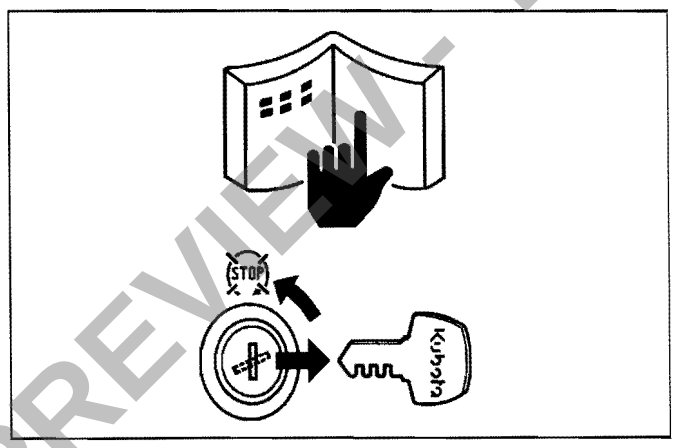
⚠ SAFETY FIRST

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.

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GENERAL

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SPECIFICATIONS

Model			B3200HSD	B3200HSDWO
PTO power			17.2 kW (23.0 HP)*	
Engine	Maker		KUBOTA	
	Model		V1505-E3-D24	
	Type		Indirect injection, vertical, water-cooled, 4 cycle diesel	
	Number of cylinders		4	
	Bore and stroke		78 x 78.4 mm (3.1 x 3.1 in.)	
	Total displacement		1498 cm^3 (91.5 cu.in.)	
	Engine gross power		23.9 kW (32.0 HP)*	
	Rated revolution		2700 min^{-1} (rpm)	
	Maximum torque		90 N·m (67 lbf·ft)	
	Battery		12 V, RC : 79 min, CCA : 433 A	
Capacities	Fuel tank		31 L (8.1 U.S.gals, 6.8 Imp.gals)	
	Engine crankcase (with filter)		5.4 L (5.7 U.S.qts, 4.8 Imp.qts)	
	Engine coolant		4.5 L (4.7 U.S.qts, 4.0 Imp.qts)	
	Transmission case		14.5 L (3.83 U.S.gals, 3.19 Imp.gals)	
Dimensions	Overall length (without 3-point hitch)		2520 mm (99.2 in.)	
	Overall width		1366 mm (53.8 in.)	
	Overall height (with ROPS)		2270 mm (89.4 in.)	
	Wheel base		1666 mm (65.6 in.)	
	Minimum ground clearance		370 mm (14.6 in.)	
	Tread	Front	935 mm (36.8 in.)	
		Rear	1050 mm (41.3 in.)	
Weight (with ROPS)			800 kg (1763 lbs)	
Clutch			Dry single plate	
Travelling system	Tires	Front	7 - 12	
		Rear	12.4 - 16	
	Steering		Integral type power steering	
	Transmission		Main-hydrostatic transmission, 3 range gear shift (3 forward, 3 reverse)	
	Brake		Wet disk type	
	Min. turning radius (with brake)		2.1 m (6.9 feet)	
Hydraulic system	Hydraulic control system		Quarter inching valve	
	Pump capacity		3-point hitch : 25.3 L/min (6.68 U.S.gals/min, 5.57 Imp.gals/min) Power steering : 12.2 L/min (3.22 U.S.gals/min., 2.68 Imp.gals/min)	
	3-point hitch		SAE Category 1	
	Max. lift force	At lift points	750 kg (1655 lbs)	
		24 in. behind lift points	590 kg (1300 lbs)	
PTO system	Rear PTO	Shaft	SAE 1-3/8, 6 splines	
		PTO / Engine speed rpm	1 speed 540 min^{-1} (rpm) at 2600 min^{-1} (rpm)	
	Mid PTO	Shaft	U.S.A. No.5 (KUBOTA 10-tooth) involute spline	
		PTO / Engine speed rpm	1 speed 2500 min^{-1} (rpm) at 2578 min^{-1} (rpm)	

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

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6. MAINTENANCE CHECK LIST

No.	Item		Period	Indication on hour meter										Important		Reference page
				50	100	150	200	250	300	350	400	450	500			
1	Engine oil		Change	★			☆				☆					G-16
2	Engine oil filter		Replace	★			☆				☆					G-16
3	Transmission oil filter (for HST)		Replace	★			☆				☆					G-17
4	Hydraulic oil filter		Replace	★							☆					G-18
5	Transmission fluid		Change								☆					G-29
6	Transmission strainer		Clean	★							☆					G-19
7	Front axle case oil		Change								☆					G-30
8	Front axle pivot		Adjust								☆					G-30
9	Engine start system		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-20
10	Greasing		–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-20
11	Wheel bolt torque		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-22
12	Battery condition		Check		☆		☆		☆		☆		☆	*4		G-23
13	Air cleaner element	Primary element	Clean		☆		☆		☆		☆		☆	*1	@	G-25
			Replace											*2		G-31
		Secondary element	Replace													G-31
14	Fuel filter element		Clean		☆		☆		☆		☆		☆		@	G-25
			Replace								☆					G-30
15	Fan belt		Adjust		☆		☆		☆		☆		☆			G-26
16	Clutch		Adjust	★	☆		☆		☆		☆		☆			G-19
17	Brake		Adjust		☆		☆		☆		☆		☆			G-26
18	Radiator hose and clamp		Check				☆				☆					G-28
			Replace													G-32
19	Fuel line		Check		☆		☆		☆		☆		☆		@	G-27
			Replace													G-32
20	Intake air line		Check				☆				☆				@	G-27
			Replace													G-32
21	Toe-in		Adjust				☆				☆					G-28
22	Engine valve clearance		Adjust													G-31
23	Fuel injection nozzle injection pressure		Check												@	G-31
24	Injection pump		Check												@	G-31
25	Cooling system		Flush													G-32
26	Coolant		Change													G-32
27	Fuel system		Bleed													G-35
28	Clutch housing water		Drain													G-35
29	Fuse		Replace													G-35
30	Light bulb		Replace													G-36

