

WSM

WORKSHOP MANUAL
TRACTOR

BX1800, BX2200

Kubota

TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA Tractors BX1800 and BX2200. 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.

■ Servicing

Under 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.

January 2000


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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.

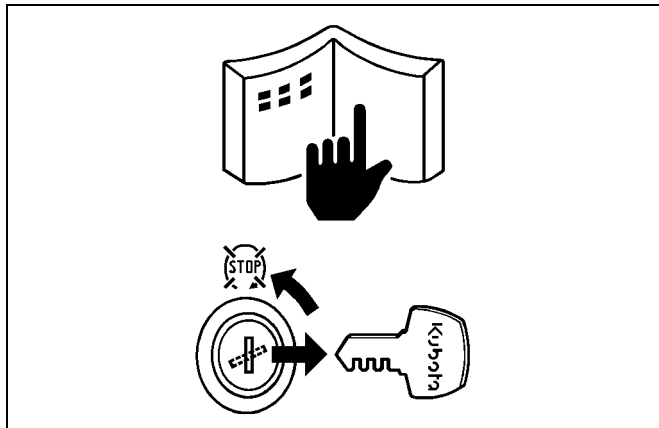

DANGER : Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.


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.

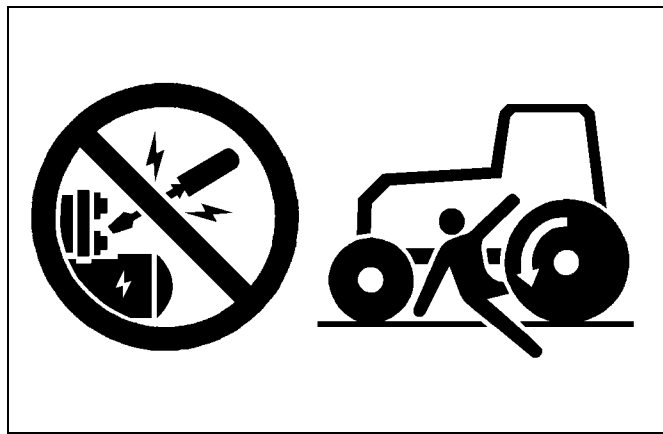

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.


NOTE : Gives helpful information.



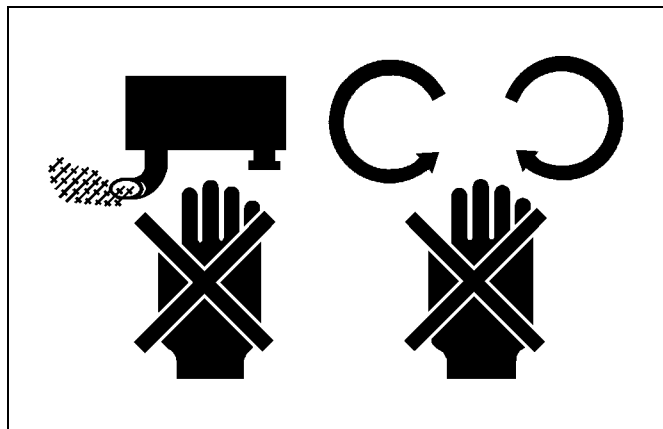
BEFORE SERVICING AND REPAIRING

- 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.



