

Product: Kubota MX5200 Service Manual

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WSM

WORKSHOP MANUAL
TRACTOR

MX5200

Kubota

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KiSC issued 12, 2018 A

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TO THE READER

This workshop manual provides safety information for service activity, general information such as specifications and dimensions of the machine, mechanisms and structure descriptions of the machine, and service procedures.

Safety

This section contains safety service descriptions and safety label information.

General

This section contains general instructions, tightening torques, general machine information and special tools.

Maintenance

This section contains information for the recommended oil and general maintenance procedures.

Each section basically consists of mechanism and servicing.

Mechanism

Mechanism part contains information and explanations for the structure, functions, and specifications of the machine or component parts. This part should be comprehended before proceeding with troubleshooting, disassembling, assembling, and servicing works.

Servicing

Servicing part contains information and procedures for maintenance, troubleshooting and repair works. The reader should follow these instructions in order to satisfy any servicing work safely, correctly and quickly.

In this WSM, service specifications and service limits are defined as followings.

Service specifications:

Specification which corresponds to new machine's ex-factory. It is based on quality standard, drawings, or actual measurements conducted by Kubota. This value is used to determine whether there is a problem with the machine in the event of a troubleshooting. However, it is necessary to consider degradation due to wear, based on the operating time of the machine, application or maintenance condition.

Service limits:

Service limit is a value corresponding to the recommended performance limit by taking long term-use wear into account. When the service limit is reached, the machine is required to have proper repair, overhaul or replacement in order to keep safe and adequate performance.

All of the illustrations, photographs, specifications, and other information in this manual were created based on the latest model at the time of publication.

The parts names used in this manual are unified into names representing the functions of the parts. Therefore, it does not necessarily correspond to the names used in other materials (parts list, operators manual etc.) and the name on the label / identification plates on the product.

Kubota reserves the right to change all information at any time without notice.

December 2018

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SUPPLEMENTARY INFORMATION

Model name and related manuals

This manual applies to the following model.

Model name
MX5200

Please refer to the following manuals if necessary.

Publication title	Publication No.
Diagnosis manual	9Y110-02425

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1. SAFETY

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.

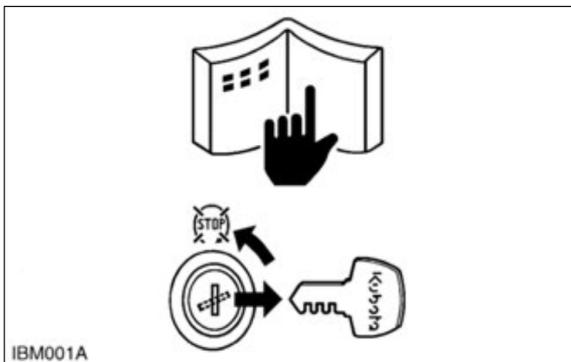
IMPORTANT

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

NOTE

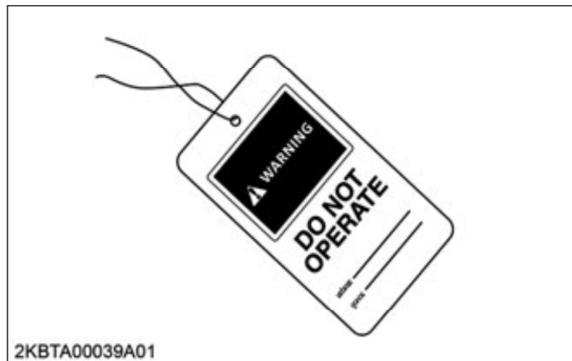
- Gives helpful information.

1. Working precautions



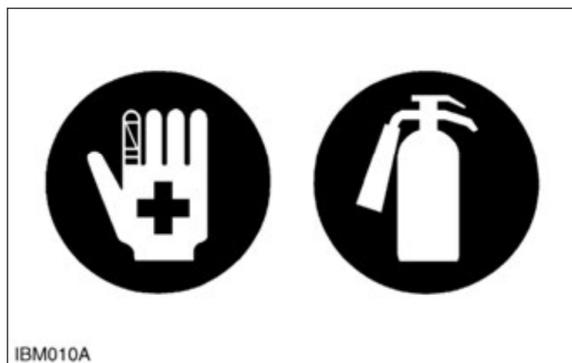
- Understand all safety instructions and safety labels in this manual.
- Park the machine on a stable and level ground then lower the attachment to check the machine safely.