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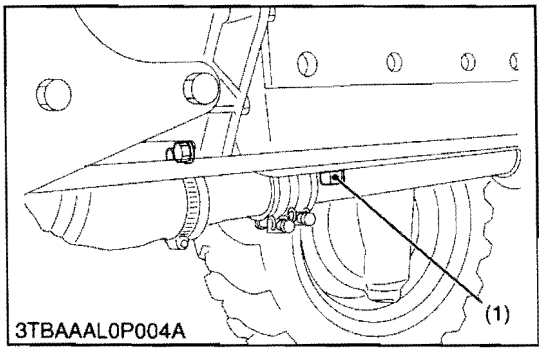
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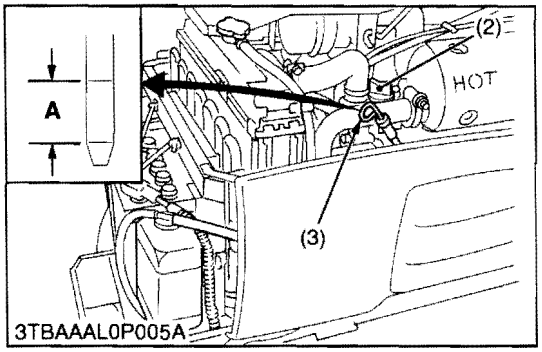
■ **IMPORTANT**

- **The jobs indicated by ★ must be done after the first 50 hours of operation.**
- ***1 : Air cleaner should be cleaned more often in dusty conditions than in normal conditions.**
- ***2 : Every year or every 6 times of cleaning.**
- ***3 : Replace only if necessary.**
- ***4 : When the battery is used for less than 100 hours per year, check the fluid level annually.**
- **The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA non road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.**

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[2] CHECK POINTS OF INITIAL 50 HOURS





Changing Engine Oil

CAUTION

To avoid personal injury :

- **Be sure to stop the engine and remove the key before changing the oil.**
- **Allow engine to cool down sufficiently, oil can be not and can burn.**

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

■ IMPORTANT

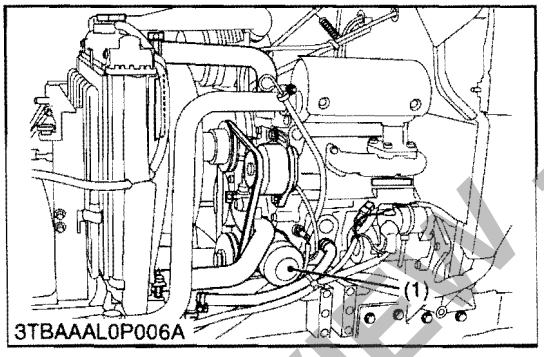
- **Never mix two different types of oil.**
- **Use the proper SAE Engine Oil according to ambient temperatures.**
- **Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-9)**

Engine oil capacity	5.4 L 5.7 U.S.qts 4.8 Imp.qts

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

A : Proper Oil Level

W1031890



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

■ IMPORTANT

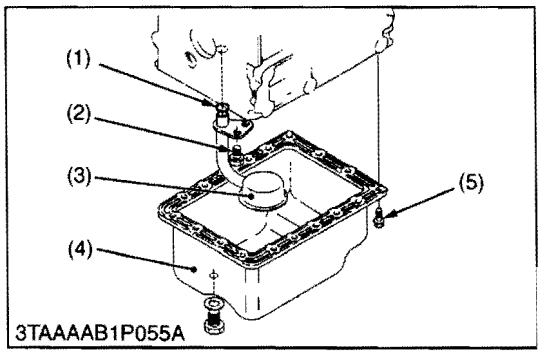
- **To prevent serious damage to the engine, replacement element must be highly efficient. Use only a KUBOTA genuine filter or its equivalent.**

(1) Engine Oil Filter Cartridge

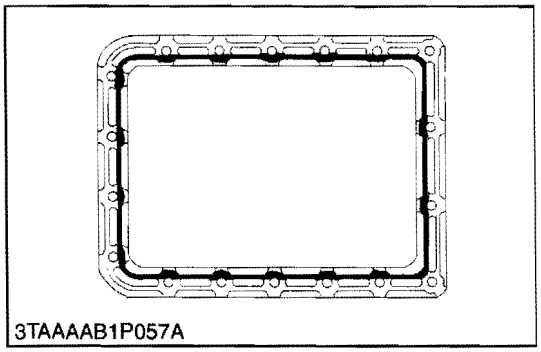
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Oil Pan and Oil Strainer

1. Remove the oil pan mounting screws (5).
2. Remove the oil pan (4).
3. Remove the oil strainer (3).

(When reassembling)

- After cleaning the oil strainer, check to see that the filter mesh is clean, and install it.
- Visually check the O-ring (1), apply engine oil, and install it.
- Securely fit the O-ring to the oil strainer.
- To avoid uneven tightening, tighten oil pan mounting screws in diagonal order from the center.

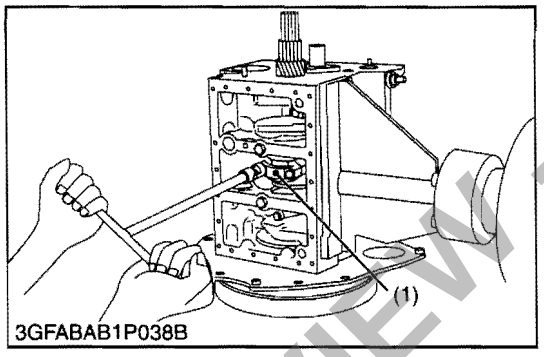
■ **IMPORTANT**

- **Scrape off the old adhesive completely. Wipe the sealing surface clean using waste cloth soaked with gasoline. Now apply new adhesive 3 to 5 mm (0.12 to 0.20 in.) thick all over the contact surface. Apply the adhesive also on the center of the flange as well as on the inner wall of each screw hole.**
- **Cut the nozzle of the "liquid gasket" container at its second notch. Apply "liquid gasket" about 5 mm (0.20 in.) thick. Within 20 minutes after the application of fluid sealant, reassemble the components. Wait then for about 30 minutes, and pour oil in the crankcase.**

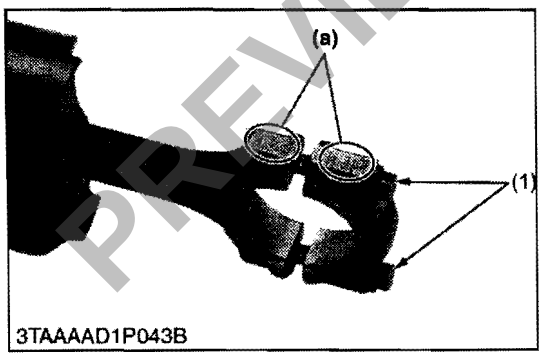
(1) O-ring
(2) Screw
(3) Oil Strainer
(4) Oil Pan
(5) Oil Pan Mounting Screws

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(3) Piston and Connecting Rod



3GFABAB1P038B



3TAAAAD1P043B

Connecting Rod

1. Remove the connecting rod cap.

(When reassembling)

- Align the marks **(a)** with each other. (Face the marks toward the injection pump.).
- Apply engine oil to the connecting rod screws (1) and lightly screw it in by hand, then tighten it to the specified torque.
  If the connecting rod screw won't be screwed in smoothly, clean the threads.
  If the connecting rod screw (1) is still hard to screw in, replace it.