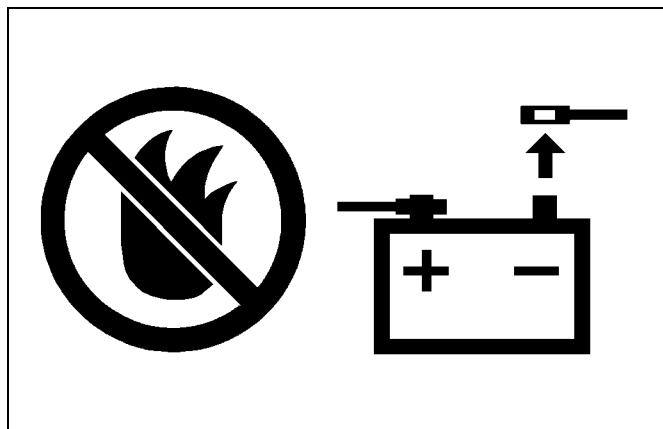
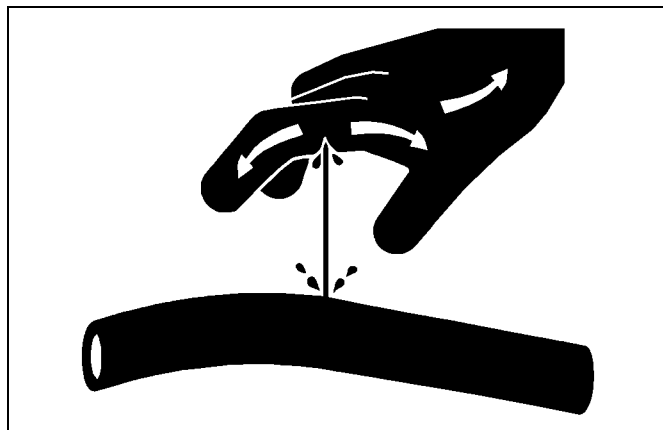
SAFETY STARTING

- 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.



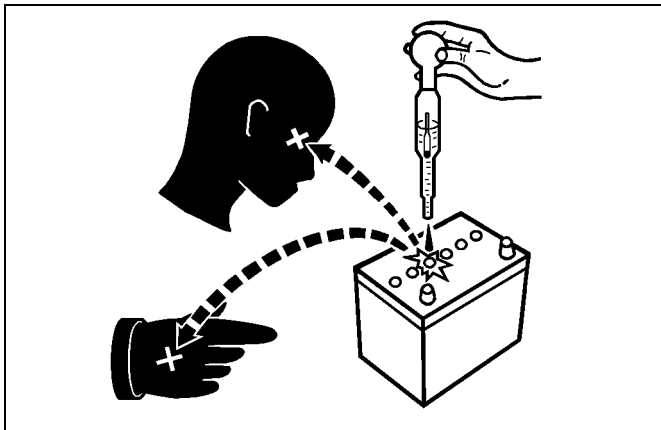
AVOID FIRES

- 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.



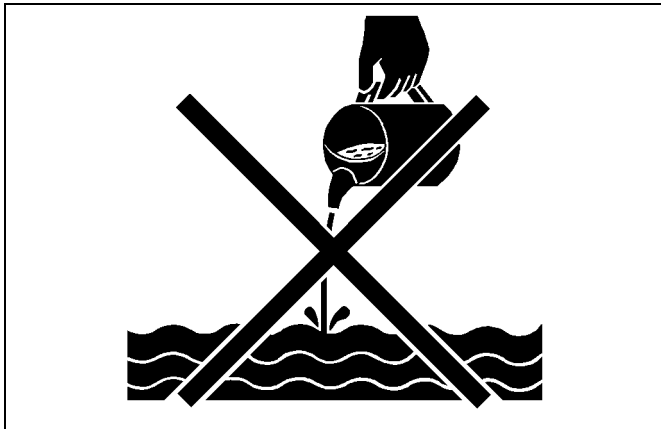
VENTILATE WORK AREA

- 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.



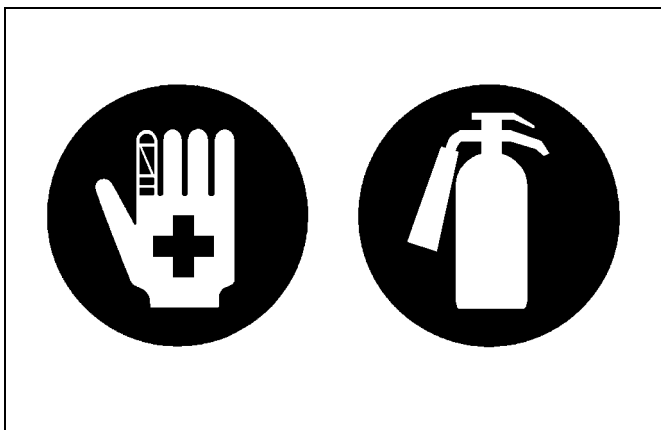
PREVENT ACID BURNS

- 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.

