

Product: Kubota ME8200 ME9000 Service Manual

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# WSM

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WORKSHOP MANUAL  
**TRACTOR**

**ME8200, ME9000**

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**Kubota**

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KiSC issued 02, 2018 A

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## TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA tractor ME8200 and ME9000. It is divided into two parts, "Mechanism" and "Servicing" for each section.

### ■ Mechanism

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

Refer to Diesel engine / Tractor Mechanism Workshop Manual (Code No. 9Y021-01874 / 9Y021-18200) for the one which has not been described to this workshop manual.

### ■ Servicing

The heading "General" section comes general precautions, check and maintenance and special tools. Other section, there are troubleshooting, servicing specification lists, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

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

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

**June 2003**

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**Record of Revisions**

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

<b>Last digit of the Code No.</b>	<b>Issue month</b>	<b>Main Revised Point and Corrective Measures {Search word}</b>	<b>Reference Page</b>
3	2018.02	Update of brake master cylinder service content	G-34, 5-S6, 8-S17, 8-S36



## SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully.

It is essential that you read the instructions and safety regulations before you attempt to repair or use this unit.



### DANGER

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



### WARNING

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



### CAUTION

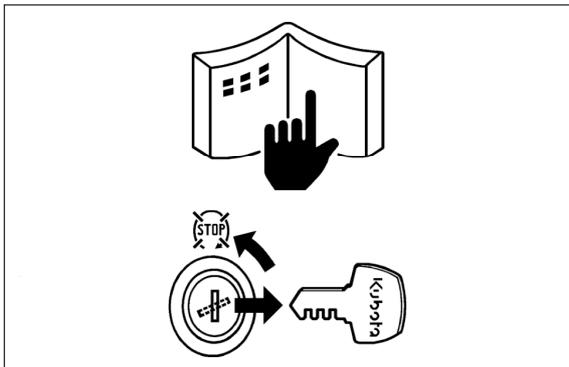
: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

### ■ IMPORTANT

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

### ■ NOTE

: Gives helpful information.



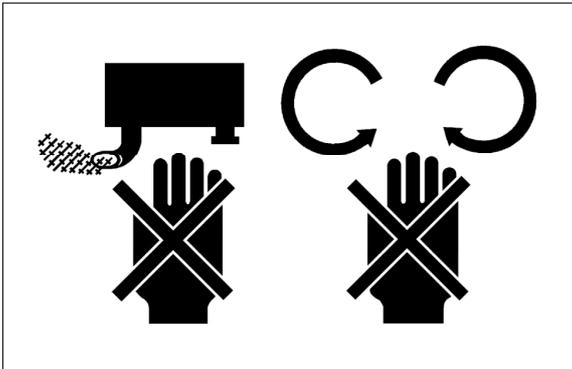
### BEFORE SERVICING AND REPAIRING

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



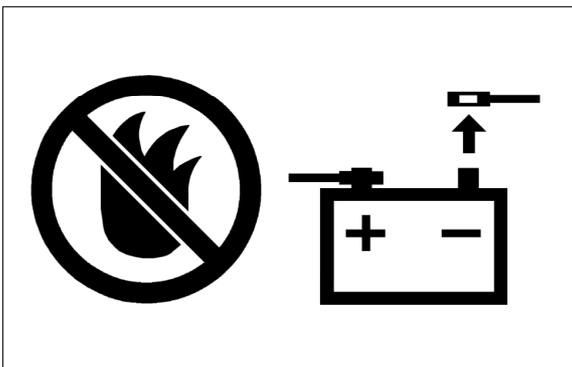
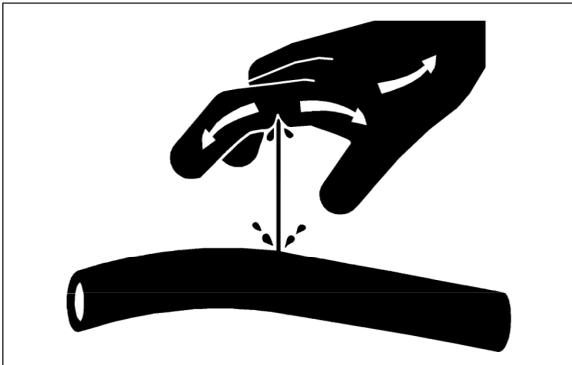
### SAFETY STARTING

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



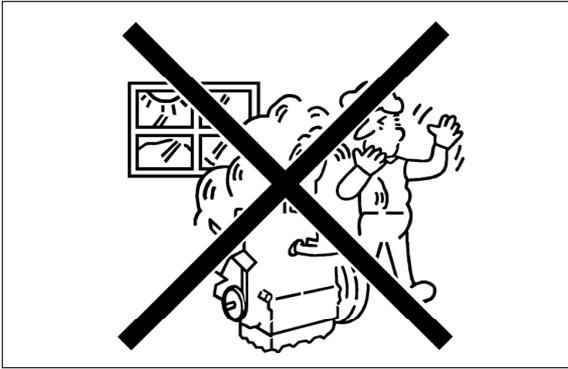
### SAFETY WORKING

- Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- Wear close fitting clothing and safety equipment appropriate to the job.
- Use tools appropriate to the work. Makeshift tools, parts, and procedures are not recommended.
- When servicing is performed together by two or more persons, take care to perform all work safely.
- Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.
- Do not touch the rotating or hot parts while the engine is running.
- Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Only remove radiator cap when cool enough to touch with bare hands. Slowly loosen the cap to first stop to relieve pressure before removing completely.
- Escaping fluid (fuel or hydraulic oil) under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or fuel lines. Tighten all connections before applying pressure.



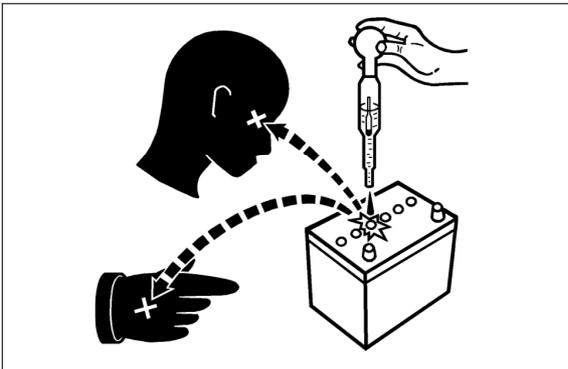
### AVOID FIRES

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



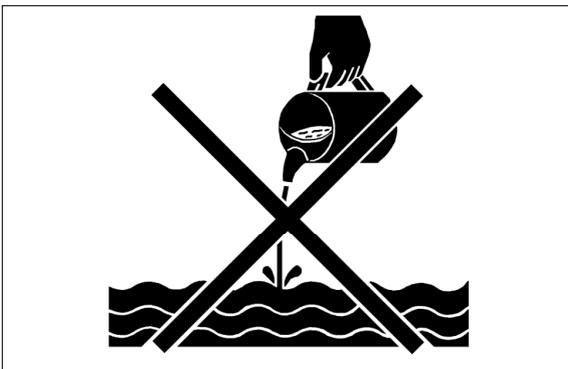
### VENTILATE WORK AREA

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



### PREVENT ACID BURNS

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



### DISPOSE OF FLUIDS PROPERLY

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



### PREPARE FOR EMERGENCIES

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

# SAFETY DECALS

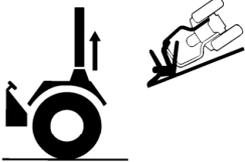
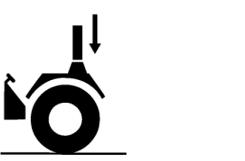
The following safety decals are installed on the machine.  
 If a decal becomes damaged, illegible or is not on the machine, replace it. The decal part number is listed in the parts list.  
**[ROPS TYPE]**

