

Product: Kubota BX1850 BX2250 RCK48 RCK54 RCK60 LA203 LA243 Service Manual

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WSM

WORKSHOP MANUAL TRACTOR, ROTARY MOWER, FRONT LOADER

**BX1850, BX2350, RCK48-18BX,
RCK54-23BX, RCK60B-23BX,
RCK48P-18BX, RCK54P-23BX,
LA203, LA243**

Kubota

KiSC issued 08, 2019 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 BX1850, BX2350, KUBOTA Rotary Mower RCK48-18BX, RCK54-23BX, RCK60B-23BX RCK48P-18BX, RCK54P-23BX and KUBOTA Front Loader LA203, LA243. It is divided into three parts, "General", "Mechanism" and "Servicing" for each section.

■ General

Information on the tractor identification, the general precautions, maintenance check list, check and maintenance and special tools are described.

■ 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. 97897-01873 / 97897-18200) for the one which has not been described to this workshop manual.

■ Servicing

Information on the troubleshooting, servicing specification lists, tightening torque, 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.

December 2005

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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
3	2019.08	Changed checking hydraulic pump oil flow	5-S5, 5-S6



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

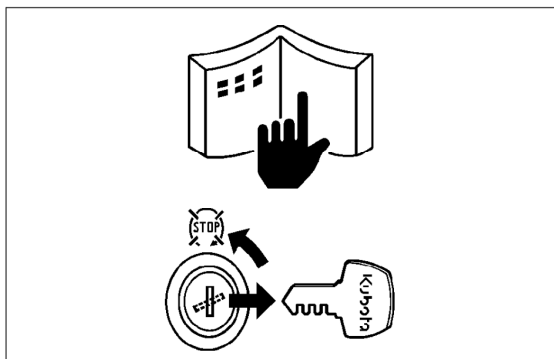
: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

■ IMPORTANT

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

■ NOTE

: Gives helpful information.



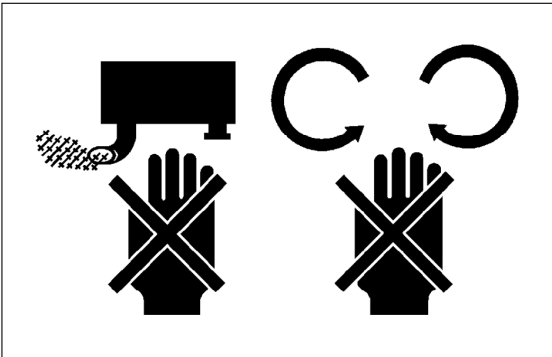
BEFORE SERVICING AND REPAIRING

- 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.



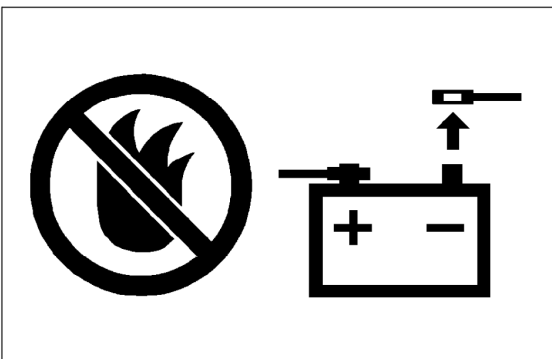
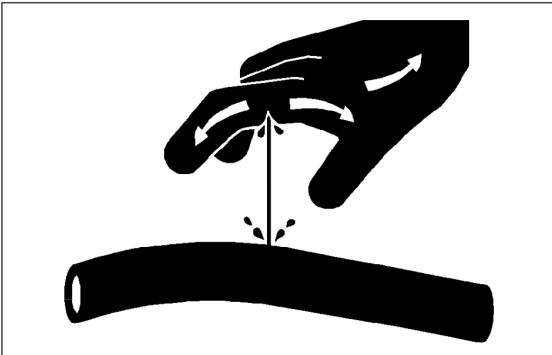
SAFETY STARTING

- 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.



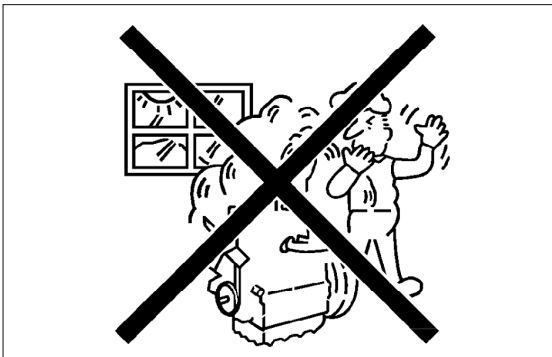
SAFETY WORKING

- 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.



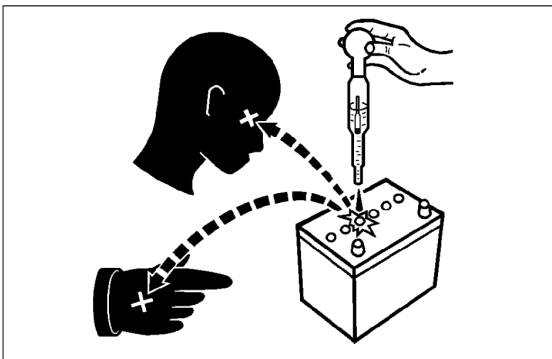
AVOID FIRES

- 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.



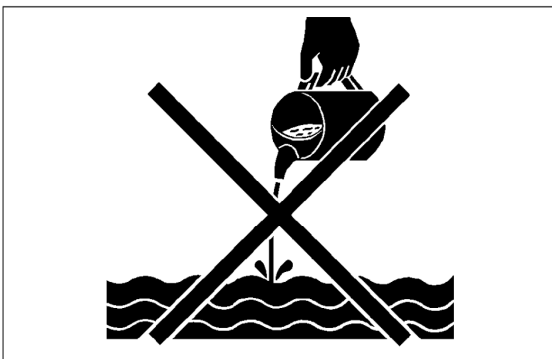
VENTILATE WORK AREA

- 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.



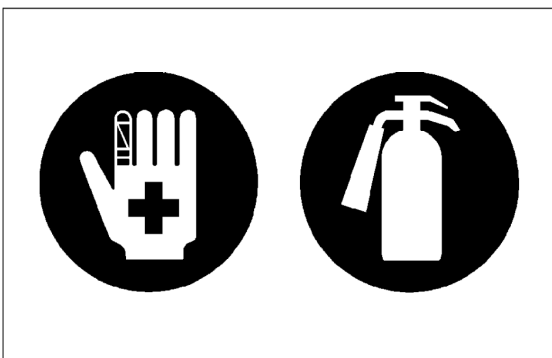
PREVENT ACID BURNS

- 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. K2581-6557-1



1AGAJAXAP041E

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.

