TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA Tractors B1700, B2100 and B2400. It is divided into two parts, "Mechanism" and "Servicing" for each section.

■ **Mechanism**

Information on the construction and function are included. This part should be understood before proceeding with troubleshooting, disassembling and servicing.

■ **Servicing**

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

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

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

March '95

⚠ SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and decals 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.

SAFETY SERVICING AND REPAIRING

(1) Before working on the machine :
- Park the machine on a firm and level ground, and set the parking brake.
- Lower the implement or mower to the ground.
- Stop the engine, and remove the key.
- Disconnect the battery's ground cable.
- Clean the work area and machine.

(2) Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
(3) Do not wear a necktie, scarf, necklace, loose or bulky clothing when you work near machine tools or moving parts.
(4) Use tools appropriate to the work. Makeshift tools, parts, and procedures will not make good repairs.
(5) When servicing is performed together by two or more persons, take care to perform all work safely.
(6) Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.

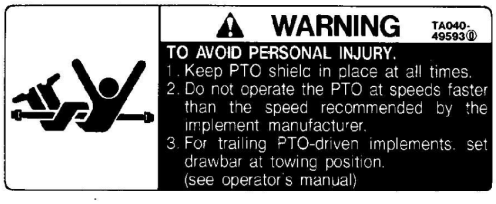
(7) If the engine must be running to do same work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.
(8) Do not touch the rotating or hot parts while the engine is running.
(9) Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
(10) To avoid sparks from an accidental short circuit, always disconnect the battery's ground cable first and connect it last.
(11) 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.
(12) Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.
(13) Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Wait for more than ten minutes to cool the radiator, before removing the cap.
(14) 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.
(15) Do not start the engine by shorting across starter terminals.
(16) Unauthorized modifications to the machine may impair the function and / or safety and affect machine life.
(17) Do not alter or remove any part of machine safety system.
(18) Keep a first aid kit and fire extinguisher handy at all times.
(19) Be sure to chock the wheels to prevent accident during servicing the machine.

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.

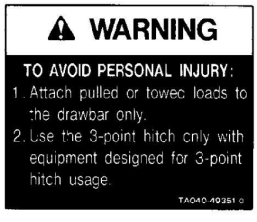
(1) Part No. TA040-4965-2

(2) Part No. TA040-4959-3



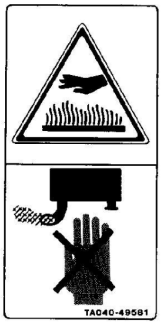
(3) Part No. 6C040-4741-1
No fire

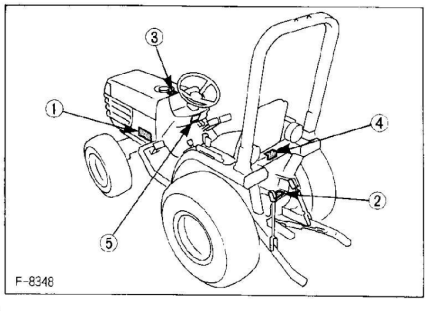
(4) Part No. TA040-4935-1

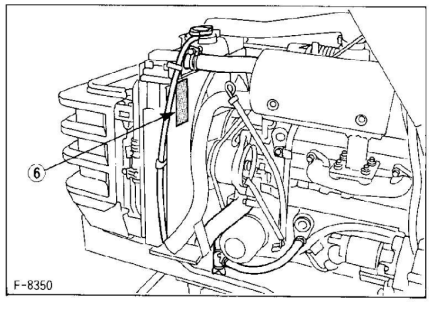


(5) Part No. 6C050-4724-1
【HST type】

(6) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.







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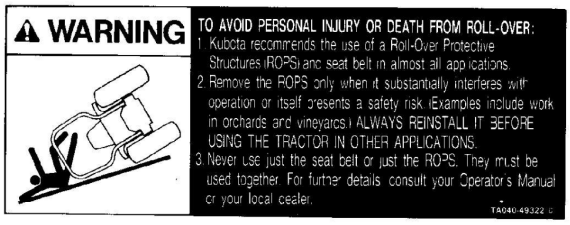
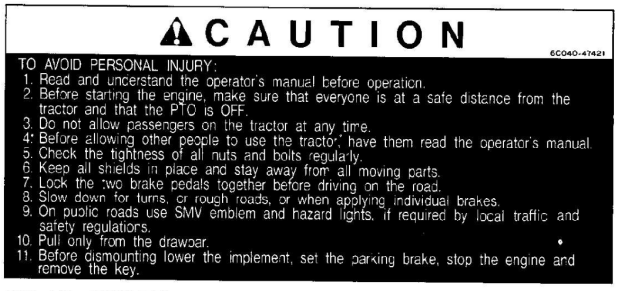
(7) Part No. TA040-4932-2

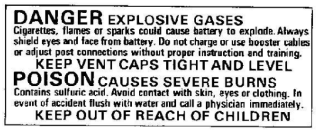


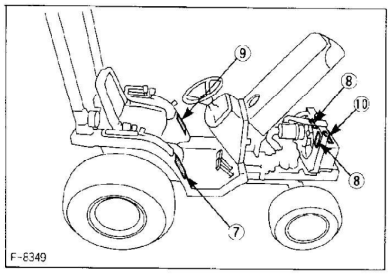
(8) Part No. 32751-4958-1
Stay clear of engine fan and fanbelt.

(9) Part No. 6C040-4742-1



(10) Part No. 6C040-5559-1





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 dealer.
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			B1700 HSD	B2100 HSD	B2400 HSD
PTO power			9.7 kW (13.0 HP)*	12.0 kW (16.0 HP)*	13.4 kW (18.0 HP)*
Engine	Maker		KUBOTA		
	Model		D905-D10	D1005-D10	D1105-D10
	Type		Indirect Injection. Vertical, water-cooled, 4-cycle diesel		
	Number of cylinders		3		
	Bore and stroke		72 x 73.6 mm (2.83 x 2.90 in.)	76 x 73.6 mm (2.99 x 2.90 in.)	78 x 78.4 mm (3.07 x 3.09 in.)
	Total displacement		898 cm³ (54.8 cu.in.)	1001 cm³ (61.1 cu.in.)	1123 cm³ (68.5 cu.in.)
	Engine gross power		12.7 kW (17.0 HP)	15.7 kW (21.0 HP)	17.9 kW (24.0 HP)
	Rated revolution		43.3 r/s (2600 rpm)		
	Maximum torque		51 N·m (38 ft-lbs)	59 N·m (44 ft-lbs)	67 N·m (50 ft-lbs)
	Battery		12V, RC : 71 min, CCA : 390 A (12V, RC : 79 min, CCA : 433A)		
	Starting system		Electric starting with cell starter 12V, 1.0 kW		
	Lubricating system		Forced lubrication by trochoidal pump		
	Cooling system		Pressurized radiator, forced circulation with water pump		
	Fuel		Diesel fuel No.2-D [above-10°C (14°F)], Diesel fuel No. 1 [below-10°C (14°F)]		
Capacities	Fuel tank		24 ℓ (6.3 U.S.gals, 5.3 Imp.gal)		
	Engine crankcase (with filter)		3.0 ℓ (3.2 U.S.qts, 2.6 Imp.qts)		
	Engine coolant		3.4 ℓ (3.6 U.S.qts, 2.6 Imp.qts)		
	Transmission case		12.0 ℓ (3.17 U.S.gals, 12.4 Imp.gals)		
	Front axle case		3.7 ℓ (3.9 U.S.qts, 3.3 Imp.qts)		
Dimensions	Overall length (without 3P)		2280 mm (89.8 in.)	2300 mm (90.6 in.)	2330 mm (91.7 in.)
	Overall width (min. tread)		989 mm (38.9 in.)	1077 mm (42.4 in.)	1175 mm (46.3 in.)
	Overall height (with ROPS)		1915 mm (75.4 in.)	1940 mm (76.4 in.)	1965 mm (77.4 in.)
	Overall height (top of seat)		1293 mm (50.9 in.)	1318 mm (51.9 in.)	1343 mm (52.9 in.)
	Wheelbase		1500 mm (59.0 in.)		
	Min. ground clearance		295 mm (11.6 in.)	305 mm (12.0 in.)	325 mm (12.8 in.)
	Treads	Front	835 mm (32.9 in.)	835 mm (32.9 in.)	835 mm (32.9 in.)
		Rear	778 to 948 mm (30.6 to 37.3 in.)	836 to 1006 mm (32.9 to 39.6 in.)	890 to 1064 mm (35.0 to 41.9 in.)
Weight (with ROPS)			635 kg (1402 lbs)	647 kg (1428 lbs)	662 kg (1461 lbs)
Clutch			Dry single plate		
Traveling system	Tires	Front	6-12	6-12	7-12
		Rear	8.3-16	9.5-16	11.2-16
	Steering		Integral type power steering		
	Transmission		Main-hydrostatic transmission, High-Low gear shift (2 forward, 2 reverse)		
	Brake		Wet disk		
	Min. turning radius (with brake)		2.1 m (6.9 feet)		
Hydraulic system	Hydraulic control system		Position Control		
	Pump capacity		22 ℓ/min (5.8 gals/min)		
	Three point hitch		SAE Category I		
	Max. lift force	At lift points	580 kg (1280 lbs)		
		24 in. behind lift points	460 kg (1015 lbs)		
PTO shaft	Rear-PTO		SAE 1-3/8, 6 splines		
	Revolution		543 rpm at 2600 engine rpm		
	Mid-PTO		USA No. 5 (KUBOTA 10-tooth) involute spline		
	Revolution		2537 rpm at 2600 engine rpm		

