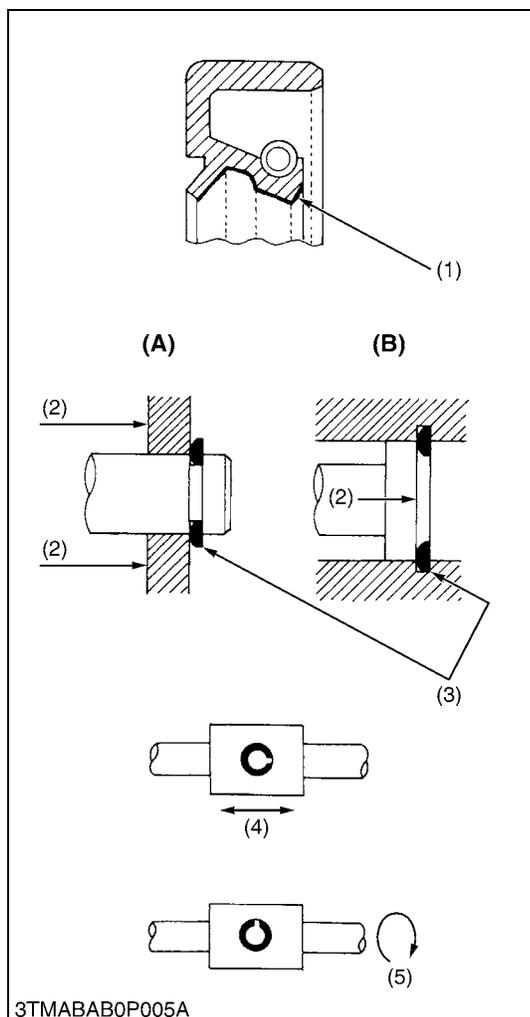
- |                                  |   |
|----------------------------------|---|
| (1) Tractor Identification Plate | (4) ROPS Identification Plate<br>(ROPS Serial Number) |
| (2) Tractor Serial Number        | (5) Hour Meter  |
| (3) Engine Serial Number         |   |

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## 2. GENERAL PRECAUTIONS



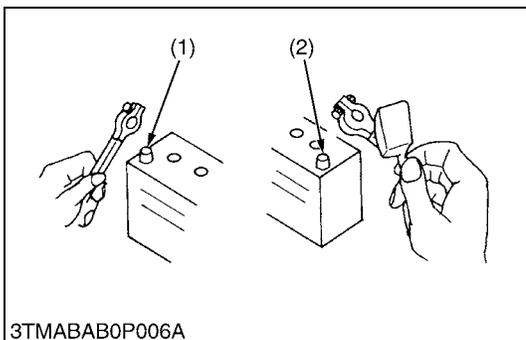
- When you disassemble, carefully put the parts in a clean area to make it easy to find the parts. You must install the screws, bolts and nuts in their initial position to prevent the reassembly errors.
- When it is necessary to use special tools, use KUBOTA special tools. Refer to the drawings when 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 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



3TMABAB0P006A

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

■ **IMPORTANT**

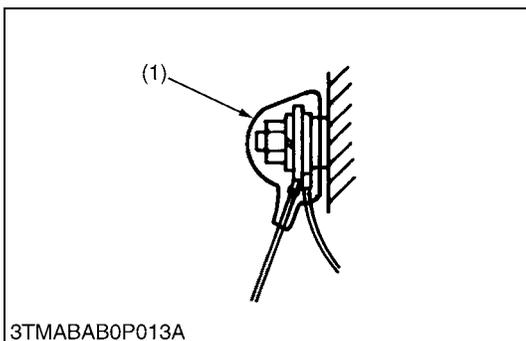
- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not try to modify or remodel any electrical parts and wiring.
- When removing the battery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

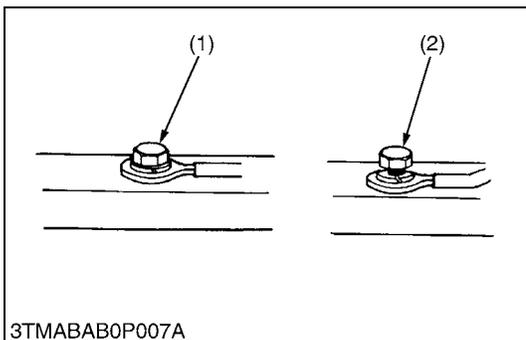


3TMABAB0P013A

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

(1) Cover  
(Securely Install Cover)

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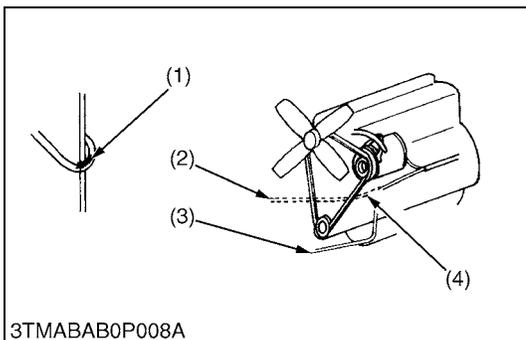
3TMABAB0P007A

- 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.

