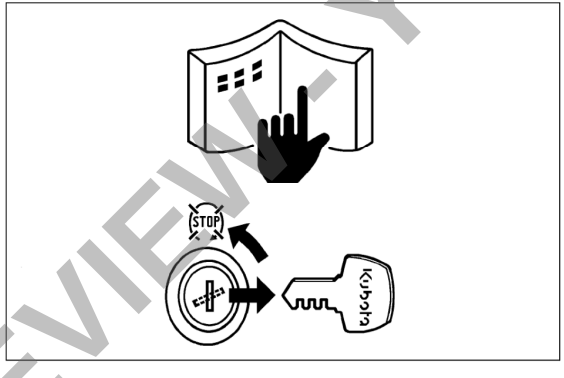
SAFETY FIRST

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			L3130			
			Manual		GST	HST
			2WD (ROPS)	4WD (ROPS)	4WD (ROPS)	4WD (ROPS)
Engine	Model		D1503-MA-E-GST / D1503-MA-E2-GST			D1503-MA-E-HST / D1503-MA-E2-HST
	Type		Indirect injection vertical, water-cooled, 4-cycle diesel			
	Number of cylinders		3			
	Total displacement		1.499 L (91.5 cu.in.)			
	Bore and stroke		83 × 92.4 mm (3.3 × 3.6 in.)			
	Net power		23.1 kW (31.0 HP)*			
	PTO power (factory observe)		19.0 kW (25.5 HP)* / 2700 min^{-1} (rpm)			17.9 kW (24.0 HP)* / 2700 min^{-1} (rpm)
	Maximum torque		102.9 N·m (10.5 kgf·m, 75.9 ft-lbs)			
	Battery capacity		12 V, RC : 123 min, CCA : 490 A			
	Fuel		Diesel fuel No. 1 [below –10 °C (14 °F], Diesel fuel No. 2-D [above –10 °C (14 °F)]			
Capacities	Fuel tank		40 L (10.6 U.S.gals., 8.8 Imp.gals.)			
	Engine crankcase (with filter)		5.7 L (6.0 U.S.qts., 5.0 Imp.qts.)			
	Engine coolant		6.0 L (6.3 U.S.qts., 5.3 Imp.qts.)			
	Transmission case		42 L (11.1 U.S.gals., 9.2 Imp.gals.)			
Dimensions	Overall length (without 3P)		2915 mm (114.8 in.)			
	Overall width (min. tread)		1520 mm (59.8 in.)			
	Overall height (with ROPS foldable / rigid)		2305 mm (90.7 in.) / 2140 mm (84.3 in.)			
	Wheel base		1810 mm (71.3 in.)	1805 mm (71.1 in.)		
	Min. ground clearance		360 mm (14.2 in.)			
	Tread	Front	1310 mm (51.6 in.) 1410 mm (55.5 in.) 1510 mm (59.4 in.) 1610 mm (63.4 in.)	1155 mm (45.5 in.)		
		Rear	1200 mm (47.2 in.), 1300 mm (51.2 in.), 1385 mm (54.5 in.), 1480 mm (58.3 in.)			
Weight (with ROPS)			1415 kg (3120 lbs)	1460 kg (3220 lbs)	1480 kg (3265 lbs)	1500 kg (3305 lbs)
Travelling system	Standard tire size	Front	6-16	7.2-16		
		Rear	12.4-24			
	Clutch		Dry type single stage			
	Steering		Hydrostatic power steering			
	Transmission		F8, R8 fully synchronized main and shuttle transmission		F12, R8 Glide shift transmission	Hydrotstatic transmission (3 speeds)
	Braking system		Wet disk type			
	Min. turning radius (with brake)		2.6 m (8.5 feet)	2.7 m (8.9 feet)		
Hydraulic system	Hydraulic control system		Position control			
	Pump capacity		31.5 L (8.3 U.S.gals., 6.9 Imp.gals.) / min.			
	Three point hitch		SAE Category I			
	Max. lift force	At lift points	1700 kg (3750 lbs)			
		24 in. behind lift points	1200 kg (2650 lbs)			
	System pressure		17.1 to 18.1 MPa (175 to 185 kgf/cm^2, 2491 to 2633 psi)			
PTO	Rear PTO		SAE 1-3/8, 6 splines			
	PTO / Engine speed		540 min^{-1} (rpm) / 2550 min^{-1} (rpm)			540 min^{-1} (rpm) / 2640 min^{-1} (rpm)
	Mid-PTO (if equipped)		USA No. 5 (KUBOTA 10-tooth) involute spline			
	PTO / Engine speed		2000 min^{-1} (rpm) / 2580 min^{-1} (rpm)			2000 min^{-1} (rpm) / 2670 min^{-1} (rpm)

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

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GENERAL

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4. LUBRICANTS, FUEL AND COOLANT

	Place	Capacity			Lubricants, fuel and coolant
		L3130	L3430	L3830	
1	Fuel tank	40 L 10.6 U.S.gals. 8.8 Imp.gals.			No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below –10 °C (14 °F)
2	Cooling system	6.0 L 6.3 U.S.qts. 5.3 Imp.qts.		7.5 L 7.9 U.S.qts. 6.6 Imp.qts.	Fresh clean water with anti-freeze
3	Engine crankcase (with filter)	5.7 L 6.0 U.S.qts. 5.0 Imp.qts.		6.7 L 7.1 U.S.qts. 5.9 Imp.qts.	Engine oil : API service classification CD, CE or CF Above 25 °C : SAE30, (77 °F) 10W-30 or 10W-40 0 to 25 °C : SAE20, (32 to 77 °F) 10W-30 or 10W-40 Below 0 °C : SAE10W, (32 °F) 10W-30 or 10W-40
4	Transmission case	42 L 11.1 U.S.gals. 9.2 Imp.gals.		43 L 11.4 U.S.gals. 9.5 Imp.gals.	KUBOTA UDT or SUPER UDT fluid*
5	Front axle case (4WD)	6.5 L 6.9 U.S.qts. 5.7 Imp.qts.			KUBOTA UDT or SUPER UDT fluid* or SAE80, 90 gear oil

Greasing

	Place	No. of greasing point			Capacity	Type of grease
6	Front wheel hub (2WD)	2	–	2	Until grease overflows	Multipurpose type grease
	Knuckle shaft (2WD)	2	–	2		
	Front axle case support	–				
	Front axle support (4WD)	2				
	Top link	1				
	Top link bracket (if equipped)	2 (with draft control)				
	Lift rod	2				
	Lift cylinder	4				
	Battery terminal	2			Moderate amount	
	Throttle cable	Oiling				Engine oil

* KUBOTA original transmission hydraulic fluid.

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5. TIGHTENING TORQUES

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

[1] GENERAL USE SCREWS, BOLTS AND NUTS

Indication on top of bolt	⬡	4 No-grade or 4T					7 7T						9 9T		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit / Diameter	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs
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 10.4
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 52.0
M12 (12 mm, 0.47 in.)	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	–	–	–	77.5 to 90.2	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 86.7
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

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6. MAINTENANCE

No.	Item		Period	Service Time Interval										Important		Reference page
				50	100	200	400	600	800	1500	3000	1 year	2 years			
1	Engine oil		Change													G-15
2	Engine oil filter cartridge		Replace													G-15
3	Hydraulic oil filter cartridge		Replace													G-16
4	Transmission oil filter [HST]		Replace													G-16
5	Transmission fluid		Change													G-17
6	Front axle case oil		Change													G-18
7	Front axle pivot		Adjust													G-32
8	Greasing		–													G-19
9	Engine start system		Check													G-20, 21
10	Wheel bolt torque		Check													G-21
11	Battery condition		Check											*****		G-25
12	Air cleaner element [Double type]	Primary element	Clean											*		G-22
			Replace											**	@	G-33
		Secondary element	Replace													G-33
13	Fuel filter element		Clean												@	G-23
			Replace													G-32
14	Fan belt		Adjust													G-23
15	Clutch		Adjust													G-24
16	Brake		Adjust													G-18
17	Radiator hose and clamp		Check													G-27
			Replace													G-33
18	Power steering oil line		Check													G-29
			Replace													G-33
19	Fuel line		Check												@	G-24
			Replace											***		G-33
20	HST oil line [HST]		Check													G-29
			Replace													G-33
21	Toe-in		Adjust													G-28
22	Intake air line		Check												@	G-29
			Replace											***		G-33
23	Greasing (2WD front wheel hub)															G-32
24	Engine valve clearance		Adjust											****		1-S28
25	Fuel injection nozzle injection pressure		Check											****	@	1-S70
26	Injection pump		Check											****	@	1-S69
27	Cooling system		Flush													G-34
28	Coolant		Change													G-35
29	Fuel system		Bleed	Service as required												G-35
30	Clutch housing water		Drain													G-36
31	Fuse		Replace													G-36
32	Light bulb		Replace													G-37