Tightening torque	Connecting rod screw	41.2 to 46.1 N·m 4.2 to 4.7 kgf·m 30.4 to 34.0 lbf·ft

(1) Connecting Rod Screw **(a) Mark**

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3. TIGHTENING TORQUES

Tightening torque of screws, bolts and nuts on the table below are specially specified. (For general use screws, bolts and nuts : See page G-11.)

■ **NOTE**

- **In removing and applying the bolts and nuts marked with "*", a pneumatic wrench or similar pneumatic tool, if employed, must be used with enough care not to get them seized.**
- **For "*" marked screws, bolts and nuts on the table, apply engine oil to their threads and seats before tightening.**
- **The letter "M" in Size x Pitch means that the screw, bolt or nut dimension stands for metric. The size is the nominal outside diameter in mm of the threads. The pitch is the nominal distance in mm between two threads.**

[1] TRACTOR SECTION

Item	N·m	kgf·m	lbf·ft
Steering wheel mounting nut	29.4 to 49.0	3.0 to 5.0	21.7 to 36.2
Sub-frame mounting bolt (M12)	77.5 to 90.2	8.2 to 9.2	59 to 66
Sub-frame mounting bolt (M14)	124 to 147	12.9 to 15.3	93 to 111
Main frame and front case mounting bolt	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5
Engine and front axle frame mounting bolt	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2

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[2] ENGINE SECTION

Item	Size x Pitch	N·m	kgf·m	lbf·ft
*Cylinder head cover cap nuts	M7 x 1.0	6.9 to 8.8	0.7 to 0.9	5.1 to 6.5
*Cylinder head screw	M10 x 1.25	63.7 to 68.6	6.5 to 7.0	47.0 to 50.6
*Main bearing case screw 1	M8 x 1.25	29.4 to 34.3	3.0 to 3.5	21.7 to 25.3
*Main bearing case screw 2	M9 x 1.25	49.0 to 53.9	5.0 to 5.5	36.2 to 39.8
*Flywheel screw	M10 x 1.25	53.9 to 58.8	5.5 to 6.0	39.8 to 43.4
*Connecting rod screw	M8 x 1.0	41.2 to 46.1	4.2 to 4.7	30.4 to 34.0
*Rocker arm bracket nuts	M7 x 1.0	21.6 to 26.5	2.2 to 2.7	15.9 to 19.5
*Idle gear shaft screws	M6 x 1.0	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3
*Fan drive pulley screw	M14 x 1.5	235.4 to 245.2	24.0 to 25.0	173.6 to 180.8
*Bearing case cover screws	M6 x 1.0	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3
*Glow plugs	M8 x 1.0	7.8 to 14.7	0.8 to 1.5	5.8 to 10.8
Nozzle holder assembly	M20 x 1.5	49.0 to 68.6	5.0 to 7.0	36.2 to 50.6
Oil switch taper screw	PT 1/8	14.7 to 19.6	1.5 to 2.0	10.8 to 14.5
Injection pipe retaining nuts	M12 x 1.5	24.5 to 34.3	2.5 to 3.5	18.1 to 25.3
Overflow pipe assembly retaining nuts	M12 x 1.5	19.6 to 24.5	2.0 to 2.5	14.5 to 18.1
Starter's terminal **B** mounting nut	M8	8.8 to 11.8	0.9 to 1.2	6.5 to 8.7