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

Model			B1700 D	B2100 D
PTO power			10.7 kW (14.0 HP)*	12.7 kW (17.0 HP)*
Engine	Maker		KUBOTA	
	Model		D905-D10	D1005-D10
	Type		Indirect Injection. Vertical, water-cooled, 4-cycle diesel	
	Number of cylinders		3	
	Bore and stroke		72 x 73.6 mm (2.83 x 2.90 in.)	76 x 73.6 mm (2.99 x 2.90 in.)
	Total displacement		898 cm³ (54.8 cu.in.)	1001 cm³ (61.1 cu.in.)
	Engine gross power		12.7 kW (17.0 HP)	15.7 kW (21.0 HP)
	Rated revolution		43.3 r/s (2600 rpm)	
	Maximum torque		51 N·m (38 ft-lbs)	59 N·m (44 ft-lbs)
	Battery		12V, RC : 71 min, CCA : 390 A (12V, RC : 79 min, CCA : 433A)	
	Starting system		Electric starting with cell starter 12V, 1.0 kW	
	Lubricating system		Forced lubrication by trochoidal pump	
	Cooling system		Pressurized radiator, forced circulation with water pump	
	Fuel		Diesel fuel No.2-D [above-10°C (14°F)], Diesel fuel No. 1 [below-10°C (14°F)]	
Capacities	Fuel tank		24 ℓ (6.3 U.S.gals, 5.3 Imp.gal)	
	Engine crankcase (with filter)		3.0 ℓ (3.2 U.S.qts, 2.6 Imp.qts)	
	Engine coolant		3.4 ℓ (3.6 U.S.qts, 2.6 Imp.qts)	
	Transmission case		11.0 ℓ (2.90 U.S.gals, 2.4 Imp.gals)	
	Front axle case		3.7 ℓ (3.9 U.S.qts, 3.3 Imp.qts)	
Dimensions	Overall length (without 3P)		2280 mm (89.8 in.)	2300 mm (90.6 in.)
	Overall width (min. tread)		989 mm (38.9 in.)	1077 mm (42.4 in.)
	Overall height (with ROPS)		1915 mm (75.4 in.)	1940 mm (76.4 in.)
	Overall height (top of seat)		1293 mm (50.9 in.)	1318 mm (51.9 in.)
	Wheelbase		1500 mm (59.0 in.)	
	Min. ground clearance		295 mm (11.6 in.)	305 mm (12.0 in.)
	Treads	Front	835 mm (32.9 in.)	835 mm (32.9 in.)
		Rear	778 to 948 mm (30.6 to 37.3 in.)	836 to 1006 mm (32.9 to 39.6 in.)
Weight (with ROPS)			625 kg (1380 lbs)	637 kg (1406 lbs)
Clutch			Dry single plate	
Traveling system	Tires	Front	6-12	6-12
		Rear	8.3-16	9.5-16
	Steering		Integral type power steering	
	Transmission		Gear shift, 6 forward, 6 reverse	
	Brake		Wet disk	
	Min. turning radius (with brake)		2.1 m (6.9 feet)	
Hydraulic system	Hydraulic control system		Position Control	
	Pump capacity		22 ℓ/min (5.8 gals/min)	
	Three point hitch		SAE Category I	
	Max. lift force	At lift points	580 kg (1280 lbs)	
		24 in. behind lift points	460 kg (1015 lbs)	
PTO shaft	Rear-PTO		SAE 1-3/8, 6 splines	
	Revolution		540 rpm at 2600 engine rpm	
	Mid-PTO		USA No. 5 (KUBOTA 10-tooth) involute spline	
	Revolution		2531 rpm at 2600 engine rpm	

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

TRAVELING SPEEDS

[HST Type]

(At rated engine rpm)

Model		B1700		B2100		B2400	
Tire size (Rear)		8.3-16		9.5-16		11.2-16	
	Hi-Lo gear shift lever	km/h	mph	km/h	mph	km/h	mph
Forward	Low	0 to 5.0	0 to 3.1	0 to 5.3	0 to 3.3	0 to 5.6	0 to 3.5
	High	0 to 12.3	0 to 7.7	0 to 13.2	0 to 8.2	0 to 13.9	0 to 8.7
Reverse	Low	0 to 5.0	0 to 3.1	0 to 5.3	0 to 3.3	0 to 5.6	0 to 3.5
	High	0 to 12.3	0 to 7.7	0 to 13.2	0 to 8.2	0 to 13.9	0 to 8.7

[Manual Transmission Type]

(At rated engine rpm)

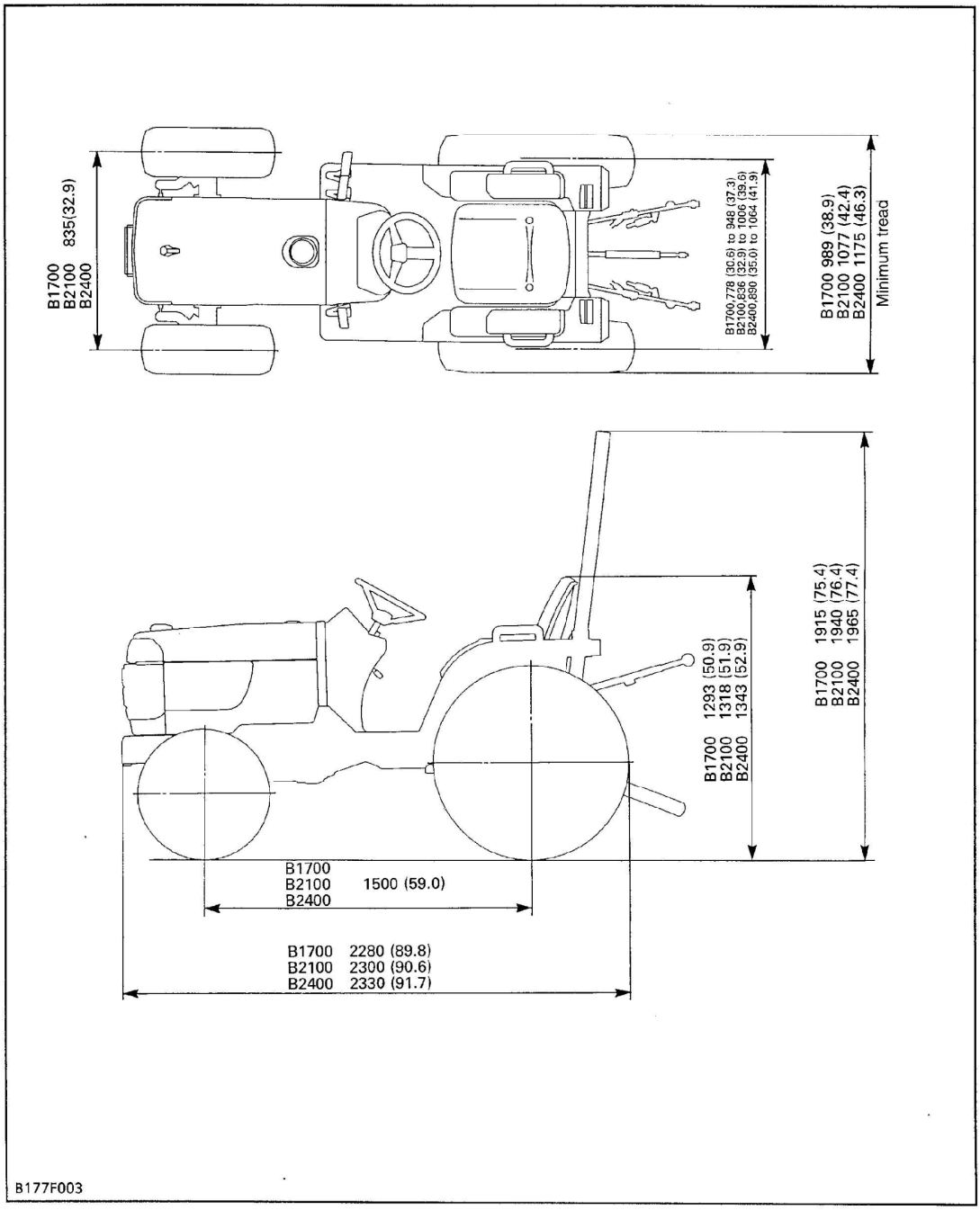
Model				B1700		B2100	
Tire size (Rear)				8.3-16		9.5-16	
		Hi-Lo gear shift lever	Main gear shift lever	km/h	mph	km/h	mph
Forward	1	Low	1	1.0	0.6	1.0	0.6
	2		2	1.7	1.1	1.8	1.1
	3		3	3.1	1.9	3.3	2.1
	4	High	1	4.1	2.6	4.4	2.8
	5		2	7.3	4.6	7.8	4.9
	6		3	13.2	8.3	14.1	8.8
Reverse	1	Low	R	1.2	0.8	1.3	0.8
	2	High	R	5.2	3.2	5.5	3.5

