

Product: Kubota M95S M105S Service Manual

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WSM

WORKSHOP MANUAL
TRACTOR

M95S, M105S

Kubota

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KISC issued 03, 2018 A

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TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of M95S and M105S. It is divided into three parts, "General", "Mechanism" and "Servicing".

■ General

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

■ Mechanism

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

Refer to Diesel Engine / Tractor Mechanism Workshop Manual (Code No. 97897-01872 / 97897-18200) for the one which has not been described to this workshop manual.

■ Servicing

Information on the troubleshooting, servicing specification lists, tightening torque, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

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

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

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

December 2004

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Record of Revisions

For pdf, use search function {Search word} to find all the revised locations.

Last digit of the Code No.	Issue month	Main Revised Point and Corrective Measures {Search word}	Reference Page
1	2017.11	Update of parking break pad service content	5-S18
2	2018.02	Update of brake master cylinder service content	G-39, 5-S8, 5-S11
3	2018.03	• Wrong correction Disassembly procedure in parking brake case was corrected.	5-S4, 5-S18



SAFETY FIRST

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

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



DANGER

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



WARNING

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



CAUTION

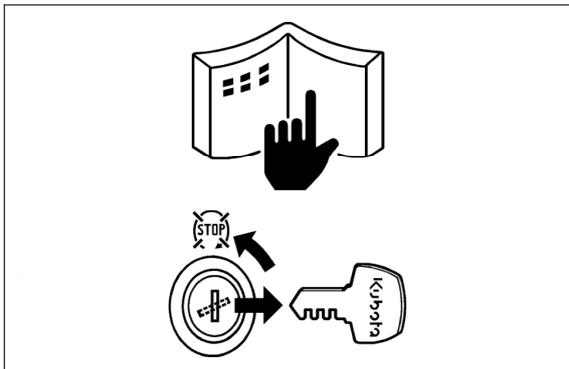
: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

■ IMPORTANT

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

■ NOTE

: Gives helpful information.



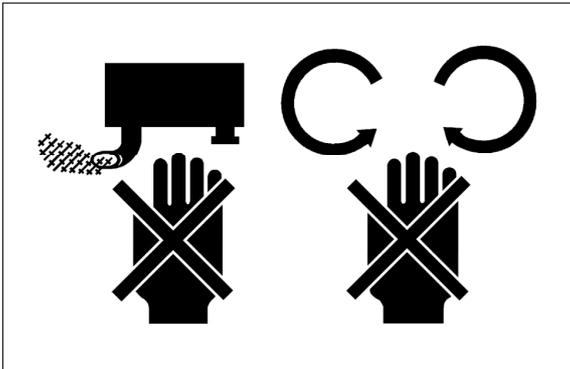
BEFORE SERVICING AND REPAIRING

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



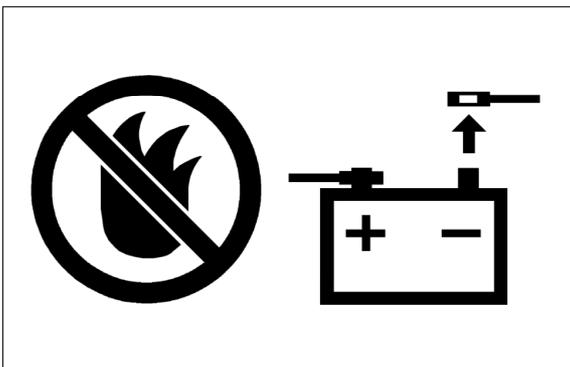
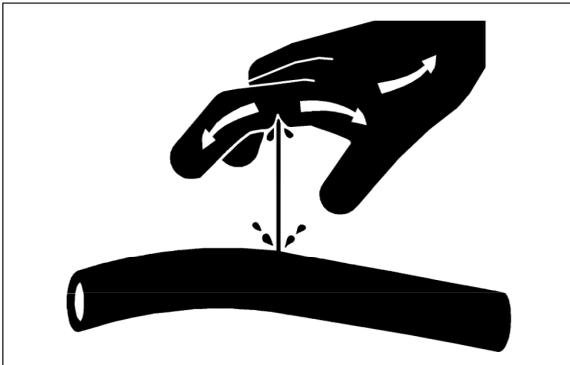
SAFETY STARTING

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



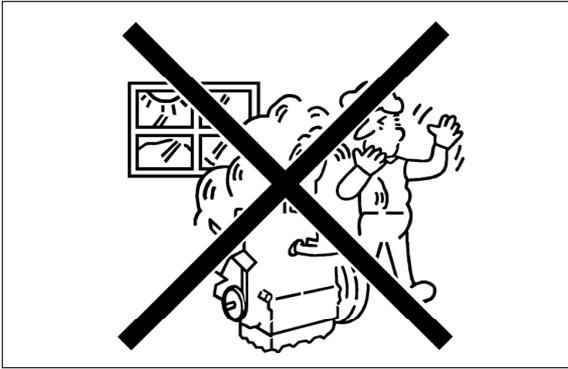
SAFETY WORKING

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



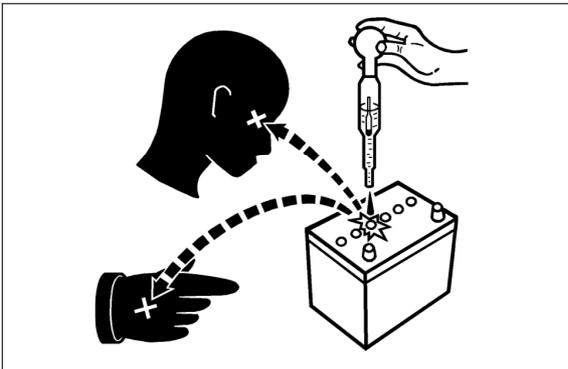
AVOID FIRES

- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.
- Make sure that no fuel has been spilled on the engine.



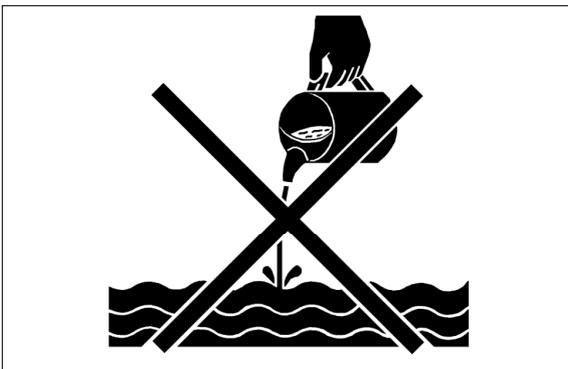
VENTILATE WORK AREA

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.