- Stop the engine and remove the key when leaving the operator's seat for cleaning, maintenance, and servicing.



- Hang a DO NOT OPERATE tag near the operator's seat.
- Do not use worn or cracked tools. Use tools in a proper way with enough strength.
- In regards to the facility which is used in the work shop, follow each safety instruction.

2. Preparing for emergencies

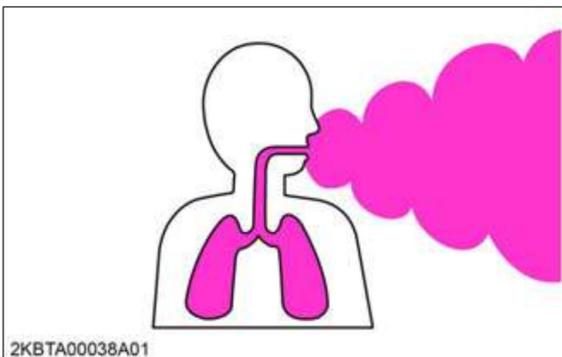


- Keep a first aid kit and fire extinguisher ready at all times.
- Keep emergency numbers near your telephone at all times.

3. Working cautions



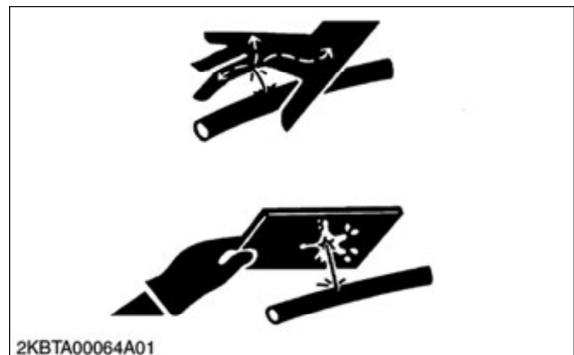
- Wear a uniform suited for service working. Do not wear loose clothes as they could get caught on the control lever.
- Wear the proper protective equipment when checking the machine. For example helmet, eye protector and protective shoes.
- Do not check the machine after you have consumed alcohol or drugs or when you are tired.



- Park the machine on a stable and level ground. Keep the machine away from obstacles and hazardous materials.
- Make sure to ventilate the work area in cases of working indoors.
- Do not allow third parties to come near the machine.
- Keep the machine clean. Remove dirt, debris, and oil attached to the machine.



- Make sure you have the support of the 3 points with both hands holding the handle and one foot at the step when getting on and off the machine.

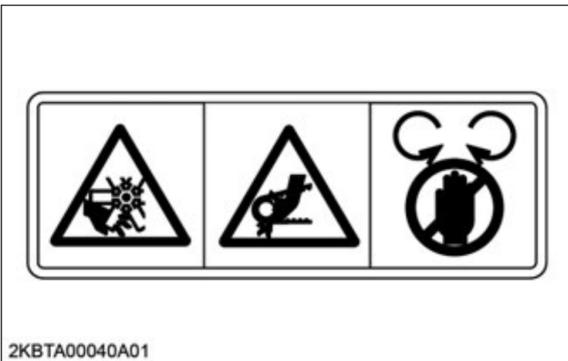


- Confirm the coolant temperature and release pressure when opening the radiator cap.
- Release residual pressure in the hydraulic circuit before removing the hydraulic components.
- Pay attention when releasing pressure in hydraulic circuit, the machine or attachment might move unexpectedly.
- When working under the machine, make sure the machine does not move back and forth.
- When working under the machine, provide secure support for the machine.
- When using a garage jack, always use with a rigid rack to prevent the machine from falling.

4. Starting the machine safely

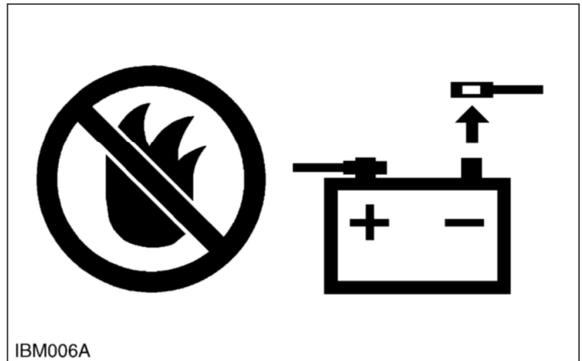


- Do not do the following work when starting the engine.
 - Short across starter terminals.
 - Bypass the safety start switch.
- Confirm if it is safe around the machine from the operator's seat before starting the engine.
- Do not start the engine unless seated in the operator's seat.
- Make sure that the pilot levers are in neutral before starting the engine.



