

Product: Kubota STV32 STV36 STV40 Service Manual

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**WORKSHOP MANUAL
TRACTOR**

STV32,STV36,STV40

Kubota

KiSC issued 03, 2007 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 STV32, STV36 and STV40. It is divided into three parts, "General", "Mechanism" and "Servicing".

■ General

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

■ Mechanism

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

Refer to Diesel Engine / Tractor Mechanism Workshop Manual (Code No. 9Y021-01874 / 9Y021-18201) for the one which has not been described to this workshop manual.

■ Servicing

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

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

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

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

August 2004

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SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol" is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to repair or use this unit.

DANGER

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

WARNING

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

CAUTION

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

■ IMPORTANT

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

■ NOTE

- Gives helpful information.

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BEFORE SERVICING AND REPAIRING

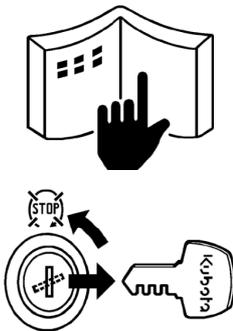
- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a firm and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, and remove the key
- Disconnect the battery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

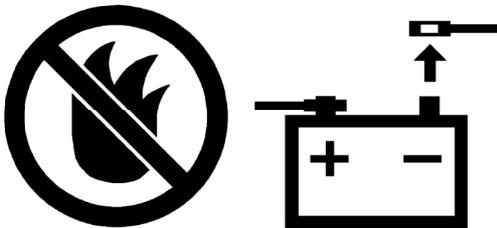
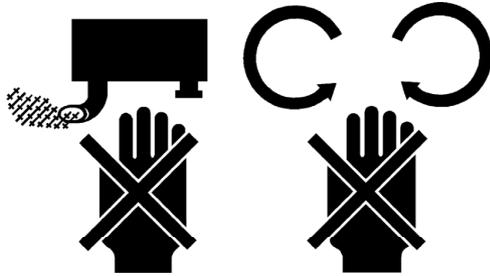
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SAFETY STARTING

- 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.

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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.

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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.

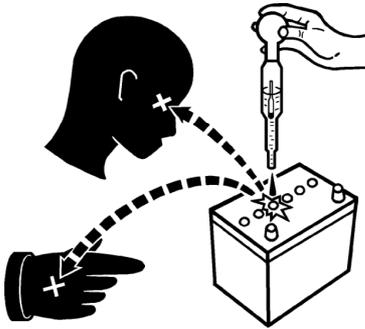
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VENTILATE WORK AREA

- 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.

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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.

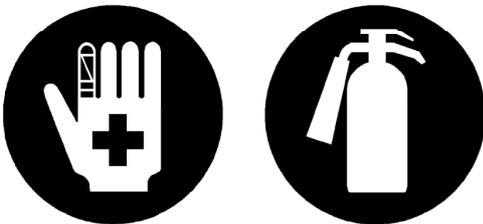
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DISPOSE OF FLUIDS PROPERLY

- 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.

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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.

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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. 6C040-4742-2

⚠ CAUTION

TO AVOID PERSONAL INJURY:

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

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



(2) Part No. 3F240-4905-2

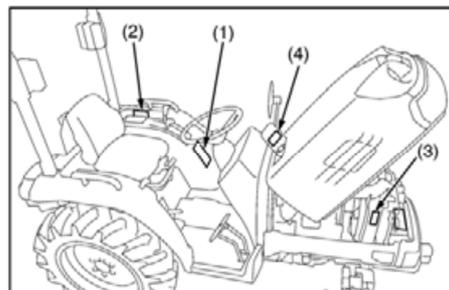
⚠ WARNING

To avoid personal injury: Use "Bi-speed Turn" only in low gears and slow speed. Do not use "Bi-speed Turn" in high gears or road speed.

(4) Part No. TA040-4956-2

Diesel fuel only

No fire



(1) Part No. TA040-4965-2

	<h2>⚠ DANGER</h2>
	<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.

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



(2) Part No. TA240-4933-2

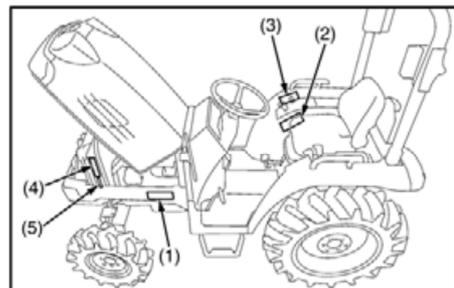
	<h2>⚠ WARNING</h2>
	<p>BEFORE DISMOUNTING TRACTOR:</p> <ol style="list-style-type: none"> 1. ALWAYS SET PARKING BRAKE. Leaving transmission in gear with the engine stopped will not prevent tractor from rolling. 2. PARK ON LEVEL GROUND WHENEVER POSSIBLE. If parking on a slope, position tractor across the slope. 3. LOWER ALL IMPLEMENTS TO THE GROUND. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death. 4. STOP THE ENGINE.