PREVENT ACID BURNS

- Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, clothing and cause blindness if splashed into eyes. Keep electrolyte away from eyes, hands and clothing. If you spill electrolyte on yourself, flush with water, and get medical attention immediately.



DISPOSE OF FLUIDS PROPERLY

- Do not pour fluids into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, electrolyte and other harmful waste.



PREPARE FOR EMERGENCIES

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

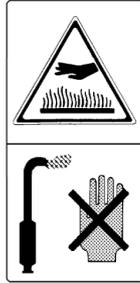
SAFETY DECALS

The following safety decals are installed on the machine. If a decal becomes damaged, illegible or is not on the machine, replace it. The decal part number is listed in the parts list.

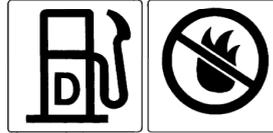
(1) Part No. 32751-4958-1
Stay clear of engine fan and fanbelt



(2) Part No. 3N300-4958-1
Stay clear of engine fan and fanbelt



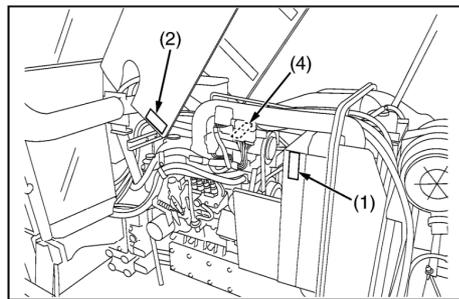
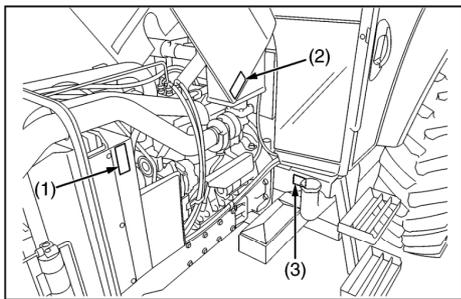
(3) Part No. TA040-4956-2
Diesel fuel only No fire



(4) Part No. TA040-7295-1

CAUTION REFRIGERANT UNDER HIGH PRESSURE	
Improper service methods may cause personal injury. This air conditioning system should be serviced by your dealer or any other qualified service shop. See Repair Manual for details.	
Refrigerant R134a Max. 1.05kg (2.31 lbs.) USE ONLY Min. 0.35kg (0.79 lbs.)	Oil ND-OIL8 SAE J-639 USE ONLY
MFD. BY NIPPONDENSO CO.,LTD. JAPAN	

A100



3TMACAICP001A

(1) Part No. 6C150-4743-1

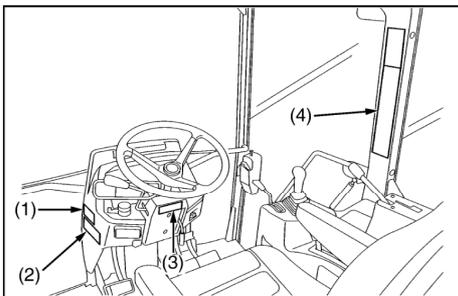
	<p>⚠ WARNING</p> <p>BEFORE DISMOUNTING TRACTOR:</p> <ol style="list-style-type: none"> 1. ALWAYS SET PARKING BRAKE. Leaving transmission in gear with the engine stopped will not prevent tractor from rolling. 2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope. 3. LOWER ALL IMPLEMENTS TO THE GROUND. 4. STOP THE ENGINE.
---	---

(2) Part No. TA040-4965-2

	<p>⚠ DANGER</p> <p>TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.</p> <ol style="list-style-type: none"> 1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed. 2. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground.
---	--

(3) Part No. 3F240-9857-1

 <p>WARNING</p>	<p>To avoid free wheeling when shifting the shuttle lever while on a slope: Stop completely by using the brake and by depressing the clutch pedal. Start off after selecting shuttle direction by releasing the clutch pedal.</p>
---	---



3TMACAKCP001A

(4) Part No. 3F240-9836-2

 <p>CAUTION</p>	<p>TO AVOID PERSONAL INJURY:</p> <ol style="list-style-type: none"> 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 tractor and 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 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.
---	---

(1) Part No. 3N300-9892-1

⚠ DANGER/POISON

 SHIELD EYES. EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY.	 NO • SPARKS • FLAMES • SMOKING	 SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS.
---	--	--

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

FLUSH EYES
IMMEDIATELY
WITH WATER.



GET
MEDICAL
HELP FAST.

PROPOSITION 65 WARNING
 BATTERY POSTS, TERMINALS, AND RELATED ACCESSORIES
 CONTAIN LEAD AND LEAD COMPOUNDS, CHEMICALS KNOWN
 TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND
 REPRODUCTIVE HARM. WASH HANDS AFTER HANDLING.


105E41R 12V

HYDROMETER



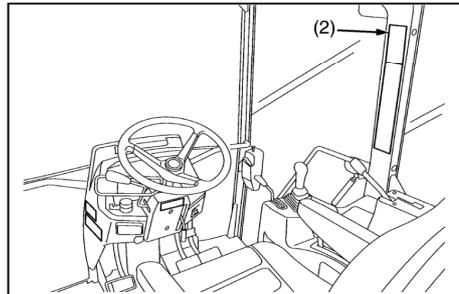
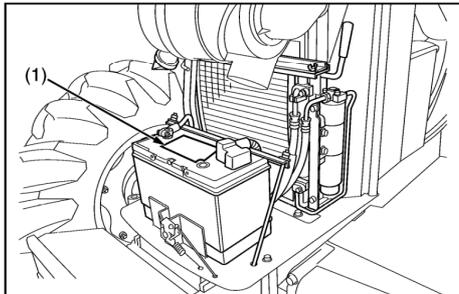
RESERVE CAPACITY (MIN) 160
COLD CRANKING AMPS(-18°C) 900

(2) Part No. TA040-4902-1

⚠ WARNING

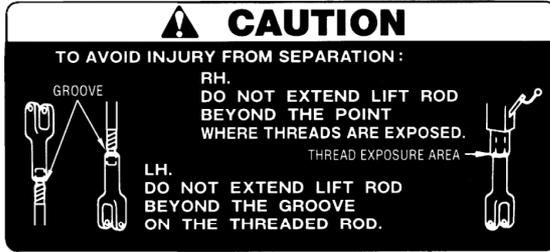


TO AVOID INJURY OR
DEATH FROM ROLL-OVER.
 Always use seat belt
 when driving.



