

Product: Kubota ZD1211 ZD1221 Zero Turn Mower Service Manual

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WSM

WORKSHOP MANUAL

**ZD1211-AU, ZD1221R-AU,
ZD1221L-AU, ZD1221RL-AU**

Kubota

Sample of manual. Download All 294 pages at:

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KiSC issued 11, 2019 A

TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of the ZD1211-AU, ZD1221R-AU, ZD1221L-AU, ZD1221RL-AU. 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 for diesel engine / tractor mechanism that this manual does not include.

- Booklet: Code No. 9Y021-01870 / 9Y021-18200
- PDF file in Kubota Web Site: Code No. 9Y011-01870 / 9Y011-18200

■ 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.

Since this manual includes many models, information or illustrations and photographs can show more than one model.

June 2016

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Record of Revisions

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

Last digit of the Code No.	Month of Revision	Main Revised Point and Corrective Measures {Search word}	Reference Page
1	2016.08	Updated Maintenance Chart • Added engine valve clearance Updated Greasing Points	G-14 G-9
2	2017.06	Updated "Battery for storage" contents	G-32
3	2019.02	Battery label added serial number: 10184	I-6, I-8
4	2019.10	Revised *2, *3, and *4 in Specifications Table Added Periodic Service Chart Label Added Check Points of Every 800 Hours	I-10 G-16 G-36
5	2019.11	Revised ROPS mouning bolts tightening procedure	2-S20

I INFORMATION

INFORMATION

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1. SAFETY FIRST

SAFETY FIRST

- This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully.
- It is essential that you read the instructions and safety regulations before you 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, could result in minor or moderate injury.

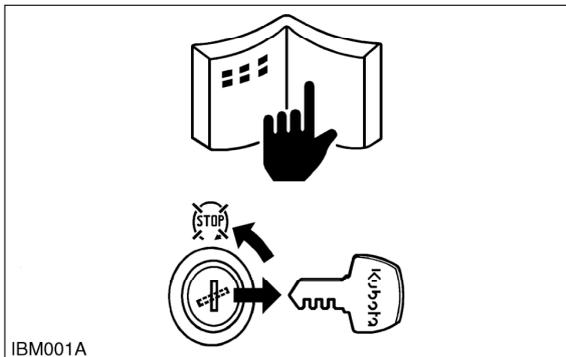
■ IMPORTANT

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

■ NOTE

- Gives helpful information.

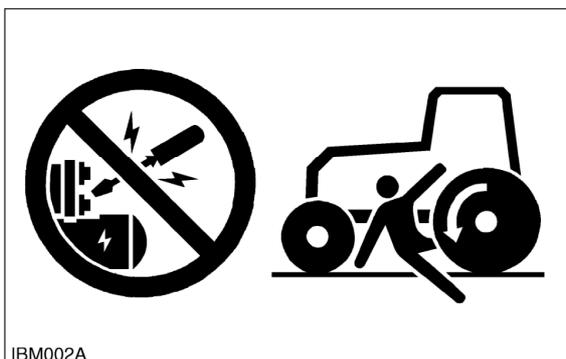
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BEFORE YOU START SERVICE

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

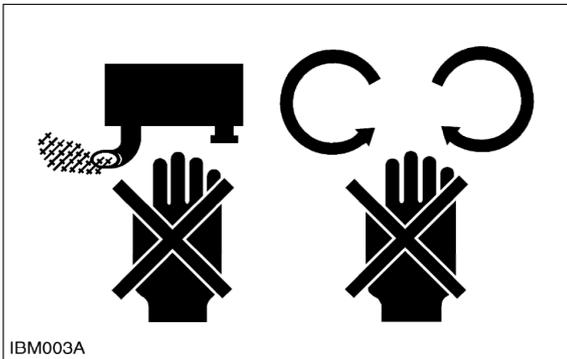
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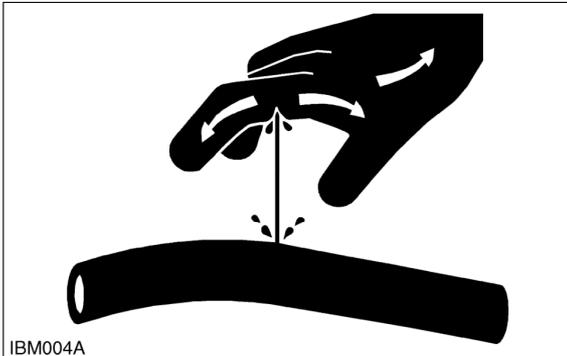
START SAFELY

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

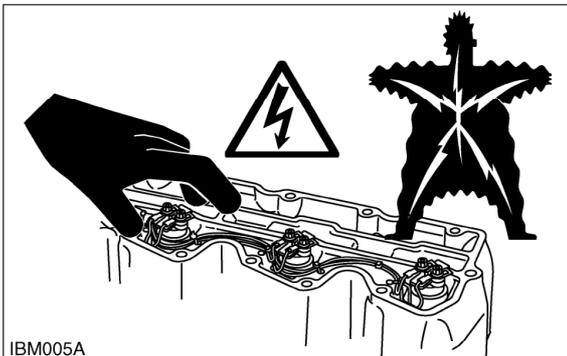
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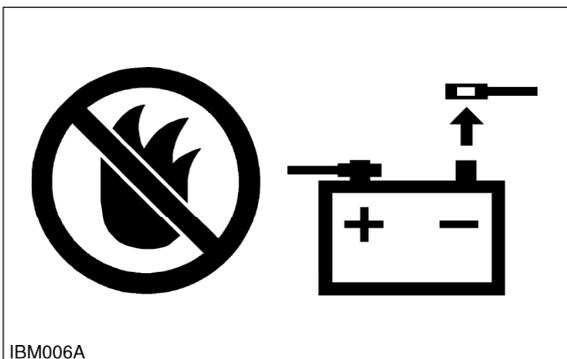
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IBM004A



IBM005A



IBM006A

OPERATE SAFELY

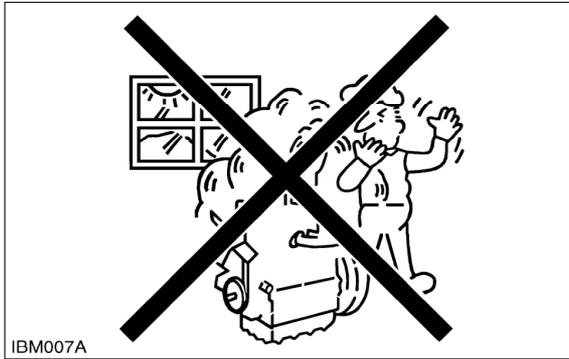
- Do not use the machine after you consume alcohol or medication or when you are tired.
- Put on applicable clothing and safety equipment.
- Use applicable tools only. Do not use alternative tools or parts.
- When 2 or more persons do servicing, make sure that you do it safely.
- Do not operate below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