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



(3) Part No. TA044-4932-1

<h2>⚠ WARNING</h2>
<p>TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:</p> <ol style="list-style-type: none"> 1. Kubota recommends the use of a Roll-Over Protective Structures (ROPS) in almost all applications. 2. Remove the ROPS only when it substantially interferes with operation or itself presents a safety risk. (Examples include work in orchards and vineyards.) ALWAYS REINSTALL IT BEFORE USING THE TRACTOR IN OTHER APPLICATIONS. 3. For further details, consult your Operator's Manual or your local dealer.



(1) Part No. TD020-3012-2

 NS70MF 12V AMP. HR (SHR) 52 RESERVE CAPACITY (MIN) 123 COLD CRANKING AMPS (-18°C) 490	 FLAMMABLES  SHIELD EYES  KEEP OUT OF THE REACH OF CHILDREN  CAUTION OF SULFURIC ACID  READ INSTRUCTION MANUAL CAREFULLY  EXPLOSIVE	HYDROMETER  OK CHARGE REPLACE BATTERY BATTERY DK 92109
<p>· DUE TO HYDROGEN GAS GENERATED FROM BATTERY, HANDLING WITHOUT CARE CAN CAUSE FIRE AND EXPLOSION</p> <p>⚠ DANGER · THIS 12V BATTERY IS ONLY FOR STARTING ENGINE. DO NOT APPLY THIS PRODUCT FOR OTHER USES.</p> <p>· CHARGE THIS BATTERY ONLY AT WELL VENTILATED PLACES, AND AVOID SPARKS OR SPILLS.</p> <p>· REFER TO THE INSTRUCTION MANUAL OF VEHICLE OR BATTERY BEFORE USING BOOSTER CABLE.</p> <p>· SULFURIC ACID MAY CAUSE BLINDNESS OR SEVERE BURN. IN CASE EYES, SKIN, CLOTHES OR ANY ARTICLES ARE STAINED WITH ACID, FLUSH OBJECTS IMMEDIATELY WITH WATER. IF ACID BEING SWALLOWED, DRINK PLENTY OF WATER PROMPTLY. IN CASE OF ACCIDENTAL CONTACT, CONSULT A DOCTOR IMMEDIATELY.</p> <p>· BATTERY FILLED WITH ACID (DO NOT TILT OR SPILL) · FLAMMABLE. DO NOT CHARGE NEAR FIRE OR SPARKS</p> <p>· DO NOT CHARGE RAPIDLY · DO NOT DISASSEMBLE THE BATTERY (SEALED TYPE)</p>		
<h1>NS70MF</h1>		<h1>75D26R</h1>
<p>DANGER EXPLOSIVE GASES Cigarettes, flames or sparks could cause battery to explode. Always shield eyes and face from battery. Do not charge or use booster cables or adjust post connections without proper instruction and training.</p>		<p>POISON CAUSES SEVERE BURNS Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of accident flush with water and call a physician immediately.</p> <p>KEEP OUT OF REACH OF CHILDREN</p>
FITTING DATE 0 1 2 3 4 5 6 7 8 9 YEAR 1 2 3 4 5 6 7 8 9 10 11 12 MONTH		

(2) Part No. TA040-4959-3



⚠ WARNING

TO AVOID PERSONAL INJURY.

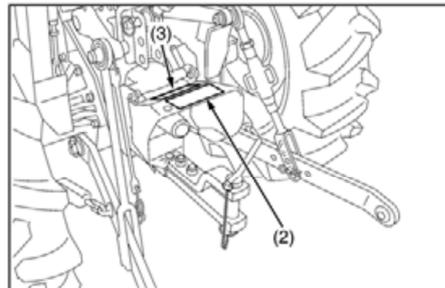
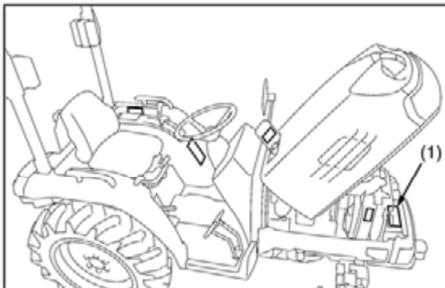
1. Keep PTO shield in place at all times.
2. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer.
3. For trailing PTO-driven implements, set drawbar at towing position. (see operator's manual)

(3) Part No. TA040-4935-1

⚠ WARNING

TO AVOID PERSONAL INJURY:

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



SPECIFICATIONS

Model		STV32		STV36		STV40		
PTO power		17.7 kW (24.1 HP)*		20.2 kW (27.5 HP)*		22.8 kW (31.0 HP)		
Engine	Maker	KUBOTA						
	Model	D1503-M		D1703-M		D1803-M		
	Type	E-TVCS, water-cooled, 4-cycle diesel						
	Number of cylinders	3						
	Bore and stroke	83 x 92.4 mm (3.27 x 3.64 in.)		87 x 92.4 mm (3.43 x 3.64 in.)		87 x 102.4 mm (3.43 x 4.03 in.)		
	Total displacement	1499 cm ³ (91.5 cu.in.)		1647 cm ³ (100.5 cu.in.)		1826 cm ³ (111.4 cu.in.)		
	Engine gross power	24.1 kW (32.3 HP)*		26.8 kW (35.9 HP)*		29.5 kW (39.5 HP)*		
	Rated revolution	2700 rpm						
	Maximum torque	99.2 N·m (10.0 kgf·m)		108.3 N·m (10.9 kgf·m)		120.7 N·m (12.2 kgf·m)		
	Battery	12 V, RC : 123 min, CCA : 490 A						
	Starting system	Electric starting with cell starter 12 V, 1.4 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-D [below 10 °C (14 °F)]						
Capacities	Fuel tank	29.5 L (7.79 U.S.gals, 6.49 Imp.gals)						
	Engine crankcase (with filter)	6.7 L (7.1 U.S.qts, 5.9 Imp.qts)						
	Engine coolant	6.1 L (6.4 U.S.qts, 5.4 Imp.qts)						
	Transmission case	22 L (5.81 U.S.gals, 4.84 Imp.gals)						
	Front axle case	4.0 L (4.2 U.S.qts, 3.5 Imp.qts)						
	Tires	Front	Farm: 6 - 12	Turf: 24 x 8.5 - 14	Farm: 6 - 12	Turf: 24 x 8.5 - 14	Farm: 6 - 12	Turf: 24 x 8.5 - 14
Rear		9.5 - 22	13.6 - 16	9.5 - 22	13.6 - 16	9.5 - 22	13.6 - 16	
Dimensions	Overall length (with 3P)	2860 mm (112.6 in.)						
	Overall width (min. tread)	1220 mm (48.0 in.)	1310 mm (51.6 in.)	1220 mm (48.0 in.)	1310 mm (51.6 in.)	1220 mm (48.0 in.)	1310 mm (51.6 in.)	
	Overall height (with ROPS)	2350 mm (92.5 in.)	2340 mm (92.1 in.)	2350 mm (92.5 in.)	2340 mm (92.1 in.)	2350 mm (92.5 in.)	2340 mm (92.1 in.)	
	Wheel base	1610 mm (63.4 in.)						
	Minimum ground clearance	235 mm (9.3 in.)	225 mm (18.9 in.)	235 mm (9.3 in.)	225 mm (18.9 in.)	235 mm (9.3 in.)	225 mm (18.9 in.)	
	Tread	Front	1030 mm (40.6 in.)					
		Rear	950 mm (37.4 in.) 1070 mm (42.1 in.)	965 mm (38.0 in.) 1055 mm (41.5 in.)	950 mm (37.4 in.) 1070 mm (42.1 in.)	965 mm (38.0 in.) 1055 mm (41.5 in.)	950 mm (37.4 in.) 1070 mm (42.1 in.)	965 mm (38.0 in.) 1055 mm (41.5 in.)

Model		STV32		STV36		STV40		
Weight (with ROPS)		975 kg (2150 lbs)	995 kg (2194 lbs)	975 kg (2150 lbs)	995 kg (2194 lbs)	975 kg (2150 lbs)	995 kg (2194 lbs)	
Travelling system	Clutch	Dry single plate						
	Steering	Hydrostatic power steering						
	Transmission	Main-hydrostatic transmission, range gear shift (3 forward and 3 reverse)						
	Brake	Wet disk type						
	Min. turning radius (with bi-speed turn)	2.2 m (7.2 feet) with brake, 2.5 m (8.2 feet) without brake						
	Differential	Bevel gear						
Hydraulic system	Hydraulic control system	Position control						
	Pump capacity	3P : 22.3 L / min (5.9 U.S.gals / min, 4.9 Imp.gals / min) Power steering : 13.6 L / min (3.6 U.S.gals / min., 3.0 Imp.gals / min)						
	Three point hitch	SAE Category 1						
	Max. lift force	At lift points	1150 kg (2535 lbs)					
		24 in. behind lift points	890 kg (1962 lbs)					
PTO system	Rear	PTO shaft	SAE 1-3/8, 6 splines					
		Revolution	2 speeds (540 rpm at 2670 engine rpm, 800 rpm at 2717 engine rpm)					
	Mid	PTO shaft	U.S.A. No.5 (KUBOTA 10-tooth) involute spline					
		Revolution	1 speed (2500 rpm at 2734 engine rpm)					

Note : * Manufacture's estimate.