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1. TROUBLESHOOTING

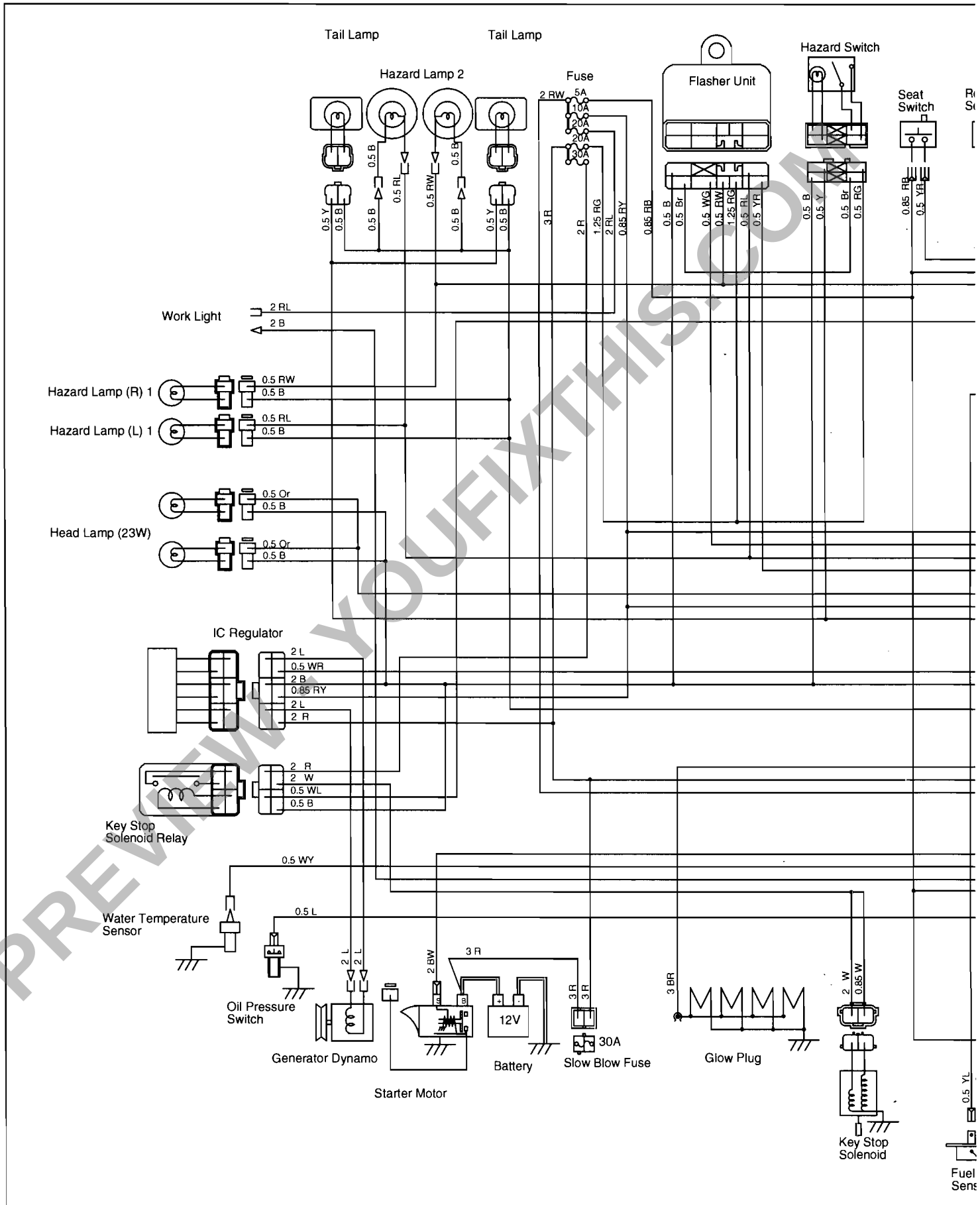
Symptom	Probable Cause	Solution	Reference Page
Engine Does Not Start	No fuel	Replenish fuel	–
	Air in the fuel system	Bleed	G-35
	Water in the fuel system	Change fuel and repair or replace fuel system	–
	Fuel hose clogged	Clean	–
	Fuel filter clogged	Change	G-30
	Excessively high viscosity of fuel or engine oil at low temperature	Use specified fuel or engine oil	G-9
	Fuel with low cetane number	Use specified fuel	–
	Incorrect injection timing	Adjust	1-S15
	Injection nozzle clogged	Repair or replace	1-S18
	Injection pump malfunctioning	Replace	1-S31
	Seizure of crankshaft, camshaft, piston, cylinder or bearing	Repair	–
	Compression leak from cylinder	Replace head gasket, tighten cylinder head screw, glow plug and nozzle holder	1-S29
	Improper valve timing	Correct or replace timing gear	1-S32
	Piston ring and cylinder worn	Replace	1-S50
	Excessive valve clearance	Adjust	1-S11
Engine Revolution Is Not Smooth	Fuel filter clogged or dirty	Replace	G-30
	Air cleaner clogged	Clean or replace	G-25, 31
	Fuel leak due to loosing injection pipe retaining nut	Tighten retaining nut	–
	Injection pump malfunctioning	Replace	1-S35
	Incorrect nozzle injection pressure	Adjust	1-S18
	Injection nozzle stuck or clogged	Repair or replace	1-S18
	Governor malfunctioning	Repair	–
Either White or Blue Exhaust Gas Is Observed	Excessive engine oil	Reduce to specified level	1-S21
	Piston ring and cylinder worn or stuck	Repair or replace	1-S50
	Incorrect injection timing	Adjust	1-S15
	Deficient compression	Repair	1-S10, 28, 34

