

Product: 2004 Kubota WSM L2800,L3400 Tractor Service Repair Workshop Manual
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WSM

**WORKSHOP MANUAL
TRACTOR**

L2800,L3400

Kubota

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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 L2800 and L3400. It is divided into three parts, "General", "Mechanism" and "Servicing".

■ 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. 9Y021-01874 / 9Y021-18201) 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.

Due to covering many models of this manual, information or picture being used have not been specified as one model.

January 2004

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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.



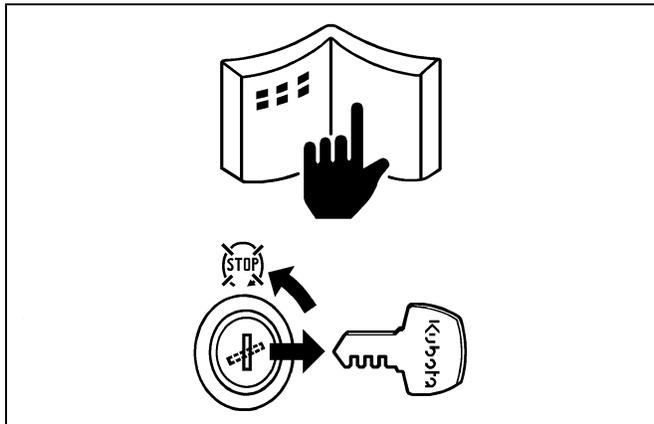
IMPORTANT

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



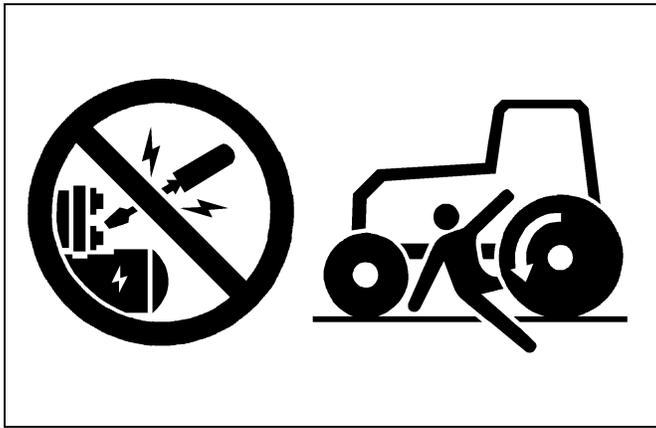
NOTE

: Gives helpful information.



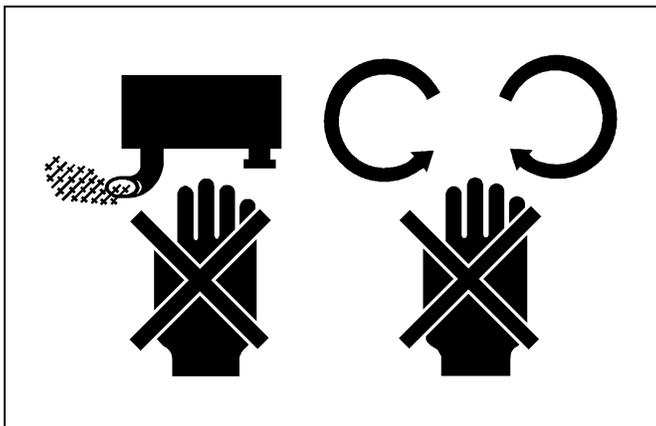
BEFORE SERVICING AND REPAIRING

- 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.



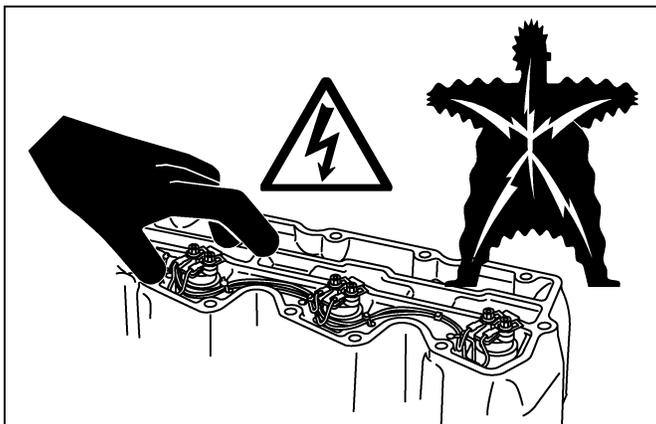
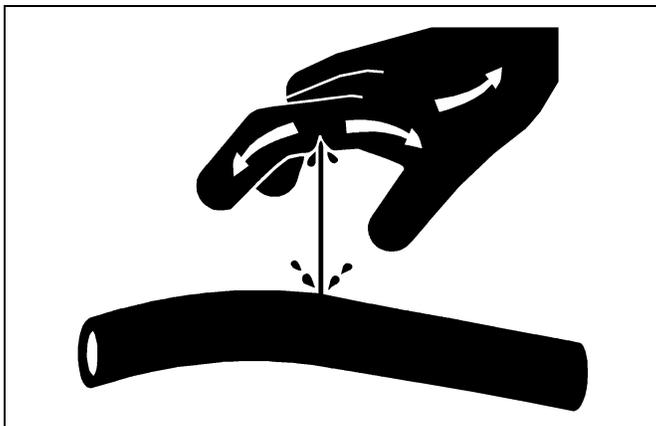
SAFETY STARTING

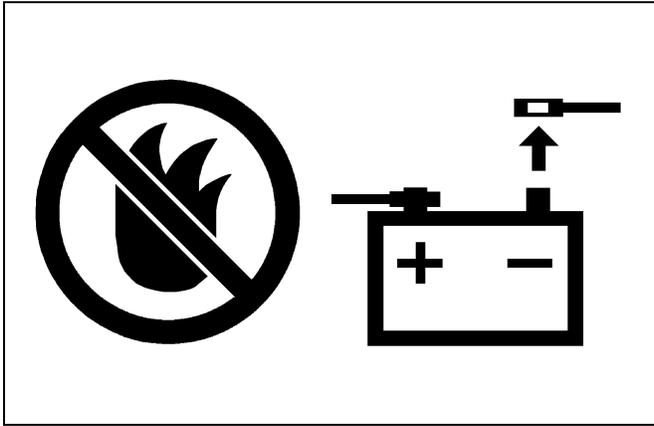
- Do not start the engine by shorting across starter terminals or bypassing the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before starting the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Never start the engine 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.
- Do not open high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high pressure common rail fuel system.
- High voltage exceeding 100 V is generated in the ECU and injector. Pay sufficient caution to electric shock when performing work activities.





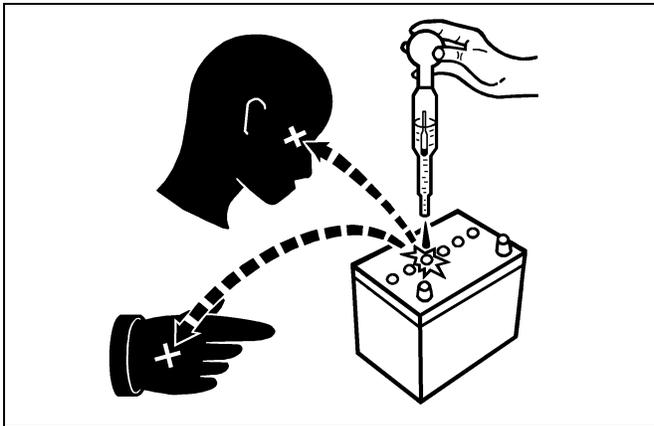
AVOID FIRES

- 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.



