WSM

WORKSHOP MANUAL
TRACTOR

L3301,L3901,L4701

Kubota

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KiSC issued 08, 2019 A

GENERAL

CONTENTS

1. TRACTOR IDENTIFICATION G-1
   [1] MODEL NAME AND SERIAL NUMBERS G-1
      (1) L3301/L3901 ..... G-1
      (2) L4701 ..... G-2
   [2] E4B ENGINE G-3
   [3] CYLINDER NUMBER G-3
2. GENERAL PRECAUTIONS G-4
3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING G-5
   [1] WIRING G-5
   [2] BATTERY G-7
   [3] FUSE G-7
   [4] CONNECTOR G-7
   [5] CIRCUIT TESTER G-8
   [6] COLOR OF WIRING G-9
4. LUBRICANTS, FUEL AND COOLANT G-10
   [1] L3301/L3901 ..... G-10
   [2] L4701 ..... G-11
5. TIGHTENING TORQUES G-13
   [1] GENERAL USE SCREWS, BOLTS AND NUTS G-13
   [2] STUD BOLTS G-13
   [3] METRIC SCREWS, BOLTS AND NUTS G-14
   [4] AMERICAN STANDARD SCREWS, BOLTS AND NUTS WITH UNC OR UNF THREADS G-14
   [5] PLUGS G-14
6. MAINTENANCE CHECK LIST G-15
   [1] L3301/L3901 ..... G-15
   [2] L4701 ..... G-18
7. CHECK AND MAINTENANCE G-21
   [1] L3301/L3901 ..... G-21
      (1) Daily Check G-21
      (2) Check Points of Every 50 Hours G-26
      (3) Check Points of Every 100 Hours G-29
      (4) Check Points of Every 200 Hours G-34
      (5) Check Points of Every 400 Hours G-36
      (6) Check Point of Every 600 Hours G-39
      (7) Check Point of Every 800 Hours G-40
      (8) Check Points of Every 1500 Hours G-40
      (9) Check Points of Every 3000 Hours G-41
      (10) Check Points of Every 1000 Hours or 1 year G-41
      (11) Check Points of Every 1 Year G-41
      (12) Check Points of Every 2000 Hours or 2 Years G-43
      (13) Check Points of Every 2 Years G-45
      (14) Check points of Every 4 Years G-45
      (15) Others G-46
   [2] L4701 ..... G-50
      (1) Daily Check G-50
      (2) Check Points of Every 50 Hours G-55
      (3) Check Points of Every 100 Hours G-58
      (4) Check Points of Every 200 Hours G-62

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1. SAFETY FIRST

⚠ 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 try to repair or use this unit.**

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

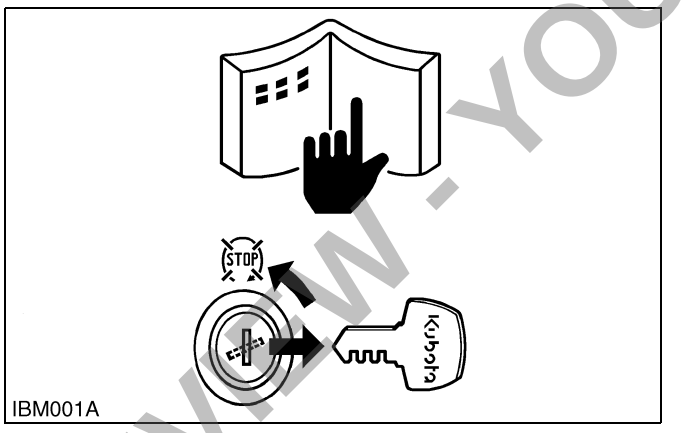
⚠ WARNING
- **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ CAUTION
- **Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.**

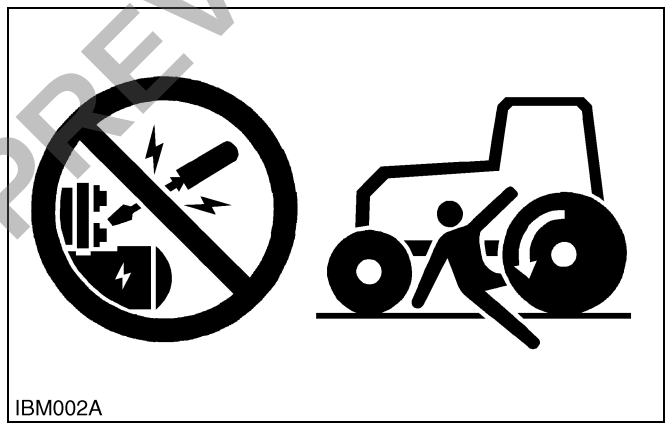
■ IMPORTANT
- **Indicates that equipment or property damage could result if instructions are not followed.**

■ NOTE
- **Gives helpful information.**

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IBM001A


IBM002A

BEFORE YOU START SERVICE

- 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 stable and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, then remove the key.
- Disconnect the battery negative cable.
- Hang a **"DO NOT OPERATE"** tag in the operator station.

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START SAFELY

- Do not do the procedures below when you start the engine.
  - short across starter terminals
  - bypass the safety start switch
- Do not alter or remove any part of machine safety system.
- Before you start the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Do not start the engine when you stay on the ground. Start the engine only from operator's seat.

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I INFORMATION

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4. LUBRICANTS, FUEL AND COOLANT

[1] L3301/L3901

No.	Place		Capacity		Lubricants, fuel and coolant
			L3301	L3901	
1	Fuel		42.0 L 11.0 U.S.gals 9.24 Imp.gals		• No. 2-D S15 diesel fuel • No. 1-D S15 diesel fuel if temperature is below –10 °C (14 °F)
2	Coolant		6.0 L 6.3 U.S.qts 5.3 Imp.qts		Fresh clean soft water with anti-freeze
3	Engine crankcase (with filter)		6.7 L 7.1 U.S.qts 5.9 Imp.qts		Engine oil: Refer to G-12. • Above 25 °C (77 °F) SAE30, SAE10W-30 or 15W-40 • −10 to 25 °C (14 to 77 °F) SAE20, SAE10W-30 or 15W-40 • Below –10 °C (14 °F) SAE10W-30
4	Transmission case	Manual Transmission, 2WD	28.0 L 7.4 U.S.gals 6.16 Imp.gals		KUBOTA SUPER UDT-2 fluid
		Manual Transmission, 4WD	28.5 L 7.5 U.S.gals 6.27 Imp.gals		
		HST, 4WD	23.5 L 6.2 U.S.gals 5.17 Imp.gals		
5	Front axle case [4WD]		4.5 L 4.8 U.S.qts 4.0 Imp.qts		KUBOTA SUPER UDT-2 fluid or SAE80, 90 gear oil

■ **NOTE**

- **KUBOTA UDT or SUPER UDT fluid: KUBOTA original transmission hydraulic fluid.**

Greasing				
	Place	No. of greasing point	Capacity	Type of grease
6	Front wheel hub	2 [2WD only]	A small amount	Bearing grease
	Knuckle shaft	2 [2WD only]	Until grease overflows	Multipurpose type grease NLGI-2 or NLGI-1 (GC-LB)
	Front axle support	2 [4WD only]		
	Clutch pedal	1		
	Brake pedal	1		
	Pedal shaft	1		
	Battery terminals	2		
	Lift rod	2		
	Tie rod end	4 [4WD only]		
	Top link	2		

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6. MAINTENANCE CHECK LIST

[1] L3301/L3901

No.	Item		Indication on hour meter														Interval	Reference page	Important	
			50	100	150	200	250	300	350	400	450	500	550	600	650	700				
1	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-27		
2	Wheel bolt torque	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-28		
3	Greasing	–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-26		
4	Battery condition	Check		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-32	*4	
5	Fan belt	Adjust		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-29		
6	Brake	Adjust		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-31		
7	Clutch	Adjust	★	☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-30		
8	Air cleaner element	Clean		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-29	*1	@
		Replace															every 1000 Hr or 1 year	G-29	*2	
9	Fuel line	Check															every 1 year	G-41	*5	@
		Replace															every 4 years	G-41	*5	
10	Fuel grommet	Check		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-30		@
		Replace															every 2 years	G-30		
11	Transmission oil filter [HST]	Replace	★			☆				☆				☆			every 200 Hr	G-34		
12	Toe-in	Adjust				☆				☆				☆			every 200 Hr	G-35		
13	Power steering oil line [Manual Transmission]	Check															every 1 year	G-43	*5	
		Replace															every 4 years	G-43	*5	
14	Oil cooler line [HST]	Check															every 1 year	G-42	*5	
		Replace															every 4 years	G-42	*5	
15	Radiator hose and clamp	Check															every 1 year	G-42	*5	
		Replace															every 4 years	G-42	*5	
16	Intake air line	Check															every 1 year	G-42	*5	@
		Replace															every 4 years	G-42	*5	
17	Oil separator hose	Check															every 1 year	G-42	*5	
		Replace															every 4 years	G-42	*5	
18	Engine oil	Change	★							☆							every 400 Hr	G-36		
19	Engine oil filter	Replace	★							☆							every 400 Hr	G-36		
20	Water separator	Clean								☆							every 400 Hr	G-39		