(1) Part No. TA040-4965-2

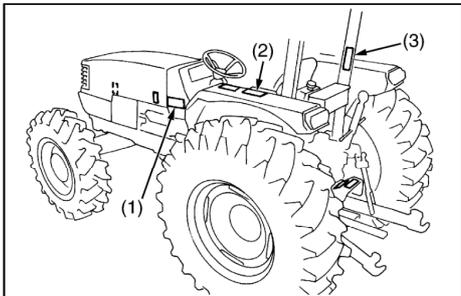
	<p><b>⚠ DANGER</b></p> <p><b>TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.</b></p> <ol style="list-style-type: none"> <li>1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.</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>
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1AGAIAZAP009A

(2) Part No. 3A294-9848-1

	<p><b>⚠ WARNING</b></p> <p><b>TO AVOID INJURY OR DEATH FROM ROLL-OVER:</b></p> <ul style="list-style-type: none"> <li>• Keep Roll-Over Protective Structures (ROPS) in the extend and locked position.</li> </ul>
	<p><b>THERE IS NO OPERATOR PROTECTION WHEN THE ROPS IS IN THE RETRACTED POSITION.</b></p> <ul style="list-style-type: none"> <li>• Check the operating area and retract the ROPS only when absolutely necessary.</li> <li>• Extend and lock ROPS as soon as vertical clearance allows.</li> <li>• Read ROPS related instructions and warnings.</li> </ul>

1AGAOAAP076A



3TMACADCP001A

(3) Part No. 3A294-9554-1

<p><b>⚠ WARNING</b></p> <p>Never modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.</p>
<p><b>⚠ CAUTION</b></p> <p><b>TO AVOID INJURY WHEN EXTENDING OR RETRACTING ROPS:</b></p> <ul style="list-style-type: none"> <li>• Set parking brake and stop engine.</li> <li>• Remove any obstruction that may prevent extending or retracting of the ROPS.</li> <li>• Do not allow any bystanders.</li> <li>• Always perform function from a operator's seat.</li> <li>• Hold the top of the ROPS securely when extending or retracting.</li> <li>• Make sure all pins are installed and locked.</li> </ul>

1AGAOAAP077A

(1) Part No. TA040-4935-1

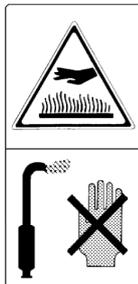
**⚠ WARNING**

**TO AVOID PERSONAL INJURY:**

1. Attach pulled or towed loads to the drawbar only.
2. Use the 3-point hitch only with equipment designed for 3-point hitch usage.

1AGAIAZAP056A

(3) Part No. 32310-4958-1  
Do not touch hot surface like muffler, etc.



1AGAIAZAP071A

(2) Part No. TA040-4959-3

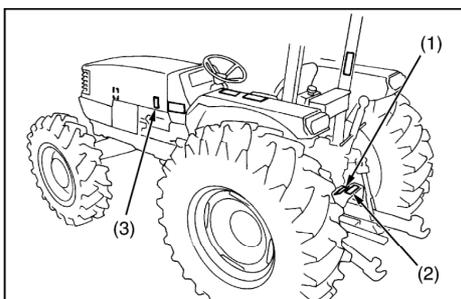


**⚠ WARNING**

**TO AVOID PERSONAL INJURY.**

1. Keep PTO shield in place at all times.
2. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer.
3. For trailing PTO-driven implements, set drawbar at towing position. (see operator's manual)

1AGAIAZAP116A



3TMACADCP002A

(1) Part No. 35260-3491-4

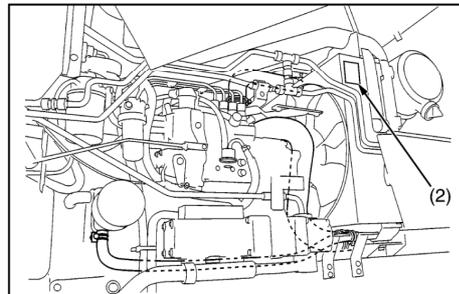
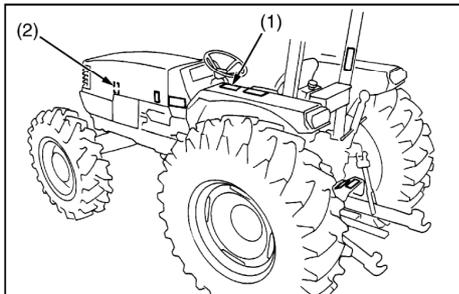
**CAUTION****TO AVOID PERSONAL INJURY:**

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.

1AGAIAZAP109A

(2) Part No. 32751-4958-1  
Stay clear of engine fan and fanbelt.

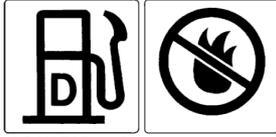
1AGAIAZAP110A



3TMACADCP003A

(1) Part No. TA040-4956-2

Diesel fuel only No fire



1AGAIAZAP118A

(2) Part No. 3A111-9856-3

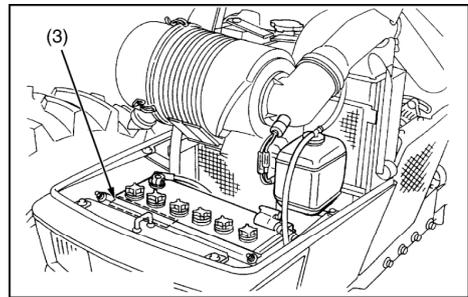
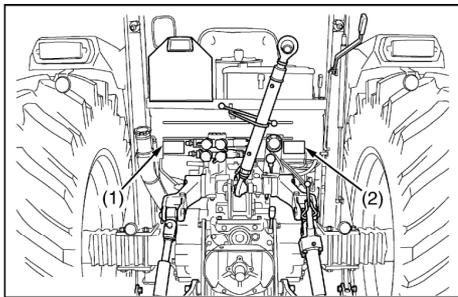


1AGAIAZAP119A

(3) Part No. 6C040-5559-1

**DANGER EXPLOSIVE GASES**  
 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.  
**KEEP VENT CAPS TIGHT AND LEVEL**  
**POISON CAUSES SEVERE BURNS**  
 Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of accident flush with water and call a physician immediately.  
**KEEP OUT OF REACH OF CHILDREN**

1AGAIAZAP120A



3TMACADCP004A

(1) Part No. 3F240-9857-1

**⚠ WARNING**

To avoid free wheeling when shifting the shuttle lever while on a slope: Stop completely by using the brake and by depressing the clutch pedal. Start off after selecting shuttle direction by releasing the clutch pedal.