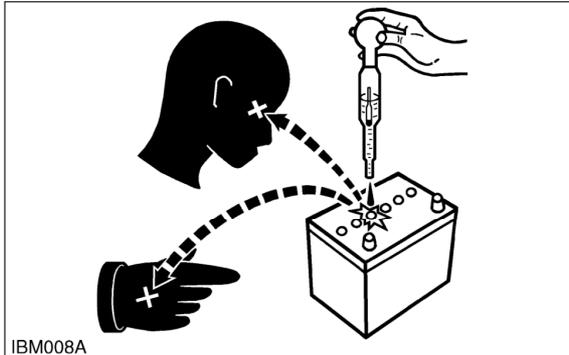
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KEEP A GOOD AIRFLOW IN THE WORK AREA

- 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.

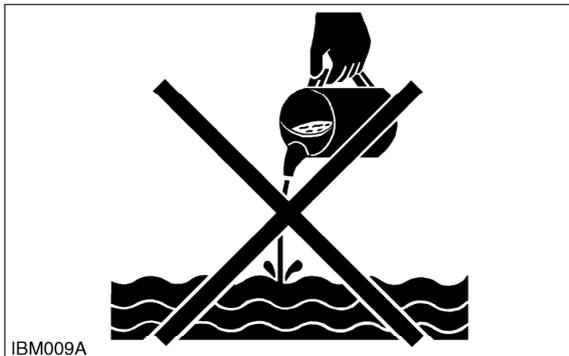
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PREVENT ACID BURNS

- 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.

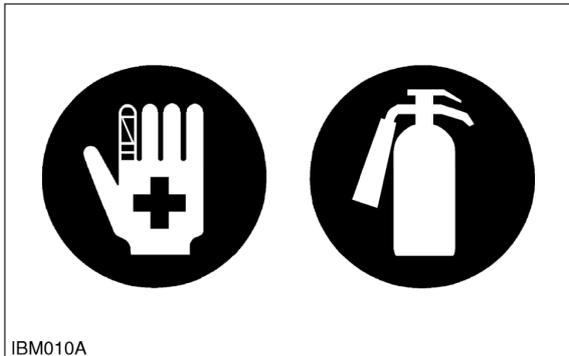
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DISCARD FLUIDS CORRECTLY

- 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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PREPARE FOR EMERGENCIES

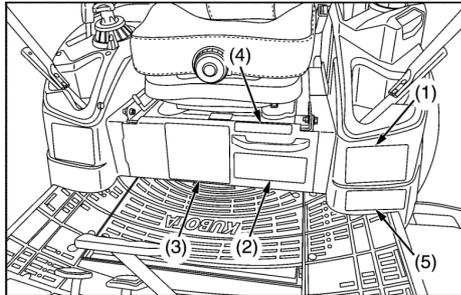
- Keep a first aid kit and fire extinguisher ready at all times.
- Keep the emergency contact telephone numbers near your telephone at all times.

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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.

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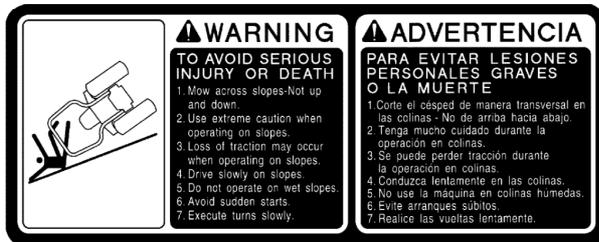


(1) Part No. K3181-6585-1



1BDABCQAP093A

(2) Part No. K3181-6584-1



1BDABCQAP094A

(3) Part No. K3441-6582-1



1BDABEJAP065A

(4) Part No. K3441-6569-1



1BDABEJAP066A

(5) Part No. K3284-6569-1

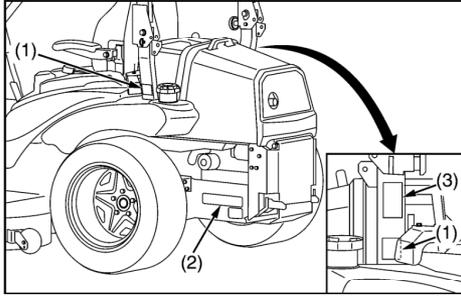


- Use ear protection to avoid damage to hearing.
- Always wear protective glasses.

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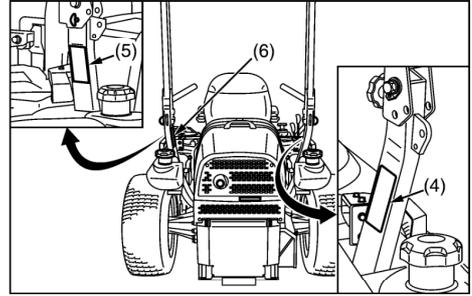
(1) Part No. K3181-6572-1 and K7724-6566-1



ULTRA LOW SULFUR DIESEL FUEL ONLY

If it's used out of north American market, higher sulfur fuel may also be allowed to use as specified in the Operator's manual.

1BDABCQAP179A



(2) Part No. K3181-6583-2

⚠ DANGER

TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY:

- 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.
- Start engine only from operator's seat with motion control levers in neutral, lock position and PTO OFF. Never start engine while standing on the ground.

⚠ PELIGRO

PARA EVITAR POSIBLES LESIONES O LA MUERTE PROVOCADAS POR UN ARRANQUE SUBITO DE LA MAQUINA:

- No ponga en marcha el motor con un cortocircuito en los terminales de arranque o evitando el interruptor de arranque de seguridad. La máquina puede ponerse en marcha engranada y moverse si se evita el uso de los circuitos de arranque normales.
- Ponga en marcha el motor solo desde el asiento del operador con las palancas de control de movimiento y la toma de fuerza apagadas. Nunca ponga en marcha el motor mientras está de pie en el suelo.

1BDABCQAP103A

(3) Part No. K3441-6566-1

⚠ WARNING

Never modify or repair a ROPS because welding, grinding, drilling, or cutting any portion may weaken the structure.

