WSM

WORKSHOP MANUAL
TRACTOR

L4400HST
(SUPPLEMENT)

Kubota

KiSC issued 01, 2014 A

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GENERAL

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SAFETY FIRST

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

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

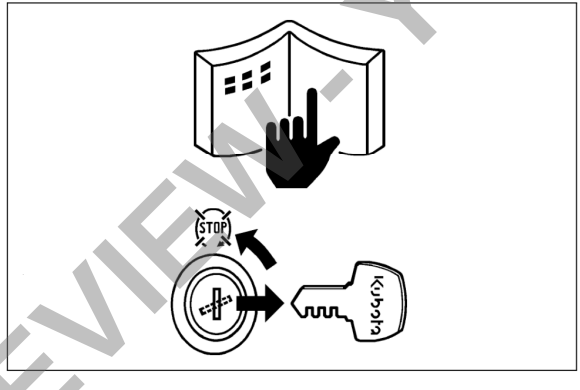
DANGER : **Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

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

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

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

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



BEFORE SERVICING AND REPAIRING

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

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SPECIFICATIONS

Model			L4400 HST
			4WD
PTO power			26.8 KW (36.0 HP) / 2600 min^{-1} (rpm)
Engine	Maker		KUBOTA
	Model		V2203-M-E3-LB1
	Type		Indirect injection, vertical, water-cooled, 4-cycle diesel
	Number of cylinders		4
	Bore and stroke		87 × 92.4 mm (3.4 × 3.6 in.)
	Total displacement		2.197 L (134.1 cu.in.)
	Engine net power		32.1 kW (43.6 HP)* / 2600 min^{-1} (rpm)
	Rated revolution		43.3 rps / 2600 min^{-1} (rpm)
	Maximum torque		139.7 N·m (103.0 lbf·ft)
	Battery		12 V, RC : 133 min, CCA : 582 A
	Fuel		Diesel fuel No. 1 [below −10 °C (14 °F], Diesel fuel No. 2-D [above −10 °C (14 °F)]
Capacities	Fuel tank		42 L (11.1 U.S.gals)
	Engine crankcase (with filter)		7.6 L (8.0 U.S.qts)
	Engine coolant		6.5 L (6.9 U.S.qts)
	Transmission case		40 L (10.6 U.S.gals)
Dimensions	Overall length (without 3P)		3115 mm (122.6 in.)
	Overall width (min. tread)		1585 mm (62.4 in.)
	Overall height (with ROPS)		2330 mm (91.7 in.)
	Overall height (Top of Steering wheel)		1495 mm (58.9 in.)
	Wheel base		1845 mm (72.6 in.)
	Min. ground clearance		385 mm (15.2 in.)
	Tread	Front	1155 mm (45.5 in.)
		Rear	1180 mm (46.5 in.), 1200 mm (47.2 in.), 1300 mm (51.2 in.), 1450 mm (57.1 in.), 1545 mm (60.8 in.)
Weight (with ROPS)			1500 kg (3307 lbs)
Clutch			Dry type single stage
Travelling system	Tire	Front	8.3-16
		Rear	14.9-24
	Indust. (option) Front / Rear		10-16.5 / 17.5 L-24
	Steering		Hydrostatic power steering
	Transmission		Hydrostatic transmission 3 range speed
	Brake		Mechanical, wet disk type
	Min. turning radius (with brake)		2.6 m (8.5 feet)
Hydraulic system	Hydraulic control system		Position control
	Pump capacity (main)		29.4 L (7.8 U.S.gals) / min.
	Pump capacity (PS)		17.9 L (4.7 U.S.gals) / min.
	Three point hitch		Category I
	Max. lift force	At lift points	1300 kg (2870 lbs)
		24 in. behind lift points	1053 kg (2310 lbs)
	System pressure		17.7 MPa (180 kgf/cm^2, 2560 psi)
PTO	Rear PTO		SAE 1-3/8, 6 splines
	PTO / Engine speed		540 min^{-1} (rpm) / 2650 min^{-1} (rpm)