(2) Part No. K2581-6548-1

CAUTION

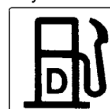
TO AVOID PERSONAL INJURY:

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 SMV emblem and hazard lights, if required by local traffic and safety regulations.
9. Pull only from the hitch.
10. Before dismounting, lower the implement to the ground, set the parking brake, stop the engine and remove the key.
11. Securely support tractor and implements before working underneath.

1AGAJAXAP042E

(5) Part No. K2581-6549-1

Diesel fuel
only



1AGAMAAAP2480

No fire



(3) Part No. 6C140-4746-1

WARNING

TO AVOID PERSONAL INJURY:

Do not modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.

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(4) Part No. K2581-6552-1

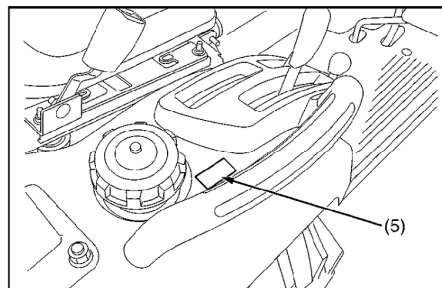
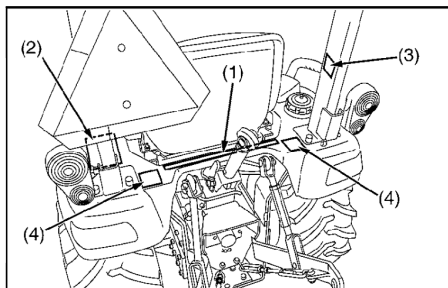
Do not put hands under the rear fender.

WARNING



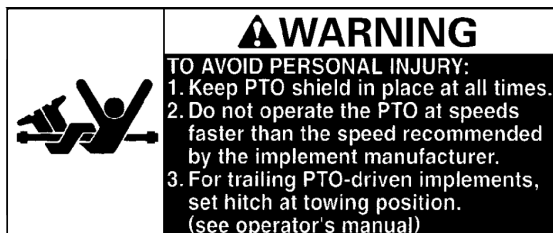
TO AVOID PERSONAL INJURY: KEEP HANDS AWAY FROM PINCH POINTS OF LIFT ARMS.

1AGAJAXAP047E



3TAAAFCP003A

(1) Part No. K2581-6554-1



1AGAJAXAP044E

(2) Part No. K2581-6555-1

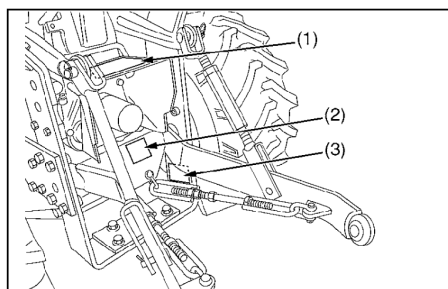


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(3) Part No. K2561-6556-1



1AGAJAXAP046E



3TAAAAFCP004A

(1) Part No. K2581-6557-1



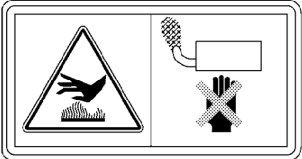
1AGAJAXAP048E

(2) Part No. K2581-6547-1
Stay clear of engine fan and fanbelt



1AGAJAXAP049E

(3) Part No. K2581-6542-1
Do not touch hot surface like muffler, etc.

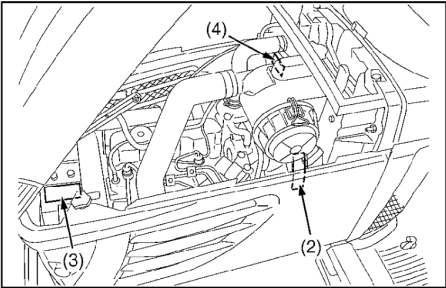
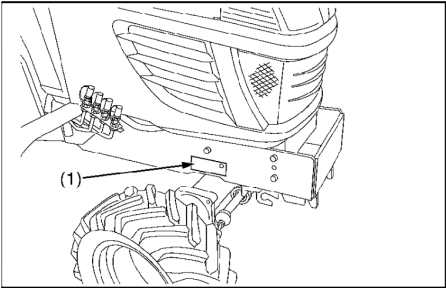


1AGAJAXAP050E

(4) Part No. K2581-6543-1
Stay clear of engine fan and fanbelt

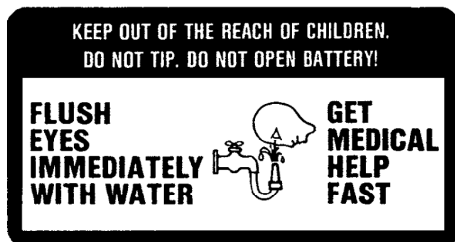


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3TAAAAFCP005A

(1) Part No. K2561-6115-1

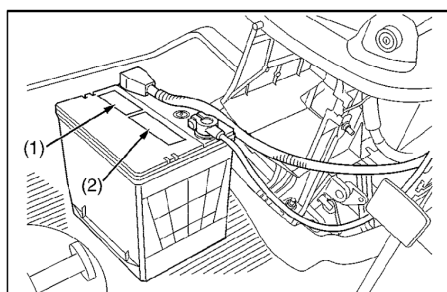


1AGAJAXAP053E

(2) Part No. K2561-6116-1



1AGAJAXAP054E

**CARES FOR SAFETY ALERT LABELS**

1. Always keep the labels clean and avoid damaging them.
If a label is dirty, clean it with soap and water. Then wipe it with a soft cloth.
Never use a solvent like thinner or acetone, which may erase letters or symbols.
2. When you wash the machine using a high pressure washer, do not pour high pressure water directly on any label to prevent it from peeling off.
3. If any label is damaged or missing, place an order with your dealer for replacement.
4. Before you affix a new label, completely clean the surface on which the label is placed. Wait until the surface is dry, and then affix the label in its place.
5. When you replace any part carrying a label, replace the label with a new one at the same time.

