WSM

WORKSHOP MANUAL
TRACTOR

MX5000

Kubota

KiSC issued 04, 2006 A

TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA Tractor MX5000. It is divided into two parts, “Mechanism” and “Servicing” for each section except “Engine Mechanism” section.

■ **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. 97897-01872 / 97897-18200) for the one which has not been described to this workshop manual.

■ **Servicing**

The heading “General” section comes general precautions, check and maintenance and special tools. Other section, there are troubleshooting, servicing specification lists, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

All information illustrations and specifications contained in this manual are based on the latest product information available at the time of publication.

The right is reserved to make changes in all information at any time without notice.

December 2001

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SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully.

It is essential that you read the instructions and safety regulations before you attempt to repair or use this unit.

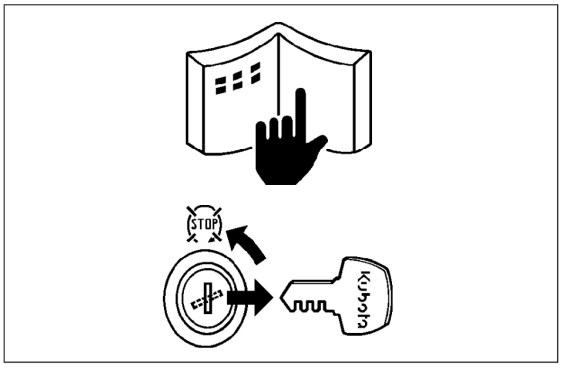
DANGER : **Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

WARNING : **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

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

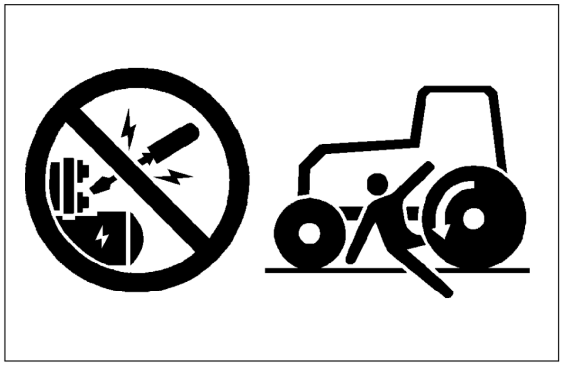
■ **IMPORTANT** : **Indicates that equipment or property damage could result if instructions are not followed.**

■ **NOTE** : **Gives helpful information.**



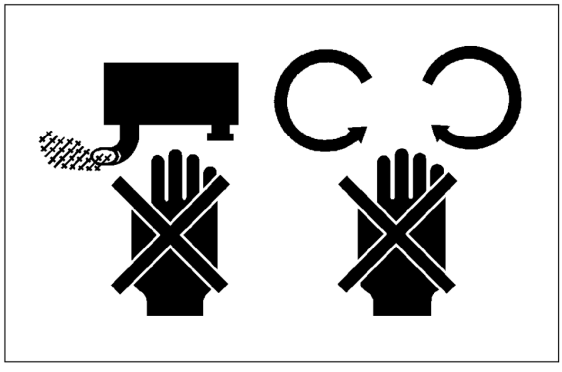
BEFORE SERVICING AND REPAIRING

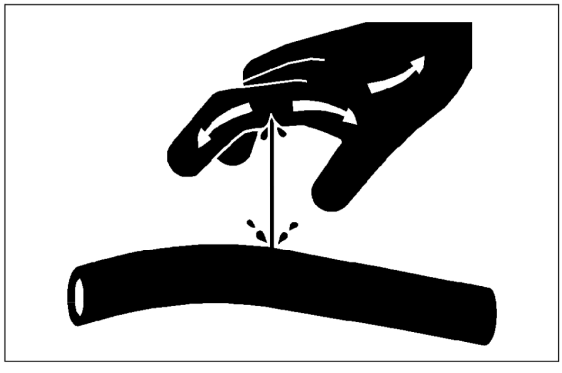
- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a firm and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, and remove the key.
- Disconnect the battery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



SAFETY STARTING

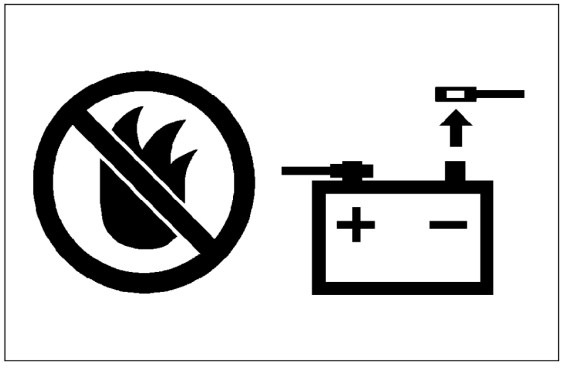
- Do not start the engine by shorting across starter terminals or bypassing the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before starting the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Never start the engine while standing on ground. Start the engine only from operator's seat.





SAFETY WORKING

- Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- Wear close fitting clothing and safety equipment appropriate to the job.
- Use tools appropriate to the work. Makeshift tools, parts, and procedures are not recommended.
- When servicing is performed together by two or more persons, take care to perform all work safely.
- Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.
- Do not touch the rotating or hot parts while the engine is running.
- Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Only remove radiator cap when cool enough to touch with bare hands. Slowly loosen the cap to first stop to relieve pressure before removing completely.
- Escaping fluid (fuel or hydraulic oil) under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or fuel lines. Tighten all connections before applying pressure.

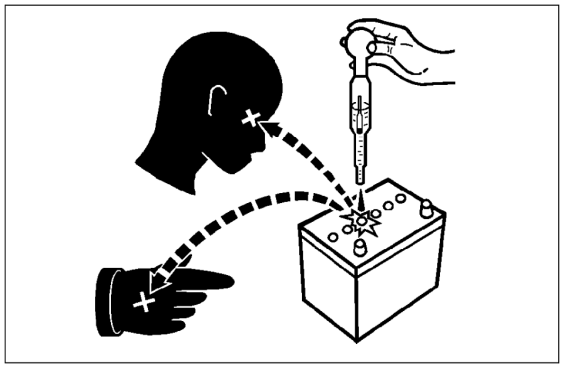


AVOID FIRES

- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.
- Mark 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.

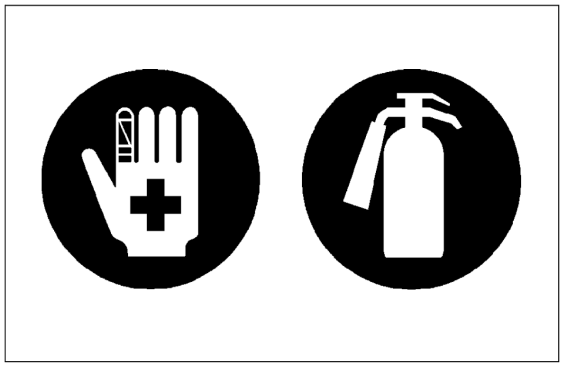


PREVENT ACID BURNS

- 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.