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1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
Engine Does Not Start	No fuel	Fill fuel	G-21, G-50
	Air in the fuel system	Bleed	G-46, G-74
	Water in the fuel system	Change fuel and repair or replace fuel system	–
	Fuel pipe clogged	Clean	–
	Fuel filter clogged	Replace	G-39, G-66
	Excessively high viscosity of fuel at low temperature	Use the specified fuel	G-10, G-11
	Fuel with low cetane number	Use the specified fuel	G-10, G-11
	Fuel leak due to loose injection pipe retaining nut	Tighten nut	1-S40
	Injector stuck or clogged	Replace	1-S43
	Fuel supply pump malfunctioning	Replace	1-S48
	Seizure of crankshaft, camshaft, piston or bearing	Repair or replace	1-S51, 1-S54, 1-S60
	Compression leak from cylinder	Replace head gasket, tighten cylinder head screw, glow plug and injector	1-S42, 1-S43, 1-S45
	Improper valve timing	Correct or replace timing gear	1-S51, 1-S51
	Piston ring and cylinder worn out	Replace	1-S55, 1-S78
	Incorrect valve clearance	Adjust	1-S12
Starter Does Not Operate	Battery discharged	Charge	G-33, G-61
	Starter malfunctioning	Repair or replace	9-S29, 9-S59
	Key switch malfunctioning	Repair or replace	9-S26
	Safety switches improperly adjusted or damaged	Adjust or replace	9-S27
	Starter relay damaged	Replace	9-S30
	Wiring disconnected	Connect	–
Engine Revolution Is Not Smooth	Fuel filter clogged or dirty	Change	G-39, G-66
	Air cleaner clogged	Clean or change	G-29, G-58
	Fuel leak due to loose injection pipe retaining nut	Tighten nut	1-S40
	Fuel supply pump malfunctioning	Replace	1-S48
	Injector stuck or clogged	Replace	1-S43
Either White or Blue Exhaust Gas Is Observed	Excessive engine oil	Reduce to the specified level	G-36, G-64
	Piston ring and cylinder worn or stuck	Repair or replace	1-S55, 1-S78

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2. SERVICING SPECIFICATIONS

ENGINE BODY

Item		Factory Specification	Allowable Limit
Valve Clearance (When Cold)		0.18 to 0.22 mm 0.0071 to 0.0086 in.	–
Compression Pressure (When You Crank the Engine with the Starter)		2.95 to 3.23 MPa / 290 min^{-1} (rpm) 30.0 to 33.0 kgf/cm^2 / 290 min^{-1} (rpm) 427 to 469 psi / 290 min^{-1} (rpm)	2.35 MPa / 290 min^{-1} (rpm) 24.0 kgf/cm^2 / 290 min^{-1} (rpm) 341 psi / 290 min^{-1} (rpm)
Difference among Cylinders		–	10 % or less
Top Clearance		0.60 to 0.70 mm 0.024 to 0.027 in.	–
Cylinder Head Surface	Flatness	–	0.05 mm / 500 mm 0.002 in. / 19.7 in.
Valve Recessing	Recessing	0.65 to 0.85 mm 0.026 to 0.033 in.	1.20 mm 0.0472 in.
Valve Stem to Valve Guide	Clearance	0.040 to 0.070 mm 0.0016 to 0.0027 in.	0.10 mm 0.0039 in.
• Valve Stem	O.D.	7.960 to 7.975 mm 0.3134 to 0.3139 in.	–
• Valve Guide	I.D.	8.015 to 8.030 mm 0.3156 to 0.3161 in.	–
Valve Face	Angle (Intake)	0.79 rad 45°	–
	Angle (Exhaust)	0.79 rad 45°	–
Valve Seat	Width (Intake)	2.12 mm 0.0835 in.	–
	Width (Exhaust)	2.12 mm 0.0835 in.	–
Valve Seat	Angle (Intake)	0.79 rad 45°	–
	Angle (Exhaust)	0.79 rad 45°	–
Valve Timing (Intake Valve)	Open	0.2 rad (9°) before T.D.C.	–
	Close	0.68 rad (39°) after B.D.C.	–
Valve Timing (Exhaust Valve)	Open	0.72 rad (41°) before B.D.C.	–
	Close	0.2 rad (9°) after T.D.C.	–

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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: Refer to "5. TIGHTENING TORQUES" on page G-13.)

[Tractor]

Item	N·m	kgf·m	lbf·ft
Acceleration wire adjusting nut	12 to 13	1.2 to 1.4	8.7 to 10
Exhaust pipe mount bolt	29.4 to 34.3	3.0 to 3.5	22 to 25
Flange mount bolt and nut	49.0 to 55.9	5.0 to 5.7	37 to 41
Filter comp (DPF) mounting clamp band	16 to 20	1.7 to 2.0	12 to 14
Temperature sensor	25 to 34	2.5 to 3.5	18 to 25
Differential pressure pipe	16 to 22	1.6 to 2.3	12 to 16
Steering wheel mounting nut	48 to 55	4.9 to 5.7	36 to 41
Oil cooler return pipe bolt	92 to 101	9.0 to 10.0	6.7 to 7.3
Delivery pipe joint screw	49 to 69	5.0 to 7.0	37 to 50

[L3301/L3901]

Item	N·m	kgf·m	lbf·ft
Steering shaft universal joint bolt	23.5 to 27.4	2.4 to 2.8	17.3 to 20.2
Steering bearing flange bolt	23.5 to 27.4	2.4 to 2.8	17.3 to 20.2
Front Axle Frame Mounting Bolt (M10)	77.5 to 90.2	7.91 to 9.19	57.2 to 66.5

[L4701]

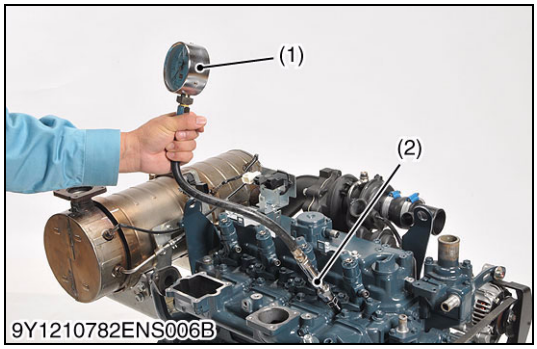
Item	N·m	kgf·m	lbf·ft
Front Axle Frame Mounting Bolt (M10)	60.8 to 70.6	6.2 to 7.2	45 to 52
Front Axle Frame Mounting Bolt (M12)	103.0 to 117.7	10.5 to 12.0	76 to 86

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4. CHECKING AND ADJUSTING

[1] ENGINE BODY



Compression Pressure

1. After warming-up the engine, remove the air cleaner, muffler, glow lead, and glow plugs.
2. Set a compression tester (1) (Code No.: 07909-39081) with the adaptor (2) to the glow plug hole.
3. Crank the engine with the starter to operate the engine approx. 200 to 300 min^{-1} (rpm).
4. Measure a maximum value of the compression pressure. Do the same steps for each cylinder.