3TAAAFCP006A

SPECIFICATIONS

Model			BX1850	BX2350
PTO power			10.2 kW (13.7 HP)*	13.2 kW (17.7 HP)*
Engine	Maker	KUBOTA		
	Model	D722-E2-BX-2		
	Type	Indirect Injection, vertical, water-cooled, 4-cycle diesel		
	Number of cylinders	3		
	Bore and stroke	67 × 68 mm (2.64 × 2.68 in.)		
	Total displacement	719 cm ³ (43.9 cu.in.)		
	Engine gross power	13.4 kW (18.0 HP)		
	Rated revolution	53.3 r/s [3200 min ⁻¹ (rpm)]		
	Maximum torque	44.9 N·m (4.6 kgf·m, 33.1 ft-lbs)		
	Battery	12 V, CCA : 435 A, RC : 62 min.		
	Starting system	Electric starting 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	25 L (6.6 U.S.gals, 5.5 Imp.gals.)		
	Engine crankcase (with filter)	2.9 L (3.1 U.S.qts., 2.6 Imp.qts.)		
	Engine coolant (with recovery tank)	2.9 L (3.1 U.S.qts., 2.6 Imp.qts.)		
	Transmission case	11.6 L (3.06 U.S.gals, 2.55 Imp.gals.)		
	Front axle case	2.3 L (2.4 U.S.qts., 2.0 Imp.qts.)		
Dimensions	Overall length (without 3P)		2035 mm (80.1 in.)	2120 mm (83.5 in.)
	Overall width		1145 mm (45.1 in.)	
	Overall height (with ROPS)		1760 mm (69.3 in.)	1785 mm (70.3 in.)
	Overall height (Top of seat)		1230 mm (48.4 in.)	1255 mm (49.4 in.)
	Wheel base		1340 mm (52.8 in.)	1400 mm (55.1 in.)
	Minimum ground clearance		150 mm (5.9 in.)	175 mm (6.9 in.)
	Tread	Front	880 mm (34.6 in.)	910 mm (35.8 in.)
Weight (with ROPS)			550 kg (1213 lbs)	565 kg (1245.6 lbs)
Travelling system	Tires	Front	16 × 7.50 – 8 (Turf)	18 × 8.50 – 10 (Turf)
		Rear	24 × 12.00 – 12 (Turf)	26 × 12.00 – 12 (Turf)
	Steering		Hydrostatic power steering	
	Transmission		Main-hydrostatic transmission, Range gear shift (2 forward and 2 reverse)	
	Brake		Wet disk type	
	Min. turning radius (without brake)		2.18 m (7.15 feet)	2.3 m (7.5 feet)
Hydraulic system	Differential		Bevel gear	
	Hydraulic control system		Directional control, auto-return lever system	
	Pump capacity		23.5 L/min. (6.2 U.S.gals./min., 5.2 Imp.gals./min.)	
	Three point hitch		SAE Category I	
	Max. lift force		5394 N (550 kg, 1210 lbs)	
PTO system	Clutch		Wet type, multiple disks	
	Rear	PTO shaft	SAE 1-3/8, 6 splines	
		Revolution	1 speed (540 min ⁻¹ (rpm) at engine 3142 min ⁻¹ (rpm))	
	Mid	PTO shaft	USA No. 5 (KUBOTA 10-tooth) involute spline	
		Revolution	1 speed (2500 min ⁻¹ (rpm) at engine 3043 min ⁻¹ (rpm))	

NOTE: * Manufacture's estimate

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

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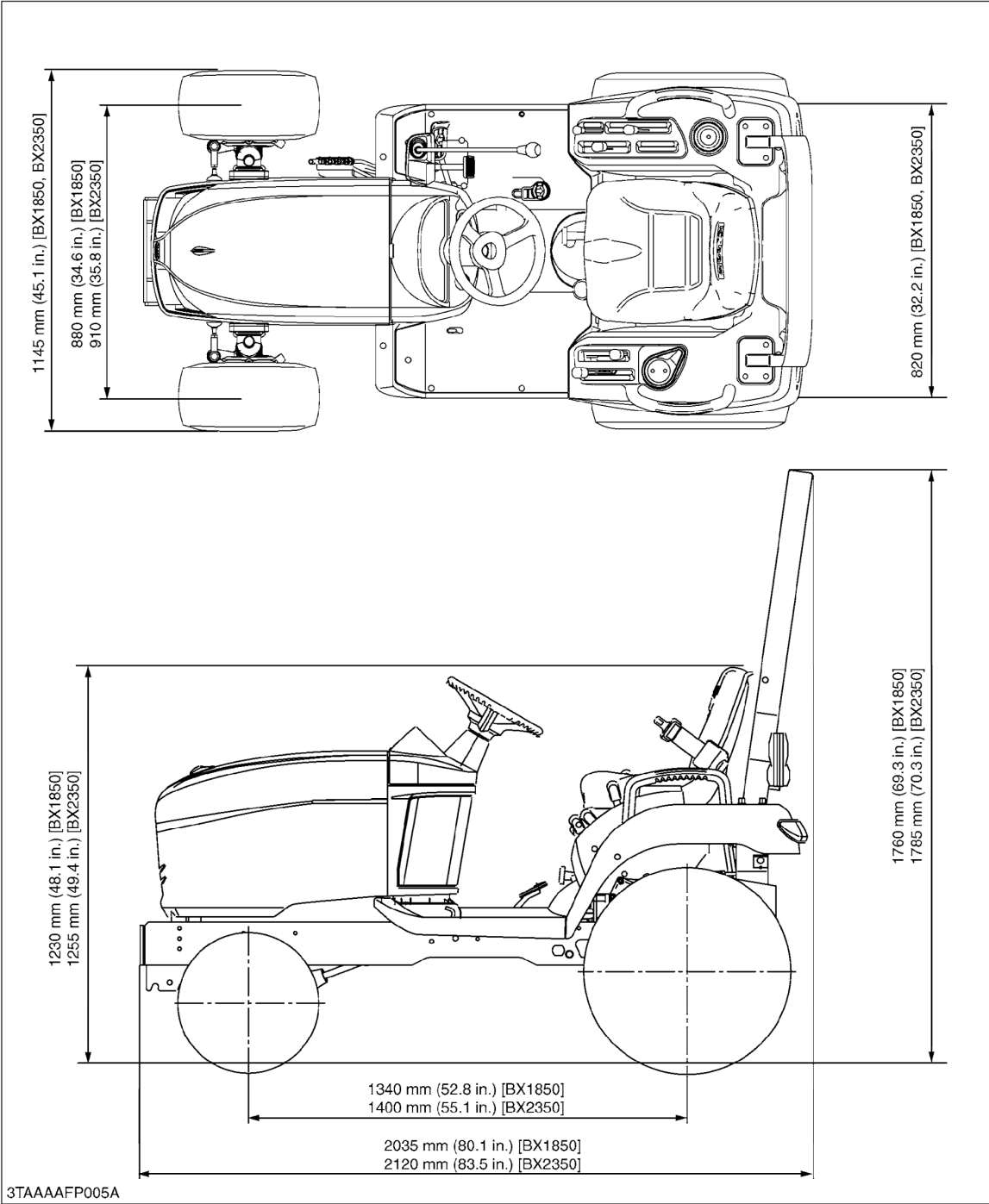
TRAVELLING SPEEDS