IMPORTANT

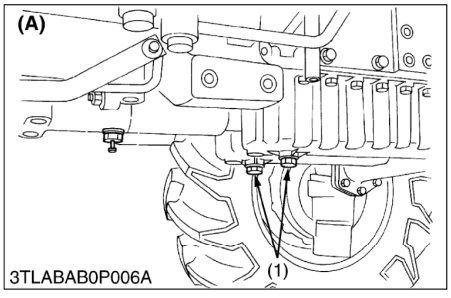
- **The jobs indicated by must be done after the first 50 hours of operation.**
- *** : Air cleaner should be cleaned more often in dusty conditions than in normal conditions.**
- **** : Every year or every 6 times of cleaning.**
- ***** : Replace only if necessary.**
- ****** : Consult your local KUBOTA distributor for this service.**
- ******* : When the battery is used for less than 100 hours per year, check the battery condition by reading the indication annually.**
- **The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad 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.**

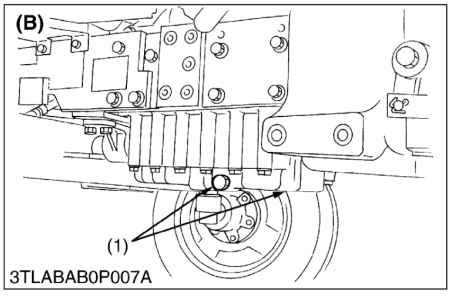
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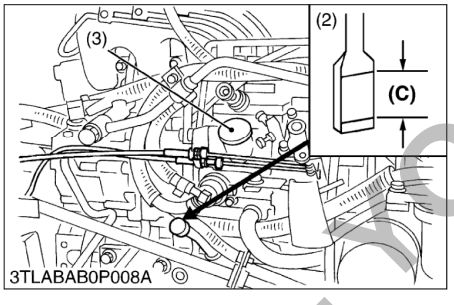
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[2] CHECK POINTS OF INITIAL 50 HOURS







Changing Engine Oil

CAUTION

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

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

IMPORTANT

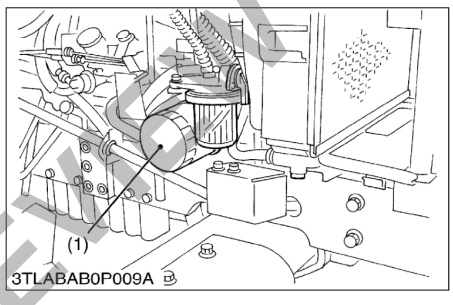
- **When using an oil of different manufacture or viscosity from the previous one, remove all of the old oil.**
- **Never mix two different types of oil.**
- **Use the proper SAE Engine Oil according to ambient temperatures.**
- **Refer to "LUBRICANTS, FUEL AND COOLANT". (See page G-9, 10.)**

Engine oil capacity (with filter)	L3130 L3430	5.7 L 6.0 U.S.qts. 5.0 Imp.qts.
	L3830	6.7 L 7.1 U.S.qts. 5.9 Imp.qts.
	L4330 L4630 L5030	8.2 L 8.7 U.S.qts. 7.2 Imp.qts.

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

(A) L3130, L3430, L4330, L4630, L5030
(B) L3830
(C) Oil level is acceptable within this range.

W10145330



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 new 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.**

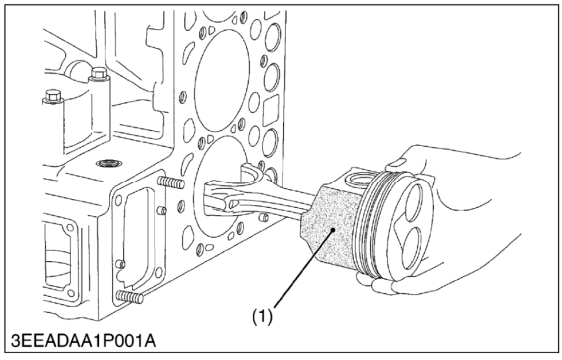
(1) Engine Oil Filter Cartridge

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2. ENGINE BODY

[1] PISTON



3EEADAA1P001A

Piston's skirt is coated with molybdenum disulfied*, which reduces the piston slap noise and thus the entire operating noise.

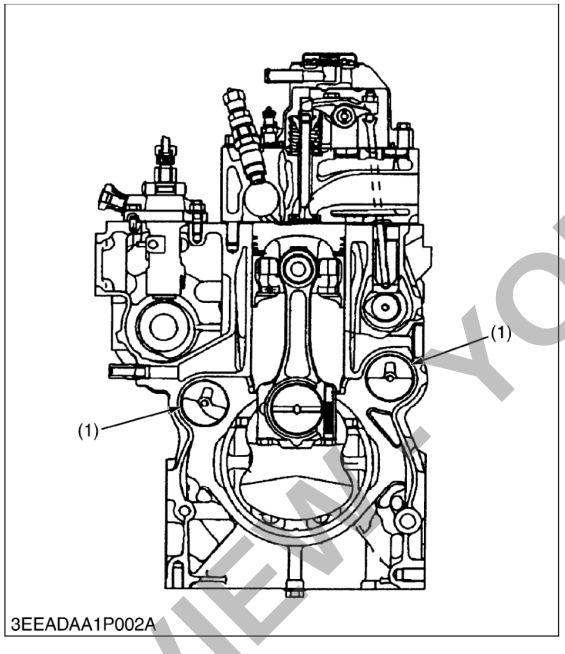
Molybdenum disulfide (MoS_2)

The molybdenum disulfide (1) serves as a solid lubricant, like a Graphite or Teflon. This material helps resist metal wears even with little lube oil.

(1) Molybdenum Disulfide

W1013396

[2] BUILT-IN DYNAMIC BALANCER (FOR V2203-M AND V2403-M)



3EEADAA1P002A

Engine are sure to vibrate by piston's reciprocation. Theoretically, three-cylinder engines are much less prone to cause vibration than four-cylinder ones (second inertia, etc.). However, any engine has many moving parts in addition to its pistons and cannot be completely free from vibration.

The four cylinders engine can be fitted with balance weight on crankcase to absorb the second inertia mentioned above and reduce vibration.

This engine is internally provide with two balancers (1), one at the suction side and the other at the exhaust side.

(1) Balancer

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	Place	Capacity			Lubricants, fuel and coolant
		L4330	L4630	L5030	
1	Fuel tank	40 L 10.6 U.S.gals. 8.8 Imp.gals.		43 L 11.4 U.S.gals. 9.5 Imp.gals.	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below –10 °C (14 °F)
2	Cooling system	7.5 L 7.9 U.S.qts. 6.6 Imp.qts.		8.0 L 8.5 U.S.qts. 7.0 Imp.qts.	Fresh clean water with anti-freeze
3	Engine crankcase (with filter)	8.2 L 8.7 U.S.qts. 7.2 Imp.qts.			Engine oil : API service classification CD, CE or CF Above 25 °C : SAE30, (77 °F) 10W-30 or 10W-40 0 to 25 °C : SAE20, (32 to 77 °F) 10W-30 or 10W-40 Below 0 °C : SAE10W, (32 °F) 10W-30 or 10W-40
4	Transmission case	43 L 11.4 U.S.gals. 9.5 Imp.gals.		45 L 11.9 U.S.gals. 9.9 Imp.gals.	KUBOTA UDT or SUPER UDT fluid*
5	Front axle case (4WD)	9.0 L 9.5 U.S.qts. 7.9 Imp.qts.			KUBOTA UDT or SUPER UDT fluid* or SAE80, 90 gear oil

Greasing

	Place	No. of greasing point		Capacity	Type of grease
6	Front wheel hub (2WD)	–		Until grease overflows	Multipurpose type grease
	Knuckle shaft (2WD)	–			
	Front axle case support	2			
	Front axle support (4WD)	2			
	Top link	1	2		
	Top link bracket (if equipped)	2 (with draft control)			
	Lift rod	2			
	Lift cylinder	4			
	Battery terminal	2		Moderate amount	
	Throttle cable	Oiling			Engine oil

* KUBOTA original transmission hydraulic fluid.