1AGAIBDAP039A

(2) Part No. 35080-6528-2

**⚠ CAUTION**

Pull the engine stop knob back and hold it until the engine stops in case of emergency.

1AGAI AZAP117A

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

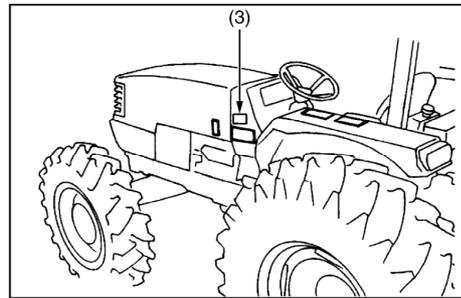
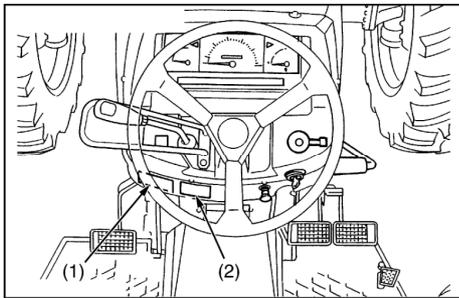
**⚠ WARNING**

**BEFORE DISMOUNTING TRACTOR:**

- 1. ALWAYS SET PARKING BRAKE.**  
Leaving transmission in gear with the engine stopped will not prevent tractor from rolling.
- 2. PARK ON LEVEL GROUND WHENEVER POSSIBLE.**  
If parking on a slope, position tractor across the slope.
- 3. LOWER ALL IMPLEMENTS TO THE GROUND.**
- 4. STOP THE ENGINE.**



1AGAIBDAP040A



### 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 labels as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

3TMACADCP005A

[CABIN TYPE]

(1) Part No. TA040-4965-2



**⚠ DANGER**

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

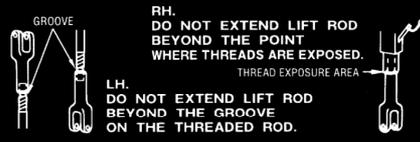
1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
2. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground.

1AGAIAZAP009A

(2) Part No. 3A111-9856-3

**⚠ CAUTION**

**TO AVOID INJURY FROM SEPARATION:**



**RH. DO NOT EXTEND LIFT ROD BEYOND THE POINT WHERE THREADS ARE EXPOSED.**

**LH. DO NOT EXTEND LIFT ROD BEYOND THE GROOVE ON THE THREADED ROD.**

1AGAIAZAP119A

(3) Part No. TA040-4935-1

**⚠ WARNING**

**TO AVOID PERSONAL INJURY:**

1. Attach pulled or towed loads to the drawbar only.
2. Use the 3-point hitch only with equipment designed for 3-point hitch usage.

1AGAIAZAP056A

(4) Part No. TA040-4959-3

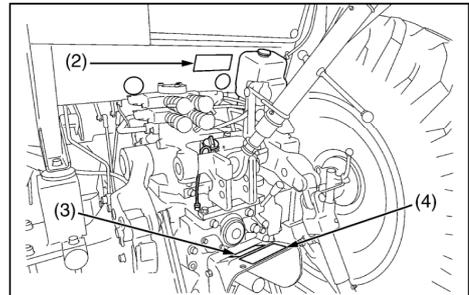
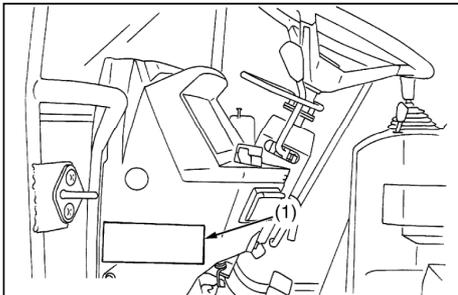


**⚠ WARNING**

**TO AVOID PERSONAL INJURY.**

1. Keep PTO shield in place at all times.
2. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer.
3. For trailing PTO-driven implements, set drawbar at towing position. (see operator's manual)

1AGAIAZAP116A



3TMACADCP006A

(1) Part No. TA040-4956-2

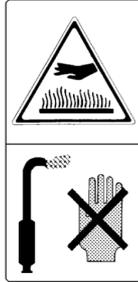
Diesel fuel only No fire



1AGAIAZAP118A

(2) Part No. 32310-4958-1

Do not touch hot surface like muffler, etc.



1AGAIAZAP071A

(3) Part No. 32751-4958-1

Stay clear of engine fan and fanbelt.



1AGAIAZAP110A

(4) Part No. TA040-7295-1

**CAUTION** REFRIGERANT UNDER HIGH PRESSURE

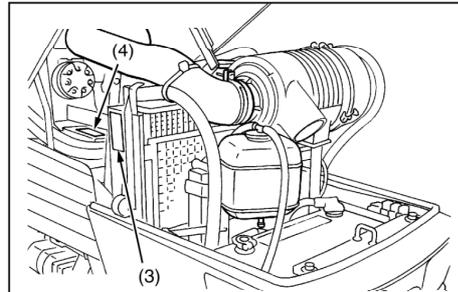
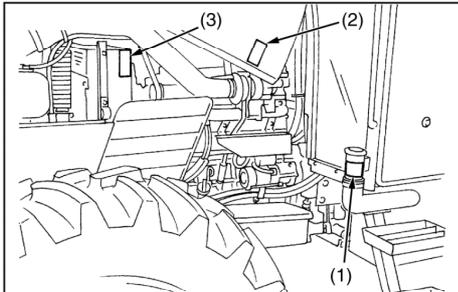
Improper service methods may cause personal injury. This air conditioning system should be serviced by your dealer or any other qualified service shop. See Repair Manual for details.

<b>R134a</b>	Max. 1.05kg (2.31 lbs)	<b>ND-OIL8</b>	SAE J-639
	USE ONLY Min. 0.95kg (2.09 lbs)		

MFD. BY NIPPONDENSO CO.,LTD. JAPAN

A100

1AGAIBDAP025A



3TMACADCP007A

(1) Part No. 3F240-9836-1

**CAUTION**

**TO AVOID PERSONAL INJURY:**

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 tractor and 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 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 dismantling, lower the implement, set the parking brake, stop the engine and remove the key.

1AGAIBDAP026A

(2) Part No. 35080-6528-2

**CAUTION**

Pull the engine stop knob back and hold it until the engine stops in case of emergency.