■ **NOTE**

- **Check the compression pressure with the specified valve clearance.**
- **Always use a fully charged battery for this test.**
- **Variances in each cylinder compression value must be less than 10 %.**

Compression pressure	Factory specification	2.95 to 3.23 MPa 30.0 to 33.0 kgf/cm^2 427 to 469 psi
	Allowable limit	2.35 MPa 24.0 kgf/cm^2 341 psi

Tightening torque	Injector clamp screw	24 to 27 N·m 2.4 to 2.8 kgf·m 18 to 20 lbf·ft
	Cylinder head cover screw	6.86 to 11.3 N·m 0.700 to 1.15 kgf·m 5.06 to 8.33 lbf·ft
	Injection pipe retaining nut	24.5 to 29.4 N·m 2.50 to 2.99 kgf·m 18.1 to 21.6 lbf·ft

(1) Compression Tester (2) Glow Plug Adaptor

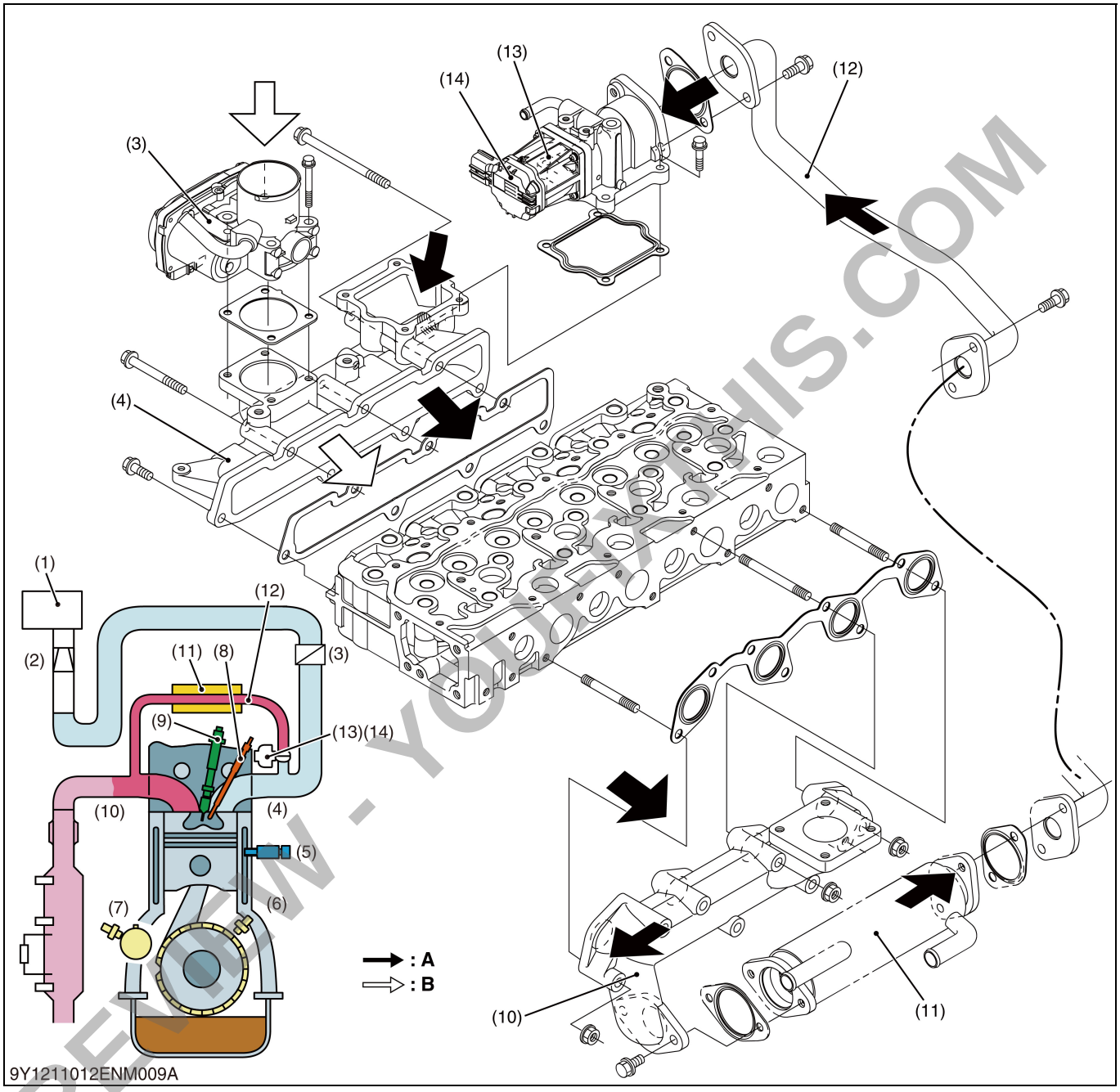
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6. EGR SYSTEM

[1] OVERVIEW



(1) Air Cleaner
(2) Air Flow Sensor
(3) Intake Throttle Valve
(4) Intake Manifold
(5) Coolant Temperature Sensor
(6) Crankshaft Position Sensor
(7) Camshaft Position Sensor
(8) Glow Plug
(9) Injector
(10) Exhaust Manifold
(11) EGR Cooler
(12) EGR Pipe
(13) EGR Valve Motor
(14) EGR LIFT Sensor

A: Exhaust Gas Flow
B: Intake Air Flow

The EGR (Exhaust Gas Recirculation) system is a device that captures a part of the exhaust gas and returns it to the intake side reducing the amount of oxygen entering the engine and lowers combustion temperature suppressing generation of nitrogen oxides (NOx).

The EGR being used on this engine is electronic and is made up of an EGR cooler (11), EGR lift sensor (14), EGR valve motor (13).

The exhaust gas that is returned to the intake side (hereafter EGR gas) is cooled in the EGR cooler (11), adjusted to a suitable flow by an EGR valve motor that is controlled by the engine ECU, and is sent to the intake manifold (4).

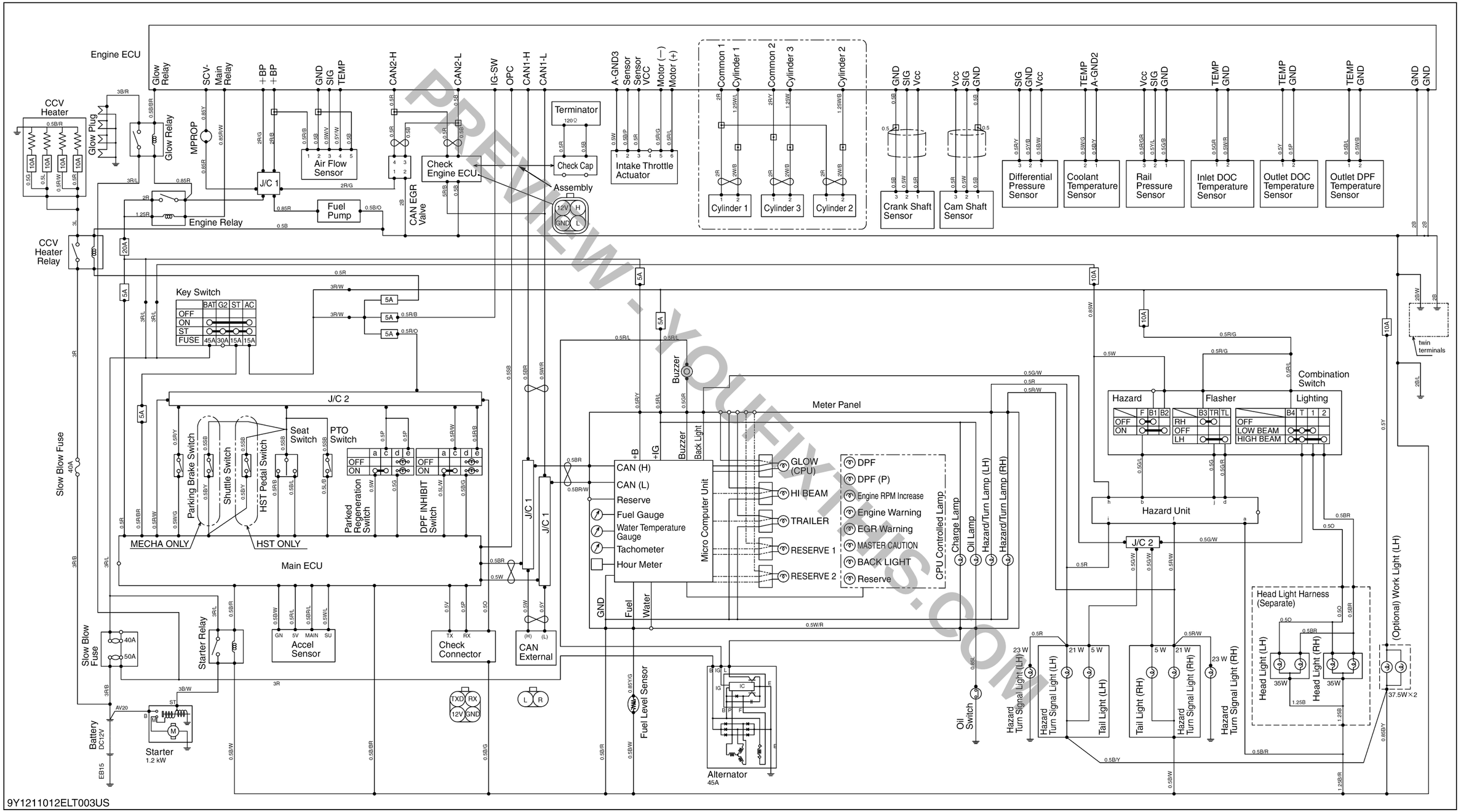
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1. ELECTRICAL CIRCUIT