3TMACAICP003A

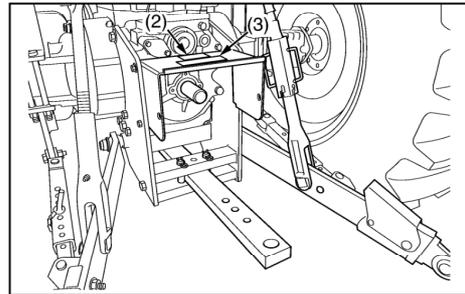
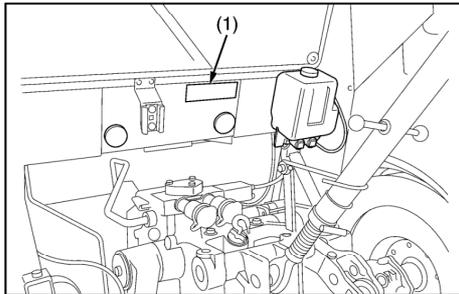
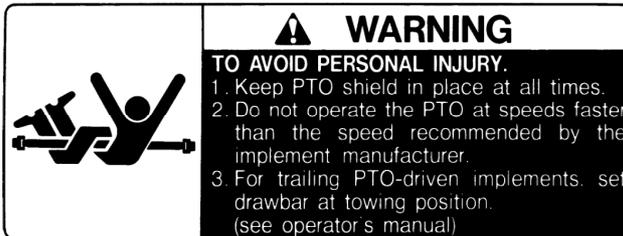
(1) Part No. 3A111-9856-3



(2) Part No. TA040-4935-1



(3) Part No. TA040-4959-3

**CARE OF DANGER, WARNING AND CAUTION LABELS**

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels.
4. If a component with danger, warning or caution label (s) affixed is replaced with new part, make sure new label (s) is (are) attached in the same location (s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

3TMACAICP004A

SPECIFICATIONS

Model		M95S	M105S	
		4WD	4WD	
Engine	Model	V3800-DI-T	V3800-DI-TI	
	Type	Vertical, water-cooled, 4-cycle diesel engine		
	No. of cylinder	4		
	Total displacement	3769 cm ³ (230.0 cu.in.)		
	Bore and stroke	100 × 120 mm (3.9 × 4.7 in.)		
	Net power	70.9 kW (95 HP)* / 2600 min ⁻¹ (rpm)	78.3 kW (105 HP)* / 2600 min ⁻¹ (rpm)	
	PTO power *1 (factory observed)	62.7 kW (84 HP)*1 / 2600 min ⁻¹ (rpm)	69.4 kW (93 HP)*1 / 2600 min ⁻¹ (rpm)	
	Maximum torque	314.8 N·m (32.1 kgf·m, 232.2 ft-lbs) / 1400 to 1600 min ⁻¹ (rpm)	355 N·m (36.2 kgf·m, 261.8 ft-lbs) / 1400 to 1600 min ⁻¹ (rpm)	
	Battery	12 V, RC, 160 min, CCA 900 A		
	Fuel	Diesel fuel No.1 [below -10 °C (14 °F), Diesel fuel No.2-D [above -10 °C (14 °F)]		
	Fuel tank	175 L (46.2 U.S.gals, 38.5 Imp.gals)		
	Engine crankcase	10.7 L (11.3 U.S.qts, 9.4 Imp.qts)		
	Engine coolant	9.1 L (9.6 U.S.qts, 8.0 Imp.qts)		
Dimensions	Overall length	4120 mm (162.2 in.)		
	Overall width (Minimum tread)	2010 mm (79.1 in.)		
	Overall height	2655 mm (104.5 in.)	2680 mm (105.5 in.)	
	Wheel base	2435 mm (95.9 in.)		
	Tread	Front	1270 to 1570 mm (50.0 to 61.8 in.)	1390 to 1690 mm (54.7 to 66.5 in.)
		Rear	1480 to 2090 mm (58.3 to 82.3 in.)	
Minimum ground clearance	410 mm (16.1 in.) (drawbar bracket)	435 mm (17.1 in.) (drawbar bracket)		
Weight *2	3920 kg (8642 lbs)			
Traveling system	Standard tire size *3	Front	12.4R24	13.6 - 24
		Rear	16.9R34	18.4R34
	Clutch	Multiple wet disc hydraulic		
	Steering	Full hydraulic power steering		
	Transmission	Hydraulic shuttle shift, fully synchronized main shift, 32F / 32R, If equip creep gear 48F / 48R		
	Brake	Travelling	Wet type multiple discs (hydraulic)	
Parking		Wet type multiple discs (mechanical)		
Differential	Bevel gears with differential lock (Front, Rear)			
Hydraulic system	Hydraulic control system	Position, draft and mix control		
	Pump capacity	65.0 L/min. (17.2 U.S.gals./min., 14.3 Imp.gals./min.)		
	Three point hitch	Category II		
	Max. lifting force	At lifting point *4	2700 kg (5952 lbs) at lower link end with link horizontal 4000 kg (8818 lbs) with 2 assist cylinder (option)	
		24 in. behind lifting point *4	2100 kg (4630 lbs) at 610 mm (24 in.) behind lifting point 3400 kg (7490 lbs) with 2 assist cylinder (option)	
System pressure	19.6 MPa (200 kgf/cm ² , 2847 psi)			
PTO system	Independent clutch	Wet type, multiple discs		
	Live PTO	Direction of turning	Clockwise, viewed from tractor rear	
		PTO speed	540 min ⁻¹ (rpm) at 2205 engine min ⁻¹ (rpm) 540 min ⁻¹ (rpm) at 1519 engine min ⁻¹ (rpm)	
Traction system	Swing drawbar, adjustable in direction			

NOTE: * Manufacturer's estimate.

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

*2 W/O cast iron disks for rear wheels.

*3 Cast iron disks available for wheels.

*4 At lower link end with links horizontal.