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1. WIRING DIAGRAM

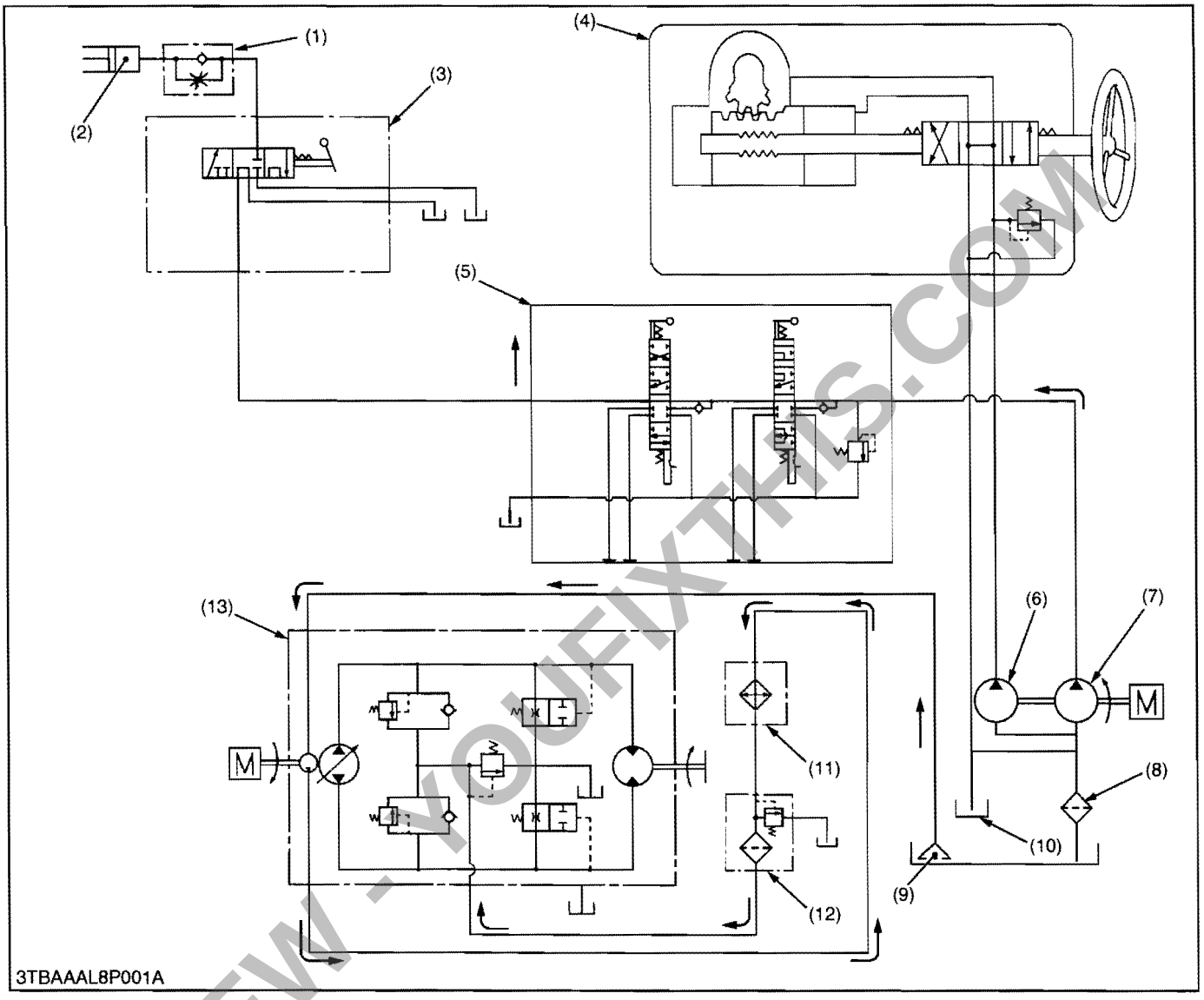


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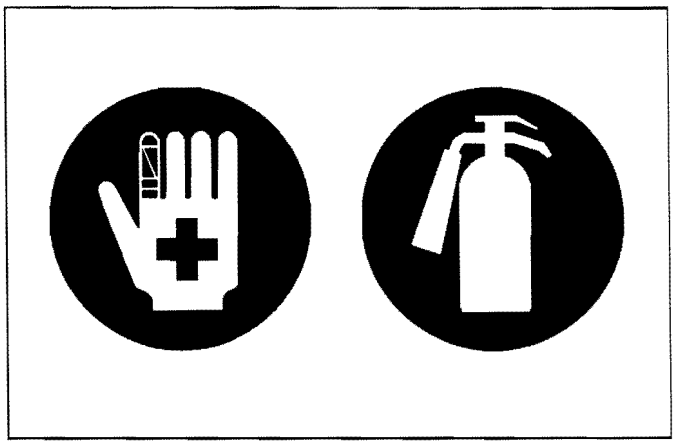
1. HYDRAULIC CIRCUIT



(1) Lowering Speed Adjusting Valve
(2) Hydraulic Cylinder
(3) Hydraulic Control Valve
(4) Power Steering
(5) Front Loader Valve
(6) Hydraulic Pump (for Power Steering)
(7) Hydraulic Pump (for 3-Point Hitch)
(8) Oil Filter
(9) Transmission case
(10) Clutch Housing Front Transmission
(11) Oil Cooler
(12) Oil Filter (For HST)
(13) Hydrostatic Transmission (HST)

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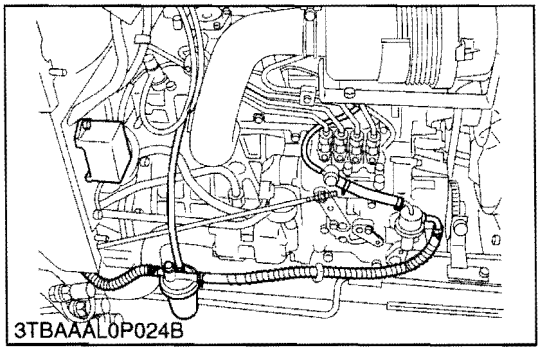
PREPARE FOR EMERGENCIES

- 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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[12] OTHERS


3TBAAAL0P024B

Bleeding Fuel System

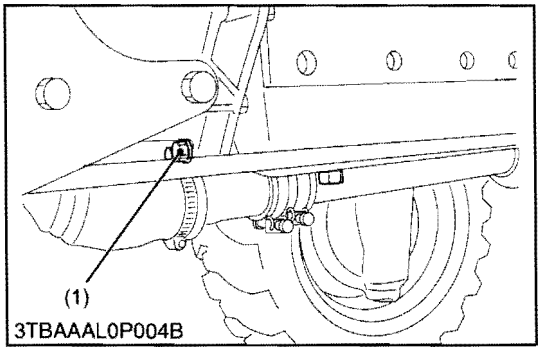
Air must be removed:

1. When the fuel filter or lines are removed.
2. When the tank is completely empty.
3. After the tractor has not been used for a long period of time.

Bleeding procedure is as follows.

1. Fill the fuel tank with fuel.
2. Start the engine and run for about 30 seconds, and then stop the engine.

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Draining Clutch Housing Water

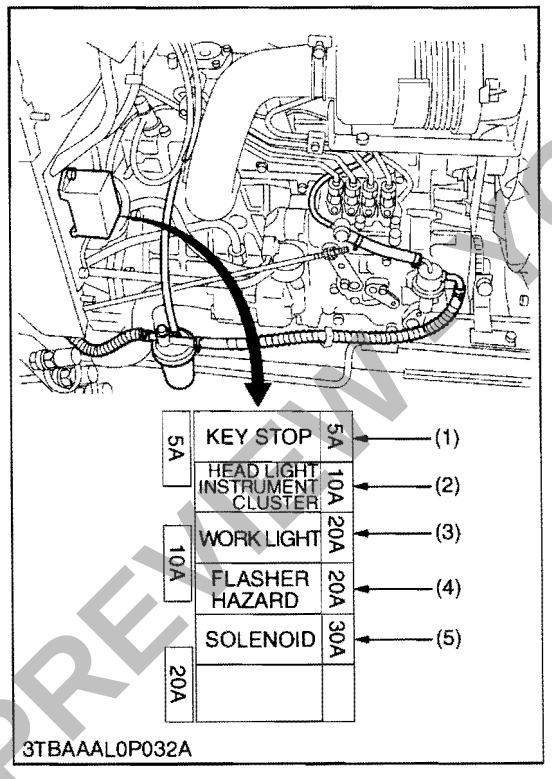
■ **NOTE**

- **The tractor is equipped with a water drain plug (1) under the clutch housing.**
- **After operating in rain, snow or tractor has been washed, water may get into the clutch housing.**

1. Remove the drain plug and drain the water, then install the plug again.

(1) Water Drain Plug

W1039199



3TBAAAL0P032A

Replacing Fuse

1. The tractor electrical system is protected from potential damage by fuses.
   A blown fuse indicates that there is an overload or short somewhere in the electrical system.
2. If any of the fuses should blow, replace with a new one of the same capacity.