(1) Part No. K2561-6554-1

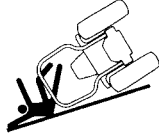


⚠ WARNING

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 hitch at towing position. (see operator's manual)

(2) Part No. K2561-6557-1



⚠ WARNING

TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:

1. Kubota recommends the use of a Roll-Over Protective Structures (ROPS) and seat belt in almost all applications.
2. Remove the ROPS only when it substantially interferes with operation or itself presents a safety risk. (Examples include work in orchards and vineyards) **ALWAYS REINSTALL IT BEFORE USING THE TRACTOR IN OTHER APPLICATIONS.**
3. Never use just the seat belt or just the ROPS. They must be used together. For further details consult your Operator's Manual or your local dealer.

(3) Part No. K2561-6548-1

⚠ 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 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. Slow down for turns, or rough roads.
8. On public roads use SMIV emblem and hazard lights, if required by local traffic and safety regulations.
9. Pull only from the hitch.
10. Before dismounting lower the implement, set the parking brake, stop the engine and remove the key.

(4) Part No. K2561-6552-2

Do not put hands under the rear fender.




⚠ WARNING

TO AVOID PERSONAL INJURY: KEEP HANDS AWAY FROM PINCH POINTS OF LIFT ARMS.


K2561-6552-2

(5) Part No. K2561-6549-1

Diesel fuel only



No fire



(6) Part No. K2561-6556-1



⚠ WARNING

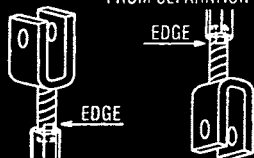
TO AVOID PERSONAL INJURY:

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

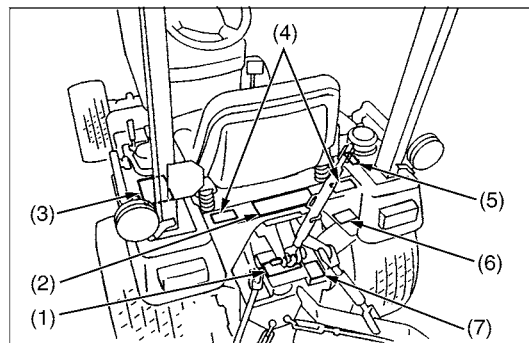
(7) Part No. K2561-6555-1

⚠ CAUTION

TO AVOID PERSONAL INJURY FROM SEPARATION



DO NOT EXTEND LIFT ROD BEYOND THE EDGE OF FLAT FACE ON THE THREADED ROD.



(8) Part No. K2561-6541-1



⚠ DANGER

TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.

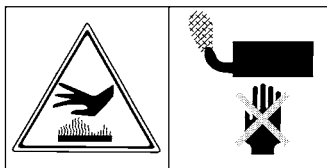
1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
2. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground.

(9) Part No. K2561-6543-1
Stay clear of engine fan and fanbelt.



(10) Part No. K2561-6542-1


Do not touch hot surface like muffler, etc.



(11) Part No. K2561-6115-1

KEEP OUT OF THE REACH OF CHILDREN.
DO NOT TIP. DO NOT OPEN BATTERY!