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TRAVELING SPEEDS

(At rated engine rpm)

Model				M95S / M105S	
Tire size (Rear)				18.4R34	
Shuttle shift lever	Range gear shift lever	Main gear shift lever		Dual speed: Hi	Dual speed: Lo
				km/h (mph)	km/h (mph)
Forward 	CREEP (option)		1	0.36 (0.22)	0.30 (0.19)
			2	0.46 (0.29)	0.38 (0.24)
			3	0.57 (0.35)	0.47 (0.29)
			4	0.72 (0.45)	0.60 (0.37)
			1	0.92 (0.57)	0.76 (0.47)
			2	1.18 (0.73)	0.97 (0.60)
			3	1.45 (0.90)	1.20 (0.74)
			4	1.84 (1.14)	1.52 (0.94)
	L:		1	2.02 (1.26)	1.67 (1.04)
			2	2.57 (1.60)	2.13 (1.32)
			3	3.17 (1.97)	2.62 (1.63)
			4	4.02 (2.50)	3.33 (2.07)
			1	5.15 (3.20)	4.26 (2.65)
			2	6.56 (4.08)	5.42 (3.37)
			3	8.08 (5.02)	6.68 (4.15)
			4	10.27 (6.38)	8.49 (5.28)
	H		1	7.05 (4.38)	5.83 (3.62)
			2	8.98 (5.58)	7.43 (4.62)
			3	11.06 (6.87)	9.15 (5.69)
			4	14.06 (8.74)	11.63 (7.22)
			1	17.99 (11.18)	14.87 (9.24)
			2	22.92 (14.24)	18.94 (11.77)
			3	28.22 (17.54)	23.33 (14.50)
			4	38.64 (24.00)*	29.66 (18.43)

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

* At maximum engine rpm.

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(At rated engine rpm)

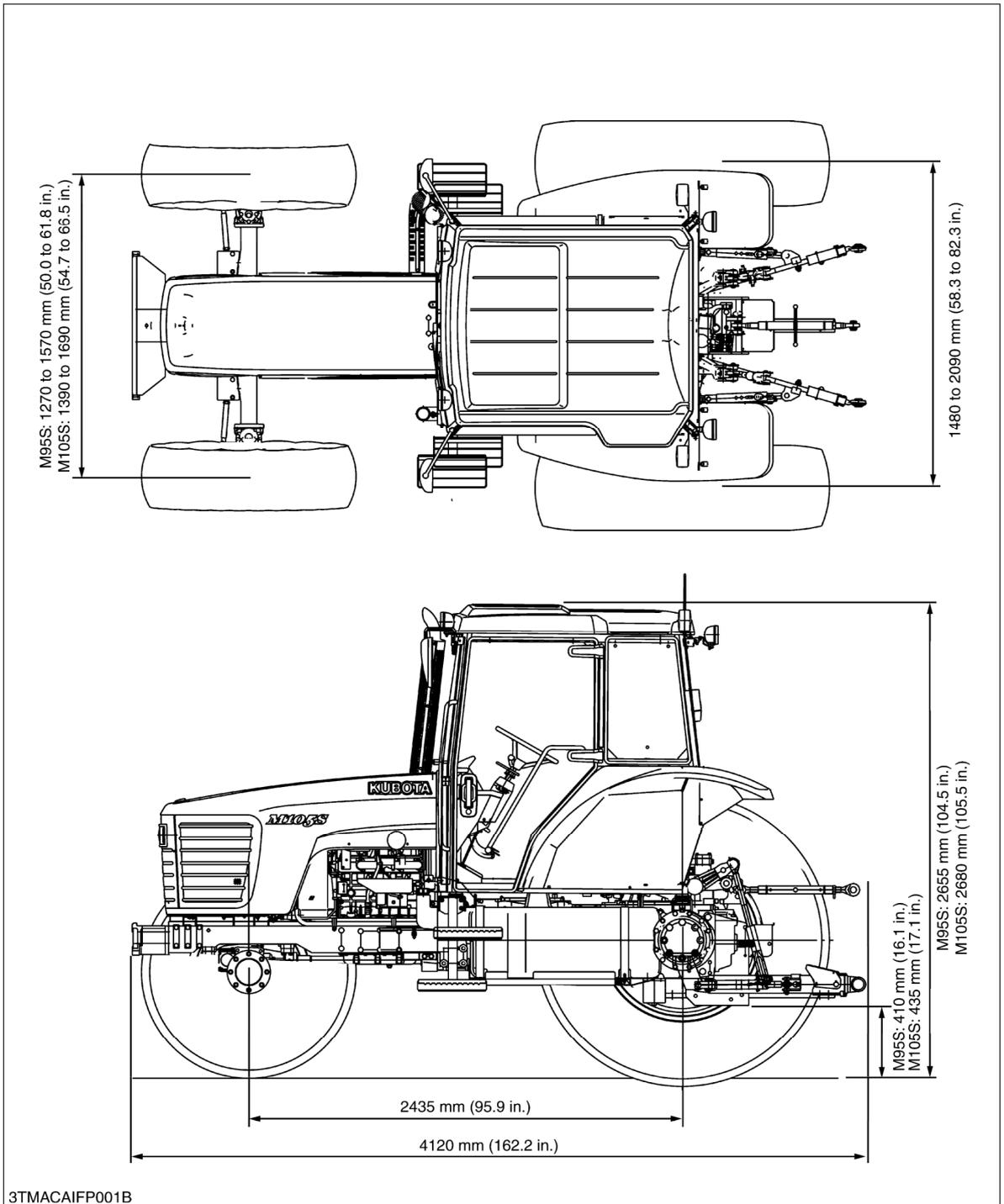
Model			M95S / M105S			
Tire size (Rear)			18.4R34			
Shuttle shift lever	Range gear shift lever	Main gear shift lever	Dual speed: Hi	Dual speed: Lo		
			km/h (mph)	km/h (mph)		
Reverse 	CREEP (option)		1	0.36 (0.22)	0.30 (0.19)	
			2	0.46 (0.29)	0.38 (0.24)	
			3	0.57 (0.35)	0.47 (0.29)	
			4	0.73 (0.45)	0.60 (0.37)	
			1	0.93 (0.58)	0.77 (0.48)	
			2	1.19 (0.74)	0.98 (0.61)	
			3	1.46 (0.91)	1.21 (0.75)	
			4	1.86 (1.16)	1.53 (0.95)	
	L:		1	2.04 (1.27)	1.68 (1.04)	
			2	2.59 (1.61)	2.14 (1.33)	
			3	3.19 (1.98)	2.64 (1.64)	
			4	4.06 (2.52)	3.36 (2.09)	
			1	5.19 (3.23)	4.29 (2.67)	
			2	6.61 (4.11)	5.47 (3.40)	
			3	8.15 (5.06)	6.74 (4.19)	
			4	10.36 (6.44)	8.56 (5.32)	
	H		1	7.11 (4.42)	5.88 (3.65)	
			2	9.06 (5.63)	7.49 (4.65)	
			3	11.16 (6.93)	9.22 (5.73)	
			4	14.18 (8.81)	11.73 (7.29)	
			1	18.15 (11.28)	15.00 (9.32)	
			2	23.11 (14.36)	19.11 (11.87)	
			3	28.47 (17.69)	23.53 (14.62)	
			4	38.97 (24.21)*	29.92 (18.59)	

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

* At maximum engine rpm.