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

DIMENSION

Maximum dimension is shown against farm tire variation.

Unit: mm (in.)



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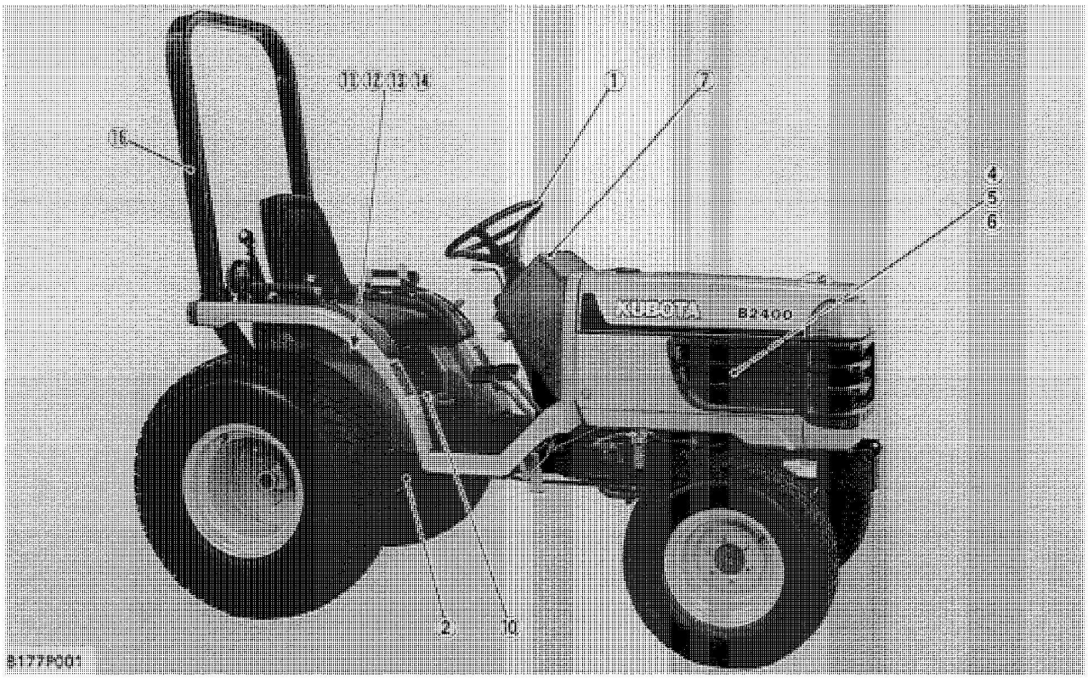
G GENERAL

G GENERAL

CONTENTS

[1] FEATURES



(1) Integral Power Steering

(2) Standard Mid PTO

(3) Simultaneous Mounting of Both the Mid Mount Mower and Front Loader

(Loader is fully-compatible with the mower)

(4) E-TVCS Diesel Engine

(5) Engine Key Shut-Off System

(Engine key switch)

(6) Large Hydraulic Pump

(7) Combination Panel of Easy Checker

(Indicators for charging system, engine oil pressure, glow plug indicator and hazard light indicator. And fuel gauge and coolant temperature gauge)

(8) Main Shift Lever Located in the Right Side of Transmission

(9) New Design

(10) Variation of Transmission

(Manual Transmission and Hydrostatic Transmission)

(11) Wet Disc Brake

(12) Position Control Valve

(13) Hydraulic Block Type Outlet

(Outlet has the delivery pipe for 3 point hitch)

(14) Hydraulic Block Type Outlet

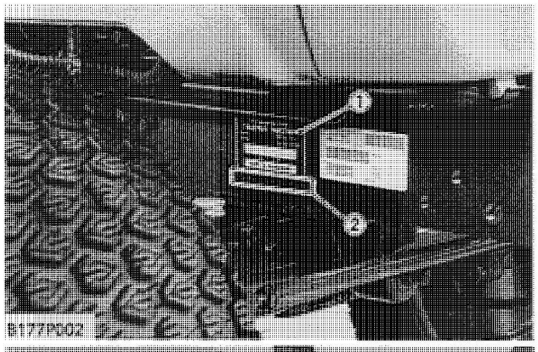
(Outlet has the right hand side of hydraulic cylinder)

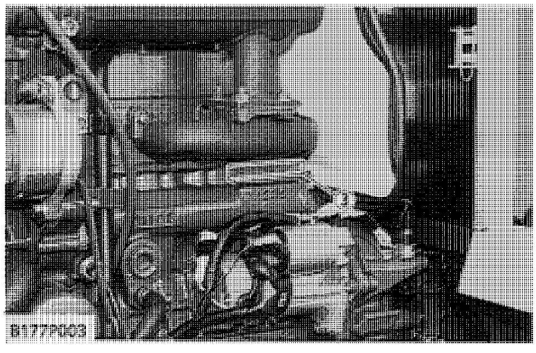
(15) Auxiliary Control Valve (Option)

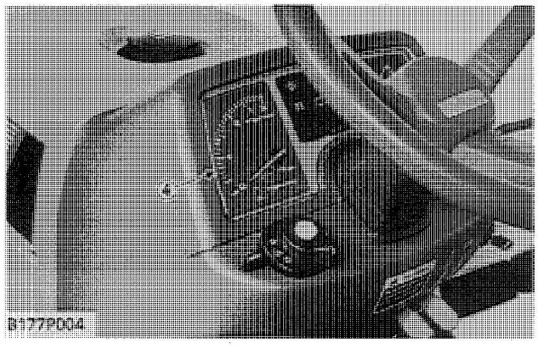
(16) ROPS

[2] TRACTOR IDENTIFICATION

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

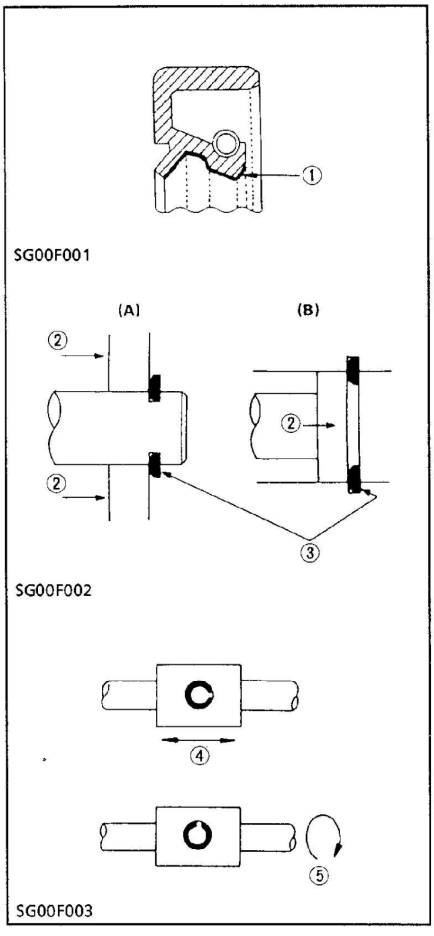






(1) Identification Plate
(2) Tractor Serial Number
(3) Engine Serial Number
(4) Hour Meter