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(Only the Check Points Different from Those for Tractors with CABIN)

No.	Item \ Period		Service Time Interval										Important		Reference page
			50	100	200	400	600	800	1500	3000	1 year	2 years			
1	Clogging of air conditioner condenser screen	Clean											Daily		–
2	Tension of air conditioner drive belt	Adjust													G-30
3	Clogging of inner air filter	Clean													G-30
4	Clogging of fresh air filter	Clean													G-31
5	Clogging of air conditioner condenser	Check													G-31
6	Air conditioner pipes and hoses	Check													G-33
7	CABIN isolation cushion	Check													G-33
8	Lubricating points	Check	Service as required												G-37
9	Washer liquid	Check													G-37
10	Amount of refrigerant (gas)	Check													G-38

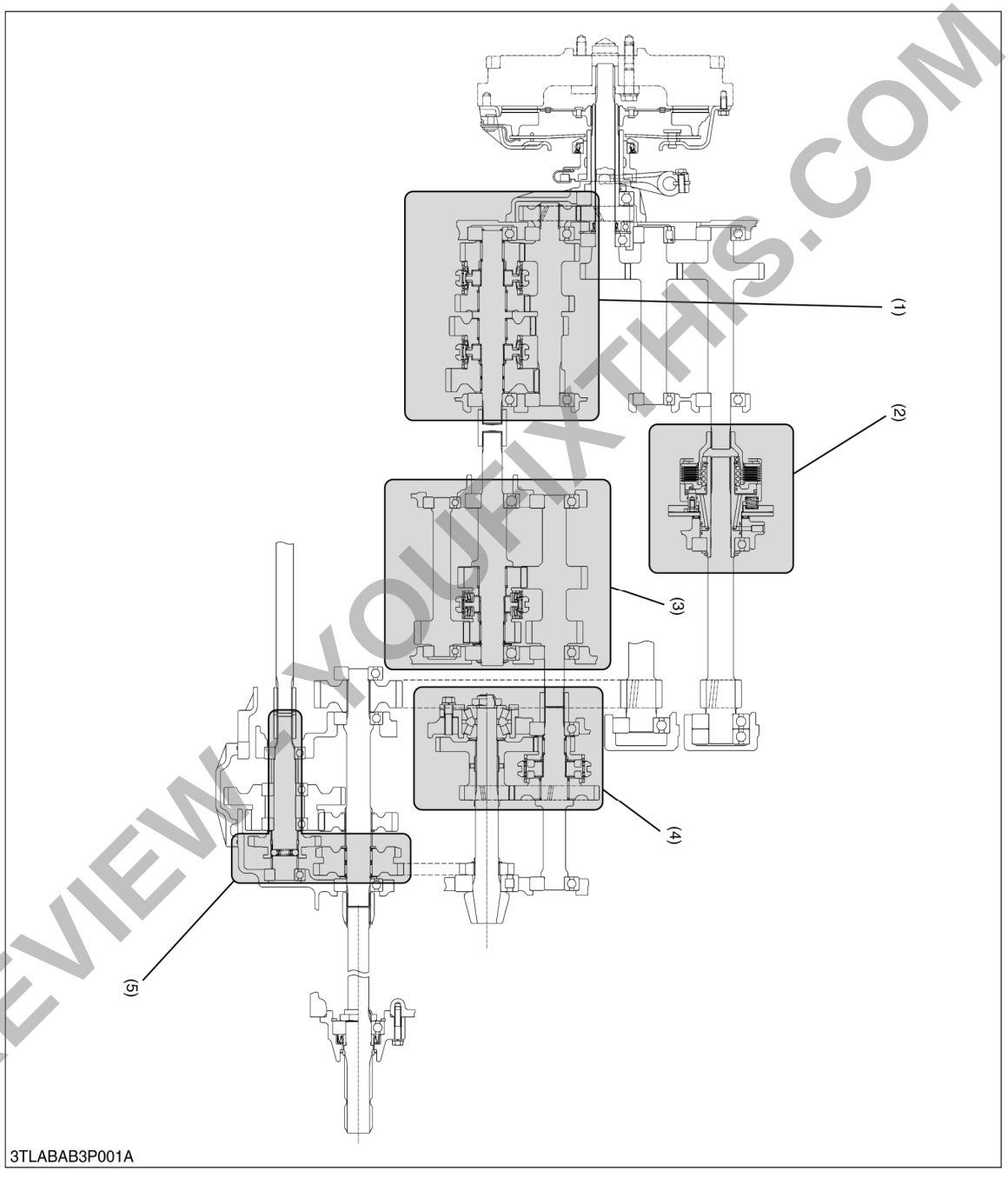
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1. MANUAL TRANSMISSION MODEL

[1] STRUCTURE

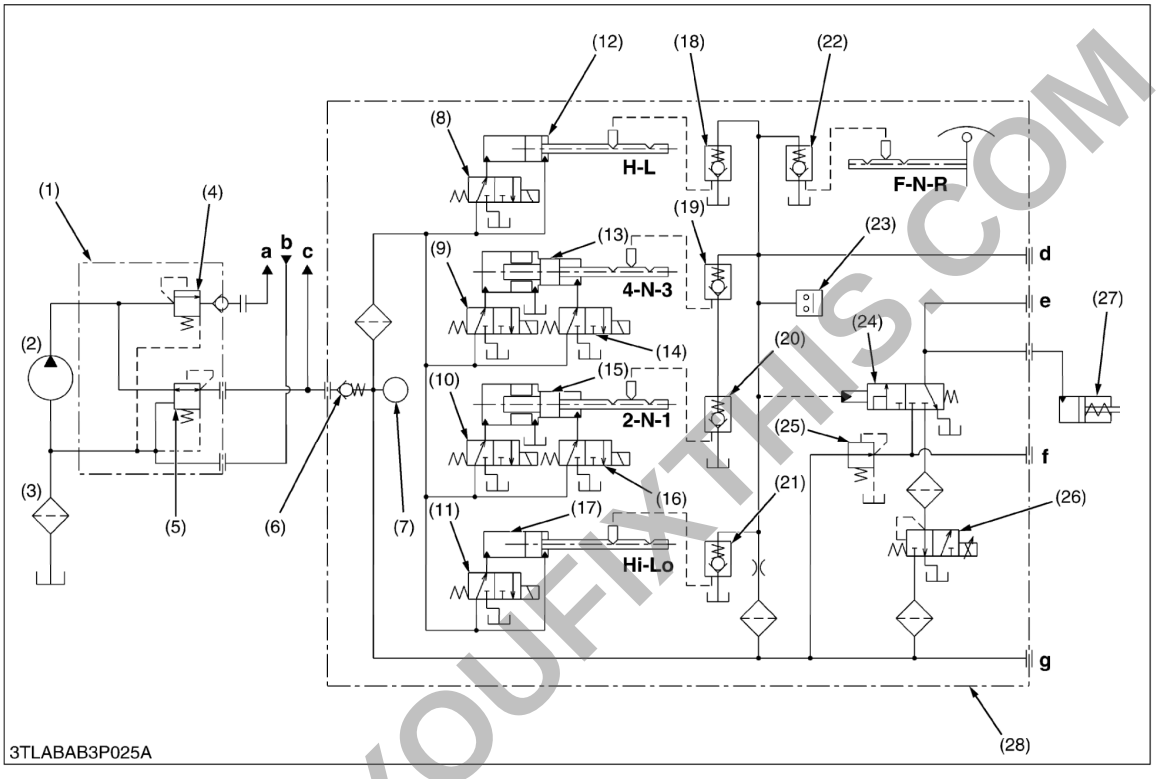


(1) Main Gear Shift Section
(2) PTO Clutch Section
(3) Shuttle Shift Section
(4) Range Gear Shift Section
(5) Front Wheel Drive Shift Section

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[5] HYDRAULIC CONTROL SYSTEM