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DIMENSIONS



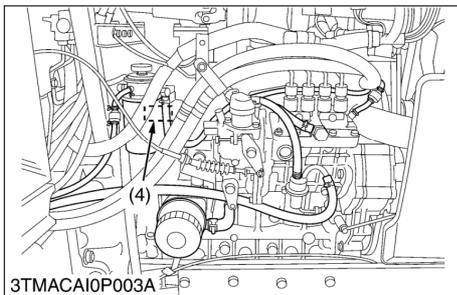
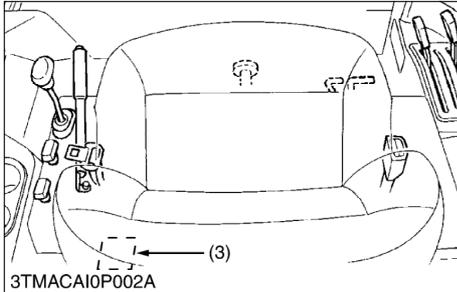
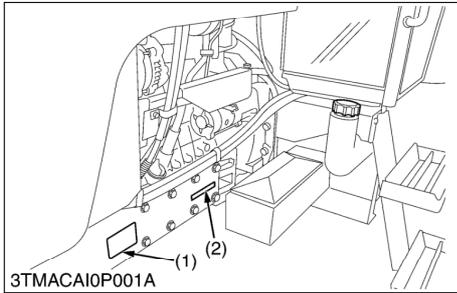
G GENERAL

GENERAL

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[5] TIRE LIQUID INJECTION.....	G-79
10. IMPLEMENT LIMITATIONS.....	G-83

1. TRACTOR IDENTIFICATION

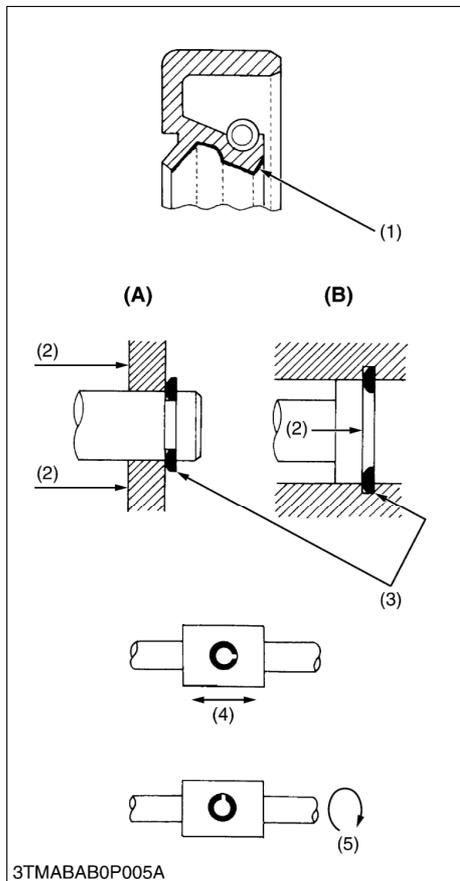


When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number and hour meter reading.

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

W1010602

2. GENERAL PRECAUTIONS



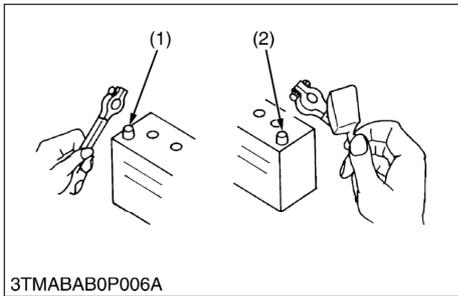
- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Screws, bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently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

W1010904

3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING



3TMABAB0P006A

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

■ **IMPORTANT**

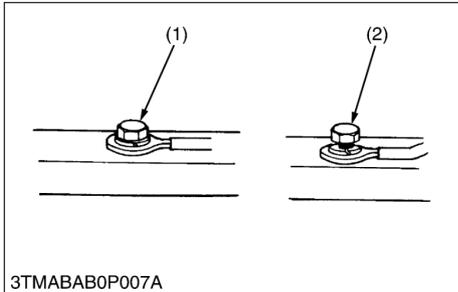
- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the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

(1) Negative Terminal

(2) Positive Terminal

W1011114

[1] WIRING



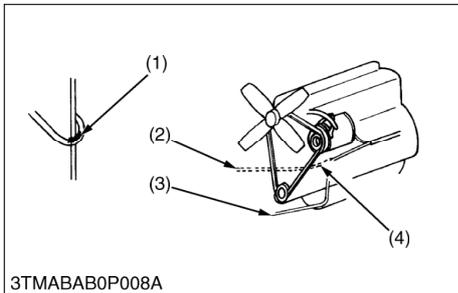
3TMABAB0P007A

- Securely tighten wiring terminals.

(1) Correct
(Securely Tighten)

(2) Incorrect
(Loosening Leads to Faulty Contact)

W1011216



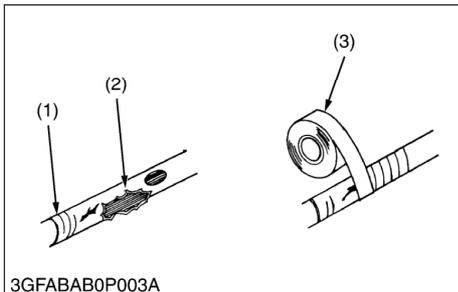
3TMABAB0P008A

- Do not let wiring contact dangerous part.

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

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

W1011313



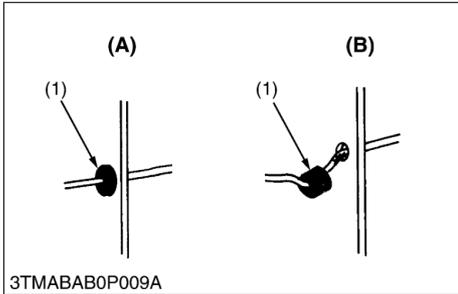
3GFABAB0P003A

- Repair or change torn or aged wiring immediately.