[3] GENERAL PRECAUTIONS

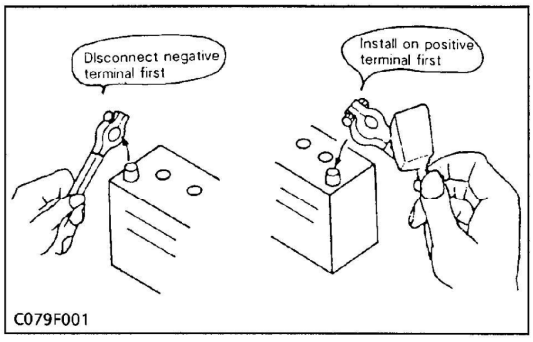


- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently used should be made according to the drawings provided.
- Before disassembling or servicing electrical wires, always disconnect the ground cable from the battery first.
- Remove oil and dirt from parts before measuring.
- Use only KUBOTA genuine parts for parts replacement to maintain tractor performance and to assure safety.
- Gaskets and O-rings must be replaced during reassembly. Apply grease to new O-rings or oil seals before assembling. See the figure left side.
- When reassembling external snap rings or internal snap rings, they must be positioned so that sharp edge faces against the direction from which a force is applied. See the figure left side.
- When inserting spring pins, their splits must face the direction from which a force is applied. See the figure left side.
- To prevent damage to the hydraulic system, use only specified fluid or equivalent.

(1) Grease
(2) Force
(3) Sharp Edge
(4) Axial Force
(5) Rotating Movement

[A] External Snap Ring
[B] Internal Snap Ring

[4] HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



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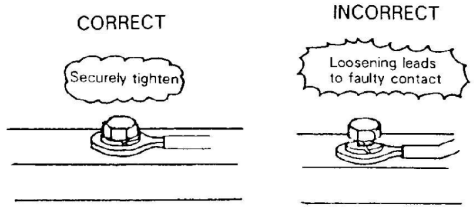
To ensure safety and prevent damage to the machine and surrounding equipment, heed the following precautions in handling electrical parts and wiring.

■ 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 cord, disconnect the negative wire first. When installing the battery cord, connect the positive wire first.**

■ Wiring

- Securely tighten wiring terminals.



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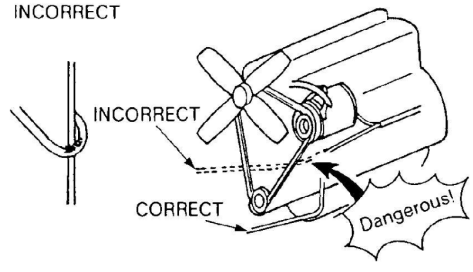
- Do not let wiring contact dangerous part.



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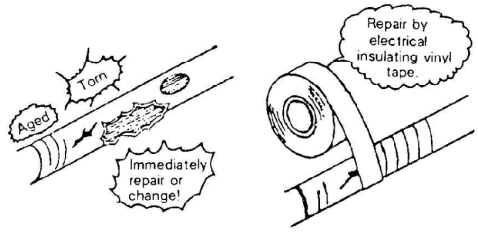
- Repair or change torn or aged wiring immediately.



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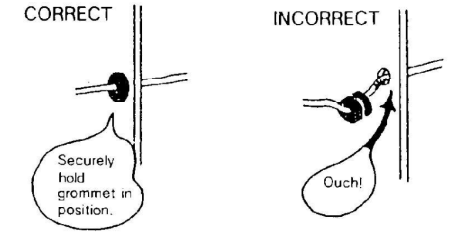
- Securely insert grommet.



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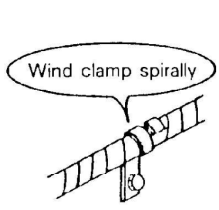
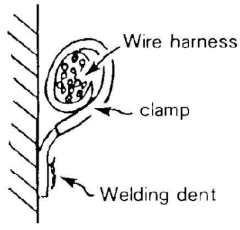
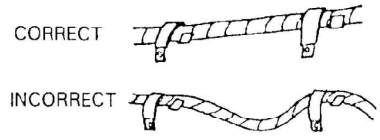
- Securely clamp, being careful not to damage wiring.





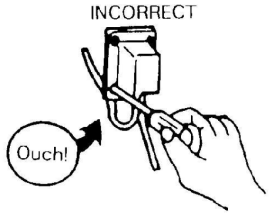
C079F007 C079F008

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



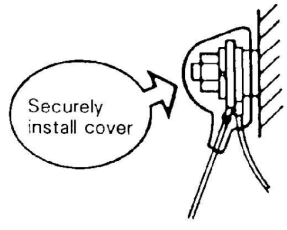
C079F009

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



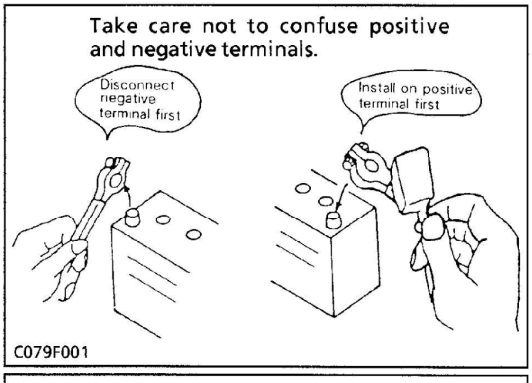
C079F010

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

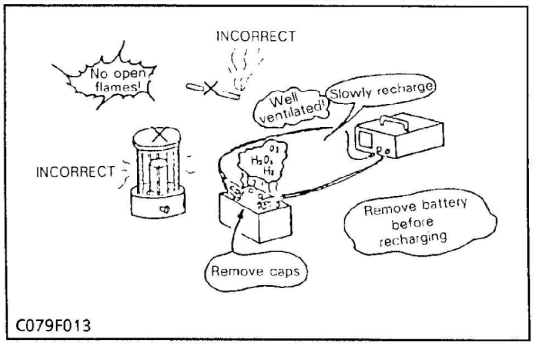


C079F011

■ Battery



C079F001



C079F013

- When removing battery cord, disconnect negative wire first. When installing battery cord, check for polarity and connect positive wire first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting cord to battery terminals, apply grease to them and securely install terminal covers on them.
- Do not allow dirt and dust to collect on battery.

⚠ CAUTION

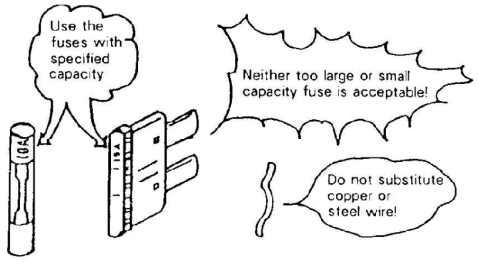
- **Take care not to let battery liquid spill on your skin and clothes. If contaminated, wash it off with water immediately.**
- **Before recharging the battery, remove it from the machine.**
- **Before recharging, remove cell caps.**

⚠ CAUTION

- **Do recharging in a well-ventilated place where there is no open flame nearby, as hydrogen gas and oxygen are formed.**

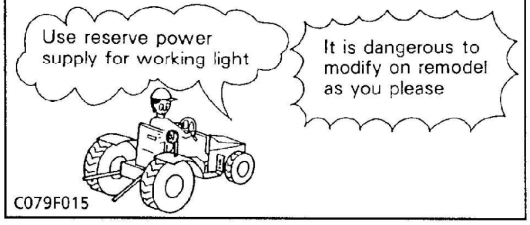
■ Fuse

- Use fuses with specified capacity.
- Never use steel or copper wire in place of fuse.