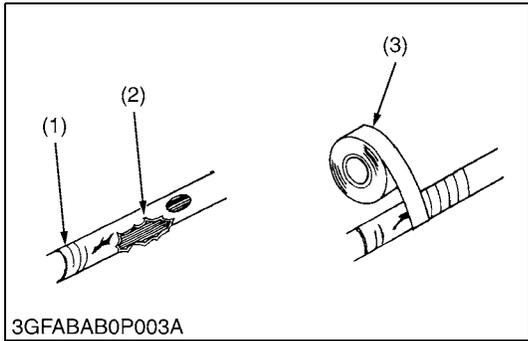
(1) Dangerous Part (Sharp Edge)

(3) Wiring (Correct)

(2) Wiring (Incorrect)

(4) Dangerous Part

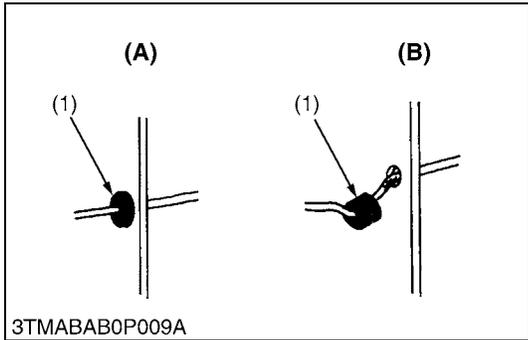
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• Repair or change torn or aged wiring immediately.

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

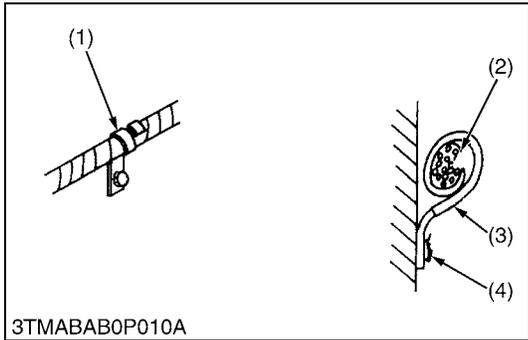
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• Securely insert grommet.

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

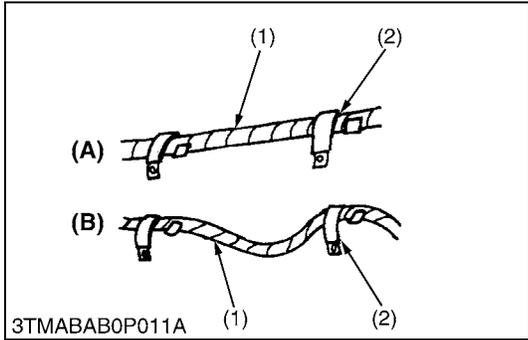
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• Securely clamp, being careful not to damage wiring.

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

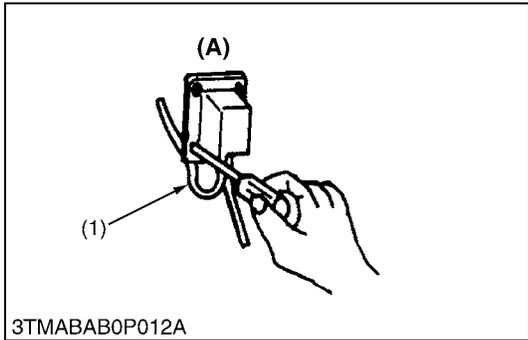
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• Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag be required.

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

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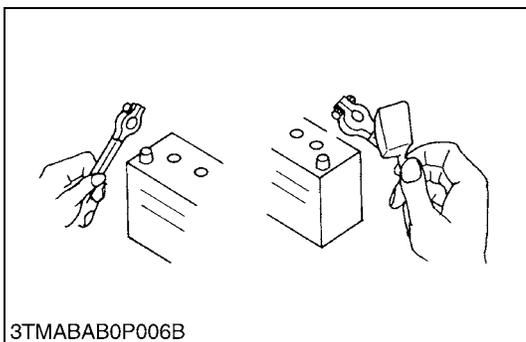


• In installing a part, be careful not to get wiring caught by it.