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

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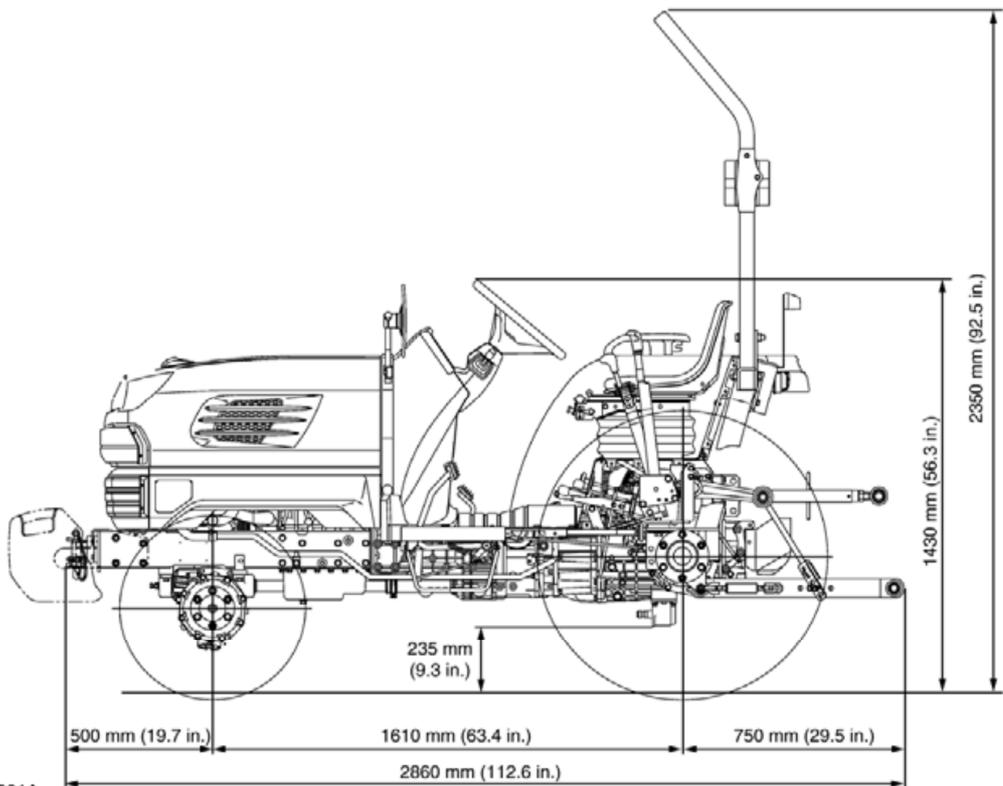
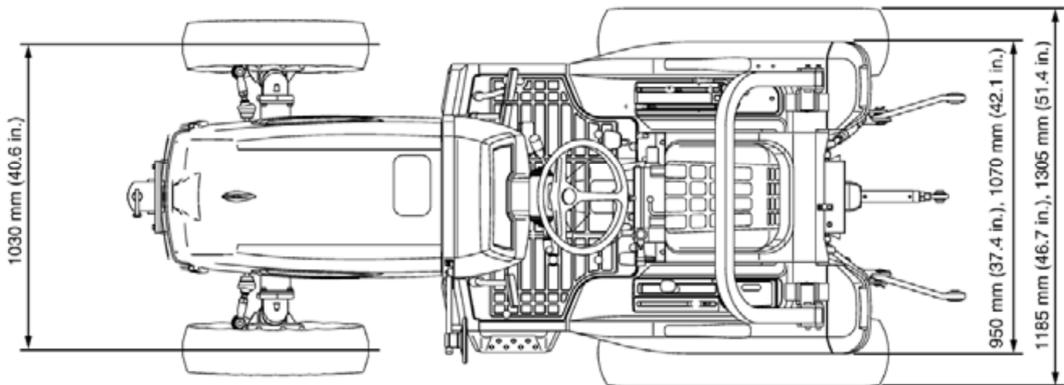
TRAVELLING SPEEDS

Model		STV32, 36, 40	
Tire Size (Rear)		9.5 - 22	13.6 - 16
Range gear shift lever		km/h	km/h
Forward	1 (Low)	0 to 6.6	0 to 6.5
	2 (Middle)	0 to 12.7	0 to 12.6
	3 (High)	0 to 28.4	0 to 28.2
	Max. Speed (at 2850 engine rpm)	29.9	29.8
Reverse	1 (Low)	0 to 4.8	0 to 4.7
	2 (Middle)	0 to 9.2	0 to 9.2
	3 (High)	0 to 20.6	0 to 20.4
	Max. Speed (at 2850 engine rpm)	21.7	21.6