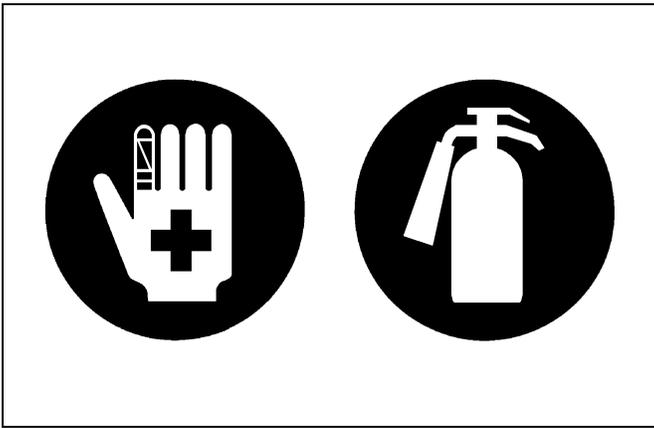
PREVENT ACID BURNS

- 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**

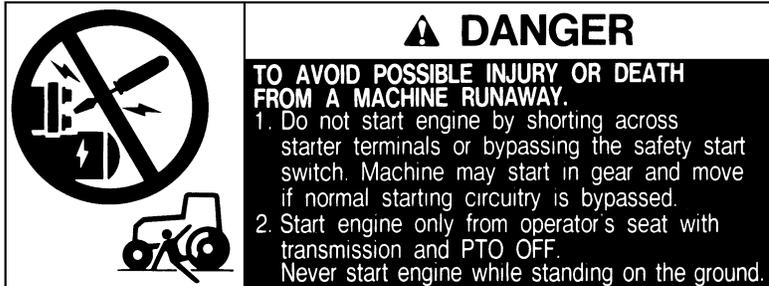
- Keep a first aid kit and fire extinguisher handy at all times.
- Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

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. TA040-4965-2



(4) Part No. TC230-4956-1

Diesel fuel only. No fire



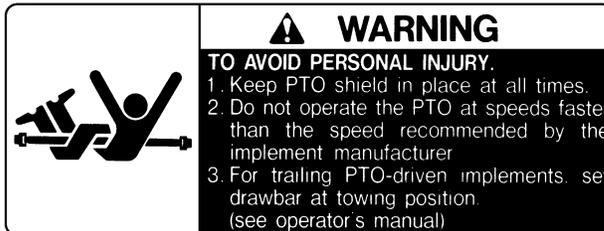
(5) Part No. TA040-4935-1

⚠ WARNING

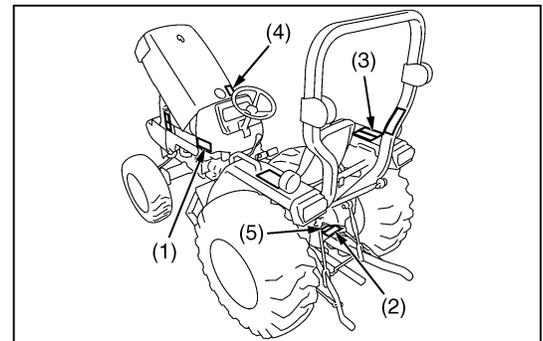
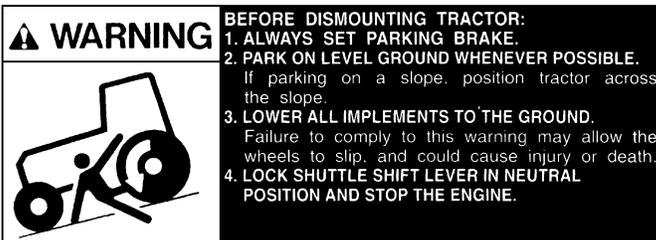
TO AVOID PERSONAL INJURY:

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

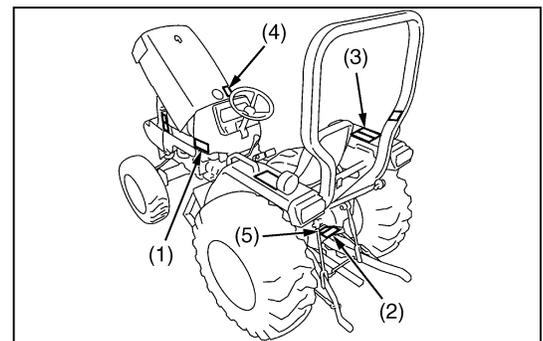
(2) Part No. TA040-4959-3



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



(3) Part No. TA240-4933-2 [HST type]



(1) Part No. 35260-3491-4

⚠ CAUTION

TO AVOID PERSONAL INJURY:

1. Read and understand the operator's manual before operation.
2. Before starting the engine, make sure that everyone is at a safe distance from the tractor and that the PTO is OFF.
3. Do not allow passengers on the tractor at any time.
4. Before allowing other people to use the tractor, have them read the operator's manual.
5. Check the tightness of all nuts and bolts regularly.
6. Keep all shields in place and stay away from all moving parts.
7. Lock the two brake pedals together before driving on the road.
8. Slow down for turns, or rough roads, or when applying individual brakes.
9. On public roads use SMV emblem and hazard lights, if required by local traffic and safety regulations.
10. Pull only from the drawbar.
11. Before dismounting, lower the implement to the ground, set the parking brake, stop the engine and remove the key.
12. Securely support tractor and implements before working underneath.

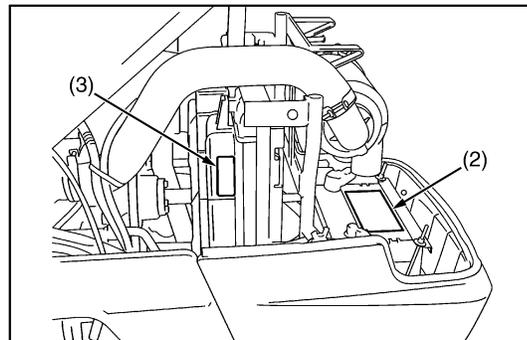
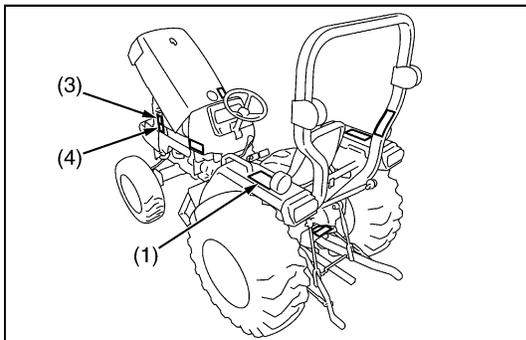
(3) Part No. 32751-4958-1
Stay clear of engine fan and fan belt.



(2) Part No. TD030-3012-2

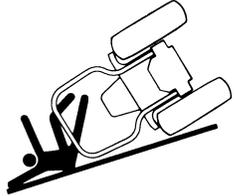
 LEAD RECYCLE	 FLAMMABLES	 SHIELD EYES	 KEEP OUT OF THE REACH OF CHILDREN	 CAUTIONS OF SULFURIC ACID	 READ INSTRUCTION MANUAL CAREFULLY	 EXPLOSIVE	HYDROMETER OK CHARGE REPLACE BATTERY BATTERY DK 02109	
NS70MF 12V AMP. HR (GHR) 52 RESERVE CAPACITY (MIN) 123 COLD CRANKING AMPS (-18°C) 490		DANGER - DUE 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)					FITTING DATE: 0 1 2 3 4 5 6 7 8 9 YEAR 1 2 3 4 5 6 7 8 9 10 11 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					

(4) Part No. TD030-4958-1
Do not touch hot surface like muffler, etc.