1AGAIAZAP117A

(3) Part No. 6C040-5559-1

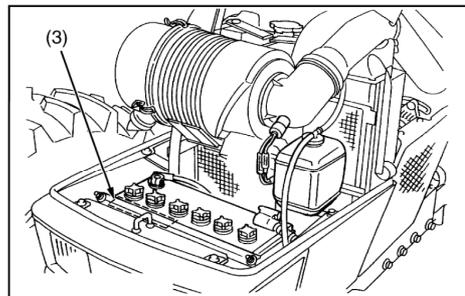
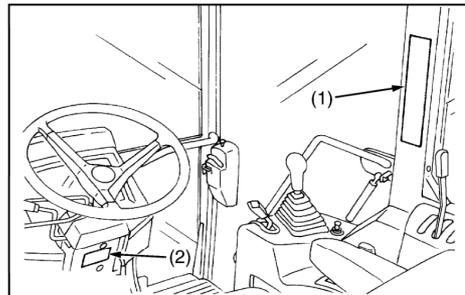
**DANGER EXPLOSIVE GASES**  
Cigarettes, flames or sparks could cause battery to explode. Always shield eyes and face from battery. Do not charge or use booster cables or adjust post connections without proper instruction and training.

**KEEP VENT CAPS TIGHT AND LEVEL**

**POISON CAUSES SEVERE BURNS**  
Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of accident flush with water and call a physician immediately.

**KEEP OUT OF REACH OF CHILDREN**

1AGAIAZAP120A



### 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 labels as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

3TMACADCP008A

# SPECIFICATIONS

Model		ME8200		
		ROPS TYPE	CABIN TYPE	
Engine	Model	V3300-EA		
	Type	Vertical, water-cooled, 4-cycle diesel engine		
	No. of cylinder	4		
	Total displacement	3318 cm <sup>3</sup> (202.5 cu.in.)		
	Bore and stroke	98 × 110 mm (3.9 x 4.3 in.)		
	Net power	61.2 kW (82 HP)*		
	PTO power (factory observed)	54.5 kW (73 HP)* / 2600 min <sup>-1</sup> (rpm)		
	Maximum torque	285 N·m (29.1 kgf·m, 210.2 lbf·ft) / 1300 to 1500 min <sup>-1</sup> (rpm)		
	Battery	12 V, CCA : 799 A		
	Fuel	Diesel fuel No.1 [below -10 °C (14 °F)], Diesel fuel No.2-D [above -10 °C (14 °F)]		
	Fuel tank	90 L (23.8 U.S.gals, 19.8 Imp.gals)	110 L (29.1 U.S.gals, 24.2 Imp.gals)	
	Engine crankcase	10.7 L (11.3 U.S.qts, 9.4 Imp.qts)		
	Engine coolant	9.0 L (9.5 U.S.qts, 7.9 Imp.qts)		
Dimensions	Overall length	3890 mm (153.1 in.)		
	Overall width (Minimum tread)	1950 mm (78.0 in.)		
	Overall height	2510 mm (98.8 in.) (with ROPS)	2540 mm (100.0 in.) (with CABIN)	
	Wheel base	2250 mm (88.6 in.)		
	Tread	Front	1455 mm, 1565 mm (57.3 in., 61.6 in.)	
		Rear	1575 to 1870 mm (62.0 to 73.6 in.)	
Minimum ground clearance	445 mm (17.5 in.) (BRACKET DRAWBAR)	445 mm (17.5 in.) (COVER TANK)		
Weight	2865 kg (6317 lbs)		3115 kg (6869 lbs)	
Traveling system	Standard tire size	Front	11.2R24	
		Rear	18.4R30	
	Clutch	Multiple wet disc hydraulic		
	Steering	Full hydraulic power steering		
	Transmission	Hydraulic shuttle shift, fully synchronized main shift, 18F/18R		
	Brake	Travelling	Wet type multiple discs (hydraulic)	
		Parking	Wet type multiple discs (mechanical)	
Differential	Bevel gears with differential lock (Front, Rear)			
Hydraulic system	Hydraulic control system	Position, draft and mix control		
	Pump capacity	41.6 L/min. (44.0 U.S.gals/min., 36.6 Imp.gals/min.)		
	Three point hitch	Category II		
	Max. lifting force	At lifting point	2500 kg (5560 lbs) at lower link end with link horizontal	
		24 in. behind lifting point	2100 kg (4630 lbs) at 610 mm (24 in.) behind lifting point	
System pressure	19.6 MPa (200 kgf/cm <sup>2</sup> , 2847 psi)			
PTO system	Independent clutch	Wet type, multiple discs		
	Live PTO	Direction of turning	Clockwise, viewed from tractor rear	
		PTO speed	540 min <sup>-1</sup> (rpm) at 2035 engine min <sup>-1</sup> (rpm), 540E min <sup>-1</sup> (rpm) at 1519 engine min <sup>-1</sup> (rpm)	
Traction system	Swing drawbar, adjustable in direction			

NOTE : \* Manufacture's estimate.

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

W10281170

Model			ME9000	
			ROPS TYPE	CABIN TYPE
Engine	Model		V3300-TIE	
	Type		Vertical, water-cooled, 4-cycle diesel engine	
	No. of cylinder		4	
	Total displacement		3318 cm <sup>3</sup> (202.5 cu.in.)	
	Bore and stroke		98 × 110 mm (3.9 × 4.3 in.)	
	Net power		67.2 kW (90 HP)*	
	PTO power (factory observed)		59.7 kW (80 HP)* / 2600 min <sup>-1</sup> (rpm)	
	Maximum torque		311 N·m (31.7 kgf·m, 229.4 lbf·ft) / 1400 to 1600 min <sup>-1</sup> (rpm)	
	Battery		12 V, CCA : 799 A	
	Fuel		Diesel fuel No.1 [below -10 °C (14 °F)], Diesel fuel No.2-D [above -10 °C (14 °F)]	
	Fuel tank		90 L (23.8 U.S.gals, 19.8 Imp.gals)	110 L (29.1 U.S.gals, 24.2 Imp.gals)
	Dimensions	Engine crankcase		10.7 L (11.3 U.S.qts, 9.4 Imp.qts)
Engine coolant		9.0 L (9.5 U.S.qts, 7.9 Imp.qts)		
Overall length		3890 mm (153.1 in.)		
Overall width (Minimum tread)		1950 mm (78.0 in.)		
Overall height		2530 mm (99.6 in.) (with ROPS)	2560 mm (100.8 in.) (with CABIN)	
Wheel base		2250 mm (88.6 in.)		
Tread	Front	1505 mm, 1615 mm (59.3 in., 63.6 in.)		
	Rear	1580 to 1870 mm (62.2 to 73.6 in.)		
Minimum ground clearance		146 mm (18.3 in.) (BRACKET DRAWBAR)		
Weight			2915 kg (6428 lbs)	3180 kg (7012 lbs)
Traveling system	Standard tire size	Front	12.4R24	
		Rear	16.9R34	
	Clutch		Multiple wet disc hydraulic	
	Steering		Full hydraulic power steering	
	Transmission		Hydraulic shuttle shift, fully synchronized main shift, 18F/18R	
	Brake	Travelling	Wet type multiple discs (hydraulic)	
Parking		Wet type multiple discs (mechanical)		
Differential		Bevel gears with differential lock (Front, Rear)		
Hydraulic system	Hydraulic control system		Position, draft and mix control	
	Pump capacity		64.3 L/min. (67.9 U.S.gals/min., 56.6 Imp.gals/min.)	
	Three point hitch		Category II	
	Max. lifting force	At lifting point	2500 kg (5560 lbs) at lower link end with link horizontal	
		24 in. behind lifting point	2100 kg (4630 lbs) at 610 mm (24 in.) behind lifting point	
System pressure		19.6 MPa (200 kgf/cm <sup>2</sup> , 2847 psi)		
PTO system	Independent clutch		Wet type, multiple discs	
	Live PTO	Direction of turning	Clockwise, viewed from tractor rear	
		PTO speed	540 min <sup>-1</sup> (rpm) at 2035 engine min <sup>-1</sup> (rpm), 540E min <sup>-1</sup> (rpm) at 1519 engine min <sup>-1</sup> (rpm)	
Traction system			Swing drawbar, adjustable in direction	