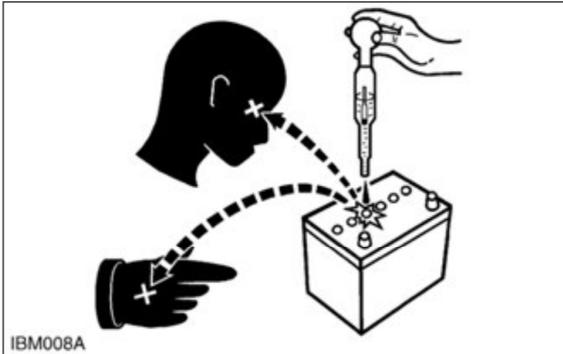
- Lock the covers before starting the machine.
- Keep away from rotating and moving objects.
- Keep tools and waste cloth away from rotating and moving objects.

5. Preventing fires



- Keep fire (welding sparks, grinding sparks, cigarettes) away from the fuel.
- Wipe the fuel off when spilled.
- Keep fire (welding sparks, grinding sparks, cigarettes) away from the battery. The battery produces oxygen and hydrogen gas that are flammable.
- Make sure to disconnect the negative (-) terminal first when disconnecting the battery cable.
- Make sure to connect the positive (+) terminal first when connecting the battery cable.
- Follow notes on handling diesel particulate filter (DPF).
- Do not make a short-circuit.
- Do not splash the hydraulic oil on the exhaust components.

6. Preventing acid burns



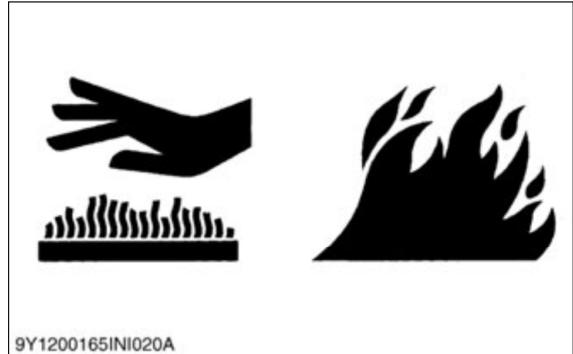
- Keep the electrolyte away from your eyes, hands, and clothes. Sulfuric acid in the battery electrolyte is poisonous: it can cause blindness and strong enough to burn your skin and clothing. If you spill electrolyte on yourself, clean yourself with water and get a medical aid immediately.

7. Avoiding high pressure fluid

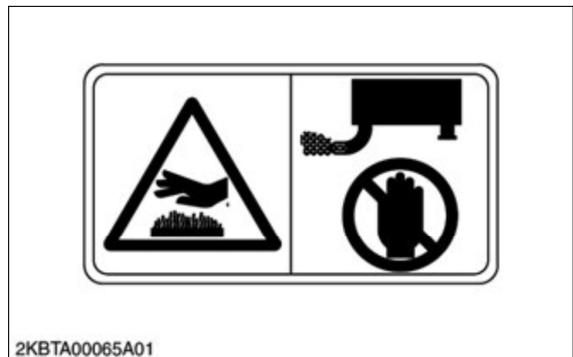


- Keep away from high pressure fluids bursting from a hose or pipe. The fluid can penetrate your skin and cause serious injuries.
- Get a medical aid immediately if the accident occurs.

8. Avoiding hot exhaust



- Avoid skin exposure and contact with hot exhaust gas or components.
- Exhaust gas and components are extremely hot during operation.



- Do not work immediately after stopping the engine. The engine, muffler, radiator, and hydraulic components are extremely hot.
- Do not remove caps and plugs soon after stopping the engine. The temperature and pressure of the coolant, hydraulic oil, and fuel are still high.

SAFETY LABELS

(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.

1AGAHAKAP046A

(2) 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.

1AGAMAAAP245U

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

⚠ WARNING

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

⚠ WARNING

TO AVOID PERSONAL INJURY OR DEATH 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.