FLUSH EYES IMMEDIATELY WITH WATER

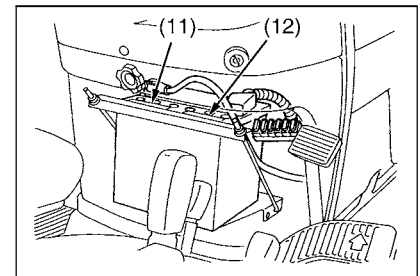
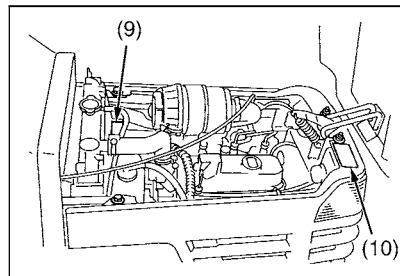
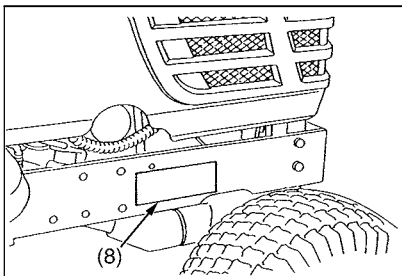


GET MEDICAL HELP FAST

(12) Part No. K2561-6116-1

⚠ DANGER/POISON

 SHIELD EYES EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY	 NO • SPARKS • FLAMES • SMOKING	 SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS
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CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels.
4. If a component with danger, warning or 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.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

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SPECIFICATIONS

Model		BX1800	BX2200
PTO power		10.2 kW (13.7 HP)*	12.4 kW (16.7 HP)*
Engine	Maker	KUBOTA	
	Model	D722-E-BX	D905-E-BX
	Type	Indirect Injection. Vertical, water-cooled, 4-cycle diesel	
	Number of cylinders	3	
	Bore and stroke	67 × 68 mm (2.64 × 2.68 in.)	72 × 73.6 mm (2.83 × 2.90 in.)
	Total displacement	719 cm ³ (43.9 cu.in.)	898 cm ³ (54.8 cu.in.)
	Engine gross power (DIN)	13.4 kW (18.0 HP)	16.4 kW (22.0 HP)
	Rated revolution	53.3 r/s [3200 min ⁻¹ (rpm)]	
	Maximum torque	41.5 N·m (4.23 kgf·m, 30.6 ft·lbs) / 36.7 to 43.3 r/s [2200 to 2600 min ⁻¹ (rpm)]	54.9 N·m (5.6 kgf·m, 40.5 ft·lbs) / 36.7 to 43.3 r/s [2200 to 2600 min ⁻¹ (rpm)]
	Battery	12 V, CCA : 435 A, RC : 62 min.	12 V, CCA : 535 A, RC : 80 min.
	Starting system	Electric starting with cell starter, 12 V, 1.4 kW	
	Lubrication system	Forced lubrication by trochoidal pump	
	Cooling system	Pressurized radiator, forced circulation with water pump	
	Fuel	Diesel fuel No. 2-D [above -10 °C (14 °F)], Diesel fuel No. 1 [below -10 °C (14 °F)]	
Capacities	Fuel tank	21 L (5.5 U.S.gals, 4.6 Imp.gals.)	
	Engine crankcase (with filter)	1.9 L (2.01 U.S.qts., 1.67 Imp.qts.)	2.5 L (2.64 U.S.qts., 2.20 Imp.qts.)
	Engine coolant (with recovery tank)	2.9 L (3.06 U.S.qts., 2.55 Imp.qts.)	3.5 L (3.70 U.S.qts., 3.08 Imp.qts.)
	Transmission case	10.1 L (2.7 U.S.gals, 2.2 Imp.gals.)	
	Front axle case	4.7 L (4.97 U.S.qts., 4.14 Imp.qts.)	
Dimensions	Overall length (without 3P)	2025 mm (79.7 in.)	
	Overall width	1145 mm (45.1 in.)	
	Overall height (with ROPS)	1800 mm (70.9 in.)	
	Overall height (top of steering wheel)	1200 mm (47.2 in.)	
	Wheel base	1400 mm (55.1 in.)	
	Minimum ground clearance (bottom of hitch bracket)	170 mm (6.7 in.)	
	Tread	Front	910 mm (35.8 in.)
	Rear	820 mm (32.2 in.)	
Weight		570 kg (1257 lbs)	590 kg (1301 lbs)
Travelling system	Tires	Front	18 × 8.50 – 8 (Turf)
		Rear	26 × 12.00 – 12 (Turf)
	Steering	Hydrostatic power steering	
	Transmission	Main-hydrostatic transmission, Range gear shift (2 forward and 2 reverse)	
	Brake	Wet disc type	
	Min. turning radius (without brake)	2.3 m (7.5 feet)	
	Differential	Bevel gear	
Hydraulic system	Hydraulic control system	Directional control, auto-return lever system	
	Pump capacity	21.0 L/min. (5.5 U.S.gals./min., 4.6 Imp.gals./min.)	
	Three point hitch	SAE Category I	
	Max. lift force (24 in. behind lift points)	3040 N (310 kg, 684 lbs)	
PTO system	Clutch	Wet type, multiple discs	
	Mid	PTO shaft	USA No. 5 (KUBOTA 10-tooth) involute spline
		Revolution	41.7 r/s [2500 min ⁻¹ (rpm)] / engine 52.1 r/s [3125 min ⁻¹ (rpm)]
	Rear	PTO shaft	SAE 1-3/8, 6 splines
Revolution		9.0 r/s [540 min ⁻¹ (rpm)] / engine 51.1 r/s [3068 min ⁻¹ (rpm)]	