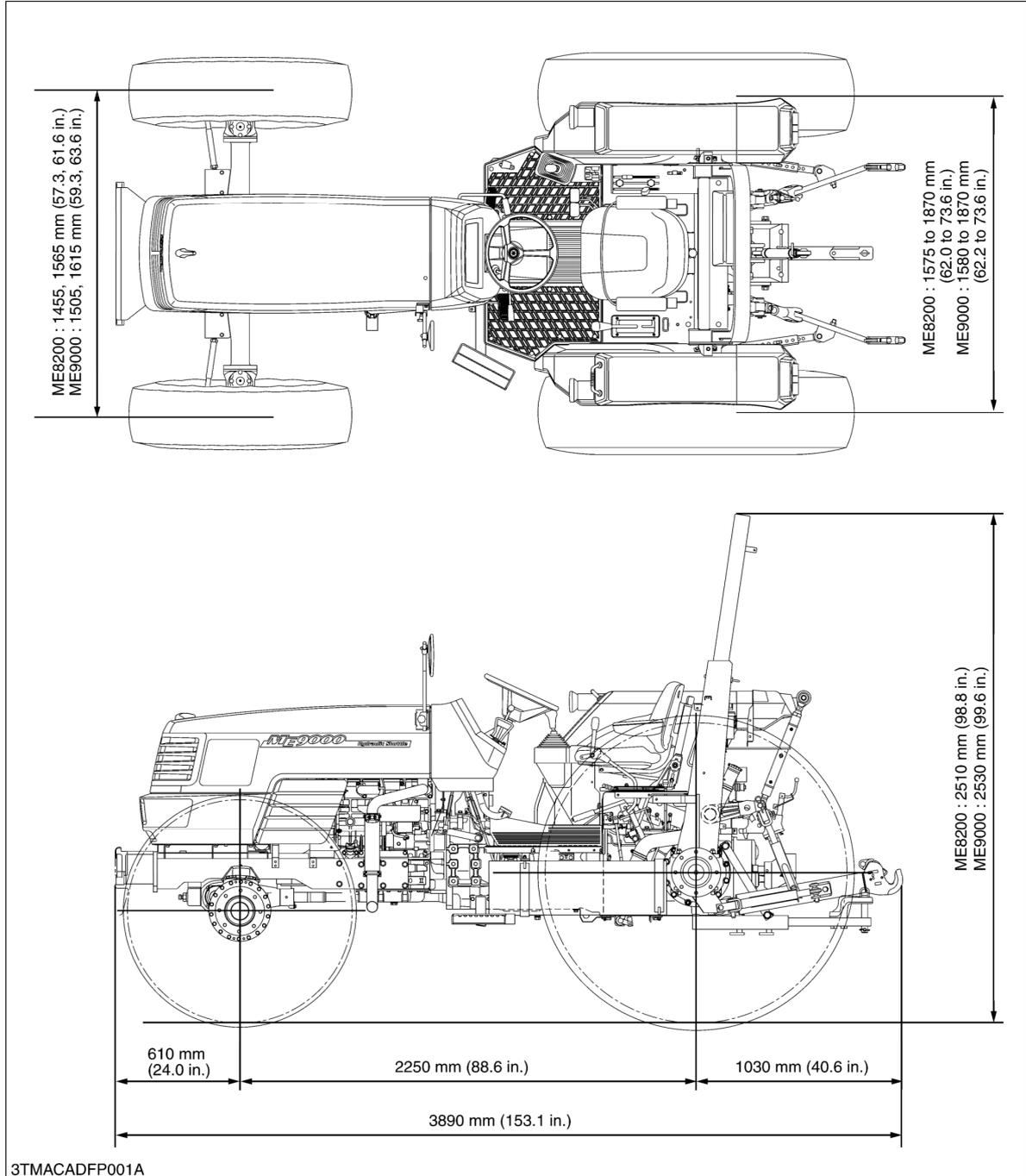
NOTE : \* Manufacture's estimate.