[1] L3301/L3901



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Error Display (Engine)

ISO 14229 P-Code	J1939-73		Name	Reference Page
	SPN	FMI		
P0016	636	7	NE-G phase shift	See Diagnosis Manual (*)
P0072	171	4	Intake air temperature built-in MAF sensor abnormality	
P0073	171	3		
P0087	633	7	Pressure limiter emergency open	
P0088	157	0	High rail pressure	
P0089	1347	7	SCV (MPROP) stuck	
P0093	1239	1	Fuel leak (in high pressured fuel system)	
P0101	132	1	Intake air volume: Low	
P0102	132	4	MAF sensor abnormality	
P0103	132	3		
P0112	172	4	Intake air temperature error	
P0113	172	3		
P0117	110	4	Coolant temperature sensor abnormality	
P0118	110	3		
P0192	157	4	Rail pressure sensor abnormality	
P0193	157	3		
P0200	523535	0	Injector charge voltage: High	
P0201	651	3	Open circuit of harness/coil	
P0202	653	3		
P0203	654	3		
P0204	652	3		
P0217	110	0	Engine overheat	
P0219	190	0	Engine overrun	
P0237	102	4	Boost pressure sensor abnormality	
P0238	102	3		
P0335	636	8	Crankshaft position sensor (NE sensor) abnormality	
P0336	636	2		
P0340	723	8	Camshaft position sensor (G sensor) abnormality	
P0341	723	2		
P0380	676	5	Glow relay abnormality	
P0380	523544	3		
P0380	523544	4		
P0381	676	0		
P0403	523574	3	EGR actuator abnormality	
P0404	523574	4		
P0409	523572	4		
P0524	100	1	Oil pressure error	
P0543	3242	4	Exhaust gas temperature sensor 1 (T1) abnormality	
P0544	3242	3		

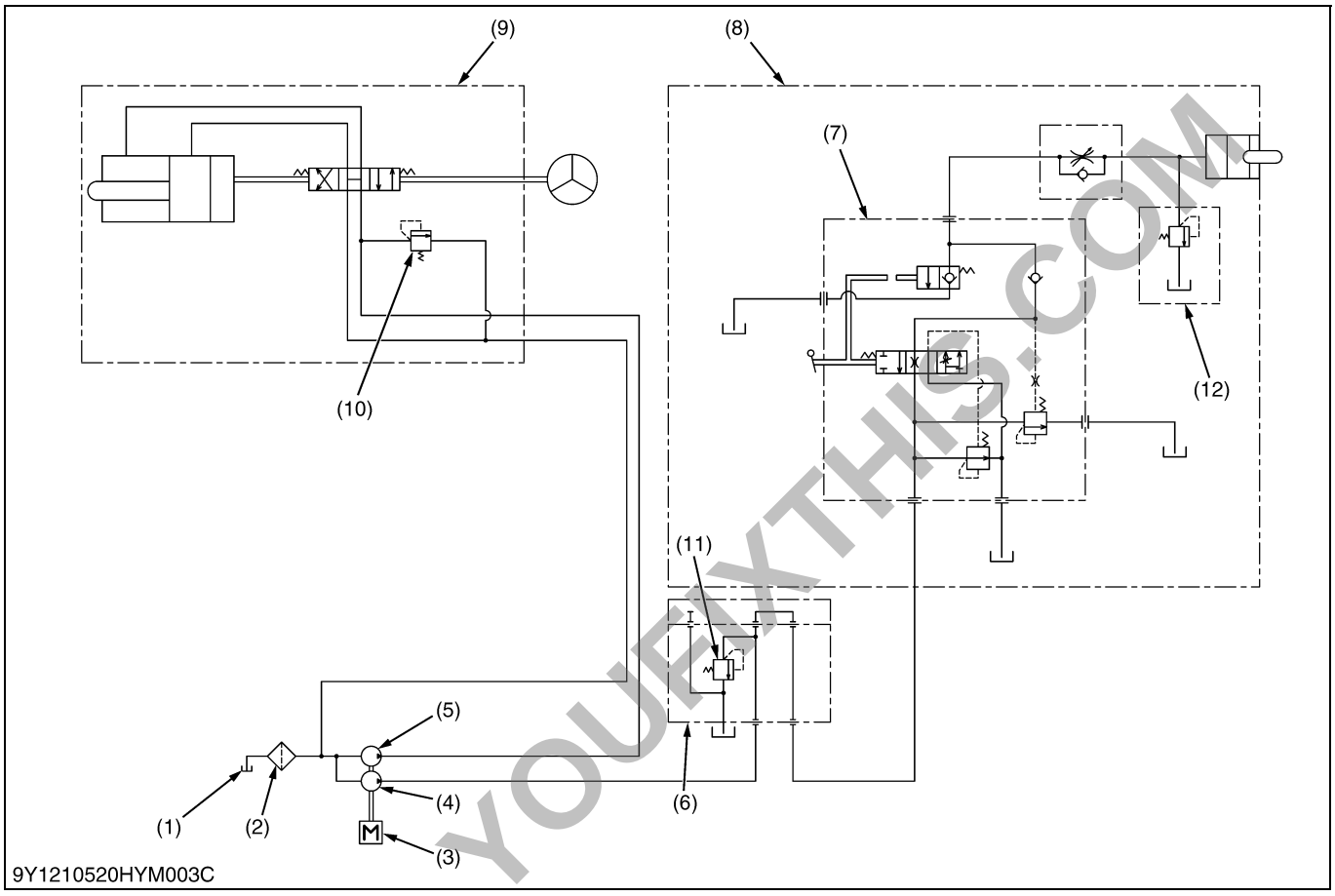
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2. HYDRAULIC CIRCUIT

[1] L3301/L3901

(1) Manual Transmission Model



(1) Oil Tank (Transmission Case)
(2) Hydraulic Oil Filter
(3) Engine
(4) Hydraulic Pump (Three Point Hitch)
(5) Hydraulic Pump (Power Steering)
(6) Front Hydraulic Block
(7) Position Control Valve
(8) Hydraulic Cylinder Block
(9) Power Steering Controller
(10) Relief Valve (Power Steering)
(11) Relief Valve (Three Point Hitch)
(12) Cylinder Safety Valve

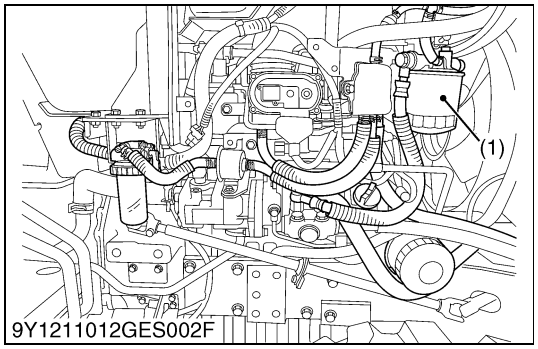
Specification of Hydraulic Parts

(4)	Above. 16.5 L/min. (4.36 U.S.gals/min., 3.63 Imp.gals/min.)	(11)	15.7 to 16.7 MPa (160 to 170 kgf/cm^2, 2280 to 2410 psi)
(5)	Above. 27.2 L/min. (7.19 U.S.gals/min., 5.98 Imp.gals/min.)	(12)	19.7 to 22.5 MPa (200 to 230 kgf/cm^2, 2850 to 3270 psi)
(10)	**[L3301]** 2WD Model: 8.3 to 9.3 MPa (85 to 95 kgf/cm^2, 1200 to 1300 psi) 4WD Model: 11.4 to 12.4 MPa (116 to 126 kgf/cm^2, 1650 to 1790 psi)		
	[L3901] 2WD Model: 8.1 to 9.1 MPa (83 to 93 kgf/cm^2, 1200 to 1300 psi) 4WD Model: 11.1 to 12.1 MPa (113 to 123 kgf/cm^2, 1610 to 1740 psi)		

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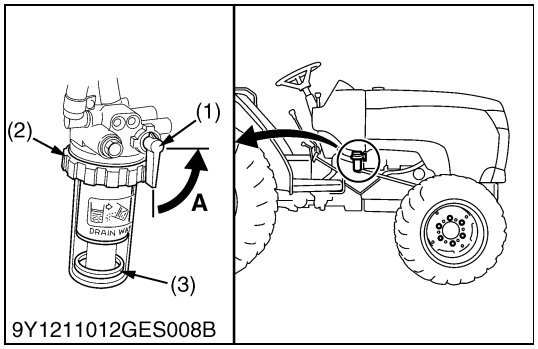
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Replacing Fuel Filter

1. Remove the fuel filter.
2. Put a film of clean fuel on rubber seal of new filter.
3. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
4. Bleed the fuel system. (See "Bleeding Fuel System" on page G-46.)