NOTE: * Manufacture's estimate
The company reserves the right to change the specifications without notice.

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TRAVELLING SPEEDS

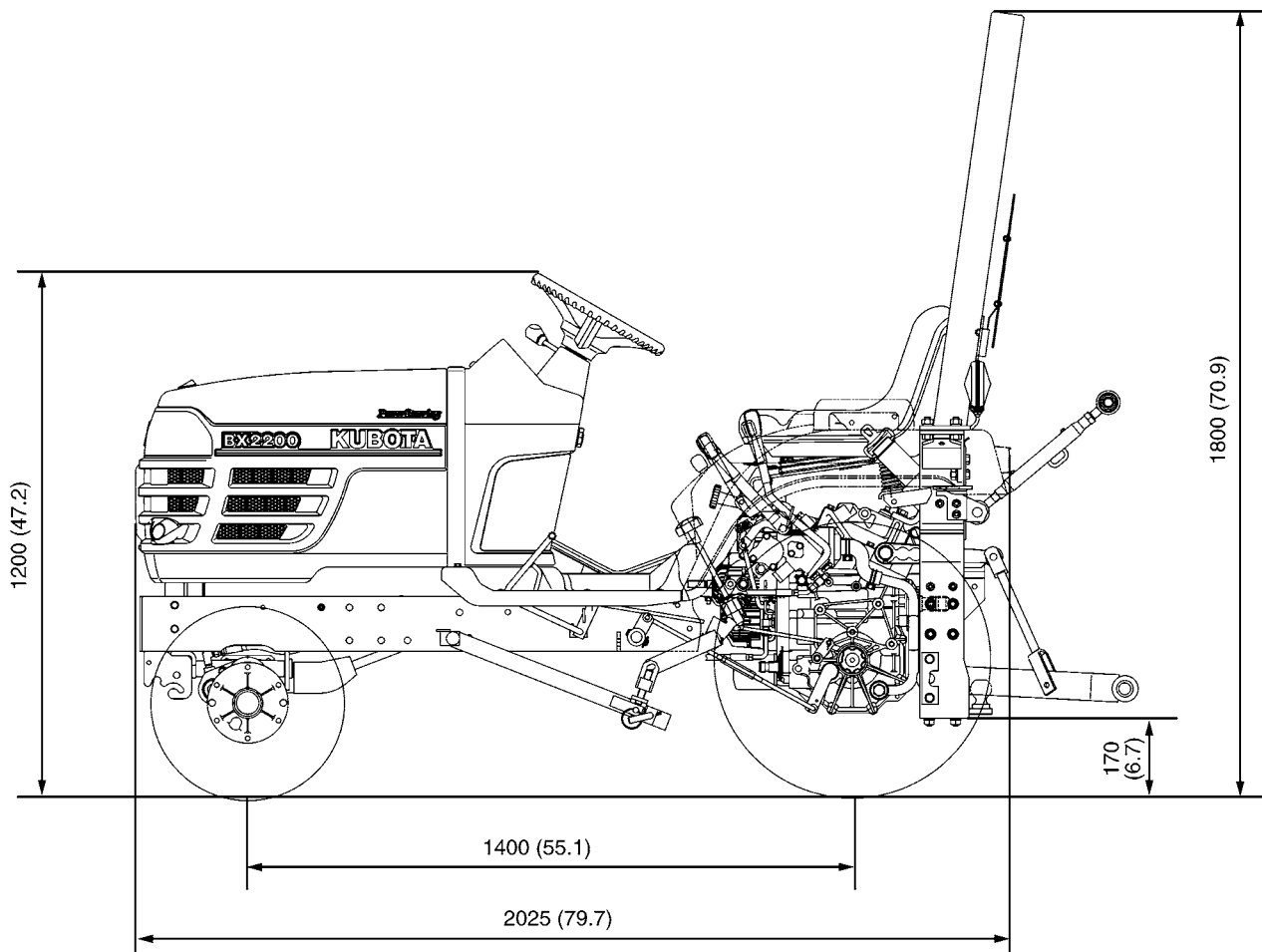
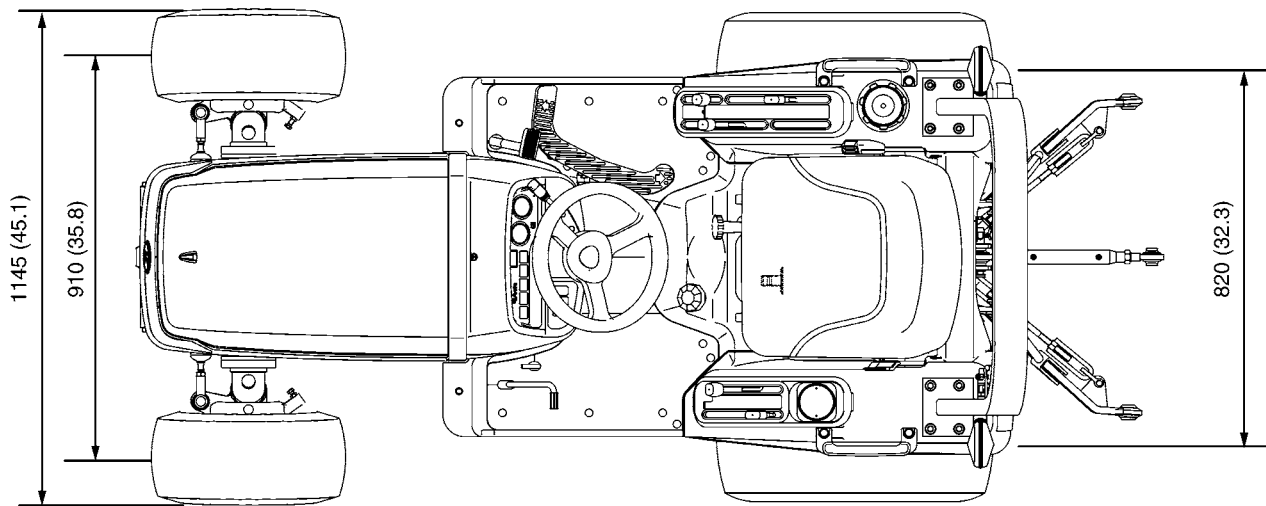
Model		BX1800, BX2200	
Tire size (Rear)		26 × 12.00 – 12	
	Range gear shift lever	km/h	mile/h
Forward	Low	0 to 5.9	0 to 3.7
	High	0 to 13.0	0 to 8.1
Reverse	Low	0 to 4.5	0 to 2.8
	High	0 to 10.0	0 to 6.2

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

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DIMENSIONS

Unit : mm (in.)