■ **IMPORTANT**

- **Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the tractor electrical system. Refer to the "TROUBLESHOOTING" section of this manual.**

■ **Protected Circuit**

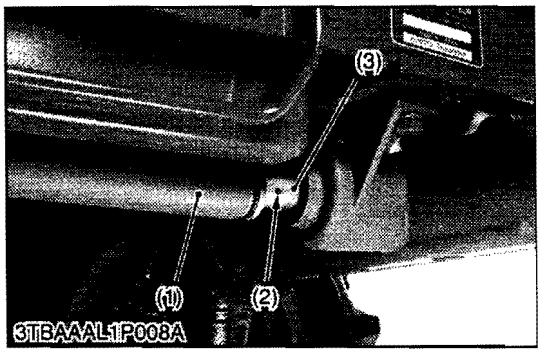
- **Do not use the fuse except indicated capacity.**

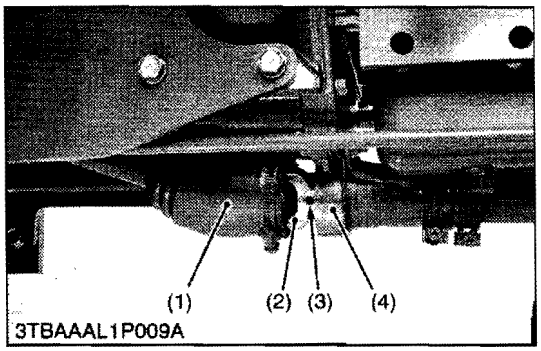
Fuse No.	Capacity (A)	Protected circuit
(1)	5	Key stop
(2)	10	Head light, Instrument panel
(3)	20	Work light
(4)	20	Flasher / Hazard light
(5)	30	Engine stop solenoid
(6)	Slow blow fuse	Check circuit against wrong battery connection

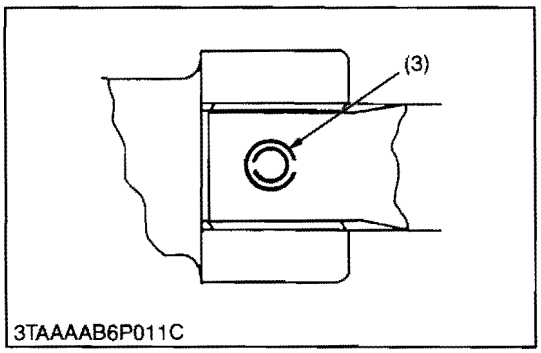
W1039315

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Propeller Shaft Cover and Coupling

1. Loosen the clamp and slide the propeller shaft cover (1) to the rear.
2. Tap out the spring pin (2) and then slide the coupling (3) to the rear.

(When reassembling)

- Apply grease to the splines of the propeller shaft and coupling.

(1) Propeller Shaft Cover
(2) Spring Pin
(3) Coupling

W1028559

Universal Joint and Bearing Holder

1. Loosen the clamp and slide the universal joint cover (1) to the rear.
2. Tap out the spring pins (3) and then slide the universal joint (2) to the rear.
3. Remove the bearing holder (4) with propeller shaft and universal joint.

(When reassembling)

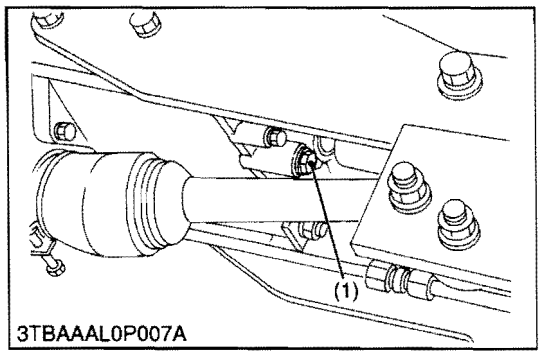
- Apply grease to the splines of the propeller shaft and universal joint.
- Replace the spring pins (3) with new one.
- When inserting the spring pins (3), face their splits in the direction parallel to the universal joint as shown in the figure.

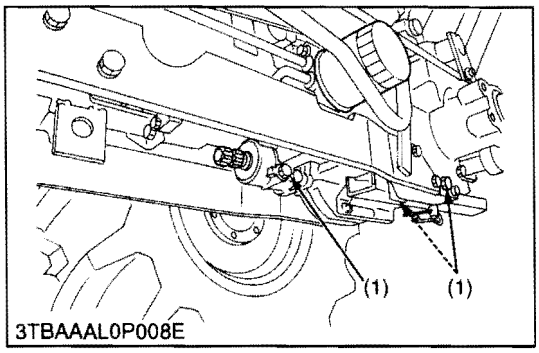
(1) Universal Joint Cover
(2) Universal Joint
(3) Spring Pin
(4) Bearing Holder

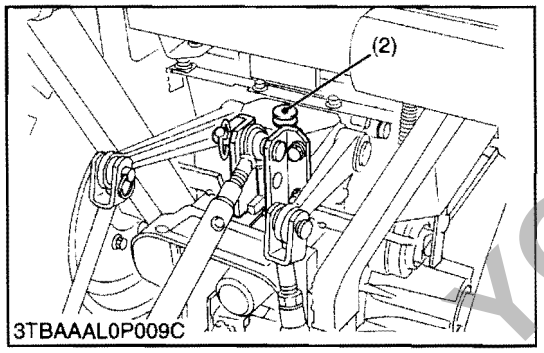
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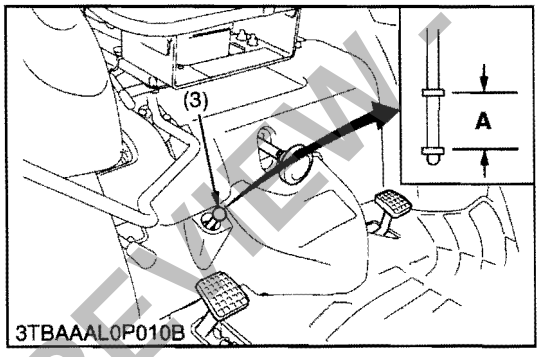
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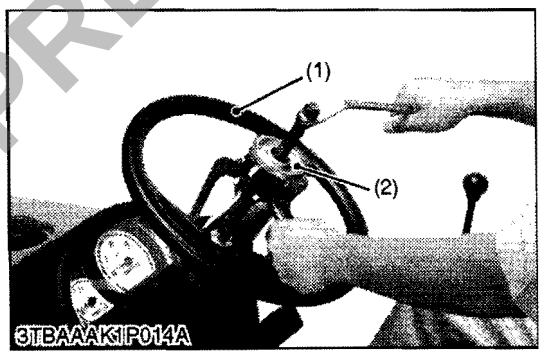
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Draining Transmission Fluid

1. Place an oil pan underneath the transmission case, and remove the drain plugs (1).
2. Drain the transmission fluid.
3. Reinstall the drain plug.