Model		BX1850		BX2350	
Tire size (Rear)		24 × 12.00 – 12		26 × 12.00 – 12	
	Range gear shift lever	km/h	mph	km/h	mph
Forward	Low	0 to 5.5	0 to 3.4	0 to 6.0	0 to 3.7
	High	0 to 12.0	0 to 7.5	0 to 13.0	0 to 8.1
Reverse	Low	0 to 4.0	0 to 2.5	0 to 4.5	0 to 2.8
	High	0 to 9.0	0 to 5.6	0 to 10.0	0 to 6.2

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

W1035065

DIMENSIONS



G GENERAL

GENERAL

CONTENTS

1. TRACTOR IDENTIFICATION	G-1
2. GENERAL PRECAUTIONS	G-2
3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING ..	G-3
[1] WIRING	G-3
[2] BATTERY	G-5
[3] FUSE	G-5
[4] CONNECTOR	G-5
[5] HANDLING OF CIRCUIT TESTER	G-6
4. LUBRICANTS FUEL AND COOLANT	G-7
5. TIGHTENING TORQUES	G-8
[1] GENERAL USE SCREWS, BOLTS AND NUTS	G-8
[2] STUD BOLTS	G-8
[3] AMERICAN STANDARD SCREWS, BOLTS AND NUTS WITH UNC OR UNF THREADS	G-9
[4] PLUGS	G-9
6. MAINTENANCE CHECK LIST	G-10
7. CHECK AND MAINTENANCE	G-11
[1] DAILY CHECK	G-11
[2] CHECK POINTS OF INITIAL 50 HOURS	G-12
[3] CHECK POINTS OF EVERY 50 HOURS	G-14
[4] CHECK POINTS OF EVERY 100 HOURS	G-16
[5] CHECK POINTS OF EVERY 200 HOURS	G-22
[6] CHECK POINTS OF EVERY 300 HOURS	G-24
[7] CHECK POINT OF EVERY 400 HOURS	G-25
[8] CHECK POINT OF EVERY 500 HOURS	G-25
[9] CHECK POINT OF EVERY 800 HOURS	G-26
[10]CHECK POINT OF EVERY 1500 HOURS	G-26
[11]CHECK POINT OF EVERY 3000 HOURS	G-26
[12]CHECK POINT OF EVERY 1 YEAR	G-26
[13]CHECK POINTS OF EVERY 2 YEARS	G-26
[14]OTHERS	G-30
8. SPECIAL TOOLS	G-32
[1] SPECIAL TOOLS FOR ENGINE	G-32
[2] SPECIAL TOOLS FOR TRACTOR	G-37
9. TIRES	G-41
[1] TIRE PRESSURE	G-41
[2] WHEEL TREAD	G-42
(1) Front Wheels	G-42
(2) Rear Wheels	G-43
[3] BALLAST	G-44
(1) Front Ballast	G-44
(2) Rear Ballast	G-45
10. IMPLEMENT LIMITATIONS	G-46

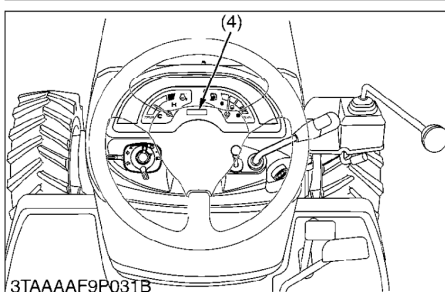
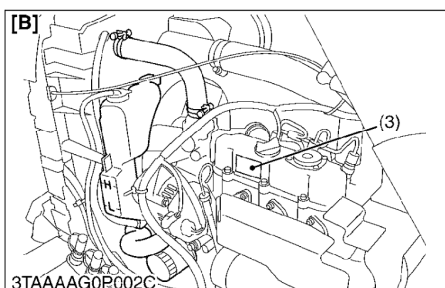
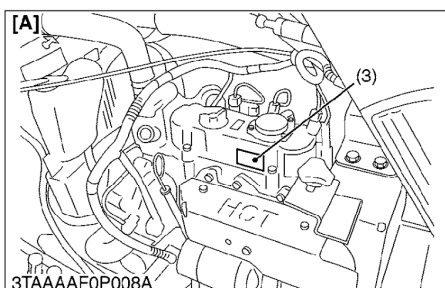
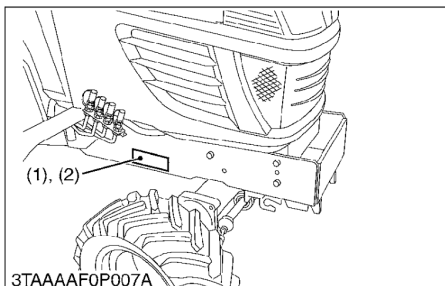
1. TRACTOR IDENTIFICATION

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

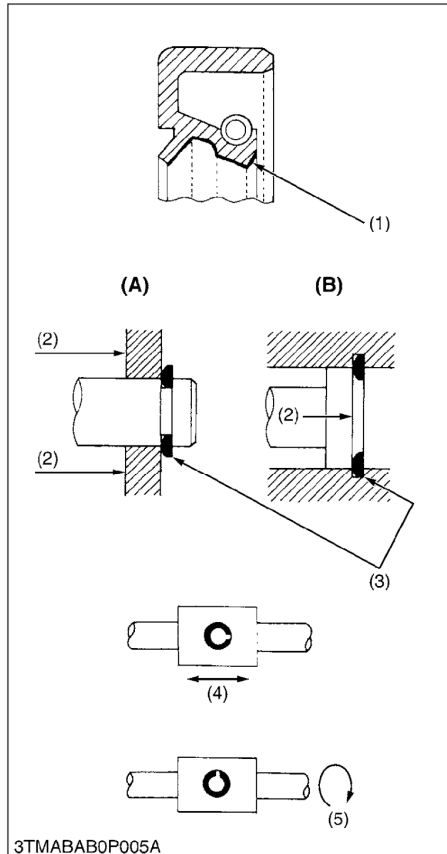
- (1) Tractor Identification Plate
- (2) Tractor Serial Number
- (3) Engine Serial Number
- (4) Hour Meter