(1) Fuel Filter

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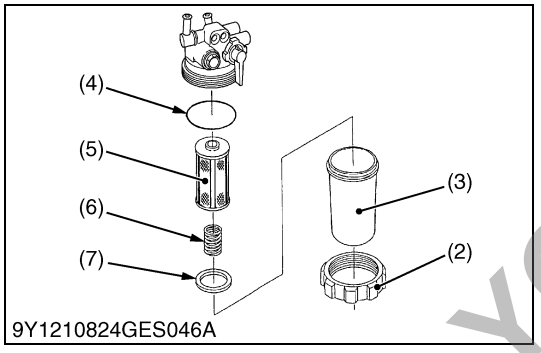
Cleaning Water Separator

This job should not be done in the field, but in a clean place.

1. Close the fuel valve.
2. Unscrew the retainer ring and remove the cup, and rinse the inside with kerosene.
3. Take out the element and dip it in the kerosene to rinse.
4. After cleaning, reassemble the water separator, keeping out dust and dirt.
5. Bleed the fuel system. (See "Bleeding Fuel System" on page G-46.)

(1) Fuel Valve **A: Close**
(2) Retainer Ring
(3) Cup
(4) O-ring
(5) Element
(6) Spring
(7) Red Float

9Y1211012GEG0097US0



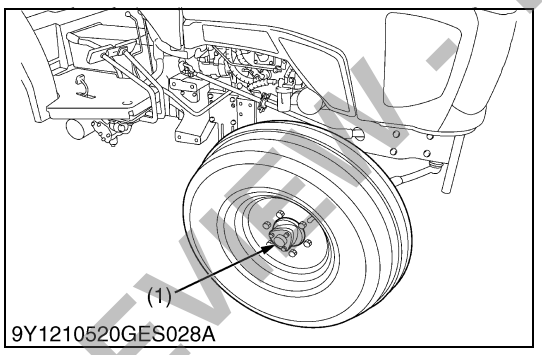
9Y1210824GES046A

Lubricating Grease Fitting [2WD Model]

Detach the cover, and apply bearing grease.

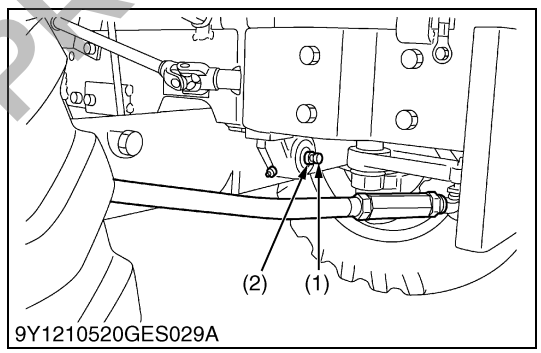
(1) Front Wheel Hub Cover

9Y1211012GEG0098US0



9Y1210520GES028A

(6) Check Point of Every 600 Hours



9Y1210520GES029A

Adjusting Front Axle Pivot

If the front axle pivot pin adjustment is not correct, front wheel vibration can occur causing vibration in the steering wheel.

■ **Adjusting procedure**

Loosen the lock nut, screw-in the adjusting screw until seated, then tighten the screw with an additional 1/6 turn. Re-tighten the lock nut

(1) Adjusting Screw (2) Lock Nut

9Y1211012GEG0099US0

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[2] TREADS ADJUSTMENT

CAUTION

To avoid personal injury:

- **When working on slopes or working with trailer, set the wheel tread as wide as practice for the job for maximum stability.**
- **Support tractor securely on stands before removing a wheel.**
- **Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.**
- **Never operate tractor with a loose rim, wheel, or axle.**

9Y1211012GEG0035US0

(1) L3301/L3901

[A] Front Wheels

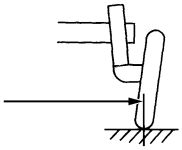
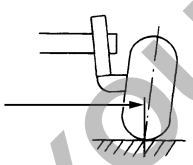
Front tread can not be adjusted.

■ **IMPORTANT**

- **Do not turn front discs to obtain wider tread.**
- **When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards), and thereafter according to service interval. (See page G-15.)**

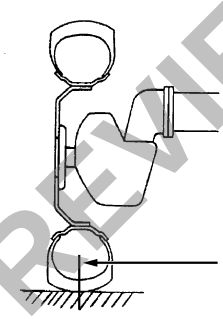
9Y1211012GEG0039US0

2WD Front Wheel

5 - 15 Farm	23 × 8.5 - 12 Turf
 3TLAAAB0P037A	 3TLAAAB0P038A
1050 mm (41.3 in.)	1175 mm (46.3 in.)

9Y1211012GEG0037US0

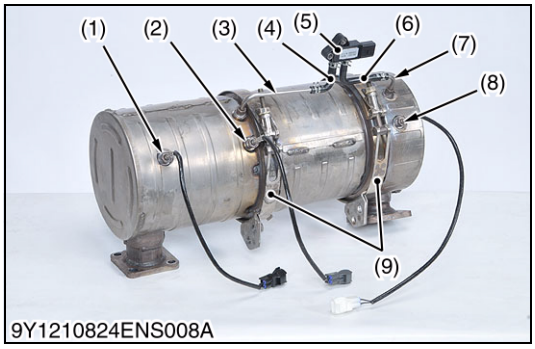
4WD Front Wheel

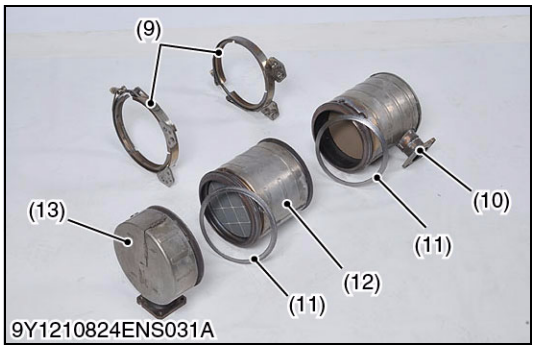
 3TMABAB0P095A	Tire	7.2-16 Farm	25 × 8.5-14 Turf	27 × 8.5-15 Industrial
	Tread	1095 mm (43.1 in.)	1105 mm (43.5 in.)	1115 mm (43.9 in.)

9Y1211012GEG0038US0

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Filter Comp (DPF) (If necessary)

■ **IMPORTANT**

- **Always work in the workshop equipped with a electric hoist (including mobile hoist).**
- **Put a product (engine) on a stable ground, and set the parking brake.**
- **As the DPF muffler full assembly is hot just after the engine shutdown, make sure to start operation after it gets cool.**
- **Make sure not to let any foreign substances enter the opening section during the operation.**
- **Make sure not to damage the DPF muffler full assembly by falling or impact as it contains a ceramic filter.**
- **Before removing the DPF for cleaning or replacing, keep the records of the engine serial number, DPF muffler full assembly part number, DPF muffler full assembly serial number, and engine operating time, which are required in preparing the DPF cleaning order form.**
  Since the engine operating time is recorded in the ECU, check the operating time by connecting the service tool (Diagmaster).
- **When installing and removing the DPF muffler full assembly, make sure that the temperature sensor, differential pressure sensor, and differential pressure pipe do not make contact with surrounding parts.**
- **Be sure to loosen the temperature sensor tightening nut or the differential pressure pipe tightening nut with crowfoot wrench to prevent the damage of the sensor or pipe. If it is still hard to loosen, apply the lubricant spray to threaded portion and soak it with lubricant.**

1. Remove the hoses (4), (6) from the differential pressure pipes (3), (7).
2. Remove the differential pressure sensor (5).
3. Remove the DPF mounting clamp band (9).
4. Separate the Diesel Oxidation Catalyst (DOC) (10), Diesel Particulate Filter (DPF) (12), DPF outlet body (13) respectively.