(1) Aged
(2) Torn

(3) Insulating Vinyl Tape

W1012292

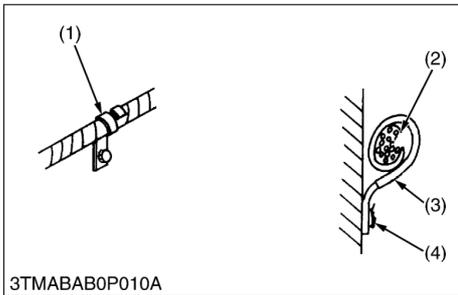


• Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

W1011388

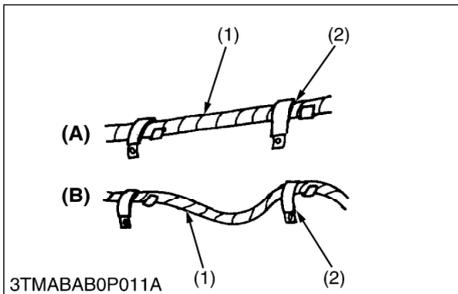


• Securely clamp, being careful not to damage wiring.

(1) Clamp
• Wind Clamp Spirally
(2) Wire Harness

(3) Clamp
(4) Welding Dent

W1011458

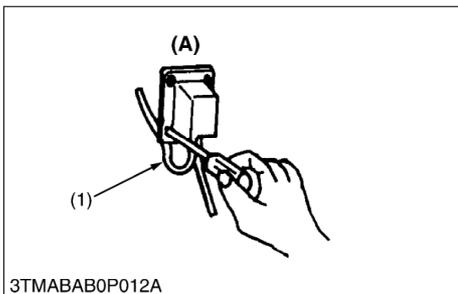


• Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag be required.

(1) Wiring
(2) Clamp

(A) Correct
(B) Incorrect

W1011587

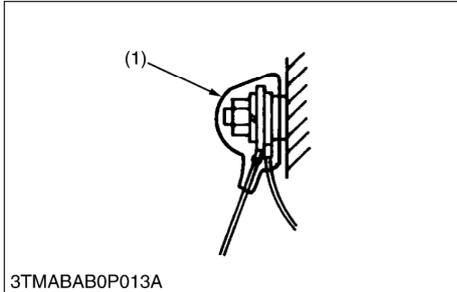


• In installing a part, take care not to get wiring caught by it.

(1) Wiring

(A) Incorrect

W1011670

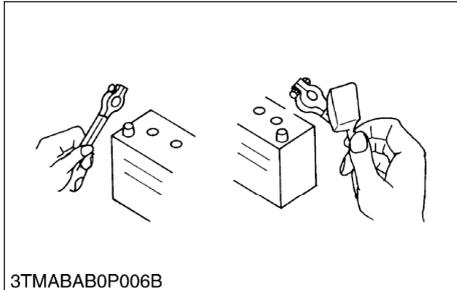


- After installing wiring, check protection of terminals and clamped condition of wiring, only connect battery.

- (1) Cover
- Securely Install Cover

W1011735

[2] BATTERY



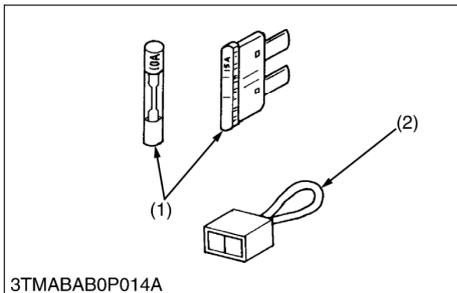
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting cables to battery terminal posts, apply high temperature grease to them and securely install terminal covers on them.
- Do not allow dirt and dust to collect on battery.

! CAUTION

- Take care not to let battery liquid spill on your skin and clothes. If contaminated, wash it off with water immediately.
- Before recharging the battery, remove it from the machine.
- Before recharging, remove cell caps.
- Do recharging in a well-ventilated place where there is no open flame nearby, as hydrogen gas and oxygen are formed.

W1011816

[3] FUSE



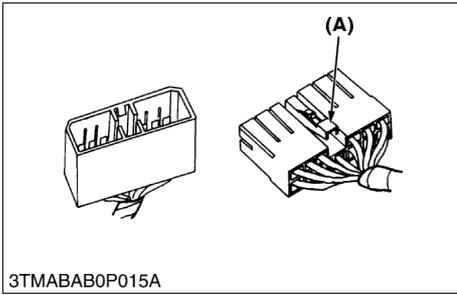
- Use fuses with specified capacity. Neither too large or small capacity fuse is acceptable.
- Never use steel or copper wire in place of fuse.
- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of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

- (1) Fuse

- (2) Slow Blow Fuse

W1012092

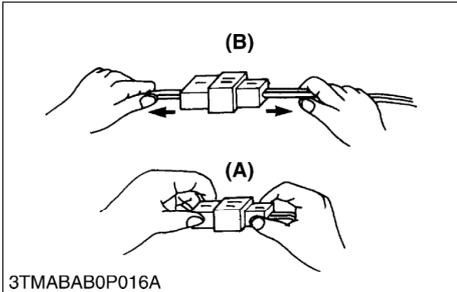
[4] CONNECTOR



- For connector with lock, push lock to separate.

(A) Push

W1012211

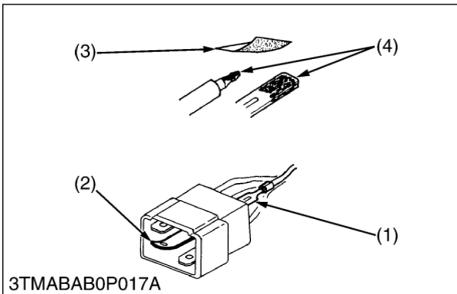


- In separating connectors, do not pull wire harnesses.
- Hold connector bodies to separate.

(A) Correct

(B) Incorrect

W1012272

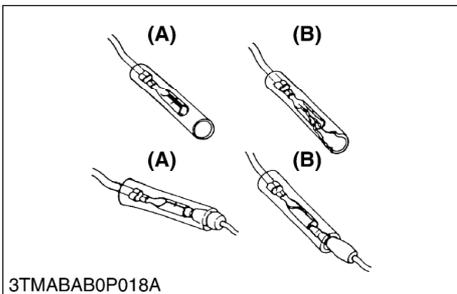


- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

(1) Exposed Terminal
(2) Deformed Terminal

(3) Sandpaper
(4) Rust

W1012346

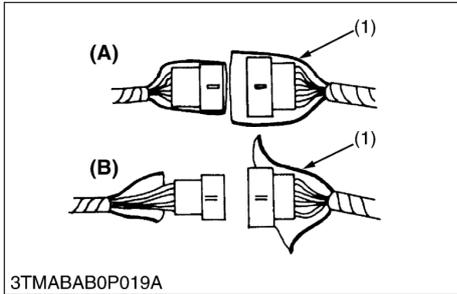


- Make certain that there is no female connector being too open.