⚠ WARNING

TO AVOID PERSONAL INJURY WHEN RAISING OR FOLDING ROPS:

- Set parking brake and stop engine.
- Remove any obstruction that may prevent raising or folding of the ROPS.
- Do not allow any bystanders.
- Always perform function from a stable position at the rear of the tractor.
- Hold the top of the ROPS securely when raising or folding.
- Make sure all pins are installed and locked.

1BDABEJAP067A

(4) Part No. K3181-6563-1

⚠ WARNING

TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:

- Keep Roll-Over Protective Structures (ROPS) in the upright and locked position.
- Fasten SEAT BELT before operating.

THERE IS NO OPERATOR PROTECTION WHEN THE ROPS IS IN THE FOLDED POSITION:

- Check the operating area and fold the ROPS only when absolutely necessary.
- Do not wear SEAT BELT if ROPS is folded.
- Raise and lock ROPS as soon as vertical clearance allows.
- Read ROPS related instructions and warnings.

1BDABCQAP101A

(5) Part No. K3441-6568-1

⚠ ADVERTENCIA

Nunca modifique ni repare una estructura de protección contra volcaduras (ROPS) por sus siglas en inglés porque soldar, esmerillar, perforar o cortar cualquier parte puede debilitar la estructura.

⚠ ADVERTENCIA

PARA EVITAR LESIONES PERSONALES AL ELEVAR O PLEGAR LA ESTRUCTURA DE PROTECCIÓN CONTRA VOLCADURAS:

- Ponga el freno de estacionamiento para detener el motor.
- Elimine cualquier obstrucción que pueda impedir la elevación o plegado de la estructura de protección contra volcaduras.
- No permita la presencia de otras personas.
- Siempre realice la función desde una posición estable en la parte posterior del tractor.
- Mantenga la mano segura la parte superior de la estructura de protección contra volcaduras durante la elevación o plegado.
- Asegúrese de que todos los pines estén instalados y bloqueados.

1BDABEJAP068A

(6) Part No. K3181-6565-1

⚠ ADVERTENCIA

PARA EVITAR LESIONES PERSONALES O LA MUERTE PROVOCADAS POR VOLCADURAS:

- Mantenga las estructuras de protección contra volcaduras (ROPS) por sus siglas en inglés) en posición vertical y bloqueada.
- Ponga el CINTURÓN DE SEGURIDAD antes de la operación.

EL OPERADOR NO TIENE PROTECCIÓN CUANDO LA ESTRUCTURA DE PROTECCIÓN CONTRA VOLCADURAS ESTÁ EN LA POSICIÓN PLEGADA:

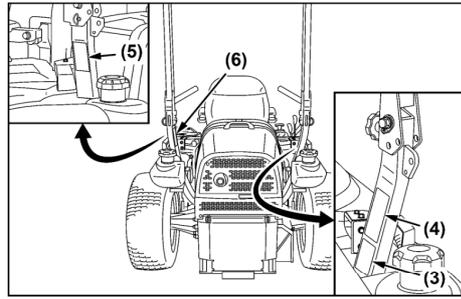
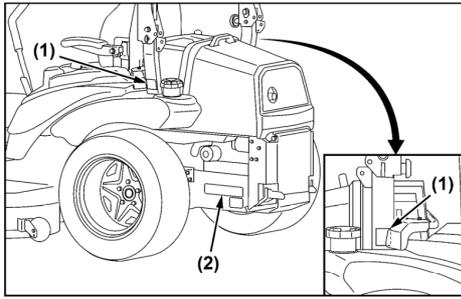
- Revise el área de operación y pliegue la estructura de protección contra volcaduras solo cuando sea absolutamente necesario.
- No use el CINTURÓN DE SEGURIDAD si la estructura de protección contra volcaduras está plegada.
- Eleve y bloquee la estructura de protección contra volcaduras tan pronto como lo permita el espacio libre vertical.
- Lea las instrucciones y advertencias relacionadas a la estructura de protección contra volcaduras.

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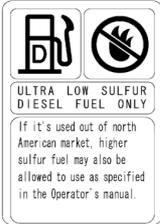
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Serial Number: 10184



(1) Part No. K3181-6572-1 and K7724-6566-1

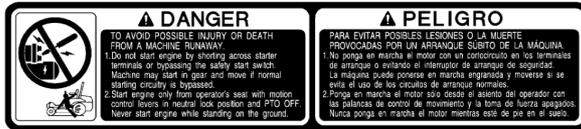


← K3181-6572-1

← K7724-6566-1

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(2) Part No. K3181-6583-2



1BDABCQAP103A

(3) Part No. K3441-6566-1



1BDABEJAP067A

(4) Part No. K3181-6563-1



1BDABCQAP101A

(5) Part No. K3441-6568-1



1BDABEJAP068A

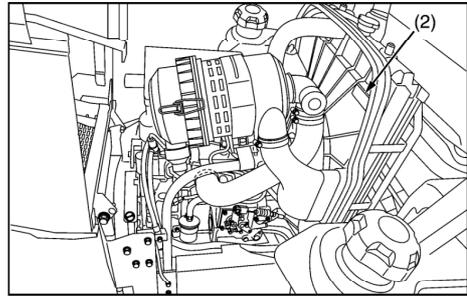
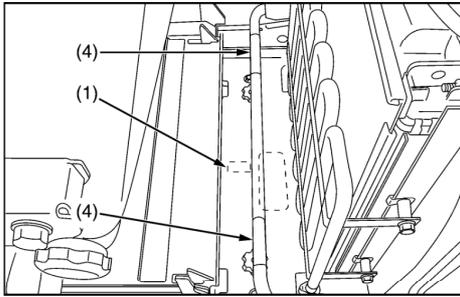
(6) Part No. K3181-6565-1



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9Y1211371INI0009US0



(1) Part No. K3111-6591-1

Do not get your hands close to fan belt.