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

W10295170

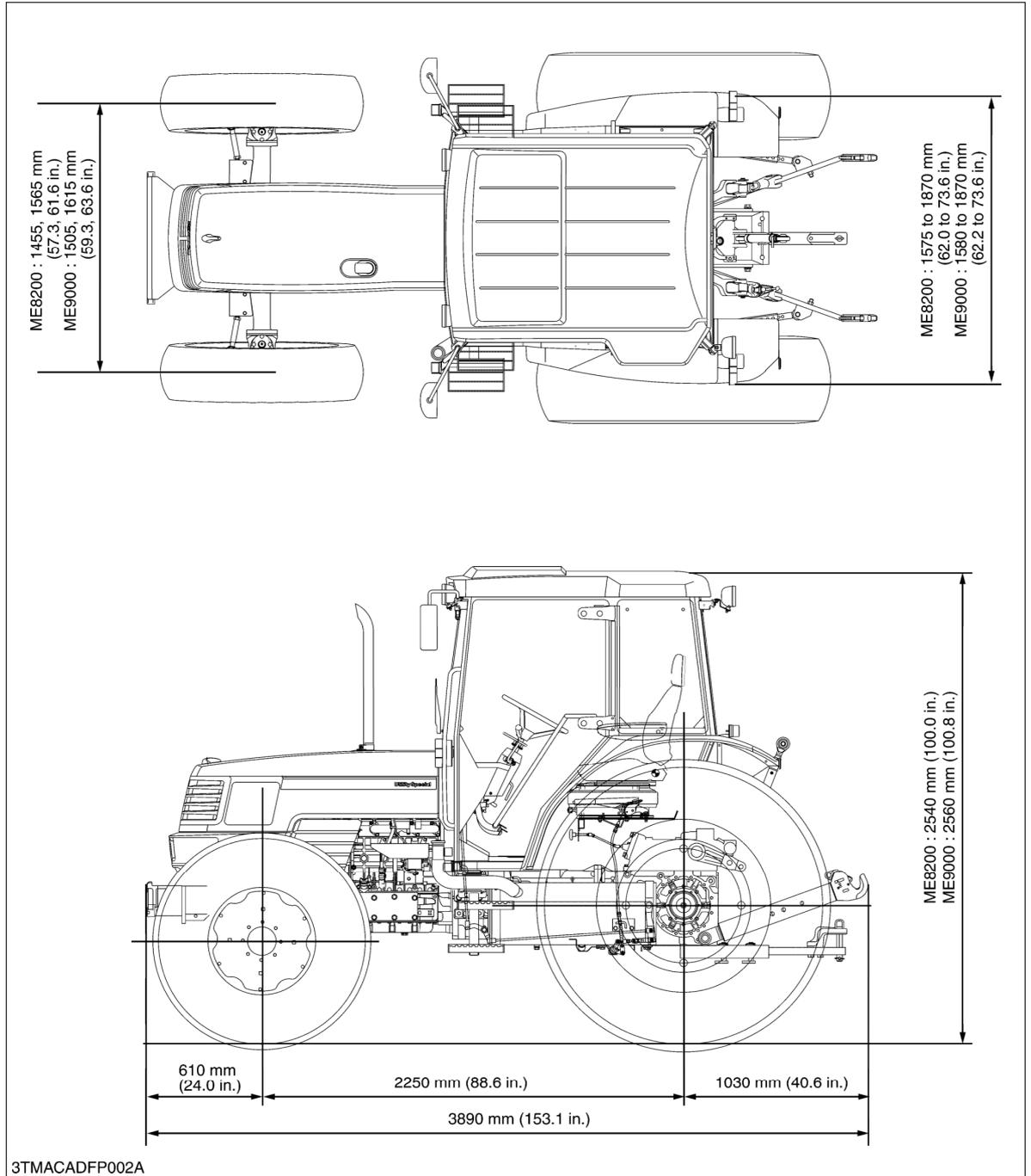
# DIMENSIONS

[ROPS TYPE]



3TMACADFP001A

[CABIN TYPE]



3TMACADFP002A

# **G GENERAL**

# GENERAL

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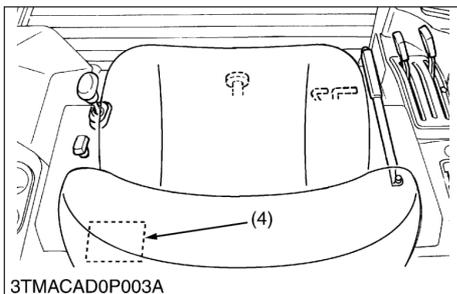
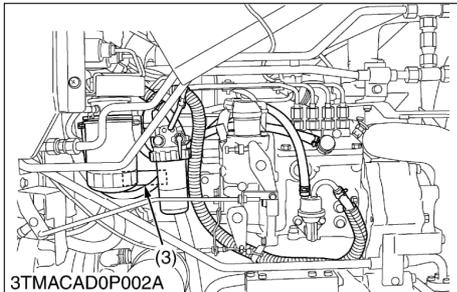
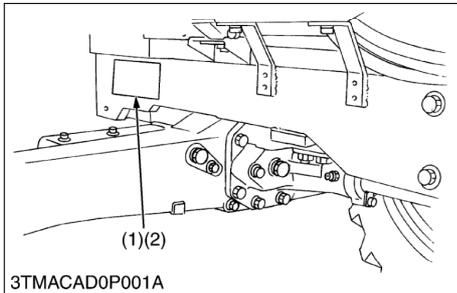
# 1. TRACTOR IDENTIFICATION

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

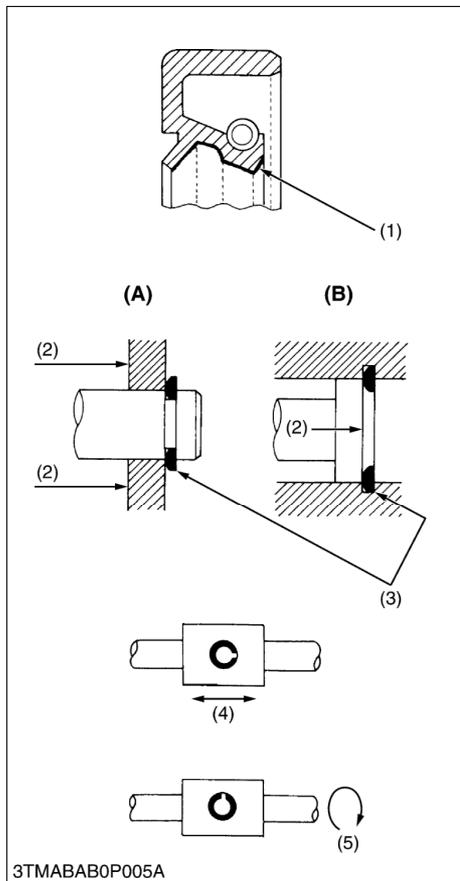
- (1) Tractor Identification Plate
- (2) Tractor Serial Number
- (3) Engine Serial Number

- (4) CABIN Identification Plate  
(CABIN Serial Number)

W1010593



## 2. GENERAL PRECAUTIONS



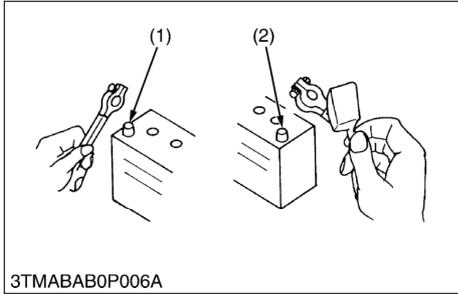
- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Screws, bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently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

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

- (A) External Circlip
- (B) Internal Circlip

W1010780

### 3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



3TMABAB0P006A

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

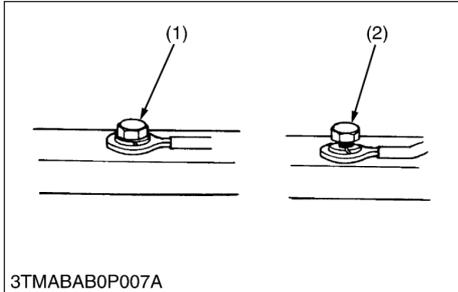
**■ IMPORTANT**

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

- (1) Negative Terminal (2) Positive Terminal

W1011139

#### [1] WIRING

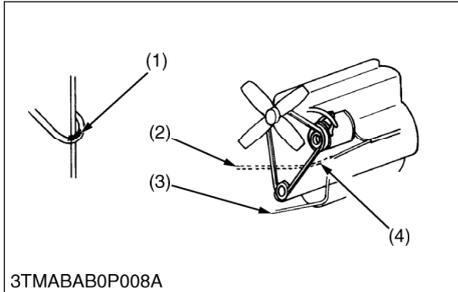


3TMABAB0P007A

- Securely tighten wiring terminals.