3TLAAABCP002A

(1) Part No. TA040-4932-2 [Rigid ROPS type]

	<p>⚠ WARNING</p> <p>TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:</p> <ol style="list-style-type: none"> 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
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(4) Part No. 3A111-9544-1 [Foldable ROPS type]

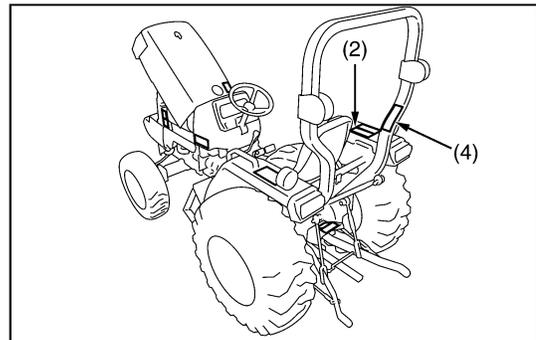
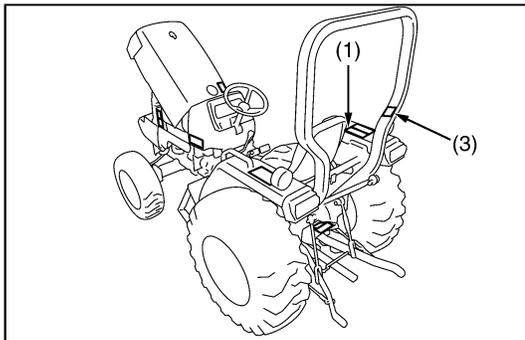
<p>⚠ WARNING</p> <p>Never modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.</p>
<p>⚠ CAUTION</p> <p>TO AVOID INJURY WHEN RAISING OR FOLDING ROPS:</p> <ul style="list-style-type: none"> • Set parking brake and stop engine. • Remove any obstruction 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.

(2) Part No. TA240-9848-1 [Foldable ROPS type]

	<p>⚠ WARNING</p> <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

(3) Part No. 6C140-4746-1 [Rigid ROPS type]

<p>⚠ WARNING</p> <p>TO AVOID PERSONAL INJURY:</p> <p>Do not modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.</p>
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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

[Manual Transmission Type]

Model		L2800		L3400	
		2WD	4WD	2WD	4WD
Engine [E2]	PTO power	17.9 kW (24.0 HP)		21.6 kW (29.0 HP)	
	Maker	KUBOTA			
	Model	D1403-M-E2A		D1703-MA-E2A	
	Type	Vertical, water-cooled, 4-cycle diesel			
	Number of cylinders	3		3	
	Bore and stroke	80 × 92.4 mm (3.1 × 3.6 in.)		87 × 92.4 mm (3.4 × 3.6 in.)	
	Total displacement	1.393 L (85.0 cu.in.)		1.647 L (101.0 cu.in.)	
	Engine gross power	21.6 kW (29.0 HP)		25.9 kW (34.7 HP)	
	Rated revolution	46.7 rps (2800 min ⁻¹ (rpm))		45.0 rps (2700 min ⁻¹ (rpm))	
	Maximum torque	89.2 N·m (65.8 lbf·ft)		108.6 N·m (80.1 lbf·ft)	
	Battery	12 V, RC : 123 min, CCA : 490 A			
Engine [E3]	PTO power	18.6 kW (25.0 HP)		22.4 kW (30.0 HP)	
	Maker	KUBOTA			
	Model	D1503-M-E3-LB1		D1803-M-E3-LB2	
	Type	Vertical, water-cooled, 4-cycle diesel			
	Number of cylinders	3		3	
	Bore and stroke	83 × 92.4 mm (3.3 × 3.6 in.)		87 × 102.4 mm (3.4 × 4.0 in.)	
	Total displacement	1.499 L (91.5 cu.in.)		1.826 L (111.4 cu.in.)	
	Engine gross power*	22.4 kW (30.0 HP)		26.6 kW (35.7 HP)	
	Engine net power*	21.3 kW (28.6 HP)		25.5 kW (34.2 HP)	
	Rated revolution	46.7 rps (2800 min ⁻¹ (rpm))		45.0 rps (2700 min ⁻¹ (rpm))	
	Maximum torque	94.9 N·m (70.0 lbf·ft)		115.6 N·m (85.3 lbf·ft)	
Battery	12 V, RC : 123 min, CCA : 490 A				
Capacities	Fuel tank	34.0 L (9.0 U.S.gals)			
	Engine crankcase (with filter)	5.7 L (6.0 U.S.qts)			
	Engine coolant	6.0 L (6.3 U.S.qts)			
	Transmission case	27.0 L (7.1 U.S.gals)	27.5 L (7.3 U.S.gals)	27.0 L (7.1 U.S.gals)	27.5 L (7.3 U.S.gals)
Dimensions	Overall length (without 3P)	2810 mm (110.6 in.)	2705 mm (106.5 in.)	2810 mm (110.6 in.)	2705 mm (106.5 in.)
	Overall width (minimum tread)	1305 mm (51.4 in.)			
	Overall height (with ROPS)	2160 mm (85.0 in.)			
	Overall height (Top of steering wheel)	1475 mm (58.1 in.)			
	Wheel base	1610 mm (63.3 in.)			
	Min.ground clearance	345 mm (13.6 in.)	340 mm (13.4 in.)	345 mm (13.6 in.)	340 mm (13.4 in.)
	Tread	Front	1050 mm (41.3 in.)	1095 mm (43.1 in.)	1050 mm (41.3 in.)
	Rear	1290 mm (50.8 in.)			
Weight (with ROPS)	1070 kg (2359 lbs)	1150 kg (2536 lbs)	1090 kg (2403 lbs)	1170 kg (2580 lbs)	
Clutch	Dry type single stage		Dry type dual stage		

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Model			L2800		L3400	
			2WD	4WD	2WD	4WD
Traveling system	Tires	AG Front	5.00 - 15	7.00 - 16	5.00 - 15	7.00 - 16
		AG Rear	11.2 - 24			
	Indust. (option) Front / Rear		–	27 × 8.50 - 15 / 15 - 19.5R4	–	27 × 8.50 - 15 / 15 - 19.5R4
	Steering		Integral type power steering			
	Transmission		Gear shift, 8 forward and 4 reverse			
	Brake		Wet disk type			
	Min. turning radius (with brake)		2.4 m (7.9 feet)			
Hydraulic unit	Hydraulic control system		Position control			
	Pump capacity (main)		24.7 L/min (6.5 gal/min)		23.9 L/min (6.3 gal/min)	
	Pump capacity (PS)		15.0 L/min (4.0 gal/min)		14.5 L/min (3.8 gal/min)	
	Three point hitch		Category 1			
	Max. lift force	At lift points	906 kg (1998 lbs)			
		24 in. behind lift points	651 kg (1435 lbs)			
System pressure		15.7 MPa (160 kgf/cm ²)				
PTO	Rear PTO		SAE 1-3/8, 6-splines (with overrunning clutch on single clutch tractor)			
	PTO / Engine speed		540 / 2430 min ⁻¹ (rpm)		540 / 2425 min ⁻¹ (rpm)	

NOTE: *Manufacturer's estimate

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

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[HST Type]