(A) Correct

(B) Incorrect

W1012430



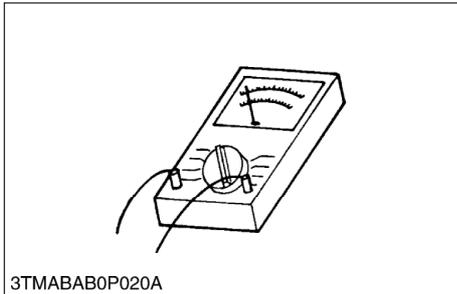
- Make certain plastic cover is large enough to cover whole connector.

(1) Cover

(A) Correct
(B) Incorrect

W1012519

[5] HANDLING OF CIRCUIT TESTER



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

W1012684

4. LUBRICANTS, FUEL AND COOLANT

	Place		Capacity	Lubricants, fuel and coolant
			M95S, M105S	
1	Fuel tank		175 L 46.2 U.S.gals 38.5 Imp.gals	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10 °C (14 °F)
2	Coolant	Engine block radiator	9.1 L 9.6 U.S.qts 8.0 Imp.qts	Fresh clean water with anti-freeze
		Reserve tank	1.1 L 1.2 U.S.qts 1.0 Imp.qts	
3	Engine crankcase		10.7 L 11.3 U.S.qts 9.4 Imp.qts	Engine oil: API service classification CD, CE or CF Below 0 °C (32 °F) : SAE10W, 10W-30 or 10W-40 0 to 25 °C (32 to 77 °F): SAE20, 10W-30 or 10W-40 Above 25 °C (77 °F): SAE30, 10W-30 or 10W-40
4	Transmission case		60 L 63.4 U.S.qts 52.8 Imp.qts	KUBOTA UDT or KUBOTA SUPER UDT fluid*
5	Front differential case oil		7.0 L 7.4 U.S.qts 6.2 Imp.qts	KUBOTA UDT or KUBOTA SUPER UDT fluid or SAE80, 90 gear oil
6	Front axle gear case oil		3.5 L 3.7 U.S.qts 3.1 Imp.qts	
7	Brake system (Reservoir and lines)		0.3 L 0.32 U.S.qts 0.26 Imp.qts	KUBOTA UDT or SUPER UDT fluid* or Turbine oil 32 (see below) [regular type, multipurpose straight mineral oil Mobile DTE Oil #32 TEXACO Regal Oil #32 CHEVRON-GST Oil #32 TERESSO Oil #32] Never use automotive brake oil.
8	Air conditioner compressor		50 to 70 cm ³ 0.053 to 0.074 U.S.qts 0.044 to 0.062 Imp.qts	Compressor oil: DENSO Suniso ND-OIL8 <**PAG OIL>
	Refrigerant		1.1 kg 2.43 lbs	Refrigerant R-134a

* KUBOTA original transmission hydraulic fluid.

** PAG: Polyalkyleneglycol (Synthetic oil)

Greasing				
	Place	No. of greasing point	Capacity	Type of grease
g	Top link	2	Until grease overflow	Multipurpose type grease
	Lift rod (Upper right, lower right, lower left)	3		
	Front axle gear case support	2		
	Front axle support	2		
	Steering joint shaft	1		
	Battery terminal	2	A small amount	

■ NOTE

- **Engine Oil:** Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperature as shown above.
- With the emission control now in effect, the CF-4 and CG-4 lubricating oils have been developed for use of a low-sulfur fuel on on-road vehicle engines. When an off-road vehicle engine runs on a high-sulfur fuel, it is advisable to employ the CF, CD or CE lubricating oil with a high total base number. If the CF-4 or CG-4 lubricating oil is used with a high-sulfur fuel, change the lubricating oil at shorter intervals.
- Lubricating oil recommended when a low-sulfur or high-sulfur fuel is employed.
O: Recommendable X: Not Recommendable

Lubricating oil class	Fuel		Remark
	Low-sulfur	High-sulfur	
CF	○	○	TBN greater or equal 10
CF-4	○	X	
CG-4	○	X	

- **Transmission Oil:** The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and complete lubrication of the transmission, it is important that a multi-grade transmission fluid be used in this system. We recommend the use of KUBOTA SUPER UDT fluid for optimum protection and performance.
Do not mix different brands together.
- Indicated capacity of water and oil are manufacture's estimate.

5. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLT AND NUTS

Screws, bolt and nuts whose tightening torque 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			Aluminum		
Unit	N·m	kgf·m	ft-lbs												
Diameter															
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 10.5
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 52.1
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 (16 mm, 0.63 in.)	167 to 191	17.0 to 19.5	123 to 141	–	–	–	197 to 225	20.0 to 23.0	145 to 166	–	–	–	260 to 304	26.5 to 31.0	192 to 224
M18 (18 mm, 0.71 in.)	246 to 284	25.0 to 29.0	181 to 209	–	–	–	275 to 318	28.0 to 32.5	203 to 235	–	–	–	344 to 402	35.0 to 41.0	254 to 296
M20 (20 mm, 0.79 in.)	334 to 392	34.0 to 40.0	246 to 289	–	–	–	368 to 431	37.5 to 44.0	272 to 318	–	–	–	491 to 568	50.0 to 58.0	362 to 419

W1034542

[2] STUD BOLTS

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

W1048139

[3] HYDRAULIC FITTINGS

■ Hydraulic Hose Fittings

Hose size	Thread size	Tightening torque		
		N·m	kgf·m	ft-lbs
02	1/8	13.7 to 15.7	1.4 to 1.6	10.1 to 11.6
03	1/4	22.6 to 27.5	2.3 to 2.8	16.6 to 20.3
04				
05	3/8	45.1 to 53.0	4.6 to 5.4	33.3 to 39.0
06				

W1014711

■ Hydraulic Pipe Cap Nuts

Pipe size	Tightening torque		
	N·m	kgf·m	ft-lbs
φ4 × t1.0	19.6 to 29.4	2.0 to 3.0	14.5 to 21.7
φ6 × t1.0	24.5 to 34.3	2.5 to 3.5	18.1 to 25.3
φ8 × t1.0	29.4 to 39.2	3.0 to 4.0	21.7 to 28.9
φ10 × t1.0	39.2 to 49.0	4.0 to 5.0	28.9 to 36.1
φ12 × t1.5	49.0 to 68.6	5.0 to 7.0	36.1 to 50.6
φ15 × t1.6	107.9 to 117.7	11.0 to 12.0	79.6 to 86.8
φ18 × t1.6	107.9 to 117.7	11.0 to 12.0	79.6 to 86.8