[A] BX1850
[B] BX2350

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2. GENERAL PRECAUTIONS



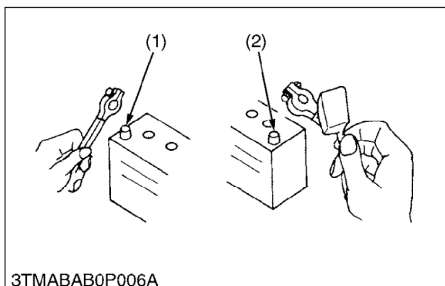
- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Screws, bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently 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 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

W10109040

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

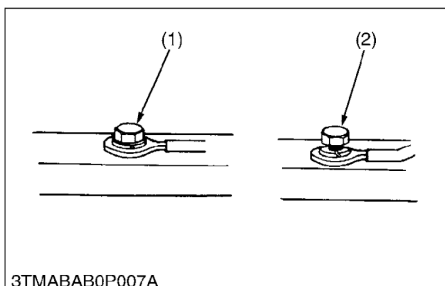
- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the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

(1) Negative Terminal

(2) Positive Terminal

W10111140

[1] WIRING



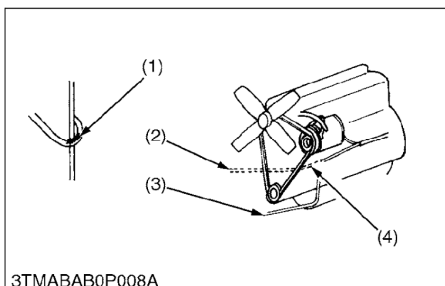
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- Securely tighten wiring terminals.

(1) Correct
(Securely Tighten)

(2) Incorrect
(Loosening Leads to Faulty Contact)

W10112160



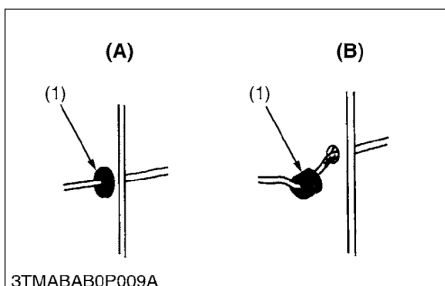
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- Do not let wiring contact dangerous part.

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

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

W10113130



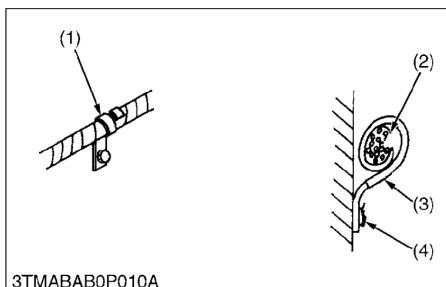
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- Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

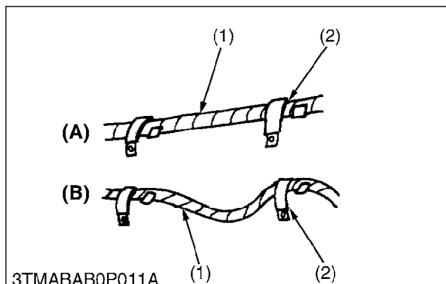
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- Securely clamp, being careful not to damage wiring.

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

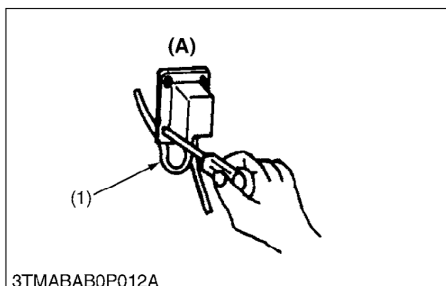
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- Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag be required.

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

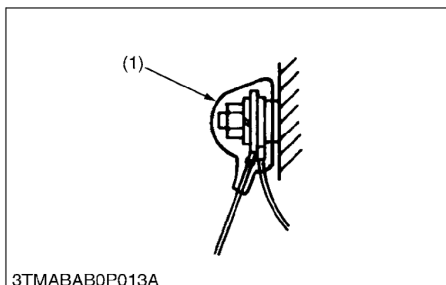
W10115870



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

- (1) Wiring
 (A) Incorrect

W10116700

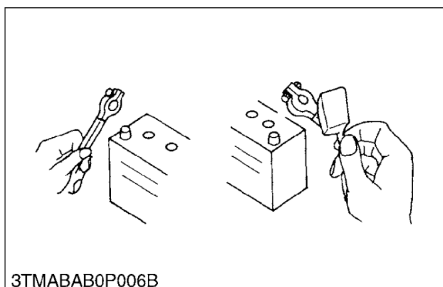


- After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover
 • Securely Install Cover

W10117350

[2] BATTERY



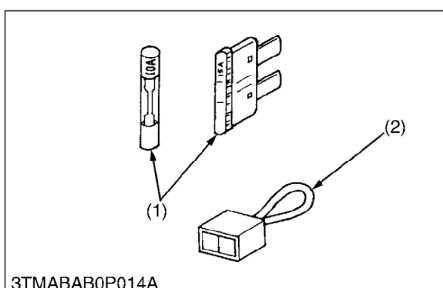
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting 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.

! 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.

W10118160

[3] FUSE



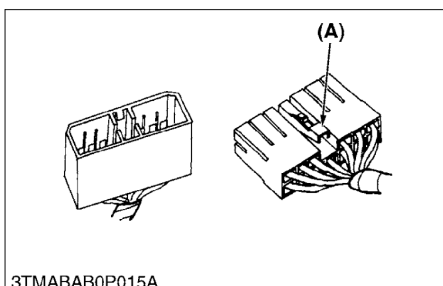
- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

(1) Fuse

(2) Slow Blow Fuse

W10120920

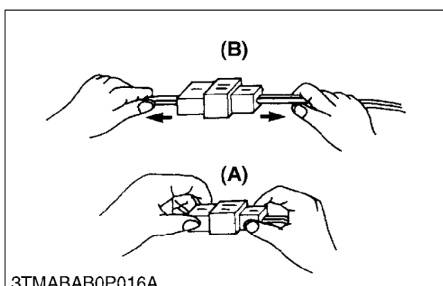
[4] CONNECTOR



- For connector with lock, push lock to separate.