1AGAHAKAP032A

(4) Part No. 6C090-4958-2

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



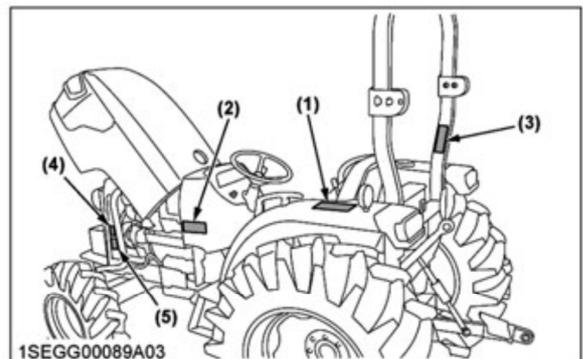
1AGAECDAPO31A

(5) Part No. TC030-4958-1

Do not touch hot surface like muffler, etc.



1AGAMAAAP240B



1SEGG00089A03

1SPSP00006A01enUS

1. SAFETY

(1) Part No. TC660-4935-1

⚠ WARNING	⚠ WARNING
TO AVOID PERSONAL INJURY OR DEATH:	TO AVOID PERSONAL INJURY OR DEATH FROM SEPARATION:
<ol style="list-style-type: none"> 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. 	<p>Do not extend lift rod beyond the groove on the threaded rod.</p> 

1AGAHAKAP052C

(2) Part No. TA240-9848-2

⚠ WARNING	
	<p>TO AVOID INJURY OR DEATH FROM ROLL-OVER:</p> <ul style="list-style-type: none"> • Keep Roll-Over Protective Structures (ROPS) in the upright and locked position. • Fasten SEAT BELT before operating. <p>THERE IS NO OPERATOR PROTECTION WHEN THE ROPS IS IN THE FOLDED POSITION:</p> <ul style="list-style-type: none"> • 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.

1AGAEBMAP071E

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

⚠ WARNING	<p>BEFORE DISMOUNTING TRACTOR:</p> <ol style="list-style-type: none"> 1. ALWAYS SET PARKING BRAKE. 2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope. 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. 4. LOCK SHUTTLE SHIFT LEVER IN NEUTRAL POSITION AND STOP THE ENGINE.
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1AGAMAAP400T

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

⚠ WARNING	<p>BEFORE DISMOUNTING TRACTOR:</p> <ol style="list-style-type: none"> 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. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death. 4. STOP THE ENGINE.
------------------	--

1AGAMAAP372A

1SPSP00007A01enUS

(4) Part No. TA040-4959-3

⚠ WARNING	
	<p>TO AVOID PERSONAL INJURY:</p> <ol style="list-style-type: none"> 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).

1AGAMAAP247U

(5) Part No. TC230-4956-1

Diesel fuel only.	No fire
	
LOW SULFUR FUEL OR ULTRA LOW SULFUR FUEL ONLY	

1AGAPAJAP068A

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

⚠ WARNING
<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>

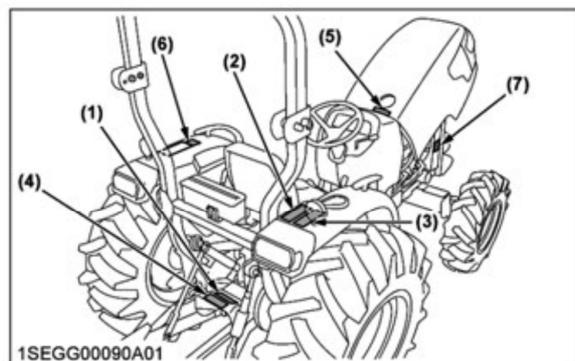
1AGAIHFAP069A

(7) Part No. 6C090-4958-2

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



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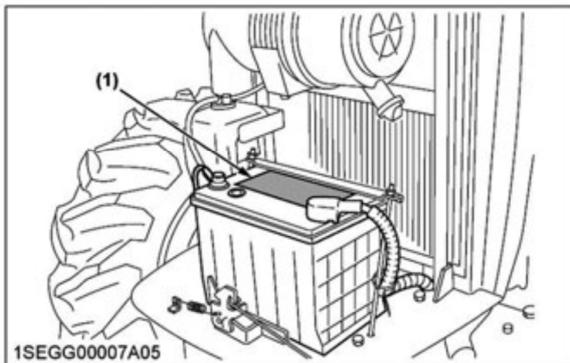