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

W1011293

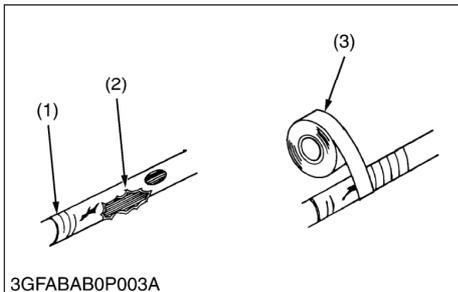


3TMABAB0P008A

- Do not let wiring contact dangerous part.

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

W1011390

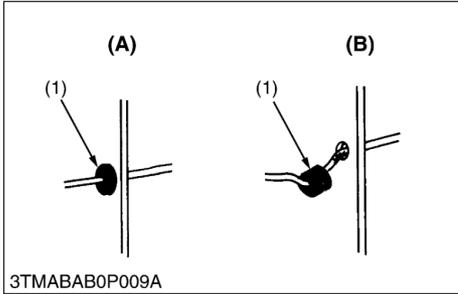


3GFABAB0P003A

- Repair or change torn or aged wiring immediately.

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

W1011487

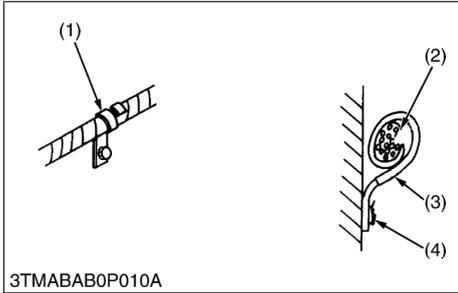


• Securely insert grommet.

(1) Grommet

(A) Correct  
(B) Incorrect

W1011388



• Securely clamp, being careful not to damage wiring.

(1) Clamp

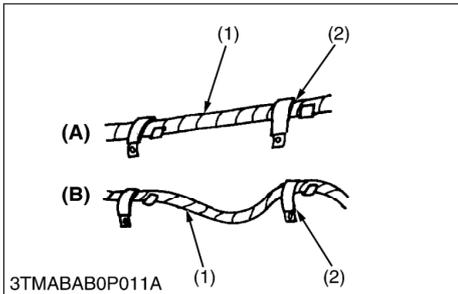
(3) Clamp

• Wind Clamp Spirally

(4) Welding Dent

(2) Wire Harness

W1011458



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

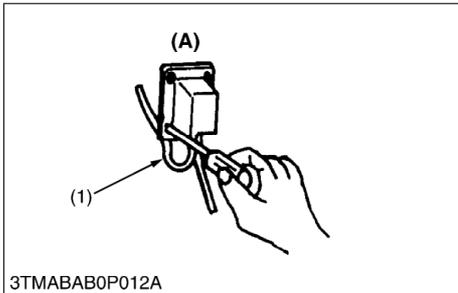
(1) Wiring

(A) Correct

(2) Clamp

(B) Incorrect

W1011587

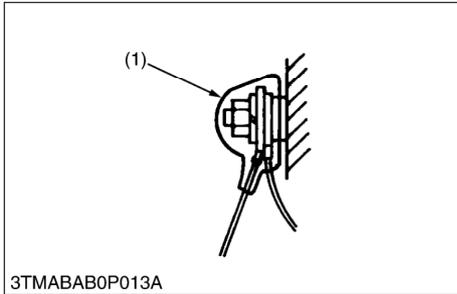


• In installing a part, take care not to get wiring caught by it.

(1) Wiring

(A) Incorrect

W1011670

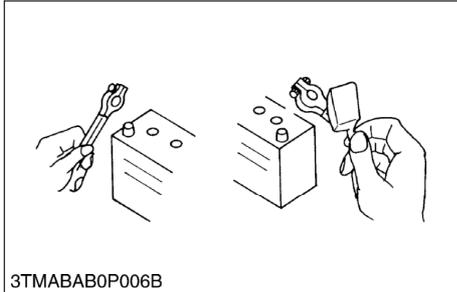


- After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover
- Securely Install Cover

W1011735

## [2] BATTERY



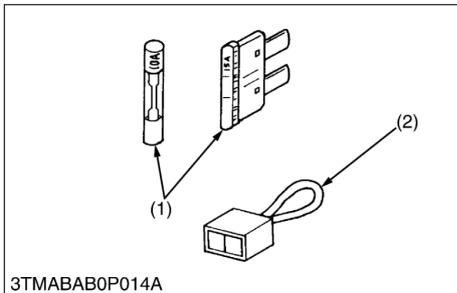
- Take care not to confuse positive and negative terminals.
- When removing battery cord, disconnect negative wire first. When installing battery cord, check for polarity and connect positive wire first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting cord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

### **!** CAUTION

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

W1011816

## [3] FUSE



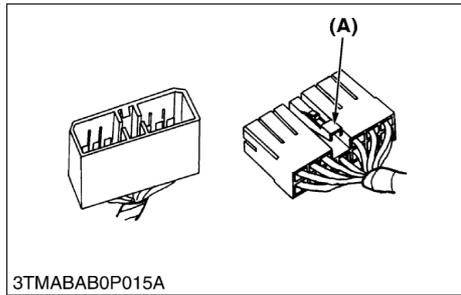
- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

(1) Fuse

(2) Slow Blow Fuse

W1012092

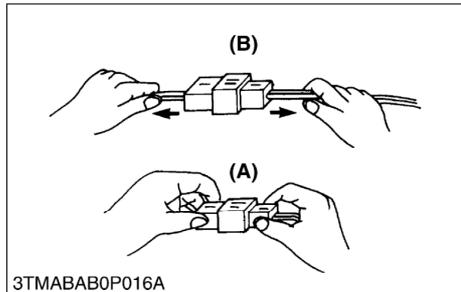
### [4] CONNECTOR



- For connector with lock, push lock to separate.

(A) Push

W1012211

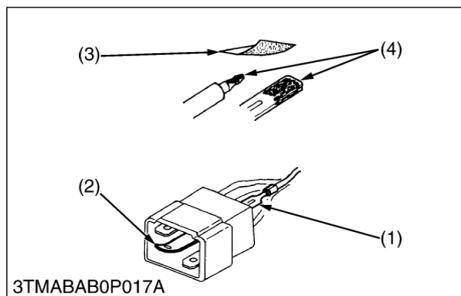


- In separating connectors, do not pull wire harnesses.
- Hold connector bodies to separate.

(A) Correct

(B) Incorrect

W1012272

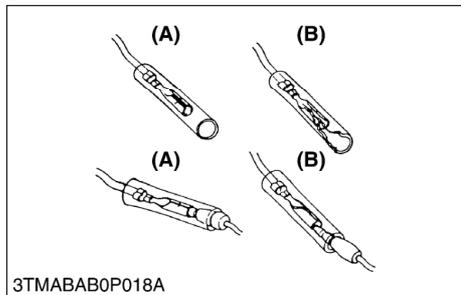


- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

(1) Exposed Terminal  
(2) Deformed Terminal

(3) Sandpaper  
(4) Rust

W1012346

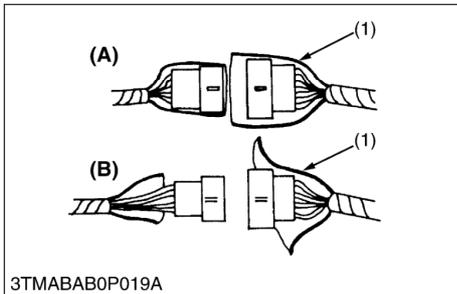


- Make certain that there is no female connector being too open.