- (1) Wiring
- (A) Incorrect

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## [2] BATTERY



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- 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.

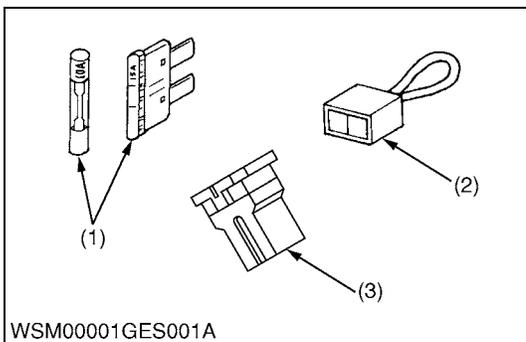
### **⚠ DANGER**

To avoid serious injury or death:

- 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.

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## [3] FUSE



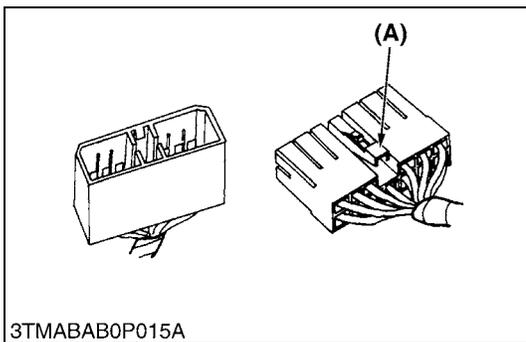
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- Use fuses with specified capacity. Neither too large nor small capacity fuse is acceptable.
- Never use steel nor copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of reserve power supply is exceeded.

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

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## [4] CONNECTOR

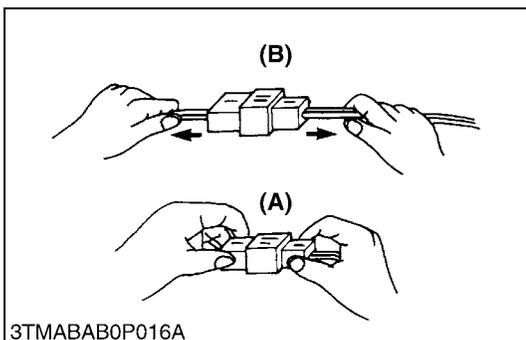


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- For connector with lock, push lock to separate.

(A) Push

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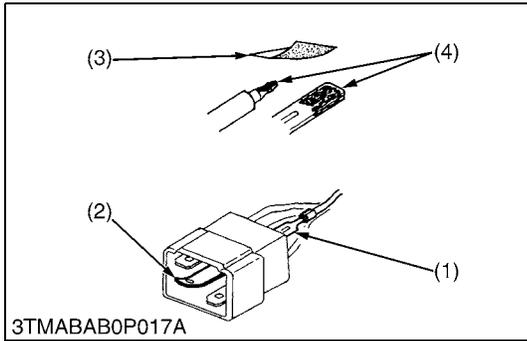


3TMABAB0P016A

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

(A) Correct (B) Incorrect

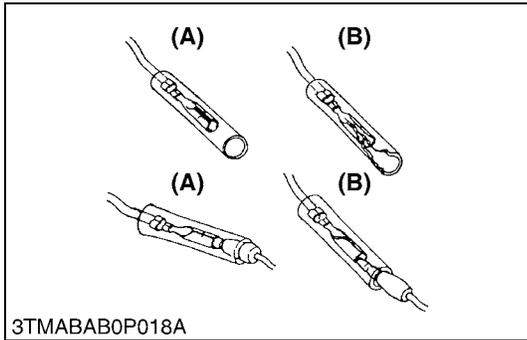
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- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make sure that there is no terminal being exposed or displaced.

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

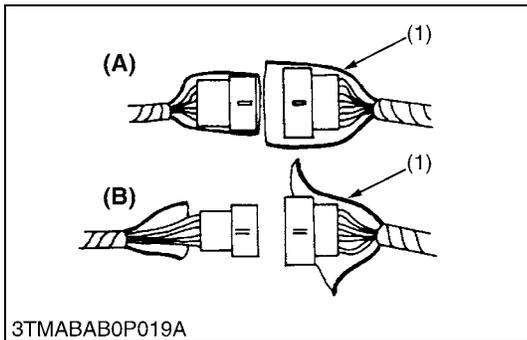
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- Make sure that there is no female connector being too open.