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G GENERAL

GENERAL

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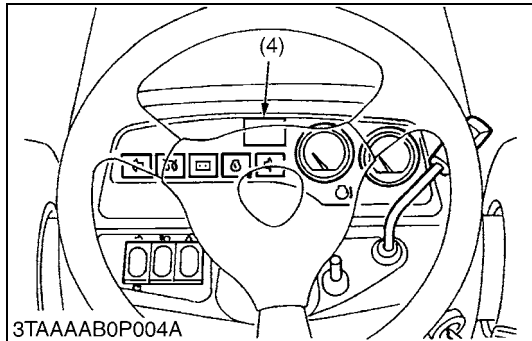
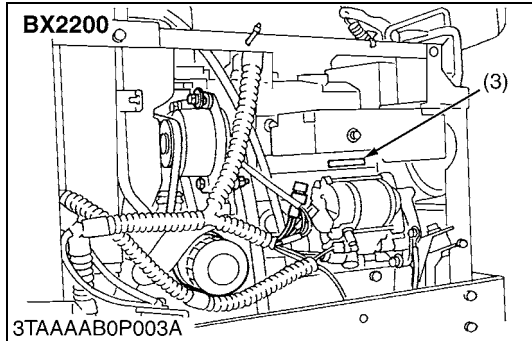
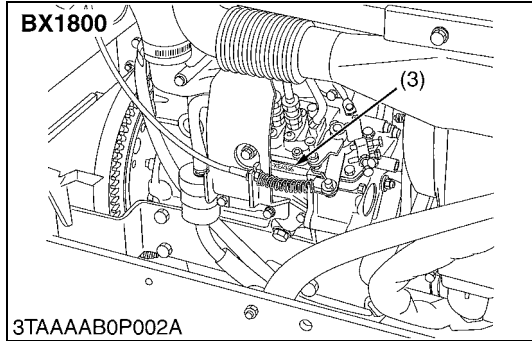
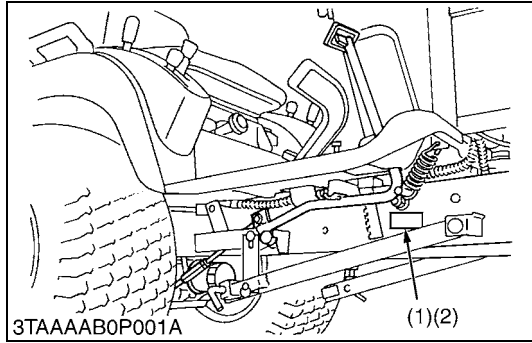
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1. TRACTOR IDENTIFICATION

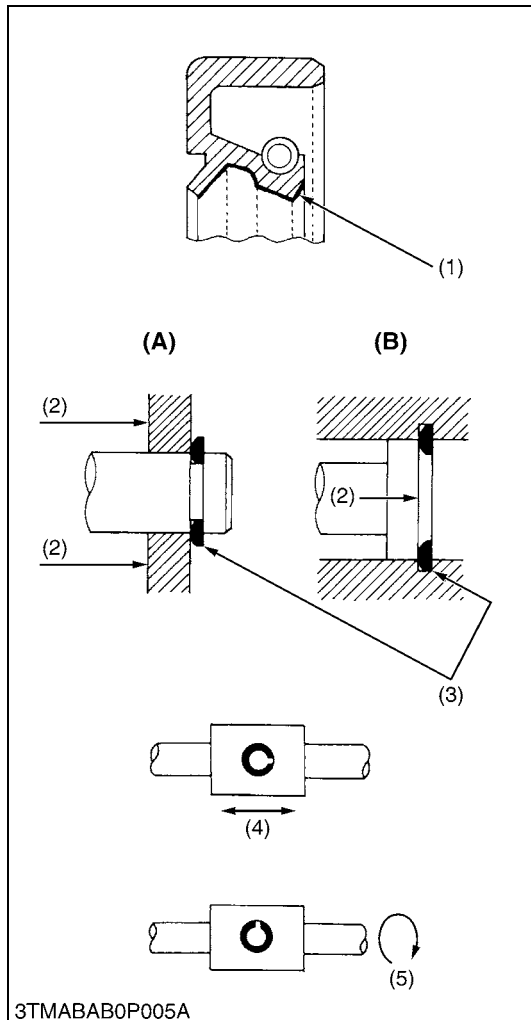
When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number and hour meter reading.