(A) Correct

(B) Incorrect

W1012430



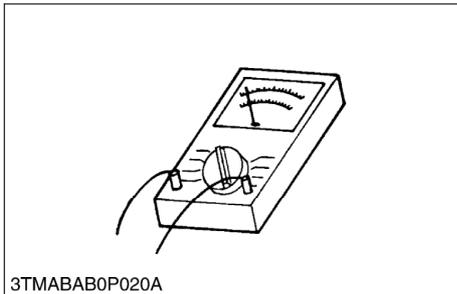
- Make certain plastic cover is large enough to cover whole connector.

(1) Cover

(A) Correct  
(B) Incorrect

W1012519

## [5] HANDLING OF CIRCUIT TESTER



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

W1012684

## 4. LUBRICANTS, FUEL AND COOLANT

	Place		Capacity		Lubricants, fuel and coolant
			ME8200	ME9000	
1	Fuel tank	ROPS Type	90 L 23.8 U.S.gals 19.8 Imp.gals		No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10 °C (14 °F)
		CABIN Type	110 L 29.1 U.S.gals 24.2 Imp.gals		
2	Coolant	Engine block radiator	9.0 L 9.5 U.S.qts 7.9 Imp.qts		Fresh clean water with anti-freeze
		Reserve tank	1.0 L 1.1 U.S.qts 0.9 Imp.qts		
3	Engine crankcase		10.7 L 11.3 U.S.qts 9.4 Imp.qts		Engine oil: API service classification CD, CE or CF Below 0 °C (32 °F) : SAE10W, 10W-30 or 10W-40 0 to 25 °C (32 to 77 °F) : SAE20, 10W-30 or 10W-40 Above 25 °C (77 °F) : SAE30, 10W-30 or 10W-40
4	Transmission case		55 L 58.1 U.S.qts 48.4 Imp.qts		KUBOTA SUPER UDT fluid*
5	Front differential case oil	Serial No. : up to 54529	5.0 L 5.3 U.S.qts 4.4 Imp.qts		KUBOTA SUPER UDT fluid or SAE80, 90 gear oil
		Serial No. : 54530 and above	6.0 L 6.3 U.S.qts 5.3 Imp.qts		
6	Front axle gear case oil		3.5 L 3.7 U.S.qts 3.1 Imp.qts		
7	Brake oil (Reservoir and lines)		0.3 L 0.32 U.S.qts 0.26 Imp.qts		KUBOTA UDT or SUPER UDT fluid* or Turbine oil 32 (see below) [regular type, multipurpose straight mineral oil Mobile DTE Oil #32 TEXACO Regal Oil #32 CHEVRON-GST Oil #32 TERESSO Oil #32] Never use automotive brake oil

\* KUBOTA original transmission hydraulic fluid.

Greasing				
	Place	No. of greasing point	Capacity	Type of grease
8	Front wheel case support	2	Until grease overflows	Multipurpose type grease
	Front axle support	2		
	Top link	2		
	Top link bracket	2		
	Lift rod	3		
	Steering joint shaft (CABIN Type)	1		
	Parking brake lever shaft	1	Moderate amount	
	Battery terminal	2		

■ **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 temperature as shown above.  
Do not mix different brands together.
- **Transmission Oil :** The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and complete lubrication of the transmission, it is important that a multi-grade transmission fluid be used in this system. We recommend the use of KUBOTA SUPER UDT fluid for optimum protection and performance.  
Do not mix different brands together.
- Indicated capacity of water and oil are manufacture's estimate.

## 5. TIGHTENING TORQUES

### [1] GENERAL USE SCREWS, BOLT AND NUTS

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

Indication on top of bolt	④ No-grade or 4T						⑦ 7T						⑨ 9T		
	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of bolt	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit	N-m	kgf-m	lbf-ft												
Diameter															
M6 (6 mm, 0.24 in.)	7.85 to 9.31	0.80 to 0.95	5.79 to 6.87	7.85 to 8.82	0.80 to 0.90	5.79 to 6.50	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.85 to 8.82	0.80 to 0.90	5.79 to 6.50	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8 (8 mm, 0.31 in.)	17.7 to 20.5	1.8 to 2.1	13.1 to 15.1	16.7 to 19.6	1.7 to 2.0	12.3 to 14.4	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2	17.7 to 20.5	1.8 to 2.1	13.1 to 15.1	29.5 to 34.3	3.0 to 3.5	21.7 to 25.3
M10 (10 mm, 0.39 in.)	39.3 to 45.0	4.0 to 4.6	29.0 to 33.2	31.4 to 34.3	3.2 to 3.5	23.2 to 25.3	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2	39.3 to 44.1	4.0 to 4.5	29.0 to 32.5	60.9 to 70.6	6.2 to 7.2	44.9 to 52.0
M12 (12 mm, 0.47 in.)	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	-	-	-	77.5 to 90.2	7.9 to 9.2	57.2 to 66.5	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	103 to 117	10.5 to 12.0	76.0 to 86.7
M14 (14 mm, 0.55 in.)	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	-	-	-	167 to 196	17.0 to 20.0	123 to 144
M16 (16 mm, 0.63 in.)	167 to 191	17.0 to 19.5	123 to 141	-	-	-	197 to 225	20.0 to 23.0	145 to 166	-	-	-	260 to 304	26.5 to 31.0	192 to 224
M18 (18 mm, 0.71 in.)	246 to 284	25.0 to 29.0	181 to 209	-	-	-	275 to 318	28.0 to 32.5	203 to 235	-	-	-	344 to 402	35.0 to 41.0	254 to 296
M20 (20 mm, 0.79 in.)	334 to 392	34.0 to 40.0	246 to 289	-	-	-	368 to 431	37.5 to 44.0	272 to 318	-	-	-	491 to 568	50.0 to 58.0	362 to 419

W1034542

### [2] STUD BOLTS

Material of opponent part	Ordinariness			Aluminum		
	Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m
Diameter						
M8 (8 mm, 0.31 in.)	11.8 to 15.6	1.2 to 1.6	8.68 to 11.5	8.82 to 11.8	0.90 to 1.2	6.51 to 8.67
M10 (10 mm, 0.39 in.)	24.6 to 31.3	2.5 to 3.2	18.1 to 23.1	19.7 to 25.4	2.0 to 2.6	14.5 to 18.8
M12 (12 mm, 0.47 in.)	29.5 to 49.0	3.0 to 5.0	21.7 to 36.1	31.4	3.2	23.1

W1048139