1BDABCQAP107A

(2) Part No. K3181-6586-1

Do not get your hands close to engine fan and fan belt

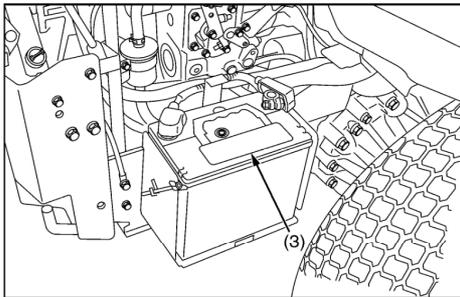


1BDABCQAP108A

(4) Part No. K3441-6593-1



1BDABEJAP108A



(3) Part No. K3181-6116-1

FLAMMABLES	SHIELD EYES	KEEP OUT OF THE REACH OF CHILDREN	CAUTION OF SULFURIC ACID	READ INSTRUCTION MANUAL CAREFULLY	EXPLOSIVE
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 WHILE CHARGING OR AFTER TRAINING.			POISON CAUSES SEVERE BURNS CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN. USE GLOVES, GOGGLES AND FACE OF PROTECTIVE GEAR WITH WATER AND CALL A PHYSICIAN IMMEDIATELY.		
<small>CALIFORNIA PROPOSITION 65 WARNING: Batteries, battery cases, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.</small>					
FITTING DATE		INDICATOR		MADE IN KOREA	
1	2	3	4	5	6
7	8	9	10	11	12
YEAR			MONTH		
OK			CHARGE		
REPLACE					

1BDAHAGAP127A

TO AVOID INJURY FROM BATTERY GASES AND ACIDES



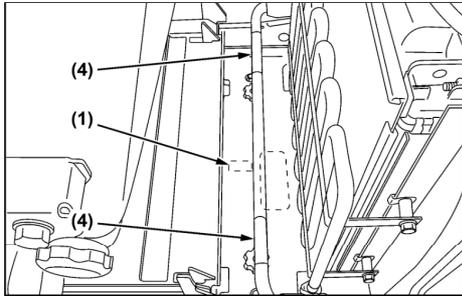
- Keep away cigarettes, flames or sparks.
- Always shield eyes and face from battery.
- Keep out of reach of children.
- Poison causes severe burns.
- Contains sulfuric acid.
- Read and understand operator's manual.
- Danger explosive gases.

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Serial Number: 10184

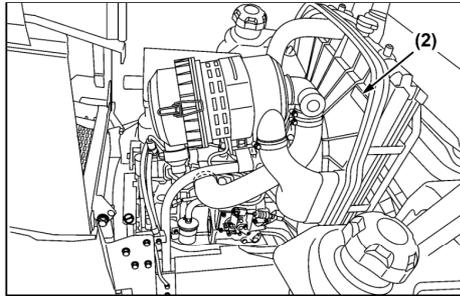


(1) Part No. K3111-6591-1



1BDABCQAP107A

Do not get your hands close to fan belt.



(2) Part No. K3181-6586-1



1BDABCQAP108A

Do not get your hands close to engine fan and fan belt.

(4) Part No. K3441-6593-1



1BDABEJAP108A

(3) Part No. K3181-6116-2

						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.	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.	SMF 51R PART No. K3181-6116
FITTING DATE	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	YEAR	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	MONTH	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	MADE IN KOREA	California Proposition 65 WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov .	NOMINAL VOLTAGE 12V COLD CRANKING AMPS 430 CRANKING AMPS 540 RESERVE CAPACITY (MINUTES) 90 AMP HOURS @ 20hr for float 45
							KEEP OUT OF REACH OF CHILDREN	INDICATOR ● OK ○ CHARGE ● REPLACE

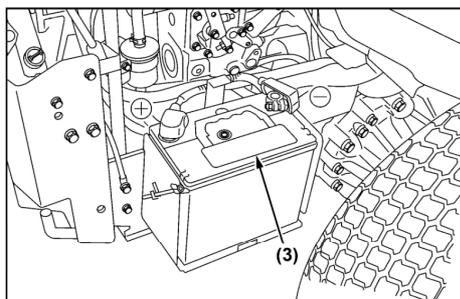
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TO AVOID INJURY FROM BATTERY GASES AND ACIDES



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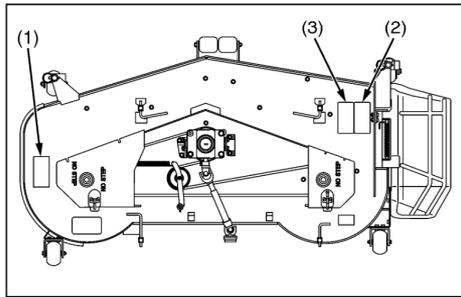
- Keep away cigarettes, flames or sparks.
- Always shield eyes and face from battery.
- Keep out of reach of children.
- Poison causes severe burns.
- Contains sulfuric acid.
- Read and understand operator's manual.
- Danger explosive gases.



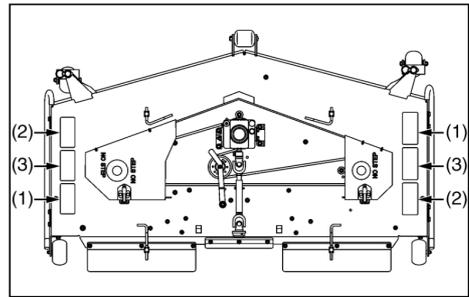
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[RCK60P, RCK72P]



[RCK60R, RCK72R]



(1) Part No. K5681-7312-2



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(2) Part No. K5681-7311-2

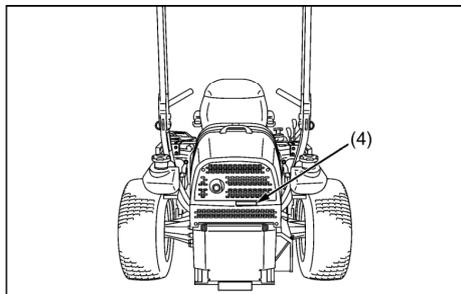


1BDACAEAP016B

(3) Part No. K5681-7310-1



1BDACAEAP017B



(4) Part No. K3441-6532-1



1BDABEJAP069A

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9Y12113711INI0004US0

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.