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(1) Part No. TC030-3012-1

 RECYCLE	 FLAMMABLES	 SHIELD EYES	 KEEP OUT OF THE REACH OF CHILDREN	 CAUTION OF SULFURIC ACID	 READ INSTRUCTION MANUAL CAREFULLY	 EXPLOSIVE	HYDROMETER  OK CHARGE REPLACE BATTERY BATTERY OK 80959
NX110-5LMF 12V AMP. HR (SHR) 55 RESERVE CAPACITY (MIN) 133 COLD CRANKING AMPS (-18°C) 582	⚠ DANGER • DUE TO HYDROGEN GAS GENERATED FROM BATTERY, HANDLING WITHOUT CARE CAN CAUSE FIRE AND EXPLOSION. • THIS 12V BATTERY IS ONLY FOR STARTING ENGINE. DO NOT APPLY THIS PRODUCT FOR OTHER USES. • CHARGE THIS BATTERY ONLY AT WELL VENTILATED PLACES, AND AVOID SHORTS OR SPARKS. • REFER TO THE INSTRUCTION MANUAL OF VEHICLE OR BATTERY BEFORE USING BOOSTER CABLE. • SULFURIC ACID MAY CAUSE BLINDNESS OR SEVERE BURN, IN CASE EYES, SKIN, CLOTHES OR ANY ARTICLES ARE STAINED 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. • 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)						
<h1>NX110-5LMF</h1>			<h1>80D26L</h1>				
			FITTING DATE: <input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9 YEAR <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9 <input type="radio"/> 10 <input type="radio"/> 11 <input type="radio"/> 12 MONTH				
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. KEEP OUT OF REACH OF CHILDREN				

1AGAHAP061E



1SEGG00007A05

1SEGG00093A01enUS

1. Care of danger, warning and caution labels

- Keep danger, warning and caution labels clean and free from obstructing material.
- Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
- Replace damaged or missing danger, warning and caution labels with new labels.
- If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
- Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

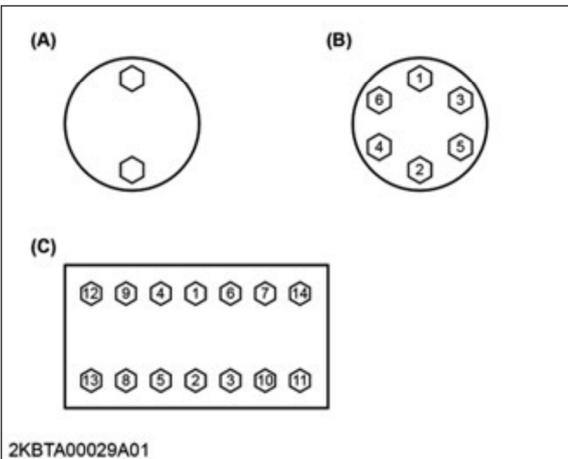
2. GENERAL

GENERAL WORKING PRECAUTIONS



- When servicing, observe the safety regulations in the operator's manual and workshop manual.
- Clean the machine before maintenance.
- Before working, remove the negative (-) terminal from the battery or turn off the battery isolator switch.
- Disassemble the machine at a clean location.
- Whenever a special tool is required, use the special tool that Kubota recommends. Or, craft the special tools according to the illustrations in this manual.
- Use genuine Kubota parts to ensure safety and machine performance.

1. Tightening bolts and nuts



- (A) Alternately
- (B) Diagonally
- (C) Diagonally from center to outside

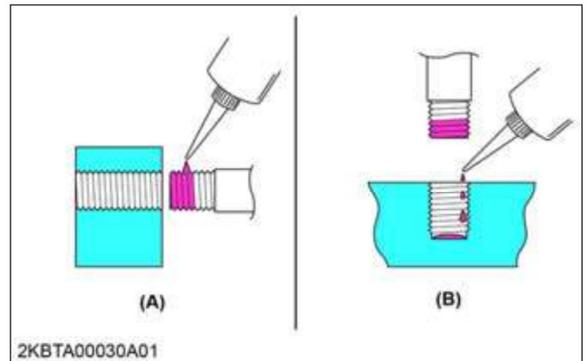
- Tighten the bolts and nuts with their specified torque.

NOTE

- Tighten the bolts and nuts alternately from top to bottom and left to right so the torque is distributed evenly.
- Gradually tighten the bolts and nuts two or three times.