(When refilling)

- Fill new oil from filling port after removing the filling plug (2) up to the upper notch on the dipstick (3).
- After running the engine for few minutes, stop it and check the oil level again, if low, add oil prescribed level.

■ **IMPORTANT**

- **Use only multi-grade transmission oil. Use of other oils may damage the transmission or hydraulic system. Refer to "LUBRICANTS, FUEL AND COOLANT" (See page G-9).**
- **Never work the tractor immediately after changing the transmission oil. Keeping the engine at medium speed for a few minutes to prevent damage to the transmission.**
- **Do not mix different brands oil together.**

Transmission fluid capacity	14.5 L 3.83 U.S.gals 3.19 Imp.gals

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

A : Proper Oil Level

W1013803

Steering Wheel

1. Remove the steering wheel cap.
2. Remove the steering wheel mounting nut and remove the steering wheel (1) with a steering wheel puller (2).

(When reassembling)

Tightening torque	Steering wheel mounting nut	30 to 49 N·m 3.0 to 5.0 kgf·m 22 to 36 lbf·ft

(1) Steering Wheel (2) Steering Wheel Puller

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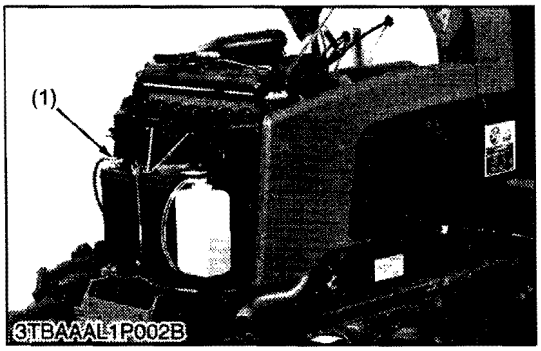
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(2) Separating HST Assembly

Draining Transmission Fluid

1. Refer to page 3-S13.

W1016652



Battery Cord

1. Open the bonnet and remove the front grille.
2. Disconnect the battery negative cord (1).

■ **NOTE**

- **When disconnecting the battery cords, disconnect the grounding cord first. When connecting, the positive cord first.**

(1) Battery Negative Cord

W1016716

Steering Wheel

1. Refer to page 3-S14.

W1050229

Meter Panel and Panel Under Cover

1. Refer to page 3-S15.

W1050291

Drag Link

1. Refer to page 3-S15.

W1020143

Propeller Shaft Cover and Coupling

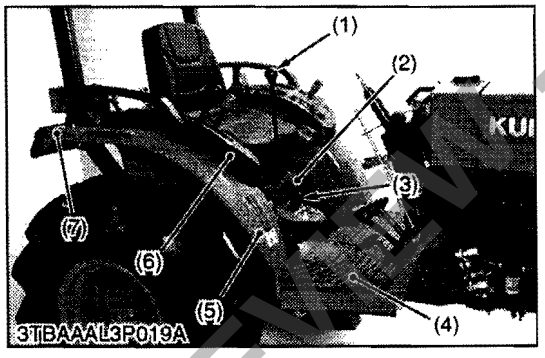
1. Refer to page 3-S16.

W1020197

Universal Joint and Bearing Holder

1. Refer to page 3-S16.

W1020049

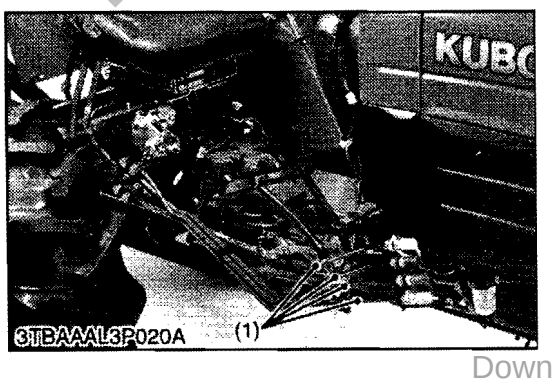


Seat Under Cover, Rubber Mat, Lever Guide and Fender etc.

1. Remove the front loader lever (1).
2. Remove the 3-point hitch lowering speed knob (3) seat under cover (2).
3. Remove the rubber mat (4).
4. Remove the front wheel drive shift lever grip and hydraulic control lever grip.
5. Remove the lever guide, R.H. (6).
6. Disconnect the wire harness and remove the tail lamp, R.H. (7).
7. Remove the fender, R.H. (5).
8. Disconnect the springs from step, cruise control lever rod and parking brake lever rod. Then remove the step.

(1) Front Loader Lever
(2) Seat Under Cover
(3) 3-Point Hitch Lowering Speed Knob
(4) Rubber Mat
(5) Fender, R.H.
(6) Lever Guide, R.H.
(7) Tail Lamp, R.H.

W1050684



Front Loader Pipe

1. Remove the front loader pipes (1).

(When reassembling)

- Take care not to damage the O-ring of front loader pipes.

Tightening torque	Joint bolt (Front loader pipe)	48 to 56 N·m 4.9 to 5.7 kgf·m 36 to 41 lbf·ft

(1) Front Loader Pipes

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3. TIGHTENING TORQUES

Tightening torques of screws, bolts and nuts on the table below are especially specified.
(For general use screws, bolts and nuts : See page G-11.)

Item	N·m	kgf·m	lbf·ft
Rear wheel mounting nut	145 to 150	14.8 to 15.3	107 to 111
Front loader valve pipe joint bolt	48 to 56	4.9 to 5.7	36 to 41
3-point hitch delivery pipe 1 joint bolt	48 to 56	4.9 to 5.7	36 to 41
3-point hitch delivery pipe joint bolt	50 to 60	5.1 to 6.1	37 to 44
3-point hitch delivery pipe 2 joint bolt (Front loader valve side)	48 to 56	4.9 to 5.7	36 to 41
3-point hitch delivery pipe 2 joint bolt (Hydraulic cylinder case side)	50 to 60	5.1 to 6.1	37 to 44
Rear axle case mounting screw	40 to 44	4.0 to 4.5	29 to 32
Sub frame mounting screw (M10) for aluminum	40 to 44	4.0 to 4.5	29 to 32
Sub frame mounting screw	48 to 55	4.9 to 5.7	36 to 41
Sub frame mounting bolt (M12) and nut	78 to 90	7.9 to 9.2	58 to 66