- (A) Correct
- (B) Incorrect

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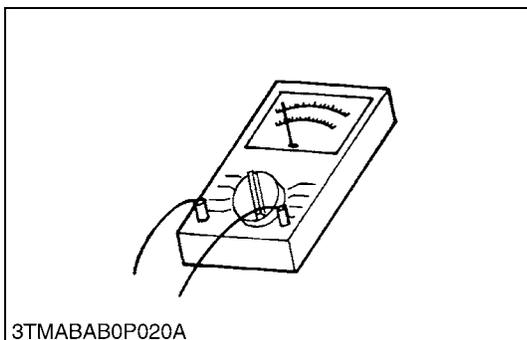


- Make sure that plastic cover is large enough to cover whole connector.

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

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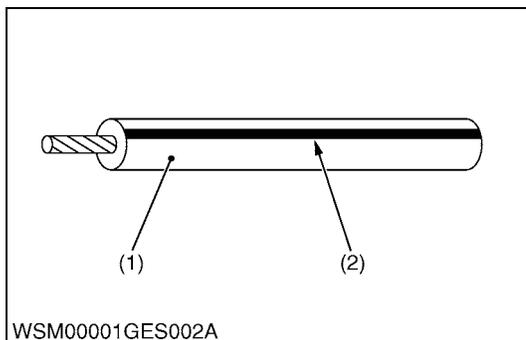
## [5] CIRCUIT TESTER



- 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, fuel and coolant
			L2501	
1	Fuel		38.0 L 10.0 U.S.gals 8.4 Imp.gals	<ul style="list-style-type: none"> <li>No. 2-D diesel fuel</li> <li>No. 1-D diesel fuel if temperature is below <math>-10\text{ }^{\circ}\text{C}</math> (<math>14\text{ }^{\circ}\text{F}</math>)</li> </ul>
2	Coolant		6.0 L 6.3 U.S.qts 5.3 Imp.qts	Fresh clean water with anti-freeze
3	Engine crankcase (with filter)		5.7 L 6.0 U.S.qts 5.0 Imp.qts	Engine oil: Refer to next page. <ul style="list-style-type: none"> <li>Above <math>25\text{ }^{\circ}\text{C}</math> (<math>77\text{ }^{\circ}\text{F}</math>) SAE30, 10W-30 or 15W-40</li> <li><math>-10</math> to <math>25\text{ }^{\circ}\text{C}</math> (<math>14</math> to <math>77\text{ }^{\circ}\text{F}</math>) SAE20, 10W-30 or 15W-40</li> <li>Below <math>-10\text{ }^{\circ}\text{C}</math> (<math>14\text{ }^{\circ}\text{F}</math>) SAE10W-30</li> </ul>
4	Transmission case	Manual Transmission, 2WD	27.0 L 7.1 U.S.gals 5.9 Imp.gals	KUBOTA SUPER UDT-2 fluid
	Transmission case	Manual Transmission, 4WD	27.5 L 7.3 U.S.gals 6.1 Imp.gals	
	Transmission case	HST, 4WD	23.5 L 6.2 U.S.gals 5.2 Imp.gals	
5	Front axle case (4WD)		4.5 L 4.8 U.S.qts 4.0 Imp.qts	KUBOTA SUPER UDT-2 fluid or SAE80-90 gear oil

Greasing				
No.	Place	No. of greasing point	Capacity	Type of grease
6	Front wheel hub (2WD)	2	A small amount	Bearing grease
	Knuckle shaft (2WD)	2	Until grease overflows	Multipurpose type grease NLGI-2 or NLGI-1 (GC-LB)
	Front axle support (4WD)	2		
	Clutch pedal	1		
	Brake pedal	1		
	Pedal shaft	1		
	Battery terminal	2		
	Lift rod	1		
Tie-rod end (4WD)	4			

### NOTE

- The product name of KUBOTA genuine UDT fluid may be different from that in the Operator's Manual depending on countries or territories.

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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:
- Refer to the following table for the suitable API classification engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the fuel.

Fuel used	Engine oil classification (API classification)	
	Oil class of engines except external EGR	Oil class of engines with external EGR
Ultra Low Sulfur Fuel [< 0.0015 % (15 ppm)]	<b>CF, CF-4, CG-4, CH-4 or CI-4</b>	<b>CF or CI-4</b> (Class CF-4, CG-4 and CH-4 engine oils cannot be used on EGR type engines)

EGR: Exhaust Gas Re-circulation

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

	except external EGR	with external EGR
Models	L2501	—

**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).
- 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)

**Transmission Oil**

- **KUBOTA Super UDT-2: For an enhanced ownership experience, we highly recommend Super UDT-2 to be used instead of standard hydraulic/transmission fluid.**  
Super UDT-2 is a proprietary KUBOTA formulation that delivers superior performance and protection in all operating conditions.  
Regular UDT is also permitted for use in this machine.