9Y12113711INI0005US0

3. SPECIFICATIONS

Model		ZD1211-AU	ZD1221R-AU	ZD1221L-AU	ZD1221RL-AU	
Engine	Model		D1105	D1305		
	Max. engine power (Gross)	kW (HP)	18.5 (24.8) (*1) (*2) (*3)	21.7 (29.1) (*1) (*2) (*3)		
	Type		Liquid-cooled			
	Number of cylinders		3			
	Bore and stroke	mm (in.)	78 × 78.4 (3.07 × 3.09)	78 × 88.0 (3.07 × 3.46)		
	Total displacement	cm ³ (cu. in.)	1123 (68.5)	1261 (77.0)		
	Rated revolution	rpm	3000			
	Low idling revolution	rpm	1400 to 1500			
	Fuel	Diesel fuel No. 1 [below -10°C (14 °F)] Diesel fuel No. 2 [above -10 °C (14 °F)]				
	Starter	Electric starter with battery, glow plug, 12V, 1.2kW				
	Lubrication	Forced lubrication by gear pump				
	Cooling	Liquid with pressurized radiator				
	Battery	SMF51R (12V, RC:80min, CCA:430A)				
Capacities	Fuel tank	L (U.S.gals.)	49 (12.9)			
	Engine crankcase (with filter)	L (U.S.qts.)	3.9 (4.1)	5.7 (6.0)		
	Engine coolant	L (U.S.qts.)	3.5 (3.7)			
	Recovery tank	L (U.S.qts.)	0.25 (0.26)			
	Transmission case including Rear axle gear case	L (U.S.qts.)	12.1 (12.8) (*4)			
Dimensions	Overall length	mm (in.)	2260 (89.0)	2380 (93.7)		
	Overall width w/o mower deck	mm (in.)	1510 (59.4)	1540 (60.6)		
	Overall height	With ROPS upright	mm (in.)	2000 (78.7)		
		With ROPS folded	mm (in.)	1640 (64.6)		
	Wheel base	mm (in.)	1440 (56.7)	1560 (61.4)		
	Min. ground clearance	mm (in.)	130 (5.12) W/60"	130 (5.12) W/72"		
	Tread	Front	1064 (41.9)		1250 (49.2)	
Rear		1210 (47.6)				
Weight (W/O FUEL, W/MOWER DECK)	kg (lbs.)	765 (1687) with 60"	780 (1720) with 60"	800 (1764) with 72"	810 (1786) with 72"	
Travelling system	Tires	Front	15 × 6.5 - 8 Smooth semi-pneumatic Non flat tire			
		Rear	26 × 12.0 - 16 4PR Turf Low profile tire			
	Travelling speeds	Forward	mph (km/h) 0 to 10.6 (0 to 17.0) (*3)			
		Reverse	mph (km/h) 0 to 5.3 (0 to 8.5) (*3)			
	Steering	2 - Hand levers				
	Transmission	2 - HST w / Gear				
	Parking brake	Wet multi disk / Foot applied, released				
Min. turning radius	mm (in.)	0 (0)				
PTO	Revolution	1 speed (2540 rpm at 3000 engine rpm)				
	Drive system	Shaft drive, KUBOTA 10 tooth involute spline				
	Clutch type	Wet multi disks				
	PTO brake	Wet single disk				

(Specifications and design subject to change without notice)

(To be continued)

(Continued)

■ NOTE

- *1: SAE J1995
- *2: The engine output value indicated on the EPA exhaust gas label is the ISO8178 net value without a cooling fan. ZD1211-AU: 18.2 kW (24.4 HP)
- *3: At 3000 engine rpm
- *4: Oil amount when the oil level is at the upper level.