C079F014

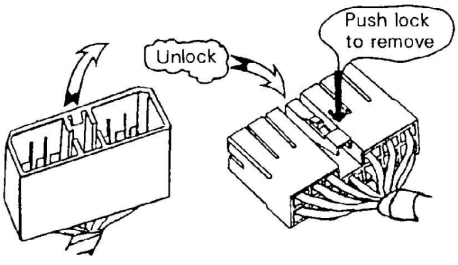
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of reserve power supply is exceeded.



C079F015

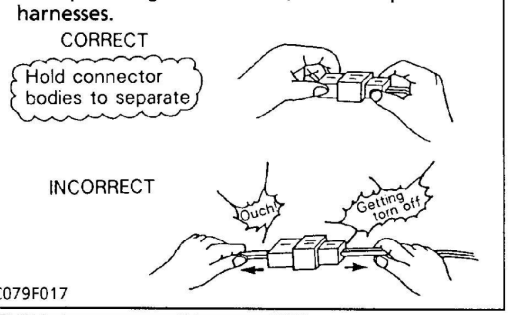
■ Connector

- For connector with lock, push lock to separate.



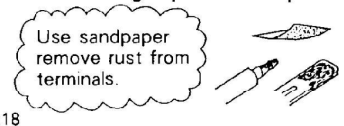
C079F016

- In separating connectors, do not pull wire harnesses.

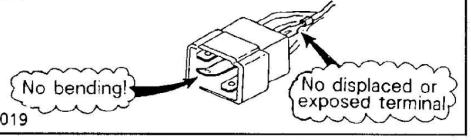


C079F017

- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

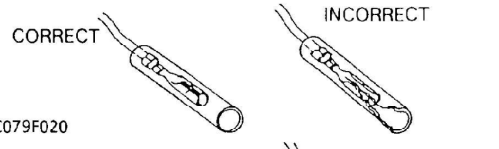


C079F018

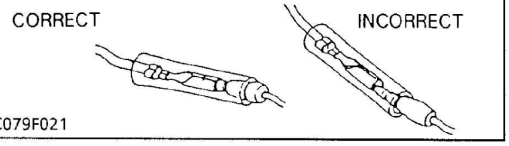


C079F019

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

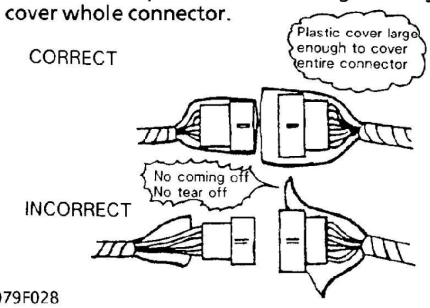


C079F020



C079F021

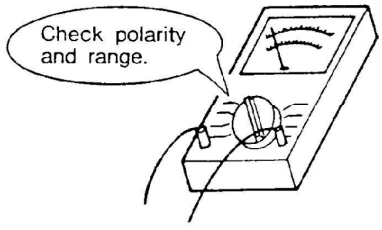
- Make certain plastic cover is large enough to cover whole connector.



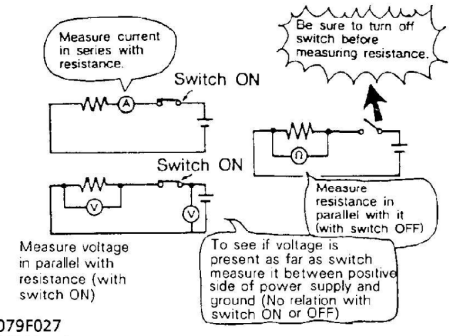
C079F028

■ Handling of Circuit Testers

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



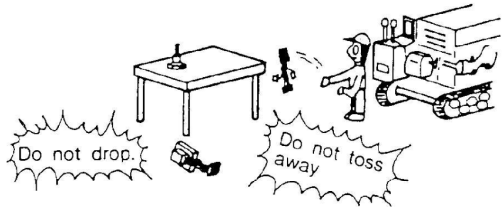
C079F026



C079F027

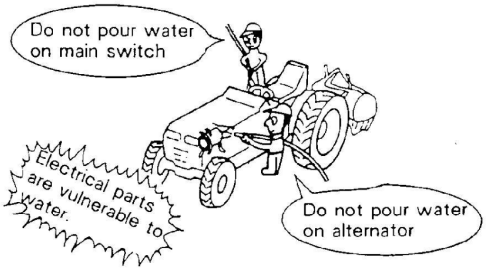
■ Handling of Parts

- Do not throw or drop electrical parts and wire harnesses.



C079F023

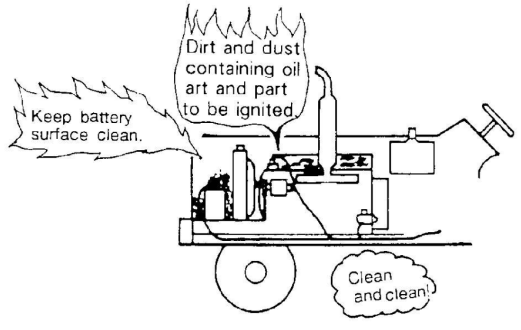
- Do not pour water on electrical parts such as main switch and alternator.



C079F025

■ Oil, Dust and Dirt

- If flammable material such as fuel, or lubricant spills, wipe it off with dry piece of cloth. Do not approach it with an open flame.
- Replace fuel pipe that is aged.
- Remove dirt and dust accumulated on heated part, wire harness, battery, etc.



C079F024

[5] LUBRICANTS, FUEL AND COOLING WATER

Place	Capacity			Lubricants, fuel and cooling water
	B1700	B2100	B2400	
Fuel tank	25 ℓ 6.6 U.S.gals. 5.5 Imp. gals.			No.2-D diesel fuel No.1-D diesel fuel if temperature is below – 10 °C (14 °F)
Cooling system	3.4 ℓ 3.6 U.S.qts. 3.0 Imp.qts.			Fresh clean water with anti-freeze
Engine crankcase	3.0 ℓ 3.2 U.S.qts. 2.6 Imp.qts.			Engine oil : API Service CC or CD 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
Transmission case	11 ℓ 2.9 U.S.gals 2.4 Imp.gals	12 ℓ for HST 3.17 U.S.gals 2.6 Imp.gals		KUBOTA SUPER UDT fluid *
Front axle case [4WD]	3.7 ℓ 3.9 U.S.qts. 3.3 Imp.qts.			KUBOTA SUPER UDT fluid * or SAE 80, 90 gear oil
Greasing				
HST pedal	Until grease overflows		1 point	SAE multi-purpose type grease

* : KUBOTA original transmission hydraulic fluid

[6]-(1) TIGHTENING TORQUES (GENERAL USE SCREWS, BOLTS AND NUTS)

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

Indication on top of bolt	⟨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
M 6 (6 mm, 0.24 in.)	7.84 to 9.31	0.80 to 0.95	5.79 to 6.87	7.84 to 8.83	0.80 to 0.90	5.79 to 6.51	9.80 to 11.2	1.00 to 1.15	7.24 to 8.32	7.84 to 8.83	0.80 to 0.90	5.79 to 6.51	12.3 to 14.2	1.25 to 1.45	9.05 to 10.5
M 8 (8 mm, 0.31 in.)	17.7 to 20.5	1.8 to 2.1	13.0 to 15.2	16.7 to 19.6	1.7 to 2.0	12.3 to 14.5	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2	17.7 to 20.6	1.8 to 2.1	13.0 to 15.2	29.4 to 34.3	3.0 to 3.5	21.7 to 25.3

[6]-(1) TIGHTENING TORQUES (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
M10 (10 mm, 0.39 in.)	39.2 to 45.0	4.0 to 4.6	29.0 to 33.2	31.4 to 34.3	3.2 to 3.5	23.1 to 25.3	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2	39.2 to 44.1	4.0 to 4.5	28.9 to 32.5	60.8 to 70.5	6.2 to 7.2	44.9 to 52.1
M12 (12 mm, 0.47 in.)	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5				77.5 to 90.1	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 86.8
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 (16mm, 0.63 in.)	167 to 191	17.0 to 19.5	123 to 141				196 to 225	20.0 to 23.0	145 to 166				260 to 303	26.5 to 31.0	192 to 224
M18 (18 mm, 0.71 in.)	245 to 284	25.0 to 29.0	181 to 210				275 to 318	28.0 to 32.5	203 to 235				343 to 401	35.0 to 41.0	254 to 297
M20 (20mm, 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				490 to 568	50.0 to 58.0	362 to 420