W1014848

■ Adaptors, Elbows and Nipples

Items	Thread size	Tightening torque		
		N·m	kgf·m	ft-lbs
POA-PF (Nipple with O-ring)	PF 1/8	44.1 to 53.9	4.5 to 5.5	32.5 to 39.8
	PF 1/4	73.5 to 83.4	7.5 to 8.5	54.2 to 61.5
	PF 3/8	93.2 to 103.0	9.5 to 10.5	68.7 to 75.9
	PF 1/2	112.8 to 122.6	11.5 to 12.5	83.2 to 90.4
POB-PF (Elbow with O-ring and no nut)	PF 1/8	22.6 to 26.5	2.3 to 2.7	16.6 to 19.5
	PF 1/4	35.3 to 43.1	3.6 to 4.4	26.0 to 31.8
	PF 3/8	53.9 to 63.7	5.5 to 6.5	39.8 to 47.0
	PF 1/2	73.5 to 83.4	7.5 to 8.5	54.2 to 61.5
Adaptor (NPT)	PF 1/8	9.8 to 14.7	1.0 to 1.5	7.2 to 10.8
	PF 1/4	29.4 to 34.3	3.0 to 3.5	21.7 to 25.3
	PF 3/8	49.0 to 68.6	5.0 to 7.0	36.2 to 50.6
	PF 1/2	68.6 to 88.3	7.0 to 9.0	50.6 to 65.1

W1015484

6. MAINTENANCE

No.	Item		Period	Indication on hour meter												Since then every	Impor-tant	Refer-ence page
				50	100	150	200	250	300	350	400	450	500	550	600			
1	Engine start system		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	50 hrs		G-18
2	Wheel bolt torque		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	50 hrs		G-19
3	Battery condition		Check		☆		☆		☆		☆		☆		☆	100 hrs	*4	G-19
4	Greasing				☆		☆		☆		☆		☆		☆	100 hrs		G-24
5	Fan belt		Adjust		☆		☆		☆		☆		☆		☆	100 hrs		G-21
6	Brake pedal		Adjust		☆		☆		☆		☆		☆		☆	100 hrs		G-21
7	Parking brake lever		Adjust		☆		☆		☆		☆		☆		☆	100 hrs		G-23
8	Air cleaner element [Double type]	Primary element	Clean		☆		☆		☆		☆		☆		☆	100 hrs	*1	G-20
			Replace													1 year	*2	G-33
		Secondary element	Replace													1 year		G-33
9	Fuel line		Check		☆		☆		☆		☆		☆		☆	100 hrs		G-21
			Replace														2 years	
10	Hydraulic oil filter		Replace	★			☆		☆		☆		☆		☆	200 hrs		G-17
11	Toe-in		Adjust				☆		☆		☆		☆		☆	200 hrs		G-26
12	Fuel tank water		Drain				☆		☆		☆		☆		☆	200 hrs		G-26
13	Power steering oil line		Check				☆		☆		☆		☆		☆	200 hrs		G-25
			Replace														2 years	
14	Radiator hose and clamp		Check				☆		☆		☆		☆		☆	200 hrs		G-25
			Replace														2 years	
15	Engine oil		Check	★					☆						☆	300 hrs		G-15
16	Water separator		Clean								☆					400 hrs		G-30
17	Fuel filter		Replace								☆					400 hrs		G-30
18	Engine oil filter		Replace	★											☆	600 hrs		G-15
19	Transmission fluid		Change	★											☆	600 hrs		G-16
20	Front differential case oil		Change	★											☆	600 hrs		G-17
21	Front axle gear case		Change	★											☆	600 hrs		G-18
22	King-pin pivot		Adjust												☆	600 hrs		G-32
23	Brake oil		Change												☆	600 hrs		G-31
24	Front axle pivot		Adjust												☆	600 hrs		G-31
25	Engine valve clearance		Adjust													800 hrs		1-S13
26	Cooling system		Flush													2 years		G-34
27	Coolant		Change													2 years		G-34
28	Parking brake cable		Replace													2 years		5-S9
29	Brake hose		Replace													2 years		G-37

W1035769

No.	Item		Period	Indication on hour meter												Since then every	Important	Reference page											
				50	100	150	200	250	300	350	400	450	500	550	600														
30	Master cylinder kit	Replace														2 years		5-S11											
31	Equalizer kit	Replace														2 years		5-S11											
32	Brake seal 1 and 2	Replace														2 years		5-S16											
33	Fuel system	Bleed	Service as required														G-38												
34	Brake system	Bleed																											G-39
35	Clutch housing water	Drain																											G-38
36	Fuse	Replace																											G-41
37	Light bulb	Replace																											G-40

W1033488

Additional Items for CABIN Type

No.	Item		Period	Indication on hour meter												Since then every	Important	Reference page
				50	100	150	200	250	300	350	400	450	500	550	600			
1	Inner air filter	Clean				☆									☆	200 hrs		G-27
2	Fresh air filter	Clean				☆									☆	200 hrs		G-28
3	Air conditioner condenser	Clean				☆									☆	200 hrs		G-28
4	Air conditioner drive belt	Adjust				☆									☆	200 hrs		G-29
5	Air conditioner pipes and hoses	Check														1 year		G-32
6	CAB isolation cushion	Check														1 year		G-32
7	Washer liquid	Add	Service as required														G-40	
8	Refrigerant (gas)	Check																

IMPORTANT

- The jobs indicated by "★" must be done after the first 50 hours of operation.
- *1: Air cleaner should be cleaned more often in dusty condition than in normal conditions.
- *2: Every year or every 6 times of cleaning.
- *3: Replace only if necessary.
- *4: When the battery is used for less than 100 hours per year, check the battery condition by reading the indicator annually.

W1036925

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 brake oil level.
 7. Check the washer liquid level.
 8. Check the water separator.
 9. Check air cleaner evacuator valve (when used in a dusty place).
 10. Check the condition of seat belt.
 11. Check and clean the radiator screen and grill.
 12. Check and clean the air conditioner condenser screen, and intercooler screen.
 13. Check the nuts of tires are tight.
 14. Check the number plate or SMV emblem for damage and replace as necessary if equipped.
 15. Care of danger, warning and caution labels.
 16. Clean around the exhaust manifold and the muffler of the engine.
- While sitting in the operator's seat.
 1. Check the throttle pedal, brake pedal and clutch pedal.
 2. Check the throttle lever and shuttle lever.
 3. Check the parking brake.
 4. Check the steering wheel.
 5. Check the seat belt.
 - Turning the key switch.
 1. Check the performance of the Easy Checker™ lights.
 2. Check the head 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.