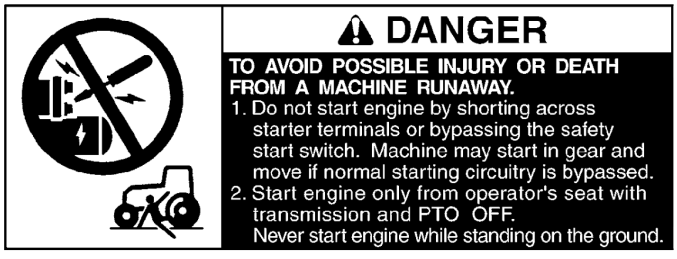
PREPARE FOR EMERGENCIES

- 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.

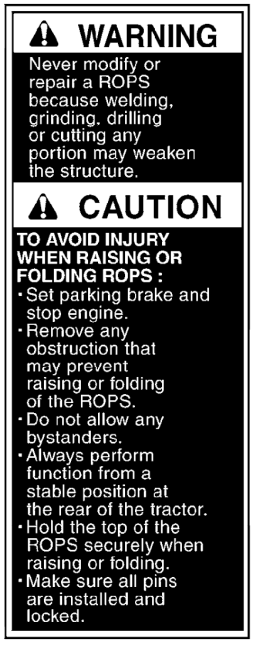
SAFETY DECALS

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

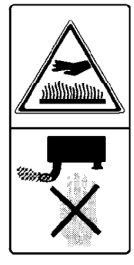


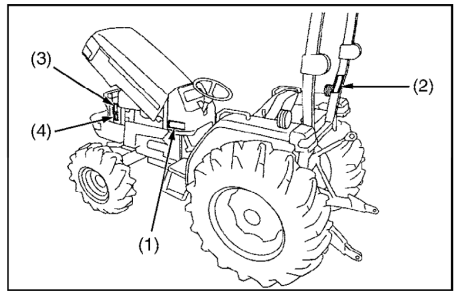
(2) Part No. 3A111-9554-1



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

(4) Part No. TC030-4958-1
Do not touch hot surface like muffler, etc.





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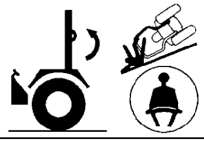
(1) Part No. 35260-3491-4

⚠ 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.

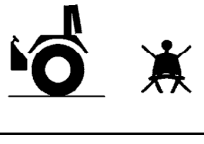
(2) Part No. TA240-9848-1



⚠ WARNING

TO AVOID INJURY OR DEATH FROM ROOL-OVER :

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



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

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

(3) Part No. TA040-4959-3

⚠ WARNING

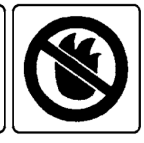
TO AVOID PERSONAL INJURY.

1. Keep PTO shield in place at all times.
2. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer.
3. For trailing PTO-driven implements, set drawbar at towing position. (see operator's manual)

(4) Part No. 32751-4958-1
Stay clear of engine fan and fanbelt.

(5) Part No. TA040-4956-1
Diesel fuel only

No fire

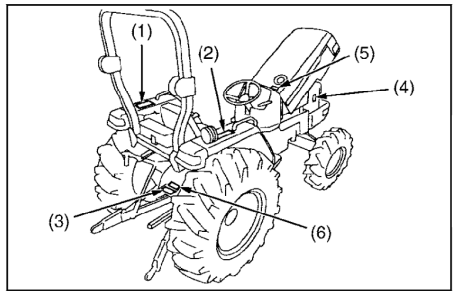


(6) Part No. TA040-4935-1

⚠ 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.



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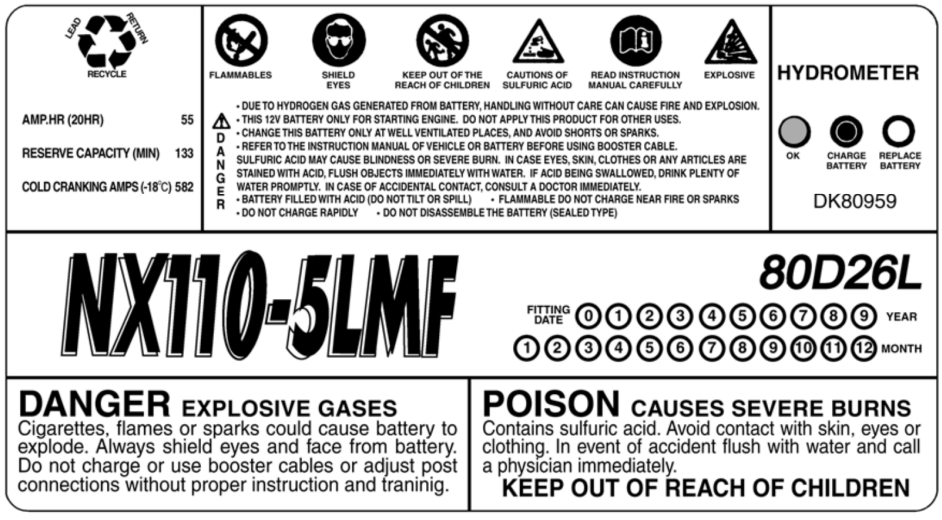
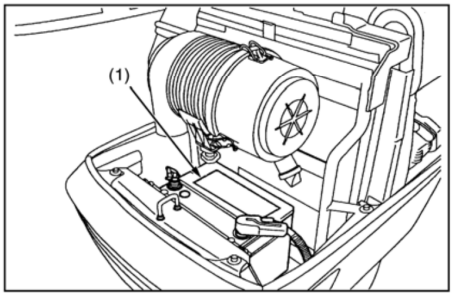
(1) Part No. TC030-3012-1





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 from your local KUBOTA Distributor.
4. If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