[6]-(2) TIGHTENING TORQUES FOR STUD BOLT

Material of opponent part	Ordinariness			Aluminum		
Unit / Diameter	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs
M8 (8 mm, 0.31 in.)	11.8 to 15.7	1.2 to 1.6	8.68 to 11.6	8.83 to 11.8	0.90 to 1.2	6.51 to 8.68
M10 (10 mm, 0.39 in.)	24.5 to 31.4	2.5 to 3.2	18.1 to 23.1	19.6 to 25.5	2.0 to 2.6	14.5 to 18.8
M12 (12 mm, 0.47 in.)	29.4 to 49.0	3.0 to 5.0	21.7 to 36.2	31.4	3.2	23.1

[7] MAINTENANCE CHECK LIST

No.	Check point	Indication on hour meter (Change or check every interval shown below)															After purchase		Reference page
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	1 year	2 years	
1	Greasing	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-14
2	Engine starting system checking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-15
3	Wheel bolt torque checking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-16
4	Battery condition checking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-17
5	Engine oil changing	◎	○		○		○		○		○		○		○		○			G-18
6	Air cleaner element cleaning ★		○		○		○		○		○		○		○		○			G-18
7	Air cleaner element replacement																	○		G-18
8	Fuel filter element cleaning		○		○		○		○		○		○		○		○			G-18
9	Fuel filter element replacement								○								○			G-18
10	Fan belt tension adjustment		○		○		○		○		○		○		○		○			G-19
11	Clutch pedal free travel adjustment		○		○		○		○		○		○		○		○			G-19
12	Brake pedal free travel adjustment		○		○		○		○		○		○		○		○			G-20
13	Engine oil filter cartridge replacement	◎			○				○				○				○			G-12
14	Hydraulic oil filter cartridge replacement	◎					○						○							G-14
15	Transmission fluid changing	◎					○						○							G-13
16	Transmission strainer cleaning (HST type)	◎					○						○							G-13
17	Front axle case oil changing						○						○							G-22
18	Front axle pivot adjustment								○								○			G-22
19	Radiator hose and clamp checking				○				○				○				○			G-20
20	Radiator hose and clamp replacement																		○	G-24
21	Fuel line checking				○				○				○				○			G-21
22	Fuel line replacement																		○	G-24
23	Toe-in adjustment				○				○				○				○			G-21
24	Engine valve clearance adjustment																○			1-S18
25	Engine cooling system cleaning																		○	G-23
26	Coolant changing																		○	G-24
27	Fuel system bleeding ☆																			G-25

Note : **The jobs indicated by ◎ must be done by all means 50 hours after the break-in respectively.**
The jobs indicated by ☆ service as required.
★ Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

[7] MAINTENANCE CHECK LIST (Continued)

No.	Check point	Indication on hour meter (Change or check every interval shown below)															After purchase		Reference page
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	1 year	2 years	
28	Clutch housing water draining ☆																			—
29	Fuse replacement ☆																			—
30	Light bulb replacement ☆																			—

Note : The jobs indicated by ◎ must be done by all means 50 hours after the break-in respectively.
The jobs indicated by ☆ service as required.
★ Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

[8] 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.**

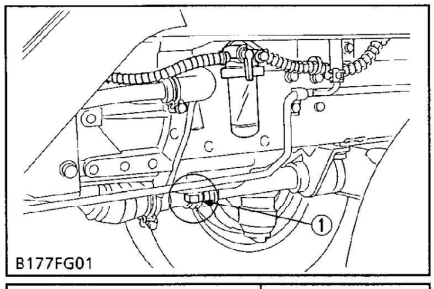
(1) Daily Check

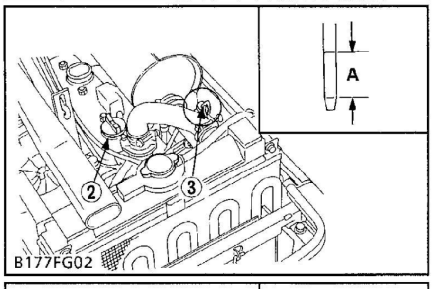
To prevent trouble from occurring, it is important to know the condition of the tractor. Check the following items before starting.

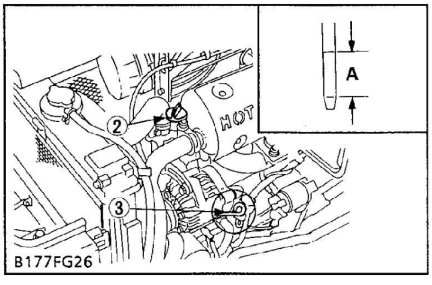
Checking

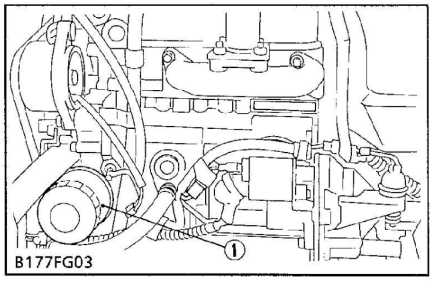
- Check areas where previous trouble was experienced.
- Walk around the tractor.
  1) Check the tire pressure, and check for wear and damage.
  2) Check for oil and water leaks.
  3) Check the engine oil level.
  4) Check the transmission fluid level.
  5) Check the coolant level.
  6) Check the condition of seat belt and ROPS attaching hardware.
  7) Check and clean the radiator screen.
  8) Check the bolts and nuts of the tires are tight.
  9) Check the SMV emblem for damage and cleaner replace as necessary if equipped.
  10) Check the front axle case oil level.
  11) Clean around the exhaust manifold and the muffler of the engine.
- While sitting in the operator's seat.
  1) Check the throttle pedal, 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 head lights, tail lights and hazard lights. 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.
  3) Check the brakes for proper operation.

(2) Check Points of Initial 50 Hours









(1) Engine Oil Filter Cartridge

Changing Engine Oil

⚠ CAUTION

- **Before changing oil, be sure to stop the engine.**

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

■ IMPORTANT

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

Engine oil capacity	3.0 ℓ 3.2 U.S.qts 2.6 Imp.qts

[A] Oil level acceptable within this range.

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

Replacing Engine Oil Filter Cartridge

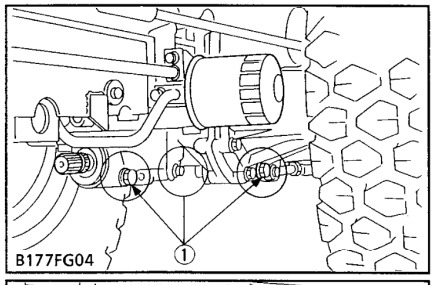
⚠ CAUTION

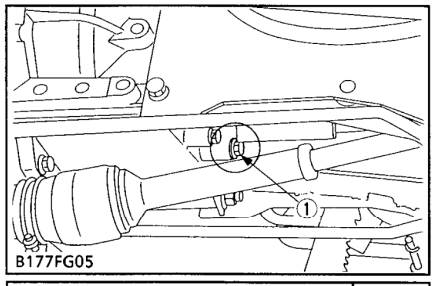
- **Be sure to stop the engine before changing oil filter cartridge.**

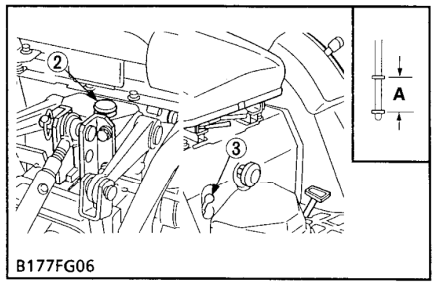
1. Remove the oil filter cartridge with the filter wrench.
2. Apply a slight coat of oil onto the cartridge gasket.
3. To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
4. After the new cartridge has been replaced, the engine oil normally decrease 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.