The company reserves the right to change the specifications without notice

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DIMENSIONS



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G GENERAL

CONTENTS

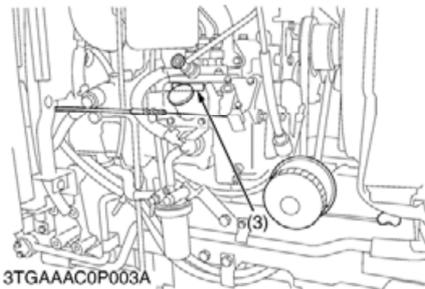
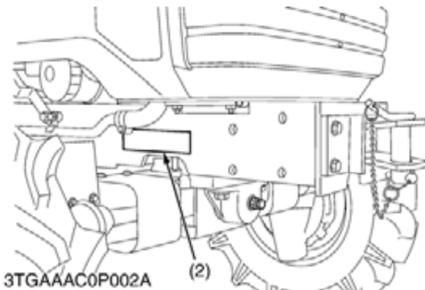
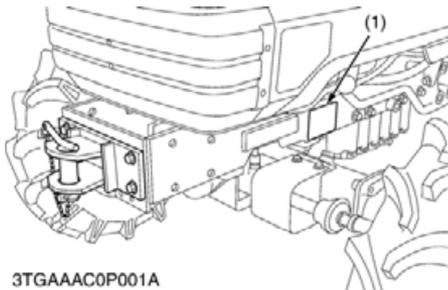
1. TRACTOR IDENTIFICATION.....	G-1
2. GENERAL PRECAUTION.....	G-2
3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING.....	G-3
[1] WIRING.....	G-3
[2] BATTERY.....	G-5
[3] FUSE.....	G-5
[4] CONNECTOR.....	G-6
[5] HANDLING OF CIRCUIT TESTER.....	G-7
4. LUBRICANTS, FUEL AND COOLANT.....	G-8
5. TIGHTENING TORQUES.....	G-9
[1] GENERAL USE SCREWS, BOLTS AND NUTS.....	G-9
[2] STUD BOLTS.....	G-9
6. MAINTENANCE CHECK LIST.....	G-10
7. CHECK AND MAINTENANCE.....	G-12
[1] DAILY CHECK.....	G-12
[2] CHECK POINTS OF INITIAL 50 HOURS.....	G-13
[3] CHECK POINTS OF EVERY 50 HOURS.....	G-18
[4] CHECK POINTS OF EVERY 100 HOURS.....	G-20
[5] CHECK POINTS OF EVERY 200 HOURS.....	G-27
[6] CHECK POINTS OF EVERY 400 HOURS.....	G-29
[7] CHECK POINTS OF EVERY 600 HOURS.....	G-30
[8] CHECK POINTS OF EVERY 800 HOURS.....	G-30
[9] CHECK POINTS OF EVERY 1 YEAR.....	G-30
[10] CHECK POINTS OF EVERY 2 YEARS.....	G-30
[11] OTHERS.....	G-33
8. SPECIAL TOOLS.....	G-36
[1] SPECIAL TOOLS FOR ENGINE.....	G-36
[2] SPECIAL TOOLS FOR TRACTOR.....	G-42
9. TIRES.....	G-47
[1] TIRE PRESSURE.....	G-47
[2] TREAD.....	G-48
(1) Front Wheels.....	G-48
(2) Rear Wheels.....	G-49
[3] TIRE LIQUID INJECTION.....	G-50
10. IMPLEMENT LIMITATIONS.....	G-52

1. TRACTOR IDENTIFICATION

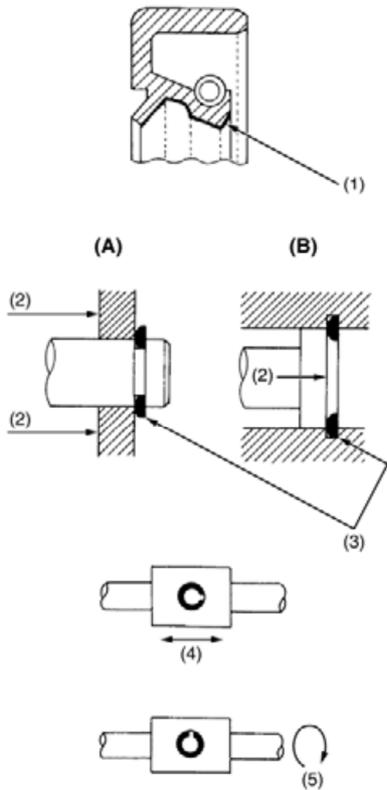
When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number and hour meter reading.

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

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2. GENERAL PRECAUTION



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

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

- (A) External Snap Ring
- (B) Internal Snap Ring

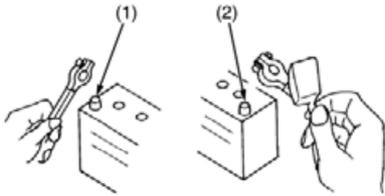
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3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING

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.

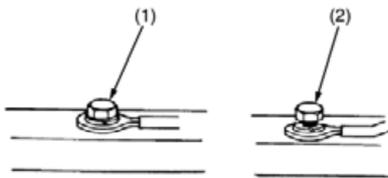


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- (1) Negative Terminal (2) Positive Terminal

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[1] WIRING

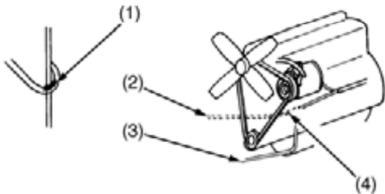


- Securely tighten wiring terminals.

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

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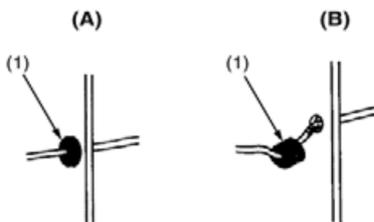


- Do not let wiring contact dangerous part.

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

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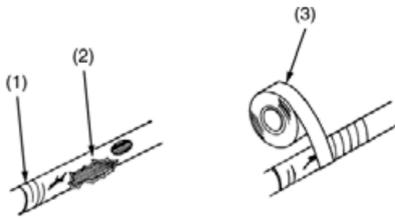


- Securely insert grommet.