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SPECIFICATIONS

Model			MX5000	
			2WD	4WD
Engine	Model		V2403-M-EA / V2403-M-E2A	
	Type		E-TVCS Indirect injection, water-cooled diesel	
	No. of cylinders		4	
	Total displacement		2.434 L (148.5 cu.in.)	
	Bore and stroke		87 × 102.4 mm (3.4 × 4.0 in.)	
	Net power		37.3 kW (50 HP)*	
	PTO power (factory observed)		32.8 kW (44 HP)* / 2700 min^{-1} (rpm)	
	Maximum torque		162.7 N·m (120.0 ft-lbs)	
	Battery capacity		12 V, 55 Ah, CCA : 582 A	
	Fuel		Diesel fuel No. 1 [below –10 °C (14 °F)] Diesel fuel No. 2 [above –10 °C (14 °F)]	
Capacities	Fuel tank		50 L (13.2 U.S.gals.)	
	Engine crankcase (with filter)		7.6 L (8.0 U.S.qts.)	
	Engine coolant		7.5 L (7.9 U.S.qts.)	
	Transmission case		44.0 L (11.6 U.S.gals.)	
Dimensions	Overall length (without 3P)		3155 mm (124.2 in.)	3095 mm (121.9 in.)
	Overall width (min. tread)		1770 mm (69.7 in.)	
	Overall height (with ROPS)		2365 mm (93.1 in.)	
	Wheel base		1875 mm (73.8 in.)	1895 mm (74.6 in.)
	Min. ground clearance		405 mm (15.9 in.)	385 mm (15.2 in.)
	Tread	Front	1230 mm (48.4 in.), 1330 mm (52.4 in.) 1430 mm (56.3 in.), 1530 mm (60.2 in.)	1325 mm (52.2 in.)
		Rear	1375 mm (54.1 in.), 1490 mm (58.7 in.)	
Weight (with ROPS)			1490 kg (3285 lbs)	1614 kg (3560 lbs)
Travelling system	Standard tire size	Front	7.5L-15	9.5-16
		Rear	14.9-26	
	Clutch		Dry type single stage	
	Steering		Hydrostatic power steering	
	Transmission		Gear shift, 8 forward and 4 reverse	
	Braking system		Wet disk type	
	Min. turning radius (with brake)		2.6 m (8.5 feet)	2.7 m (8.9 feet)
Hydraulic unit	Hydraulic control system		Position control (standard), Draft (Option)	
	Pump capacity		34.9 L (9.2 U.S.gals.)	
	Three point hitch		SAE Category I & II	
	Max. lift force	At lift points	1300 kg (2870 lbs)	
		24 in. behind lift points	1050 kg (2310 lbs)	
	System pressure		17.1 MPa (175 kgf/cm^2)	
PTO	Rear PTO		SAE 1-3/8, 6 splines	
	PTO / Engine speed		540 / 2700 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			MX5000
Tire size (Rear)			14.9-26 / 13.6-28
	Range gear shift lever	Main gear shift lever	km/h (mph)
Forward	L	1	2.0 (1.2)
		2	2.9 (1.8)
		3	4.7 (2.9)
		4	6.9 (4.3)
	H	1	7.8 (4.8)
		2	11.0 (6.8)
		3	17.9 (11.1)
		4	26.4 (16.4)
Reverse	R	1	2.8 (1.7)
		2	3.9 (2.4)
		3	6.3 (3.9)
		4	9.3 (5.8)

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

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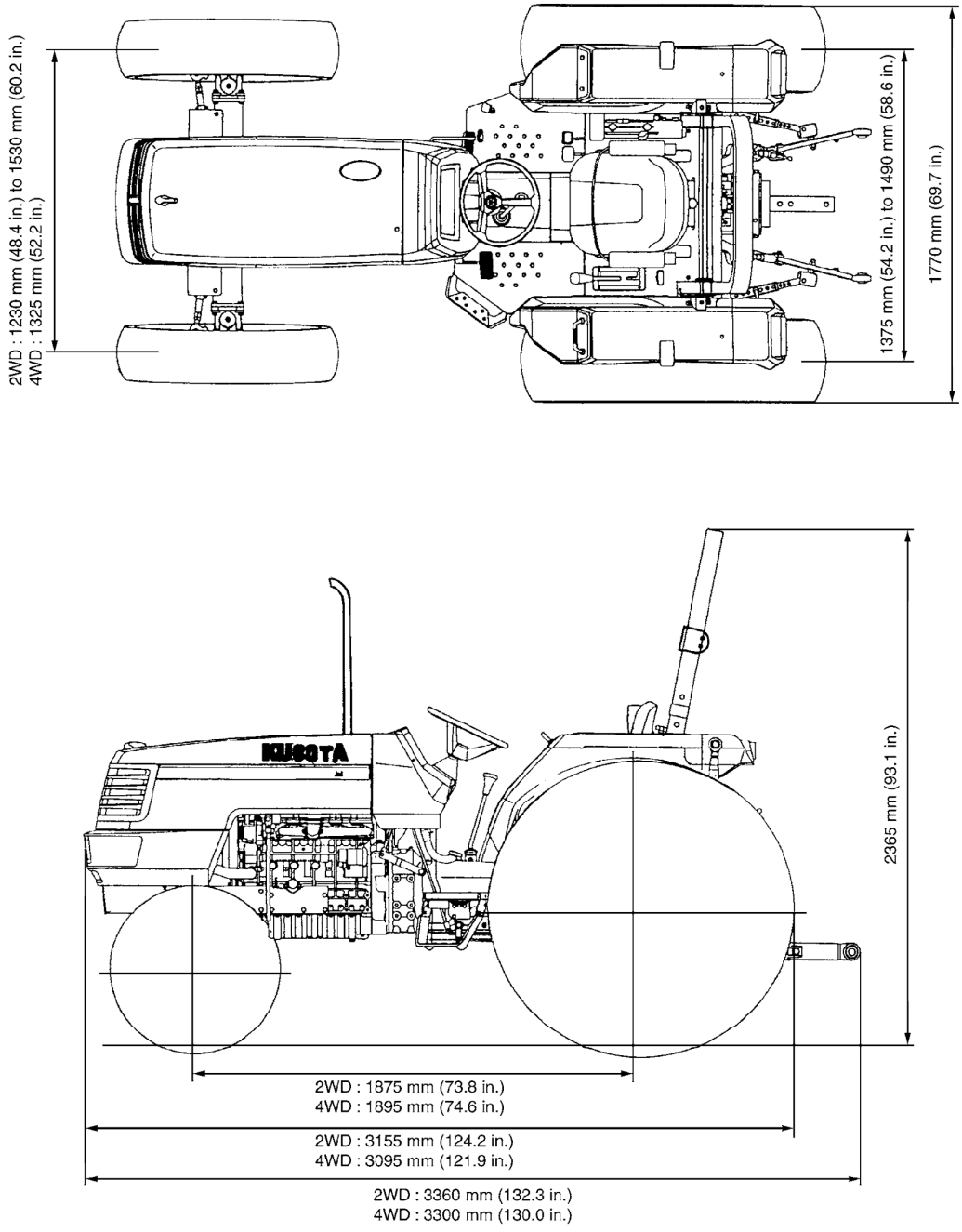
DIMENSIONS



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G GENERAL

GENERAL

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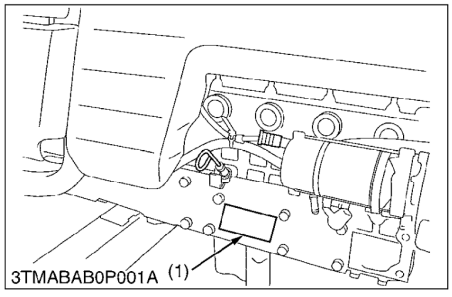
1. TRACTOR IDENTIFICATION