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

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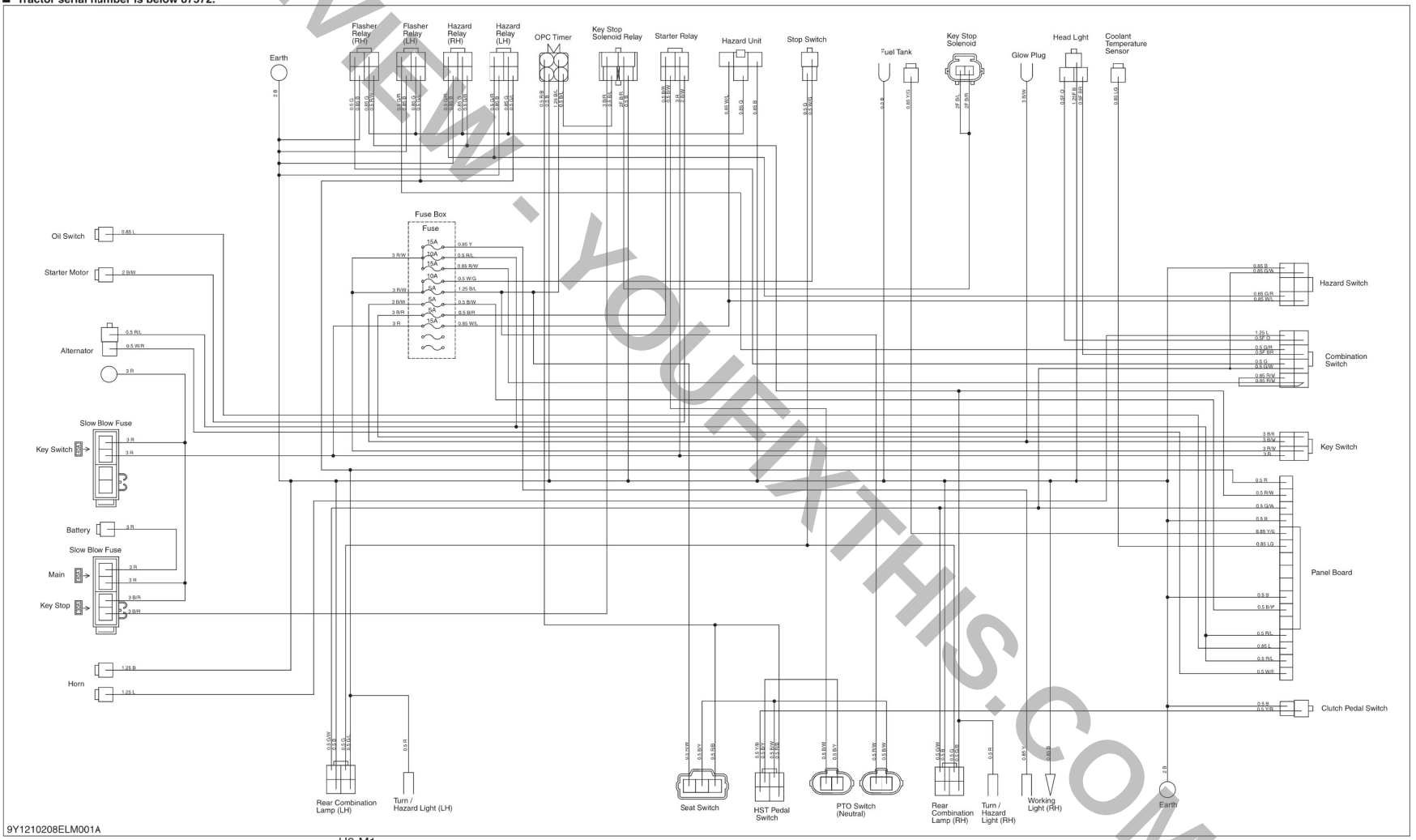
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1. WIRING DIAGRAM