Model		L2800	L3400
		4WD HST	4WD HST
Engine [E2]	PTO power*	16.8 kW (22.5 HP)	20.5 kW (27.5 HP)
	Maker	KUBOTA	
	Model	D1403-M-E2A	D1703-MA-E2A
	Type	Indirect injection, Vertical, Water-cooled 4 cycle diesel	
	Number of cylinders	3	
	Bore and stroke	80 × 92.4 mm (3.1 × 3.6 in.)	87 × 92.4 mm (3.4 × 3.6 in.)
	Total displacement	1.393 L (85.0 cu.in.)	1.647 L (101.0 cu.in.)
	Engine gross power*	21.6 kW (29.0 HP)	25.9 kW (34.7 HP)
	Engine net power*	20.5 kW (27.5 HP)	24.8 kW (33.3 HP)
	Rated revolution	46.7 rps (2800 min ⁻¹ (rpm))	45.0 rps (2700 min ⁻¹ (rpm))
	Maximum torque	89.2 N·m (65.8 lbf·ft)	108.6 N·m (80.1 lbf·ft)
	Battery	12 V, RC : 123 min, CCA : 490 A	
Engine [E3]	PTO power*	17.5 kW (23.5 HP)	21.3 kW (28.5 HP)
	Maker	KUBOTA	
	Model	D1503-M-E3-LB1	D1803-M-E3-LB1
	Type	Indirect injection, Vertical, Water-cooled 4 cycle diesel	
	Number of cylinders	3	
	Bore and stroke	83 × 92.4 mm (3.3 × 3.6 in.)	87 × 102.4 mm (3.4 × 4.0 in.)
	Total displacement	1.499 L (91.5 cu.in.)	1.826 L (112.0 cu.in.)
	Engine gross power*	22.4 kW (30.1 HP)	26.6 kW (35.6 HP)
	Engine net power*	21.3 kW (28.6 HP)	25.5 kW (34.2 HP)
	Rated revolution	46.7 rps (2800 min ⁻¹ (rpm))	45.0 rps (2700 min ⁻¹ (rpm))
	Maximum torque	94.9 N·m (70.0 lbf·ft)	115.6 N·m (85.3 lbf·ft)
	Battery	12 V, RC : 123 min, CCA : 490 A	
Capacities	Fuel tank	34.0 L (9.0 U.S.gals)	
	Engine crankcase (with filter)	5.7 L (6.0 U.S.qts)	
	Engine coolant	6.0 L (6.3 U.S.qts)	
	Transmission case	23.5 L (6.2 U.S.gals)	23.5 L (6.2 U.S.gals)
Dimensions	Overall length (with 3P)	2705 mm (106.5 in.)	2705 mm (106.5 in.)
	Overall width (minimum tread)	1305 mm (51.4 in.)	
	Overall height (with ROPS)	2160 mm (85.0 in.)	
	Overall height (Top of steering wheel)	1475 mm (58.1 in.)	
	Wheel base	1610 mm (63.3 in.)	
	Min.ground clearance	340 mm (13.4 in.)	340 mm (13.4 in.)
	Tread	Front 1095 mm (43.1 in.)	1095 mm (43.1 in.)
	Rear	1020 mm (40.2 in.), 1115 mm (43.8 in.), 1195 mm (47.1 in.), 1290 mm (50.8 in.)	
Weight (with ROPS)		1180 kg (2600 lbs)	1180 kg (2600 lbs)

(Continued)

Model		L2800	L3400
		4WD HST	4WD HST

Traveling system	Tires	AG Front	7.00 - 16	7.00 - 16
		AG Rear	11.2 - 24	
	Indust. (option) Front / Rear	27 × 8.50 - 15 / 15 - 19.5R4		27 × 8.50 - 15 / 15 - 19.5R4
	Clutch	Dry type single stage		
	Steering	Integral type power steering		
	Transmission	Hydrostatic transmission, 3 range speed		
	Brake	Wet disk type		
	Min. turning radius (with brake)	2.5 m (8.2 feet)		
Hydraulic unit	Hydraulic control system		Position control	
	Pump capacity (main)		24.7 L/min (6.5 gal/min)	23.9 L/min (6.3 gal/min)
	Pump capacity (PS)		15.0 L/min (4.0 gal/min)	14.5 L/min (3.8 gal/min)
	Three point hitch		Category 1	
	Max. lift force	At lift points	906 kg (1998 lbs)	
		24 in. behind lift points	651 kg (1435 lbs)	
System pressure		15.7 MPa (160 kgf/cm ²)		
PTO	Rear PTO	PTO shaft size	SAE 1-3/8, 6-splines	
		Type	Live-continuous with overrunning clutch	Live-continuous with overrunning clutch
	PTO / Engine speed		540 / 2580 min ⁻¹ (rpm)	540 / 2580 min ⁻¹ (rpm)

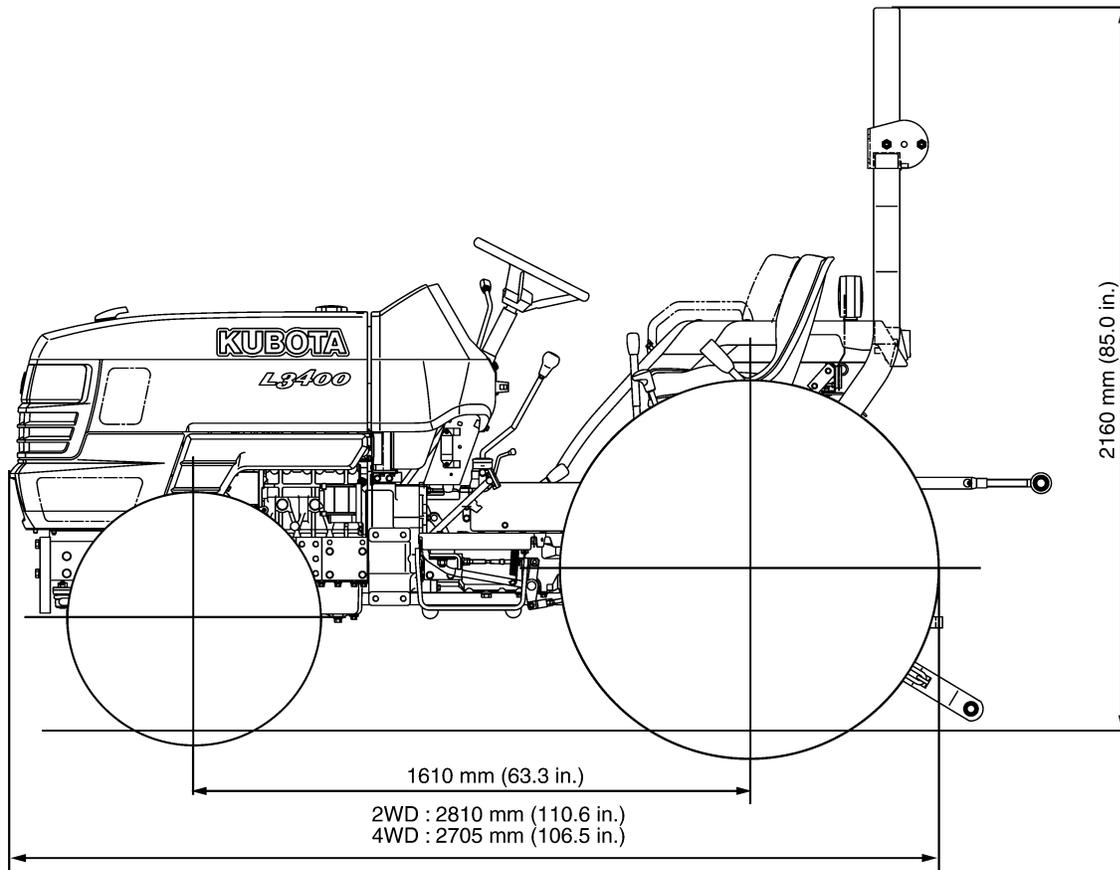
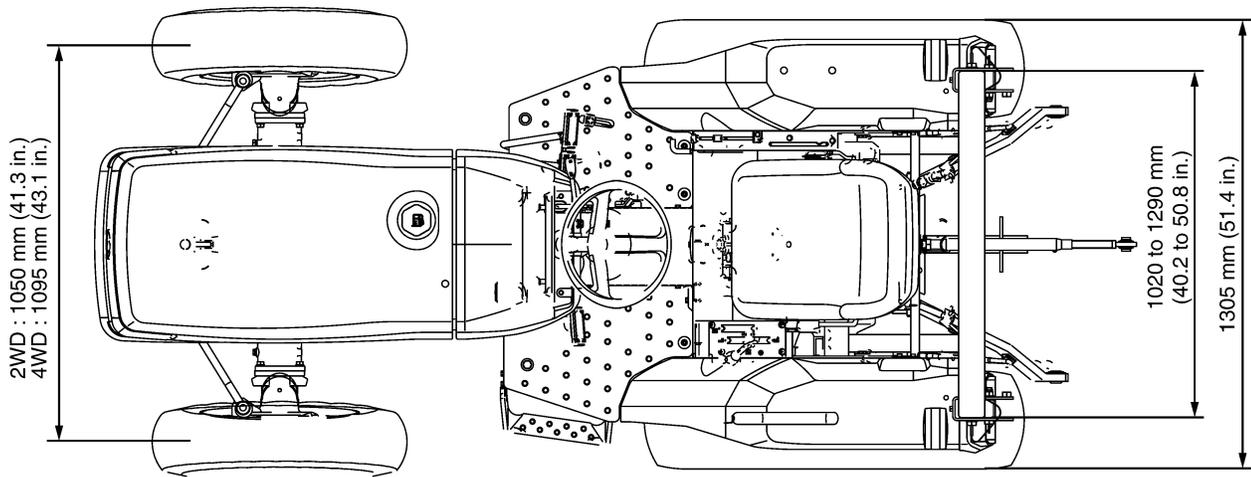
NOTE: *Manufacture's estimate