[1] MODEL NAME AND SERIAL NUMBER



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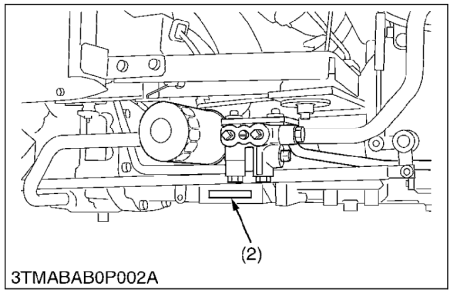

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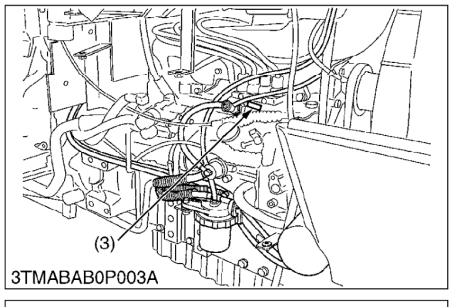

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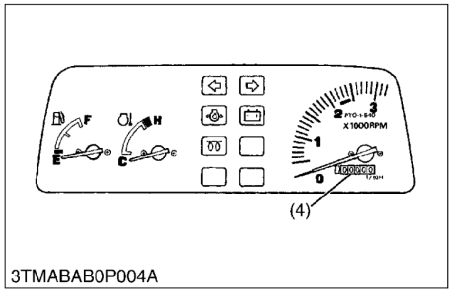

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When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number and hour meter reading.

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

W10106000

[2] E2 ENGINE

[ex.: Model Name V2403-M-**E2**-XXXX]

The emission controls that have been put into effect in various countries to prevent air pollution will be stepped up. The time to enforce the regulations differs depending on the engine output classifications.

Kubota has been supplying the diesel engines conforming to the emission regulations in respective countries. Exhaust emissions regulations shift to the second stage. Kubota executed the improvement of the engine according to this regulation.

In order to discriminate the engines conforming to Tier 1 / Phase 1 requirements and those conforming to Tier 2 / Phase 2 requirements, we have adopted E2B as a new model name for the engines conforming Tier 2 / Phase 2 regulations.

In the after-sale services for 03-M-E2 series engines, only use the dedicated parts for E2 models and carry out the maintenance services accordingly.

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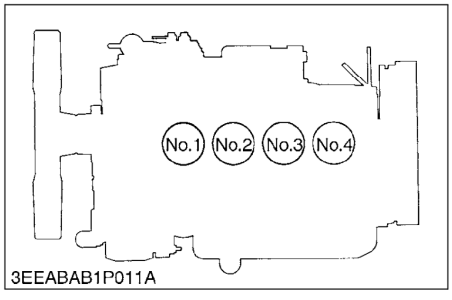
[3] CYLINDER NUMBER



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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.

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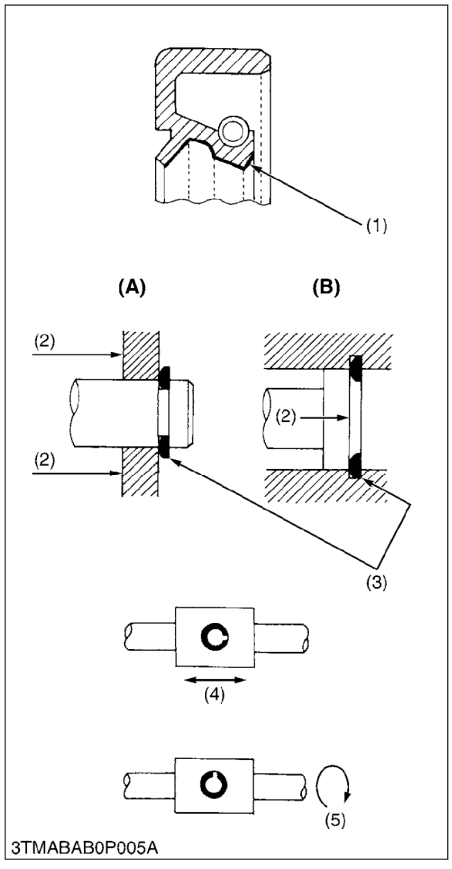
2. GENERAL PRECAUTIONS



- 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

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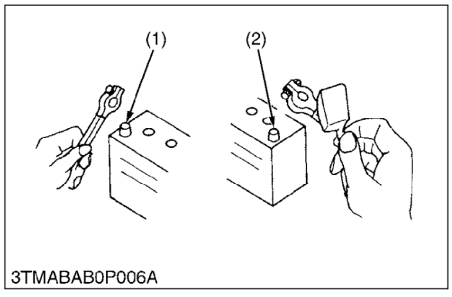
3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



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

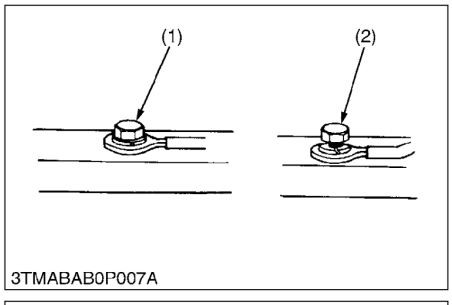
■ **IMPORTANT**

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

(1) Negative Terminal (2) Positive Terminal

W10111140

[1] WIRING

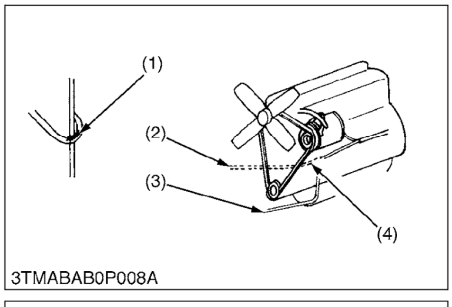


3TMABAB0P007A

- Securely tighten wiring terminals.

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

W10112160

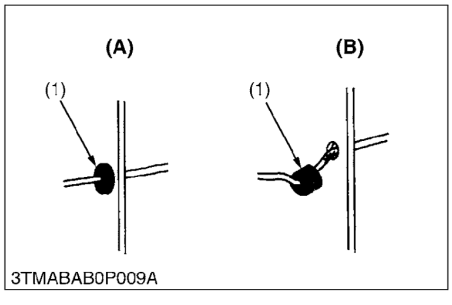


3TMABAB0P008A

- Do not let wiring contact dangerous part.

(1) Wiring (Correct) (3) Dangerous Part
(2) Wiring (Incorrect) (4) Dangerous Part

W10113130

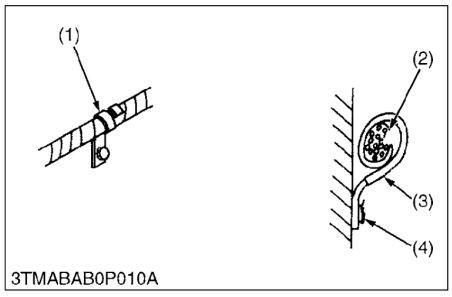


3TMABAB0P009A

- Securely insert grommet.