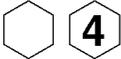
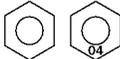
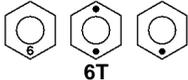
- Indicated capacities of water and oil are manufacturer's estimate.

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## 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	 No-grade or 4T						 7T						 9T		
Indication on top of nut	 No-grade or 4T												 6T		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
M6	7.9	0.80	5.8	7.9	0.80	5.8	9.81	1.00	7.24	7.9	0.80	5.8	12.3	1.25	9.05
	to 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	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	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	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	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	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	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	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
M8	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	25	2.5	18	20	2.0	15
	to 31	to 3.2	to 23	to 25	to 2.6	to 18
M12	30	3.0	22	31	3.2	23
	to 49	to 5.0	to 36			
M14	62	6.3	46	-	-	-
	to 73	to 7.5	to 54	-	-	-
M16	98.1	10.0	72.4	-	-	-
	to 112	to 11.5	to 83.1	-	-	-
M18	172	17.5	127	-	-	-
	to 201	to 20.5	to 148	-	-	-

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### [3] METRIC SCREWS, BOLTS AND NUTS

Grade	 Property class 8.8			 Property class 10.9		
	Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m
<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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### [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
<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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### [5] 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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# 6. MAINTENANCE CHECK LIST

No.	Item		Service Interval														After since	Refer- ence page			
			50	100	150	200	250	300	350	400	450	500	550	600	650	700					
1	Greasing	–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-19		
2	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-20, G-21		
3	Wheel bolt torque	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-21		
4	Battery condition	Check		☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-22	*4	
5	Fan belt	Adjust		☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-24		
6	Clutch	Adjust	★	☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-16		
7	Brake	Adjust		☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-24		
8	Air cleaner element	Clean		☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-25	*1	@
		Replace																every 1 year	G-25	*2	
9	Fuel filter element	Clean		☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-25		@
		Replace									☆							every 400 Hr	G-25		
10	Fuel line	Check		☆		☆		☆		☆		☆		☆		☆		every 100 Hr	G-26		@
		Replace																every 2 years	G-26		
11	Engine oil	Change	★			☆				☆				☆				every 200 Hr	G-16		
12	Engine oil filter	Replace	★			☆				☆				☆				every 200 Hr	G-16		
13	Transmission oil filter (HST)	Replace	★			☆				☆				☆				every 200 Hr	G-17		
14	Toe-in	Adjust				☆				☆				☆				every 200 Hr	G-26		
15	Radiator hose and clamp	Check				☆				☆				☆				every 200 Hr	G-27		
		Replace																every 2 years	G-27		
16	Power steering oil line	Check				☆				☆				☆				every 200 Hr	G-27		
		Replace																every 2 years	G-27		
17	Intake air line	Check				☆				☆				☆				every 200 Hr	G-27		@
		Replace																every 2 years	G-27		
18	Oil cooler line (HST)	Check				☆				☆				☆				every 200 Hr	G-27		
		Replace																every 2 years	G-27		
19	Hydraulic oil filter	Replace	★							☆								every 400 Hr	G-18		
20	Transmission fluid	Change								☆								every 400 Hr	G-28, G-29		
21	Front axle case oil (4WD)	Change								☆								every 400 Hr	G-30		
22	Greasing (2WD front wheel hub)	–								☆								every 400 Hr	G-30		
23	Front axle pivot	Adjust												☆				every 600 Hr	G-30		

No.	Item		Service Interval														After since	Refer- ence page			
			50	100	150	200	250	300	350	400	450	500	550	600	650	700					
24	Engine valve clearance	Adjust																every 800 Hr	G-30		
25	Fuel injection nozzle injection pressure	Check																every 1500 Hr	G-30		@
26	Injection pump	Check																every 3000 Hr	G-31		@
27	Cooling system	Flush																every 2 years	G-31		
28	Coolant	Change																every 2 years	G-31		
29	Fuel system	Bleed																Service as re- quired	G-34		
30	Clutch housing water	Drain															G-34				
31	Fuse	Replace															G-35				
32	Head lamp / 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 battery condition by reading the indicator annually.
- The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad 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 Warranty Statement in detail.

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## 7. CHECK AND MAINTENANCE



### WARNING

To avoid personal injury or death:

- Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake "ON" and implement lowered to the ground.

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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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