(1) Hydraulic Circuit and System Outline



(1) Regulating Valve Assembly
(2) Hydraulic Pump
(3) Hydraulic Oil Filter
(4) Regulating Valve
(5) Pressure Reducing Valve
(6) Check Valve
(7) Oil Temperature Sensor
(8) Solenoid Valve 6 (Main Range Shift)
(9) Solenoid Valve 3
(10) Solenoid Valve 1
(11) Solenoid Valve 5 (Sub-range Shift)
(12) Shift Piston (Main Range Shift)
(13) 3-4 Shift Piston
(14) Solenoid Valve 4
(15) 1-2 Shift Piston
(16) Solenoid Valve 2
(17) Shift Piston (Sub-range Shift)
(18) Shift Check Valve (Main Range Shift)
(19) 3-4 Shift Check Valve
(20) 1-2 Shift Check Valve
(21) Shift Check Valve (Sub-range Shift)
(22) Shift Check Valve, Shuttle
(23) Pressure Switch
(24) Clutch Valve
(25) Low-pass Valve
(26) Proportional Reducing Valve
(27) GST Clutch
(28) GST Valve Assembly

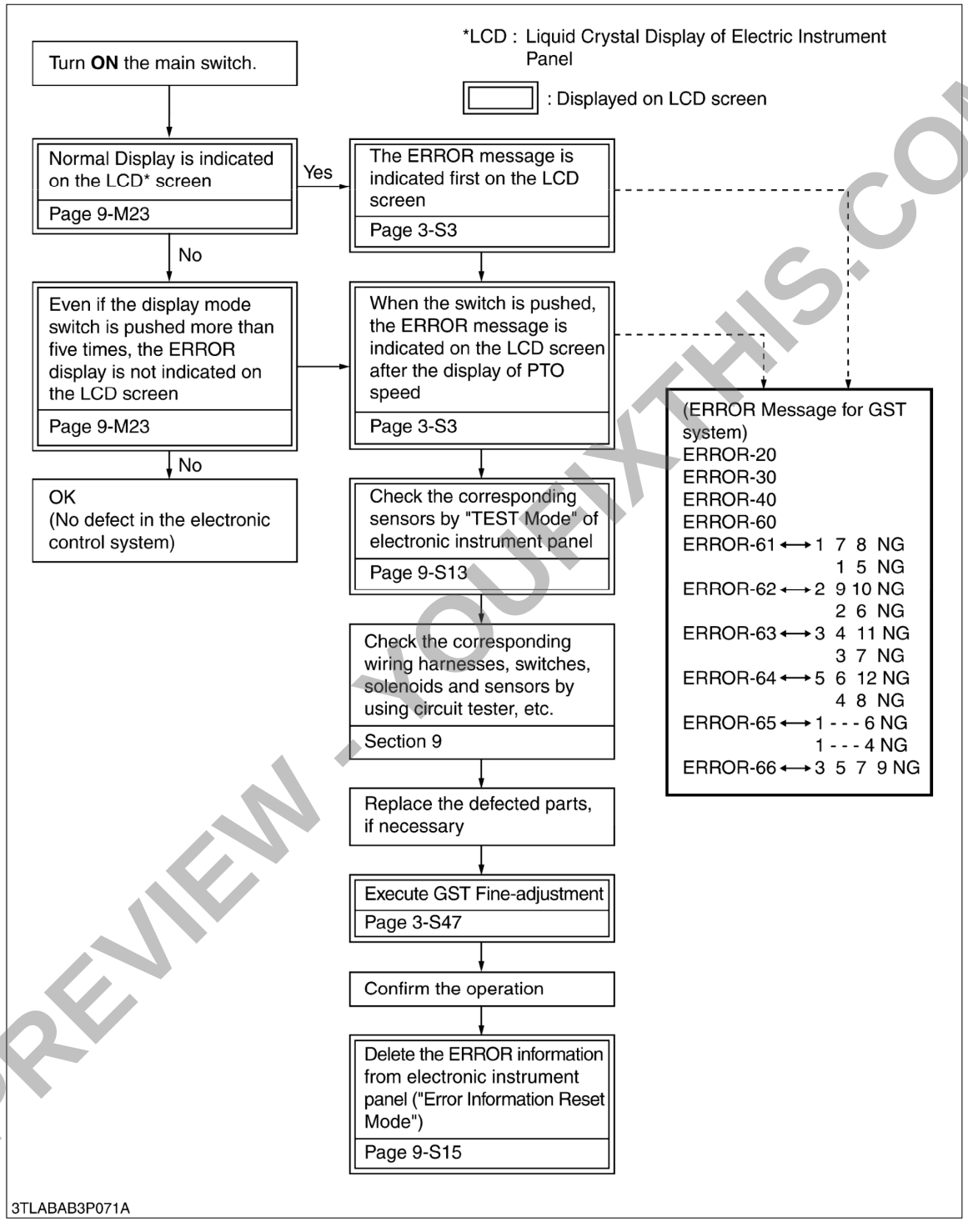
a : To Steering Controller
b : From Steering Controller
c : To PTO Clutch Valve
d : Check port for pilot pressure
e : Check port for clutch pressure
f : Check port for Low-pass pressure
g : Check port for system pressure

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[2] GST SYSTEM

Electrical Diagnosis by Electronic Instrument Panel (IntelliPanel)