[1] TRACTOR WITHOUT THIRD FUNCTION VALVE

■ **Tractor serial number is below 87572.**

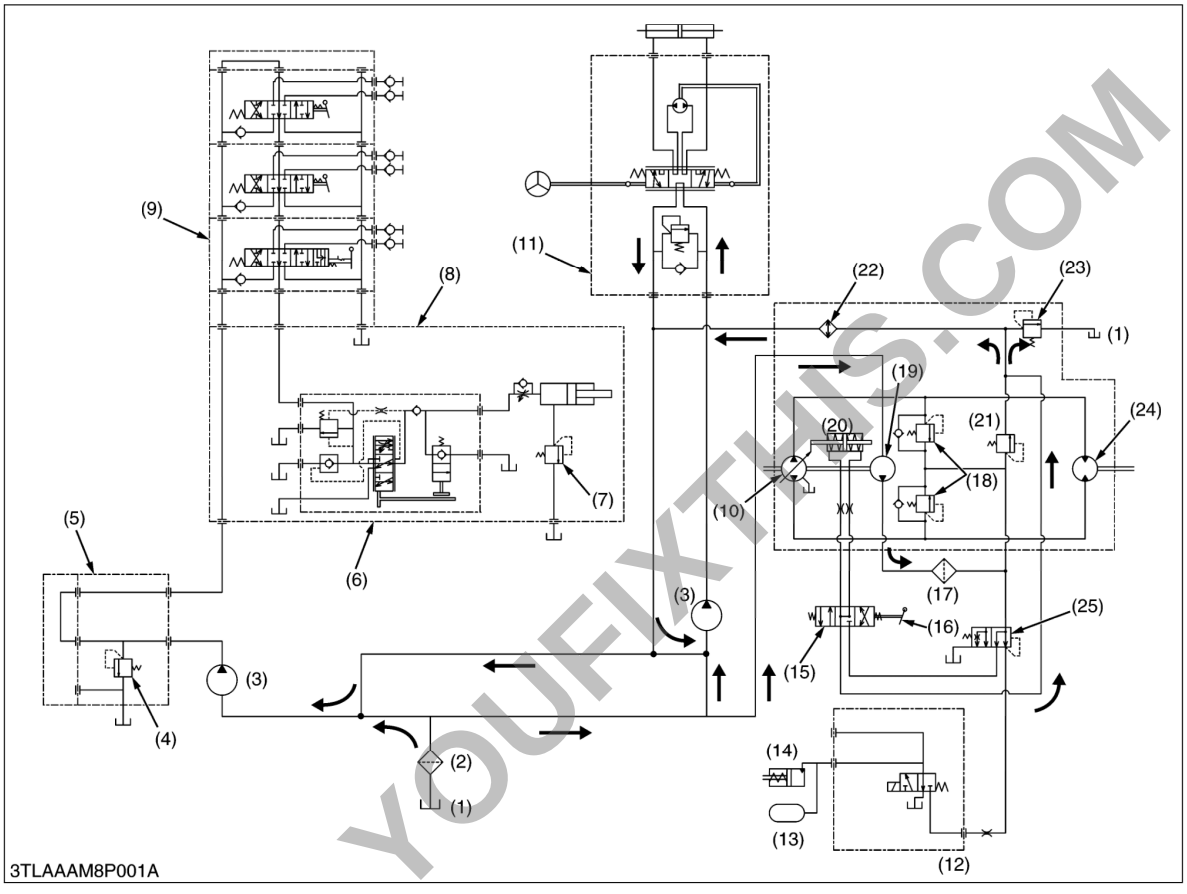


9Y1210208ELM001A

H9-M1

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1. HYDRAULIC CIRCUIT



(1) Transmission Case
(2) Hydraulic Filter
(3) Hydraulic Pump
(4) Relief Valve
(5) Front Hydraulic Block
(6) Control Valve
(7) Safety Valve
(8) Hydraulic Cylinder
(9) Auxiliary Control Valve
(10) Pump Cylinder Block
(11) Rear Hydraulic Block
(12) PTO Clutch Valve
(13) Accumulator
(14) PTO Clutch Pack
(15) Regulator Valve
(16) HST Pedal
(17) Filter
(18) Check and High Pressure Relief Valve
(19) Charge Pump
(20) Servo Piston
(21) Charge Relief Valve
(22) Oil Cooler
(23) Case Relief Valve
(24) Motor Cylinder Block
(25) PTO Clutch Pressure Priority Valve