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

0000000616E

3TMABAB0P009A

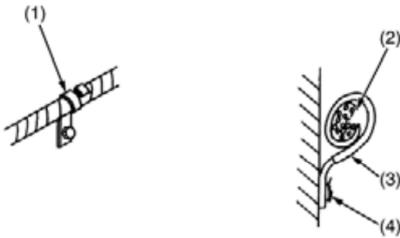


3GFABAB0P003A

● Repair or change torn or aged wiring immediately.

- (1) Aged
- (2) Torn
- (3) Insulating Vinyl Tape

0000002256E

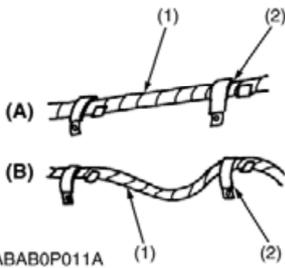


3TMABAB0P010A

● Securely clamp, being careful not to damage wiring.

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

0000000617E

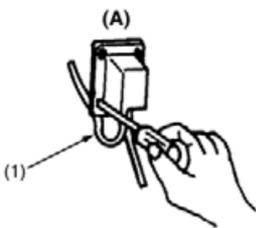


3TMABAB0P011A

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

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

0000000618E



3TMABAB0P012A

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

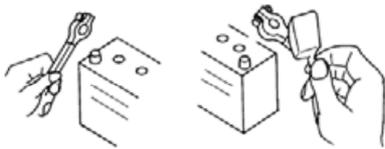
- (1) Wiring
- (A) Incorrect

0000000619E



3TMABAB0P013A

[2] BATTERY



3TMABAB0P006B

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

- (1) Cover
*Securely Install Cover

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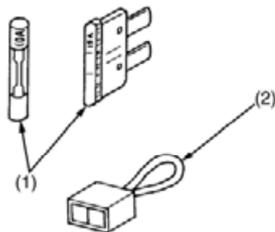
- Take care not to confuse positive and negative terminal posts.
- When removing battery cables, disconnect negative cable first. When installing battery cables, check for polarity and connect positive cable first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting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

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[3] FUSE



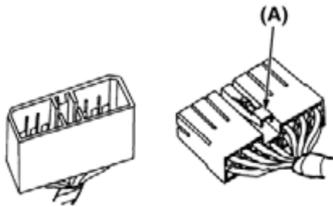
3TMABAB0P014A

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

- (1) Fuse
- (2) Fusible Link

000000622E

[4] CONNECTOR

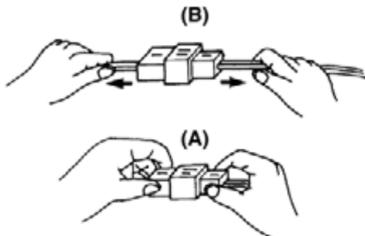


3TMABAB0P015A

- For connector with lock, push lock to separate.

(A) Push

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3TMABAB0P016A

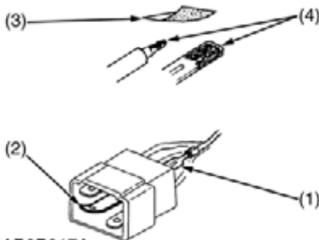
- In separating connectors, do not pull wire harnesses.

- Hold connector bodies to separate.

(A) Correct

(B) Incorrect

000000624E



3TMABAB0P017A

- Use sandpaper to remove rust from terminals.

- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

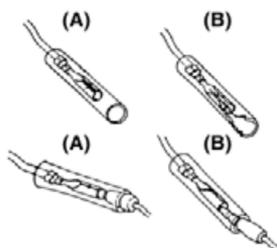
(1) Exposed Terminal

(3) Sandpaper

(2) Deformed Terminal

(4) Rust

000000625E



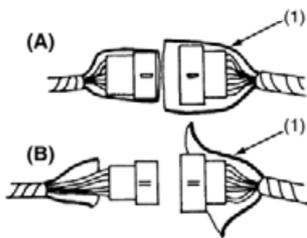
3TMABAB0P018A

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

(A) Correct

(B) Incorrect

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3TMABAB0P019A

[5] HANDLING OF CIRCUIT TESTER

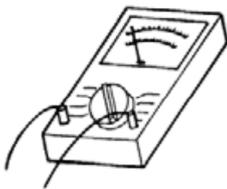
- Make certain plastic cover is large enough to cover whole connector.

(1) Cover

(A) Correct

(B) Incorrect

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3TMABAB0P020A

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

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4. LUBRICANTS, FUEL AND COOLANT

	Place	Capacity	Lubricants, fuel and coolant	
1	Fuel tank	29.5 L 7.79 U.S.gals. 6.49 Imp.gals.	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below -10 °C (14 °F)	
2	Coolant (with reserve tank)	6.1 L 6.4 U.S.qts. 5.4 Imp.qts.	Fresh clean water with anti-freeze	
3	Engine crankcase (with filter)	6.7 L 7.1 U.S.qts. 5.9 Imp.qts.	Engine oil: API service CC or CD class Below 0 °C (32 °F) : SAE10W, 10W-30 or 10W-40 0 to 25 °C (32 to 77 °F) : SAE20, 10W-30 or 10W-40 Above 25 °C (77 °F) : SAE30, 10W-30 or 10W-40	
4	Transmission case	22 L 5.81 U.S.qts. 4.84 Imp.qts.	KUBOTA SUPER UDT fluid*	
5	Front differential case oil	4.0 L 4.2 U.S.qts. 3.5 Imp.qts.	KUBOTA SUPER UDT fluid or SAE80, 90 gear oil	
Grease				
	Place	No. of greasing point	Capacity	Type of grease
6	Brake pedal shaft	1	Until grease overflows	Multipurpose type grease
	Clutch pedal shaft	1		
	Top link	2		
	Lift rod	1	Moderate amount	
	Battery terminal	2		
	Cruise control lever	2		
	Speed control wire	Oiling		Engine oil

*KUBOTA original transmission hydraulic fluid.