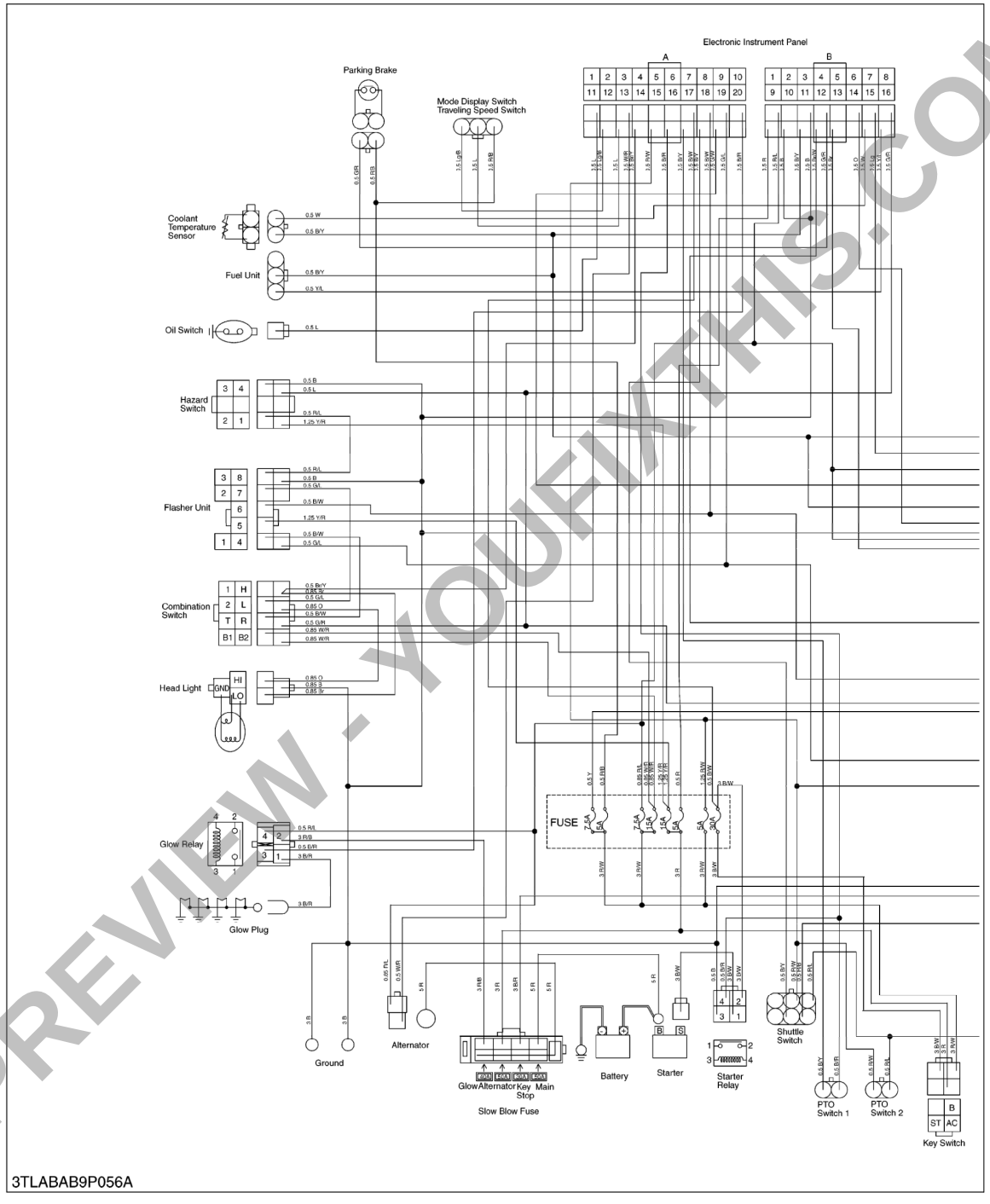


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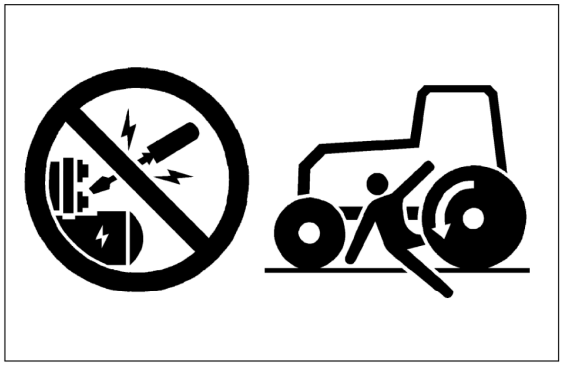
[1] ROPS TYPE

(1) Manual Transmission Type



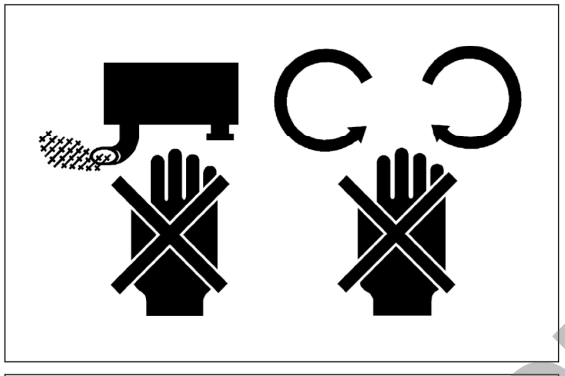
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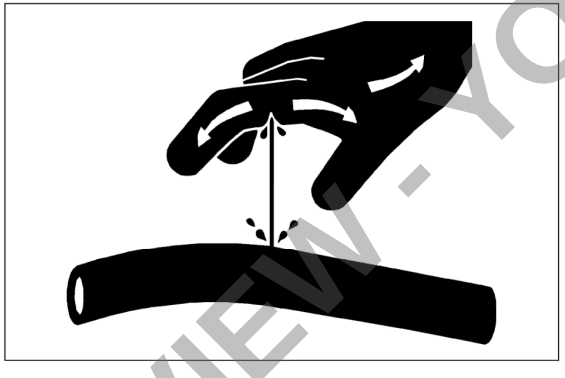
SAFETY STARTING

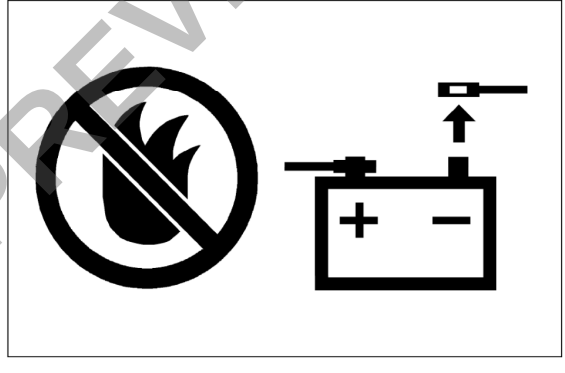
- Do not start the engine by shorting across starter terminals or bypassing the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before starting the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Never start the engine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



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

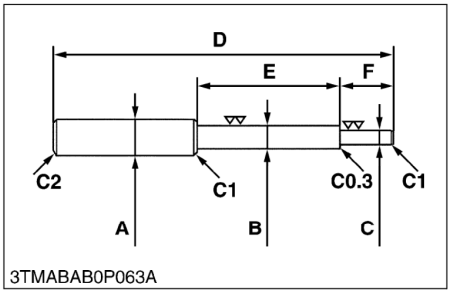
- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open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

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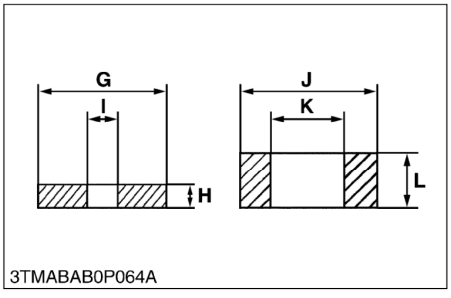
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NOTE

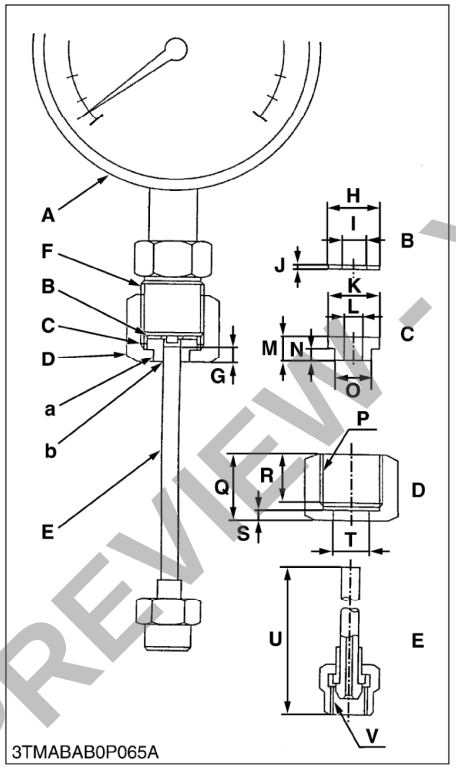
- **The following special tools are not provided, so make them referring to the figure.**



3TMABAB0P063A



3TMABAB0P064A



3TMABAB0P065A

Valve Guide Replacing Tool

Application: Use to press out and press fit the valve guide.

A	20 mm dia. (0.79 in. dia.)
B	11.7 to 11.9 mm dia. (0.460 to 0.468 in. dia.)
C	6.5 to 6.6 mm dia. (0.256 to 0.259 in. dia.)
D	225 mm (8.86 in.)
E	70 mm (2.76 in.)
F	45 mm (1.77 in.)
G	25 mm (0.98 in.)
H	5 mm (0.197 in.)
I	6.7 to 7.0 mm dia. (0.263 to 0.275 in. dia.)
J	20 mm dia. (0.787 in. dia.)
K	12.5 to 12.8 mm dia. (0.492 to 0.504 in. dia.)
L	8.9 to 9.1 mm (0.350 to 358 in.)
C1	Chamfer 1.0 mm (0.039 in.)
C2	Chamfer 2.0 mm (0.079 in.)
C0.3	Chamfer 0.3 mm (0.012 in.)

W10250170

Injection Pump Pressure Tester

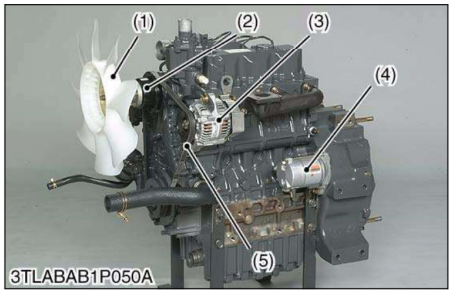
Application: Use to check fuel tightness of injection pumps.