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

W10113880

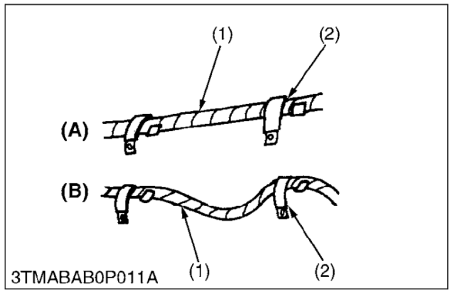


3TMABAB0P010A

- Securely clamp, being careful not to damage wiring.

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

W10114580

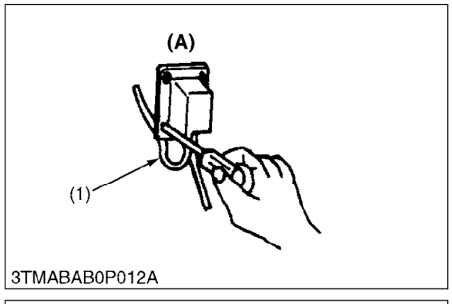


3TMABAB0P011A

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

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

W10115870

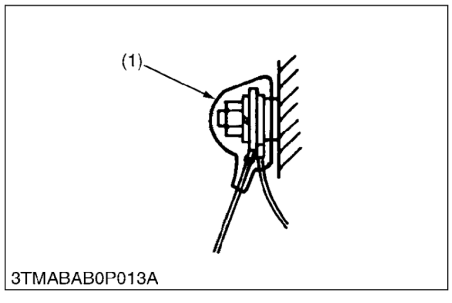


3TMABAB0P012A

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

(1) Wiring
(A) Incorrect

W10116700



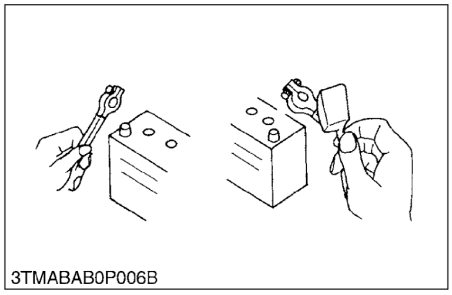
3TMABAB0P013A

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

(1) Cover
  • Securely Install Cover

W10117350

[2] BATTERY


3TMABAB0P006B

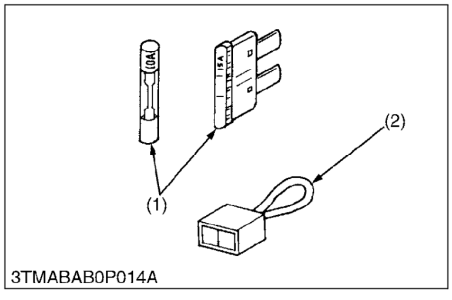
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting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



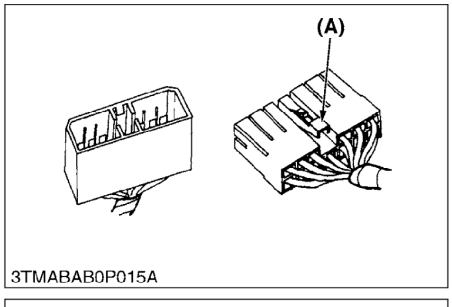
3TMABAB0P014A

- 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

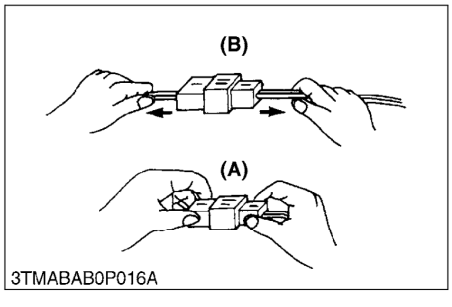


3TMABAB0P015A

- For connector with lock, push lock to separate.

(A) Push

W10122110

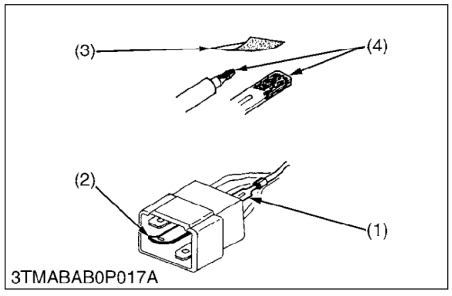


3TMABAB0P016A

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

(A) Correct **(B) Incorrect**

W10122720

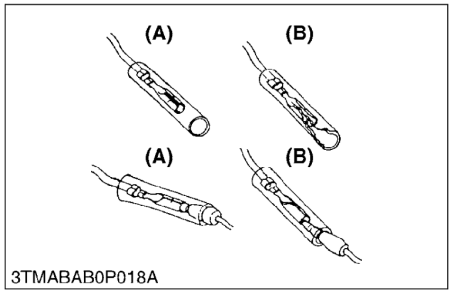


3TMABAB0P017A

- 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

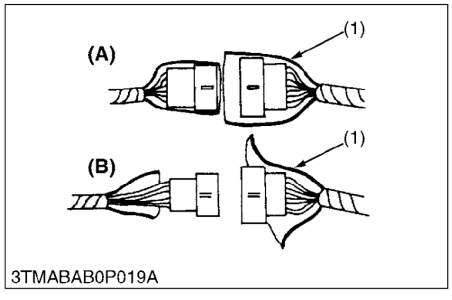


3TMABAB0P018A

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

(A) Correct
(B) Incorrect

W10124300



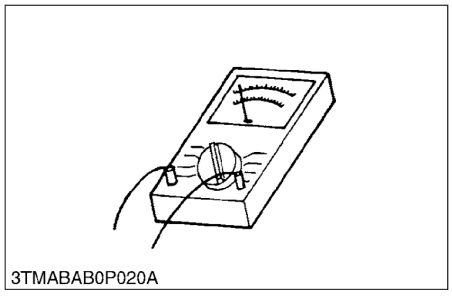
3TMABAB0P019A

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

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

W10125190

[5] HANDLING OF CIRCUIT TESTER


3TMABAB0P020A

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

W10126840

4. LUBRICANTS, FUEL AND COOLANT

	Place	Capacity	Lubricants, fuel and coolant
		MX5000	
1	Fuel tank	50 L 13.2 U.S.gals. 11.0 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	7.5 L 7.9 U.S.qts. 6.6 Imp.qts.	Fresh clean water with anti-freeze
3	Engine crankcase	7.6 L 8.0 U.S.qts. 6.7 Imp.qts.	Engine oil : API service CC or CD class 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	44 L 11.6 U.S.gals. 9.7 Imp.gals.	KUBOTA SUPER UDT fluid*
5	Front axle case (4WD)	7.0 L 7.9 U.S.qts. 6.6 Imp.qts.	KUBOTA SUPER UDT fluid* or SAE80, 90 gear oil

Greasing				
	Place	No. of greasing point	Capacity	Type of grease
6	Front wheel hub (2WD)	2	Until grease overflows	Multipurpose type grease
	Knuckle shaft (2WD)	2		
	Front axle support (4WD)	2		
	Top link	1		
	Top link bracket (if equipped)	2 (with draft control)		
	Power steering cylinder	2		
	Battery terminal	2	Moderate amount	

* KUBOTA original transmission hydraulic fluid.