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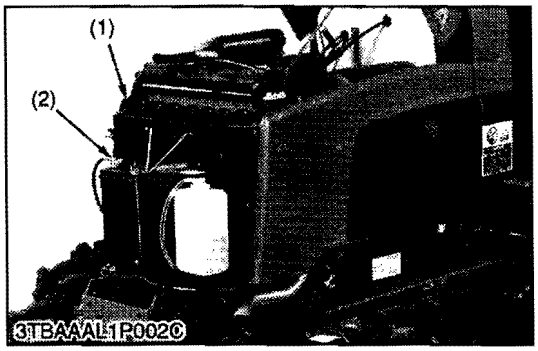
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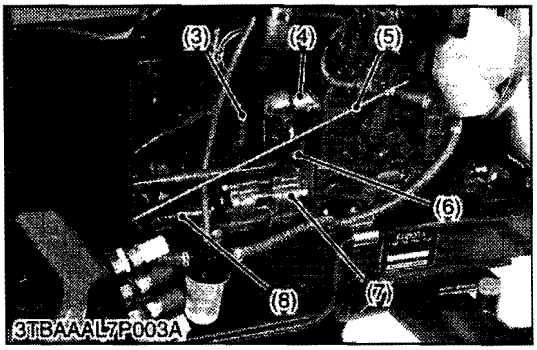
[2] PREPARATION

(1) Hydraulic Pump for Power Steering

■ **IMPORTANT**

- **The hydraulic pump is precision machined and assembled : If disassemble once, it may be unable to maintain its original performance. Therefore, when the hydraulic pump fails, replacement should be carried out with the hydraulic pump assembled except when emergency repair is unavoidable.**
- **When repair is required, follow the disassembly and servicing procedures shown below with utmost care.**
- **Be sure to test the hydraulic pump with a flowmeter before disassembling.**
- **After reassembly, be sure to perform break-in operation and ensure that there is nothing abnormal with the hydraulic pump.**





Removing Hydraulic Pump

1. Open the bonnet then remove the front grille, side cover (1) and disconnect the battery negative cord (2).
2. Disconnect the accelerator rod (5).
3. Disconnect the **2P** connector from the engine stop solenoid (4).
4. Disconnect the power steering delivery pipe (3) and 3-point hitch delivery pipe (6).
5. Disconnect the suction hose (8) and remove the hydraulic pump (7).

(When reassembling)

■ **NOTE**

- **For fastening hydraulic pipe nut, use two wrenches. Hold the fitting with a wrench, turn the pipe nut another wrench to avoid damage at fitting installed part.**
- **When disconnecting battery cords, disconnect the negative cord first. When connecting, positive cord first.**

Tightening torque	Power steering delivery pipe nut	65 to 75 N·m 6.7 to 7.6 kgf·m 48 to 55 lbf·ft

(1) Side Cover
(2) Negative Cord
(3) Power Steering Delivery Pipe
(4) Engine Stop Solenoid
(5) Accelerator Rod
(6) 3-Point Hitch Delivery Pipe
(7) Hydraulic Pump
(8) Suction Hose

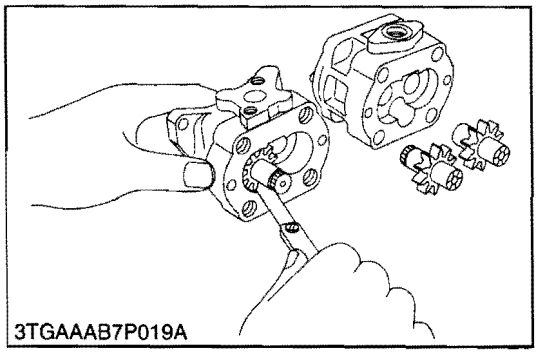
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[4] SERVICING

(1) Hydraulic Pump

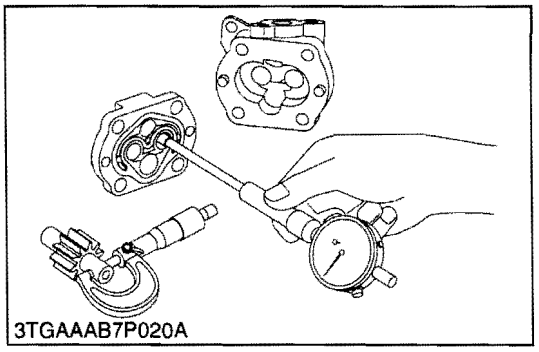

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Clearance between Tip of Gear Tooth and Casing

1. Measure the clearance between gear and casing at several points with feeler gauge.
2. If the clearance exceeds the allowable limit, replace the assembly.

Clearance between tip of gear tooth and casing	Allowable limit	0.15 mm 0.059 in.

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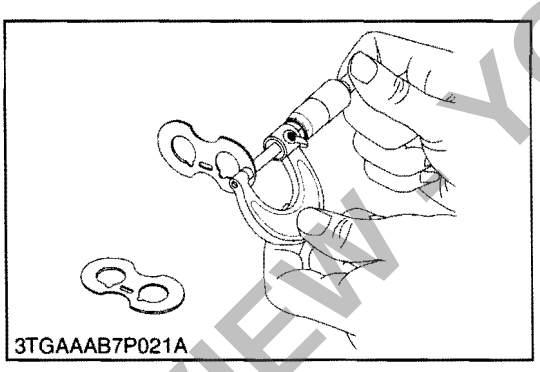
Clearance between Bushing and Gear Shaft

1. Measure the gear shaft O.D. with an outside micrometer.
2. Measure the bushing I.D. with a cylinder gauge.
3. If the clearance exceeds the allowable limit, replace it.

Clearance between busing and shaft	Factory spec.	0.020 to 0.091 mm 0.00079 to 0.0035 in.
	Allowable limit	0.12 mm 0.0047 in.

Gear Shaft O.D.	Factory spec.	14.970 to 14.980 mm 0.58937 to 0.58976 in.
Bushing I.D.	Factory spec.	15.000 to 15.061 mm 0.59056 to 0.59295 in.

W1022650


3TGAAAB7P021A

Side Plate Thickness

1. Measure the side plate thickness with an outside micrometer.
2. If the thickness is less than the allowable limit, replace it.

Side plate thickness	Factory spec.	2.48 to 2.50 mm 0.0977 to 0.0984 in.
	Allowable limit	2.40 mm 0.0945 in.

W1022982

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