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

W1031656

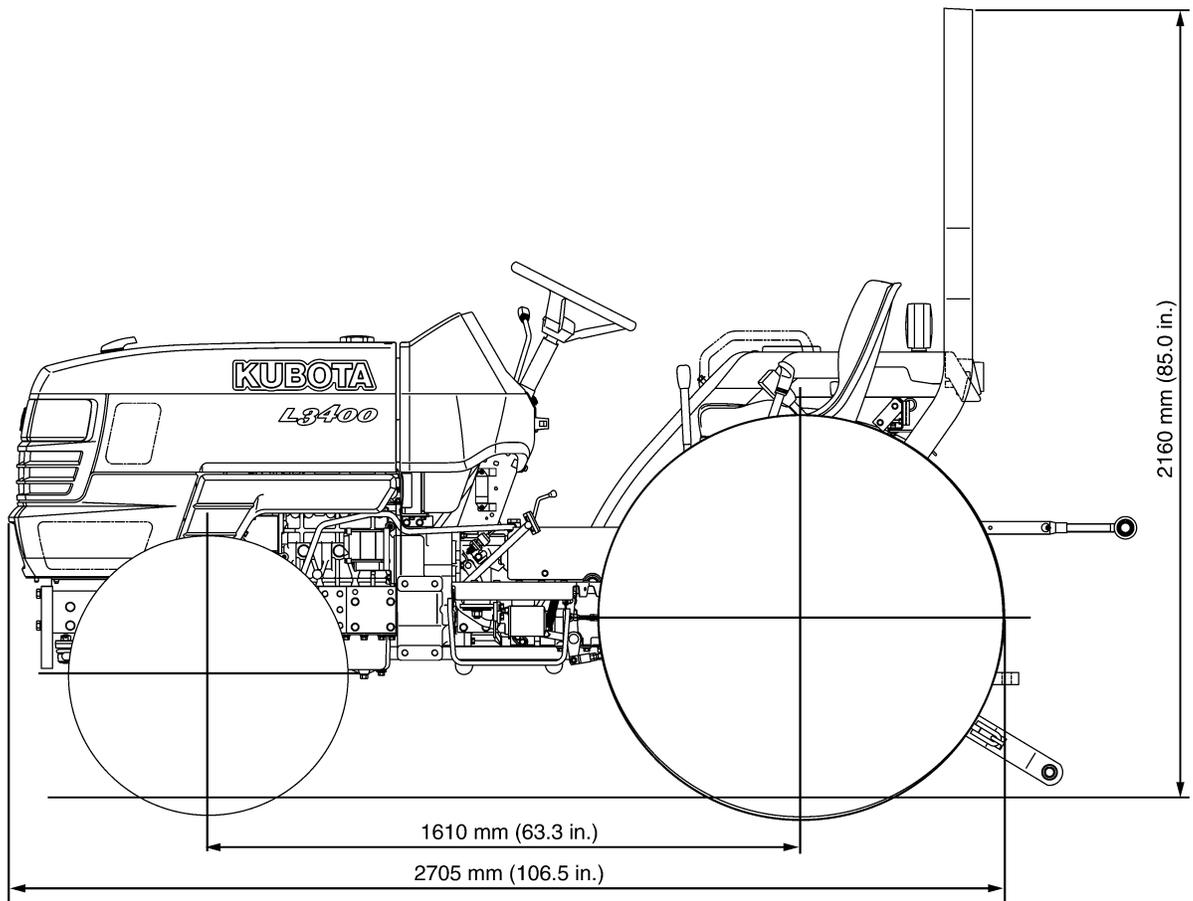
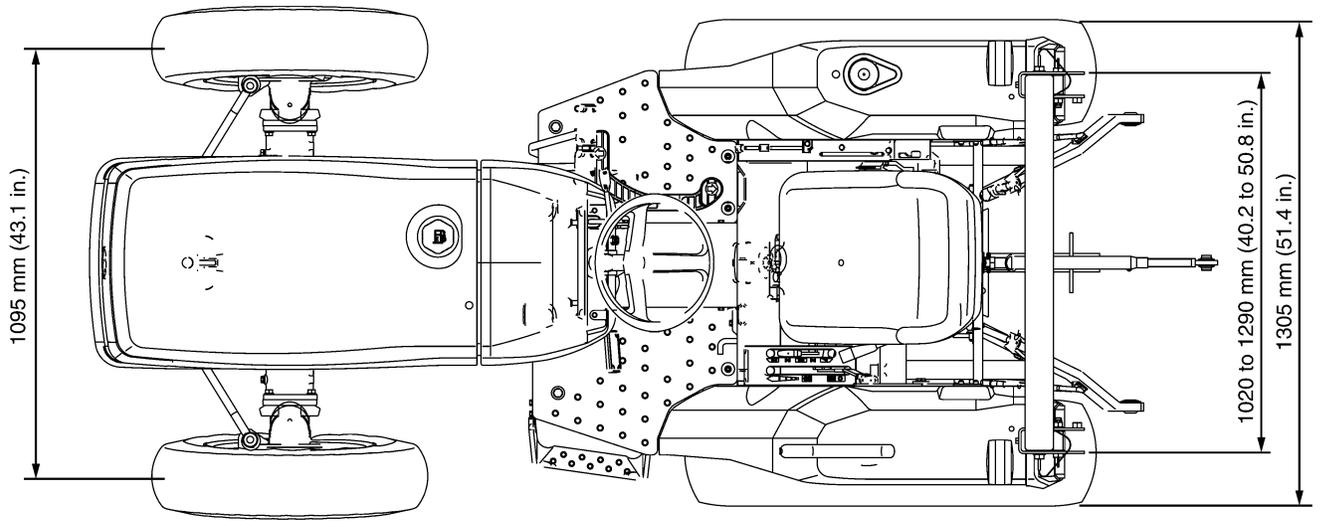
DIMENSIONS

L2800 · L3400 [Manual Transmission Type]



3TLAAABFP003A

L2800 · L3400 [HST Type]



3TLAABFP002A

G GENERAL

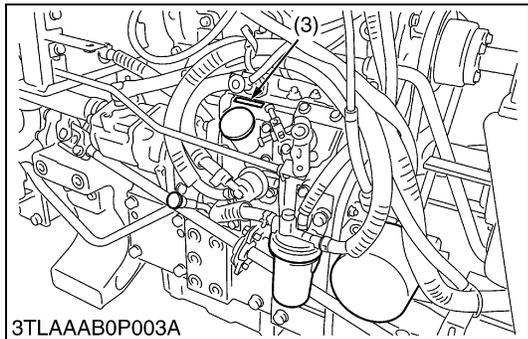
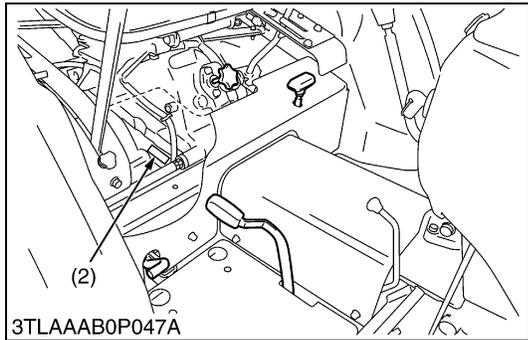
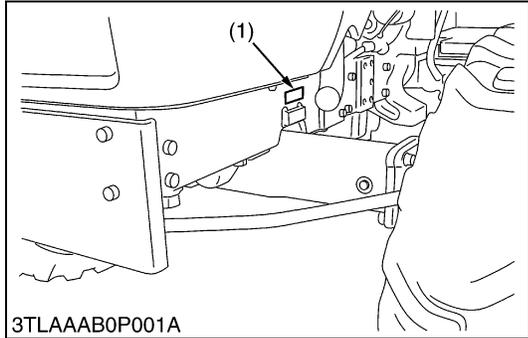
GENERAL

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1. TRACTOR IDENTIFICATION

[1] MODEL NAME AND SERIAL NUMBERS



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

W1010606

[2] E3 ENGINE

[Example : Engine Model Name V2403-M-TE3-XXX]

The emission controls previously implemented in various countries to prevent air pollution will be stepped up as Non-Road Emission Standards continue to change. The timing or applicable date of the specific Non-Road Emission regulations depends on the engine output classification.