(A) Push

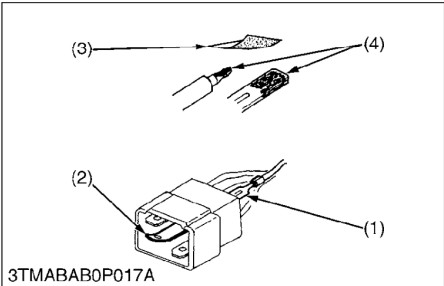
W10122110



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

(A) Correct
(B) Incorrect

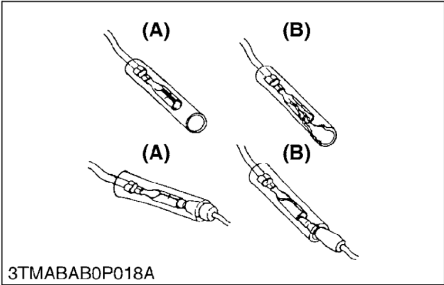
W10122720



- 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

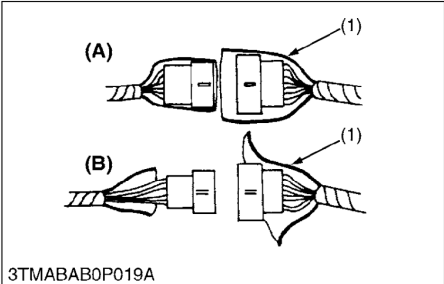
W10123460



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

(A) Correct
(B) Incorrect

W10124300

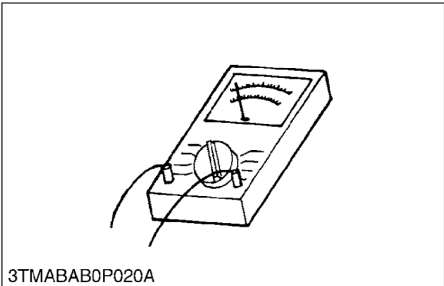


- Make certain plastic cover is large enough to cover whole connector.

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

W10125190

[5] HANDLING OF CIRCUIT TESTER



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

W10126840

4. LUBRICANTS FUEL AND COOLANT




No.	Place	Capacity		Lubricants, fuel and coolant	
		BX1850	BX2350		
1	Fuel tank	25.0 L 6.6 U.S.gals 5.5 Imp.gals		No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below −10 °C (14 °F)	
2	Cooling system with recovery tank	2.9 L 3.1 U.S.qts 2.6 Imp.qts	3.1 L 3.3 U.S.qts 2.7 Imp.qts	Fresh clean water with anti-freeze	
3	Engine crankcase	2.9 L 3.1 U.S.qts 2.6 Imp.qts	3.1 L 3.3 U.S.qts 2.7 Imp.qts	Engine oil : API Service 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	11.6 L 3.1 U.S.gals 2.6 Imp.gals		KUBOTA SUPER UDT fluid*	
5	Front axle case	2.3 L 2.4 U.S.qts 2.0 Imp.qts	4.7 L 5.0 U.S.qts 4.1 Imp.qts	KUBOTA SUPER UDT fluid or SAE80, SAE90 gear oil	
Greasing					
	Place	No. of greasing point		Capacity	Type of grease
6	Battery terminal	2		Moderate amount	Multipurpose type Grease NLGI-2 or NLGI-1 (GC-LG)
7	Speed control pedal	1		Until grease overflows	

* KUBOTA original transmission hydraulic fluid.

5. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLTS 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	 No-grade or 4T						 7T						 9T		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit	N-m	kgf-m	ft-lbs	N-m	kgf-m	ft-lbs	N-m	kgf-m	ft-lbs	N-m	kgf-m	ft-lbs	N-m	kgf-m	ft-lbs
Diameter															
M6 (6 mm, 0.24 in.)	7.85	0.80	5.79	7.85	0.80	5.79	9.81	1.00	7.24	7.85	0.80	5.79	12.3	1.25	9.05
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	9.31	0.95	6.87	8.82	0.90	6.50	11.2	1.15	8.31	8.82	0.90	6.50	14.2	1.45	10.4
M8 (8 mm, 0.31 in.)	17.7	1.8	13.1	16.7	1.7	12.3	23.6	2.4	17.4	17.7	1.8	13.1	29.5	3.0	21.7
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	20.5	2.1	15.1	19.6	2.0	14.4	27.4	2.8	20.2	20.5	2.1	15.1	34.3	3.5	25.3
M10 (10 mm, 0.39 in.)	39.3	4.0	29.0	31.4	3.2	23.2	48.1	4.9	35.5	39.3	4.0	29.0	60.9	6.2	44.9
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	45.1	4.6	33.2	34.3	3.5	25.3	55.8	5.7	41.2	44.1	4.5	32.5	70.6	7.2	52.0
M12 (12 mm, 0.47 in.)	62.8	6.4	46.3	-	-	-	77.5	7.9	57.2	62.8	6.4	46.3	103	10.5	76.0
	to	to	to				to	to	to	to	to	to	to	to	to
	72.5	7.4	53.5				90.2	9.2	66.5	72.5	7.4	53.5	117	12.0	86.7
M14 (14 mm, 0.55 in.)	108	11.0	79.6	-	-	-	124	12.6	91.2	-	-	-	167	17.0	123
	to	to	to				to	to	to				to	to	to
	125	12.8	92.5				147	15.0	108				196	20.0	144
M16 (16 mm, 0.63 in.)	167	17.0	123	-	-	-	197	20.0	145	-	-	-	260	26.5	192
	to	to	to				to	to	to				to	to	to
	191	19.5	141				225	23.0	166				304	31.0	224
M18 (18 mm, 0.71 in.)	246	25.0	181	-	-	-	275	28.0	203	-	-	-	344	35.0	254
	to	to	to				to	to	to				to	to	to
	284	29.0	209				318	32.5	235				402	41.0	296
M20 (20 mm, 0.79 in.)	334	34.0	246	-	-	-	368	37.5	272	-	-	-	491	50.0	362
	to	to	to				to	to	to				to	to	to
	392	40.0	289				431	44.0	318				568	58.0	419



W1034542

[2] STUD BOLTS

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



W10481390

[3] AMERICAN STANDARD SCREWS, BOLTS AND NUTS WITH UNC OR UNF THREADS

Grade	SAE GR.5 			SAE GR.8 		
Unit Nominal Diameter	N-m	kgf-m	ft-lbs	N-m	kgf-m	ft-lbs
5/16	23.1 to 27.8	2.35 to 2.84	17.0 to 20.5	32.5 to 39.3	3.31 to 4.01	24.0 to 29.0
3/8	47.5 to 57.0	4.84 to 5.82	35.0 to 42.0	61.0 to 73.2	6.22 to 7.47	45.0 to 54.0
1/2	108.5 to 130.2	11.07 to 13.29	80.0 to 96.0	149.2 to 179.0	15.22 to 18.27	110.0 to 132.0
9/16	149.2 to 179.0	15.22 to 18.27	110.0 to 132.0	217.0 to 260.4	22.14 to 26.57	160.0 to 192.0
5/8	203.4 to 244.1	20.75 to 24.91	150.0 to 180.0	298.3 to 358.0	30.44 to 36.53	220.0 to 264.0