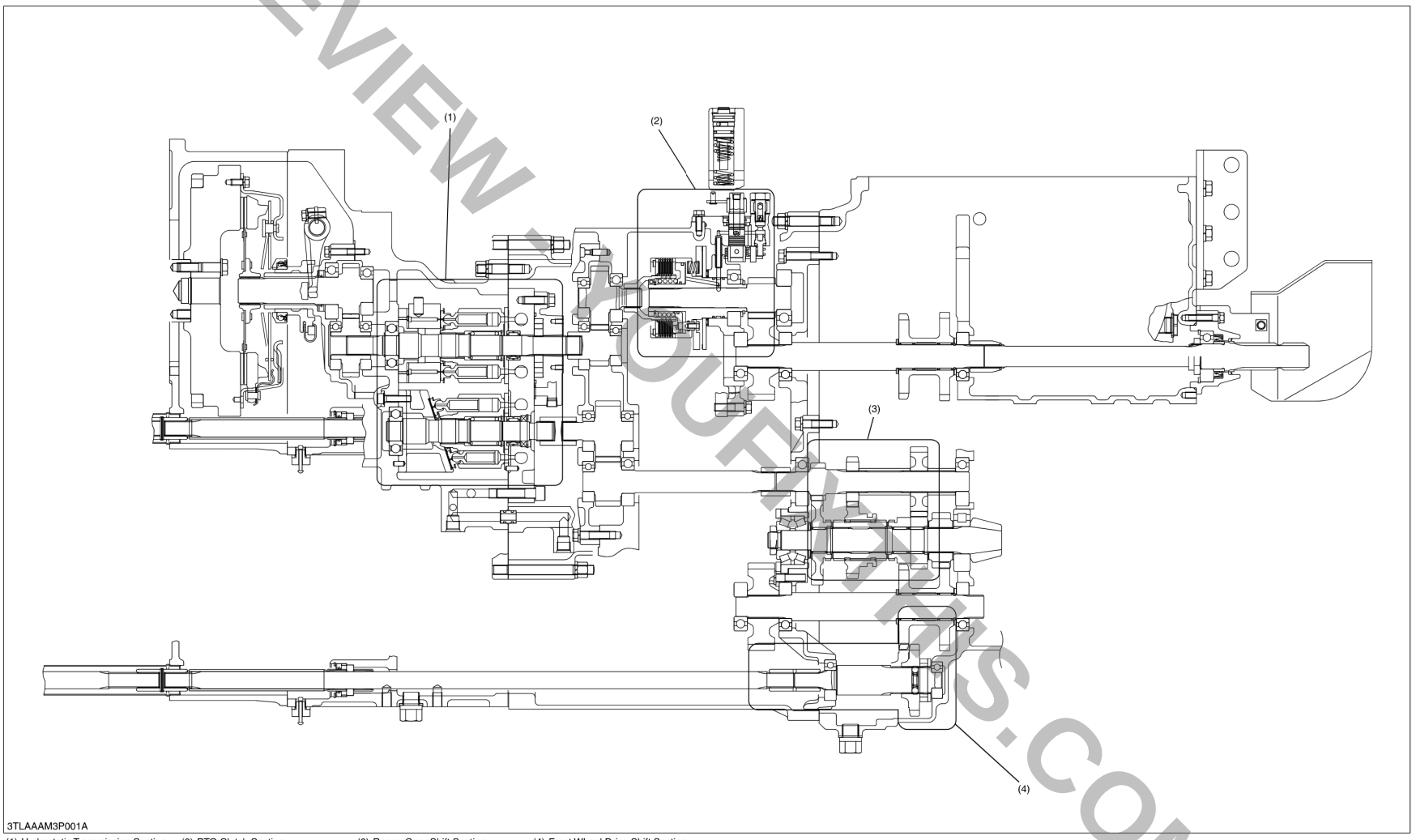
In L4400HST, the PTO clutch pressure priority valve (25) is installed to the HST housing case.

The PTO pressure priority valve (25) switches the pressurized oil from the hydraulic pump (3) to the PTO clutch and HST regulator valve (HST servo valve) (15).

When the oil pressure at the PTO pressure priority valve (25) is below the setting pressure, approx. 14.0 to 15.0 kgf/cm^2 (1.38 to 1.47 MPa, 199 to 213 psi) at engine idling speeds, the PTO pressure priority valve (25) delivers preferentially the oil from the hydraulic pump (3) to the PTO clutch valve to operate the PTO clutch.

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1. STRUCTURE



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(1) Hydrostatic Transmission Section (2) PTO Clutch Section (3) Range Gear Shift Section (4) Front Wheel Drive Shift Section

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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-9.)