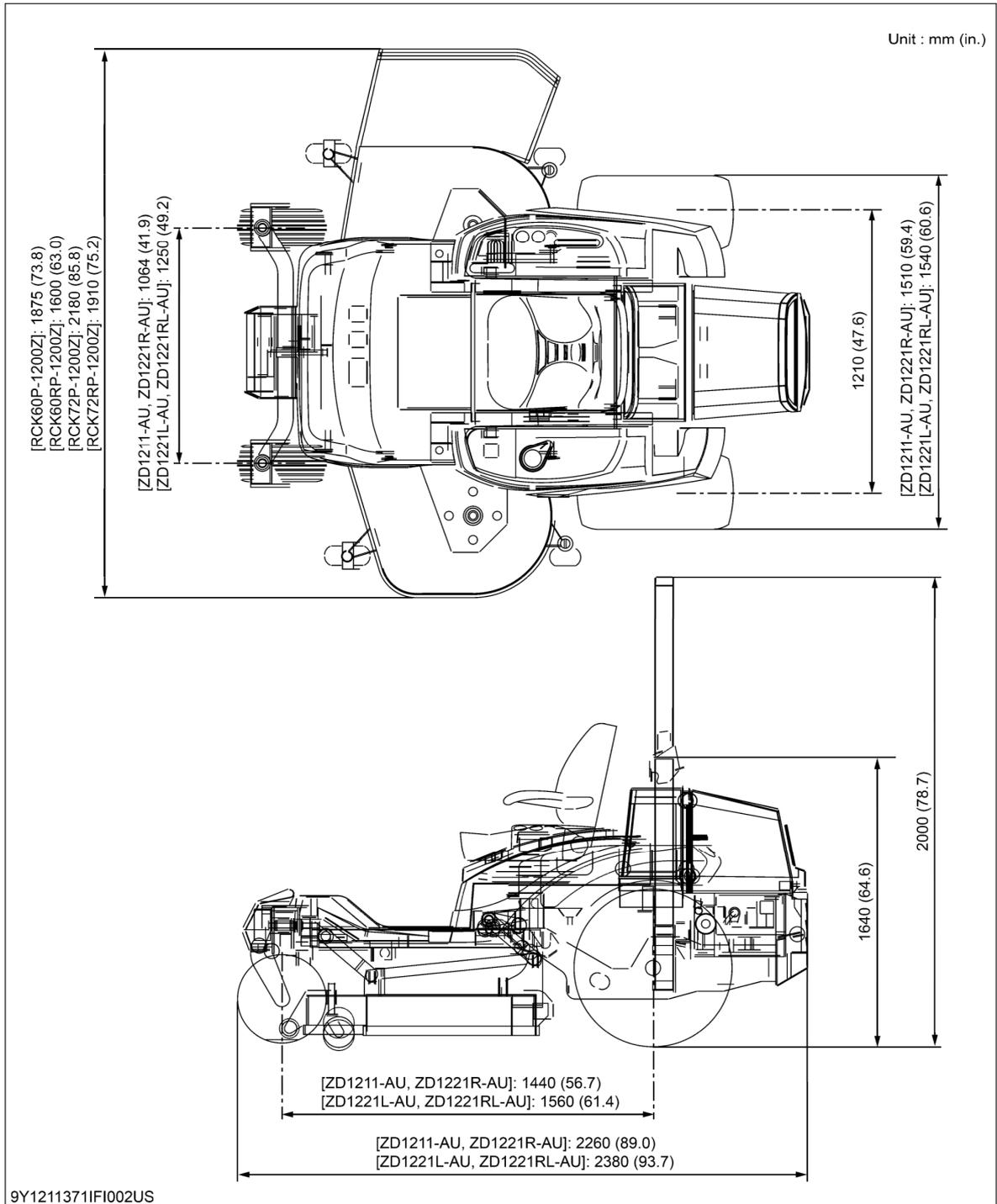
9Y1211371INI0006US0

Model			RCK60P-1200Z	RCK60RP-1200Z	RCK72P-1200Z	RCK72RP-1200Z	
PRO Commercial Deck (Fabricated deck)	Suitable machine		ZD1211-AU	ZD1221R-AU	ZD1221L-AU	ZD1221RL-AU	
	Mounting method		Quick joint, Parallel linkage				
	Adjustment of cutting height		Dial gauge				
	Cutting width	mm (in.)	1524 (60.0)		1829 (72.0)		
	Cutting height	mm (in.)	25 to 127 (1.0 to 5.0)				
	Weight (Approx.)	kg (lbs.)	150 (331)	145 (320)	170 (375)		
	Blade spindle speed	r/s (rpm)	55.9 (3355) *1	52.4 (3145) *1	46.7 (2800) *1		
	Blade tip velocity	m/s (fpm)	91 (18000) *1	86 (16900) *1	91 (18000) *1		
	Blade length	mm (in.)	523 (20.6)		625 (24.6)		
	Number of blades		3				
	Mower gear box capacity		L (U.S.qts.)	0.5 (0.53)	0.4 (0.42)	0.5 (0.53)	0.4 (0.42)
	Dimensions	Total length	mm (in.)	974 (38.4)	1000 (39.4)	1162 (45.8)	1155 (45.5)
		Total width	mm (in.)	1875 (73.8)	1600 (63.0)	2180 (85.8)	1910 (75.2)
Total height		mm (in.)	426 (16.8)	420 (16.5)	421 (16.6)	413 (16.3)	

*1: Engine Max rpm

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4. DIMENSIONS



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G GENERAL

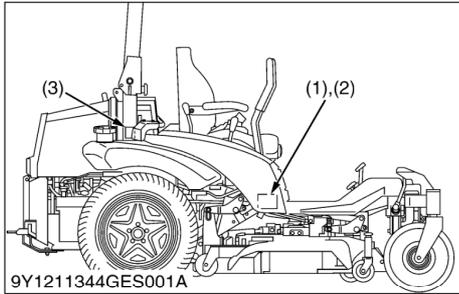
GENERAL

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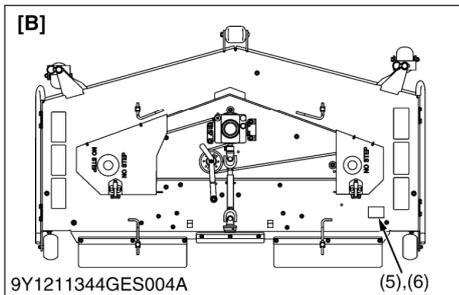
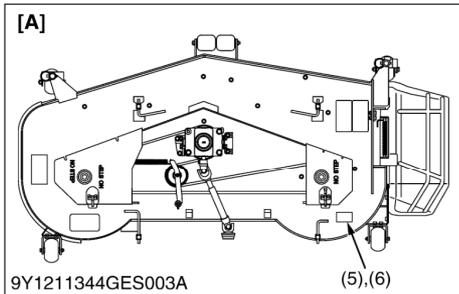
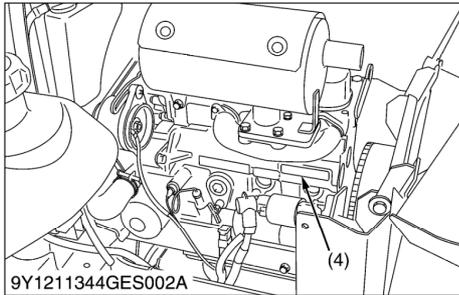
1. IDENTIFICATION

When contacting your local KUBOTA distributor, always specify engine serial number (3), machine serial number or product identification number (PIN) (2), mower serial number (4) and hour meter reading.

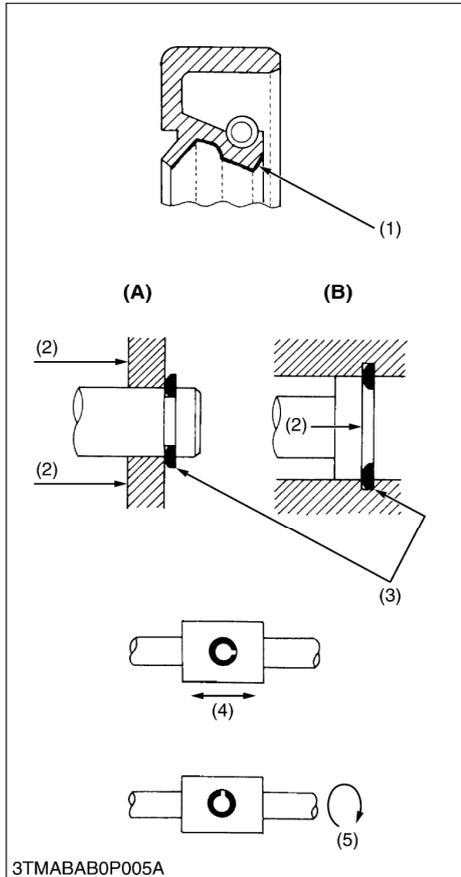


- (1) Machine Identification Plate **[A] RCK60P, RCK72P**
- (2) Machine Serial Number or **[B] RCK60R, RCK72R**
Product Identification Number (PIN)
- (3) ROPS Serial Number
- (4) Engine Serial Number
- (5) Mower Identification Plate
- (6) Mower Serial Number

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2. GENERAL PRECAUTIONS



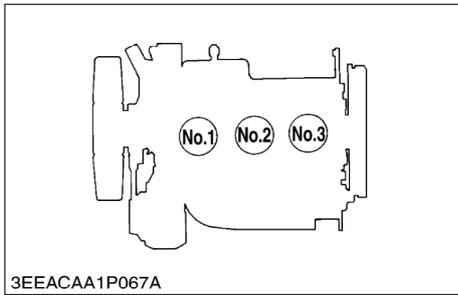
- When you disassemble, carefully put the parts in a clean area to make it easy to find the parts. You must install the screws, bolts and nuts in their initial position to prevent the reassembly errors.
- When it is necessary to use special tools, use KUBOTA special tools. Refer to the drawings when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

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3. CYLINDER NUMBER

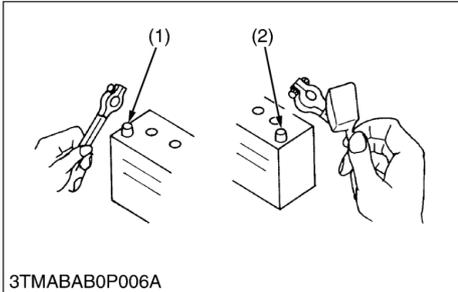


The cylinder numbers of KUBOTA diesel engine are designated as shown in the figure.