Over the past several years, Kubota has been supplying diesel engines that comply with regulations in the respective countries affected by Non-Road Emission regulations. For Kubota Engines, E3 will be the designation that identifies engine models affected by the next emission phase (See the table below).

When servicing or repairing ###-E3 series engines, use only replacement parts for that specific E3 engine, designated by the appropriate E3 Kubota Parts List and perform all maintenance services listed in the appropriate Kubota Operator's Manual or in the appropriate E3 Kubota Workshop Manual. Use of incorrect replacement parts or replacement parts from other emission level engines (for example: E2 engines), may result in emission levels out of compliance with the original E3 design and EPA or other applicable regulations. Please refer to the emission label located on the engine head cover to identify Output classification and Emission Control Information. E3 engines are identified with "ET" at the end of the Model designation, on the US EPA label. Please note : E3 is not marked on the engine.

TYPE :	#####
FAMILY :	#####
APPROVAL NUMBER:	###/##(K)#####/#####
Kubota KUBOTA Corporation	
####	

(1) (2)

EMISSION CONTROL INFORMATION		<input checked="" type="checkbox"/>
THIS ENGINE MEETS 2008 ##### EMISSION REGULATIONS FOR U. S. EPA AND CALIFORNIA NONROAD CY ENGINES.		
Kubota KUBOTA Corporation		
MODEL :	### -ET	ENGINE DISP. : ####
FAMILY:	8 ###.	ECS: EM
OUTPUT:	## kW / ### rpm	CATEGORY: ## - ## kW
VALVE CLEARANCE (COLD):	IN ## mm EX ## mm	
INJ. TIMING:	### DEG BTDC	LOW IDLE: ## - ## rpm
LOW SULFUR FUEL OR ULTRA LOW SULFUR FUEL ONLY		
CONTACT KUBOTA FOR FUEL SETTING		####

3EEAEAE0P002A

Category (1)	Engine output classification	EU regulation
K	From 19 to less than 37 kW	STAGE IIIA
J	From 37 to less than 75 kW	STAGE IIIA
I	From 75 to less than 130 kW	STAGE IIIA

Category (2)	Engine output classification	EPA regulation
ET	Less than 19kW	Tier 4
	From 19 to less than 56 kW	Interim Tier 4
	From 56 to less than 75 kW	Tier 3
	From 75 to less than 130 kW	Tier 3

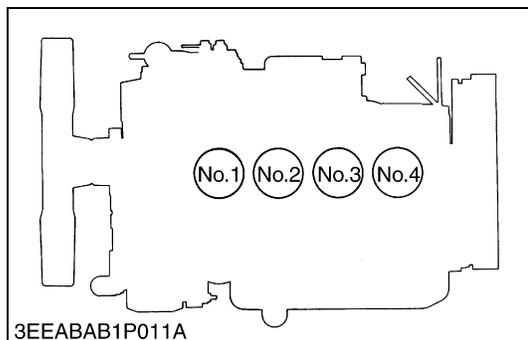
(1) EU regulation engine output classification category

(2) "E3" engines are identified with "ET" at the end of the Model designation, on the US EPA label.

"E3" designates Tier 3 and some Interim Tier 4 / Tier 4 models, depending on engine output classification.

W1031971

[3] CYLINDER NUMBER

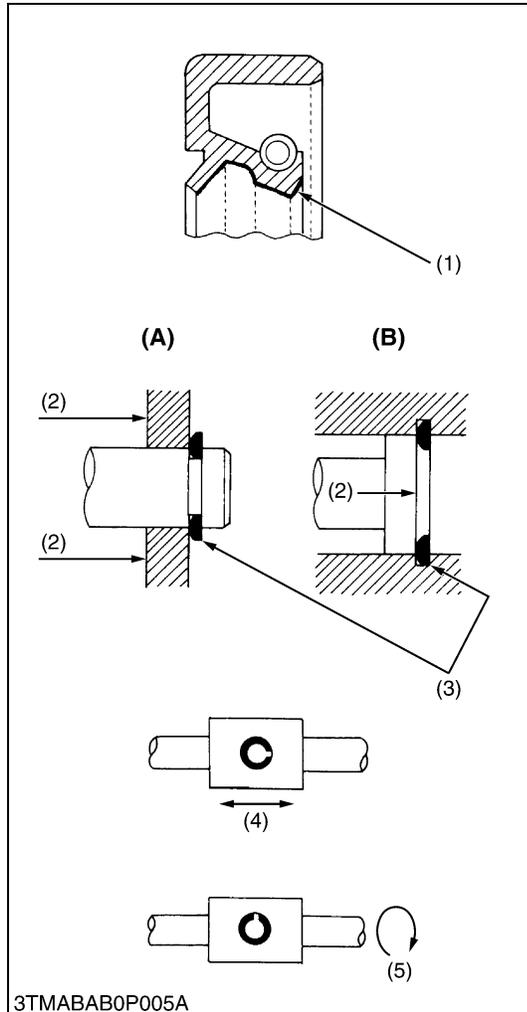


The cylinder numbers of KUBOTA diesel engine are designated as shown in the figure.

The sequence of cylinder numbers is given as No.1, No.2, No.3 and No.4 starting from the gear case side.

W1011077

2. GENERAL PRECAUTIONS



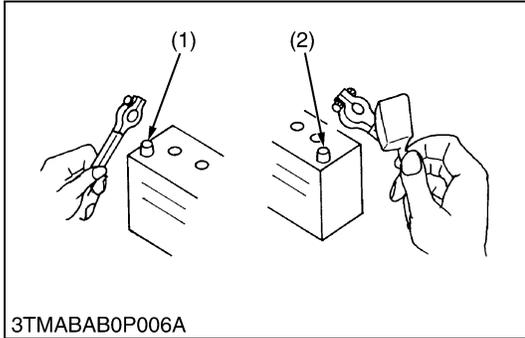
- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Screws, bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently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

W1010904

3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



3TMABAB0P006A

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

■ IMPORTANT

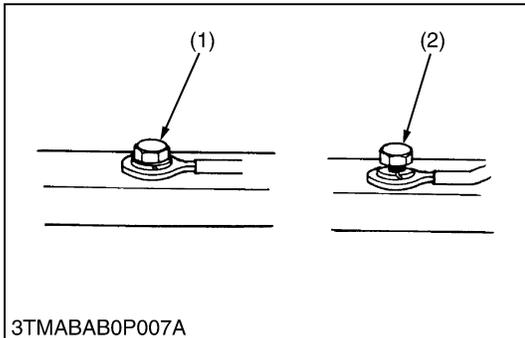
- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the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

(1) Negative Terminal

(2) Positive Terminal

W1011114

[1] WIRING



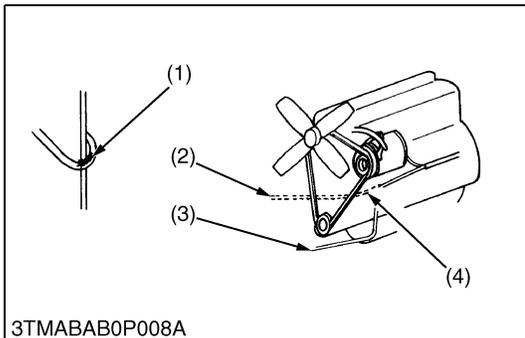
3TMABAB0P007A

- Securely tighten wiring terminals.