Item	N·m	kgf·m	lbf·ft
HST control lever setting hex. head screw	6.86 to 8.33	0.70 to 0.85	5.06 to 6.15
Engine and HST housing case mounting bolt and nut (M12)	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
HST housing case and mid case mounting nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
Mid case and transmission case mounting bolt and nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
Release fork mounting bolt	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
Charge pump case mounting bolt (M10)	48 to 56	4.9 to 5.7	35.4 to 41.2
Port block mounting hex. head screw (without seal washer)	103 to 118	10.5 to 12.0	76.0 to 86.7
Port block mounting hex. head screw (with seal washer)	31 to 36	3.2 to 3.7	23.1 to 26.8
Swashplate setting bolt	24 to 28	2.4 to 2.8	17.4 to 20.3
Cradle bearing bracket mounting hex. head screw	61 to 71	6.2 to 7.2	44.8 to 52.1
Check and high pressure relief valve hex. head plug (G1/2)	59 to 78	6.0 to 8.0	43.4 to 57.9
Charge relief valve hex. head plug (G3/8)	49 to 59	5.0 to 6.0	36.2 to 43.4
Servo regulator assembly mounting hex. head screw (M8)	29 to 34	3.0 to 3.5	21.7 to 25.3
Servo piston and under cover mounting hex. head screw (M10)	61 to 71	6.2 to 7.2	44.7 to 52.1
Pinion shaft lock nut	147 to 196	15 to 20	108 to 145
Pinion bearing case mounting screw	39.2 to 41.1	4.0 to 4.5	28.9 to 32.5

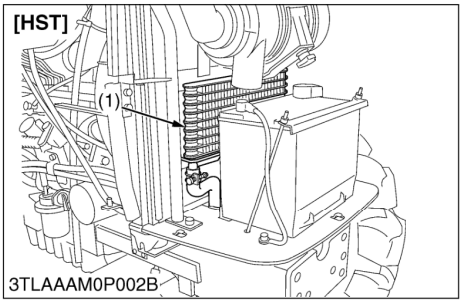
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3. CHECK AND MAINTENANCE

[1] DAILY CHECK



Cleaning Grille, Radiator Screen and Oil Cooler

CAUTION

- **Be sure to stop the engine before removing the radiator screen.**

1. Loosen the knob bolt and move the air cleaner to the left.
2. Check front grille to be sure it is clean from debris.
3. Detach the radiator screen and remove all the foreign material.

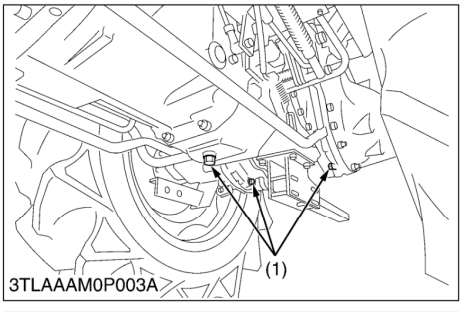
■ **IMPORTANT**

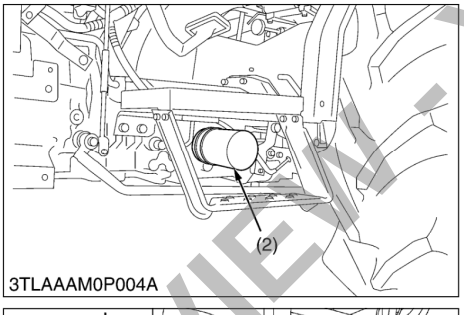
- **Grille and screen must be clean from debris to prevent engine from overheating and to allow good air intake for the air cleaner.**

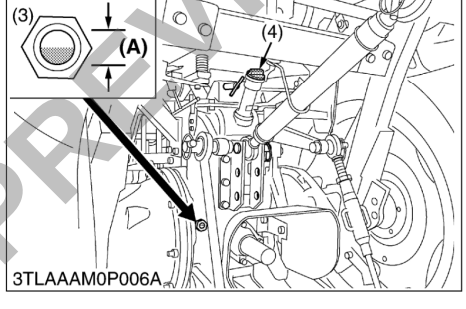
(1) Oil Cooler

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[2] CHECK POINTS OF INITIAL 50 HOURS







Replacing Transmission Oil Filter [HST]

CAUTION

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

1. Remove the drain plugs at the bottom of the transmission case and drain the oil completely into the oil pan.
2. After draining, reinstall the drain plugs.
3. Remove the oil filter.
4. Put film of clean transmission oil on the rubber seal of the new filter.
5. Quickly tighten the filter unit it contacts the mounting surface, then, with a filter wrench, tighten it an additional 1 turn only.
6. After the new filters have been replaced, fill with the transmission oil up to the upper line of the gauge.