5. TIGHTENING TORQUES

Screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual should be tightened according to tables below.

[1] GENERAL USE SCREWS, BOLTS AND NUTS

Indication on top of bolt	⬡ 4 No-grade or 4T						⬡ 7 7T						⬡ 9 9T		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit / Diameter	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
M6 (6 mm, 0.24 in.)	7.85 to 9.31	0.80 to 0.95	5.79 to 6.87	7.85 to 8.82	0.80 to 0.90	5.79 to 6.50	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.85 to 8.82	0.80 to 0.90	5.79 to 6.50	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8 (8 mm, 0.31 in.)	17.7 to 20.5	1.8 to 2.1	13.1 to 15.1	16.7 to 19.6	1.7 to 2.0	12.3 to 14.4	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2	17.7 to 20.5	1.8 to 2.1	13.1 to 15.1	29.5 to 34.3	3.0 to 3.5	21.7 to 25.3
M10 (10 mm, 0.39 in.)	39.3 to 45.1	4.0 to 4.6	29.0 to 33.2	31.4 to 34.3	3.2 to 3.5	23.2 to 25.3	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2	39.3 to 44.1	4.0 to 4.5	29.0 to 32.5	60.9 to 70.6	6.2 to 7.2	44.9 to 52.0
M12 (12 mm, 0.47 in.)	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	–	–	–	77.5 to 90.2	7.9 to 9.2	57.2 to 66.5	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	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

W10345420

6. MAINTENANCE

No.	Item		Period	Service Time Interval										Important		Reference page
				50	100	200	400	600	800	1500	3000	1 year	2 years			
1	Engine oil		Change	★	☆											G-12
2	Engine oil filter cartridge		Replace	★		☆										G-12
3	Hydraulic oil filter cartridge		Replace	★		☆										G-14
4	Transmission fluid		Change	★			☆									G-13
5	Front axle case oil		Change	★			☆									G-14
6	Front axle pivot		Adjust					☆								G-24
7	Greasing		–	☆												G-15
8	Engine start system		Check	☆												G-16, 17
9	Wheel bolt torque		Check	☆												G-17
10	Battery condition		Check		☆											G-18
11	Air cleaner element [Double type]	Primary element	Clean		☆									*	@	G-19
			Replace									☆		**		G-26
		Secondary element	Replace									☆				G-26
12	Fuel filter element		Clean		☆										@	G-19
			Replace				☆									G-24
13	Fan belt		Adjust		☆											G-20
14	Clutch		Adjust		☆											G-20
15	Brake		Adjust	★	☆											G-20
16	Radiator hose and clamp		Check			☆										G-22
			Replace										☆			G-26
17	Power steering oil line		Check			☆										G-22
			Replace										☆			G-26
18	Fuel line		Check		☆										@	G-21
			Replace										☆	***		G-26
19	Toe-in		Adjust			☆										G-23
20	Intake air line		Check			☆									@	G-23
			Replace										☆	***		G-26
21	Greasing (2WD front wheel hub)		–				☆									G-24
22	Engine valve clearance		Adjust						☆							G-25
23	Fuel injection nozzle injection pressure		Check							☆					@	G-26
24	Injection pump		Check								☆				@	G-26
25	Cooling system		Flush										☆			G-27
26	Coolant		Change										☆			G-27
27	Fuel system		Bleed	Service as required												G-29
28	Clutch housing water		Drain													G-29
29	Fuse		Replace													G-29
30	Light bulb		Replace													G-30

■ IMPORTANT

- **The jobs indicated by ★ must be done after the first 50 hours of operation.**
- *** : Air cleaner should be cleaned more often in dusty conditions than in normal conditions.**
- **** : Every year or every 6 times of cleaning.**
- ***** : Replace only if necessary.**
- **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.

W10357690

7. CHECK AND MAINTENANCE

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 tractor.

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. Check the number plate.
10. Care of danger, warning and caution labels.
11. Clean around the exhaust manifold and the muffler of the engine.

- 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.

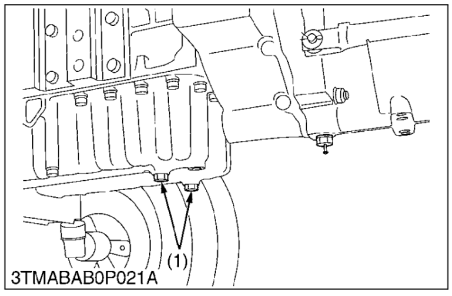
- Turning the key switch.

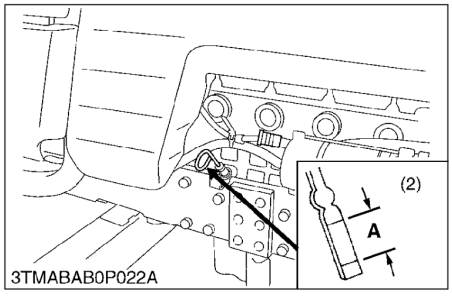
1. Check the performance of the easy checker lights.
2. Check the lights, turn signal lights, hazard lights and other light equipment. Clean if necessary.
3. Check the performance of the meters and gauges.

- 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.

[2] CHECK POINTS OF INITIAL 50 HOURS





Changing Engine Oil

CAUTION

- **Before changing oil, be sure to stop the engine.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

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 both drain plugs (1) at the bottom of the engine and drain the oil completely.
4. Screw in the both drain plugs (1).
5. Fill new oil up to upper line on the dipstick (2).

■ IMPORTANT

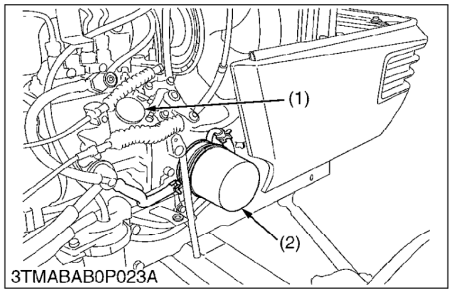
- **When using an oil of different manufacture or viscosity from the previous one, remove all of the old oil.**
- **Never mix two different types of oil.**
- **Use the proper SAE Engine Oil according to ambient temperatures.**
- **Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-8.)**

Engine oil capacity	7.6 L 8.0 U.S.qts. 6.7 Imp.qts.

(1) Drain Plug
(2) Dipstick

A : Oil level is acceptable within this range.