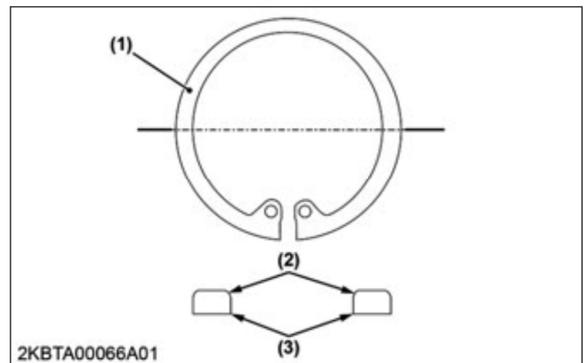
2. Applying thread-locking fluid

1. Clean and dry the location where a thread-locking fluid will be applied with a solvent to remove moisture, oil, and dirt.
2. Apply the thread-locking fluid to the tip of the bolt.
3. If the threads are large, apply the thread-locking fluid all around the bolt hole.

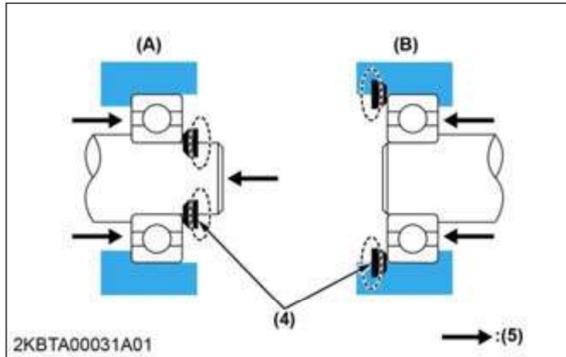


- (A) Bolt hole (bolts, nuts)
- (B) Screw hole

3. Installing circlips

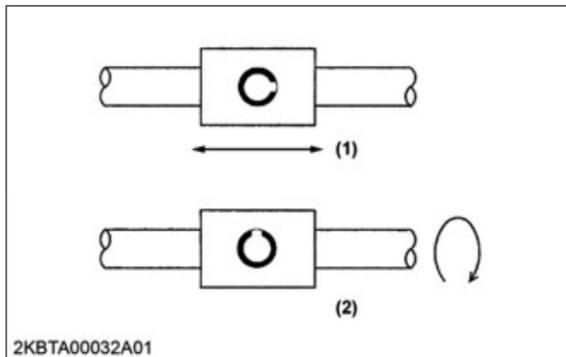


- (1) Circlip
- (2) Rounded side
- (3) Angular side



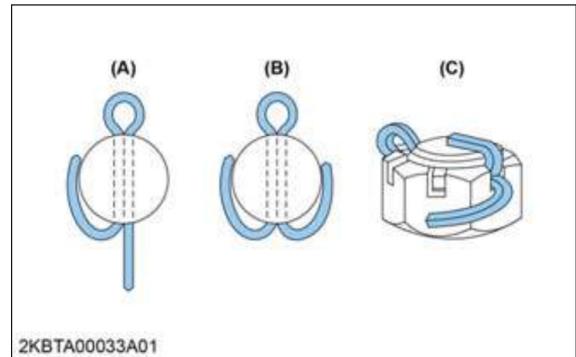
- (4) Side that receives force (A) External circlip
 (5) Force (B) Internal circlip
- When installing the circlip, assemble the circlip's angular side (3) toward the side that receives force (4) as shown in the figure.

4. Installing spring pins



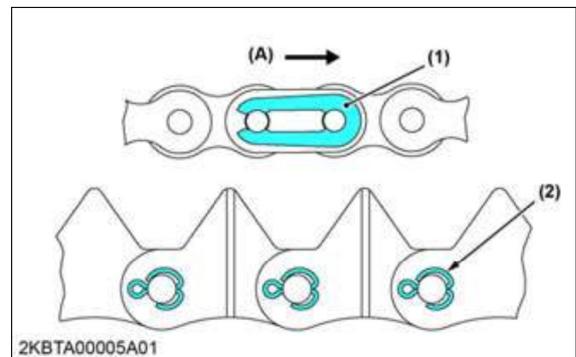
- (1) Parallel movement (2) Rotational movement
- When installing the spring pin, assemble the slit of the spring pin in the direction that receive force as shown in the figure.

5. Handling split pin



- (A) Single side split (B) Double side split (C) S-shaped split
- Replace split pins with new ones. Insert the split pins: once inserted, the two ends of the pin are bent apart to fixed it in place.
 - Tighten a grooved nut to the specified torque, align the hole of the split pin to the tighten direction and use an S-shaped split.

6. Handling chain joint and split pin



- (1) Chain joint (2) Split pin (A) Direction of chain moving
- Assemble the chain joint with its opening facing the opposite direction of travel.
 - Assemble the split pin with its opening facing the direction of travel.