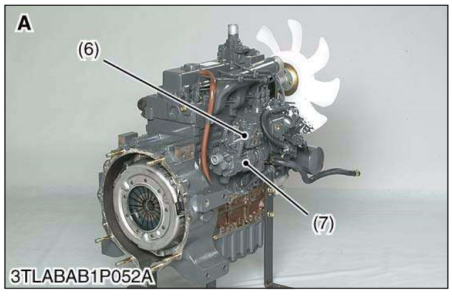
A	Pressure gauge full scale : More than 29.4 MPa (300 kgf/cm^2, 4267 psi)
B	Copper gasket
C	Flange (Material : Steel)
D	Hex. nut 27 mm (1.06 in.) across the plat
E	Injection pipe
F	PF 1/2
G	5 mm (0.20 in.)
H	17 mm dia. (0.67 in. dia.)
I	8 mm dia. (0.31 in. dia.)
J	1.0 mm (0.039 in.)
K	17 mm dia. (0.67 in. dia.)
L	6.10 to 6.20 mm dia. (0.2402 to 0.2441 in. dia.)
M	8 mm (0.31 in.)
N	4 mm (0.16 in.)
O	11.97 to 11.99 mm dia. (0.4713 to 0.4721 in. dia.)
P	PF 1/2
Q	23 mm (0.91 in.)
R	17 mm (0.67 in.)
S	4 mm (0.16 in.)
T	12.00 to 12.02 mm dia. (0.4724 to 0.4732 in. dia.)
U	100 mm (3.94 in.)
V	M12 × P1.5
a	Adhesive application
b	Fillet welding on the enter circumference

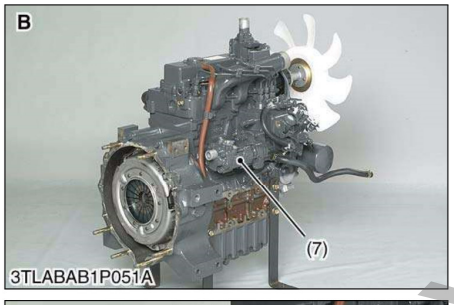
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Outer Parts of Engine

1. Remove the hydraulic pump (7) with pump holder and regulating valve (6).
2. Remove the radiator fan (1), belt and fan pulley (2).
3. Remove the alternator (3).
4. Remove the starter motor (4).

(When reassembling)

- Be sure to adjust the fan belt tension. (Refer to G-23.)

Tightening torque	Alternator mounting screw (M10)	39.2 to 44.1 N·m 4.0 to 4.5 kgf·m 28.9 to 32.5 ft-lbs
	Tension adjusting screw (M8)	17.6 to 20.6 N·m 1.8 to 2.1 kgf·m 13.0 to 15.2 ft-lbs

(1) Radiator Fan
(2) Fan Pulley
(3) Alternator
(4) Starter Motor
(5) Fan Belt
(6) Regulating Valve
(7) Hydraulic Pump
A : Manual Transmission and GST Model
B : HST Model

W10169070

Clutch Assembly

1. Remove the clutch from the flywheel.

(When reassembling)

- Direct the shorter end of the clutch disc boss toward the flywheel.
- Apply molybdenum disulphide (Three Bond 1901 or equivalent) to the splines of clutch disc boss.
- Install the pressure plate, nothing the position of straight pins.

IMPORTANT

- **Align the center of disc and flywheel by inserting the clutch center tool. (See page G-47.)**

NOTE

- **Do not allow grease and oil on the clutch disc facing.**

Tightening torque	Clutch mounting screws	23.5 to 27.5 N·m 2.4 to 2.8 kgf·m 17.5 to 20.3 ft-lbs

W10171850

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Separating Engine and Clutch Housing

1. Place the disassembling stand under the engine and clutch housing case.
2. Remove the fuel tank support mounting screws.
3. Remove the engine and clutch housing mounting screws and nuts.
4. Separate the engine and clutch housing while lifting up the tank frame.

(When reassembling)

- Apply grease to the spline of clutch shaft.
- Apply liquid gasket (Three Bond 1211 or equivalent) to joint face of the flywheel housing and clutch housing.

Tightening torque	Engine and clutch housing mounting screw and nut	77.5 to 90.2 N·m 7.9 to 9.2 kgf·m 57.1 to 66.5 ft-lbs
	Engine and clutch housing mounting stud bolt	39.2 to 49.0 N·m 4.0 to 5.0 kgf·m 28.9 to 36.2 ft-lbs

W1021830

(2) Removing Clutch Assembly





Clutch Assembly

1. Remove the clutch from the flywheel.

(When reassembling)

- Direct the shorter end of the clutch disc boss toward the flywheel.
- Apply molybdenum disulphide (Three Bond 1901 or equivalent) to the splines of clutch disc boss.
- Install the pressure plate, noting the position of straight pins.

IMPORTANT

- **Align the center of disc and flywheel by inserting the clutch center tool. (See page G-47.)**

NOTE

- **Do not allow grease and oil on the clutch disc facing.**

Tightening torque	Clutch mounting screws	23.5 to 27.5 N·m 2.4 to 2.8 kgf·m 17.5 to 20.3 ft-lbs

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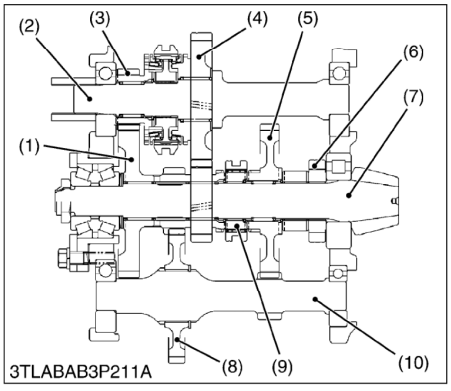
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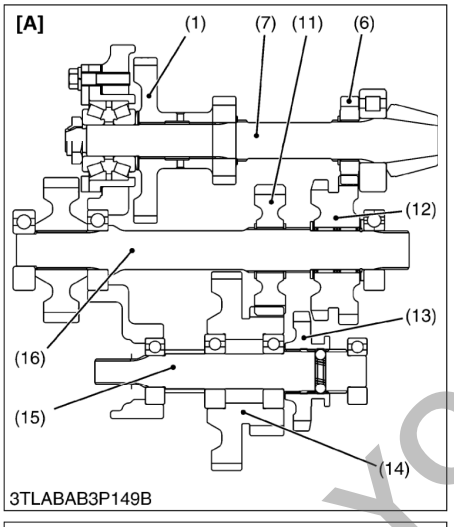
Item	N·m	kgf·m	ft-lbs
(Cabin)			
Compressor mounting screw	24.5 to 29.4	2.5 to 3.0	18.1 to 21.7
Cabin mounting bolt and nut	124 to 147	12.6 to 15.0	91.1 to 108
(Manual Transmission)			
Main shift base mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
Main shift arm setting screw	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3
Clutch housing bearing holder mounting screw	48.1 to 55.9	4.9 to 5.7	35.4 to 41.2
Stopper screw	34.3 to 44.1	3.5 to 4.5	25.3 to 32.5
(GST)			
Joint bolt for GST delivery pipe	34 to 39	3.5 to 4.0	25.3 to 28.9
Shift pin mounting screw	12.7 to 14.7	1.3 to 1.5	9.4 to 10.8
GST valve mounting screw	42.2 to 48.1	4.3 to 4.9	31.1 to 35.4
Clutch housing bearing holder mounting screw	48.1 to 55.9	4.9 to 5.7	35.4 to 41.2
Stopper screw	34.3 to 44.1	3.5 to 4.5	25.3 to 32.5
Joint bolt for GST delivery pipe and regulating valve	34.3 to 39.2	3.5 to 4.0	25.3 to 28.9
Joint bolt for power steering hose and regulating valve	49.0 to 68.6	5.0 to 7.0	36.2 to 50.6
Joint bolt for delivery pipe and hydraulic pump	39.3 to 49.0	4.0 to 5.0	29.0 to 36.2
Regulating valve mounting screw	17.6 to 20.6	1.8 to 2.1	13.0 to 15.2
Joint bolt	49.0 to 58.8	5.0 to 6.0	36.2 to 43.4
Plate	9.8	1.0	7.2
Regulating valve case and support mounting screw	9.8	1.0	7.2
Lower body mounting hex. socket head cap screw	9.8 to 10.8	1.0 to 1.1	7.2 to 8.0
(HST)			
HST control lever setting hex. head screw	6.86 to 8.33	0.70 to 0.85	5.06 to 6.15
Joint bolt for oil cooler pipe	34 to 39	3.5 to 4.0	25.3 to 28.9
Joint bolt for charge delivery pipe to filter bracket	39 to 49	4.0 to 5.0	28.9 to 36.1
Joint bolt for PTO pipe to PTO clutch valve	34 to 39	3.5 to 4.0	25.3 to 28.9
Cap nut for charge delivery pipe	49 to 59	5.0 to 6.0	36.1 to 43.4
Port block mounting hex. head screw	98 to 123	10 to 12.5	72.3 to 90.4
Swashplate setting hex. head screw	28 to 35	2.9 to 3.6	21 to 26
Cradle bearing bracket mounting hex. head screw	28 to 35	2.9 to 3.6	21 to 26
Charge pump case mounting screw	28 to 35	2.9 to 3.6	21 to 26
Hex. head plug	30 to 37	3.1 to 3.8	22.4 to 27.5
Hex. head plug	56 to 68	5.5 to 7.0	39.8 to 50.6
Regulator mounting hex. head screw	6.9 to 8.3	0.7 to 0.85	5.1 to 6.1
Servo piston and cover mounting hex. head screw	28 to 35	2.9 to 3.6	21 to 26