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

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4. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



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

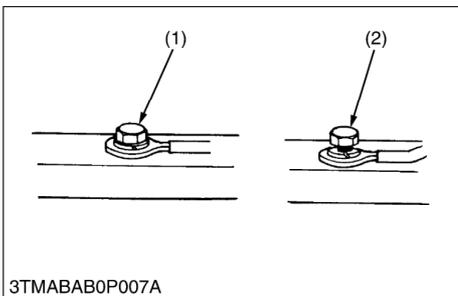
■ IMPORTANT

- Check electrical wiring for damage and loosened connection every year.
- 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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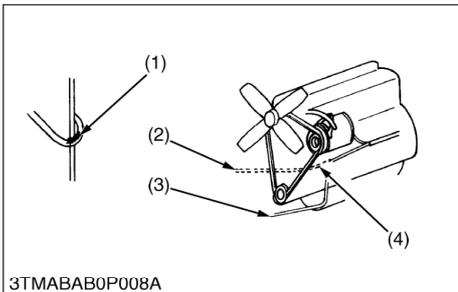
[1] WIRING



- Securely tighten wiring terminals.

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

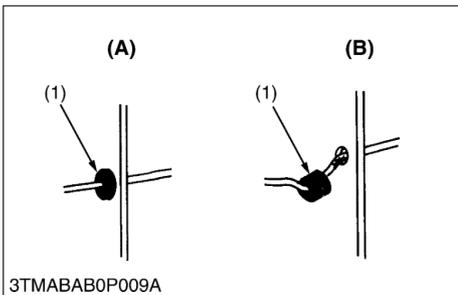
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- Do not let wiring contact dangerous part.

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

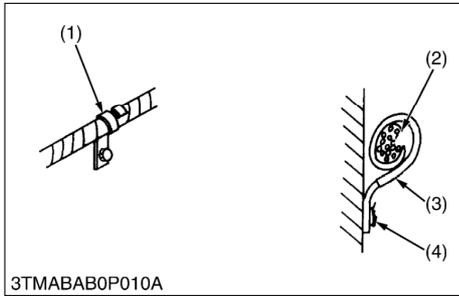
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- Securely insert grommet.

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

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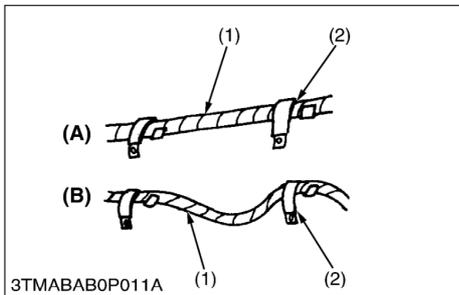


3TMABAB0P010A

- Securely clamp, being careful not to damage wiring.

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

WSM000001GEG0067US0

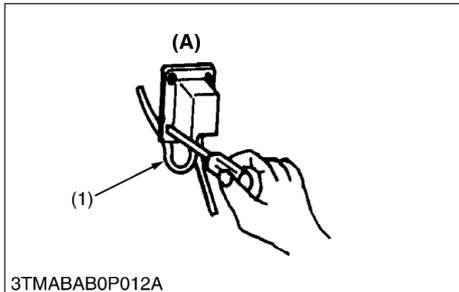


3TMABAB0P011A

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

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

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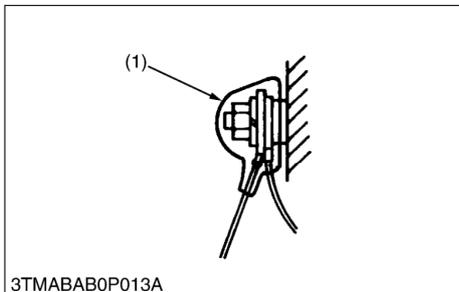


3TMABAB0P012A

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

- (1) Wiring
- (A) Incorrect

WSM000001GEG0069US0



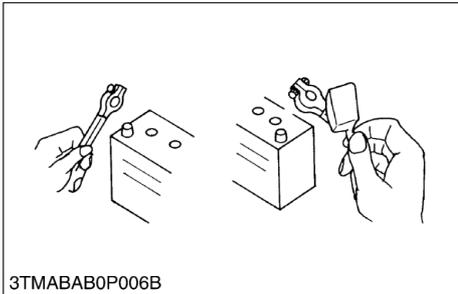
3TMABAB0P013A

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

- (1) Cover (Securely Install Cover)

WSM000001GEG0070US0

[2] BATTERY



3TMABAB0P006B

- Be careful not to confuse positive and negative terminal posts.
- When you remove battery cables, disconnect negative cable first. When you install battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After you connect cables to battery terminal posts, apply high temperature grease to them and securely install terminal covers on them.
- Do not allow dirt and dust to collect on battery.

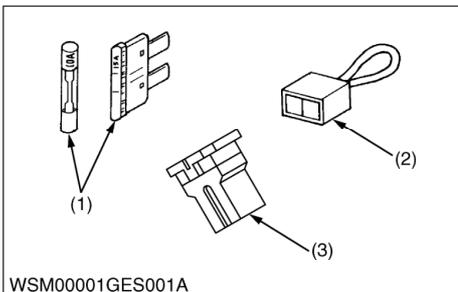
! DANGER

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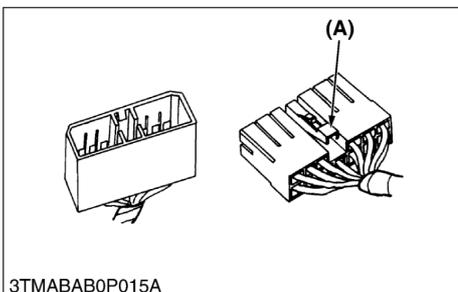
- Use fuses with specified capacity. Neither too large nor small capacity fuse is acceptable.
- Never use steel nor copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

(1) Fuse
(2) Fusible Link

(3) Slow Blow Fuse

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[4] CONNECTOR

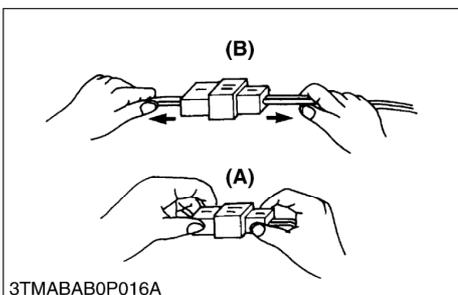


3TMABAB0P015A

- For connector with lock, push lock to separate.