W10145330



Replacing Engine Oil Filter Cartridge

CAUTION

- **Be sure to stop the engine before changing oil filter cartridge.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

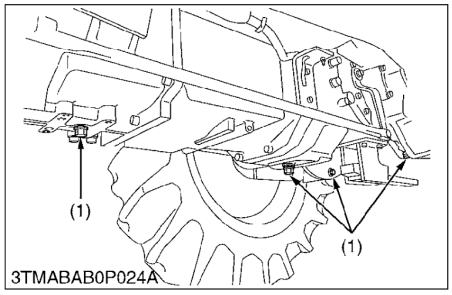
1. Remove the oil filter cartridge with the filter wrench.
2. Apply a slight coat of oil onto the new cartridge gasket.
3. To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
4. After the new cartridge has been replaced, the engine oil normally decrease a little. Thus see that the engine oil does not leak through the seal and be sure to read the oil level on the dipstick. Then, replenish the engine oil up to the specified level.

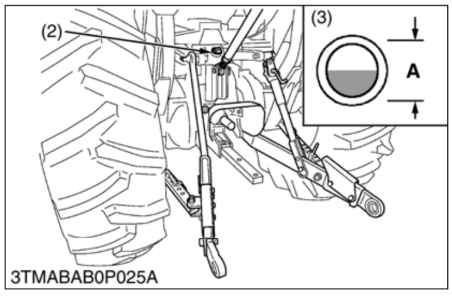
■ IMPORTANT

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

(1) Oil Inlet
(2) Engine Oil Filter Cartridge

W10148920





Changing Transmission Fluid

CAUTION

- **Be sure to stop the engine checking and changing the transmission fluid.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Place an oil pan under the tractor.
2. Remove the drain plugs (1) at the bottom of the transmission case.
3. Drain the transmission fluid.
4. After draining, screw in the drain plugs.
5. Fill new oil from filling port after removing the filling plug (2) up to the line of the gauge (3).
6. After running the engine for a few minutes, stop it and check the oil level again, if low, add oil prescribed level.

■ IMPORTANT

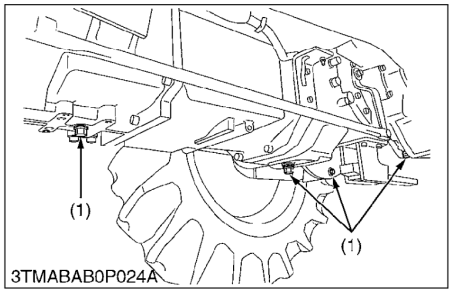
- **Use only multi-grade transmission oil. Use of other oils may damage the transmission or hydraulic system.**
  Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-8.)
- **Never work the tractor immediately after changing the transmission oil. Keeping the engine at medium speed for a few minutes to prevents damage to the transmission.**
- **Do not mix different brands of fluid together.**

Transmission fluid capacity	44 L 11.6 U.S.gals. 9.7 Imp.gals.

(1) Drain Plug
(2) Filling Plug
(3) Gauge

A : Oil level is acceptable within this range.

W10150550



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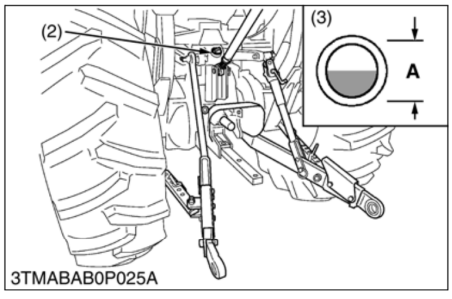

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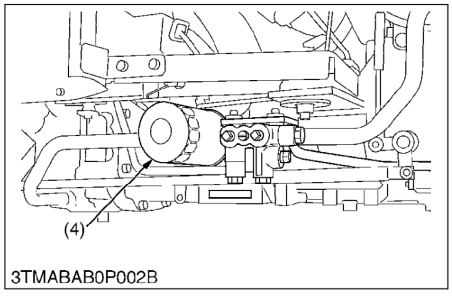
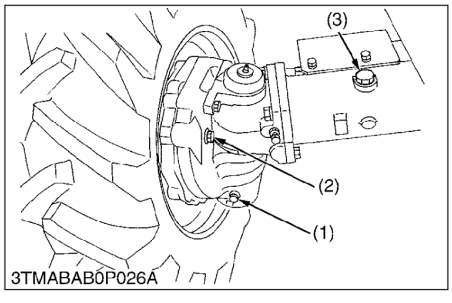


3TMABAB0P002B



3TMABAB0P026A

Replacing Hydraulic Oil Filter Cartridge

CAUTION

- **Be sure to stop the engine before changing the oil filters.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Place an oil pan under the tractor.
2. Remove the drain plugs (1) at the bottom of the transmission case.
3. Drain the transmission fluid.
4. After draining, screw in the drain plugs.
5. Remove the oil filter cartridge (4) by using a filter wrench.
6. Make sure the mounting surface is clean.
   Put a film of clean transmission fluid on the rubber seal of the new filter.
7. Install the new filter cartridge.
8. Quickly tighten the filter until it contacts the mounting surface, then tighten it by hand an additional 1/2 turn only.
9. After the new filter have been replace, fill with oil up to the upper line of the gauge (3).
10. After running the engine for a few minutes, stop it and recheck the oil level, add oil to the prescribed level.
11. Make sure that the transmission fluid doesn't leak through the seal of the filter.

■ **IMPORTANT**

- **To prevent serious damage to the hydraulic system. Use only a genuine KUBOTA filter or its equivalents.**

(1) Drain Plug
(2) Filling Plug
(3) Gauge
(4) Hydraulic Oil Filter

W10155860

Changing Front Axle Case Oil [4WD Type]

1. Place the oil pans underneath the front axle case.
2. Remove the drain plug (1) both sides and filling port plug (3) to drain the oil.
3. After draining, reinstall the drain plug.
4. Remove the oil level check plug (2).
5. Fill with the new oil up to the check plug (2) port.
6. After filling, reinstall the check plug (2) and filling port plug.

■ **IMPORTANT**

- **Use KUBOTA SUPER UDT fluid or SAE 80, 90 gear oil. Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-8.)**

Front axle case oil capacity	7.5 L 7.9 U.S.qts. 6.6 Imp.qts.

(1) Drain Plug
(2) Check Plug
(3) Filling Port Plug

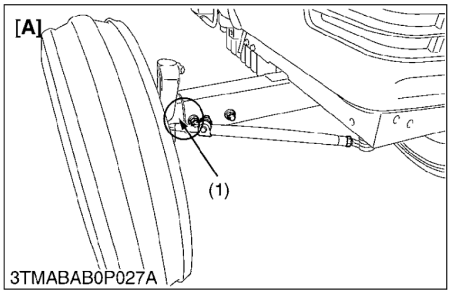
W10300640

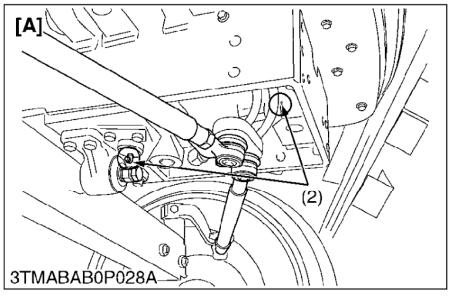
Adjusting Brake Pedal Free Travel

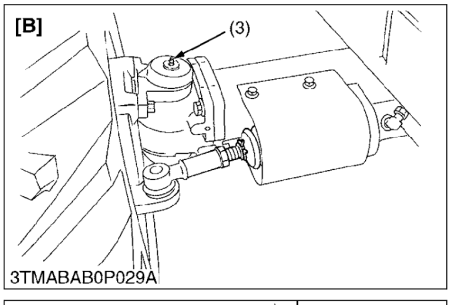
1. Refer to page G-20.