(1) Correct
(Securely Tighten)

(2) Incorrect
(Loosening Leads to Faulty Contact)

W1011216



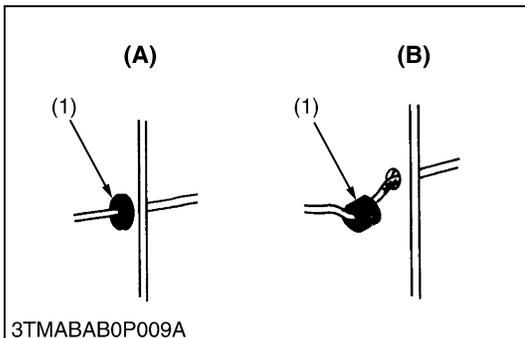
3TMABAB0P008A

- Do not let wiring contact dangerous part.

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

(3) Wiring (Incorrect)
(4) Dangerous Part

W1011313



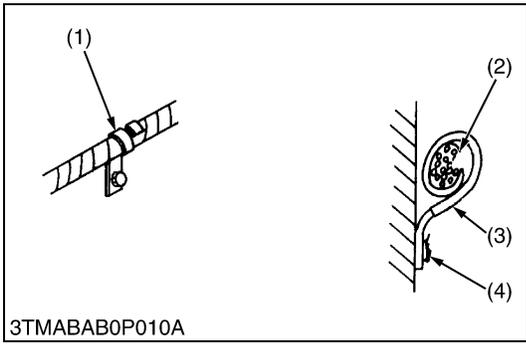
3TMABAB0P009A

- Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

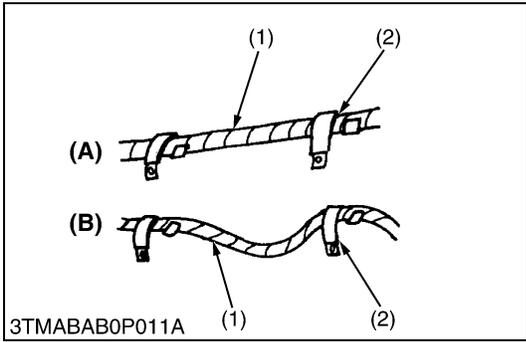
W1011388



• Securely clamp, being careful not to damage wiring.

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

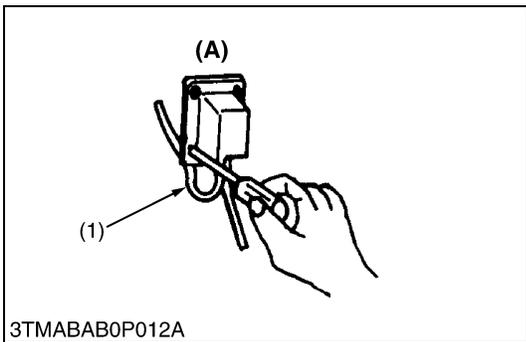
W1011458



• 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

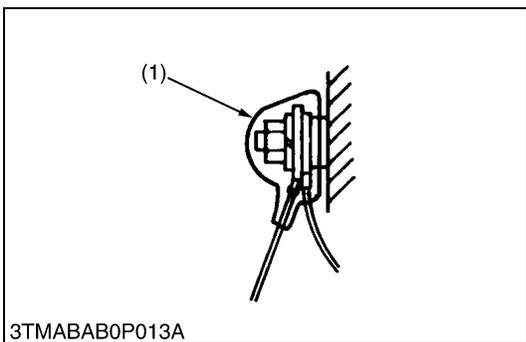
W1011587



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

- (1) Wiring
- (A) Incorrect

W1011670

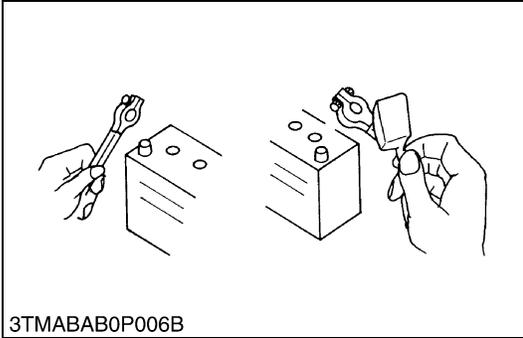


• After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover
 - Securely Install Cover

W1011735

[2] BATTERY



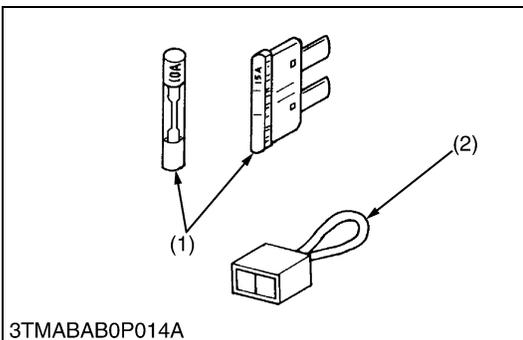
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting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

W1011816

[3] FUSE



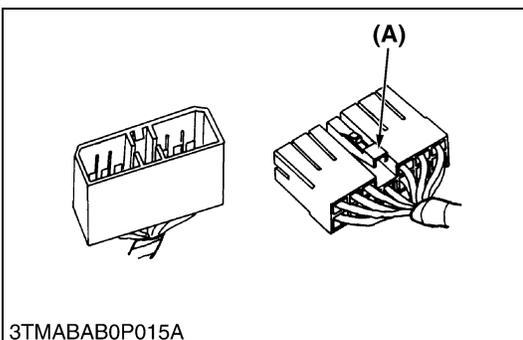
- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

(1) Fuse

(2) Fusible Link

W1012092

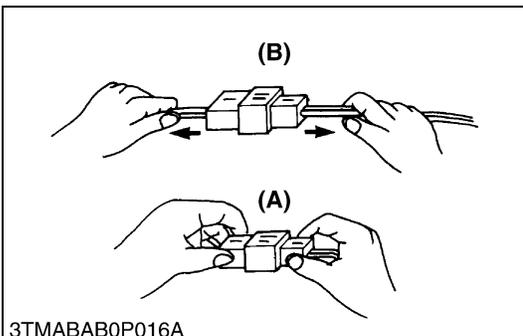
[4] CONNECTOR



- For connector with lock, push lock to separate.

(A) Push

W1012211



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

(A) Correct

(B) Incorrect

W1012272

4. LUBRICANTS, FUEL AND COOLANT

	Place	Capacity		Grade
		L2800	L3400	
1	Fuel	34 L 9.0 U.S.gals 7.4 Imp.gals		No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10 °C (14 °F)
2	Coolant	6.0 L 6.3 U.S.qts 5.3 Imp.qts		Fresh clean water with anti-freeze
	Recovery tank	0.6 L 0.63 U.S.qts 0.53 Imp.qts		
3	Engine crankcase (with filter)	5.7 L 6.0 U.S.qts 5.0 Imp.qts		Engine oil : API Service Classification [E2 Engine] CD, CE or CF [E3 Engine] Refer to next page. Below 0 °C (32 °F) : SAE10W, 10W-30 or 15W-40 0 to 25 °C (32 to 77 °F) : SAE20, 10W-30 or 15W-40 Above 25 °C (77 °F) : SAE30, 10W-30 or 15W-40
4	Transmission case (Manual (2WD))	27.0 L 7.1 U.S.gals 5.9 Imp.gals		KUBOTA UDT or SUPER UDT fluid*
	Transmission case (Manual (4WD))	27.5 L 7.3 U.S.gals 6.1 Imp.gals		
	Transmission case (HST (4WD))	23.5 L 6.2 U.S.gals 5.2 Imp.gals		
5	Front axle case (4WD)	4.5 L 4.8 U.S.qts 3.9 Imp.qts		KUBOTA UDT or SUPER UDT fluid* or SAE80 - SAE 90 gear oil
Greasing				
	Place	No. of greasing point	Capacity	Type of grease
6	Front wheel hub	2 [2WD only]	A small amount	Bearing grease
	Knuckle shaft	2 [2WD only]	Until grease overflows	Multipurpose type grease
	Front axle support	2		
	Clutch pedal	1		
	Brake pedal	1		
	Pedal shaft	1		
	Top link bracket	2 [with draft control (if equipped)]		
	Battery terminal	2		
	Lift rod	1		

* KUBOTA original transmission hydraulic fluid.