(1) Drain Plugs
(2) Transmission Oil Filter [HST type]
(3) Gauge
(4) Oil Inlet

(A) Oil level is acceptable within this range.

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1. TROUBLESHOOTING

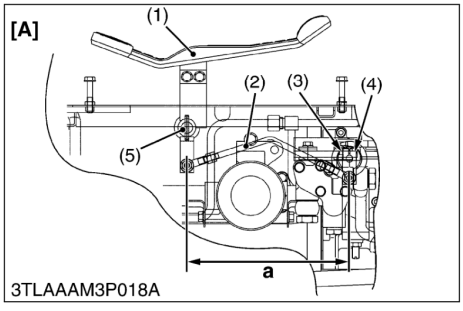
[HST]

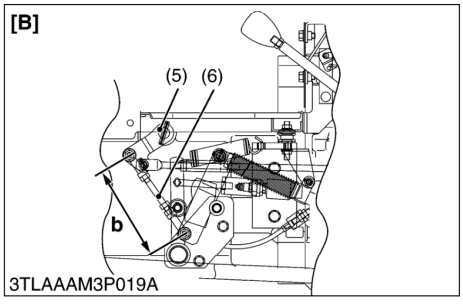
Symptom	Probable Cause	Solution	Reference Page
System Will Not Operate in Either Direction	Oil level is low	Check oil level or fill oil to proper level	HG-1
	Speed control pedal linkage defective	Repair linkage	H3-S9
	Charge pressure is too low	Solution order 1. Replace oil filter cartridge	HG-4
		2. Check charge pressure	H3-S6
		3. Inspect or flush charge relief valve	H3-S31
	Check and high pressure relief valve does not move smoothly	Inspect or replace check and high pressure relief valve	H3-S31
	Component parts defective	Replace hydrostatic transmission assembly	H3-S14
Vibration and Noise	Oil level is too low	Check oil level or fill oil to proper level	HG-1
	Speed control pedal linkage defective	Repair linkage	H3-S9
	Charge pressure is too low	Solution order 1. Replace oil filter cartridge	HG-4
		2. Check charge pressure	H3-S6
		3. Inspect or flush charge relief valve	H3-S31
	Check and high pressure relief valve does not move smoothly	Inspect or replace check and high pressure relief valve	H3-S31
	Component parts defective	Replace hydrostatic transmission assembly	H3-S14

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Adjusting Neutral

■ **NOTE**

- **Stop the engine when adjusting the HST neutral.**

1. Set the cruise control lever to **"OFF"** position. (HST pedal is in **Neutral** position.)
2. Check to see that the length **a** of HST control rod (2) and the length **b** of neutral rod (6) are specified length.
   If not, adjust as follows.
   Length **a** : 230.5 to 231.5 mm (9.07 to 9.11 in.)
   Length **b** : 139.5 to 140.5 mm (5.49 to 5.53 in.)
3. Loosen the hex. head screw (3) to make situation that HST control lever (4) moves freely. Run the engine for 5 seconds to make sure that the HST is in neutral position.
4. Tighten the hex. head screw (3) so that the HST control lever (4) does not turn.

■ **NOTE**

- **Be sure to tighten the hex. head screw with specified torque.**

Tightening torque	HST control lever setting hex. head screw	6.86 to 8.33 N·m 0.70 to 0.85 kgf·m 5.06 to 6.15 lbf·ft

(1) HST Pedal
(2) HST Control Rod
(3) Hex. Head Screw
(4) HST Control Lever
(5) Connecting Shaft
(6) Neutral Rod

[A] RIght Side View
[B] Left Side View
a : Length of HST Control Rod
b : Length of Neutral Rod

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