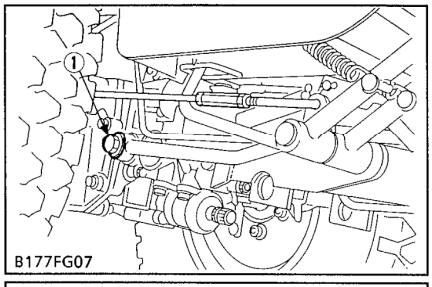
■ IMPORTANT

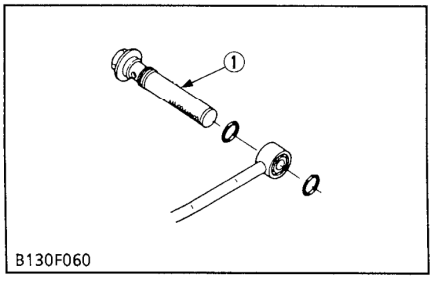
- **To prevent serious damage to the engine, replacement element must be highly efficient. Use only a KUBOTA genuine filter or its equivalents.**











Changing Transmission Oil

⚠ CAUTION

- **Be sure to stop the engine checking and changing the transmission oil.**

1. Place an oil pan underneath the transmission case.
2. Remove the drain plugs (1) at the bottom of the transmission case.
3. Drain the transmission oil.
4. After draining, screw in the four drain plugs.
5. Fill new oil from filling port after removing the filling plug (2) up to the upper notch on the dipstick.
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 AND FLUID" (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 oil together.**

Transmission oil capacity	HST type	12 ℓ 3.17 U.S.gals 2.6 Imp.gals
	Manual transmission type	11 ℓ 2.90 U.S.gals 2.4 Imp.gals

[A] Oil level acceptable within this range.

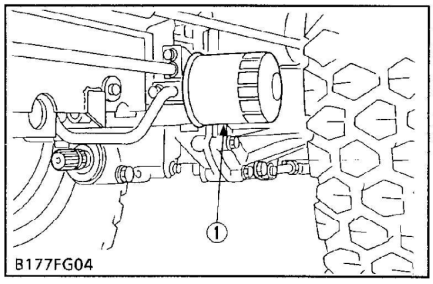
(1) Drain Plug
(2) Filling Plug
(3) Dipstick

Cleaning Transmission Oil Strainer (HST type)

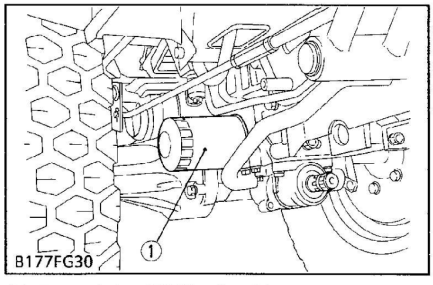
Since the fine filings in the oil could impair the component parts of hydraulic system which is precision built to withstand high pressure, the suction line end is provided with an oil strainer. When changing the transmission fluid, disassemble and rinse the strainer with kerosene to completely clean off filings. For reassembly, be careful not to damage the parts.

(1) Strainer

[HST type]

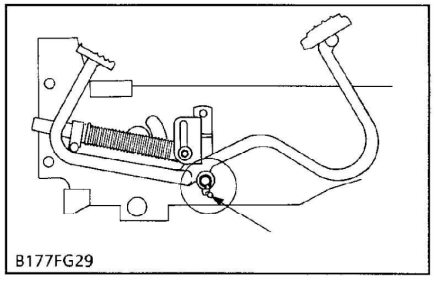


[Manual transmission type]

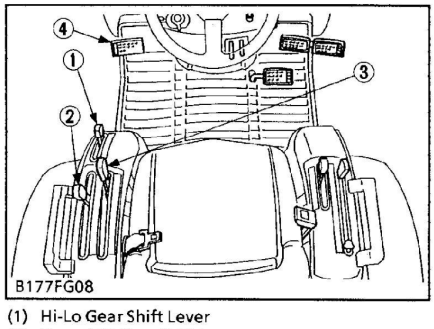


(1) Transmission Oil Filter Cartridge

(3) Check Points of Every 50 Hours



[HST type]



(1) Hi-Lo Gear Shift Lever
(2) Rear-PTO Gear Shift Lever
(3) Mid-PTO Gear Shift Lever
(4) Clutch Pedal

Replacing Transmission Oil Filter Cartridge

⚠ CAUTION

- **Be sure to stop the engine before changing the oil filters.**

1. Remove the oil filter cartridge by using a filter wrench.
2. Apply a slight coat of oil onto the 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 transmission fluid level will normally decrease slightly. Make sure that the transmission fluid does not leak through the seal. Check the fluid level.

■ IMPORTANT

- **To prevent serious damage to the hydraulic system, the replacement filter must be a highly efficient, 10 µm filter for HST type and 98 µm filter for manual transmission type. Use only a genuine KUBOTA filter or its equivalent.**
- **When using the auxiliary hydraulics, replace the transmission oil filter cartridge after initial 50 service hours.**

■ NOTE

- **Affected serial number for manual transmission type are as shown below.**

Model	Tractor Serial No.
B1700D	above 50340
B1700E	above 10077
B2100D	above 50324

Greasing

1. Apply grease to the HST pedal until overflows.

Checking Engine Start System

⚠ CAUTION

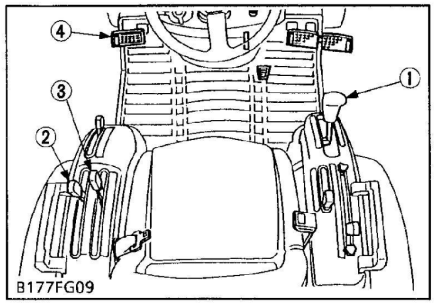
To avoid personal injury :

- **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. [Manual transmission type]
   Shift the main gear shift lever in "NEUTRAL" position.
3. [HST type]
   Shift the Hi-Lo gear shift lever in "NEUTRAL" position.
4. Shift the rear-PTO gear shift lever and mid-PTO gear shift lever to "OFF" position.
5. Fully depress the clutch pedal.

[Manual transmission type]



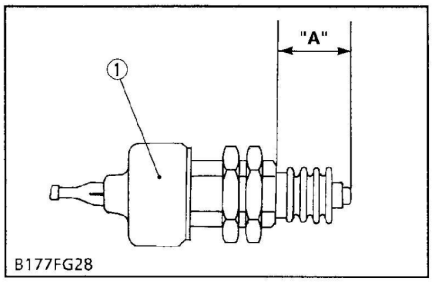
(1) Main Gear Shift Lever
(2) Rear-PTO Gear Shift Lever
(3) Mid-PTO Gear Shift Lever
(4) Clutch Pedal

■ **Test 1 : for safety switch on the clutch linkage**
1. Release the clutch pedal.
2. Turn the key to "START" position.
3. The engine must not crank.

■ **Test 2 : for safety switch on the traveling gear shift linkage**
1. Fully depress the clutch pedal.
2. Shift the main gear shift lever [Manual transmission type] or Hi-Lo gear shift lever [HST type] to 'Desired" position.
3. Turn the key to "START" position.
4. The engine must not crank.

■ **Test 3 : for safety switch on the rear PTO gear shift linkage**
1. Shift the main gear shift lever [Manual transmission type] or Hi-Lo gear shift lever [HST type] to "NEUTRAL" position.
2. Shift the rear-PTO gear shift lever to "ON" position.
3. Turn the key to "START" position.
4. The engine must not crank.

■ **Test 4 : for safety switch on the mid-PTO gear shift linkage**
1. Shift the rear-PTO gear shift lever to "OFF" position.
2. Shift the Mid-PTO gear shift lever to "ON" position.
3. Turn the key to "START" position.
4. The engine must not crank.

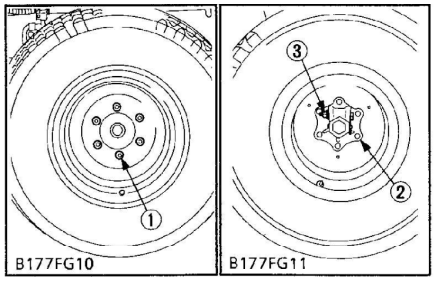


(1) Safety Switch

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

When adjusting the safety switches keep the each linkage at condition indicated below.
1. Clutch pedal linkage → Fully depress the clutch pedal.
2. Traveling gear shift linkage → Shift the main gear shift lever or Hi-Lo gear shift lever to "NEUTRAL" position.
3. PTO gear shift linkage → Shift the rear-PTO gear shift lever and mid-PTO gear shift lever to "OFF" position.