(1) Temperature Sensor (T_0)
(2) Temperature Sensor (T_1)
(3) Differential Pressure Pipe
(4) Hose
(5) Differential Pressure Sensor
(6) Hose
(7) Differential Pressure Pipe
(8) Temperature Sensor (T_2)
(9) Filter Comp (DPF) Mounting Clamp Band
(10) Diesel Oxidation Catalyst (DOC)
(11) Gasket
(12) Diesel Particulate Filter (DPF)
(13) DPF Outlet Body

(To be continued)

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2 CLUTCH

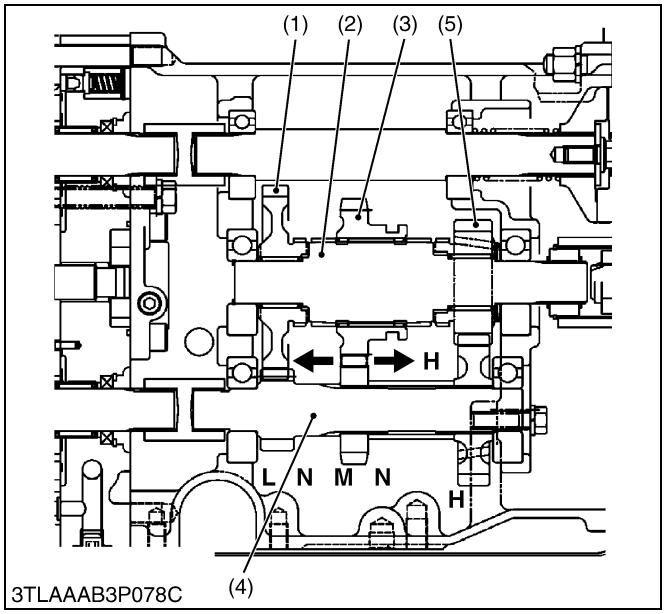
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[2] POWER TRAIN FOR TRAVELING GEARS

(1) Range Gear Shift Section

L3301/L3901



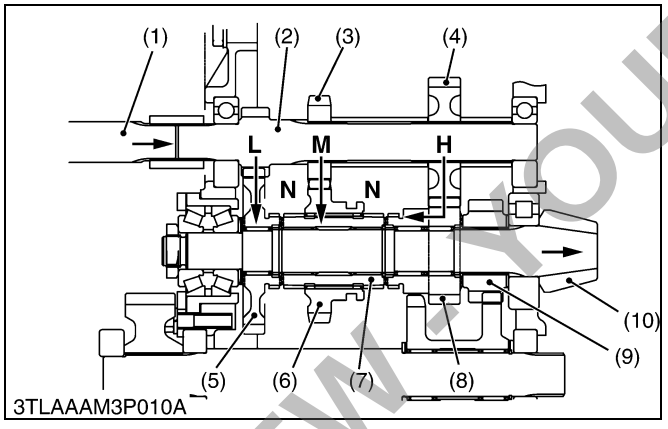
The range gear shift section is located in the mid case.

It changes the speed to five position (**L, N, M, N** and **H**) by shifting of shift gear (3) in the straight line on shaft (2).

(1)	37T Gear	**L:**	**Low Speed Position**
(2)	Shaft	**N:**	**Neutral Position**
(3)	31T Gear	**M:**	**Middle Speed Position**
(4)	13T-13T-28T Gear Shaft	**H:**	**High Speed Position**
(5)	22T Gear		

9Y1211012TRM0029US0

L4701



The Hi-Mid-Lo range gar shift section is located in the differential gear case.

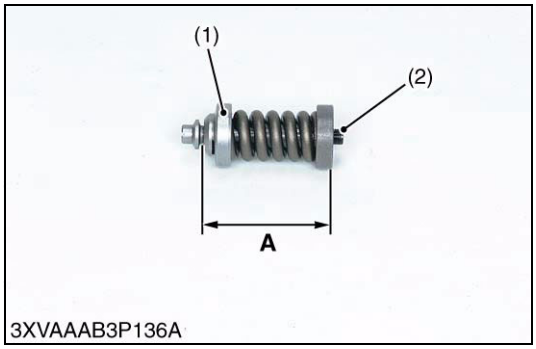
It changes the speed to five positions (**L**, **N**, **M**, **N** and **H**) by shifting of shifter gear (6) in the straight line on 6T spiral bevel pinion shaft (10).

(1)	18T Gear Shaft	(8)	22T Gear (High Speed)
(2)	11T Sub Shaft	(9)	18T Gear (DT)
(3)	19T Sub Gear	(10)	6T Spiral Bevel Pinion Shaft
(4)	28T Sub Gear		
(5)	37T Gear (Low Speed)	**L:**	**Low Speed Position**
(6)	31T Gear (Middle Speed, Shifter Gear)	**N:**	**Neutral Position**
		M:	**Middle Speed Position**
(7)	Spline Boss	**H:**	**High Speed Position**

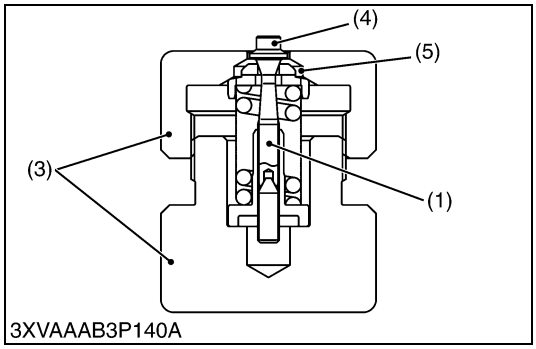
9Y1211012TRM0030US0

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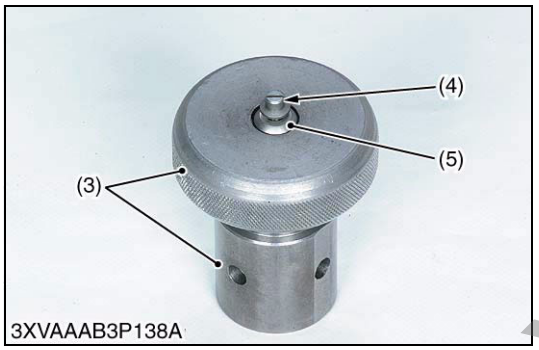
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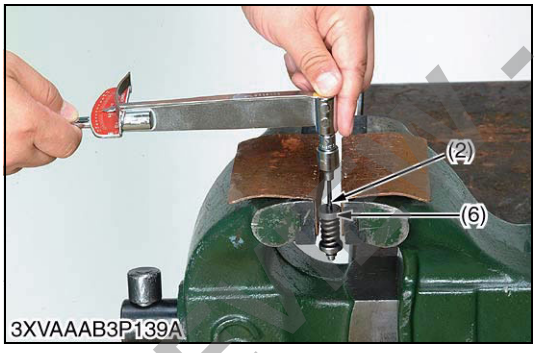
3XVAAAB3P136A



3XVAAAB3P140A



3XVAAAB3P138A



3XVAAAB3P139A

Readjustment of Relief Valve (When the HST does not work due to its loose hexagon socket head screw)

■ **IMPORTANT**
- **The KUBOTA does not recommend the readjustment of relief valve. And KUBOTA will recommend the exhaust with genuine parts.**
- **As the HST may be damaged if the pressure is set to higher by mistake, be careful when adjusting it.**

■ **NOTE**
- **The relief pressure is set in between 33.4 to 36.2 MPa (340 to 370 kgf/cm^2, 4840 to 5260 psi) when shipped from the factory. But, for the purpose of after-sales services, as it is impossible to reset the pressure precisely as set in the factory, its setting range is defined as a slightly wider range between 31.4 to 35.3 MPa (320 to 360 kgf/cm^2, 4560 to 5120 psi).**

1. Measure the pre-adjustment distance **"A"**.
2. Compress the spring of the relief valve with a relief valve assembling tool (3). (See page G-97.)
3. Then, find the distance **"A"** by turning the poppet (4) with a screwdriver.
   Reference: The distance **"A"** changes by about 1.5 mm (0.02 in.) per one turn of the poppet (4).
4. Repeat the same operation a few times to find the distance **"A"** as it is difficult to acquire at the first time.
5. After finding the distance **"A"**, hold the setscrew (6) to a vice and fasten the hexagon socket head screw (2) with specified torque.
   On this occasion, use a copper plate, etc. for the vice jaws not to damage the setscrew (6).
6. Install the relief valve in the HST.
7. Check the relief pressure as indicated in page 3-S14.
   The distance **"A"** is for refresh only. Make sure to check the relief pressure after readjustment.
8. If the relief pressure does not fall within the readjustment pressure range, repeat the processes of the above item 1 onward.
   Reference: The pressure changes by 1.5 MPa (15 kgf/cm^2, 210 psi) per 0.1 mm (0.004 in.) in distance **"A"**.