W1022485

[4] PLUGS

Shape	Size	Material of opponent part					
		Ordinariness			Aluminum		
		N-m	kgf-m	ft-lbs	N-m	kgf-m	ft-lbs
Tapered screw 	R1/8	13 to 22	1.3 to 2.2	9.6 to 16.2	10 to 12	1.0 to 1.2	7.4 to 8.9
	R1/4	29 to 44	3.0 to 4.5	21.4 to 32.5	20 to 29	2.0 to 3.0	14.8 to 21.4
Straight screw 	G1/4	29 to 39	3.0 to 4.0	21.4 to 28.8	—	—	—
	G3/8	49 to 59	5.0 to 6.0	36.1 to 43.5	—	—	—
	G1/2	59 to 78	6.0 to 8.0	43.5 to 57.5	—	—	—

0000001666E

6. MAINTENANCE CHECK LIST

No.	Period Item		Service Interval																	After purchase		Important	Reference page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	1500	3000	1 year			2 years	
1	Engine oil	Change	★	☆		☆		☆		☆		☆		☆		☆		☆							G-12
2	Engine oil filter	Replace	★			☆			☆				☆				☆								G-12
3	Transmission oil filter	Replace	★					☆						☆											G-13
4	Transmission fluid	Change	★					☆						☆											G-13
5	Transmission strainer	Clean						☆						☆											G-24
6	Front axle case oil	Change						☆						☆											G-24
7	Front axle pivot	Adjust								☆									☆						G-25
8	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆						G-14
9	Greasing	—	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆						G-15
10	Wheel bolt torque	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆						G-15
11	Battery condition	Check		☆		☆		☆		☆		☆		☆		☆		☆					*4		G-16
12	Air cleaner element	Clean		☆		☆		☆		☆		☆		☆		☆		☆					*1	@	G-18
		Replace																		☆		*2		G-18	
13	Fuel filter element	Check		☆		☆		☆		☆		☆		☆		☆		☆						@	G-19
		Replace									☆													G-19	
14	Fan belt	Adjust		☆		☆		☆		☆		☆		☆		☆		☆							G-20
15	HST neutral spring	Adjust		☆		☆		☆		☆		☆		☆		☆		☆							G-21
16	Brake	Adjust		☆		☆		☆		☆		☆		☆		☆		☆							G-22
17	Radiator hose and clamp	Check				☆			☆					☆				☆							G-22
		Replace																			☆			G-22	
18	Power steering oil line	Check				☆			☆					☆				☆					☆		G-23
		Replace																				☆		G-23	
19	Fuel line	Check		☆		☆		☆		☆		☆		☆		☆		☆						@	G-19
		Replace																			☆			G-19	
20	Intake air line	Check				☆			☆					☆				☆						@	G-23
		Replace																			☆	*3		G-23	
21	Toe-in	Adjust				☆			☆					☆				☆							G-23
22	Engine valve clearance	Adjust																☆							1-S13
23	Fuel injection nozzle injection pressure	Check																	☆	☆			@		1-S20
24	Injection pump	Check																		☆			@		1-S19
25	Cooling system	Flush																				☆			G-27
26	Coolant	Change																				☆			G-27
27	Fuel system	Bleed																							G-30
28	Fuse	Replace																				Service as required			G-30
29	Light bulb	Replace																							G-31

■ IMPORTANT

- The jobs indicated by ★ must be done after the first 50 hours of operation.
 - *1 : Air cleaner should be cleaned more often in dusty conditions than in normal conditions.
 - *2 : Every year or every 6 times of cleaning.
 - *3 : Replace only if necessary.
 - *4 : When the battery is used for less than 100 hours per year, check the fluid level annually.
 - The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction.
- Please see the Warranty Statement in detail.

W1035769

7. CHECK AND MAINTENANCE



CAUTION

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

[1] DAILY CHECK

To prevent trouble from occurring, it is important to know the condition of the tractor. Check the following items before starting.

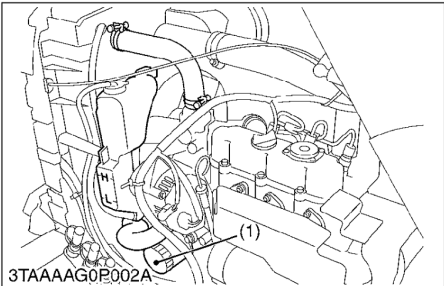
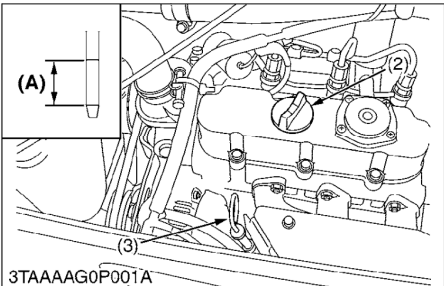
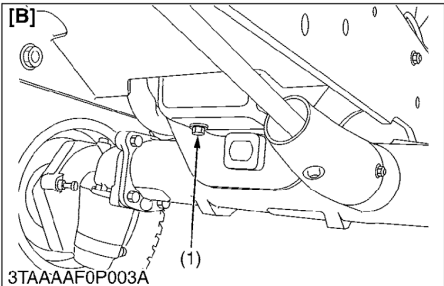
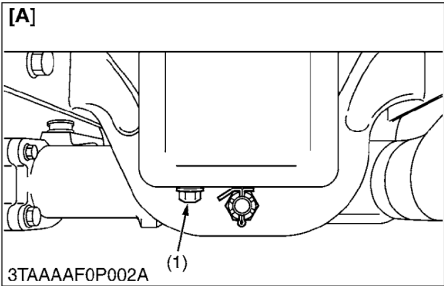
■ Walk Around Inspection

Look around the under the tractor for such items as loose bolts, trash build-up, oil or coolant leaks, broken or worn parts.

Checking

1. Checking and refueling.
2. Check the engine oil level.
3. Check the transmission fluid level.
4. Check the coolant level.
5. Clean panel and radiator screen.
6. Check the brake pedal.
7. Check the gauge, the meters and easy checkers.
8. Check the head light, the hazard light etc..
9. Check and clean the electrical wiring and the battery cables.
10. Check the seat belt and ROPS.