Safety switch distance : "A"	Factory spec.	17 to 21 mm 0.67 to 0.83 in.



(1) Front Wheel Mounting Nut
(2) Rear Wheel Hub Mounting Nut
(3) Cotter Setting Bolt and Nut

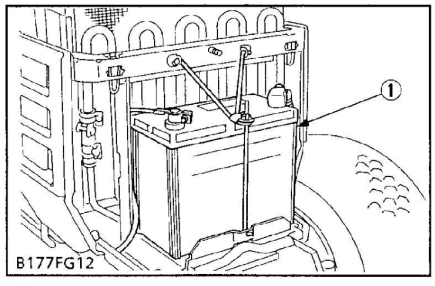
Checking Wheel Mounting Screws and Nuts Tightening Torque

⚠ CAUTION

To avoid personal injury :
- **Never operate tractor with a loose rim, wheel, or axle.**
- **Any time bolts and nuts are loosened, retighten to specified torque.**
- **Check all bolts and nuts frequently and keep them tight.**

1. Check wheel bolts and nuts regularly especially when new. If there are loosened, tighten as follows.

Tightening torque	Front wheel mounting nuts	77 to 90 N·m 7.9 to 9.2 kgf·m 57 to 67 ft-lbs
	Rear wheel hub mounting nuts	108 to 125 N·m 11.0 to 12.8 kgf·m 80 to 93 ft-lbs
	Cotter setting bolt and nut	123 to 147 N·m 12.6 to 15.0 kgf·m 91 to 108 ft-lbs



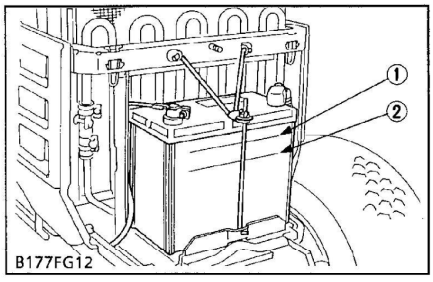
(1) Battery

Checking Battery Condition

⚠ CAUTION

To avoid personal injury :
- **Never remove the vent plugs while the engine is running.**
- **Keep electrolyte away from eyes, hands and clothes, If you are spattered with it, wash it away completely with water immediately and get medical attention.**
- **Wear eye protection and rubber gloves when working around battery.**

1. Mishandling the battery shortens the service life and adds to maintenance costs.
2. The original battery is maintenance free type battery, but need some servicing.
   If the battery is weak, the engine is difficult to start and the lights become dim. It is important check the battery periodically.



(1) Highest Level
(2) Lowest Level

Table 1 [with AC dynamo]

Tractor model	Battery type	Volts (V)	Capacity at 5H.R (A.H)
B1700 B2100 B2400	50B24L(S)-MF	12	36

Tractor model	Reserve Capacity (min)	Cold Cranking Amps	Normal Charging Rate (A)
B1700 B2100 B2400	71	390	4.5

Table 2 [with alternator]

Tractor model	Battery type	Volts (V)	Capacity at 5H.R (A.H)
B2100 B2400	55B24L(S)-MF	12	36

Tractor model	Reserve Capacity (min)	Cold Cranking Amps	Normal Charging Rate (A)
B2100 B2400	79	433	4.5

Battery Charging

⚠ CAUTION

To avoid personal injury :

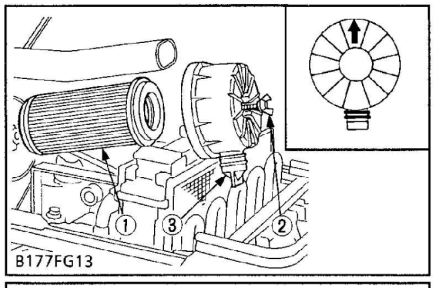
- **When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.**
- **When charging battery, remove battery vent plugs.**
- **When disconnecting the cable from the battery, start with the negative terminal first.**
  When connecting the cable to the battery, start with the positive terminal first.
- **Never check battery charge by placing a metal object across the posts.**
  Use a voltmeter or hydrometer.

1. Make sure each electrolyte level is to the bottom of vent wells, if necessary add distilled water in a well-ventilated area.
2. The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery. Excessive liquid spills over and damages the tractor body.
3. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
4. A boost charge is only for emergencies. It will partially charges the battery at a high rate and in a short time.
   When using a boost-charged battery, it is necessary to recharge the battery as early as possible.
   Failure to do this will shorten the battery's service life.
5. When the specific gravity of electrolyte become between 1.27 and 1.29 charge has completed.
6. When exchanging an old battery into new one, use battery of equal specification shown in **table 1** or **table 2**.

■ Direction for Storage

1. When storing the tractor for long periods of time, remove the battery from tractor, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
2. The battery self-discharges while it is stored.
   Recharge it once every three months in hot seasons and once every six months in cold seasons.

(4) Check Points of Every 100 Hours



(1) Element
(2) Wing Bolt
(3) Evacuator Valve

Changing Engine Oil

Refer to page G-12.

Cleaning Air Cleaner Element

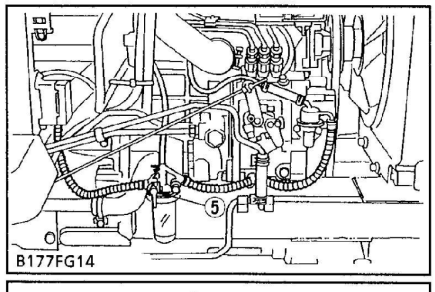
1. Remove the element.
2. Clean the element :
   1) When dry dust adheres to the element, blow compressed air from the inside turning the element. Pressure of compressed air must be under 686 kPa (7 kgf/cm^2, 99 psi).
   2) When carbon or oil adheres to the element, soak the element in detergent for 15 minutes then wash it several times in water, rinse with clean water and dry it naturally. After element is fully dried, inspect inside of the element with a light and check if it is damaged or not. (referring to the instructions on the label attached to the element.)
3. Replace air cleaner element if :
   Once yearly or after every sixth cleaning, whichever comes first.

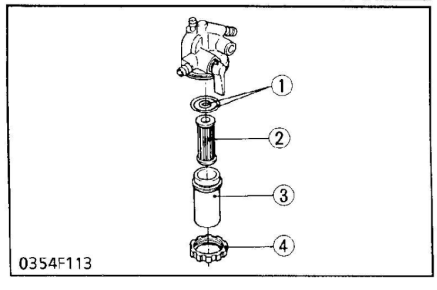
■ **IMPORTANT**

- **The air cleaner uses a dry element, never apply oil.**
- **Do not run the engine with filter element removed.**
- **Make sure the wing nut or bolt with rubber dust seal for the element is tight enough.**
  If it is loose, dust and dirt may be sucked in, wearing down the cylinder and piston rings earlier and thereby resulting in poor power output.
- **Be sure to refit the dust cup with the arrow ↑ (on the rear) upright. If the dust cup is improperly fitted, dust passes by the baffle and directly adheres to the element.**

■ **Evacuator Valve**

Open the evacuator valve once a week under ordinary condition - or daily when used in a dusty place - to get rid of large particles of dust and dirt.





Cleaning Fuel Filter

When operation period reaches approx. 100 hours, clean the fuel filter.

This job should not be done in the field, but in a clean place so as to prevent dust from entering fuel system.

1. Close the fuel filter cock.
2. Unscrew and remove the screw ring, and remove the filter bowl (3), and rinse the inside with kerosene.
3. Take out the element (2) and dip it in the kerosene to rinse.
4. After cleaning reassembling the fuel filter, keeping out dust and dirt.
5. Bleed the fuel system. (Refer to G-25)

■ **IMPORTANT**

- **If dust and dirt enter the fuel, the fuel pump and injection nozzle are subject to wear. To prevent this, be sure to clean the fuel filter bowl periodically.**

(1) O-ring
(2) Element
(3) Filter Bowl
(4) Screw Ring
(5) Fuel Filter Cock