Tightening torque	Hex. socket head screw	25 to 29 N·m 2.5 to 3.0 kgf·m 18 to 21 lbf·ft

Relief valve readjusting pressure	Factory specification	33.4 to 36.2 MPa 340 to 370 kgf/cm^2 4840 to 5260 psi

Distance **"A"**	Reference value	37.90 to 38.00 mm 1.493 to 1.496 in.

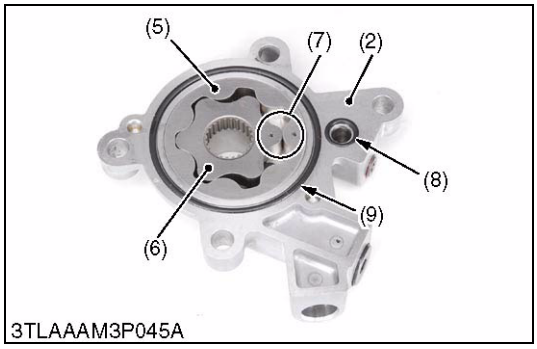
(1) Relief Valve Assembly
(2) Hexagon Socket Head Screw
(3) Relief Valve Assembling Tool
(4) Poppet
(5) Valve Seat
(6) Setscrew

9Y1211012TRS0056US0

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[B] HST Model



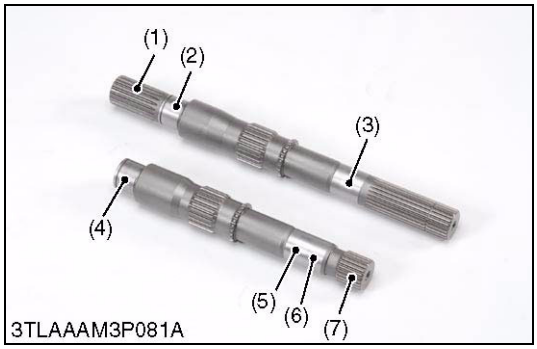
3TLAAAM3P045A

Charge Pump

1. Check the charge pump case (3), the inner rotor (2) and the outer rotor (1) for scratches and wear.
2. If scratch or wear are found, replace the charge pump as an assembly.

(1) Outer Rotor
(2) Inner Rotor
(3) Charge Pump Case
(4) O-ring

9Y1211012TRS0158US0



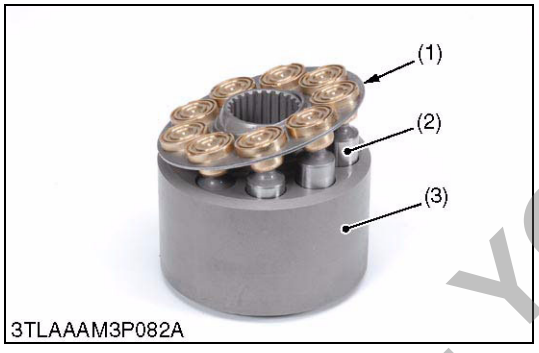
3TLAAAM3P081A

Pump Shaft and Motor Shaft

1. Check the bearing surface (2), (3), (4), (5) and the oil seal surface (6).
2. If the shaft (1), (7) is rough or groove, replace it.

(1) Pump Shaft
(2) Ball Bearing Surface
(3) Needle Bearing Surface
(4) Ball Bearing Surface
(5) Needle Bearing Surface
(6) Oil Seal Surface
(7) Motor Shaft

9Y1211012TRS0159US0



3TLAAAM3P082A

Cylinder Block Bore and Pistons

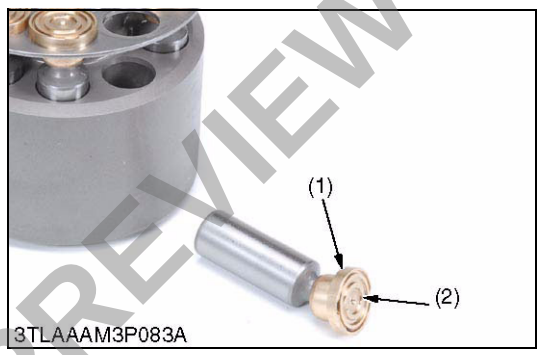
1. Lift the pistons (2) gently with the retainer plate (1).
2. Check the pistons for their free movement in the cylinder block bores.
3. If the piston or the cylinder block bore is scored, replace the cylinder block assembly.

■ **IMPORTANT**

- **Do not interchange the pistons between the pump cylinder block and the motor cylinder block.**

(1) Retainer Plate
(2) Piston
(3) Cylinder Block

9Y1211012TRS0160US0



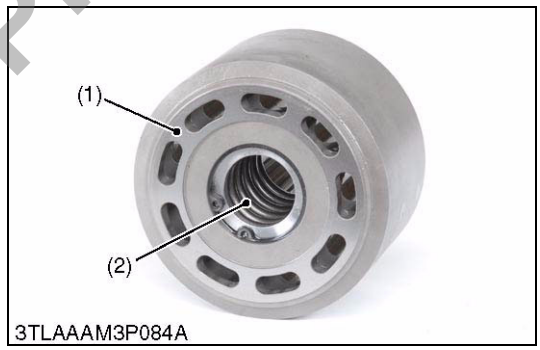
3TLAAAM3P083A

Piston Slipper

1. Check the piston slipper (1) for flatness.
2. If the slipper is rounded, replace the cylinder block assembly.
3. Check the lubricant hole (2) for clogging.

(1) Piston Slipper
(2) Lubricant Hole

9Y1211012TRS0161US0



3TLAAAM3P084A

Cylinder Block Face

1. Check the polished face (1) of cylinder block for scoring.
2. If the polished face (1) is scored, replace the cylinder block assembly.
3. Check the spring (2) for breakage.
4. If the spring (2) is broken, replace the cylinder block assembly.

(1) Polished Face
(2) Spring

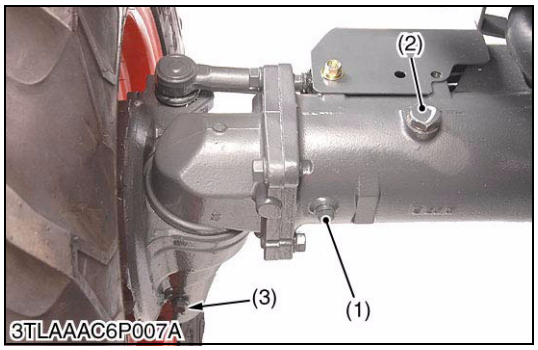
9Y1211012TRS0162US0

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[2] L4701

(1) Separating Front Axle from Front Axle Frame



Draining Front Axle Case Oil [4WD]

1. Place the oil pans underneath the front axle case.
2. Remove the drain plug (3) both sides and filling port plug (2) to drain the oil.
3. After draining, reinstall the drain plugs (3) and filling port plug (2).

(When refilling)

- Remove the filling port plug (2) and right and left check plugs (1).
- Fill with the new oil up to the check plug port.
- After filling, reinstall the filling port plug (2) and the check plug (1).