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5. TIGHTENING TORQUES

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

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[2] STUD BOLTS

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

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6. MAINTENANCE CHECK LIST

No.	Item	Period	Indication on hour meter														After since	Reference page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
1	Greasing	-	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50Hr	G-18, 19	
2	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50Hr	G-19	
3	Wheel bolt torque	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50Hr	G-20	
4	Engine oil	Change	★	☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-13	
5	Brake pedal	Adjust		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-23	
6	Fan belt	Adjust		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-23	
7	Clutch pedal	Adjust	★	☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-17	
8	Battery condition	Check		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-25	*4
9	Air cleaner element [Single type]	Clean		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-21	*1
		Replace																	every 1 year	G-21
10	Air cleaner element [Double type] (Primary element)	Clean		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-21	*1
		Replace																	every 1 year	G-21
	Air cleaner element [Double type] (Secondary element)	Replace																	every 1 year	G-21
11	Fuel filter element	Clean		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-22	
		Replace									☆								every 400Hr	G-22
12	Parking brake	Adjust		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-24	
13	Fuel line	Check		☆		☆		☆		☆		☆		☆		☆		every 100Hr	G-22	
		Replace																	every 2 years	G-22
14	Engine oil filter	Replace	★			☆				☆					☆			every 200Hr	G-14	
15	Hydraulic oil filter	Replace	★			☆				☆					☆			every 200Hr	G-16	
16	Hydraulic oil filter [HST]	Replace	★			☆				☆					☆			every 200Hr	G-16	
17	Toe-in	Adjust				☆				☆					☆			every 200Hr	G-29	

No.	Item	Period	Indication on hour meter														After since	Reference page		
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
18	Radiator hose and clamp	Check				☆				☆							every 200Hr	G-27		
		Replace															every 2 years	G-27	*3	
19	Power steering hose	Check				☆				☆							every 200Hr	G-28		
		Replace															every 2 years	G-28		
20	HST oil line [HST]	Check				☆				☆							every 200Hr	G-28		
		Replace															every 2 years	G-28	*3	
21	Transmission fluid	Change	★							☆							every 400Hr	G-15		
22	Front axle case oil	Change	★							☆							every 400Hr	G-16		
23	Front axle pivot	Adjust														☆	every 600Hr	G-30		
24	Engine valve clearance	Adjust															every 800Hr	1-S13		
25	Cooling system	Flush															every 2 years	G-31		
26	Coolant	Change															every 2 years	G-31		
27	Fuel system	Bleed																G-33		
28	Clutch housing water	Drain																Service as required	G-33	
29	Fuse	Replace															G-34			
30	Light bulb	Replace															G-35			

■ IMPORTANT

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

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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.

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[1] DAILY CHECK

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

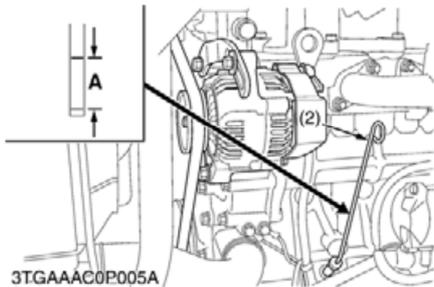
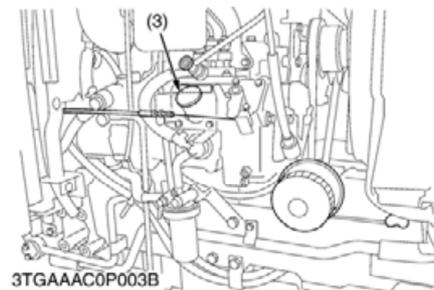
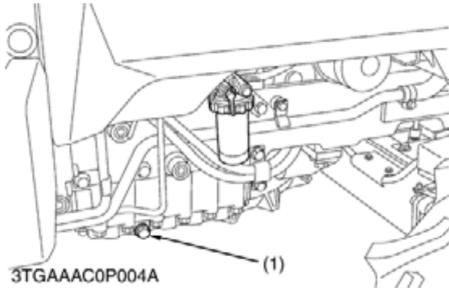
Checking

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

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[2] CHECK POINTS OF INITIAL 50 HOURS

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

■ IMPORTANT

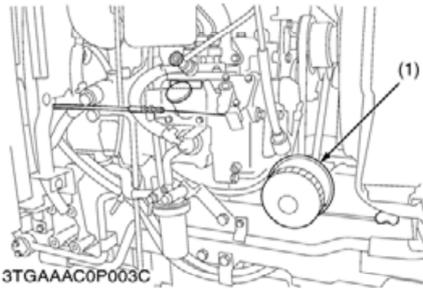
- When using an oil of different manufacture or viscosity from the previous one, remove all of the old oil.
- Never mix two different types of oil.
- Use the proper SAE Engine Oil according to ambient temperatures.
- Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-8.)