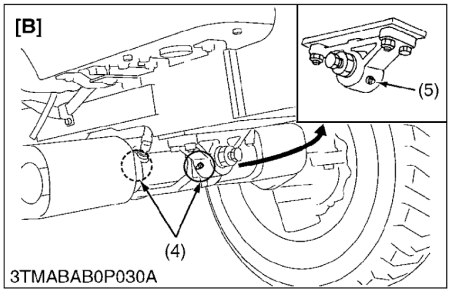
W10293350

[3] CHECK POINTS OF EVERY 50 HOURS







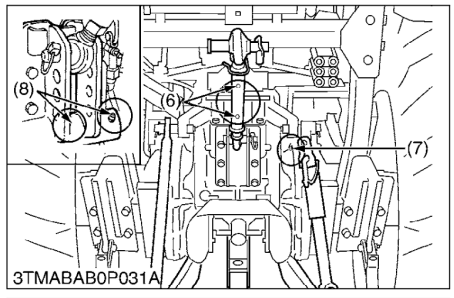


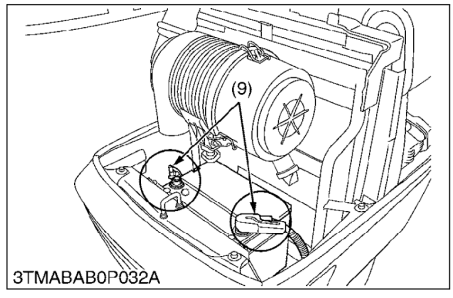
Greasing

1. Apply a grease to the following position as figures.

■ **NOTE**

- **When apply a grease to the front axle support F (3), remove the breather plug (4) and apply a grease until grease overflows from breather plug. After greasing reinstall the plug (4).**

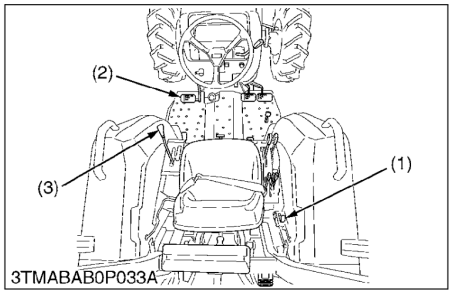




(1) Grease Fitting (Knuckle Shaft)
(2) Grease Fitting (Power Steering Cylinder)
(3) Grease Fitting (Front Wheel Case Support RH, LH)
(4) Grease Fitting (Front Axle Support)
(5) Breather Plug
(6) Grease Fitting (Top Link)
(7) Grease Fitting (Lifting Rod RH)
(8) Grease Fitting (Toplink bracket, if equipped with draft control)
(9) Battery Terminal

[A] 2WD Type
[B] 4WD Type

W10308650



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.**

DANGER

■ **Preparation before testing.**

1. Place all control levers in the **"NEUTRAL"** position.
2. Set the parking brake and stop the engine.

■ **Test 1 : Switch for the PTO clutch control lever.**

1. Sit on operator's seat.
2. Engage the PTO clutch control lever.
3. Depress the clutch pedal fully.
4. Shift the range gear shift lever to the neutral position.
5. Turn the key to **"START"** position.
6. The engine must not crank.

■ **Test 2 : Switch for the shuttle shift lever.**

1. Sit on operator's seat.
2. Disengage the PTO clutch control lever.
3. Depress the clutch pedal fully.
4. Shift the range gear shift lever to the desired position.
5. Turn the key to **"START"** position.
6. The engine must not crank.

■ **If crank any test of the above, adjust or replace the required safety switch.**

- Test 1

1. Disengage the PTO clutch control lever.
2. Turn the key to **"START"** position.
3. The engine should crank.

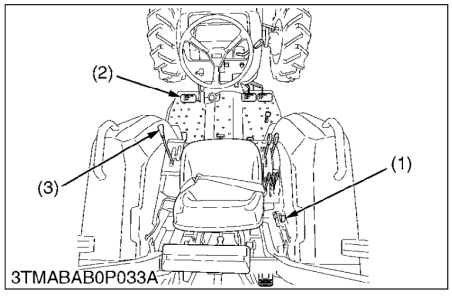
- Test 2

1. Shift the range gear shift lever to the neutral position.
2. Turn the key to **"START"** position.
3. The engine should crank.

■ **If it does not crank during step 3 of Test 1 or Test 2, adjust or replace the required safety switch.**

(1) PTO Clutch Control Lever
(2) Clutch Pedal
(3) Range Gear Shift Lever

W10312010



Checking Engine Start System (OPC Type)

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 operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the range gear shift lever to "NEUTRAL" position.
4. Shift the PTO clutch control lever to "OFF" position.
5. Fully depress the clutch pedal.

■ **Test 1:**

1. Fully depress the clutch pedal.
2. Shift the range gear shift lever to "Desired" position.
3. Turn the key to "START" position.
4. The engine must not crank.

■ **Test 2:**

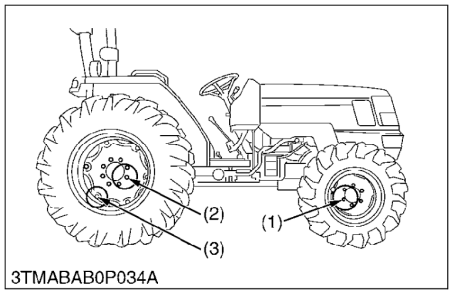
1. Fully depress the clutch pedal.
2. Shift the range gear shift lever to "NEUTRAL" position.
3. Shift the PTO clutch control lever to "ON" position.
4. Turn the key to "START" position.
5. The engine must not crank.

■ **Test 3:**

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

(1) PTO Clutch Control Lever
(2) Clutch Pedal
(3) Range Gear Shift Lever

W1050338



Checking Wheel Mounting Screws and Nuts Tightening Torque

CAUTION

- **Never operate tractor with a loose rim, wheel, or axle.**

1. Check the tightening torque of wheel mounting screws and nuts all.

Tightening torque	Front wheel mounting nuts (2WD)	137 N·m 14 kgf·m 100 ft-lbs
	Front wheel mounting nuts (4WD)	172 N·m 17 kgf·m 123 ft-lbs
	Rear wheel mounting screws and nuts	215 N·m 22 kgf·m 160 ft-lbs

(1) Front Wheel Mounting Nuts
(2) Rear Wheel Mounting Screws and Nuts
(3) Rear Wheel Rim Mounting Bolts and Nuts

W10309990