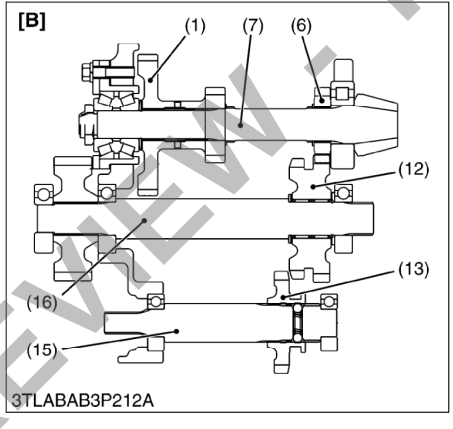
W1012736

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Disassembling Shaft Assemblies

1. Disassemble the each shaft referring to the figure.

(1) 49T-20T Gear
49T-19T-20T Gear
(Creep Model Only)
(2) Range Gear Shaft
(3) 17T Gear
(4) 34T Gear (L3130, L3430, L4330)
35T Gear (L3830, L4630, L5030)
(5) 50T Gear (Creep Model Only)
(6) 18T Gear
(L3130, L3430, L4330, L4630)
17T Gear (L3830, L5030)
(7) Spiral Bevel Pinion Shaft
(8) 44T Gear (Creep Model Only)
(9) Shifter for Creep Shift
(Creep Model Only)
(10) Creep Shaft
(Creep Model Only)
(11) 27T Gear
(12) 29T Gear (L3130, L3430)
29T-31T Gear (L3830)
29T-30T Gear (L4330, L4630)
29T-32T Gear (L5030)
(13) 24T Shifter Gear
(14) 26T-60T Gear
(15) Front Wheel Drive Shaft
(16) PTO Drive Shaft

[A] L3130, L3430, L3830, L4630 (CABIN)
[B] L4330, L4630 (ROPS), L5030

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1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
Uneven Braking Force	• Brake pedal play unevenly adjusted • Brake disc worn • Cam plate warped	Adjust Replace Replace	5-S4 5-S10 5-S10
Brake Drags	• Brake pedal play too small • Ball holes of cam plate for uneven wear • Brake pedal return spring weaken or broken • Brake cam rusted	Adjust Replace Replace Repair	5-S4 5-S10 5-S6 5-S10
Poor Braking Force	• Brake pedal play excessive • Brake disc worn • Cam plate warped • Brake cam or lever damaged • Transmission fluid improper	Adjust Replace Replace Replace Change	5-S4 5-S10 5-S10 5-S10 G-9, 10

W10143220

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Hydraulic Flow Test

IMPORTANT

- **When using a flowmeter other than KUBOTA specified flowmeter, be sure to use the instructions with that flowmeter.**
- **Do not close the flowmeter loading valve completely, before testing, because it has no relief valve.**

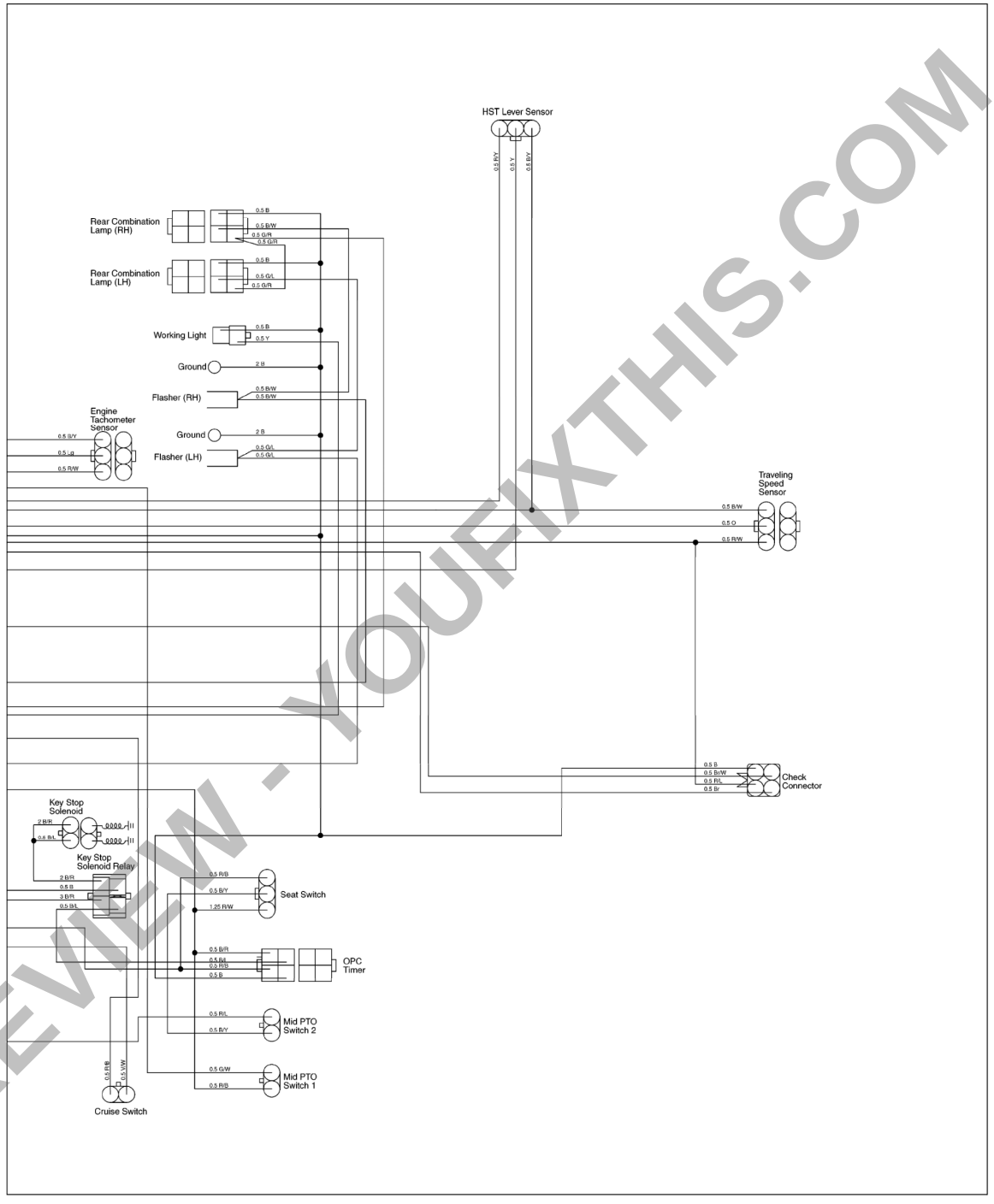
1. Install the adaptor **52** to the pump discharge port.
2. Connect the hydraulic test hose to the adaptor **52** and flowmeter inlet port.
3. Connect the other hydraulic test hose to the flowmeter outlet port and to transmission fluid filling plug hole.
4. Open the flowmeter loading valve completely. (Turn counterclockwise.)
5. Start the engine and set the engine speed at **2000 to 2200 min^{-1} (rpm)**.
6. Slowly close the loading valve to generate pressure approx. **9.8 MPa (100 kgf/cm^2, 1422 psi)**. Hold in this condition until oil temperature reaches approx. 40 °C (104 °F).
7. Open the loading valve completely.
8. Set the engine speed. (Refer to **Condition**.)
9. Read and note the pump delivery at no pressure.
10. Slowly close the loading valve to increase pressure (Rated pressure). As the load is increased, engine speed drops, therefore, reset the engine speed.
11. Read and note the pump delivery at rated pressure.
12. Open the loading valve completely and stop the engine.
13. If the pump delivery does not reach the allowable limit, check the pump suction line, oil filter or hydraulic pump.