Engine oil	Capacity	6.7 L 7.1 U.S.qts 5.9 Imp.qts
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- (1) Drain Plug
- (2) Dipstick
- (3) Oil Inlet Plug

(A) Oil level is acceptable within this range.

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Replacing Engine Oil Filter Cartridge

⚠ CAUTION

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

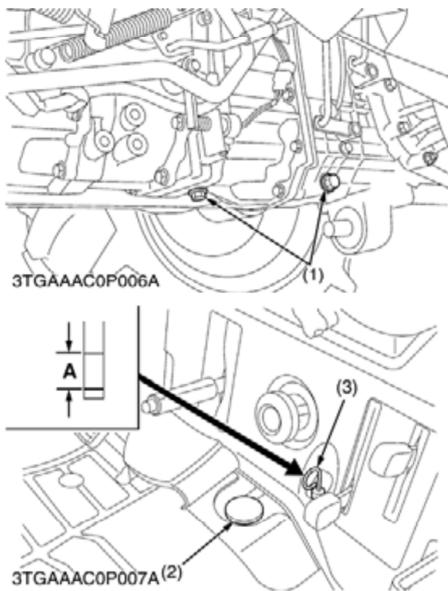
1. Remove the oil filter cartridge with the filter wrench.
2. Apply a slight coat of oil onto the rubber seal of new filter.
3. To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
4. After the new cartridge has been replaced, the engine oil normally 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 filter must be highly efficient. Use only a KUBOTA genuine filter or its equivalent.

(1) Engine Oil Filter

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Changing Transmission Fluid

⚠ CAUTION

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

1. Place an oil pan under the tractor.
2. Remove the drain plug (1) at the bottom of the transmission case.
3. Drain the transmission fluid.
4. After draining, screw in the drain plug.
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 to the prescribed level.

■ IMPORTANT

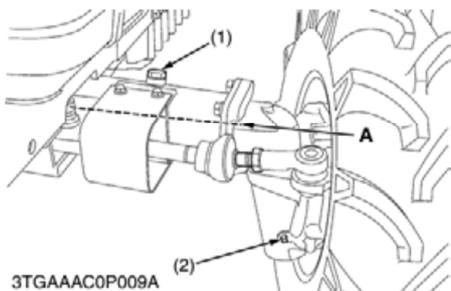
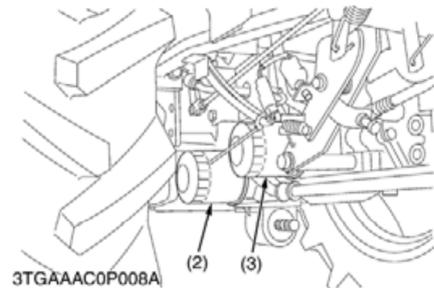
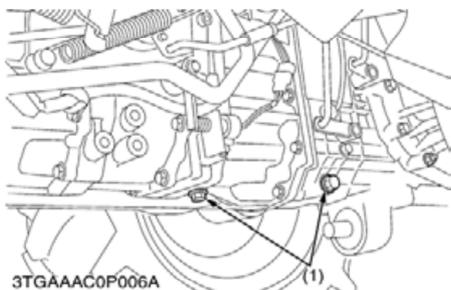
- Use only multi-grade transmission oil. Use of other oils may damage the transmission or hydraulic system. Refer to "LUBRICANTS, FUEL AND COOLANT" (See page G-8.).
- Never work the tractor immediately after changing the transmission oil. Keeping the engine at medium speed for a few minutes to prevents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

Transmission fluid	Capacity	22 L 5.81 U.S.gals 4.84 Imp.gals
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- (1) Drain Plug
- (2) Filling Plug
- (3) Dipstick

A : Oil level is acceptable within this range.

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Replacing Hydraulic Oil Filter Cartridge

⚠ CAUTION

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

1. Drain the transmission fluid.
2. Remove the both oil filter cartridges by using a filter wrench.
3. Apply a slight coat of oil onto the new cartridge gasket.
4. To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
5. 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. Use only a genuine KUBOTA filter or its equivalents.

- (1) Drain Plug (3) Hydraulic Oil Filter (for HST)
 (2) Hydraulic Oil Filter

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Changing Front Axle Case Oil

⚠ CAUTION

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

1. Remove the both right and left drain plugs (2) at bottom of the bevel gear case.
2. Drain the front axle case oil.
3. After draining, screw in the two drain plugs.
4. Fill new oil from filling port with specified amount.

■ IMPORTANT

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

■ NOTE

- Oil level is at the center of the front axle.

Front axle case oil	Capacity	4.0 L 1.06 U.S.gals. 0.88 Imp.gals.
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- (1) Filling Plug (2) Drain Plug **A : Oil Level**

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