[2] CHECK POINTS OF INITIAL 50 HOURS



Changing Engine Oil

CAUTION

- Be sure to stop the engine before changing engine oil.
1. Start and warm up the engine for approx. 5 minutes.
 2. Place an oil pan underneath the engine.
 3. To drain the used oil, remove the drain plug (1) at the bottom of the engine and drain the oil completely.
 4. Screw in the drain plug (1).
 5. Fill new oil up to upper line on the dipstick (3).

IMPORTANT

- When using an oil of different manufacture or viscosity from the previous one, remove all of the old oil.
- Never mix two different types of oil.
- Use the proper SAE Engine Oil according to ambient temperatures.
- Refer to “LUBRICANTS, FUEL AND COOLANT”. (See page G-7.)

Engine oil capacity	BX1850	2.9 L 3.1 U.S.qts 2.6 Imp.qts
	BX2350	3.1 L 3.3 U.S.qts 2.7 Imp.qts

- (1) Drain Plug
(2) Oil Inlet
(3) Dipstick

[A] BX1850
[B] BX2350
(A) Oil level is acceptable within this range.

W1014065

Replacing Engine Oil Filter

CAUTION

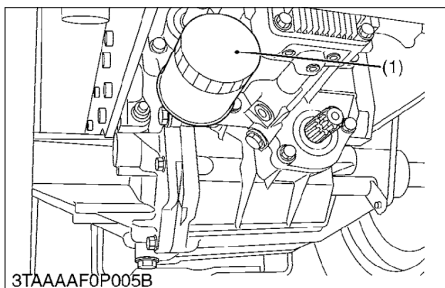
- Be sure to stop the engine before changing oil filter cartridge.
1. Remove the oil filter.
 2. Put a film of clean engine oil on the rubber seal of the new filter.
 3. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
 4. After the new filter has been replaced, the engine oil normally decrease a little. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick. Then, replenish the engine oil up to the specified level.
 5. Properly dispose of used oil.

IMPORTANT

- To prevent serious damage to the engine, replacement element must be highly efficient. Use only a KUBOTA genuine filter or its equivalent.

- (1) Engine Oil Filter Cartridge

W1014316



Replacing Transmission Oil Filter

⚠ CAUTION

- Allow engine to cool down sufficiently, oil can be hot and can burn.

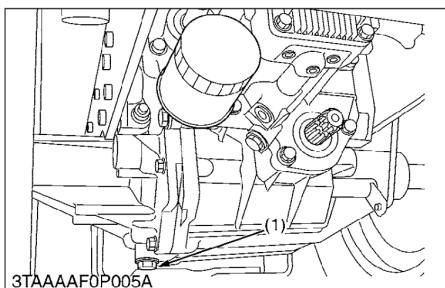
1. Remove the oil filter.
2. Put a film of clean transmission oil on the rubber seal of the new filter.
3. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
4. After the new filter has been replaced, the transmission fluid level will decrease a little. Make sure that the transmission fluid does not leak through the seal, and check the fluid level. Top off if necessary.
5. Properly dispose of used oil.

■ IMPORTANT

- To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.

(1) Transmission Oil Filter

W1014458



Changing Transmission Fluid

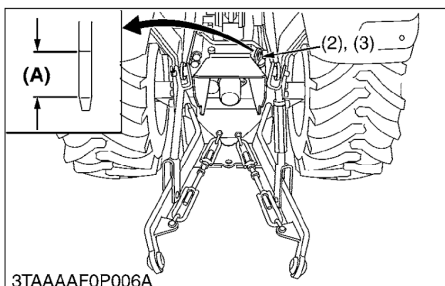
⚠ CAUTION

- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. To drain the used oil, remove the drain plug at the bottom of the transmission case and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Clean the transmission strainer.
4. Fill with new KUBOTA SUPER UDT fluid up to the upper notch on the dipstick.
5. After running the engine for a few minutes, stop it and check the oil level again, add oil to prescribed level.
6. Properly dispose of used oil.

■ IMPORTANT

- Use only multi-grade transmission oil. Use of other oils may damage the transmission or hydraulic system. Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-7.)



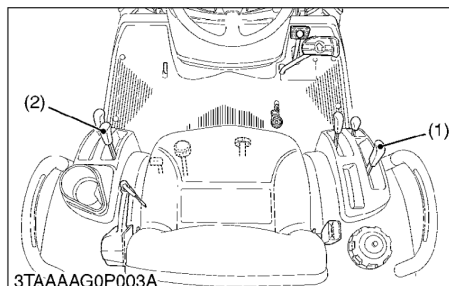
Transmission fluid capacity	11.6 L 3.1 U.S.gals 2.6 Imp.gals
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- (1) Drain Plug
(2) Filling Plug
(3) Dipstick

(A) Oil level is acceptable within this range.

W1014665

[3] CHECK POINTS OF EVERY 50 HOURS



Checking Engine Start System

CAUTION

- Do not allow anyone near the tractor while testing.
- If the tractor does not pass the test do not operate the tractor.

■ Preparation before testing.

1. Sit on the operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the range gear shift lever (1) to "NEUTRAL" position.
4. Check the speed control pedal "NEUTRAL" position
5. Shift the PTO clutch control lever (2) to "OFF" position.

■ Test 1 : Switch for the speed control pedal

1. Shift the range gear shift lever (1) to "NEUTRAL" position.
2. Depress the speed control pedal.
3. Turn the key to "START" position.
4. The engine must not crank.

■ Test 2 : Switch for the PTO clutch lever

1. Shift the range gear shift lever (1) to "NEUTRAL" position.
2. Check the speed control pedal "NEUTRAL" position.
3. Shift the PTO clutch control lever (2) to "ON" position.
4. Turn the key to "START" position.
5. The engine must not crank.

■ Test 3 : Switches for the operator's seat and the speed control pedal

1. Sit on the operator's seat.
2. Shift the range gear shift lever (1) to "NEUTRAL" position.
3. Start the engine.
4. Depress the speed control pedal.
5. Stand up. (Do not get off the machine.)
6. The engine must shut off after approximately 1 second.

■ Test : Switches for the operator's seat and the PTO clutch lever

1. Sit on the operator's seat.
2. Start the engine.
3. Engage the PTO clutch control lever (2).
4. Stand up. (Do not get off the machine.)
5. The engine must shut off after approximately 1 second.

(1) Range Gear Shift Lever

(2) PTO Clutch Control Lever

W1014904