(A) Push

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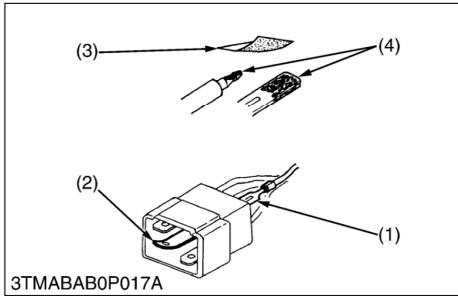
3TMABAB0P016A

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

(A) Correct

(B) Incorrect

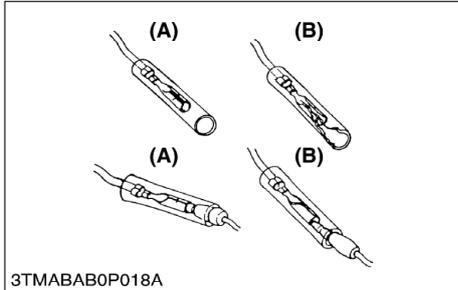
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- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make sure that there is no terminal being exposed or displaced.

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

WSM000001GEG0075US0

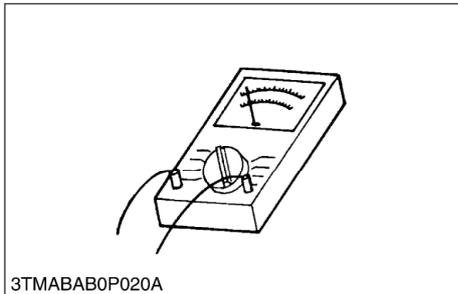


- Make sure that there is no female connector being too open.

- (A) Correct
- (B) Incorrect

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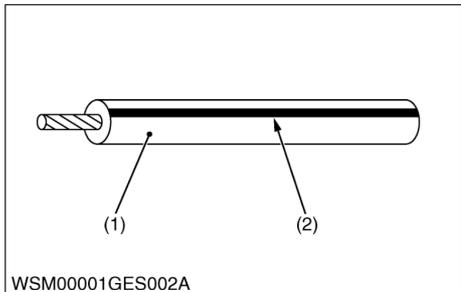
[5] HANDLING OF CIRCUIT TESTER



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

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[6] COLOR OF WIRING



- Colors of wire are specified to the color codes.
- This symbol of "/" shows color with stripe (s).

(An example)

Red stripe on white color: W/R

Color of wiring	Color code
Black	B
Brown	Br
Green	G
Gray	Gy or Gr
Blue	L
Light Green	Lg
Orange	Or
Pink	P
Purple	Pu or V
Red	R
Sky Blue	Sb
White	W
Yellow	Y

(1) Wire Color

(2) Stripe

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5. LUBRICANTS, FUEL AND COOLANT

Place	Capacity				Lubricants
	ZD121-AU	ZD1221R-AU	ZD1221L-AU	ZD122RL-AU	
Fuel	49 L (12.9 U.S.gals.)				<ul style="list-style-type: none"> No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10 °C (14 °F)
Coolant	3.5 L (3.70 U.S.qts.)				Fresh clean water with anti-freeze
Recovery tank	0.25 L (0.26 U.S.qts.)				
Engine crankcase	3.9 L (4.1 U.S.qts.) *1	5.7 L (6.0 U.S.qts.)*1			<ul style="list-style-type: none"> Engine oil: API service Classification CF or better Above 25 °C (77 °F)..... SAE30, SAE10W-30 or 15W-40 0 to 25 °C (32 to 77 °F)..... SAE20, SAE10W-30 or 15W-40 Below 0 °C (32 °F)..... SAE10W, SAE10W-30 or 15W-40
Transmission case with filter & hose Rear axle gear case (R.H. & L.H.)	12.1 L (12.8 U.S.qts.)				<ul style="list-style-type: none"> KUBOTA SUPER UDT-2 fluid*2
Mower gear box	0.5 L (0.53 U.S.qts.)	0.4 L (0.42 U.S.qts.)	0.5 L (0.53 U.S.qts.)	0.4 L (0.42 U.S.qts.)	ZD1211-AU, ZD1221L-AU Engine oil: API service Classification SH, SJ or higher SAE10W-30 ZD1221R-A, ZD1221RL-A U SAE90 gear oil (API service classification: more than GL-3)
Greasing	No. of greasing points		Capacity		Type of grease
King Pin	2		Until grease overflows		<ul style="list-style-type: none"> Multipurpose EP2 Grease (NLGI Grade No.2)
Center pin	1				
Front wheel	2				
Rear mower link bushing	4				
Front mower link bushing	2				
Tilt lever	1				
Universal joint	3				
Seat adjuster	2				
Parking brake lock pedal	1		Moderate amount		<ul style="list-style-type: none"> oil
Cable (throttle)	2				

Place	Capacity				Lubricants
	ZD121-AU	ZD1221R-AU	ZD1221L-AU	ZD122RL-AU	
	[MOWER]				
Universal joint	3		Until grease overflows		• Multipurpose EP2 Grease (NLGI Grade No.2)
Three spindle shafts	3				
Belt tension pulley	1				
Belt tension pivot	1				
Front anti scalp roller pivot boss	2				
Front anti scalp roller	2				

■ **NOTE**

- *1 Oil amount when the oil level is at the upper level of the oil level gauge.
- *2 The product name of KUBOTA genuine UDT fluid may be different from that in the Operator's Manual depending on countries or territories.

■ **IMPORTANT**

- To prevent serious damage to hydraulic systems, use only KUBOTA genuine fluid or its equivalent.

9Y1211371GEG0003US0

Full Download: <https://www.arepairmanual.com/downloads/kubota-zd1211-zd1221-zero-turn-mower-service-manual/>

■ **NOTE**
Fuel

- Cetane number of 45 is 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)

Engine Oil

- Oil used in the engine must 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)]	CF, CF-4, CG-4, CH-4 or CI-4	CF or CI-4 (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	ZD1211-AU, ZD1221R-AU, ZD1221L-AU, ZD1221RL-AU	—

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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