■ NOTE

Engine Oil :

- Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above :
- With the emission control now in effect, the CF-4 and CG-4 lubricating oils have been developed for use of a low-sulfur fuel on on-road vehicle engines. When an off-road vehicle engine runs on a high-sulfur fuel, it is advisable to employ the "CF or better" lubricating oil with a high Total Base Number (TBN of 10 minimum).
- 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 (low-sulfur or high-sulfur fuel).

Fuel used	Engine oil classification (API classification)	
	Engines except external EGR	Engines with external EGR
High Sulfur Fuel (≥ 500 ppm)	CF (If the "CF-4, CG-4, CH-4 or CI-4" lubricating oil is used with a high-sulfur fuel, change the lubricating oil at shorter intervals. (approximately half))	–
Low Sulfur Fuel (< 500 ppm) or Ultra Low Sulfur Fuel (< 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 tractor.

	without EGR	with external EGR
Model	L2800, L3400	–

Fuel :

- Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20 °C (-4 °F) or elevations above 1500 m (5000 ft).
- If diesel fuel with sulfur content greater than 0.5 % sulfur content is used, reduce the service interval for engine oil and filter by 50 %.
- DO NOT use diesel fuel with sulfur content greater than 1.0 %.
- 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)
- Since this engine adopts EPA Tier 4 and Interim Tier 4 standards, the use of low sulfur fuel or ultra low sulfur fuel is mandatory in EPA regulated area (North America). Therefore, please use No. 2-D S500 or S15 diesel fuel as an alternative to No. 2-D, or use No. 1-D S500 or S15 diesel fuel as an alternative to No. 1-D if outside air temperature is below -10 °C (14 °F).

Transmission Oil :

The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and to complete lubrication of the transmission, it is important that a multi-grade transmission fluid is used in this system. We recommend the use of **KUBOTA UDT** or **SUPER UDT fluid** for optimum protection and performance.

Do not mix oil of different brands.

- Indicated capacities of water and oil are manufacture's estimate.

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 tables 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	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
Diameter															
M6 (6 mm, 0.24 in.)	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8 (8 mm, 0.31 in.)	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14	24 to 27	2.4 to 2.8	18 to 20	18 to 20	1.8 to 2.1	13 to 15	30 to 34	3.0 to 3.5	22 to 25
M10 (10 mm, 0.39 in.)	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25	48 to 55	4.9 to 5.7	36 to 41	40 to 44	4.0 to 4.5	29 to 32	61 to 70	6.2 to 7.2	45 to 52
M12 (12 mm, 0.47 in.)	63 to 72	6.4 to 7.4	47 to 53	–	–	–	78 to 90	7.9 to 9.2	58 to 66	63 to 72	6.4 to 7.4	47 to 53	103 to 117	10.5 to 12.0	76.0 to 86.7
M14 (14 mm, 0.55 in.)	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–	124 to 147	12.6 to 15.0	91.2 to 108	–	–	–	167 to 196	17.0 to 20.0	123 to 144
M16 (16 mm, 0.63 in.)	167 to 191	17.0 to 19.5	123 to 141	–	–	–	197 to 225	20.0 to 23.0	145 to 166	–	–	–	260 to 304	26.5 to 31.0	192 to 224
M18 (18 mm, 0.71 in.)	246 to 284	25.0 to 29.0	181 to 209	–	–	–	275 to 318	28.0 to 32.5	203 to 235	–	–	–	344 to 402	35.0 to 41.0	254 to 296
M20 (20 mm, 0.79 in.)	334 to 392	34.0 to 40.0	246 to 289	–	–	–	368 to 431	37.5 to 44.0	272 to 318	–	–	–	491 to 568	50.0 to 58.0	362 to 419

W1034542

6. MAINTENANCE

No.	Item		Period	Indication on hour meter													After since	Reference page	
				50	100	150	200	250	300	350	400	450	500	550	600	650			
1	Engine oil	Change	★	☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-14	
2	Engine oil filter	Replace	★			☆				☆						☆	every 200 Hr	G-14	
3	Hydraulic oil filter	Replace	★			☆				☆						☆	every 200 Hr	G-17	
4	HST oil filter	Replace	★			☆				☆						☆	every 200 Hr	G-18	
5	Transmission fluid	Change	★							☆							every 400 Hr	G-15, 16	
6	Front axle case oil (4WD)	Change	★							☆							every 400 Hr	G-19	
7	Front axle pivot	Adjust														☆	every 600 Hr	G-33	
8	Greasing	–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-21	
9	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-22, 23	
10	Wheel bolt torque	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-24	
11	Battery condition	Check		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-28	*5
12	Air cleaner element	Clean		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-25	*1
		Replace															every 1 year	G-25	*2
13	Fuel filter element	Clean		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-26	@
		Replace								☆							every 400 Hr	G-26	@
14	Fan belt	Adjust		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-26	
15	Clutch	Adjust	★	☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-19, 20	
16	Brake	Adjust		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-27	
17	Radiator hose and clamp	Check				☆				☆						☆	every 200 Hr	G-30	
		Replace															every 2 years	G-30	
18	Power steering oil line	Check				☆				☆						☆	every 200 Hr	G-31	
		Replace															every 2 years	G-31	
19	Fuel line	Check		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-27	@
		Replace															every 2 years	G-27	*3
20	HST oil line	Check				☆				☆						☆	every 200 Hr	G-31	
		Replace															every 2 years	G-31	

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No.	Item	Period	Indication on hour meter													After since	Reference page			
			50	100	150	200	250	300	350	400	450	500	550	600	650					700
21	Toe-in	Adjust				☆				☆				☆			every 200 Hr	G-32		
22	Intake air line	Check				☆				☆				☆			every 200 Hr	G-31	@	
		Replace															every 2 years	G-31		*3
23	Greasing (2WD front wheel hub)	-								☆							every 400 Hr	G-32		
24	Engine valve clearance	Adjust															every 800 Hr	1-S12		*4
25	Fuel injection nozzle injection pressure	Check															every 1500 Hr	1-S18	@	*4
26	Injection pump	Check															every 3000 Hr	1-S17	@	*4
27	Cooling system	Flush															every 2 years	G-34, 35, 36		
28	Coolant	Change															every 2 years	G-34, 35, 36		
29	Fuel system	Bleed																G-38		
30	Clutch housing water	Drain																G-38		
31	Fuse	Replace																G-39		
32	Light bulb	Replace																G-39		

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■ 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 : Consult your local KUBOTA distributor for this service.
- *5 : When the battery is used for less than 100 hours per year, check the battery condition by reading the indication 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.

**CAUTION**

- **Be sure to check and service the tractor on a flat place with engine shut off, the parking brake on and chock the wheels.**

[1] DAILY CHECK

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

Checking

- Check areas where previous trouble was experienced.
 - Walk around the machine.
1. Check the tire pressure, and check for wear and damage.
 2. Check for oil and water leak.
 3. Check the engine oil level.
 4. Check the transmission fluid level.
 5. Check the coolant level.
 6. Check the condition of seat belt and ROPS attaching hardware.
 7. Check and clean the radiator screen and grill.
 8. Check the nuts of tires are tight.
 9. Care of danger, warning and caution labels.
 10. Clean around the exhaust manifold and the muffler of the engine.
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- While sitting in the operator's seat.
1. Check the brake pedals and clutch pedal.
 2. Check the parking brake.
 3. Check the steering wheel.
-
- Turning the key switch.
1. Check the performance of the easy checker lights.
 2. Check the lights, turn signal lights, hazard lights and other light equipment. Clean if necessary.
 3. Check the performance of the meters and gauges.
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- Starting the engine.
1. Check to see that the lights on the easy checker go off.
 2. Check the color of the exhaust gas.
 3. Check the brakes for proper operation.