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

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2. GENERAL PRECAUTIONS



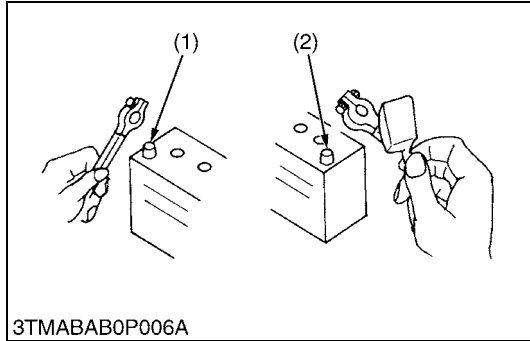
- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently used 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 tractor 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 snap rings or internal snap rings, 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 Snap Ring
- (B) Internal Snap Ring

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3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



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

■ IMPORTANT

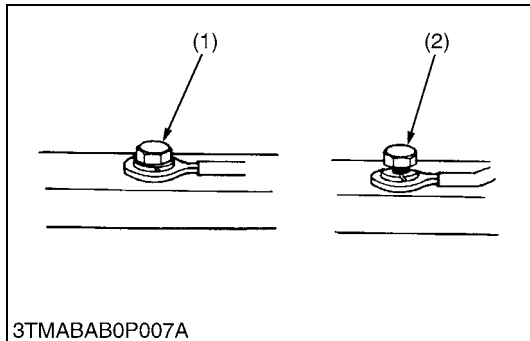
- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the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

(1) Negative Terminal

(2) Positive Terminal

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[1] WIRING



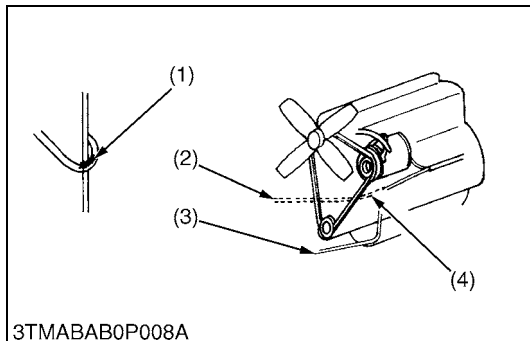
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- Securely tighten wiring terminals.

(1) Correct
(Securely Tighten)

(2) Incorrect
(Loosening Leads to Faulty Contact)

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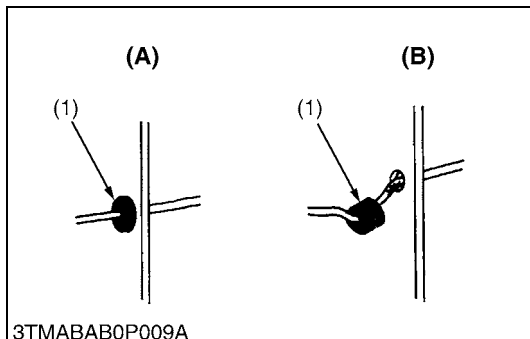
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- Do not let wiring contact dangerous part.

(1) Dangerous Part
(2) Wiring (Incorrect)

(3) Wiring (Correct)
(4) Dangerous Part

W10113130



3TMABAB0P009A

- Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

W10113880

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manuals007@hotmail.com