Condition

- Engine Speed.....Approx. 2700 min^{-1} (rpm) (Except L4330)
  Approx. 2600 min^{-1} (rpm) (L4330)
- Rated pressure
  L3130, L3430, L3830 4WD .... 10.7 to 11.7 MPa
  109.1 to 119.3 kgf/cm^2
  1552 to 1697 psi
  L4330, L4630, L5030 4WD .... 12.7 to 13.7 MPa
  129.5 to 139.7 kgf/cm^2
  1842 to 1987 psi
- Oil Temperature ..... 40 to 60 °C
  104 to 140 °F

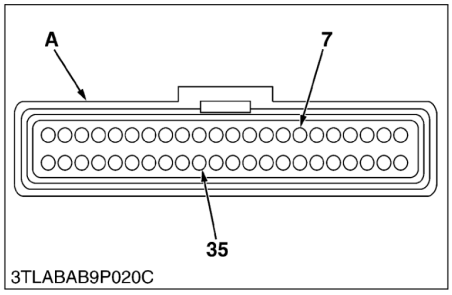
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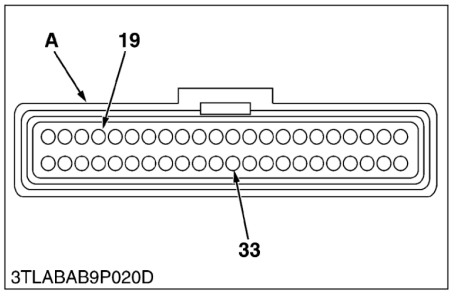
Pressure Switch Voltage

1. Connect the **44P** connector to ECU.
2. Connect the tester positive cable to terminal **35** of wire harness side connector and negative cable to terminal **7**.
3. Start the engine and depress the clutch, and shift the shuttle lever to Forward position.
4. Measure the voltage when the GST lever is in neutral and the voltage when GST lever is shifting.
5. It is OK if the voltage comes to show in the table below.

Voltage between terminal **35** to **7**	GST lever at Neutral	0 V
	GST lever at Shifting	Above 12 V

A : Connector of wire harness side

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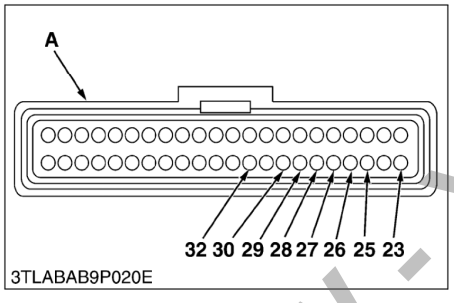
Oil Temperature Sensor Voltage

1. Measure the voltage between terminal **19** (+) and terminal **33** (–).
2. It is OK if the voltage value approximates to the value shown in the table below.

Voltage between terminal **19** to **33**	Reference value	Approx. 4.7 V at -30°C (-22°F) Approx. 3.8 V at 0°C (32°F) Approx. 2.3 V at 30°C (86°F) Approx. 1.0 V at 60°C (140°F) Approx. 0.4 V at 100°C (212°F)

A : Connector of wire harness side

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Proportional Reducing Valve Solenoid Valve Resistance

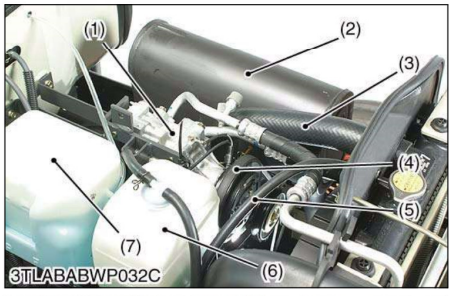
1. Measure the resistance between each value terminal and terminal **32**.
2. It is OK if the resistance value approximates to the value shown in the table below.

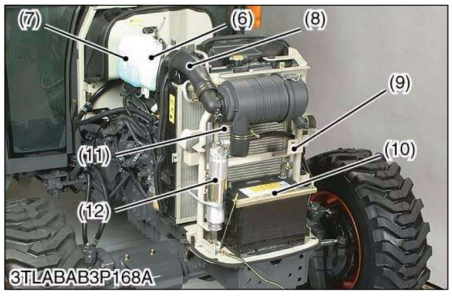
Item	Measuring terminal	Resistance
Proportional Reducing valve	Terminal **23** and **32**	Approx. 8 to 9 Ω
Solenoid 1	Terminal **27** and **32**	Approx. 11 to 15 Ω
Solenoid 2	Terminal **28** and **32**	
Solenoid 3	Terminal **29** and **32**	
Solenoid 4	Terminal **30** and **32**	
Solenoid 5 (Sub-range)	Terminal **25** and **32**	
Solenoid 6 (Main range)	Terminal **26** and **32**	

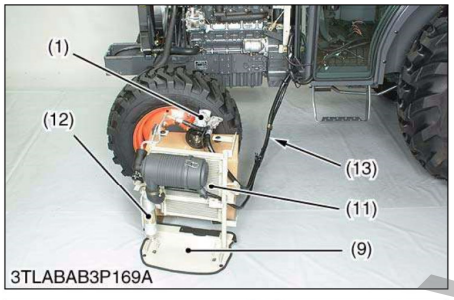
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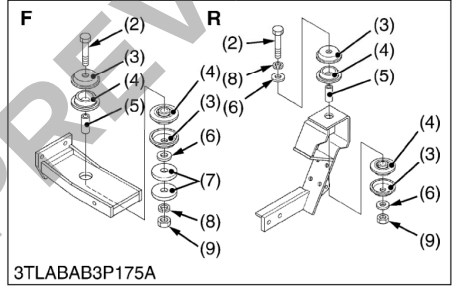
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Air Conditioner Parts

1. Remove the muffler (2).
2. Remove the air conditioner belt (4) and remove the compressor (1) mounting screw.
3. Remove the recovery tank (6) and window washer tank (7).
4. Disconnect the air cleaner hose (8).
5. Disconnect the recovery tank hose (5).
6. Disconnect the radiator upper hose (3).
7. Remove the oil cooler mounting screw. (HST model only)
8. Remove the battery (10).
9. Remove the battery stay mounting bolt.
10. Take out the compressor (1), condenser (11), receiver (12), hoses (13), battery stay (9) and etc. as a unit.

(When reassembling)

- After reassembling the compressor, be sure to adjust the air conditioner belt tension. (See page G-30.)

Tightening torque	Compressor mounting screw	24.5 to 29.4 N·m 2.5 to 3.0 kgf·m 18.1 to 21.7 ft-lbs
	Muffler mounting screw	31.4 to 37.2 N·m 3.2 to 3.8 kgf·m 23.1 to 27.5 ft-lbs

(1) Compressor
(2) Muffler
(3) Radiator Upper Hose
(4) Air Conditioner Belt
(5) Recovery Tank Hose
(6) Recovery Tank
(7) Window Washer Tank
(8) Air Cleaner Hose
(9) Battery Stay
(10) Battery
(11) Condenser
(12) Receiver
(13) Air Conditioner Hose

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Cabin Assembly

1. Remove the outer roof of cabin.
2. Support the cabin with nylon straps (1) and hoists.
3. Loosen and remove the cabin mounting bolts (2) and nuts (9).
4. Dismounting the cabin from tractor body.

NOTE

- **Lift the cabin while making sure it does not catch on anything.**

(When reassembling)

- Be sure to install the washers and mount rubbers, etc. in their original positions.
- Before mounting the cabin, be sure to set both the shuttle lever rod and the shuttle arm to the neutral position, and then connect the shuttle lever rod securely. (GST model)

Tightening torque	Cabin mounting bolt and nut	124 to 147 N·m 12.6 to 15.0 kgf·m 91.1 to 108 ft-lbs

(1) Nylon Straps
(2) Bolt
(3) Plate
(4) Mount Rubber
(5) Collar
(6) Plain Washer (M14)
(7) Washer
(8) Spring Washer
(9) Nut

F : Front Side
R : Rear Side

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