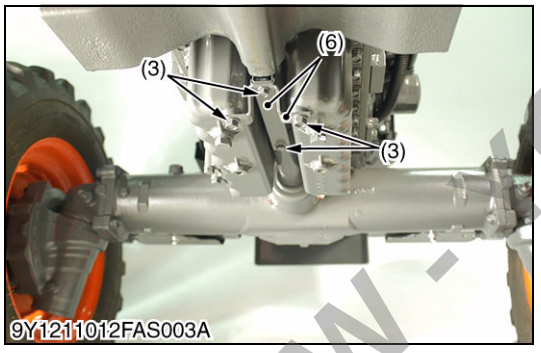
Front axle case oil	Capacity	6.5 L 6.9 U.S.qts 5.7 Imp.qts

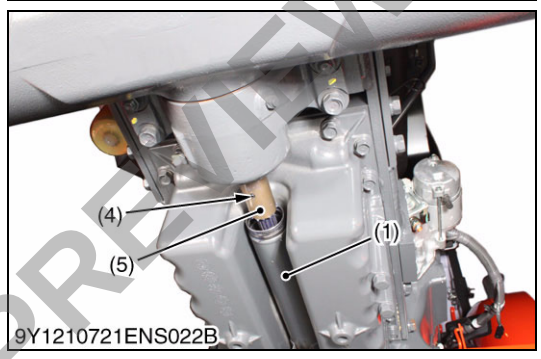
■ **IMPORTANT**

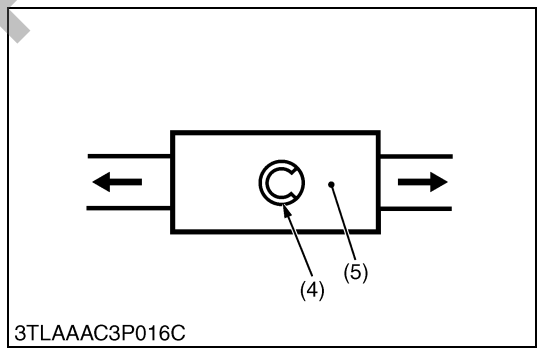
- **Use KUBOTA SUPER UDT-2 fluid or SAE 80, 90 gear oil. Refer to "LUBRICANTS, FUEL AND COOLANT" on page G-11.**

(1) Check Plug
(2) Filling Port Plug
(3) Drain Plug

9Y1211012FAS0021US0







Propeller Shaft (4WD Model Only)

1. Remove bolts (3) and remove holder (6).
2. Slide propeller shaft front cover (2) and propeller shaft rear cover (1).
3. Tap out spring pins (4).
4. Slide coupling (5) and remove propeller shaft together with propeller shaft cover.

(When reassembling)

- Apply grease to splines of propeller shaft.
- Tap in spring pin (4) as shown in figure.

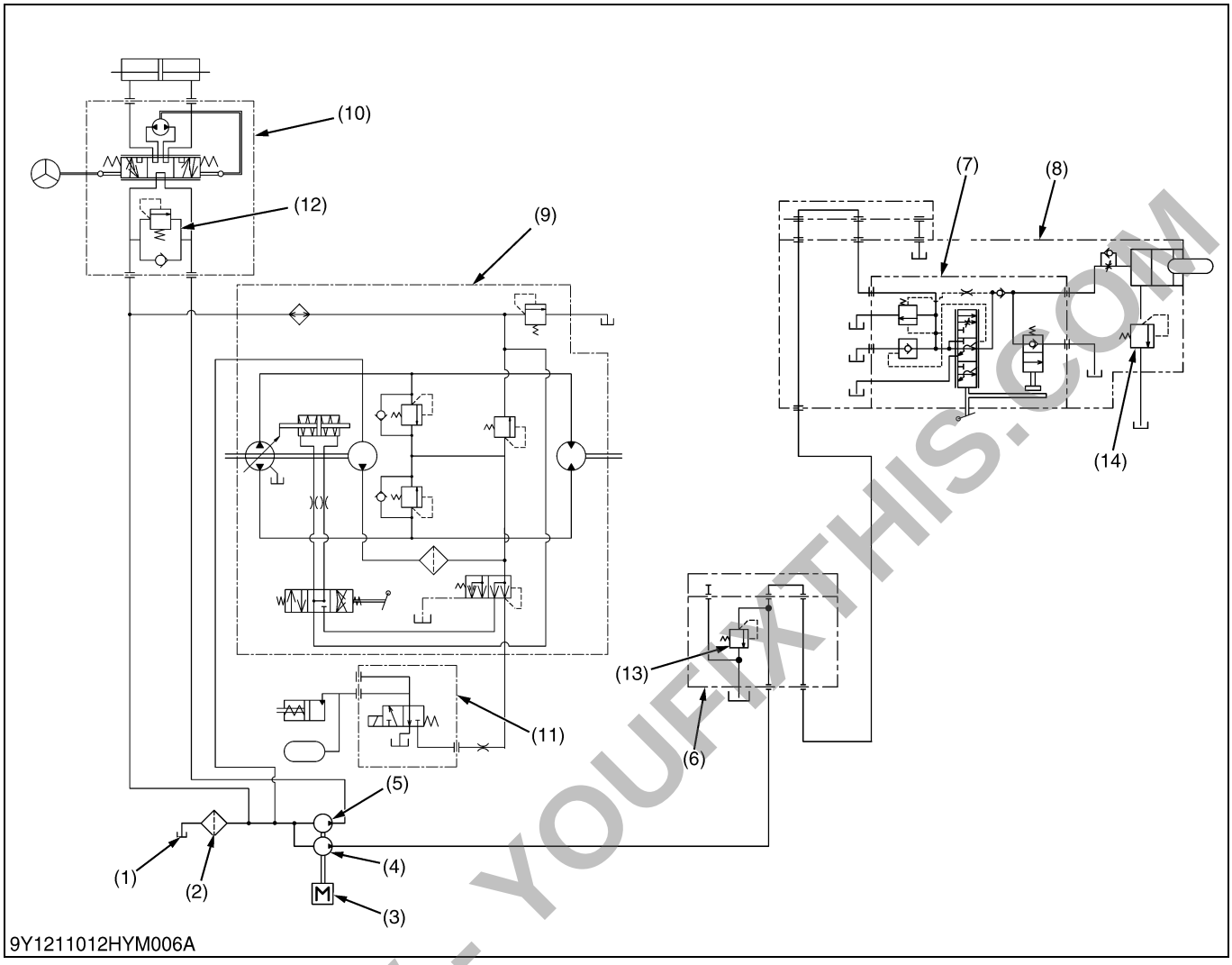
(1) Propeller Shaft Rear Cover
(2) Propeller Shaft Front Cover
(3) Bolt
(4) Spring Pin
(5) Coupling
(6) Holder

9Y1211012FAS0022US0

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(2) HST Model



(1) Oil Tank (Transmission Case)
(2) Hydraulic Oil Filter
(3) Engine
(4) Hydraulic Pump (Three Point hitch)
(5) Hydraulic Pump (Power Steering)
(6) Front Hydraulic Block
(7) Power Steering Controller
(8) Hydraulic Cylinder
(9) HST Unit
(10) Power Steering Controller
(11) PTO Clutch Valve
(12) Relief Valve (Power Steering)
(13) Relief Valve (Three Point Hitch)
(14) Cylinder Safety Valve

Specification of Hydraulic Parts

(4)	Above. 26.2 L/min. (6.92 U.S.gals/min., 5.76 Imp.gals/min.)	(13)	17.1 to 18.1 MPa (174 to 185 kgf/cm^2, 2480 to 2630 psi)
(5)	Above. 15.9 L/min. (4.20 U.S.gals/min., 3.50 Imp.gals/min.)	(14)	19.7 to 22.5 MPa (200 to 230 kgf/cm^2, 2850 to 3270 psi)
(12)	2WD Model: 8.0 to 9.0 MPa (81 to 91 kgf/cm^2, 1200 to 1300 psi) 4WD Model: 10.7 to 11.7 MPa (109 to 119 kgf/cm^2, 1550 to 1690 psi)		

9Y1211012HYM0004US0

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(13)DPF INHIBIT Switch 9-S53
(14)Acceleration Sensor 9-S54
[15]CCV HEATER 9-S55
(1) CCV Relay 9-S55
(2) CCV Heater 9-S55
5. DISASSEMBLING AND ASSEMBLING 9-S56
[1] STARTER 9-S56
[2] ALTERNATOR 9-S57
6. SERVICING 9-S59
[1] STARTER 9-S59
[2] ALTERNATOR 9-S61

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